Appendix G.4
Remedial Investigation Report / Site Investigation Report
(Fulton and Elliott-Chelsea 1)

FULTON 11 AND CHELSEA ELLIOTT

MANHATTAN, NEW YORK

Site Investigation Report

DEP Project Number CEQR# 23CHA001M

Prepared for:

Elliott Fulton LLC

c/o Essence Development

30 Hudson Yards

New York, NY 10001

Prepared by:

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SITE INVESTIGATION REPORT

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LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
CAMP	Community Air Monitoring Plan
COC	Contaminant of Concern
CPP	Citizen Participation Plan
CSM	Conceptual Site Model
DER-10	New York State Department of Environmental Conservation Technical Guide 10
FID	Flame Ionization Detector
GPS	Global Positioning System
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRM	Interim Remedial Measure
NAPL	Non-aqueous Phase Liquid
NYC VCP	New York City Voluntary Cleanup Program
NYC DOHMH	New York City Department of Health and Mental Hygiene
NYC DEP	New York City Department of Environmental Protection
NYS DOH ELAP	New York State Department of Health Environmental Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
PID	Photoionization Detector
QEP	Qualified Environmental Professional
SI	Site Investigation
SIR	Site Investigation Report
SCO	Soil Cleanup Objective
SPEED	Searchable Property Environmental Electronic Database

CERTIFICATION

I, Ryan K. Powell, am a Qualified Environmental Professional, as defined in RCNY § 43-1402(ar). I have primary direct responsibility for implementation of the Site Investigation for the Fulton 11 & Chelsea Elliott, Manhattan, New York, CEQR number 23CHA001M. I am responsible for the content of this Site Investigation Report (SIR), have reviewed its contents and certify that this SIR is accurate to the best of my knowledge and contains all available environmental information and data regarding the property.

Ryan K. Powell	2/15/2024	R. K. Powell
Qualified Environmental Professional	Date	Signature

EXECUTIVE SUMMARY

This Site Investigation Report (SIR) provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy. The site investigation (SI) described in this document is consistent with applicable guidance.

Site Location and Current Usage

The project site consists of two proposed buildings that will be constructed during the first stage of redevelopment:

Fulton 11, a 7-story, 47,656-gross-square-foot (gsf) apartment building (36 dwelling units) with approximately 10-foot deep basement, located at 401-419 W. 19th Street (Block 717, Lot 19), adjacent to the northwest corner of the W. 19th Street and 9th Avenue intersection.

Chelsea Elliot Addition, a 14-story, 65,136-gsf apartment building (96 dwelling units), 436 W. 27th Drive and the adjoining 2-story John Lovejoy Elliott Center (an approximately 42,225-gsf neighborhood center operated by Hudson Guild), with approximately 10-foot deep basements, located at 441 W. 26th Street (Block 724, Lot 10), on W. 27th Drive east of 10th Avenue. The Elliott Center is set back from W. 26th Street and entered via a footpath from W. 26th Street though its northern wall faces W. 27th Drive.

Summary of Proposed Redevelopment Plan

The development project demolition of these buildings and new construction that includes the following components:

In place of Fulton 11 and adjacent areas, a new 11-story (approximately 108.5-foot tall to roof) mixed use apartment building would be developed. It would include approximately 186 dwelling units, 6,591 gsf of retail space, and 15,000 gsf of community facility space, with a total building area of approximately 196,191 gsf. It would have an approximately 10-foot deep basement. Proposed landscaping at the Site will consist of 2 feet of excavation to remove existing soil and replace with two feet of approved clean soil. Refer to the site plan which shows the location of the proposed building footprint relative to the footprint of Fulton 11.

In place of Chelsea Elliott Addition, the adjoining Elliott Center and adjacent areas, a new 38-story (approximately 396.5-foot tall) mixed use apartment building would be developed. It would include approximately 449 dwelling units and 28,229 gsf of community facility space, with a total

building area of approximately 469,578 gsf. It would have an approximately 10-foot deep basement. Proposed landscaping at the Site will consist of 2 feet of excavation to remove existing soil and replace with two feet of approved clean soil. A proposed landscaped areas will be excavated two feet below grade. Refer to the site plan which shows the location of the proposed building footprint relative to the footprint of Chelsea Addition/Elliott Center.

Summary of Past Uses of Site and Areas of Concern

Past Uses and Ownership

Fulton 11

Hillmann Consulting, LLC completed a Phase I Environmental Site Assessment (ESA) dated April 21, 2022 for the Fulton locations. The recognized environmental conditions (RECs) from the ESA are listed in bullet form. The Phase I ESA is included in Attachment A.

Multiple historic uses of potential environmental concern occurred at the Property prior to the 1963-1965 construction of the present Property buildings, per review of Sanborn Fire Insurance Maps, as follows:

- Vinegar Factory at 424-426 West 17th Street (off the east side of the present Property Building 4) in 1895;
- "Chinese Laundry" at 101 and 119 9th Avenue (near present Property Buildings 2 and 7) in 1904;
- 165-car garage with auto-repair operations in the basement and a 1,500-gallon gasoline buried tank (in the vicinity of the present asphalt surface parking south of Building 2) and a 15-car private garage with a buried gasoline tank (capacity indecipherable) at 409 West 17th Avenue (off the west side of the present Property Building 7), and iron works 434-436 West 17th Avenue and 414 19th Avenue in 1921;
- Filling station (gas station), taxi garage and auto repair with multiple gasoline tanks depicted along ninth avenue between West 16th and West 17th Avenue and along West 16th and West 17th Avenue and an additional auto filling/service station with multiple gasoline tanks depicted at the northwest corner of 9th Avenue and West 17th Street (near the southern edge of the present Building 7) and auto painting (431-433 West 17th) and repair (443-445 West 17th), a motor freight terminal (410-412 West 19th) in 1950.

The aforementioned historic uses including a factory, laundry, iron works, motor freight station, auto filling/service stations with multiple gasoline tanks found at Fulton 11 was considered a REC.

Chelsea Elliott

Hillmann Consulting, LLC completed a Phase I Environmental Site Assessment (ESA) dated May 6, 2022 for the Chelsea-Elliot locations. The recognized environmental conditions (RECs) from the ESA are listed in bullet form.

Multiple historic uses of potential environmental concern, based on a review of Sanborn Fire Insurance Maps, occurred at the Property prior to the construction of the present Property buildings in the 1940's-1960's, as follows:

- N.Y. Edison Co. Sub Station/transformer station (452 West 27th Street – 1911-1930);
- Machine Shop (429 West 26th Street 1911);
- Manufacturing (not specified) use (418-420 West 27th Street, 447-455 West 26th Street, 425-427 West 25th Street; 1911-1930);

Both Phase 1 report are presented in Appendix A.

Summary of the Work Performed under the Site Investigation

Fulton Elliott LLC performed the following scope of work at Chelsea Elliott and Fulton 11:

Fulton 11

1. Conducted a Site inspection and geophysical survey at the Fulton 11 site to identify AOC, physical obstructions (i.e. structures, buildings, etc.);
2. Installed nine (9) soil borings across the Fulton 11 Site and collected fifteen (15) soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed four (4) groundwater monitoring wells throughout the Site to establish groundwater flow and collected four (4) groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed six (6) soil vapor probes around Site perimeter and collected six samples for chemical analysis.

Chelsea Elliott

1. Conducted a Site inspection and geophysical survey at the Chelsea Elliott site to identify AOC, physical obstructions (i.e. structures, buildings, etc.);
2. Installed eleven (11) soil borings across the Chelsea Elliott Site and collected eighteen (18) soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed five (5) groundwater monitoring wells throughout the Site to establish groundwater flow and collected five (5) groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed seven (7) soil vapor probes around Site perimeter and collected seven samples for chemical analysis.

Summary of Environmental Findings

Refer to section 5.0 of this site investigation report that shows analytical data for both Fulton 11 and the Chelsea Elliott Sites.

SITE INVESTIGATION REPORT

1.0 SITE BACKGROUND

This Phase II/Site Investigation Report (SIR) has been prepared by HK Engineering & Geology, D.P.C., on behalf of Elliott Fulton LLC for these subject Sites; Fulton 11 and Chelsea Elliott. This SIR documents the investigation activities and summarizes the nature and extent of contamination and provides sufficient information for establishment of remedial action objectives, evaluation of remedial action alternatives, and selection of a remedy that is protective of human health and the environment consistent with the use of the property.

1.1 Site Location and Current Usage

The project site consists of two proposed buildings that will be constructed during the first stage of redevelopment:

Fulton 11, a 7-story, 47,656-gross-square-foot (gsf) apartment building (36 dwelling units) with approximately 10-foot deep basement, located at 401-419 W. 19th Street (Block 717, Lot 19), adjacent to the northwest corner of the W. 19th Street and 9th Avenue intersection.

Chelsea Elliot Addition, a 14-story, 65,136-gsf apartment building (96 dwelling units), 436 W. 27th Drive and the adjoining 2-story John Lovejoy Elliott Center (an approximately 42,225-gsf neighborhood center operated by Hudson Guild), with approximately 10-foot deep basements, located at 441 W. 26th Street (Block 724, Lot 10), on W. 27th Drive east of 10th Avenue. The Elliott Center is set back from W. 26th Street and entered via a footpath from W. 26th Street though its northern wall faces W. 27th Drive.

1.2 Proposed Redevelopment Plan

The development project demolition of these buildings and new construction that includes the following components:

In place of Fulton 11 and adjacent areas, a new 11-story (approximately 108.5-foot tall to roof) mixed use apartment building would be developed. It would include approximately 186 dwelling units, 6,591 gsf of retail space, and 15,000 gsf of community facility space, with a total building area of approximately 196,191 gsf. It would have an approximately 10-foot deep basement. Proposed landscaping at the Site will consist of 2 feet of excavation to remove existing soil and

replace with two feet of approved clean soil. Refer to the site plan which shows the location of the proposed building footprint relative to the footprint of Fulton 11.

In place of Chelsea Elliott Addition, the adjoining Elliott Center and adjacent areas, a new 38-story (approximately 396.5-foot tall) mixed use apartment building would be developed. It would include approximately 449 dwelling units and 28,229 gsf of community facility space, with a total building area of approximately 469,578 gsf. It would have an approximately 10-foot deep basement. Proposed landscaping at the Site will consist of 2 feet of excavation to remove existing soil and replace with two feet of approved clean soil. A proposed landscaped areas will be excavated two feet below grade. Refer to the site plan which shows the location of the proposed building footprint relative to the footprint of Chelsea Addition/Elliott Center.

1.3 Description of Surrounding Property

The areas are urban and both within the Chelsea section of Manhattan, New York. Surrounding adjoining properties include a mix of residential and commercial properties to the North, East, West, and South.

2.0 SITE HISTORY

2.1 Past Uses and Ownership

Fulton 11

Hillmann Consulting, LLC completed a Phase I Environmental Site Assessment (ESA) dated April 21, 2022 for the Fulton locations. The recognized environmental conditions (RECs) from the ESA are listed in bullet form. The Phase I ESA is included in Attachment A.

Multiple historic uses of potential environmental concern occurred at the Property prior to the 1963-1965 construction of the present Property buildings, per review of Sanborn Fire Insurance Maps, as follows:

- Vinegar Factory at 424-426 West 17th Street (off the east side of the present Property Building 4) in 1895;
- "Chinese Laundry" at 101 and 119 9th Avenue (near present Property Buildings 2 and 7) in 1904;
- 165-car garage with auto-repair operations in the basement and a 1,500-gallon gasoline buried tank (in the vicinity of the present asphalt surface parking south of Building 2) and a 15-car private garage with a buried gasoline tank (capacity indecipherable) at 409 West 17th Avenue (off the west side of the present Property Building 7), and iron works 434-436 West 17th Avenue and 414 19th Avenue in 1921;
- Filling station (gas station), taxi garage and auto repair with multiple gasoline tanks depicted along ninth avenue between West 16th and West 17th Avenue and along West 16th and West 17th Avenue and an additional auto filling/service station with multiple gasoline tanks depicted at the northwest corner of 9th Avenue and West 17th Street (near the southern edge of the present Building 7) and auto painting (431-433 West 17th) and repair (443-445 West 17th), a motor freight terminal (410-412 West 19th) in 1950.

The aforementioned historic uses including a factory, laundry, iron works, motor freight station, auto filling/service stations with multiple gasoline tanks found at Fulton 11 was considered a REC.

Chelsea Elliott

Hillmann Consulting, LLC completed a Phase I Environmental Site Assessment (ESA) dated May 6, 2022 for the Chelsea-Elliot locations. The recognized environmental conditions (RECs) from the ESA are listed in bullet form.

Multiple historic uses of potential environmental concern, based on a review of Sanborn Fire Insurance Maps, occurred at the Property prior to the construction of the present Property buildings in the 1940's-1960's, as follows:

- N.Y. Edison Co. Sub Station/transformer station (452 West 27th Street – 1911-1930);
- Machine Shop (429 West 26th Street 1911);
- Manufacturing (not specified) use (418-420 West 27th Street, 447-455 West 26th Street, 425-427 West 25th Street; 1911-1930);

Both Phase 1 report are presented in Appendix A.

3.0 PROJECT MANAGEMENT

3.1 Project Organization

The Qualified Environmental Professions (QEP) responsible for preparation of this SIR are Ryan K. Powell, P.G. and Chris Hirschmann, CHMM.

3.2 Health and Safety

All work described in this SIR was performed in full compliance with applicable laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements.

3.3 Materials Management

All material encountered during the SI was managed in accordance with applicable laws and regulations.

4.0 SITE INVESTIGATION ACTIVITIES

Prior to the start of onsite work activities, a Phase II Workplan, dated October 2023 was submitted to the New York City Department of Environmental Protection (NYCDEP) detailing the planned sampling activities. The Workplan was subsequently approved by NYCDEP in an October 25, 2023 email. In accordance with the approved Phase II Workplan, on behalf of Fulton Elliott LLC, HK Engineering & Geology, D.P.C. performed the following scope of work within the boundary of the Site in November 2023:

Fulton Elliott LLC performed the following scope of work at Chelsea Elliott and Fulton 11:

Fulton 11

5. Conducted a Site inspection and geophysical survey at the Fulton 11 site to identify AOC, physical obstructions (i.e. structures, buildings, etc.);
6. Installed nine (9) soil borings across the Fulton 11 Site and collected fifteen (15) soil samples for chemical analysis from the soil borings to evaluate soil quality;
7. Installed four (4) groundwater monitoring wells throughout the Site to establish groundwater flow and collected four (4) groundwater samples for chemical analysis to evaluate groundwater quality;
8. Installed six (6) soil vapor probes around Site perimeter and collected six samples for chemical analysis.

Chelsea Elliott

5. Conducted a Site inspection and geophysical survey at the Chelsea Elliott site to identify AOC, physical obstructions (i.e. structures, buildings, etc.);
6. Installed eleven (11) soil borings across the Chelsea Elliott Site and collected eighteen (18) soil samples for chemical analysis from the soil borings to evaluate soil quality;
7. Installed five (5) groundwater monitoring wells throughout the Site to establish groundwater flow and collected five (5) groundwater samples for chemical analysis to evaluate groundwater quality;
8. Installed seven (7) soil vapor probes around Site perimeter and collected seven samples for chemical analysis.

4.1 Geophysical Investigation

A geophysical survey was completed at each Site on November 14, 2023 prior to any invasive drilling below ground surface. The geophysical survey included the use of ground penetrating radar (GPR), magnetometer and line tracing equipment to identify buried utilities, metallic objects or other anomalies below grade for safe drilling. The geophysical report for each Site is included in Appendix B.

4.2 Borings and Monitoring Wells

Drilling and Soil Logging

A direct push drill was used during the investigation with HK oversight on November 15 through 17 and 20, 2023 at both the Fulton 11 and Chelsea Elliott Sites.

Fulton 11

Boring depths were determined based on proposed excavation depths of the of 10 feet below ground surface for the building footprint areas and 0-2 feet in the proposed landscaped areas.

Using a Geoprobe®, soil samples on the exterior portions of the existing building were captured in 2-inch diameter dedicated macro-PVC liners for every 5 feet installed below ground surface (bgs). Soil borings were continuously logged and screened from the surface to terminal boring depth by visual and olfactory means and using a calibrated PID. The results of soil screening are recorded in boring logs in Appendix C. Zero PID readings were recording in all soil boring intervals.

Two soil grab samples were collected from each boring in areas of the proposed building footprint. The first sample was collected from the surface 0-2 feet bgs interval. Deeper interval samples were collected two feet beyond the proposed building footprint at the 10-12 foot bgs interval. For proposed landscaped areas one grab soil sample was collected from the surface 0-2 foot bgs interval.

The existing conjoined buildings each contain a confined entry partial dirt floor crawlspace at 401 and 419 W. 19th Street. The height of each crawl space was measured at 6 feet below grade inside each building. One soil sample was collected from the 6.0-6.5 foot bgs interval above each crawl space entry using an extended steel hand auger. Due to the identified crawlspace, one soil sample

was omitted from sample collection inside the building. Soil sample locations are shown in Figure 2A. Soil sample result data is reported in Table 1A.

Groundwater was encountered in four boring locations across the Site. Four (4) temporary monitoring wells were installed with the Geoprobe® via direct push to the depth of groundwater. The construction of the temporary monitoring well points included a 1-inch diameter 0.010-inch schedule 40 PVC slotted screen installed and PVC riser pipe installed from ground surface to 40 feet bgs. Depth of groundwater was measured using an oil/water interface probe and ranged from 13.50 through 15 feet bgs. Following sample collection, temporary well points were removed. Groundwater sample locations are shown in Figure 2A. Groundwater sample result data is reported in Table 2A.

Six (6) soil vapor probes were installed and six samples were collected for chemical analysis. Soil vapor samples were collected two feet beyond the ten foot bgs proposed excavation depth at 12 feet bgs on exterior areas of the existing building. One additional sub-slab soil vapor sample was collected inside the existing trash compactor room at 401 West. 19th Street. To remove dead air in the tubing and verify water would not intrude air samples, each sample point was purged three times the volume based on the length of the sample tube.

Soil vapor was not captured inside the crawl space due to the floor being observed as a dirt floor in addition to being a confined space for entry. Soil vapor sample locations are shown in Figure 2A. Soil vapor sample result data is reported in Table 3A and shown on Figure 2A. Methodologies used for soil vapor assessment conform to the *NYS DOH Final Guidance on Soil Vapor Intrusion, October 2006.*

Chelsea Elliott

Boring depths were determined based on proposed excavation depths of the of 10 feet below ground surface for the building footprint areas and 0-2 feet in the proposed landscaped areas.

Using a Geoprobe®, soil samples on the exterior portions of the existing building were captured in 2-inch diameter dedicated macro-PVC liners for every 5 feet installed below ground surface (bgs). Soil borings were continuously logged and screened from the surface to terminal boring depth by visual and olfactory means and using a calibrated PID. The results of soil screening are recorded in boring logs in Appendix C. Zero PID readings were recording in all soil boring intervals.

Two soil grab samples were collected from each boring in areas of the building footprint. The first sample was collected from the surface 0-2 feet bgs interval. Deeper interval samples were collected two feet beyond the proposed building footprint from the 10-12 foot bgs interval. For proposed landscaped areas one grab soil sample was collected from the surface 0-2 foot bgs interval. Soil samples were also collected beneath the concrete slab inside the basements of the Hudson Guild Center and inside the 436 W. 27th Drive residential building. Soil sample locations are shown in Figure 2B. Soil sample result data is reported in Table 1B.

Five (5) temporary monitoring wells were installed with the Geoprobe® via direct push to the depth of groundwater at boring locations. The construction of the temporary monitoring well points included a 1-inch diameter 0.010-inch schedule 40 PVC slotted screen installed and PVC riser pipe installed from ground surface to 40 feet bgs. Depth of groundwater was measured using an oil/water interface probe and ranged from 11.50 through 14 feet bgs. Following sample collection, temporary well points were removed. Groundwater sample locations are shown in Figure 2B. Groundwater sample result data is reported in Table 2B.

Seven (7) soil vapor probes were installed and seven (7) samples were collected for chemical analysis. Soil vapor samples were collected at twelve feet, two feet beyond the ten foot bgs proposed excavation depth on exterior areas of the existing building. Interior soil vapor samples were collected beneath the sub-slab within the existing building. To remove dead air in the tubing and verify water would not intrude air samples, each sample point was purged three times the volume based on the length of the sample tube.

One proposed sample location that included playground areas across the site were omitted due to inaccessibility with the equipment. Soil vapor sample locations are shown in Figure 2B. Soil vapor sample result data is reported in Table 3B and shown on Figure 2B. Methodologies used for soil vapor assessment conform to the *NYS DOH Final Guidance on Soil Vapor Intrusion, October 2006.*

4.3 Chemical Analysis

Chemical Analysis

Chemical analytical work presented in this SIR has been performed in the following manner:

Factor	Description
Quality Assurance Officer	The chemical analytical quality assurance is directed by Kim James at Integrated Analytical Laboratory and Kelly Ramos at SGS Dayton.
Chemical Analytical Laboratory	Chemical analytical laboratory(s) used in the RI is NYS ELAP certified and were Integrated Analytical Laboratory of Randolph, New Jersey and SGS of Dayton, New Jersey.
Chemical Analytical Methods	Soil analytical methods: • TAL Metals by EPA Method 6010C (rev. 2007); • VOCs by EPA Method 8260C (rev. 2006); • SVOCs by EPA Method 8270D (rev. 2007); • Pesticides by EPA Method 8081B (rev. 2000); • PCBs by EPA Method 8082A (rev. 2000); Groundwater analytical methods: • TAL and dissolved Metals by EPA Method 6010C (rev. 2007); • VOCs by EPA Method 8260C (rev. 2006); • SVOCs by EPA Method 8270D (rev. 2007); • Pesticides by EPA Method 8081B (rev. 2000); • PCBs by EPA Method 8082A (rev. 2000); Soil vapor analytical methods: • VOCs by TO-15 VOC parameters.

5.0 ENVIRONMENTAL EVALUATION

5.1 Results of Chemical Analysis

5.2 Soil Chemistry

Soil/fill samples collected during the SI were compared to the New York State Department of Environmental Conservation (NYSDEC) 6NYCRR Part 375 Section 6.8 Unrestricted Use (UU) and Restricted Residential Use (RRU) Soil Cleanup Objectives (SCOs). Appendix D contains the analytical laboratory data deliverables for each Site.

Fulton 11 – Soil Chemistry

- No VOCs compounds were detected above the Unrestricted Use SCOs and Restricted Residential Use SCOs.
- Three metals were detected above the Restricted Residential Use SCOs including barium (max of 517 mg/kg), lead (max. of 1,070 mg/kg), and mercury (max of 1.2 mg/kg). One additional metal, zinc (max. of 616 mg/kg) was the only metal above the Unrestricted Use SCO but below the Restricted Residential Use SCOs. Remaining metals were either not detected or detected below the applicable SCO.
- Four pesticides including 4'4-DDD (max. of 0.099 mg/kg), 4,4'-DDE (max. of 1.34 mg/kg), 4,4'-DDT (max. of 1.58 mg/kg), and Dieldrin (max. of 0.012) were detected mainly in shallow samples above Unrestricted Use SCOs. No pesticides were detected above Restricted Residential Use SCOs.
- SVOCs known as Polycyclic aromatic hydrocarbons (PAHs) were detected above both the Unrestricted Use SCOs and Restricted Residential Use SCOs. PAHs that were identified above both SCOs include Benzo[a]anthracene (max 10.6 mg/kg), Benzo[a]pyrene (max 9.82 mg/kg), Benzo[b]fluoranthene (max 9.82 mg/kg), Benzo[k]fluoranthene (max 9.27 mg/kg), Chrysene (max 9.92 mg/kg), Dibenz[a,h]anthracene (max 2.34 mg/kg) and Indeno[1,2,3-cd]pyrene (max 4.97 mg/kg) were detected in exceedance in both shallow and deep intervals. Remaining SVOC compounds analyzed were either not detected or detected below the applicable SCO.
- One PCB Aroclor 1254 (max. of 1.95 mg/kg) was detected in exceedance of the Restricted Residential Use SCOs found in the crawl space sample (SB6-419 CS) located at 419 W. 19th Street. Remaining PCB compounds were not detected in any other soil sample.

Chelsea Elliott – Soil Chemistry

- No VOC or PCB compounds were detected above the Unrestricted Use SCOs and Restricted Residential Use SCOs.
- Six metals were detected above its Restricted Residential Use SCOs including barium (max of 2,180 mg/kg), cadmium (max of 12.80 mg/kg) copper (max. of 503 mg/kg), lead (max. of 2,680 mg/kg), manganese (max of 2,890 mg/kg) and mercury (max of 1.10 mg/kg). One additional metal, zinc (max. of 2,550 mg/kg) was the only metal above the Unrestricted Use SCO but below the Restricted Residential Use SCOs. Remaining metals were either not detected or detected below the applicable SCO.
- Three pesticides including 4'4-DDD (max. of 0.011 mg/kg), 4,4'-DDE (max. of 0.095 mg/kg), 4,4'-DDT (max. of 0.096 mg/kg) were detected above the Unrestricted Use SCOs. No pesticides were detected above Restricted Residential Use SCOs.
- Identical PAHs were detected above both Unrestricted Use SCOs and Restricted Residential SCOs. PAHs that were identified above both SCOs include Benzo[a]anthracene (max 15.3 mg/kg), Benzo[a]pyrene (max 13.3 mg/kg), Benzo[b]fluoranthene (max 13.6 mg/kg), Benzo[k]fluoranthene (max 10.4 mg/kg), Chrysene (max 14.0 mg/kg), Dibenz[a,h]anthracene (max 3.51 mg/kg) and Indeno[1,2,3-cd]pyrene (max 7.05 mg/kg) were detected in exceedance in both shallow and deep intervals. Remaining SVOC compounds analyzed were either not detected or detected below the applicable SCO.

A summary table of data for chemical analyses performed on soil samples at Fulton 11 is included in Table 1A and at Chelsea Elliott is included in Table 1B. Figure 3A for the Fulton 11 Site and Figure 3B for Chelsea Elliott Site shows the location and posts the values for soil/fill that exceed the 6NYCRR Part 375-6.8 Soil Cleanup Objectives.

5.3 Groundwater Chemistry

The groundwater samples collected during the SI were compared to the New York State 6NYCRR Part 703.5 Class GA Groundwater Ambient Quality Standards (AWQS).

Fulton 11 – Groundwater Chemistry

- No pesticides or PCB compounds were identified above their AWQS.

- One VOC, tetrachloroethene was detected above the AWQS in two groundwater samples with a maximum concentration identified at 4.82 µg/L. Remaining analyzed compounds were either not detected or detected below the AWQS.
- Four undissolved metals were identified in exceedance above its AWQS that include beryllium (max of 3.3 µg/L), chromium (max of 66.7 µg/L), copper (max of 105 µg/L), lead (max of 299 µg/L), and sodium (max of 138,000 µg/L).
- Following field filtering, two dissolved metals, sodium and lead were still detected in exceedance above its AWQS. Remaining metals were either not detected or detected below its applicable AWQS.
- Four PAHs were detected above its applicable AWQS which include Benzo[a]anthracene (max. 10.8 µg/L), Benzo[b]fluoranthene (max. 7.43 µg/L), Benzo[k]fluoranthene (max 3.28 µg/L), Chrysene (max. 9.27 µg/L), and Indeno[1,2,3-cd]pyrene (max 3.57 µg/L). Remaining SVOC compounds analyzed were either not detected or detected below its applicable AWQS.

Chelsea Elliott – Groundwater Chemistry

- No pesticides or PCB compounds were identified above their AWQS.
- One VOC, chloroform was detected above the AWQS (max of 14.0 µg/L. Remaining analyzed compounds were either not detected or detected below the AWQS.
- Three undissolved metals were identified in exceedance above its AWQS that include lead (max. of 122 µg/L), selenium (max. of 10.5 µg/L) , and sodium (max. of 274,000 µg/L).
- Following field filtering, two dissolved metals, sodium and selenium were still detected in exceedance above its AWQS. Remaining metals, including lead, were either not detected or detected below its applicable AWQS.
- Four PAHs were detected above its applicable AWQS which include Benzo[a]anthracene (max. 10.8 µg/L), Benzo[b]fluoranthene (max. 7.43 µg/L), Benzo[k]fluoranthene (max 3.28 µg/L), Chrysene (max. 9.27 µg/L), and Indeno[1,2,3-cd]pyrene (max 3.57 µg/L). Remaining SVOC compounds analyzed were either not detected or detected below its applicable AWQS.

A summary table of data for chemical analyses performed on groundwater samples is included in Table 2A for the Fulton 11 Site and Table 2B for the Chelsea Elliott Site. Figure 4A for the Fulton 11 Site and Figure 4B for Chelsea Elliott Site shows the location and posts the values for

groundwater that exceed the New York State 6NYCRR Part 703.5 Class GA groundwater standards.

5.4 Soil Vapor Chemistry

Soil vapor samples collected during both investigations were compared to the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion matrices dated October 2006 (with subsequent updates).

Fulton 11 – Soil Vapor Chemistry

- Chlorinated VOCs (CVOCs) detections included tetrachloroethene found at a maximum concentration of 100 µg/m^3 identified at the exterior portion of the Site. Other CVOCs including trichloroethene, methylene chloride, cis-1,2-dichloroethene, 1,1-dichloroethene, carbon tetrachloride, 1,1,1-trichloroethane, and vinyl chloride were either detected at low concentrations or not detected in the soil vapor sample.

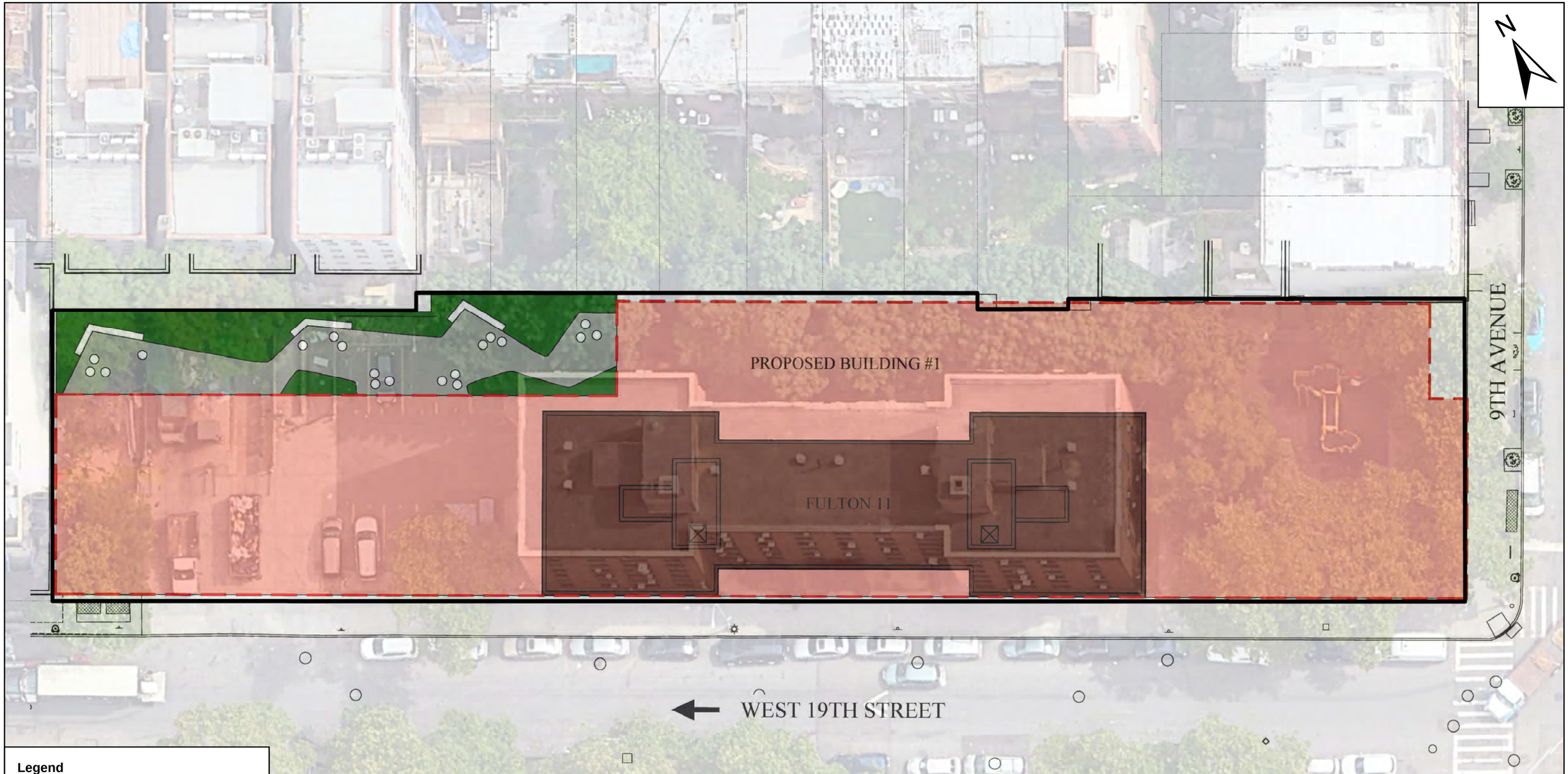
Chelsea Elliott – Soil Vapor Chemistry

- Chlorinated VOCs (CVOCs) detections included tetrachloroethene found at a maximum concentration of 73 µg/m^3 found inside the basement of the Hudson Guild Center. Other CVOCs including trichloroethene, methylene chloride, cis-1,2-dichloroethene, 1,1-dichloroethene, carbon tetrachloride, 1,1,1-trichloroethane, and vinyl chloride were either detected at low concentrations or not detected in the soil vapor sample.

A summary table of data for chemical analyses performed on soil vapor samples for the Fulton 11 Site is included in Table 3A and the Chelsea Elliott Site is included in Table 3B. Figure 5A shows the location and posts the values for soil vapor samples with detected concentrations at the Fulton 11 Site. Figure 5B shows the location and posts the values for soil vapor samples with detected concentrations at the Chelsea Elliott Site.

FIGURES

Fulton 11



Legend

- Property Boundary
- Existing Building
- Proposed Building to be Built in 1st Stage
- Proposed Landscaping
- NYC Tax Parcel

0 12.5 25 50 Feet

Notes:
All locations are approximate.
City parcel coverage provided by NY State GIS Clearinghouse and New York City Department of Finance, last updated 11/13/2022; aerial imagery basemap obtained from Google Earth Pro, dated 6/19/2022.
Figure created by JLD Mapping Services LLC.

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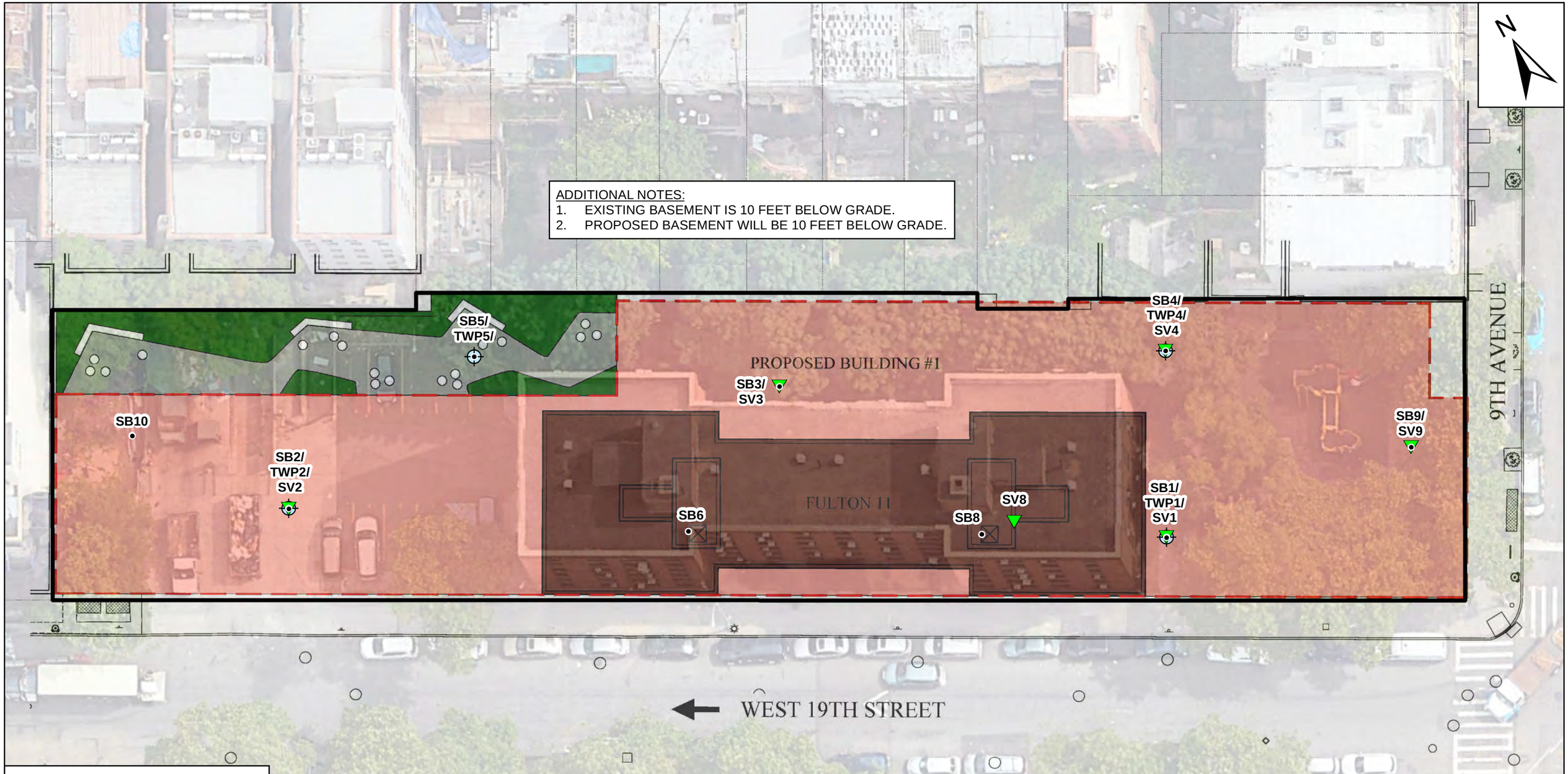
10/10/2023

Figure 1A - Site Diagram

Fulton Elliot-Chelsea Houses: Fulton 11
401-419 West 19th Street
New York (Manhattan), NY

SIZE		DWG NO.	REV
11x17		Figure 1	2

SCALE: 1 in = 25 ft	PROJECT No.: HK-2661.2	SHEET 1 OF 1



Legend

- Soil Sample
- Groundwater Sample
- Soil Vapor Sample
- Property Boundary
- Existing Building
- Proposed Building to be Built in 1st Stage
- Proposed Landscaping
- NYC Tax Parcel

0 12.5 25 50 Feet

Notes:
All locations are approximate; field activities conducted on 11/16/2023 & 11/17/2023.
City parcel coverage provided by NY State GIS Clearinghouse and New York City Department of Finance, last updated 11/13/2022; aerial imagery basemap obtained from Google Earth Pro, dated 6/19/2022.
Figure created by JLD Mapping Services LLC.

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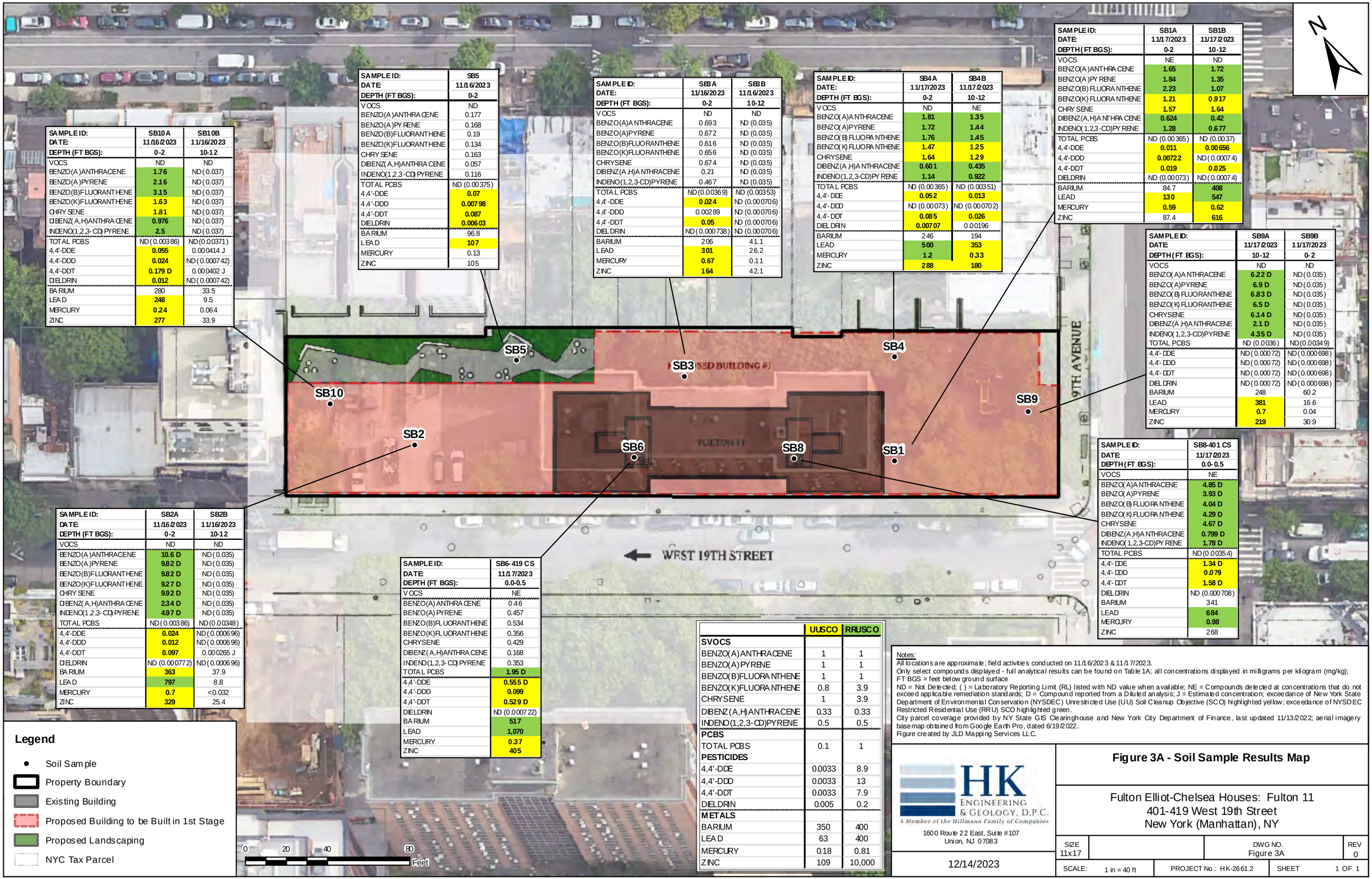
Figure 2A - Sample Location Map

Fulton Elliot-Chelsea Houses: Fulton 11
401-419 West 19th Street
New York (Manhattan), NY

SIZE		DWG NO.	REV
11x17		Figure 1	1
SCALE: 1 in = 25 ft	PROJECT No.: HK-2661.2	SHEET	1 OF 1



SAMPLE ID:	SB10A	SB10B
DATE:	11/16/2023	11/16/2023
DEPTH (FT BGS):	0-2	10-12
VOCS	ND	ND
BENZO(A)ANTHRACENE	1.76	ND (0.037)
BENZO(A)PYRENE	2.16	ND (0.037)
BENZO(B)FLUORANTHENE	3.15	ND (0.037)
BENZO(K)FLUORANTHENE	1.63	ND (0.037)
CHRYSENE	1.81	ND (0.037)
DIBENZ(A,H)ANTHRACENE	0.976	ND (0.037)
INDENO(1,2,3-CD)PYRENE	2.5	ND (0.037)
TOTAL PCBS	ND (0.00386)	ND (0.00371)
4,4'-DDE	0.055	0.000414 J
4,4'-DDD	0.024	ND (0.000742)
4,4'-DDT	0.179 D	0.000402 J
DIELDRIN	0.012	ND (0.000742)
BARIUM	280	33.5
LEAD	248	9.5
MERCURY	0.24	0.064
ZINC	277	33.9

SAMPLE ID:	SB5
DATE:	11/16/2023
DEPTH (FT BGS):	0-2
VOCS	ND
BENZO(A)ANTHRACENE	0.177
BENZO(A)PYRENE	0.168
BENZO(B)FLUORANTHENE	0.19
BENZO(K)FLUORANTHENE	0.134
CHRYSENE	0.163
DIBENZ(A,H)ANTHRACENE	0.057
INDENO(1,2,3-CD)PYRENE	0.116
TOTAL PCBS	ND (0.00375)
4,4'-DDE	0.07
4,4'-DDD	0.00798
4,4'-DDT	0.087
DIELDRIN	0.00603
BARIUM	96.8
LEAD	107
MERCURY	0.13
ZINC	105

SAMPLE ID:	SB3A	SB3B
DATE:	11/16/2023	11/16/2023
DEPTH (FT BGS):	0-2	10-12
VOCS	ND	ND
BENZO(A)ANTHRACENE	0.693	ND (0.035)
BENZO(A)PYRENE	0.672	ND (0.035)
BENZO(B)FLUORANTHENE	0.616	ND (0.035)
BENZO(K)FLUORANTHENE	0.656	ND (0.035)
CHRYSENE	0.674	ND (0.035)
DIBENZ(A,H)ANTHRACENE	0.21	ND (0.035)
INDENO(1,2,3-CD)PYRENE	0.467	ND (0.035)
TOTAL PCBS	ND (0.00369)	ND (0.00353)
4,4'-DDE	0.024	ND (0.000706)
4,4'-DDD	0.00289	ND (0.000706)
4,4'-DDT	0.05	ND (0.000706)
DIELDRIN	ND (0.000738)	ND (0.000706)
BARIUM	206	41.1
LEAD	301	26.2
MERCURY	0.67	0.11
ZINC	164	42.1

SAMPLE ID:	SB4A	SB4B
DATE:	11/17/2023	11/17/2023
DEPTH (FT BGS):	0-2	10-12
VOCS	ND	NE
BENZO(A)ANTHRACENE	1.81	1.35
BENZO(A)PYRENE	1.72	1.44
BENZO(B)FLUORANTHENE	1.76	1.45
BENZO(K)FLUORANTHENE	1.47	1.25
CHRYSENE	1.64	1.29
DIBENZ(A,H)ANTHRACENE	0.601	0.435
INDENO(1,2,3-CD)PYRENE	1.14	0.922
TOTAL PCBS	ND (0.00365)	ND (0.00351)
4,4'-DDE	0.052	0.013
4,4'-DDD	ND (0.00073)	ND (0.000702)
4,4'-DDT	0.085	0.026
DIELDRIN	0.00707	0.00196
BARIUM	246	194
LEAD	500	353
MERCURY	1.2	0.33
ZINC	288	180

SAMPLE ID:	SB1A	SB1B
DATE:	11/17/2023	11/17/2023
DEPTH (FT BGS):	0-2	10-12
VOCS	NE	ND
BENZO(A)ANTHRACENE	1.65	1.72
BENZO(A)PYRENE	1.84	1.35
BENZO(B)FLUORANTHENE	2.23	1.07
BENZO(K)FLUORANTHENE	1.21	0.917
CHRYSENE	1.57	1.64
DIBENZ(A,H)ANTHRACENE	0.624	0.42
INDENO(1,2,3-CD)PYRENE	1.28	0.677
TOTAL PCBS	ND (0.00365)	ND (0.0037)
4,4'-DDE	0.011	0.00656
4,4'-DDD	0.00722	ND (0.00074)
4,4'-DDT	0.019	0.025
DIELDRIN	ND (0.00073)	ND (0.00074)
BARIUM	84.7	408
LEAD	130	547
MERCURY	0.59	0.62
ZINC	87.4	616

SAMPLE ID:	SB9A	SB9B
DATE:	11/17/2023	11/17/2023
DEPTH (FT BGS):	10-12	0-2
VOCS	ND	ND
BENZO(A)ANTHRACENE	6.22 D	ND (0.035)
BENZO(A)PYRENE	6.9 D	ND (0.035)
BENZO(B)FLUORANTHENE	6.83 D	ND (0.035)
BENZO(K)FLUORANTHENE	6.5 D	ND (0.035)
CHRYSENE	6.14 D	ND (0.035)
DIBENZ(A,H)ANTHRACENE	2.1 D	ND (0.035)
INDENO(1,2,3-CD)PYRENE	4.35 D	ND (0.035)
TOTAL PCBS	ND (0.0036)	ND (0.00349)
4,4'-DDE	ND (0.00072)	ND (0.000698)
4,4'-DDD	ND (0.00072)	ND (0.000698)
4,4'-DDT	ND (0.00072)	ND (0.000698)
DIELDRIN	ND (0.00072)	ND (0.000698)
BARIUM	248	60.2
LEAD	381	16.6
MERCURY	0.7	0.04
ZINC	219	30.9

SAMPLE ID:	SB8-401 CS
DATE:	11/17/2023
DEPTH (FT BGS):	0.0-0.5
VOCS	NE
BENZO(A)ANTHRACENE	4.85 D
BENZO(A)PYRENE	3.93 D
BENZO(B)FLUORANTHENE	4.04 D
BENZO(K)FLUORANTHENE	4.29 D
CHRYSENE	4.67 D
DIBENZ(A,H)ANTHRACENE	0.799 D
INDENO(1,2,3-CD)PYRENE	1.78 D
TOTAL PCBS	ND (0.00354)
4,4'-DDE	1.34 D
4,4'-DDD	0.079
4,4'-DDT	1.58 D
DIELDRIN	ND (0.000708)
BARIUM	341
LEAD	684
MERCURY	0.98
ZINC	268

SAMPLE ID:	SB2A	SB2B
DATE:	11/16/2023	11/16/2023
DEPTH (FT BGS):	0-2	10-12
VOCS	ND	ND
BENZO(A)ANTHRACENE	10.6 D	ND (0.035)
BENZO(A)PYRENE	9.82 D	ND (0.035)
BENZO(B)FLUORANTHENE	9.82 D	ND (0.035)
BENZO(K)FLUORANTHENE	9.27 D	ND (0.035)
CHRYSENE	9.92 D	ND (0.035)
DIBENZ(A,H)ANTHRACENE	2.34 D	ND (0.035)
INDENO(1,2,3-CD)PYRENE	4.97 D	ND (0.035)
TOTAL PCBS	ND (0.00386)	ND (0.00348)
4,4'-DDE	0.024	ND (0.000696)
4,4'-DDD	0.012	ND (0.000696)
4,4'-DDT	0.097	0.000265 J
DIELDRIN	ND (0.000772)	ND (0.000696)
BARIUM	363	37.9
LEAD	797	8.8
MERCURY	0.7	<0.032
ZINC	329	25.4

SAMPLE ID:	SB6-419 CS
DATE:	11/17/2023
DEPTH (FT BGS):	0.0-0.5
VOCS	NE
BENZO(A)ANTHRACENE	0.46
BENZO(A)PYRENE	0.457
BENZO(B)FLUORANTHENE	0.534
BENZO(K)FLUORANTHENE	0.356
CHRYSENE	0.429
DIBENZ(A,H)ANTHRACENE	0.168
INDENO(1,2,3-CD)PYRENE	0.353
TOTAL PCBS	1.95 D
4,4'-DDE	0.555 D
4,4'-DDD	0.099
4,4'-DDT	0.529 D
DIELDRIN	ND (0.000722)
BARIUM	517
LEAD	1,070
MERCURY	0.37
ZINC	405

	UUSCO	RRUSCO
SVOCS		
BENZO(A)ANTHRACENE	1	1
BENZO(A)PYRENE	1	1
BENZO(B)FLUORANTHENE	1	1
BENZO(K)FLUORANTHENE	0.8	3.9
CHRYSENE	1	3.9
DIBENZ(A,H)ANTHRACENE	0.33	0.33
INDENO(1,2,3-CD)PYRENE	0.5	0.5
PCBS		
TOTAL PCBS	0.1	1
PESTICIDES		
4,4'-DDE	0.0033	8.9
4,4'-DDD	0.0033	13
4,4'-DDT	0.0033	7.9
DIELDRIN	0.005	0.2
METALS		
BARIUM	350	400
LEAD	63	400
MERCURY	0.18	0.81
ZINC	109	10,000

Legend

- Soil Sample
- Property Boundary
- Existing Building
- Proposed Building to be Built in 1st Stage
- Proposed Landscaping
- NYC Tax Parcel

Notes:
All locations are approximate; field activities conducted on 11/16/2023 & 11/17/2023.
Only select compounds displayed - full analytical results can be found on Table 1A; all concentrations displayed in milligrams per kilogram (mg/kg);
FT BGS = feet below ground surface
ND = Not Detected; ( ) = Laboratory Reporting Limit (RL) listed with ND value when available; NE = Compounds detected at concentrations that do not exceed applicable remediation standards; D = Compound reported from a Diluted analysis; J = Estimated concentration; exceedance of New York State Department of Environmental Conservation (NYSDEC) Unrestricted Use (UU) Soil Cleanup Objective (SCO) highlighted yellow; exceedance of NYSDEC Restricted Residential Use (RRU) SCO highlighted green.
City parcel coverage provided by NY State GIS Clearinghouse and New York City Department of Finance, last updated 11/13/2022; aerial imagery basemap obtained from Google Earth Pro, dated 6/19/2022.
Figure created by JLD Mapping Services LLC.

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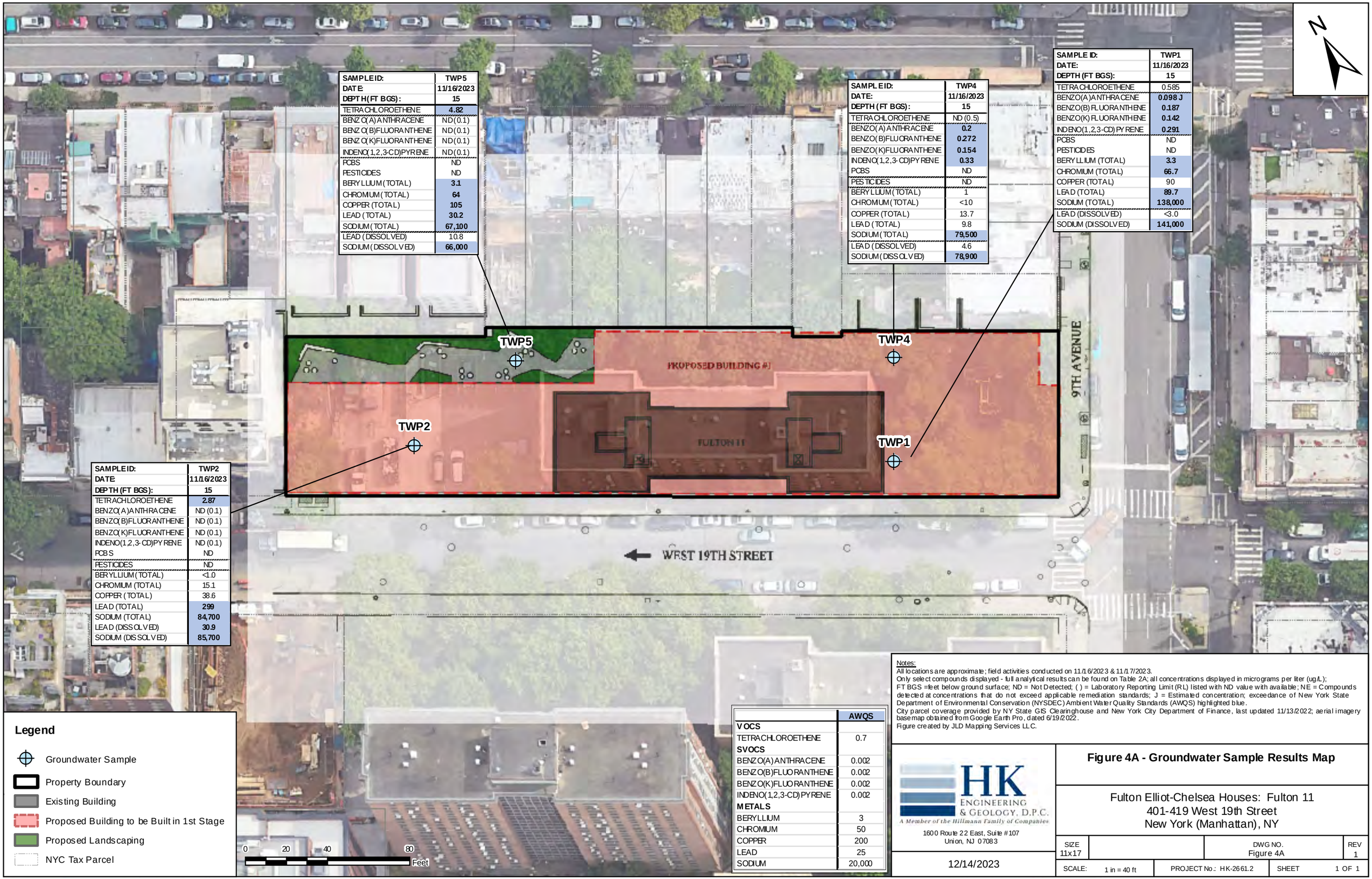
12/14/2023

Figure 3A - Soil Sample Results Map

Fulton Elliot-Chelsea Houses: Fulton 11
401-419 West 19th Street
New York (Manhattan), NY

SIZE 11x17		DWG NO. Figure 3A	REV 0
SCALE: 1 in = 40 ft	PROJECT No.: HK-2661.2	SHEET	1 OF 1



SAMPLE ID:	TWP5
DATE:	11/16/2023
DEPTH (FT BGS):	15
TETRACHLOROETHENE	4.82
BENZO(A)ANTHRACENE	ND (0.1)
BENZO(B)FLUORANTHENE	ND (0.1)
BENZO(K)FLUORANTHENE	ND (0.1)
INDENO(1,2,3-CD)PYRENE	ND (0.1)
PCBS	ND
PESTICIDES	ND
BERYLLIUM (TOTAL)	3.1
CHROMIUM (TOTAL)	64
COPPER (TOTAL)	105
LEAD (TOTAL)	30.2
SODIUM (TOTAL)	67,100
LEAD (DISSOLVED)	10.8
SODIUM (DISSOLVED)	66,000

SAMPLE ID:	TWP4
DATE:	11/16/2023
DEPTH (FT BGS):	15
TETRACHLOROETHENE	ND (0.5)
BENZO(A)ANTHRACENE	0.2
BENZO(B)FLUORANTHENE	0.272
BENZO(K)FLUORANTHENE	0.154
INDENO(1,2,3-CD)PYRENE	0.33
PCBS	ND
PESTICIDES	ND
BERYLLIUM (TOTAL)	1
CHROMIUM (TOTAL)	<10
COPPER (TOTAL)	13.7
LEAD (TOTAL)	9.8
SODIUM (TOTAL)	79,500
LEAD (DISSOLVED)	4.6
SODIUM (DISSOLVED)	78,900

SAMPLE ID:	TWP1
DATE:	11/16/2023
DEPTH (FT BGS):	15
TETRACHLOROETHENE	0.585
BENZO(A)ANTHRACENE	0.098 J
BENZO(B)FLUORANTHENE	0.187
BENZO(K)FLUORANTHENE	0.142
INDENO(1,2,3-CD)PYRENE	0.291
PCBS	ND
PESTICIDES	ND
BERYLLIUM (TOTAL)	3.3
CHROMIUM (TOTAL)	66.7
COPPER (TOTAL)	90
LEAD (TOTAL)	89.7
SODIUM (TOTAL)	138,000
LEAD (DISSOLVED)	<3.0
SODIUM (DISSOLVED)	141,000

SAMPLE ID:	TWP2
DATE:	11/16/2023
DEPTH (FT BGS):	15
TETRACHLOROETHENE	2.87
BENZO(A)ANTHRACENE	ND (0.1)
BENZO(B)FLUORANTHENE	ND (0.1)
BENZO(K)FLUORANTHENE	ND (0.1)
INDENO(1,2,3-CD)PYRENE	ND (0.1)
PCBS	ND
PESTICIDES	ND
BERYLLIUM (TOTAL)	<1.0
CHROMIUM (TOTAL)	15.1
COPPER (TOTAL)	38.6
LEAD (TOTAL)	299
SODIUM (TOTAL)	84,700
LEAD (DISSOLVED)	30.9
SODIUM (DISSOLVED)	85,700

Legend

- Groundwater Sample
- Property Boundary
- Existing Building
- Proposed Building to be Built in 1st Stage
- Proposed Landscaping
- NYC Tax Parcel

	AWQS
VOCS	
TETRACHLOROETHENE	0.7
SVOCS	
BENZO(A)ANTHRACENE	0.002
BENZO(B)FLUORANTHENE	0.002
BENZO(K)FLUORANTHENE	0.002
INDENO(1,2,3-CD)PYRENE	0.002
METALS	
BERYLLIUM	3
CHROMIUM	50
COPPER	200
LEAD	25
SODIUM	20,000

Notes:
All locations are approximate; field activities conducted on 11/16/2023 & 11/17/2023.
Only select compounds displayed - full analytical results can be found on Table 2A; all concentrations displayed in micrograms per liter (ug/L);
FT BGS =feet below ground surface; ND = Not Detected; ( ) = Laboratory Reporting Limit (RL) listed with ND value with available; NE = Compounds detected at concentrations that do not exceed applicable remediation standards; J = Estimated concentration; exceedance of New York State Department of Environmental Conservation (NYSDEC) Ambient Water Quality Standards (AWQS) highlighted blue.
City parcel coverage provided by NY State GIS Clearinghouse and New York City Department of Finance, last updated 11/13/2022; aerial imagery basemap obtained from Google Earth Pro, dated 6/19/2022.
Figure created by JLD Mapping Services LLC.

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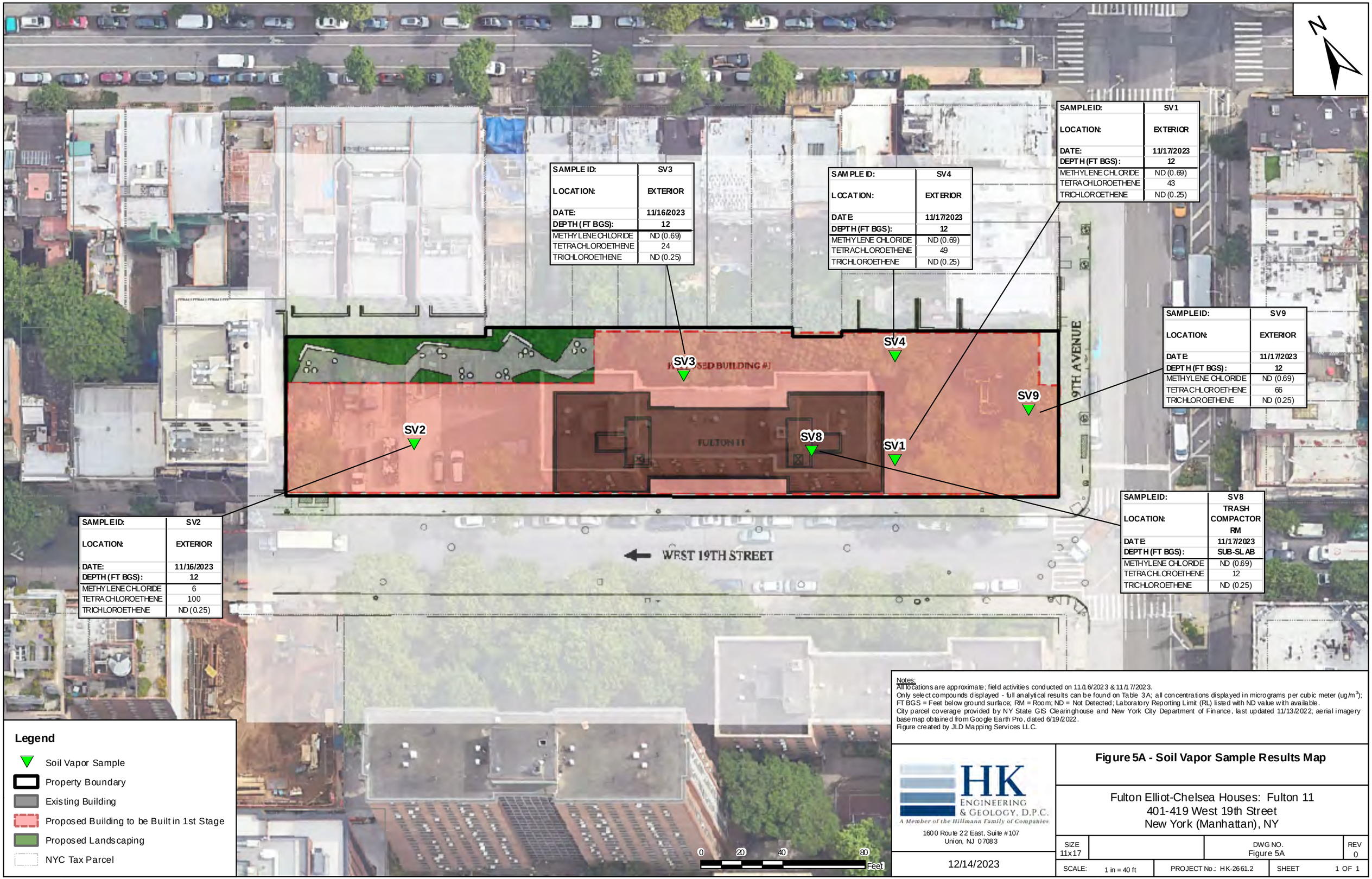
12/14/2023

Figure 4A - Groundwater Sample Results Map

Fulton Elliot-Chelsea Houses: Fulton 11
401-419 West 19th Street
New York (Manhattan), NY

SIZE		DWG NO.	REV
11x17		Figure 4A	1
SCALE: 1 in = 40 ft	PROJECT No.: HK-2661.2	SHEET	1 OF 1



SAMPLE ID:	SV3
LOCATION:	EXTERIOR
DATE:	11/16/2023
DEPTH (FT BGS):	12
METHYLENE CHLORIDE	ND (0.69)
TETRACHLOROETHENE	24
TRICHLOROETHENE	ND (0.25)

SAMPLE ID:	SV4
LOCATION:	EXTERIOR
DATE:	11/17/2023
DEPTH (FT BGS):	12
METHYLENE CHLORIDE	ND (0.69)
TETRACHLOROETHENE	49
TRICHLOROETHENE	ND (0.25)

SAMPLE ID:	SV1
LOCATION:	EXTERIOR
DATE:	11/17/2023
DEPTH (FT BGS):	12
METHYLENE CHLORIDE	ND (0.69)
TETRACHLOROETHENE	43
TRICHLOROETHENE	ND (0.25)

SAMPLE ID:	SV9
LOCATION:	EXTERIOR
DATE:	11/17/2023
DEPTH (FT BGS):	12
METHYLENE CHLORIDE	ND (0.69)
TETRACHLOROETHENE	66
TRICHLOROETHENE	ND (0.25)

SAMPLE ID:	SV2
LOCATION:	EXTERIOR
DATE:	11/16/2023
DEPTH (FT BGS):	12
METHYLENE CHLORIDE	6
TETRACHLOROETHENE	100
TRICHLOROETHENE	ND (0.25)

SAMPLE ID:	SV8
LOCATION:	TRASH COMPACTOR RM
DATE:	11/17/2023
DEPTH (FT BGS):	SUB-SLAB
METHYLENE CHLORIDE	ND (0.69)
TETRACHLOROETHENE	12
TRICHLOROETHENE	ND (0.25)

Legend

- Soil Vapor Sample
- Property Boundary
- Existing Building
- Proposed Building to be Built in 1st Stage
- Proposed Landscaping
- NYC Tax Parcel

Notes:
All locations are approximate; field activities conducted on 11/16/2023 & 11/17/2023.
Only select compounds displayed - full analytical results can be found on Table 3A; all concentrations displayed in micrograms per cubic meter (ug/m^3);
FT BGS = Feet below ground surface; RM = Room; ND = Not Detected; Laboratory Reporting Limit (RL) listed with ND value with available.
City parcel coverage provided by NY State GIS Clearinghouse and New York City Department of Finance, last updated 11/13/2022; aerial imagery basemap obtained from Google Earth Pro, dated 6/19/2022.
Figure created by JLD Mapping Services LLC.

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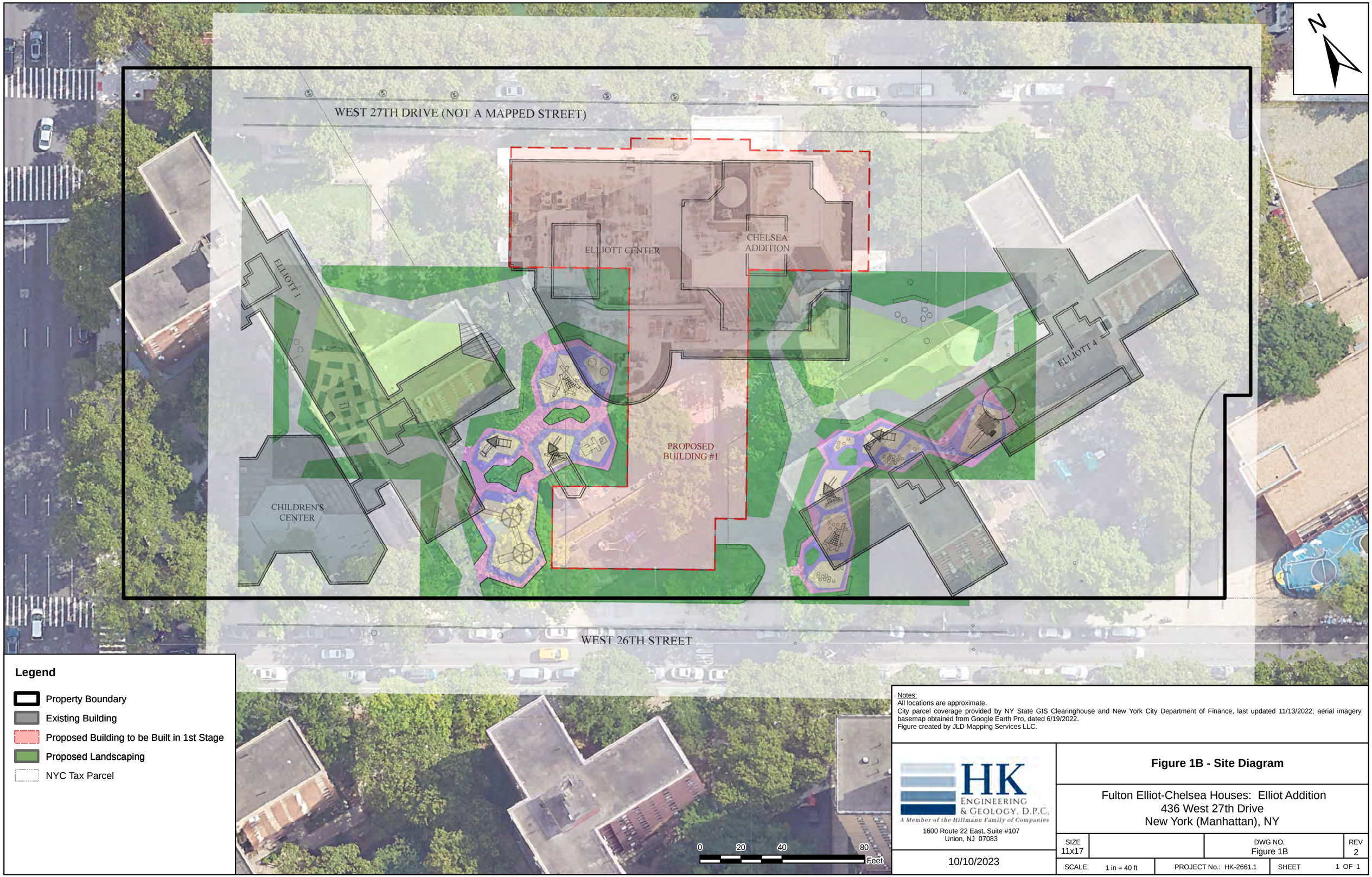
Figure 5A - Soil Vapor Sample Results Map

Fulton Elliot-Chelsea Houses: Fulton 11
401-419 West 19th Street
New York (Manhattan), NY

SIZE 11x17		DWG NO. Figure 5A	REV 0
SCALE: 1 in = 40 ft	PROJECT No.: HK-2661.2	SHEET	1 OF 1

FIGURES

Chelsea Elliott



Legend

- Property Boundary
- Existing Building
- Proposed Building to be Built in 1st Stage
- Proposed Landscaping
- NYC Tax Parcel

Notes:
All locations are approximate.
City parcel coverage provided by NY State GIS Clearinghouse and New York City Department of Finance, last updated 11/13/2022; aerial imagery basemap obtained from Google Earth Pro, dated 6/19/2022.
Figure created by JLD Mapping Services LLC.

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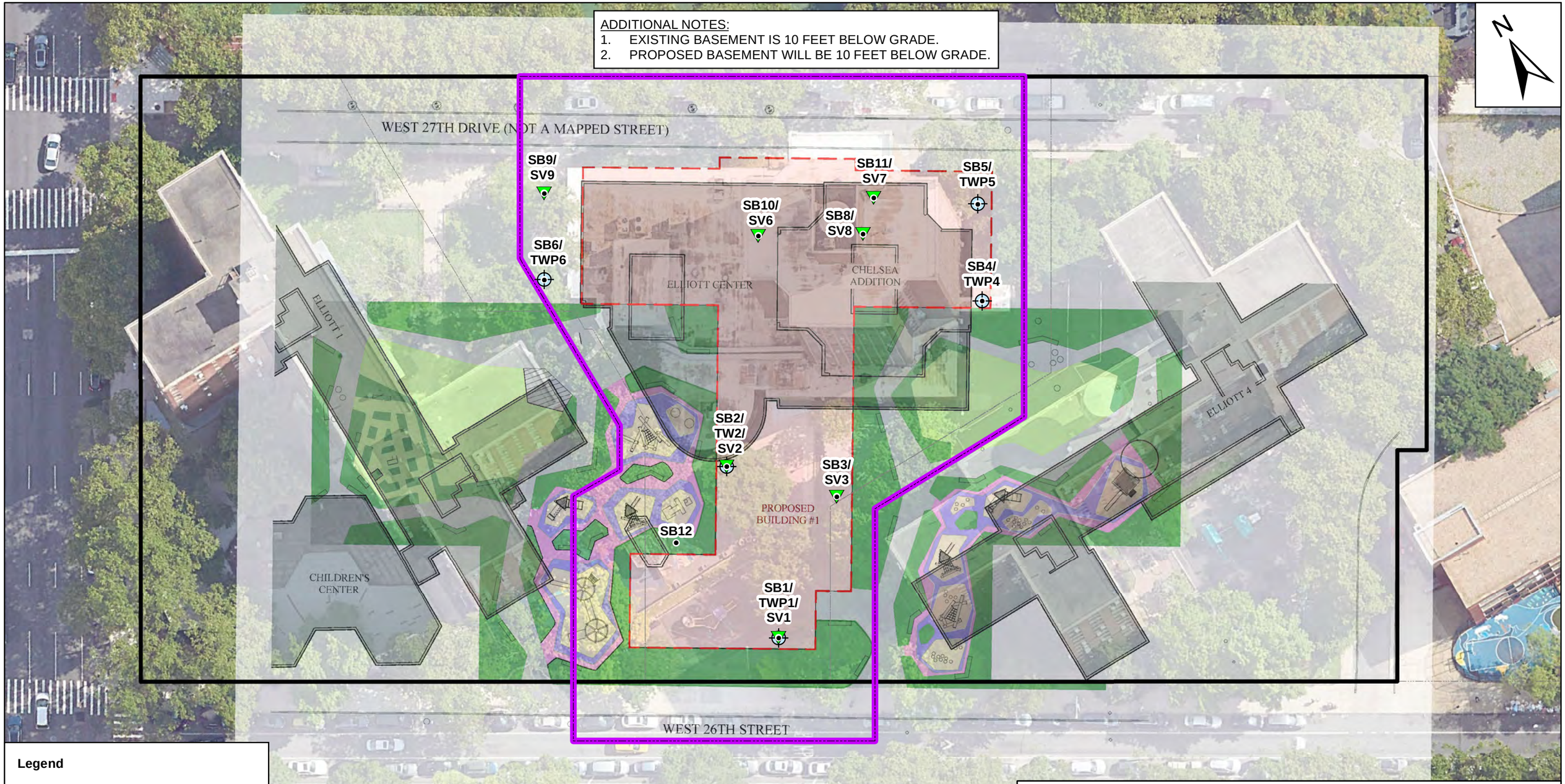
10/10/2023

Figure 1B - Site Diagram

Fulton Elliot-Chelsea Houses: Elliot Addition
436 West 27th Drive
New York (Manhattan), NY

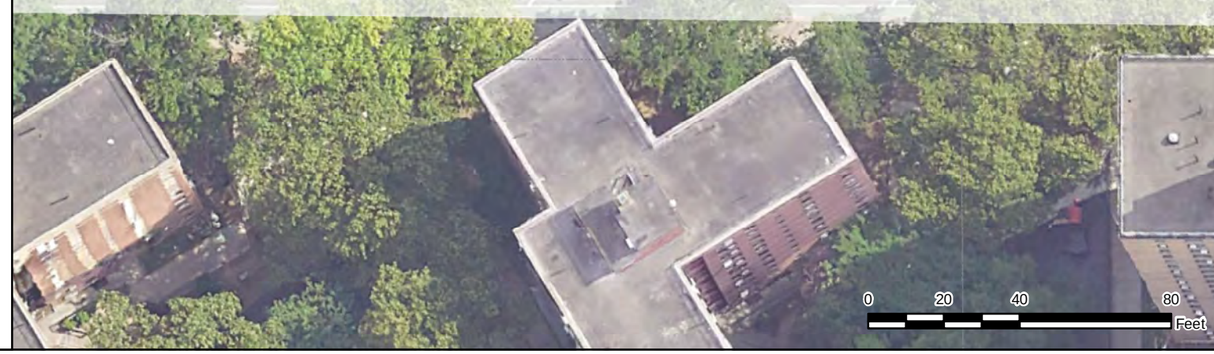
SIZE		DWG NO.	REV
11x17		Figure 1B	2
SCALE: 1 in = 40 ft	PROJECT No.: HK-2661.1	SHEET 1 OF 1	

ADDITIONAL NOTES:
1. EXISTING BASEMENT IS 10 FEET BELOW GRADE.
2. PROPOSED BASEMENT WILL BE 10 FEET BELOW GRADE.



Legend

- Soil Sample
- Groundwater Sample
- Soil Vapor Sample
- Property Boundary
- Project Site Boundary
- Existing Building
- Proposed Building to be Built in 1st Stage
- Proposed Landscaping
- NYC Tax Parcel



Notes:
All locations are approximate; field activities conducted on 11/15/2023, 11/16/2023, & 11/20/2023.
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Figure created by JLD Mapping Services LLC.

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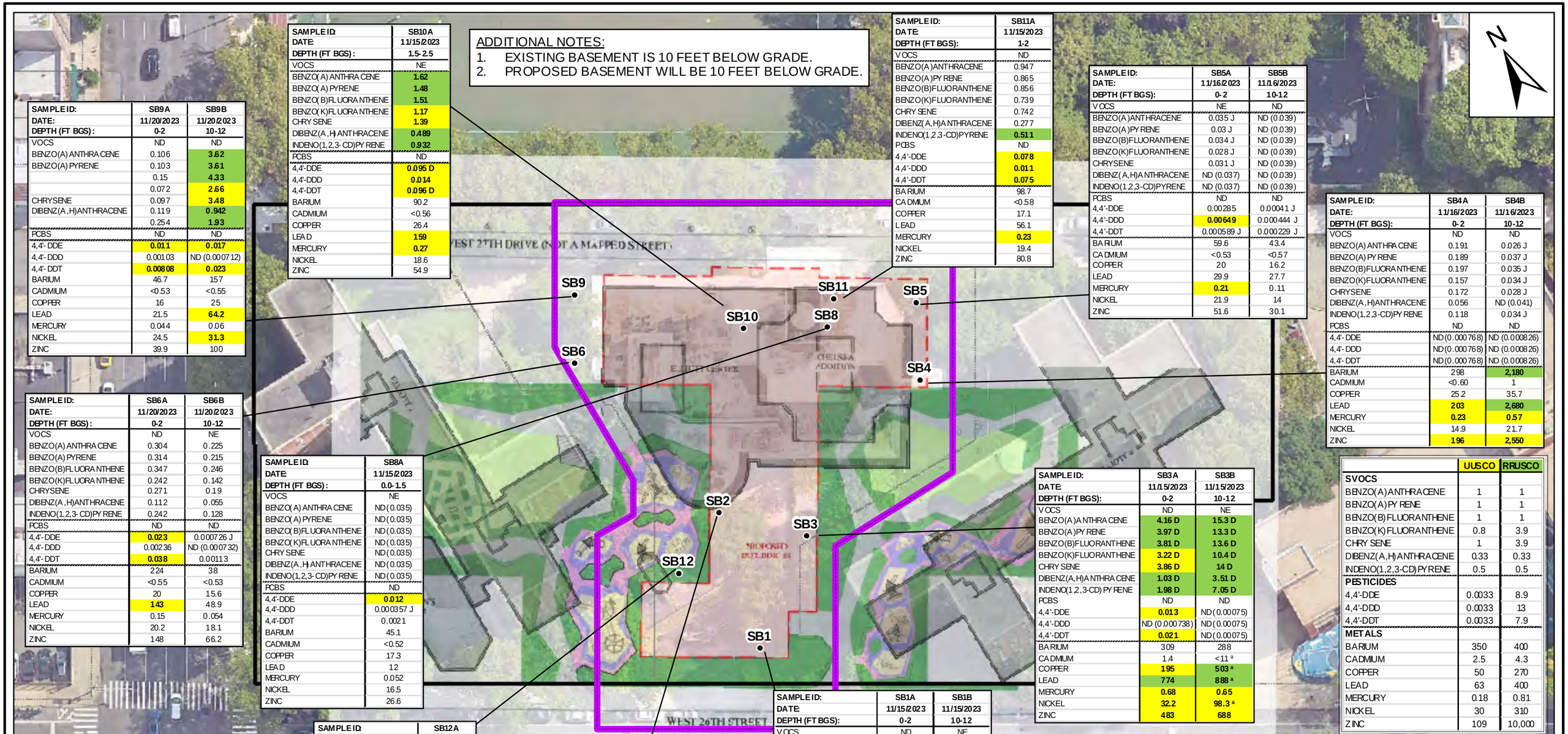
12/14/2023

Figure 2B - Sample Location Map

Fulton Elliot-Chelsea Houses: Elliot Addition
432 West 27th Drive
New York (Manhattan), NY

SIZE		DWG NO.	REV
11x17		Figure 2B	2
SCALE: 1 in = 40 ft	PROJECT No.: HK-2661.1	SHEET	1 OF 1

ADDITIONAL NOTES:
1. EXISTING BASEMENT IS 10 FEET BELOW GRADE.
2. PROPOSED BASEMENT WILL BE 10 FEET BELOW GRADE.



SAMPLE ID:	SB9A	SB9B
DATE:	11/20/2023	11/20/2023
DEPTH (FT BGS):	0-2	10-12
VOCS	ND	ND
BENZO(A) ANTHRACENE	0.106	3.62
BENZO(A) PYRENE	0.103	3.61
	0.15	4.33
	0.072	2.66
CHRYSENE	0.097	3.48
DIBENZ(A,H)ANTHRACENE	0.119	0.942
	0.254	1.93
PCBS	ND	ND
4,4'-DDE	0.011	0.017
4,4'-DDD	0.00103	ND (0.000712)
4,4'-DDT	0.00808	0.023
BARIUM	46.7	157
CADMIUM	<0.53	<0.55
COPPER	16	25
LEAD	21.5	64.2
MERCURY	0.044	0.06
NICKEL	24.5	31.3
ZINC	39.9	100

SAMPLE ID:	SB10A
DATE:	11/15/2023
DEPTH (FT BGS):	1.5-2.5
VOCS	NE
BENZO(A) ANTHRACENE	1.62
BENZO(A) PYRENE	1.48
BENZO(B)FLUORANTHENE	1.51
BENZO(K)FLUORANTHENE	1.17
CHRYSENE	1.39
DIBENZ(A,H)ANTHRACENE	0.489
INDENO(1,2,3-CD)PYRENE	0.932
PCBS	ND
4,4'-DDE	0.095 D
4,4'-DDD	0.014
4,4'-DDT	0.096 D
BARIUM	90.2
CADMIUM	<0.56
COPPER	26.4
LEAD	159
MERCURY	0.27
NICKEL	18.6
ZINC	54.9

SAMPLE ID:	SB11A
DATE:	11/15/2023
DEPTH (FT BGS):	1-2
VOCS	ND
BENZO(A)ANTHRACENE	0.947
BENZO(A)PYRENE	0.865
BENZO(B)FLUORANTHENE	0.856
BENZO(K)FLUORANTHENE	0.739
CHRYSENE	0.742
DIBENZ(A,H)ANTHRACENE	0.277
INDENO(1,2,3-CD)PYRENE	0.511
PCBS	ND
4,4'-DDE	0.078
4,4'-DDD	0.011
4,4'-DDT	0.075
BARIUM	98.7
CADMIUM	<0.58
COPPER	17.1
LEAD	56.1
MERCURY	0.23
NICKEL	19.4
ZINC	80.8

SAMPLE ID:	SB5A	SB5B
DATE:	11/16/2023	11/16/2023
DEPTH (FT BGS):	0-2	10-12
VOCS	NE	ND
BENZO(A)ANTHRACENE	0.035 J	ND (0.039)
BENZO(A)PYRENE	0.03 J	ND (0.039)
BENZO(B)FLUORANTHENE	0.034 J	ND (0.039)
BENZO(K)FLUORANTHENE	0.028 J	ND (0.039)
CHRYSENE	0.031 J	ND (0.039)
DIBENZ(A,H)ANTHRACENE	ND (0.037)	ND (0.039)
INDENO(1,2,3-CD)PYRENE	ND (0.037)	ND (0.039)
PCBS	ND	ND
4,4'-DDE	0.00285	0.00041 J
4,4'-DDD	0.00649	0.000444 J
4,4'-DDT	0.000589 J	0.000229 J
BARIUM	59.6	43.4
CADMIUM	<0.53	<0.57
COPPER	20	16.2
LEAD	29.9	27.7
MERCURY	0.21	0.11
NICKEL	21.9	14
ZINC	51.6	30.1

SAMPLE ID:	SB4A	SB4B
DATE:	11/16/2023	11/16/2023
DEPTH (FT BGS):	0-2	10-12
VOCS	ND	ND
BENZO(A) ANTHRACENE	0.191	0.026 J
BENZO(A) PYRENE	0.189	0.037 J
BENZO(B)FLUORANTHENE	0.197	0.035 J
BENZO(K)FLUORANTHENE	0.157	0.034 J
CHRYSENE	0.172	0.028 J
DIBENZ(A,H)ANTHRACENE	0.056	ND (0.041)
INDENO(1,2,3-CD)PYRENE	0.118	0.034 J
PCBS	ND	ND
4,4'-DDE	ND (0.000768)	ND (0.000826)
4,4'-DDD	ND (0.000768)	ND (0.000826)
4,4'-DDT	ND (0.000768)	ND (0.000826)
BARIUM	298	2,180
CADMIUM	<0.60	1
COPPER	25.2	35.7
LEAD	203	2,680
MERCURY	0.23	0.57
NICKEL	14.9	21.7
ZINC	196	2,550

SAMPLE ID:	SB6A	SB6B
DATE:	11/20/2023	11/20/2023
DEPTH (FT BGS):	0-2	10-12
VOCS	ND	NE
BENZO(A) ANTHRACENE	0.304	0.225
BENZO(A) PYRENE	0.314	0.215
BENZO(B)FLUORANTHENE	0.347	0.246
BENZO(K)FLUORANTHENE	0.242	0.142
CHRYSENE	0.271	0.19
DIBENZ(A,H)ANTHRACENE	0.112	0.055
INDENO(1,2,3-CD)PYRENE	0.242	0.128
PCBS	ND	ND
4,4'-DDE	0.023	0.000726 J
4,4'-DDD	0.00236	ND (0.000732)
4,4'-DDT	0.038	0.00113
BARIUM	224	38
CADMIUM	<0.55	<0.53
COPPER	20	15.6
LEAD	143	48.9
MERCURY	0.15	0.054
NICKEL	20.2	18.1
ZINC	148	66.2

SAMPLE ID:	SB8A
DATE:	11/15/2023
DEPTH (FT BGS):	0.0-1.5
VOCS	NE
BENZO(A) ANTHRACENE	ND (0.035)
BENZO(A) PYRENE	ND (0.035)
BENZO(B)FLUORANTHENE	ND (0.035)
BENZO(K)FLUORANTHENE	ND (0.035)
CHRYSENE	ND (0.035)
DIBENZ(A,H)ANTHRACENE	ND (0.035)
INDENO(1,2,3-CD)PYRENE	ND (0.035)
PCBS	ND
4,4'-DDE	0.012
4,4'-DDD	0.000357 J
4,4'-DDT	0.0021
BARIUM	45.1
CADMIUM	<0.52
COPPER	17.3
LEAD	12
MERCURY	0.052
NICKEL	16.5
ZINC	26.6

SAMPLE ID:	SB3A	SB3B
DATE:	11/15/2023	11/15/2023
DEPTH (FT BGS):	0-2	10-12
VOCS	ND	NE
BENZO(A)ANTHRACENE	4.16 D	15.3 D
BENZO(A)PYRENE	3.97 D	13.3 D
BENZO(B)FLUORANTHENE	3.81 D	13.6 D
BENZO(K)FLUORANTHENE	3.22 D	10.4 D
CHRYSENE	3.86 D	14 D
DIBENZ(A,H)ANTHRACENE	1.03 D	3.51 D
INDENO(1,2,3-CD)PYRENE	1.98 D	7.05 D
PCBS	ND	ND
4,4'-DDE	0.013	ND (0.00075)
4,4'-DDD	ND (0.000738)	ND (0.00075)
4,4'-DDT	0.021	ND (0.00075)
BARIUM	309	288
CADMIUM	1.4	<11 [a]
COPPER	195	503 [a]
LEAD	774	888 [a]
MERCURY	0.68	0.65
NICKEL	32.2	98.3 [a]
ZINC	483	688

	UUSCO	RRUSCO
SVOCS		
BENZO(A)ANTHRACENE	1	1
BENZO(A)PYRENE	1	1
BENZO(B)FLUORANTHENE	1	1
BENZO(K)FLUORANTHENE	0.8	3.9
CHRYSENE	1	3.9
DIBENZ(A,H)ANTHRACENE	0.33	0.33
INDENO(1,2,3-CD)PYRENE	0.5	0.5
PESTICIDES		
4,4'-DDE	0.0033	8.9
4,4'-DDD	0.0033	13
4,4'-DDT	0.0033	7.9
METALS		
BARIUM	350	400
CADMIUM	2.5	4.3
COPPER	50	270
LEAD	63	400
MERCURY	0.18	0.81
NICKEL	30	310
ZINC	109	10,000

SAMPLE ID:	SB12A
DATE:	11/15/2023
DEPTH (FT BGS):	0-2
VOCS	ND
BENZO(A) ANTHRACENE	0.313
BENZO(A) PYRENE	0.299
BENZO(B)FLUORANTHENE	0.287
BENZO(K)FLUORANTHENE	0.264
CHRYSENE	0.332
DIBENZ(A,H)ANTHRACENE	0.103
INDENO(1,2,3-CD)PYRENE	0.19
PCBS	ND
4,4'-DDE	ND (0.000766)
4,4'-DDD	ND (0.000766)
4,4'-DDT	ND (0.000766)
BARIUM	173
CADMIUM	12.8
COPPER	42.9
LEAD	773
MERCURY	5.2
NICKEL	17.3
ZINC	2,050

SAMPLE ID:	SB2A	SB2B
DATE:	11/15/2023	11/15/2023
DEPTH (FT BGS):	0-2	10-12
VOCS	ND	NE
BENZO(A)ANTHRACENE	1.8	0.19
BENZO(A)PYRENE	1.44	0.177
BENZO(B)FLUORANTHENE	1.57	0.207
BENZO(K)FLUORANTHENE	1.08	0.138
CHRYSENE	1.6	0.173
DIBENZ(A,H)ANTHRACENE	0.487	0.064
INDENO(1,2,3-CD)PYRENE	0.845	0.114
PCBS	NE	ND
4,4'-DDE	0.0034	0.00226
4,4'-DDD	ND (0.000718)	0.000712 J
4,4'-DDT	0.00556	0.00384
BARIUM	48.5	163
CADMIUM	<0.53	<0.55
COPPER	21.5	31.8
LEAD	39	235
MERCURY	0.037	0.56
NICKEL	42.8	56.8
ZINC	60.2	176

SAMPLE ID:	SB1A	SB1B
DATE:	11/15/2023	11/15/2023
DEPTH (FT BGS):	0-2	10-12
VOCS	ND	NE
BENZO(A)ANTHRACENE	1.28	1.68
BENZO(A)PYRENE	1.29	1.46
BENZO(B)FLUORANTHENE	1.42	1.58
BENZO(K)FLUORANTHENE	0.858	1.1
CHRYSENE	1.1	1.52
DIBENZ(A,H)ANTHRACENE	0.38	0.443
INDENO(1,2,3-CD)PYRENE	0.788	0.858
PCBS	ND	ND
4,4'-DDE	0.019	ND (0.000782)
4,4'-DDD	0.00407	ND (0.000782)
4,4'-DDT	0.027	ND (0.000782)
BARIUM	298	463
CADMIUM	0.63	1.9
COPPER	47.9	128 [a]
LEAD	436	1,260
MERCURY	0.61	1.1
NICKEL	15.5	22.8
ZINC	276	483

Legend

- Soil Sample
- Property Boundary
- Project Site Boundary
- Existing Building
- Proposed Building to be Built in 1st Stage
- Proposed Landscaping
- NYC Tax Parcel

Notes:
All locations are approximate; field activities conducted on 11/15/2023, 11/16/2023, & 11/20/2023.
Only select compounds displayed - full analytical results can be found on Table 1B; all concentrations displayed in milligrams per kilogram (mg/kg); FT BGS = feet below ground surface; ND = Not Detected; ( ) = Laboratory Reporting Limit (RL) listed with ND value when available; NE = Compounds detected at concentrations that do not exceed applicable remediation standards; D = Compound reported from a Diluted analysis; J = Estimated concentration; * = Elevated detection limit due to dilution required for high interfering element; exceedance of New York State Department of Environmental Conservation (NYSDEC) Unrestricted Use (UU) Soil Cleanup Objective (SCO) highlighted yellow; exceedance of NYSDEC Restricted Residential Use (RRU) SCO highlighted green.
City parcel coverage provided by NY State GIS Clearinghouse and New York City Department of Finance, last updated 11/13/2022; aerial imagery basemap obtained from Google Earth Pro, dated 6/19/2022.
Figure created by JLD Mapping Services LLC.

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12/14/2023

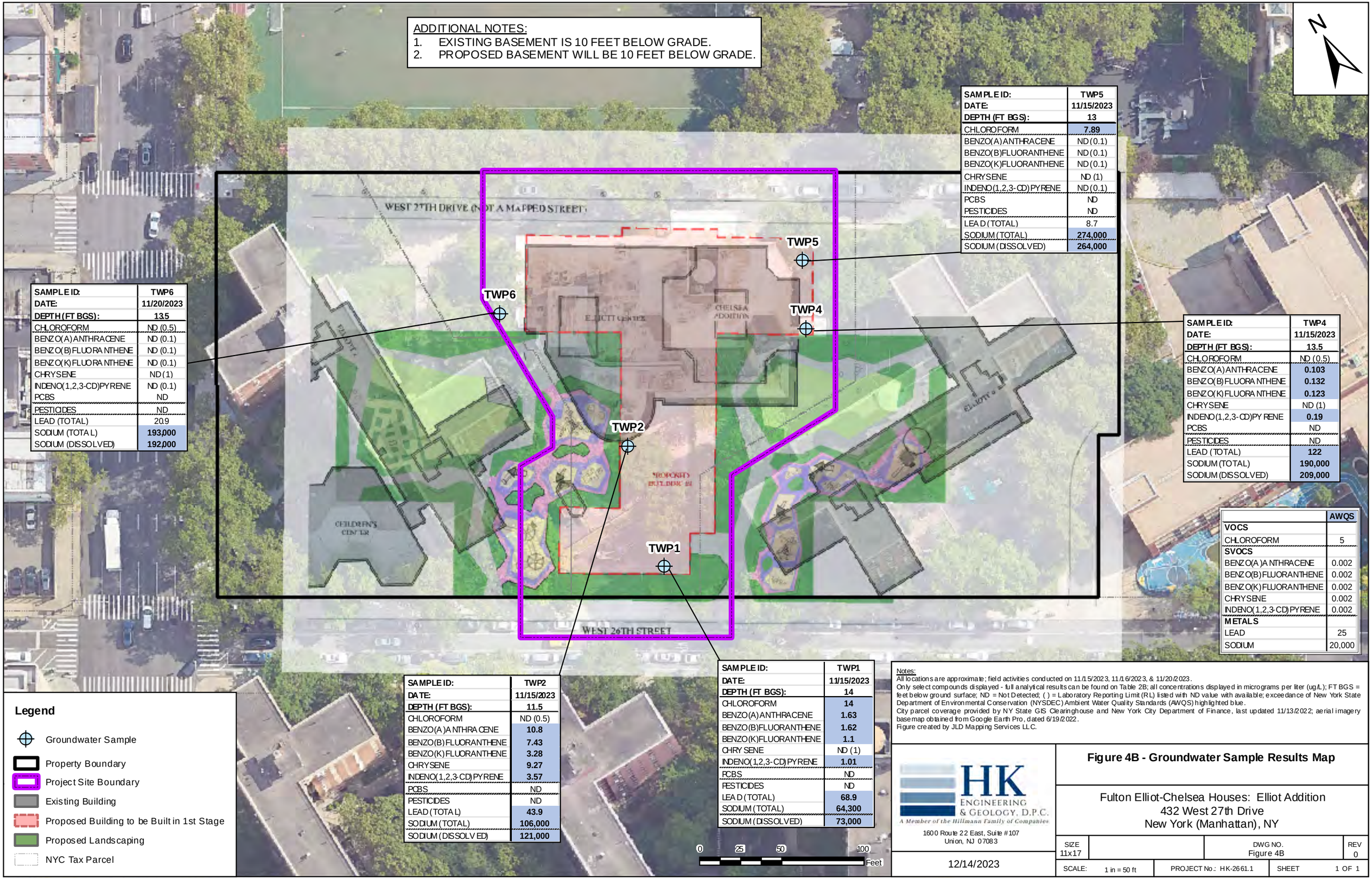
Figure 3B - Soil Sample Results Map

Fulton Elliot-Chelsea Houses: Elliot Addition
432 West 27th Drive
New York (Manhattan), NY

SIZE	DWG NO.	REV
11x17	Figure 3B	0

SCALE:	PROJECT No.:	SHEET
1 in = 50 ft	HK-2661.1	1 OF 1

ADDITIONAL NOTES:
1. EXISTING BASEMENT IS 10 FEET BELOW GRADE.
2. PROPOSED BASEMENT WILL BE 10 FEET BELOW GRADE.



SAMPLE ID:	TWP5
DATE:	11/15/2023
DEPTH (FT BGS):	13
CHLOROFORM	7.89
BENZO(A)ANTHRACENE	ND (0.1)
BENZO(B)FLUORANTHENE	ND (0.1)
BENZO(K)FLUORANTHENE	ND (0.1)
CHRYSENE	ND (1)
INDENO(1,2,3-CD)PYRENE	ND (0.1)
PCBS	ND
PESTICIDES	ND
LEAD (TOTAL)	8.7
SODIUM (TOTAL)	274,000
SODIUM (DISSOLVED)	264,000

SAMPLE ID:	TWP6
DATE:	11/20/2023
DEPTH (FT BGS):	13.5
CHLOROFORM	ND (0.5)
BENZO(A)ANTHRACENE	ND (0.1)
BENZO(B)FLUORANTHENE	ND (0.1)
BENZO(K)FLUORANTHENE	ND (0.1)
CHRYSENE	ND (1)
INDENO(1,2,3-CD)PYRENE	ND (0.1)
PCBS	ND
PESTICIDES	ND
LEAD (TOTAL)	20.9
SODIUM (TOTAL)	193,000
SODIUM (DISSOLVED)	192,000

SAMPLE ID:	TWP4
DATE:	11/15/2023
DEPTH (FT BGS):	13.5
CHLOROFORM	ND (0.5)
BENZO(A)ANTHRACENE	0.103
BENZO(B)FLUORANTHENE	0.132
BENZO(K)FLUORANTHENE	0.123
CHRYSENE	ND (1)
INDENO(1,2,3-CD)PYRENE	0.19
PCBS	ND
PESTICIDES	ND
LEAD (TOTAL)	122
SODIUM (TOTAL)	190,000
SODIUM (DISSOLVED)	209,000

	AWQS
VOCS	
CHLOROFORM	5
SVOCS	
BENZO(A)ANTHRACENE	0.002
BENZO(B)FLUORANTHENE	0.002
BENZO(K)FLUORANTHENE	0.002
CHRYSENE	0.002
INDENO(1,2,3-CD)PYRENE	0.002
METALS	
LEAD	25
SODIUM	20,000

SAMPLE ID:	TWP2
DATE:	11/15/2023
DEPTH (FT BGS):	11.5
CHLOROFORM	ND (0.5)
BENZO(A)ANTHRACENE	10.8
BENZO(B)FLUORANTHENE	7.43
BENZO(K)FLUORANTHENE	3.28
CHRYSENE	9.27
INDENO(1,2,3-CD)PYRENE	3.57
PCBS	ND
PESTICIDES	ND
LEAD (TOTAL)	43.9
SODIUM (TOTAL)	106,000
SODIUM (DISSOLVED)	121,000

SAMPLE ID:	TWP1
DATE:	11/15/2023
DEPTH (FT BGS):	14
CHLOROFORM	14
BENZO(A)ANTHRACENE	1.63
BENZO(B)FLUORANTHENE	1.62
BENZO(K)FLUORANTHENE	1.1
CHRYSENE	ND (1)
INDENO(1,2,3-CD)PYRENE	1.01
PCBS	ND
PESTICIDES	ND
LEAD (TOTAL)	68.9
SODIUM (TOTAL)	64,300
SODIUM (DISSOLVED)	73,000

Legend

- Groundwater Sample
- Property Boundary
- Project Site Boundary
- Existing Building
- Proposed Building to be Built in 1st Stage
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- NYC Tax Parcel

Notes:
All locations are approximate; field activities conducted on 11/15/2023, 11/16/2023, & 11/20/2023.
Only select compounds displayed - full analytical results can be found on Table 2B; all concentrations displayed in micrograms per liter (ug/L); FT BGS = feet below ground surface; ND = Not Detected; ( ) = Laboratory Reporting Limit (RL) listed with ND value with available; exceedance of New York State Department of Environmental Conservation (NYSDEC) Ambient Water Quality Standards (AWQS) highlighted blue.
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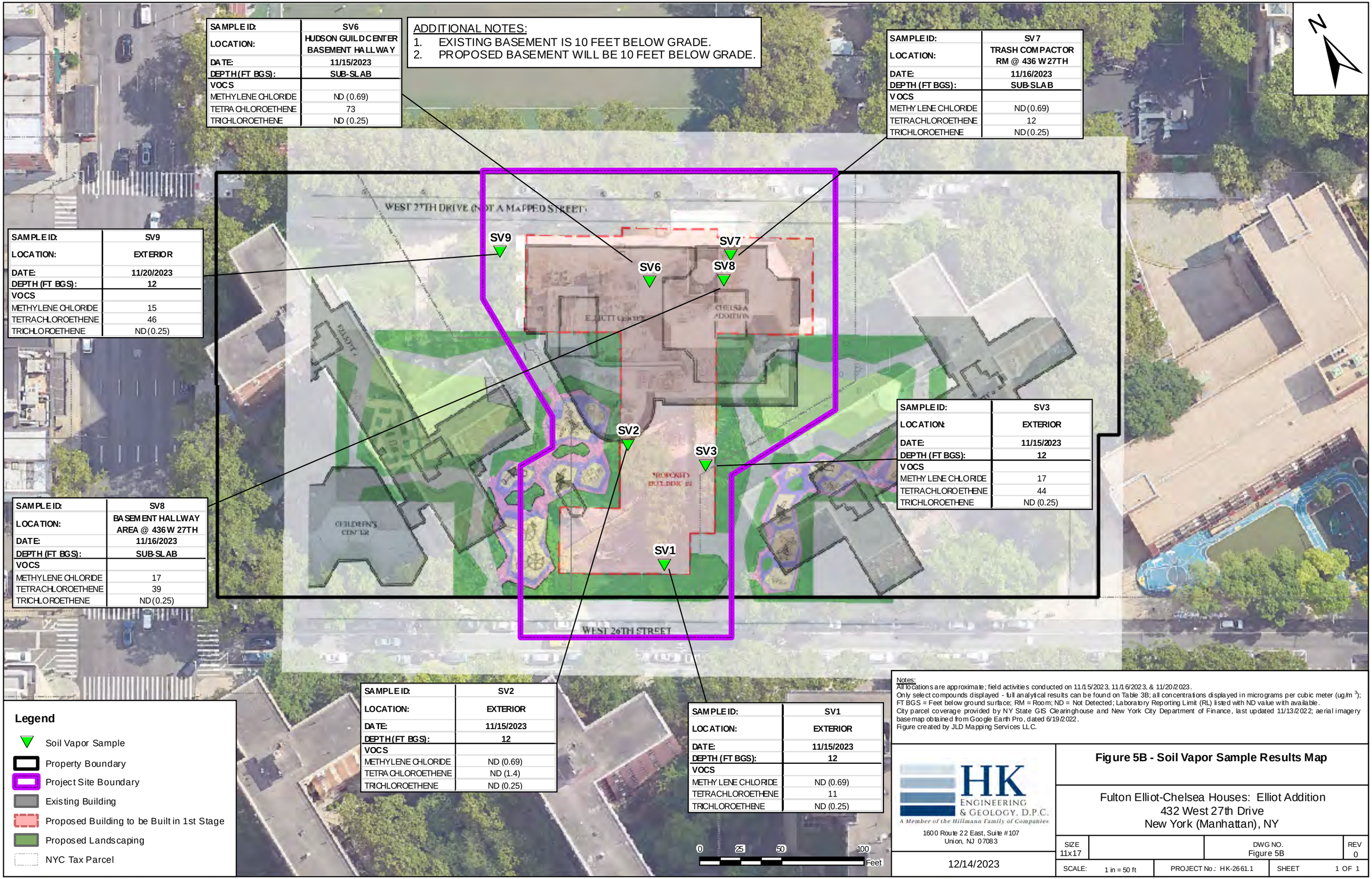
12/14/2023

Figure 4B - Groundwater Sample Results Map

Fulton Elliot-Chelsea Houses: Elliot Addition
432 West 27th Drive
New York (Manhattan), NY

SIZE	DWG NO.	REV
11x17	Figure 4B	0

SCALE:	1 in = 50 ft	PROJECT No.: HK-2661.1	SHEET	1 OF 1



ADDITIONAL NOTES:
1. EXISTING BASEMENT IS 10 FEET BELOW GRADE.
2. PROPOSED BASEMENT WILL BE 10 FEET BELOW GRADE.

SAMPLE ID:	SV6
LOCATION:	HUDSON GUILD CENTER BASEMENT HALLWAY
DATE:	11/15/2023
DEPTH (FT BGS):	SUB-SLAB
VOCS	
METHYLENE CHLORIDE	ND (0.69)
TETRACHLOROETHENE	73
TRICHLOROETHENE	ND (0.25)

SAMPLE ID:	SV7
LOCATION:	TRASH COMPACTOR RM @ 436 W 27TH
DATE:	11/16/2023
DEPTH (FT BGS):	SUB-SLAB
VOCS	
METHYLENE CHLORIDE	ND (0.69)
TETRACHLOROETHENE	12
TRICHLOROETHENE	ND (0.25)

SAMPLE ID:	SV9
LOCATION:	EXTERIOR
DATE:	11/20/2023
DEPTH (FT BGS):	12
VOCS	
METHYLENE CHLORIDE	15
TETRACHLOROETHENE	46
TRICHLOROETHENE	ND (0.25)

SAMPLE ID:	SV3
LOCATION:	EXTERIOR
DATE:	11/15/2023
DEPTH (FT BGS):	12
VOCS	
METHYLENE CHLORIDE	17
TETRACHLOROETHENE	44
TRICHLOROETHENE	ND (0.25)

SAMPLE ID:	SV8
LOCATION:	BASEMENT HALLWAY AREA @ 436 W 27TH
DATE:	11/16/2023
DEPTH (FT BGS):	SUB-SLAB
VOCS	
METHYLENE CHLORIDE	17
TETRACHLOROETHENE	39
TRICHLOROETHENE	ND (0.25)

SAMPLE ID:	SV2
LOCATION:	EXTERIOR
DATE:	11/15/2023
DEPTH (FT BGS):	12
VOCS	
METHYLENE CHLORIDE	ND (0.69)
TETRACHLOROETHENE	ND (1.4)
TRICHLOROETHENE	ND (0.25)

SAMPLE ID:	SV1
LOCATION:	EXTERIOR
DATE:	11/15/2023
DEPTH (FT BGS):	12
VOCS	
METHYLENE CHLORIDE	ND (0.69)
TETRACHLOROETHENE	11
TRICHLOROETHENE	ND (0.25)

Legend

- Soil Vapor Sample
- Property Boundary
- Project Site Boundary
- Existing Building
- Proposed Building to be Built in 1st Stage
- Proposed Landscaping
- NYC Tax Parcel

Notes:
All locations are approximate; field activities conducted on 11/15/2023, 11/16/2023, & 11/20/2023.
Only select compounds displayed - full analytical results can be found on Table 3B; all concentrations displayed in micrograms per cubic meter (ug/m ^{3});
FT BGS = Feet below ground surface; RM = Room; ND = Not Detected; Laboratory Reporting Limit (RL) listed with ND value with available.
City parcel coverage provided by NY State GIS Clearinghouse and New York City Department of Finance, last updated 11/13/2022; aerial imagery basemap obtained from Google Earth Pro, dated 6/19/2022.
Figure created by JLD Mapping Services LLC.

HK ENGINEERING & GEOLOGY, D.P.C.
A Member of the Hillmann Family of Companies
1600 Route 22 East, Suite #107
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12/14/2023

Figure 5B - Soil Vapor Sample Results Map

Fulton Elliot-Chelsea Houses: Elliot Addition
432 West 27th Drive
New York (Manhattan), NY

SIZE	DWG NO.	REV
11x17	Figure 5B	0

SCALE:	1 in = 50 ft	PROJECT No.: HK-2661.1	SHEET	1 OF 1

TABLES

FULTON 11 RESULTS

Table 1A - Soil Results - VOCs
Fulton 11
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.2

Target Compounds	NYSDEC Unrestricted Use SCO	NYSDEC Restricted Residential SCO	SB1A Sample Depth: 0-2'				SB1B Sample Depth: 10-12'				SB2A Sample Depth: 0-2'				SB2B Sample Depth: 10-12'			
Volatiles (mg/Kg)			Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
1,1,1-Trichloroethane	**0.68**	**100**	ND		0.00126	0.000387	ND		0.00138	0.000424	ND		0.0016	0.000491	ND		0.0012	0.000368
1,1,2,2-Tetrachloroethane	**NS**	**NS**	ND		0.00126	0.000659	ND		0.00138	0.000722	ND		0.0016	0.000837	ND		0.0012	0.000628
1,1,2-Trichloro-1,2,2-trifluoroethane	**NS**	**NS**	ND		0.00252	0.000752	ND		0.00276	0.000824	ND		0.0032	0.000955	ND		0.0024	0.000716
1,1,2-Trichloroethane	**NS**	**NS**	ND		0.00126	0.00027	ND		0.00138	0.000295	ND		0.0016	0.000342	ND		0.0012	0.000257
1,1-Dichloroethane	**0.27**	**26**	ND		0.00252	0.000321	ND		0.00276	0.000352	ND		0.0032	0.000408	ND		0.0024	0.000306
1,1-Dichloroethene	**0.33**	**100**	ND		0.00126	0.000441	ND		0.00138	0.000483	ND		0.0016	0.00056	ND		0.0012	0.00042
1,2,3-Trichlorobenzene	**NS**	**NS**	ND		0.00252	0.000401	ND		0.00276	0.000439	ND		0.0032	0.000509	ND		0.0024	0.000382
1,2,4-Trichlorobenzene	**NS**	**NS**	ND		0.00126	0.000529	ND		0.00138	0.00058	ND		0.0016	0.000672	ND		0.0012	0.000504
1,2-Dibromo-3-chloropropane	**NS**	**NS**	ND		0.00126	0.00104	ND		0.00138	0.00114	ND		0.0016	0.00132	ND		0.0012	0.000989
1,2-Dibromoethane (EDB)	**NS**	**NS**	ND		0.00126	0.000233	ND		0.00138	0.000255	ND		0.0016	0.000296	ND		0.0012	0.000222
1,2-Dichlorobenzene	**1.1**	**100**	ND		0.00126	0.000316	ND		0.00138	0.000346	ND		0.0016	0.000402	ND		0.0012	0.000301
1,2-Dichloroethane (EDC)	**0.02**	**3.1**	ND		0.00126	0.000291	ND		0.00138	0.000319	ND		0.0016	0.00037	ND		0.0012	0.000277
1,2-Dichloropropane	**NS**	**NS**	ND		0.00126	0.000126	ND		0.00138	0.000138	ND		0.0016	0.00016	ND		0.0012	0.00012
1,3-Dichlorobenzene	**2.4**	**49**	ND		0.00126	0.000334	ND		0.00138	0.000366	ND		0.0016	0.000424	ND		0.0012	0.000318
1,3-Dichloropropene (cis- and trans-)	**NS**	**NS**	ND		0.00126	0.00014	ND		0.00138	0.000153	ND		0.0016	0.000178	ND		0.0012	0.000133
1,4-Dichlorobenzene	**1.8**	**13**	ND		0.00126	0.000391	ND		0.00138	0.000428	ND		0.0016	0.000496	ND		0.0012	0.000372
2-Butanone (MEK)	**0.12**	**100**	ND		0.013	0.00252	ND		0.014	0.00276	ND		0.016	0.0032	ND		0.012	0.0024
2-Hexanone	**NS**	**NS**	ND		0.013	0.00193	ND		0.014	0.00211	ND		0.016	0.00245	ND		0.012	0.00184
4-Methyl-2-pentanone (MIBK)	**NS**	**NS**	ND		0.013	0.000659	ND		0.014	0.000722	ND		0.016	0.000837	ND		0.012	0.000628
Acetone	**0.05**	**100**	ND		0.013	0.0063	ND		0.014	0.0069	ND		0.016	0.008	ND		0.012	0.006
Benzene	**0.06**	**4.8**	ND		0.00126	0.000108	ND		0.00138	0.000119	ND		0.0016	0.000138	ND		0.0012	0.000103
Bromochloromethane	**NS**	**NS**	ND		0.00126	0.00032	ND		0.00138	0.000351	ND		0.0016	0.000406	ND		0.0012	0.000305
Bromodichloromethane	**NS**	**NS**	ND		0.00126	0.00015	ND		0.00138	0.000164	ND		0.0016	0.00019	ND		0.0012	0.000143
Bromoform	**NS**	**NS**	ND		0.00126	0.000392	ND		0.00138	0.000429	ND		0.0016	0.000498	ND		0.0012	0.000373
Bromomethane	**NS**	**NS**	ND		0.00252	0.0011	ND		0.00276	0.0012	ND		0.0032	0.0014	ND		0.0024	0.00105
Carbon disulfide	**NS**	**NS**	ND		0.00126	0.000495	ND		0.00138	0.000542	ND		0.0016	0.000629	ND		0.0012	0.000472
Carbon tetrachloride	**0.76**	**2.4**	ND		0.00126	0.000252	ND		0.00138	0.000276	ND		0.0016	0.00032	ND		0.0012	0.00024
Chlorobenzene	**1.1**	**100**	ND		0.00126	0.000218	ND		0.00138	0.000239	ND		0.0016	0.000277	ND		0.0012	0.000208
Chloroethane	**NS**	**NS**	ND		0.00126	0.000374	ND		0.00138	0.00041	ND		0.0016	0.000475	ND		0.0012	0.000356
Chloroform	**0.37**	**49**	ND		0.00252	0.00063	ND		0.00276	0.00069	ND		0.0032	0.0008	ND		0.0024	0.0006
Chloromethane	**NS**	**NS**	ND		0.00252	0.000399	ND		0.00276	0.000437	ND		0.0032	0.000507	ND		0.0024	0.00038
cis-1,2-Dichloroethene	**0.25**	**100**	ND		0.00252	0.00027	ND		0.00276	0.000295	ND		0.0032	0.000342	ND		0.0024	0.000257
cis-1,3-Dichloropropene	**NS**	**NS**	ND		0.00126	0.000193	ND		0.00138	0.000211	ND		0.0016	0.000245	ND		0.0012	0.000184
Cyclohexane	**NS**	**NS**	ND		0.0063	0.000227	ND		0.0069	0.000248	ND		0.008	0.000288	ND		0.006	0.000216
Dibromochloromethane	**NS**	**NS**	ND		0.00126	0.000209	ND		0.00138	0.000229	ND		0.0016	0.000266	ND		0.0012	0.000199
Dichlorodifluoromethane	**NS**	**NS**	ND		0.00126	0.000654	ND		0.00138	0.000716	ND		0.0016	0.00083	ND		0.0012	0.000623
Ethylbenzene	**1**	**41**	ND		0.00126	0.000137	ND		0.00138	0.00015	ND		0.0016	0.000174	ND		0.0012	0.000131
Isopropylbenzene	**NS**	**NS**	ND		0.00126	0.000268	ND		0.00138	0.000294	ND		0.0016	0.000341	ND		0.0012	0.000256
Methyl acetate	**NS**	**NS**	ND		0.00126	0.00102	ND		0.00138	0.00112	ND		0.0016	0.00129	ND		0.0012	0.00097
Methyl tert-butyl ether (MTBE)	**0.93**	**100**	ND		0.00126	0.000275	ND		0.00138	0.000301	ND		0.0016	0.000349	ND		0.0012	0.000262
Methylcyclohexane	**NS**	**NS**	ND		0.00252	0.000217	ND		0.00276	0.000237	ND		0.0032	0.000275	ND		0.0024	0.000206
Methylene chloride	**0.05**	**100**	0.0041	CJ	0.0063	0.00378	ND		0.0069	0.00414	ND		0.008	0.0048	ND		0.006	0.0036
Styrene	**NS**	**NS**	ND		0.00126	0.000271	ND		0.00138	0.000297	ND		0.0016	0.000344	ND		0.0012	0.000258
Tetrachloroethene	**1.3**	**19**	ND		0.00126	0.00013	ND		0.00138	0.000142	ND		0.0016	0.000165	ND		0.0012	0.000124
Toluene	**0.7**	**100**	ND		0.00126	0.00063	ND		0.00138	0.00069	ND		0.0016	0.0008	ND		0.0012	0.0006
Total Xylenes	**0.26**	**100**	ND		0.00252	0.000176	ND		0.00276	0.000193	ND		0.0032	0.000224	ND		0.0024	0.000168
trans-1,2-Dichloroethene	**0.19**	**100**	ND		0.00252	0.000446	ND		0.00276	0.000489	ND		0.0032	0.000566	ND		0.0024	0.000425
trans-1,3-Dichloropropene	**NS**	**NS**	ND		0.00126	0.00014	ND		0.00138	0.000153	ND		0.0016	0.000178	ND		0.0012	0.000133
Trichloroethene	**0.47**	**21**	ND		0.00126	0.000188	ND		0.00138	0.000206	ND		0.0016	0.000238	ND		0.0012	0.000179
Trichlorofluoromethane	**NS**	**NS**	ND		0.00126	0.000512	ND		0.00138	0.00056	ND		0.0016	0.00065	ND		0.0012	0.000487
Vinyl chloride	**0.02**	**0.9**	ND		0.00126	0.000408	ND		0.00138	0.000447	ND		0.0016	0.000518	ND		0.0012	0.000389
TOTAL VO's:	**NS**	**NS**	0.0041	CJ		NA	ND			NA	ND			NA	ND			NA
TOTAL TIC's:	**NS**	**NS**	ND			NA	ND			NA	ND			NA	ND			NA
TOTAL VO's & TIC's:	**NS**	**NS**	0.0041	CJ		NA	ND			NA	ND			NA	ND			NA

Target Compounds	SB3A Sample Depth: 0-2'				SB3B Sample Depth: 10-12'				SB4A Sample Depth: 0-2'				SB4B Sample Depth: 10-12'			
Volatiles (mg/Kg)	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
1,1,1-Trichloroethane	ND		0.00126	0.000387	ND		0.00114	0.00035	ND		0.00139	0.000427	ND		0.00146	0.000448
1,1,2,2-Tetrachloroethane	ND		0.00126	0.000659	ND		0.00114	0.000596	ND		0.00139	0.000727	ND		0.00146	0.000764
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00252	0.000752	ND		0.00228	0.000681	ND		0.00278	0.00083	ND		0.00292	0.000872
1,1,2-Trichloroethane	ND		0.00126	0.00027	ND		0.00114	0.000244	ND		0.00139	0.000297	ND		0.00146	0.000312
1,1-Dichloroethane	ND		0.00252	0.000321	ND		0.00228	0.000291	ND		0.00278	0.000354	ND		0.00292	0.000372
1,1-Dichloroethene	ND		0.00126	0.000441	ND		0.00114	0.000399	ND		0.00139	0.000487	ND		0.00146	0.000511
1,2,3-Trichlorobenzene	ND		0.00252	0.000401	ND		0.00228	0.000363	ND		0.00278	0.000442	ND		0.00292	0.000464
1,2,4-Trichlorobenzene	ND		0.00126	0.000529	ND		0.00114	0.000479	ND		0.00139	0.000584	ND		0.00146	0.000613
1,2-Dibromo-3-chloropropane	ND		0.00126	0.00104	ND		0.00114	0.000939	ND		0.00139	0.00115	ND		0.00146	0.0012
1,2-Dibromoethane (EDB)	ND		0.00126	0.000233	ND		0.00114	0.000211	ND		0.00139	0.000257	ND		0.00146	0.00027
1,2-Dichlorobenzene	ND		0.00126	0.000316	ND		0.00114	0.000286	ND		0.00139	0.000349	ND		0.00146	0.000366
1,2-Dichloroethane (EDC)	ND		0.00126	0.000291	ND		0.00114	0.000263	ND		0.00139	0.000321	ND		0.00146	0.000337
1,2-Dichloropropane	ND		0.00126	0.000126	ND		0.00114	0.000114	ND		0.00139	0.000139	ND		0.00146	0.000146
1,3-Dichlorobenzene	ND		0.00126	0.000334	ND		0.00114	0.000302	ND		0.00139	0.000368	ND		0.00146	0.000387
1,3-Dichloropropene (cis- and trans-)	ND		0.00126	0.00014	ND		0.00114	0.000127	ND		0.00139	0.000154	ND		0.00146	0.000162
1,4-Dichlorobenzene	ND		0.00126	0.000391	ND		0.00114	0.000353	ND		0.00139	0.000431	ND		0.00146	0.000453
2-Butanone (MEK)	ND		0.013	0.00252	ND		0.011	0.00228	ND		0.014	0.00278	ND		0.015	0.00292
2-Hexanone	ND		0.013	0.00193	ND		0.011	0.00175	ND		0.014	0.00213	ND		0.015	0.00224
4-Methyl-2-pentanone (MIBK)	ND		0.013	0.000659	ND		0.011	0.000596	ND		0.014	0.000727	ND		0.015	0.000764
Acetone	ND		0.013	0.0063	ND		0.011	0.0057	ND		0.014	0.00695	ND		0.015	0.0073
Benzene	ND		0.00126	0.000108	ND		0.00114	0.000098	ND		0.00139	0.00012	ND		0.00146	0.000126
Bromochloromethane	ND		0.00126	0.00032	ND		0.00114	0.00029	ND		0.00139	0.000353	ND		0.00146	0.000371
Bromodichloromethane	ND		0.00126	0.00015	ND		0.00114	0.000136	ND		0.00139	0.000165	ND		0.00146	0.000174
Bromoform	ND		0.00126	0.000392	ND		0.00114	0.000355	ND		0.00139	0.000432	ND		0.00146	0.000454
Bromomethane	ND		0.00252	0.0011	ND		0.00228	0.000994	ND		0.00278	0.00121	ND		0.00292	0.00127
Carbon disulfide	ND		0.00126	0.000495	ND		0.00114	0.000448	ND		0.00139	0.000546	ND		0.00146	0.000574
Carbon tetrachloride	ND		0.00126	0.000252	ND		0.00114	0.000228	ND		0.00139	0.000278	ND		0.00146	0.000292
Chlorobenzene	ND		0.00126	0.000218	ND		0.00114	0.000197	ND		0.00139	0.00024	ND		0.00146	0.000253
Chloroethane	ND		0.00126	0.000374	ND		0.00114	0.000339	ND		0.00139	0.000413	ND		0.00146	0.000434
Chloroform	ND		0.00252	0.00063	ND		0.00228	0.00057	ND		0.00278	0.000695	ND		0.00292	0.00073
Chloromethane	ND		0.00252	0.000399	ND		0.00228	0.000361	ND		0.00278	0.000441	ND		0.00292	0.000463
cis-1,2-Dichloroethene	ND		0.00252	0.00027	ND		0.00228	0.000244	ND		0.00278	0.000297	ND		0.00292	0.000312
cis-1,3-Dichloropropene	ND		0.00126	0.000193	ND		0.00114	0.000174	ND		0.00139	0.000213	ND		0.00146	0.000223
Cyclohexane	ND		0.0063	0.000227	ND		0.0057	0.000205	ND		0.00695	0.00025	ND		0.0073	0.000263
Dibromochloromethane	ND		0.00126	0.000209	ND		0.00114	0.000189	ND		0.00139	0.000231	ND		0.00146	0.000242
Dichlorodifluoromethane	ND		0.00126	0.000654	ND		0.00114	0.000592	ND		0.00139	0.000721	ND		0.00146	0.000758
Ethylbenzene	ND		0.00126	0.000137	ND		0.00114	0.000124	ND		0.00139	0.000152	ND		0.00146	0.000159
Isopropylbenzene	ND		0.00126	0.000268	ND		0.00114	0.000243	ND		0.00139	0.000296	ND		0.00146	0.000311
Methyl acetate	ND		0.00126	0.00102	ND		0.00114	0.000921	ND		0.00139	0.00112	ND		0.00146	0.00118
Methyl tert-butyl ether (MTBE)	ND		0.00126	0.000275	ND		0.00114	0.000249	ND		0.00139	0.000303	ND		0.00146	0.000318
Methylcyclohexane	ND		0.00252	0.000217	ND		0.00228	0.000196	ND		0.00278	0.000239	ND		0.00292	0.000251
Methylene chloride	ND		0.0063	0.00378	ND		0.0057	0.00342	ND		0.00695	0.00417	0.00464	CJ	0.0073	0.00438
Styrene	ND		0.00126	0.000271	ND		0.00114	0.000245	ND		0.00139	0.000299	ND		0.00146	0.000314
Tetrachloroethene	ND		0.00126	0.00013	ND		0.00114	0.000117	ND		0.00139	0.000143	ND		0.00146	0.00015
Toluene	ND		0.00126	0.00063	ND		0.00114	0.00057	ND		0.00139	0.000695	ND		0.00146	0.00073
Total Xylenes	ND		0.00252	0.000176	ND		0.00228	0.00016	ND		0.00278	0.000195	ND		0.00292	0.000204
trans-1,2-Dichloroethene	ND		0.00252	0.000446	ND		0.00228	0.000404	ND		0.00278	0.000492	ND		0.00292	0.000517
trans-1,3-Dichloropropene	ND		0.00126	0.00014	ND		0.00114	0.000127	ND		0.00139	0.000154	ND		0.00146	0.000162
Trichloroethene	ND		0.00126	0.000188	ND		0.00114	0.00017	ND		0.00139	0.000207	ND		0.00146	0.000218
Trichlorofluoromethane	ND		0.00126	0.000512	ND		0.00114	0.000463	ND		0.00139	0.000564	ND		0.00146	0.000593
Vinyl chloride	ND		0.00126	0.000408	ND		0.00114	0.000369	ND		0.00139	0.00045	ND		0.00146	0.000473
TOTAL VO's:	ND			NA	ND			NA	ND			NA	0.00464	CJ		NA
TOTAL TIC's:	ND			NA	ND			NA	ND			NA	ND			NA
TOTAL VO's & TIC's:	ND			NA	ND			NA	ND			NA	0.00464	CJ		NA

Results in Yellow Highlight displays exceedance above the UUSCO regulatory standard
Results in Green Highlight displays exceedance above both UUSCO & RRUSCO regulatory standard
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

NS = No Standard Available
D = The compound was reported from the Diluted analysis
ND = Analyzed for but Not Detected at the MDL

Table 1A (Cont'd) - Soil Results - SVOCs
Fulton 11
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.2

Target Compounds	NYSDEC Unrestricted Use SCO	NYSDEC Restricted Residential SCO	SB1A Sample Depth: 0-2'				SB1B Sample Depth: 10-12'				SB2A Sample Depth: 0-2'				SB2B Sample Depth: 10-12'				SB3A Sample Depth: 0-2'				SB3B Sample Depth: 10-12'				SB4A Sample Depth: 0-2'				SB4B Sample Depth: 10-12'			
Semivolatiles - BNA (mg/Kg)			Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
1,1'-Biphenyl	NS	NS	ND		0.037	0.00546	ND		0.037	0.00549	ND		0.385	0.057	ND		0.035	0.00519	ND		0.037	0.00552	ND		0.035	0.00522	ND		0.037	0.00544	ND		0.035	0.00523
1,2,4,5-Tetrachlorobenzene	NS	NS	ND		0.037	0.012	ND		0.037	0.012	ND		0.385	0.129	ND		0.035	0.012	ND		0.037	0.012	ND		0.035	0.012	ND		0.037	0.012	ND		0.035	0.012
1,4-Dioxane	0.1	13	ND		0.037	0.024	ND		0.037	0.024	ND		0.385	0.249	ND		0.035	0.023	ND		0.037	0.024	ND		0.035	0.023	ND		0.037	0.024	ND		0.035	0.023
2,2'-Oxybis(1-Chloropropane)	NS	NS	ND		0.037	0.00915	ND		0.037	0.0092	ND		0.385	0.096	ND		0.035	0.0087	ND		0.037	0.00925	ND		0.035	0.00876	ND		0.037	0.00913	ND		0.035	0.00877
2,3,4,6-Tetrachlorophenol	NS	NS	ND		0.037	0.013	ND		0.037	0.013	ND		0.385	0.132	ND		0.035	0.012	ND		0.037	0.013	ND		0.035	0.012	ND		0.037	0.013	ND		0.035	0.012
2,4,5-Trichlorophenol	NS	NS	ND		0.037	0.028	ND		0.037	0.028	ND		0.385	0.292	ND		0.035	0.027	ND		0.037	0.028	ND		0.035	0.027	ND		0.037	0.028	ND		0.035	0.027
2,4,6-Trichlorophenol	NS	NS	ND		0.037	0.010	ND		0.037	0.010	ND		0.385	0.106	ND		0.035	0.00959	ND		0.037	0.010	ND		0.035	0.00965	ND		0.037	0.010	ND		0.035	0.00967
2,4-Dichlorophenol	NS	NS	ND		0.037	0.00975	ND		0.037	0.0098	ND		0.385	0.102	ND		0.035	0.00928	ND		0.037	0.00986	ND		0.035	0.00934	ND		0.037	0.00973	ND		0.035	0.00935
2,4-Dimethylphenol	NS	NS	ND		0.037	0.011	ND		0.037	0.011	ND		0.385	0.113	ND		0.035	0.010	ND		0.037	0.011	ND		0.035	0.010	ND		0.037	0.011	ND		0.035	0.010
2,4-Dinitrophenol	NS	NS	ND		0.073	0.015	ND		0.074	0.015	ND		0.769	0.158	ND		0.070	0.014	ND		0.074	0.015	ND		0.070	0.014	ND		0.073	0.015	ND		0.070	0.015
2,4-Dinitrotoluene	NS	NS	ND		0.073	0.042	ND		0.074	0.042	ND		0.769	0.435	ND		0.070	0.040	ND		0.074	0.042	ND		0.070	0.040	ND		0.073	0.041	ND		0.070	0.040
2,6-Dinitrotoluene	NS	NS	ND		0.073	0.042	ND		0.074	0.042	ND		0.769	0.440	ND		0.070	0.040	ND		0.074	0.043	ND		0.070	0.040	ND		0.073	0.042	ND		0.070	0.040
2-Chloronaphthalene	NS	NS	ND		0.037	0.00847	ND		0.037	0.00852	ND		0.385	0.089	ND		0.035	0.00806	ND		0.037	0.00857	ND		0.035	0.00811	ND		0.037	0.00845	ND		0.035	0.00812
2-Chlorophenol	NS	NS	ND		0.037	0.012	ND		0.037	0.012	ND		0.385	0.125	ND		0.035	0.011	ND		0.037	0.012	ND		0.035	0.011	ND		0.037	0.012	ND		0.035	0.011
2-Methylnaphthalene	NS	NS	ND		0.037	0.013	0.023	J	0.037	0.013	0.197	DJ	0.385	0.135	ND		0.035	0.012	ND		0.037	0.013	ND		0.035	0.012	0.051		0.037	0.013	ND		0.035	0.012
2-Methylphenol	0.33	100	ND		0.037	0.017	ND		0.037	0.017	ND		0.385	0.173	ND		0.035	0.016	ND		0.037	0.017	ND		0.035	0.016	ND		0.037	0.016	ND		0.035	0.016
2-Nitroaniline	NS	NS	ND		0.037	0.020	ND		0.037	0.020	ND		0.385	0.204	ND		0.035	0.019	ND		0.037	0.020	ND		0.035	0.019	ND		0.037	0.019	ND		0.035	0.019
2-Nitrophenol	NS	NS	ND		0.073	0.022	ND		0.074	0.022	ND		0.769	0.229	ND		0.070	0.021	ND		0.074	0.022	ND		0.070	0.021	ND		0.073	0.022	ND		0.070	0.021
3,3'-Dichlorobenzidine	NS	NS	ND		0.037	0.026	ND		0.037	0.026	ND		0.385	0.272	ND		0.035	0.025	ND		0.037	0.026	ND		0.035	0.025	ND		0.037	0.026	ND		0.035	0.025
3-Methylphenol	0.33	100	ND		0.037	0.024	ND		0.037	0.024	ND		0.385	0.249	ND		0.035	0.023	ND		0.037	0.024	ND		0.035	0.023	ND		0.037	0.024	ND		0.035	0.023
3-Nitroaniline	NS	NS	ND		0.037	0.023	ND		0.037	0.023	ND		0.385	0.243	ND		0.035	0.022	ND		0.037	0.024	ND		0.035	0.022	ND		0.037	0.023	ND		0.035	0.022
4,6-Dinitro-2-methylphenol	NS	NS	ND		0.073	0.016	ND		0.074	0.016	ND		0.769	0.163	ND		0.070	0.015	ND		0.074	0.016	ND		0.070	0.015	ND		0.073	0.016	ND		0.070	0.015
4-Bromophenyl phenyl ether	NS	NS	ND		0.037	0.010	ND		0.037	0.010	ND		0.385	0.107	ND		0.035	0.00967	ND		0.037	0.010	ND		0.035	0.00973	ND		0.037	0.010	ND		0.035	0.00974
4-Chloro-3-methylphenol	NS	NS	ND		0.037	0.014	ND		0.037	0.014	ND		0.385	0.149	ND		0.035	0.014	ND		0.037	0.014	ND		0.035	0.014	ND		0.037	0.014	ND		0.035	0.014
4-Chloroaniline	NS	NS	ND		0.037	0.014	ND		0.037	0.014	ND		0.385	0.148	ND		0.035	0.013	ND		0.037	0.014	ND		0.035	0.014	ND		0.037	0.014	ND		0.035	0.014
4-Chlorophenyl phenyl ether	NS	NS	ND		0.037	0.00806	ND		0.037	0.0081	ND		0.385	0.085	ND		0.035	0.00767	ND		0.037	0.00815	ND		0.035	0.00772	ND		0.037	0.00804	ND		0.035	0.00773
4-Methylphenol **	0.33	100	ND		0.037	0.017	ND		0.037	0.017	ND		0.385	0.175	ND		0.035	0.016	ND		0.037	0.017	ND		0.035	0.016	ND		0.037	0.017	ND		0.035	0.016
4-Nitroaniline	NS	NS	ND		0.037	0.022	ND		0.037	0.022	ND		0.385	0.228	ND		0.035	0.021	ND		0.037	0.022	ND		0.035	0.021	ND		0.037	0.022	ND		0.035	0.021
4-Nitrophenol	NS	NS	ND		0.073	0.037	ND		0.074	0.037	ND		0.769	0.388	ND		0.070	0.035	ND		0.074	0.037	ND		0.070	0.035	ND		0.073	0.037	ND		0.070	0.036
Acenaphthene	20	100	0.095		0.037	0.00724	0.081		0.037	0.00728	0.788	D	0.385	0.076	ND		0.035	0.00689	0.053		0.037	0.00732	ND		0.035	0.00693	0.339		0.037	0.00723	0.125		0.035	0.00694
Acenaphthylene	100	100	0.184		0.037	0.00803	0.168		0.037	0.00807	2.25	D	0.385	0.084	ND		0.035	0.00764	0.098		0.037	0.00812	ND		0.035	0.00769	0.117		0.037	0.00801	0.190		0.035	0.0077
Acetophenone	NS	NS	ND		0.037	0.022	ND		0.037	0.023	ND		0.385	0.234	ND		0.035	0.021	ND		0.037	0.023	ND		0.035	0.021	ND		0.037	0.022	ND		0.035	0.021
Anthracene	100	100	0.360		0.037	0.00373	0.341		0.037	0.00375	3.27	D	0.385	0.039	ND		0.035	0.00355	0.201		0.037	0.00377	ND		0.035	0.00357	0.738		0.037	0.00372	0.360		0.035	0.00358
Atrazine	NS	NS	ND		0.037	0.022	ND		0.037	0.022	ND		0.385	0.229	ND		0.035	0.021	ND		0.037	0.022	ND		0.035	0.021	ND		0.037	0.022	ND		0.035	0.021
Benzaldehyde	NS	NS	ND		0.073	0.028	0.135		0.074	0.028	ND		0.769	0.289	ND		0.070	0.026	ND		0.074	0.028	ND		0.070	0.026	ND		0.073	0.028	ND		0.070	0.026
Benzo[a]anthracene	1	1	1.65		0.037	0.013	1.72		0.037	0.013	10.6	D	0.385	0.140	ND		0.035	0.013	0.693		0.037	0.014	ND		0.035	0.013	1.81		0.037	0.013	1.35		0.035	0.013
Benzo[a]pyrene	1	1	1.84		0.037	0.018	1.35		0.037	0.018	9.82	D	0.385	0.186	ND		0.035	0.017	0.672		0.037	0.018	ND		0.035	0.017	1.72		0.037	0.018	1.44		0.035	0.017
Benzo[b]fluoranthene	1	1	2.23		0.037	0.018	1.07		0.037	0.018	9.82	D	0.385	0.190	ND		0.035	0.017	0.616		0.037	0.018	ND		0.035	0.017	1.76		0.037	0.018	1.45		0.035	0.017
Benzo[g,h,i]perylene	100	100	1.32		0.037	0.028	0.863		0.037	0.028	5.20	D	0.385	0.290	ND		0.035	0.026	0.514		0.037	0.028	ND		0.035	0.027	1.15		0.037	0.028	0.887		0.035	0.027
Benzo[k]fluoranthene	0.8	3.9	1.21		0.037	0.025	0.917		0.037	0.026	9.27	D	0.385	0.266	ND		0.035	0.024	0.656		0.037	0.026	ND		0.035	0.024	1.47		0.037	0.025	1.25		0.035	0.024
Bis(2-chloroethoxy) methane	NS	NS	ND		0.037	0.00817	ND		0.037	0.00822	ND		0.385	0.086	ND		0.035	0.00778	ND		0.037	0.00827	ND		0.035	0.00783	ND		0.037	0.00816	ND		0.035	0.00784
Bis(2-chloroethyl) ether	NS	NS	ND		0.037	0.013	ND		0.037	0.013	ND		0.385	0.135	ND		0.035	0.012	ND		0.037	0.013	ND		0.035	0.012	ND		0.037	0.013	ND		0.035	0.012
Bis(2-ethylhexyl) phthalate	NS	NS	ND		0.037	0.024	ND		0.037	0.024	ND		0.385	0.247	ND		0.035	0.022	ND		0.037	0.024	ND		0.035	0.023	0.068		0.037	0.024	0.040		0.035	0.023
Butyl benzyl phthalate	NS	NS	ND		0.037	0.016	ND		0.037	0.016	ND		0.385	0.171	ND		0.035	0.016	ND		0.037	0.017	ND		0.035	0.016	ND		0.037	0.016	ND		0.035	0.016
Caprolactam	NS	NS	ND		0.073	0.027	ND		0.074	0.027	ND		0.769	0.283	ND		0.070	0.026	ND		0.074	0.027	ND		0.070	0.026	ND		0.073	0.027	ND		0.070	0.026
Carbazole	NS	NS	0.125		0.037	0.00855	0.055		0.037	0.00859	1.23	D	0.385	0.090	ND		0.035	0.00814	0.122		0.037	0.00864	ND		0.035	0.00818	0.343		0.037	0.00853	0.154		0.035	0.0082
Chrysene	1	3.9	1.57		0.037	0.010	1.64		0.037	0.010	9.92	D	0.385	0.106	ND		0.035	0.00963	0.674		0.037	0.010	ND		0.035	0.00969	1.64		0.037	0.010	1.29		0.035	0.0097
Dibenz[a,h]anthracene	0.33	0.33	0.624		0.037	0.015	0.420		0.037	0.015	2.34	D	0.385	0.154	ND		0.035	0.014	0.210		0.037	0.015	ND		0.035	0.014	0.601		0.037	0.015	0.435		0.035	0.014
Dibenzofuran	7	59	ND		0.037	0.0048	0.019	J	0.037	0.00482	0.571	D	0.385	0.050	ND		0.035	0.00456	0.043		0.037	0.00485	ND		0.035	0.00459	0.168		0.037	0.00479	0.053		0.035	0.0046
Diethyl phthalate	NS	NS	ND		0.037	0.011	ND		0.037	0.012	ND		0.385	0.120	ND		0.035	0.011	ND		0.037	0.012	ND		0.035	0.011	ND		0.037	0.011	ND		0.035	0.011
Dimethyl phthalate	NS	NS	ND		0.037	0.00842	ND		0.037	0.00846	ND		0.385	0.088	ND		0.035	0.00801	ND		0.037	0.00851	ND		0.035	0.00806	ND		0.037	0.0084	ND		0.035	0.00807
Di-n-butyl phthalate	NS	NS	ND		0.037	0.015	ND		0.037	0.015	ND		0.385	0.156	ND		0.035	0.014	ND		0.037	0.015	ND		0.035	0.014	ND		0.037	0.015	ND		0.035	0.014
Dinitrotoluene (2,4- and 2,6-)	NS	NS	ND		0.073	0.042	ND		0.074	0.042	ND		0.769	0.435	ND		0.070	0.040	ND		0.074	0.042	ND		0.070	0.040	ND		0.073	0.041	ND		0.070	0.040
Di-n-octyl phthalate	NS	NS	ND		0.037	0.027	ND		0.037	0.027	ND		0.385	0.282	ND		0.035	0.026	ND		0.037	0.027	ND		0.035	0.026	ND		0.037	0.027	ND		0.035	0.026
Fluoranthene	100	100	2.98		0.037	0.012	2.26		0.037	0.012	24.8	D	0.385	0.124	ND		0.035	0.011	1.77		0.037	0.012	ND		0.035	0.011	4.20		0.037	0.012	2.50		0.035	0.011
Fluorene	30	100	0.066		0.037	0.00987	0.069		0.037	0.00993	0.933	D	0.385	0.104	ND		0.035	0.0094	0.052		0.037	0.00998	ND		0.035	0.00945	0.284		0.037	0.00985	0.099		0.035	0.00947
Hexachlorobenzene	0.33	1.2	ND		0.037	0.011	ND		0.037	0.012	ND		0.385	0.120	ND		0.035	0.011	ND		0.037	0.012	ND		0.035	0.011	ND		0.037	0.011	ND		0.035	0.011
Hexachlorobutadiene	NS	NS	ND		0.037	0.010	ND		0.037	0.010	ND		0.385	0.107	ND		0.035	0.00968	ND		0.037	0.010	ND		0.035	0.00974	ND		0.037	0.010	ND		0.035	0.00976
Hexachlorocyclopentadiene	NS	NS	ND		0.073	0.064	ND		0.074	0.064	ND		0.769	0.668	ND		0.070	0.061	ND		0.074	0.064	ND		0.070	0.061	ND		0.073	0.064	ND		0.070	0.061
Hexachloroethane	NS	NS	ND		0.037	0.015	ND		0.037	0.015	ND		0.385	0.160	ND		0.035	0.015	ND		0.037	0.015	ND		0.035	0.015	ND		0.037	0.015	ND		0.035	0.015
Indeno[1,2,3-cd]pyrene	0.5	0.5	1.28		0.037	0.024	0.677		0.037	0.024	4.97	D	0.385	0.246	ND		0.035	0.022	0.467		0.037	0.024	ND		0.035	0.023	1.14		0.037	0.023	0.922		0.035	0.023
Isophorone	NS	NS	ND		0.037	0.015	ND		0.037	0.016	ND		0.385	0.162	ND		0.035	0.015	ND		0.037	0.016	ND		0.035	0.015	ND		0.037	0.015	ND		0.035	0.015
Naphthalene	12	100	0.029	J	0.037	0.00535	0.026	J	0.037	0.00538	0.424	D	0.385	0.056	ND		0.035	0.00509	0.028	J	0.037	0.00541	ND		0.035	0.00512	0.108		0.037	0.00534	0.037		0.035	0.00513
Nitrobenzene	NS	15	ND		0.037	0.0089	ND		0.037	0.00895	ND		0.385	0.093	ND		0.035	0.00847	ND		0.037	0.009	ND		0.035	0.00852	ND		0.037	0.00888	ND		0.035	0.00854
N-Nitrosodi-n-propylamine	NS	NS	ND		0.037	0.023	ND		0.037	0.023	ND		0.385	0.239	ND		0.035	0.022	ND		0.037	0.023	ND		0.035	0.022	ND		0.037	0.023	ND		0.035	0.022
N-Nitrosodiphenylamine	NS	NS	ND		0.037	0.00752	ND		0.037	0.00757	ND		0.385	0.079	ND		0.035	0.00716	ND		0.037	0.00761	ND		0.035	0.0072	ND		0.037	0.00751	ND		0.035	0.00721
Pentachlorophenol	0.8	6.7	ND		0.037	0.016	ND		0.037	0.016	ND		0.385	0.170	ND		0.035	0.015	ND		0.037	0.016	ND		0.035	0.016	ND		0.037	0.016	ND		0.035	0.016
Phenanthrene	100	100	1.08		0.037	0.006	1.61		0.037	0.00603	14.8	D	0.385	0.063	ND		0.035	0.00571	1.09		0.037	0.00607	ND		0.035	0.00574	2.74		0.037	0.00599	1.10		0.035	0.00575
Phenol	0.33	100	ND		0.037	0.00829	ND		0.037	0.00834	ND		0.385	0.087	ND		0.035	0.00789	ND		0.037	0.00839	ND		0.035	0.00794	ND		0.037	0.00828	ND		0.035	0.00795
Pyrene	100	100	2.72		0.037	0.00853	3.42		0.037	0.00858	20.5	D	0.385	0.090	ND		0.035	0.00812	1.46		0.037	0.00863	ND		0.035	0.00817	3.42		0.037	0.00851	2.28		0.035	0.00818
TOTAL BNA'S:	NS	NS	19.4	J		NA	16.9	J		NA	132	DJ		NA	ND			NA	9.42	J		NA	ND			NA	23.9			NA	16.0			NA
TOTAL TIC's:	NS	NS	0.568	JN		NA	2.76	JN		NA	3.54	DJN		NA	ND			NA	0.189	J		NA	0.204	JN		NA	0.220	JN		NA	ND			NA
TOTAL BNA'S & TIC's:	NS	NS	20.0	J		NA	19.7	J		NA	136	DJ		NA	ND			NA	9.61	J		NA	0.204			NA	24.1			NA	16.0			NA

Results in Yellow Highlight displays exceedance above the UUSCO regulatory standard
Results in Green Highlight displays exceedance above both UUSCO & RRUSCO regulatory standard
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

NS = No Standard Available
D = The compound was reported from the Diluted analysis
ND = Analyzed for but Not Detected at the MDL

Table 1A (Cont'd) - Soil Results - PCBs, Pesticides, Metals
Fulton 11
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.2

Target Compounds	NYSDEC Unrestricted Use SCO	NYSDEC Restricted Residential SCO	SB1A Sample Depth: 0-2'				SB1B Sample Depth: 10-12'				SB2A Sample Depth: 0-2'				SB2B Sample Depth: 10-12'				SB3A Sample Depth: 0-2'				SB3B Sample Depth: 10-12'				SB4A Sample Depth: 0-2'				SB4B Sample Depth: 10-12'			
PCB's (mg/Kg)			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Aroclor-1016	**NS**	**NS**	ND		0.00365	0.0011	ND		0.0037	0.0011	ND		0.00386	0.0012	ND		0.00348	0.001	ND		0.00369	0.0011	ND		0.00353	0.0011	ND		0.00365	0.0011	ND		0.00351	0.0011
Aroclor-1221	**NS**	**NS**	ND		0.00365	0.0011	ND		0.0037	0.0011	ND		0.00386	0.0012	ND		0.00348	0.001	ND		0.00369	0.0011	ND		0.00353	0.0011	ND		0.00365	0.0011	ND		0.00351	0.0011
Aroclor-1232	**NS**	**NS**	ND		0.00365	0.0011	ND		0.0037	0.0011	ND		0.00386	0.0012	ND		0.00348	0.001	ND		0.00369	0.0011	ND		0.00353	0.0011	ND		0.00365	0.0011	ND		0.00351	0.0011
Aroclor-1242	**NS**	**NS**	ND		0.00365	0.0011	ND		0.0037	0.0011	ND		0.00386	0.0012	ND		0.00348	0.001	ND		0.00369	0.0011	ND		0.00353	0.0011	ND		0.00365	0.0011	ND		0.00351	0.0011
Aroclor-1248	**NS**	**NS**	ND		0.00365	0.0011	ND		0.0037	0.0011	ND		0.00386	0.0012	ND		0.00348	0.001	ND		0.00369	0.0011	ND		0.00353	0.0011	ND		0.00365	0.0011	ND		0.00351	0.0011
Aroclor-1254	**NS**	**NS**	ND		0.00365	0.0011	ND		0.0037	0.0011	ND		0.00386	0.0012	ND		0.00348	0.001	ND		0.00369	0.0011	ND		0.00353	0.0011	ND		0.00365	0.0011	ND		0.00351	0.0011
Aroclor-1260	**NS**	**NS**	ND		0.00365	0.0011	ND		0.0037	0.0011	ND		0.00386	0.0012	ND		0.00348	0.001	ND		0.00369	0.0011	ND		0.00353	0.0011	ND		0.00365	0.0011	ND		0.00351	0.0011
Aroclor-1262	**NS**	**NS**	ND		0.00365	0.0011	ND		0.0037	0.0011	ND		0.00386	0.0012	ND		0.00348	0.001	ND		0.00369	0.0011	ND		0.00353	0.0011	ND		0.00365	0.0011	ND		0.00351	0.0011
Aroclor-1268	**NS**	**NS**	ND		0.00365	0.0011	ND		0.0037	0.0011	ND		0.00386	0.0012	ND		0.00348	0.001	ND		0.00369	0.0011	ND		0.00353	0.0011	ND		0.00365	0.0011	ND		0.00351	0.0011
PCBs	**0.1**	**1**	ND		0.00365	0.0011	ND		0.0037	0.00111	ND		0.00386	0.00116	ND		0.00348	0.00104	ND		0.00369	0.00111	ND		0.00353	0.00106	ND		0.00365	0.0011	ND		0.00351	0.00105
Pesticides (mg/Kg)			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
alpha-BHC	**0.02**	**0.48**	ND		0.00073	0.00013	ND		0.00074	0.000132	ND		0.000772	0.000138	ND		0.000696	0.000124	ND		0.000738	0.000132	ND		0.000706	0.000126	ND		0.00073	0.00013	ND		0.000702	0.000125
beta-BHC	**0.036**	**0.36**	ND		0.00073	0.00017	ND		0.00074	0.000173	ND		0.000772	0.00018	ND		0.000696	0.000162	ND		0.000738	0.000172	ND		0.000706	0.000165	ND		0.00073	0.00017	ND		0.000702	0.000164
gamma-BHC (Lindane)	**0.1**	**1.3**	ND		0.00073	0.000163	ND		0.00074	0.000165	ND		0.000772	0.000172	ND		0.000696	0.000155	ND		0.000738	0.000165	ND		0.000706	0.000157	ND		0.00073	0.000163	ND		0.000702	0.000157
delta-BHC	**0.04**	**100**	ND		0.00073	0.000141	ND		0.00074	0.000143	ND		0.000772	0.00015	ND		0.000696	0.000135	ND		0.000738	0.000143	ND		0.000706	0.000137	ND		0.00073	0.000141	ND		0.000702	0.000136
Heptachlor	**0.042**	**2.1**	ND		0.00073	0.000173	ND		0.00074	0.000176	0.00288		0.000772	0.000183	ND		0.000696	0.000165	ND		0.000738	0.000175	ND		0.000706	0.000168	ND		0.00073	0.000173	ND		0.000702	0.000167
Aldrin	**0.005**	**0.097**	ND		0.00073	0.000153	ND		0.00074	0.000155	ND		0.000772	0.000162	ND		0.000696	0.000145	ND		0.000738	0.000154	ND		0.000706	0.000148	ND		0.00073	0.000153	ND		0.000702	0.000147
Heptachlor epoxide	**NS**	**NS**	0.00119		0.00073	0.000158	0.000932		0.00074	0.000161	0.00404		0.000772	0.000168	ND		0.000696	0.000151	ND		0.000738	0.00016	ND		0.000706	0.000153	ND		0.00073	0.000158	ND		0.000702	0.000152
Endosulfan I	**2.4**	**24**	ND		0.00073	0.000163	ND		0.00074	0.000165	ND		0.000772	0.000173	ND		0.000696	0.000156	ND		0.000738	0.000165	ND		0.000706	0.000158	ND		0.00073	0.000163	ND		0.000702	0.000157
4,4'-DDE	**0.0033**	**8.9**	**0.011**		0.00073	0.000149	**0.00656**		0.00074	0.000151	**0.024**		0.000772	0.000158	ND		0.000696	0.000142	**0.024**		0.000738	0.000151	ND		0.000706	0.000144	**0.052**		0.00073	0.000149	**0.013**		0.000702	0.000143
Dieldrin	**0.005**	**0.2**	ND		0.00073	0.000149	ND		0.00074	0.000151	ND		0.000772	0.000157	ND		0.000696	0.000142	ND		0.000738	0.00015	ND		0.000706	0.000144	**0.00707**		0.00073	0.000149	0.00196		0.000702	0.000143
Endrin	**0.014**	**11**	ND		0.00073	0.000184	ND		0.00074	0.000187	ND		0.000772	0.000195	ND		0.000696	0.000175	ND		0.000738	0.000186	ND		0.000706	0.000178	ND		0.00073	0.000184	ND		0.000702	0.000177
Endosulfan II	**2.4**	**24**	ND		0.00073	0.000167	ND		0.00074	0.00017	ND		0.000772	0.000177	ND		0.000696	0.000159	ND		0.000738	0.000169	ND		0.000706	0.000162	ND		0.00073	0.000167	ND		0.000702	0.000161
4,4'-DDD	**0.0033**	**13**	**0.00722**		0.00073	0.000195	ND		0.00074	0.000197	**0.012**		0.000772	0.000206	ND		0.000696	0.000185	0.00289		0.000738	0.000197	ND		0.000706	0.000188	ND		0.00073	0.000195	ND		0.000702	0.000187
Endrin aldehyde	**NS**	**NS**	ND		0.00073	0.000153	ND		0.00074	0.000155	ND		0.000772	0.000162	ND		0.000696	0.000146	ND		0.000738	0.000154	ND		0.000706	0.000148	ND		0.00073	0.000153	ND		0.000702	0.000147
Endosulfan sulfate	**2.4**	**24**	ND		0.00073	0.000181	ND		0.00074	0.000183	ND		0.000772	0.000191	ND		0.000696	0.000172	ND		0.000738	0.000183	ND		0.000706	0.000175	ND		0.00073	0.000181	ND		0.000702	0.000174
4,4'-DDT	**0.0033**	**7.9**	**0.019**		0.00073	0.000136	**0.025**		0.00074	0.000138	**0.097**		0.000772	0.000144	0.000265	J	0.000696	0.000129	**0.050**		0.000738	0.000137	ND		0.000706	0.000131	**0.085**		0.00073	0.000136	**0.026**		0.000702	0.000131
Endrin ketone	**NS**	**NS**	ND		0.00073	0.000142	ND		0.00074	0.000144	ND		0.000772	0.00015	ND		0.000696	0.000135	ND		0.000738	0.000144	ND		0.000706	0.000138	ND		0.00073	0.000142	ND		0.000702	0.000137
Methoxychlor	**NS**	**NS**	ND		0.00073	0.000195	ND		0.00074	0.000198	ND		0.000772	0.000206	ND		0.000696	0.000186	ND		0.000738	0.000197	ND		0.000706	0.000189	ND		0.00073	0.000195	ND		0.000702	0.000188
alpha-Chlordane	**0.094**	**4.2**	0.00473		0.00073	0.000161	0.00266		0.00074	0.000163	0.016		0.000772	0.00017	ND		0.000696	0.000153	0.023		0.000738	0.000163	ND		0.000706	0.000156	0.00577		0.00073	0.000161	0.00185		0.000702	0.000155
gamma-Chlordane	**NS**	**NS**	0.00584		0.00073	0.000143	0.00281		0.00074	0.000145	0.019		0.000772	0.000152	ND		0.000696	0.000137	0.022		0.000738	0.000145	ND		0.000706	0.000139	0.00815		0.00073	0.000143	0.00203		0.000702	0.000138
Toxaphene	**NS**	**NS**	ND		0.00913	0.00365	ND		0.00925	0.0037	ND		0.00965	0.00386	ND		0.0087	0.00348	ND		0.00923	0.00369	ND		0.00883	0.00353	ND		0.00913	0.00365	ND		0.00878	0.00351
Endosulfan (I and II)	**NS**	**NS**	ND		0.00073	0.000163	ND		0.00074	0.000165	ND		0.000772	0.000173	ND		0.000696	0.000156	ND		0.000738	0.000165	ND		0.000706	0.000158	ND		0.00073	0.000163	ND		0.000702	0.000157
Chlordane (alpha and gamma)	**NS**	**NS**	0.011		0.00073	0.000143	0.00547		0.00074	0.000145	0.034		0.000772	0.000152	ND		0.000696	0.000137	0.044		0.000738	0.000145	ND		0.000706	0.000139	0.014		0.00073	0.000143	0.00388		0.000702	0.000138
*** Metals (mg/Kg)**			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Aluminum	**NS**	**NS**	2040				3770				6220				3640				5880				4440				7330				6130			
Antimony	**NS**	**NS**	<2.2				<2.1				<2.3				<2.1				<2.2				<2.1				<2.2				<2.2			
Arsenic	**13**	**16**	<2.2				5.6				5.7				<2.1				4.2				2.4				12.2				6.7			
Barium	**350**	**400**	84.7				**408**				**363**				37.9				206				41.1				246				194			
Beryllium	**7.2**	**72**	0.26				0.3				0.45				0.41				0.45				0.4				0.33				0.42			
Cadmium	**2.5**	**4.3**	<0.56				1.3				<0.58				<0.53				<0.56				<0.52				0.61				<0.55			
Calcium	**NS**	**NS**	17400				14600				31500				1980				9640				5710				15500				20000			
Chromium	**NS**	**NS**	5				12.8				14.2				9.9				12.3				10.8				13.6				14.9			
Cobalt	**NS**	**NS**	<5.6				<5.3				<5.8				<5.3				<5.6				<5.2				<5.4				<5.5			
Copper	**50**	**270**	12.6				19.7				34.7				10.9				16.8				14				34.9				23.8			
Iron	**NS**	**NS**	3370				9690				9550				7770				13900				8580				11600				10300			
Lead	**63**	**400**	**130**				**547**				**797**				8.8				**301**				26.2				**500**				**353**			
Magnesium	**NS**	**NS**	2140				3550				2970				1920				3430				2510				2460				2940			
Manganese	**1600**	**2000**	97.7				269				293				236				258				299				241				337			
Mercury	**0.18**	**0.81**	**0.59**				**0.62**				**0.7**				<0.032				**0.67**				0.11				**1.2**				**0.33**			
Nickel	**30**	**310**	4.5				8.6				11.3				8.4				12.6				14				10.6				12			
Potassium	**NS**	**NS**	<1100				<1100				1240				1150				1530				<1000				<1100				<1100			
Selenium	**3.9**	**180**	<2.2				<2.1				<2.3				<2.1				<2.2				<2.1				<2.2				<2.2			
Silver	**2**	**180**	1.2				0.63				<0.58				<0.53				0.62				<0.52				0.68				0.58			
Sodium	**NS**	**NS**	<1100				<1100				<1200				<1100				<1100				<1000				<1100				<1100			
Thallium	**NS**	**NS**	<1.1				<1.1				<1.2				<1.1				<1.1				<1.0				<1.1				<1.1			
Vanadium	**NS**	**NS**	5.8				14.3				22.4				12.5				25.9				14.9				20.9				16.3			
Zinc	**109**	**10000**	87.4				**616**				**329**				25.4				**164**				42.1				**288**				**180**			
General Analytical			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	4.73	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Cyanide, Total	**27**	**27**	ND		1.10	0.220	ND		1.11	0.223	ND		1.16	0.232	ND		1.05	0.209	ND		1.11	0.222	ND		1.04	0.208	ND		1.10	0.220	ND		1.05	0.211

Results in Yellow Highlight displays exceedance above the UUSCO regulatory standard
Results in Green Highlight displays exceedance above both UUSCO & RRUSCO regulatory standard
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

NS = No Standard Available
D = The compound was reported from the Diluted analysis
ND = Analyzed for but Not Detected at the MDL
~ = Sample not analyzed

*** TAL Metals analyzed by SGS Dayton.**

Table 1A (Cont'd) - Soil Results - VOCs
Fulton 11
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.2

Target Compounds	NYSDEC Unrestricted Use SCO	NYSDEC Restricted Residential SCO	SB5 Sample Depth: 0-2'				SB6-419 CS Sample Depth: 0-0.5'				SB8-401 CS Sample Depth: 0-0.5'				SB9A Sample Depth: 10-12'				SB9B Sample Depth: 0-2'				SB10A Sample Depth: 0-2'				SB10B Sample Depth: 10-12'			
Volatiles (mg/Kg)			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
1,1,1-Trichloroethane	**0.68**	**100**	ND		0.00132	0.000405	ND		0.00136	0.000418	ND		0.00141	0.000433	ND		0.00157	0.000482	ND		0.00137	0.000421	ND		0.00146	0.000448	ND		0.00108	0.000332
1,1,2,2-Tetrachloroethane	**NS**	**NS**	ND		0.00132	0.00069	ND		0.00136	0.000711	ND		0.00141	0.000737	ND		0.00157	0.000821	ND		0.00137	0.000717	ND		0.00146	0.000764	ND		0.00108	0.000565
1,1,2-Trichloro-1,2,2-trifluoroethane	**NS**	**NS**	ND		0.00264	0.000788	ND		0.00272	0.000812	ND		0.00282	0.000842	ND		0.00314	0.000937	ND		0.00274	0.000818	ND		0.00292	0.000872	ND		0.00216	0.000645
1,1,2-Trichloroethane	**NS**	**NS**	ND		0.00132	0.000282	ND		0.00136	0.000291	ND		0.00141	0.000302	ND		0.00157	0.000336	ND		0.00137	0.000293	ND		0.00146	0.000312	ND		0.00108	0.000231
1,1-Dichloroethane	**0.27**	**26**	ND		0.00264	0.000337	ND		0.00272	0.000347	ND		0.00282	0.00036	ND		0.00314	0.0004	ND		0.00274	0.000349	ND		0.00292	0.000372	ND		0.00216	0.000275
1,1-Dichloroethene	**0.33**	**100**	ND		0.00132	0.000462	ND		0.00136	0.000476	ND		0.00141	0.000494	ND		0.00157	0.00055	ND		0.00137	0.00048	ND		0.00146	0.000511	ND		0.00108	0.000378
1,2,3-Trichlorobenzene	**NS**	**NS**	ND		0.00264	0.00042	ND		0.00272	0.000432	ND		0.00282	0.000448	ND		0.00314	0.000499	ND		0.00274	0.000436	ND		0.00292	0.000464	ND		0.00216	0.000343
1,2,4-Trichlorobenzene	**NS**	**NS**	ND		0.00132	0.000554	ND		0.00136	0.000571	ND		0.00141	0.000592	ND		0.00157	0.000659	ND		0.00137	0.000575	ND		0.00146	0.000613	ND		0.00108	0.000454
1,2-Dibromo-3-chloropropane	**NS**	**NS**	ND		0.00132	0.00109	ND		0.00136	0.00112	ND		0.00141	0.00116	ND		0.00157	0.00129	ND		0.00137	0.00113	ND		0.00146	0.0012	ND		0.00108	0.00089
1,2-Dibromoethane (EDB)	**NS**	**NS**	ND		0.00132	0.000244	ND		0.00136	0.000252	ND		0.00141	0.000261	ND		0.00157	0.00029	ND		0.00137	0.000253	ND		0.00146	0.00027	ND		0.00108	0.0002
1,2-Dichlorobenzene	**1.1**	**100**	ND		0.00132	0.000331	ND		0.00136	0.000341	ND		0.00141	0.000354	ND		0.00157	0.000394	ND		0.00137	0.000344	ND		0.00146	0.000366	ND		0.00108	0.000271
1,2-Dichloroethane (EDC)	**0.02**	**3.1**	ND		0.00132	0.000305	ND		0.00136	0.000314	ND		0.00141	0.000326	ND		0.00157	0.000363	ND		0.00137	0.000316	ND		0.00146	0.000337	ND		0.00108	0.000249
1,2-Dichloropropane	**NS**	**NS**	ND		0.00132	0.000132	ND		0.00136	0.000136	ND		0.00141	0.000141	ND		0.00157	0.000157	ND		0.00137	0.000137	ND		0.00146	0.000146	ND		0.00108	0.000108
1,3-Dichlorobenzene	**2.4**	**49**	ND		0.00132	0.00035	ND		0.00136	0.00036	ND		0.00141	0.000374	ND		0.00157	0.000416	ND		0.00137	0.000363	ND		0.00146	0.000387	ND		0.00108	0.000286
1,3-Dichloropropene (cis- and trans-)	**NS**	**NS**	ND		0.00132	0.000147	ND		0.00136	0.000151	ND		0.00141	0.000157	ND		0.00157	0.000174	ND		0.00137	0.000152	ND		0.00146	0.000162	ND		0.00108	0.00012
1,4-Dichlorobenzene	**1.8**	**13**	ND		0.00132	0.000409	ND		0.00136	0.000422	ND		0.00141	0.000437	ND		0.00157	0.000487	ND		0.00137	0.000425	ND		0.00146	0.000453	ND		0.00108	0.000335
2-Butanone (MEK)	**0.12**	**100**	ND		0.013	0.00264	ND		0.014	0.00272	ND		0.014	0.00282	ND		0.016	0.00314	ND		0.014	0.00274	ND		0.015	0.00292	ND		0.011	0.00216
2-Hexanone	**NS**	**NS**	ND		0.013	0.00202	ND		0.014	0.00208	ND		0.014	0.00216	ND		0.016	0.00241	ND		0.014	0.0021	ND		0.015	0.00224	ND		0.011	0.00165
4-Methyl-2-pentanone (MIBK)	**NS**	**NS**	ND		0.013	0.00069	ND		0.014	0.000711	ND		0.014	0.000737	ND		0.016	0.000821	ND		0.014	0.000717	ND		0.015	0.000764	ND		0.011	0.000565
Acetone	**0.05**	**100**	ND		0.013	0.0066	ND		0.014	0.0068	ND		0.014	0.00705	ND		0.016	0.00785	ND		0.014	0.00685	ND		0.015	0.0073	ND		0.011	0.0054
Benzene	**0.06**	**4.8**	ND		0.00132	0.000114	ND		0.00136	0.000117	ND		0.00141	0.000121	ND		0.00157	0.000135	ND		0.00137	0.000118	ND		0.00146	0.000126	ND		0.00108	0.0000929
Bromochloromethane	**NS**	**NS**	ND		0.00132	0.000335	ND		0.00136	0.000345	ND		0.00141	0.000358	ND		0.00157	0.000399	ND		0.00137	0.000348	ND		0.00146	0.000371	ND		0.00108	0.000274
Bromodichloromethane	**NS**	**NS**	ND		0.00132	0.000157	ND		0.00136	0.000162	ND		0.00141	0.000168	ND		0.00157	0.000187	ND		0.00137	0.000163	ND		0.00146	0.000174	ND		0.00108	0.000129
Bromoform	**NS**	**NS**	ND		0.00132	0.000411	ND		0.00136	0.000423	ND		0.00141	0.000439	ND		0.00157	0.000488	ND		0.00137	0.000426	ND		0.00146	0.000454	ND		0.00108	0.000336
Bromomethane	**NS**	**NS**	ND		0.00264	0.00115	ND		0.00272	0.00119	ND		0.00282	0.00123	ND		0.00314	0.00137	ND		0.00274	0.00119	ND		0.00292	0.00127	ND		0.00216	0.000942
Carbon disulfide	**NS**	**NS**	ND		0.00132	0.000519	ND		0.00136	0.000534	ND		0.00141	0.000554	ND		0.00157	0.000617	ND		0.00137	0.000538	ND		0.00146	0.000574	ND		0.00108	0.000424
Carbon tetrachloride	**0.76**	**2.4**	ND		0.00132	0.000264	ND		0.00136	0.000272	ND		0.00141	0.000282	ND		0.00157	0.000314	ND		0.00137	0.000274	ND		0.00146	0.000292	ND		0.00108	0.000216
Chlorobenzene	**1.1**	**100**	ND		0.00132	0.000228	ND		0.00136	0.000235	ND		0.00141	0.000244	ND		0.00157	0.000272	ND		0.00137	0.000237	ND		0.00146	0.000253	ND		0.00108	0.000187
Chloroethane	**NS**	**NS**	ND		0.00132	0.000392	ND		0.00136	0.000404	ND		0.00141	0.000419	ND		0.00157	0.000466	ND		0.00137	0.000407	ND		0.00146	0.000434	ND		0.00108	0.000321
Chloroform	**0.37**	**49**	ND		0.00264	0.00066	ND		0.00272	0.00068	ND		0.00282	0.000705	ND		0.00314	0.000785	ND		0.00274	0.000685	ND		0.00292	0.00073	ND		0.00216	0.00054
Chloromethane	**NS**	**NS**	ND		0.00264	0.000418	ND		0.00272	0.000431	ND		0.00282	0.000447	ND		0.00314	0.000498	ND		0.00274	0.000434	ND		0.00292	0.000463	ND		0.00216	0.000342
cis-1,2-Dichloroethene	**0.25**	**100**	ND		0.00264	0.000282	ND		0.00272	0.000291	ND		0.00282	0.000302	ND		0.00314	0.000336	ND		0.00274	0.000293	ND		0.00292	0.000312	ND		0.00216	0.000231
cis-1,3-Dichloropropene	**NS**	**NS**	ND		0.00132	0.000202	ND		0.00136	0.000208	ND		0.00141	0.000216	ND		0.00157	0.00024	ND		0.00137	0.00021	ND		0.00146	0.000223	ND		0.00108	0.000165
Cyclohexane	**NS**	**NS**	ND		0.0066	0.000238	ND		0.0068	0.000245	ND		0.00705	0.000254	ND		0.00785	0.000283	ND		0.00685	0.000247	ND		0.0073	0.000263	ND		0.0054	0.000194
Dibromochloromethane	**NS**	**NS**	ND		0.00132	0.000219	ND		0.00136	0.000226	ND		0.00141	0.000234	ND		0.00157	0.000261	ND		0.00137	0.000227	ND		0.00146	0.000242	ND		0.00108	0.000179
Dichlorodifluoromethane	**NS**	**NS**	ND		0.00132	0.000685	ND		0.00136	0.000706	ND		0.00141	0.000732	ND		0.00157	0.000815	ND		0.00137	0.000711	ND		0.00146	0.000758	ND		0.00108	0.000561
Ethylbenzene	**1**	**41**	ND		0.00132	0.000144	ND		0.00136	0.000148	ND		0.00141	0.000154	ND		0.00157	0.000171	ND		0.00137	0.000149	ND		0.00146	0.000159	ND		0.00108	0.000118
Isopropylbenzene	**NS**	**NS**	ND		0.00132	0.000281	ND		0.00136	0.00029	ND		0.00141	0.0003	ND		0.00157	0.000334	ND		0.00137	0.000292	ND		0.00146	0.000311	ND		0.00108	0.00023
Methyl acetate	**NS**	**NS**	ND		0.00132	0.00107	ND		0.00136	0.0011	ND		0.00141	0.00114	ND		0.00157	0.00127	ND		0.00137	0.00111	ND		0.00146	0.00118	ND		0.00108	0.000873
Methyl tert-butyl ether (MTBE)	**0.93**	**100**	ND		0.00132	0.000288	ND		0.00136	0.000296	ND		0.00141	0.000307	ND		0.00157	0.000342	ND		0.00137	0.000299	ND		0.00146	0.000318	ND		0.00108	0.000235
Methylcyclohexane	**NS**	**NS**	ND		0.00264	0.000227	ND		0.00272	0.000234	ND		0.00282	0.000243	ND		0.00314	0.00027	ND		0.00274	0.000236	ND		0.00292	0.000251	ND		0.00216	0.000186
Methylene chloride	**0.05**	**100**	ND		0.0066	0.00396	0.00487	CJ	0.0068	0.00408	0.00449	CJ	0.00705	0.00423	ND		0.00785	0.00471	ND		0.00685	0.00411	ND		0.0073	0.00438	ND		0.0054	0.00324
Styrene	**NS**	**NS**	ND		0.00132	0.000284	ND		0.00136	0.000292	ND		0.00141	0.000303	ND		0.00157	0.000338	ND		0.00137	0.000295	ND		0.00146	0.000314	ND		0.00108	0.000232
Tetrachloroethene	**1.3**	**19**	ND		0.00132	0.000136	ND		0.00136	0.00014	ND		0.00141	0.000145	ND		0.00157	0.000162	ND		0.00137	0.000141	ND		0.00146	0.00015	ND		0.00108	0.000111
Toluene	**0.7**	**100**	ND		0.00132	0.00066	ND		0.00136	0.00068	ND		0.00141	0.000705	ND		0.00157	0.000785	ND		0.00137	0.000685	ND		0.00146	0.00073	ND		0.00108	0.00054
Total Xylenes	**0.26**	**100**	ND		0.00264	0.000185	ND		0.00272	0.00019	ND		0.00282	0.000197	ND		0.00314	0.00022	ND		0.00274	0.000192	ND		0.00292	0.000204	ND		0.00216	0.000151
trans-1,2-Dichloroethene	**0.19**	**100**	ND		0.00264	0.000467	ND		0.00272	0.000481	ND		0.00282	0.000499	ND		0.00314	0.000556	ND		0.00274	0.000485	ND		0.00292	0.000517	ND		0.00216	0.000382
trans-1,3-Dichloropropene	**NS**	**NS**	ND		0.00132	0.000147	ND		0.00136	0.000151	ND		0.00141	0.000157	ND		0.00157	0.000174	ND		0.00137	0.000152	ND		0.00146	0.000162	ND		0.00108	0.00012
Trichloroethene	**0.47**	**21**	ND		0.00132	0.000197	ND		0.00136	0.000203	ND		0.00141	0.00021	ND		0.00157	0.000234	ND		0.00137	0.000204	ND		0.00146	0.000218	ND		0.00108	0.000161
Trichlorofluoromethane	**NS**	**NS**	ND		0.00132	0.000536	ND		0.00136	0.000552	ND		0.00141	0.000572	ND		0.00157	0.000637	ND		0.00137	0.000556	ND		0.00146	0.000593	ND		0.00108	0.000438
Vinyl chloride	**0.02**	**0.9**	ND		0.00132	0.000428	ND		0.00136	0.000441	ND		0.00141	0.000457	ND		0.00157	0.000509	ND		0.00137	0.000444	ND		0.00146	0.000473	ND		0.00108	0.00035
TOTAL VO's:	**NS**	**NS**	ND			NA	0.00487	CJ		NA	0.00449	CJ		NA	ND			NA	ND			NA	ND			NA	ND			NA
TOTAL TIC's:	**NS**	**NS**	ND			NA	ND			NA	0.030	JN		NA	ND			NA	ND			NA	ND			NA	ND			NA
TOTAL VO's & TIC's:	**NS**	**NS**	ND			NA	0.00487	CJ		NA	0.035	CJ		NA	ND			NA	ND			NA	ND			NA	ND			NA

Results in Yellow Highlight displays exceedance above the UUSCO regulatory standard
Results in Green Highlight displays exceedance above both UUSCO & RRUSCO regulatory standard
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

NS = No Standard Available
D = The compound was reported from the Diluted analysis
ND = Analyzed for but Not Detected at the MDL

Table 1A (Cont'd) - Soil Results - SVOCs

Fulton 11

New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.2

Target Compounds	NYSDEC Unrestricted Use SCO	NYSDEC Restricted Residential SCO	SB5 Sample Depth: 0-2'				SB6-419 CS Sample Depth: 0-0.5'				SB8-401 CS Sample Depth: 0-0.5'				SB9A Sample Depth: 10-12'				SB9B Sample Depth: 0-2'				SB10A Sample Depth: 0-2'				SB10B Sample Depth: 10-12'			
Semivolatiles - BNA (mg/Kg)			Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
1,1'-Biphenyl	NS	NS	ND		0.038	0.00559	ND		0.036	0.00534	0.112	DJ	0.177	0.026	ND		0.181	0.027	ND		0.035	0.00517	ND		0.038	0.0057	ND		0.037	0.0055
1,2,4,5-Tetrachlorobenzene	NS	NS	ND		0.038	0.013	ND		0.036	0.012	ND		0.177	0.059	ND		0.181	0.060	ND		0.035	0.012	ND		0.038	0.013	ND		0.037	0.012
1,4-Dioxane	0.1	13	ND		0.038	0.024	ND		0.036	0.023	ND		0.177	0.114	ND		0.181	0.117	ND		0.035	0.023	ND		0.038	0.025	ND		0.037	0.024
2,2'-Oxybis(1-Chloropropane)	NS	NS	ND		0.038	0.00937	ND		0.036	0.00896	ND		0.177	0.044	ND		0.181	0.045	ND		0.035	0.00867	ND		0.038	0.00956	ND		0.037	0.00922
2,3,4,6-Tetrachlorophenol	NS	NS	ND		0.038	0.013	ND		0.036	0.012	ND		0.177	0.060	ND		0.181	0.062	ND		0.035	0.012	ND		0.038	0.013	ND		0.037	0.013
2,4,5-Trichlorophenol	NS	NS	ND		0.038	0.029	ND		0.036	0.027	ND		0.177	0.134	ND		0.181	0.137	ND		0.035	0.026	ND		0.038	0.029	ND		0.037	0.028
2,4,6-Trichlorophenol	NS	NS	ND		0.038	0.010	ND		0.036	0.00987	ND		0.177	0.049	ND		0.181	0.050	ND		0.035	0.00955	ND		0.038	0.011	ND		0.037	0.010
2,4-Dichlorophenol	NS	NS	ND		0.038	0.00999	ND		0.036	0.00955	ND		0.177	0.047	ND		0.181	0.048	ND		0.035	0.00924	ND		0.038	0.010	ND		0.037	0.00983
2,4-Dimethylphenol	NS	NS	ND		0.038	0.011	ND		0.036	0.011	ND		0.177	0.052	ND		0.181	0.053	ND		0.035	0.010	ND		0.038	0.011	ND		0.037	0.011
2,4-Dinitrophenol	NS	NS	ND		0.075	0.015	ND		0.072	0.015	ND		0.353	0.073	ND		0.362	0.074	ND		0.070	0.014	ND		0.077	0.016	ND		0.074	0.015
2,4-Dinitrotoluene	NS	NS	ND		0.075	0.043	ND		0.072	0.041	ND		0.353	0.200	ND		0.362	0.205	ND		0.070	0.039	ND		0.077	0.043	ND		0.074	0.042
2,6-Dinitrotoluene	NS	NS	ND		0.075	0.043	ND		0.072	0.041	ND		0.353	0.203	ND		0.362	0.208	ND		0.070	0.040	ND		0.077	0.044	ND		0.074	0.042
2-Chloronaphthalene	NS	NS	ND		0.038	0.00868	ND		0.036	0.0083	ND		0.177	0.041	ND		0.181	0.042	ND		0.035	0.00803	ND		0.038	0.00885	ND		0.037	0.00854
2-Chlorophenol	NS	NS	ND		0.038	0.012	ND		0.036	0.012	ND		0.177	0.057	ND		0.181	0.059	ND		0.035	0.011	ND		0.038	0.013	ND		0.037	0.012
2-Methylnaphthalene	NS	NS	ND		0.038	0.013	ND		0.036	0.013	0.245	D	0.177	0.062	0.177	DJ	0.181	0.064	ND		0.035	0.012	ND		0.038	0.014	ND		0.037	0.013
2-Methylphenol	0.33	100	ND		0.038	0.017	ND		0.036	0.016	ND		0.177	0.079	ND		0.181	0.081	ND		0.035	0.016	ND		0.038	0.017	ND		0.037	0.017
2-Nitroaniline	NS	NS	ND		0.038	0.020	ND		0.036	0.019	ND		0.177	0.094	ND		0.181	0.096	ND		0.035	0.019	ND		0.038	0.020	ND		0.037	0.020
2-Nitrophenol	NS	NS	ND		0.075	0.022	ND		0.072	0.021	ND		0.353	0.105	ND		0.362	0.108	ND		0.070	0.021	ND		0.077	0.023	ND		0.074	0.022
3,3'-Dichlorobenzidine	NS	NS	ND		0.038	0.027	ND		0.036	0.025	ND		0.177	0.125	ND		0.181	0.128	ND		0.035	0.025	ND		0.038	0.027	ND		0.037	0.026
3-Methylphenol	0.33	100	ND		0.038	0.024	ND		0.036	0.023	ND		0.177	0.114	ND		0.181	0.117	ND		0.035	0.023	ND		0.038	0.025	ND		0.037	0.024
3-Nitroaniline	NS	NS	ND		0.038	0.024	ND		0.036	0.023	ND		0.177	0.112	ND		0.181	0.114	ND		0.035	0.022	ND		0.038	0.024	ND		0.037	0.023
4,6-Dinitro-2-methylphenol	NS	NS	ND		0.075	0.016	ND		0.072	0.015	ND		0.353	0.075	ND		0.362	0.076	ND		0.070	0.015	ND		0.077	0.016	ND		0.074	0.016
4-Bromophenyl phenyl ether	NS	NS	ND		0.038	0.010	ND		0.036	0.00995	ND		0.177	0.049	ND		0.181	0.050	ND		0.035	0.00963	ND		0.038	0.011	ND		0.037	0.010
4-Chloro-3-methylphenol	NS	NS	ND		0.038	0.015	ND		0.036	0.014	ND		0.177	0.068	ND		0.181	0.070	ND		0.035	0.013	ND		0.038	0.015	ND		0.037	0.014
4-Chloroaniline	NS	NS	ND		0.038	0.014	ND		0.036	0.014	ND		0.177	0.068	ND		0.181	0.070	ND		0.035	0.013	ND		0.038	0.015	ND		0.037	0.014
4-Chlorophenyl phenyl ether	NS	NS	ND		0.038	0.00826	ND		0.036	0.00789	ND		0.177	0.039	ND		0.181	0.040	ND		0.035	0.00764	ND		0.038	0.00842	ND		0.037	0.00812
4-Methylphenol **	0.33	100	ND		0.038	0.017	ND		0.036	0.016	ND		0.177	0.080	ND		0.181	0.082	ND		0.035	0.016	ND		0.038	0.018	ND		0.037	0.017
4-Nitroaniline	NS	NS	ND		0.038	0.022	ND		0.036	0.021	ND		0.177	0.105	ND		0.181	0.107	ND		0.035	0.021	ND		0.038	0.023	ND		0.037	0.022
4-Nitrophenol	NS	NS	ND		0.075	0.038	ND		0.072	0.036	ND		0.353	0.178	ND		0.362	0.182	ND		0.070	0.035	ND		0.077	0.039	ND		0.074	0.037
Acenaphthene	20	100	ND		0.038	0.00742	0.024	J	0.036	0.00709	0.284	D	0.177	0.035	0.634	D	0.181	0.036	ND		0.035	0.00686	ND		0.038	0.00757	ND		0.037	0.0073
Acenaphthylene	100	100	ND		0.038	0.00823	0.133		0.036	0.00786	1.83	D	0.177	0.039	2.11	D	0.181	0.040	ND		0.035	0.00761	1.04		0.038	0.00839	ND		0.037	0.00809
Acetophenone	NS	NS	ND		0.038	0.023	ND		0.036	0.022	ND		0.177	0.108	ND		0.181	0.110	ND		0.035	0.021	ND		0.038	0.023	ND		0.037	0.023
Anthracene	100	100	0.054		0.038	0.00383	0.115		0.036	0.00366	2.02	D	0.177	0.018	2.32	D	0.181	0.018	ND		0.035	0.00354	0.400		0.038	0.0039	ND		0.037	0.00376
Atrazine	NS	NS	ND		0.038	0.022	ND		0.036	0.021	ND		0.177	0.105	ND		0.181	0.108	ND		0.035	0.021	ND		0.038	0.023	ND		0.037	0.022
Benzaldehyde	NS	NS	ND		0.075	0.028	ND		0.072	0.027	ND		0.353	0.133	ND		0.362	0.136	ND		0.070	0.026	ND		0.077	0.029	ND		0.074	0.028
Benzo[a]anthracene	1	1	0.177		0.038	0.014	0.460		0.036	0.013	**4.85**	D	0.177	0.064	**6.22**	D	0.181	0.066	ND		0.035	0.013	**1.76**		0.038	0.014	ND		0.037	0.014
Benzo[a]pyrene	1	1	0.168		0.038	0.018	0.457		0.036	0.017	**3.93**	D	0.177	0.086	**6.90**	D	0.181	0.088	ND		0.035	0.017	**2.16**		0.038	0.019	ND		0.037	0.018
Benzo[b]fluoranthene	1	1	0.190		0.038	0.019	0.534		0.036	0.018	**4.04**	D	0.177	0.087	**6.83**	D	0.181	0.089	ND		0.035	0.017	**3.15**		0.038	0.019	ND		0.037	0.018
Benzo[g,h,i]perylene	100	100	0.118		0.038	0.028	0.378		0.036	0.027	1.50	D	0.177	0.133	5.61	D	0.181	0.136	ND		0.035	0.026	3.34		0.038	0.029	ND		0.037	0.028
Benzo[k]fluoranthene	0.8	3.9	0.134		0.038	0.026	0.356		0.036	0.025	**4.29**	D	0.177	0.122	**6.50**	D	0.181	0.125	ND		0.035	0.024	**1.63**		0.038	0.027	ND		0.037	0.026
Bis(2-chloroethoxy) methane	NS	NS	ND		0.038	0.00838	ND		0.036	0.008	ND		0.177	0.039	ND		0.181	0.040	ND		0.035	0.00775	ND		0.038	0.00854	ND		0.037	0.00824
Bis(2-chloroethyl) ether	NS	NS	ND		0.038	0.013	ND		0.036	0.013	ND		0.177	0.062	ND		0.181	0.064	ND		0.035	0.012	ND		0.038	0.014	ND		0.037	0.013
Bis(2-ethylhexyl) phthalate	NS	NS	0.073		0.038	0.024	0.422		0.036	0.023	0.573	D	0.177	0.113	ND		0.181	0.116	ND		0.035	0.022	ND		0.038	0.025	ND		0.037	0.024
Butyl benzyl phthalate	NS	NS	ND		0.038	0.017	ND		0.036	0.016	ND		0.177	0.078	ND		0.181	0.080	ND		0.035	0.015	ND		0.038	0.017	ND		0.037	0.016
Caprolactam	NS	NS	ND		0.075	0.028	ND		0.072	0.027	ND		0.353	0.130	ND		0.362	0.133	ND		0.070	0.026	ND		0.077	0.028	ND		0.074	0.027
Carbazole	NS	NS	0.020	J	0.038	0.00876	0.081		0.036	0.00837	1.28	D	0.177	0.041	1.15	D	0.181	0.042	ND		0.035	0.0081	0.371		0.038	0.00893	ND		0.037	0.00862
Chrysene	1	3.9	0.163		0.038	0.010	0.429		0.036	0.00991	**4.67**	D	0.177	0.049	**6.14**	D	0.181	0.050	ND		0.035	0.00959	**1.81**		0.038	0.011	ND		0.037	0.010
Dibenz[a,h]anthracene	0.33	0.33	0.057		0.038	0.015	0.168		0.036	0.014	**0.799**	D	0.177	0.071	**2.10**	D	0.181	0.072	ND		0.035	0.014	**0.976**		0.038	0.015	ND		0.037	0.015
Dibenzofuran	7	59	ND		0.038	0.00492	ND		0.036	0.0047	0.857	D	0.177	0.023	0.400	D	0.181	0.024	ND		0.035	0.00455	0.079		0.038	0.00501	ND		0.037	0.00483
Diethyl phthalate	NS	NS	ND		0.038	0.012	ND		0.036	0.011	ND		0.177	0.055	ND		0.181	0.056	ND		0.035	0.011	ND		0.038	0.012	ND		0.037	0.012
Dimethyl phthalate	NS	NS	ND		0.038	0.00862	ND		0.036	0.00824	ND		0.177	0.041	ND		0.181	0.042	ND		0.035	0.00798	ND		0.038	0.00879	ND		0.037	0.00848
Di-n-butyl phthalate	NS	NS	ND		0.038	0.015	ND		0.036	0.015	ND		0.177	0.072	ND		0.181	0.073	ND		0.035	0.014	ND		0.038	0.016	ND		0.037	0.015
Dinitrotoluene (2,4- and 2,6-)	NS	NS	ND		0.075	0.043	ND		0.072	0.041	ND		0.353	0.200	ND		0.362	0.205	ND		0.070	0.039	ND		0.077	0.043	ND		0.074	0.042
Di-n-octyl phthalate	NS	NS	ND		0.038	0.028	ND		0.036	0.026	ND		0.177	0.129	ND		0.181	0.132	ND		0.035	0.025	ND		0.038	0.028	ND		0.037	0.027
Fluoranthene	100	100	0.379		0.038	0.012	0.953		0.036	0.012	13.6	D	0.177	0.057	13.1	D	0.181	0.058	ND		0.035	0.011	4.03		0.038	0.012	ND		0.037	0.012
Fluorene	30	100	ND		0.038	0.010	0.034	J	0.036	0.00967	1.01	D	0.177	0.048	0.626	D	0.181	0.049	ND		0.035	0.00935	0.117		0.038	0.010	ND		0.037	0.00995
Hexachlorobenzene	0.33	1.2	ND		0.038	0.012	ND		0.036	0.011	ND		0.177	0.055	ND		0.181	0.056	ND		0.035	0.011	ND		0.038	0.012	ND		0.037	0.012
Hexachlorobutadiene	NS	NS	ND		0.038	0.010	ND		0.036	0.00997	ND		0.177	0.049	ND		0.181	0.050	ND		0.035	0.00964	ND		0.038	0.011	ND		0.037	0.010
Hexachlorocyclopentadiene	NS	NS	ND		0.075	0.065	ND		0.072	0.062	ND		0.353	0.307	ND		0.362	0.314	ND		0.070	0.060	ND		0.077	0.067	ND		0.074	0.064
Hexachloroethane	NS	NS	ND		0.038	0.016	ND		0.036	0.015	ND		0.177	0.073	ND		0.181	0.075	ND		0.035	0.014	ND		0.038	0.016	ND		0.037	0.015
Indeno[1,2,3-cd]pyrene	0.5	0.5	0.116		0.038	0.024	0.353		0.036	0.023	**1.78**	D	0.177	0.113	**4.35**	D	0.181	0.116	ND		0.035	0.022	**2.50**		0.038	0.025	ND		0.037	0.024
Isophorone	NS	NS	ND		0.038	0.016	ND		0.036	0.015	ND		0.177	0.074	ND		0.181	0.076	ND		0.035	0.015	ND		0.038	0.016	ND		0.037	0.016
Naphthalene	12	100	ND		0.038	0.00548	0.019	J	0.036	0.00524	0.288	D	0.177	0.026	0.554	D	0.181	0.026	ND		0.035	0.00507	0.038	J	0.038	0.00559	ND		0.037	0.00539
Nitrobenzene	NS	15	ND		0.038	0.00912	ND		0.036	0.00872	ND		0.177	0.043	ND		0.181	0.044	ND		0.035	0.00844	ND		0.038	0.0093	ND		0.037	0.00897
N-Nitrosodi-n-propylamine	NS	NS	ND		0.038	0.023	ND		0.036	0.022	ND		0.177	0.109	ND		0.181	0.112	ND		0.035	0.022	ND		0.038	0.024	ND		0.037	0.023
N-Nitrosodiphenylamine	NS	NS	ND		0.038	0.00771	ND		0.036	0.00737	ND		0.177	0.036	ND		0.181	0.037	ND		0.035	0.00713	ND		0.038	0.00786	ND		0.037	0.00758
Pentachlorophenol	0.8	6.7	ND		0.038	0.017	ND		0.036	0.016	ND		0.177	0.078	ND		0.181	0.080	ND		0.035	0.015	ND		0.038	0.017	ND		0.037	0.016
Phenanthrene	100	100	0.188		0.038	0.00615	0.494		0.036	0.00587	12.0	D	0.177	0.029	7.99	D	0.181	0.030	ND		0.035	0.00569	2.06		0.038	0.00627	ND		0.037	0.00605
Phenol	0.33	100	ND		0.038	0.0085	ND		0.036	0.00812	ND		0.177	0.040	ND		0.181	0.041	ND		0.035	0.00786	ND		0.038	0.00867	ND		0.037	0.00836
Pyrene	100	100	0.316		0.038	0.00874	0.835		0.036	0.00836	9.96	D	0.177	0.041	10.9	D	0.181	0.042	ND		0.035	0.00809	3.16		0.038	0.00892	ND		0.037	0.0086
TOTAL BNA'S:	NS	NS	2.15	J		NA	6.25	J		NA	69.9	DJ		NA	84.6	DJ		NA	ND			NA	28.6	J		NA	ND			NA
TOTAL TIC's:	NS	NS	0.180	JN		NA	0.147	JN		NA	ND			NA	ND			NA	ND			NA	0.525	J		NA	ND			NA
TOTAL BNA'S & TIC's:	NS	NS	2.33	J		NA	6.40	J		NA	69.9	DJ		NA	84.6	DJ		NA	ND			NA	29.1	J		NA	ND			NA

Results in Yellow Highlight displays exceedance above the UUSCO regulatory standard
Results in Green Highlight displays exceedance above both UUSCO & RRUSCO regulatory standard
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

NS = No Standard Available
D = The compound was reported from the Diluted analysis
ND = Analyzed for but Not Detected at the MDL

Table 1A (Cont'd) - Soil Results - PCBs, Pesticides, Metals
Fulton 11
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.2

Target Compounds	NYSDEC Unrestricted Use SCO	NYSDEC Restricted Residential SCO	SB5 Sample Depth: 0-2'				SB6-419 CS Sample Depth: 0-0.5'				SB8-401 CS Sample Depth: 0-0.5'				SB9A Sample Depth: 10-12'				SB9B Sample Depth: 0-2'				SB10A Sample Depth: 0-2'				SB10B Sample Depth: 10-12'			
PCB's (mg/Kg)			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Aroclor-1016	**NS**	**NS**	ND		0.00375	0.0011	ND		0.00361	0.0011	ND		0.00354	0.0011	ND		0.0036	0.0011	ND		0.00349	0.001	ND		0.00386	0.0012	ND		0.00371	0.0011
Aroclor-1221	**NS**	**NS**	ND		0.00375	0.0011	ND		0.00361	0.0011	ND		0.00354	0.0011	ND		0.0036	0.0011	ND		0.00349	0.001	ND		0.00386	0.0012	ND		0.00371	0.0011
Aroclor-1232	**NS**	**NS**	ND		0.00375	0.0011	ND		0.00361	0.0011	ND		0.00354	0.0011	ND		0.0036	0.0011	ND		0.00349	0.001	ND		0.00386	0.0012	ND		0.00371	0.0011
Aroclor-1242	**NS**	**NS**	ND		0.00375	0.0011	ND		0.00361	0.0011	ND		0.00354	0.0011	ND		0.0036	0.0011	ND		0.00349	0.001	ND		0.00386	0.0012	ND		0.00371	0.0011
Aroclor-1248	**NS**	**NS**	ND		0.00375	0.0011	ND		0.00361	0.0011	ND		0.00354	0.0011	ND		0.0036	0.0011	ND		0.00349	0.001	ND		0.00386	0.0012	ND		0.00371	0.0011
Aroclor-1254	**NS**	**NS**	ND		0.00375	0.0011	1.95	D	0.036	0.011	ND		0.00354	0.0011	ND		0.0036	0.0011	ND		0.00349	0.001	ND		0.00386	0.0012	ND		0.00371	0.0011
Aroclor-1260	**NS**	**NS**	ND		0.00375	0.0011	ND		0.00361	0.0011	ND		0.00354	0.0011	ND		0.0036	0.0011	ND		0.00349	0.001	ND		0.00386	0.0012	ND		0.00371	0.0011
Aroclor-1262	**NS**	**NS**	ND		0.00375	0.0011	ND		0.00361	0.0011	ND		0.00354	0.0011	ND		0.0036	0.0011	ND		0.00349	0.001	ND		0.00386	0.0012	ND		0.00371	0.0011
Aroclor-1268	**NS**	**NS**	ND		0.00375	0.0011	ND		0.00361	0.0011	ND		0.00354	0.0011	ND		0.0036	0.0011	ND		0.00349	0.001	ND		0.00386	0.0012	ND		0.00371	0.0011
PCBs	**0.1**	**1**	ND		0.00375	0.00113	**1.95**	D	0.036	0.011	ND		0.00354	0.00106	ND		0.0036	0.00108	ND		0.00349	0.00105	ND		0.00386	0.00116	ND		0.00371	0.00111
Pesticides (mg/Kg)			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
alpha-BHC	**0.02**	**0.48**	ND		0.00075	0.000134	ND		0.000722	0.000129	ND		0.000708	0.000126	ND		0.00072	0.000129	ND		0.000698	0.000125	ND		0.000772	0.000138	ND		0.000742	0.000132
beta-BHC	**0.036**	**0.36**	ND		0.00075	0.000175	ND		0.000722	0.000168	ND		0.000708	0.000165	ND		0.00072	0.000168	ND		0.000698	0.000163	ND		0.000772	0.00018	ND		0.000742	0.000173
gamma-BHC (Lindane)	**0.1**	**1.3**	ND		0.00075	0.000167	ND		0.000722	0.000161	ND		0.000708	0.000158	ND		0.00072	0.000161	ND		0.000698	0.000155	ND		0.000772	0.000172	ND		0.000742	0.000165
delta-BHC	**0.04**	**100**	ND		0.00075	0.000145	ND		0.000722	0.00014	ND		0.000708	0.000137	ND		0.00072	0.00014	ND		0.000698	0.000135	ND		0.000772	0.000149	ND		0.000742	0.000144
Heptachlor	**0.042**	**2.1**	ND		0.00075	0.000178	ND		0.000722	0.000171	ND		0.000708	0.000168	ND		0.00072	0.000171	ND		0.000698	0.000165	0.000768	J	0.000772	0.000183	ND		0.000742	0.000176
Aldrin	**0.005**	**0.097**	ND		0.00075	0.000157	ND		0.000722	0.000151	ND		0.000708	0.000148	ND		0.00072	0.000151	ND		0.000698	0.000146	ND		0.000772	0.000161	ND		0.000742	0.000155
Heptachlor epoxide	**NS**	**NS**	0.00122		0.00075	0.000163	ND		0.000722	0.000157	ND		0.000708	0.000154	ND		0.00072	0.000156	ND		0.000698	0.000151	0.00293		0.000772	0.000167	ND		0.000742	0.000161
Endosulfan I	**2.4**	**24**	ND		0.00075	0.000168	ND		0.000722	0.000161	ND		0.000708	0.000158	ND		0.00072	0.000161	ND		0.000698	0.000156	ND		0.000772	0.000172	ND		0.000742	0.000166
4,4'-DDE	**0.0033**	**8.9**	**0.070**		0.00075	0.000153	**0.555**	D	0.014	0.00294	**1.34**	D	0.035	0.00722	ND		0.00072	0.000147	ND		0.000698	0.000142	**0.055**		0.000772	0.000157	0.000414	J	0.000742	0.000151
Dieldrin	**0.005**	**0.2**	**0.00603**		0.00075	0.000153	ND		0.000722	0.000147	ND		0.000708	0.000144	ND		0.00072	0.000147	ND		0.000698	0.000142	**0.012**		0.000772	0.000157	ND		0.000742	0.000151
Endrin	**0.014**	**11**	ND		0.00075	0.000189	ND		0.000722	0.000182	ND		0.000708	0.000179	ND		0.00072	0.000182	ND		0.000698	0.000176	ND		0.000772	0.000194	ND		0.000742	0.000187
Endosulfan II	**2.4**	**24**	ND		0.00075	0.000172	ND		0.000722	0.000165	ND		0.000708	0.000162	ND		0.00072	0.000165	ND		0.000698	0.00016	ND		0.000772	0.000177	ND		0.000742	0.00017
4,4'-DDD	**0.0033**	**13**	**0.00798**		0.00075	0.0002	**0.099**		0.000722	0.000192	**0.079**		0.000708	0.000189	ND		0.00072	0.000192	ND		0.000698	0.000186	**0.024**		0.000772	0.000206	ND		0.000742	0.000198
Endrin aldehyde	**NS**	**NS**	ND		0.00075	0.000157	ND		0.000722	0.000151	ND		0.000708	0.000148	ND		0.00072	0.000151	ND		0.000698	0.000146	ND		0.000772	0.000161	ND		0.000742	0.000155
Endosulfan sulfate	**2.4**	**24**	ND		0.00075	0.000186	ND		0.000722	0.000179	ND		0.000708	0.000175	ND		0.00072	0.000178	ND		0.000698	0.000173	ND		0.000772	0.000191	ND		0.000742	0.000184
4,4'-DDT	**0.0033**	**7.9**	**0.087**		0.00075	0.00014	**0.529**	D	0.014	0.00268	**1.58**	D	0.035	0.00658	ND		0.00072	0.000134	ND		0.000698	0.00013	**0.179**	D	0.00154	0.000287	0.000402	J	0.000742	0.000138
Endrin ketone	**NS**	**NS**	ND		0.00075	0.000146	ND		0.000722	0.00014	ND		0.000708	0.000138	ND		0.00072	0.00014	ND		0.000698	0.000136	ND		0.000772	0.00015	ND		0.000742	0.000144
Methoxychlor	**NS**	**NS**	ND		0.00075	0.000201	ND		0.000722	0.000193	ND		0.000708	0.000189	ND		0.00072	0.000193	ND		0.000698	0.000186	ND		0.000772	0.000206	ND		0.000742	0.000198
alpha-Chlordane	**0.094**	**4.2**	0.00385		0.00075	0.000166	ND		0.000722	0.000159	ND		0.000708	0.000156	ND		0.00072	0.000159	ND		0.000698	0.000154	0.027		0.000772	0.00017	ND		0.000742	0.000164
gamma-Chlordane	**NS**	**NS**	0.00198		0.00075	0.000147	ND		0.000722	0.000142	ND		0.000708	0.000139	ND		0.00072	0.000142	ND		0.000698	0.000137	0.020		0.000772	0.000152	ND		0.000742	0.000146
Toxaphene	**NS**	**NS**	ND		0.00938	0.00375	ND		0.00903	0.00361	ND		0.00885	0.00354	ND		0.009	0.0036	ND		0.00873	0.00349	ND		0.00965	0.00386	ND		0.00928	0.00371
Endosulfan (I and II)	**NS**	**NS**	ND		0.00075	0.000168	ND		0.000722	0.000161	ND		0.000708	0.000158	ND		0.00072	0.000161	ND		0.000698	0.000156	ND		0.000772	0.000172	ND		0.000742	0.000166
Chlordane (alpha and gamma)	**NS**	**NS**	0.00583		0.00075	0.000147	ND		0.000722	0.000142	ND		0.000708	0.000139	ND		0.00072	0.000142	ND		0.000698	0.000137	0.046		0.000772	0.000152	ND		0.000742	0.000146
*** Metals (mg/Kg)**			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Aluminum	**NS**	**NS**	9790				4840				5230				6910				6010				4960				5670			
Antimony	**NS**	**NS**	<2.2				<2.2				<2.1				<2.2				<2.1				<2.2				<2.2			
Arsenic	**13**	**16**	6.2				3.5				4.5				5.9				2.2				4.6				2.2			
Barium	**350**	**400**	96.8				**517**				341				248				60.2				280				33.5			
Beryllium	**7.2**	**72**	0.51				0.36				0.41				0.49				0.52				0.35				0.52			
Cadmium	**2.5**	**4.3**	<0.55				0.63				0.68				1				<0.53				<0.55				<0.54			
Calcium	**NS**	**NS**	3790				32100				22400				47900				7980				24700				1380			
Chromium	**NS**	**NS**	31.5				14				14.5				14.5				13.3				12.2				11.9			
Cobalt	**NS**	**NS**	6.5				<5.5				<5.3				<5.4				<5.3				<5.5				<5.4			
Copper	**50**	**270**	25.3				34.8				20.8				26.7				16.7				11.9				9.7			
Iron	**NS**	**NS**	13200				10200				9740				8460				9870				8700				9570			
Lead	**63**	**400**	**107**				**1070**				**684**				**381**				16.6				**248**				9.5			
Magnesium	**NS**	**NS**	5470				3800				4360				5830				2890				2080				2050			
Manganese	**1600**	**2000**	250				222				241				272				370				318				259			
Mercury	**0.18**	**0.81**	0.13				**0.37**				**0.98**				**0.7**				0.04				**0.24**				0.064			
Nickel	**30**	**310**	18.1				13.1				13.7				10				13.7				8.6				11.1			
Potassium	**NS**	**NS**	1180				<1100				1370				<1100				1370				<1100				1430			
Selenium	**3.9**	**180**	<2.2				<2.2				<2.1				<2.2				<2.1				<2.2				<2.2			
Silver	**2**	**180**	0.65				0.75				0.6				0.63				<0.53				0.55				<0.54			
Sodium	**NS**	**NS**	<1100				<1100				<1100				<1100				<1100				<1100				<1100			
Thallium	**NS**	**NS**	<1.1				<1.1				<1.1				<1.1				<1.1				<1.1				<1.1			
Vanadium	**NS**	**NS**	23.9				17.3				16.4				23.2				17.1				19.6				16.1			
Zinc	**109**	**10000**	105				**405**				**268**				**219**				30.9				**277**				33.9			
General Analytical			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	4.73	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Cyanide, Total	**27**	**27**	ND		1.13	0.225	ND		1.06	0.213	ND		1.07	0.213	ND		1.08	0.217	ND		1.05	0.210	ND		1.16	0.231	ND		1.12	0.223

Results in Yellow Highlight displays exceedance above the UUSCO regulatory standard
Results in Green Highlight displays exceedance above both UUSCO & RRUSCO regulatory standard
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

NS = No Standard Available
D = The compound was reported from the Diluted analysis
ND = Analyzed for but Not Detected at the MDL
~ = Sample not analyzed

*** TAL Metals analyzed by SGS Dayton.**

Table 2A - Groundwater Results - VOCs
Fulton 11
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.2

Target Compounds	NYSDEC Ambient Water Quality Standards (AWQS)	TWP1 GW Depth: 15'				TWP2 GW Depth: 15'				TWP4 GW Depth: 15'				TWP5 GW Depth: 15'			
Volatiles (ug/L)		**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
1,1,1-Trichloroethane	**5**	ND		0.500	0.381	ND		0.500	0.381	ND		0.500	0.381	ND		0.500	0.381
1,1,2,2-Tetrachloroethane	**0.2**	ND		0.500	0.284	ND		0.500	0.284	ND		0.500	0.284	ND		0.500	0.284
1,1,2-Trichloro-1,2,2-trifluoroethane	**5**	ND		1.00	0.538	ND		1.00	0.538	ND		1.00	0.538	ND		1.00	0.538
1,1,2-Trichloroethane	**1**	ND		0.500	0.313	ND		0.500	0.313	ND		0.500	0.313	ND		0.500	0.313
1,1-Dichloroethane	**5**	ND		0.500	0.285	ND		0.500	0.285	ND		0.500	0.285	ND		0.500	0.285
1,1-Dichloroethene	**0.07**	ND		0.500	0.363	ND		0.500	0.363	ND		0.500	0.363	ND		0.500	0.363
1,2,3-Trichlorobenzene	**5**	ND		0.500	0.406	ND		0.500	0.406	ND		0.500	0.406	ND		0.500	0.406
1,2,3-Trichloropropane	**0.04**	ND		0.00961	0.0072	ND		0.00947	0.0071	ND		0.00952	0.00714	ND		0.00961	0.0072
1,2,4-Trichlorobenzene	**5**	ND		0.500	0.358	ND		0.500	0.358	ND		0.500	0.358	ND		0.500	0.358
1,2-Dibromo-3-chloropropane	**0.04**	ND		0.0048	0.00364	ND		0.00474	0.00364	ND		0.00476	0.00364	ND		0.0048	0.00364
1,2-Dibromo-3-chloropropane	**0.04**	ND		0.0048	0.0036	ND		0.00474	0.00355	ND		0.00476	0.00357	ND		0.0048	0.0036
1,2-Dibromoethane (EDB)	**0.0006**	ND		0.0048	0.00364	ND		0.00474	0.00364	ND		0.00476	0.00364	ND		0.0048	0.00364
1,2-Dibromoethane (EDB)	**0.0006**	ND		0.0048	0.0036	ND		0.00474	0.00355	ND		0.00476	0.00357	ND		0.0048	0.0036
1,2-Dichlorobenzene	**3**	ND		0.500	0.354	ND		0.500	0.354	ND		0.500	0.354	ND		0.500	0.354
1,2-Dichloroethane (EDC)	**0.6**	ND		0.500	0.273	ND		0.500	0.273	ND		0.500	0.273	ND		0.500	0.273
1,2-Dichloropropane	**1**	ND		0.500	0.272	ND		0.500	0.272	ND		0.500	0.272	ND		0.500	0.272
1,3-Dichlorobenzene	**3**	ND		0.500	0.386	ND		0.500	0.386	ND		0.500	0.386	ND		0.500	0.386
1,3-Dichloropropene (cis- and trans-)	**0.4**	ND		0.500	0.264	ND		0.500	0.264	ND		0.500	0.264	ND		0.500	0.264
1,4-Dichlorobenzene	**3**	ND		0.500	0.397	ND		0.500	0.397	ND		0.500	0.397	ND		0.500	0.397
2-Butanone (MEK)	**50**	ND		1.00	0.802	ND		1.00	0.802	ND		1.00	0.802	ND		1.00	0.802
2-Hexanone	**50**	ND		1.00	0.818	ND		1.00	0.818	ND		1.00	0.818	ND		1.00	0.818
4-Methyl-2-pentanone (MIBK)	**NS**	ND		1.00	0.611	ND		1.00	0.611	ND		1.00	0.611	ND		1.00	0.611
Acetone	**50**	ND		1.00	1.00	ND		1.00	1.00	ND		1.00	1.00	ND		1.00	1.00
Benzene	**1**	ND		0.500	0.270	ND		0.500	0.270	ND		0.500	0.270	ND		0.500	0.270
Bromochloromethane	**5**	ND		0.500	0.379	ND		0.500	0.379	ND		0.500	0.379	ND		0.500	0.379
Bromodichloromethane	**50**	ND		0.500	0.258	ND		0.500	0.258	ND		0.500	0.258	ND		0.500	0.258
Bromoform	**50**	ND		0.500	0.328	ND		0.500	0.328	ND		0.500	0.328	ND		0.500	0.328
Bromomethane	**5**	ND		0.500	0.386	ND		0.500	0.386	ND		0.500	0.386	ND		0.500	0.386
Carbon disulfide	**60**	ND		0.500	0.403	ND		0.500	0.403	ND		0.500	0.403	ND		0.500	0.403
Carbon tetrachloride	**0.4**	ND		0.500	0.349	ND		0.500	0.349	ND		0.500	0.349	ND		0.500	0.349
Chlorobenzene	**5**	ND		0.500	0.304	ND		0.500	0.304	ND		0.500	0.304	ND		0.500	0.304
Chloroethane	**5**	ND		0.500	0.324	ND		0.500	0.324	ND		0.500	0.324	ND		0.500	0.324
Chloroform	**7**	1.91		0.500	0.285	ND		0.500	0.285	2.11		0.500	0.285	ND		0.500	0.285
Chloromethane	**5**	ND		0.500	0.309	ND		0.500	0.309	ND		0.500	0.309	ND		0.500	0.309
cis-1,2-Dichloroethene	**5**	ND		0.500	0.277	ND		0.500	0.277	ND		0.500	0.277	ND		0.500	0.277
cis-1,3-Dichloropropene	**NS**	ND		0.500	0.264	ND		0.500	0.264	ND		0.500	0.264	ND		0.500	0.264
Cyclohexane	**NS**	ND		1.00	0.469	ND		1.00	0.469	ND		1.00	0.469	ND		1.00	0.469
Dibromochloromethane	**50**	ND		0.500	0.263	ND		0.500	0.263	ND		0.500	0.263	ND		0.500	0.263
Dichlorodifluoromethane	**5**	ND		1.00	0.552	ND		1.00	0.552	0.581	J	1.00	0.552	ND		1.00	0.552
Ethylbenzene	**5**	ND		0.500	0.313	ND		0.500	0.313	ND		0.500	0.313	ND		0.500	0.313
Isopropylbenzene	**5**	ND		0.500	0.332	ND		0.500	0.332	ND		0.500	0.332	ND		0.500	0.332
Methyl acetate	**NS**	ND		0.500	0.345	ND		0.500	0.345	ND		0.500	0.345	ND		0.500	0.345
Methyl tert-butyl ether (MTBE)	**10**	ND		0.500	0.245	ND		0.500	0.245	ND		0.500	0.245	ND		0.500	0.245
Methylcyclohexane	**NS**	ND		0.500	0.421	ND		0.500	0.421	ND		0.500	0.421	ND		0.500	0.421
Methylene chloride	**5**	ND		1.00	0.500	ND		1.00	0.500	ND		1.00	0.500	ND		1.00	0.500
Styrene	**5**	ND		0.500	0.317	ND		0.500	0.317	ND		0.500	0.317	ND		0.500	0.317
Tetrachloroethene	**0.7**	0.585		0.500	0.365	**2.87**		0.500	0.365	ND		0.500	0.365	**4.82**		0.500	0.365
Toluene	**5**	ND		0.500	0.302	ND		0.500	0.302	ND		0.500	0.302	ND		0.500	0.302
Total Xylenes	**NS**	ND		1.00	0.345	ND		1.00	0.345	ND		1.00	0.345	ND		1.00	0.345
trans-1,2-Dichloroethene	**5**	ND		0.500	0.372	ND		0.500	0.372	ND		0.500	0.372	ND		0.500	0.372
trans-1,3-Dichloropropene	**NS**	ND		0.500	0.330	ND		0.500	0.330	ND		0.500	0.330	ND		0.500	0.330
Trichloroethene	**5**	ND		0.500	0.347	0.585		0.500	0.347	ND		0.500	0.347	0.364	J	0.500	0.347
Trichlorofluoromethane	**5**	ND		1.00	0.503	ND		1.00	0.503	ND		1.00	0.503	ND		1.00	0.503
Vinyl chloride	**2**	ND		0.500	0.352	ND		0.500	0.352	ND		0.500	0.352	ND		0.500	0.352
TOTAL VO's:	**NS**	2.50			NA	3.46			NA	2.69	J		NA	5.18	J		NA
TOTAL TIC's:	**NS**	ND			NA	ND			NA	ND			NA	ND			NA
TOTAL VO's & TIC's:	**NS**	2.50			NA	3.46			NA	2.69	J		NA	5.18	J		NA

Results in Blue Highlight displays exceedance above the Groundwater Effluent Limitations

~ = Sample not analyzed

B : Compound was found in the blank and sample.
I : Value is EMPC (estimated maximum possible concentration).
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

Table 2A (Cont'd) - Groundwater Results - SVOCs
Fulton 11
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.2

Target Compounds	NYSDEC Ambient Water Quality Standards (AWQS)	TWP1 GW Depth: 15'				TWP2 GW Depth: 15'				TWP4 GW Depth: 15'				TWP5 GW Depth: 15'			
Semivolatiles - BNA (µg/L)		**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
1,1'-Biphenyl	**5**	ND		1.00	0.212	ND		1.00	0.212	ND		1.00	0.212	ND		1.00	0.212
1,2,4,5-Tetrachlorobenzene	**5**	ND		1.00	0.326	ND		1.00	0.326	ND		1.00	0.326	ND		1.00	0.326
1,4-Dioxane	**NS**	ND		0.400	0.329	ND		0.400	0.329	ND		0.400	0.329	ND		0.400	0.329
2,2'-Oxybis(1-Chloropropane)	**5**	ND		1.00	0.682	ND		1.00	0.682	ND		1.00	0.682	ND		1.00	0.682
2,3,4,6-Tetrachlorophenol	**NS**	ND		1.00	0.872	ND		1.00	0.872	ND		1.00	0.872	ND		1.00	0.872
2,4,5-Trichlorophenol	**NS**	ND		2.00	0.505	ND		2.00	0.505	ND		2.00	0.505	ND		2.00	0.505
2,4,6-Trichlorophenol	**NS**	ND		1.00	0.497	ND		1.00	0.497	ND		1.00	0.497	ND		1.00	0.497
2,4-Dichlorophenol	**5**	ND		1.00	0.383	ND		1.00	0.383	ND		1.00	0.383	ND		1.00	0.383
2,4-Dimethylphenol	**50**	ND		2.00	1.06	ND		2.00	1.06	ND		2.00	1.06	ND		2.00	1.06
2,4-Dinitrophenol	**10**	ND		3.00	2.35	ND		3.00	2.35	ND		3.00	2.35	ND		3.00	2.35
2,4-Dinitrotoluene	**5**	ND		1.00	0.886	ND		1.00	0.886	ND		1.00	0.886	ND		1.00	0.886
2,6-Dinitrotoluene	**5**	ND		1.00	0.996	ND		1.00	0.996	ND		1.00	0.996	ND		1.00	0.996
2-Chloronaphthalene	**NS**	ND		1.00	0.234	ND		1.00	0.234	ND		1.00	0.234	ND		1.00	0.234
2-Chlorophenol	**NS**	ND		1.00	0.257	ND		1.00	0.257	ND		1.00	0.257	ND		1.00	0.257
2-Methylnaphthalene	**NS**	ND		1.00	0.200	ND		1.00	0.200	ND		1.00	0.200	ND		1.00	0.200
2-Methylphenol	**NS**	ND		1.00	0.267	ND		1.00	0.267	ND		1.00	0.267	ND		1.00	0.267
2-Nitroaniline	**5**	ND		2.00	0.702	ND		2.00	0.702	ND		2.00	0.702	ND		2.00	0.702
2-Nitrophenol	**NS**	ND		2.00	0.581	ND		2.00	0.581	ND		2.00	0.581	ND		2.00	0.581
3,3'-Dichlorobenzidine	**5**	ND		1.00	0.524	ND		1.00	0.524	ND		1.00	0.524	ND		1.00	0.524
3-Nitroaniline	**5**	ND		3.00	0.436	ND		3.00	0.436	ND		3.00	0.436	ND		3.00	0.436
4,6-Dinitro-2-methylphenol	**NS**	ND		0.100	0.033	ND		0.100	0.033	ND		0.100	0.033	ND		0.100	0.033
4-Bromophenyl phenyl ether	**NS**	ND		1.00	0.940	ND		1.00	0.940	ND		1.00	0.940	ND		1.00	0.940
4-Chloro-3-methylphenol	**NS**	ND		1.00	0.336	ND		1.00	0.336	ND		1.00	0.336	ND		1.00	0.336
4-Chloroaniline	**5**	ND		1.00	0.612	ND		1.00	0.612	ND		1.00	0.612	ND		1.00	0.612
4-Chlorophenyl phenyl ether	**NS**	ND		1.00	0.396	ND		1.00	0.396	ND		1.00	0.396	ND		1.00	0.396
4-Methylphenol **	**NS**	ND		1.00	0.337	ND		1.00	0.337	ND		1.00	0.337	ND		1.00	0.337
4-Nitroaniline	**5**	ND		2.00	0.692	ND		2.00	0.692	ND		2.00	0.692	ND		2.00	0.692
4-Nitrophenol	**NS**	ND		3.00	2.41	ND		3.00	2.41	ND		3.00	2.41	ND		3.00	2.41
Acenaphthene	**NS**	ND		1.00	0.281	ND		1.00	0.281	ND		1.00	0.281	ND		1.00	0.281
Acenaphthylene	**NS**	ND		1.00	0.268	ND		1.00	0.268	ND		1.00	0.268	ND		1.00	0.268
Acetophenone	**NS**	ND		1.00	0.241	ND		1.00	0.241	ND		1.00	0.241	ND		1.00	0.241
Anthracene	**50**	ND		1.00	0.560	ND		1.00	0.560	ND		1.00	0.560	ND		1.00	0.560
Atrazine	**3**	ND		1.00	0.468	ND		1.00	0.468	ND		1.00	0.468	ND		1.00	0.468
Benzaldehyde	**NS**	ND		2.00	0.492	ND		2.00	0.492	ND		2.00	0.492	ND		2.00	0.492
Benzo[a]anthracene	**0.002**	**0.098**	J	0.100	0.029	ND		0.100	0.029	**0.200**		0.100	0.029	ND		0.100	0.029
Benzo[a]pyrene	**ND**	0.137		0.100	0.027	ND		0.100	0.027	0.245		0.100	0.027	ND		0.100	0.027
Benzo[b]fluoranthene	**0.002**	**0.187**		0.100	0.026	ND		0.100	0.026	**0.272**		0.100	0.026	ND		0.100	0.026
Benzo[g,h,i]perylene	**NS**	ND		2.00	1.04	ND		2.00	1.04	ND		2.00	1.04	ND		2.00	1.04
Benzo[k]fluoranthene	**0.002**	**0.142**		0.100	0.035	ND		0.100	0.035	**0.154**		0.100	0.035	ND		0.100	0.035
Bis(2-chloroethoxy) methane	**5**	ND		1.00	0.344	ND		1.00	0.344	ND		1.00	0.344	ND		1.00	0.344
Bis(2-chloroethyl) ether	**1**	ND		1.00	0.459	ND		1.00	0.459	ND		1.00	0.459	ND		1.00	0.459
Bis(2-ethylhexyl) phthalate	**5**	ND		2.00	1.38	ND		2.00	1.38	ND		2.00	1.38	ND		2.00	1.38
Butyl benzyl phthalate	**50**	ND		1.00	0.642	ND		1.00	0.642	ND		1.00	0.642	ND		1.00	0.642
Caprolactam	**NS**	ND		3.00	1.15	ND		3.00	1.15	ND		3.00	1.15	ND		3.00	1.15
Carbazole	**NS**	ND		1.00	0.594	ND		1.00	0.594	ND		1.00	0.594	ND		1.00	0.594
Chrysene	**0.002**	ND		1.00	0.232	ND		1.00	0.232	ND		1.00	0.232	ND		1.00	0.232
Dibenz[a,h]anthracene	**NS**	0.303		0.100	0.031	ND		0.100	0.031	0.253		0.100	0.031	ND		0.100	0.031
Dibenzofuran	**NS**	ND		1.00	0.199	ND		1.00	0.199	ND		1.00	0.199	ND		1.00	0.199
Diethyl phthalate	**50**	ND		1.00	0.239	ND		1.00	0.239	ND		1.00	0.239	ND		1.00	0.239
Dimethyl phthalate	**50**	ND		1.00	0.197	ND		1.00	0.197	ND		1.00	0.197	ND		1.00	0.197
Di-n-butyl phthalate	**50**	ND		1.00	0.343	ND		1.00	0.343	ND		1.00	0.343	ND		1.00	0.343
Dinitrotoluene (2,4- and 2,6-)	**NS**	ND		1.00	0.886	ND		1.00	0.886	ND		1.00	0.886	ND		1.00	0.886
Di-n-octyl phthalate	**50**	ND		2.00	1.09	ND		2.00	1.09	ND		2.00	1.09	ND		2.00	1.09
Fluoranthene	**50**	ND		1.00	0.482	ND		1.00	0.482	ND		1.00	0.482	ND		1.00	0.482
Fluorene	**50**	ND		1.00	0.367	ND		1.00	0.367	ND		1.00	0.367	ND		1.00	0.367
Hexachlorobenzene	**0.04**	ND		0.020	0.016	ND		0.020	0.016	ND		0.020	0.016	ND		0.020	0.016
Hexachlorobutadiene	**0.5**	ND		1.00	0.561	ND		1.00	0.561	ND		1.00	0.561	ND		1.00	0.561
Hexachlorocyclopentadiene	**5**	ND		2.00	1.89	ND		2.00	1.89	ND		2.00	1.89	ND		2.00	1.89
Hexachloroethane	**5**	ND		1.00	0.470	ND		1.00	0.470	ND		1.00	0.470	ND		1.00	0.470
Indeno[1,2,3-cd]pyrene	**0.002**	**0.291**		0.100	0.036	ND		0.100	0.036	**0.330**		0.100	0.036	ND		0.100	0.036
Isophorone	**50**	ND		1.00	0.232	ND		1.00	0.232	ND		1.00	0.232	ND		1.00	0.232
Naphthalene	**NS**	ND		1.00	0.183	ND		1.00	0.183	ND		1.00	0.183	ND		1.00	0.183
Nitrobenzene	**0.4**	ND		1.00	0.442	ND		1.00	0.442	ND		1.00	0.442	ND		1.00	0.442
N-Nitrosodi-n-propylamine	**NS**	ND		1.00	0.391	ND		1.00	0.391	ND		1.00	0.391	ND		1.00	0.391
N-Nitrosodiphenylamine	**50**	ND		1.00	0.196	ND		1.00	0.196	ND		1.00	0.196	ND		1.00	0.196
Pentachlorophenol	**NS**	ND		0.100	0.052	ND		0.100	0.052	ND		0.100	0.052	ND		0.100	0.052
Phenanthrene	**50**	ND		1.00	0.263	ND		1.00	0.263	ND		1.00	0.263	ND		1.00	0.263
Phenol	**NS**	ND		1.00	0.276	ND		1.00	0.276	ND		1.00	0.276	ND		1.00	0.276
Pyrene	**50**	ND		1.00	0.555	ND		1.00	0.555	ND		1.00	0.555	ND		1.00	0.555
TOTAL BNA'S:	**NS**	1.16	J		NA	ND			NA	1.45			NA	ND			NA
TOTAL TIC's:	**NS**	44.4	JN		NA	ND			NA	16.2	J		NA	29.3	JN		NA
TOTAL BNA'S & TIC's:	**NS**	45.6	JN		NA	ND			NA	17.7	J		NA	29.3	JN		NA

Results in Blue Highlight displays exceedance above the Groundwater Effluent Limitations
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

Table 2A (Cont'd) - Groundwater Results - PCBs, Pesticides, Metals
Fulton 11
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.2

Target Compounds	NYSDEC Ambient Water Quality Standards (AWQS)	TWP1 GW Depth: 15'				TWP2 GW Depth: 15'				TWP4 GW Depth: 15'				TWP5 GW Depth: 15'			
PCB's (µg/L)		**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Aroclor-1016	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor-1221	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor-1232	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor-1242	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor-1248	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor-1254	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor-1260	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor-1262	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor-1268	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
PCBs	**0.09**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Pesticides (µg/L)		**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
alpha-BHC	**0.01**	ND		0.010	0.00206	ND		0.010	0.00206	ND		0.010	0.00206	ND		0.010	0.00206
beta-BHC	**0.04**	ND		0.010	0.00303	ND		0.010	0.00303	ND		0.010	0.00303	ND		0.010	0.00303
gamma-BHC (Lindane)	**0.05**	ND		0.010	0.00201	ND		0.010	0.00201	ND		0.010	0.00201	ND		0.010	0.00201
delta-BHC	**0.04**	ND		0.010	0.00238	ND		0.010	0.00238	ND		0.010	0.00238	ND		0.010	0.00238
Heptachlor	**0.04**	ND		0.010	0.00235	ND		0.010	0.00235	ND		0.010	0.00235	ND		0.010	0.00235
Aldrin	**ND**	ND		0.010	0.00187	ND		0.010	0.00187	ND		0.010	0.00187	ND		0.010	0.00187
Heptachlor epoxide	**0.03**	ND		0.010	0.00217	ND		0.010	0.00217	ND		0.010	0.00217	ND		0.010	0.00217
Endosulfan I	**NS**	ND		0.010	0.00208	ND		0.010	0.00208	ND		0.010	0.00208	ND		0.010	0.00208
4,4'-DDE	**0.2**	ND		0.010	0.00197	ND		0.010	0.00197	ND		0.010	0.00197	ND		0.010	0.00197
Dieldrin	**0.004**	ND		0.010	0.00237	ND		0.010	0.00237	ND		0.010	0.00237	ND		0.010	0.00237
Endrin	**ND**	ND		0.010	0.00289	ND		0.010	0.00289	ND		0.010	0.00289	ND		0.010	0.00289
Endosulfan II	**NS**	ND		0.010	0.00258	ND		0.010	0.00258	ND		0.010	0.00258	ND		0.010	0.00258
4,4'-DDD	**0.3**	ND		0.010	0.00294	ND		0.010	0.00294	ND		0.010	0.00294	ND		0.010	0.00294
Endrin aldehyde	**5**	ND		0.010	0.0023	ND		0.010	0.0023	ND		0.010	0.0023	ND		0.010	0.0023
Endosulfan sulfate	**NS**	ND		0.010	0.00314	ND		0.010	0.00314	ND		0.010	0.00314	ND		0.010	0.00314
4,4'-DDT	**0.2**	ND		0.010	0.00202	ND		0.010	0.00202	ND		0.010	0.00202	ND		0.010	0.00202
Endrin ketone	**5**	ND		0.010	0.00323	ND		0.010	0.00323	ND		0.010	0.00323	ND		0.010	0.00323
Methoxychlor	**35**	ND		0.010	0.00337	ND		0.010	0.00337	ND		0.010	0.00337	ND		0.010	0.00337
alpha-Chlordane	**NS**	ND		0.010	0.00215	ND		0.010	0.00215	ND		0.010	0.00215	ND		0.010	0.00215
gamma-Chlordane	**NS**	ND		0.010	0.00314	ND		0.010	0.00314	ND		0.010	0.00314	ND		0.010	0.00314
Toxaphene	**0.06**	ND		0.125	0.050	ND		0.125	0.050	ND		0.125	0.050	ND		0.125	0.050
Endosulfan (I and II)	**NS**	ND		0.010	0.00208	ND		0.010	0.00208	ND		0.010	0.00208	ND		0.010	0.00208
Chlordane (alpha and gamma)	**0.05**	ND		0.010	0.00215	ND		0.010	0.00215	ND		0.010	0.00215	ND		0.010	0.00215
*** Metals - TOTAL (µg/L)**		**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Aluminum	**NS**	23600				5200				3730				22800			
Antimony	**3**	<6.0				<6.0				<6.0				<6.0			
Arsenic	**25**	10.6				3.8				<3.0				8			
Barium	**1000**	400				298				<200				589			
Beryllium	**3**	**3.3**				<1.0				1				**3.1**			
Cadmium	**5**	<3.0				<3.0				<3.0				<3.0			
Calcium	**NS**	94900				81800				51900				41800			
Chromium	**50**	**66.7**				15.1				<10				**64**			
Cobalt	**NS**	<50				<50				<50				<50			
Copper	**200**	90				38.6				13.7				**105**			
Iron	**NS**	30200				6370				4370				29000			
Lead	**25**	**89.7**				**299**				9.8				**30.2**			
Magnesium	**35000**	26800				11900				10000				15600			
Manganese	**NS**	4020				514				423				3540			
Mercury	**0.7**	<0.20				<0.20				<0.20				<0.20			
Nickel	**100**	99.9				25.3				11.4				78.7			
Potassium	**NS**	14800				<10000				12000				11600			
Selenium	**10**	<10				<10				<10				<10			
Silver	**50**	<10				<10				<10				<10			
Sodium	**20000**	**138000**				**84700**				**79500**				**67100**			
Thallium	**0.5**	<10				<10				<10				<10			
Vanadium	**NS**	60.8				<50				<50				62.2			
Zinc	**2000**	174				129				21.9				201			
*** Metals - DISSOLVED (µg/L)**		**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Aluminum	**NS**	<200				486				1330				6060			
Antimony	**3**	<6.0				<6.0				<6.0				<6.0			
Arsenic	**25**	<3.0				<3.0				<3.0				<3.0			
Barium	**1000**	<200				<200				<200				296			
Beryllium	**3**	<1.0				<1.0				<1.0				1.1			
Cadmium	**5**	<3.0				<3.0				<3.0				<3.0			
Calcium	**NS**	76700				101000				52300				40500			
Chromium	**50**	<10				<10				<10				16.1			
Cobalt	**NS**	<50				<50				<50				<50			
Copper	**200**	<10				<10				<10				33.7			
Iron	**NS**	165				630				1580				6950			
Lead	**25**	<3.0				**30.9**				4.6				10.8			
Magnesium	**35000**	13800				12400				9420				10900			
Manganese	**NS**	195				496				223				1060			
Mercury	**0.7**	<0.20				<0.20				<0.20				<0.20			
Nickel	**100**	<10				<10				<10				25.5			
Potassium	**NS**	11000				<10000				11500				<10000			
Selenium	**10**	<10				<10				<10				<10			
Silver	**50**	<10				<10				<10				<10			
Sodium	**20000**	**141000**				**85700**				**78900**				**66000**			
Thallium	**0.5**	<10				<10				<10				<10			
Vanadium	**NS**	<50				<50				<50				<50			
Zinc	**2000**	<20				29.9				74				84.5			
General Analytical (µg/L)		**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**4.73**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Cyanide, Total	**200**	ND		20.0	4.00	ND		20.0	4.00	ND		20.0	4.00	ND		20.0	4.00

Results in Blue Highlight displays exceedance above the Groundwater Effluent Limitations
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.
*** TAL Metals analyzed by SGS Dayton.**

Table 3A - Soil Vapor Results - VOCs
Fulton 11
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.2

	Sample Depth: 12'															Sample Depth: Sub-Slab		
Target Compounds	**SV1** *Sample Location: Exterior*			**SV2** *Sample Location: Exterior*			**SV3** *Sample Location: Exterior*			**SV4** *Sample Location: Exterior*			**SV9** *Sample Location: Exterior*			**SV8** *Sample Location: Trash Compactor Room*		
Volatiles (µg/m³)	**Q**	**Conc**	**RL**	**Q**	**Conc**	**RL**	**Q**	**Conc**	**RL**	**Q**	**Conc**	**RL**	**Q**	**Conc**	**RL**	**Q**	**Conc**	**RL**
Acetone		46	0.48		41	0.48		33	0.48		53	0.48		35	0.48		35	0.48
Benzene		2.6	0.64		10	0.64		12	0.64		9.2	0.64		1.4	0.64		0.96	0.64
Bromodichloromethane		ND	1.3		ND	1.3		ND	1.3		ND	1.3		ND	1.3		ND	1.3
Bromoform		ND	2.1		ND	2.1		ND	2.1		ND	2.1		ND	2.1		ND	2.1
Bromomethane		ND	0.78		ND	0.78		ND	0.78		ND	0.78		ND	0.78		ND	0.78
1,3-Butadiene		ND	0.44		ND	0.44		ND	0.44		ND	0.44		ND	0.44		ND	0.44
Chlorobenzene		ND	0.92		ND	0.92		ND	0.92		ND	0.92		ND	0.92		ND	0.92
Chloroethane		ND	0.53		ND	0.53		ND	0.53		ND	0.53		ND	0.53		ND	0.53
Chloroform		8.7	0.98		19	0.98		ND	0.98		ND	0.98		ND	0.98		ND	0.98
Chloromethane		ND	0.41		ND	0.41		ND	0.41		ND	0.41		ND	0.41		ND	0.41
Carbon disulfide		6.2	0.62		7.6	0.62		9.5	0.62		3.4	0.62		4.6	0.62		1.4	0.62
Carbon tetrachloride		ND	0.25		ND	0.25		ND	0.25		ND	0.25		ND	0.25		ND	0.25
Cyclohexane		2.9	0.69		5.2	0.69		8.5	0.69		4.5	0.69		2.3	0.69		ND	0.69
Dibromochloromethane		ND	1.7		ND	1.7		ND	1.7		ND	1.7		ND	1.7		ND	1.7
1,2-Dibromoethane		ND	1.5		ND	1.5		ND	1.5		ND	1.5		ND	1.5		ND	1.5
1,2-Dichlorobenzene		ND	1.2		ND	1.2		ND	1.2		ND	1.2		ND	1.2		ND	1.2
1,3-Dichlorobenzene		ND	1.2		ND	1.2		ND	1.2		ND	1.2		ND	1.2		ND	1.2
1,4-Dichlorobenzene		ND	1.2		ND	1.2		ND	1.2		ND	1.2		ND	1.2		ND	1.2
Dichlorodifluoromethane		ND	0.99		ND	0.99		ND	0.99		ND	0.99		ND	0.99		ND	0.99
1,1-Dichloroethane		ND	0.81		ND	0.81		ND	0.81		ND	0.81		ND	0.81		ND	0.81
1,2-Dichloroethane		ND	0.81		ND	0.81		ND	0.81		ND	0.81		ND	0.81		ND	0.81
1,1-Dichloroethene		ND	0.79		ND	0.79		ND	0.79		ND	0.79		ND	0.79		ND	0.79
1,2-Dichloroethene (cis)		ND	0.79		ND	0.79		ND	0.79		ND	0.79		ND	0.79		ND	0.79
1,2-Dichloroethene (trans)		ND	0.79		ND	0.79		ND	0.79		ND	0.79		ND	0.79		ND	0.79
1,2-Dichloropropane		ND	0.92		ND	0.92		ND	0.92		ND	0.92		ND	0.92		ND	0.92
1,3-Dichloropropene (cis)		ND	0.91		ND	0.91		ND	0.91		ND	0.91		ND	0.91		ND	0.91
1,3-Dichloropropene (trans)		ND	0.91		ND	0.91		ND	0.91		ND	0.91		ND	0.91		ND	0.91
1,3-Dichloropropene - TOTAL		ND	0.91		ND	0.91		ND	0.91		ND	0.91		ND	0.91		ND	0.91
1,2-Dichlorotetrafluoroethane		ND	1.4		ND	1.4		ND	1.4		ND	1.4		ND	1.4		ND	1.4
1,4-Dioxane		ND	0.72		ND	0.72		ND	0.72		ND	0.72		ND	0.72		ND	0.72
Ethylbenzene	D	280	4.3		120	0.87		110	0.87		4.1	0.87	D	210	4.3		100	0.87
n-Heptane		12	0.82		8.8	0.82		20	0.82		9.2	0.82		11	0.82		3.4	0.82
1,3-Hexachlorobutadiene		ND	2.1		ND	2.1		ND	2.1		ND	2.1		ND	2.1		ND	2.1
n-Hexane		ND	0.70		ND	0.70		29	0.70		10	0.70		8.7	0.70		0.80	0.70
Methylene chloride		ND	0.69		6.0	0.69		ND	0.69		ND	0.69		ND	0.69		ND	0.69
Methyl ethyl ketone		5.8	0.59		4.6	0.59		3.2	0.59		4.1	0.59		3.1	0.59		1.6	0.59
Methyl isobutyl ketone		ND	0.82		ND	0.82		ND	0.82		ND	0.82		ND	0.82		ND	0.82
Methyl tert-butyl ether		ND	0.72		ND	0.72		ND	0.72		ND	0.72		ND	0.72		ND	0.72
Styrene		1.9	0.85		1.9	0.85		1.2	0.85		1.6	0.85		2.1	0.85		1.1	0.85
Tert-butyl alcohol		24	0.61		11	0.61		11	0.61		7.9	0.61		18	0.61		4.8	0.61
1,1,2,2-Tetrachloroethane		ND	1.4		ND	1.4		ND	1.4		ND	1.4		ND	1.4		ND	1.4
Tetrachloroethene		43	1.4		100	1.4		24	1.4		49	1.4		66	1.4		12	1.4
Toluene		8.2	0.75		12	0.75		8.1	0.75		8.9	0.75		6.4	0.75		3.4	0.75
1,2,4-Trichlorobenzene		ND	1.5		ND	1.5		ND	1.5		ND	1.5		ND	1.5		ND	1.5
1,1,1-Trichloroethane		ND	1.1		ND	1.1		ND	1.1		ND	1.1		ND	1.1		ND	1.1
1,1,2-Trichloroethane		ND	1.1		ND	1.1		ND	1.1		ND	1.1		ND	1.1		ND	1.1
Trichloroethene		ND	0.25		ND	0.25		ND	0.25		ND	0.25		ND	0.25		ND	0.25
Trichlorofluoromethane		1.7	1.1		1.8	1.1		1.7	1.1		1.9	1.1		1.8	1.1		1.7	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane		ND	1.5		ND	1.5		ND	1.5		ND	1.5		ND	1.5		ND	1.5
1,2,4-Trimethylbenzene		6.7	0.98		7.9	0.98		3.8	0.98		3.2	0.98		13	0.98		7.1	0.98
1,3,5-Trimethylbenzene		2.2	0.98		2.6	0.98		1.3	0.98		1.0	0.98		5.1	0.98		2.1	0.98
2,2,4-Trimethylpentane		ND	0.93		ND	0.93		ND	0.93		ND	0.93		0.97	0.93		ND	0.93
Vinyl bromide		ND	0.87		ND	0.87		ND	0.87		ND	0.87		ND	0.87		ND	0.87
Vinyl chloride		ND	0.51		ND	0.51		ND	0.51		ND	0.51		ND	0.51		ND	0.51
Xylenes (m&p)	D	1000	4.3	D	630	8.7	D	780	8.7		16	0.87	D	890	4.3	D	650	4.3
Xylenes (o)	D	220	4.3		93	0.87		94	0.87		8.9	0.87		170	0.87		90	0.87
Xylenes - TOTAL	D	1220	4.3	D	723	8.7	D	874	8.7		24.9	0.87	D	1060	4.3	D	740	4.3

***No applicable NYSDEC remediation benchmarks available for soil vapor**
J = Concentration detected at a value below the RL and above the MDL for target compounds
ND = Analyzed for but Not Detected at the RL
D = Extra dilution required for this compound

TABLES

CHELSEA ELLIOTT RESULTS

Table 1B - Soil Results - VOCs
Chelsea Elliott
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.1

Target Compounds	NYSDEC Unrestricted Use SCO	NYSDEC Restricted Residential SCO	SB1A Sample Depth: 0-2'				SB1B Sample Depth: 10-12'				SB2A Sample Depth: 0-2'				SB2B Sample Depth: 10-12'				SB3A Sample Depth: 0-2'				SB3B Sample Depth: 10-12'				SB4A Sample Depth: 0-2'				SB4B Sample Depth: 10-12'			
Volatiles (mg/Kg)			Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
1,1,1-Trichloroethane	**0.68**	**100**	ND		0.00159	0.000488	ND		0.00117	0.000359	ND		0.00096	0.000295	ND		0.00129	0.000396	ND		0.00119	0.000365	ND		0.00119	0.000365	ND		0.00126	0.000387	ND		0.00117	0.000359
1,1,2,2-Tetrachloroethane	**NS**	**NS**	ND		0.00159	0.000832	ND		0.00117	0.000612	ND		0.00096	0.000502	ND		0.00129	0.000675	ND		0.00119	0.000622	ND		0.00119	0.000622	ND		0.00126	0.000659	ND		0.00117	0.000612
1,1,2-Trichloro-1,2,2-trifluoroethane	**NS**	**NS**	ND		0.00318	0.000949	ND		0.00234	0.000698	ND		0.00192	0.000573	ND		0.00258	0.00077	ND		0.00238	0.00071	ND		0.00238	0.00071	ND		0.00252	0.000752	ND		0.00234	0.000698
1,1,2-Trichloroethane	**NS**	**NS**	ND		0.00159	0.00034	ND		0.00117	0.00025	ND		0.00096	0.000205	ND		0.00129	0.000276	ND		0.00119	0.000255	ND		0.00119	0.000255	ND		0.00126	0.00027	ND		0.00117	0.00025
1,1-Dichloroethane	**0.27**	**26**	ND		0.00318	0.000405	ND		0.00234	0.000298	ND		0.00192	0.000245	ND		0.00258	0.000329	ND		0.00238	0.000303	ND		0.00238	0.000303	ND		0.00252	0.000321	ND		0.00234	0.000298
1,1-Dichloroethene	**0.33**	**100**	ND		0.00159	0.000557	ND		0.00117	0.00041	ND		0.00096	0.000336	ND		0.00129	0.000452	ND		0.00119	0.000417	ND		0.00119	0.000417	ND		0.00126	0.000441	ND		0.00117	0.00041
1,2,3-Trichlorobenzene	**NS**	**NS**	ND		0.00318	0.000506	ND		0.00234	0.000372	ND		0.00192	0.000305	ND		0.00258	0.00041	ND		0.00238	0.000378	ND		0.00238	0.000378	ND		0.00252	0.000401	ND		0.00234	0.000372
1,2,4-Trichlorobenzene	**NS**	**NS**	ND		0.00159	0.000668	ND		0.00117	0.000491	ND		0.00096	0.000403	ND		0.00129	0.000542	ND		0.00119	0.0005	ND		0.00119	0.0005	ND		0.00126	0.000529	ND		0.00117	0.000491
1,2-Dibromo-3-chloropropane	**NS**	**NS**	ND		0.00159	0.00131	ND		0.00117	0.000964	ND		0.00096	0.000791	ND		0.00129	0.00106	ND		0.00119	0.000981	ND		0.00119	0.000981	ND		0.00126	0.00104	ND		0.00117	0.000964
1,2-Dibromoethane (EDB)	**NS**	**NS**	ND		0.00159	0.000294	ND		0.00117	0.000216	ND		0.00096	0.000178	ND		0.00129	0.000239	ND		0.00119	0.00022	ND		0.00119	0.00022	ND		0.00126	0.000233	ND		0.00117	0.000216
1,2-Dichlorobenzene	**1.1**	**100**	ND		0.00159	0.000399	ND		0.00117	0.000294	ND		0.00096	0.000241	ND		0.00129	0.000324	ND		0.00119	0.000299	ND		0.00119	0.000299	ND		0.00126	0.000316	ND		0.00117	0.000294
1,2-Dichloroethane (EDC)	**0.02**	**3.1**	ND		0.00159	0.000367	ND		0.00117	0.00027	ND		0.00096	0.000222	ND		0.00129	0.000298	ND		0.00119	0.000275	ND		0.00119	0.000275	ND		0.00126	0.000291	ND		0.00117	0.00027
1,2-Dichloropropane	**NS**	**NS**	ND		0.00159	0.000159	ND		0.00117	0.000117	ND		0.00096	0.000096	ND		0.00129	0.000129	ND		0.00119	0.000119	ND		0.00119	0.000119	ND		0.00126	0.000126	ND		0.00117	0.000117
1,3-Dichlorobenzene	**2.4**	**49**	ND		0.00159	0.000421	ND		0.00117	0.00031	ND		0.00096	0.000254	ND		0.00129	0.000342	ND		0.00119	0.000315	ND		0.00119	0.000315	ND		0.00126	0.000334	ND		0.00117	0.00031
1,3-Dichloropropene (cis- and trans-)	**NS**	**NS**	ND		0.00159	0.000176	ND		0.00117	0.00013	ND		0.00096	0.000107	ND		0.00129	0.000143	ND		0.00119	0.000132	ND		0.00119	0.000132	ND		0.00126	0.00014	ND		0.00117	0.00013
1,4-Dichlorobenzene	**1.8**	**13**	ND		0.00159	0.000493	ND		0.00117	0.000363	ND		0.00096	0.000298	ND		0.00129	0.0004	ND		0.00119	0.000369	ND		0.00119	0.000369	ND		0.00126	0.000391	ND		0.00117	0.000363
2-Butanone (MEK)	**0.12**	**100**	ND		0.016	0.00318	ND		0.012	0.00234	ND		0.0096	0.00192	ND		0.013	0.00258	ND		0.012	0.00238	ND		0.012	0.00238	ND		0.013	0.00252	ND		0.012	0.00234
2-Hexanone	**NS**	**NS**	ND		0.016	0.00244	ND		0.012	0.00179	ND		0.0096	0.00147	ND		0.013	0.00198	ND		0.012	0.00182	ND		0.012	0.00182	ND		0.013	0.00193	ND		0.012	0.00179
4-Methyl-2-pentanone (MIBK)	**NS**	**NS**	ND		0.016	0.000832	ND		0.012	0.000612	ND		0.0096	0.000502	ND		0.013	0.000675	ND		0.012	0.000622	ND		0.012	0.000622	ND		0.013	0.000659	ND		0.012	0.000612
Acetone	**0.05**	**100**	ND		0.016	0.00795	ND		0.012	0.00585	ND		0.0096	0.0048	0.00904	J	0.013	0.00645	ND		0.012	0.00595	0.019		0.012	0.00595	ND		0.013	0.0063	ND		0.012	0.00585
Benzene	**0.06**	**4.8**	ND		0.00159	0.000137	ND		0.00117	0.000101	ND		0.00096	0.0000826	ND		0.00129	0.000111	ND		0.00119	0.000102	ND		0.00119	0.000102	ND		0.00126	0.000108	ND		0.00117	0.000101
Bromochloromethane	**NS**	**NS**	ND		0.00159	0.000404	ND		0.00117	0.000297	ND		0.00096	0.000244	ND		0.00129	0.000328	ND		0.00119	0.000302	ND		0.00119	0.000302	ND		0.00126	0.00032	ND		0.00117	0.000297
Bromodichloromethane	**NS**	**NS**	ND		0.00159	0.000189	ND		0.00117	0.000139	ND		0.00096	0.000114	ND		0.00129	0.000154	ND		0.00119	0.000142	ND		0.00119	0.000142	ND		0.00126	0.00015	ND		0.00117	0.000139
Bromoform	**NS**	**NS**	ND		0.00159	0.000494	ND		0.00117	0.000364	ND		0.00096	0.000299	ND		0.00129	0.000401	ND		0.00119	0.00037	ND		0.00119	0.00037	ND		0.00126	0.000392	ND		0.00117	0.000364
Bromomethane	**NS**	**NS**	ND		0.00318	0.00139	ND		0.00234	0.00102	ND		0.00192	0.000837	ND		0.00258	0.00112	ND		0.00238	0.00104	ND		0.00238	0.00104	ND		0.00252	0.0011	ND		0.00234	0.00102
Carbon disulfide	**NS**	**NS**	ND		0.00159	0.000625	ND		0.00117	0.00046	ND		0.00096	0.000377	ND		0.00129	0.000507	ND		0.00119	0.000468	ND		0.00119	0.000468	ND		0.00126	0.000495	ND		0.00117	0.00046
Carbon tetrachloride	**0.76**	**2.4**	ND		0.00159	0.000318	ND		0.00117	0.000234	ND		0.00096	0.000192	ND		0.00129	0.000258	ND		0.00119	0.000238	ND		0.00119	0.000238	ND		0.00126	0.000252	ND		0.00117	0.000234
Chlorobenzene	**1.1**	**100**	ND		0.00159	0.000275	ND		0.00117	0.000202	ND		0.00096	0.000166	ND		0.00129	0.000223	ND		0.00119	0.000206	ND		0.00119	0.000206	ND		0.00126	0.000218	ND		0.00117	0.000202
Chloroethane	**NS**	**NS**	ND		0.00159	0.000472	ND		0.00117	0.000347	ND		0.00096	0.000285	ND		0.00129	0.000383	ND		0.00119	0.000353	ND		0.00119	0.000353	ND		0.00126	0.000374	ND		0.00117	0.000347
Chloroform	**0.37**	**49**	ND		0.00318	0.000795	ND		0.00234	0.000585	ND		0.00192	0.00048	ND		0.00258	0.000645	ND		0.00238	0.000595	ND		0.00238	0.000595	ND		0.00252	0.00063	ND		0.00234	0.000585
Chloromethane	**NS**	**NS**	ND		0.00318	0.000504	ND		0.00234	0.000371	ND		0.00192	0.000304	ND		0.00258	0.000409	ND		0.00238	0.000377	ND		0.00238	0.000377	ND		0.00252	0.000399	ND		0.00234	0.000371
cis-1,2-Dichloroethene	**0.25**	**100**	ND		0.00318	0.00034	ND		0.00234	0.00025	ND		0.00192	0.000205	ND		0.00258	0.000276	ND		0.00238	0.000255	ND		0.00238	0.000255	ND		0.00252	0.00027	ND		0.00234	0.00025
cis-1,3-Dichloropropene	**NS**	**NS**	ND		0.00159	0.000243	ND		0.00117	0.000179	ND		0.00096	0.000147	ND		0.00129	0.000197	ND		0.00119	0.000182	ND		0.00119	0.000182	ND		0.00126	0.000193	ND		0.00117	0.000179
Cyclohexane	**NS**	**NS**	ND		0.00795	0.000286	ND		0.00585	0.000211	ND		0.0048	0.000173	ND		0.00645	0.000232	ND		0.00595	0.000214	ND		0.00595	0.000214	ND		0.0063	0.000227	ND		0.00585	0.000211
Dibromochloromethane	**NS**	**NS**	ND		0.00159	0.000264	ND		0.00117	0.000194	ND		0.00096	0.000159	ND		0.00129	0.000214	ND		0.00119	0.000198	ND		0.00119	0.000198	ND		0.00126	0.000209	ND		0.00117	0.000194
Dichlorodifluoromethane	**NS**	**NS**	ND		0.00159	0.000825	ND		0.00117	0.000607	ND		0.00096	0.000498	ND		0.00129	0.00067	ND		0.00119	0.000618	ND		0.00119	0.000618	ND		0.00126	0.000654	ND		0.00117	0.000607
Ethylbenzene	**1**	**41**	ND		0.00159	0.000173	ND		0.00117	0.000128	ND		0.00096	0.000105	ND		0.00129	0.000141	ND		0.00119	0.00013	ND		0.00119	0.00013	ND		0.00126	0.000137	ND		0.00117	0.000128
Isopropylbenzene	**NS**	**NS**	ND		0.00159	0.000339	ND		0.00117	0.000249	ND		0.00096	0.000204	ND		0.00129	0.000275	ND		0.00119	0.000253	ND		0.00119	0.000253	ND		0.00126	0.000268	ND		0.00117	0.000249
Methyl acetate	**NS**	**NS**	ND		0.00159	0.00128	ND		0.00117	0.000945	ND		0.00096	0.000776	ND		0.00129	0.00104	ND		0.00119	0.000962	ND		0.00119	0.000962	ND		0.00126	0.00102	ND		0.00117	0.000945
Methyl tert-butyl ether (MTBE)	**0.93**	**100**	ND		0.00159	0.000347	ND		0.00117	0.000255	ND		0.00096	0.000209	ND		0.00129	0.000281	ND		0.00119	0.000259	ND		0.00119	0.000259	ND		0.00126	0.000275	ND		0.00117	0.000255
Methylcyclohexane	**NS**	**NS**	ND		0.00318	0.000273	ND		0.00234	0.000201	ND		0.00192	0.000165	ND		0.00258	0.000222	ND		0.00238	0.000205	ND		0.00238	0.000205	ND		0.00252	0.000217	ND		0.00234	0.000201
Methylene chloride	**0.05**	**100**	ND		0.00795	0.00477	0.00432	CJ	0.00585	0.00351	ND		0.0048	0.00288	0.0046	CJ	0.00645	0.00387	ND		0.00595	0.00357	ND		0.00595	0.00357	ND		0.0063	0.00378	ND		0.00585	0.00351
Styrene	**NS**	**NS**	ND		0.00159	0.000342	ND		0.00117	0.000252	ND		0.00096	0.000206	ND		0.00129	0.000277	ND		0.00119	0.000256	ND		0.00119	0.000256	ND		0.00126	0.000271	ND		0.00117	0.000252
Tetrachloroethene	**1.3**	**19**	ND		0.00159	0.000164	ND		0.00117	0.000121	ND		0.00096	0.0000989	ND		0.00129	0.000133	ND		0.00119	0.000123	ND		0.00119	0.000123	ND		0.00126	0.00013	ND		0.00117	0.000121
Toluene	**0.7**	**100**	ND		0.00159	0.000795	ND		0.00117	0.000585	ND		0.00096	0.00048	ND		0.00129	0.000645	ND		0.00119	0.000595	ND		0.00119	0.000595	ND		0.00126	0.00063	ND		0.00117	0.000585
Total Xylenes	**0.26**	**100**	ND		0.00318	0.000223	ND		0.00234	0.000164	ND		0.00192	0.000134	ND		0.00258	0.000181	ND		0.00238	0.000167	ND		0.00238	0.000167	ND		0.00252	0.000176	ND		0.00234	0.000164
trans-1,2-Dichloroethene	**0.19**	**100**	ND		0.00318	0.000563	ND		0.00234	0.000414	ND		0.00192	0.00034	ND		0.00258	0.000457	ND		0.00238	0.000421	ND		0.00238	0.000421	ND		0.00252	0.000446	ND		0.00234	0.000414
trans-1,3-Dichloropropene	**NS**	**NS**	ND		0.00159	0.000176	ND		0.00117	0.00013	ND		0.00096	0.000107	ND		0.00129	0.000143	ND		0.00119	0.000132	ND		0.00119	0.000132	ND		0.00126	0.00014	ND		0.00117	0.00013
Trichloroethene	**0.47**	**21**	ND		0.00159	0.000237	ND		0.00117	0.000174	ND		0.00096	0.000143	ND		0.00129	0.000192	ND		0.00119	0.000177	ND		0.00119	0.000177	ND		0.00126	0.000188	ND		0.00117	0.000174
Trichlorofluoromethane	**NS**	**NS**	ND		0.00159	0.000646	ND		0.00117	0.000475	ND		0.00096	0.00039	ND		0.00129	0.000524	ND		0.00119	0.000483	ND		0.00119	0.000483	ND		0.00126	0.000512	ND		0.00117	0.000475
Vinyl chloride	**0.02**	**0.9**	ND		0.00159	0.000515	ND		0.00117	0.000379	ND		0.00096	0.000311	ND		0.00129	0.000418	ND		0.00119	0.000386	ND		0.00119	0.000386	ND		0.00126	0.000408	ND		0.00117	0.000379
TOTAL VO's:	**NS**	**NS**	ND			NA	0.00432	CJ		NA	ND			NA	0.014	CJ		NA	ND			NA	0.019			NA	ND			NA	ND			NA
TOTAL TIC's:	**NS**	**NS**	ND			NA	ND			NA	ND			NA	0.0071	JN		NA	ND			NA	0.030	JN		NA	ND			NA	ND			NA
TOTAL VO's & TIC's:	**NS**	**NS**	ND			NA	0.00432	CJ		NA	ND			NA	0.021	CJ		NA	ND			NA	0.049			NA	ND			NA	ND			NA

Results in Yellow Highlight displays exceedance above the UUSCO regulatory standard
Results in Green Highlight displays exceedance above both UUSCO & RRUSCO regulatory standard
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

NS = No Standard Available
D = The compound was reported from the Diluted analysis
ND = Analyzed for but Not Detected at the MDL

Table 1B (Cont'd) - Soil Results - SVOCs
Chelsea Elliott
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.1

Target Compounds	NYSDEC Unrestricted Use SCO	NYSDEC Restricted Residential SCO	SB1A Sample Depth: 0-2'				SB1B Sample Depth: 10-12'				SB2A Sample Depth: 0-2'				SB2B Sample Depth: 10-12'				SB3A Sample Depth: 0-2'				SB3B Sample Depth: 10-12'				SB4A Sample Depth: 0-2'				SB4B Sample Depth: 10-12'			
Semivolatiles - BNA (mg/Kg)			Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
1,1'-Biphenyl	NS	NS	ND		0.037	0.00546	ND		0.039	0.0058	0.020	J	0.036	0.00535	ND		0.036	0.00537	ND		0.074	0.011	0.265	DJ	0.373	0.056	ND		0.038	0.00569	ND		0.041	0.00616
1,2,4,5-Tetrachlorobenzene	NS	NS	ND		0.037	0.012	ND		0.039	0.013	ND		0.036	0.012	ND		0.036	0.012	ND		0.074	0.025	ND		0.373	0.125	ND		0.038	0.013	ND		0.041	0.014
1,4-Dioxane	0.1	13	ND		0.037	0.024	ND		0.039	0.025	ND		0.036	0.023	ND		0.036	0.023	ND		0.074	0.048	ND		0.373	0.241	ND		0.038	0.025	ND		0.041	0.027
2,2'-Oxybis(1-Chloropropane)	NS	NS	ND		0.037	0.00916	ND		0.039	0.00973	ND		0.036	0.00897	ND		0.036	0.00901	ND		0.074	0.019	ND		0.373	0.093	ND		0.038	0.00954	ND		0.041	0.010
2,3,4,6-Tetrachlorophenol	NS	NS	ND		0.037	0.013	ND		0.039	0.013	ND		0.036	0.012	ND		0.036	0.012	ND		0.074	0.025	ND		0.373	0.128	ND		0.038	0.013	ND		0.041	0.014
2,4,5-Trichlorophenol	NS	NS	ND		0.037	0.028	ND		0.039	0.030	ND		0.036	0.027	ND		0.036	0.027	ND		0.074	0.056	ND		0.373	0.283	ND		0.038	0.029	ND		0.041	0.032
2,4,6-Trichlorophenol	NS	NS	ND		0.037	0.010	ND		0.039	0.011	ND		0.036	0.00989	ND		0.036	0.00993	ND		0.074	0.020	ND		0.373	0.103	ND		0.038	0.011	ND		0.041	0.011
2,4-Dichlorophenol	NS	NS	ND		0.037	0.00976	ND		0.039	0.010	ND		0.036	0.00956	ND		0.036	0.0096	ND		0.074	0.020	ND		0.373	0.099	ND		0.038	0.010	ND		0.041	0.011
2,4-Dimethylphenol	NS	NS	ND		0.037	0.011	ND		0.039	0.012	ND		0.036	0.011	ND		0.036	0.011	ND		0.074	0.022	ND		0.373	0.110	ND		0.038	0.011	ND		0.041	0.012
2,4-Dinitrophenol	NS	NS	ND		0.073	0.015	ND		0.078	0.016	ND		0.072	0.015	ND		0.072	0.015	ND		0.148	0.031	ND		0.746	0.153	ND		0.077	0.016	ND		0.083	0.017
2,4-Dinitrotoluene	NS	NS	ND		0.073	0.042	ND		0.078	0.044	ND		0.072	0.041	ND		0.072	0.041	ND		0.148	0.084	ND		0.746	0.422	ND		0.077	0.043	ND		0.083	0.047
2,6-Dinitrotoluene	NS	NS	ND		0.073	0.042	ND		0.078	0.045	ND		0.072	0.041	ND		0.072	0.042	ND		0.148	0.085	ND		0.746	0.428	ND		0.077	0.044	ND		0.083	0.048
2-Chloronaphthalene	NS	NS	ND		0.037	0.00848	ND		0.039	0.00901	ND		0.036	0.00831	ND		0.036	0.00834	ND		0.074	0.017	ND		0.373	0.086	ND		0.038	0.00883	ND		0.041	0.00957
2-Chlorophenol	NS	NS	ND		0.037	0.012	ND		0.039	0.013	ND		0.036	0.012	ND		0.036	0.012	ND		0.074	0.024	ND		0.373	0.121	ND		0.038	0.012	ND		0.041	0.014
2-Methylnaphthalene	NS	NS	0.023	J	0.037	0.013	0.156		0.039	0.014	0.065		0.036	0.013	ND		0.036	0.013	0.084	D	0.074	0.026	0.910	D	0.373	0.131	ND		0.038	0.014	ND		0.041	0.015
2-Methylphenol	0.33	100	ND		0.037	0.017	ND		0.039	0.018	ND		0.036	0.016	ND		0.036	0.016	ND		0.074	0.033	ND		0.373	0.168	ND		0.038	0.017	ND		0.041	0.019
2-Nitroaniline	NS	NS	ND		0.037	0.020	ND		0.039	0.021	ND		0.036	0.019	ND		0.036	0.019	ND		0.074	0.039	ND		0.373	0.198	ND		0.038	0.020	ND		0.041	0.022
2-Nitrophenol	NS	NS	ND		0.073	0.022	ND		0.078	0.023	ND		0.072	0.021	ND		0.072	0.022	ND		0.148	0.044	ND		0.746	0.222	ND		0.077	0.023	ND		0.083	0.025
3,3'-Dichlorobenzidine	NS	NS	ND		0.037	0.026	ND		0.039	0.028	ND		0.036	0.025	ND		0.036	0.026	ND		0.074	0.052	ND		0.373	0.264	ND		0.038	0.027	ND		0.041	0.029
3-Methylphenol	0.33	100	ND		0.037	0.024	ND		0.039	0.025	ND		0.036	0.023	ND		0.036	0.023	ND		0.074	0.048	ND		0.373	0.241	ND		0.038	0.025	ND		0.041	0.027
3-Nitroaniline	NS	NS	ND		0.037	0.023	ND		0.039	0.025	ND		0.036	0.023	ND		0.036	0.023	ND		0.074	0.047	ND		0.373	0.236	ND		0.038	0.024	ND		0.041	0.026
4,6-Dinitro-2-methylphenol	NS	NS	ND		0.073	0.016	ND		0.078	0.017	ND		0.072	0.015	ND		0.072	0.015	ND		0.148	0.031	ND		0.746	0.158	ND		0.077	0.016	ND		0.083	0.018
4-Bromophenyl phenyl ether	NS	NS	ND		0.037	0.010	ND		0.039	0.011	ND		0.036	0.00996	ND		0.036	0.010	ND		0.074	0.021	ND		0.373	0.103	ND		0.038	0.011	ND		0.041	0.012
4-Chloro-3-methylphenol	NS	NS	ND		0.037	0.014	ND		0.039	0.015	ND		0.036	0.014	ND		0.036	0.014	ND		0.074	0.029	ND		0.373	0.144	ND		0.038	0.015	ND		0.041	0.016
4-Chloroaniline	NS	NS	ND		0.037	0.014	ND		0.039	0.015	ND		0.036	0.014	ND		0.036	0.014	ND		0.074	0.029	ND		0.373	0.143	ND		0.038	0.015	ND		0.041	0.016
4-Chlorophenyl phenyl ether	NS	NS	ND		0.037	0.00807	ND		0.039	0.00857	ND		0.036	0.0079	ND		0.036	0.00794	ND		0.074	0.016	ND		0.373	0.082	ND		0.038	0.00841	ND		0.041	0.0091
4-Methylphenol **	0.33	100	ND		0.037	0.017	ND		0.039	0.018	ND		0.036	0.016	ND		0.036	0.016	ND		0.074	0.034	ND		0.373	0.170	ND		0.038	0.017	ND		0.041	0.019
4-Nitroaniline	NS	NS	ND		0.037	0.022	ND		0.039	0.023	ND		0.036	0.021	ND		0.036	0.021	ND		0.074	0.044	ND		0.373	0.221	ND		0.038	0.023	ND		0.041	0.025
4-Nitrophenol	NS	NS	ND		0.073	0.037	ND		0.078	0.039	ND		0.072	0.036	ND		0.072	0.037	ND		0.148	0.075	ND		0.746	0.376	ND		0.077	0.039	ND		0.083	0.042
Acenaphthene	20	100	0.091		0.037	0.00725	0.335		0.039	0.0077	0.143		0.036	0.0071	ND		0.036	0.00713	0.444	D	0.074	0.015	3.45	D	0.373	0.074	ND		0.038	0.00755	ND		0.041	0.00818
Acenaphthylene	100	100	0.076		0.037	0.00804	0.125		0.039	0.00854	0.074		0.036	0.00787	ND		0.036	0.0079	0.251	D	0.074	0.016	0.969	D	0.373	0.082	0.037	J	0.038	0.00837	ND		0.041	0.00906
Acetophenone	NS	NS	ND		0.037	0.022	ND		0.039	0.024	ND		0.036	0.022	ND		0.036	0.022	ND		0.074	0.045	ND		0.373	0.227	ND		0.038	0.023	ND		0.041	0.025
Anthracene	100	100	0.311		0.037	0.00374	0.524		0.039	0.00397	0.626		0.036	0.00366	0.059		0.036	0.00368	1.28	D	0.074	0.00755	7.19	D	0.373	0.038	0.062		0.038	0.00389	ND		0.041	0.00422
Atrazine	NS	NS	ND		0.037	0.022	ND		0.039	0.023	ND		0.036	0.022	ND		0.036	0.022	ND		0.074	0.044	ND		0.373	0.222	ND		0.038	0.023	ND		0.041	0.025
Benzaldehyde	NS	NS	ND		0.073	0.028	ND		0.078	0.029	ND		0.072	0.027	0.102		0.072	0.027	ND		0.148	0.056	ND		0.746	0.280	ND		0.077	0.029	0.173		0.083	0.031
Benzo[a]anthracene	1	1	1.28		0.037	0.013	1.68		0.039	0.014	1.80		0.036	0.013	0.190		0.036	0.013	4.16	D	0.074	0.027	15.3	D	0.373	0.136	0.191		0.038	0.014	0.026	J	0.041	0.015
Benzo[a]pyrene	1	1	1.29		0.037	0.018	1.46		0.039	0.019	1.44		0.036	0.017	0.177		0.036	0.018	3.97	D	0.074	0.036	13.3	D	0.373	0.181	0.189		0.038	0.019	0.037	J	0.041	0.020
Benzo[b]fluoranthene	1	1	1.42		0.037	0.018	1.58		0.039	0.019	1.57		0.036	0.018	0.207		0.036	0.018	3.81	D	0.074	0.037	13.6	D	0.373	0.184	0.197		0.038	0.019	0.035	J	0.041	0.020
Benzo[g,h,i]perylene	100	100	0.831		0.037	0.028	0.874		0.039	0.029	0.870		0.036	0.027	0.120		0.036	0.027	1.89	D	0.074	0.056	7.07	D	0.373	0.281	0.121		0.038	0.029	0.042		0.041	0.031
Benzo[k]fluoranthene	0.8	3.9	0.858		0.037	0.025	1.10		0.039	0.027	1.08		0.036	0.025	0.138		0.036	0.025	3.22	D	0.074	0.051	10.4	D	0.373	0.258	0.157		0.038	0.026	0.034	J	0.041	0.029
Bis(2-chloroethoxy) methane	NS	NS	ND		0.037	0.00818	ND		0.039	0.00869	ND		0.036	0.00805	ND		0.036	0.00805	ND		0.074	0.017	ND		0.373	0.083	ND		0.038	0.00852	ND		0.041	0.00923
Bis(2-chloroethyl) ether	NS	NS	ND		0.037	0.013	ND		0.039	0.014	ND		0.036	0.013	ND		0.036	0.013	ND		0.074	0.026	ND		0.373	0.131	ND		0.038	0.013	ND		0.041	0.015
Bis(2-ethylhexyl) phthalate	NS	NS	0.280		0.037	0.024	0.125		0.039	0.025	ND		0.036	0.023	ND		0.036	0.023	ND		0.074	0.048	ND		0.373	0.239	ND		0.038	0.025	ND		0.041	0.027
Butyl benzyl phthalate	NS	NS	ND		0.037	0.016	ND		0.039	0.017	ND		0.036	0.016	ND		0.036	0.016	ND		0.074	0.033	ND		0.373	0.166	ND		0.038	0.017	ND		0.041	0.018
Caprolactam	NS	NS	ND		0.073	0.027	ND		0.078	0.029	ND		0.072	0.027	ND		0.072	0.027	ND		0.148	0.055	ND		0.746	0.275	ND		0.077	0.028	ND		0.083	0.031
Carbazole	NS	NS	0.103		0.037	0.00856	ND		0.039	0.00909	0.163		0.036	0.00838	ND		0.036	0.00842	0.426	D	0.074	0.017	2.76	D	0.373	0.087	0.028	J	0.038	0.00891	ND		0.041	0.00965
Chrysene	1	3.9	1.10		0.037	0.010	1.52		0.039	0.011	1.60		0.036	0.00992	0.173		0.036	0.00997	3.86	D	0.074	0.021	14.0	D	0.373	0.103	0.172		0.038	0.011	0.028	J	0.041	0.011
Dibenz[a,h]anthracene	0.33	0.33	0.380		0.037	0.015	0.443		0.039	0.016	0.487		0.036	0.014	0.064		0.036	0.014	1.03	D	0.074	0.030	3.51	D	0.373	0.149	0.056		0.038	0.015	ND		0.041	0.017
Dibenzofuran	7	59	0.039		0.037	0.0048	ND		0.039	0.0051	0.102		0.036	0.0047	ND		0.036	0.00472	0.197	D	0.074	0.0097	1.68	D	0.373	0.049	ND		0.038	0.005	ND		0.041	0.00542
Diethyl phthalate	NS	NS	ND		0.037	0.011	ND		0.039	0.012	ND		0.036	0.011	ND		0.036	0.011	ND		0.074	0.023	ND		0.373	0.116	ND		0.038	0.012	ND		0.041	0.013
Dimethyl phthalate	NS	NS	ND		0.037	0.00842	ND		0.039	0.00895	ND		0.036	0.00825	ND		0.036	0.00829	ND		0.074	0.017	ND		0.373	0.086	ND		0.038	0.00878	ND		0.041	0.0095
Di-n-butyl phthalate	NS	NS	0.029	J	0.037	0.015	ND		0.039	0.016	ND		0.036	0.015	ND		0.036	0.015	0.112	D	0.074	0.030	ND		0.373	0.151	ND		0.038	0.016	ND		0.041	0.017
Dinitrotoluene (2,4- and 2,6-)	NS	NS	ND		0.073	0.042	ND		0.078	0.044	ND		0.072	0.041	ND		0.072	0.041	ND		0.148	0.084	ND		0.746	0.422	ND		0.077	0.043	ND		0.083	0.047
Di-n-octyl phthalate	NS	NS	ND		0.037	0.027	ND		0.039	0.029	ND		0.036	0.026	ND		0.036	0.026	ND		0.074	0.054	ND		0.373	0.273	ND		0.038	0.028	ND		0.041	0.030
Fluoranthene	100	100	2.25		0.037	0.012	3.89		0.039	0.013	3.46		0.036	0.012	0.379		0.036	0.012	9.14	D	0.074	0.024	38.7	D	0.373	0.120	0.371		0.038	0.012	0.030	J	0.041	0.013
Fluorene	30	100	0.068		0.037	0.00988	0.193		0.039	0.011	0.166		0.036	0.00968	ND		0.036	0.00972	0.318	D	0.074	0.020	2.22	D	0.373	0.100	0.020	J	0.038	0.010	ND		0.041	0.011
Hexachlorobenzene	0.33	1.2	ND		0.037	0.011	ND		0.039	0.012	ND		0.036	0.011	ND		0.036	0.011	ND		0.074	0.023	ND		0.373	0.116	ND		0.038	0.012	ND		0.041	0.013
Hexachlorobutadiene	NS	NS	ND		0.037	0.010	ND		0.039	0.011	ND		0.036	0.00998	ND		0.036	0.010	ND		0.074	0.021	ND		0.373	0.103	ND		0.038	0.011	ND		0.041	0.012
Hexachlorocyclopentadiene	NS	NS	ND		0.073	0.064	ND		0.078	0.068	ND		0.072	0.062	ND		0.072	0.063	ND		0.148	0.129	ND		0.746	0.648	ND		0.077	0.066	ND		0.083	0.072
Hexachloroethane	NS	NS	ND		0.037	0.015	ND		0.039	0.016	ND		0.036	0.015	ND		0.036	0.015	ND		0.074	0.031	ND		0.373	0.155	ND		0.038	0.016	ND		0.041	0.017
Indeno[1,2,3-cd]pyrene	0.5	0.5	0.788		0.037	0.024	0.858		0.039	0.025	0.845		0.036	0.023	0.114		0.036	0.023	1.98	D	0.074	0.048	7.05	D	0.373	0.239	0.118		0.038	0.025	0.034	J	0.041	0.027
Isophorone	NS	NS	ND		0.037	0.016	ND		0.039	0.016	ND		0.036	0.015	ND		0.036	0.015	ND		0.074	0.031	ND		0.373	0.157	ND		0.038	0.016	ND		0.041	0.017
Naphthalene	12	100	0.032	J	0.037	0.00536	0.108		0.039	0.00569	0.085		0.036	0.00525	ND		0.036	0.00527	0.117	D	0.074	0.011	1.29	D	0.373	0.054	ND		0.038	0.00558	ND		0.041	0.00604
Nitrobenzene	NS	15	ND		0.037	0.00891	ND		0.039	0.00947	ND		0.036	0.00873	ND		0.036	0.00877	ND		0.074	0.018	ND		0.373	0.091	ND		0.038	0.00928	ND		0.041	0.010
N-Nitrosodi-n-propylamine	NS	NS	ND		0.037	0.023	ND		0.039	0.024	ND		0.036	0.022	ND		0.036	0.022	ND		0.074	0.046	ND		0.373	0.231	ND		0.038	0.024	ND		0.041	0.026
N-Nitrosodiphenylamine	NS	NS	ND		0.037	0.00753	ND		0.039	0.008	ND		0.036	0.00738	ND		0.036	0.00741	ND		0.074	0.015	ND		0.373	0.077	ND		0.038	0.00785	ND		0.041	0.0085
Pentachlorophenol	0.8	6.7	ND		0.037	0.016	ND		0.039	0.017	ND		0.036	0.016	ND		0.036	0.016	ND		0.074	0.033	ND		0.373	0.165	ND		0.038	0.017	ND		0.041	0.018
Phenanthrene	100	100	1.18		0.037	0.00601	2.95		0.039	0.00638	2.61		0.036	0.00588	0.180		0.036	0.00591	5.70	D	0.074	0.012	33.6	D	0.373	0.061	0.212		0.038	0.00626	ND		0.041	0.00677
Phenol	0.33	100	ND		0.037	0.0083	ND		0.039	0.00882	ND		0.036	0.00813	ND		0.036	0.00817	ND		0.074	0.017	ND		0.373	0.084	ND		0.038	0.00865	ND		0.041	0.00937
Pyrene	100	100	2.17		0.037	0.00854	3.32		0.039	0.00908	3.17		0.036	0.00837	0.325		0.036	0.0084	8.24	D	0.074	0.017	34.2	D	0.373	0.087	0.333		0.038	0.0089	0.025	J	0.041	0.00964
TOTAL BNA'S:	NS	NS	14.6	J		NA	21.2			NA	20.4	J		NA	2.23			NA	50.2	D		NA	211	DJ		NA	2.26	J		NA	0.464	J		NA
TOTAL TIC's:	NS	NS	0.191	J		NA	23.4	JN		NA	0.676	JN		NA	ND			NA	1.53	DJ		NA	2.42	DJN		NA	ND			NA	0.911	J		NA
TOTAL BNA'S & TIC's:	NS	NS	14.8	J		NA	44.6			NA	21.1	J		NA	2.23			NA	51.7	D		NA	213	DJ		NA	2.26	J		NA	1.38	J		NA

Results in Yellow Highlight displays exceedance above the UUSCO regulatory standard
Results in Green Highlight displays exceedance above both UUSCO & RRUSCO regulatory standard
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

NS = No Standard Available
D = The compound was reported from the Diluted analysis
ND = Analyzed for but Not Detected at the MDL

Table 1B (Cont'd) - Soil Results - PCBs, Pesticides, Metals
Chelsea Elliott
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.1

Target Compounds	NYSDEC Unrestricted Use SCO	NYSDEC Restricted Residential SCO	SB1A Sample Depth: 0-2'				SB1B Sample Depth: 10-12'				SB2A Sample Depth: 0-2'				SB2B Sample Depth: 10-12'			
PCB's (mg/Kg)			Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
Aroclor-1016	NS	NS	ND		0.00369	0.0011	ND		0.00391	0.0012	ND		0.00359	0.0011	ND		0.00364	0.0011
Aroclor-1221	NS	NS	ND		0.00369	0.0011	ND		0.00391	0.0012	ND		0.00359	0.0011	ND		0.00364	0.0011
Aroclor-1232	NS	NS	ND		0.00369	0.0011	ND		0.00391	0.0012	ND		0.00359	0.0011	ND		0.00364	0.0011
Aroclor-1242	NS	NS	ND		0.00369	0.0011	ND		0.00391	0.0012	ND		0.00359	0.0011	ND		0.00364	0.0011
Aroclor-1248	NS	NS	ND		0.00369	0.0011	ND		0.00391	0.0012	ND		0.00359	0.0011	ND		0.00364	0.0011
Aroclor-1254	NS	NS	ND		0.00369	0.0011	ND		0.00391	0.0012	0.080		0.00359	0.0011	ND		0.00364	0.0011
Aroclor-1260	NS	NS	ND		0.00369	0.0011	ND		0.00391	0.0012	ND		0.00359	0.0011	ND		0.00364	0.0011
Aroclor-1262	NS	NS	ND		0.00369	0.0011	ND		0.00391	0.0012	ND		0.00359	0.0011	ND		0.00364	0.0011
Aroclor-1268	NS	NS	ND		0.00369	0.0011	ND		0.00391	0.0012	ND		0.00359	0.0011	ND		0.00364	0.0011
PCBs	0.1	1	ND		0.00369	0.00111	ND		0.00391	0.00117	0.080		0.00359	0.00108	ND		0.00364	0.00109
Pesticides (mg/Kg)			Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
alpha-BHC	0.02	0.48	ND		0.000738	0.000132	ND		0.000782	0.00014	ND		0.000718	0.000128	ND		0.000728	0.00013
beta-BHC	0.036	0.36	ND		0.000738	0.000172	ND		0.000782	0.000182	ND		0.000718	0.000168	ND		0.000728	0.00017
gamma-BHC (Lindane)	0.1	1.3	ND		0.000738	0.000164	ND		0.000782	0.000174	ND		0.000718	0.0016	ND		0.000728	0.000162
delta-BHC	0.04	100	ND		0.000738	0.000143	ND		0.000782	0.000152	ND		0.000718	0.000139	ND		0.000728	0.000141
Heptachlor	0.042	2.1	ND		0.000738	0.000175	ND		0.000782	0.000186	ND		0.000718	0.00017	ND		0.000728	0.000173
Aldrin	0.005	0.097	ND		0.000738	0.000154	ND		0.000782	0.000164	ND		0.000718	0.00015	ND		0.000728	0.000152
Heptachlor epoxide	NS	NS	ND		0.000738	0.00016	ND		0.000782	0.00017	ND		0.000718	0.000156	ND		0.000728	0.000158
Endosulfan I	2.4	24	ND		0.000738	0.000165	ND		0.000782	0.000175	ND		0.000718	0.000161	ND		0.000728	0.000163
4,4'-DDE	0.0033	8.9	0.019		0.000738	0.00015	ND		0.000782	0.00016	0.0034		0.000718	0.000146	0.00226		0.000728	0.000148
Dieldrin	0.005	0.2	0.00332		0.000738	0.00015	ND		0.000782	0.000159	0.00127		0.000718	0.000146	ND		0.000728	0.000148
Endrin	0.014	11	ND		0.000738	0.000186	ND		0.000782	0.000197	ND		0.000718	0.000181	ND		0.000728	0.000183
Endosulfan II	2.4	24	ND		0.000738	0.000169	ND		0.000782	0.000179	ND		0.000718	0.000165	ND		0.000728	0.000167
4,4'-DDD	0.0033	13	0.00407		0.000738	0.000197	ND		0.000782	0.000209	ND		0.000718	0.000192	0.000712	J	0.000728	0.000194
Endrin aldehyde	NS	NS	ND		0.000738	0.000154	ND		0.000782	0.000164	ND		0.000718	0.00015	ND		0.000728	0.000152
Endosulfan sulfate	2.4	24	ND		0.000738	0.000183	ND		0.000782	0.000194	ND		0.000718	0.000178	ND		0.000728	0.00018
4,4'-DDT	0.0033	7.9	0.027		0.000738	0.000137	ND		0.000782	0.000145	0.00556		0.000718	0.000134	0.00384		0.000728	0.000135
Endrin ketone	NS	NS	ND		0.000738	0.000144	ND		0.000782	0.000152	ND		0.000718	0.00014	ND		0.000728	0.000142
Methoxychlor	NS	NS	ND		0.000738	0.000197	ND		0.000782	0.000209	ND		0.000718	0.000192	ND		0.000728	0.000194
alpha-Chlordane	0.094	4.2	0.00369		0.000738	0.000163	ND		0.000782	0.000173	ND		0.000718	0.000159	ND		0.000728	0.00016
gamma-Chlordane	NS	NS	0.00319		0.000738	0.000145	ND		0.000782	0.000154	ND		0.000718	0.000141	ND		0.000728	0.000143
Toxaphene	NS	NS	ND		0.00923	0.00369	ND		0.00978	0.00391	ND		0.00898	0.00359	ND		0.0091	0.00364
Endosulfan (I and II)	NS	NS	ND		0.000738	0.000165	ND		0.000782	0.000175	ND		0.000718	0.000161	ND		0.000728	0.000163
Chlordane (alpha and gamma)	NS	NS	0.00688		0.000738	0.000145	ND		0.000782	0.000154	ND		0.000718	0.000141	ND		0.000728	0.000143
*** Metals (mg/Kg)**			Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
Aluminum	NS	NS	7910				10700				6300				5040			
Antimony	NS	NS	<2.2				<2.2				<2.1				<2.2			
Arsenic	13	16	7.5				7.6				2.9				3.8			
Barium	350	400	298				463				48.5				163			
Beryllium	7.2	72	0.46				0.64				0.41				0.76			
Cadmium	2.5	4.3	0.63				1.9				<0.53				<0.55			
Calcium	NS	NS	14000				77400				17800				10500			
Chromium	NS	NS	20.8				28.8				20.7				15.9			
Cobalt	NS	NS	<5.5				5.8				6.5				7.7			
Copper	50	270	47.9				128 [a]				21.5				31.8			
Iron	NS	NS	12500				32600				12200				13100			
Lead	63	400	436				1260				39.0				235			
Magnesium	NS	NS	2880				12800				6090				6400			
Manganese	1600	2000	241				704				263				292			
Mercury	0.18	0.81	0.61				1.1				0.037				0.56			
Nickel	30	310	15.5				22.8				42.8				56.8			
Potassium	NS	NS	<1100				1670				1780				1270			
Selenium	3.9	180	<2.2				<11 [a]				<2.1				<2.2			
Silver	2	180	0.86				<2.8 [a]				0.78				0.78			
Sodium	NS	NS	<1100				<1100				<1100				<1100			
Thallium	NS	NS	<1.1				<2.3 [a]				<1.1				<1.1			
Vanadium	NS	NS	24.9				25.8				22.7				20.2			
Zinc	109	10000	276				483				60.2				176			
General Analytical			Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
Cyanide, Total	27	27	0.222	J	1.11	0.222	5.71		1.18	0.236	ND		1.08	0.216	ND		1.09	0.218

Target Compounds	SB3A Sample Depth: 0-2'				SB3B Sample Depth: 10-12'				SB4A Sample Depth: 0-2'				SB4B Sample Depth: 10-12'			
PCB's (mg/Kg)	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
Aroclor-1016	ND		0.00369	0.0011	ND		0.00375	0.0011	ND		0.00384	0.0012	ND		0.00413	0.0012
Aroclor-1221	ND		0.00369	0.0011	ND		0.00375	0.0011	ND		0.00384	0.0012	ND		0.00413	0.0012
Aroclor-1232	ND		0.00369	0.0011	ND		0.00375	0.0011	ND		0.00384	0.0012	ND		0.00413	0.0012
Aroclor-1242	ND		0.00369	0.0011	ND		0.00375	0.0011	ND		0.00384	0.0012	ND		0.00413	0.0012
Aroclor-1248	ND		0.00369	0.0011	ND		0.00375	0.0011	ND		0.00384	0.0012	ND		0.00413	0.0012
Aroclor-1254	ND		0.00369	0.0011	ND		0.00375	0.0011	ND		0.00384	0.0012	ND		0.00413	0.0012
Aroclor-1260	ND		0.00369	0.0011	ND		0.00375	0.0011	ND		0.00384	0.0012	ND		0.00413	0.0012
Aroclor-1262	ND		0.00369	0.0011	ND		0.00375	0.0011	ND		0.00384	0.0012	ND		0.00413	0.0012
Aroclor-1268	ND		0.00369	0.0011	ND		0.00375	0.0011	ND		0.00384	0.0012	ND		0.00413	0.0012
PCBs	ND		0.00369	0.00111	ND		0.00375	0.00113	ND		0.00384	0.00115	ND		0.00413	0.00124
Pesticides (mg/Kg)	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
alpha-BHC	ND		0.000738	0.000132	ND		0.00075	0.000134	ND		0.000768	0.000137	ND		0.000826	0.000148
beta-BHC	ND		0.000738	0.000172	ND		0.00075	0.000175	ND		0.000768	0.000179	ND		0.000826	0.000193
gamma-BHC (Lindane)	ND		0.000738	0.000165	ND		0.00075	0.000167	ND		0.000768	0.000171	ND		0.000826	0.000184
delta-BHC	ND		0.000738	0.000143	ND		0.00075	0.000145	ND		0.000768	0.000149	ND		0.000826	0.00016
Heptachlor	ND		0.000738	0.000175	ND		0.00075	0.000178	ND		0.000768	0.000182	ND		0.000826	0.000196
Aldrin	ND		0.000738	0.000155	ND		0.00075	0.000157	ND		0.000768	0.000161	ND		0.000826	0.000173
Heptachlor epoxide	ND		0.000738	0.00016	ND		0.00075	0.000163	ND		0.000768	0.000167	ND		0.000826	0.000179
Endosulfan I	ND		0.000738	0.000165	ND		0.00075	0.000168	ND		0.000768	0.000172	ND		0.000826	0.000185
4,4'-DDE	0.013		0.000738	0.000151	ND		0.00075	0.000153	ND		0.000768	0.000157	ND		0.000826	0.000168
Dieldrin	ND		0.000738	0.00015	ND		0.00075	0.000153	ND		0.000768	0.000156	ND		0.000826	0.000168
Endrin	ND		0.000738	0.000186	ND		0.00075	0.000189	ND		0.000768	0.000194	ND		0.000826	0.000208
Endosulfan II	ND		0.000738	0.000169	ND		0.00075	0.000172	ND		0.000768	0.000176	ND		0.000826	0.000189
4,4'-DDD	ND		0.000738	0.000197	ND		0.00075	0.0002	ND		0.000768	0.000205	ND		0.000826	0.00022
Endrin aldehyde	ND		0.000738	0.000155	ND		0.00075	0.000157	0.018		0.000768	0.000161	ND		0.000826	0.000173
Endosulfan sulfate	ND		0.000738	0.000183	ND		0.00075	0.000186	ND		0.000768	0.00019	ND		0.000826	0.000205
4,4'-DDT	0.021		0.000738	0.000137	ND		0.00075	0.000139	ND		0.000768	0.000143	ND		0.000826	0.000154
Endrin ketone	ND		0.000738	0.000144	ND		0.00075	0.000146	ND		0.000768	0.000149	ND		0.000826	0.000161
Methoxychlor	ND		0.000738	0.000197	ND		0.00075	0.0002	ND		0.000768	0.000205	ND		0.000826	0.000221
alpha-Chlordane	ND		0.000738	0.000163	ND		0.00075	0.000165	ND		0.000768	0.000169	ND		0.000826	0.000182
gamma-Chlordane	ND		0.000738	0.000145	ND		0.00075	0.000147	ND		0.000768	0.000151	ND		0.000826	0.000162
Toxaphene	ND		0.00923	0.00369	ND		0.00938	0.00375	ND		0.0096	0.00384	ND		0.010	0.00413
Endosulfan (I and II)	ND		0.000738	0.000165	ND		0.00075	0.000168	ND		0.000768	0.000172	ND		0.000826	0.000185
Chlordane (alpha and gamma)	ND		0.000738	0.000145	ND		0.00075	0.000147	ND		0.000768	0.000151	ND		0.000826	0.000162
*** Metals (mg/Kg)**	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
Aluminum	6400				5390				11900				8270			
Antimony	8.0				<45 [a]				<2.4				<2.4			
Arsenic	8.9				<45 [a]				6.4				9.2			
Barium	309				288				298				2180			
Beryllium	0.43				<4.5 [a]				0.60				0.56			
Cadmium	1.4				<11 [a]				<0.60				1.0			
Calcium	34300				49000				8670				67200			
Chromium	16.8				70.1 [a]				19.9				24.9			
Cobalt	<5.7				39.9				<6.0				6.5			
Copper	195				503 [a]				25.2				35.7			
Iron	13400				25400				16200				18900			
Lead	774				888 [a]				203				2680			
Magnesium	2920				3500				2690				4210			
Manganese	1210				2890				461				604			
Mercury	0.68				0.65				0.23				0.57			
Nickel	32.2				98.3 [a]				14.9				21.7			
Potassium	<1100				<1100				<1200				1560			
Selenium	<2.3				<45 [a]				<2.4				<2.4			
Silver	1.2				<11 [a]				0.85				1.1			
Sodium	<1100				1100				<1200				<1200			
Thallium	<2.3 [a]				<22 [a]				<1.2				<1.2			
Vanadium	25.8				94.8				27.4				23.0			
Zinc	483				688				196				2550			
General Analytical	Conc	Q	4.73	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
Cyanide, Total	0.501	J	1.11	0.222	1.24		1.13	0.225	ND		1.15	0.231	ND		1.22	0.244

Results in Yellow Highlight displays exceedance above the UUSCO regulatory standard
Results in Green Highlight displays exceedance above both UUSCO & RRUSCO regulatory standard
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

NS = No Standard Available
D = The compound was reported from the Diluted analysis
ND OR < = Analyzed for but Not Detected at the MDL
~ = Sample not analyzed

*** TAL Metals analyzed by SGS Dayton.**
[a] = Elevated detection limit due to dilution required for high interfering element

Table 1B (Cont'd)- Soil Results - VOCs
Chelsea Elliott
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.1

Target Compounds	NYSDEC Unrestricted Use SCO	NYSDEC Restricted Residential SCO	SB5A Sample Depth: 0-2'				SB5B Sample Depth: 10-12'				SB6A Sample Depth: 0-2'				SB6B Sample Depth: 10-12'				SB8A Sample Depth: 2-14"				SB9A Sample Depth: 0-2'				SB9B Sample Depth: 10-12'				SB10A Sample Depth: 18-30"			
Volatiles (mg/Kg)			Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
1,1,1-Trichloroethane	**0.68**	**100**	ND		0.00105	0.000322	ND		0.00117	0.000359	ND		0.00114	0.00035	ND		0.00102	0.000313	ND		0.00112	0.000344	ND		0.00116	0.000356	ND		0.00119	0.000365	ND		0.0011	0.000338
1,1,2,2-Tetrachloroethane	**NS**	**NS**	ND		0.00105	0.000549	ND		0.00117	0.000612	ND		0.00114	0.000596	ND		0.00102	0.000533	ND		0.00112	0.000586	ND		0.00116	0.000607	ND		0.00119	0.000622	ND		0.0011	0.000575
1,1,2-Trichloro-1,2,2-trifluoroethane	**NS**	**NS**	ND		0.0021	0.000627	ND		0.00234	0.000698	ND		0.00228	0.000681	ND		0.00204	0.000609	ND		0.00224	0.000669	ND		0.00232	0.000693	ND		0.00238	0.00071	ND		0.0022	0.000657
1,1,2-Trichloroethane	**NS**	**NS**	ND		0.00105	0.000225	ND		0.00117	0.00025	ND		0.00114	0.000244	ND		0.00102	0.000218	ND		0.00112	0.00024	ND		0.00116	0.000248	ND		0.00119	0.000255	ND		0.0011	0.000235
1,1-Dichloroethane	**0.27**	**26**	ND		0.0021	0.000268	ND		0.00234	0.000298	ND		0.00228	0.000291	ND		0.00204	0.00026	ND		0.00224	0.000286	ND		0.00232	0.000296	ND		0.00238	0.000303	ND		0.0022	0.000281
1,1-Dichloroethene	**0.33**	**100**	ND		0.00105	0.000368	ND		0.00117	0.00041	ND		0.00114	0.000399	ND		0.00102	0.000357	ND		0.00112	0.000392	ND		0.00116	0.000406	ND		0.00119	0.000417	ND		0.0011	0.000385
1,2,3-Trichlorobenzene	**NS**	**NS**	ND		0.0021	0.000334	ND		0.00234	0.000372	ND		0.00228	0.000363	ND		0.00204	0.000324	ND		0.00224	0.000356	ND		0.00232	0.000369	ND		0.00238	0.000378	ND		0.0022	0.00035
1,2,4-Trichlorobenzene	**NS**	**NS**	ND		0.00105	0.000441	ND		0.00117	0.000491	ND		0.00114	0.000479	ND		0.00102	0.000428	ND		0.00112	0.00047	ND		0.00116	0.000487	ND		0.00119	0.0005	ND		0.0011	0.000462
1,2-Dibromo-3-chloropropane	**NS**	**NS**	ND		0.00105	0.000865	ND		0.00117	0.000964	ND		0.00114	0.000939	ND		0.00102	0.00084	ND		0.00112	0.000923	ND		0.00116	0.000956	ND		0.00119	0.000981	ND		0.0011	0.000906
1,2-Dibromoethane (EDB)	**NS**	**NS**	ND		0.00105	0.000194	ND		0.00117	0.000216	ND		0.00114	0.000211	ND		0.00102	0.000189	ND		0.00112	0.000207	ND		0.00116	0.000215	ND		0.00119	0.00022	ND		0.0011	0.000204
1,2-Dichlorobenzene	**1.1**	**100**	ND		0.00105	0.000264	ND		0.00117	0.000294	ND		0.00114	0.000286	ND		0.00102	0.000256	ND		0.00112	0.000281	ND		0.00116	0.000291	ND		0.00119	0.000299	ND		0.0011	0.000276
1,2-Dichloroethane (EDC)	**0.02**	**3.1**	ND		0.00105	0.000243	ND		0.00117	0.00027	ND		0.00114	0.000263	ND		0.00102	0.000236	ND		0.00112	0.000259	ND		0.00116	0.000268	ND		0.00119	0.000275	ND		0.0011	0.000254
1,2-Dichloropropane	**NS**	**NS**	ND		0.00105	0.000105	ND		0.00117	0.000117	ND		0.00114	0.000114	ND		0.00102	0.000102	ND		0.00112	0.000112	ND		0.00116	0.000116	ND		0.00119	0.000119	ND		0.0011	0.00011
1,3-Dichlorobenzene	**2.4**	**49**	ND		0.00105	0.000278	ND		0.00117	0.00031	ND		0.00114	0.000302	ND		0.00102	0.00027	ND		0.00112	0.000297	ND		0.00116	0.000307	ND		0.00119	0.000315	ND		0.0011	0.000292
1,3-Dichloropropene (cis- and trans-)	**NS**	**NS**	ND		0.00105	0.000117	ND		0.00117	0.00013	ND		0.00114	0.000127	ND		0.00102	0.000113	ND		0.00112	0.000124	ND		0.00116	0.000129	ND		0.00119	0.000132	ND		0.0011	0.000122
1,4-Dichlorobenzene	**1.8**	**13**	ND		0.00105	0.000326	ND		0.00117	0.000363	ND		0.00114	0.000353	ND		0.00102	0.000316	ND		0.00112	0.000347	ND		0.00116	0.00036	ND		0.00119	0.000369	ND		0.0011	0.000341
2-Butanone (MEK)	**0.12**	**100**	ND		0.011	0.0021	ND		0.012	0.00234	ND		0.011	0.00228	ND		0.010	0.00204	ND		0.011	0.00224	ND		0.012	0.00232	ND		0.012	0.00238	ND		0.011	0.0022
2-Hexanone	**NS**	**NS**	ND		0.011	0.00161	ND		0.012	0.00179	ND		0.011	0.00175	ND		0.010	0.00156	ND		0.011	0.00172	ND		0.012	0.00178	ND		0.012	0.00182	ND		0.011	0.00169
4-Methyl-2-pentanone (MIBK)	**NS**	**NS**	ND		0.011	0.000549	ND		0.012	0.000612	ND		0.011	0.000596	ND		0.010	0.000533	ND		0.011	0.000586	ND		0.012	0.000607	ND		0.012	0.000622	ND		0.011	0.000575
Acetone	**0.05**	**100**	0.031		0.011	0.00525	ND		0.012	0.00585	ND		0.011	0.0057	0.00529	J	0.010	0.0051	0.00649	J	0.011	0.0056	ND		0.012	0.0058	ND		0.012	0.00595	0.0068	J	0.011	0.0055
Benzene	**0.06**	**4.8**	ND		0.00105	0.0000903	ND		0.00117	0.000101	ND		0.00114	0.000098	ND		0.00102	0.0000877	ND		0.00112	0.0000963	ND		0.00116	0.0000998	ND		0.00119	0.000102	ND		0.0011	0.0000946
Bromochloromethane	**NS**	**NS**	ND		0.00105	0.000267	ND		0.00117	0.000297	ND		0.00114	0.00029	ND		0.00102	0.000259	ND		0.00112	0.000284	ND		0.00116	0.000295	ND		0.00119	0.000302	ND		0.0011	0.000279
Bromodichloromethane	**NS**	**NS**	ND		0.00105	0.000125	ND		0.00117	0.000139	ND		0.00114	0.000136	ND		0.00102	0.000121	ND		0.00112	0.000133	ND		0.00116	0.000138	ND		0.00119	0.000142	ND		0.0011	0.000131
Bromoform	**NS**	**NS**	ND		0.00105	0.000327	ND		0.00117	0.000364	ND		0.00114	0.000355	ND		0.00102	0.000317	ND		0.00112	0.000348	ND		0.00116	0.000361	ND		0.00119	0.00037	ND		0.0011	0.000342
Bromomethane	**NS**	**NS**	ND		0.0021	0.000916	ND		0.00234	0.00102	ND		0.00228	0.000994	ND		0.00204	0.000889	ND		0.00224	0.000977	ND		0.00232	0.00101	ND		0.00238	0.00104	ND		0.0022	0.000959
Carbon disulfide	**NS**	**NS**	ND		0.00105	0.000413	ND		0.00117	0.00046	ND		0.00114	0.000448	ND		0.00102	0.000401	ND		0.00112	0.00044	ND		0.00116	0.000456	ND		0.00119	0.000468	ND		0.0011	0.000432
Carbon tetrachloride	**0.76**	**2.4**	ND		0.00105	0.00021	ND		0.00117	0.000234	ND		0.00114	0.000228	ND		0.00102	0.000204	ND		0.00112	0.000224	ND		0.00116	0.000232	ND		0.00119	0.000238	ND		0.0011	0.00022
Chlorobenzene	**1.1**	**100**	ND		0.00105	0.000182	ND		0.00117	0.000202	ND		0.00114	0.000197	ND		0.00102	0.000176	ND		0.00112	0.000194	ND		0.00116	0.000201	ND		0.00119	0.000206	ND		0.0011	0.00019
Chloroethane	**NS**	**NS**	ND		0.00105	0.000312	ND		0.00117	0.000347	ND		0.00114	0.000339	ND		0.00102	0.000303	ND		0.00112	0.000333	ND		0.00116	0.000345	ND		0.00119	0.000353	ND		0.0011	0.000327
Chloroform	**0.37**	**49**	ND		0.0021	0.000525	ND		0.00234	0.000585	ND		0.00228	0.00057	ND		0.00204	0.00051	ND		0.00224	0.00056	ND		0.00232	0.00058	ND		0.00238	0.000595	ND		0.0022	0.00055
Chloromethane	**NS**	**NS**	ND		0.0021	0.000333	ND		0.00234	0.000371	ND		0.00228	0.000361	ND		0.00204	0.000323	ND		0.00224	0.000355	ND		0.00232	0.000368	ND		0.00238	0.000377	ND		0.0022	0.000349
cis-1,2-Dichloroethene	**0.25**	**100**	ND		0.0021	0.000225	ND		0.00234	0.00025	ND		0.00228	0.000244	ND		0.00204	0.000218	ND		0.00224	0.00024	ND		0.00232	0.000248	ND		0.00238	0.000255	ND		0.0022	0.000235
cis-1,3-Dichloropropene	**NS**	**NS**	ND		0.00105	0.000161	ND		0.00117	0.000179	ND		0.00114	0.000174	ND		0.00102	0.000156	ND		0.00112	0.000171	ND		0.00116	0.000177	ND		0.00119	0.000182	ND		0.0011	0.000168
Cyclohexane	**NS**	**NS**	ND		0.00525	0.000189	ND		0.00585	0.000211	ND		0.0057	0.000205	ND		0.0051	0.000184	ND		0.0056	0.000202	ND		0.0058	0.000209	ND		0.00595	0.000214	ND		0.0055	0.000198
Dibromochloromethane	**NS**	**NS**	ND		0.00105	0.000174	ND		0.00117	0.000194	ND		0.00114	0.000189	ND		0.00102	0.000169	ND		0.00112	0.000186	ND		0.00116	0.000193	ND		0.00119	0.000198	ND		0.0011	0.000183
Dichlorodifluoromethane	**NS**	**NS**	ND		0.00105	0.000545	ND		0.00117	0.000607	ND		0.00114	0.000592	ND		0.00102	0.000529	ND		0.00112	0.000581	ND		0.00116	0.000602	ND		0.00119	0.000618	ND		0.0011	0.000571
Ethylbenzene	**1**	**41**	ND		0.00105	0.000114	ND		0.00117	0.000128	ND		0.00114	0.000124	ND		0.00102	0.000111	ND		0.00112	0.000122	ND		0.00116	0.000126	ND		0.00119	0.00013	ND		0.0011	0.00012
Isopropylbenzene	**NS**	**NS**	ND		0.00105	0.000224	ND		0.00117	0.000249	ND		0.00114	0.000243	ND		0.00102	0.000217	ND		0.00112	0.000239	ND		0.00116	0.000247	ND		0.00119	0.000253	ND		0.0011	0.000234
Methyl acetate	**NS**	**NS**	ND		0.00105	0.000848	ND		0.00117	0.000945	ND		0.00114	0.000921	ND		0.00102	0.000824	ND		0.00112	0.000905	ND		0.00116	0.000937	ND		0.00119	0.000962	ND		0.0011	0.000889
Methyl tert-butyl ether (MTBE)	**0.93**	**100**	ND		0.00105	0.000229	ND		0.00117	0.000255	ND		0.00114	0.000249	ND		0.00102	0.000222	ND		0.00112	0.000244	ND		0.00116	0.000253	ND		0.00119	0.000259	ND		0.0011	0.00024
Methylcyclohexane	**NS**	**NS**	ND		0.0021	0.000181	ND		0.00234	0.000201	ND		0.00228	0.000196	ND		0.00204	0.000175	ND		0.00224	0.000193	ND		0.00232	0.0002	ND		0.00238	0.000205	ND		0.0022	0.000189
Methylene chloride	**0.05**	**100**	ND		0.00525	0.00315	ND		0.00585	0.00351	ND		0.0057	0.00342	ND		0.0051	0.00306	ND		0.0056	0.00336	ND		0.0058	0.00348	ND		0.00595	0.00357	ND		0.0055	0.0033
Styrene	**NS**	**NS**	ND		0.00105	0.000226	ND		0.00117	0.000252	ND		0.00114	0.000245	ND		0.00102	0.000219	ND		0.00112	0.000241	ND		0.00116	0.000249	ND		0.00119	0.000256	ND		0.0011	0.000237
Tetrachloroethene	**1.3**	**19**	ND		0.00105	0.000108	ND		0.00117	0.000121	ND		0.00114	0.000117	ND		0.00102	0.000105	ND		0.00112	0.000115	ND		0.00116	0.000119	ND		0.00119	0.000123	ND		0.0011	0.000113
Toluene	**0.7**	**100**	ND		0.00105	0.000525	ND		0.00117	0.000585	ND		0.00114	0.00057	ND		0.00102	0.00051	ND		0.00112	0.00056	ND		0.00116	0.00058	ND		0.00119	0.000595	ND		0.0011	0.00055
Total Xylenes	**0.26**	**100**	ND		0.0021	0.000147	ND		0.00234	0.000164	ND		0.00228	0.00016	ND		0.00204	0.000143	ND		0.00224	0.000157	ND		0.00232	0.000162	ND		0.00238	0.000167	ND		0.0022	0.000154
trans-1,2-Dichloroethene	**0.19**	**100**	ND		0.0021	0.000372	ND		0.00234	0.000414	ND		0.00228	0.000404	ND		0.00204	0.000361	ND		0.00224	0.000396	ND		0.00232	0.000411	ND		0.00238	0.000421	ND		0.0022	0.000389
trans-1,3-Dichloropropene	**NS**	**NS**	ND		0.00105	0.000117	ND		0.00117	0.00013	ND		0.00114	0.000127	ND		0.00102	0.000113	ND		0.00112	0.000124	ND		0.00116	0.000129	ND		0.00119	0.000132	ND		0.0011	0.000122
Trichloroethene	**0.47**	**21**	ND		0.00105	0.000156	ND		0.00117	0.000174	ND		0.00114	0.00017	ND		0.00102	0.000152	ND		0.00112	0.000167	ND		0.00116	0.000173	ND		0.00119	0.000177	ND		0.0011	0.000164
Trichlorofluoromethane	**NS**	**NS**	ND		0.00105	0.000426	ND		0.00117	0.000475	ND		0.00114	0.000463	ND		0.00102	0.000414	ND		0.00112	0.000455	ND		0.00116	0.000471	ND		0.00119	0.000483	ND		0.0011	0.000447
Vinyl chloride	**0.02**	**0.9**	ND		0.00105	0.00034	ND		0.00117	0.000379	ND		0.00114	0.000369	ND		0.00102	0.00033	ND		0.00112	0.000363	ND		0.00116	0.000376	ND		0.00119	0.000386	ND		0.0011	0.000356
TOTAL VO's:	**NS**	**NS**	0.031			NA	ND			NA	ND			NA	0.00529	J		NA	0.00649	J		NA	ND			NA	ND			NA	0.0068	J		NA
TOTAL TIC's:	**NS**	**NS**	ND			NA	ND			NA	ND			NA	ND			NA	ND			NA	ND			NA	ND			NA	0.041	JN		NA
TOTAL VO's & TIC's:	**NS**	**NS**	0.031			NA	ND			NA	ND			NA	0.00529	J		NA	0.00649	J		NA	ND			NA	ND			NA	0.048	J		NA

Results in Yellow Highlight displays exceedance above the UUSCO regulatory standard
Results in Green Highlight displays exceedance above both UUSCO & RRUSCO regulatory standard
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

NS = No Standard Available
D = The compound was reported from the Diluted analysis
ND = Analyzed for but Not Detected at the MDL

Table 1B (Cont'd) - Soil Results - SVOCs
Chelsea Elliott
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.1

Target Compounds	NYSDEC Unrestricted Use SCO	NYSDEC Restricted Residential SCO	SB5A Sample Depth: 0-2'				SB5B Sample Depth: 10-12'				SB6A Sample Depth: 0-2'				SB6B Sample Depth: 10-12'				SB8A Sample Depth: 2-14"				SB9A Sample Depth: 0-2'				SB9B Sample Depth: 10-12'				SB10A Sample Depth: 18-30"			
Semivolatiles - BNA (mg/Kg)			Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
1,1'-Biphenyl	NS	NS	ND		0.037	0.00545	ND		0.039	0.00579	ND		0.036	0.00528	ND		0.036	0.00542	ND		0.035	0.00523	ND		0.036	0.00532	ND		0.036	0.00528	ND		0.037	0.00544
1,2,4,5-Tetrachlorobenzene	NS	NS	ND		0.037	0.012	ND		0.039	0.013	ND		0.036	0.012	ND		0.036	0.012	ND		0.035	0.012	ND		0.036	0.012	ND		0.036	0.012	ND		0.037	0.012
1,4-Dioxane	0.1	13	ND		0.037	0.024	ND		0.039	0.025	ND		0.036	0.023	ND		0.036	0.024	ND		0.035	0.23	ND		0.036	0.023	ND		0.036	0.023	ND		0.037	0.024
2,2'-Oxybis(1-Chloropropane)	NS	NS	ND		0.037	0.00914	ND		0.039	0.00971	ND		0.036	0.00885	ND		0.036	0.00909	ND		0.035	0.00877	ND		0.036	0.00891	ND		0.036	0.00885	ND		0.037	0.00913
2,3,4,6-Tetrachlorophenol	NS	NS	ND		0.037	0.013	ND		0.039	0.013	ND		0.036	0.012	ND		0.036	0.013	ND		0.035	0.012	ND		0.036	0.012	ND		0.036	0.012	ND		0.037	0.013
2,4,5-Trichlorophenol	NS	NS	ND		0.037	0.028	ND		0.039	0.030	ND		0.036	0.027	ND		0.036	0.028	ND		0.035	0.027	ND		0.036	0.027	ND		0.036	0.027	ND		0.037	0.028
2,4,6-Trichlorophenol	NS	NS	ND		0.037	0.010	ND		0.039	0.011	ND		0.036	0.00976	ND		0.036	0.010	ND		0.035	0.00967	ND		0.036	0.00982	ND		0.036	0.00976	ND		0.037	0.010
2,4-Dichlorophenol	NS	NS	ND		0.037	0.00974	ND		0.039	0.010	ND		0.036	0.00944	ND		0.036	0.00969	ND		0.035	0.00935	ND		0.036	0.0095	ND		0.036	0.00944	ND		0.037	0.00973
2,4-Dimethylphenol	NS	NS	ND		0.037	0.011	ND		0.039	0.012	ND		0.036	0.010	ND		0.036	0.011	ND		0.035	0.010	ND		0.036	0.011	ND		0.036	0.010	ND		0.037	0.011
2,4-Dinitrophenol	NS	NS	ND		0.073	0.015	ND		0.078	0.016	ND		0.071	0.015	ND		0.073	0.015	ND		0.070	0.015	ND		0.072	0.015	ND		0.071	0.015	ND		0.073	0.015
2,4-Dinitrotoluene	NS	NS	ND		0.073	0.042	ND		0.078	0.044	ND		0.071	0.040	ND		0.073	0.041	ND		0.070	0.040	ND		0.072	0.041	ND		0.071	0.040	ND		0.073	0.041
2,6-Dinitrotoluene	NS	NS	ND		0.073	0.042	ND		0.078	0.045	ND		0.071	0.041	ND		0.073	0.042	ND		0.070	0.040	ND		0.072	0.041	ND		0.071	0.041	ND		0.073	0.042
2-Chloronaphthalene	NS	NS	ND		0.037	0.00846	ND		0.039	0.009	ND		0.036	0.0082	ND		0.036	0.00842	ND		0.035	0.00812	ND		0.036	0.00825	ND		0.036	0.0082	ND		0.037	0.00845
2-Chlorophenol	NS	NS	ND		0.037	0.012	ND		0.039	0.013	ND		0.036	0.012	ND		0.036	0.012	ND		0.035	0.011	ND		0.036	0.012	ND		0.036	0.012	ND		0.037	0.012
2-Methylnaphthalene	NS	NS	ND		0.037	0.013	ND		0.039	0.014	ND		0.036	0.013	ND		0.036	0.013	ND		0.035	0.012	ND		0.036	0.013	0.031	J	0.036	0.013	ND		0.037	0.013
2-Methylphenol	0.33	100	ND		0.037	0.017	ND		0.039	0.018	ND		0.036	0.016	ND		0.036	0.016	ND		0.035	0.016	ND		0.036	0.016	ND		0.036	0.016	ND		0.037	0.016
2-Nitroaniline	NS	NS	ND		0.037	0.020	ND		0.039	0.021	ND		0.036	0.019	ND		0.036	0.019	ND		0.035	0.019	ND		0.036	0.019	ND		0.036	0.019	ND		0.037	0.019
2-Nitrophenol	NS	NS	ND		0.073	0.022	ND		0.078	0.023	ND		0.071	0.021	ND		0.073	0.022	ND		0.070	0.021	ND		0.072	0.021	ND		0.071	0.021	ND		0.073	0.022
3,3'-Dichlorobenzidine	NS	NS	ND		0.037	0.026	ND		0.039	0.028	ND		0.036	0.025	ND		0.036	0.026	ND		0.035	0.025	ND		0.036	0.025	ND		0.036	0.025	ND		0.037	0.026
3-Nitroaniline	NS	NS	ND		0.037	0.023	ND		0.039	0.025	ND		0.036	0.023	ND		0.036	0.023	ND		0.035	0.022	ND		0.036	0.023	ND		0.036	0.023	ND		0.037	0.023
4,6-Dinitro-2-methylphenol	NS	NS	ND		0.073	0.016	ND		0.078	0.017	ND		0.071	0.015	ND		0.073	0.015	ND		0.070	0.015	ND		0.072	0.015	ND		0.071	0.015	ND		0.073	0.016
4-Bromophenyl phenyl ether	NS	NS	ND		0.037	0.010	ND		0.039	0.011	ND		0.036	0.00983	ND		0.036	0.010	ND		0.035	0.00974	ND		0.036	0.0099	ND		0.036	0.00983	ND		0.037	0.010
4-Chloro-3-methylphenol	NS	NS	ND		0.037	0.014	ND		0.039	0.015	ND		0.036	0.014	ND		0.036	0.014	ND		0.035	0.014	ND		0.036	0.014	ND		0.036	0.014	ND		0.037	0.014
4-Chloroaniline	NS	NS	ND		0.037	0.014	ND		0.039	0.015	ND		0.036	0.014	ND		0.036	0.014	ND		0.035	0.014	ND		0.036	0.014	ND		0.036	0.014	ND		0.037	0.014
4-Chlorophenyl phenyl ether	NS	NS	ND		0.037	0.00805	ND		0.039	0.00856	ND		0.036	0.0078	ND		0.036	0.00801	ND		0.035	0.00773	ND		0.036	0.00785	ND		0.036	0.0078	ND		0.037	0.00804
4-Methylphenol **	0.33	100	ND		0.037	0.017	ND		0.039	0.018	ND		0.036	0.016	ND		0.036	0.017	ND		0.035	0.016	ND		0.036	0.016	ND		0.036	0.016	ND		0.037	0.017
4-Nitroaniline	NS	NS	ND		0.037	0.022	ND		0.039	0.023	ND		0.036	0.021	ND		0.036	0.022	ND		0.035	0.021	ND		0.036	0.021	ND		0.036	0.021	ND		0.037	0.022
4-Nitrophenol	NS	NS	ND		0.073	0.037	ND		0.078	0.039	ND		0.071	0.036	ND		0.073	0.037	ND		0.070	0.036	ND		0.072	0.036	ND		0.071	0.036	ND		0.073	0.037
Acenaphthene	20	100	ND		0.037	0.00723	ND		0.039	0.00769	0.021	J	0.036	0.00701	ND		0.036	0.00719	ND		0.035	0.00694	ND		0.036	0.00706	0.209		0.036	0.00701	0.115		0.037	0.00723
Acenaphthylene	100	100	ND		0.037	0.00802	ND		0.039	0.00852	0.027	J	0.036	0.00777	ND		0.036	0.00797	ND		0.035	0.0077	ND		0.036	0.00782	ND		0.036	0.00777	0.078		0.037	0.00801
Acetophenone	NS	NS	ND		0.037	0.022	ND		0.039	0.024	ND		0.036	0.022	ND		0.036	0.022	ND		0.035	0.021	ND		0.036	0.022	ND		0.036	0.022	ND		0.037	0.022
Anthracene	100	100	ND		0.037	0.00373	ND		0.039	0.00396	0.075		0.036	0.00361	0.051		0.036	0.00371	ND		0.035	0.00358	0.031	J	0.036	0.00364	0.707		0.036	0.00361	0.447		0.037	0.00372
Atrazine	NS	NS	ND		0.037	0.022	ND		0.039	0.023	ND		0.036	0.021	ND		0.036	0.022	ND		0.035	0.021	ND		0.036	0.021	ND		0.036	0.021	ND		0.037	0.022
Benzaldehyde	NS	NS	ND		0.073	0.028	ND		0.078	0.029	ND		0.071	0.027	ND		0.073	0.027	ND		0.070	0.026	ND		0.072	0.027	ND		0.071	0.027	ND		0.073	0.028
Benzo[a]anthracene	1	1	0.035	J	0.037	0.013	ND		0.039	0.014	0.304		0.036	0.013	0.225		0.036	0.013	ND		0.035	0.013	0.106		0.036	0.013	3.62		0.036	0.013	1.62		0.037	0.013
Benzo[a]pyrene	1	1	0.030	J	0.037	0.018	ND		0.039	0.019	0.314		0.036	0.017	0.215		0.036	0.018	ND		0.035	0.017	0.103		0.036	0.017	3.61		0.036	0.017	1.48		0.037	0.018
Benzo[b]fluoranthene	1	1	0.034	J	0.037	0.018	ND		0.039	0.019	0.347		0.036	0.018	0.246		0.036	0.018	ND		0.035	0.017	0.150		0.036	0.018	4.33		0.036	0.018	1.51		0.037	0.018
Benzo[g,h,i]perylene	100	100	ND		0.037	0.028	ND		0.039	0.029	0.308		0.036	0.027	0.125		0.036	0.028	ND		0.035	0.027	0.453		0.036	0.027	1.89		0.036	0.027	1.07		0.037	0.028
Benzo[k]fluoranthene	0.8	3.9	0.028	J	0.037	0.025	ND		0.039	0.027	0.242		0.036	0.025	0.142		0.036	0.025	ND		0.035	0.024	0.072		0.036	0.025	2.66		0.036	0.025	1.17		0.037	0.025
Bis(2-chloroethoxy) methane	NS	NS	ND		0.037	0.00816	ND		0.039	0.00868	ND		0.036	0.00791	ND		0.036	0.00812	ND		0.035	0.00784	ND		0.036	0.00796	ND		0.036	0.00791	ND		0.037	0.00816
Bis(2-chloroethyl) ether	NS	NS	ND		0.037	0.013	ND		0.039	0.014	ND		0.036	0.013	ND		0.036	0.013	ND		0.035	0.012	ND		0.036	0.013	ND		0.036	0.013	ND		0.037	0.013
Bis(2-ethylhexyl) phthalate	NS	NS	ND		0.037	0.024	ND		0.039	0.025	0.035	J	0.036	0.023	ND		0.036	0.023	0.032	J	0.035	0.023	ND		0.036	0.023	0.109		0.036	0.023	ND		0.037	0.024
Butyl benzyl phthalate	NS	NS	ND		0.037	0.016	ND		0.039	0.017	ND		0.036	0.016	ND		0.036	0.016	ND		0.035	0.016	ND		0.036	0.016	ND		0.036	0.016	ND		0.037	0.016
Caprolactam	NS	NS	ND		0.073	0.027	ND		0.078	0.029	ND		0.071	0.026	ND		0.073	0.027	ND		0.070	0.026	ND		0.072	0.026	ND		0.071	0.026	ND		0.073	0.027
Carbazole	NS	NS	ND		0.037	0.00854	ND		0.039	0.00908	0.030	J	0.036	0.00827	ND		0.036	0.00849	ND		0.035	0.0082	0.018	J	0.036	0.00833	0.432		0.036	0.00827	0.098		0.037	0.00853
Chrysene	1	3.9	0.031	J	0.037	0.010	ND		0.039	0.011	0.271		0.036	0.0098	0.190		0.036	0.010	ND		0.035	0.0097	0.097		0.036	0.00986	3.48		0.036	0.0098	1.39		0.037	0.010
Dibenz[a,h]anthracene	0.33	0.33	ND		0.037	0.015	ND		0.039	0.016	0.112		0.036	0.014	0.055		0.036	0.015	ND		0.035	0.014	0.119		0.036	0.014	0.942		0.036	0.014	0.489		0.037	0.015
Dibenzofuran	7	59	ND		0.037	0.00479	ND		0.039	0.00509	ND		0.036	0.00464	ND		0.036	0.00477	ND		0.035	0.0046	ND		0.036	0.00467	0.063		0.036	0.00464	0.048		0.037	0.00479
Diethyl phthalate	NS	NS	ND		0.037	0.011	ND		0.039	0.012	ND		0.036	0.011	ND		0.036	0.011	ND		0.035	0.011	ND		0.036	0.011	ND		0.036	0.011	ND		0.037	0.011
Dimethyl phthalate	NS	NS	ND		0.037	0.00841	ND		0.039	0.00894	ND		0.036	0.00814	ND		0.036	0.00836	ND		0.035	0.00807	ND		0.036	0.0082	ND		0.036	0.00814	ND		0.037	0.0084
Di-n-butyl phthalate	NS	NS	ND		0.037	0.015	ND		0.039	0.016	ND		0.036	0.014	ND		0.036	0.015	ND		0.035	0.014	ND		0.036	0.015	ND		0.036	0.014	ND		0.037	0.015
Dinitrotoluene (2,4- and 2,6-)	NS	NS	ND		0.073	0.042	ND		0.078	0.044	ND		0.071	0.040	ND		0.073	0.041	ND		0.070	0.040	ND		0.072	0.041	ND		0.071	0.040	ND		0.073	0.041
Di-n-octyl phthalate	NS	NS	ND		0.037	0.027	ND		0.039	0.029	ND		0.036	0.026	ND		0.036	0.027	ND		0.035	0.026	ND		0.036	0.026	ND		0.036	0.026	ND		0.037	0.027
Fluoranthene	100	100	0.057		0.037	0.012	0.023	J	0.039	0.013	0.549		0.036	0.011	0.451		0.036	0.012	0.018	J	0.035	0.011	0.213		0.036	0.012	10.6	D	0.426	0.137	3.39		0.037	0.012
Fluorene	30	100	ND		0.037	0.00986	ND		0.039	0.011	0.020	J	0.036	0.00955	ND		0.036	0.00981	ND		0.035	0.00947	ND		0.036	0.00962	0.154		0.036	0.00955	0.098		0.037	0.00985
Hexachlorobenzene	0.33	1.2	ND		0.037	0.011	ND		0.039	0.012	ND		0.036	0.011	ND		0.036	0.011	ND		0.035	0.011	ND		0.036	0.011	ND		0.036	0.011	ND		0.037	0.011
Hexachlorobutadiene	NS	NS	ND		0.037	0.010	ND		0.039	0.011	ND		0.036	0.00985	ND		0.036	0.010	ND		0.035	0.00976	ND		0.036	0.00992	ND		0.036	0.00985	ND		0.037	0.010
Hexachlorocyclopentadiene	NS	NS	ND		0.073	0.064	ND		0.078	0.068	ND		0.071	0.062	ND		0.073	0.063	ND		0.070	0.061	ND		0.072	0.062	ND		0.071	0.062	ND		0.073	0.064
Hexachloroethane	NS	NS	ND		0.037	0.015	ND		0.039	0.016	ND		0.036	0.015	ND		0.036	0.015	ND		0.035	0.015	ND		0.036	0.015	ND		0.036	0.015	ND		0.037	0.015
Indeno[1,2,3-cd]pyrene	0.5	0.5	ND		0.037	0.023	ND		0.039	0.025	0.242		0.036	0.023	0.128		0.036	0.023	ND		0.035	0.023	0.254		0.036	0.023	1.93		0.036	0.023	0.932		0.037	0.023
Isophorone	NS	NS	ND		0.037	0.015	ND		0.039	0.016	ND		0.036	0.015	ND		0.036	0.015	ND		0.035	0.015	ND		0.036	0.015	ND		0.036	0.015	ND		0.037	0.015
Naphthalene	12	100	ND		0.037	0.00534	ND		0.039	0.00568	ND		0.036	0.00518	ND		0.036	0.00532	ND		0.035	0.00513	ND		0.036	0.00521	0.029	J	0.036	0.00518	ND		0.037	0.00534
Nitrobenzene	NS	15	ND		0.037	0.00889	ND		0.039	0.00945	ND		0.036	0.00862	ND		0.036	0.00885	ND		0.035	0.00854	ND		0.036	0.00868	ND		0.036	0.00862	ND		0.037	0.00888
N-Nitrosodi-n-propylamine	NS	NS	ND		0.037	0.023	ND		0.039	0.024	ND		0.036	0.022	ND		0.036	0.023	ND		0.035	0.022	ND		0.036	0.022	ND		0.036	0.022	ND		0.037	0.023
N-Nitrosodiphenylamine	NS	NS	ND		0.037	0.00752	ND		0.039	0.00799	ND		0.036	0.00728	ND		0.036	0.00748	ND		0.035	0.00721	ND		0.036	0.00733	ND		0.036	0.00728	ND		0.037	0.00751
Pentachlorophenol	0.8	6.7	ND		0.037	0.016	ND		0.039	0.017	ND		0.036	0.016	ND		0.036	0.016	ND		0.035	0.016	ND		0.036	0.016	ND		0.036	0.016	ND		0.037	0.016
Phenanthrene	100	100	0.035	J	0.037	0.00599	ND		0.039	0.00637	0.237		0.036	0.00581	0.150		0.036	0.00596	ND		0.035	0.00575	0.113		0.036	0.00585	2.56		0.036	0.00581	1.62		0.037	0.00599
Phenol	0.33	100	ND		0.037	0.00829	ND		0.039	0.00881	ND		0.036	0.00803	ND		0.036	0.00824	ND		0.035	0.00795	ND		0.036	0.00808	ND		0.036	0.00803	ND		0.037	0.00828
Pyrene	100	100	0.054		0.037	0.00852	0.024	J	0.039	0.00906	0.500		0.036	0.00826	0.386		0.036	0.00848	0.019	J	0.035	0.00818	0.174		0.036	0.00831	8.03	D	0.426	0.099	2.81		0.037	0.00851
TOTAL BNA'S:	NS	NS	0.304	J		NA	0.047	J		NA	3.63	J		NA	2.36			NA	0.069	J		NA	1.90	J		NA	45.4	JD		NA	18.4			NA
TOTAL TIC's:	NS	NS	0.568	JN		NA	0.903	JN		NA	0.479	JN		NA	0.215	JN		NA	0.232	JN		NA	ND			NA	1.76	JN		NA	0.168	JN		NA
TOTAL BNA'S & TIC's:	NS	NS	0.872	J		NA	0.950	J		NA	4.11	JN		NA	2.57	JN		NA	0.301	J		NA	1.90	J		NA	47.2	JDN		NA	18.6			NA

Results in Yellow Highlight displays exceedance above the UUSCO regulatory standard
Results in Green Highlight displays exceedance above both UUSCO & RRUSCO regulatory standard
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

NS = No Standard Available
D = The compound was reported from the Diluted analysis
ND = Analyzed for but Not Detected at the MDL

Table 1B (Cont'd) - Soil Results - PCBs, Pesticides, Metals
Chelsea Elliott
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.1

Target Compounds	NYSDEC Unrestricted Use SCO	NYSDEC Restricted Residential SCO	SB5A Sample Depth: 0-2'				SB5B Sample Depth: 10-12'				SB6A Sample Depth: 0-2'				SB6B Sample Depth: 10-12'				SB8A Sample Depth: 2-14"				SB9A Sample Depth: 0-2'				SB9B Sample Depth: 10-12'				SB10A Sample Depth: 18-30"			
PCB's (mg/Kg)			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Aroclor-1016	**NS**	**NS**	ND		0.00365	0.0011	ND		0.00389	0.0012	ND		0.00356	0.0011	ND		0.00366	0.0011	ND		0.0035	0.0011	ND		0.00356	0.0011	ND		0.00356	0.0011	ND		0.00364	0.0011
Aroclor-1221	**NS**	**NS**	ND		0.00365	0.0011	ND		0.00389	0.0012	ND		0.00356	0.0011	ND		0.00366	0.0011	ND		0.0035	0.0011	ND		0.00356	0.0011	ND		0.00356	0.0011	ND		0.00364	0.0011
Aroclor-1232	**NS**	**NS**	ND		0.00365	0.0011	ND		0.00389	0.0012	ND		0.00356	0.0011	ND		0.00366	0.0011	ND		0.0035	0.0011	ND		0.00356	0.0011	ND		0.00356	0.0011	ND		0.00364	0.0011
Aroclor-1242	**NS**	**NS**	ND		0.00365	0.0011	ND		0.00389	0.0012	ND		0.00356	0.0011	ND		0.00366	0.0011	ND		0.0035	0.0011	ND		0.00356	0.0011	ND		0.00356	0.0011	ND		0.00364	0.0011
Aroclor-1248	**NS**	**NS**	ND		0.00365	0.0011	ND		0.00389	0.0012	ND		0.00356	0.0011	ND		0.00366	0.0011	ND		0.0035	0.0011	ND		0.00356	0.0011	ND		0.00356	0.0011	ND		0.00364	0.0011
Aroclor-1254	**NS**	**NS**	ND		0.00365	0.0011	ND		0.00389	0.0012	ND		0.00356	0.0011	ND		0.00366	0.0011	ND		0.0035	0.0011	ND		0.00356	0.0011	ND		0.00356	0.0011	ND		0.00364	0.0011
Aroclor-1260	**NS**	**NS**	ND		0.00365	0.0011	ND		0.00389	0.0012	ND		0.00356	0.0011	ND		0.00366	0.0011	ND		0.0035	0.0011	ND		0.00356	0.0011	ND		0.00356	0.0011	ND		0.00364	0.0011
Aroclor-1262	**NS**	**NS**	ND		0.00365	0.0011	ND		0.00389	0.0012	ND		0.00356	0.0011	ND		0.00366	0.0011	ND		0.0035	0.0011	ND		0.00356	0.0011	ND		0.00356	0.0011	ND		0.00364	0.0011
Aroclor-1268	**NS**	**NS**	ND		0.00365	0.0011	ND		0.00389	0.0012	ND		0.00356	0.0011	ND		0.00366	0.0011	ND		0.0035	0.0011	ND		0.00356	0.0011	ND		0.00356	0.0011	ND		0.00364	0.0011
PCBs	**0.1**	**1**	ND		0.00365	0.0011	ND		0.00389	0.00117	ND		0.00356	0.00107	ND		0.00366	0.0011	ND		0.0035	0.00105	ND		0.00356	0.00107	ND		0.00356	0.00107	ND		0.00364	0.00109
Pesticides (mg/Kg)			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
alpha-BHC	**0.02**	**0.48**	ND		0.00073	0.00013	ND		0.000778	0.000139	ND		0.000712	0.000127	ND		0.000732	0.000131	ND		0.0007	0.000125	ND		0.000712	0.000127	ND		0.000712	0.000127	ND		0.000728	0.00013
beta-BHC	**0.036**	**0.36**	ND		0.00073	0.00017	ND		0.000778	0.000181	ND		0.000712	0.000166	ND		0.000732	0.000171	ND		0.0007	0.000163	ND		0.000712	0.000166	ND		0.000712	0.000166	ND		0.000728	0.00017
gamma-BHC (Lindane)	**0.1**	**1.3**	ND		0.00073	0.000163	ND		0.000778	0.000173	ND		0.000712	0.000159	ND		0.000732	0.000163	ND		0.0007	0.000156	ND		0.000712	0.000159	ND		0.000712	0.000159	ND		0.000728	0.000162
delta-BHC	**0.04**	**100**	ND		0.00073	0.000141	ND		0.000778	0.000151	ND		0.000712	0.000138	ND		0.000732	0.000142	ND		0.0007	0.000136	ND		0.000712	0.000138	ND		0.000712	0.000138	ND		0.000728	0.000141
Heptachlor	**0.042**	**2.1**	ND		0.00073	0.000173	ND		0.000778	0.000185	ND		0.000712	0.000169	ND		0.000732	0.000174	ND		0.0007	0.000166	ND		0.000712	0.000169	ND		0.000712	0.000169	ND		0.000728	0.000173
Aldrin	**0.005**	**0.097**	ND		0.00073	0.000153	ND		0.000778	0.000163	ND		0.000712	0.000149	ND		0.000732	0.000153	ND		0.0007	0.000147	ND		0.000712	0.000149	ND		0.000712	0.000149	ND		0.000728	0.000152
Heptachlor epoxide	**NS**	**NS**	ND		0.00073	0.000159	ND		0.000778	0.000169	ND		0.000712	0.000155	ND		0.000732	0.000159	ND		0.0007	0.000152	ND		0.000712	0.000155	ND		0.000712	0.000155	ND		0.000728	0.000158
Endosulfan I	**2.4**	**24**	ND		0.00073	0.000163	ND		0.000778	0.000174	ND		0.000712	0.000159	ND		0.000732	0.000164	ND		0.0007	0.000157	ND		0.000712	0.000159	ND		0.000712	0.000159	ND		0.000728	0.000163
4,4'-DDE	**0.0033**	**8.9**	0.00285		0.00073	0.000149	0.00041	J	0.000778	0.000159	**0.023**		0.000712	0.000145	0.000726	J	0.000732	0.000149	**0.012**		0.0007	0.000143	**0.011**		0.000712	0.000145	**0.017**		0.000712	0.000145	**0.095**	D	0.00146	0.000297
Dieldrin	**0.005**	**0.2**	ND		0.00073	0.000149	ND		0.000778	0.000158	ND		0.000712	0.000145	ND		0.000732	0.000149	ND		0.0007	0.000143	ND		0.000712	0.000145	ND		0.000712	0.000145	ND		0.000728	0.000148
Endrin	**0.014**	**11**	ND		0.00073	0.000184	ND		0.000778	0.000196	ND		0.000712	0.00018	ND		0.000732	0.000184	ND		0.0007	0.000177	ND		0.000712	0.00018	ND		0.000712	0.00018	ND		0.000728	0.000184
Endosulfan II	**2.4**	**24**	ND		0.00073	0.000167	ND		0.000778	0.000178	ND		0.000712	0.000163	ND		0.000732	0.000168	ND		0.0007	0.00016	ND		0.000712	0.000163	ND		0.000712	0.000163	ND		0.000728	0.000167
4,4'-DDD	**0.0033**	**13**	**0.00649**		0.00073	0.000195	0.000444	J	0.000778	0.000207	0.00236		0.000712	0.00019	ND		0.000732	0.000195	0.000357	J	0.0007	0.000187	0.00103		0.000712	0.00019	ND		0.000712	0.00019	**0.014**		0.000728	0.000194
Endrin aldehyde	**NS**	**NS**	ND		0.00073	0.000153	ND		0.000778	0.000163	ND		0.000712	0.000149	ND		0.000732	0.000153	ND		0.0007	0.000147	ND		0.000712	0.000149	ND		0.000712	0.000149	ND		0.000728	0.000153
Endosulfan sulfate	**2.4**	**24**	ND		0.00073	0.000181	ND		0.000778	0.000193	ND		0.000712	0.000176	ND		0.000732	0.000181	ND		0.0007	0.000173	ND		0.000712	0.000176	ND		0.000712	0.000176	ND		0.000728	0.00018
4,4'-DDT	**0.0033**	**7.9**	0.000589	J	0.00073	0.000136	0.000229	J	0.000778	0.000145	**0.038**		0.000712	0.000133	0.00113		0.000732	0.000136	0.0021		0.0007	0.00013	**0.00808**		0.000712	0.000133	**0.023**		0.000712	0.000132	**0.096**	D	0.00146	0.000271
Endrin ketone	**NS**	**NS**	ND		0.00073	0.000142	ND		0.000778	0.000151	ND		0.000712	0.000139	ND		0.000732	0.000142	ND		0.0007	0.000136	ND		0.000712	0.000139	ND		0.000712	0.000139	ND		0.000728	0.000142
Methoxychlor	**NS**	**NS**	ND		0.00073	0.000195	ND		0.000778	0.000208	ND		0.000712	0.00019	ND		0.000732	0.000196	ND		0.0007	0.000187	ND		0.000712	0.00019	ND		0.000712	0.00019	ND		0.000728	0.000195
alpha-Chlordane	**0.094**	**4.2**	ND		0.00073	0.000161	ND		0.000778	0.000172	0.00126		0.000712	0.000157	ND		0.000732	0.000161	ND		0.0007	0.000155	0.00913		0.000712	0.000157	0.00246		0.000712	0.000157	ND		0.000728	0.000161
gamma-Chlordane	**NS**	**NS**	ND		0.00073	0.000143	ND		0.000778	0.000153	0.00125		0.000712	0.00014	ND		0.000732	0.000144	ND		0.0007	0.000138	0.00769		0.000712	0.00014	0.00274		0.000712	0.00014	ND		0.000728	0.000143
Toxaphene	**NS**	**NS**	ND		0.00913	0.00365	ND		0.00973	0.00389	ND		0.0089	0.00356	ND		0.00915	0.00366	ND		0.00875	0.0035	ND		0.0089	0.00356	ND		0.0089	0.00356	ND		0.0091	0.00364
Endosulfan (I and II)	**NS**	**NS**	ND		0.00073	0.000163	ND		0.000778	0.000174	ND		0.000712	0.000159	ND		0.000732	0.000164	ND		0.0007	0.000157	ND		0.000712	0.000159	ND		0.000712	0.000159	ND		0.000728	0.000163
Chlordane (alpha and gamma)	**NS**	**NS**	ND		0.00073	0.000143	ND		0.000778	0.000153	0.00251		0.000712	0.00014	ND		0.000732	0.000144	ND		0.0007	0.000138	0.017		0.000712	0.00014	0.0052		0.000712	0.00014	ND		0.000728	0.000143
*** Metals (mg/Kg)**			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Aluminum	**NS**	**NS**	10700				7620				5550				6100				6710				6140				11900				7400			
Antimony	**NS**	**NS**	<2.1				<2.3				<2.2				<2.1				<2.1				<2.1				<2.2				<2.2			
Arsenic	**13**	**16**	3.1				2.5				4.5				3.8				2.5				3.5				4.4				3.6			
Barium	**350**	**400**	59.6				43.4				224				38.0				45.1				46.7				157				90.2			
Beryllium	**7.2**	**72**	0.61				0.47				0.31				.28				0.39				0.37				0.71				0.46			
Cadmium	**2.5**	**4.3**	<0.53				<0.57				<0.55				<0.53				<0.52				<0.53				<0.55				<0.56			
Calcium	**NS**	**NS**	2980				2090				30600				17300				15800				9440				8260				31300			
Chromium	**NS**	**NS**	23.6				17.0				14.4				13.5				17.0				14.2				29.4				22.0			
Cobalt	**NS**	**NS**	7.4				<5.7				<5.5				<5.3				<5.2				6.6				8.2				6.1			
Copper	**50**	**270**	20.0				16.2				20.0				15.6				17.3				16.0				25.0				26.4			
Iron	**NS**	**NS**	15600				11300				11000				9790				10900				11700				18400				13700			
Lead	**63**	**400**	29.9				27.7				**143**				48.9				12				21.5				**64.2**				**159**			
Magnesium	**NS**	**NS**	3310				2480				14100				6650				2740				4360				6700				3600			
Manganese	**1600**	**2000**	443				307				275				201				321				335				562				386			
Mercury	**0.18**	**0.81**	**0.21**				0.11				0.15				0.054				0.052				0.044				0.060				**0.27**			
Nickel	**30**	**310**	21.9				14				20.2				18.1				16.5				24.5				**31.3**				18.6			
Potassium	**NS**	**NS**	390				1390				<1100				<1100				<1000				<1100				2200				1520			
Selenium	**3.9**	**180**	<2.1				<2.3				<2.2				<2.1				<2.1				<2.1				<2.2				<2.2			
Silver	**2**	**180**	0.70				<0.57				0.77				0.78				<0.52				0.86				1.4				0.58			
Sodium	**NS**	**NS**	<1100				<1100				<1100				<1100				<1000				<1100				<1100				<1100			
Thallium	**NS**	**NS**	<1.1				<1.1				<1.1				<1.1				<1.0				<1.1				<1.1				<1.1			
Vanadium	**NS**	**NS**	26.8				19.5				21.5				20.0				17.3				19.1				31.7				21.6			
Zinc	**109**	**10000**	51.6				30.1				148				66.2				26.6				39.9				100				54.9			
General Analytical			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	4.73	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Cyanide, Total	**27**	**27**	ND		1.10	0.220	ND		1.17	0.234	ND		1.07	0.214	ND		1.10	0.220	ND		1.05	0.211	ND		1.07	0.214	ND		1.07	0.214	ND		1.10	0.220

Results in Yellow Highlight displays exceedance above the UUSCO regulatory standard
Results in Green Highlight displays exceedance above both UUSCO & RRUSCO regulatory standard
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

NS = No Standard Available
D = The compound was reported from the Diluted analysis
ND OR < = Analyzed for but Not Detected at the MDL
~ = Sample not analyzed

*** TAL Metals analyzed by SGS Dayton.**
[a] = Elevated detection limit due to dilution required for high interfering element

Table 1B (Cont'd) - Soil Results - VOCs
Chelsea Elliott
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.1

Target Compounds	NYSDEC Unrestricted Use SCO	NYSDEC Restricted Residential SCO	SB11A Sample Depth: 8-24"				SB12A Sample Depth: 0-2'			
Volatiles (mg/Kg)			Conc	Q	RL	MDL	Conc	Q	RL	MDL
1,1,1-Trichloroethane	0.68	100	ND		0.00103	0.000316	ND		0.0014	0.00043
1,1,2,2-Tetrachloroethane	NS	NS	ND		0.00103	0.000539	ND		0.0014	0.000732
1,1,2-Trichloro-1,2,2-trifluoroethane	NS	NS	ND		0.00206	0.000615	ND		0.0028	0.000836
1,1,2-Trichloroethane	NS	NS	ND		0.00103	0.00022	ND		0.0014	0.0003
1,1-Dichloroethane	0.27	26	ND		0.00206	0.000263	ND		0.0028	0.000357
1,1-Dichloroethene	0.33	100	ND		0.00103	0.000361	ND		0.0014	0.00049
1,2,3-Trichlorobenzene	NS	NS	ND		0.00206	0.000328	ND		0.0028	0.000445
1,2,4-Trichlorobenzene	NS	NS	ND		0.00103	0.000433	ND		0.0014	0.000588
1,2-Dibromo-3-chloropropane	NS	NS	ND		0.00103	0.000849	ND		0.0014	0.00115
1,2-Dibromoethane (EDB)	NS	NS	ND		0.00103	0.000191	ND		0.0014	0.000259
1,2-Dichlorobenzene	1.1	100	ND		0.00103	0.000259	ND		0.0014	0.000351
1,2-Dichloroethane (EDC)	0.02	3.1	ND		0.00103	0.000238	ND		0.0014	0.000323
1,2-Dichloropropane	NS	NS	ND		0.00103	0.000103	ND		0.0014	0.00014
1,3-Dichlorobenzene	2.4	49	ND		0.00103	0.000273	ND		0.0014	0.000371
1,3-Dichloropropene (cis- and trans-)	NS	NS	ND		0.00103	0.000114	ND		0.0014	0.000155
1,4-Dichlorobenzene	1.8	13	ND		0.00103	0.000319	ND		0.0014	0.000434
2-Butanone (MEK)	0.12	100	ND		0.010	0.00206	ND		0.014	0.0028
2-Hexanone	NS	NS	ND		0.010	0.00158	ND		0.014	0.00214
4-Methyl-2-pentanone (MIBK)	NS	NS	ND		0.010	0.000539	ND		0.014	0.000732
Acetone	0.05	100	ND		0.010	0.00515	ND		0.014	0.007
Benzene	0.06	4.8	ND		0.00103	0.0000886	ND		0.0014	0.00012
Bromochloromethane	NS	NS	ND		0.00103	0.000262	ND		0.0014	0.000356
Bromodichloromethane	NS	NS	ND		0.00103	0.000123	ND		0.0014	0.000167
Bromoform	NS	NS	ND		0.00103	0.00032	ND		0.0014	0.000435
Bromomethane	NS	NS	ND		0.00206	0.000898	ND		0.0028	0.00122
Carbon disulfide	NS	NS	ND		0.00103	0.000405	ND		0.0014	0.00055
Carbon tetrachloride	0.76	2.4	ND		0.00103	0.000206	ND		0.0014	0.00028
Chlorobenzene	1.1	100	ND		0.00103	0.000178	ND		0.0014	0.000242
Chloroethane	NS	NS	ND		0.00103	0.000306	ND		0.0014	0.000416
Chloroform	0.37	49	ND		0.00206	0.000515	ND		0.0028	0.0007
Chloromethane	NS	NS	ND		0.00206	0.000327	ND		0.0028	0.000444
cis-1,2-Dichloroethene	0.25	100	ND		0.00206	0.00022	ND		0.0028	0.0003
cis-1,3-Dichloropropene	NS	NS	ND		0.00103	0.000158	ND		0.0014	0.000214
Cyclohexane	NS	NS	ND		0.00515	0.000185	ND		0.007	0.000252
Dibromochloromethane	NS	NS	ND		0.00103	0.000171	ND		0.0014	0.000232
Dichlorodifluoromethane	NS	NS	ND		0.00103	0.000535	ND		0.0014	0.000727
Ethylbenzene	1	41	ND		0.00103	0.000112	ND		0.0014	0.000153
Isopropylbenzene	NS	NS	ND		0.00103	0.000219	ND		0.0014	0.000298
Methyl acetate	NS	NS	ND		0.00103	0.000832	ND		0.0014	0.00113
Methyl tert-butyl ether (MTBE)	0.93	100	ND		0.00103	0.000225	ND		0.0014	0.000305
Methylcyclohexane	NS	NS	ND		0.00206	0.000177	ND		0.0028	0.000241
Methylene chloride	0.05	100	ND		0.00515	0.00309	ND		0.007	0.0042
Styrene	NS	NS	ND		0.00103	0.000221	ND		0.0014	0.000301
Tetrachloroethene	1.3	19	ND		0.00103	0.000106	ND		0.0014	0.000144
Toluene	0.7	100	ND		0.00103	0.000515	ND		0.0014	0.0007
Total Xylenes	0.26	100	ND		0.00206	0.000144	ND		0.0028	0.000196
trans-1,2-Dichloroethene	0.19	100	ND		0.00206	0.000365	ND		0.0028	0.000496
trans-1,3-Dichloropropene	NS	NS	ND		0.00103	0.000114	ND		0.0014	0.000155
Trichloroethene	0.47	21	ND		0.00103	0.000153	ND		0.0014	0.000209
Trichlorofluoromethane	NS	NS	ND		0.00103	0.000418	ND		0.0014	0.000568
Vinyl chloride	0.02	0.9	ND		0.00103	0.000334	ND		0.0014	0.000454
TOTAL VO's:	NS	NS	ND			NA	ND			NA
TOTAL TIC's:	NS	NS	ND			NA	ND			NA
TOTAL VO's & TIC's:	NS	NS	ND			NA	ND			NA

Results in Yellow Highlight displays exceedance above the UUSCO regulatory standard
Results in Green Highlight displays exceedance above both UUSCO & RRUSCO regulatory standard
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

Table 1B (Cont'd) - Soil Results - SVOCs
Chelsea Elliott
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.1

Target Compounds	NYSDEC Unrestricted Use SCO	NYSDEC Restricted Residential SCO	SB11A Sample Depth: 1-2'				SB12A Sample Depth: 0-2'			
Semivolatiles - BNA (mg/Kg)			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
1,1'-Biphenyl	NS	NS	ND		0.039	0.00584	ND		0.038	0.00568
1,2,4,5-Tetrachlorobenzene	NS	NS	ND		0.039	0.013	ND		0.038	0.013
1,4-Dioxane	0.1	13	ND		0.039	0.025	ND		0.038	0.025
2,2'-Oxybis(1-Chloropropane)	NS	NS	ND		0.039	0.00978	ND		0.038	0.00952
2,3,4,6-Tetrachlorophenol	NS	NS	ND		0.039	0.013	ND		0.038	0.013
2,4,5-Trichlorophenol	NS	NS	ND		0.039	0.030	ND		0.038	0.029
2,4,6-Trichlorophenol	NS	NS	ND		0.039	0.011	ND		0.038	0.011
2,4-Dichlorophenol	NS	NS	ND		0.039	0.010	ND		0.038	0.010
2,4-Dimethylphenol	NS	NS	ND		0.039	0.012	ND		0.038	0.011
2,4-Dinitrophenol	NS	NS	ND		0.079	0.016	ND		0.076	0.016
2,4-Dinitrotoluene	NS	NS	ND		0.079	0.044	ND		0.076	0.043
2,6-Dinitrotoluene	NS	NS	ND		0.079	0.045	ND		0.076	0.044
2-Chloronaphthalene	NS	NS	ND		0.039	0.00906	ND		0.038	0.00882
2-Chlorophenol	NS	NS	ND		0.039	0.013	ND		0.038	0.012
2-Methylnaphthalene	NS	NS	ND		0.039	0.014	ND		0.038	0.013
2-Methylphenol	0.33	100	ND		0.039	0.018	ND		0.038	0.017
2-Nitroaniline	NS	NS	ND		0.039	0.021	ND		0.038	0.020
2-Nitrophenol	NS	NS	ND		0.079	0.023	ND		0.076	0.023
3,3'-Dichlorobenzidine	NS	NS	ND		0.039	0.028	ND		0.038	0.027
3-Methylphenol	0.33	100	ND		0.039	0.025	ND		0.038	0.025
3-Nitroaniline	NS	NS	ND		0.039	0.025	ND		0.038	0.024
4,6-Dinitro-2-methylphenol	NS	NS	ND		0.079	0.017	ND		0.076	0.016
4-Bromophenyl phenyl ether	NS	NS	ND		0.039	0.011	ND		0.038	0.011
4-Chloro-3-methylphenol	NS	NS	ND		0.039	0.015	ND		0.038	0.015
4-Chloroaniline	NS	NS	ND		0.039	0.015	ND		0.038	0.015
4-Chlorophenyl phenyl ether	NS	NS	ND		0.039	0.00862	ND		0.038	0.00839
4-Methylphenol **	0.33	100	ND		0.039	0.018	ND		0.038	0.017
4-Nitroaniline	NS	NS	ND		0.039	0.023	ND		0.038	0.023
4-Nitrophenol	NS	NS	ND		0.079	0.040	ND		0.076	0.039
Acenaphthene	20	100	0.032	J	0.039	0.00775	ND		0.038	0.00754
Acenaphthylene	100	100	0.048		0.039	0.00859	0.031	J	0.038	0.00836
Acetophenone	NS	NS	ND		0.039	0.024	ND		0.038	0.023
Anthracene	100	100	0.177		0.039	0.00399	0.080		0.038	0.00389
Atrazine	NS	NS	ND		0.039	0.023	ND		0.038	0.023
Benzaldehyde	NS	NS	ND		0.079	0.030	ND		0.076	0.029
Benzo[a]anthracene	1	1	0.947		0.039	0.014	0.313		0.038	0.014
Benzo[a]pyrene	1	1	0.865		0.039	0.019	0.299		0.038	0.019
Benzo[b]fluoranthene	1	1	0.856		0.039	0.019	0.287		0.038	0.019
Benzo[g,h,i]perylene	100	100	0.511		0.039	0.030	0.199		0.038	0.029
Benzo[k]fluoranthene	0.8	3.9	0.739		0.039	0.027	0.264		0.038	0.026
Bis(2-chloroethoxy) methane	NS	NS	ND		0.039	0.00874	ND		0.038	0.00851
Bis(2-chloroethyl) ether	NS	NS	ND		0.039	0.014	ND		0.038	0.013
Bis(2-ethylhexyl) phthalate	NS	NS	ND		0.039	0.025	ND		0.038	0.025
Butyl benzyl phthalate	NS	NS	ND		0.039	0.017	ND		0.038	0.017
Caprolactam	NS	NS	ND		0.079	0.029	ND		0.076	0.028
Carbazole	NS	NS	0.041		0.039	0.00914	0.026	J	0.038	0.0089
Chrysene	1	3.9	0.742		0.039	0.011	0.332		0.038	0.011
Dibenz[a,h]anthracene	0.33	0.33	0.277		0.039	0.016	0.103		0.038	0.015
Dibenzofuran	7	59	ND		0.039	0.00513	ND		0.038	0.005
Diethyl phthalate	NS	NS	ND		0.039	0.012	ND		0.038	0.012
Dimethyl phthalate	NS	NS	ND		0.039	0.009	ND		0.038	0.00876
Di-n-butyl phthalate	NS	NS	ND		0.039	0.016	ND		0.038	0.016
Dinitrotoluene (2,4- and 2,6-)	NS	NS	ND		0.079	0.044	ND		0.076	0.043
Di-n-octyl phthalate	NS	NS	ND		0.039	0.029	ND		0.038	0.028
Fluoranthene	100	100	1.74		0.039	0.013	0.601		0.038	0.012
Fluorene	30	100	0.032	J	0.039	0.011	ND		0.038	0.010
Hexachlorobenzene	0.33	1.2	ND		0.039	0.012	ND		0.038	0.012
Hexachlorobutadiene	NS	NS	ND		0.039	0.011	ND		0.038	0.011
Hexachlorocyclopentadiene	NS	NS	ND		0.079	0.068	ND		0.076	0.066
Hexachloroethane	NS	NS	ND		0.039	0.016	ND		0.038	0.016
Indeno[1,2,3-cd]pyrene	0.5	0.5	0.511		0.039	0.025	0.190		0.038	0.024
Isophorone	NS	NS	ND		0.039	0.017	ND		0.038	0.016
Naphthalene	12	100	ND		0.039	0.00572	ND		0.038	0.00557
Nitrobenzene	NS	15	ND		0.039	0.00953	ND		0.038	0.00927
N-Nitrosodi-n-propylamine	NS	NS	ND		0.039	0.024	ND		0.038	0.024
N-Nitrosodiphenylamine	NS	NS	ND		0.039	0.00805	ND		0.038	0.00784
Pentachlorophenol	0.8	6.7	ND		0.039	0.017	ND		0.038	0.017
Phenanthrene	100	100	0.626		0.039	0.00642	0.353		0.038	0.00625
Phenol	0.33	100	ND		0.039	0.00887	ND		0.038	0.00864
Pyrene	100	100	1.46		0.039	0.00913	0.608		0.038	0.00889
TOTAL BNA'S:	NS	NS	9.60	J		NA	3.69	J		NA
TOTAL TIC's:	NS	NS	0.180	JN		NA	ND			NA
TOTAL BNA'S & TIC's:	NS	NS	9.78	J		NA	3.69	J		NA

Results in Yellow Highlight displays exceedance above the UUSCO regulatory standard
Results in Green Highlight displays exceedance above both UUSCO & RRUSCO regulatory standard
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

Table 1B (Cont'd) - Soil Results - PCBs, Pesticides, Metals
Chelsea Elliott
New York, NY

HK Engineering & Geology, D.P.C.
Project #: HK2661.1

Target Compounds	NYSDEC Unrestricted Use SCO	NYSDEC Restricted Residential SCO	SB11A Sample Depth: 1-2'				SB12A Sample Depth: 0-2'			
PCB's (mg/Kg)			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Aroclor-1016	NS	NS	ND		0.00394	0.0012	ND		0.00383	0.0011
Aroclor-1221	NS	NS	ND		0.00394	0.0012	ND		0.00383	0.0011
Aroclor-1232	NS	NS	ND		0.00394	0.0012	ND		0.00383	0.0011
Aroclor-1242	NS	NS	ND		0.00394	0.0012	ND		0.00383	0.0011
Aroclor-1248	NS	NS	ND		0.00394	0.0012	ND		0.00383	0.0011
Aroclor-1254	NS	NS	ND		0.00394	0.0012	ND		0.00383	0.0011
Aroclor-1260	NS	NS	ND		0.00394	0.0012	ND		0.00383	0.0011
Aroclor-1262	NS	NS	ND		0.00394	0.0012	ND		0.00383	0.0011
Aroclor-1268	NS	NS	ND		0.00394	0.0012	ND		0.00383	0.0011
PCBs	0.1	1	ND		0.00394	0.00118	ND		0.00383	0.00115
Pesticides (mg/Kg)			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
alpha-BHC	0.02	0.48	ND		0.000788	0.000141	ND		0.000766	0.000137
beta-BHC	0.036	0.36	ND		0.000788	0.000184	ND		0.000766	0.000179
gamma-BHC (Lindane)	0.1	1.3	ND		0.000788	0.000176	ND		0.000766	0.000171
delta-BHC	0.04	100	ND		0.000788	0.000153	ND		0.000766	0.000149
Heptachlor	0.042	2.1	ND		0.000788	0.000187	ND		0.000766	0.000182
Aldrin	0.005	0.097	ND		0.000788	0.000165	ND		0.000766	0.00016
Heptachlor epoxide	NS	NS	ND		0.000788	0.000171	ND		0.000766	0.000166
Endosulfan I	2.4	24	ND		0.000788	0.000176	ND		0.000766	0.000172
4,4'-DDE	0.0033	8.9	0.078		0.000788	0.000161	ND		0.000766	0.000156
Dieldrin	0.005	0.2	ND		0.000788	0.00016	ND		0.000766	0.000156
Endrin	0.014	11	ND		0.000788	0.000199	ND		0.000766	0.000193
Endosulfan II	2.4	24	ND		0.000788	0.00018	ND		0.000766	0.000176
4,4'-DDD	0.0033	13	0.011		0.000788	0.00021	ND		0.000766	0.000204
Endrin aldehyde	NS	NS	ND		0.000788	0.000165	ND		0.000766	0.00016
Endosulfan sulfate	2.4	24	ND		0.000788	0.000195	ND		0.000766	0.00019
4,4'-DDT	0.0033	7.9	0.075		0.000788	0.000146	ND		0.000766	0.000143
Endrin ketone	NS	NS	ND		0.000788	0.000153	ND		0.000766	0.000149
Methoxychlor	NS	NS	ND		0.000788	0.00021	ND		0.000766	0.000205
alpha-Chlordane	0.094	4.2	ND		0.000788	0.000174	ND		0.000766	0.000169
gamma-Chlordane	NS	NS	ND		0.000788	0.000155	ND		0.000766	0.000151
Toxaphene	NS	NS	ND		0.00985	0.00394	ND		0.00958	0.00383
Endosulfan (I and II)	NS	NS	ND		0.000788	0.000176	ND		0.000766	0.000172
Chlordane (alpha and gamma)	NS	NS	ND		0.000788	0.000155	ND		0.000766	0.000151
*** Metals (mg/Kg)**			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Aluminum	NS	NS	7780				4950			
Antimony	NS	NS	<2.3				<2.3			
Arsenic	13	16	3.9				8.7			
Barium	350	400	98.7				173			
Beryllium	7.2	72	0.44				0.39			
Cadmium	2.5	4.3	<0.58				12.8			
Calcium	NS	NS	5130				50200			
Chromium	NS	NS	16.9				17.6			
Cobalt	NS	NS	6.4				6.0			
Copper	50	270	17.1				42.9			
Iron	NS	NS	16100				19700			
Lead	63	400	56.1				773			
Magnesium	NS	NS	3220				2110			
Manganese	1600	2000	442				351			
Mercury	0.18	0.81	0.23				5.2			
Nickel	30	310	19.4				17.3			
Potassium	NS	NS	<1200				<1100			
Selenium	3.9	180	<2.3				<2.3			
Silver	2	180	<0.58				1.1			
Sodium	NS	NS	<1200				<1100			
Thallium	NS	NS	<1.2				<1.1			
Vanadium	NS	NS	17.7				20.7			
Zinc	109	10000	80.8				2050			
General Analytical			**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Cyanide, Total	27	27	ND		1.18	0.237	0.288	J	1.15	0.231

Results in Yellow Highlight displays exceedance above the UUSCO regulatory standard
Results in Green Highlight displays exceedance above both UUSCO & RRUSCO regulatory standard
J = Concentration detected at a value below the RL and above the MDL for target compounds
NS = No Standard Available
ND OR < = Analyzed for but Not Detected at the MDL
*** TAL Metals analyzed by SGS Dayton.**
[a] = Elevated detection limit due to dilution required for high interfering element

Table 2B - Groundwater Results - VOCs
Chelsea Elliott
Bronx, New York

HK Engineering & Geology, D.P.C.
Project #: HK2661.1

Target Compounds	NYSDEC Ambient Water Quality Standards (AWQS)	TWP1 GW Depth: 14'				TWP2 GW Depth: 11.5'				TWP4 GW Depth: 13.5'				TWP5 GW Depth: 13'				TWP6 GW Depth: 13.5'			
Volatiles (ug/L)		Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
1,1,1-Trichloroethane	5	ND		0.500	0.381	ND		0.500	0.381	ND		0.500	0.381	ND		0.500	0.381	ND		0.500	0.381
1,1,2,2-Tetrachloroethane	0.2	ND		0.500	0.284	ND		0.500	0.284	ND		0.500	0.284	ND		0.500	0.284	ND		0.500	0.284
1,1,2-Trichloro-1,2,2-trifluoroethane	5	ND		1.00	0.538	ND		1.00	0.538	ND		1.00	0.538	ND		1.00	0.538	ND		1.00	0.538
1,1,2-Trichloroethane	1	ND		0.500	0.313	ND		0.500	0.313	ND		0.500	0.313	ND		0.500	0.313	ND		0.500	0.313
1,1-Dichloroethane	5	ND		0.500	0.285	ND		0.500	0.285	ND		0.500	0.285	ND		0.500	0.285	ND		0.500	0.285
1,1-Dichloroethene	0.07	ND		0.500	0.363	ND		0.500	0.363	ND		0.500	0.363	ND		0.500	0.363	ND		0.500	0.363
1,2,3-Trichlorobenzene	5	ND		0.500	0.406	ND		0.500	0.406	ND		0.500	0.406	ND		0.500	0.406	ND		0.500	0.406
1,2,4-Trichlorobenzene	5	ND		0.500	0.358	ND		0.500	0.358	ND		0.500	0.358	ND		0.500	0.358	ND		0.500	0.358
1,2-Dibromo-3-chloropropane	0.04	ND		0.00484	0.00364	ND		0.00483	0.00364	ND		0.00487	0.00364	ND		0.00483	0.00364	ND		0.00482	0.00364
1,2-Dibromoethane (EDB)	0.0006	ND		0.00484	0.00364	ND		0.00483	0.00364	ND		0.00487	0.00364	ND		0.00483	0.00364	ND		0.00482	0.00364
1,2-Dichlorobenzene	3	ND		0.500	0.354	ND		0.500	0.354	ND		0.500	0.354	ND		0.500	0.354	ND		0.500	0.354
1,2-Dichloroethane (EDC)	0.6	ND		0.500	0.273	ND		0.500	0.273	ND		0.500	0.273	ND		0.500	0.273	ND		0.500	0.273
1,2-Dichloropropane	1	ND		0.500	0.272	ND		0.500	0.272	ND		0.500	0.272	ND		0.500	0.272	ND		0.500	0.272
1,3-Dichlorobenzene	3	ND		0.500	0.386	ND		0.500	0.386	ND		0.500	0.386	ND		0.500	0.386	ND		0.500	0.386
1,3-Dichloropropene (cis- and trans-)	0.4	ND		0.500	0.264	ND		0.500	0.264	ND		0.500	0.264	ND		0.500	0.264	ND		0.500	0.264
1,4-Dichlorobenzene	3	ND		0.500	0.397	ND		0.500	0.397	ND		0.500	0.397	ND		0.500	0.397	ND		0.500	0.397
2-Butanone (MEK)	NS	ND		1.00	0.802	ND		1.00	0.802	ND		1.00	0.802	ND		1.00	0.802	ND		1.00	0.802
2-Hexanone	50	ND		1.00	0.818	ND		1.00	0.818	ND		1.00	0.818	ND		1.00	0.818	ND		1.00	0.818
4-Methyl-2-pentanone (MIBK)	50	ND		1.00	0.611	ND		1.00	0.611	ND		1.00	0.611	ND		1.00	0.611	ND		1.00	0.611
Acetone	NS	ND		1.00	1.00	ND		1.00	1.00	ND		1.00	1.00	ND		1.00	1.00	ND		1.00	1.00
Benzene	50	ND		0.500	0.270	ND		0.500	0.270	ND		0.500	0.270	ND		0.500	0.270	ND		0.500	0.270
Bromochloromethane	1	ND		0.500	0.379	ND		0.500	0.379	ND		0.500	0.379	ND		0.500	0.379	ND		0.500	0.379
Bromodichloromethane	5	ND		0.500	0.258	ND		0.500	0.258	ND		0.500	0.258	ND		0.500	0.258	ND		0.500	0.258
Bromoform	50	ND		0.500	0.328	ND		0.500	0.328	ND		0.500	0.328	ND		0.500	0.328	ND		0.500	0.328
Bromomethane	50	ND		0.500	0.386	ND		0.500	0.386	ND		0.500	0.386	ND		0.500	0.386	ND		0.500	0.386
Carbon disulfide	5	ND		0.500	0.403	ND		0.500	0.403	ND		0.500	0.403	ND		0.500	0.403	ND		0.500	0.403
Carbon tetrachloride	60	ND		0.500	0.349	ND		0.500	0.349	ND		0.500	0.349	ND		0.500	0.349	ND		0.500	0.349
Chlorobenzene	0.4	ND		0.500	0.304	ND		0.500	0.304	ND		0.500	0.304	ND		0.500	0.304	ND		0.500	0.304
Chloroethane	5	ND		0.500	0.324	ND		0.500	0.324	ND		0.500	0.324	ND		0.500	0.324	ND		0.500	0.324
Chloroform	5	14.0		0.500	0.285	ND		0.500	0.285	ND		0.500	0.285	7.89		0.500	0.285	ND		0.500	0.285
Chloromethane	7	ND		0.500	0.309	ND		0.500	0.309	ND		0.500	0.309	ND		0.500	0.309	ND		0.500	0.309
cis-1,2-Dichloroethene	5	ND		0.500	0.277	ND		0.500	0.277	ND		0.500	0.277	ND		0.500	0.277	0.442	J	0.500	0.277
cis-1,3-Dichloropropene	5	ND		0.500	0.264	ND		0.500	0.264	ND		0.500	0.264	ND		0.500	0.264	ND		0.500	0.264
Cyclohexane	NS	ND		1.00	0.469	ND		1.00	0.469	ND		1.00	0.469	ND		1.00	0.469	ND		1.00	0.469
Dibromochloromethane	NS	ND		0.500	0.263	ND		0.500	0.263	ND		0.500	0.263	ND		0.500	0.263	ND		0.500	0.263
Dichlorodifluoromethane	50	ND		1.00	0.552	ND		1.00	0.552	ND		1.00	0.552	ND		1.00	0.552	ND		1.00	0.552
Ethylbenzene	5	ND		0.500	0.313	ND		0.500	0.313	ND		0.500	0.313	ND		0.500	0.313	ND		0.500	0.313
Isopropylbenzene	5	ND		0.500	0.332	ND		0.500	0.332	ND		0.500	0.332	ND		0.500	0.332	ND		0.500	0.332
Methyl acetate	5	ND		0.500	0.345	ND		0.500	0.345	ND		0.500	0.345	ND		0.500	0.345	ND		0.500	0.345
Methyl tert-butyl ether (MTBE)	NS	ND		0.500	0.245	ND		0.500	0.245	ND		0.500	0.245	ND		0.500	0.245	ND		0.500	0.245
Methylcyclohexane	10	ND		0.500	0.421	ND		0.500	0.421	ND		0.500	0.421	ND		0.500	0.421	ND		0.500	0.421
Methylene chloride	NS	ND		1.00	0.500	ND		1.00	0.500	ND		1.00	0.500	ND		1.00	0.500	ND		1.00	0.500
Styrene	5	ND		0.500	0.317	ND		0.500	0.317	ND		0.500	0.317	ND		0.500	0.317	ND		0.500	0.317
Tetrachloroethene	5	ND		0.500	0.365	ND		0.500	0.365	ND		0.500	0.365	ND		0.500	0.365	ND		0.500	0.365
Toluene	0.7	ND		0.500	0.302	ND		0.500	0.302	ND		0.500	0.302	ND		0.500	0.302	ND		0.500	0.302
Total Xylenes	5	ND		1.00	0.345	ND		1.00	0.345	ND		1.00	0.345	ND		1.00	0.345	ND		1.00	0.345
trans-1,2-Dichloroethene	NS	ND		0.500	0.372	ND		0.500	0.372	ND		0.500	0.372	ND		0.500	0.372	ND		0.500	0.372
trans-1,3-Dichloropropene	5	ND		0.500	0.330	ND		0.500	0.330	ND		0.500	0.330	ND		0.500	0.330	ND		0.500	0.330
Trichloroethene	NS	ND		0.500	0.347	ND		0.500	0.347	ND		0.500	0.347	ND		0.500	0.347	0.776		0.500	0.347
Trichlorofluoromethane	5	ND		1.00	0.503	ND		1.00	0.503	ND		1.00	0.503	ND		1.00	0.503	ND		1.00	0.503
Vinyl chloride	5	ND		0.500	0.352	ND		0.500	0.352	ND		0.500	0.352	ND		0.500	0.352	ND		0.500	0.352
TOTAL VO's:	NS	14.0			NA	ND			NA	ND			NA	7.89			NA	1.22	J		NA
TOTAL TIC's:	NS	ND			NA	ND			NA	ND			NA	ND			NA	ND			NA
TOTAL VO's & TIC's:	NS	14.0			NA	ND			NA	ND			NA	7.89			NA	1.22	J		NA

Results in Blue Highlight displays exceedance above the AWQS

~ = Sample not analyzed

B : Compound was found in the blank and sample.
I : Value is EMPC (estimated maximum possible concentration).
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

Table 2B (Cont'd) - Groundwater Results - SVOCs
Chelsea Elliott
Bronx, New York

HK Engineering & Geology, D.P.C.
Project #: HK2661.1

Target Compounds	NYSDEC TOGs Table 1 Ambient Water Quality Standards (AWQS)	TWP1 GW Depth: 14'				TWP2 GW Depth: 11.5'				TWP4 GW Depth: 13.5'				TWP5 GW Depth: 13'				TWP6 GW Depth: 13.5'			
Semivolatiles - BNA (µg/L)		**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
1,1'-Biphenyl	**5**	ND		1.00	0.212	ND		1.00	0.212	ND		1.00	0.212	ND		1.00	0.212	ND		1.00	0.212
1,2,4,5-Tetrachlorobenzene	**5**	ND		1.00	0.326	ND		1.00	0.326	ND		1.00	0.326	ND		1.00	0.326	ND		1.00	0.326
1,4-Dioxane	**NS**	ND		0.400	0.329	ND		0.400	0.329	ND		0.400	0.329	ND		0.400	0.329	ND		0.400	0.329
2,2'-Oxybis(1-Chloropropane)	**5**	ND		1.00	0.682	ND		1.00	0.682	ND		1.00	0.682	ND		1.00	0.682	ND		1.00	0.682
2,3,4,6-Tetrachlorophenol	**NS**	ND		1.00	0.872	ND		1.00	0.872	ND		1.00	0.872	ND		1.00	0.872	ND		1.00	0.872
2,4,5-Trichlorophenol	**NS**	ND		2.00	0.505	ND		2.00	0.505	ND		2.00	0.505	ND		2.00	0.505	ND		2.00	0.505
2,4,6-Trichlorophenol	**NS**	ND		1.00	0.497	ND		1.00	0.497	ND		1.00	0.497	ND		1.00	0.497	ND		1.00	0.497
2,4-Dichlorophenol	**5**	ND		1.00	0.383	ND		1.00	0.383	ND		1.00	0.383	ND		1.00	0.383	ND		1.00	0.383
2,4-Dimethylphenol	**50**	ND		2.00	1.06	ND		2.00	1.06	ND		2.00	1.06	ND		2.00	1.06	ND		2.00	1.06
2,4-Dinitrophenol	**10**	ND		3.00	2.35	ND		3.00	2.35	ND		3.00	2.35	ND		3.00	2.35	ND		3.00	2.35
2,4-Dinitrotoluene	**5**	ND		1.00	0.886	ND		1.00	0.886	ND		1.00	0.886	ND		1.00	0.886	ND		1.00	0.886
2,6-Dinitrotoluene	**5**	ND		1.00	0.996	ND		1.00	0.996	ND		1.00	0.996	ND		1.00	0.996	ND		1.00	0.996
2-Chloronaphthalene	**NS**	ND		1.00	0.234	ND		1.00	0.234	ND		1.00	0.234	ND		1.00	0.234	ND		1.00	0.234
2-Chlorophenol	**NS**	ND		1.00	0.257	ND		1.00	0.257	ND		1.00	0.257	ND		1.00	0.257	ND		1.00	0.257
2-Methylnaphthalene	**NS**	ND		1.00	0.200	ND		1.00	0.200	ND		1.00	0.200	ND		1.00	0.200	ND		1.00	0.200
2-Methylphenol	**NS**	ND		1.00	0.267	ND		1.00	0.267	ND		1.00	0.267	ND		1.00	0.267	ND		1.00	0.267
2-Nitroaniline	**5**	ND		2.00	0.702	ND		2.00	0.702	ND		2.00	0.702	ND		2.00	0.702	ND		2.00	0.702
2-Nitrophenol	**NS**	ND		2.00	0.581	ND		2.00	0.581	ND		2.00	0.581	ND		2.00	0.581	ND		2.00	0.581
3,3'-Dichlorobenzidine	**5**	ND		1.00	0.524	ND		1.00	0.524	ND		1.00	0.524	ND		1.00	0.524	ND		1.00	0.524
3-Nitroaniline	**5**	ND		3.00	0.436	ND		3.00	0.436	ND		3.00	0.436	ND		3.00	0.436	ND		3.00	0.436
4,6-Dinitro-2-methylphenol	**NS**	ND		0.100	0.033	ND		2.00	1.99	ND		0.100	0.033	ND		0.100	0.033	ND		0.100	0.033
4-Bromophenyl phenyl ether	**NS**	ND		1.00	0.940	ND		1.00	0.940	ND		1.00	0.940	ND		1.00	0.940	ND		1.00	0.940
4-Chloro-3-methylphenol	**NS**	ND		1.00	0.336	ND		1.00	0.336	ND		1.00	0.336	ND		1.00	0.336	ND		1.00	0.336
4-Chloroaniline	**5**	ND		1.00	0.612	ND		1.00	0.612	ND		1.00	0.612	ND		1.00	0.612	ND		1.00	0.612
4-Chlorophenyl phenyl ether	**NS**	ND		1.00	0.396	ND		1.00	0.396	ND		1.00	0.396	ND		1.00	0.396	ND		1.00	0.396
4-Methylphenol **	**NS**	ND		1.00	0.337	ND		1.00	0.337	ND		1.00	0.337	ND		1.00	0.337	ND		1.00	0.337
4-Nitroaniline	**5**	ND		2.00	0.692	ND		2.00	0.692	ND		2.00	0.692	ND		2.00	0.692	ND		2.00	0.692
4-Nitrophenol	**NS**	ND		3.00	2.41	ND		3.00	2.41	ND		3.00	2.41	ND		3.00	2.41	ND		3.00	2.41
Acenaphthene	**NS**	ND		1.00	0.281	ND		1.00	0.281	ND		1.00	0.281	ND		1.00	0.281	ND		1.00	0.281
Acenaphthylene	**NS**	ND		1.00	0.268	ND		1.00	0.268	ND		1.00	0.268	ND		1.00	0.268	ND		1.00	0.268
Acetophenone	**NS**	ND		1.00	0.241	ND		1.00	0.241	ND		1.00	0.241	ND		1.00	0.241	ND		1.00	0.241
Anthracene	**50**	ND		1.00	0.560	ND		1.00	0.560	ND		1.00	0.560	ND		1.00	0.560	ND		1.00	0.560
Atrazine	**3**	ND		1.00	0.468	ND		1.00	0.468	ND		1.00	0.468	ND		1.00	0.468	ND		1.00	0.468
Benzaldehyde	**NS**	ND		2.00	0.492	ND		2.00	0.492	ND		2.00	0.492	ND		2.00	0.492	ND		2.00	0.492
Benzo[a]anthracene	**0.002**	**1.63**		0.100	0.029	**10.8**		1.00	0.300	**0.103**		0.100	0.029	ND		0.100	0.029	ND		0.100	0.029
Benzo[a]pyrene	**ND**	1.47		0.100	0.027	6.64		1.00	0.285	0.153		0.100	0.027	ND		0.100	0.027	ND		0.100	0.027
Benzo[b]fluoranthene	**0.002**	**1.62**		0.100	0.026	**7.43**		1.00	0.605	**0.132**		0.100	0.026	ND		0.100	0.026	ND		0.100	0.026
Benzo[g,h,i]perylene	**NS**	ND		2.00	1.04	3.84		2.00	1.04	ND		2.00	1.04	ND		2.00	1.04	ND		2.00	1.04
Benzo[k]fluoranthene	**0.002**	**1.10**		0.100	0.035	**3.28**		2.00	0.403	**0.123**		0.100	0.035	ND		0.100	0.035	ND		0.100	0.035
Bis(2-chloroethoxy) methane	**5**	ND		1.00	0.344	ND		1.00	0.344	ND		1.00	0.344	ND		1.00	0.344	ND		1.00	0.344
Bis(2-chloroethyl) ether	**1**	ND		1.00	0.459	ND		1.00	0.459	ND		1.00	0.459	ND		1.00	0.459	ND		1.00	0.459
Bis(2-ethylhexyl) phthalate	**5**	ND		2.00	1.38	ND		2.00	1.38	ND		2.00	1.38	ND		2.00	1.38	ND		2.00	1.38
Butyl benzyl phthalate	**50**	ND		1.00	0.642	ND		1.00	0.642	ND		1.00	0.642	ND		1.00	0.642	ND		1.00	0.642
Caprolactam	**NS**	ND		3.00	1.15	ND		3.00	1.15	ND		3.00	1.15	ND		3.00	1.15	ND		3.00	1.15
Carbazole	**NS**	ND		1.00	0.594	ND		1.00	0.594	ND		1.00	0.594	ND		1.00	0.594	ND		1.00	0.594
Chrysene	**0.002**	ND		1.00	0.232	**9.27**		1.00	0.232	ND		1.00	0.232	ND		1.00	0.232	ND		1.00	0.232
Dibenz[a,h]anthracene	**NS**	0.594		0.100	0.031	4.62		2.00	1.35	0.166		0.100	0.031	ND		0.100	0.031	ND		0.100	0.031
Dibenzofuran	**NS**	ND		1.00	0.199	ND		1.00	0.199	ND		1.00	0.199	ND		1.00	0.199	ND		1.00	0.199
Diethyl phthalate	**50**	ND		1.00	0.239	ND		1.00	0.239	ND		1.00	0.239	ND		1.00	0.239	ND		1.00	0.239
Dimethyl phthalate	**50**	ND		1.00	0.197	ND		1.00	0.197	ND		1.00	0.197	ND		1.00	0.197	ND		1.00	0.197
Di-n-butyl phthalate	**50**	ND		1.00	0.343	1.84		1.00	0.343	ND		1.00	0.343	ND		1.00	0.343	ND		1.00	0.343
Dinitrotoluene (2,4- and 2,6-)	**NS**	ND		1.00	0.886	ND		1.00	0.886	ND		1.00	0.886	ND		1.00	0.886	ND		1.00	0.886
Di-n-octyl phthalate	**50**	ND		2.00	1.09	ND		2.00	1.09	ND		2.00	1.09	ND		2.00	1.09	ND		2.00	1.09
Fluoranthene	**50**	1.65		1.00	0.482	21.1		1.00	0.482	ND		1.00	0.482	ND		1.00	0.482	ND		1.00	0.482
Fluorene	**50**	ND		1.00	0.367	ND		1.00	0.367	ND		1.00	0.367	ND		1.00	0.367	ND		1.00	0.367
Hexachlorobenzene	**0.04**	ND		0.020	0.016	ND		1.00	0.584	ND		0.020	0.016	ND		0.020	0.016	ND		0.020	0.016
Hexachlorobutadiene	**0.5**	ND		1.00	0.561	ND		1.00	0.561	ND		1.00	0.561	ND		1.00	0.561	ND		1.00	0.561
Hexachlorocyclopentadiene	**5**	ND		2.00	1.89	ND		2.00	1.89	ND		2.00	1.89	ND		2.00	1.89	ND		2.00	1.89
Hexachloroethane	**5**	ND		1.00	0.470	ND		1.00	0.470	ND		1.00	0.470	ND		1.00	0.470	ND		1.00	0.470
Indeno[1,2,3-cd]pyrene	**0.002**	**1.01**		0.100	0.036	**3.57**		2.00	1.14	**0.190**		0.100	0.036	ND		0.100	0.036	ND		0.100	0.036
Isophorone	**50**	ND		1.00	0.232	ND		1.00	0.232	ND		1.00	0.232	ND		1.00	0.232	ND		1.00	0.232
Naphthalene	**NS**	ND		1.00	0.183	ND		1.00	0.183	ND		1.00	0.183	ND		1.00	0.183	ND		1.00	0.183
Nitrobenzene	**0.4**	ND		1.00	0.442	ND		1.00	0.442	ND		1.00	0.442	ND		1.00	0.442	ND		1.00	0.442
N-Nitrosodi-n-propylamine	**NS**	ND		1.00	0.391	ND		1.00	0.391	ND		1.00	0.391	ND		1.00	0.391	ND		1.00	0.391
N-Nitrosodiphenylamine	**50**	ND		1.00	0.196	ND		1.00	0.196	ND		1.00	0.196	ND		1.00	0.196	ND		1.00	0.196
Pentachlorophenol	**NS**	ND		0.100	0.052	ND		3.00	2.34	ND		0.100	0.052	ND		0.100	0.052	ND		0.100	0.052
Phenanthrene	**50**	1.69		1.00	0.263	20.2		1.00	0.263	ND		1.00	0.263	ND		1.00	0.263	ND		1.00	0.263
Phenol	**NS**	ND		1.00	0.276	ND		1.00	0.276	ND		1.00	0.276	ND		1.00	0.276	ND		1.00	0.276
Pyrene	**50**	1.32		1.00	0.555	29.6		1.00	0.555	ND		1.00	0.555	ND		1.00	0.555	ND		1.00	0.555
TOTAL BNA'S:	**NS**	12.1			NA	122			NA	0.867			NA	ND			NA	ND			NA
TOTAL TIC's:	**NS**	23.7	J		NA	614	JN		NA	22.8	J		NA	23.1	J		NA	45.7	JN		NA
TOTAL BNA'S & TIC's:	**NS**	35.8			NA	736			NA	23.7			NA	23.1			NA	45.7	JN		NA

Results in Blue Highlight displays exceedance above the AWQS
J = Concentration detected at a value below the RL and above the MDL for target compounds
N = Presumptive evidence of a compound from the use of GC/MS library search.

Table 2B (Cont'd) - Groundwater Results - PCBs, Pesticides, Metals
Chelsea Elliott
Bronx, New York

HK Engineering & Geology, D.P.C.
Project #: HK2661.1

Target Compounds	NYSDEC Ambient Water Quality Standards (AWQS)	TWP1 GW Depth: 14'				TWP2 GW Depth: 11.5'				TWP4 GW Depth: 13.5'				TWP5 GW Depth: 13'				TWP6 GW Depth: 13.5'			
PCB's (µg/L)		**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Aroclor 1016	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor 1221	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor 1232	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor 1242	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor 1248	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor 1254	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor 1260	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor 1262	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Aroclor 1268	**NS**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
PCBs, Total	**0.09**	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015	ND		0.050	0.015
Pesticides (µg/L)		**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
alpha-BHC	**0.01**	ND		0.010	0.00206	ND		0.010	0.00206	ND		0.010	0.00206	ND		0.010	0.00206	ND		0.00001	0.00000206
beta-BHC	**0.04**	ND		0.010	0.00303	ND		0.010	0.00303	ND		0.010	0.00303	ND		0.010	0.00303	ND		0.00001	0.00000303
gamma-BHC (Lindane)	**0.05**	ND		0.010	0.00201	ND		0.010	0.00201	ND		0.010	0.00201	ND		0.010	0.00201	ND		0.00001	0.00000201
delta-BHC	**0.04**	ND		0.010	0.00238	ND		0.010	0.00238	ND		0.010	0.00238	ND		0.010	0.00238	ND		0.00001	0.00000238
Heptachlor	**0.04**	ND		0.010	0.00235	ND		0.010	0.00235	ND		0.010	0.00235	ND		0.010	0.00235	ND		0.00001	0.00000235
Aldrin	**ND**	ND		0.010	0.00187	ND		0.010	0.00187	ND		0.010	0.00187	ND		0.010	0.00187	ND		0.00001	0.00000188
Heptachlor epoxide	**0.03**	ND		0.010	0.00217	ND		0.010	0.00217	ND		0.010	0.00217	ND		0.010	0.00217	ND		0.00001	0.00000217
Endosulfan I	**NS**	ND		0.010	0.00208	ND		0.010	0.00208	ND		0.010	0.00208	ND		0.010	0.00208	ND		0.00001	0.00000208
4,4'-DDE	**0.2**	ND		0.010	0.00197	ND		0.010	0.00197	ND		0.010	0.00197	ND		0.010	0.00197	ND		0.00001	0.00000197
Dieldrin	**0.004**	ND		0.010	0.00237	ND		0.010	0.00237	ND		0.010	0.00237	ND		0.010	0.00237	ND		0.00001	0.00000237
Endrin	**ND**	ND		0.010	0.00289	ND		0.010	0.00289	ND		0.010	0.00289	ND		0.010	0.00289	ND		0.00001	0.00000289
Endosulfan II	**NS**	ND		0.010	0.00258	ND		0.010	0.00258	ND		0.010	0.00258	ND		0.010	0.00258	ND		0.00001	0.00000258
4,4'-DDD	**0.3**	ND		0.010	0.00294	ND		0.010	0.00294	ND		0.010	0.00294	ND		0.010	0.00294	ND		0.00001	0.00000294
Endrin aldehyde	**5**	ND		0.010	0.0023	ND		0.010	0.0023	ND		0.010	0.0023	ND		0.010	0.0023	ND		0.00001	0.0000023
Endosulfan sulfate	**NS**	ND		0.010	0.00314	ND		0.010	0.00314	ND		0.010	0.00314	ND		0.010	0.00314	ND		0.00001	0.00000314
4,4'-DDT	**0.2**	ND		0.010	0.00202	ND		0.010	0.00202	ND		0.010	0.00202	ND		0.010	0.00202	ND		0.00001	0.00000202
Endrin ketone	**5**	ND		0.010	0.00323	ND		0.010	0.00323	ND		0.010	0.00323	ND		0.010	0.00323	ND		0.00001	0.00000323
Methoxychlor	**35**	ND		0.010	0.00337	ND		0.010	0.00337	ND		0.010	0.00337	ND		0.010	0.00337	ND		0.00001	0.00000337
alpha-Chlordane	**NS**	ND		0.010	0.00215	ND		0.010	0.00215	ND		0.010	0.00215	ND		0.010	0.00215	ND		0.00001	0.00000215
gamma-Chlordane	**NS**	ND		0.010	0.00314	ND		0.010	0.00314	ND		0.010	0.00314	ND		0.010	0.00314	ND		0.00001	0.00000314
Toxaphene	**0.06**	ND		0.125	0.050	ND		0.125	0.050	ND		0.125	0.050	ND		0.125	0.050	ND		0.000125	0.00005
Endosulfan (I and II)	**NS**	ND		0.010	0.00208	ND		0.010	0.00208	ND		0.010	0.00208	ND		0.010	0.00208	ND		0.00001	0.00000208
Chlordane (alpha and gamma)	**0.05**	ND		0.010	0.00215	ND		0.010	0.00215	ND		0.010	0.00215	ND		0.010	0.00215	ND		0.00001	0.00000215
***Metals - TOTAL (µg/L)**		**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Aluminum	**NS**	6990				3300				6580				4230				5960			
Antimony	**3**	<6.0				<6.0				<6.0				<6.0				<6.0			
Arsenic	**25**	5.0				7.7				5.2				<3.0				<3.0			
Barium	**1000**	229				<200				487				<200				440			
Beryllium	**3**	1.3				<1.0				1.1				<1.0				1.2			
Cadmium	**5**	<3.0				<3.0				<3.0				<3.0				<3.0			
Calcium	**NS**	118000				75100				169000				33100				74300			
Chromium	**50**	29.5				10.9				11.0				15.2				18.1			
Cobalt	**NS**	<50				<50				<50				<50				<50			
Copper	**200**	60.5				56.9				27.1				13.3				44.5			
Iron	**NS**	10400				10400				9230				8200				8980			
Lead	**25**	**68.9**				**43.9**				**122**				8.7				20.9			
Magnesium	**35000**	14700				<5000				24400				<5000				22200			
Manganese	**NS**	1100				182				2110				140				3260			
Mercury	**0.7**	<0.20				0.63				<0.20				<.20				<0.20			
Nickel	**100**	24.7				11.2				24.0				<10				26.1			
Potassium	**NS**	10400				11200				15200				<10000				16300			
Selenium	**10**	<10				<10				<10				<10				**10.5**			
Silver	**50**	<10				<10				<10				<10				<10			
Sodium	**20000**	**64300**				**106000**				**190000**				**274000**				**193000**			
Thallium	**0.5**	<10				<10				<10				<10				<10			
Vanadium	**NS**	<50				<50				<50				<50				<50			
Zinc	**2000**	64				49.2				107				26.9				57.4			
***Metals - DISSOLVED (µg/L)**		**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Aluminum	**NS**	850				579				<200				<200				6990			
Antimony	**3**	<6.0				<6.0				<6.0				<6.0				<6.0			
Arsenic	**25**	<3.0				7.1				<3.0				<3.0				<3.0			
Barium	**1000**	<200				<200				236				<200				328			
Beryllium	**3**	<1.0				<1.0				<1.0				<1.0				<1.0			
Cadmium	**5**	<3.0				<3.0				<3.0				<3.0				<3.0			
Calcium	**NS**	128000				60900				170000				31300				70000			
Chromium	**50**	<10				<10				<10				<10				13.2			
Cobalt	**NS**	<50				<50				<50				<50				<50			
Copper	**200**	<10				<10				<10				<10				35.7			
Iron	**NS**	1090				784				110				294				9040			
Lead	**25**	8				4.7				<3.0				<3.0				9.6			
Magnesium	**35000**	13700				<5000				23300				<5000				20000			
Manganese	**NS**	145				20.3				1020				89.2				2730			
Mercury	**0.7**	<0.20				<.20				<0.20				<0.20				<0.20			
Nickel	**100**	<10				<10				<10				<10				19.6			
Potassium	**NS**	10600				11700				15600				<10000				16600			
Selenium	**10**	<10				<10				<10				<10				**10.7**			
Silver	**50**	<10				<10				<10				<10				<10			
Sodium	**20000**	**73000**				**121000**				**209000**				**264000**				**192000**			
Thallium	**0.5**	<10				<10				<10				<10				<10			
Vanadium	**NS**	<50				<50				<50				<50				<50			
Zinc	**2000**	<20				<20				<20				<20				32.7			
General Analytical (µg/L)		**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**	**Conc**	**Q**	**RL**	**MDL**
Cyanide, Total	**200**	ND		20.0	4.00	ND		20.0	4.00	ND		20.0	4.00	ND		20.0	4.00	ND		20.0	4.00

Results in Blue Highlight displays exceedance above the AWQS
J = Concentration detected at a value below the RL and above the MDL for target compounds
NS = No Standard Available
ND OR < = Analyzed for but Not Detected at the MDL
*** TAL Metals analyzed by SGS Dayton.**

Table 3B - Soil Vapor Results - VOCs
Chelsea Elliott
Bronx, New York

HK Engineering & Geology, D.P.C.
Project #: HK2661.1

	Sample Depth: 12'									*Sample Depth: Sub Slab*									*Sample Depth: 12'*		
Target Compounds	**SV1** *Sample Location: Exterior*			**SV2** *Sample Location: Exterior*			**SV3** *Sample Location: Exterior*			**SV6** *Sample Location: Hudson Guild Center Basement Hallway*			**SV7** *Sample Location: Trash Compactor Room at 436 W. 27th*			**SV8** *Sample Location: Basement Hallway Area at 436 W. 27th*			**SV9** *Sample Location: Exterior*		
Volatiles (µg/m^3)	**Q**	**Conc**	**RL**	**Q**	**Conc**	**RL**	**Q**	**Conc**	**RL**	**Q**	**Conc**	**RL**	**Q**	**Conc**	**RL**	**Q**	**Conc**	**RL**	**Q**	**Conc**	**RL**
Acetone		27	0.48		15	0.48		78	0.48	D	100	2.4		15	0.48	D	230	2.4	D	160	2.4
Benzene		3.9	0.64		1.00	0.64		32	0.64		30	0.64		ND	0.64		6.0	0.64		11	0.64
Bromodichloromethane		ND	1.3		ND	1.3		ND	1.3		ND	1.3		ND	1.3		ND	1.3		ND	1.3
Bromoform		ND	2.1		ND	2.1		ND	2.1		ND	2.1		ND	2.1		ND	2.1		ND	2.1
Bromomethane		ND	0.78		ND	0.78		ND	0.78		ND	0.78		ND	0.78		ND	0.78		ND	0.78
1,3-Butadiene		ND	0.44		ND	0.44		ND	0.44		ND	0.44		ND	0.44		ND	0.44		ND	0.44
Chlorobenzene		ND	0.92		ND	0.92		ND	0.92		ND	0.92		ND	0.92		ND	0.92		ND	0.92
Chloroethane		ND	0.53		ND	0.53		ND	0.53		ND	0.53		ND	0.53		ND	0.53		ND	0.53
Chloroform		ND	0.98		ND	0.98		ND	0.98		ND	0.98		5.5	0.98		72	0.98		ND	0.98
Chloromethane		ND	0.41		ND	0.41		ND	0.41		ND	0.41		ND	0.41		ND	0.41		ND	0.41
Carbon disulfide		4.4	0.62		ND	0.62		79	0.62		48	0.62		ND	0.62		18	0.62		4.6	0.62
Carbon tetrachloride		ND	0.25		ND	0.25		14	0.25		ND	0.25		ND	0.25		ND	0.25		ND	0.25
Cyclohexane		11	0.69		ND	0.69		12	0.69		28	0.69		ND	0.69		5.2	0.69		2.6	0.69
Dibromochloromethane		ND	1.7		ND	1.7		ND	1.7		ND	1.7		ND	1.7		ND	1.7		ND	1.7
1,2-Dibromoethane		ND	1.5		ND	1.5		ND	1.5		ND	1.5		ND	1.5		ND	1.5		ND	1.5
1,2-Dichlorobenzene		ND	1.2		ND	1.2		ND	1.2		ND	1.2		ND	1.2		ND	1.2		ND	1.2
1,3-Dichlorobenzene		ND	1.2		ND	1.2		ND	1.2		ND	1.2		ND	1.2		ND	1.2		ND	1.2
1,4-Dichlorobenzene		ND	1.2		ND	1.2		ND	1.2		ND	1.2		ND	1.2		ND	1.2		ND	1.2
Dichlorodifluoromethane		ND	0.99		ND	0.99		ND	0.99		ND	0.99		ND	0.99		ND	0.99		ND	0.99
1,1-Dichloroethane		ND	0.81		ND	0.81		ND	0.81		ND	0.81		ND	0.81		ND	0.81		ND	0.81
1,2-Dichloroethane		ND	0.81		ND	0.81		ND	0.81		ND	0.81		ND	0.81		ND	0.81		ND	0.81
1,1-Dichloroethene		ND	0.79		ND	0.79		ND	0.79		ND	0.79		ND	0.79		ND	0.79		ND	0.79
1,2-Dichloroethene (cis)		ND	0.79		ND	0.79		ND	0.79		ND	0.79		ND	0.79		ND	0.79		ND	0.79
1,2-Dichloroethene (trans)		ND	0.79		ND	0.79		ND	0.79		ND	0.79		ND	0.79		ND	0.79		ND	0.79
1,2-Dichloropropane		ND	0.92		ND	0.92		ND	0.92		ND	0.92		ND	0.92		ND	0.92		ND	0.92
1,3-Dichloropropene (cis)		ND	0.91		ND	0.91		ND	0.91		ND	0.91		ND	0.91		ND	0.91		ND	0.91
1,3-Dichloropropene (trans)		ND	0.91		ND	0.91		ND	0.91		ND	0.91		ND	0.91		ND	0.91		ND	0.91
1,3-Dichloropropene - TOTAL		ND	0.91		ND	0.91		ND	0.91		ND	0.91		ND	0.91		ND	0.91		ND	0.91
1,2-Dichlorotetrafluoroethane		ND	1.4		ND	1.4		ND	1.4		ND	1.4		ND	1.4		ND	1.4		ND	1.4
1,4-Dioxane		ND	0.72		ND	0.72		ND	0.72		ND	0.72		ND	0.72		ND	0.72		ND	0.72
Ethylbenzene		63	0.87		5.0	0.87	D	170	8.7		7.9	0.87		1.1	0.87		6.0	0.87		3.9	0.87
n-Heptane		51	0.82		ND	0.82		27	0.82		29	0.82		ND	0.82		2.4	0.82		6.5	0.82
1,3-Hexachlorobutadiene		ND	2.1		ND	2.1		ND	2.1		ND	2.1		ND	2.1		ND	2.1		ND	2.1
n-Hexane		87	0.70		1.3	0.70		26	0.70		36	0.70		0.82	0.70		2.8	0.70		ND	0.70
Methylene chloride		ND	0.69		ND	0.69		17	0.69		ND	0.69		ND	0.69		17	0.69		15	0.69
Methyl ethyl ketone		ND	0.59		0.94	0.59		8.8	0.59		9.3	0.59		1.8	0.59		29	0.59	D	230	2.9
Methyl isobutyl ketone		ND	0.82		ND	0.82		ND	0.82		ND	0.82		ND	0.82		ND	0.82		ND	0.82
Methyl tert-butyl ether		ND	0.72		ND	0.72		ND	0.72		ND	0.72		ND	0.72		ND	0.72		ND	0.72
Styrene		ND	0.85		ND	0.85		3.7	0.85		3.4	0.85		ND	0.85		1.1	0.85		1.4	0.85
Tert-butyl alcohol		4.8	0.61		ND	0.61		27	0.61		43	0.61		4.1	0.61		5.2	0.61		18	0.61
1,1,2,2-Tetrachloroethane		ND	1.4		ND	1.4		ND	1.4		ND	1.4		ND	1.4		ND	1.4		ND	1.4
Tetrachloroethene		11	1.4		ND	1.4		44	1.4		73	1.4		12	1.4		39	1.4		46	1.4
Toluene		3.8	0.75		1.3	0.75		23	0.75		24	0.75		2.4	0.75		17	0.75		10	0.75
1,2,4-Trichlorobenzene		ND	1.5		ND	1.5		ND	1.5		ND	1.5		ND	1.5		ND	1.5		ND	1.5
1,1,1-Trichloroethane		ND	1.1		ND	1.1		1.1	1.1		ND	1.1		ND	1.1		ND	1.1		ND	1.1
1,1,2-Trichloroethane		ND	1.1		ND	1.1		3.4	1.1		ND	1.1		ND	1.1		ND	1.1		ND	1.1
Trichloroethene		ND	0.25		ND	0.25		ND	0.25		ND	0.25		ND	0.25		ND	0.25		ND	0.25
Trichlorofluoromethane		1.8	1.1		1.9	1.1		2.9	1.1		1.8	1.1		1.8	1.1		1.8	1.1		1.5	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane		ND	1.5		ND	1.5		ND	1.5		ND	1.5		ND	1.5		ND	1.5		ND	1.5
1,2,4-Trimethylbenzene		3.3	0.98		ND	0.98		8.8	0.98		8.2	0.98		0.99	0.98		3.5	0.98		1.1	0.98
1,3,5-Trimethylbenzene		1.1	0.98		ND	0.98		4.1	0.98		2.6	0.98		ND	0.98		1.7	0.98		ND	0.98
2,2,4-Trimethylpentane		ND	0.93		ND	0.93		ND	0.93		ND	0.93		ND	0.93		ND	0.93		ND	0.93
Vinyl bromide		ND	0.87		ND	0.87		ND	0.87		ND	0.87		ND	0.87		ND	0.87		ND	0.87
Vinyl chloride		ND	0.51		ND	0.51		ND	0.51		ND	0.51		ND	0.51		ND	0.51		ND	0.51
Xylenes (m&p)		270	0.87		23	0.87	D	750	8.7		29	0.87		4.4	0.87		20	0.87		14	0.87
Xylenes (o)		46	0.87		3.9	0.87		170	0.87		11	0.87		1.8	0.87		8.9	0.87		5.0	0.87
Xylenes - TOTAL		316	0.87		26.9	0.87		920	8.7		40	0.87		6.2	0.87		28.9	0.87		19	0.87

***No applicable NYSDEC remediation benchmarks available for soil vapor**
J = Concentration detected at a value below the RL and above the MDL for target compounds
ND = Analyzed for but Not Detected at the RL
D = Extra dilution required for this compound

Appendix A

Phase I Environmental Site Assessment

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PHASE I ENVIRONMENTAL SITE ASSESSMENT

Fulton
401 West 19th Street, 401 West 18th Street, 427 and 430 West 17th Street
New York, New York 10011

Prepared For:

Elliott Fulton LLC c/o Essence Development
30 Hudson Yards
New York, NY 10001

Report Issuance Date: April 21, 2022
Site Reconnaissance Date: April 19, 2022

Hillmann Project Number Z34898

Environmental Health & Safety | Due Diligence & Remediation Management | Construction Services
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April 21, 2022

Mr. Jamar Adams
Elliott Fulton LLC c/o Essence Development
30 Hudson Yards
New York, NY 10001

RE: Phase I Environmental Site Assessment
Fulton
401 West 19th Street, 401 West 18th Street, 427 and 430 West 17th Street
New York, New York 10011
Hillmann Project No: Z34898

Dear Mr. Adams:

Hillmann Consulting LLC has completed a Phase I Environmental Site Assessment of the above referenced property. This assessment was performed in conformance with our contract agreement and the scope and limitations of ASTM Practice E 1527-21, which is the latest version of the E1527 standard published by the ASTM.

We appreciate the opportunity to provide environmental due diligence services. If you have any questions concerning this report, or if we can assist you in any other matter, please contact our office at 908-688-7800.

Sincerely,

Hillmann Consulting, LLC

Chris Hirschmann
Environmental Services Director

Etan Hindin
Senior Project Manager

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List of Abbreviations/Acronyms

Hillmann may use the following abbreviations and acronyms for common terminology described in our report. Not all abbreviations or acronyms may be applicable to this report:

ACM	– Asbestos Containing Material
AOC	– Area of Concern
AST	– Aboveground Storage Tank
ASTM	– American Society for Testing Materials
BER	– Business Environmental Risk
CEA	– Classification Exception Area
CERCLA	– Comprehensive Environmental Response Compensation and Liability Act
CERCLIS	– Comprehensive Environmental Response Compensation and Liability Information System
CESQG	– Conditionally Exempt Small Quantity Generator
COC	– Chemicals of Concern
CORRACTS	– Corrective Action Sites
CREC	– Controlled Recognized Environmental Condition
DEC	– Department of Environmental Conservation
DEP	– Department of Environmental Protection
DHS	– Department of Health Services
DNPL	– Delisted National Priority List
DOB	– Department of Buildings
DOH	– Department of Health
DOT	– Department of Transportation
DTSC	– Department of Toxic Substances Control
ENG	– Engineering
EPA	– Environmental Protection Agency
ERNS	– Emergency Response Notification System
FD	– Fire Department
FOI/FOIA/FOIL	– Freedom of Information / Freedom of Information Act / Freedom of Information Letter
HVAC	– Heating Ventilation & Air Conditioning
HREC	– Historic Recognized Environmental Condition
IAQ	– Indoor Air Quality
ISRA	– Industrial Site Recovery Act
LBP	– Lead-Based Paint
LCP	– Lead-Containing Paint
LQG	– Large Quantity Generator
LTANK	– Leaking Storage Tank
LUST	– Leaking Underground Storage Tank
SDS/MSDS	– Safety Data Sheet / Material Safety Data Sheet
NA	– Not Applicable
NFA	– No Further Action
NFRAP	– No Further Remedial Actions Planned
NPDES	– National Pollutant Discharge Elimination System
NPL	– National Priority List
OER	– Office of Environmental Remediation
OPRA	– Open Public Records Act
PAH	– Polycyclic Aromatic Hydrocarbon
PCE	– Perchloroethylene
RAO	– Response Action Outcome
RCRA	– Resource Conservation and Recovery Act
RCRIS	– Resource Conservation and Recovery Information System
REC	– Recognized Environmental Condition
RWQCB	– Regional Water Quality Control Board
SCAQMD	– South Coast Air Quality Management District
SDG	– Significant Data Gap
SEMS	– Superfund Enterprise Management System
SRP	– Site Remediation Program
SQG	– Small Quantity Generator
SVOC	– Semi-Volatile Organic Compound
TCE	– Trichloroethylene
TSDF	– Treatment Storage and/or Disposal Facility
UST	– Underground Storage Tank
VEC	– Vapor Encroachment Condition
VOC	– Volatile Organic Compound

1.0 FINDINGS, OPINIONS, AND CONCLUSIONS

Hillmann Consulting, LLC (Hillmann) performed a Phase I Environmental Site Assessment (ESA) of 401 West 19th Street, 401 West 18th Street, 427 and 430 West 17th Street, New York, New York (the Subject Property). The assessment has been conducted in accordance with our contracted scope of work and the ASTM Standard Practice E 1527-21 for Phase I Environmental Site Assessments and All Appropriate Inquiries (AAI) Final Rule 40 CFR Part 312. This section contains a summary of findings, opinions and conclusions made by this assessment. However, this section, alone, does not constitute the complete assessment. The report must be read in its entirety.

1.1 Summary of Project Details

Primary Street Address:	401 West 19th Street, 401 West 18th Street, 427 and 430 West 17th Street				
City:	New York	**County:**	New York	**State:**	New York
Tax ID/Parcel Number:	401W19th: Block 717, Lot 19; 401W18th: Block 716, Lot 17; 427W17th: Block 715, Lot 10; 430W17th: Block 714, Lot 31				
Property Owner:	New York City Housing Authority (NYCHA)				
Zoning Designation:	R8-C2-5 (Residential with Commercial Overlay)				
Approx. Property Area:	6.21-acres (combined)				
Buildings:	Eleven residential apartment buildings: B2, B6, B9 are high-rise 25-story plus basement; B1, B3, B4, B5, B7, B8, B10, B11 each 6-story with no basement except B1 and B3 which have a basement; and B12 - freestanding garage (1-story / 2-bay) NOTE: See Appendix A for building numbering/locations				
Approx. Building Size:	974-units (combined)				
Approx. Year Built:	1963-1965				
Commercial Occupants:	Primarily residential with senior center, development/management office and computer lab				
Current Use:	Multifamily residential				
Inspected By:	Mr. Etan Hindin and Mr. Dominick Aponte				
Site Contact/Company:	Mr. Patrick Chan / Property Manager (NYCHA)				
Site Escort/Company:	Rico / Site Caretaker (NYCHA)				
Inspection Date:	April 19, 2022				
Weather Conditions:	Overcast 42 degrees Fahrenheit				

1.2 Findings Summary Table

Assessment Subject	No REC	REC	CREC	HREC	SDG	Rpt. Ref.
Property Regulatory Records Review:				X		4.3
Property Historical Records Review:		X				4.2
Bulk Petroleum Storage:	X					6.3
On-Site Operations:	X					6.3
On-Site Haz-Mat Storage/Use/Spills:	X					6.3
Transformers/Hydraulic Systems:	X					6.3
Waste Discharges:	X					6.3
Interviews:	X					5.0
Adjoining & Nearby Properties:	X					4.3 6.2
Prior Env. Reports/User Provided Info:	X					3.0

1.3 Findings, Opinions and Conclusions

Recognized Environmental Conditions & Significant Data Gaps

Hillmann has performed a Phase I Environmental Site Assessment in accordance with the scope and limitations of ASTM Practice E 1527-21 of the Subject Property as described in Section 2.2 of this report. Any additions to, exceptions to, or deletions from this practice are also described in Section 2 of this report. This assessment has revealed the following *recognized environmental conditions* (RECs), *controlled recognized environmental conditions* (CRECs) and/or *significant data gaps* (SDGs) in connection with the Subject Property:

RECOGNIZED ENVIRONMENTAL CONDITIONS
Multiple historic uses of potential environmental concern occurred at the Property prior to the 1963-1965 construction of the present Property buildings, per review of Sanborn Fire Insurance Maps, as follows: • Vinegar Factory at 424-426 West 17th Street (off the east side of the present Property Building 4) in 1895; • "Chinese Laundry" at 101 and 119 9th Avenue (near present Property Buildings 2 and 7) in 1904; • 165-car garage with auto-repair operations in the basement and a 1,500-gallon gasoline buried tank (in the vicinity of the present asphalt surface parking south of Building 2) and a 15-car private garage with a buried gasoline tank (capacity indecipherable) at 409 West 17th Avenue (off the west side of the present Property Building 7), and iron works 434-436 West 17th Avenue and 414 19th Avenue in 1921; • Filling station (gas station), taxi garage and auto repair with multiple gasoline tanks depicted along ninth avenue between West 16th and West 17th Avenue and along West 16th and West 17th Avenue (see Appendix A figure), and an additional auto filling/service station with multiple gasoline tanks depicted at the northwest corner of 9th Avenue and West 17th Street (near the southern edge of the present Building 7) and auto painting (431-433 West 17th) and repair (443-445 West 17th), a motor freight terminal (410-412 West 19th) in 1950.

The aforementioned historic uses including a factory, laundry, iron works, motor freight station, auto filling/service stations with multiple gasoline tanks is considered a REC. Two (2) groundwater monitoring wells were observed within the Property north of B12 (two-bay Property garage) and northwest of B4 on the south side of West 18th and West 17th Streets respectively. The trigger for the installation of these wells and their use for sampling/monitoring if any was unknown by the site escort/contact. Hillmann recommends obtaining records of a subsurface investigation (if already performed) or performing a subsurface investigation to determine the presence/absence of impact to underlying environmental media from aforementioned uses and the presence/absence of abandoned underground storage tanks (USTs) in areas not excavated in the 1960's for the construction of the present Property buildings. If the onsite groundwater monitoring wells observed during the site reconnaissance are no longer in use, said wells should be decommissioned in accordance with applicable regulations.
CONTROLLED RECOGNIZED ENVIRONMENTAL CONDITIONS (CRECs)
No CRECs were identified.
SIGNIFICANT DATA GAPS (SDGs)
No SDGs were identified.

Historical Recognized Environmental Conditions (HRECs)

This assessment has revealed the following *historical recognized environmental conditions* (HRECs) in connection with the Subject Property:

HISTORICAL RECOGNIZED ENVIRONMENTAL CONDITIONS	
	An NY SPILLS database listing for the "Excavation Site - Front of 413 West 16th Street" details the discovery of a fuel odor during an unrelated excavation (infrastructure work on a sewer line and transformer vault) leading to the removal of approximately 40 cubic yards of soil on May 27, 2005. Given the impact identified and subsequent remediation (soil removal) and regulatory closure, listed as closed on December 27, 2005, the NY SPILLS listing is considered an HREC. Hillmann notes that given the nature of the discovery of the impact (unrelated excavation likely along the sidewalk in front of 413 West 16th Street) and title of the listing "Front of…" the investigation/soil removal was likely not comprehensive enough to determine the presence/absence of impact from historical uses to the rest of the 430 West 17th Street Parcel (Block 714, Lot 31), a parcel noted above with historic uses including multiple gasoline tanks and an auto filling/service station.

De Minimis and Other Environmental Conditions

The following *de minimis* and other environmental conditions were identified:

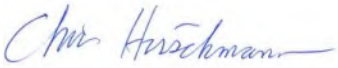
OTHER ENVIRONMENTAL CONDITIONS / DE MINIMIS CONDITIONS
401-411 West 18th Street (Building 8) is listed on the UST database for a 1,500-gallon UST removed on June 5, 2017. The listing does not indicate any release was identified during the UST removal and is not considered a REC.
400 West 17th Street (Building 7) is listed on the NY SPILLS database due to an incident involving wastewater in June 2020. The case obtained regulatory closure and due to the nature of the spill and regulatory status is not considered a REC.
Multiple Con-Edison listings (MANIFEST, RCRA-NonGen, FINDS, ECHO) associated with Property addresses were identified. The listings are associated with infrastructure work generating regulated waste. The listings are not indicative of a release and not considered a REC.

427-431 West 17th Street / NYCHA-Fulton Houses is listed on the RCRA-NonGen, FINDS and ECHO databases likely associated with the removal of regulated waste. The listings are regulatory in nature, not indicative of a release and not considered a REC.
West 17th Street and 10th Avenue is listed on the Brownfields database. The site is located to the adjacent west of Property building 4. In 2004 during a Phase I and II, contaminants of concern were identified associated with past uses of petroleum and historic fill. Soils and groundwater were identified to be contaminated with VOCs, petroleum related and chlorinated solvents and SVOCs. The listings details the subsequent remediation as follows: "*A Track 4 cleanup was achieved for the site. Engineering and Institutional Controls have been instituted to manage the residual contamination. These controls have been memorialized in the Environmental Easement that has been recorded in the New York County Clerk's office. The Certificate of Completion was issued on October 6, 2008.* *Public water is provided to the area, thereby preventing exposures to groundwater. The remedial action work plan for the site calls for the removal of contaminated soil from the site prior to construction of a residential building on-site. Soil gas is contaminated by chlorinated solvents that are likely due to an off-site source. The site owner will include measures in the building construction to prevent soil vapor migration into the building.*" Given the above, a vapor encroachment condition to the Property cannot be ruled out.

Environmental Professional Statement

I/We declare that, to the best of my professional knowledge and belief, I/we meet the definition of *Environmental professional* as defined in § 312.10 of 40 C.F.R. 312. I/we have the specific qualifications based on education, training and experience to assess a *property* of the nature, history and setting of the *subject property*. I/We have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 C.F.R. Part 312.

Etan Hindin
Environmental Professional



Chris Hirschmann
Environmental Professional

1.4 Business Environmental Risks / Non-ASTM Scope

Hillmann has performed a limited review of the following potential Business Environmental Risks (BER), also known as "Non-ASTM Scope concerns", in accordance with the contracted scope of work scope for this assessment. BER is defined by ASTM E1527-21 as *"a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice."* The following is a summary of findings for the limited review of potential BERs, where applicable, as per the contracted scope of work and limitations outlined in Section 2. For a more detailed discussion of the findings and contracted scope of work, please see the referenced report section.

BUSINESS ENVIRONMENTAL RISKS / NON-ASTM SCOPE			
Subject	**Findings**	**Not Appl.**	**Rpt. Ref.**
Asbestos	Given the 1963-1965 years of construction, asbestos containing materials are suspected unless ruled out by laboratory analysis. Suspected ACM noted within the accessed building areas included floor tile, wall-board, spray-of insulation and roofing materials		7.1
Lead Paint	Given the 1963-1965 years of construction, lead-paint is suspected unless ruled out by field survey or laboratory analysis. Lead sampling was reportedly being performed due to the December 21, 2021 modification to the legal lead-based paint standard to 0.5 mg/cm^2 (Local Law 66 and rules adopted by the Department of Housing Preservation and Development [HPD]) The results of the survey have been requested by Hillmann.		7.2
Radon	The Property is located in the USEPA radon designation Zone 3 or 'low risk' area for radon.		7.3
Mold / Microbial Damage	The basement of Building 1 was observed to have standing water on the concrete surface with some discoloration. Intermittent pipe and roof leaks were reportedly common given the age of the building. Mold abatement, primarily removing water damaged wall-board is reportedly performed by NYCHA staff as needed.		7.4
NWI Wetlands	No NWI Wetlands were depicted within the Property.		7.5
Lead in Drinking Water	Potable water service at the Subject Property is provided by the City of New York. The water purveyor water supply is within acceptable standards. Property building specific lead-in-drinking water sampling was not performed.		7.6

2.0 INTRODUCTION

2.1 Purpose and Scope

This assessment was conducted utilizing generally accepted Phase I ESA industry standards in accordance with the ASTM Standard Practice E 1527-21. The ASTM describes these methodologies as representing good commercial and customary practice in the United States of America for conducting an environmental site assessment of a parcel of commercial real estate with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. § 9601) and petroleum products. As such, this practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner or bona fide prospective purchaser limitations on CERCLA liability (hereinafter, the "landowner liability protections," or "LLPs"): that is, the practice that constitutes all appropriate inquiries into the previous ownership and uses the property consistent with good commercial and customary practice as defined at 42 U.S.C. §9601(35) (B). The goal of the processes established by ASTM E1527-21 is to identify *recognized environmental conditions* in connection with the Subject Property.

The term *recognized environmental condition* (REC) is defined by ASTM E1527-21 as *"(1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment."*

The term *controlled recognized environmental condition* is a type of recognized environmental condition and defined by ASTM E1527-21 as a *"recognized environmental condition affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations or other property use limitations)."*

The term *historical recognized environmental condition* is defined as a *"previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations)."* The ASTM E1527-21 standard has clarified that a *historical recognized environmental condition* (HREC) is not a *recognized environmental condition* (REC).

The term *de minimis condition* is defined by the ASTM, *"…a condition related to a release that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies."* A condition determined to be a *de minimis condition* is not REC nor a CREC.

The chief components of this assessment are generally described as follows:

- A non-invasive visual reconnaissance of the Subject Property and adjoining properties in accordance with ASTM guidelines for evidence of RECs.

- Interviews of past and present owners and occupants and state and local government officials, seeking information related to the potential presence of RECs at the Subject Property.

- A review of standard physical record sources for available topographic, geologic and groundwater data.

- A review of standard historic record sources, such as fire insurance maps, city directories, aerial photographs, prior reports and interviews, etc., to determine prior uses of the Subject Property from the present, back to the Subject Property's first developed use, or back to 1940, whichever is earlier.

- A review of standard environmental record sources including federal and state environmental databases, and additional environmental record sources, to identify potential regulatory concerns with the Subject Property, adjoining properties and properties located within the surrounding area.

An evaluation of environmental or other regulatory compliance matters is excluded from the scope of this assessment.

These methodologies are described as representing good commercial and customary practice for conducting an Environmental Site Assessment of a property for the purpose of identifying recognized environmental conditions.

Business Environmental Risks/Non-ASTM Scope Considerations

In accordance with our contract agreement, Hillmann may have addressed the following potential environmental subject matters that are outside of the requirements of the ASTM E1527-21 standard:

- Asbestos-Containing Materials (ACM): A cursory non-intrusive visual screening for the presence of suspect ACM within the accessed areas of buildings built prior to 1990 on the Subject Property. If the Subject Property contains buildings built in 1990 or later, the contracted scope of work excludes a cursory non-intrusive visual screening or any other level of evaluation for suspect ACM; however, the exclusion for buildings built ≥1990 should not be interpreted to suggest that any such buildings are free of ACM or would not warrant evaluation of building materials for ACM prior to disturbance. It is emphasized that this cursory non-intrusive visual screening does not constitute an asbestos survey/inspection of the premises. An asbestos survey/inspection should be sought by the report User(s) if a greater certainty is desired regarding ACM and potential asbestos hazards at the Subject Property. Furthermore, a review of regulatory compliance matters pertaining to asbestos is excluded from the scope of work.

- Lead-Based Paint (LBP): A cursory non-intrusive visual screening of the condition of painted surfaces in the accessed areas of residential buildings/units built prior to 1980 on the Subject Property. If the Property contains buildings built in 1980 or later, the contracted scope of work excludes any cursory non-intrusive visual screening or other level of evaluation for suspect

LPB; however, the scope of work exclusion for building built ≥1980 should not be interpreted to suggest that any such buildings are free of LPB or other lead hazards. It is emphasized that this cursory non-intrusive visual screening does not constitute a comprehensive survey for LBP or potential lead hazards. A comprehensive inspection should be sought by the report User(s) if more certainty is desired regarding LBP at the Subject Property. Furthermore, a review of regulatory compliance matters pertaining to lead-based paint is excluded from the scope of work.

- USEPA Designated Radon Potential: Review of general non-site specific data published by the USEPA regarding the Radon Zone classification for the area of the Subject Property.

- Mold/Microbial Damage: A cursory non-intrusive visual screening within the accessed areas of buildings on the Subject Property for evidence of systemic microbial problems, including visible mold growth, water damaged building materials or musty odors. It is emphasized that this cursory non-intrusive visual screening does not constitute a comprehensive survey for moisture/mold/microbial damage. A more comprehensive inspection should be sought by the report User(s) if more certainty is desired regarding the potential for moisture/mold/microbial damages at the Subject Property.

- NWI Wetlands: The Property has been reviewed for jurisdictional wetlands using the National Wetlands Inventory Wetland Mapper (http://wetlandsfws.er.usgs.gov/NWI/download.html) to determine whether mapped federal wetlands have been indicated on the Subject Property. Any further evaluation or legal delineation of regulated wetlands areas is excluded from the scope of work. It is also emphasized that a field delineation of regulated wetlands by a qualified professional would be warranted to more fully determine the presence or absence of regulated wetlands at the Subject Property.

- Lead in Drinking Water: Review of the potential for elevated levels of lead in the drinking water by determining the source of the drinking water supply and a review of available testing or compliance data reports.

2.2 Property Location/Legal Description

Property location and legal description details are described as follows:

Primary Street Address:	401 West 19th Street, 401 West 18th Street, 427 and 430 West 17th Street				
City:	New York	**County:**	New York	**State:**	New York
Tax ID/Parcel Number:	401W19th: Block 717, Lot 19; 401W18th: Block 716, Lot 17; 427W17th: Block 715, Lot 10; 430W17th: Block 714, Lot 31				
Approx. Land Area:	6.21-acres (combined)				
Apprx. Latitude/Longitude:	North 40.7436330 degrees/West 74.0043040 degrees				
Additional Details (if appl.):	Secondary address range: 89-157 9th Avenue; 401-433 West 19th;				

	400-426 West 19th; 401-423 West 18th; 400-434 West 18th; 401-445 West 17th; 400-438 West 17th; 401-429 West 16th;
Property Owner:	New York City Housing Authority (NYCHA)
Zoning Designation:	R8-C2-5 (Residential with Commercial Overlay)

2.3 Data Gaps

A *data gap* is defined by the ASTM as a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information. A data gap is only significant if other information and/or professional experience raises reasonable concerns involving the data gap and the ability to determine the presence or absence of recognized environmental conditions. The following table summarizes data gaps encountered during the assessment as well as a discussion of their significance.

Data Gap:	Significant (Yes/No)?	Discussion
Historical records data failure	No	Records gaps exceeding five years were encountered; however, no significant site use changes are suspected during these intervals.
Response to agency records requests not received as of date of report.	No	Any additional information indicative of a REC will be forwarded upon receipt.

2.4 ESA Report Component Dates/Viability

The ASTM E1527-21 standard states that an environmental site assessment (ESA) is presumed to be viable when it is conducted within 180 days prior to the date of acquisition of the Subject Property (or, for transactions not involving an acquisition such as a lease or refinance, the date of the intended transaction). Specifically, all of the following components must be conducted or updated within 180 days prior to the date of acquisition or prior to the date of the transaction. The following table summarizes the component completion dates:

ESA Component	Completion Date
Interviews	April 19, 2022
Env Lien Search	(excluded from scope)
Government Records Review	March 31
Visual Inspections	April 19, 2022
Env. Professional Declaration	April 21, 2022

2.5 User Reliance

This report is for the exclusive use of Elliott Fulton LLC c/o Essence Development and additional relying entities, if any, named on the front cover. No additional individuals or entities shall be

permitted to rely upon any data, interpretation, reports or other information or documentation contained in this report, without first obtaining the consent of Elliott Fulton LLC c/o Essence Development; and without obtaining written consent from Hillmann in the form of a reliance agreement/letter.

Hillmann may, in its sole discretion, withhold its consent to additional reliance and/or Hillmann may condition consent for reliance upon payment of a fee or other conditions.

2.6 Significant Assumptions

The following significant assumptions are made:

- The site operations at the time of the site visit are assumed to reflect typical site conditions relative to potential environmental conditions and that no concealment of environmental conditions or releases by site owners or occupants has occurred. Likewise, it is assumed that no areas of the Subject Property with potential environmental concerns or RECs were concealed or otherwise not reported, intentionally or unknowingly, by the Subject Property owners/occupants and/or site escort at the time of the site visit.

- For the purpose of estimating the approximate direction of groundwater flow in the absence of site specific groundwater data, unless indicated otherwise, an assumption has been made that the gradient of groundwater flow follows the surface topography of the Subject Property and immediate surrounding area.

2.7 General Limitations and Exceptions

Limitations

The report turnaround time specified by the contract agreement for this assessment may present a limitation to the availability of pertinent regulatory agency records. Such limitations, if encountered, would be further specified in Section 4.1.

Significant limitations related to the condition or accessibility of the Subject Property at the time of the site reconnaissance, if encountered, are reported in Section 6.1.

Other Exceptions or Deletions

No other exceptions or deletions from the ASTM Standard E 1527-21 are reported.

Special Terms and Conditions

This Phase I Environmental Site Assessment has been prepared using reasonable efforts in each phase of its work to identify recognized environmental conditions associated with hazardous substances, wastes and petroleum products at the Subject Property. Findings within this report are based on information collected from observations made on the day of the site reconnaissance and from reasonably ascertainable information obtained from governing public agencies and private sources.

This report is not definitive and should not be assumed to be a complete or specific definition of the conditions above or below grade. Information in this report is not intended to be used as a construction document and should not be used for demolition, renovation, site development, redevelopment, or other construction purposes. No representation or warranty is made that the past or current operations at the Subject Property are, or have been, in compliance with all applicable federal, state and local laws, regulations and codes.

Findings, conclusions and recommendations presented in this report are based on visual observations of the Subject Property, interviews conducted, the records reviewed, information provided by the Client, and/or a review of readily available and supplied drawings and documents. Information obtained during the assessment, whether written, graphic or verbal, provided by the Subject Property contact(s) or as shown on any documents reviewed or received from the Subject Property contact, owner or agent, or government agency source; is assumed to be accurate except as specifically stated otherwise in this report. Independent verification of the accuracy or completeness of all information reviewed or received during the course of this assessment is not made and excluded from the scope of work for this assessment. No warranty or guarantee is made of the accuracy or completeness of information that was obtained from ostensibly knowledgeable individuals, regulatory agency representatives or other secondary sources.

Regardless of the findings stated in this report, Hillmann is not responsible for consequences or conditions arising from facts that were concealed, withheld or not fully disclosed at the time the assessment was conducted.

This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated.

The regulatory database report provided is based on an evaluation of the data collected and compiled by a contracted data research company. Hillmann can neither warrant nor guarantee the accuracy or completeness of the information obtained from the regulatory database report provider during the course of this assessment.

Subsurface conditions may differ from the conditions implied by the surface observations and can only be reliably evaluated through intrusive techniques.

Reasonable efforts have been made during this assessment to identify aboveground and underground storage tanks and ancillary equipment. Reasonable efforts are limited to information gained from visual observation of largely unobstructed areas, recorded database information held in public record and available information gathered from interviews. Such methods may not identify surficial and subsurface features that may have been hidden from view due to parked automobiles and other vehicles, snow cover, vegetative growth, pavement, construction or debris pile storage or incorrect information from sources.

No guarantee, explicit or implied, is made that the records pertaining to historical ownership or occupancy which were reviewed represent a comprehensive or precise delineation of past Property ownership or tenancy for legal purposes.

The ASTM E1527-21 standard states that recommendations are not required to be included in a Phase I ESA report; however, further that recommendations are an additional service that may be useful in the User's analysis of landowner liability protections or business environmental risks; and that the User should consider whether recommendations for additional inquiries or other services are desired.

Recommended response actions offered in Section 1.3, if any, are provided as an option to the Client, and may have taken into account the Client's relation to the Subject Property and/or their intended purpose of this assessment. If included, it is not intended by Hillmann to represent the only course(s) of action, or inaction, to take. Furthermore, it is emphasized that additional response actions may become advisable depending on the outcome of the initial action(s) taken. Hillmann advises that Client and any additional authorized relying parties as specified on the report Cover and Section 2.5, or via letter of reliance extension, undertake consultation with legal counsel familiar with environmental and real estate law would be beneficial to the decision making process for the type and timing of a response action to identified RECs or Business Environmental Risks, if any.

Due to the limited nature of our review of potential Business Environmental Risks, the User(s) of the report should consider whether to take additional action(s) to further define, properly manage and/or mitigate potential BERs.

The User(s) assumes responsibility for business decisions that it makes utilizing information in the report provided by Hillmann. Hillmann shall not be responsible for any conclusions, interpretations and/or decisions of the User(s).

In the event of any conflict between the terms and conditions of this report and the terms and conditions of the consulting services agreement for this project, the consulting services agreement shall control.

3.0 USER PROVIDED INFORMATION

The term "User" is defined by ASTM as the party seeking to use Practice E1527 to complete an environmental site assessment of the Subject Property; specifically, the entity or entities named on the front cover to which the report has been addressed.

3.1 Environmental Lien and Activity and Use Limitation (AUL) Search

The User did not provide Hillmann with the results of an environmental lien and AUL search for the Subject Property.

3.2 Prior Environmental Reports/Documentation

No prior environmental reports/documentation were provided.

3.3 User Responsibilities

Section 6 of the ASTM E1527-21 standard describes certain tasks required to be performed by the report User in order to qualify for landowner liability protections to CERCLA liability. To assist the report User to meet these requirements, the ASTM E1527-21 standard recommends a questionnaire of inquiries (User Questionnaire) specified in 40 CFR 312.25, 312.28, 312.29, 312.30, and 312.31 be provided to the original report User. A User Questionnaire has been provided to the report User; however, a completed questionnaire was not returned to Hillmann.

Question:	Yes/No:	Detail:
Environmental liens that are filed or recorded against the property: Did a search of recorded land title records identify any environmental liens filed or recorded against the property under federal, tribal, state or local law?	NR	
Activity and use limitations that are in place on the property or that have been filed or recorded against the property: Did a search of recorded land title records (or judicial records where appropriate, identify any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the property and/or have been filed or recorded against the property under federal, tribal, state or local law?	NR	
Specialized knowledge or experience of the person seeking to qualify for the LLP: Do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?	NR	
Relationship of the purchase price to the fair market value of the property if it were not contaminated: Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower	NR	

Question:	Yes/No:	Detail:
purchase price is because contamination is known or believed to be present at the property?		
Commonly Known or Reasonably Ascertainable Information: Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example,		
-Do you know the past uses of the property?	NR	
-Do you know of specific chemicals that are present or were once present at the property?	NR	
-Do you know of spills or other chemical releases that have taken place at the property?	NR	
-Do you know of any environmental cleanups that have taken place at the property?	NR	
The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation: Based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of releases at the property?	NR	
Litigation/Administrative Proceedings/Government Notices As the User of this ESA, do you have knowledge of (1) any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property; (2) any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on or from the property; and (3) any notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products.	NR	

NR-no response

3.4 User's Reason for Performing Phase I ESA

The User did not indicate the purpose of the assessment. In accordance with ASTM E1527-21, it is assumed that the Phase I ESA was being performed in order to qualify for landowner liability protection to CERCLA liability.

4.0 RECORDS REVIEW

4.1 Environmental Information

Physical Setting

Source	Discussion
USGS 7.5 minute Topographic Map Data: (EDR Geocheck-Physical Setting Source Addendum)	The Property lies at an elevation of approximately 14 feet above mean sea level. An interpretation of topographic contour lines as well as a review of the EDR Geocheck-General Topographic Gradient suggested terrain sloping downward towards the west-northwest. The closest down gradient water body is the Hudson River, located approximately 850-ft to the west-northwest.
USDA SCS Soil Data: (EDR Geocheck-Physical Setting Source Addendum)	The soil type at the Subject Property is classified as "Urban Land". The Urban Land designation indicates that a majority of the original soils on the site have been disturbed by development or covered with impervious surfaces, such as buildings or pavement.
Geologic Data: (EDR Geocheck-Physical Setting Source Addendum)	The Geologic Age Identification Category for the Property is Stratified Sequence, and the Rock Stratigraphic Unit is the Paleozoic Eta, Ordovicias System and Lower Orodovician and Cambrian carbonate rocks Series.
Prior Env. Reports: (Section 3.2)	None provided.
Additional Sources/ Data:	An eastern adjacent Property listed on the Brownfields database, 10th Avenue between West 16th and 17th Streets is listed as having groundwater at 10-14 feet below ground surface (bgs).
Groundwater Flow Discussion:	Based on a review of the above information as well as observation of the site, the direction of shallow groundwater flow at the site is inferred to be towards the west-northwest.

Federal, State and Tribal Environmental Record Sources

Standard government records were obtained and reviewed primarily via a third-party regulatory database report, titled EDR Radius Map™ Report, prepared by Environmental Data Resources of Shelton, CT. The report provided government records from the standard environmental resources and within minimum search distances specified by Section 8.2.2-Table 2 of the ASTM E1527-21; and were reviewed for the purpose of identifying potential RECs in connection with the Subject Property. Additional detail of the source and significance of the regulatory databases can be found in the regulatory database report in Appendix E. Hillmann has also included discussion of records pertaining to the Subject Property from other government record sources not specifically listed under Table 2, as applicable.

Reported distances for adjoining property listings, if applicable, are approximate and indicative of the presence of a public roadway or right-of-way between the adjoining site and Property.

The reported gradients have been estimated based on a number of factors including but not necessarily limited to field observation, review of topographic maps, database listing details and/or site specific geo-technical data.

Limited analysis of the details of on-site, adjoining and vicinity database sites was conducted to identify potential sources of sub-surface vapor encroachment. This review was based on elements of the ASTM "Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions" (ASTM E 2600-15); and also on elements of "Methodology for Identifying the Area of Concern Around a Property Potentially Impacted by Vapor Migration from Nearby

Contaminated Sources" (Buonicore, 2011-S-103-AWMA). Vicinity database sites pertaining to non-petroleum product releases within 1,760 feet of the Subject Property in the up-gradient direction, 365 feet of the Subject Property in the cross gradient direction and 100 feet of the Subject Property in the down gradient direction; and vicinity database sites pertaining to petroleum product releases within 528 feet of the Subject Property in the up-gradient direction, 165 feet of the Subject Property in the cross gradient direction and 100 feet of the Subject Property in the down gradient direction were reviewed to identify active contamination sites with the potential to affect subsurface vapor conditions at the Subject Property. The potential for vapor encroachment was considered in assessing whether or not a REC exists in connection with the Subject Property when reviewing applicable sites within those distances.

Regulatory database sites with active petroleum or non-petroleum releases that are considered to constitute a vapor encroachment condition (VEC) to the Subject Property, if any, are identified and discussed in this section.

The EDR Radius Map report is attached in Appendix E.

Property Listings

The following listings of the Subject Property were identified:

- An NY SPILLS database listing for the "Excavation Site - Front of 413 West 16th Street" details the discovery of a fuel odor during an unrelated excavation (sewer line to transformer vault) leading to the removal of approximately 40 cubic yards of soil on May 27, 2005. Given the impact identified and subsequent remediation (soil removal) and regulatory closure – listed as closed on December 27, 2005, the NY SPILLS listing is considered an HREC.

  Hillmann notes that given the nature of the discovery of the impact (unrelated excavation likely along the sidewalk in front of 413 West 16th Street) and title of the listing "Front of…" the investigation/soil removal was likely not comprehensive enough to determine the presence/absence of impact to the rest of the 430 West 17th Street Parcel (Block 714, Lot 31), a parcel noted above with historic uses including multiple gasoline tanks and an auto filling/service station.

- 401-411 West 18th Street (Building 8) is listed on the UST database for a 1,500-gallon UST removed on June 5, 2017. The listing does not indicate any release was identified during the UST removal and is not considered a REC.

- 400 West 17th Street (Building 7) is listed on the NY SPILLS database due to an incident involving wastewater in June 2020. The case obtained regulatory closure and due to the nature of the spill and regulatory status is not considered a REC.

- Multiple Con-Edison listings (MANIFEST, RCRA-NonGen, FINDS, ECHO) associated with Property addresses were identified. The listings are associated with infrastructure work generating regulated waste. The listings are not indicative of a release and not considered a REC.

- 427-431 West 17th Street / NYCHA-Fulton Houses is listed on the RCRA-NonGen, FINDS and ECHO databases likely associated with the removal of regulated waste. The listings are regulatory in nature, not indicative of a release and not considered a REC.

Adjoining Property Listings

The following adjoining property listings were identified.

- Multiple adjacent Con-Edison listings (MANIFEST, RCRA-NonGen, FINDS, ECHO) were identified. The listings are associated with infrastructure work generating regulated waste. The listings are not indicative of a release and not considered a REC in connection with the Property.

- Multiple adjacent sites are listed on the NY SPILLS and LTANKS databases. Each of the adjacent listings obtained regulatory closure and are not considered a REC in connection with the Property.

- West 17th Street and 10th Avenue is listed on the Brownfields database. The site is located to the adjacent west of Property building 4. In 2004 during a Phase I and II, contaminants of concern were identified associated with past uses of petroleum and historic fill. Soils and groundwater were identified to be contaminated with VOCs petroleum related and chlorinated solvents and SVOCs. The listings details the subsequent remediation as follows:

  "*A Track 4 cleanup was achieved for the site. Engineering and Institutional Controls have been instituted to manage the residual contamination. These controls have been memorialized in the Environmental Easement that has been recorded in the New York County Clerk's office. The Certificate of Completion was issued on October 6, 2008.*

  Public water is provided to the area, thereby preventing exposures to groundwater. The remedial action work plan for the site calls for the removal of contaminated soil from the site prior to construction of a residential building on-site. Soil gas is contaminated by chlorinated solvents that are likely due to an off-site source. The site owner will include measures in the building construction to prevent soil vapor migration into the building."

  Given the above, a vapor encroachment condition to the Property cannot be ruled out.

Surrounding Area Findings

The following is a discussion of non-adjoining sites identified as located within the ASTM specified search distance surrounding the Subject Property. In order to keep this discussion informative and concise, discussion(s) is/are provided of the listed site(s) for each database category that appears most likely to impact the Subject Property based on distance, area topography and/or regulatory status. Listings of sites within the applicable search distances not specifically discussed below were reviewed and concluded not to be RECs in connection with the Subject Property or VECs based on various factors including distance, area topography, known or inferred groundwater flow direction and/or regulatory status.

Federal NPL				**# of sites:**	1	**Search Distance:**	1-mile
Notable Listing:	Hudson River PCBs						
Distance in feet:	850	**Direction:**	WNW	**Gradient:**	Down		
Data Discussion:	Given the location and nature of the NPL case – PCBs in the Hudson River sediment, the listing is not considered a REC to the Property.						
REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.						
VEC Discussion:	Based on the available data, a VEC is not suspected.						

Federal Delisted NPL				**# of sites:**	0	**Search Distance:**	1-mile
Notable Listing:	None						
Distance in feet:		**Direction:**		**Gradient:**			
Data Discussion:							
REC Discussion:							
VEC Discussion:							

Federal SEMS				**# of sites:**	1	**Search Distance:**	½-mile
Notable Listing:	Hudson River PCBs						
Distance in feet:	850	**Direction:**	WNW	**Gradient:**	Down		
Data Discussion:	Given the location and nature of the SEMS case (also listed on the NPL database) – PCBs in the Hudson River sediment, the listing is not considered a REC to the Property.						
REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.						
VEC Discussion:	Based on the available data, a VEC is not suspected.						

Federal SEMS-ARCHIVE				**# of sites:**	2	**Search Distance:**	½-mile
Notable Listing:	Federal Building / 252 7th Avenue						
Distance in feet:	2,216	**Direction:**	E	**Gradient:**	Up/Cross		
Data Discussion:	Given the distance the SEMS-ARCHIVE sites are not considered a REC in connection with the Property.						
REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.						
VEC Discussion:	Based on the available data, a VEC is not suspected.						

Federal CORRACTS				**# of sites:**	0	**Search Distance:**	1-mile
Notable Listing:	None						
Distance in feet:		**Direction:**		**Gradient:**			
Data Discussion:							
REC Discussion:							
VEC Discussion:							

Federal RCRA-TSD				**# of sites:**	0	**Search Distance:**	½-mile
Notable Listing:	None						
Distance in feet:		**Direction:**		**Gradient:**			
Data Discussion:							
REC Discussion:							
VEC Discussion:							

State/Tribal SUPERFUND & HAZARDOUS WASTE	**# of sites:**	7	**Search Distance:**	1-mile

Notable Listing:	Bayview Correctional Facility / 550 West 20th Street				
Distance in feet:	987	**Direction:**	NW	**Gradient:**	Down
Data Discussion:	Given the distance, gradient and/or regulatory status the SHWS listing are not considered a REC in connection with the Property.				
REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.				
VEC Discussion:	Based on the available data, a VEC is not suspected.				

State/Tribal LANDFILL/SOLID WASTE DISPOSAL		**# of sites:**	1	**Search Distance:**	½-mile
Notable Listing:	NYCDOS Ganesvoort MTS (near 14th Street)				
Distance in feet:	1,718	**Direction:**	SSW	**Gradient:**	Down
Data Discussion:	Given the distance and downgradient location, the NYCDOS transfer station is not considered a REC in connection with the Property.				
REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.				
VEC Discussion:	Based on the available data, a VEC is not suspected.				

State/Tribal LEAKING STORAGE TANKS		**# of sites:**	132	**Search Distance:**	½-mile
Notable Listing:	Auto Care West / 464 West 18th Street				
Distance in feet:	145	**Direction:**	W	**Gradient:**	Down
Data Discussion:	Given the distance, gradient and/or regulatory status, the LTANKS listings are not considered a REC in connection with the Property.				
REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.				
VEC Discussion:	Based on the available data, a VEC is not suspected.				

State/Tribal VOLUNTARY CLEANUP SITES		**# of sites:**	20	**Search Distance:**	½-mile
Notable Listing:	118 10th Avenue / Hudson Yards-Chelsea-Flatiron Union Square				
Distance in feet:	209	**Direction:**	NW	**Gradient:**	Down
Data Discussion:	Given the nature of the listings and/or distance/gradient the VCP sites are not considered a REC in connection with the Property.				
REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.				
VEC Discussion:	Based on the available data, a VEC is not suspected.				

State/Tribal BROWNFIELD SITES		**# of sites:**	11	**Search Distance:**	½-mile
Notable Listing:	515 West 18th Street				
Distance in feet:	575	**Direction:**	W	**Gradient:**	Down
Data Discussion:	Given the distance and gradient, the Brownfields listings are not considered a REC in connection with the Property.				
REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.				
VEC Discussion:	Based on the available data, a VEC is not suspected.				

UNMAPPED/ORPHAN LIST SITES	
	Hillmann has also reviewed a list of unmapped sites (a.k.a. "Orphan List" sites) indicated by the database report. Unmapped sites that were identified as falling within an applicable specific search distance or warranting discussion have either been discussed in the preceding tables or are detailed below:

Notable Listings:	None

Additional Environmental Record Sources

Requests have been submitted to local, municipal and state agencies for pertinent records pertaining to the Subject Property, particularly with regard to potential environmental concerns such as petroleum storage tanks, storage and usage of hazardous substances and petroleum products, and/or known or suspected environmental contamination. Where applicable, internet research of government environmental regulatory databases was also conducted, as well as a general cursory internet search of the Subject Property address, for information indicative of a REC. The following table summarizes the findings of the research:

Source	Type of Request	Outcome
NYCFD-Public Records Unit / Tank Section	FOI request	No response was received prior to report issuance.
NYS DEC	FOI request	A response was received stating that no records were found.
NYCDEP	FOI request	No response was received prior to report issuance.
NY DOB	Online search	Records corroborating historic filling station within the Property identified.
USEPA	Online search	No records indicative of a REC identified.
Internet	Online Search	No records indicative of a REC identified.

Pertinent records referenced in the above table have been included in Appendix F.

4.2 Historical Research

Historical records have been compiled and analyzed for historical property information and developing a history of previous uses of the Subject Property, adjoining properties and surrounding area. These records were reviewed for the purpose of identifying the likelihood of past uses having led to RECs in connection with the Subject Property.

The historical record sources listed below have been sought with the objective to document past uses of the Subject Property from the present back to the Subject Property's first developed use, or back to 1940, whichever is earlier. The term "developed use" includes agricultural use, placement of fill dirt and other uses that do not involve structures. Hillmann has sought to review historical records in minimum intervals of five years.

Fire Insurance Maps

A Certified Sanborn Map Report was obtained from EDR for a review of published historic fire insurance maps for the Subject Property and surrounding area. The following is a summary of site uses and notable details depicted by the available maps:

430 West 17th Street (Block 714, Lot 31)

Year(s)	Prop/Adj	Depicted Use(s)	Notable Details
1895, 1904, 1919, 1921, 1928	**Property:**	Multiple multi-story dwellings and commercial occupants including of potential environmental concern.	Vinegar Factory (1895); Chinese Laundry (101 9th Avenue – 1904); 165-car garage with auto repair operation in basement and 1,500-gallon gasoline UST in basement (415-425 West 16th Street – 1921-1950); Iron works (1921).
	Adjoining:	National Biscuit Company factory/warehouse noted to the south.	
1950	**Property:**	Dwellings have been cleared and replaced with a filling station and a taxi garage.	Taxi garage and filling station each with multiple gasoline tanks along West 16th Street, 9th Avenue and West 17th Street (1950).
	Adjoining:	Warehouse to the south, residential and commercial in other directions.	Auto repair and freight terminal to the west.
1969, 1975, 1979, 1980, 1983, 1985, 1987, 1988, 1991-1996, 2001-2005	**Property:**	Four Property buildings corresponding to the present configuration are depicted.	
	Adjoining:	Manhattan Industrial Center to the south, residential and commercial in other directions.	

427 West 17th Street (Block 715, Lot 10)

Year(s)	Prop/Adj	Depicted Use(s)	Notable Details
1895, 1904, 1919, 1921, 1928	**Property:**	Multiple multi-story dwellings and commercial occupants including of potential environmental concern.	Chinese Laundry (119 9th Avenue in 1904)
	Adjoining:	Consolidated Gas Company Gas Holders to the west; residential and commercial in other directions. In	Gas holding silos depicted to the west (1895-1904);
1950	**Property:**	An auto service and filling station with three gasoline tanks with multiple gasoline tanks is noted at 109 9th Avenue. Auto painting and repair are noted along West 17th. A cheese dealer, lumber yard and waste paper are depicted in addition to multiple mixed-use store/dwelling buildings.	Auto painting, repair and filling with multiple gasoline tanks.
	Adjoining:	Garage with gasoline tanks noted to the adjacent west.	Gasoline tanks depicted to the adjacent west.
1969, 1975, 1979, 1980, 1983, 1985, 1987, 1988, 1991-1996, 2001-2005	**Property:**	Three Property buildings corresponding to the present configuration are depicted. The apartment complex is listed as "Fulton Houses Apartments" with 944 units and parking.	
	Adjoining:	Beginning in 2002 the western adjacent building is listed as a Verizon site.	

401 West 18th Street (Block 716, Lot 17)

Year(s)	Prop/Adj	Depicted Use(s)	Notable Details
1895, 1904, 1919, 1921, 1928	**Property:**	Multiple multi-story dwellings and commercial occupants including a pharmacy and bakery.	
	Adjoining:	Residential/commercial buildings.	
1950	**Property:**	Motor freight terminal noted at 410-412 West 19th Street.	Motor freight terminal

Year(s)	Prop/Adj	Depicted Use(s)	Notable Details
	Adjoining:	Auto body shop noted to the adjacent west.	
1969, 1975, 1979, 1980, 1983, 1985, 1987, 1988, 1991-1996, 2001-2005	**Property:**	Three Property buildings corresponding to the present configuration are depicted.	
	Adjoining:	No significant changes noted.	

401 West 19th Street (Block 717, Lot 19)

Year(s)	Prop/Adj	Depicted Use(s)	Notable Details
1895, 1904, 1919, 1921, 1928	**Property:**	Multiple multi-story dwellings and a convent.	
	Adjoining:	Residential/commercial buildings.	
1950	**Property:**	The dwellings are not listed as mixed-use (store/dwelling) buildings.	
	Adjoining:	Primarily mixed-use buildings.	
1969, 1975, 1979, 1980, 1983, 1985, 1987, 1988, 1991-1996, 2001-2005	**Property:**	One Property building corresponding to the present configuration is depicted.	
	Adjoining:	No significant changes noted.	

A copy of the Certified Sanborn Map Report is attached in Appendix D.

City Directories

An EDR City Directory Abstract report was reviewed for data of former occupants of the Subject Property's street address. The following is a generalized summary of the findings of city directory research for past occupants of the Subject Property.

Property	
Use(s) / Occupant(s):	**Years**
Residential and mixed-use listings	1920-2017
403 West 18th Street – Cleveland Automotive Prod Co, Unit Auto Parts Co	1950
424 West 18th Street – Drayer scrap metal, Dry Lee Plastic Co Inc.	1956-1958

The EDR City Directory Abstract report was also reviewed for listings of historic occupants of the adjoining properties. The following is a general summary of listings of historic adjoining property occupants:

Adjoining Properties	
Use and/or Occupant(s)	**Years**
Mix of residential and commercial occupants.	1920-2017

A copy of the EDR City Directory report is attached in Appendix D.

Historical Topographic Maps

Due to the availability of alternate historic sources, as well as the likelihood that this source would not provide any significant data, historical aerial photographs were not researched for this assessment.

Historical Aerial Photographs

Due to the availability of alternate historic sources, as well as the likelihood that this source would not provide any significant data, historical aerial photographs were not researched for this assessment.

EDR High-Risk Historical Records

The EDR Radius Map™ report, which is discussed in greater detail in Section 4.1 and attached in Appendix E, provided a search of proprietary databases of potential historical high-risk uses at or in the vicinity of the Subject Property. These databases include EDR Historic Cleaners – a database of property addresses with records of historical occupancy by suspected cleaners businesses; EDR Historic Auto – a database of property addresses with records of historical occupancy by potential automotive gas/filling stations and repair facilities; and EDR MGP- a database of sites historically occupied by manufactured gas plants and related facilities.

EDR Database	On-site Listings:	Adjoining/Off-Site Listings
Historic Cleaners: (on-site/adjoining only)	None	322 Franklin Street, Indigo Cleaners and Dyers, listed for the years 1957 to 1972
Historic Auto: (on-site/adjoining only)	None	None
MGP: (1-mile distance)	None	ConEdison-West 58th St. Station MGP 11th Ave Between W. 58th – W. 59th Sts, was incorrectly plotted by EDR, and is actually located over a mile to the west-northwest.

Petroleum/Natural Gas Well Review

The historical record sources were reviewed for records of historic petroleum and/or natural gas wells at the Subject Property. No record of any historical petroleum/natural gas wells at or adjoining the Property was identified.

Additional Historical Data

Where applicable, the following additional pertinent historical data was obtained:

Interviews/Anecdotal:	No additional pertinent historical data was obtained.
Local Gov't Records:	The following additional pertinent historical data was obtained: NYC DOB records corroborate Sanborn depictions of gasoline tanks/fillings stations historically within the Property.

Prior Env. Reports: (Section 3.2)	Not applicable; no prior reports were provided.
Site Observations:	Indications of historic uses of the Property or adjoining properties were not observed during the site reconnaissance.
Other Sources:	No additional pertinent historical data was obtained.

Summary of Identified Historic Uses

The following table presents a summary of the types and approximate date ranges of identified prior uses of the Subject Property:

Property	
Date Range	**Use**
Late 1800's to 1963	Residential and auto repair / fillings station among other commercial uses.
1963-Present	Fulton apartment buildings

The following table presents a summary of the types of identified prior uses of the adjoining properties:

Adjoining Properties	
Date Range	**Use**
Unk to Present	Residential, commercial and auto repair, industrial warehouses (south), Chelsea Market (south)

Historical Records Data Failure

The ASTM E1527-21 standard defines data failure as failure to achieve the historical research objective even after reviewing the standard historical sources that are reasonably ascertainable and likely to be useful. The objective is to identify all obvious uses of the property from the present, back to the property's first developed use, or back to 1940, whichever is earlier. Furthermore, records of historic use/conditions were sought in intervals no less than approximately five years, unless the property conditions appear unchanged over a longer interval. In encountered, data failure and its significance as a data gap is discussed below:

Objective	Met?	Detail	Significant?
First developed use/date determined?	Yes	The first developed use of the Property was for dwellings in the late 1800's.	No
Record sources at 5-year intervals back to 1940 or first developed use?	Yes	Historical record gaps exceeding five years were encountered. However, significant site-use changes or undiscovered site uses appear unlikely to have occurred during the record gaps.	No
All obvious prior uses identified?	Yes	See Summary of Identified Past Uses of this section.	No

Please refer to Section 2.3 for additional discussion of data gaps and their significance to the findings of the assessment.

Historic Uses REC Discussion

The review of historical records indicated evidence of the following potential RECs in connection with the Property:

Multiple historic uses of potential environmental concern, based on a review of Sanborn Fire Insurance Maps, occurred at the Property prior to the construction of the present Property buildings in the 1960's as follows:

- Vinegar Factory at 424-426 West 17th Street (off the east side of the present Property Building 4) in 1895;
- "Chinese Laundry" at 101 and 119 9th Avenue (near present Property Buildings 2 and 7) in 1904;
- 165-car garage with auto-repair operations in the basement and a 1,500-gallon gasoline buried tank (in the vicinity of the present asphalt surface parking south of Building 2) and a 15-car private garage with a buried gasoline tank (capacity indecipherable) at 409 West 17th Avenue (off the west side of the present Property Building 7), and iron works 434-436 West 17th Avenue and 414 19th Avenue in 1921;
- Filling station (gas station), taxi garage and auto repair with multiple gasoline tanks depicted along ninth avenue between West 16th and West 17th Avenue and along West 16th and West 17th Avenue (see Appendix A figure), and an additional auto filling/service station with multiple gasoline tanks depicted at the northwest corner of 9th Avenue and West 17th Street (near the southern edge of the present Building 7) and auto painting (431-433 West 17th) and repair (443-445 West 17th), a motor freight terminal (410-412 West 19th) in 1950.

The aforementioned historic uses including a factory, laundry, iron works, motor freight station, auto filling/service stations with multiple gasoline tanks is considered a REC.

5.0 INTERVIEWS

5.1 Interviews with Owners, Operators and Occupants

Current Owner / Key Site Operator

Property Owner	Contact Name	Affiliation	Interview Type
New York City Housing Authority (NYCHA) representative	Patrick Chan	Property Manager with NYCHA	In person
Interview Date:	April 19, 2022		
Interview Outcome/Findings:			
An interview for information pertinent to the assessment was conducted in person at the time of the site visit. The following pertinent information was indicated: The Property was reportedly always supplied with high pressure steam and no heating oil is or was present to Mr. Chan's knowledge.			

Prior Owners/Operators/Occupants

Name	Company/Title	Yrs @ Site	Interview Type
Interview Date:			
Interview Outcome/Findings:			
No prior owners, operators or occupants were interviewed.			

Neighboring Property Owner/Occupants

Name	Company/Title	Yrs at site	Interview Type
Interview Date:			
Interview Outcome/Findings:			
The Property was not an abandoned property with evidence of unauthorized uses or uncontrolled access; therefore, interviews with adjoining or nearby property owners or occupants were not conducted.			

5.2 Interviews with State and/or Local Government Officials

State and/or local governmental officials have been interviewed to obtain information of potential RECs in connection with the Subject Property. Many government agencies and their officials require submittal of written request for records in order to respond. The details in Section 4.1 list the various state and local government agencies contacted as part of this assessment, and the outcome of each inquiry. In addition, the details of regulatory database research in Section 4.1 may

have included detail of interviews with officials pertinent to government records review and identification of RECs.

Additional interview of government officials not previously detailed in Sections 4.1 are discussed below, if applicable.

Name	**Agency Name/Title**	**Interview Type**
Interview Outcome/Findings:		
No additional local/state government officials were interviewed.		

6.0 SITE RECONNAISSANCE

6.1 Methodology and Limiting Conditions

A site reconnaissance was conducted to collect information and make observations to help identify RECs in connection with the Subject Property. This included visual and/or physical observations of the Subject Property and its structures, adjoining properties as viewed from the Subject Property boundaries and the surrounding area based on visual observations from adjoining public thoroughfares and accessed Subject Property structures. Subject property building exteriors were observed at ground level, unless otherwise indicated. Where applicable, building interiors were accessed and observed to the extent they were made safely accessible with the cooperation of the site escort.

Site Inspection Personnel:	Mr. Etan Hindin and Mr. Dominick Aponte
Property Escort/Company:	Rico / Property Caretaker
Inspection Date:	April 19, 2022
Weather Conditions:	Overcast 45 degrees Fahrenheit

Significant Inaccessible Areas

Due to the pandemic occupied units were inaccessible. The inability to access these units is not considered a Significant Data Gap.

Significant Limiting Site Conditions

No significant limiting site conditions were noted at the time of the site reconnaissance.

6.2 General Site Setting

Site and Vicinity Characteristics

Abutting Roadways:	9th Avenue to the east; West 16th Street to the south; West 17th, 18th and 19th divide the Property parcels.
Current Property Use:	Multifamily residential
Evidence of Past Property Uses:	None observed.
Evidence of Past Adjoining Property Uses:	None observed.
Surrounding Area Uses:	Commercial, residential

Current Adjoining Property Uses

Dir	Street Address	Description
N	Multiple West 20th addresses	Primarily residential
W	Multiple West 16th-20th addresses	Residential and commercial
E	Multiple 9th Avenue addresses	Commercial and residential
S	75 9th Avenue	Commercial

No visual observations indicative of a potential environmental concern were noted on the adjoining properties.

Topographic Characteristics

Terrain:	Flat to gently sloping
Direction of Downward Slope:	Towards the northwest
On-site Water Bodies:	None observed
Other Significant Features:	None observed

General Description of Structures and Improvements

Buildings:	Twelve
Approx. Building Size:	974-units (combined)
Approx. Year Built:	1963-1965
Number of Stories:	B12 – 1; B2, B6, B9 – 25-story plus basement; B1, B3 6-story plus basement; B4, B5, B7, B8, B10, B11 – 6-story
Basement/Subgrade Levels:	See above
Exterior Ground Cover:	Asphalt, cement and landscaped areas,
Ancillary Structures:	B12 as noted above
Sources of Heating & Cooling:	High pressure steam supplied by Con Edison for heat and tenant-owned optional electric window units for cooling.
Potable Water/Sewage Disposal:	Municipal utility connections

6.3 Site Features and Conditions

Storage/Usage of Hazardous Substances and Petroleum Products

The following approximate number of containers, and general description of their contents, capacity, container types and storage conditions, were observed to be stored and/or used at the Subject Property:

Occupant	Substance	Qty/Container Type	Storage Conditions
NYCHA	Maintenance and cleaning materials (including paint)	1-30-gallon	All stored indoors on intact concrete. No storage concerns noted. Paint storage within western side of B4.

Bulk Petroleum/Hazardous Material Storage Tanks

The following storage tanks for bulk petroleum or hazardous material storage were identified or reported to be present; or are suspected to be present based on visual observations:

AST/UST	Product	Capacity	Construction	Year Installed	Status	Location/Notes
None observed						

One UST noted to have been removed from the Property, specifically, 401-411 West 18th Street (Building 8) is listed on the UST database for a 1,500-gallon UST removed on June 5, 2017.

While no visual evidence of a UST was noted, considering the history of development, the potential presence of abandoned USTs and/or associated buried piping at the Subject Property cannot be ruled out.

Strong, Pungent or Noxious Odors and their Sources

No strong, pungent or noxious odors were noted at the Subject Property.

Standing Surface Water/Pools & Sumps

No standing water, pools or sumps containing liquids likely to be hazardous substances or petroleum products were noted.

Drums, Totes and Intermediate Bulk Containers

No hazardous substance or petroleum product drums were noted.

Unidentified Substance Containers

No unidentified substance containers suspected of containing hazardous substance or petroleum product were noted.

PCBs in Oil Filled Electrical/Hydraulic Equipment

No oil-filled electrical or hydraulic equipment was identified at the Subject Property.

It is noted that identification of PCB containing fluorescent light ballasts, caulk, paint, or other materials located inside and are part of the building or structure is outside of the scope of the ASTM

E1527-21 standard and this assessment.

Stains or Corrosion on Floors, Walls or Ceilings

No stains or corrosion of floors, walls or ceilings, excluding any staining from water, were noted.

Drains and Sumps

Floor drains and a basement sump designed for the purpose of managing sanitary sewage were noted. No conditions indicative of a REC were observed.

Pits/Ponds/Lagoons

No pits, ponds or lagoons were identified in connection with waste treatment or disposal.

Stained Soil, Pavement/Stressed Vegetation

No stained soil, pavement or stressed vegetation was observed.

On-Site Solid Waste Disposal/Fill Material

No evidence of on-site disposal of trash, construction debris, demolition debris or other solid waste was observed.

Based on the history of previous site development, historical fill material may be present in the subsurface at areas of previous site grading or building structures.

Waste Water

Sanitary sewage generated at the Subject Property is discharged via a connection to the local public sewer system.

Storm water runoff at the Subject Property is discharged via roof drains into the municipal sewer system.

Septic Systems/Cesspools

No septic systems/cesspools identified.

Wells

The following wells were identified at the Subject Property:

Two (2) groundwater monitoring wells were observed within the Property north of B12 (two-bay Property garage) and northwest of B4 on the south side of West 18th and West 17th Streets respectively. The trigger for the installation of these wells and their use for sampling/monitoring, if any, was unknown by the site escort/contact.

Railroad Spurs

No railroad spurs were identified on the Subject Property.

7.0 BUSINESS ENVIRONMENTAL RISKS

In accordance with the contract agreement for this assessment, Hillmann has performed cursory reviews of several potential Business Environmental Risks (also known as "Non-Scope Considerations"). The ASTM E1527-21 standard defines the term business environmental risk (BER) as, *"a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice."*

7.1 Asbestos-Containing Material (ACM)

The contracted scope of work included a cursory visual screening of the accessed portions of buildings at the Subject Property built prior to 1990 for suspect asbestos containing materials (ACM). The information provided in this section, where applicable, is limited to identification of potential suspect materials in the readily accessible and observed areas of the building, and their general condition. This is not intended to be a comprehensive survey for the presence of ACM, and no testing has been conducted.

Given the 1963-1965 years of construction, asbestos containing materials are suspected unless ruled out by laboratory analysis.

Suspected ACM noted within the accessed building areas included floor tile, wall-board, spray-of insulation and roofing materials.

7.2 Lead-Based Paint

The contracted scope of work included a cursory visual screening of the condition of painted surfaces in the accessed areas of residential buildings/units built prior to 1980. This is not intended to constitute a comprehensive survey for LBP or potential lead hazards, and no testing has been conducted.

Given the 1963-1965 years of construction, lead-paint is suspected unless ruled out by field survey or laboratory analysis.

Lead sampling was reportedly being performed due to the December 21, 2021 modification to the legal lead-based paint standard to 0.5 mg/cm^2 (Local Law 66 and rules adopted by the Department of Housing Preservation and Development [HPD]) The results of the survey have been requested by Hillmann.

7.3 Radon

Data compiled by the USEPA, as summarized by the regulatory database report, indicated that the Subject Property is located in an area classified as Zone 3 or 'low risk' area for radon. Radon testing was not included in the scope of this assessment.

7.4 Mold/Microbial Damage

The contracted scope of work included a cursory visual screening of the accessed areas of the building for evidence of significant damage to building materials and finishes as result of moisture intrusion and/or mold/microbial growth.

The following evidence of significant moisture intrusion or mold/microbial growth was noted:

The basement of Building 1 was observed to have standing water on the concrete surface with some discoloration. Intermittent pipe and roof leaks were reportedly common given the age of the building. Mold abatement, primarily removing water damaged wall-board is reportedly performed by NYCHA staff as needed.

7.5 NWI Mapped Wetlands

The National Wetlands Inventory online Wetland Mapper (https://www.fws.gov/wetlands/data/mapper.html) was reviewed for indications of jurisdictional wetlands at or immediately adjoining the Subject Property. The scope of work for this assessment excluded a visual determination of regulated wetlands at the Subject Property. It is emphasized that, regardless of the data reviewed via the NWI Wetlands Mapper, a field delineation of regulated wetlands by a qualified professional would be warranted to determine the presence or absence of regulated wetlands at the Subject Property.

The review did not indicate regulated wetland areas on the Property.

7.6 Lead in Drinking Water

The scope of work for this assessment included a review of the potential for elevated levels of lead in drinking water by determining the source of the drinking water supply and a review of available compliance or testing data.

Potable water service at the Property is provided by a utility connection with the City of New York. A recently published water quality report from the utility indicated compliance with USEPA water quality standards for lead in drinking water. A copy of the report has been attached in Appendix F. Note – no site-specific lead-in-water sampling was performed within the context of the Phase I.

8.0 REFERENCES

ASTM E1527-21-Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process; ASTM International, 2021

ASTM E12600-15-Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transaction, ASTM International, 2015

EDR Radius Map Report, and historical record reports discussed in Section 4, Environmental Data Resources

Methodology for Identifying the Area of Concern Around a Property Potentially Impacted by Vapor Migration from Nearby Contaminated Sources; A. Buonicore, 2011

9.0 APPENDICES

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HILLMANN
CONSULTING

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Chelsea-Elliott
264 & 278 10th Avenue, 427 & 441 West 26th Street, 407 West 25th Street
New York, New York 10001

Prepared For:

Elliott Fulton LLC c/o Essence Development
30 Hudson Yards
New York, NY 10001

Report Issuance Date: May 6, 2022
Site Reconnaissance Date: April 19, 2022

Hillmann Project Number Z34898

May 6, 2022

Mr. Jamar Adams
Elliott Fulton LLC c/o Essence Development
30 Hudson Yards
New York, NY 10001

RE: Phase I Environmental Site Assessment
Chelsea-Elliott
264 & 278 10th Avenue, 427 & 441 West 26th Street, 407 West 25th Street
New York, New York 10001
Hillmann Project No: Z34898

Dear Mr. Adams:

Hillmann Consulting LLC has completed a Phase I Environmental Site Assessment of the above referenced property. This assessment was performed in conformance with our contract agreement and the scope and limitations of ASTM Practice E 1527-21, which is the latest version of the E1527 standard published by the ASTM.

We appreciate the opportunity to provide environmental due diligence services. If you have any questions concerning this report, or if we can assist you in any other matter, please contact our office at 908-688-7800.

Sincerely,

Hillmann Consulting, LLC

Chris Hirschmann
Environmental Services Director

Etan Hindin
Senior Project Manager

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List of Abbreviations/Acronyms

Hillmann may use the following abbreviations and acronyms for common terminology described in our report. Not all abbreviations or acronyms may be applicable to this report:

ACM	– Asbestos Containing Material
AOC	– Area of Concern
AST	– Aboveground Storage Tank
ASTM	– American Society for Testing Materials
BER	– Business Environmental Risk
CEA	– Classification Exception Area
CERCLA	– Comprehensive Environmental Response Compensation and Liability Act
CERCLIS	– Comprehensive Environmental Response Compensation and Liability Information System
CESQG	– Conditionally Exempt Small Quantity Generator
COC	– Chemicals of Concern
CORRACTS	– Corrective Action Sites
CREC	– Controlled Recognized Environmental Condition
DEC	– Department of Environmental Conservation
DEP	– Department of Environmental Protection
DHS	– Department of Health Services
DNPL	– Delisted National Priority List
DOB	– Department of Buildings
DOH	– Department of Health
DOT	– Department of Transportation
DTSC	– Department of Toxic Substances Control
ENG	– Engineering
EPA	– Environmental Protection Agency
ERNS	– Emergency Response Notification System
FD	– Fire Department
FOI/FOIA/FOIL	– Freedom of Information / Freedom of Information Act / Freedom of Information Letter
HVAC	– Heating Ventilation & Air Conditioning
HREC	– Historic Recognized Environmental Condition
IAQ	– Indoor Air Quality
ISRA	– Industrial Site Recovery Act
LBP	– Lead-Based Paint
LCP	– Lead-Containing Paint
LQG	– Large Quantity Generator
LTANK	– Leaking Storage Tank
LUST	– Leaking Underground Storage Tank
SDS/MSDS	– Safety Data Sheet / Material Safety Data Sheet
NA	– Not Applicable
NFA	– No Further Action
NFRAP	– No Further Remedial Actions Planned
NPDES	– National Pollutant Discharge Elimination System
NPL	– National Priority List
OER	– Office of Environmental Remediation
OPRA	– Open Public Records Act
PAH	– Polycyclic Aromatic Hydrocarbon
PCE	– Perchloroethylene
RAO	– Response Action Outcome
RCRA	– Resource Conservation and Recovery Act
RCRIS	– Resource Conservation and Recovery Information System
REC	– Recognized Environmental Condition
RWQCB	– Regional Water Quality Control Board
SCAQMD	– South Coast Air Quality Management District
SDG	– Significant Data Gap
SEMS	– Superfund Enterprise Management System
SRP	– Site Remediation Program
SQG	– Small Quantity Generator
SVOC	– Semi-Volatile Organic Compound
TCE	– Trichloroethylene
TSDF	– Treatment Storage and/or Disposal Facility
UST	– Underground Storage Tank
VEC	– Vapor Encroachment Condition
VOC	– Volatile Organic Compound

1.0 FINDINGS, OPINIONS, AND CONCLUSIONS

Hillmann Consulting, LLC (Hillmann) performed a Phase I Environmental Site Assessment (ESA) of 264 & 278 10th Avenue, 427 & 441 West 26th Street, 407 West 25th Street, New York, New York (the Subject Property). The assessment has been conducted in accordance with our contracted scope of work and the ASTM Standard Practice E 1527-21 for Phase I Environmental Site Assessments and All Appropriate Inquiries (AAI) Final Rule 40 CFR Part 312. This section contains a summary of findings, opinions and conclusions made by this assessment. However, this section, alone, does not constitute the complete assessment. The report must be read in its entirety.

1.1 Summary of Project Details

Primary Street Address:	264 & 278 10th Avenue, 427 & 441 West 26th Street, 407 West 25th Street				
City:	New York	**County:**	New York	**State:**	New York
Tax ID/Parcel Number:	278 10th Avenue: Block 724, Lot 1; 441W26th: Block 724, Lot 10; 427W26th: Block 724, Lot 15; 264 10th Avenue: Block 723, Lot 1; 407W25th: Block 723, Lot 15				
Property Owner:	New York City Housing Authority (NYCHA)				
Zoning Designation:	R8 (Residential)				
Approx. Property Area:	6.53-acres (combined)				
Buildings:	Seven residential apartment buildings and a daycare building: **Chelsea**: 407 West 25th Street parcel (Block 723, Lot 15) is comprised of two (2) 21-story plus basement apartment buildings. The eastern building is equipped with a two-bay maintenance garage on the east side and a waste management areas east of the building. **Chelsea Addition**: 441 West 26th Street parcel (Block 724, Lot 10) – one (1) 14-story plus basement apartment building (ground level day center). **Elliott**: three (3) parcels (Block 724, Lots 1 and 15 and Block 723, Lot 1), four (4) 11-story and 12-story plus basement apartment buildings and one freestanding daycare at the northeast corner of West 26th Street and 10th Avenue. NOTE: See Appendix A for building numbering/locations				
Approx. Building Size:	1,002-units (combined)				
Approx. Year Built:	1940-1968				

Commercial Occupants:	Primarily residential with a day-center, and management office plus a freestanding daycare
Current Use:	Multifamily residential and daycare
Inspected By:	Mr. Etan Hindin and Mr. Dominick Aponte
Site Contact/Company:	Mr. Patrick Chan / Property Manager (NYCHA)
Site Escort/Company:	Sidiya Harris / Site Caretaker (NYCHA)
Inspection Date:	April 19, 2022
Weather Conditions:	Overcast 42 degrees Fahrenheit

1.2 Findings Summary Table

Assessment Subject	No REC	REC	CREC	HREC	SDG	Rpt. Ref.
Property Regulatory Records Review:			X	X		4.3
Property Historical Records Review:		X				4.2
Bulk Petroleum Storage:	X					6.3
On-Site Operations:	X					6.3
On-Site Haz-Mat Storage/Use/Spills:	X					6.3
Transformers/Hydraulic Systems:	X					6.3
Waste Discharges:	X					6.3
Interviews:	X					5.0
Adjoining & Nearby Properties:	X					4.3 6.2
Prior Env. Reports/User Provided Info:	X					3.0

1.3 Findings, Opinions and Conclusions

Recognized Environmental Conditions & Significant Data Gaps

Hillmann has performed a Phase I Environmental Site Assessment in accordance with the scope and limitations of ASTM Practice E 1527-21 of the Subject Property as described in Section 2.2 of this report. Any additions to, exceptions to, or deletions from this practice are also described in Section 2 of this report. This assessment has revealed the following *recognized environmental conditions* (RECs), *controlled recognized environmental conditions* (CRECs) and/or *significant data gaps* (SDGs) in connection with the Subject Property:

RECOGNIZED ENVIRONMENTAL CONDITIONS

Multiple historic uses of potential environmental concern, based on a review of Sanborn Fire Insurance Maps, occurred at the Property prior to the construction of the present Property buildings in the 1940's-1960's, as follows:

- N.Y. Edison Co. Sub Station/transformer station (452 West 27th Street – 1911-1930);
- Machine Shop (429 West 26th Street 1911);
- Manufacturing (not specified) use (418-420 West 27th Street, 447-455 West 26th Street, 425-427 West 25th Street; 1911-1930);
- Garage with a 10,000-gallon buried tank (417-423 West 25th Street – 1930-1950);
- Printer-Lithographer operation with multiple tanks noted to the immediate east of the Property at the southwest corner of 9th Avenue and West 26th Street – 263 9th Avenue (1930-2005).

The aforementioned historic uses, including a transformer sub-station, machine shop, manufacturing, and garage with a UST, and a printer/lithographer immediately east of the Property, are considered a REC.

Hillmann recommends obtaining records of a subsurface investigation (if already performed) or performing a subsurface investigation to determine the presence/absence of impact to underlying environmental media from

aforementioned uses and the presence/absence of an abandoned underground storage tanks (USTs) in the area of the former garage (417-423 West 25th Street).

Hillmann notes that prior reports reviewed by Hillmann (See Section 3.1) detail investigations limited to the leaking USTs and not site-wide subsurface investigations.

CONTROLLED RECOGNIZED ENVIRONMENTAL CONDITIONS (CRECs)

Elliott-Houses-NYCHA, 426 West 27th Street is listed on the LTANKS database for Spill Number: 9602200 due to a tank test failure on May 15, 1996. The spill listed as consolidated with Spill Number: 8908401 is listed as having obtained regulatory closure on February 2, 2006. The remarks detail a discharge of #6-fuel oil, extensive remediation and monitoring and the installation of an oil recovery system detailed in Section 3.1 above. The database listing remarks state:

"20K TANK - EVERYTIME FILLED ACTIVE FLOW TAKES PLACE INTO BASEMENT THRU WALLS - ABSORBED WITH SPEEDY DRY AND TEMPORARILY TAKING TANK OUT OF SERVICE"

The database listing detail regarding the backdrop to the regulatory closure is as follows:

The PRS [Petroleum Recovery System] was operated between 1998 and 2014. Free product has not been observed in the accessible monitoring wells since 2007. Since halting the PRS in 2014, free product has not been observed in the accessible monitoring wells and little free product (less than 0.25in) has been observed in the recovery wells. No petroleum related VOCs or SVOCs (listed in Table 3 of CP-51) were detected in groundwater samples collected in April 2015 from the accessible monitoring wells. As per Randy in a discussion of January 20, 2017 if less than 0.25 inches of No. 6 oil has been in on-site wells for 2+ years and contamination has been delineated all around the impacted area and there is nothing off-site and no dissolved phase in wells, spills can be closed. The Closure Letter should contain the contaminated soil clause. Spill closure email will be prepared with contaminated soil clause and sent to NYCHA.

Given the closure with a "*soil clause"* the above is considered a CREC. Hillmann recommends obtaining the closure records from NYCHA to understand the nature of any closure conditions e.g., monitoring or administrative requirements or institutional/engineering controls.

If the onsite groundwater monitoring wells, petroleum recovery system and associated 275-gallon waste oil UST observed during the site reconnaissance are no longer in use these wells and equipment should be decommissioned in accordance with applicable regulations.

SIGNIFICANT DATA GAPS (SDGs)

No SDGs were identified.

Historical Recognized Environmental Conditions (HRECs)

This assessment has revealed the following *historical recognized environmental conditions* (HRECs) in connection with the Subject Property:

HISTORICAL RECOGNIZED ENVIRONMENTAL CONDITIONS

Chelsea Houses-NYCHA, 431 West 25th Street is listed on the LTANKS, NY SPILLS and UST databases. The LTANKS listings is for Spill Number: 9806339 due to a tank test failure on August 21, 1998. The spill is listed as having obtained regulatory closure on August 27, 2013. The listing details the removal of a 30,000-gallon #2 fuel oil UST with six post excavation samples leading to the removal of 900-tons of soil. Exceedances included Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Chrysene, Dibenzo(a,h)anthracene.

The listing details the backdrop to regulatory closure as follows:

"*30,000 gallon UST removed in 8/2000. -890 tons of contaminated soils removed in 2000 -investigation done in 2006 along fill lines and by fill port (DEC request) -some PAHs detected in grab groundwater sample in 2006 -5 permanent wells installed in 2010 -All gw under TOGS with the exception of MW-5 (3 minor VOC compound exceedences) -Slight sheen subsequently detected in MW-5. Absorbent sock placed in well. -Minor impacts on sock in 2012. -No oil detect on absorbent sock in 2013. -Confirmed no product sheen in well during site visit of 7/31/13. NFA. Email sent to NYCHA on 8/27/13 requesting wells be decommissioned*."

Hillmann recommends obtaining the closure letter. If it is determined that any conditions are linked to the No Further Action (other than decommissioning the wells), the case would be re-classified as a CREC, however available database listing detail does not list and conditions.

Additionally, Hillmann observed multiple monitoring wells in the vicinity of the former 30,000-gallon UST. Hillmann recommends decommissioning the wells if no ongoing monitoring requirements apply.

De Minimis and Other Environmental Conditions

The following *de minimis* and other environmental conditions were identified:

OTHER ENVIRONMENTAL CONDITIONS / DE MINIMIS CONDITIONS
The Property is equipped with two (2) 25,000-gallon #2 fuel oil USTs. Hillmann recommends continued maintenance and permitting and obtaining most recent maintenance record logs from NYCHA.
Multiple NY SPILLS listings were identified associated with Property addresses. Given their regulatory closure and the nature/quantity of the spills (contained with not impact to soil/groundwater), they are not considered a REC.
Multiple Property and adjacent Con-Edison listings (MANIFEST, RCRA-NonGen, FINDS, ECHO) were identified. The listings are associated with infrastructure work generating regulated waste. The listings are not indicative of a release and not considered a REC in connection with the Property.
Multiple adjacent sites are listed on the NY SPILLS and LTANKS databases. Each of the adjacent listings obtained regulatory closure and are not considered a REC in connection with the Property.
500 West 25th Street, listed on the VCP database for OER Site Number: 17CVCP047M associated with redevelopment and investigations/remediation associated with historic use obtained a notice of completion dated November 9, 2020. Given the status and findings of the investigations, the southwestern adjacent VCP site is not considered a REC in connection with the Property. Records were reviewed via the NYC EPIC Online Document Repository.

Environmental Professional Statement

I/We declare that, to the best of my professional knowledge and belief, I/we meet the definition of *Environmental professional* as defined in § 312.10 of 40 C.F.R. 312. I/we have the specific qualifications based on education, training and experience to assess a *property* of the nature, history and setting of the *subject property*. I/We have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 C.F.R. Part 312.

Etan Hindin
Environmental Professional

Chris Hirschmann
Environmental Professional

1.4 Business Environmental Risks / Non-ASTM Scope

Hillmann has performed a limited review of the following potential Business Environmental Risks (BER), also known as "Non-ASTM Scope concerns", in accordance with the contracted scope of work scope for this assessment. BER is defined by ASTM E1527-21 as *"a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice."* The following is a summary of findings for the limited review of potential BERs, where applicable, as per the contracted scope of work and limitations outlined in Section 2. For a more detailed discussion of the findings and contracted scope of work, please see the referenced report section.

BUSINESS ENVIRONMENTAL RISKS / NON-ASTM SCOPE			
Subject	**Findings**	**Not Appl.**	**Rpt. Ref.**
Asbestos	Given the 1940-1968 years of construction, asbestos containing materials are suspected unless ruled out by laboratory analysis. Suspected ACM noted within the accessed building areas included floor tile, wall-board, spray-on insulation and roofing materials.		7.1
Lead Paint	Given the 1940-1968 years of construction, lead-paint is suspected unless ruled out by field survey or laboratory analysis. Lead sampling was reportedly being performed due to the December 21, 2021 modification to the legal lead-based paint standard to 0.5 mg/cm^2 (Local Law 66 and rules adopted by the Department of Housing Preservation and Development [HPD]) The results of the survey have been requested by Hillmann.		7.2
Radon	The Property is located in the USEPA radon designation Zone 3 or 'low risk' area for radon.		7.3
Mold / Microbial Damage	The basement of Building Elliot-1 was observed to have standing water on the concrete surface. Intermittent pipe and roof leaks were reportedly common given the age of the building. Mold abatement, primarily removing water damaged wall-board is reportedly performed by NYCHA staff as needed.		7.4
NWI Wetlands	No NWI Wetlands were depicted within the Property.		7.5
Lead in Drinking Water	Potable water service at the Subject Property is provided by the City of New York. The water purveyor water supply is within acceptable standards. Property building specific lead-in-drinking water sampling was not performed.		7.6

2.0 INTRODUCTION

2.1 Purpose and Scope

This assessment was conducted utilizing generally accepted Phase I ESA industry standards in accordance with the ASTM Standard Practice E 1527-21. The ASTM describes these methodologies as representing good commercial and customary practice in the United States of America for conducting an environmental site assessment of a parcel of commercial real estate with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. § 9601) and petroleum products. As such, this practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner or bona fide prospective purchaser limitations on CERCLA liability (hereinafter, the "landowner liability protections," or "LLPs"): that is, the practice that constitutes all appropriate inquiries into the previous ownership and uses the property consistent with good commercial and customary practice as defined at 42 U.S.C. §9601(35) (B). The goal of the processes established by ASTM E1527-21 is to identify *recognized environmental conditions* in connection with the Subject Property.

The term *recognized environmental condition* (REC) is defined by ASTM E1527-21 as *"(1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment."*

The term *controlled recognized environmental condition* is a type of recognized environmental condition and defined by ASTM E1527-21 as a *"recognized environmental condition affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations or other property use limitations)."*

The term *historical recognized environmental condition* is defined as a *"previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations)."* The ASTM E1527-21 standard has clarified that a *historical recognized environmental condition* (HREC) is not a *recognized environmental condition* (REC).

The term *de minimis condition* is defined by the ASTM, *"…a condition related to a release that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies."* A condition determined to be a *de minimis condition* is not REC nor a CREC.

The chief components of this assessment are generally described as follows:

- A non-invasive visual reconnaissance of the Subject Property and adjoining properties in accordance with ASTM guidelines for evidence of RECs.

- Interviews of past and present owners and occupants and state and local government officials, seeking information related to the potential presence of RECs at the Subject Property.

- A review of standard physical record sources for available topographic, geologic and groundwater data.

- A review of standard historic record sources, such as fire insurance maps, city directories, aerial photographs, prior reports and interviews, etc., to determine prior uses of the Subject Property from the present, back to the Subject Property's first developed use, or back to 1940, whichever is earlier.

- A review of standard environmental record sources including federal and state environmental databases, and additional environmental record sources, to identify potential regulatory concerns with the Subject Property, adjoining properties and properties located within the surrounding area.

An evaluation of environmental or other regulatory compliance matters is excluded from the scope of this assessment.

These methodologies are described as representing good commercial and customary practice for conducting an Environmental Site Assessment of a property for the purpose of identifying recognized environmental conditions.

Business Environmental Risks/Non-ASTM Scope Considerations

In accordance with our contract agreement, Hillmann may have addressed the following potential environmental subject matters that are outside of the requirements of the ASTM E1527-21 standard:

- Asbestos-Containing Materials (ACM): A cursory non-intrusive visual screening for the presence of suspect ACM within the accessed areas of buildings built prior to 1990 on the Subject Property. If the Subject Property contains buildings built in 1990 or later, the contracted scope of work excludes a cursory non-intrusive visual screening or any other level of evaluation for suspect ACM; however, the exclusion for buildings built ≥1990 should not be interpreted to suggest that any such buildings are free of ACM or would not warrant evaluation of building materials for ACM prior to disturbance. It is emphasized that this cursory non-intrusive visual screening does not constitute an asbestos survey/inspection of the premises. An asbestos survey/inspection should be sought by the report User(s) if a greater certainty is desired regarding ACM and potential asbestos hazards at the Subject Property. Furthermore, a review of regulatory compliance matters pertaining to asbestos is excluded from the scope of work.

- Lead-Based Paint (LBP): A cursory non-intrusive visual screening of the condition of painted surfaces in the accessed areas of residential buildings/units built prior to 1980 on the Subject Property. If the Property contains buildings built in 1980 or later, the contracted scope of work excludes any cursory non-intrusive visual screening or other level of evaluation for suspect

LPB; however, the scope of work exclusion for building built ≥1980 should not be interpreted to suggest that any such buildings are free of LPB or other lead hazards. It is emphasized that this cursory non-intrusive visual screening does not constitute a comprehensive survey for LBP or potential lead hazards. A comprehensive inspection should be sought by the report User(s) if more certainty is desired regarding LBP at the Subject Property. Furthermore, a review of regulatory compliance matters pertaining to lead-based paint is excluded from the scope of work.

- USEPA Designated Radon Potential: Review of general non-site specific data published by the USEPA regarding the Radon Zone classification for the area of the Subject Property.

- Mold/Microbial Damage: A cursory non-intrusive visual screening within the accessed areas of buildings on the Subject Property for evidence of systemic microbial problems, including visible mold growth, water damaged building materials or musty odors. It is emphasized that this cursory non-intrusive visual screening does not constitute a comprehensive survey for moisture/mold/microbial damage. A more comprehensive inspection should be sought by the report User(s) if more certainty is desired regarding the potential for moisture/mold/microbial damages at the Subject Property.

- NWI Wetlands: The Property has been reviewed for jurisdictional wetlands using the National Wetlands Inventory Wetland Mapper (http://wetlandsfws.er.usgs.gov/NWI/download.html) to determine whether mapped federal wetlands have been indicated on the Subject Property. Any further evaluation or legal delineation of regulated wetlands areas is excluded from the scope of work. It is also emphasized that a field delineation of regulated wetlands by a qualified professional would be warranted to more fully determine the presence or absence of regulated wetlands at the Subject Property.

- Lead in Drinking Water: Review of the potential for elevated levels of lead in the drinking water by determining the source of the drinking water supply and a review of available testing or compliance data reports.

2.2 Property Location/Legal Description

Property location and legal description details are described as follows:

Primary Street Address:	264 & 278 10th Avenue, 427 & 441 West 26th Street, 407 West 25th Street				
City:	New York	**County:**	New York	**State:**	New York
Tax ID/Parcel Number:	278 10th Avenue: Block 724, Lot 1; 441W26th: Block 724, Lot 10; 427W26th: Block 724, Lot 15; 264 10th Avenue: Block 723, Lot 1; 407W25th: Block 723, Lot 15				
Approx. Land Area:	6.53-acres (combined)				
Apprx. Latitude/Longitude:	North 40.7496440 degrees/West 74.0014680 degrees				
Additional Details (if appl.):	Secondary address range: 407-461 West 25th Street;				

	408-466 and 421-465 West 26th Street; 416-460 West 27th Street.
Property Owner:	New York City Housing Authority (NYCHA)
Zoning Designation:	R8 (Residential)

2.3 Data Gaps

A *data gap* is defined by the ASTM as a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information. A data gap is only significant if other information and/or professional experience raises reasonable concerns involving the data gap and the ability to determine the presence or absence of recognized environmental conditions. The following table summarizes data gaps encountered during the assessment as well as a discussion of their significance.

Data Gap:	Significant (Yes/No)?	Discussion
Historical records data failure	No	Records gaps exceeding five years were encountered; however, no significant site use changes are suspected during these intervals.
Response to agency records requests not received as of date of report.	No	Any additional information indicative of a REC will be forwarded upon receipt.

2.4 ESA Report Component Dates/Viability

The ASTM E1527-21 standard states that an environmental site assessment (ESA) is presumed to be viable when it is conducted within 180 days prior to the date of acquisition of the Subject Property (or, for transactions not involving an acquisition such as a lease or refinance, the date of the intended transaction). Specifically, all of the following components must be conducted or updated within 180 days prior to the date of acquisition or prior to the date of the transaction. The following table summarizes the component completion dates:

ESA Component	Completion Date
Interviews	April 19, 2022
Env Lien Search	(excluded from scope)
Government Records Review	March 28, 2022
Visual Inspections	April 19, 2022
Env. Professional Declaration	May 6, 2022

2.5 User Reliance

This report is for the exclusive use of Elliott Fulton LLC c/o Essence Development and additional relying entities, if any, named on the front cover. No additional individuals or entities shall be permitted to rely upon any data, interpretation, reports or other information or documentation contained in this report, without first obtaining the consent of Elliott Fulton LLC c/o Essence Development; and without obtaining written consent from Hillmann in the form of a reliance agreement/letter.

Hillmann may, in its sole discretion, withhold its consent to additional reliance and/or Hillmann may condition consent for reliance upon payment of a fee or other conditions.

2.6 Significant Assumptions

The following significant assumptions are made:

- The site operations at the time of the site visit are assumed to reflect typical site conditions relative to potential environmental conditions and that no concealment of environmental conditions or releases by site owners or occupants has occurred. Likewise, it is assumed that no areas of the Subject Property with potential environmental concerns or RECs were concealed or otherwise not reported, intentionally or unknowingly, by the Subject Property owners/occupants and/or site escort at the time of the site visit.

- For the purpose of estimating the approximate direction of groundwater flow in the absence of site specific groundwater data, unless indicated otherwise, an assumption has been made that the gradient of groundwater flow follows the surface topography of the Subject Property and immediate surrounding area.

2.7 General Limitations and Exceptions

Limitations

The report turnaround time specified by the contract agreement for this assessment may present a limitation to the availability of pertinent regulatory agency records. Such limitations, if encountered, would be further specified in Section 4.1.

Significant limitations related to the condition or accessibility of the Subject Property at the time of the site reconnaissance, if encountered, are reported in Section 6.1.

Other Exceptions or Deletions

No other exceptions or deletions from the ASTM Standard E 1527-21 are reported.

Special Terms and Conditions

This Phase I Environmental Site Assessment has been prepared using reasonable efforts in each phase of its work to identify recognized environmental conditions associated with hazardous substances, wastes and petroleum products at the Subject Property. Findings within this report are based on information collected from observations made on the day of the site reconnaissance and from reasonably ascertainable information obtained from governing public agencies and private sources.

This report is not definitive and should not be assumed to be a complete or specific definition of the conditions above or below grade. Information in this report is not intended to be used as a construction document and should not be used for demolition, renovation, site development,

redevelopment, or other construction purposes. No representation or warranty is made that the past or current operations at the Subject Property are, or have been, in compliance with all applicable federal, state and local laws, regulations and codes.

Findings, conclusions and recommendations presented in this report are based on visual observations of the Subject Property, interviews conducted, the records reviewed, information provided by the Client, and/or a review of readily available and supplied drawings and documents. Information obtained during the assessment, whether written, graphic or verbal, provided by the Subject Property contact(s) or as shown on any documents reviewed or received from the Subject Property contact, owner or agent, or government agency source; is assumed to be accurate except as specifically stated otherwise in this report. Independent verification of the accuracy or completeness of all information reviewed or received during the course of this assessment is not made and excluded from the scope of work for this assessment. No warranty or guarantee is made of the accuracy or completeness of information that was obtained from ostensibly knowledgeable individuals, regulatory agency representatives or other secondary sources.

Regardless of the findings stated in this report, Hillmann is not responsible for consequences or conditions arising from facts that were concealed, withheld or not fully disclosed at the time the assessment was conducted.

This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated.

The regulatory database report provided is based on an evaluation of the data collected and compiled by a contracted data research company. Hillmann can neither warrant nor guarantee the accuracy or completeness of the information obtained from the regulatory database report provider during the course of this assessment.

Subsurface conditions may differ from the conditions implied by the surface observations and can only be reliably evaluated through intrusive techniques.

Reasonable efforts have been made during this assessment to identify aboveground and underground storage tanks and ancillary equipment. Reasonable efforts are limited to information gained from visual observation of largely unobstructed areas, recorded database information held in public record and available information gathered from interviews. Such methods may not identify surficial and subsurface features that may have been hidden from view due to parked automobiles and other vehicles, snow cover, vegetative growth, pavement, construction or debris pile storage or incorrect information from sources.

No guarantee, explicit or implied, is made that the records pertaining to historical ownership or occupancy which were reviewed represent a comprehensive or precise delineation of past Property ownership or tenancy for legal purposes.

The ASTM E1527-21 standard states that recommendations are not required to be included in a Phase I ESA report; however, further that recommendations are an additional service that may be useful in the User's analysis of landowner liability protections or business environmental risks; and

that the User should consider whether recommendations for additional inquiries or other services are desired.

Recommended response actions offered in Section 1.3, if any, are provided as an option to the Client, and may have taken into account the Client's relation to the Subject Property and/or their intended purpose of this assessment. If included, it is not intended by Hillmann to represent the only course(s) of action, or inaction, to take. Furthermore, it is emphasized that additional response actions may become advisable depending on the outcome of the initial action(s) taken. Hillmann advises that Client and any additional authorized relying parties as specified on the report Cover and Section 2.5, or via letter of reliance extension, undertake consultation with legal counsel familiar with environmental and real estate law would be beneficial to the decision making process for the type and timing of a response action to identified RECs or Business Environmental Risks, if any.

Due to the limited nature of our review of potential Business Environmental Risks, the User(s) of the report should consider whether to take additional action(s) to further define, properly manage and/or mitigate potential BERs.

The User(s) assumes responsibility for business decisions that it makes utilizing information in the report provided by Hillmann. Hillmann shall not be responsible for any conclusions, interpretations and/or decisions of the User(s).

In the event of any conflict between the terms and conditions of this report and the terms and conditions of the consulting services agreement for this project, the consulting services agreement shall control.

3.0 USER PROVIDED INFORMATION

The term "User" is defined by ASTM as the party seeking to use Practice E1527 to complete an environmental site assessment of the Subject Property; specifically, the entity or entities named on the front cover to which the report has been addressed.

3.1 Environmental Lien and Activity and Use Limitation (AUL) Search

The User did not provide Hillmann with the results of an environmental lien and AUL search for the Subject Property.

3.2 Prior Environmental Reports/Documentation

The following prior environmental reports/documentation was provided:

Excel Spreadsheet – R9.5 Sites

An excel spreadsheet was provided listing PBS (Petroleum Bulk Storage) 475483 for Chelsea as having an active tank (Tank #1) ad Elliot PBS 601955 with an active tank (Tank #2). Both are listed as having closed spills, no tank testing and Elliott is listed as having had a visual inspection.

Below is the excel table provided:

Consolidation Name	Development Name	PBS	Active	Tank #s	Tank Testing	Visual inspections	Open Spills	Closed Spills
Chelsea	CHELSEA	475483	Y	1	N	N	N	Y
Chelsea	CHELSEA ADDITION		N		N	N	N	N
Chelsea	ELLIOTT	601955	Y	2	N	Y	N	Y
Fulton	FULTON		N		N	N	N	N

Site Specific Field Investigation Work Plan Elliott Houses, 426 West 27th Street, New York, New York NYSDEC Spill Number 89-08401 PBS Number 601955; prepared by Gannett Fleming Engineers and Architects, P.C. (GF) dated July 2007 (DRAFT)

The draft report prepared by GF for NYCHA details a subsurface investigation in the vicinity of two (2) 20,000-gallon single-walled underground storage tanks (USTs) [PBS No. 601955] removed and replaced with one (1) 25,000-gallon double-walled UST in 1997. "*The purpose of this assessment is to evaluate the effectiveness of the existing on-site oil recovery system and to assess the horizontal extent of the product plume".*

The draft report notes that the groundwater table is approximately 10 to 17 feet below ground surface (bgs) and groundwater flow is towards the west. The USTs that were removed (per the GF report according to NYCHA) were installed in 1947 and contained No. 4 and No. 6 fuel oil. A 275-gallon AST is noted to be located onsite associated with an oil recovery system installed in 1998. The GF report notes that a Phase II was conducted by TRC in November 1989 due to fuel oil observed to leak into the boiler room through the northern wall of the boiler room. The tank was repaired, and seepage into the boiler room ceased, however TRC noted there could still be product within the subsurface soil. Soil and groundwater sampling confirmed free product in the subsurface

(~4-ft thick). In 1998 after the two aforementioned tanks were removed an oil recovery system including two recovery wells, an oil/water separator, and a 275-gallon holding tank was installed. "*According to the NYCHA, free product was observed in monitoring well MW-2 in March 2007".*

The Draft GF report, in Section 3.0 lays out a proposed scope of work which would include monitoring well measurements and sampling, fingerprint analysis, and recovery system evaluation.

Hillmann has included a figure from the GF report showing the locations of the former USTs relative to the present UST as well as the locations of monitoring wells. See Appendix A Figure 3.

Phase II Field Investigation Elliott Houses, 426 West 27th Street, New York, NY 10001, NYSDEC Spill #89-08401; prepared by American Environmental Assessment & Solutions, Inc. (AEASinc) dated March 15, 2011

The Phase II was performed "*to evaluate the effectiveness of the existing on-site recovery system and to assess the horizontal extent of the product plume. The assessment was performed in the vicinity of two former 20,000-gallon single walled underground storage tanks (USTs) which were removed and replaced with one 25,000 gallon double walled UST in 1997".*

The Phase II included soil and groundwater sampling with the following results:

Soil Contamination

VOCs were identified in soil sample SB-4 at 13 to 15 feet. The compound Isoproplybenzene and n-Propylbenzene were detected at levels exceeding their respective RSCO. SB-4 was installed west of RW-1.

SVOCs were identified in soil sample SB-6 and SB-7 exceeding their respective RSCO. The compound Chrysene was detected in SB-6 at 400 µg/kg exceeding its respective RSCO of 400 µg /kg.

Five SVOCs were detected in SB-7 exceeding their respective RSCO. The compounds Benzo(a)Anthracene; Benzo(a)Pyrene; Benzo(b)Fluoranthene; Benzo(k)Fluoranthene; and Chrysene were identified at levels exceeding their respective Recommended Soil Cleanup Objective (RSCO). SB-7 was installed between RW-2 and MW-2

Groundwater Contamination

VOCs were detected in groundwater sample GW-3 at levels exceeding the NYSDEC Groundwater Quality Standards. Five VOCs were detected in groundwater sample GW-3 above their respective groundwater standard. The compounds 1,2,4-Trimethylbenzene; Benzene; Isopropylbenzene; Isopropylbenzene; n-Butylbenzene; and n-Propylbenzene were detected in GW-3 exceeding their respective NYSDEC Ambient Groundwater Quality Standards.

Other VOCs were detected at very low levels below their respective groundwater standard in GW-3 and GW-4.

No VOCs were detected [in] groundwater sample GW-1 or GW-2.
No SVOCs were identified in any of the groundwater samples obtained from GW-01 through GW-04.

The AEASinc report concludes and recommends:

It is evident that the remediation system has been effective in removing the free floating product from the groundwater as was revealed from the monitoring data and previous environmental report indicating that product thickness has greatly reduced from 4.5 feet in 1992 to 3 inches currently and should be kept in use until no free floating product is present in the groundwater. However although the remediation system usage should be continued, the dissolved constituents in the groundwater should also be addressed.

The remediation system should be kept in use to further reduce product thickness until no free floating product is detected in any of the wells or in the groundwater.

Since the observed fuel oil impacts have shown to represent an isolated area, no further subsurface investigation is warranted. AEASinc recommends conducting Vacuum Enhanced Fluid Recovery (EFR) and product thickness measurements on a monthly basis for a period of 12 months. The purpose is to remove contamination from the subsurface of the AOC in the liquid, vapor and dissolved phases. After such period the effectiveness of the product recovery strategy should be evaluated by NYCHA and possibly increase recovery efforts of the impacted groundwater twice a month until petitioned for spill closure.

3.3 User Responsibilities

Section 6 of the ASTM E1527-21 standard describes certain tasks required to be performed by the report User in order to qualify for landowner liability protections to CERCLA liability. To assist the report User to meet these requirements, the ASTM E1527-21 standard recommends a questionnaire of inquiries (User Questionnaire) specified in 40 CFR 312.25, 312.28, 312.29, 312.30, and 312.31 be provided to the original report User. A User Questionnaire has been provided to the report User; however, a completed questionnaire was not returned to Hillmann.

Question:	Yes/No:	Detail:
Environmental liens that are filed or recorded against the property: Did a search of recorded land title records identify any environmental liens filed or recorded against the property under federal, tribal, state or local law?	NR	
Activity and use limitations that are in place on the property or that have been filed or recorded against the property: Did a search of recorded land title records (or judicial records where appropriate, identify any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the property and/or have been filed or recorded against the property under federal, tribal, state or local law?	NR	
Specialized knowledge or experience of the person seeking to qualify for the LLP:	NR	

Question:	Yes/No:	Detail:
Do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?		
Relationship of the purchase price to the fair market value of the property if it were not contaminated: Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?	NR	
Commonly Known or Reasonably Ascertainable Information: Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example,		
-Do you know the past uses of the property?	NR	
-Do you know of specific chemicals that are present or were once present at the property?	NR	
-Do you know of spills or other chemical releases that have taken place at the property?	NR	
-Do you know of any environmental cleanups that have taken place at the property?	NR	
The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation: Based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of releases at the property?	NR	
Litigation/Administrative Proceedings/Government Notices As the User of this ESA, do you have knowledge of (1) any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property; (2) any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on or from the property; and (3) any notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products.	NR	

NR-no response

3.4 User's Reason for Performing Phase I ESA

The User did not indicate the purpose of the assessment. In accordance with ASTM E1527-21, it is assumed that the Phase I ESA was being performed in order to qualify for landowner liability protection to CERCLA liability.

4.0 RECORDS REVIEW

4.1 Environmental Information

Physical Setting

Source	Discussion
USGS 7.5 minute Topographic Map Data: (EDR Geocheck-Physical Setting Source Addendum)	The Property lies at an elevation of approximately 16 feet above mean sea level. An interpretation of topographic contour lines as well as a review of the EDR Geocheck-General Topographic Gradient suggested terrain sloping downward towards the west. The closest down gradient water body is the Hudson River, located approximately 1,750-ft to the west-northwest.
USDA SCS Soil Data: (EDR Geocheck-Physical Setting Source Addendum)	The soil type at the Subject Property is classified as "Urban Land". The Urban Land designation indicates that a majority of the original soils on the site have been disturbed by development or covered with impervious surfaces, such as buildings or pavement.
Geologic Data: (EDR Geocheck-Physical Setting Source Addendum)	The Geologic Age Identification Category for the Property is Stratified Sequence, and the Rock Stratigraphic Unit is the Paleozoic Eta, Ordovicias System and Lower Orodovician and Cambrian carbonate rocks Series.
Prior Env. Reports: (Section 3.2)	Prior reports discussed in Section 3.2 detail investigations performed at the site which indicated groundwater to be 10-17-ft bgs and flowing westward.
Additional Sources/ Data:	None
Groundwater Flow Discussion:	Based on a review of the above information as well as observation of the site, the direction of shallow groundwater flow at the site is inferred to be towards the west.

Federal, State and Tribal Environmental Record Sources

Standard government records were obtained and reviewed primarily via a third-party regulatory database report, titled EDR Radius Map™ Report, prepared by Environmental Data Resources of Shelton, CT. The report provided government records from the standard environmental resources and within minimum search distances specified by Section 8.2.2-Table 2 of the ASTM E1527-21; and were reviewed for the purpose of identifying potential RECs in connection with the Subject Property. Additional detail of the source and significance of the regulatory databases can be found in the regulatory database report in Appendix E. Hillmann has also included discussion of records pertaining to the Subject Property from other government record sources not specifically listed under Table 2, as applicable.

Reported distances for adjoining property listings, if applicable, are approximate and indicative of the presence of a public roadway or right-of-way between the adjoining site and Property.

The reported gradients have been estimated based on a number of factors including but not necessarily limited to field observation, review of topographic maps, database listing details and/or site specific geo-technical data.

Limited analysis of the details of on-site, adjoining and vicinity database sites was conducted to identify potential sources of sub-surface vapor encroachment. This review was based on elements of the ASTM "Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions" (ASTM E 2600-15); and also on elements of "Methodology for Identifying the Area of Concern Around a Property Potentially Impacted by Vapor Migration from Nearby

Contaminated Sources" (Buonicore, 2011-S-103-AWMA). Vicinity database sites pertaining to non-petroleum product releases within 1,760 feet of the Subject Property in the up-gradient direction, 365 feet of the Subject Property in the cross gradient direction and 100 feet of the Subject Property in the down gradient direction; and vicinity database sites pertaining to petroleum product releases within 528 feet of the Subject Property in the up-gradient direction, 165 feet of the Subject Property in the cross gradient direction and 100 feet of the Subject Property in the down gradient direction were reviewed to identify active contamination sites with the potential to affect subsurface vapor conditions at the Subject Property. The potential for vapor encroachment was considered in assessing whether or not a REC exists in connection with the Subject Property when reviewing applicable sites within those distances.

Regulatory database sites with active petroleum or non-petroleum releases that are considered to constitute a vapor encroachment condition (VEC) to the Subject Property, if any, are identified and discussed in this section.

The EDR Radius Map report is attached in Appendix E.

Property Listings

The following listings of the Subject Property were identified:

- An NY SPILLS database listing, Spill number 0511572, for "Elliott Houses-NYCHA" associated with 426 West 27th Drive obtained regulatory closure on January 9, 2006. The spill occurred on January 6, 2006 when NYC DEP received a call pertaining to the release of 30-gallons of #2 fuel oil. The remarks state that the spill was due to a mechanical failure, and the spill contained in the basement and cleaned. Given no indication that remediation was needed and regulatory closure, the listing is not considered a REC or HREC.

- Elliott- Houses (Chelsea Houses), 426 West 27th Street is listed on the AST database for a permitted Petroleum Bulk Storage aboveground storage tank with ID: 2-601955. The AST capacity is listed as 275-gallon, for waste oil, and installed in 1995.

- Elliott-Houses-NYCHA, 426 West 27th Street is listed on the LTANKS database for Spill Number: 9602200 due to a tank test failure on May 15, 1996. The spill listed as consolidated with Spill Number: 8908401 is listed as having obtained regulatory closure on February 2, 2006. The remarks detail a discharge of #6-fuel oil, extensive remediation and monitoring and the installation of an oil recovery system detailed in Section 3.1 above. The database listing remarks state:

  "20K TANK - EVERYTIME FILLED ACTIVE FLOW TAKES PLACE INTO BASEMENT THRU WALLS - ABSORBED WITH SPEEDY DRY AND TEMPORARILY TAKING TANK OUT OF SERVICE"

  The database listing detail regarding the backdrop to the regulatory closure is as follows:

  The PRS [Petroleum Recovery System] was operated between 1998 and 2014. Free product has not been observed in the accessible monitoring wells since 2007. Since halting the PRS in 2014, free product has not been observed in the accessible monitoring wells and little free product (less than

0.25in) has been observed in the recovery wells. No petroleum related VOCs or SVOCs (listed in Table 3 of CP-51) were detected in groundwater samples collected in April 2015 from the accessible monitoring wells. As per Randy in a discussion of January 20, 2017 if less than 0.25 inches of No. 6 oil has been in on-site wells for 2+ years and contamination has been delineated all around the impacted area and there is nothing off-site and no dissolved phase in wells, spills can be closed. The Closure Letter should contain the contaminated soil clause. Spill closure email will be prepared with contaminated soil clause and sent to NYCHA.

Given the closure with a "*soil clause"* the above is considered a CREC. Hillmann recommends obtaining the closure records from NYCHA to understand the nature of any closure conditions e.g., monitoring or administrative requirements or institutional/engineering controls.

- Multiple Con-Edison listings (MANIFEST, RCRA-NonGen, FINDS, ECHO) associated with Property addresses were identified. The listings are associated with infrastructure work generating regulated waste. The listings are not indicative of a release and not considered a REC.

- Chelsea-Elliott Municipal Housing Project, 427 West 26th Street is listed on the NY SPILLS database for Spills 1104033 – closed July 13, 2011 and 1711615 – closed March 23, 2018. 425 West 25th Street is listed for Spill 9802923 – closed July 21, 1998. The spills were contained and closed with no impact to soil/groundwater. Given the nature of the cases, they are not considered a REC or HREC.

- The Property is listed on the RCRA-NonGen, FINDS and ECHO databases likely associated with the removal of regulated waste. The listings are regulatory in nature, not indicative of a release and not considered a REC.

- Chelsea Houses-NYCHA, 431 West 25th Street is listed on the LTANKS, NY SPILLS and UST databases. The LTANKS listings is for Spill Number: 9806339 due to a tank test failure on August 21, 1998. The is listed as having obtained regulatory closure on August 27, 2013. The listing details the removal of a 30,000-gallon #2 fuel oil UST with six post excavation samples leading to the removal of 900-tons of soil. Exceedances included Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Chrysene, Dibenzo(a,h)anthracene.

  The listing details the backdrop to regulatory closure as follows:

  "*30,000 gallon UST removed in 8/2000. -890 tons of contaminated soils removed in 2000 - investigation done in 2006 along fill lines and by fill port (DEC request) -some PAHs detected in grab groundwater sample in 2006 -5 permanent wells installed in 2010 -All gw under TOGS with the exception of MW-5 (3 minor VOC compound exceedences) -Slight sheen subsequently detected in MW-5. Absorbent sock placed in well. -Minor impacts on sock in 2012. -No oil detect on absorbent sock in 2013. -Confirmed no product sheen in well during site visit of 7/31/13. NFA. Email sent to NYCHA on 8/27/13 requesting wells be decommissioned*."

  Hillmann recommends obtaining the closure letter to determine what, if any, conditions are linked to the No Further Action. Additionally, Hillmann observed multiple monitoring wells

in the vicinity of the former 30,000-gallon UST. Hillmann recommends decommissioning the wells if no ongoing monitoring requirements apply.

Chelsea-Houses, 431 West 25th Street is listed as being equipped with one (1) 25,000-gallon #2 fuel oil UST installed on September 1, 2000. The UST is listed as having secondary containment and leak detection. A 30,000-gallon UST is listed as having been installed in 1964 and removed in 2000.

Given the above and historic uses a VEC cannot be ruled out for the Property.

Adjoining Property Listings

The following adjoining property listings were identified.

- Multiple adjacent Con-Edison listings (MANIFEST, RCRA-NonGen, FINDS, ECHO) were identified. The listings are associated with infrastructure work generating regulated waste. The listings are not indicative of a release and not considered a REC in connection with the Property.

- Multiple adjacent sites are listed on the NY SPILLS and LTANKS databases. Each of the adjacent listings obtained regulatory closure and are not considered a REC in connection with the Property.

- 500 West 25th Street, listed on the VCP database for OER Site Number: 17CVCP047M associated with redevelopment and investigations/remediation associated with historic use obtained a notice of completion dated November 9, 2020. Given the status and findings of the investigations, the southwestern adjacent VCP site is not considered a REC in connection with the Property. Records were reviewed via the NYC EPIC Online Document Repository.

Surrounding Area Findings

The following is a discussion of non-adjoining sites identified as located within the ASTM specified search distance surrounding the Subject Property. In order to keep this discussion informative and concise, discussion(s) is/are provided of the listed site(s) for each database category that appears most likely to impact the Subject Property based on distance, area topography and/or regulatory status. Listings of sites within the applicable search distances not specifically discussed below were reviewed and concluded not to be RECs in connection with the Subject Property or VECs based on various factors including distance, area topography, known or inferred groundwater flow direction and/or regulatory status.

Federal NPL				**# of sites:**	1	**Search Distance:**	1-mile
Notable Listing:	Hudson River PCBs						
Distance in feet:	1,600	**Direction:**	WNW	**Gradient:**	Down		
Data Discussion:	Given the location and nature of the NPL case – PCBs in the Hudson River sediment, the listing is not considered a REC to the Property.						

REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.
VEC Discussion:	Based on the available data, a VEC is not suspected.

Federal Delisted NPL			**# of sites:**	0	**Search Distance:**	1-mile
Notable Listing:	None					
Distance in feet:		**Direction:**		**Gradient:**		
Data Discussion:						
REC Discussion:						
VEC Discussion:						

Federal SEMS			**# of sites:**	2	**Search Distance:**	½-mile
Notable Listing:	Hudson River PCBs					
Distance in feet:	1,600	**Direction:**	WNW	**Gradient:**	Down	
Data Discussion:	Given the location and nature of the SEMS case (also listed on the NPL database) – PCBs in the Hudson River sediment, the listing is not considered a REC to the Property. The second SEMS listing is 1,925-ft from the Property to the east. Given the distance the SEMS case (USPS JAF Building) is not considered a REC in connection with the Property.					
REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.					
VEC Discussion:	Based on the available data, a VEC is not suspected.					

Federal SEMS-ARCHIVE			**# of sites:**	3	**Search Distance:**	½-mile
Notable Listing:	Manhattan General Mail Facility					
Distance in feet:	567	**Direction:**	NE	**Gradient:**	Up/Cross	
Data Discussion:	Given the regulatory status and/or distance, the SEMS-ARCHIVE sites are not considered a REC in connection with the Property.					
REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.					
VEC Discussion:	Based on the available data, a VEC is not suspected.					

Federal CORRACTS			**# of sites:**	0	**Search Distance:**	1-mile
Notable Listing:	None					
Distance in feet:		**Direction:**		**Gradient:**		
Data Discussion:						
REC Discussion:						
VEC Discussion:						

Federal RCRA-TSD			**# of sites:**	0	**Search Distance:**	½-mile
Notable Listing:	None					
Distance in feet:		**Direction:**		**Gradient:**		
Data Discussion:						
REC Discussion:						
VEC Discussion:						

State/Tribal SUPERFUND & HAZARDOUS WASTE			**# of sites:**	4	**Search Distance:**	1-mile
Notable Listing:	Bayview Correctional Facility / 550 West 20th Street					
Distance in feet:	1,492	**Direction:**	SW	**Gradient:**	Down	
Data Discussion:	Given the distance, gradient and/or regulatory status the SHWS listing are not considered a REC in connection with the Property.					
REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.					

VEC Discussion:	Based on the available data, a VEC is not suspected.

State/Tribal LANDFILL/SOLID WASTE DISPOSAL			**# of sites:**	3	**Search Distance:**	½-mile
Notable Listing:	Westside Operations Center (WOC) / 281 11th Avenue					
Distance in feet:	1,069	**Direction:**	NW	**Gradient:**	Down	
Data Discussion:	Given the distance and downgradient location, the WOC transfer station is not considered a REC in connection with the Property.					
REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.					
VEC Discussion:	Based on the available data, a VEC is not suspected.					

State/Tribal LEAKING STORAGE TANKS			**# of sites:**	144	**Search Distance:**	½-mile
Notable Listing:	28th Under Highline Associates LLC / 505 West 27th					
Distance in feet:	182	**Direction:**	W	**Gradient:**	Down	
Data Discussion:	Given the distance, gradient and/or regulatory status, the LTANKS listings are not considered a REC in connection with the Property.					
REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.					
VEC Discussion:	Based on the available data, a VEC is not suspected.					

State/Tribal VOLUNTARY CLEANUP SITES			**# of sites:**	41	**Search Distance:**	½-mile
Notable Listing:	311 10th Avenue					
Distance in feet:	218	**Direction:**	NW	**Gradient:**	Down	
Data Discussion:	Given the nature of the listings and/or distance/gradient the VCP sites are not considered a REC in connection with the Property.					
REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.					
VEC Discussion:	Based on the available data, a VEC is not suspected.					

State/Tribal BROWNFIELD SITES			**# of sites:**	15	**Search Distance:**	½-mile
Notable Listing:	Former Getty Service Station / 239 10th Avenue					
Distance in feet:	238	**Direction:**	W	**Gradient:**	Down	
Data Discussion:	Given the distance, gradient and/or regulatory statut, the Brownfields listings are not considered a REC in connection with the Property.					
REC Discussion:	Based on the details provided above, a REC is not suspected in connection with the Property.					
VEC Discussion:	Based on the available data, a VEC is not suspected.					

UNMAPPED/ORPHAN LIST SITES	
Notable Listings:	Hillmann has also reviewed a list of unmapped sites (a.k.a. "Orphan List" sites) indicated by the database report. Unmapped sites that were identified as falling within an applicable specific search distance or warranting discussion have either been discussed in the preceding tables or are detailed below: None

Additional Environmental Record Sources

Requests have been submitted to local, municipal and state agencies for pertinent records pertaining to the Subject Property, particularly with regard to potential environmental concerns such as petroleum storage tanks, storage and usage of hazardous substances and petroleum products, and/or known or suspected environmental contamination. Where applicable, internet research of government environmental regulatory databases was also conducted, as well as a general cursory internet search of the Subject Property address, for information indicative of a REC. The following table summarizes the findings of the research:

Source	Type of Request	Outcome
NYCFD-Public Records Unit / Tank Section	FOI request	No response was received prior to report issuance.
NYS DEC	FOI request	No response was received prior to report issuance.
NYCDEP	FOI request	No response was received prior to report issuance.
NY DOB	Online search	Records included in Appendix F including certificates to operate dual natural gas/heating oil number 2 boilers.
USEPA	Online search	No records indicative of a REC identified.
Internet	Online Search	No records indicative of a REC identified.

Pertinent records referenced in the above table have been included in Appendix F.

4.2 Historical Research

Historical records have been compiled and analyzed for historical property information and developing a history of previous uses of the Subject Property, adjoining properties and surrounding area. These records were reviewed for the purpose of identifying the likelihood of past uses having led to RECs in connection with the Subject Property.

The historical record sources listed below have been sought with the objective to document past uses of the Subject Property from the present back to the Subject Property's first developed use, or back to 1940, whichever is earlier. The term "developed use" includes agricultural use, placement of fill dirt and other uses that do not involve structures. Hillmann has sought to review historical records in minimum intervals of five years.

Fire Insurance Maps

A Certified Sanborn Map Report was obtained from EDR for a review of published historic fire insurance maps for the Subject Property and surrounding area. The following is a summary of site uses and notable details depicted by the available maps:

Year(s)	Prop/Adj	Depicted Use(s)	Notable Details
1890, 1899, 1911, 1930	**Property:**	The southwest portion of the Property (Block 723, Lot 1) is depicted as the Columbia Ale Brewery. The southeastern portion of the Property is depicted as a coal yard, stable and elevator factory among multiple multi-story mixed use buildings. The Property north of West 26th Street is improved with multiple multi-story mixed use buildings and a Copper Works company in the present Chelsea Addition portion of the Property. Multiple Property addresses were used for manufacturing listed to the right and depicted spatially relative to the present Property configuration in Appendix A, Figure 4.	N.Y. Edison Co. Sub Station/transformer station (452 West 27th Street – 1911-1930); Machine Shop (429 West 26th Street 1911); Manufacturing use (418-420 West 27th Street, 447-455 West 26th Street, 425-427 West 25th Street; 1911-1930); Garage with a 10,000-gallon buried tank (417-423 West 25th Street – 1930-1950).
	Adjoining:	Multiple mixed-use buildings and a manufacturing establishments building to the northeast,	Printer-Lithographer operation with multiple tanks noted to the immediate east of the Property at the southwest corner of 9th Avenue and West 26th Street – 263 9th Avenue (1930-2005). Motor freight station / auto repair shop equipped with multiple gasoline tanks noted to the adjacent west across 10th Avenue at 293 10th Avenue (1930-2001). Given the location downgradient and across a multi-lane road not considered a REC in connection with the Property.
1950, 1976, 1979, 1980, 1982, 1985, 1987, 1988, 1991-1996, 2001-2005	**Property:**	The present Elliott Buildings 2 and 3 south of West 26th Street are depicted and listed as John Lovejoy, 11-story plus basement apartment buildings. The present Elliott Buildings 1 and 4 between West 26th and 27th Streets are depicted and listed as "Elliott Houses – New York City Housing Authority", 12-story plus basement apartment buildings. The area of the present Chelsea Addition building between Elliott Buildings 1 and 4 has been cleared except for the Hudson Guild Neighborhood House (5-story plus basement building constructed in 1908-09). In the subsequent 1976 Sanborn Fire Insurance Map it is depicted as a 96 unit 14-story plus basement Chelsea Houses Addition with an auditorium/community house corresponding to its present configuration.	
	Adjoining:	Public school to the immediate east of the Property.	

A copy of the Certified Sanborn Map Report is attached in Appendix D.

City Directories

An EDR City Directory Abstract report was reviewed for data of former occupants of the Subject Property's street address. The following is a generalized summary of the findings of city directory research for past occupants of the Subject Property.

Property	
Use(s) / Occupant(s):	**Years**
Residential and mixed-use listings	1920-2017
Hand Laundry (Glassman Standard Hand Laundry) at 436 West 26th Street	1923

The EDR City Directory Abstract report was also reviewed for listings of historic occupants of the adjoining properties. The following is a general summary of listings of historic adjoining property occupants:

Adjoining Properties	
Use and/or Occupant(s)	**Years**
Mix of residential and commercial occupants.	1920-2017

A copy of the EDR City Directory report is attached in Appendix D.

Historical Topographic Maps

Due to the availability of alternate historic sources, as well as the likelihood that this source would not provide any significant data, historical aerial photographs were not researched for this assessment.

Historical Aerial Photographs

Due to the availability of alternate historic sources, as well as the likelihood that this source would not provide any significant data, historical aerial photographs were not researched for this assessment.

EDR High-Risk Historical Records

The EDR Radius Map™ report, which is discussed in greater detail in Section 4.1 and attached in Appendix E, provided a search of proprietary databases of potential historical high-risk uses at or in the vicinity of the Subject Property. These databases include EDR Historic Cleaners – a database of property addresses with records of historical occupancy by suspected cleaners businesses; EDR Historic Auto – a database of property addresses with records of historical occupancy by potential automotive gas/filling stations and repair facilities; and EDR MGP- a database of sites historically occupied by manufactured gas plants and related facilities.

EDR Database	On-site Listings:	Adjoining/Off-Site Listings
Historic Cleaners: (on-site/adjoining only)	None	Tonis Dry Cleaners, 2001-2006 at 243 9th Avenue to the adjacent southeast across West 25th Street;

Historic Auto: (on-site/adjoining only)	None	Carlo and Peter Truck Repair 289 10th Avenue, 1975-2002 and Marial Service Station, 279 10th Avenue, 1971-2014 to the adjacent west across 10th Avenue.
MGP: (1-mile distance)	None	Six listings within 1-mile. Each greater than 1,600-ft from the Property and downgradient.

Petroleum/Natural Gas Well Review

The historical record sources were reviewed for records of historic petroleum and/or natural gas wells at the Subject Property. No record of any historical petroleum/natural gas wells at or adjoining the Property was identified.

Additional Historical Data

Where applicable, the following additional pertinent historical data was obtained:

Interviews/Anecdotal:	No additional pertinent historical data was obtained.
Local Gov't Records:	No additional pertinent historical data was obtained.
Prior Env. Reports: (Section 3.2)	Not applicable; no prior reports were provided.
Site Observations:	Indications of historic uses of the Property or adjoining properties were not observed during the site reconnaissance.
Other Sources:	No additional pertinent historical data was obtained.

Summary of Identified Historic Uses

The following table presents a summary of the types and approximate date ranges of identified prior uses of the Subject Property:

Property	
Date Range	**Use**
Late 1800's to 1940's	Mixed-use and manufacturing including a machine shop, brewery
1940's-Present	Apartment buildings

The following table presents a summary of the types of identified prior uses of the adjoining properties:

Adjoining Properties	
Date Range	**Use**
Unk to Present	Residential, commercial and printing/lithography

Historical Records Data Failure

The ASTM E1527-21 standard defines data failure as failure to achieve the historical research objective even after reviewing the standard historical sources that are reasonably ascertainable and

likely to be useful. The objective is to identify all obvious uses of the property from the present, back to the property's first developed use, or back to 1940, whichever is earlier. Furthermore, records of historic use/conditions were sought in intervals no less than approximately five years, unless the property conditions appear unchanged over a longer interval. In encountered, data failure and its significance as a data gap is discussed below:

Objective	Met?	Detail	Significant?
First developed use/date determined?	Yes	The first developed use of the Property was for dwellings in the late 1800's.	No
Record sources at 5-year intervals back to 1940 or first developed use?	Yes	Historical record gaps exceeding five years were encountered. However, significant site-use changes or undiscovered site uses appear unlikely to have occurred during the record gaps.	No
All obvious prior uses identified?	Yes	See Summary of Identified Past Uses of this section.	No

Please refer to Section 2.3 for additional discussion of data gaps and their significance to the findings of the assessment.

Historic Uses REC Discussion

The review of historical records indicated evidence of the following potential RECs in connection with the Property:

Multiple historic uses of potential environmental concern, based on a review of Sanborn Fire Insurance Maps, occurred at the Property prior to the construction of the present Property buildings in the 1940's-1960's as follows:

- N.Y. Edison Co. Sub Station/transformer station (452 West 27th Street – 1911-1930);
- Machine Shop (429 West 26th Street 1911);
- Manufacturing (not specified) use (418-420 West 27th Street, 447-455 West 26th Street, 425-427 West 25th Street; 1911-1930);
- Garage with a 10,000-gallon buried tank (417-423 West 25th Street – 1930-1950);
- Printer-Lithographer operation with multiple tanks noted to the immediate east of the Property at the southwest corner of 9th Avenue and West 26th Street – 263 9th Avenue (1930-2005).

The aforementioned historic uses including a transformer sub-station, machine shop, manufacturing, and garage with a UST, and a printer/lithographer immediately east of the Property are considered a REC.

5.0 INTERVIEWS

5.1 Interviews with Owners, Operators and Occupants

Current Owner / Key Site Operator

Property Owner	Contact Name	Affiliation	Interview Type
New York City Housing Authority (NYCHA) representative	Sidiya Harris	Property Caretaker with NYCHA	In person
Interview Date:	April 19, 2022		
Interview Outcome/Findings:			
An interview for information pertinent to the assessment was conducted in person at the time of the site visit. The following pertinent information was indicated: Sidiya was unaware of any known environmental concerns at the Property.			

Prior Owners/Operators/Occupants

Name	Company/Title	Yrs @ Site	Interview Type
Interview Date:			
Interview Outcome/Findings:			
No prior owners, operators or occupants were interviewed.			

Neighboring Property Owner/Occupants

Name	Company/Title	Yrs at site	Interview Type
Interview Date:			
Interview Outcome/Findings:			
The Property was not an abandoned property with evidence of unauthorized uses or uncontrolled access; therefore, interviews with adjoining or nearby property owners or occupants were not conducted.			

5.2 Interviews with State and/or Local Government Officials

State and/or local governmental officials have been interviewed to obtain information of potential RECs in connection with the Subject Property. Many government agencies and their officials require submittal of written request for records in order to respond. The details in Section 4.1 list the various state and local government agencies contacted as part of this assessment, and the outcome of each inquiry. In addition, the details of regulatory database research in Section 4.1 may

have included detail of interviews with officials pertinent to government records review and identification of RECs.

Additional interview of government officials not previously detailed in Sections 4.1 are discussed below, if applicable.

Name	**Agency Name/Title**	**Interview Type**
Interview Outcome/Findings:		
No additional local/state government officials were interviewed.		

6.0 SITE RECONNAISSANCE

6.1 Methodology and Limiting Conditions

A site reconnaissance was conducted to collect information and make observations to help identify RECs in connection with the Subject Property. This included visual and/or physical observations of the Subject Property and its structures, adjoining properties as viewed from the Subject Property boundaries and the surrounding area based on visual observations from adjoining public thoroughfares and accessed Subject Property structures. Subject property building exteriors were observed at ground level, unless otherwise indicated. Where applicable, building interiors were accessed and observed to the extent they were made safely accessible with the cooperation of the site escort.

Site Inspection Personnel:	Mr. Etan Hindin and Mr. Dominick Aponte
Property Escort/Company:	Sidiya Harris / Property Caretaker
Inspection Date:	April 19, 2022
Weather Conditions:	Overcast 45 degrees Fahrenheit

Significant Inaccessible Areas

Due to the pandemic occupied units were inaccessible. The inability to access these units is not considered a Significant Data Gap.

Significant Limiting Site Conditions

No significant limiting site conditions were noted at the time of the site reconnaissance.

6.2 General Site Setting

Site and Vicinity Characteristics

Abutting Roadways:	West 25th Street to the south; West 27th Street – Drive to the north; 10th Avenue to the west; West 26th Street divides the Property parcels.
Current Property Use:	Multifamily residential and daycare
Evidence of Past Property Uses:	None observed.
Evidence of Past Adjoining Property Uses:	None observed.
Surrounding Area Uses:	Commercial, residential

Current Adjoining Property Uses

Dir	Street Address	Description
N	294 10th Avenue	Park
W	259-293 10th Avenue	Residential and commercial
E	281 9th Ave 401 West 25th Street 263 9th Avenue	Public School Residential and commercial Residential and commercial
S	406-462 West 25th Street	Residential and commercial

No visual observations indicative of a potential environmental concern were noted on the adjoining properties.

Topographic Characteristics

Terrain:	Flat to gently sloping
Direction of Downward Slope:	Towards the northwest
On-site Water Bodies:	None observed
Other Significant Features:	None observed

General Description of Structures and Improvements

Buildings:	Eight
Approx. Building Size:	1,002-units (combined)
Approx. Year Built:	1963-1965
Number of Stories:	**Chelsea**: 407 West 25th Street parcel (Block 723, Lot 15) is comprised of two (2) 21-story plus basement apartment buildings. The eastern building is equipped with a two-bay maintenance garage on the east side and a waste management areas east of the building. **Chelsea Addition**: 441 West 26th Street parcel (Block 724, Lot 10) – one (1) 14-story plus basement apartment building (ground level day center). **Elliott**: three (3) parcels (Block 724, Lots 1 and 15 and Block 723, Lot 1), four (4) 11-story and 12-story plus basement apartment buildings and one freestanding daycare at the northeast corner of West 26th Street and 10th Avenue. NOTE: See Appendix A for building numbering/locations
Basement/Subgrade Levels:	See above
Exterior Ground Cover:	Asphalt, cement and landscaped areas,

Ancillary Structures:	Bulk trash/compactor covered-masonry enclosure with two overhead doors. Northeast of Chelsea Building 2
Sources of Heating & Cooling:	Dual natural gas/heating oil boilers for onsite generated steam heat and tenant-owned optional electric window units for cooling.
Potable Water/Sewage Disposal:	Municipal utility connections

6.3 Site Features and Conditions

Storage/Usage of Hazardous Substances and Petroleum Products

The following approximate number of containers, and general description of their contents, capacity, container types and storage conditions, were observed to be stored and/or used at the Subject Property:

Occupant	Substance	Qty/Container Type	Storage Conditions
NYCHA	Maintenance and cleaning materials (including paint)	1-30-gallon	All stored indoors on intact concrete. No storage concerns noted.

Bulk Petroleum/Hazardous Material Storage Tanks

The following storage tanks for bulk petroleum or hazardous material storage were identified or reported to be present; or are suspected to be present based on visual observations:

AST/UST	Product	Capacity	Construction	Year Installed	Status	Location/Notes
UST	Heating oil Number 2	25,000-gal	Double walled	1998	Active (natural gas generally used)	In area of former UST with monitoring wells noted. West of Chelsea Building 1 just north of West 25th Street.
UST	Heating oil Number 2	25,000-gal	Double walled	1998	Active (natural gas generally used)	West of Elliott Building 4 south of West 27th Street – Drive
AST	Waste oil	275	Steel	1990's	Status unknown	Elliott Building 4 Boiler Room – Remediation Oil Recovery System waste oil tank (see discussion Section 3.1)
AST	Holding tank	275	Steel	1990's	Status unknown	Elliott Building 4 Boiler Room - Remediation Oil Recovery System holding tank (see discussion Section 3.1)

Strong, Pungent or Noxious Odors and their Sources

No strong, pungent or noxious odors were noted at the Subject Property.

Standing Surface Water/Pools & Sumps

No standing water, pools or sumps containing liquids likely to be hazardous substances or petroleum products were noted.

Drums, Totes and Intermediate Bulk Containers

No hazardous substance or petroleum product drums were noted.

Unidentified Substance Containers

No unidentified substance containers suspected of containing hazardous substance or petroleum product were noted.

PCBs in Oil Filled Electrical/Hydraulic Equipment

The Property is equipped with a trach compactor northeast of Chelsea Building 2 just south of West 26th Street. The compactor area is masonry enclosed with a roof and two overhead garage bay doors. No concerns were noted.

It is noted that identification of PCB containing fluorescent light ballasts, caulk, paint, or other materials located inside and are part of the building or structure is outside of the scope of the ASTM E1527-21 standard and this assessment.

Stains or Corrosion on Floors, Walls or Ceilings

No stains or corrosion of floors, walls or ceilings, excluding any staining from water, were noted.

Drains and Sumps

Floor drains and a basement sump designed for the purpose of managing sanitary sewage were noted. No conditions indicative of a REC were observed.

Pits/Ponds/Lagoons

No pits, ponds or lagoons were identified in connection with waste treatment or disposal.

Stained Soil, Pavement/Stressed Vegetation

No stained soil, pavement or stressed vegetation was observed.

On-Site Solid Waste Disposal/Fill Material

No evidence of on-site disposal of trash, construction debris, demolition debris or other solid waste was observed.

Based on the history of previous site development, historical fill material may be present in the subsurface at areas of previous site grading or building structures.

Waste Water

Sanitary sewage generated at the Subject Property is discharged via a connection to the local public sewer system.

Storm water runoff at the Subject Property is discharged via roof drains into the municipal sewer system.

Septic Systems/Cesspools

No septic systems/cesspools identified.

Wells

The following wells were identified at the Subject Property:

Multiple monitoring wells were observed in the vicinity of the two (2) Property heating oil USTs, west of Chelsea Building 1 just north of West 25th Street, and west of Elliott Building 4 south of West 27th Street – Drive. The wells are associated with documented releases from USTs removed from the Property discussed in Section 3 and 4 above.

Railroad Spurs

No railroad spurs were identified on the Subject Property.

7.0 BUSINESS ENVIRONMENTAL RISKS

In accordance with the contract agreement for this assessment, Hillmann has performed cursory reviews of several potential Business Environmental Risks (also known as "Non-Scope Considerations"). The ASTM E1527-21 standard defines the term business environmental risk (BER) as, *"a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice."*

7.1 Asbestos-Containing Material (ACM)

The contracted scope of work included a cursory visual screening of the accessed portions of buildings at the Subject Property built prior to 1990 for suspect asbestos containing materials (ACM). The information provided in this section, where applicable, is limited to identification of potential suspect materials in the readily accessible and observed areas of the building, and their general condition. This is not intended to be a comprehensive survey for the presence of ACM, and no testing has been conducted.

Given the 1940-1968 years of construction, asbestos containing materials are suspected unless ruled out by laboratory analysis.

Suspected ACM noted within the accessed building areas included floor tile, wall-board, spray-of insulation and roofing materials.

7.2 Lead-Based Paint

The contracted scope of work included a cursory visual screening of the condition of painted surfaces in the accessed areas of residential buildings/units built prior to 1980. This is not intended to constitute a comprehensive survey for LBP or potential lead hazards, and no testing has been conducted.

Given the 1940-1968 years of construction, lead-paint is suspected unless ruled out by field survey or laboratory analysis.

Lead sampling was reportedly being performed due to the December 21, 2021 modification to the legal lead-based paint standard to 0.5 mg/cm^2 (Local Law 66 and rules adopted by the Department of Housing Preservation and Development [HPD]) The results of the survey have been requested by Hillmann.

7.3 Radon

Data compiled by the USEPA, as summarized by the regulatory database report, indicated that the Subject Property is located in an area classified as Zone 3 or 'low risk' area for radon. Radon testing was not included in the scope of this assessment.

7.4 Mold/Microbial Damage

The contracted scope of work included a cursory visual screening of the accessed areas of the building for evidence of significant damage to building materials and finishes as result of moisture intrusion and/or mold/microbial growth.

The following evidence of significant moisture intrusion or mold/microbial growth was noted:

The basement of Building Elliott - 1 was observed to have standing water on the concrete surface with some discoloration. Intermittent pipe and roof leaks were reportedly common given the age of the building. Mold abatement, primarily removing water damaged wall-board is reportedly performed by NYCHA staff as needed.

7.5 NWI Mapped Wetlands

The National Wetlands Inventory online Wetland Mapper (https://www.fws.gov/wetlands/data/mapper.html) was reviewed for indications of jurisdictional wetlands at or immediately adjoining the Subject Property. The scope of work for this assessment excluded a visual determination of regulated wetlands at the Subject Property. It is emphasized that, regardless of the data reviewed via the NWI Wetlands Mapper, a field delineation of regulated wetlands by a qualified professional would be warranted to determine the presence or absence of regulated wetlands at the Subject Property.

The review did not indicate regulated wetland areas on the Property.

7.6 Lead in Drinking Water

The scope of work for this assessment included a review of the potential for elevated levels of lead in drinking water by determining the source of the drinking water supply and a review of available compliance or testing data.

Potable water service at the Property is provided by a utility connection with the City of New York. A recently published water quality report from the utility indicated compliance with USEPA water quality standards for lead in drinking water. A copy of the report has been attached in Appendix F. Note – no site-specific lead-in-water sampling was performed within the context of the Phase I.

8.0 REFERENCES

ASTM E1527-21-Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process; ASTM International, 2021

ASTM E12600-15-Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transaction, ASTM International, 2015

EDR Radius Map Report, and historical record reports discussed in Section 4, Environmental Data Resources

Methodology for Identifying the Area of Concern Around a Property Potentially Impacted by Vapor Migration from Nearby Contaminated Sources; A. Buonicore, 2011

Site Specific Field Investigation Work Plan Elliott Houses, 426 West 27th Street, New York, New York NYSDEC Spill Number 89-08401 PBS Number 601955; prepared by Gannett Fleming Engineers and Architects, P.C. (GF) dated July 2007 (DRAFT)

Phase II Field Investigation Elliott Houses, 426 West 27th Street, New York, NY 10001, NYSDEC Spill #89-08401; prepared by American Environmental Assessment & Solutions, Inc. (AEASinc) dated March 15, 2011

9.0 APPENDICES

Appendix A	Site Diagram / Vicinity Map
Appendix B	Site Photographs
Appendix C	Questionnaires / User Provided Information
Appendix D	Historical Records Documentation
Appendix E	Regulatory Records Documentation
Appendix F	Other Documents / Lab Results
Appendix G	Project Personnel Qualifications

Appendix B

GEOPHYSICAL SURVEY REPORTS

Coastal Environmental Solutions, Inc.

GEOPHYSICAL INVESTIGATION REPORT

11.22.2023

NYCHA Fulton 11, Manhattan, NY
Date of Investigation: 11/14/2023

Prepared for:

H.K. Engineering
1600 Rt. 22 East
Union, New Jersey 07083

Prepared By:

Dennis Berthold
Director of Geophysical Operations
Coastal Environmental Solutions, Inc.
PO Box 342
Medford, New York 11763

1.0 INTRODUCTION

On 11/14/2023, Coastal Environmental Solutions, Inc (Coastal) personnel performed a limited geophysical investigation at NYCHA Fulton 11, Manhattan, NY. The areas of interest included the exterior of the building for the clearing of approximately 7 proposed soil borings as directed by the client. Surface conditions consisted of soil/grass, asphalt and concrete.

2.0 SCOPE OF WORK

1. Locate and mark detectable evidence of subsurface features such as utilities and former or existing Underground Storage Tanks (USTs) and related piping.

3.0 EQUIPMENT

ImpulseRadar PinPointR Ultra-Wide Band (UWB) Penetrating Radar System

Ground Penetrating RADAR (GPR) is a non-destructive geophysical method that produces a continuous cross-sectional profile of subsurface features in real time. GPR operates by transmitting both high and low frequency electromagnetic wave pulses down into the ground through a transmitter in the antenna. The transmitted electromagnetic waves reflect off materials with contrasting dielectric properties from surrounding medium such as underground storage tanks, utilities, distinct contacts between different earth materials, and other various subsurface objects. The antenna receiver collects the reflected electromagnetic waves which are then interpreted by the operator.

The ImpulseRadar PinPointR UWB GPR utilizes a dual band 400/800 MHz HS antenna mounted to a stroller frame which rolls over the surface. The total depth of penetration achieved with the antenna can be up to 10 feet but widely varies based on site-specific subsurface conditions. Conductive materials in the soil attenuate the GPR signal causing a decrease in effective depth of penetration and clarity.

Vivax-Metrotech vLoc3-Pro Receiver/Transmitter

The vLoc3-Pro Receiver is a hand-operated antenna capable of detecting electromagnetic (EM) fields emitted from a source. The EM antenna can detect pipes and cables in the ground at depths of up to 20 feet using active or passive tracing techniques. Passive tracing is the act of locating an underground utility through the detection of electrical or radio signals travelling along conductive utilities. Active tracing is used in conjunction with the Transmitter that is directly connected to the target utility or to a conductive rodder within a non-conductive line. A signal is sent through the utility at a specific frequency that can be detected by the Receiver. The detectability of a target utility depends on many factors including access to the target utility, grounding, depth of utility, conductivity, and other site-specific factors.

TW-6 Pipe and Cable Locator

The TW-6 Pipe and Cable locator is a handheld magnetometer which utilizes a transmitter-receiver pair attached to opposite ends of a handle and carried approximately 1-2ft from the surface. The magnetometer induces an electromagnetic (EM) field into the ground that is generated by the

transmitter. Once the induced EM field passes through a buried metallic object, it generates a secondary EM field which is detected by the receiver, generating an audible tone. Based on the calibration of the magnetometer, the audible tone reflects the strongest response as the highest pitched sound, trailing off on all sides of the peak. This piece of technology can be used to detect subsurface features such as metallic USTs, large diameter conductive pipes, and buried manholes, especially in areas in which traditional GPR methods cannot be utilized, such as overgrown or uneven surfaces.

4.0 METHODOLOGY

1. A subsurface investigation was performed in close proximity to the client proposed area. Active and passive detection methods were utilized with the VLoc3-Pro receiver/transmitter. Coastal personnel directly connected to all accessible and traceable pipes, conduits, valve covers, and any other surface feature throughout the site. A passive scan was performed throughout the site to detect any potential underground utilities that could not be located with active scan.
2. (If applicable) The TW-6 was utilized to sweep any accessible areas for suspected UST locations in 3-to-5-foot spacings for readings that may represent a buried metallic anomaly. Upon detection of a reading, the approximate size and shape of the anomalous area was marked on the surface to be investigated further with GPR.
3. GPR was utilized to further characterize the approximate dimensions, depth, and shape of the anomalies located with the TW-6 and other detections. The remainder of the areas around suspected UST locations were scanned with GPR in 3-to-5-foot spacing to locate any anomalous features not previously detected such as non-conductive piping and former excavations.
4. All findings were marked on the surface utilizing the American Public Works Association (APWA) recommended color code, seen below:

WHITE	Proposed Excavation
PINK	Temporary Survey Markings (Approximate UST Locations, Soil Boring Locations)
RED	Electric Power Lines, Cables, Conduit and Lighting Cables
YELLOW	Gas, Oil, Steam, Petroleum or Gaseous Materials
ORANGE	Communication, Alarm or Signal Lines, Cables or Conduit
BLUE	Water (Domestic and Fire Lines)
PURPLE	Irrigation (Not commonly used)
GREEN	Sewers and Drain Lines

5.0 SUMMARY OF FINDINGS

Geophysical Investigation

Coastal personnel conducted a geophysical investigation within all accessible areas of concern as indicated by the client. The investigation began with a visual inspection of the areas surrounding the building prior to a thorough search with the above referenced equipment. Within the asphalt

parking lot area, an electrical line and storm drain line was detected and marked out. Within the rear of the building, one storm drain was also found and marked. The area indicated as the playground area was also investigated and found to be absent of utilities with the exception of one storm drain which immediately exited the site at the southern interface. No evidence of current or recently excavated USTs was detected.

Limitations

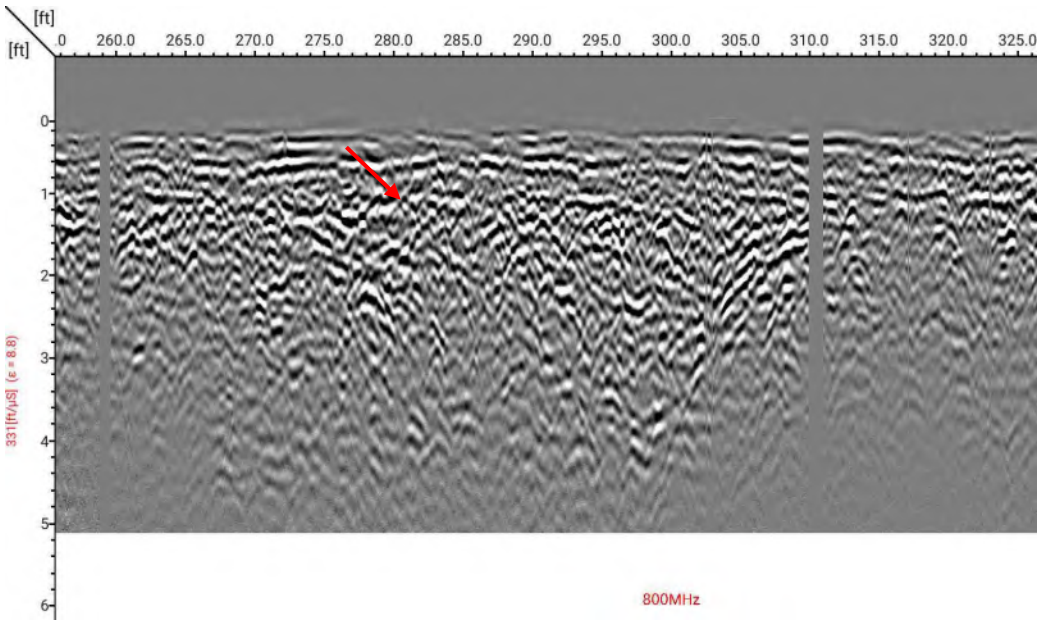
The effective depth of GPR penetration was limited to approximately 2.5 feet below the concrete/asphalt grade and 4 feet below soil grade. The limiting factor was likely due to soil conductivity attenuating the GPR signal, shallow bedrock containing moisture, or non-conductive materials utilized for the utilities. The GPR and TW-6 are unable to be utilized within close proximity to parked vehicles and exterior walls or on reinforced concrete, such as sidewalks.

Disclaimer

The subsurface investigation was performed by Coastal after considering the limits of the scope of work and the time constraint for the investigation. The investigation that is described in this report was undertaken in accordance with current accepted standards and practices of the geophysical survey industry. The results and interpretations that are presented are based on professional judgment and are as accurate as can reasonably be achieved. However, no geophysical equipment can accurately depict all subsurface features due to the geology and environmental conditions of the subsurface. Any intrusive work in proximity to identified anomalies should be carefully considered and cross-referenced with all available site-specific documentation. Coastal is not liable for the use, interpretation, or application of the data and information in this report.

PHOTOS & GPR SCREENSHOTS

Photo 1 – Photo of the asphalt parking lot area containing the electrical line leading to the pole visible in the background.



GPR Screenshot 1 – GPR screenshot showing the electrical line detected beneath the asphalt within the above parking lot.

Photo 2 – Area located behind the building on site. The white circle shows a proposed soil boring location, while the green arrow shows the location of a partially covered storm drain. The storm drain line extended away from the area of concern towards the parking lot in the background.

Photo 3 – Photo of a proposed soil boring located on the east side of the building, adjacent to the playground area.

Photos 4 & 5 – Photos of the proposed soil borings located in the asphalt playground area. Both locations were cleared of all utilities.

Coastal Environmental Solutions, Inc.

GEOPHYSICAL INVESTIGATION REPORT

11.22.2023

NYCHA Chelsea-Elliot Addition, Manhattan, NY
Date of Investigation: 11/14/2023

Prepared for:

H.K. Engineering
1600 Rt. 22 East
Union, New Jersey 07083

Prepared By:

Dennis Berthold
Director of Geophysical Operations
Coastal Environmental Solutions, Inc.
PO Box 342
Medford, New York 11763

1.0 INTRODUCTION

On 11/14/2023, Coastal Environmental Solutions, Inc (Coastal) personnel performed a limited geophysical investigation at NYCHA Chelsea-Elliot Addition, Manhattan, NY. The areas of interest included locations within the building and along the exterior of the building for the clearing of approximately 13 proposed soil borings as directed by the client. Surface conditions consisted of soil/grass, asphalt and concrete.

2.0 SCOPE OF WORK

1. Locate and mark detectable evidence of subsurface features such as utilities and former or existing Underground Storage Tanks (USTs) and related piping.

3.0 EQUIPMENT

ImpulseRadar PinPointR Ultra-Wide Band (UWB) Penetrating Radar System

Ground Penetrating RADAR (GPR) is a non-destructive geophysical method that produces a continuous cross-sectional profile of subsurface features in real time. GPR operates by transmitting both high and low frequency electromagnetic wave pulses down into the ground through a transmitter in the antenna. The transmitted electromagnetic waves reflect off materials with contrasting dielectric properties from surrounding medium such as underground storage tanks, utilities, distinct contacts between different earth materials, and other various subsurface objects. The antenna receiver collects the reflected electromagnetic waves which are then interpreted by the operator.

The ImpulseRadar PinPointR UWB GPR utilizes a dual band 400/800 MHz HS antenna mounted to a stroller frame which rolls over the surface. The total depth of penetration achieved with the antenna can be up to 10 feet but widely varies based on site-specific subsurface conditions. Conductive materials in the soil attenuate the GPR signal causing a decrease in effective depth of penetration and clarity.

Vivax-Metrotech vLoc3-Pro Receiver/Transmitter

The vLoc3-Pro Receiver is a hand-operated antenna capable of detecting electromagnetic (EM) fields emitted from a source. The EM antenna can detect pipes and cables in the ground at depths of up to 20 feet using active or passive tracing techniques. Passive tracing is the act of locating an underground utility through the detection of electrical or radio signals travelling along conductive utilities. Active tracing is used in conjunction with the Transmitter that is directly connected to the target utility or to a conductive rodder within a non-conductive line. A signal is sent through the utility at a specific frequency that can be detected by the Receiver. The detectability of a target utility depends on many factors including access to the target utility, grounding, depth of utility, conductivity, and other site-specific factors.

TW-6 Pipe and Cable Locator

The TW-6 Pipe and Cable locator is a handheld magnetometer which utilizes a transmitter-receiver pair attached to opposite ends of a handle and carried approximately 1-2ft from the surface. The

magnetometer induces an electromagnetic (EM) field into the ground that is generated by the transmitter. Once the induced EM field passes through a buried metallic object, it generates a secondary EM field which is detected by the receiver, generating an audible tone. Based on the calibration of the magnetometer, the audible tone reflects the strongest response as the highest pitched sound, trailing off on all sides of the peak. This piece of technology can be used to detect subsurface features such as metallic USTs, large diameter conductive pipes, and buried manholes, especially in areas in which traditional GPR methods cannot be utilized, such as overgrown or uneven surfaces.

4.0 METHODOLOGY

1. A subsurface investigation was performed in close proximity to the client proposed area. Active and passive detection methods were utilized with the VLoc3-Pro receiver/transmitter. Coastal personnel directly connected to all accessible and traceable pipes, conduits, valve covers, and any other surface feature throughout the site. A passive scan was performed throughout the site to detect any potential underground utilities that could not be located with active scan.
2. (If applicable) The TW-6 was utilized to sweep any accessible areas for suspected UST locations in 3-to-5-foot spacings for readings that may represent a buried metallic anomaly. Upon detection of a reading, the approximate size and shape of the anomalous area was marked on the surface to be investigated further with GPR.
3. GPR was utilized to further characterize the approximate dimensions, depth, and shape of the anomalies located with the TW-6 and other detections. The remainder of the areas around suspected UST locations were scanned with GPR in 3-to-5-foot spacing to locate any anomalous features not previously detected such as non-conductive piping and former excavations.
4. All findings were marked on the surface utilizing the American Public Works Association (APWA) recommended color code, seen below:

WHITE	Proposed Excavation
PINK	Temporary Survey Markings (Approximate UST Locations, Soil Boring Locations)
RED	Electric Power Lines, Cables, Conduit and Lighting Cables
YELLOW	Gas, Oil, Steam, Petroleum or Gaseous Materials
ORANGE	Communication, Alarm or Signal Lines, Cables or Conduit
BLUE	Water (Domestic and Fire Lines)
PURPLE	Irrigation (Not commonly used)
GREEN	Sewers and Drain Lines

5.0 SUMMARY OF FINDINGS

Geophysical Investigation

Coastal personnel conducted a geophysical investigation within all accessible areas of concern as indicated by the client. The investigation began with a visual inspection of the areas surrounding

the building prior to a thorough search with the above referenced equipment. The exterior investigations showed evidence of multiple utilities including electric, water, and possible steam lines connecting to multiple buildings. No evidence of current or recently excavated USTs was detected throughout the investigation areas, though a known UST is present within the concrete walkway east of the investigation area near Elliot 4.

Within the Elliot Center building, multiple areas were investigated for the purposes of clearing safe locations for further investigation. No utilities were detected within the subsurface at the investigated locations.

Limitations

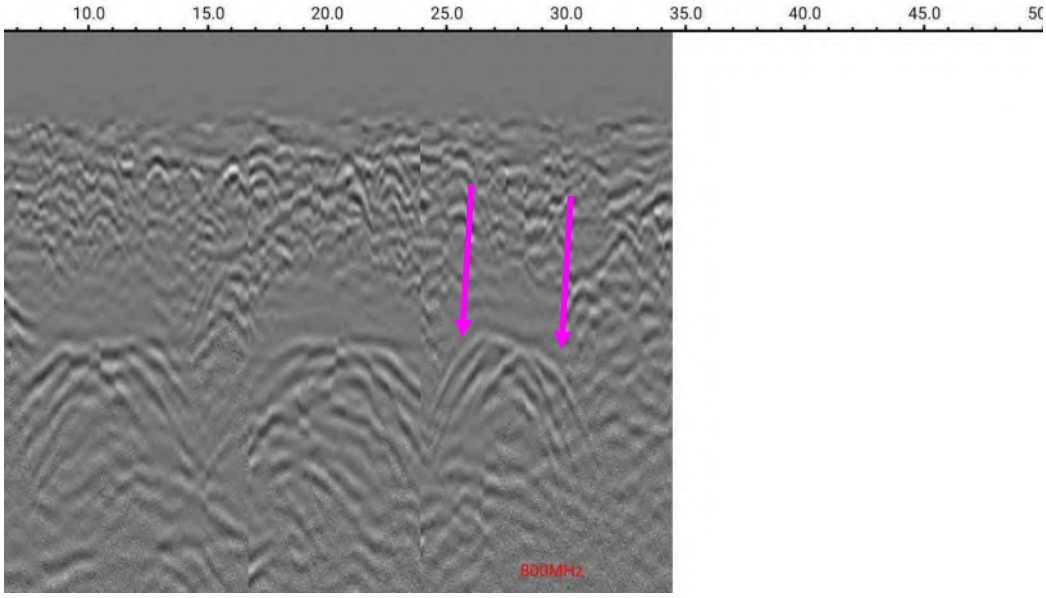
The effective depth of GPR penetration was limited to approximately 2.5 feet below the concrete/asphalt grade and 4 feet below soil grade. The limiting factor was likely due to soil conductivity attenuating the GPR signal, shallow bedrock containing moisture, or non-conductive materials utilized for the utilities. The GPR and TW-6 are unable to be utilized within close proximity to parked vehicles and exterior walls or on reinforced concrete, such as sidewalks.

Disclaimer

The subsurface investigation was performed by Coastal after considering the limits of the scope of work and the time constraint for the investigation. The investigation that is described in this report was undertaken in accordance with current accepted standards and practices of the geophysical survey industry. The results and interpretations that are presented are based on professional judgment and are as accurate as can reasonably be achieved. However, no geophysical equipment can accurately depict all subsurface features due to the geology and environmental conditions of the subsurface. Any intrusive work in proximity to identified anomalies should be carefully considered and cross-referenced with all available site-specific documentation. Coastal is not liable for the use, interpretation, or application of the data and information in this report.

PHOTOS & GPR SCREENSHOTS

Photo 1 – Photo of the concrete walkway between Elliot 4 and the playground area. This area contained multiple utilities including storm drainage, electrical, and water lines. There was also a possible steam line leading from Elliot 4 towards Elliot 1, though this area was marked out later in pink as a trench to avoid during drilling activities.



GPR Screenshot 1 – GPR screenshot showing multiple scans of the series of utility lines within the trench. Due to the proximity of the water, steam, electrical, and other lines to eachother, the entire trench was marked out to avoid.

Photo 2 – Additional view of the playground area with the electrical lines within the trench marked out (highlighted for clarity).

Photo 3 – Photo of a manhole containing a sanitary line leading off the west side of the Elliot Center. The grass area in the background was investigated and shown to be absent of any evidence of utilities.

Photos 4 & 5 – Photos of the proposed soil borings located in the Elliot Center basement. All locations were cleared of all utilities.

Appendix C

Boring Logs

Soil Boring: SB1

Project:	HK2661.2 - Fulton 11	Date Started:	11/17/2023	Permit No.:	-
Client:	Elliot Fulton LLC	Date Finished:	11/17/2023	Well Diameter:	1"
Location:	401-419 West 19th St.	Boring Depth:	15'	Well Material:	Schedule 40 PVC
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	-
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	15'
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	10'
Sample Type:	Macrocore 5'	Surface Elev:	-	Riser Interval:	5'
Logged By:	Dominick A.	Install Method:	Direct Push	Flush/Stickup:	Stickup
				Development Method:	-

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0	0-4'	Fill material	0.0	36	**TWP1 and SV1 installed here**
			0.0		
1			0.0		**Sample SB1A collected from 0-2'**
			0.0		
2			0.0		
			0.0		
3			0.0		
			0.0		
4	4-15'	Dark brown sand (Medium to fine)	0.0		
			0.0		
5			0.0	36	
			0.0		
6			0.0		
			0.0		
7			0.0		
			0.0		
8			0.0		
			0.0		
9			0.0		
			0.0		
10			0.0	48	**Sample SB1B collected from 10-12'**
			0.0		
11			0.0		
			0.0		
12			0.0		
			0.0		
13			0.0		**Groundwater encountered at 15'**
			0.0		
14			0.0		
			0.0		
15					
16					
17					
18					
19					
20		**Boring terminated at 15'**			

Soil Boring: SB2

Project:	HK2661.2 - Fulton 11	Date Started:	11/16/2023	Permit No.:	-
Client:	Elliot Fulton LLC	Date Finished:	11/16/2023	Well Diameter:	1"
Location:	401-419 West 19th St.	Boring Depth:	15'	Well Material:	Schedule 40 PVC
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	-
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	15'
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	10'
Sample Type:	Macrocore 5'	Surface Elev:	-	Riser Interval:	5'
Logged By:	Dominick A.	Install Method:	Direct Push	Flush/Stickup:	Stickup
				Development Method:	-

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0	0-4'	Fill material	0.0	36	**TWP2 and SV2 installed here**
			0.0		
1			0.0		**Sample SB2A collected from 0-2'**
			0.0		
2			0.0		
			0.0		
3			0.0		
			0.0		
4	4-15'	Light brown sand (Medium to coarse)	0.0		
			0.0		
5			0.0	36	
			0.0		
6			0.0		
			0.0		
7			0.0		
			0.0		
8			0.0		
			0.0		
9			0.0		
			0.0		
10			0.0	48	**Sample SB2B collected from 10-12'**
			0.0		
11			0.0		
			0.0		
12			0.0		
			0.0		
13			0.0		**Groundwater encountered at 13.5'**
			0.0		
14			0.0		
			0.0		
15					
16					
17					
18					
19					
20		**Boring terminated at 15'**			

Soil Boring: SB3

Project:	HK2661.2 - Fulton 11	Date Started:	11/16/2023	Permit No.:	-
Client:	Elliot Fulton LLC	Date Finished:	11/16/2023	Well Diameter:	-
Location:	401-419 West 19th St.	Boring Depth:	15'	Well Material:	-
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	-
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	Not encountered
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	-
Sample Type:	Macrocore 5'	Surface Elev:	-	Riser Interval:	-
Logged By:	Dominick A.	Install Method:	Direct Push	Flush/Stickup:	-
				Development Method:	-

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0	0-2'	Fill material	0.0	48	**SV3 installed here**
			0.0		
1			0.0		**Sample SB3A collected from 0-2'**
			0.0		
2	2-15'	Dark brown sand (Medium to coarse)	0.0		**Groundwater not encountered**
			0.0		
3			0.0		
			0.0		
4			0.0		
			0.0		
5			0.0	36	
			0.0		
6			0.0		
			0.0		
7			0.0		
			0.0		
8			0.0		
			0.0		
9			0.0		
			0.0		
10			0.0	48	**Sample SB3B collected from 10-12'**
			0.0		
11			0.0		
			0.0		
12			0.0		
			0.0		
13			0.0		
			0.0		
14			0.0		
			0.0		
15					
16					
17					
18					
19					
20		**Boring terminated at 15'**			

Soil Boring: SB4

Project:	HK2661.2 - Fulton 11	Date Started:	11/17/2023	Permit No.:	-
Client:	Elliot Fulton LLC	Date Finished:	11/17/2023	Well Diameter:	1"
Location:	401-419 West 19th St.	Boring Depth:	15'	Well Material:	Schedule 40 PVC
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	-
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	15'
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	10'
Sample Type:	Macrocore 5'	Surface Elev:	-	Riser Interval:	5'
Logged By:	Dominick A.	Install Method:	Direct Push	Flush/Stickup:	Stickup
				Development Method:	-

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0	0-3'	Fill material	0.0	36	**TWP4 and SV4 installed here**
			0.0		
1			0.0		**Sample SB4A collected from 0-2'**
			0.0		
2			0.0		
			0.0		
3	3-15'	Dark brown sand (Medium to coarse)	0.0		
			0.0		
4			0.0		
			0.0		
5			0.0	48	
			0.0		
6			0.0		
			0.0		
7			0.0		
			0.0		
8			0.0		
			0.0		
9			0.0		
			0.0		
10			0.0	48	**Sample SB4B collected from 10-12'**
			0.0		
11			0.0		
			0.0		
12			0.0		
			0.0		
13			0.0		
			0.0		
14			0.0		
			0.0		
15					
16					
17					
18					
19					
20		**Boring terminated at 15'**			

Soil Boring: SB5

Project:	HK2661.2 - Fulton 11	Date Started:	11/17/2023	Permit No.:	-
Client:	Elliot Fulton LLC	Date Finished:	11/17/2023	Well Diameter:	1"
Location:	401-419 West 19th St.	Boring Depth:	15'	Well Material:	Schedule 40 PVC
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	-
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	15'
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	10'
Sample Type:	Macrocore 5'	Surface Elev:	-	Riser Interval:	5'
Logged By:	Dominick A.	Install Method:	Direct Push	Flush/Stickup:	Stickup
				Development Method:	-

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0	0-3'	Fill material	0.0	48	**TWP5 installed here**
			0.0		
1			0.0		**Sample SB5 collected from 0-2'**
			0.0		
2			0.0		
			0.0		
3	3-5'	Dark brown sand (Medium to coarse)	0.0		
			0.0		
4			0.0		
			0.0		
5		Soil not captured			
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					**Groundwater encountered at 15'**
16					
17					
18					
19					
20		**Boring terminated at 15'**			

Soil Boring: SB6

Project:	HK2661.2 - Fulton 11	Date Started:	11/17/2023	Permit No.:	-
Client:	Elliot Fulton LLC	Date Finished:	11/17/2023	Well Diameter:	-
Location:	401-419 West 19th St.	Boring Depth:	6.5'	Well Material:	-
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	-
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	-
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	-
Sample Type:	Hand Auger	Surface Elev:	-	Riser Interval:	-
Logged By:	Dominick A.	Install Method:	Direct Push	Flush/Stickup:	-
				Development Method:	-

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
	SURFACE				
0	0-6'	Crawlspace height			
1					
2					
3					
4					
5					
6	6-6.5'	Dark brown sand (Medium to coarse)	0.0 0.0	6	**Sample SB6 was collected from the building crawlspace via Hand Auger.**
7					**The depth of the crawlspace was 6'. Sample SB6 was collected via Hand Auger from 6 - 6.5'**
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20		**Boring terminated at 6.5'**			

Soil Boring: SB8

Project:	HK2661.2 - Fulton 11	Date Started:	11/17/2023	Permit No.:	-
Client:	Elliot Fulton LLC	Date Finished:	11/17/2023	Well Diameter:	-
Location:	401-419 West 19th St.	Boring Depth:	6.5'	Well Material:	-
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	-
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	-
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	-
Sample Type:	Hand Auger	Surface Elev:	-	Riser Interval:	-
Logged By:	Dominick A.	Install Method:	Direct Push	Flush/Stickup:	-
				Development Method:	-

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
	SURFACE				
0	0-6'	Crawlspace height			
1					
2					
3					
4					
5					
6	6-6.5'	Dark brown sand (Medium to coarse)	0.0 0.0	6	**Sample SB8 was collected from the building crawlspace via Hand Auger.**
7					**The depth of the crawlspace was 6'. Sample SB8 was collected via Hand Auger from 6 - 6.5'**
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20		**Boring terminated at 6.5'**			

Soil Boring: SB9

Project:	HK2661.2 - Fulton 11	Date Started:	11/17/2023	Permit No.:	-
Client:	Elliot Fulton LLC	Date Finished:	11/17/2023	Well Diameter:	-
Location:	401-419 West 19th St.	Boring Depth:	15'	Well Material:	-
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	-
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	Not encountered
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	-
Sample Type:	Macrocore 5'	Surface Elev:	-	Riser Interval:	-
Logged By:	Dominick A.	Install Method:	Direct Push	Flush/Stickup:	-
				Development Method:	-

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0	0-4'	Fill material	0.0	36	**SV9 installed here**
			0.0		
1			0.0		**Sample SB9A collected from 0-2'**
			0.0		
2			0.0		**Groundwater not encountered**
			0.0		
3			0.0		
			0.0		
4	4-15'	Dark brown sand (Medium to coarse)	0.0		
			0.0		
5			0.0	48	
			0.0		
6			0.0		
			0.0		
7			0.0		
			0.0		
8			0.0		
			0.0		
9			0.0		
			0.0		
10			0.0	48	**Sample SB9B collected from 10-12'**
			0.0		
11			0.0		
			0.0		
12			0.0		
			0.0		
13			0.0		
			0.0		
14			0.0		
			0.0		
15					
16					
17					
18					
19					
20		**Boring terminated at 15'**			

Soil Boring: SB10

Project:	HK2661.2 - Fulton 11	Date Started:	11/17/2023	Permit No.:	-
Client:	Elliot Fulton LLC	Date Finished:	11/17/2023	Well Diameter:	-
Location:	401-419 West 19th St.	Boring Depth:	15'	Well Material:	-
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	-
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	Not encountered
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	-
Sample Type:	Macrocore 5'	Surface Elev:	-	Riser Interval:	-
Logged By:	Dominick A.	Install Method:	Direct Push	Flush/Stickup:	-
				Development Method:	-

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0	0-3'	Fill material	0.0	36	
			0.0		
1			0.0		**Sample SB10A collected from 0-2'**
			0.0		
2			0.0		**Groundwater not encountered**
			0.0		
3	3-15'	Light brown sand (Medium to coarse)	0.0		
			0.0		
4			0.0		
			0.0		
5			0.0	48	
			0.0		
6			0.0		
			0.0		
7			0.0		
			0.0		
8			0.0		
			0.0		
9			0.0		
			0.0		
10			0.0	48	**Sample SB10B collected from 10-12'**
			0.0		
11			0.0		
			0.0		
12			0.0		
			0.0		
13			0.0		
			0.0		
14			0.0		
			0.0		
15					
16					
17					
18					
19					
20		**Boring terminated at 15'**			

Soil Boring: SB1

Project:	HK2661.1 - Chelsea	Date Started:	11/15/2023	Permit No.:	
Client:	Elliot Fulton LLC	Date Finished:	11/15/2023	Well Diameter:	1"
Location:	436 West 27th Dive	Boring Depth:	20'	Well Material:	Schedule 40 PVC
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	-
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	14'
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	10'
Sample Type:	Macrocore 5'	Surface Elev:		Riser Interval:	10'
Logged By:	R. Powell.	Install Method:	Direct Push	Flush/Stickup:	Stickup
				Development Method:	

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0		Fill Material	0.0	50	**TWP1 installed here**
			0.0		**SV1 installed here**
1			0.0		
			0.0		
2			0.0		**Sample SB1A collected from 0-2'**
			0.0		
3			0.0		
			0.0		
4			0.0		
			0.0		
5			0.0	45	
			0.0		
6			0.0		
	0-14'		0.0		
7			0.0		
			0.0		
8			0.0		
			0.0		
9			0.0		
			0.0		
10			0.0	47	**Sample SB1B collected from 10-12'**
			0.0		
11			0.0		
			0.0		
12			0.0		
			0.0		
13			0.0		
			0.0		**Groundwater encountered at 14.0'**
14	14-15'	Brown Sand medium grain, wet	0.0		
			0.0		
15		No soil captured			
16					
17					
18					
19					
20		**Boring terminated at 20'**			

Soil Boring: SB2

Project:	HK2661.1 - Chelsea	Date Started:	11/15/2023	Permit No.:	
Client:	Elliot Fulton LLC	Date Finished:	11/15/2023	Well Diameter:	1"
Location:	436 West 27th Dive	Boring Depth:	20'	Well Material:	Schedule 40 PVC
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	-
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	11.5'
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	10'
Sample Type:	Macrocore 5'	Surface Elev:		Riser Interval:	10'
Logged By:	R. Powell.	Install Method:	Direct Push	Flush/Stickup:	Stickup
				Development Method:	

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0		Concrete	0.0	28	**TWP2 installed here**
	0 - 1		0.0		**SV2 installed here**
1		Fill Material	0.0		
			0.0		
2			0.0		**Sample SB2A collected from 0-2'**
	2 - 5		0.0		
3			0.0		
			0.0		
4			0.0		
			0.0		
5		Brown Sand, fine	0.0	35	
			0.0		
6			0.0		
			0.0		
7			0.0		
			0.0		
8			0.0		
			0.0		
9			0.0		
			0.0		
10	5 - 15		0.0	40	**Sample SB2B collected from 10-12'**
			0.0		
11			0.0		**Groundwater encountered at 11.50'**
			0.0		
12			0.0		
			0.0		
13			0.0		
			0.0		
14			0.0		
			0.0		
15		No soil captured			
16					
17					
18					
19					
20		**Boring terminated at 20'**			

Soil Boring: SB3

Project:	HK2661.1 - Chelsea	Date Started:	11/15/2023	Permit No.:	
Client:	Elliot Fulton LLC	Date Finished:	11/15/2023	Well Diameter:	
Location:	436 West 27th Dive	Boring Depth:	15'	Well Material:	
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	N/A
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	
Sample Type:	Macrocore 5'	Surface Elev:		Riser Interval:	
Logged By:	R. Powell	Install Method:	Direct Push	Flush/Stickup:	
				Development Method:	

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0		Fill Material	0.0	30	
			0.0		**SV3 installed here**
1			0.0		
			0.0		
2			0.0		**Sample SB3A collected from 0-2'**
			0.0		
3			0.0		
			0.0		
4			0.0		
			0.0		
5			0.0	41	
			0.0		
6			0.0		
			0.0		
7			0.0		
	0 - 15		0.0		
8			0.0		
			0.0		
9			0.0		
			0.0		
10			0.0	37	**Sample SB3B collected from 10-12'**
			0.0		
11			0.0		
			0.0		
12			0.0		
			0.0		
13			0.0		
			0.0		**Groundwater encountered at 14.0'**
14			0.0		
			0.0		
15					
16					
17					
18					
19					
20		**Boring terminated at 15'**			

Soil Boring: SB4

Project:	HK2661.1 - Chelsea	Date Started:	11/16/2023	Permit No.:	-
Client:	Elliot Fulton LLC	Date Finished:	11/16/2023	Well Diameter:	1"
Location:	436 West 27th Dive	Boring Depth:	15'	Well Material:	Schedule 40 PVC
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	-
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	13.5'
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	10'
Sample Type:	Macrocore 5'	Surface Elev:	-	Riser Interval:	5'
Logged By:	Dominick A.	Install Method:	Direct Push	Flush/Stickup:	Stickup
				Development Method:	-

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0	0-3'	Fill material	0.0	36	**TWP4 installed here**
			0.0		
1			0.0		**Sample SB4A collected from 0-2'**
			0.0		
2			0.0		
			0.0		
3	3-15'	Dark brown sand (Medium to coarse)	0.0		
			0.0		
4			0.0		
			0.0		
5			0.0	36	
			0.0		
6			0.0		
			0.0		
7			0.0		
			0.0		
8			0.0		
			0.0		
9			0.0		
			0.0		
10			0.0	48	**Sample SB4B collected from 10-12'**
			0.0		
11			0.0		
			0.0		
12			0.0		
			0.0		
13			0.0		**Groundwater encountered at 13.5'**
			0.0		
14			0.0		
			0.0		
15					
16					
17					
18					
19					
20		**Boring terminated at 15'**			

Soil Boring: SB5

Project:	HK2661.1 - Chelsea	Date Started:	11/16/2023	Permit No.:	-
Client:	Elliot Fulton LLC	Date Finished:	11/16/2023	Well Diameter:	1"
Location:	436 West 27th Dive	Boring Depth:	15'	Well Material:	Schedule 40 PVC
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	-
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	13'
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	10'
Sample Type:	Macrocore 5'	Surface Elev:	-	Riser Interval:	5'
Logged By:	Dominick A.	Install Method:	Direct Push	Flush/Stickup:	Stickup
				Development Method:	-

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0	0-15'	Dark brown sand (Medium to coarse)	0.0	48	**TWP5 installed here**
			0.0		
1			0.0		**Sample SB5A collected from 0-2'**
			0.0		
2			0.0		
			0.0		
3			0.0		
			0.0		
4			0.0		
			0.0		
5			0.0	48	
			0.0		
6			0.0		
			0.0		
7			0.0		
			0.0		
8			0.0		
			0.0		
9			0.0		
			0.0		
10			0.0	60	**Sample SB5B collected from 10-12'**
			0.0		
11			0.0		
			0.0		
12			0.0		
			0.0		
13			0.0		**Groundwater encountered at 13'**
			0.0		
14			0.0		
			0.0		
15					
16					
17					
18					
19					
20		**Boring terminated at 15'**			

Soil Boring: SB6

Project:	HK2661.1 - Chelsea	Date Started:	11/20/2023	Permit No.:	-
Client:	Elliot Fulton LLC	Date Finished:	11/20/2023	Well Diameter:	1"
Location:	436 West 27th Dive	Boring Depth:	15'	Well Material:	Schedule 40 PVC
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	-
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	13.5'
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	10'
Sample Type:	Macrocore 5'	Surface Elev:	-	Riser Interval:	5'
Logged By:	Dominick A.	Install Method:	Direct Push	Flush/Stickup:	Stickup
				Development Method:	-

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0	0-3'	Fill material	0.0	48	**TWP6 installed here**
			0.0		
1			0.0		**Sample SB6A collected from 0-2'**
			0.0		
2			0.0		
			0.0		
3	3-15'	Dark brown sand (Medium to coarse)	0.0		
			0.0		
4			0.0		
			0.0		
5			0.0	48	
			0.0		
6			0.0		
			0.0		
7			0.0		
			0.0		
8			0.0		
			0.0		
9			0.0		
			0.0		
10			0.0	60	**Sample SB6B collected from 10-12'**
			0.0		
11			0.0		
			0.0		
12			0.0		
			0.0		
13			0.0		**Groundwater encountered at 13.5'**
			0.0		
14			0.0		
			0.0		
15					
16					
17					
18					
19					
20		**Boring terminated at 15'**			

Soil Boring: SB8

Project:	HK2661.1 - Chelsea	Date Started:	11/15/2023	Permit No.:	
Client:	Elliot Fulton LLC	Date Finished:	11/15/2023	Well Diameter:	
Location:	436 West 27th Dive	Boring Depth:	14"	Well Material:	
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	N/A
Rig Type:	Concrete Core Drill	Long/Easting:	-	Screen Interval:	
Sample Type:	Hand Auger	Surface Elev:		Riser Interval:	
Logged By:	R. Powell	Install Method:	Direct Push	Flush/Stickup:	
				Development Method:	

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (in bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
	SURFACE				
0	0 - 2 inches	Concrete	0.0	N/A	**Collected inside basement**
		Brown Sand, fine	0.0		**hallway near elevator at**
1	2 -14 inches		0.0		**427 W. 26th Drive**
2					**Sample SB8A collected from 2-14"**
					SV8 installed here
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20		**Boring terminated at 14"**			

Soil Boring: SB9

Project:	HK2661.1 - Chelsea	Date Started:	11/20/2023	Permit No.:	-
Client:	Elliot Fulton LLC	Date Finished:	11/20/2023	Well Diameter:	-
Location:	436 West 27th Dive	Boring Depth:	15'	Well Material:	-
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	-
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	13'
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	-
Sample Type:	Macrocore 5'	Surface Elev:	-	Riser Interval:	-
Logged By:	Dominick A.	Install Method:	Direct Push	Flush/Stickup:	-
				Development Method:	-

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0	0-3'	Fill material	0.0	36	**SV9 installed here**
			0.0		
1			0.0		**Sample SB9A collected from 0-2'**
			0.0		
2			0.0		
			0.0		
3	3-15'	Dark brown sand (Medium to coarse)	0.0		
			0.0		
4			0.0		
			0.0		
5			0.0	48	
			0.0		
6			0.0		
			0.0		
7			0.0		
			0.0		
8			0.0		
			0.0		
9			0.0		
			0.0		
10			0.0	48	**Sample SB9B collected from 10-12'**
			0.0		
11			0.0		
			0.0		
12			0.0		
			0.0		
13			0.0		**Groundwater encountered at 13'**
			0.0		
14			0.0		
			0.0		
15					
16					
17					
18					
19					
20		**Boring terminated at 15'**			

Soil Boring: SB10

Project:	HK2661.1 - Chelsea	Date Started:	11/15/2023	Permit No.:	
Client:	Elliot Fulton LLC	Date Finished:	11/15/2023	Well Diameter:	
Location:	436 West 27th Dive	Boring Depth:	30 inches	Well Material:	
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	N/A
Rig Type:	Concrete Core Drill	Long/Easting:	-	Screen Interval:	
Sample Type:	Hand Auger	Surface Elev:		Riser Interval:	
Logged By:	R. Powell	Install Method:	Direct Push	Flush/Stickup:	
				Development Method:	

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (in bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
	SURFACE				
0			0.0		**Collected at Hudson Guild**
	0 - 15	Concrete	0.0		**Center inside unused hallway**
1			0.0		
			0.0		**Sample SB10A collected from 18-30"**
2	15 - 30	Brown Sand, fine	0.0	N/A	
					SV6 installed here
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20		**Boring terminated at 30"**			

Soil Boring: SB11

Project:	HK2661.1 - Chelsea	Date Started:	11/15/2023	Permit No.:	
Client:	Elliot Fulton LLC	Date Finished:	11/15/2023	Well Diameter:	
Location:	436 West 27th Dive	Boring Depth:	24 inches	Well Material:	
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	N/A
Rig Type:	Concrete Core Drill	Long/Easting:	-	Screen Interval:	
Sample Type:	Hand Auger	Surface Elev:		Riser Interval:	
Logged By:	R. Powell	Install Method:	Direct Push	Flush/Stickup:	
				Development Method:	

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (in bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0	0 - 8	Concrete	0.0	N/A	**Collected inside trash compactor**
			0.0		**room at 427 W. 26th Drive**
1			0.0		
		Brown Sand, fine	0.0		
2	8 - 24		0.0		
			0.0		**SV7 installed here**
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20		**Boring terminated at 24"**			

Soil Boring: SB12

Project:	HK2661.1 - Chelsea	Date Started:	11/15/2023	Permit No.:	
Client:	Elliot Fulton LLC	Date Finished:	11/5/2023	Well Diameter:	
Location:	436 West 27th Dive	Boring Depth:	5'	Well Material:	
	Manhattan, NY	GW Bore Depth:	-	Slot Size:	
Drilling Co.:	Coastal	Lat/Northing:	-	Depth to GW:	N/A
Rig Type:	Geoprobe 6620DT	Long/Easting:	-	Screen Interval:	
Sample Type:	Macrocore 5'	Surface Elev:		Riser Interval:	
Logged By:	R. Powell.	Install Method:	Direct Push	Flush/Stickup:	
				Development Method:	

HK ENGINEERING & GEOLOGY, D.P.C.

Depth (ft bgs)	Material Depth (ft bgs)	Material Description	PID/OVM Reading (ppm)	Recovery (inches)	Comments
SURFACE					
0		Fill Material	0.0	36	
			0.0		
1			0.0		
			0.0		
2			0.0		**Sample SB12A collected from 0-2'**
			0.0		
3	0 - 5		0.0		
			0.0		
4			0.0		
			0.0		
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20		**Boring terminated at 5'**			

Appendix D

Analytical Lab Reports

Appendix D

Lab Reports Fulton 11

Integrated Analytical Laboratories LLC

ANALYTICAL DATA REPORT

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083

Project Name: **HK2661.2**
IAL Case Number: **E23-05066**

These data have been reviewed and accepted by:

Michael H. Lefkin, Ph.D.
Laboratory Director

This report shall not be reproduced, except in its entirety, without the written consent of Integrated Analytical Laboratories, LLC. The test results included in this report relate only to the samples analyzed. The results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

273 Franklin Road
Randolph, NJ 07869
Phone: 973 361 4252

IAL is a NELAP accredited lab (TNI01284) and maintains certification in Connecticut (PH-0699), New Jersey (14751), New York (11402) and Pennsylvania (68-00773).

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Sample Summary

IAL Case No. E23-05066

Client HK Engineering & Geology, D.P.C.

Project HK2661.2

Received On 11/17/2023@16:40

Lab ID	Client Sample ID	Depth Top/Bottom	Sampling Time	Matrix	# of Container
05066-001	SB10A	0/2	11/16/2023@09:30	Soil	5
05066-002	SB10B	10/12	11/16/2023@09:45	Soil	5
05066-003	SB2A	0/2	11/16/2023@10:00	Soil	5
05066-004	SB2B	10/12	11/16/2023@10:20	Soil	5
05066-005	SB5	0/2	11/16/2023@13:40	Soil	5
05066-006	SB3A	0/2	11/16/2023@13:05	Soil	5
05066-007	SB3B	10/12	11/16/2023@13:10	Soil	5
05066-008	SB9A	0/2	11/17/2023@08:00	Soil	5
05066-009	SB9B	10/12	11/17/2023@08:10	Soil	5
05066-010	SB1A	0/2	11/17/2023@09:00	Soil	5
05066-011	SB1B	10/12	11/17/2023@09:15	Soil	5
05066-012	SB4A	0/2	11/17/2023@09:55	Soil	5
05066-013	SB4B	10/12	11/17/2023@10:05	Soil	5
05066-014	SB6-419-CS	0/0.5	11/17/2023@11:30	Soil	5
05066-015	SB8-401-CS	0/0.5	11/17/2023@11:40	Soil	5
05066-016	TWP1	n/a	11/16/2023@09:30	Aqueous	10
05066-017	TWP4	n/a	11/16/2023@10:20	Aqueous	10
05066-018	TWP2	n/a	11/16/2023@10:00	Aqueous	10
05066-019	TWP5	n/a	11/16/2023@14:00	Aqueous	10
05066-020	TWP1 FILT	n/a	11/16/2023@09:30	Aqueous	1
05066-021	TWP4 FILT	n/a	11/16/2023@10:20	Aqueous	1
05066-022	TWP2 FILT	n/a	11/16/2023@10:00	Aqueous	1
05066-023	TWP5 FILT	n/a	11/16/2023@14:00	Aqueous	1

Integrated Analytical Labs ~ 273 Franklin Road, Randolph, NJ 07869 ~ (973) 361-4252

SAMPLE DELIVERY GROUP CASE NARRATIVE
(Conformance / Non-Conformance Summary)

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05066

Integrated Analytical Laboratories, LLC. received twenty-three (23) samples** from HK Engineering & Geology, D.P.C. (IAL SDG# **E23-05066**, Project: HK2661.2) on November 17, 2023 for the analysis of :

(4) Low Level TCL VO for 8260+8011 + 15
(15) TCL VO + 15
(15) TCL BNA + 15
(4) TCL BNA + SIMS + 15
(19) TCL PCB
(19) TCL Pesticides
(19) Cyanide, Total
(23) TAL Metals (6020B/7471B) by SGS Dayton

**Number of samples listed above may be greater than what is listed on the chain of custody. Any samples that require in-house filtration or splitting will be counted as separate samples.

Samples were received in good condition with documentation in order.
Cooler temperature was acceptable at 4 ± 2 degree C.

Volatiles By SW 8260D	**Batch: 231122-01**	**Matrix: Aqueous**

QC
- Calibration curve met QC criteria.
- Internal standards recovery met QC criteria.
- Surrogate percent recovery met QC criteria.
- Method blank met QC criteria.
- LCS percent recovery met QC criteria. NJDEP DKQP criteria not met.
- MS/MSD RPD met QC criteria.
- MS/MSD percent recovery met QC criteria. NJDEP DKQP criteria not met.

E23-05066
- All samples were received within holding time.
- All samples were analyzed within holding time.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05066-016	1	NA
E23-05066-017	1	NA
E23-05066-018	1	NA
E23-05066-019	1	NA

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05066

Volatiles By SW 8260D	Batch: L231121-01	Matrix: Soil

QC
- Calibration curve met QC criteria.
- Internal standards recovery met QC criteria.
- Surrogate percent recovery met QC criteria.
- Method blank met QC criteria.
- LCS percent recovery met QC criteria.
- MS/MSD RPD met QC criteria.
- MS/MSD did not meet QC criteria due to QC sample matrix interference. NJDEP DKQP criteria not met.

E23-05066
- All samples were received within holding time.
- All samples were analyzed within holding time.
- #10, #13, #14 and #15 were flagged with a C qualifier, indicating laboratory contamination for Methylene chloride. Methylene chloride is used as a solvent in the laboratory, resulting in occasional laboratory contamination.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05066-001	1	NA
E23-05066-002	1	NA
E23-05066-003	1	NA
E23-05066-004	1	NA
E23-05066-005	1	NA
E23-05066-006	1	NA
E23-05066-007	1	NA
E23-05066-008	1	NA
E23-05066-009	1	NA
E23-05066-010	1	NA
E23-05066-011	1	NA
E23-05066-012	1	NA
E23-05066-013	1	NA
E23-05066-014	1	NA
E23-05066-015	1	NA

Microextractable By SW 8011	Batch: 231121-01	Matrix: Aqueous

QC
- Calibration curve met QC criteria.
- Method blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- MS Percent Recovery met QC criteria.
- RPD between the Sample/Duplicate met QC criteria.

E23-05066
- All samples were received within holding time.
- All samples were analyzed within holding time.
- Retention Time Shift met QC criteria.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05066-016	1	NA
E23-05066-017	1	NA
E23-05066-018	1	NA
E23-05066-019	1	NA

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05066

Semivolatiles By SW 8270E	Batch: 231120-02	Matrix: Soil

QC
- Calibration curve met QC criteria.
- Internal standard recovery met QC criteria.
- Surrogate recovery met QC criteria. NJDEP DKQP criteria not met.
- Method blank met QC criteria.
- LCS percent recovery met QC criteria. NJDEP DKQP criteria not met.
- MS/MSD RPD did not meet QC criteria due to matrix interference. NJDEP DKQP criteria not met.
- MS/MSD percent recovery did not meet QC criteria due to matrix interference. NJDEP DKQP criteria not met.
- CCV did not meet QC criteria some target compounds high, but no positive hits was/were found in the associated sample.

E23-05066
- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05066-001	1	NA
E23-05066-002	1	NA
E23-05066-003	10	Target compound(s).
E23-05066-004	1	NA
E23-05066-005	1	NA
E23-05066-006	1	NA
E23-05066-007	1	NA
E23-05066-008	5	Target compound(s).
E23-05066-009	1	NA
E23-05066-010	1	NA
E23-05066-011	1	NA
E23-05066-012	1	NA
E23-05066-013	1	NA
E23-05066-014	1	NA
E23-05066-015	5	Target compound(s).

The result reported for 1,2-Diphenylhydrazine is also representative of Azobenzene. 1,2-Diphenylhydrazine rapidly decomposes to Azobenzene when exposed to water or heat. Analytical results from analysis of 1,2-Diphenylhydrazine will be directly compared to the applicable criteria for Azobenzene and/or 1,2-Diphenylhydrazine.

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05066

Semivolatiles By SW 8270E, SW 8270E SIM **Batch: 231120-04** **Matrix: Aqueous**

QC
- Calibration curve met QC criteria.
- Internal standard recovery met QC criteria.
- Surrogate recovery met QC criteria. NJDEP DKQP criteria not met.
- Method blank met QC criteria.
- LCS percent recovery met QC criteria. NJDEP DKQP criteria not met.
- MS/MSD RPD did not meet QC criteria due to RPD failing high for benzaldehyde. NJDEP DKQP criteria not met.
- MS/MSD percent recovery met QC criteria. NJDEP DKQP criteria not met.
- CCV did not pass for all compounds. A sensitivity check was ran for Benzaldehyde. Compounds that did not have a passing CCV were reported as non-detect.

E23-05066
- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05066-016	1	NA
E23-05066-017	1	NA
E23-05066-018	1	NA
E23-05066-019	1	NA

The result reported for 1,2-Diphenylhydrazine is also representative of Azobenzene. 1,2-Diphenylhydrazine rapidly decomposes to Azobenzene when exposed to water or heat. Analytical results from analysis of 1,2-Diphenylhydrazine will be directly compared to the applicable criteria for Azobenzene and/or 1,2-Diphenylhydrazine.

PCB By SW 8082A **Batch: 231120-01** **Matrix: Aqueous**

QC
- Calibration curve met QC criteria.
- Surrogate percent recovery met QC criteria.
- Method blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- RPD between MS/MSD met QC criteria.
- MS/MSD Percent Recovery met QC criteria.
- The following samples were cleaned up using method 3660B to remove sulfur: BLKA231120-01, LCSA231120-01, E23-05046-014MS, E23-05046-014MSD, E23-05066-016, E23-05066-017, E23-05066-018, E23-05066-019.

E23-05066
- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.
- Retention Time Shift met QC criteria.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05066-016	1	NA
E23-05066-017	1	NA
E23-05066-018	1	NA
E23-05066-019	1	NA

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05066

PCB By SW 8082A	Batch: 231121-02	Matrix: Soil

QC

- Calibration curve met QC criteria.
- Surrogate percent recovery did not meet QC criteria due to matrix interference for #008; #012. NJDEP DKQP criteria not met.
- Method blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- RPD between MS/MSD met QC criteria.
- MS/MSD Percent Recovery met QC criteria.
- The following samples were cleaned up using method 3660B to remove sulfur: BLKS231121-02, LCSS231121-02, E23-05066-002MS, E23-05066-002MSD, E23-05066-001, E23-05066-002, E23-05066-003, E23-05066-004, E23-05066-005, E23-05066-006, E23-05066-007, E23-05066-008, E23-05066-009, E23-05066-010, E23-05066-011, E23-05066-012, E23-05066-013, E23-05066-014, E23-05066-015.

E23-05066

- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.
- Retention Time Shift met QC criteria.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05066-001	1	NA
E23-05066-002	1	NA
E23-05066-003	1	NA
E23-05066-004	1	NA
E23-05066-005	1	NA
E23-05066-006	1	NA
E23-05066-007	1	NA
E23-05066-008	1	NA
E23-05066-009	1	NA
E23-05066-010	1	NA
E23-05066-011	1	NA
E23-05066-012	1	NA
E23-05066-013	1	NA
E23-05066-014	1;10	Target compound(s)
E23-05066-015	1	NA

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05066

Pesticides By SW 8081B	Batch: 231120-01	Matrix: Aqueous

QC

- Calibration curve met QC criteria.
- Surrogate percent recovery met QC criteria.
- Method blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- RPD between MS/MSD met QC criteria.
- MS/MSD percent recovery did not meet QC criteria due to matrix interference. NJDEP DKQP criteria not met.
- The following samples were cleaned up using method 3660B to remove sulfur: BLKA231120-01, E23-05009-001MSD, LCSA231120-01, E23-05066-016, E23-05066-017, E23-05066-018, E23-05066-019.

E23-05066

- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.
- Retention Time Shift met QC criteria.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05066-016	1	NA
E23-05066-017	1	NA
E23-05066-018	1	NA
E23-05066-019	1	NA

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05066

Pesticides By SW 8081B **Batch: 231121-02** **Matrix: Soil**

QC
- Calibration curve met QC criteria.
- Surrogate percent recovery did not meet QC criteria due to matrix interference for #003; #006; #011; #012; #015. NJDEP DKQP criteria not met.
- Method blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- RPD between MS/MSD met QC criteria.
- MS/MSD Percent Recovery met QC criteria.
- The RPD between the primary and secondary column was >40% for the following samples: #001; #003; #008; #012; #015. Per SW-846 8000D, the lower of the two concentrations was reported.
- The following samples were cleaned up using method 3660B to remove sulfur: BLKS231121-02, LCSS231121-02, E23-05066-002MS, E23-05066-002MSD, E23-05066-001, E23-05066-002, E23-05066-003, E23-05066-004, E23-05066-005, E23-05066-006, E23-05066-007, E23-05066-008, E23-05066-009, E23-05066-010, E23-05066-011, E23-05066-012, E23-05066-013, E23-05066-014, E23-05066-015.

E23-05066
- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.
- Retention Time Shift met QC criteria.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05066-001	1;2	Target compound(s).
E23-05066-002	1	NA
E23-05066-003	1	NA
E23-05066-004	1	NA
E23-05066-005	1	NA
E23-05066-006	1	NA
E23-05066-007	1	NA
E23-05066-008	1	NA
E23-05066-009	1	NA
E23-05066-010	1	NA
E23-05066-011	1	NA
E23-05066-012	1	NA
E23-05066-013	1	NA
E23-05066-014	1;20	Target compound(s).
E23-05066-015	1;50	Target compound(s).

Cyanide, Total By EPA 335.4 **Batch: AP013-0113** **Matrix: Aqueous**

QC
- Method blank met QC criteria.
- LCS percent recovery met QC criteria.
- MS/MSD Percent Recovery met QC criteria.
- Duplicate Recoveries met QC criteria.

E23-05066
- All samples were received within holding time.
- All samples were analyzed within holding time.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05066-016	1	NA
E23-05066-017	1	NA
E23-05066-018	1	NA
E23-05066-019	1	NA

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05066

Cyanide, Total By SW 9012B **Batch: AP013-0115** **Matrix: Soil**

QC
- Method blank met QC criteria.
- LCS percent recovery met QC criteria.
- MS/MSD Percent Recovery met QC criteria.
- Duplicate Recoveries met QC criteria.

E23-05066
- All samples were received within holding time.
- All samples were analyzed within holding time.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05066-001	1	NA
E23-05066-002	1	NA
E23-05066-003	1	NA
E23-05066-004	1	NA
E23-05066-005	1	NA
E23-05066-006	1	NA
E23-05066-007	1	NA
E23-05066-008	1	NA
E23-05066-009	1	NA
E23-05066-010	1	NA
E23-05066-011	1	NA
E23-05066-012	1	NA
E23-05066-013	1	NA
E23-05066-014	1	NA
E23-05066-015	1	NA

Subcontracted to SGS Dayton, TNI certified*, #TNI01283, NJ certified

Method: 6020B/7471B **Matrix: Soil, Aqueous**

QC
- Some analyses did not meet QC criteria. See subcontracted report case narrative.

E23-05066
- Please see Case Narrative of Subcontracted Report.

Integrated Analytical Laboratories has subcontracted part or all of the results in this report. The laboratory performing the subcontracted work is listed above. These analyses were performed by a NELAP/TNI accredited laboratory, unless otherwise specified. This work was placed with a laboratory accredited for TNI standards for the tests to be performed OR with a laboratory that meets applicable statutory and regulatory requirements for performing the tests and submitting the results of tests performed. Integrated Analytical Laboratories will keep a copy of the subcontractor's report on file.
*TNI, The NELAC Institute, is a nationally recognized laboratory accreditation program. The TNI Standard is intended as an application of ISO/IEC 17025:2005(E), General Requirements for the Competence of Testing and Calibration Laboratories. While individual states and entities offer certification, TNI standards foster the generation of environmental data of known and documented quality through an open, inclusive, and transparent process that is responsive to the needs of the community.

A review of the QA/QC measures for the analysis of the sample(s) contained in this report has been performed by:

Reviewed by

12/4/2023
Date

CASE NARRATIVE / CONFORMANCE SUMMARY

2

Client:	Integrated Analytical Lab	**Job No:**	JD77365
Site:	Integrated Analytical Lab, Randolph, NJ	**Report Date**	12/1/2023 8:11:50 AM

On 11/21/2023, 19 sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 0.6 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of JD77365 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals Analysis By Method SW846 6010D

Matrix: AQ **Batch ID:** MP43317

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD77367-1MS, JD77367-1MSD, JD77367-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Aluminum, Arsenic, Beryllium, Copper, Selenium, Silver, Vanadium, Zinc are outside control limits for sample MP43317-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP43317-SD1 for Zinc: Serial dilution indicates possible matrix interference.

Matrix: SO **Batch ID:** MP43322

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD77365-2MS, JD77365-2MSD, JD77365-2PS, JD77365-2SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Aluminum, Antimony, Potassium are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The matrix spike duplicate (MSD) recovery(s) of Antimony, Potassium are outside control limits. Probable cause due to matrix interference.
- The serial dilution RPD(s) for Antimony, Arsenic, Beryllium, Cadmium, Silver are outside control limits for sample MP43322-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Metals Analysis By Method SW846 7470A

Matrix: AQ **Batch ID:** MP43408

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD77458-4FMS, JD77458-4FMSD were used as the QC samples for the metals analysis.

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Metals Analysis By Method SW846 7471B

Matrix: SO	Batch ID: MP43401

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD77365-1MS, JD77365-1MSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Mercury are outside control limits. Probable cause due to matrix interference.

General Chemistry By Method SM2540 G 18TH ED MOD

Matrix: SO	Batch ID: GN48524

- Sample(s) JD77365-1DUP were used as the QC samples for the Solids, Percent analysis.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

DATA QUALIFIERS AND FLAGS

B	Indicates the analyte found in the associated method blank and in the sample due to potential lab contamination.
C	Indicates analyte is a common laboratory contaminant.
D	Indicates analyte was reported from diluted analysis.
E	Identifies a compound concentration that exceeds the upper level of the calibration range of the instrument
J	Indicates an estimated value either when the concentration in the sample is less than the RL or for qualification of TICs
J1	Indicates an estimated value when ICC or CCV did not meet the criteria.
M	Indicates matrix interference
N	Presumptive evidence of a compound from the use of GC/MS library search.
T	Sample analyzed outside of holding time
X	Indicates samples analyzed for total and dissolved metals differ at ≤20% RPD.
Y	Indicates DO depletion in the BOD blank is >0.20ppm
Z	Indicates internal standard failure. Sample results are either biased high or biased low.
$	Value outside NJDEP DKQP Limits
*****	Result outside of QC limits

PROJECT NOTES

- All results for soils, solids, and sludges are reported on a dry-weight basis except where noted
- All test results and QC are compliant with TNI or other applicable state agency requirements/guidance unless otherwise notated in the case narrative and/or project information page.
- The case narrative for this SDG should be consulted to determine any non-conformances.
- Any samples with 15-minute or "analyze immediately" holding times (e.g. pH, Dissolved Oxygen, Sulfite, etc.) which are analyzed in the laboratory are considered out of holding time.
- IAL is a NELAP/TNI certified laboratory (TNI ID# TNI01284). IAL retains certification in Connecticut (PH-0699), New Jersey (14751), New York (11402), and Pennsylvania (68-00773).
- Certification is not required to perform analyses in the following states: AL, CO, DE, GA, HI, ID, IN, KY, MD, MI, MS, MO, MT, NE, NM, SD and TN. IAL can perform all analyses, except Drinking Water, within its scope of capabilities in these states.

ACRONYMS AND ABBREVIATIONS

CFU	Colony Forming Unit	**ND**	Indicates analyte was analyzed for but not detected at MDL or RL (only if MDL is not used)
CCB	Continuing Calibration Blank		
CCV	Continuing Calibration Verification	**NTU**	Nephelometric Turbidity Units
DF	Dilution Factor	**ppb**	Parts per billion. Reported as µg/L or µg/kg
DL	Attached as a suffix to a diluted sample	**ppm**	Parts per million. Reported as mg/L, µg/mL or mg/kg
DUP	Duplicate	**QC**	Quality Control
ICB	Initial Calibration Blank	**% Rec**	Percent Recovery
ICC	Initial Calibration Curve	**RL**	Reporting Limit. The RL is typically determined by the concentration of the lowest standard in the calibration curve
ICV	Initial Calibration Verification		
kg	kilogram		
L	Liter	**RPD**	Relative Percent Difference
LCS	Laboratory Control Sample	**RSD**	Relative Standard Deviation
LCSD	Laboratory Control Sample Duplicate	**RT**	Retention Time
MDL	Method Detection Limit as determined according to 40 CFR Part 136 Appendix B	**SU**	Standard Units
		TIC	Tentatively Identified Compound AKA Library Search Compounds
MF	Membrane Filter		
mg	milligram (1000mg = 1g)	**TNI**	The NELAC (National Environmental Laboratory Accreditation Council) Institute
µg	microgram (1000µg = 1mg)		
ml	milliliter (1000ml = 1L)	**TNTC**	Too numerous to count
µl	microliter (1000µl = 1ml)	*****	When attached to a compound name, indicates this analyte was analyzed by Method SW-846 8270 SIM
µmhos	Conductivity units - resistance expressed in ohms		
MPN	Most Probable Number	**^**	When attached to a compound name, indicates this analyte was analyzed by Method SW-846 8011 or EPA 504.1
MS	Matrix Spike		
MSD	Matrix Spike Duplicate		
NA	Not applicable	**<**	Less than; In conjunction with a numerical value, indicates a concentration less than the RL or MDL
NC	Not calculated		

RESULTS SUMMARY REPORT

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK2661.2
Lab Case No.: E23-05066

Lab ID:	05066-016			05066-017			05066-018			05066-019		
Client ID:	TWP1			TWP4			TWP2			TWP5		
Matrix:	Aqueous			Aqueous			Aqueous			Aqueous		
Sampled Date	11/16/23			11/16/23			11/16/23			11/16/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles (Units)	*(ug/L)*			*(ug/L)*			*(ug/L)*			*(ug/L)*		
Dichlorodifluoromethane	ND		0.552	0.581	J	0.552	ND		0.552	ND		0.552
Chloroform	1.91		0.285	2.11		0.285	ND		0.285	ND		0.285
Trichloroethene	ND		0.347	ND		0.347	0.585		0.347	0.364	J	0.347
Tetrachloroethene	0.585		0.365	ND		0.365	2.87		0.365	4.82		0.365
TOTAL VO's:	2.50			2.69	J		3.46			5.18	J	
TOTAL TIC's:	ND			ND			ND			ND		
TOTAL VO's & TIC's:	2.50			2.69	J		3.46			5.18	J	
Semivolatiles - BNA (Units)	*(ug/L)*			*(ug/L)*			*(ug/L)*			*(ug/L)*		
Benzo[a]anthracene	0.098	J	0.029	0.200		0.029	ND		0.029	ND		0.029
Benzo[b]fluoranthene	0.187		0.026	0.272		0.026	ND		0.026	ND		0.026
Benzo[k]fluoranthene	0.142		0.035	0.154		0.035	ND		0.035	ND		0.035
Benzo[a]pyrene	0.137		0.027	0.245		0.027	ND		0.027	ND		0.027
Indeno[1,2,3-cd]pyrene	0.291		0.036	0.330		0.036	ND		0.036	ND		0.036
Dibenz[a,h]anthracene	0.303		0.031	0.253		0.031	ND		0.031	ND		0.031
TOTAL BNA'S:	1.16	J		1.45			ND			ND		
TOTAL TIC's:	44.4	JN		16.2	J		ND			29.3	JN	
TOTAL BNA'S & TIC's:	45.6	JN		17.7	J		ND			29.3	JN	
PCB's (Units)	*(ug/L)*			*(ug/L)*			*(ug/L)*			*(ug/L)*		
Aroclor-1016	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1221	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1232	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1242	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1248	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1254	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1260	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1262	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1268	ND		0.015	ND		0.015	ND		0.015	ND		0.015
PCBs	ND		0.015	ND		0.015	ND		0.015	ND		0.015

ND = Analyzed for but Not Detected at the MDL
J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs
All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.
N = Presumptive evidence of a compound from the use of GC/MS library search.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK2661.2
Lab Case No.: E23-05066

Lab ID:	05066-016			05066-017			05066-018			05066-019		
Client ID:	TWP1			TWP4			TWP2			TWP5		
Matrix:	Aqueous			Aqueous			Aqueous			Aqueous		
Sampled Date	11/16/23			11/16/23			11/16/23			11/16/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Pesticides (Units)	*(ug/L)*			*(ug/L)*			*(ug/L)*			*(ug/L)*		
alpha-BHC	ND		0.00206	ND		0.00206	ND		0.00206	ND		0.00206
beta-BHC	ND		0.00303	ND		0.00303	ND		0.00303	ND		0.00303
gamma-BHC (Lindane)	ND		0.00201	ND		0.00201	ND		0.00201	ND		0.00201
delta-BHC	ND		0.00238	ND		0.00238	ND		0.00238	ND		0.00238
Heptachlor	ND		0.00235	ND		0.00235	ND		0.00235	ND		0.00235
Aldrin	ND		0.00187	ND		0.00187	ND		0.00187	ND		0.00187
Heptachlor epoxide	ND		0.00217	ND		0.00217	ND		0.00217	ND		0.00217
Endosulfan I	ND		0.00208	ND		0.00208	ND		0.00208	ND		0.00208
4,4'-DDE	ND		0.00197	ND		0.00197	ND		0.00197	ND		0.00197
Dieldrin	ND		0.00237	ND		0.00237	ND		0.00237	ND		0.00237
Endrin	ND		0.00289	ND		0.00289	ND		0.00289	ND		0.00289
Endosulfan II	ND		0.00258	ND		0.00258	ND		0.00258	ND		0.00258
4,4'-DDD	ND		0.00294	ND		0.00294	ND		0.00294	ND		0.00294
Endrin aldehyde	ND		0.0023	ND		0.0023	ND		0.0023	ND		0.0023
Endosulfan sulfate	ND		0.00314	ND		0.00314	ND		0.00314	ND		0.00314
4,4'-DDT	ND		0.00202	ND		0.00202	ND		0.00202	ND		0.00202
Endrin ketone	ND		0.00323	ND		0.00323	ND		0.00323	ND		0.00323
Methoxychlor	ND		0.00337	ND		0.00337	ND		0.00337	ND		0.00337
alpha-Chlordane	ND		0.00215	ND		0.00215	ND		0.00215	ND		0.00215
gamma-Chlordane	ND		0.00314	ND		0.00314	ND		0.00314	ND		0.00314
Toxaphene	ND		0.050	ND		0.050	ND		0.050	ND		0.050
Endosulfan (I and II)	ND		0.00208	ND		0.00208	ND		0.00208	ND		0.00208
Chlordane (alpha and gamma)	ND		0.00215	ND		0.00215	ND		0.00215	ND		0.00215
General Analytical (Units)												
Cyanide, Total(ug/L)	ND		4.00	ND		4.00	ND		4.00	ND		4.00

ND = Analyzed for but Not Detected at the MDL
+ Subcontracted data for TAL Metals (6020B/7471B) by SGS Dayton is available in the Subcontracted Reports section.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK2661.2
Lab Case No.: E23-05066

Lab ID:	05066-001			05066-002			05066-003			05066-004		
Client ID:	SB10A			SB10B			SB2A			SB2B		
Depth:	0/2			10/12			0/2			10/12		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	11/16/23			11/16/23			11/16/23			11/16/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
TOTAL VO's:	ND			ND			ND			ND		
TOTAL TIC's:	ND			ND			ND			ND		
TOTAL VO's & TIC's:	ND			ND			ND			ND		
Semivolatiles - BNA (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Naphthalene	0.038	J	0.00559	ND		0.00539	0.424	D	0.056	ND		0.00509
2-Methylnaphthalene	ND		0.014	ND		0.013	0.197	DJ	0.135	ND		0.012
Acenaphthylene	1.04		0.00839	ND		0.00809	2.25	D	0.084	ND		0.00764
Acenaphthene	ND		0.00757	ND		0.0073	0.788	D	0.076	ND		0.00689
Dibenzofuran	0.079		0.00501	ND		0.00483	0.571	D	0.050	ND		0.00456
Fluorene	0.117		0.010	ND		0.00995	0.933	D	0.104	ND		0.0094
Phenanthrene	2.06		0.00627	ND		0.00605	14.8	D	0.063	ND		0.00571
Anthracene	0.400		0.0039	ND		0.00376	3.27	D	0.039	ND		0.00355
Carbazole	0.371		0.00893	ND		0.00862	1.23	D	0.090	ND		0.00814
Fluoranthene	4.03		0.012	ND		0.012	24.8	D	0.124	ND		0.011
Pyrene	3.16		0.00892	ND		0.0086	20.5	D	0.090	ND		0.00812
Benzo[a]anthracene	1.76		0.014	ND		0.014	10.6	D	0.140	ND		0.013
Chrysene	1.81		0.011	ND		0.010	9.92	D	0.106	ND		0.00963
Benzo[b]fluoranthene	3.15		0.019	ND		0.018	9.82	D	0.190	ND		0.017
Benzo[k]fluoranthene	1.63		0.027	ND		0.026	9.27	D	0.266	ND		0.024
Benzo[a]pyrene	2.16		0.019	ND		0.018	9.82	D	0.186	ND		0.017
Indeno[1,2,3-cd]pyrene	2.50		0.025	ND		0.024	4.97	D	0.246	ND		0.022
Dibenz[a,h]anthracene	0.976		0.015	ND		0.015	2.34	D	0.154	ND		0.014
Benzo[g,h,i]perylene	3.34		0.029	ND		0.028	5.20	D	0.290	ND		0.026
TOTAL BNA'S:	28.6	J		ND			132	DJ		ND		
TOTAL TIC's:	0.525	J		ND			3.54	DJN		ND		
TOTAL BNA'S & TIC's:	29.1	J		ND			136	DJN		ND		
PCB's (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Aroclor-1016	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.001
Aroclor-1221	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.001
Aroclor-1232	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.001
Aroclor-1242	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.001
Aroclor-1248	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.001
Aroclor-1254	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.001
Aroclor-1260	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.001
Aroclor-1262	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.001
Aroclor-1268	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.001
PCBs	ND		0.00116	ND		0.00111	ND		0.00116	ND		0.00104

ND = Analyzed for but Not Detected at the MDL
J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs
D = The compound was reported from the Diluted analysis
All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.
N = Presumptive evidence of a compound from the use of GC/MS library search.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK2661.2
Lab Case No.: E23-05066

Lab ID:	05066-001			05066-002			05066-003			05066-004		
Client ID:	SB10A			SB10B			SB2A			SB2B		
Depth:	0/2			10/12			0/2			10/12		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	11/16/23			11/16/23			11/16/23			11/16/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Pesticides (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
alpha-BHC	ND		0.000138	ND		0.000132	ND		0.000138	ND		0.000124
beta-BHC	ND		0.00018	ND		0.000173	ND		0.00018	ND		0.000162
gamma-BHC (Lindane)	ND		0.000172	ND		0.000165	ND		0.000172	ND		0.000155
delta-BHC	ND		0.000149	ND		0.000144	ND		0.00015	ND		0.000135
Heptachlor	0.000768	J	0.000183	ND		0.000176	0.00288		0.000183	ND		0.000165
Aldrin	ND		0.000161	ND		0.000155	ND		0.000162	ND		0.000145
Heptachlor epoxide	0.00293		0.000167	ND		0.000161	0.00404		0.000168	ND		0.000151
Endosulfan I	ND		0.000172	ND		0.000166	ND		0.000173	ND		0.000156
4,4'-DDE	0.055		0.000157	0.000414	J	0.000151	0.024		0.000158	ND		0.000142
Dieldrin	0.012		0.000157	ND		0.000151	ND		0.000157	ND		0.000142
Endrin	ND		0.000194	ND		0.000187	ND		0.000195	ND		0.000175
Endosulfan II	ND		0.000177	ND		0.00017	ND		0.000177	ND		0.000159
4,4'-DDD	0.024		0.000206	ND		0.000198	0.012		0.000206	ND		0.000185
Endrin aldehyde	ND		0.000161	ND		0.000155	ND		0.000162	ND		0.000146
Endosulfan sulfate	ND		0.000191	ND		0.000184	ND		0.000191	ND		0.000172
4,4'-DDT	0.179	D	0.000287	0.000402	J	0.000138	0.097		0.000144	0.000265	J	0.000129
Endrin ketone	ND		0.00015	ND		0.000144	ND		0.00015	ND		0.000135
Methoxychlor	ND		0.000206	ND		0.000198	ND		0.000206	ND		0.000186
alpha-Chlordane	0.027		0.00017	ND		0.000164	0.016		0.00017	ND		0.000153
gamma-Chlordane	0.020		0.000152	ND		0.000146	0.019		0.000152	ND		0.000137
Toxaphene	ND		0.00386	ND		0.00371	ND		0.00386	ND		0.00348
Endosulfan (I and II)	ND		0.000172	ND		0.000166	ND		0.000173	ND		0.000156
Chlordane (alpha and gamma)	0.046		0.000152	ND		0.000146	0.034		0.000152	ND		0.000137
General Analytical (Units)												
Cyanide, Total(mg/Kg)	ND		0.231	ND		0.223	ND		0.232	ND		0.209

ND = Analyzed for but Not Detected at the MDL
J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs
D = The compound was reported from the Diluted analysis
+ Subcontracted data for TAL Metals (6020B/7471B) by SGS Dayton is available in the Subcontracted Reports section.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK2661.2
Lab Case No.: E23-05066

Lab ID:	05066-005			05066-006			05066-007			05066-008		
Client ID:	SB5			SB3A			SB3B			SB9A		
Depth:	0/2			0/2			10/12			0/2		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	11/16/23			11/16/23			11/16/23			11/17/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
TOTAL VO's:	ND			ND			ND			ND		
TOTAL TIC's:	ND			ND			ND			ND		
TOTAL VO's & TIC's:	ND			ND			ND			ND		
Semivolatiles - BNA (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Naphthalene	ND		0.00548	0.028	J	0.00541	ND		0.00512	0.554	D	0.026
2-Methylnaphthalene	ND		0.013	ND		0.013	ND		0.012	0.177	DJ	0.064
Acenaphthylene	ND		0.00823	0.098		0.00812	ND		0.00769	2.11	D	0.040
Acenaphthene	ND		0.00742	0.053		0.00732	ND		0.00693	0.634	D	0.036
Dibenzofuran	ND		0.00492	0.043		0.00485	ND		0.00459	0.400	D	0.024
Fluorene	ND		0.010	0.052		0.00998	ND		0.00945	0.626	D	0.049
Phenanthrene	0.188		0.00615	1.09		0.00607	ND		0.00574	7.99	D	0.030
Anthracene	0.054		0.00383	0.201		0.00377	ND		0.00357	2.32	D	0.018
Carbazole	0.020	J	0.00876	0.122		0.00864	ND		0.00818	1.15	D	0.042
Fluoranthene	0.379		0.012	1.77		0.012	ND		0.011	13.1	D	0.058
Pyrene	0.316		0.00874	1.46		0.00863	ND		0.00817	10.9	D	0.042
Benzo[a]anthracene	0.177		0.014	0.693		0.014	ND		0.013	6.22	D	0.066
Chrysene	0.163		0.010	0.674		0.010	ND		0.00969	6.14	D	0.050
Bis(2-ethylhexyl) phthalate	0.073		0.024	ND		0.024	ND		0.023	ND		0.116
Benzo[b]fluoranthene	0.190		0.019	0.616		0.018	ND		0.017	6.83	D	0.089
Benzo[k]fluoranthene	0.134		0.026	0.656		0.026	ND		0.024	6.50	D	0.125
Benzo[a]pyrene	0.168		0.018	0.672		0.018	ND		0.017	6.90	D	0.088
Indeno[1,2,3-cd]pyrene	0.116		0.024	0.467		0.024	ND		0.023	4.35	D	0.116
Dibenz[a,h]anthracene	0.057		0.015	0.210		0.015	ND		0.014	2.10	D	0.072
Benzo[g,h,i]perylene	0.118		0.028	0.514		0.028	ND		0.027	5.61	D	0.136
TOTAL BNA'S:	2.15	J		9.42	J		ND			84.6	DJ	
TOTAL TIC's:	0.180	JN		0.189	J		0.204	JN		ND		
TOTAL BNA'S & TIC's:	2.33	JN		9.61	J		0.204	JN		84.6	DJ	
PCB's (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Aroclor-1016	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1221	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1232	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1242	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1248	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1254	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1260	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1262	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1268	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
PCBs	ND		0.00113	ND		0.00111	ND		0.00106	ND		0.00108

ND = Analyzed for but Not Detected at the MDL
J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs
D = The compound was reported from the Diluted analysis
All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.
N = Presumptive evidence of a compound from the use of GC/MS library search.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK2661.2
Lab Case No.: E23-05066

Lab ID:	05066-005			05066-006			05066-007			05066-008		
Client ID:	SB5			SB3A			SB3B			SB9A		
Depth:	0/2			0/2			10/12			0/2		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	11/16/23			11/16/23			11/16/23			11/17/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Pesticides (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
alpha-BHC	ND		0.000134	ND		0.000132	ND		0.000126	ND		0.000129
beta-BHC	ND		0.000175	ND		0.000172	ND		0.000165	ND		0.000168
gamma-BHC (Lindane)	ND		0.000167	ND		0.000165	ND		0.000157	ND		0.000161
delta-BHC	ND		0.000145	ND		0.000143	ND		0.000137	ND		0.00014
Heptachlor	ND		0.000178	ND		0.000175	ND		0.000168	ND		0.000171
Aldrin	ND		0.000157	ND		0.000154	ND		0.000148	ND		0.000151
Heptachlor epoxide	0.00122		0.000163	ND		0.00016	ND		0.000153	ND		0.000156
Endosulfan I	ND		0.000168	ND		0.000165	ND		0.000158	ND		0.000161
4,4'-DDE	0.070		0.000153	0.024		0.000151	ND		0.000144	ND		0.000147
Dieldrin	0.00603		0.000153	ND		0.00015	ND		0.000144	ND		0.000147
Endrin	ND		0.000189	ND		0.000186	ND		0.000178	ND		0.000182
Endosulfan II	ND		0.000172	ND		0.000169	ND		0.000162	ND		0.000165
4,4'-DDD	0.00798		0.0002	0.00289		0.000197	ND		0.000188	ND		0.000192
Endrin aldehyde	ND		0.000157	ND		0.000154	ND		0.000148	ND		0.000151
Endosulfan sulfate	ND		0.000186	ND		0.000183	ND		0.000175	ND		0.000178
4,4'-DDT	0.087		0.00014	0.050		0.000137	ND		0.000131	ND		0.000134
Endrin ketone	ND		0.000146	ND		0.000144	ND		0.000138	ND		0.00014
Methoxychlor	ND		0.000201	ND		0.000197	ND		0.000189	ND		0.000193
alpha-Chlordane	0.00385		0.000166	0.023		0.000163	ND		0.000156	ND		0.000159
gamma-Chlordane	0.00198		0.000147	0.022		0.000145	ND		0.000139	ND		0.000142
Toxaphene	ND		0.00375	ND		0.00369	ND		0.00353	ND		0.0036
Endosulfan (I and II)	ND		0.000168	ND		0.000165	ND		0.000158	ND		0.000161
Chlordane (alpha and gamma)	0.00583		0.000147	0.044		0.000145	ND		0.000139	ND		0.000142
General Analytical (Units)												
Cyanide, Total(mg/Kg)	ND		0.225	ND		0.222	ND		0.208	ND		0.217

ND = Analyzed for but Not Detected at the MDL
+ Subcontracted data for TAL Metals (6020B/7471B) by SGS Dayton is available in the Subcontracted Reports section.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK2661.2
Lab Case No.: E23-05066

Lab ID:	05066-009			05066-010			05066-011			05066-012		
Client ID:	SB9B			SB1A			SB1B			SB4A		
Depth:	10/12			0/2			10/12			0/2		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	11/17/23			11/17/23			11/17/23			11/17/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Methylene chloride	ND		0.00411	0.0041	CJ	0.00378	ND		0.00414	ND		0.00417
TOTAL VO's:	ND			0.0041	CJ		ND			ND		
TOTAL TIC's:	ND			ND			ND			ND		
TOTAL VO's & TIC's:	ND			0.0041	CJ		ND			ND		
Semivolatiles - BNA (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Benzaldehyde	ND		0.026	ND		0.028	0.135		0.028	ND		0.028
Naphthalene	ND		0.00507	0.029	J	0.00535	0.026	J	0.00538	0.108		0.00534
2-Methylnaphthalene	ND		0.012	ND		0.013	0.023	J	0.013	0.051		0.013
Acenaphthylene	ND		0.00761	0.184		0.00803	0.168		0.00807	0.117		0.00801
Acenaphthene	ND		0.00686	0.095		0.00724	0.081		0.00728	0.339		0.00723
Dibenzofuran	ND		0.00455	ND		0.0048	0.019	J	0.00482	0.168		0.00479
Fluorene	ND		0.00935	0.066		0.00987	0.069		0.00993	0.284		0.00985
Phenanthrene	ND		0.00569	1.08		0.006	1.61		0.00603	2.74		0.00599
Anthracene	ND		0.00354	0.360		0.00373	0.341		0.00375	0.738		0.00372
Carbazole	ND		0.0081	0.125		0.00855	0.055		0.00859	0.343		0.00853
Fluoranthene	ND		0.011	2.98		0.012	2.26		0.012	4.20		0.012
Pyrene	ND		0.00809	2.72		0.00853	3.42		0.00858	3.42		0.00851
Benzo[a]anthracene	ND		0.013	1.65		0.013	1.72		0.013	1.81		0.013
Chrysene	ND		0.00959	1.57		0.010	1.64		0.010	1.64		0.010
Bis(2-ethylhexyl) phthalate	ND		0.022	ND		0.024	ND		0.024	0.068		0.024
Benzo[b]fluoranthene	ND		0.017	2.23		0.018	1.07		0.018	1.76		0.018
Benzo[k]fluoranthene	ND		0.024	1.21		0.025	0.917		0.026	1.47		0.025
Benzo[a]pyrene	ND		0.017	1.84		0.018	1.35		0.018	1.72		0.018
Indeno[1,2,3-cd]pyrene	ND		0.022	1.28		0.024	0.677		0.024	1.14		0.023
Dibenz[a,h]anthracene	ND		0.014	0.624		0.015	0.420		0.015	0.601		0.015
Benzo[g,h,i]perylene	ND		0.026	1.32		0.028	0.863		0.028	1.15		0.028
TOTAL BNA'S:	ND			19.4	J		16.9	J		23.9		
TOTAL TIC's:	ND			0.568	JN		2.76	JN		0.220	JN	
TOTAL BNA'S & TIC's:	ND			20.0	JN		19.7	JN		24.1	JN	
PCB's (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Aroclor-1016	ND		0.001	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1221	ND		0.001	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1232	ND		0.001	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1242	ND		0.001	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1248	ND		0.001	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1254	ND		0.001	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1260	ND		0.001	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1262	ND		0.001	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1268	ND		0.001	ND		0.0011	ND		0.0011	ND		0.0011
PCBs	ND		0.00105	ND		0.0011	ND		0.00111	ND		0.0011

ND = Analyzed for but Not Detected at the MDL
J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs
All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.
C = Common Laboratory and/or Bottle Contaminant.
N = Presumptive evidence of a compound from the use of GC/MS library search.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK2661.2
Lab Case No.: E23-05066

Lab ID:	05066-009			05066-010			05066-011			05066-012		
Client ID:	SB9B			SB1A			SB1B			SB4A		
Depth:	10/12			0/2			10/12			0/2		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	11/17/23			11/17/23			11/17/23			11/17/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Pesticides (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
alpha-BHC	ND		0.000125	ND		0.00013	ND		0.000132	ND		0.00013
beta-BHC	ND		0.000163	ND		0.00017	ND		0.000173	ND		0.00017
gamma-BHC (Lindane)	ND		0.000155	ND		0.000163	ND		0.000165	ND		0.000163
delta-BHC	ND		0.000135	ND		0.000141	ND		0.000143	ND		0.000141
Heptachlor	ND		0.000165	ND		0.000173	ND		0.000176	ND		0.000173
Aldrin	ND		0.000146	ND		0.000153	ND		0.000155	ND		0.000153
Heptachlor epoxide	ND		0.000151	0.00119		0.000158	0.000932		0.000161	ND		0.000158
Endosulfan I	ND		0.000156	ND		0.000163	ND		0.000165	ND		0.000163
4,4'-DDE	ND		0.000142	0.011		0.000149	0.00656		0.000151	0.052		0.000149
Dieldrin	ND		0.000142	ND		0.000149	ND		0.000151	0.00707		0.000149
Endrin	ND		0.000176	ND		0.000184	ND		0.000187	ND		0.000184
Endosulfan II	ND		0.00016	ND		0.000167	ND		0.00017	ND		0.000167
4,4'-DDD	ND		0.000186	0.00722		0.000195	ND		0.000197	ND		0.000195
Endrin aldehyde	ND		0.000146	ND		0.000153	ND		0.000155	ND		0.000153
Endosulfan sulfate	ND		0.000173	ND		0.000181	ND		0.000183	ND		0.000181
4,4'-DDT	ND		0.00013	0.019		0.000136	0.025		0.000138	0.085		0.000136
Endrin ketone	ND		0.000136	ND		0.000142	ND		0.000144	ND		0.000142
Methoxychlor	ND		0.000186	ND		0.000195	ND		0.000198	ND		0.000195
alpha-Chlordane	ND		0.000154	0.00473		0.000161	0.00266		0.000163	0.00577		0.000161
gamma-Chlordane	ND		0.000137	0.00584		0.000143	0.00281		0.000145	0.00815		0.000143
Toxaphene	ND		0.00349	ND		0.00365	ND		0.0037	ND		0.00365
Endosulfan (I and II)	ND		0.000156	ND		0.000163	ND		0.000165	ND		0.000163
Chlordane (alpha and gamma)	ND		0.000137	0.011		0.000143	0.00547		0.000145	0.014		0.000143
General Analytical (Units)												
Cyanide, Total(mg/Kg)	ND		0.210	ND		0.220	ND		0.223	ND		0.220

ND = Analyzed for but Not Detected at the MDL
+ Subcontracted data for TAL Metals (6020B/7471B) by SGS Dayton is available in the Subcontracted Reports section.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK2661.2
Lab Case No.: E23-05066

Lab ID:	05066-013			05066-014			05066-015		
Client ID:	SB4B			SB6-419-CS			SB8-401-CS		
Depth:	10/12			0/0.5			0/0.5		
Matrix:	Soil			Soil			Soil		
Sampled Date	11/17/23			11/17/23			11/17/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Methylene chloride	0.00464	CJ	0.00438	0.00487	CJ	0.00408	0.00449	CJ	0.00423
TOTAL VO's:	0.00464	CJ		0.00487	CJ		0.00449	CJ	
TOTAL TIC's:	ND			ND			0.030	JN	
TOTAL VO's & TIC's:	0.00464	CJ		0.00487	CJ		0.035	CJN	
Semivolatiles - BNA (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Naphthalene	0.037		0.00513	0.019	J	0.00524	0.288	D	0.026
2-Methylnaphthalene	ND		0.012	ND		0.013	0.245	D	0.062
1,1'-Biphenyl	ND		0.00523	ND		0.00534	0.112	DJ	0.026
Acenaphthylene	0.190		0.0077	0.133		0.00786	1.83	D	0.039
Acenaphthene	0.125		0.00694	0.024	J	0.00709	0.284	D	0.035
Dibenzofuran	0.053		0.0046	ND		0.0047	0.857	D	0.023
Fluorene	0.099		0.00947	0.034	J	0.00967	1.01	D	0.048
Phenanthrene	1.10		0.00575	0.494		0.00587	12.0	D	0.029
Anthracene	0.360		0.00358	0.115		0.00366	2.02	D	0.018
Carbazole	0.154		0.0082	0.081		0.00837	1.28	D	0.041
Fluoranthene	2.50		0.011	0.953		0.012	13.6	D	0.057
Pyrene	2.28		0.00818	0.835		0.00836	9.96	D	0.041
Benzo[a]anthracene	1.35		0.013	0.460		0.013	4.85	D	0.064
Chrysene	1.29		0.0097	0.429		0.00991	4.67	D	0.049
Bis(2-ethylhexyl) phthalate	0.040		0.023	0.422		0.023	0.573	D	0.113
Benzo[b]fluoranthene	1.45		0.017	0.534		0.018	4.04	D	0.087
Benzo[k]fluoranthene	1.25		0.024	0.356		0.025	4.29	D	0.122
Benzo[a]pyrene	1.44		0.017	0.457		0.017	3.93	D	0.086
Indeno[1,2,3-cd]pyrene	0.922		0.023	0.353		0.023	1.78	D	0.113
Dibenz[a,h]anthracene	0.435		0.014	0.168		0.014	0.799	D	0.071
Benzo[g,h,i]perylene	0.887		0.027	0.378		0.027	1.50	D	0.133
TOTAL BNA'S:	16.0			6.25	J		69.9	DJ	
TOTAL TIC's:	ND			0.147	JN		ND		
TOTAL BNA'S & TIC's:	16.0			6.40	JN		69.9	DJ	
PCB's (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Aroclor-1016	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1221	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1232	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1242	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1248	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1254	ND		0.0011	1.95	D	0.011	ND		0.0011
Aroclor-1260	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1262	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1268	ND		0.0011	ND		0.0011	ND		0.0011
PCBs	ND		0.00105	1.95	D	0.011	ND		0.00106

ND = Analyzed for but Not Detected at the MDL
J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs
D = The compound was reported from the Diluted analysis
All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.
C = Common Laboratory and/or Bottle Contaminant.
N = Presumptive evidence of a compound from the use of GC/MS library search.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK2661.2
Lab Case No.: E23-05066

Lab ID:	05066-013			05066-014			05066-015		
Client ID:	SB4B			SB6-419-CS			SB8-401-CS		
Depth:	10/12			0/0.5			0/0.5		
Matrix:	Soil			Soil			Soil		
Sampled Date	11/17/23			11/17/23			11/17/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Pesticides (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
alpha-BHC	ND		0.000125	ND		0.000129	ND		0.000126
beta-BHC	ND		0.000164	ND		0.000168	ND		0.000165
gamma-BHC (Lindane)	ND		0.000157	ND		0.000161	ND		0.000158
delta-BHC	ND		0.000136	ND		0.00014	ND		0.000137
Heptachlor	ND		0.000167	ND		0.000171	ND		0.000168
Aldrin	ND		0.000147	ND		0.000151	ND		0.000148
Heptachlor epoxide	ND		0.000152	ND		0.000157	ND		0.000154
Endosulfan I	ND		0.000157	ND		0.000161	ND		0.000158
4,4'-DDE	0.013		0.000143	0.555	D	0.00294	1.34	D	0.00722
Dieldrin	0.00196		0.000143	ND		0.000147	ND		0.000144
Endrin	ND		0.000177	ND		0.000182	ND		0.000179
Endosulfan II	ND		0.000161	ND		0.000165	ND		0.000162
4,4'-DDD	ND		0.000187	0.099		0.000192	0.079		0.000189
Endrin aldehyde	ND		0.000147	ND		0.000151	ND		0.000148
Endosulfan sulfate	ND		0.000174	ND		0.000179	ND		0.000175
4,4'-DDT	0.026		0.000131	0.529	D	0.00268	1.58	D	0.00658
Endrin ketone	ND		0.000137	ND		0.00014	ND		0.000138
Methoxychlor	ND		0.000188	ND		0.000193	ND		0.000189
alpha-Chlordane	0.00185		0.000155	ND		0.000159	ND		0.000156
gamma-Chlordane	0.00203		0.000138	ND		0.000142	ND		0.000139
Toxaphene	ND		0.00351	ND		0.00361	ND		0.00354
Endosulfan (I and II)	ND		0.000157	ND		0.000161	ND		0.000158
Chlordane (alpha and gamma)	0.00388		0.000138	ND		0.000142	ND		0.000139
General Analytical (Units)									
Cyanide, Total(mg/Kg)	ND		0.211	ND		0.213	ND		0.213

ND = Analyzed for but Not Detected at the MDL
D = The compound was reported from the Diluted analysis
+ Subcontracted data for TAL Metals (6020B/7471B) by SGS Dayton is available in the Subcontracted Reports section.

ANALYTICAL RESULTS

VOLATILE ORGANICS

Lab ID: E23-05066-001
Client ID: SB10A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7709.D 11/21/2023 11:49

GC/MS Column: DB-624
Sample wt/vol: 3.96g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.6
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00146	0.000758
Chloromethane	ND		0.00292	0.000463
Vinyl chloride	ND		0.00146	0.000473
Bromomethane	ND		0.00292	0.00127
Chloroethane	ND		0.00146	0.000434
Trichlorofluoromethane	ND		0.00146	0.000593
1,1-Dichloroethene	ND		0.00146	0.000511
Acetone	ND		0.015	0.0073
Carbon disulfide	ND		0.00146	0.000574
Methylene chloride	ND		0.0073	0.00438
trans-1,2-Dichloroethene	ND		0.00292	0.000517
Methyl tert-butyl ether (MTBE)	ND		0.00146	0.000318
1,1-Dichloroethane	ND		0.00292	0.000372
cis-1,2-Dichloroethene	ND		0.00292	0.000312
2-Butanone (MEK)	ND		0.015	0.00292
Bromochloromethane	ND		0.00146	0.000371
Chloroform	ND		0.00292	0.00073
1,1,1-Trichloroethane	ND		0.00146	0.000448
Carbon tetrachloride	ND		0.00146	0.000292
1,2-Dichloroethane (EDC)	ND		0.00146	0.000337
Benzene	ND		0.00146	0.000126
Trichloroethene	ND		0.00146	0.000218
1,2-Dichloropropane	ND		0.00146	0.000146
Bromodichloromethane	ND		0.00146	0.000174
cis-1,3-Dichloropropene	ND		0.00146	0.000223
4-Methyl-2-pentanone (MIBK)	ND		0.015	0.000764

VOLATILE ORGANICS

Lab ID: E23-05066-001
Client ID: SB10A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7709.D 11/21/2023 11:49

GC/MS Column: DB-624
Sample wt/vol: 3.96g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.6
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00146	0.00073
trans-1,3-Dichloropropene	ND		0.00146	0.000162
1,1,2-Trichloroethane	ND		0.00146	0.000312
Tetrachloroethene	ND		0.00146	0.00015
2-Hexanone	ND		0.015	0.00224
Dibromochloromethane	ND		0.00146	0.000242
1,2-Dibromoethane (EDB)	ND		0.00146	0.00027
Chlorobenzene	ND		0.00146	0.000253
Ethylbenzene	ND		0.00146	0.000159
Total Xylenes	ND		0.00292	0.000204
Styrene	ND		0.00146	0.000314
Bromoform	ND		0.00146	0.000454
Isopropylbenzene	ND		0.00146	0.000311
1,1,2,2-Tetrachloroethane	ND		0.00146	0.000764
1,3-Dichlorobenzene	ND		0.00146	0.000387
1,4-Dichlorobenzene	ND		0.00146	0.000453
1,2-Dichlorobenzene	ND		0.00146	0.000366
1,2-Dibromo-3-chloropropane	ND		0.00146	0.0012
1,2,4-Trichlorobenzene	ND		0.00146	0.000613
1,2,3-Trichlorobenzene	ND		0.00292	0.000464
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00292	0.000872
Methyl acetate	ND		0.00146	0.00118
Cyclohexane	ND		0.0073	0.000263
Methylcyclohexane	ND		0.00292	0.000251
1,3-Dichloropropene (cis- and trans-)	ND		0.00146	0.000162

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-001
Client ID: SB10A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Date File: L7709.D

GC/MS Column: DB-624
Sample wt/vol: 3.96g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 13.6

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-002
Client ID: SB10B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7710.D 11/21/2023 12:17

GC/MS Column: DB-624
Sample wt/vol: 5.16g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.4
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00108	0.000561
Chloromethane	ND		0.00216	0.000342
Vinyl chloride	ND		0.00108	0.00035
Bromomethane	ND		0.00216	0.000942
Chloroethane	ND		0.00108	0.000321
Trichlorofluoromethane	ND		0.00108	0.000438
1,1-Dichloroethene	ND		0.00108	0.000378
Acetone	ND		0.011	0.0054
Carbon disulfide	ND		0.00108	0.000424
Methylene chloride	ND		0.0054	0.00324
trans-1,2-Dichloroethene	ND		0.00216	0.000382
Methyl tert-butyl ether (MTBE)	ND		0.00108	0.000235
1,1-Dichloroethane	ND		0.00216	0.000275
cis-1,2-Dichloroethene	ND		0.00216	0.000231
2-Butanone (MEK)	ND		0.011	0.00216
Bromochloromethane	ND		0.00108	0.000274
Chloroform	ND		0.00216	0.00054
1,1,1-Trichloroethane	ND		0.00108	0.000332
Carbon tetrachloride	ND		0.00108	0.000216
1,2-Dichloroethane (EDC)	ND		0.00108	0.000249
Benzene	ND		0.00108	0.0000929
Trichloroethene	ND		0.00108	0.000161
1,2-Dichloropropane	ND		0.00108	0.000108
Bromodichloromethane	ND		0.00108	0.000129
cis-1,3-Dichloropropene	ND		0.00108	0.000165
4-Methyl-2-pentanone (MIBK)	ND		0.011	0.000565

VOLATILE ORGANICS

Lab ID: E23-05066-002
Client ID: SB10B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7710.D 11/21/2023 12:17

GC/MS Column: DB-624
Sample wt/vol: 5.16g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.4
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00108	0.00054
trans-1,3-Dichloropropene	ND		0.00108	0.00012
1,1,2-Trichloroethane	ND		0.00108	0.000231
Tetrachloroethene	ND		0.00108	0.000111
2-Hexanone	ND		0.011	0.00165
Dibromochloromethane	ND		0.00108	0.000179
1,2-Dibromoethane (EDB)	ND		0.00108	0.0002
Chlorobenzene	ND		0.00108	0.000187
Ethylbenzene	ND		0.00108	0.000118
Total Xylenes	ND		0.00216	0.000151
Styrene	ND		0.00108	0.000232
Bromoform	ND		0.00108	0.000336
Isopropylbenzene	ND		0.00108	0.00023
1,1,2,2-Tetrachloroethane	ND		0.00108	0.000565
1,3-Dichlorobenzene	ND		0.00108	0.000286
1,4-Dichlorobenzene	ND		0.00108	0.000335
1,2-Dichlorobenzene	ND		0.00108	0.000271
1,2-Dibromo-3-chloropropane	ND		0.00108	0.00089
1,2,4-Trichlorobenzene	ND		0.00108	0.000454
1,2,3-Trichlorobenzene	ND		0.00216	0.000343
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00216	0.000645
Methyl acetate	ND		0.00108	0.000873
Cyclohexane	ND		0.0054	0.000194
Methylcyclohexane	ND		0.00216	0.000186
1,3-Dichloropropene (cis- and trans-)	ND		0.00108	0.00012

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-002
Client ID: SB10B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Date File: L7710.D

GC/MS Column: DB-624
Sample wt/vol: 5.16g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 10.4

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.38

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-003
Client ID: SB2A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7711.D 11/21/2023 12:44

GC/MS Column: DB-624
Sample wt/vol: 3.64g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.9
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.0016	0.00083
Chloromethane	ND		0.0032	0.000507
Vinyl chloride	ND		0.0016	0.000518
Bromomethane	ND		0.0032	0.0014
Chloroethane	ND		0.0016	0.000475
Trichlorofluoromethane	ND		0.0016	0.00065
1,1-Dichloroethene	ND		0.0016	0.00056
Acetone	ND		0.016	0.008
Carbon disulfide	ND		0.0016	0.000629
Methylene chloride	ND		0.008	0.0048
trans-1,2-Dichloroethene	ND		0.0032	0.000566
Methyl tert-butyl ether (MTBE)	ND		0.0016	0.000349
1,1-Dichloroethane	ND		0.0032	0.000408
cis-1,2-Dichloroethene	ND		0.0032	0.000342
2-Butanone (MEK)	ND		0.016	0.0032
Bromochloromethane	ND		0.0016	0.000406
Chloroform	ND		0.0032	0.0008
1,1,1-Trichloroethane	ND		0.0016	0.000491
Carbon tetrachloride	ND		0.0016	0.00032
1,2-Dichloroethane (EDC)	ND		0.0016	0.00037
Benzene	ND		0.0016	0.000138
Trichloroethene	ND		0.0016	0.000238
1,2-Dichloropropane	ND		0.0016	0.00016
Bromodichloromethane	ND		0.0016	0.00019
cis-1,3-Dichloropropene	ND		0.0016	0.000245
4-Methyl-2-pentanone (MIBK)	ND		0.016	0.000837

VOLATILE ORGANICS

Lab ID: E23-05066-003
Client ID: SB2A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7711.D 11/21/2023 12:44

GC/MS Column: DB-624
Sample wt/vol: 3.64g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.9
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.0016	0.0008
trans-1,3-Dichloropropene	ND		0.0016	0.000178
1,1,2-Trichloroethane	ND		0.0016	0.000342
Tetrachloroethene	ND		0.0016	0.000165
2-Hexanone	ND		0.016	0.00245
Dibromochloromethane	ND		0.0016	0.000266
1,2-Dibromoethane (EDB)	ND		0.0016	0.000296
Chlorobenzene	ND		0.0016	0.000277
Ethylbenzene	ND		0.0016	0.000174
Total Xylenes	ND		0.0032	0.000224
Styrene	ND		0.0016	0.000344
Bromoform	ND		0.0016	0.000498
Isopropylbenzene	ND		0.0016	0.000341
1,1,2,2-Tetrachloroethane	ND		0.0016	0.000837
1,3-Dichlorobenzene	ND		0.0016	0.000424
1,4-Dichlorobenzene	ND		0.0016	0.000496
1,2-Dichlorobenzene	ND		0.0016	0.000402
1,2-Dibromo-3-chloropropane	ND		0.0016	0.00132
1,2,4-Trichlorobenzene	ND		0.0016	0.000672
1,2,3-Trichlorobenzene	ND		0.0032	0.000509
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0032	0.000955
Methyl acetate	ND		0.0016	0.00129
Cyclohexane	ND		0.008	0.000288
Methylcyclohexane	ND		0.0032	0.000275
1,3-Dichloropropene (cis- and trans-)	ND		0.0016	0.000178

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-003
Client ID: SB2A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Date File: L7711.D

GC/MS Column: DB-624
Sample wt/vol: 3.64g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 13.9

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	16.97

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-004
Client ID: SB2B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7712.D 11/21/2023 13:12

GC/MS Column: DB-624
Sample wt/vol: 4.38g
Matrix-Units: Soil-mg/Kg
% Moisture: 4.50
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.0012	0.000623
Chloromethane	ND		0.0024	0.00038
Vinyl chloride	ND		0.0012	0.000389
Bromomethane	ND		0.0024	0.00105
Chloroethane	ND		0.0012	0.000356
Trichlorofluoromethane	ND		0.0012	0.000487
1,1-Dichloroethene	ND		0.0012	0.00042
Acetone	ND		0.012	0.006
Carbon disulfide	ND		0.0012	0.000472
Methylene chloride	ND		0.006	0.0036
trans-1,2-Dichloroethene	ND		0.0024	0.000425
Methyl tert-butyl ether (MTBE)	ND		0.0012	0.000262
1,1-Dichloroethane	ND		0.0024	0.000306
cis-1,2-Dichloroethene	ND		0.0024	0.000257
2-Butanone (MEK)	ND		0.012	0.0024
Bromochloromethane	ND		0.0012	0.000305
Chloroform	ND		0.0024	0.0006
1,1,1-Trichloroethane	ND		0.0012	0.000368
Carbon tetrachloride	ND		0.0012	0.00024
1,2-Dichloroethane (EDC)	ND		0.0012	0.000277
Benzene	ND		0.0012	0.000103
Trichloroethene	ND		0.0012	0.000179
1,2-Dichloropropane	ND		0.0012	0.00012
Bromodichloromethane	ND		0.0012	0.000143
cis-1,3-Dichloropropene	ND		0.0012	0.000184
4-Methyl-2-pentanone (MIBK)	ND		0.012	0.000628

VOLATILE ORGANICS

Lab ID: E23-05066-004
Client ID: SB2B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7712.D 11/21/2023 13:12

GC/MS Column: DB-624
Sample wt/vol: 4.38g
Matrix-Units: Soil-mg/Kg
% Moisture: 4.50
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.0012	0.0006
trans-1,3-Dichloropropene	ND		0.0012	0.000133
1,1,2-Trichloroethane	ND		0.0012	0.000257
Tetrachloroethene	ND		0.0012	0.000124
2-Hexanone	ND		0.012	0.00184
Dibromochloromethane	ND		0.0012	0.000199
1,2-Dibromoethane (EDB)	ND		0.0012	0.000222
Chlorobenzene	ND		0.0012	0.000208
Ethylbenzene	ND		0.0012	0.000131
Total Xylenes	ND		0.0024	0.000168
Styrene	ND		0.0012	0.000258
Bromoform	ND		0.0012	0.000373
Isopropylbenzene	ND		0.0012	0.000256
1,1,2,2-Tetrachloroethane	ND		0.0012	0.000628
1,3-Dichlorobenzene	ND		0.0012	0.000318
1,4-Dichlorobenzene	ND		0.0012	0.000372
1,2-Dichlorobenzene	ND		0.0012	0.000301
1,2-Dibromo-3-chloropropane	ND		0.0012	0.000989
1,2,4-Trichlorobenzene	ND		0.0012	0.000504
1,2,3-Trichlorobenzene	ND		0.0024	0.000382
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0024	0.000716
Methyl acetate	ND		0.0012	0.00097
Cyclohexane	ND		0.006	0.000216
Methylcyclohexane	ND		0.0024	0.000206
1,3-Dichloropropene (cis- and trans-)	ND		0.0012	0.000133

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-004
Client ID: SB2B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Date File: L7712.D

GC/MS Column: DB-624
Sample wt/vol: 4.38g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 4.50

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.39

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-005
Client ID: SB5/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7713.D 11/21/2023 13:40

GC/MS Column: DB-624
Sample wt/vol: 4.27g
Matrix-Units: Soil-mg/Kg
% Moisture: 11.3
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00132	0.000685
Chloromethane	ND		0.00264	0.000418
Vinyl chloride	ND		0.00132	0.000428
Bromomethane	ND		0.00264	0.00115
Chloroethane	ND		0.00132	0.000392
Trichlorofluoromethane	ND		0.00132	0.000536
1,1-Dichloroethene	ND		0.00132	0.000462
Acetone	ND		0.013	0.0066
Carbon disulfide	ND		0.00132	0.000519
Methylene chloride	ND		0.0066	0.00396
trans-1,2-Dichloroethene	ND		0.00264	0.000467
Methyl tert-butyl ether (MTBE)	ND		0.00132	0.000288
1,1-Dichloroethane	ND		0.00264	0.000337
cis-1,2-Dichloroethene	ND		0.00264	0.000282
2-Butanone (MEK)	ND		0.013	0.00264
Bromochloromethane	ND		0.00132	0.000335
Chloroform	ND		0.00264	0.00066
1,1,1-Trichloroethane	ND		0.00132	0.000405
Carbon tetrachloride	ND		0.00132	0.000264
1,2-Dichloroethane (EDC)	ND		0.00132	0.000305
Benzene	ND		0.00132	0.000114
Trichloroethene	ND		0.00132	0.000197
1,2-Dichloropropane	ND		0.00132	0.000132
Bromodichloromethane	ND		0.00132	0.000157
cis-1,3-Dichloropropene	ND		0.00132	0.000202
4-Methyl-2-pentanone (MIBK)	ND		0.013	0.00069

VOLATILE ORGANICS

Lab ID: E23-05066-005
Client ID: SB5/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7713.D 11/21/2023 13:40

GC/MS Column: DB-624
Sample wt/vol: 4.27g
Matrix-Units: Soil-mg/Kg
% Moisture: 11.3
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00132	0.00066
trans-1,3-Dichloropropene	ND		0.00132	0.000147
1,1,2-Trichloroethane	ND		0.00132	0.000282
Tetrachloroethene	ND		0.00132	0.000136
2-Hexanone	ND		0.013	0.00202
Dibromochloromethane	ND		0.00132	0.000219
1,2-Dibromoethane (EDB)	ND		0.00132	0.000244
Chlorobenzene	ND		0.00132	0.000228
Ethylbenzene	ND		0.00132	0.000144
Total Xylenes	ND		0.00264	0.000185
Styrene	ND		0.00132	0.000284
Bromoform	ND		0.00132	0.000411
Isopropylbenzene	ND		0.00132	0.000281
1,1,2,2-Tetrachloroethane	ND		0.00132	0.00069
1,3-Dichlorobenzene	ND		0.00132	0.00035
1,4-Dichlorobenzene	ND		0.00132	0.000409
1,2-Dichlorobenzene	ND		0.00132	0.000331
1,2-Dibromo-3-chloropropane	ND		0.00132	0.00109
1,2,4-Trichlorobenzene	ND		0.00132	0.000554
1,2,3-Trichlorobenzene	ND		0.00264	0.00042
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00264	0.000788
Methyl acetate	ND		0.00132	0.00107
Cyclohexane	ND		0.0066	0.000238
Methylcyclohexane	ND		0.00264	0.000227
1,3-Dichloropropene (cis- and trans-)	ND		0.00132	0.000147

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-005
Client ID: SB5/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Date File: L7713.D

GC/MS Column: DB-624
Sample wt/vol: 4.27g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 11.3

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-006
Client ID: SB3A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7714.D 11/21/2023 14:09

GC/MS Column: DB-624
Sample wt/vol: 4.40g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.1
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00126	0.000654
Chloromethane	ND		0.00252	0.000399
Vinyl chloride	ND		0.00126	0.000408
Bromomethane	ND		0.00252	0.0011
Chloroethane	ND		0.00126	0.000374
Trichlorofluoromethane	ND		0.00126	0.000512
1,1-Dichloroethene	ND		0.00126	0.000441
Acetone	ND		0.013	0.0063
Carbon disulfide	ND		0.00126	0.000495
Methylene chloride	ND		0.0063	0.00378
trans-1,2-Dichloroethene	ND		0.00252	0.000446
Methyl tert-butyl ether (MTBE)	ND		0.00126	0.000275
1,1-Dichloroethane	ND		0.00252	0.000321
cis-1,2-Dichloroethene	ND		0.00252	0.00027
2-Butanone (MEK)	ND		0.013	0.00252
Bromochloromethane	ND		0.00126	0.00032
Chloroform	ND		0.00252	0.00063
1,1,1-Trichloroethane	ND		0.00126	0.000387
Carbon tetrachloride	ND		0.00126	0.000252
1,2-Dichloroethane (EDC)	ND		0.00126	0.000291
Benzene	ND		0.00126	0.000108
Trichloroethene	ND		0.00126	0.000188
1,2-Dichloropropane	ND		0.00126	0.000126
Bromodichloromethane	ND		0.00126	0.00015
cis-1,3-Dichloropropene	ND		0.00126	0.000193
4-Methyl-2-pentanone (MIBK)	ND		0.013	0.000659

VOLATILE ORGANICS

Lab ID: E23-05066-006
Client ID: SB3A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7714.D 11/21/2023 14:09

GC/MS Column: DB-624
Sample wt/vol: 4.40g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.1
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00126	0.00063
trans-1,3-Dichloropropene	ND		0.00126	0.00014
1,1,2-Trichloroethane	ND		0.00126	0.00027
Tetrachloroethene	ND		0.00126	0.00013
2-Hexanone	ND		0.013	0.00193
Dibromochloromethane	ND		0.00126	0.000209
1,2-Dibromoethane (EDB)	ND		0.00126	0.000233
Chlorobenzene	ND		0.00126	0.000218
Ethylbenzene	ND		0.00126	0.000137
Total Xylenes	ND		0.00252	0.000176
Styrene	ND		0.00126	0.000271
Bromoform	ND		0.00126	0.000392
Isopropylbenzene	ND		0.00126	0.000268
1,1,2,2-Tetrachloroethane	ND		0.00126	0.000659
1,3-Dichlorobenzene	ND		0.00126	0.000334
1,4-Dichlorobenzene	ND		0.00126	0.000391
1,2-Dichlorobenzene	ND		0.00126	0.000316
1,2-Dibromo-3-chloropropane	ND		0.00126	0.00104
1,2,4-Trichlorobenzene	ND		0.00126	0.000529
1,2,3-Trichlorobenzene	ND		0.00252	0.000401
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00252	0.000752
Methyl acetate	ND		0.00126	0.00102
Cyclohexane	ND		0.0063	0.000227
Methylcyclohexane	ND		0.00252	0.000217
1,3-Dichloropropene (cis- and trans-)	ND		0.00126	0.00014

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-006
Client ID: SB3A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Date File: L7714.D

GC/MS Column: DB-624
Sample wt/vol: 4.40g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 10.1

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-007
Client ID: SB3B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7715.D 11/21/2023 14:38

GC/MS Column: DB-624
Sample wt/vol: 4.66g
Matrix-Units: Soil-mg/Kg
% Moisture: 5.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00114	0.000592
Chloromethane	ND		0.00228	0.000361
Vinyl chloride	ND		0.00114	0.000369
Bromomethane	ND		0.00228	0.000994
Chloroethane	ND		0.00114	0.000339
Trichlorofluoromethane	ND		0.00114	0.000463
1,1-Dichloroethene	ND		0.00114	0.000399
Acetone	ND		0.011	0.0057
Carbon disulfide	ND		0.00114	0.000448
Methylene chloride	ND		0.0057	0.00342
trans-1,2-Dichloroethene	ND		0.00228	0.000404
Methyl tert-butyl ether (MTBE)	ND		0.00114	0.000249
1,1-Dichloroethane	ND		0.00228	0.000291
cis-1,2-Dichloroethene	ND		0.00228	0.000244
2-Butanone (MEK)	ND		0.011	0.00228
Bromochloromethane	ND		0.00114	0.00029
Chloroform	ND		0.00228	0.00057
1,1,1-Trichloroethane	ND		0.00114	0.00035
Carbon tetrachloride	ND		0.00114	0.000228
1,2-Dichloroethane (EDC)	ND		0.00114	0.000263
Benzene	ND		0.00114	0.000098
Trichloroethene	ND		0.00114	0.00017
1,2-Dichloropropane	ND		0.00114	0.000114
Bromodichloromethane	ND		0.00114	0.000136
cis-1,3-Dichloropropene	ND		0.00114	0.000174
4-Methyl-2-pentanone (MIBK)	ND		0.011	0.000596

VOLATILE ORGANICS

Lab ID: E23-05066-007
Client ID: SB3B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7715.D 11/21/2023 14:38

GC/MS Column: DB-624
Sample wt/vol: 4.66g
Matrix-Units: Soil-mg/Kg
% Moisture: 5.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00114	0.00057
trans-1,3-Dichloropropene	ND		0.00114	0.000127
1,1,2-Trichloroethane	ND		0.00114	0.000244
Tetrachloroethene	ND		0.00114	0.000117
2-Hexanone	ND		0.011	0.00175
Dibromochloromethane	ND		0.00114	0.000189
1,2-Dibromoethane (EDB)	ND		0.00114	0.000211
Chlorobenzene	ND		0.00114	0.000197
Ethylbenzene	ND		0.00114	0.000124
Total Xylenes	ND		0.00228	0.00016
Styrene	ND		0.00114	0.000245
Bromoform	ND		0.00114	0.000355
Isopropylbenzene	ND		0.00114	0.000243
1,1,2,2-Tetrachloroethane	ND		0.00114	0.000596
1,3-Dichlorobenzene	ND		0.00114	0.000302
1,4-Dichlorobenzene	ND		0.00114	0.000353
1,2-Dichlorobenzene	ND		0.00114	0.000286
1,2-Dibromo-3-chloropropane	ND		0.00114	0.000939
1,2,4-Trichlorobenzene	ND		0.00114	0.000479
1,2,3-Trichlorobenzene	ND		0.00228	0.000363
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00228	0.000681
Methyl acetate	ND		0.00114	0.000921
Cyclohexane	ND		0.0057	0.000205
Methylcyclohexane	ND		0.00228	0.000196
1,3-Dichloropropene (cis- and trans-)	ND		0.00114	0.000127

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-007
Client ID: SB3B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Date File: L7715.D

GC/MS Column: DB-624
Sample wt/vol: 4.66g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 5.70

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.38

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-008
Client ID: SB9A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7716.D 11/21/2023 15:06

GC/MS Column: DB-624
Sample wt/vol: 3.45g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.80
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00157	0.000815
Chloromethane	ND		0.00314	0.000498
Vinyl chloride	ND		0.00157	0.000509
Bromomethane	ND		0.00314	0.00137
Chloroethane	ND		0.00157	0.000466
Trichlorofluoromethane	ND		0.00157	0.000637
1,1-Dichloroethene	ND		0.00157	0.00055
Acetone	ND		0.016	0.00785
Carbon disulfide	ND		0.00157	0.000617
Methylene chloride	ND		0.00785	0.00471
trans-1,2-Dichloroethene	ND		0.00314	0.000556
Methyl tert-butyl ether (MTBE)	ND		0.00157	0.000342
1,1-Dichloroethane	ND		0.00314	0.0004
cis-1,2-Dichloroethene	ND		0.00314	0.000336
2-Butanone (MEK)	ND		0.016	0.00314
Bromochloromethane	ND		0.00157	0.000399
Chloroform	ND		0.00314	0.000785
1,1,1-Trichloroethane	ND		0.00157	0.000482
Carbon tetrachloride	ND		0.00157	0.000314
1,2-Dichloroethane (EDC)	ND		0.00157	0.000363
Benzene	ND		0.00157	0.000135
Trichloroethene	ND		0.00157	0.000234
1,2-Dichloropropane	ND		0.00157	0.000157
Bromodichloromethane	ND		0.00157	0.000187
cis-1,3-Dichloropropene	ND		0.00157	0.00024
4-Methyl-2-pentanone (MIBK)	ND		0.016	0.000821

VOLATILE ORGANICS

Lab ID: E23-05066-008
Client ID: SB9A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7716.D 11/21/2023 15:06

GC/MS Column: DB-624
Sample wt/vol: 3.45g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.80
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00157	0.000785
trans-1,3-Dichloropropene	ND		0.00157	0.000174
1,1,2-Trichloroethane	ND		0.00157	0.000336
Tetrachloroethene	ND		0.00157	0.000162
2-Hexanone	ND		0.016	0.00241
Dibromochloromethane	ND		0.00157	0.000261
1,2-Dibromoethane (EDB)	ND		0.00157	0.00029
Chlorobenzene	ND		0.00157	0.000272
Ethylbenzene	ND		0.00157	0.000171
Total Xylenes	ND		0.00314	0.00022
Styrene	ND		0.00157	0.000338
Bromoform	ND		0.00157	0.000488
Isopropylbenzene	ND		0.00157	0.000334
1,1,2,2-Tetrachloroethane	ND		0.00157	0.000821
1,3-Dichlorobenzene	ND		0.00157	0.000416
1,4-Dichlorobenzene	ND		0.00157	0.000487
1,2-Dichlorobenzene	ND		0.00157	0.000394
1,2-Dibromo-3-chloropropane	ND		0.00157	0.00129
1,2,4-Trichlorobenzene	ND		0.00157	0.000659
1,2,3-Trichlorobenzene	ND		0.00314	0.000499
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00314	0.000937
Methyl acetate	ND		0.00157	0.00127
Cyclohexane	ND		0.00785	0.000283
Methylcyclohexane	ND		0.00314	0.00027
1,3-Dichloropropene (cis- and trans-)	ND		0.00157	0.000174

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-008
Client ID: SB9A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Date File: L7716.D

GC/MS Column: DB-624
Sample wt/vol: 3.45g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 7.80

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	3.36

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-009
Client ID: SB9B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7717.D 11/21/2023 15:35

GC/MS Column: DB-624
Sample wt/vol: 3.82g
Matrix-Units: Soil-mg/Kg
% Moisture: 4.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00137	0.000711
Chloromethane	ND		0.00274	0.000434
Vinyl chloride	ND		0.00137	0.000444
Bromomethane	ND		0.00274	0.00119
Chloroethane	ND		0.00137	0.000407
Trichlorofluoromethane	ND		0.00137	0.000556
1,1-Dichloroethene	ND		0.00137	0.00048
Acetone	ND		0.014	0.00685
Carbon disulfide	ND		0.00137	0.000538
Methylene chloride	ND		0.00685	0.00411
trans-1,2-Dichloroethene	ND		0.00274	0.000485
Methyl tert-butyl ether (MTBE)	ND		0.00137	0.000299
1,1-Dichloroethane	ND		0.00274	0.000349
cis-1,2-Dichloroethene	ND		0.00274	0.000293
2-Butanone (MEK)	ND		0.014	0.00274
Bromochloromethane	ND		0.00137	0.000348
Chloroform	ND		0.00274	0.000685
1,1,1-Trichloroethane	ND		0.00137	0.000421
Carbon tetrachloride	ND		0.00137	0.000274
1,2-Dichloroethane (EDC)	ND		0.00137	0.000316
Benzene	ND		0.00137	0.000118
Trichloroethene	ND		0.00137	0.000204
1,2-Dichloropropane	ND		0.00137	0.000137
Bromodichloromethane	ND		0.00137	0.000163
cis-1,3-Dichloropropene	ND		0.00137	0.00021
4-Methyl-2-pentanone (MIBK)	ND		0.014	0.000717

VOLATILE ORGANICS

Lab ID: E23-05066-009
Client ID: SB9B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7717.D 11/21/2023 15:35

GC/MS Column: DB-624
Sample wt/vol: 3.82g
Matrix-Units: Soil-mg/Kg
% Moisture: 4.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00137	0.000685
trans-1,3-Dichloropropene	ND		0.00137	0.000152
1,1,2-Trichloroethane	ND		0.00137	0.000293
Tetrachloroethene	ND		0.00137	0.000141
2-Hexanone	ND		0.014	0.0021
Dibromochloromethane	ND		0.00137	0.000227
1,2-Dibromoethane (EDB)	ND		0.00137	0.000253
Chlorobenzene	ND		0.00137	0.000237
Ethylbenzene	ND		0.00137	0.000149
Total Xylenes	ND		0.00274	0.000192
Styrene	ND		0.00137	0.000295
Bromoform	ND		0.00137	0.000426
Isopropylbenzene	ND		0.00137	0.000292
1,1,2,2-Tetrachloroethane	ND		0.00137	0.000717
1,3-Dichlorobenzene	ND		0.00137	0.000363
1,4-Dichlorobenzene	ND		0.00137	0.000425
1,2-Dichlorobenzene	ND		0.00137	0.000344
1,2-Dibromo-3-chloropropane	ND		0.00137	0.00113
1,2,4-Trichlorobenzene	ND		0.00137	0.000575
1,2,3-Trichlorobenzene	ND		0.00274	0.000436
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00274	0.000818
Methyl acetate	ND		0.00137	0.00111
Cyclohexane	ND		0.00685	0.000247
Methylcyclohexane	ND		0.00274	0.000236
1,3-Dichloropropene (cis- and trans-)	ND		0.00137	0.000152

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-009
Client ID: SB9B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Date File: L7717.D

GC/MS Column: DB-624
Sample wt/vol: 3.82g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 4.70

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-010
Client ID: SB1A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7718.D 11/21/2023 16:02

GC/MS Column: DB-624
Sample wt/vol: 4.36g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.10
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00126	0.000654
Chloromethane	ND		0.00252	0.000399
Vinyl chloride	ND		0.00126	0.000408
Bromomethane	ND		0.00252	0.0011
Chloroethane	ND		0.00126	0.000374
Trichlorofluoromethane	ND		0.00126	0.000512
1,1-Dichloroethene	ND		0.00126	0.000441
Acetone	ND		0.013	0.0063
Carbon disulfide	ND		0.00126	0.000495
Methylene chloride	0.0041	CJ	0.0063	0.00378
trans-1,2-Dichloroethene	ND		0.00252	0.000446
Methyl tert-butyl ether (MTBE)	ND		0.00126	0.000275
1,1-Dichloroethane	ND		0.00252	0.000321
cis-1,2-Dichloroethene	ND		0.00252	0.00027
2-Butanone (MEK)	ND		0.013	0.00252
Bromochloromethane	ND		0.00126	0.00032
Chloroform	ND		0.00252	0.00063
1,1,1-Trichloroethane	ND		0.00126	0.000387
Carbon tetrachloride	ND		0.00126	0.000252
1,2-Dichloroethane (EDC)	ND		0.00126	0.000291
Benzene	ND		0.00126	0.000108
Trichloroethene	ND		0.00126	0.000188
1,2-Dichloropropane	ND		0.00126	0.000126
Bromodichloromethane	ND		0.00126	0.00015
cis-1,3-Dichloropropene	ND		0.00126	0.000193
4-Methyl-2-pentanone (MIBK)	ND		0.013	0.000659

VOLATILE ORGANICS

Lab ID: E23-05066-010
Client ID: SB1A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7718.D 11/21/2023 16:02

GC/MS Column: DB-624
Sample wt/vol: 4.36g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.10
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00126	0.00063
trans-1,3-Dichloropropene	ND		0.00126	0.00014
1,1,2-Trichloroethane	ND		0.00126	0.00027
Tetrachloroethene	ND		0.00126	0.00013
2-Hexanone	ND		0.013	0.00193
Dibromochloromethane	ND		0.00126	0.000209
1,2-Dibromoethane (EDB)	ND		0.00126	0.000233
Chlorobenzene	ND		0.00126	0.000218
Ethylbenzene	ND		0.00126	0.000137
Total Xylenes	ND		0.00252	0.000176
Styrene	ND		0.00126	0.000271
Bromoform	ND		0.00126	0.000392
Isopropylbenzene	ND		0.00126	0.000268
1,1,2,2-Tetrachloroethane	ND		0.00126	0.000659
1,3-Dichlorobenzene	ND		0.00126	0.000334
1,4-Dichlorobenzene	ND		0.00126	0.000391
1,2-Dichlorobenzene	ND		0.00126	0.000316
1,2-Dibromo-3-chloropropane	ND		0.00126	0.00104
1,2,4-Trichlorobenzene	ND		0.00126	0.000529
1,2,3-Trichlorobenzene	ND		0.00252	0.000401
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00252	0.000752
Methyl acetate	ND		0.00126	0.00102
Cyclohexane	ND		0.0063	0.000227
Methylcyclohexane	ND		0.00252	0.000217
1,3-Dichloropropene (cis- and trans-)	ND		0.00126	0.00014

Total Target Compounds (51): 0.0041 CJ

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-010
Client ID: SB1A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Date File: L7718.D

GC/MS Column: DB-624
Sample wt/vol: 4.36g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 9.10

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.39

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-011
Client ID: SB1B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7719.D 11/21/2023 16:31

GC/MS Column: DB-624
Sample wt/vol: 4.03g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.2
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00138	0.000716
Chloromethane	ND		0.00276	0.000437
Vinyl chloride	ND		0.00138	0.000447
Bromomethane	ND		0.00276	0.0012
Chloroethane	ND		0.00138	0.00041
Trichlorofluoromethane	ND		0.00138	0.00056
1,1-Dichloroethene	ND		0.00138	0.000483
Acetone	ND		0.014	0.0069
Carbon disulfide	ND		0.00138	0.000542
Methylene chloride	ND		0.0069	0.00414
trans-1,2-Dichloroethene	ND		0.00276	0.000489
Methyl tert-butyl ether (MTBE)	ND		0.00138	0.000301
1,1-Dichloroethane	ND		0.00276	0.000352
cis-1,2-Dichloroethene	ND		0.00276	0.000295
2-Butanone (MEK)	ND		0.014	0.00276
Bromochloromethane	ND		0.00138	0.000351
Chloroform	ND		0.00276	0.00069
1,1,1-Trichloroethane	ND		0.00138	0.000424
Carbon tetrachloride	ND		0.00138	0.000276
1,2-Dichloroethane (EDC)	ND		0.00138	0.000319
Benzene	ND		0.00138	0.000119
Trichloroethene	ND		0.00138	0.000206
1,2-Dichloropropane	ND		0.00138	0.000138
Bromodichloromethane	ND		0.00138	0.000164
cis-1,3-Dichloropropene	ND		0.00138	0.000211
4-Methyl-2-pentanone (MIBK)	ND		0.014	0.000722

VOLATILE ORGANICS

Lab ID: E23-05066-011
Client ID: SB1B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7719.D 11/21/2023 16:31

GC/MS Column: DB-624
Sample wt/vol: 4.03g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.2
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00138	0.00069
trans-1,3-Dichloropropene	ND		0.00138	0.000153
1,1,2-Trichloroethane	ND		0.00138	0.000295
Tetrachloroethene	ND		0.00138	0.000142
2-Hexanone	ND		0.014	0.00211
Dibromochloromethane	ND		0.00138	0.000229
1,2-Dibromoethane (EDB)	ND		0.00138	0.000255
Chlorobenzene	ND		0.00138	0.000239
Ethylbenzene	ND		0.00138	0.00015
Total Xylenes	ND		0.00276	0.000193
Styrene	ND		0.00138	0.000297
Bromoform	ND		0.00138	0.000429
Isopropylbenzene	ND		0.00138	0.000294
1,1,2,2-Tetrachloroethane	ND		0.00138	0.000722
1,3-Dichlorobenzene	ND		0.00138	0.000366
1,4-Dichlorobenzene	ND		0.00138	0.000428
1,2-Dichlorobenzene	ND		0.00138	0.000346
1,2-Dibromo-3-chloropropane	ND		0.00138	0.00114
1,2,4-Trichlorobenzene	ND		0.00138	0.00058
1,2,3-Trichlorobenzene	ND		0.00276	0.000439
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00276	0.000824
Methyl acetate	ND		0.00138	0.00112
Cyclohexane	ND		0.0069	0.000248
Methylcyclohexane	ND		0.00276	0.000237
1,3-Dichloropropene (cis- and trans-)	ND		0.00138	0.000153

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-011
Client ID: SB1B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Date File: L7719.D

GC/MS Column: DB-624
Sample wt/vol: 4.03g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 10.2

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-012
Client ID: SB4A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7720.D 11/21/2023 17:00

GC/MS Column: DB-624
Sample wt/vol: 3.96g
Matrix-Units: Soil-mg/Kg
% Moisture: 8.90
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00139	0.000721
Chloromethane	ND		0.00278	0.000441
Vinyl chloride	ND		0.00139	0.00045
Bromomethane	ND		0.00278	0.00121
Chloroethane	ND		0.00139	0.000413
Trichlorofluoromethane	ND		0.00139	0.000564
1,1-Dichloroethene	ND		0.00139	0.000487
Acetone	ND		0.014	0.00695
Carbon disulfide	ND		0.00139	0.000546
Methylene chloride	ND		0.00695	0.00417
trans-1,2-Dichloroethene	ND		0.00278	0.000492
Methyl tert-butyl ether (MTBE)	ND		0.00139	0.000303
1,1-Dichloroethane	ND		0.00278	0.000354
cis-1,2-Dichloroethene	ND		0.00278	0.000297
2-Butanone (MEK)	ND		0.014	0.00278
Bromochloromethane	ND		0.00139	0.000353
Chloroform	ND		0.00278	0.000695
1,1,1-Trichloroethane	ND		0.00139	0.000427
Carbon tetrachloride	ND		0.00139	0.000278
1,2-Dichloroethane (EDC)	ND		0.00139	0.000321
Benzene	ND		0.00139	0.00012
Trichloroethene	ND		0.00139	0.000207
1,2-Dichloropropane	ND		0.00139	0.000139
Bromodichloromethane	ND		0.00139	0.000165
cis-1,3-Dichloropropene	ND		0.00139	0.000213
4-Methyl-2-pentanone (MIBK)	ND		0.014	0.000727

VOLATILE ORGANICS

Lab ID: E23-05066-012
Client ID: SB4A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7720.D 11/21/2023 17:00

GC/MS Column: DB-624
Sample wt/vol: 3.96g
Matrix-Units: Soil-mg/Kg
% Moisture: 8.90
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00139	0.000695
trans-1,3-Dichloropropene	ND		0.00139	0.000154
1,1,2-Trichloroethane	ND		0.00139	0.000297
Tetrachloroethene	ND		0.00139	0.000143
2-Hexanone	ND		0.014	0.00213
Dibromochloromethane	ND		0.00139	0.000231
1,2-Dibromoethane (EDB)	ND		0.00139	0.000257
Chlorobenzene	ND		0.00139	0.00024
Ethylbenzene	ND		0.00139	0.000152
Total Xylenes	ND		0.00278	0.000195
Styrene	ND		0.00139	0.000299
Bromoform	ND		0.00139	0.000432
Isopropylbenzene	ND		0.00139	0.000296
1,1,2,2-Tetrachloroethane	ND		0.00139	0.000727
1,3-Dichlorobenzene	ND		0.00139	0.000368
1,4-Dichlorobenzene	ND		0.00139	0.000431
1,2-Dichlorobenzene	ND		0.00139	0.000349
1,2-Dibromo-3-chloropropane	ND		0.00139	0.00115
1,2,4-Trichlorobenzene	ND		0.00139	0.000584
1,2,3-Trichlorobenzene	ND		0.00278	0.000442
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00278	0.00083
Methyl acetate	ND		0.00139	0.00112
Cyclohexane	ND		0.00695	0.00025
Methylcyclohexane	ND		0.00278	0.000239
1,3-Dichloropropene (cis- and trans-)	ND		0.00139	0.000154

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-012
Client ID: SB4A/0-2
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Date File: L7720.D

GC/MS Column: DB-624
Sample wt/vol: 3.96g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 8.90

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.38

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-013
Client ID: SB4B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7721.D 11/21/2023 17:27

GC/MS Column: DB-624
Sample wt/vol: 3.62g
Matrix-Units: Soil-mg/Kg
% Moisture: 5.20
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00146	0.000758
Chloromethane	ND		0.00292	0.000463
Vinyl chloride	ND		0.00146	0.000473
Bromomethane	ND		0.00292	0.00127
Chloroethane	ND		0.00146	0.000434
Trichlorofluoromethane	ND		0.00146	0.000593
1,1-Dichloroethene	ND		0.00146	0.000511
Acetone	ND		0.015	0.0073
Carbon disulfide	ND		0.00146	0.000574
Methylene chloride	0.00464	CJ	0.0073	0.00438
trans-1,2-Dichloroethene	ND		0.00292	0.000517
Methyl tert-butyl ether (MTBE)	ND		0.00146	0.000318
1,1-Dichloroethane	ND		0.00292	0.000372
cis-1,2-Dichloroethene	ND		0.00292	0.000312
2-Butanone (MEK)	ND		0.015	0.00292
Bromochloromethane	ND		0.00146	0.000371
Chloroform	ND		0.00292	0.00073
1,1,1-Trichloroethane	ND		0.00146	0.000448
Carbon tetrachloride	ND		0.00146	0.000292
1,2-Dichloroethane (EDC)	ND		0.00146	0.000337
Benzene	ND		0.00146	0.000126
Trichloroethene	ND		0.00146	0.000218
1,2-Dichloropropane	ND		0.00146	0.000146
Bromodichloromethane	ND		0.00146	0.000174
cis-1,3-Dichloropropene	ND		0.00146	0.000223
4-Methyl-2-pentanone (MIBK)	ND		0.015	0.000764

VOLATILE ORGANICS

Lab ID: E23-05066-013
Client ID: SB4B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7721.D 11/21/2023 17:27

GC/MS Column: DB-624
Sample wt/vol: 3.62g
Matrix-Units: Soil-mg/Kg
% Moisture: 5.20
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00146	0.00073
trans-1,3-Dichloropropene	ND		0.00146	0.000162
1,1,2-Trichloroethane	ND		0.00146	0.000312
Tetrachloroethene	ND		0.00146	0.00015
2-Hexanone	ND		0.015	0.00224
Dibromochloromethane	ND		0.00146	0.000242
1,2-Dibromoethane (EDB)	ND		0.00146	0.00027
Chlorobenzene	ND		0.00146	0.000253
Ethylbenzene	ND		0.00146	0.000159
Total Xylenes	ND		0.00292	0.000204
Styrene	ND		0.00146	0.000314
Bromoform	ND		0.00146	0.000454
Isopropylbenzene	ND		0.00146	0.000311
1,1,2,2-Tetrachloroethane	ND		0.00146	0.000764
1,3-Dichlorobenzene	ND		0.00146	0.000387
1,4-Dichlorobenzene	ND		0.00146	0.000453
1,2-Dichlorobenzene	ND		0.00146	0.000366
1,2-Dibromo-3-chloropropane	ND		0.00146	0.0012
1,2,4-Trichlorobenzene	ND		0.00146	0.000613
1,2,3-Trichlorobenzene	ND		0.00292	0.000464
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00292	0.000872
Methyl acetate	ND		0.00146	0.00118
Cyclohexane	ND		0.0073	0.000263
Methylcyclohexane	ND		0.00292	0.000251
1,3-Dichloropropene (cis- and trans-)	ND		0.00146	0.000162

Total Target Compounds (51): 0.00464 CJ

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-013
Client ID: SB4B/10-12
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Date File: L7721.D

GC/MS Column: DB-624
Sample wt/vol: 3.62g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 5.20

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-014
Client ID: SB6-419-CS/0
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7722.D 11/21/2023 17:56

GC/MS Column: DB-624
Sample wt/vol: 3.99g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.80
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00136	0.000706
Chloromethane	ND		0.00272	0.000431
Vinyl chloride	ND		0.00136	0.000441
Bromomethane	ND		0.00272	0.00119
Chloroethane	ND		0.00136	0.000404
Trichlorofluoromethane	ND		0.00136	0.000552
1,1-Dichloroethene	ND		0.00136	0.000476
Acetone	ND		0.014	0.0068
Carbon disulfide	ND		0.00136	0.000534
Methylene chloride	0.00487	CJ	0.0068	0.00408
trans-1,2-Dichloroethene	ND		0.00272	0.000481
Methyl tert-butyl ether (MTBE)	ND		0.00136	0.000296
1,1-Dichloroethane	ND		0.00272	0.000347
cis-1,2-Dichloroethene	ND		0.00272	0.000291
2-Butanone (MEK)	ND		0.014	0.00272
Bromochloromethane	ND		0.00136	0.000345
Chloroform	ND		0.00272	0.00068
1,1,1-Trichloroethane	ND		0.00136	0.000418
Carbon tetrachloride	ND		0.00136	0.000272
1,2-Dichloroethane (EDC)	ND		0.00136	0.000314
Benzene	ND		0.00136	0.000117
Trichloroethene	ND		0.00136	0.000203
1,2-Dichloropropane	ND		0.00136	0.000136
Bromodichloromethane	ND		0.00136	0.000162
cis-1,3-Dichloropropene	ND		0.00136	0.000208
4-Methyl-2-pentanone (MIBK)	ND		0.014	0.000711

VOLATILE ORGANICS

Lab ID: E23-05066-014
Client ID: SB6-419-CS/0
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7722.D 11/21/2023 17:56

GC/MS Column: DB-624
Sample wt/vol: 3.99g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.80
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00136	0.00068
trans-1,3-Dichloropropene	ND		0.00136	0.000151
1,1,2-Trichloroethane	ND		0.00136	0.000291
Tetrachloroethene	ND		0.00136	0.00014
2-Hexanone	ND		0.014	0.00208
Dibromochloromethane	ND		0.00136	0.000226
1,2-Dibromoethane (EDB)	ND		0.00136	0.000252
Chlorobenzene	ND		0.00136	0.000235
Ethylbenzene	ND		0.00136	0.000148
Total Xylenes	ND		0.00272	0.00019
Styrene	ND		0.00136	0.000292
Bromoform	ND		0.00136	0.000423
Isopropylbenzene	ND		0.00136	0.00029
1,1,2,2-Tetrachloroethane	ND		0.00136	0.000711
1,3-Dichlorobenzene	ND		0.00136	0.00036
1,4-Dichlorobenzene	ND		0.00136	0.000422
1,2-Dichlorobenzene	ND		0.00136	0.000341
1,2-Dibromo-3-chloropropane	ND		0.00136	0.00112
1,2,4-Trichlorobenzene	ND		0.00136	0.000571
1,2,3-Trichlorobenzene	ND		0.00272	0.000432
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00272	0.000812
Methyl acetate	ND		0.00136	0.0011
Cyclohexane	ND		0.0068	0.000245
Methylcyclohexane	ND		0.00272	0.000234
1,3-Dichloropropene (cis- and trans-)	ND		0.00136	0.000151

Total Target Compounds (51): 0.00487 CJ

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-014
Client ID: SB6-419-CS/0
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Date File: L7722.D

GC/MS Column: DB-624
Sample wt/vol: 3.99g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 7.80

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.38

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-015
Client ID: SB8-401-CS/0
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7723.D 11/21/2023 18:24

GC/MS Column: DB-624
Sample wt/vol: 3.79g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.20
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00141	0.000732
Chloromethane	ND		0.00282	0.000447
Vinyl chloride	ND		0.00141	0.000457
Bromomethane	ND		0.00282	0.00123
Chloroethane	ND		0.00141	0.000419
Trichlorofluoromethane	ND		0.00141	0.000572
1,1-Dichloroethene	ND		0.00141	0.000494
Acetone	ND		0.014	0.00705
Carbon disulfide	ND		0.00141	0.000554
Methylene chloride	0.00449	CJ	0.00705	0.00423
trans-1,2-Dichloroethene	ND		0.00282	0.000499
Methyl tert-butyl ether (MTBE)	ND		0.00141	0.000307
1,1-Dichloroethane	ND		0.00282	0.00036
cis-1,2-Dichloroethene	ND		0.00282	0.000302
2-Butanone (MEK)	ND		0.014	0.00282
Bromochloromethane	ND		0.00141	0.000358
Chloroform	ND		0.00282	0.000705
1,1,1-Trichloroethane	ND		0.00141	0.000433
Carbon tetrachloride	ND		0.00141	0.000282
1,2-Dichloroethane (EDC)	ND		0.00141	0.000326
Benzene	ND		0.00141	0.000121
Trichloroethene	ND		0.00141	0.00021
1,2-Dichloropropane	ND		0.00141	0.000141
Bromodichloromethane	ND		0.00141	0.000168
cis-1,3-Dichloropropene	ND		0.00141	0.000216
4-Methyl-2-pentanone (MIBK)	ND		0.014	0.000737

VOLATILE ORGANICS

Lab ID: E23-05066-015
Client ID: SB8-401-CS/0
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Data file: L7723.D 11/21/2023 18:24

GC/MS Column: DB-624
Sample wt/vol: 3.79g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.20
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00141	0.000705
trans-1,3-Dichloropropene	ND		0.00141	0.000157
1,1,2-Trichloroethane	ND		0.00141	0.000302
Tetrachloroethene	ND		0.00141	0.000145
2-Hexanone	ND		0.014	0.00216
Dibromochloromethane	ND		0.00141	0.000234
1,2-Dibromoethane (EDB)	ND		0.00141	0.000261
Chlorobenzene	ND		0.00141	0.000244
Ethylbenzene	ND		0.00141	0.000154
Total Xylenes	ND		0.00282	0.000197
Styrene	ND		0.00141	0.000303
Bromoform	ND		0.00141	0.000439
Isopropylbenzene	ND		0.00141	0.0003
1,1,2,2-Tetrachloroethane	ND		0.00141	0.000737
1,3-Dichlorobenzene	ND		0.00141	0.000374
1,4-Dichlorobenzene	ND		0.00141	0.000437
1,2-Dichlorobenzene	ND		0.00141	0.000354
1,2-Dibromo-3-chloropropane	ND		0.00141	0.00116
1,2,4-Trichlorobenzene	ND		0.00141	0.000592
1,2,3-Trichlorobenzene	ND		0.00282	0.000448
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00282	0.000842
Methyl acetate	ND		0.00141	0.00114
Cyclohexane	ND		0.00705	0.000254
Methylcyclohexane	ND		0.00282	0.000243
1,3-Dichloropropene (cis- and trans-)	ND		0.00141	0.000157

Total Target Compounds (51): 0.00449 CJ

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-015
Client ID: SB8-401-CS/0
Date Received: 11/17/2023
Date Analyzed: 11/21/2023
Date File: L7723.D

GC/MS Column: DB-624
Sample wt/vol: 3.79g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 6.20

CAS #	Compound	Estimated Concentration	Q	Retention Time
000091-20-3	Naphthalene	0.021	JN	15.63
000090-12-0	Naphthalene, 1-methyl-	0.00818	JN	16.77

Total TICs = 0.030 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: BLKS231121-01
Client ID: BLKS231121-01
Date Received: 11/16/2023
Date Analyzed: 11/21/2023
Data file: L7708.D 11/21/2023 11:21

GC/MS Column: DB-624
Sample wt/vol: 5.00g
Matrix-Units: Soil-mg/Kg
% Moisture: NA
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.001	0.000519
Chloromethane	ND		0.002	0.000317
Vinyl chloride	ND		0.001	0.000324
Bromomethane	ND		0.002	0.000872
Chloroethane	ND		0.001	0.000297
Trichlorofluoromethane	ND		0.001	0.000406
1,1-Dichloroethene	ND		0.001	0.00035
Acetone	ND		0.010	0.005
Carbon disulfide	ND		0.001	0.000393
Methylene chloride	ND		0.005	0.003
trans-1,2-Dichloroethene	ND		0.002	0.000354
Methyl tert-butyl ether (MTBE)	ND		0.001	0.000218
1,1-Dichloroethane	ND		0.002	0.000255
cis-1,2-Dichloroethene	ND		0.002	0.000214
2-Butanone (MEK)	ND		0.010	0.002
Bromochloromethane	ND		0.001	0.000254
Chloroform	ND		0.002	0.0005
1,1,1-Trichloroethane	ND		0.001	0.000307
Carbon tetrachloride	ND		0.001	0.0002
1,2-Dichloroethane (EDC)	ND		0.001	0.000231
Benzene	ND		0.001	0.000086
Trichloroethene	ND		0.001	0.000149
1,2-Dichloropropane	ND		0.001	0.0001
Bromodichloromethane	ND		0.001	0.000119
cis-1,3-Dichloropropene	ND		0.001	0.000153
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.000523

VOLATILE ORGANICS

Lab ID: BLKS231121-01
Client ID: BLKS231121-01
Date Received: 11/16/2023
Date Analyzed: 11/21/2023
Data file: L7708.D 11/21/2023 11:21

GC/MS Column: DB-624
Sample wt/vol: 5.00g
Matrix-Units: Soil-mg/Kg
% Moisture: NA
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.001	0.0005
trans-1,3-Dichloropropene	ND		0.001	0.000111
1,1,2-Trichloroethane	ND		0.001	0.000214
Tetrachloroethene	ND		0.001	0.000103
2-Hexanone	ND		0.010	0.00153
Dibromochloromethane	ND		0.001	0.000166
1,2-Dibromoethane (EDB)	ND		0.001	0.000185
Chlorobenzene	ND		0.001	0.000173
Ethylbenzene	ND		0.001	0.000109
Total Xylenes	ND		0.002	0.00014
Styrene	ND		0.001	0.000215
Bromoform	ND		0.001	0.000311
Isopropylbenzene	ND		0.001	0.000213
1,1,2,2-Tetrachloroethane	ND		0.001	0.000523
1,3-Dichlorobenzene	ND		0.001	0.000265
1,4-Dichlorobenzene	ND		0.001	0.00031
1,2-Dichlorobenzene	ND		0.001	0.000251
1,2-Dibromo-3-chloropropane	ND		0.001	0.000824
1,2,4-Trichlorobenzene	ND		0.001	0.00042
1,2,3-Trichlorobenzene	ND		0.002	0.000318
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.002	0.000597
Methyl acetate	ND		0.001	0.000808
Cyclohexane	ND		0.005	0.00018
Methylcyclohexane	ND		0.002	0.000172
1,3-Dichloropropene (cis- and trans-)	ND		0.001	0.000111

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: BLKS231121-01
Client ID: BLKS231121-01
Date Received: 11/16/2023
Date Analyzed: 11/21/2023
Date File: L7708.D

GC/MS Column: DB-624
Sample wt/vol: 5.00g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: NA

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.38

Total TICs = 0

D — Dilution Performed
J — Estimated concentration for TICs
N — Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-016
Client ID: TWP1
Date Received: 11/17/2023
Date Analyzed: 11/22/2023
Data file: E5298.D 11/22/2023 09:26
Data file: P5609.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		1.00	0.552
Chloromethane	ND		0.500	0.309
Vinyl chloride	ND		0.500	0.352
Bromomethane	ND		0.500	0.386
Chloroethane	ND		0.500	0.324
Trichlorofluoromethane	ND		1.00	0.503
1,1-Dichloroethene	ND		0.500	0.363
Acetone	ND		1.00	1.00
Carbon disulfide	ND		0.500	0.403
Methylene chloride	ND		1.00	0.500
trans-1,2-Dichloroethene	ND		0.500	0.372
Methyl tert-butyl ether (MTBE)	ND		0.500	0.245
1,1-Dichloroethane	ND		0.500	0.285
cis-1,2-Dichloroethene	ND		0.500	0.277
2-Butanone (MEK)	ND		1.00	0.802
Bromochloromethane	ND		0.500	0.379
Chloroform	1.91		0.500	0.285
1,1,1-Trichloroethane	ND		0.500	0.381
Carbon tetrachloride	ND		0.500	0.349
1,2-Dichloroethane (EDC)	ND		0.500	0.273
Benzene	ND		0.500	0.270
Trichloroethene	ND		0.500	0.347
1,2-Dichloropropane	ND		0.500	0.272
Bromodichloromethane	ND		0.500	0.258
cis-1,3-Dichloropropene	ND		0.500	0.264
4-Methyl-2-pentanone (MIBK)	ND		1.00	0.611

VOLATILE ORGANICS

Lab ID: E23-05066-016
Client ID: TWP1
Date Received: 11/17/2023
Date Analyzed: 11/22/2023
Data file: E5298.D 11/22/2023 09:26
Data file: P5609.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.500	0.302
trans-1,3-Dichloropropene	ND		0.500	0.330
1,1,2-Trichloroethane	ND		0.500	0.313
Tetrachloroethene	0.585		0.500	0.365
2-Hexanone	ND		1.00	0.818
Dibromochloromethane	ND		0.500	0.263
1,2-Dibromoethane (EDB)^	ND		0.0048	0.00364
Chlorobenzene	ND		0.500	0.304
Ethylbenzene	ND		0.500	0.313
Total Xylenes	ND		1.00	0.345
Styrene	ND		0.500	0.317
Bromoform	ND		0.500	0.328
Isopropylbenzene	ND		0.500	0.332
1,1,2,2-Tetrachloroethane	ND		0.500	0.284
1,3-Dichlorobenzene	ND		0.500	0.386
1,4-Dichlorobenzene	ND		0.500	0.397
1,2-Dichlorobenzene	ND		0.500	0.354
1,2-Dibromo-3-chloropropane^	ND		0.0048	0.00364
1,2,4-Trichlorobenzene	ND		0.500	0.358
1,2,3-Trichlorobenzene	ND		0.500	0.406
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	0.538
Methyl acetate	ND		0.500	0.345
Cyclohexane	ND		1.00	0.469
Methylcyclohexane	ND		0.500	0.421
1,3-Dichloropropene (cis- and trans-)	ND		0.500	0.264
Total Target Compounds (51):	2.50			

^ --- Results reported from SW-846 8011
D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-016
Client ID: TWP1
Date Received: 11/17/2023
Date Analyzed: 11/22/2023
Date File: E5298.D

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-017
Client ID: TWP4
Date Received: 11/17/2023
Date Analyzed: 11/22/2023
Data file: E5299.D 11/22/2023 09:53
Data file: P5610.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	0.581	J	1.00	0.552
Chloromethane	ND		0.500	0.309
Vinyl chloride	ND		0.500	0.352
Bromomethane	ND		0.500	0.386
Chloroethane	ND		0.500	0.324
Trichlorofluoromethane	ND		1.00	0.503
1,1-Dichloroethene	ND		0.500	0.363
Acetone	ND		1.00	1.00
Carbon disulfide	ND		0.500	0.403
Methylene chloride	ND		1.00	0.500
trans-1,2-Dichloroethene	ND		0.500	0.372
Methyl tert-butyl ether (MTBE)	ND		0.500	0.245
1,1-Dichloroethane	ND		0.500	0.285
cis-1,2-Dichloroethene	ND		0.500	0.277
2-Butanone (MEK)	ND		1.00	0.802
Bromochloromethane	ND		0.500	0.379
Chloroform	2.11		0.500	0.285
1,1,1-Trichloroethane	ND		0.500	0.381
Carbon tetrachloride	ND		0.500	0.349
1,2-Dichloroethane (EDC)	ND		0.500	0.273
Benzene	ND		0.500	0.270
Trichloroethene	ND		0.500	0.347
1,2-Dichloropropane	ND		0.500	0.272
Bromodichloromethane	ND		0.500	0.258
cis-1,3-Dichloropropene	ND		0.500	0.264
4-Methyl-2-pentanone (MIBK)	ND		1.00	0.611

VOLATILE ORGANICS

Lab ID: E23-05066-017
Client ID: TWP4
Date Received: 11/17/2023
Date Analyzed: 11/22/2023
Data file: E5299.D 11/22/2023 09:53
Data file: P5610.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.500	0.302
trans-1,3-Dichloropropene	ND		0.500	0.330
1,1,2-Trichloroethane	ND		0.500	0.313
Tetrachloroethene	ND		0.500	0.365
2-Hexanone	ND		1.00	0.818
Dibromochloromethane	ND		0.500	0.263
1,2-Dibromoethane (EDB)^	ND		0.00476	0.00364
Chlorobenzene	ND		0.500	0.304
Ethylbenzene	ND		0.500	0.313
Total Xylenes	ND		1.00	0.345
Styrene	ND		0.500	0.317
Bromoform	ND		0.500	0.328
Isopropylbenzene	ND		0.500	0.332
1,1,2,2-Tetrachloroethane	ND		0.500	0.284
1,3-Dichlorobenzene	ND		0.500	0.386
1,4-Dichlorobenzene	ND		0.500	0.397
1,2-Dichlorobenzene	ND		0.500	0.354
1,2-Dibromo-3-chloropropane^	ND		0.00476	0.00364
1,2,4-Trichlorobenzene	ND		0.500	0.358
1,2,3-Trichlorobenzene	ND		0.500	0.406
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	0.538
Methyl acetate	ND		0.500	0.345
Cyclohexane	ND		1.00	0.469
Methylcyclohexane	ND		0.500	0.421
1,3-Dichloropropene (cis- and trans-)	ND		0.500	0.264
Total Target Compounds (51):	2.69	J		

^ --- Results reported from SW-846 8011
D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-017
Client ID: TWP4
Date Received: 11/17/2023
Date Analyzed: 11/22/2023
Date File: E5299.D

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-018
Client ID: TWP2
Date Received: 11/17/2023
Date Analyzed: 11/22/2023
Data file: E5300.D 11/22/2023 10:20
Data file: P5611.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		1.00	0.552
Chloromethane	ND		0.500	0.309
Vinyl chloride	ND		0.500	0.352
Bromomethane	ND		0.500	0.386
Chloroethane	ND		0.500	0.324
Trichlorofluoromethane	ND		1.00	0.503
1,1-Dichloroethene	ND		0.500	0.363
Acetone	ND		1.00	1.00
Carbon disulfide	ND		0.500	0.403
Methylene chloride	ND		1.00	0.500
trans-1,2-Dichloroethene	ND		0.500	0.372
Methyl tert-butyl ether (MTBE)	ND		0.500	0.245
1,1-Dichloroethane	ND		0.500	0.285
cis-1,2-Dichloroethene	ND		0.500	0.277
2-Butanone (MEK)	ND		1.00	0.802
Bromochloromethane	ND		0.500	0.379
Chloroform	ND		0.500	0.285
1,1,1-Trichloroethane	ND		0.500	0.381
Carbon tetrachloride	ND		0.500	0.349
1,2-Dichloroethane (EDC)	ND		0.500	0.273
Benzene	ND		0.500	0.270
Trichloroethene	0.585		0.500	0.347
1,2-Dichloropropane	ND		0.500	0.272
Bromodichloromethane	ND		0.500	0.258
cis-1,3-Dichloropropene	ND		0.500	0.264
4-Methyl-2-pentanone (MIBK)	ND		1.00	0.611

VOLATILE ORGANICS

Lab ID: E23-05066-018
Client ID: TWP2
Date Received: 11/17/2023
Date Analyzed: 11/22/2023
Data file: E5300.D 11/22/2023 10:20
Data file: P5611.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.500	0.302
trans-1,3-Dichloropropene	ND		0.500	0.330
1,1,2-Trichloroethane	ND		0.500	0.313
Tetrachloroethene	2.87		0.500	0.365
2-Hexanone	ND		1.00	0.818
Dibromochloromethane	ND		0.500	0.263
1,2-Dibromoethane (EDB)^	ND		0.00474	0.00364
Chlorobenzene	ND		0.500	0.304
Ethylbenzene	ND		0.500	0.313
Total Xylenes	ND		1.00	0.345
Styrene	ND		0.500	0.317
Bromoform	ND		0.500	0.328
Isopropylbenzene	ND		0.500	0.332
1,1,2,2-Tetrachloroethane	ND		0.500	0.284
1,3-Dichlorobenzene	ND		0.500	0.386
1,4-Dichlorobenzene	ND		0.500	0.397
1,2-Dichlorobenzene	ND		0.500	0.354
1,2-Dibromo-3-chloropropane^	ND		0.00474	0.00364
1,2,4-Trichlorobenzene	ND		0.500	0.358
1,2,3-Trichlorobenzene	ND		0.500	0.406
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	0.538
Methyl acetate	ND		0.500	0.345
Cyclohexane	ND		1.00	0.469
Methylcyclohexane	ND		0.500	0.421
1,3-Dichloropropene (cis- and trans-)	ND		0.500	0.264
Total Target Compounds (51):	3.46			

^ --- Results reported from SW-846 8011
D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-018
Client ID: TWP2
Date Received: 11/17/2023
Date Analyzed: 11/22/2023
Date File: E5300.D

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05066-019
Client ID: TWP5
Date Received: 11/17/2023
Date Analyzed: 11/22/2023
Data file: E5301.D 11/22/2023 10:48
Data file: P5612.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		1.00	0.552
Chloromethane	ND		0.500	0.309
Vinyl chloride	ND		0.500	0.352
Bromomethane	ND		0.500	0.386
Chloroethane	ND		0.500	0.324
Trichlorofluoromethane	ND		1.00	0.503
1,1-Dichloroethene	ND		0.500	0.363
Acetone	ND		1.00	1.00
Carbon disulfide	ND		0.500	0.403
Methylene chloride	ND		1.00	0.500
trans-1,2-Dichloroethene	ND		0.500	0.372
Methyl tert-butyl ether (MTBE)	ND		0.500	0.245
1,1-Dichloroethane	ND		0.500	0.285
cis-1,2-Dichloroethene	ND		0.500	0.277
2-Butanone (MEK)	ND		1.00	0.802
Bromochloromethane	ND		0.500	0.379
Chloroform	ND		0.500	0.285
1,1,1-Trichloroethane	ND		0.500	0.381
Carbon tetrachloride	ND		0.500	0.349
1,2-Dichloroethane (EDC)	ND		0.500	0.273
Benzene	ND		0.500	0.270
Trichloroethene	0.364	J	0.500	0.347
1,2-Dichloropropane	ND		0.500	0.272
Bromodichloromethane	ND		0.500	0.258
cis-1,3-Dichloropropene	ND		0.500	0.264
4-Methyl-2-pentanone (MIBK)	ND		1.00	0.611

VOLATILE ORGANICS

Lab ID: E23-05066-019
Client ID: TWP5
Date Received: 11/17/2023
Date Analyzed: 11/22/2023
Data file: E5301.D 11/22/2023 10:48
Data file: P5612.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.500	0.302
trans-1,3-Dichloropropene	ND		0.500	0.330
1,1,2-Trichloroethane	ND		0.500	0.313
Tetrachloroethene	4.82		0.500	0.365
2-Hexanone	ND		1.00	0.818
Dibromochloromethane	ND		0.500	0.263
1,2-Dibromoethane (EDB)^	ND		0.0048	0.00364
Chlorobenzene	ND		0.500	0.304
Ethylbenzene	ND		0.500	0.313
Total Xylenes	ND		1.00	0.345
Styrene	ND		0.500	0.317
Bromoform	ND		0.500	0.328
Isopropylbenzene	ND		0.500	0.332
1,1,2,2-Tetrachloroethane	ND		0.500	0.284
1,3-Dichlorobenzene	ND		0.500	0.386
1,4-Dichlorobenzene	ND		0.500	0.397
1,2-Dichlorobenzene	ND		0.500	0.354
1,2-Dibromo-3-chloropropane^	ND		0.0048	0.00364
1,2,4-Trichlorobenzene	ND		0.500	0.358
1,2,3-Trichlorobenzene	ND		0.500	0.406
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	0.538
Methyl acetate	ND		0.500	0.345
Cyclohexane	ND		1.00	0.469
Methylcyclohexane	ND		0.500	0.421
1,3-Dichloropropene (cis- and trans-)	ND		0.500	0.264
Total Target Compounds (51):	5.18	J		

^ --- Results reported from SW-846 8011
D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-019
Client ID: TWP5
Date Received: 11/17/2023
Date Analyzed: 11/22/2023
Date File: E5301.D

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: BLKA231122-01
Client ID: BLKA231122-01
Date Received: NA
Date Analyzed: 11/22/2023
Data file: E5297.D 11/22/2023 08:58

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		1.00	0.552
Chloromethane	ND		0.500	0.309
Vinyl chloride	ND		0.500	0.352
Bromomethane	ND		0.500	0.386
Chloroethane	ND		0.500	0.324
Trichlorofluoromethane	ND		1.00	0.503
1,1-Dichloroethene	ND		0.500	0.363
Acetone	ND		1.00	1.00
Carbon disulfide	ND		0.500	0.403
Methylene chloride	ND		1.00	0.500
trans-1,2-Dichloroethene	ND		0.500	0.372
Methyl tert-butyl ether (MTBE)	ND		0.500	0.245
1,1-Dichloroethane	ND		0.500	0.285
cis-1,2-Dichloroethene	ND		0.500	0.277
2-Butanone (MEK)	ND		1.00	0.802
Bromochloromethane	ND		0.500	0.379
Chloroform	ND		0.500	0.285
1,1,1-Trichloroethane	ND		0.500	0.381
Carbon tetrachloride	ND		0.500	0.349
1,2-Dichloroethane (EDC)	ND		0.500	0.273
Benzene	ND		0.500	0.270
Trichloroethene	ND		0.500	0.347
1,2-Dichloropropane	ND		0.500	0.272
Bromodichloromethane	ND		0.500	0.258
cis-1,3-Dichloropropene	ND		0.500	0.264
4-Methyl-2-pentanone (MIBK)	ND		1.00	0.611

VOLATILE ORGANICS

Lab ID: BLKA231122-01
Client ID: BLKA231122-01
Date Received: NA
Date Analyzed: 11/22/2023
Data file: E5297.D 11/22/2023 08:58

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.500	0.302
trans-1,3-Dichloropropene	ND		0.500	0.330
1,1,2-Trichloroethane	ND		0.500	0.313
Tetrachloroethene	ND		0.500	0.365
2-Hexanone	ND		1.00	0.818
Dibromochloromethane	ND		0.500	0.263
1,2-Dibromoethane (EDB)	ND		0.500	0.289
Chlorobenzene	ND		0.500	0.304
Ethylbenzene	ND		0.500	0.313
Total Xylenes	ND		1.00	0.345
Styrene	ND		0.500	0.317
Bromoform	ND		0.500	0.328
Isopropylbenzene	ND		0.500	0.332
1,1,2,2-Tetrachloroethane	ND		0.500	0.284
1,3-Dichlorobenzene	ND		0.500	0.386
1,4-Dichlorobenzene	ND		0.500	0.397
1,2-Dichlorobenzene	ND		0.500	0.354
1,2-Dibromo-3-chloropropane	ND		0.500	0.410
1,2,4-Trichlorobenzene	ND		0.500	0.358
1,2,3-Trichlorobenzene	ND		0.500	0.406
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	0.538
Methyl acetate	ND		0.500	0.345
Cyclohexane	ND		1.00	0.469
Methylcyclohexane	ND		0.500	0.421
1,3-Dichloropropene (cis- and trans-)	ND		0.500	0.264

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: BLKA231122-01
Client ID: BLKA231122-01
Date Received: NA
Date Analyzed: 11/22/2023
Data file: E5297.D 11/22/2023 08:58

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

Volatiles (8011)

Lab ID: BLKA231121-01
Client ID: 8011
Date Received: NA
Date Extracted: 11/21/2023
Date Analyzed: 11/21/2023
Data file: P5601.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 35.0ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

Compound	Concentration	Q	RL	MDL
1,2-Dibromoethane (EDB)	ND		0.00486	0.00364
1,2-Dibromo-3-chloropropane	ND		0.00486	0.00364
1,2,3-Trichloropropane	ND		0.00971	0.00729

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-001
Client ID: SB10A/0-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3865.D 11/22/2023 13:49

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.6
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.077	0.029
Phenol	ND		0.038	0.00867
Bis(2-chloroethyl) ether	ND		0.038	0.014
2-Chlorophenol	ND		0.038	0.013
2-Methylphenol	ND		0.038	0.017
2,2'-Oxybis(1-Chloropropane)	ND		0.038	0.00956
4-Methylphenol **	ND		0.038	0.018
N-Nitrosodi-n-propylamine	ND		0.038	0.024
Acetophenone	ND		0.038	0.023
1,4-Dioxane	ND		0.038	0.025
Hexachloroethane	ND		0.038	0.016
Nitrobenzene	ND		0.038	0.0093
Isophorone	ND		0.038	0.016
2-Nitrophenol	ND		0.077	0.023
2,4-Dimethylphenol	ND		0.038	0.011
Bis(2-chloroethoxy) methane	ND		0.038	0.00854
2,4-Dichlorophenol	ND		0.038	0.010
Naphthalene	0.038	J	0.038	0.00559
4-Chloroaniline	ND		0.038	0.015
Hexachlorobutadiene	ND		0.038	0.011
Caprolactam	ND		0.077	0.028
4-Chloro-3-methylphenol	ND		0.038	0.015
2-Methylnaphthalene	ND		0.038	0.014
Hexachlorocyclopentadiene	ND		0.077	0.067
2,4,6-Trichlorophenol	ND		0.038	0.011
2,4,5-Trichlorophenol	ND		0.038	0.029
1,1'-Biphenyl	ND		0.038	0.0057
2-Chloronaphthalene	ND		0.038	0.00885
2-Nitroaniline	ND		0.038	0.020
Dimethyl phthalate	ND		0.038	0.00879

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-001
Client ID: SB10A/0-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3865.D 11/22/2023 13:49

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.6
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.077	0.044
Acenaphthylene	1.04		0.038	0.00839
3-Nitroaniline	ND		0.038	0.024
Acenaphthene	ND		0.038	0.00757
2,4-Dinitrophenol	ND		0.077	0.016
4-Nitrophenol	ND		0.077	0.039
2,4-Dinitrotoluene	ND		0.077	0.043
Dibenzofuran	0.079		0.038	0.00501
Diethyl phthalate	ND		0.038	0.012
Fluorene	0.117		0.038	0.010
4-Chlorophenyl phenyl ether	ND		0.038	0.00842
4-Nitroaniline	ND		0.038	0.023
1,2,4,5-Tetrachlorobenzene	ND		0.038	0.013
2,3,4,6-Tetrachlorophenol	ND		0.038	0.013
4,6-Dinitro-2-methylphenol	ND		0.077	0.016
N-Nitrosodiphenylamine	ND		0.038	0.00786
4-Bromophenyl phenyl ether	ND		0.038	0.011
Hexachlorobenzene	ND		0.038	0.012
Atrazine	ND		0.038	0.023
Pentachlorophenol	ND		0.038	0.017
Phenanthrene	2.06		0.038	0.00627
Anthracene	0.400		0.038	0.0039
Carbazole	0.371		0.038	0.00893
Di-n-butyl phthalate	ND		0.038	0.016
Fluoranthene	4.03		0.038	0.012
Pyrene	3.16		0.038	0.00892
Butyl benzyl phthalate	ND		0.038	0.017
3,3'-Dichlorobenzidine	ND		0.038	0.027
Benzo[a]anthracene	1.76		0.038	0.014
Chrysene	1.81		0.038	0.011
Bis(2-ethylhexyl) phthalate	ND		0.038	0.025
Di-n-octyl phthalate	ND		0.038	0.028
Benzo[b]fluoranthene	3.15		0.038	0.019
Benzo[k]fluoranthene	1.63		0.038	0.027
Benzo[a]pyrene	2.16		0.038	0.019
Indeno[1,2,3-cd]pyrene	2.50		0.038	0.025
Dibenz[a,h]anthracene	0.976		0.038	0.015
Benzo[g,h,i]perylene	3.34		0.038	0.029
Dinitrotoluene (2,4- and 2,6-)	ND		0.077	0.043
Total Target Compounds (69):	28.6	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-001
Client ID: SB10A/0-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Date File: A3865.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 13.6

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Unknown SV	0.199	J	7.26
	Unknown SV	0.326	J	8.28

Total TICs = 0.525 J

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-002
Client ID: SB10B/10
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3857.D 11/22/2023 11:38

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.4
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.074	0.028
Phenol	ND		0.037	0.00836
Bis(2-chloroethyl) ether	ND		0.037	0.013
2-Chlorophenol	ND		0.037	0.012
2-Methylphenol	ND		0.037	0.017
2,2'-Oxybis(1-Chloropropane)	ND		0.037	0.00922
4-Methylphenol **	ND		0.037	0.017
N-Nitrosodi-n-propylamine	ND		0.037	0.023
Acetophenone	ND		0.037	0.023
1,4-Dioxane	ND		0.037	0.024
Hexachloroethane	ND		0.037	0.015
Nitrobenzene	ND		0.037	0.00897
Isophorone	ND		0.037	0.016
2-Nitrophenol	ND		0.074	0.022
2,4-Dimethylphenol	ND		0.037	0.011
Bis(2-chloroethoxy) methane	ND		0.037	0.00824
2,4-Dichlorophenol	ND		0.037	0.00983
Naphthalene	ND		0.037	0.00539
4-Chloroaniline	ND		0.037	0.014
Hexachlorobutadiene	ND		0.037	0.010
Caprolactam	ND		0.074	0.027
4-Chloro-3-methylphenol	ND		0.037	0.014
2-Methylnaphthalene	ND		0.037	0.013
Hexachlorocyclopentadiene	ND		0.074	0.064
2,4,6-Trichlorophenol	ND		0.037	0.010
2,4,5-Trichlorophenol	ND		0.037	0.028
1,1'-Biphenyl	ND		0.037	0.0055
2-Chloronaphthalene	ND		0.037	0.00854
2-Nitroaniline	ND		0.037	0.020
Dimethyl phthalate	ND		0.037	0.00848

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-002
Client ID: SB10B/10
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3857.D 11/22/2023 11:38

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.4
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.074	0.042
Acenaphthylene	ND		0.037	0.00809
3-Nitroaniline	ND		0.037	0.023
Acenaphthene	ND		0.037	0.0073
2,4-Dinitrophenol	ND		0.074	0.015
4-Nitrophenol	ND		0.074	0.037
2,4-Dinitrotoluene	ND		0.074	0.042
Dibenzofuran	ND		0.037	0.00483
Diethyl phthalate	ND		0.037	0.012
Fluorene	ND		0.037	0.00995
4-Chlorophenyl phenyl ether	ND		0.037	0.00812
4-Nitroaniline	ND		0.037	0.022
1,2,4,5-Tetrachlorobenzene	ND		0.037	0.012
2,3,4,6-Tetrachlorophenol	ND		0.037	0.013
4,6-Dinitro-2-methylphenol	ND		0.074	0.016
N-Nitrosodiphenylamine	ND		0.037	0.00758
4-Bromophenyl phenyl ether	ND		0.037	0.010
Hexachlorobenzene	ND		0.037	0.012
Atrazine	ND		0.037	0.022
Pentachlorophenol	ND		0.037	0.016
Phenanthrene	ND		0.037	0.00605
Anthracene	ND		0.037	0.00376
Carbazole	ND		0.037	0.00862
Di-n-butyl phthalate	ND		0.037	0.015
Fluoranthene	ND		0.037	0.012
Pyrene	ND		0.037	0.0086
Butyl benzyl phthalate	ND		0.037	0.016
3,3'-Dichlorobenzidine	ND		0.037	0.026
Benzo[a]anthracene	ND		0.037	0.014
Chrysene	ND		0.037	0.010
Bis(2-ethylhexyl) phthalate	ND		0.037	0.024
Di-n-octyl phthalate	ND		0.037	0.027
Benzo[b]fluoranthene	ND		0.037	0.018
Benzo[k]fluoranthene	ND		0.037	0.026
Benzo[a]pyrene	ND		0.037	0.018
Indeno[1,2,3-cd]pyrene	ND		0.037	0.024
Dibenz[a,h]anthracene	ND		0.037	0.015
Benzo[g,h,i]perylene	ND		0.037	0.028
Dinitrotoluene (2,4- and 2,6-)	ND		0.074	0.042

Total Target Compounds (69): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-002
Client ID: SB10B/10
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Date File: A3857.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 10.4

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-003
Client ID: SB2A/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3869.D 11/22/2023 14:52

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.9
Dilution Factor: 10

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.769	0.289
Phenol	ND		0.385	0.087
Bis(2-chloroethyl) ether	ND		0.385	0.135
2-Chlorophenol	ND		0.385	0.125
2-Methylphenol	ND		0.385	0.173
2,2'-Oxybis(1-Chloropropane)	ND		0.385	0.096
4-Methylphenol **	ND		0.385	0.175
N-Nitrosodi-n-propylamine	ND		0.385	0.239
Acetophenone	ND		0.385	0.234
1,4-Dioxane	ND		0.385	0.249
Hexachloroethane	ND		0.385	0.160
Nitrobenzene	ND		0.385	0.093
Isophorone	ND		0.385	0.162
2-Nitrophenol	ND		0.769	0.229
2,4-Dimethylphenol	ND		0.385	0.113
Bis(2-chloroethoxy) methane	ND		0.385	0.086
2,4-Dichlorophenol	ND		0.385	0.102
Naphthalene	0.424	D	0.385	0.056
4-Chloroaniline	ND		0.385	0.148
Hexachlorobutadiene	ND		0.385	0.107
Caprolactam	ND		0.769	0.283
4-Chloro-3-methylphenol	ND		0.385	0.149
2-Methylnaphthalene	0.197	DJ	0.385	0.135
Hexachlorocyclopentadiene	ND		0.769	0.668
2,4,6-Trichlorophenol	ND		0.385	0.106
2,4,5-Trichlorophenol	ND		0.385	0.292
1,1'-Biphenyl	ND		0.385	0.057
2-Chloronaphthalene	ND		0.385	0.089
2-Nitroaniline	ND		0.385	0.204
Dimethyl phthalate	ND		0.385	0.088

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-003
Client ID: SB2A/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3869.D 11/22/2023 14:52

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.9
Dilution Factor: 10

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.769	0.442
Acenaphthylene	2.25	D	0.385	0.084
3-Nitroaniline	ND		0.385	0.243
Acenaphthene	0.788	D	0.385	0.076
2,4-Dinitrophenol	ND		0.769	0.158
4-Nitrophenol	ND		0.769	0.388
2,4-Dinitrotoluene	ND		0.769	0.435
Dibenzofuran	0.571	D	0.385	0.050
Diethyl phthalate	ND		0.385	0.120
Fluorene	0.933	D	0.385	0.104
4-Chlorophenyl phenyl ether	ND		0.385	0.085
4-Nitroaniline	ND		0.385	0.228
1,2,4,5-Tetrachlorobenzene	ND		0.385	0.129
2,3,4,6-Tetrachlorophenol	ND		0.385	0.132
4,6-Dinitro-2-methylphenol	ND		0.769	0.163
N-Nitrosodiphenylamine	ND		0.385	0.079
4-Bromophenyl phenyl ether	ND		0.385	0.107
Hexachlorobenzene	ND		0.385	0.120
Atrazine	ND		0.385	0.229
Pentachlorophenol	ND		0.385	0.170
Phenanthrene	14.8	D	0.385	0.063
Anthracene	3.27	D	0.385	0.039
Carbazole	1.23	D	0.385	0.090
Di-n-butyl phthalate	ND		0.385	0.156
Fluoranthene	24.8	D	0.385	0.124
Pyrene	20.5	D	0.385	0.090
Butyl benzyl phthalate	ND		0.385	0.171
3,3'-Dichlorobenzidine	ND		0.385	0.272
Benzo[a]anthracene	10.6	D	0.385	0.140
Chrysene	9.92	D	0.385	0.106
Bis(2-ethylhexyl) phthalate	ND		0.385	0.247
Di-n-octyl phthalate	ND		0.385	0.282
Benzo[b]fluoranthene	9.82	D	0.385	0.190
Benzo[k]fluoranthene	9.27	D	0.385	0.266
Benzo[a]pyrene	9.82	D	0.385	0.186
Indeno[1,2,3-cd]pyrene	4.97	D	0.385	0.246
Dibenz[a,h]anthracene	2.34	D	0.385	0.154
Benzo[g,h,i]perylene	5.20	D	0.385	0.290
Dinitrotoluene (2,4- and 2,6-)	ND		0.769	0.435
Total Target Compounds (69):	132	DJ		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-003
Client ID: SB2A/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Date File: A3869.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 10
% Moisture: 13.9

CAS #	Compound	Estimated Concentration	Q	Retention Time
000192-97-2	Benzo[e]pyrene	3.54	DJN	8.42

Total TICs = 3.54 DJN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-004
Client ID: SB2B/10-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3858.D 11/22/2023 11:56

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 4.50
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.070	0.026
Phenol	ND		0.035	0.00789
Bis(2-chloroethyl) ether	ND		0.035	0.012
2-Chlorophenol	ND		0.035	0.011
2-Methylphenol	ND		0.035	0.016
2,2'-Oxybis(1-Chloropropane)	ND		0.035	0.0087
4-Methylphenol **	ND		0.035	0.016
N-Nitrosodi-n-propylamine	ND		0.035	0.022
Acetophenone	ND		0.035	0.021
1,4-Dioxane	ND		0.035	0.023
Hexachloroethane	ND		0.035	0.015
Nitrobenzene	ND		0.035	0.00847
Isophorone	ND		0.035	0.015
2-Nitrophenol	ND		0.070	0.021
2,4-Dimethylphenol	ND		0.035	0.010
Bis(2-chloroethoxy) methane	ND		0.035	0.00778
2,4-Dichlorophenol	ND		0.035	0.00928
Naphthalene	ND		0.035	0.00509
4-Chloroaniline	ND		0.035	0.013
Hexachlorobutadiene	ND		0.035	0.00968
Caprolactam	ND		0.070	0.026
4-Chloro-3-methylphenol	ND		0.035	0.014
2-Methylnaphthalene	ND		0.035	0.012
Hexachlorocyclopentadiene	ND		0.070	0.061
2,4,6-Trichlorophenol	ND		0.035	0.00959
2,4,5-Trichlorophenol	ND		0.035	0.027
1,1'-Biphenyl	ND		0.035	0.00519
2-Chloronaphthalene	ND		0.035	0.00806
2-Nitroaniline	ND		0.035	0.019
Dimethyl phthalate	ND		0.035	0.00801

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-004
Client ID: SB2B/10-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3858.D 11/22/2023 11:56

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 4.50
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.070	0.040
Acenaphthylene	ND		0.035	0.00764
3-Nitroaniline	ND		0.035	0.022
Acenaphthene	ND		0.035	0.00689
2,4-Dinitrophenol	ND		0.070	0.014
4-Nitrophenol	ND		0.070	0.035
2,4-Dinitrotoluene	ND		0.070	0.040
Dibenzofuran	ND		0.035	0.00456
Diethyl phthalate	ND		0.035	0.011
Fluorene	ND		0.035	0.0094
4-Chlorophenyl phenyl ether	ND		0.035	0.00767
4-Nitroaniline	ND		0.035	0.021
1,2,4,5-Tetrachlorobenzene	ND		0.035	0.012
2,3,4,6-Tetrachlorophenol	ND		0.035	0.012
4,6-Dinitro-2-methylphenol	ND		0.070	0.015
N-Nitrosodiphenylamine	ND		0.035	0.00716
4-Bromophenyl phenyl ether	ND		0.035	0.00967
Hexachlorobenzene	ND		0.035	0.011
Atrazine	ND		0.035	0.021
Pentachlorophenol	ND		0.035	0.015
Phenanthrene	ND		0.035	0.00571
Anthracene	ND		0.035	0.00355
Carbazole	ND		0.035	0.00814
Di-n-butyl phthalate	ND		0.035	0.014
Fluoranthene	ND		0.035	0.011
Pyrene	ND		0.035	0.00812
Butyl benzyl phthalate	ND		0.035	0.016
3,3'-Dichlorobenzidine	ND		0.035	0.025
Benzo[a]anthracene	ND		0.035	0.013
Chrysene	ND		0.035	0.00963
Bis(2-ethylhexyl) phthalate	ND		0.035	0.022
Di-n-octyl phthalate	ND		0.035	0.026
Benzo[b]fluoranthene	ND		0.035	0.017
Benzo[k]fluoranthene	ND		0.035	0.024
Benzo[a]pyrene	ND		0.035	0.017
Indeno[1,2,3-cd]pyrene	ND		0.035	0.022
Dibenz[a,h]anthracene	ND		0.035	0.014
Benzo[g,h,i]perylene	ND		0.035	0.026
Dinitrotoluene (2,4- and 2,6-)	ND		0.070	0.040

Total Target Compounds (69): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-004
Client ID: SB2B/10-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Date File: A3858.D

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 4.50

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-005
Client ID: SB5/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3860.D 11/22/2023 12:28

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 11.3
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.075	0.028
Phenol	ND		0.038	0.0085
Bis(2-chloroethyl) ether	ND		0.038	0.013
2-Chlorophenol	ND		0.038	0.012
2-Methylphenol	ND		0.038	0.017
2,2'-Oxybis(1-Chloropropane)	ND		0.038	0.00937
4-Methylphenol **	ND		0.038	0.017
N-Nitrosodi-n-propylamine	ND		0.038	0.023
Acetophenone	ND		0.038	0.023
1,4-Dioxane	ND		0.038	0.024
Hexachloroethane	ND		0.038	0.016
Nitrobenzene	ND		0.038	0.00912
Isophorone	ND		0.038	0.016
2-Nitrophenol	ND		0.075	0.022
2,4-Dimethylphenol	ND		0.038	0.011
Bis(2-chloroethoxy) methane	ND		0.038	0.00838
2,4-Dichlorophenol	ND		0.038	0.00999
Naphthalene	ND		0.038	0.00548
4-Chloroaniline	ND		0.038	0.014
Hexachlorobutadiene	ND		0.038	0.010
Caprolactam	ND		0.075	0.028
4-Chloro-3-methylphenol	ND		0.038	0.015
2-Methylnaphthalene	ND		0.038	0.013
Hexachlorocyclopentadiene	ND		0.075	0.065
2,4,6-Trichlorophenol	ND		0.038	0.010
2,4,5-Trichlorophenol	ND		0.038	0.029
1,1'-Biphenyl	ND		0.038	0.00559
2-Chloronaphthalene	ND		0.038	0.00868
2-Nitroaniline	ND		0.038	0.020
Dimethyl phthalate	ND		0.038	0.00862

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-005
Client ID: SB5/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3860.D 11/22/2023 12:28

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 11.3
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.075	0.043
Acenaphthylene	ND		0.038	0.00823
3-Nitroaniline	ND		0.038	0.024
Acenaphthene	ND		0.038	0.00742
2,4-Dinitrophenol	ND		0.075	0.015
4-Nitrophenol	ND		0.075	0.038
2,4-Dinitrotoluene	ND		0.075	0.043
Dibenzofuran	ND		0.038	0.00492
Diethyl phthalate	ND		0.038	0.012
Fluorene	ND		0.038	0.010
4-Chlorophenyl phenyl ether	ND		0.038	0.00826
4-Nitroaniline	ND		0.038	0.022
1,2,4,5-Tetrachlorobenzene	ND		0.038	0.013
2,3,4,6-Tetrachlorophenol	ND		0.038	0.013
4,6-Dinitro-2-methylphenol	ND		0.075	0.016
N-Nitrosodiphenylamine	ND		0.038	0.00771
4-Bromophenyl phenyl ether	ND		0.038	0.010
Hexachlorobenzene	ND		0.038	0.012
Atrazine	ND		0.038	0.022
Pentachlorophenol	ND		0.038	0.017
Phenanthrene	0.188		0.038	0.00615
Anthracene	0.054		0.038	0.00383
Carbazole	0.020	J	0.038	0.00876
Di-n-butyl phthalate	ND		0.038	0.015
Fluoranthene	0.379		0.038	0.012
Pyrene	0.316		0.038	0.00874
Butyl benzyl phthalate	ND		0.038	0.017
3,3'-Dichlorobenzidine	ND		0.038	0.027
Benzo[a]anthracene	0.177		0.038	0.014
Chrysene	0.163		0.038	0.010
Bis(2-ethylhexyl) phthalate	0.073		0.038	0.024
Di-n-octyl phthalate	ND		0.038	0.028
Benzo[b]fluoranthene	0.190		0.038	0.019
Benzo[k]fluoranthene	0.134		0.038	0.026
Benzo[a]pyrene	0.168		0.038	0.018
Indeno[1,2,3-cd]pyrene	0.116		0.038	0.024
Dibenz[a,h]anthracene	0.057		0.038	0.015
Benzo[g,h,i]perylene	0.118		0.038	0.028
Dinitrotoluene (2,4- and 2,6-)	ND		0.075	0.043
Total Target Compounds (69):	2.15	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-005
Client ID: SB5/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Date File: A3860.D

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 11.3

CAS #	Compound	Estimated Concentration	Q	Retention Time
001599-67-3	1-Docosene	0.180	JN	7.25

Total TICs = 0.180 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-006
Client ID: SB3A/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3862.D 11/22/2023 13:00

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.1
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.074	0.028
Phenol	ND		0.037	0.00839
Bis(2-chloroethyl) ether	ND		0.037	0.013
2-Chlorophenol	ND		0.037	0.012
2-Methylphenol	ND		0.037	0.017
2,2'-Oxybis(1-Chloropropane)	ND		0.037	0.00925
4-Methylphenol **	ND		0.037	0.017
N-Nitrosodi-n-propylamine	ND		0.037	0.023
Acetophenone	ND		0.037	0.023
1,4-Dioxane	ND		0.037	0.024
Hexachloroethane	ND		0.037	0.015
Nitrobenzene	ND		0.037	0.009
Isophorone	ND		0.037	0.016
2-Nitrophenol	ND		0.074	0.022
2,4-Dimethylphenol	ND		0.037	0.011
Bis(2-chloroethoxy) methane	ND		0.037	0.00827
2,4-Dichlorophenol	ND		0.037	0.00986
Naphthalene	0.028	J	0.037	0.00541
4-Chloroaniline	ND		0.037	0.014
Hexachlorobutadiene	ND		0.037	0.010
Caprolactam	ND		0.074	0.027
4-Chloro-3-methylphenol	ND		0.037	0.014
2-Methylnaphthalene	ND		0.037	0.013
Hexachlorocyclopentadiene	ND		0.074	0.064
2,4,6-Trichlorophenol	ND		0.037	0.010
2,4,5-Trichlorophenol	ND		0.037	0.028
1,1'-Biphenyl	ND		0.037	0.00552
2-Chloronaphthalene	ND		0.037	0.00857
2-Nitroaniline	ND		0.037	0.020
Dimethyl phthalate	ND		0.037	0.00851

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-006
Client ID: SB3A/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3862.D 11/22/2023 13:00

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.1
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.074	0.043
Acenaphthylene	0.098		0.037	0.00812
3-Nitroaniline	ND		0.037	0.024
Acenaphthene	0.053		0.037	0.00732
2,4-Dinitrophenol	ND		0.074	0.015
4-Nitrophenol	ND		0.074	0.037
2,4-Dinitrotoluene	ND		0.074	0.042
Dibenzofuran	0.043		0.037	0.00485
Diethyl phthalate	ND		0.037	0.012
Fluorene	0.052		0.037	0.00998
4-Chlorophenyl phenyl ether	ND		0.037	0.00815
4-Nitroaniline	ND		0.037	0.022
1,2,4,5-Tetrachlorobenzene	ND		0.037	0.012
2,3,4,6-Tetrachlorophenol	ND		0.037	0.013
4,6-Dinitro-2-methylphenol	ND		0.074	0.016
N-Nitrosodiphenylamine	ND		0.037	0.00761
4-Bromophenyl phenyl ether	ND		0.037	0.010
Hexachlorobenzene	ND		0.037	0.012
Atrazine	ND		0.037	0.022
Pentachlorophenol	ND		0.037	0.016
Phenanthrene	1.09		0.037	0.00607
Anthracene	0.201		0.037	0.00377
Carbazole	0.122		0.037	0.00864
Di-n-butyl phthalate	ND		0.037	0.015
Fluoranthene	1.77		0.037	0.012
Pyrene	1.46		0.037	0.00863
Butyl benzyl phthalate	ND		0.037	0.017
3,3'-Dichlorobenzidine	ND		0.037	0.026
Benzo[a]anthracene	0.693		0.037	0.014
Chrysene	0.674		0.037	0.010
Bis(2-ethylhexyl) phthalate	ND		0.037	0.024
Di-n-octyl phthalate	ND		0.037	0.027
Benzo[b]fluoranthene	0.616		0.037	0.018
Benzo[k]fluoranthene	0.656		0.037	0.026
Benzo[a]pyrene	0.672		0.037	0.018
Indeno[1,2,3-cd]pyrene	0.467		0.037	0.024
Dibenz[a,h]anthracene	0.210		0.037	0.015
Benzo[g,h,i]perylene	0.514		0.037	0.028
Dinitrotoluene (2,4- and 2,6-)	ND		0.074	0.042
Total Target Compounds (69):	9.42	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-006
Client ID: SB3A/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Date File: A3862.D

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 10.1

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Unknown SV	0.189	J	7.26

Total TICs = 0.189 J

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-007
Client ID: SB3B/10-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3859.D 11/22/2023 12:12

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 5.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.070	0.026
Phenol	ND		0.035	0.00794
Bis(2-chloroethyl) ether	ND		0.035	0.012
2-Chlorophenol	ND		0.035	0.011
2-Methylphenol	ND		0.035	0.016
2,2'-Oxybis(1-Chloropropane)	ND		0.035	0.00876
4-Methylphenol **	ND		0.035	0.016
N-Nitrosodi-n-propylamine	ND		0.035	0.022
Acetophenone	ND		0.035	0.021
1,4-Dioxane	ND		0.035	0.023
Hexachloroethane	ND		0.035	0.015
Nitrobenzene	ND		0.035	0.00852
Isophorone	ND		0.035	0.015
2-Nitrophenol	ND		0.070	0.021
2,4-Dimethylphenol	ND		0.035	0.010
Bis(2-chloroethoxy) methane	ND		0.035	0.00783
2,4-Dichlorophenol	ND		0.035	0.00934
Naphthalene	ND		0.035	0.00512
4-Chloroaniline	ND		0.035	0.014
Hexachlorobutadiene	ND		0.035	0.00974
Caprolactam	ND		0.070	0.026
4-Chloro-3-methylphenol	ND		0.035	0.014
2-Methylnaphthalene	ND		0.035	0.012
Hexachlorocyclopentadiene	ND		0.070	0.061
2,4,6-Trichlorophenol	ND		0.035	0.00965
2,4,5-Trichlorophenol	ND		0.035	0.027
1,1'-Biphenyl	ND		0.035	0.00522
2-Chloronaphthalene	ND		0.035	0.00811
2-Nitroaniline	ND		0.035	0.019
Dimethyl phthalate	ND		0.035	0.00806

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-007
Client ID: SB3B/10-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3859.D 11/22/2023 12:12

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 5.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.070	0.040
Acenaphthylene	ND		0.035	0.00769
3-Nitroaniline	ND		0.035	0.022
Acenaphthene	ND		0.035	0.00693
2,4-Dinitrophenol	ND		0.070	0.014
4-Nitrophenol	ND		0.070	0.035
2,4-Dinitrotoluene	ND		0.070	0.040
Dibenzofuran	ND		0.035	0.00459
Diethyl phthalate	ND		0.035	0.011
Fluorene	ND		0.035	0.00945
4-Chlorophenyl phenyl ether	ND		0.035	0.00772
4-Nitroaniline	ND		0.035	0.021
1,2,4,5-Tetrachlorobenzene	ND		0.035	0.012
2,3,4,6-Tetrachlorophenol	ND		0.035	0.012
4,6-Dinitro-2-methylphenol	ND		0.070	0.015
N-Nitrosodiphenylamine	ND		0.035	0.0072
4-Bromophenyl phenyl ether	ND		0.035	0.00973
Hexachlorobenzene	ND		0.035	0.011
Atrazine	ND		0.035	0.021
Pentachlorophenol	ND		0.035	0.016
Phenanthrene	ND		0.035	0.00574
Anthracene	ND		0.035	0.00357
Carbazole	ND		0.035	0.00818
Di-n-butyl phthalate	ND		0.035	0.014
Fluoranthene	ND		0.035	0.011
Pyrene	ND		0.035	0.00817
Butyl benzyl phthalate	ND		0.035	0.016
3,3'-Dichlorobenzidine	ND		0.035	0.025
Benzo[a]anthracene	ND		0.035	0.013
Chrysene	ND		0.035	0.00969
Bis(2-ethylhexyl) phthalate	ND		0.035	0.023
Di-n-octyl phthalate	ND		0.035	0.026
Benzo[b]fluoranthene	ND		0.035	0.017
Benzo[k]fluoranthene	ND		0.035	0.024
Benzo[a]pyrene	ND		0.035	0.017
Indeno[1,2,3-cd]pyrene	ND		0.035	0.023
Dibenz[a,h]anthracene	ND		0.035	0.014
Benzo[g,h,i]perylene	ND		0.035	0.027
Dinitrotoluene (2,4- and 2,6-)	ND		0.070	0.040

Total Target Compounds (69): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-007
Client ID: SB3B/10-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Date File: A3859.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 5.70

CAS #	Compound	Estimated Concentration	Q	Retention Time
000112-92-5	1-Octadecanol	0.204	JN	7.24

Total TICs = 0.204 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-008
Client ID: SB9A/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3870.D 11/22/2023 15:09

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.80
Dilution Factor: 5

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.362	0.136
Phenol	ND		0.181	0.041
Bis(2-chloroethyl) ether	ND		0.181	0.064
2-Chlorophenol	ND		0.181	0.059
2-Methylphenol	ND		0.181	0.081
2,2'-Oxybis(1-Chloropropane)	ND		0.181	0.045
4-Methylphenol **	ND		0.181	0.082
N-Nitrosodi-n-propylamine	ND		0.181	0.112
Acetophenone	ND		0.181	0.110
1,4-Dioxane	ND		0.181	0.117
Hexachloroethane	ND		0.181	0.075
Nitrobenzene	ND		0.181	0.044
Isophorone	ND		0.181	0.076
2-Nitrophenol	ND		0.362	0.108
2,4-Dimethylphenol	ND		0.181	0.053
Bis(2-chloroethoxy) methane	ND		0.181	0.040
2,4-Dichlorophenol	ND		0.181	0.048
Naphthalene	0.554	D	0.181	0.026
4-Chloroaniline	ND		0.181	0.070
Hexachlorobutadiene	ND		0.181	0.050
Caprolactam	ND		0.362	0.133
4-Chloro-3-methylphenol	ND		0.181	0.070
2-Methylnaphthalene	0.177	DJ	0.181	0.064
Hexachlorocyclopentadiene	ND		0.362	0.314
2,4,6-Trichlorophenol	ND		0.181	0.050
2,4,5-Trichlorophenol	ND		0.181	0.137
1,1'-Biphenyl	ND		0.181	0.027
2-Chloronaphthalene	ND		0.181	0.042
2-Nitroaniline	ND		0.181	0.096
Dimethyl phthalate	ND		0.181	0.042

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-008
Client ID: SB9A/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3870.D 11/22/2023 15:09

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.80
Dilution Factor: 5

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.362	0.208
Acenaphthylene	2.11	D	0.181	0.040
3-Nitroaniline	ND		0.181	0.114
Acenaphthene	0.634	D	0.181	0.036
2,4-Dinitrophenol	ND		0.362	0.074
4-Nitrophenol	ND		0.362	0.182
2,4-Dinitrotoluene	ND		0.362	0.205
Dibenzofuran	0.400	D	0.181	0.024
Diethyl phthalate	ND		0.181	0.056
Fluorene	0.626	D	0.181	0.049
4-Chlorophenyl phenyl ether	ND		0.181	0.040
4-Nitroaniline	ND		0.181	0.107
1,2,4,5-Tetrachlorobenzene	ND		0.181	0.060
2,3,4,6-Tetrachlorophenol	ND		0.181	0.062
4,6-Dinitro-2-methylphenol	ND		0.362	0.076
N-Nitrosodiphenylamine	ND		0.181	0.037
4-Bromophenyl phenyl ether	ND		0.181	0.050
Hexachlorobenzene	ND		0.181	0.056
Atrazine	ND		0.181	0.108
Pentachlorophenol	ND		0.181	0.080
Phenanthrene	7.99	D	0.181	0.030
Anthracene	2.32	D	0.181	0.018
Carbazole	1.15	D	0.181	0.042
Di-n-butyl phthalate	ND		0.181	0.073
Fluoranthene	13.1	D	0.181	0.058
Pyrene	10.9	D	0.181	0.042
Butyl benzyl phthalate	ND		0.181	0.080
3,3'-Dichlorobenzidine	ND		0.181	0.128
Benzo[a]anthracene	6.22	D	0.181	0.066
Chrysene	6.14	D	0.181	0.050
Bis(2-ethylhexyl) phthalate	ND		0.181	0.116
Di-n-octyl phthalate	ND		0.181	0.132
Benzo[b]fluoranthene	6.83	D	0.181	0.089
Benzo[k]fluoranthene	6.50	D	0.181	0.125
Benzo[a]pyrene	6.90	D	0.181	0.088
Indeno[1,2,3-cd]pyrene	4.35	D	0.181	0.116
Dibenz[a,h]anthracene	2.10	D	0.181	0.072
Benzo[g,h,i]perylene	5.61	D	0.181	0.136
Dinitrotoluene (2,4- and 2,6-)	ND		0.362	0.205
Total Target Compounds (69):	84.6	DJ		

D -- Dilution Performed
J -- Value Less than RL & greater than MDL
E -- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B -- Compound detected in Blank
C -- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-008
Client ID: SB9A/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Date File: A3870.D

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 5
% Moisture: 7.80

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-009
Client ID: SB9B/10-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3856.D 11/22/2023 11:22

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 4.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.070	0.026
Phenol	ND		0.035	0.00786
Bis(2-chloroethyl) ether	ND		0.035	0.012
2-Chlorophenol	ND		0.035	0.011
2-Methylphenol	ND		0.035	0.016
2,2'-Oxybis(1-Chloropropane)	ND		0.035	0.00867
4-Methylphenol **	ND		0.035	0.016
N-Nitrosodi-n-propylamine	ND		0.035	0.022
Acetophenone	ND		0.035	0.021
1,4-Dioxane	ND		0.035	0.023
Hexachloroethane	ND		0.035	0.014
Nitrobenzene	ND		0.035	0.00844
Isophorone	ND		0.035	0.015
2-Nitrophenol	ND		0.070	0.021
2,4-Dimethylphenol	ND		0.035	0.010
Bis(2-chloroethoxy) methane	ND		0.035	0.00775
2,4-Dichlorophenol	ND		0.035	0.00924
Naphthalene	ND		0.035	0.00507
4-Chloroaniline	ND		0.035	0.013
Hexachlorobutadiene	ND		0.035	0.00964
Caprolactam	ND		0.070	0.026
4-Chloro-3-methylphenol	ND		0.035	0.013
2-Methylnaphthalene	ND		0.035	0.012
Hexachlorocyclopentadiene	ND		0.070	0.060
2,4,6-Trichlorophenol	ND		0.035	0.00955
2,4,5-Trichlorophenol	ND		0.035	0.026
1,1'-Biphenyl	ND		0.035	0.00517
2-Chloronaphthalene	ND		0.035	0.00803
2-Nitroaniline	ND		0.035	0.019
Dimethyl phthalate	ND		0.035	0.00798

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-009
Client ID: SB9B/10-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3856.D 11/22/2023 11:22

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 4.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.070	0.040
Acenaphthylene	ND		0.035	0.00761
3-Nitroaniline	ND		0.035	0.022
Acenaphthene	ND		0.035	0.00686
2,4-Dinitrophenol	ND		0.070	0.014
4-Nitrophenol	ND		0.070	0.035
2,4-Dinitrotoluene	ND		0.070	0.039
Dibenzofuran	ND		0.035	0.00455
Diethyl phthalate	ND		0.035	0.011
Fluorene	ND		0.035	0.00935
4-Chlorophenyl phenyl ether	ND		0.035	0.00764
4-Nitroaniline	ND		0.035	0.021
1,2,4,5-Tetrachlorobenzene	ND		0.035	0.012
2,3,4,6-Tetrachlorophenol	ND		0.035	0.012
4,6-Dinitro-2-methylphenol	ND		0.070	0.015
N-Nitrosodiphenylamine	ND		0.035	0.00713
4-Bromophenyl phenyl ether	ND		0.035	0.00963
Hexachlorobenzene	ND		0.035	0.011
Atrazine	ND		0.035	0.021
Pentachlorophenol	ND		0.035	0.015
Phenanthrene	ND		0.035	0.00569
Anthracene	ND		0.035	0.00354
Carbazole	ND		0.035	0.0081
Di-n-butyl phthalate	ND		0.035	0.014
Fluoranthene	ND		0.035	0.011
Pyrene	ND		0.035	0.00809
Butyl benzyl phthalate	ND		0.035	0.015
3,3'-Dichlorobenzidine	ND		0.035	0.025
Benzo[a]anthracene	ND		0.035	0.013
Chrysene	ND		0.035	0.00959
Bis(2-ethylhexyl) phthalate	ND		0.035	0.022
Di-n-octyl phthalate	ND		0.035	0.025
Benzo[b]fluoranthene	ND		0.035	0.017
Benzo[k]fluoranthene	ND		0.035	0.024
Benzo[a]pyrene	ND		0.035	0.017
Indeno[1,2,3-cd]pyrene	ND		0.035	0.022
Dibenz[a,h]anthracene	ND		0.035	0.014
Benzo[g,h,i]perylene	ND		0.035	0.026
Dinitrotoluene (2,4- and 2,6-)	ND		0.070	0.039

Total Target Compounds (69): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-009
Client ID: SB9B/10-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Date File: A3856.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 4.70

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-010
Client ID: SB1A/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3866.D 11/22/2023 14:05

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.10
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.073	0.028
Phenol	ND		0.037	0.00829
Bis(2-chloroethyl) ether	ND		0.037	0.013
2-Chlorophenol	ND		0.037	0.012
2-Methylphenol	ND		0.037	0.017
2,2'-Oxybis(1-Chloropropane)	ND		0.037	0.00915
4-Methylphenol **	ND		0.037	0.017
N-Nitrosodi-n-propylamine	ND		0.037	0.023
Acetophenone	ND		0.037	0.022
1,4-Dioxane	ND		0.037	0.024
Hexachloroethane	ND		0.037	0.015
Nitrobenzene	ND		0.037	0.0089
Isophorone	ND		0.037	0.015
2-Nitrophenol	ND		0.073	0.022
2,4-Dimethylphenol	ND		0.037	0.011
Bis(2-chloroethoxy) methane	ND		0.037	0.00817
2,4-Dichlorophenol	ND		0.037	0.00975
Naphthalene	0.029	J	0.037	0.00535
4-Chloroaniline	ND		0.037	0.014
Hexachlorobutadiene	ND		0.037	0.010
Caprolactam	ND		0.073	0.027
4-Chloro-3-methylphenol	ND		0.037	0.014
2-Methylnaphthalene	ND		0.037	0.013
Hexachlorocyclopentadiene	ND		0.073	0.064
2,4,6-Trichlorophenol	ND		0.037	0.010
2,4,5-Trichlorophenol	ND		0.037	0.028
1,1'-Biphenyl	ND		0.037	0.00546
2-Chloronaphthalene	ND		0.037	0.00847
2-Nitroaniline	ND		0.037	0.020
Dimethyl phthalate	ND		0.037	0.00842

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-010
Client ID: SB1A/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3866.D 11/22/2023 14:05

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.10
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.073	0.042
Acenaphthylene	0.184		0.037	0.00803
3-Nitroaniline	ND		0.037	0.023
Acenaphthene	0.095		0.037	0.00724
2,4-Dinitrophenol	ND		0.073	0.015
4-Nitrophenol	ND		0.073	0.037
2,4-Dinitrotoluene	ND		0.073	0.042
Dibenzofuran	ND		0.037	0.0048
Diethyl phthalate	ND		0.037	0.011
Fluorene	0.066		0.037	0.00987
4-Chlorophenyl phenyl ether	ND		0.037	0.00806
4-Nitroaniline	ND		0.037	0.022
1,2,4,5-Tetrachlorobenzene	ND		0.037	0.012
2,3,4,6-Tetrachlorophenol	ND		0.037	0.013
4,6-Dinitro-2-methylphenol	ND		0.073	0.016
N-Nitrosodiphenylamine	ND		0.037	0.00752
4-Bromophenyl phenyl ether	ND		0.037	0.010
Hexachlorobenzene	ND		0.037	0.011
Atrazine	ND		0.037	0.022
Pentachlorophenol	ND		0.037	0.016
Phenanthrene	1.08		0.037	0.006
Anthracene	0.360		0.037	0.00373
Carbazole	0.125		0.037	0.00855
Di-n-butyl phthalate	ND		0.037	0.015
Fluoranthene	2.98		0.037	0.012
Pyrene	2.72		0.037	0.00853
Butyl benzyl phthalate	ND		0.037	0.016
3,3'-Dichlorobenzidine	ND		0.037	0.026
Benzo[a]anthracene	1.65		0.037	0.013
Chrysene	1.57		0.037	0.010
Bis(2-ethylhexyl) phthalate	ND		0.037	0.024
Di-n-octyl phthalate	ND		0.037	0.027
Benzo[b]fluoranthene	2.23		0.037	0.018
Benzo[k]fluoranthene	1.21		0.037	0.025
Benzo[a]pyrene	1.84		0.037	0.018
Indeno[1,2,3-cd]pyrene	1.28		0.037	0.024
Dibenz[a,h]anthracene	0.624		0.037	0.015
Benzo[g,h,i]perylene	1.32		0.037	0.028
Dinitrotoluene (2,4- and 2,6-)	ND		0.073	0.042
Total Target Compounds (69):	19.4	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-010
Client ID: SB1A/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Date File: A3866.D

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 9.10

CAS #	Compound	Estimated Concentration	Q	Retention Time
000192-97-2	Benzo[e]pyrene	0.568	JN	8.43

Total TICs = 0.568 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-011
Client ID: SB1B/10-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3867.D 11/22/2023 14:21

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.2
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	0.135		0.074	0.028
Phenol	ND		0.037	0.00834
Bis(2-chloroethyl) ether	ND		0.037	0.013
2-Chlorophenol	ND		0.037	0.012
2-Methylphenol	ND		0.037	0.017
2,2'-Oxybis(1-Chloropropane)	ND		0.037	0.0092
4-Methylphenol **	ND		0.037	0.017
N-Nitrosodi-n-propylamine	ND		0.037	0.023
Acetophenone	ND		0.037	0.023
1,4-Dioxane	ND		0.037	0.024
Hexachloroethane	ND		0.037	0.015
Nitrobenzene	ND		0.037	0.00895
Isophorone	ND		0.037	0.016
2-Nitrophenol	ND		0.074	0.022
2,4-Dimethylphenol	ND		0.037	0.011
Bis(2-chloroethoxy) methane	ND		0.037	0.00822
2,4-Dichlorophenol	ND		0.037	0.0098
Naphthalene	0.026	J	0.037	0.00538
4-Chloroaniline	ND		0.037	0.014
Hexachlorobutadiene	ND		0.037	0.010
Caprolactam	ND		0.074	0.027
4-Chloro-3-methylphenol	ND		0.037	0.014
2-Methylnaphthalene	0.023	J	0.037	0.013
Hexachlorocyclopentadiene	ND		0.074	0.064
2,4,6-Trichlorophenol	ND		0.037	0.010
2,4,5-Trichlorophenol	ND		0.037	0.028
1,1'-Biphenyl	ND		0.037	0.00549
2-Chloronaphthalene	ND		0.037	0.00852
2-Nitroaniline	ND		0.037	0.020
Dimethyl phthalate	ND		0.037	0.00846

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-011
Client ID: SB1B/10-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3867.D 11/22/2023 14:21

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.2
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.074	0.042
Acenaphthylene	0.168		0.037	0.00807
3-Nitroaniline	ND		0.037	0.023
Acenaphthene	0.081		0.037	0.00728
2,4-Dinitrophenol	ND		0.074	0.015
4-Nitrophenol	ND		0.074	0.037
2,4-Dinitrotoluene	ND		0.074	0.042
Dibenzofuran	0.019	J	0.037	0.00482
Diethyl phthalate	ND		0.037	0.012
Fluorene	0.069		0.037	0.00993
4-Chlorophenyl phenyl ether	ND		0.037	0.0081
4-Nitroaniline	ND		0.037	0.022
1,2,4,5-Tetrachlorobenzene	ND		0.037	0.012
2,3,4,6-Tetrachlorophenol	ND		0.037	0.013
4,6-Dinitro-2-methylphenol	ND		0.074	0.016
N-Nitrosodiphenylamine	ND		0.037	0.00757
4-Bromophenyl phenyl ether	ND		0.037	0.010
Hexachlorobenzene	ND		0.037	0.012
Atrazine	ND		0.037	0.022
Pentachlorophenol	ND		0.037	0.016
Phenanthrene	1.61		0.037	0.00603
Anthracene	0.341		0.037	0.00375
Carbazole	0.055		0.037	0.00859
Di-n-butyl phthalate	ND		0.037	0.015
Fluoranthene	2.26		0.037	0.012
Pyrene	3.42		0.037	0.00858
Butyl benzyl phthalate	ND		0.037	0.016
3,3'-Dichlorobenzidine	ND		0.037	0.026
Benzo[a]anthracene	1.72		0.037	0.013
Chrysene	1.64		0.037	0.010
Bis(2-ethylhexyl) phthalate	ND		0.037	0.024
Di-n-octyl phthalate	ND		0.037	0.027
Benzo[b]fluoranthene	1.07		0.037	0.018
Benzo[k]fluoranthene	0.917		0.037	0.026
Benzo[a]pyrene	1.35		0.037	0.018
Indeno[1,2,3-cd]pyrene	0.677		0.037	0.024
Dibenz[a,h]anthracene	0.420		0.037	0.015
Benzo[g,h,i]perylene	0.863		0.037	0.028
Dinitrotoluene (2,4- and 2,6-)	ND		0.074	0.042
Total Target Compounds (69):	16.9	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-011
Client ID: SB1B/10-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Date File: A3867.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 10.2

CAS #	Compound	Estimated Concentration	Q	Retention Time
002531-84-2	Phenanthrene, 2-methyl-	0.302	JN	6.12
000832-69-9	Phenanthrene, 1-methyl-	0.605	JN	6.19
003674-66-6	Phenanthrene, 2,5-dimethyl-	0.354	JN	6.45
002381-21-7	Pyrene, 1-methyl-	0.166	JN	6.81
000243-17-4	11H-Benzo[b]fluorene	0.229	JN	6.88
	Unknown SV	0.221	J	6.94
000238-84-6	11H-Benzo[a]fluorene	0.155	JN	7.00
002541-69-7	Benz[a]anthracene, 7-methyl-	0.177	JN	7.68
000192-97-2	Benzo[e]pyrene	0.553	JN	8.42

Total TICs = 2.76 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-012
Client ID: SB4A/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3863.D 11/22/2023 13:16

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 8.90
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.073	0.028
Phenol	ND		0.037	0.00828
Bis(2-chloroethyl) ether	ND		0.037	0.013
2-Chlorophenol	ND		0.037	0.012
2-Methylphenol	ND		0.037	0.016
2,2'-Oxybis(1-Chloropropane)	ND		0.037	0.00913
4-Methylphenol **	ND		0.037	0.017
N-Nitrosodi-n-propylamine	ND		0.037	0.023
Acetophenone	ND		0.037	0.022
1,4-Dioxane	ND		0.037	0.024
Hexachloroethane	ND		0.037	0.015
Nitrobenzene	ND		0.037	0.00888
Isophorone	ND		0.037	0.015
2-Nitrophenol	ND		0.073	0.022
2,4-Dimethylphenol	ND		0.037	0.011
Bis(2-chloroethoxy) methane	ND		0.037	0.00816
2,4-Dichlorophenol	ND		0.037	0.00973
Naphthalene	0.108		0.037	0.00534
4-Chloroaniline	ND		0.037	0.014
Hexachlorobutadiene	ND		0.037	0.010
Caprolactam	ND		0.073	0.027
4-Chloro-3-methylphenol	ND		0.037	0.014
2-Methylnaphthalene	0.051		0.037	0.013
Hexachlorocyclopentadiene	ND		0.073	0.064
2,4,6-Trichlorophenol	ND		0.037	0.010
2,4,5-Trichlorophenol	ND		0.037	0.028
1,1'-Biphenyl	ND		0.037	0.00544
2-Chloronaphthalene	ND		0.037	0.00845
2-Nitroaniline	ND		0.037	0.019
Dimethyl phthalate	ND		0.037	0.0084

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-012
Client ID: SB4A/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3863.D 11/22/2023 13:16

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 8.90
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.073	0.042
Acenaphthylene	0.117		0.037	0.00801
3-Nitroaniline	ND		0.037	0.023
Acenaphthene	0.339		0.037	0.00723
2,4-Dinitrophenol	ND		0.073	0.015
4-Nitrophenol	ND		0.073	0.037
2,4-Dinitrotoluene	ND		0.073	0.041
Dibenzofuran	0.168		0.037	0.00479
Diethyl phthalate	ND		0.037	0.011
Fluorene	0.284		0.037	0.00985
4-Chlorophenyl phenyl ether	ND		0.037	0.00804
4-Nitroaniline	ND		0.037	0.022
1,2,4,5-Tetrachlorobenzene	ND		0.037	0.012
2,3,4,6-Tetrachlorophenol	ND		0.037	0.013
4,6-Dinitro-2-methylphenol	ND		0.073	0.016
N-Nitrosodiphenylamine	ND		0.037	0.00751
4-Bromophenyl phenyl ether	ND		0.037	0.010
Hexachlorobenzene	ND		0.037	0.011
Atrazine	ND		0.037	0.022
Pentachlorophenol	ND		0.037	0.016
Phenanthrene	2.74		0.037	0.00599
Anthracene	0.738		0.037	0.00372
Carbazole	0.343		0.037	0.00853
Di-n-butyl phthalate	ND		0.037	0.015
Fluoranthene	4.20		0.037	0.012
Pyrene	3.42		0.037	0.00851
Butyl benzyl phthalate	ND		0.037	0.016
3,3'-Dichlorobenzidine	ND		0.037	0.026
Benzo[a]anthracene	1.81		0.037	0.013
Chrysene	1.64		0.037	0.010
Bis(2-ethylhexyl) phthalate	0.068		0.037	0.024
Di-n-octyl phthalate	ND		0.037	0.027
Benzo[b]fluoranthene	1.76		0.037	0.018
Benzo[k]fluoranthene	1.47		0.037	0.025
Benzo[a]pyrene	1.72		0.037	0.018
Indeno[1,2,3-cd]pyrene	1.14		0.037	0.023
Dibenz[a,h]anthracene	0.601		0.037	0.015
Benzo[g,h,i]perylene	1.15		0.037	0.028
Dinitrotoluene (2,4- and 2,6-)	ND		0.073	0.041

Total Target Compounds (69): 23.9

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-012
Client ID: SB4A/0-2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Date File: A3863.D

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 8.90

CAS #	Compound	Estimated Concentration	Q	Retention Time
000203-64-5	4H-Cyclopenta[def]phenanthrene	0.220	JN	6.20

Total TICs = 0.220 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-013
Client ID: SB4B/10-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3861.D 11/22/2023 12:44

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 5.20
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.070	0.026
Phenol	ND		0.035	0.00795
Bis(2-chloroethyl) ether	ND		0.035	0.012
2-Chlorophenol	ND		0.035	0.011
2-Methylphenol	ND		0.035	0.016
2,2'-Oxybis(1-Chloropropane)	ND		0.035	0.00877
4-Methylphenol **	ND		0.035	0.016
N-Nitrosodi-n-propylamine	ND		0.035	0.022
Acetophenone	ND		0.035	0.021
1,4-Dioxane	ND		0.035	0.023
Hexachloroethane	ND		0.035	0.015
Nitrobenzene	ND		0.035	0.00854
Isophorone	ND		0.035	0.015
2-Nitrophenol	ND		0.070	0.021
2,4-Dimethylphenol	ND		0.035	0.010
Bis(2-chloroethoxy) methane	ND		0.035	0.00784
2,4-Dichlorophenol	ND		0.035	0.00935
Naphthalene	0.037		0.035	0.00513
4-Chloroaniline	ND		0.035	0.014
Hexachlorobutadiene	ND		0.035	0.00976
Caprolactam	ND		0.070	0.026
4-Chloro-3-methylphenol	ND		0.035	0.014
2-Methylnaphthalene	ND		0.035	0.012
Hexachlorocyclopentadiene	ND		0.070	0.061
2,4,6-Trichlorophenol	ND		0.035	0.00967
2,4,5-Trichlorophenol	ND		0.035	0.027
1,1'-Biphenyl	ND		0.035	0.00523
2-Chloronaphthalene	ND		0.035	0.00812
2-Nitroaniline	ND		0.035	0.019
Dimethyl phthalate	ND		0.035	0.00807

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-013
Client ID: SB4B/10-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3861.D 11/22/2023 12:44

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 5.20
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.070	0.040
Acenaphthylene	0.190		0.035	0.0077
3-Nitroaniline	ND		0.035	0.022
Acenaphthene	0.125		0.035	0.00694
2,4-Dinitrophenol	ND		0.070	0.015
4-Nitrophenol	ND		0.070	0.036
2,4-Dinitrotoluene	ND		0.070	0.040
Dibenzofuran	0.053		0.035	0.0046
Diethyl phthalate	ND		0.035	0.011
Fluorene	0.099		0.035	0.00947
4-Chlorophenyl phenyl ether	ND		0.035	0.00773
4-Nitroaniline	ND		0.035	0.021
1,2,4,5-Tetrachlorobenzene	ND		0.035	0.012
2,3,4,6-Tetrachlorophenol	ND		0.035	0.012
4,6-Dinitro-2-methylphenol	ND		0.070	0.015
N-Nitrosodiphenylamine	ND		0.035	0.00721
4-Bromophenyl phenyl ether	ND		0.035	0.00974
Hexachlorobenzene	ND		0.035	0.011
Atrazine	ND		0.035	0.021
Pentachlorophenol	ND		0.035	0.016
Phenanthrene	1.10		0.035	0.00575
Anthracene	0.360		0.035	0.00358
Carbazole	0.154		0.035	0.0082
Di-n-butyl phthalate	ND		0.035	0.014
Fluoranthene	2.50		0.035	0.011
Pyrene	2.28		0.035	0.00818
Butyl benzyl phthalate	ND		0.035	0.016
3,3'-Dichlorobenzidine	ND		0.035	0.025
Benzo[a]anthracene	1.35		0.035	0.013
Chrysene	1.29		0.035	0.0097
Bis(2-ethylhexyl) phthalate	0.040		0.035	0.023
Di-n-octyl phthalate	ND		0.035	0.026
Benzo[b]fluoranthene	1.45		0.035	0.017
Benzo[k]fluoranthene	1.25		0.035	0.024
Benzo[a]pyrene	1.44		0.035	0.017
Indeno[1,2,3-cd]pyrene	0.922		0.035	0.023
Dibenz[a,h]anthracene	0.435		0.035	0.014
Benzo[g,h,i]perylene	0.887		0.035	0.027
Dinitrotoluene (2,4- and 2,6-)	ND		0.070	0.040

Total Target Compounds (69): 16.0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-013
Client ID: SB4B/10-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Date File: A3861.D

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 5.20

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-014
Client ID: SB6-419-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3868.D 11/22/2023 14:37

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.80
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.072	0.027
Phenol	ND		0.036	0.00812
Bis(2-chloroethyl) ether	ND		0.036	0.013
2-Chlorophenol	ND		0.036	0.012
2-Methylphenol	ND		0.036	0.016
2,2'-Oxybis(1-Chloropropane)	ND		0.036	0.00896
4-Methylphenol **	ND		0.036	0.016
N-Nitrosodi-n-propylamine	ND		0.036	0.022
Acetophenone	ND		0.036	0.022
1,4-Dioxane	ND		0.036	0.023
Hexachloroethane	ND		0.036	0.015
Nitrobenzene	ND		0.036	0.00872
Isophorone	ND		0.036	0.015
2-Nitrophenol	ND		0.072	0.021
2,4-Dimethylphenol	ND		0.036	0.011
Bis(2-chloroethoxy) methane	ND		0.036	0.008
2,4-Dichlorophenol	ND		0.036	0.00955
Naphthalene	0.019	J	0.036	0.00524
4-Chloroaniline	ND		0.036	0.014
Hexachlorobutadiene	ND		0.036	0.00997
Caprolactam	ND		0.072	0.027
4-Chloro-3-methylphenol	ND		0.036	0.014
2-Methylnaphthalene	ND		0.036	0.013
Hexachlorocyclopentadiene	ND		0.072	0.062
2,4,6-Trichlorophenol	ND		0.036	0.00987
2,4,5-Trichlorophenol	ND		0.036	0.027
1,1'-Biphenyl	ND		0.036	0.00534
2-Chloronaphthalene	ND		0.036	0.0083
2-Nitroaniline	ND		0.036	0.019
Dimethyl phthalate	ND		0.036	0.00824

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-014
Client ID: SB6-419-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3868.D 11/22/2023 14:37

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.80
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.072	0.041
Acenaphthylene	0.133		0.036	0.00786
3-Nitroaniline	ND		0.036	0.023
Acenaphthene	0.024	J	0.036	0.00709
2,4-Dinitrophenol	ND		0.072	0.015
4-Nitrophenol	ND		0.072	0.036
2,4-Dinitrotoluene	ND		0.072	0.041
Dibenzofuran	ND		0.036	0.0047
Diethyl phthalate	ND		0.036	0.011
Fluorene	0.034	J	0.036	0.00967
4-Chlorophenyl phenyl ether	ND		0.036	0.00789
4-Nitroaniline	ND		0.036	0.021
1,2,4,5-Tetrachlorobenzene	ND		0.036	0.012
2,3,4,6-Tetrachlorophenol	ND		0.036	0.012
4,6-Dinitro-2-methylphenol	ND		0.072	0.015
N-Nitrosodiphenylamine	ND		0.036	0.00737
4-Bromophenyl phenyl ether	ND		0.036	0.00995
Hexachlorobenzene	ND		0.036	0.011
Atrazine	ND		0.036	0.021
Pentachlorophenol	ND		0.036	0.016
Phenanthrene	0.494		0.036	0.00587
Anthracene	0.115		0.036	0.00366
Carbazole	0.081		0.036	0.00837
Di-n-butyl phthalate	ND		0.036	0.015
Fluoranthene	0.953		0.036	0.012
Pyrene	0.835		0.036	0.00836
Butyl benzyl phthalate	ND		0.036	0.016
3,3'-Dichlorobenzidine	ND		0.036	0.025
Benzo[a]anthracene	0.460		0.036	0.013
Chrysene	0.429		0.036	0.00991
Bis(2-ethylhexyl) phthalate	0.422		0.036	0.023
Di-n-octyl phthalate	ND		0.036	0.026
Benzo[b]fluoranthene	0.534		0.036	0.018
Benzo[k]fluoranthene	0.356		0.036	0.025
Benzo[a]pyrene	0.457		0.036	0.017
Indeno[1,2,3-cd]pyrene	0.353		0.036	0.023
Dibenz[a,h]anthracene	0.168		0.036	0.014
Benzo[g,h,i]perylene	0.378		0.036	0.027
Dinitrotoluene (2,4- and 2,6-)	ND		0.072	0.041
Total Target Compounds (69):	6.25	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-014
Client ID: SB6-419-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Date File: A3868.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 7.80

CAS #	Compound	Estimated Concentration	Q	Retention Time
1000158-20-4	3-Butanone, 1,1-bis(4-chlorophenyl	0.147	JN	7.11

Total TICs = 0.147 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-015
Client ID: SB8-401-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3864.D 11/22/2023 13:34

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.20
Dilution Factor: 5

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.353	0.133
Phenol	ND		0.177	0.040
Bis(2-chloroethyl) ether	ND		0.177	0.062
2-Chlorophenol	ND		0.177	0.057
2-Methylphenol	ND		0.177	0.079
2,2'-Oxybis(1-Chloropropane)	ND		0.177	0.044
4-Methylphenol **	ND		0.177	0.080
N-Nitrosodi-n-propylamine	ND		0.177	0.109
Acetophenone	ND		0.177	0.108
1,4-Dioxane	ND		0.177	0.114
Hexachloroethane	ND		0.177	0.073
Nitrobenzene	ND		0.177	0.043
Isophorone	ND		0.177	0.074
2-Nitrophenol	ND		0.353	0.105
2,4-Dimethylphenol	ND		0.177	0.052
Bis(2-chloroethoxy) methane	ND		0.177	0.039
2,4-Dichlorophenol	ND		0.177	0.047
Naphthalene	0.288	D	0.177	0.026
4-Chloroaniline	ND		0.177	0.068
Hexachlorobutadiene	ND		0.177	0.049
Caprolactam	ND		0.353	0.130
4-Chloro-3-methylphenol	ND		0.177	0.068
2-Methylnaphthalene	0.245	D	0.177	0.062
Hexachlorocyclopentadiene	ND		0.353	0.307
2,4,6-Trichlorophenol	ND		0.177	0.049
2,4,5-Trichlorophenol	ND		0.177	0.134
1,1'-Biphenyl	0.112	DJ	0.177	0.026
2-Chloronaphthalene	ND		0.177	0.041
2-Nitroaniline	ND		0.177	0.094
Dimethyl phthalate	ND		0.177	0.041

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-015
Client ID: SB8-401-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3864.D 11/22/2023 13:34

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.20
Dilution Factor: 5

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.353	0.203
Acenaphthylene	1.83	D	0.177	0.039
3-Nitroaniline	ND		0.177	0.112
Acenaphthene	0.284	D	0.177	0.035
2,4-Dinitrophenol	ND		0.353	0.073
4-Nitrophenol	ND		0.353	0.178
2,4-Dinitrotoluene	ND		0.353	0.200
Dibenzofuran	0.857	D	0.177	0.023
Diethyl phthalate	ND		0.177	0.055
Fluorene	1.01	D	0.177	0.048
4-Chlorophenyl phenyl ether	ND		0.177	0.039
4-Nitroaniline	ND		0.177	0.105
1,2,4,5-Tetrachlorobenzene	ND		0.177	0.059
2,3,4,6-Tetrachlorophenol	ND		0.177	0.060
4,6-Dinitro-2-methylphenol	ND		0.353	0.075
N-Nitrosodiphenylamine	ND		0.177	0.036
4-Bromophenyl phenyl ether	ND		0.177	0.049
Hexachlorobenzene	ND		0.177	0.055
Atrazine	ND		0.177	0.105
Pentachlorophenol	ND		0.177	0.078
Phenanthrene	12.0	D	0.177	0.029
Anthracene	2.02	D	0.177	0.018
Carbazole	1.28	D	0.177	0.041
Di-n-butyl phthalate	ND		0.177	0.072
Fluoranthene	13.6	D	0.177	0.057
Pyrene	9.96	D	0.177	0.041
Butyl benzyl phthalate	ND		0.177	0.078
3,3'-Dichlorobenzidine	ND		0.177	0.125
Benzo[a]anthracene	4.85	D	0.177	0.064
Chrysene	4.67	D	0.177	0.049
Bis(2-ethylhexyl) phthalate	0.573	D	0.177	0.113
Di-n-octyl phthalate	ND		0.177	0.129
Benzo[b]fluoranthene	4.04	D	0.177	0.087
Benzo[k]fluoranthene	4.29	D	0.177	0.122
Benzo[a]pyrene	3.93	D	0.177	0.086
Indeno[1,2,3-cd]pyrene	1.78	D	0.177	0.113
Dibenz[a,h]anthracene	0.799	D	0.177	0.071
Benzo[g,h,i]perylene	1.50	D	0.177	0.133
Dinitrotoluene (2,4- and 2,6-)	ND		0.353	0.200
Total Target Compounds (69):	69.9	DJ		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-015
Client ID: SB8-401-
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Date File: A3864.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 5
% Moisture: 6.20

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: BLKS231120-02
Client ID: .
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3852.D 11/22/2023 10:15

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: NA
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
N-Nitrosodimethylamine	ND		0.033	0.00969
Benzaldehyde	ND		0.067	0.025
Phenol	ND		0.033	0.00754
Bis(2-chloroethyl) ether	ND		0.033	0.012
2-Chlorophenol	ND		0.033	0.011
2-Methylphenol	ND		0.033	0.015
2,2'-Oxybis(1-Chloropropane)	ND		0.033	0.00831
4-Methylphenol **	ND		0.033	0.015
N-Nitrosodi-n-propylamine	ND		0.033	0.021
Acetophenone	ND		0.033	0.020
1,4-Dioxane	ND		0.033	0.022
Hexachloroethane	ND		0.033	0.014
Nitrobenzene	ND		0.033	0.00809
Isophorone	ND		0.033	0.014
2-Nitrophenol	ND		0.067	0.020
2,4-Dimethylphenol	ND		0.033	0.00981
Bis(2-chloroethoxy) methane	ND		0.033	0.00743
2,4-Dichlorophenol	ND		0.033	0.00886
Naphthalene	ND		0.033	0.00486
4-Chloroaniline	ND		0.033	0.013
Hexachlorobutadiene	ND		0.033	0.00925
Caprolactam	ND		0.067	0.025
4-Chloro-3-methylphenol	ND		0.033	0.013
2-Methylnaphthalene	ND		0.033	0.012
Hexachlorocyclopentadiene	ND		0.067	0.058
2,4,6-Trichlorophenol	ND		0.033	0.00916
2,4,5-Trichlorophenol	ND		0.033	0.025
1,1'-Biphenyl	ND		0.033	0.00496
2-Chloronaphthalene	ND		0.033	0.0077
2-Nitroaniline	ND		0.033	0.018
Dimethyl phthalate	ND		0.033	0.00765

SEMIVOLATILE ORGANICS

Lab ID: BLKS231120-02
Client ID: .
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3852.D 11/22/2023 10:15

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: NA
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.067	0.038
Acenaphthylene	ND		0.033	0.0073
3-Nitroaniline	ND		0.033	0.021
Acenaphthene	ND		0.033	0.00658
2,4-Dinitrophenol	ND		0.067	0.014
4-Nitrophenol	ND		0.067	0.034
2,4-Dinitrotoluene	ND		0.067	0.038
Dibenzofuran	ND		0.033	0.00436
Diethyl phthalate	ND		0.033	0.010
Fluorene	ND		0.033	0.00897
4-Chlorophenyl phenyl ether	ND		0.033	0.00733
4-Nitroaniline	ND		0.033	0.020
1,2,4,5-Tetrachlorobenzene	ND		0.033	0.011
2,3,4,6-Tetrachlorophenol	ND		0.033	0.011
4,6-Dinitro-2-methylphenol	ND		0.067	0.014
N-Nitrosodiphenylamine	ND		0.033	0.00684
1,2-Diphenylhydrazine	ND		0.033	0.0074
4-Bromophenyl phenyl ether	ND		0.033	0.00924
Hexachlorobenzene	ND		0.033	0.010
Atrazine	ND		0.033	0.020
Pentachlorophenol	ND		0.033	0.015
Phenanthrene	ND		0.033	0.00545
Anthracene	ND		0.033	0.00339
Carbazole	ND		0.033	0.00777
Di-n-butyl phthalate	ND		0.033	0.014
Fluoranthene	ND		0.033	0.011
Benzidine	ND		0.033	0.087
Pyrene	ND		0.033	0.00776
Butyl benzyl phthalate	ND		0.033	0.015
3,3'-Dichlorobenzidine	ND		0.033	0.024
Benzo[a]anthracene	ND		0.033	0.012
Chrysene	ND		0.033	0.0092
Bis(2-ethylhexyl) phthalate	ND		0.033	0.021
Di-n-octyl phthalate	ND		0.033	0.024
Benzo[b]fluoranthene	ND		0.033	0.016
Benzo[k]fluoranthene	ND		0.033	0.023
Benzo[a]pyrene	ND		0.033	0.016
Indeno[1,2,3-cd]pyrene	ND		0.033	0.021
Dibenz[a,h]anthracene	ND		0.033	0.013
Benzo[g,h,i]perylene	ND		0.033	0.025
Dinitrotoluene (2,4- and 2,6-)	ND		0.067	0.038

Total Target Compounds (72): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
Q --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: BLKS231120-02
Client ID: .
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/22/2023
Data file: A3852.D 11/22/2023 10:15

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: NA

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-016
Client ID: TWP1
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Data file: B6031.D 11/30/2023 15:23
SIM Data file: B6000.D 11/29/2023 18:34

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		2.00	0.492
Phenol	ND		1.00	0.276
Bis(2-chloroethyl) ether	ND		1.00	0.459
2-Chlorophenol	ND		1.00	0.257
2-Methylphenol	ND		1.00	0.267
2,2'-Oxybis(1-Chloropropane)	ND		1.00	0.682
4-Methylphenol **	ND		1.00	0.337
N-Nitrosodi-n-propylamine	ND		1.00	0.391
Acetophenone	ND		1.00	0.241
Hexachloroethane	ND		1.00	0.470
Nitrobenzene	ND		1.00	0.442
Isophorone	ND		1.00	0.232
2-Nitrophenol	ND		2.00	0.581
2,4-Dimethylphenol	ND		2.00	1.06
Bis(2-chloroethoxy) methane	ND		1.00	0.344
2,4-Dichlorophenol	ND		1.00	0.383
Naphthalene	ND		1.00	0.183
4-Chloroaniline	ND		1.00	0.612
Hexachlorobutadiene	ND		1.00	0.561
Caprolactam	ND		3.00	1.15
4-Chloro-3-methylphenol	ND		1.00	0.336
2-Methylnaphthalene	ND		1.00	0.200
Hexachlorocyclopentadiene	ND		2.00	1.89
2,4,6-Trichlorophenol	ND		1.00	0.497
2,4,5-Trichlorophenol	ND		2.00	0.505
1,1'-Biphenyl	ND		1.00	0.212
2-Chloronaphthalene	ND		1.00	0.234
2-Nitroaniline	ND		2.00	0.702
Dimethyl phthalate	ND		1.00	0.197

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-016
Client ID: TWP1
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Data file: B6031.D 11/30/2023 15:23
SIM Data file: B6000.D 11/29/2023 18:34

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		1.00	0.996
Acenaphthylene	ND		1.00	0.268
3-Nitroaniline	ND		3.00	0.436
Acenaphthene	ND		1.00	0.281
2,4-Dinitrophenol	ND		3.00	2.35
4-Nitrophenol	ND		3.00	2.41
2,4-Dinitrotoluene	ND		1.00	0.886
Dibenzofuran	ND		1.00	0.199
Diethyl phthalate	ND		1.00	0.239
Fluorene	ND		1.00	0.367
4-Chlorophenyl phenyl ether	ND		1.00	0.396
4-Nitroaniline	ND		2.00	0.692
1,2,4,5-Tetrachlorobenzene	ND		1.00	0.326
2,3,4,6-Tetrachlorophenol	ND		1.00	0.872
4,6-Dinitro-2-methylphenol *	ND		0.100	0.033
N-Nitrosodiphenylamine	ND		1.00	0.196
4-Bromophenyl phenyl ether	ND		1.00	0.940
Hexachlorobenzene *	ND		0.020	0.016
Atrazine	ND		1.00	0.468
Pentachlorophenol *	ND		0.100	0.052
Phenanthrene	ND		1.00	0.263
Anthracene	ND		1.00	0.560
Carbazole	ND		1.00	0.594
Di-n-butyl phthalate	ND		1.00	0.343
Fluoranthene	ND		1.00	0.482
Pyrene	ND		1.00	0.555
Butyl benzyl phthalate	ND		1.00	0.642
3,3'-Dichlorobenzidine	ND		1.00	0.524
Benzo[a]anthracene *	0.098	J	0.100	0.029
Chrysene	ND		1.00	0.232
Bis(2-ethylhexyl) phthalate	ND		2.00	1.38
Di-n-octyl phthalate	ND		2.00	1.09
Benzo[b]fluoranthene *	0.187		0.100	0.026
Benzo[k]fluoranthene *	0.142		0.100	0.035
Benzo[a]pyrene *	0.137		0.100	0.027
Indeno[1,2,3-cd]pyrene *	0.291		0.100	0.036
Dibenz[a,h]anthracene *	0.303		0.100	0.031
Benzo[g,h,i]perylene	ND		2.00	1.04
1,4-Dioxane	ND		0.400	0.329
Dinitrotoluene (2,4- and 2,6-)	ND		1.00	0.886
Total Target Compounds (69):	1.16	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

* - RL & MDL from SIM run
** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-016
Client ID: TWP1
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Date File: B6031.D

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Unknown SV	22.1	J	2.05
	Unknown SV	7.60	J	2.10
	Unknown SV	9.10	J	2.14
000057-10-3	n-Hexadecanoic acid	5.60	JN	4.71

Total TICs = 44.4 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-017
Client ID: TWP4
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Data file: B6012.D 11/29/2023 21:46
SIM Data file: B5992.D 11/29/2023 16:24

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		2.00	0.492
Phenol	ND		1.00	0.276
Bis(2-chloroethyl) ether	ND		1.00	0.459
2-Chlorophenol	ND		1.00	0.257
2-Methylphenol	ND		1.00	0.267
2,2'-Oxybis(1-Chloropropane)	ND		1.00	0.682
4-Methylphenol **	ND		1.00	0.337
N-Nitrosodi-n-propylamine	ND		1.00	0.391
Acetophenone	ND		1.00	0.241
Hexachloroethane	ND		1.00	0.470
Nitrobenzene	ND		1.00	0.442
Isophorone	ND		1.00	0.232
2-Nitrophenol	ND		2.00	0.581
2,4-Dimethylphenol	ND		2.00	1.06
Bis(2-chloroethoxy) methane	ND		1.00	0.344
2,4-Dichlorophenol	ND		1.00	0.383
Naphthalene	ND		1.00	0.183
4-Chloroaniline	ND		1.00	0.612
Hexachlorobutadiene	ND		1.00	0.561
Caprolactam	ND		3.00	1.15
4-Chloro-3-methylphenol	ND		1.00	0.336
2-Methylnaphthalene	ND		1.00	0.200
Hexachlorocyclopentadiene	ND		2.00	1.89
2,4,6-Trichlorophenol	ND		1.00	0.497
2,4,5-Trichlorophenol	ND		2.00	0.505
1,1'-Biphenyl	ND		1.00	0.212
2-Chloronaphthalene	ND		1.00	0.234
2-Nitroaniline	ND		2.00	0.702
Dimethyl phthalate	ND		1.00	0.197

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-017
Client ID: TWP4
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Data file: B6012.D 11/29/2023 21:46
SIM Data file: B5992.D 11/29/2023 16:24

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		1.00	0.996
Acenaphthylene	ND		1.00	0.268
3-Nitroaniline	ND		3.00	0.436
Acenaphthene	ND		1.00	0.281
2,4-Dinitrophenol	ND		3.00	2.35
4-Nitrophenol	ND		3.00	2.41
2,4-Dinitrotoluene	ND		1.00	0.886
Dibenzofuran	ND		1.00	0.199
Diethyl phthalate	ND		1.00	0.239
Fluorene	ND		1.00	0.367
4-Chlorophenyl phenyl ether	ND		1.00	0.396
4-Nitroaniline	ND		2.00	0.692
1,2,4,5-Tetrachlorobenzene	ND		1.00	0.326
2,3,4,6-Tetrachlorophenol	ND		1.00	0.872
4,6-Dinitro-2-methylphenol *	ND		0.100	0.033
N-Nitrosodiphenylamine	ND		1.00	0.196
4-Bromophenyl phenyl ether	ND		1.00	0.940
Hexachlorobenzene *	ND		0.020	0.016
Atrazine	ND		1.00	0.468
Pentachlorophenol *	ND		0.100	0.052
Phenanthrene	ND		1.00	0.263
Anthracene	ND		1.00	0.560
Carbazole	ND		1.00	0.594
Di-n-butyl phthalate	ND		1.00	0.343
Fluoranthene	ND		1.00	0.482
Pyrene	ND		1.00	0.555
Butyl benzyl phthalate	ND		1.00	0.642
3,3'-Dichlorobenzidine	ND		1.00	0.524
Benzo[a]anthracene *	0.200		0.100	0.029
Chrysene	ND		1.00	0.232
Bis(2-ethylhexyl) phthalate	ND		2.00	1.38
Di-n-octyl phthalate	ND		2.00	1.09
Benzo[b]fluoranthene *	0.272		0.100	0.026
Benzo[k]fluoranthene *	0.154		0.100	0.035
Benzo[a]pyrene *	0.245		0.100	0.027
Indeno[1,2,3-cd]pyrene *	0.330		0.100	0.036
Dibenz[a,h]anthracene *	0.253		0.100	0.031
Benzo[g,h,i]perylene	ND		2.00	1.04
1,4-Dioxane	ND		0.400	0.329
Dinitrotoluene (2,4- and 2,6-)	ND		1.00	0.886

Total Target Compounds (69): 1.45

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

* - RL & MDL from SIM run
** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-017
Client ID: TWP4
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Date File: B6012.D

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Unknown SV	11.7	J	2.05
	Unknown SV	4.50	J	2.14

Total TICs = 16.2 J

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-018
Client ID: TWP2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Data file: B6013.D 11/29/2023 22:02
SIM Data file: B5993.D 11/29/2023 16:40

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		2.00	0.492
Phenol	ND		1.00	0.276
Bis(2-chloroethyl) ether	ND		1.00	0.459
2-Chlorophenol	ND		1.00	0.257
2-Methylphenol	ND		1.00	0.267
2,2'-Oxybis(1-Chloropropane)	ND		1.00	0.682
4-Methylphenol **	ND		1.00	0.337
N-Nitrosodi-n-propylamine	ND		1.00	0.391
Acetophenone	ND		1.00	0.241
Hexachloroethane	ND		1.00	0.470
Nitrobenzene	ND		1.00	0.442
Isophorone	ND		1.00	0.232
2-Nitrophenol	ND		2.00	0.581
2,4-Dimethylphenol	ND		2.00	1.06
Bis(2-chloroethoxy) methane	ND		1.00	0.344
2,4-Dichlorophenol	ND		1.00	0.383
Naphthalene	ND		1.00	0.183
4-Chloroaniline	ND		1.00	0.612
Hexachlorobutadiene	ND		1.00	0.561
Caprolactam	ND		3.00	1.15
4-Chloro-3-methylphenol	ND		1.00	0.336
2-Methylnaphthalene	ND		1.00	0.200
Hexachlorocyclopentadiene	ND		2.00	1.89
2,4,6-Trichlorophenol	ND		1.00	0.497
2,4,5-Trichlorophenol	ND		2.00	0.505
1,1'-Biphenyl	ND		1.00	0.212
2-Chloronaphthalene	ND		1.00	0.234
2-Nitroaniline	ND		2.00	0.702
Dimethyl phthalate	ND		1.00	0.197

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-018
Client ID: TWP2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Data file: B6013.D 11/29/2023 22:02
SIM Data file: B5993.D 11/29/2023 16:40

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		1.00	0.996
Acenaphthylene	ND		1.00	0.268
3-Nitroaniline	ND		3.00	0.436
Acenaphthene	ND		1.00	0.281
2,4-Dinitrophenol	ND		3.00	2.35
4-Nitrophenol	ND		3.00	2.41
2,4-Dinitrotoluene	ND		1.00	0.886
Dibenzofuran	ND		1.00	0.199
Diethyl phthalate	ND		1.00	0.239
Fluorene	ND		1.00	0.367
4-Chlorophenyl phenyl ether	ND		1.00	0.396
4-Nitroaniline	ND		2.00	0.692
1,2,4,5-Tetrachlorobenzene	ND		1.00	0.326
2,3,4,6-Tetrachlorophenol	ND		1.00	0.872
4,6-Dinitro-2-methylphenol *	ND		0.100	0.033
N-Nitrosodiphenylamine	ND		1.00	0.196
4-Bromophenyl phenyl ether	ND		1.00	0.940
Hexachlorobenzene *	ND		0.020	0.016
Atrazine	ND		1.00	0.468
Pentachlorophenol *	ND		0.100	0.052
Phenanthrene	ND		1.00	0.263
Anthracene	ND		1.00	0.560
Carbazole	ND		1.00	0.594
Di-n-butyl phthalate	ND		1.00	0.343
Fluoranthene	ND		1.00	0.482
Pyrene	ND		1.00	0.555
Butyl benzyl phthalate	ND		1.00	0.642
3,3'-Dichlorobenzidine	ND		1.00	0.524
Benzo[a]anthracene *	ND		0.100	0.029
Chrysene	ND		1.00	0.232
Bis(2-ethylhexyl) phthalate	ND		2.00	1.38
Di-n-octyl phthalate	ND		2.00	1.09
Benzo[b]fluoranthene *	ND		0.100	0.026
Benzo[k]fluoranthene *	ND		0.100	0.035
Benzo[a]pyrene *	ND		0.100	0.027
Indeno[1,2,3-cd]pyrene *	ND		0.100	0.036
Dibenz[a,h]anthracene *	ND		0.100	0.031
Benzo[g,h,i]perylene	ND		2.00	1.04
1,4-Dioxane	ND		0.400	0.329
Dinitrotoluene (2,4- and 2,6-)	ND		1.00	0.886

Total Target Compounds (69): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

* - RL & MDL from SIM run
** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-018
Client ID: TWP2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Data file: B6013.D 11/29/2023 22:02

GC/MS Column; DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-019
Client ID: TWP5
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Data file: B6032.D 11/30/2023 16:41
SIM Data file: B5994.D 11/29/2023 16:57

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		2.00	0.492
Phenol	ND		1.00	0.276
Bis(2-chloroethyl) ether	ND		1.00	0.459
2-Chlorophenol	ND		1.00	0.257
2-Methylphenol	ND		1.00	0.267
2,2'-Oxybis(1-Chloropropane)	ND		1.00	0.682
4-Methylphenol **	ND		1.00	0.337
N-Nitrosodi-n-propylamine	ND		1.00	0.391
Acetophenone	ND		1.00	0.241
Hexachloroethane	ND		1.00	0.470
Nitrobenzene	ND		1.00	0.442
Isophorone	ND		1.00	0.232
2-Nitrophenol	ND		2.00	0.581
2,4-Dimethylphenol	ND		2.00	1.06
Bis(2-chloroethoxy) methane	ND		1.00	0.344
2,4-Dichlorophenol	ND		1.00	0.383
Naphthalene	ND		1.00	0.183
4-Chloroaniline	ND		1.00	0.612
Hexachlorobutadiene	ND		1.00	0.561
Caprolactam	ND		3.00	1.15
4-Chloro-3-methylphenol	ND		1.00	0.336
2-Methylnaphthalene	ND		1.00	0.200
Hexachlorocyclopentadiene	ND		2.00	1.89
2,4,6-Trichlorophenol	ND		1.00	0.497
2,4,5-Trichlorophenol	ND		2.00	0.505
1,1'-Biphenyl	ND		1.00	0.212
2-Chloronaphthalene	ND		1.00	0.234
2-Nitroaniline	ND		2.00	0.702
Dimethyl phthalate	ND		1.00	0.197

SEMIVOLATILE ORGANICS

Lab ID: E23-05066-019
Client ID: TWP5
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Data file: B6032.D 11/30/2023 16:41
SIM Data file: B5994.D 11/29/2023 16:57

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		1.00	0.996
Acenaphthylene	ND		1.00	0.268
3-Nitroaniline	ND		3.00	0.436
Acenaphthene	ND		1.00	0.281
2,4-Dinitrophenol	ND		3.00	2.35
4-Nitrophenol	ND		3.00	2.41
2,4-Dinitrotoluene	ND		1.00	0.886
Dibenzofuran	ND		1.00	0.199
Diethyl phthalate	ND		1.00	0.239
Fluorene	ND		1.00	0.367
4-Chlorophenyl phenyl ether	ND		1.00	0.396
4-Nitroaniline	ND		2.00	0.692
1,2,4,5-Tetrachlorobenzene	ND		1.00	0.326
2,3,4,6-Tetrachlorophenol	ND		1.00	0.872
4,6-Dinitro-2-methylphenol *	ND		0.100	0.033
N-Nitrosodiphenylamine	ND		1.00	0.196
4-Bromophenyl phenyl ether	ND		1.00	0.940
Hexachlorobenzene *	ND		0.020	0.016
Atrazine	ND		1.00	0.468
Pentachlorophenol *	ND		0.100	0.052
Phenanthrene	ND		1.00	0.263
Anthracene	ND		1.00	0.560
Carbazole	ND		1.00	0.594
Di-n-butyl phthalate	ND		1.00	0.343
Fluoranthene	ND		1.00	0.482
Pyrene	ND		1.00	0.555
Butyl benzyl phthalate	ND		1.00	0.642
3,3'-Dichlorobenzidine	ND		1.00	0.524
Benzo[a]anthracene *	ND		0.100	0.029
Chrysene	ND		1.00	0.232
Bis(2-ethylhexyl) phthalate	ND		2.00	1.38
Di-n-octyl phthalate	ND		2.00	1.09
Benzo[b]fluoranthene *	ND		0.100	0.026
Benzo[k]fluoranthene *	ND		0.100	0.035
Benzo[a]pyrene *	ND		0.100	0.027
Indeno[1,2,3-cd]pyrene *	ND		0.100	0.036
Dibenz[a,h]anthracene *	ND		0.100	0.031
Benzo[g,h,i]perylene	ND		2.00	1.04
1,4-Dioxane	ND		0.400	0.329
Dinitrotoluene (2,4- and 2,6-)	ND		1.00	0.886

Total Target Compounds (69): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

* - RL & MDL from SIM run
** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05066-019
Client ID: TWP5
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Date File: B6032.D

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Unknown SV	14.1	J	2.05
	Unknown SV	5.40	J	2.10
	Unknown SV	5.70	J	2.14
000057-10-3	n-Hexadecanoic acid	4.10	JN	4.85

Total TICs = 29.3 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: BLKA231120-04
Client ID: .
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Data file: B6026.D 11/30/2023 11:58
SIM Data file: B5984.D 11/29/2023 13:10

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		2.00	0.492
Phenol	ND		1.00	0.276
Bis(2-chloroethyl) ether	ND		1.00	0.459
2-Chlorophenol	ND		1.00	0.257
2-Methylphenol	ND		1.00	0.267
2,2'-Oxybis(1-Chloropropane)	ND		1.00	0.682
4-Methylphenol **	ND		1.00	0.337
N-Nitrosodi-n-propylamine	ND		1.00	0.391
Acetophenone	ND		1.00	0.241
Hexachloroethane	ND		1.00	0.470
Nitrobenzene	ND		1.00	0.442
Isophorone	ND		1.00	0.232
2-Nitrophenol	ND		2.00	0.581
2,4-Dimethylphenol	ND		2.00	1.06
Bis(2-chloroethoxy) methane	ND		1.00	0.344
2,4-Dichlorophenol	ND		1.00	0.383
Naphthalene	ND		1.00	0.183
4-Chloroaniline	ND		1.00	0.612
Hexachlorobutadiene	ND		1.00	0.561
Caprolactam	ND		3.00	1.15
4-Chloro-3-methylphenol	ND		1.00	0.336
2-Methylnaphthalene	ND		1.00	0.200
Hexachlorocyclopentadiene	ND		2.00	1.89
2,4,6-Trichlorophenol	ND		1.00	0.497
2,4,5-Trichlorophenol	ND		2.00	0.505
1,1'-Biphenyl	ND		1.00	0.212
2-Chloronaphthalene	ND		1.00	0.234
2-Nitroaniline	ND		2.00	0.702
Dimethyl phthalate	ND		1.00	0.197

SEMIVOLATILE ORGANICS

Lab ID: BLKA231120-04
Client ID: .
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Data file: B6026.D 11/30/2023 11:58
SIM Data file: B5984.D 11/29/2023 13:10

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		1.00	0.996
Acenaphthylene	ND		1.00	0.268
3-Nitroaniline	ND		3.00	0.436
Acenaphthene	ND		1.00	0.281
2,4-Dinitrophenol	ND		3.00	2.35
4-Nitrophenol	ND		3.00	2.41
2,4-Dinitrotoluene	ND		1.00	0.886
Dibenzofuran	ND		1.00	0.199
Diethyl phthalate	ND		1.00	0.239
Fluorene	ND		1.00	0.367
4-Chlorophenyl phenyl ether	ND		1.00	0.396
4-Nitroaniline	ND		2.00	0.692
1,2,4,5-Tetrachlorobenzene	ND		1.00	0.326
2,3,4,6-Tetrachlorophenol	ND		1.00	0.872
4,6-Dinitro-2-methylphenol *	ND		0.100	0.033
N-Nitrosodiphenylamine	ND		1.00	0.196
4-Bromophenyl phenyl ether	ND		1.00	0.940
Hexachlorobenzene *	ND		0.020	0.016
Atrazine	ND		1.00	0.468
Pentachlorophenol *	ND		0.100	0.052
Phenanthrene	ND		1.00	0.263
Anthracene	ND		1.00	0.560
Carbazole	ND		1.00	0.594
Di-n-butyl phthalate	ND		1.00	0.343
Fluoranthene	ND		1.00	0.482
Pyrene	ND		1.00	0.555
Butyl benzyl phthalate	ND		1.00	0.642
3,3'-Dichlorobenzidine	ND		1.00	0.524
Benzo[a]anthracene *	ND		0.100	0.029
Chrysene	ND		1.00	0.232
Bis(2-ethylhexyl) phthalate	ND		2.00	1.38
Di-n-octyl phthalate	ND		2.00	1.09
Benzo[b]fluoranthene *	ND		0.100	0.026
Benzo[k]fluoranthene *	ND		0.100	0.035
Benzo[a]pyrene *	ND		0.100	0.027
Indeno[1,2,3-cd]pyrene *	ND		0.100	0.036
Dibenz[a,h]anthracene *	ND		0.100	0.031
Benzo[g,h,i]perylene	ND		2.00	1.04
1,4-Dioxane	ND		0.400	0.329
Dinitrotoluene (2,4- and 2,6-)	ND		1.00	0.886

Total Target Compounds (69): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

* - RL & MDL from SIM run
** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-001
Client ID: SB10A/0-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5461.D 11/27/2023 11:04

GC Column: DB-5/DB1701P
Sample wt/vol: 15.01g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.6
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00386	0.0012
Aroclor-1221	ND		0.00386	0.0012
Aroclor-1232	ND		0.00386	0.0012
Aroclor-1242	ND		0.00386	0.0012
Aroclor-1248	ND		0.00386	0.0012
Aroclor-1254	ND		0.00386	0.0012
Aroclor-1260	ND		0.00386	0.0012
Aroclor-1262	ND		0.00386	0.0012
Aroclor-1268	ND		0.00386	0.0012
PCBs	ND		0.00386	0.0012

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-002
Client ID: SB10B/10
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5496.D 11/27/2023 21:43

GC Column: DB-5/DB1701P
Sample wt/vol: 15.05g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.4
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00371	0.0011
Aroclor-1221	ND		0.00371	0.0011
Aroclor-1232	ND		0.00371	0.0011
Aroclor-1242	ND		0.00371	0.0011
Aroclor-1248	ND		0.00371	0.0011
Aroclor-1254	ND		0.00371	0.0011
Aroclor-1260	ND		0.00371	0.0011
Aroclor-1262	ND		0.00371	0.0011
Aroclor-1268	ND		0.00371	0.0011
PCBs	ND		0.00371	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-003
Client ID: SB2A/0-2
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5463.D 11/27/2023 11:39

GC Column: DB-5/DB1701P
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.9
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00386	0.0012
Aroclor-1221	ND		0.00386	0.0012
Aroclor-1232	ND		0.00386	0.0012
Aroclor-1242	ND		0.00386	0.0012
Aroclor-1248	ND		0.00386	0.0012
Aroclor-1254	ND		0.00386	0.0012
Aroclor-1260	ND		0.00386	0.0012
Aroclor-1262	ND		0.00386	0.0012
Aroclor-1268	ND		0.00386	0.0012
PCBs	ND		0.00386	0.0012

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-004
Client ID: SB2B/10-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5497.D 11/27/2023 22:00

GC Column: DB-5/DB1701P
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
% Moisture: 4.50
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00348	0.001
Aroclor-1221	ND		0.00348	0.001
Aroclor-1232	ND		0.00348	0.001
Aroclor-1242	ND		0.00348	0.001
Aroclor-1248	ND		0.00348	0.001
Aroclor-1254	ND		0.00348	0.001
Aroclor-1260	ND		0.00348	0.001
Aroclor-1262	ND		0.00348	0.001
Aroclor-1268	ND		0.00348	0.001
PCBs	ND		0.00348	0.001

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-005
Client ID: SB5/0-2
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5465.D 11/27/2023 12:13

GC Column: DB-5/DB1701P
Sample wt/vol: 15.02g
Matrix-Units: Soil-mg/Kg
% Moisture: 11.3
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00375	0.0011
Aroclor-1221	ND		0.00375	0.0011
Aroclor-1232	ND		0.00375	0.0011
Aroclor-1242	ND		0.00375	0.0011
Aroclor-1248	ND		0.00375	0.0011
Aroclor-1254	ND		0.00375	0.0011
Aroclor-1260	ND		0.00375	0.0011
Aroclor-1262	ND		0.00375	0.0011
Aroclor-1268	ND		0.00375	0.0011
PCBs	ND		0.00375	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve
B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-006
Client ID: SB3A/0-2
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5466.D 11/27/2023 12:33

GC Column: DB-5/DB1701P
Sample wt/vol: 15.07g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.1
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00369	0.0011
Aroclor-1221	ND		0.00369	0.0011
Aroclor-1232	ND		0.00369	0.0011
Aroclor-1242	ND		0.00369	0.0011
Aroclor-1248	ND		0.00369	0.0011
Aroclor-1254	ND		0.00369	0.0011
Aroclor-1260	ND		0.00369	0.0011
Aroclor-1262	ND		0.00369	0.0011
Aroclor-1268	ND		0.00369	0.0011
PCBs	ND		0.00369	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-007
Client ID: SB3B/10-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5467.D 11/27/2023 12:50

GC Column: DB-5/DB1701P
Sample wt/vol: 15.01g
Matrix-Units: Soil-mg/Kg
% Moisture: 5.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00353	0.0011
Aroclor-1221	ND		0.00353	0.0011
Aroclor-1232	ND		0.00353	0.0011
Aroclor-1242	ND		0.00353	0.0011
Aroclor-1248	ND		0.00353	0.0011
Aroclor-1254	ND		0.00353	0.0011
Aroclor-1260	ND		0.00353	0.0011
Aroclor-1262	ND		0.00353	0.0011
Aroclor-1268	ND		0.00353	0.0011
PCBs	ND		0.00353	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-008
Client ID: SB9A/0-2
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5468.D 11/27/2023 13:07

GC Column: DB-5/DB1701P
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.80
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.0036	0.0011
Aroclor-1221	ND		0.0036	0.0011
Aroclor-1232	ND		0.0036	0.0011
Aroclor-1242	ND		0.0036	0.0011
Aroclor-1248	ND		0.0036	0.0011
Aroclor-1254	ND		0.0036	0.0011
Aroclor-1260	ND		0.0036	0.0011
Aroclor-1262	ND		0.0036	0.0011
Aroclor-1268	ND		0.0036	0.0011
PCBs	ND		0.0036	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve
B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-009
Client ID: SB9B/10-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5498.D 11/27/2023 22:18

GC Column: DB-5/DB1701P
Sample wt/vol: 15.05g
Matrix-Units: Soil-mg/Kg
% Moisture: 4.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00349	0.001
Aroclor-1221	ND		0.00349	0.001
Aroclor-1232	ND		0.00349	0.001
Aroclor-1242	ND		0.00349	0.001
Aroclor-1248	ND		0.00349	0.001
Aroclor-1254	ND		0.00349	0.001
Aroclor-1260	ND		0.00349	0.001
Aroclor-1262	ND		0.00349	0.001
Aroclor-1268	ND		0.00349	0.001
PCBs	ND		0.00349	0.001

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve
B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-010
Client ID: SB1A/0-2
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5470.D 11/27/2023 13:42

GC Column: DB-5/DB1701P
Sample wt/vol: 15.07g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.10
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00365	0.0011
Aroclor-1221	ND		0.00365	0.0011
Aroclor-1232	ND		0.00365	0.0011
Aroclor-1242	ND		0.00365	0.0011
Aroclor-1248	ND		0.00365	0.0011
Aroclor-1254	ND		0.00365	0.0011
Aroclor-1260	ND		0.00365	0.0011
Aroclor-1262	ND		0.00365	0.0011
Aroclor-1268	ND		0.00365	0.0011
PCBs	ND		0.00365	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-011
Client ID: SB1B/10-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5471.D 11/27/2023 13:59

GC Column: DB-5/DB1701P
Sample wt/vol: 15.05g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.2
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.0037	0.0011
Aroclor-1221	ND		0.0037	0.0011
Aroclor-1232	ND		0.0037	0.0011
Aroclor-1242	ND		0.0037	0.0011
Aroclor-1248	ND		0.0037	0.0011
Aroclor-1254	ND		0.0037	0.0011
Aroclor-1260	ND		0.0037	0.0011
Aroclor-1262	ND		0.0037	0.0011
Aroclor-1268	ND		0.0037	0.0011
PCBs	ND		0.0037	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-012
Client ID: SB4A/0-2
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5472.D 11/27/2023 14:16

GC Column: DB-5/DB1701P
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
% Moisture: 8.90
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00365	0.0011
Aroclor-1221	ND		0.00365	0.0011
Aroclor-1232	ND		0.00365	0.0011
Aroclor-1242	ND		0.00365	0.0011
Aroclor-1248	ND		0.00365	0.0011
Aroclor-1254	ND		0.00365	0.0011
Aroclor-1260	ND		0.00365	0.0011
Aroclor-1262	ND		0.00365	0.0011
Aroclor-1268	ND		0.00365	0.0011
PCBs	ND		0.00365	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-013
Client ID: SB4B/10-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5473.D 11/27/2023 14:33

GC Column: DB-5/DB1701P
Sample wt/vol: 15.02g
Matrix-Units: Soil-mg/Kg
% Moisture: 5.20
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00351	0.0011
Aroclor-1221	ND		0.00351	0.0011
Aroclor-1232	ND		0.00351	0.0011
Aroclor-1242	ND		0.00351	0.0011
Aroclor-1248	ND		0.00351	0.0011
Aroclor-1254	ND		0.00351	0.0011
Aroclor-1260	ND		0.00351	0.0011
Aroclor-1262	ND		0.00351	0.0011
Aroclor-1268	ND		0.00351	0.0011
PCBs	ND		0.00351	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve
B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-014
Client ID: SB6-419-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5474.D 11/27/2023 14:51

GC Column: DB-5/DB1701P
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.80
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00361	0.0011
Aroclor-1221	ND		0.00361	0.0011
Aroclor-1232	ND		0.00361	0.0011
Aroclor-1242	ND		0.00361	0.0011
Aroclor-1248	ND		0.00361	0.0011
Aroclor-1254	1.66	E	0.00361	0.0011
Aroclor-1260	ND		0.00361	0.0011
Aroclor-1262	ND		0.00361	0.0011
Aroclor-1268	ND		0.00361	0.0011
PCBs	1.66	E	0.00361	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-014DL
Client ID: SB6-419-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: R5501.D 11/28/2023 08:36

GC Column: DB-5/DB1701P
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.80
Dilution Factor: 10

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.036	0.011
Aroclor-1221	ND		0.036	0.011
Aroclor-1232	ND		0.036	0.011
Aroclor-1242	ND		0.036	0.011
Aroclor-1248	ND		0.036	0.011
Aroclor-1254	1.95	D	0.036	0.011
Aroclor-1260	ND		0.036	0.011
Aroclor-1262	ND		0.036	0.011
Aroclor-1268	ND		0.036	0.011
PCBs	1.95	D	0.036	0.011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve
B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-015
Client ID: SB8-401-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5475.D 11/27/2023 15:08

GC Column: DB-5/DB1701P
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.20
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00354	0.0011
Aroclor-1221	ND		0.00354	0.0011
Aroclor-1232	ND		0.00354	0.0011
Aroclor-1242	ND		0.00354	0.0011
Aroclor-1248	ND		0.00354	0.0011
Aroclor-1254	ND		0.00354	0.0011
Aroclor-1260	ND		0.00354	0.0011
Aroclor-1262	ND		0.00354	0.0011
Aroclor-1268	ND		0.00354	0.0011
PCBs	ND		0.00354	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: BLKS231121-02
Client ID: PCB
Date Received: NA
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5457.D 11/27/2023 09:38

GC Column: DB-5/DB1701P
Sample wt/vol: 15.00g
Matrix-Units: Soil-mg/Kg
% Moisture: NA
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00333	0.001
Aroclor-1221	ND		0.00333	0.001
Aroclor-1232	ND		0.00333	0.001
Aroclor-1242	ND		0.00333	0.001
Aroclor-1248	ND		0.00333	0.001
Aroclor-1254	ND		0.00333	0.001
Aroclor-1260	ND		0.00333	0.001
Aroclor-1262	ND		0.00333	0.001
Aroclor-1268	ND		0.00333	0.001
PCBs	ND		0.00333	0.001

D — Dilution Performed
J — Value Less than RL & greater than MDL
E — Exceeds upper level of Calibration curve
B — Compound detected in Blank
C — Common laboratory contamination

PCB's

Lab ID: E23-05066-016
Client ID: TWP1
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: R5491.D 11/27/2023 20:00

GC Column: DB-5/DB1701P
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.050	0.015
Aroclor-1221	ND		0.050	0.015
Aroclor-1232	ND		0.050	0.015
Aroclor-1242	ND		0.050	0.015
Aroclor-1248	ND		0.050	0.015
Aroclor-1254	ND		0.050	0.015
Aroclor-1260	ND		0.050	0.015
Aroclor-1262	ND		0.050	0.015
Aroclor-1268	ND		0.050	0.015
PCBs	ND		0.050	0.015

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve
B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-017
Client ID: TWP4
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: R5492.D 11/27/2023 20:17

GC Column: DB-5/DB1701P
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.050	0.015
Aroclor-1221	ND		0.050	0.015
Aroclor-1232	ND		0.050	0.015
Aroclor-1242	ND		0.050	0.015
Aroclor-1248	ND		0.050	0.015
Aroclor-1254	ND		0.050	0.015
Aroclor-1260	ND		0.050	0.015
Aroclor-1262	ND		0.050	0.015
Aroclor-1268	ND		0.050	0.015
PCBs	ND		0.050	0.015

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve
B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-018
Client ID: TWP2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: R5493.D 11/27/2023 20:34

GC Column: DB-5/DB1701P
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.050	0.015
Aroclor-1221	ND		0.050	0.015
Aroclor-1232	ND		0.050	0.015
Aroclor-1242	ND		0.050	0.015
Aroclor-1248	ND		0.050	0.015
Aroclor-1254	ND		0.050	0.015
Aroclor-1260	ND		0.050	0.015
Aroclor-1262	ND		0.050	0.015
Aroclor-1268	ND		0.050	0.015
PCBs	ND		0.050	0.015

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05066-019
Client ID: TWP5
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: R5494.D 11/27/2023 20:52

GC Column: DB-5/DB1701P
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.050	0.015
Aroclor-1221	ND		0.050	0.015
Aroclor-1232	ND		0.050	0.015
Aroclor-1242	ND		0.050	0.015
Aroclor-1248	ND		0.050	0.015
Aroclor-1254	ND		0.050	0.015
Aroclor-1260	ND		0.050	0.015
Aroclor-1262	ND		0.050	0.015
Aroclor-1268	ND		0.050	0.015
PCBs	ND		0.050	0.015

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve
B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: BLKA231120-01
Client ID: PCB
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: R5482.D 11/27/2023 17:25

GC Column: DB-5/DB1701P
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.050	0.015
Aroclor-1221	ND		0.050	0.015
Aroclor-1232	ND		0.050	0.015
Aroclor-1242	ND		0.050	0.015
Aroclor-1248	ND		0.050	0.015
Aroclor-1254	ND		0.050	0.015
Aroclor-1260	ND		0.050	0.015
Aroclor-1262	ND		0.050	0.015
Aroclor-1268	ND		0.050	0.015
PCBs	ND		0.050	0.015

D — Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve
B --- Compound detected in Blank
C — Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-001
Client ID: SB10A/0-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: V1649.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.01g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 13.6

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000772	0.000138
beta-BHC	ND		0.000772	0.00018
gamma-BHC (Lindane)	ND		0.000772	0.000172
delta-BHC	ND		0.000772	0.000149
Heptachlor	0.000768	J	0.000772	0.000183
Aldrin	ND		0.000772	0.000161
Heptachlor epoxide	0.00293		0.000772	0.000167
Endosulfan I	ND		0.000772	0.000172
4,4'-DDE	0.055		0.000772	0.000157
Dieldrin	0.012		0.000772	0.000157
Endrin	ND		0.000772	0.000194
Endosulfan II	ND		0.000772	0.000177
4,4'-DDD	0.024		0.000772	0.000206
Endrin aldehyde	ND		0.000772	0.000161
Endosulfan sulfate	ND		0.000772	0.000191
4,4'-DDT	0.203	E	0.000772	0.000143
Endrin ketone	ND		0.000772	0.00015
Methoxychlor	ND		0.000772	0.000206
alpha-Chlordane	0.027		0.000772	0.00017
gamma-Chlordane	0.020		0.000772	0.000152
Toxaphene	ND		0.00965	0.00386
Endosulfan (I and II)	ND		0.000772	0.000172
Chlordane (alpha and gamma)	0.046		0.000772	0.000152

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-001DL
Client ID: SB10A/0-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1692.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.01g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 2
% Moisture: 13.6

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.00154	0.000275
beta-BHC	ND		0.00154	0.00036
gamma-BHC (Lindane)	ND		0.00154	0.000344
delta-BHC	ND		0.00154	0.000299
Heptachlor	0.00135	DJ	0.00154	0.000366
Aldrin	ND		0.00154	0.000323
Heptachlor epoxide	0.0018	D	0.00154	0.000335
Endosulfan I	ND		0.00154	0.000345
4,4'-DDE	0.054	D	0.00154	0.000315
Dieldrin	0.013	D	0.00154	0.000314
Endrin	ND		0.00154	0.000389
Endosulfan II	ND		0.00154	0.000353
4,4'-DDD	0.024	D	0.00154	0.000411
Endrin aldehyde	ND		0.00154	0.000323
Endosulfan sulfate	ND		0.00154	0.000382
4,4'-DDT	0.179	D	0.00154	0.000287
Endrin ketone	ND		0.00154	0.0003
Methoxychlor	ND		0.00154	0.000412
alpha-Chlordane	0.021	D	0.00154	0.00034
gamma-Chlordane	0.020	D	0.00154	0.000303
Toxaphene	ND		0.019	0.00771
Endosulfan (I and II)	ND		0.00154	0.000345
Chlordane (alpha and gamma)	0.041	D	0.00154	0.000303

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-002
Client ID: SB10B/10
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1693.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.05g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 10.4

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000742	0.000132
beta-BHC	ND		0.000742	0.000173
gamma-BHC (Lindane)	ND		0.000742	0.000165
delta-BHC	ND		0.000742	0.000144
Heptachlor	ND		0.000742	0.000176
Aldrin	ND		0.000742	0.000155
Heptachlor epoxide	ND		0.000742	0.000161
Endosulfan I	ND		0.000742	0.000166
4,4'-DDE	0.000414	J	0.000742	0.000151
Dieldrin	ND		0.000742	0.000151
Endrin	ND		0.000742	0.000187
Endosulfan II	ND		0.000742	0.00017
4,4'-DDD	ND		0.000742	0.000198
Endrin aldehyde	ND		0.000742	0.000155
Endosulfan sulfate	ND		0.000742	0.000184
4,4'-DDT	0.000402	J	0.000742	0.000138
Endrin ketone	ND		0.000742	0.000144
Methoxychlor	ND		0.000742	0.000198
alpha-Chlordane	ND		0.000742	0.000164
gamma-Chlordane	ND		0.000742	0.000146
Toxaphene	ND		0.00928	0.00371
Endosulfan (I and II)	ND		0.000742	0.000166
Chlordane (alpha and gamma)	ND		0.000742	0.000146

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-003
Client ID: SB2A/0-2
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: V1651.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 13.9

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000772	0.000138
beta-BHC	ND		0.000772	0.00018
gamma-BHC (Lindane)	ND		0.000772	0.000172
delta-BHC	ND		0.000772	0.00015
Heptachlor	0.00288		0.000772	0.000183
Aldrin	ND		0.000772	0.000162
Heptachlor epoxide	0.00404		0.000772	0.000168
Endosulfan I	ND		0.000772	0.000173
4,4'-DDE	0.024		0.000772	0.000158
Dieldrin	ND		0.000772	0.000157
Endrin	ND		0.000772	0.000195
Endosulfan II	ND		0.000772	0.000177
4,4'-DDD	0.012		0.000772	0.000206
Endrin aldehyde	ND		0.000772	0.000162
Endosulfan sulfate	ND		0.000772	0.000191
4,4'-DDT	0.097		0.000772	0.000144
Endrin ketone	ND		0.000772	0.00015
Methoxychlor	ND		0.000772	0.000206
alpha-Chlordane	0.016		0.000772	0.00017
gamma-Chlordane	0.019		0.000772	0.000152
Toxaphene	ND		0.00965	0.00386
Endosulfan (I and II)	ND		0.000772	0.000173
Chlordane (alpha and gamma)	0.034		0.000772	0.000152

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-004
Client ID: SB2B/10-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1694.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 4.50

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000696	0.000124
beta-BHC	ND		0.000696	0.000162
gamma-BHC (Lindane)	ND		0.000696	0.000155
delta-BHC	ND		0.000696	0.000135
Heptachlor	ND		0.000696	0.000165
Aldrin	ND		0.000696	0.000145
Heptachlor epoxide	ND		0.000696	0.000151
Endosulfan I	ND		0.000696	0.000156
4,4'-DDE	ND		0.000696	0.000142
Dieldrin	ND		0.000696	0.000142
Endrin	ND		0.000696	0.000175
Endosulfan II	ND		0.000696	0.000159
4,4'-DDD	ND		0.000696	0.000185
Endrin aldehyde	ND		0.000696	0.000146
Endosulfan sulfate	ND		0.000696	0.000172
4,4'-DDT	0.000265	J	0.000696	0.000129
Endrin ketone	ND		0.000696	0.000135
Methoxychlor	ND		0.000696	0.000186
alpha-Chlordane	ND		0.000696	0.000153
gamma-Chlordane	ND		0.000696	0.000137
Toxaphene	ND		0.0087	0.00348
Endosulfan (I and II)	ND		0.000696	0.000156
Chlordane (alpha and gamma)	ND		0.000696	0.000137

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-005
Client ID: SB5/0-2
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: V1653.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.02g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 11.3

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.00075	0.000134
beta-BHC	ND		0.00075	0.000175
gamma-BHC (Lindane)	ND		0.00075	0.000167
delta-BHC	ND		0.00075	0.000145
Heptachlor	ND		0.00075	0.000178
Aldrin	ND		0.00075	0.000157
Heptachlor epoxide	0.00122		0.00075	0.000163
Endosulfan I	ND		0.00075	0.000168
4,4'-DDE	0.070		0.00075	0.000153
Dieldrin	0.00603		0.00075	0.000153
Endrin	ND		0.00075	0.000189
Endosulfan II	ND		0.00075	0.000172
4,4'-DDD	0.00798		0.00075	0.0002
Endrin aldehyde	ND		0.00075	0.000157
Endosulfan sulfate	ND		0.00075	0.000186
4,4'-DDT	0.087		0.00075	0.00014
Endrin ketone	ND		0.00075	0.000146
Methoxychlor	ND		0.00075	0.000201
alpha-Chlordane	0.00385		0.00075	0.000166
gamma-Chlordane	0.00198		0.00075	0.000147
Toxaphene	ND		0.00938	0.00375
Endosulfan (I and II)	ND		0.00075	0.000168
Chlordane (alpha and gamma)	0.00583		0.00075	0.000147

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-006
Client ID: SB3A/0-2
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1680.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.07g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 10.1

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000738	0.000132
beta-BHC	ND		0.000738	0.000172
gamma-BHC (Lindane)	ND		0.000738	0.000165
delta-BHC	ND		0.000738	0.000143
Heptachlor	ND		0.000738	0.000175
Aldrin	ND		0.000738	0.000154
Heptachlor epoxide	ND		0.000738	0.00016
Endosulfan I	ND		0.000738	0.000165
4,4'-DDE	0.024		0.000738	0.000151
Dieldrin	ND		0.000738	0.00015
Endrin	ND		0.000738	0.000186
Endosulfan II	ND		0.000738	0.000169
4,4'-DDD	0.00289		0.000738	0.000197
Endrin aldehyde	ND		0.000738	0.000154
Endosulfan sulfate	ND		0.000738	0.000183
4,4'-DDT	0.050		0.000738	0.000137
Endrin ketone	ND		0.000738	0.000144
Methoxychlor	ND		0.000738	0.000197
alpha-Chlordane	0.023		0.000738	0.000163
gamma-Chlordane	0.022		0.000738	0.000145
Toxaphene	ND		0.00923	0.00369
Endosulfan (I and II)	ND		0.000738	0.000165
Chlordane (alpha and gamma)	0.044		0.000738	0.000145

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-007
Client ID: SB3B/10-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1678.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.01g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 5.70

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000706	0.000126
beta-BHC	ND		0.000706	0.000165
gamma-BHC (Lindane)	ND		0.000706	0.000157
delta-BHC	ND		0.000706	0.000137
Heptachlor	ND		0.000706	0.000168
Aldrin	ND		0.000706	0.000148
Heptachlor epoxide	ND		0.000706	0.000153
Endosulfan I	ND		0.000706	0.000158
4,4'-DDE	ND		0.000706	0.000144
Dieldrin	ND		0.000706	0.000144
Endrin	ND		0.000706	0.000178
Endosulfan II	ND		0.000706	0.000162
4,4'-DDD	ND		0.000706	0.000188
Endrin aldehyde	ND		0.000706	0.000148
Endosulfan sulfate	ND		0.000706	0.000175
4,4'-DDT	ND		0.000706	0.000131
Endrin ketone	ND		0.000706	0.000138
Methoxychlor	ND		0.000706	0.000189
alpha-Chlordane	ND		0.000706	0.000156
gamma-Chlordane	ND		0.000706	0.000139
Toxaphene	ND		0.00883	0.00353
Endosulfan (I and II)	ND		0.000706	0.000158
Chlordane (alpha and gamma)	ND		0.000706	0.000139

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-008
Client ID: SB9A/0-2
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1681.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 7.80

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.00072	0.000129
beta-BHC	ND		0.00072	0.000168
gamma-BHC (Lindane)	ND		0.00072	0.000161
delta-BHC	ND		0.00072	0.00014
Heptachlor	ND		0.00072	0.000171
Aldrin	ND		0.00072	0.000151
Heptachlor epoxide	ND		0.00072	0.000156
Endosulfan I	ND		0.00072	0.000161
4,4'-DDE	ND		0.00072	0.000147
Dieldrin	ND		0.00072	0.000147
Endrin	ND		0.00072	0.000182
Endosulfan II	ND		0.00072	0.000165
4,4'-DDD	ND		0.00072	0.000192
Endrin aldehyde	ND		0.00072	0.000151
Endosulfan sulfate	ND		0.00072	0.000178
4,4'-DDT	ND		0.00072	0.000134
Endrin ketone	ND		0.00072	0.00014
Methoxychlor	ND		0.00072	0.000193
alpha-Chlordane	ND		0.00072	0.000159
gamma-Chlordane	ND		0.00072	0.000142
Toxaphene	ND		0.009	0.0036
Endosulfan (I and II)	ND		0.00072	0.000161
Chlordane (alpha and gamma)	ND		0.00072	0.000142

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-009
Client ID: SB9B/10-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1679.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.05g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 4.70

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000698	0.000125
beta-BHC	ND		0.000698	0.000163
gamma-BHC (Lindane)	ND		0.000698	0.000155
delta-BHC	ND		0.000698	0.000135
Heptachlor	ND		0.000698	0.000165
Aldrin	ND		0.000698	0.000146
Heptachlor epoxide	ND		0.000698	0.000151
Endosulfan I	ND		0.000698	0.000156
4,4'-DDE	ND		0.000698	0.000142
Dieldrin	ND		0.000698	0.000142
Endrin	ND		0.000698	0.000176
Endosulfan II	ND		0.000698	0.00016
4,4'-DDD	ND		0.000698	0.000186
Endrin aldehyde	ND		0.000698	0.000146
Endosulfan sulfate	ND		0.000698	0.000173
4,4'-DDT	ND		0.000698	0.00013
Endrin ketone	ND		0.000698	0.000136
Methoxychlor	ND		0.000698	0.000186
alpha-Chlordane	ND		0.000698	0.000154
gamma-Chlordane	ND		0.000698	0.000137
Toxaphene	ND		0.00873	0.00349
Endosulfan (I and II)	ND		0.000698	0.000156
Chlordane (alpha and gamma)	ND		0.000698	0.000137

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-010
Client ID: SB1A/0-2
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1682.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.07g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 9.10

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.00073	0.00013
beta-BHC	ND		0.00073	0.00017
gamma-BHC (Lindane)	ND		0.00073	0.000163
delta-BHC	ND		0.00073	0.000141
Heptachlor	ND		0.00073	0.000173
Aldrin	ND		0.00073	0.000153
Heptachlor epoxide	0.00119		0.00073	0.000158
Endosulfan I	ND		0.00073	0.000163
4,4'-DDE	0.011		0.00073	0.000149
Dieldrin	ND		0.00073	0.000149
Endrin	ND		0.00073	0.000184
Endosulfan II	ND		0.00073	0.000167
4,4'-DDD	0.00722		0.00073	0.000195
Endrin aldehyde	ND		0.00073	0.000153
Endosulfan sulfate	ND		0.00073	0.000181
4,4'-DDT	0.019		0.00073	0.000136
Endrin ketone	ND		0.00073	0.000142
Methoxychlor	ND		0.00073	0.000195
alpha-Chlordane	0.00473		0.00073	0.000161
gamma-Chlordane	0.00584		0.00073	0.000143
Toxaphene	ND		0.00913	0.00365
Endosulfan (I and II)	ND		0.00073	0.000163
Chlordane (alpha and gamma)	0.011		0.00073	0.000143

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-011
Client ID: SB1B/10-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1683.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.05g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 10.2

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.00074	0.000132
beta-BHC	ND		0.00074	0.000173
gamma-BHC (Lindane)	ND		0.00074	0.000165
delta-BHC	ND		0.00074	0.000143
Heptachlor	ND		0.00074	0.000176
Aldrin	ND		0.00074	0.000155
Heptachlor epoxide	0.000932		0.00074	0.000161
Endosulfan I	ND		0.00074	0.000165
4,4'-DDE	0.00656		0.00074	0.000151
Dieldrin	ND		0.00074	0.000151
Endrin	ND		0.00074	0.000187
Endosulfan II	ND		0.00074	0.00017
4,4'-DDD	ND		0.00074	0.000197
Endrin aldehyde	ND		0.00074	0.000155
Endosulfan sulfate	ND		0.00074	0.000183
4,4'-DDT	0.025		0.00074	0.000138
Endrin ketone	ND		0.00074	0.000144
Methoxychlor	ND		0.00074	0.000198
alpha-Chlordane	0.00266		0.00074	0.000163
gamma-Chlordane	0.00281		0.00074	0.000145
Toxaphene	ND		0.00925	0.0037
Endosulfan (I and II)	ND		0.00074	0.000165
Chlordane (alpha and gamma)	0.00547		0.00074	0.000145

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-012
Client ID: SB4A/0-2
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1684.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 8.90

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.00073	0.00013
beta-BHC	ND		0.00073	0.00017
gamma-BHC (Lindane)	ND		0.00073	0.000163
delta-BHC	ND		0.00073	0.000141
Heptachlor	ND		0.00073	0.000173
Aldrin	ND		0.00073	0.000153
Heptachlor epoxide	ND		0.00073	0.000158
Endosulfan I	ND		0.00073	0.000163
4,4'-DDE	0.052		0.00073	0.000149
Dieldrin	0.00707		0.00073	0.000149
Endrin	ND		0.00073	0.000184
Endosulfan II	ND		0.00073	0.000167
4,4'-DDD	ND		0.00073	0.000195
Endrin aldehyde	ND		0.00073	0.000153
Endosulfan sulfate	ND		0.00073	0.000181
4,4'-DDT	0.085		0.00073	0.000136
Endrin ketone	ND		0.00073	0.000142
Methoxychlor	ND		0.00073	0.000195
alpha-Chlordane	0.00577		0.00073	0.000161
gamma-Chlordane	0.00815		0.00073	0.000143
Toxaphene	ND		0.00913	0.00365
Endosulfan (I and II)	ND		0.00073	0.000163
Chlordane (alpha and gamma)	0.014		0.00073	0.000143

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-013
Client ID: SB4B/10-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1685.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.02g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 5.20

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000702	0.000125
beta-BHC	ND		0.000702	0.000164
gamma-BHC (Lindane)	ND		0.000702	0.000157
delta-BHC	ND		0.000702	0.000136
Heptachlor	ND		0.000702	0.000167
Aldrin	ND		0.000702	0.000147
Heptachlor epoxide	ND		0.000702	0.000152
Endosulfan I	ND		0.000702	0.000157
4,4'-DDE	0.013		0.000702	0.000143
Dieldrin	0.00196		0.000702	0.000143
Endrin	ND		0.000702	0.000177
Endosulfan II	ND		0.000702	0.000161
4,4'-DDD	ND		0.000702	0.000187
Endrin aldehyde	ND		0.000702	0.000147
Endosulfan sulfate	ND		0.000702	0.000174
4,4'-DDT	0.026		0.000702	0.000131
Endrin ketone	ND		0.000702	0.000137
Methoxychlor	ND		0.000702	0.000188
alpha-Chlordane	0.00185		0.000702	0.000155
gamma-Chlordane	0.00203		0.000702	0.000138
Toxaphene	ND		0.00878	0.00351
Endosulfan (I and II)	ND		0.000702	0.000157
Chlordane (alpha and gamma)	0.00388		0.000702	0.000138

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-014
Client ID: SB6-419-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1686.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 7.80

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000722	0.000129
beta-BHC	ND		0.000722	0.000168
gamma-BHC (Lindane)	ND		0.000722	0.000161
delta-BHC	ND		0.000722	0.00014
Heptachlor	ND		0.000722	0.000171
Aldrin	ND		0.000722	0.000151
Heptachlor epoxide	ND		0.000722	0.000157
Endosulfan I	ND		0.000722	0.000161
4,4'-DDE	0.595	E	0.000722	0.000147
Dieldrin	ND		0.000722	0.000147
Endrin	ND		0.000722	0.000182
Endosulfan II	ND		0.000722	0.000165
4,4'-DDD	0.099		0.000722	0.000192
Endrin aldehyde	ND		0.000722	0.000151
Endosulfan sulfate	ND		0.000722	0.000179
4,4'-DDT	0.873	E	0.000722	0.000134
Endrin ketone	ND		0.000722	0.00014
Methoxychlor	ND		0.000722	0.000193
alpha-Chlordane	ND		0.000722	0.000159
gamma-Chlordane	ND		0.000722	0.000142
Toxaphene	ND		0.00903	0.00361
Endosulfan (I and II)	ND		0.000722	0.000161
Chlordane (alpha and gamma)	ND		0.000722	0.000142

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-014DL
Client ID: SB6-419-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1695.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 20
% Moisture: 7.80

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.014	0.00258
beta-BHC	ND		0.014	0.00337
gamma-BHC (Lindane)	ND		0.014	0.00322
delta-BHC	ND		0.014	0.00279
Heptachlor	ND		0.014	0.00342
Aldrin	ND		0.014	0.00302
Heptachlor epoxide	ND		0.014	0.00313
Endosulfan I	ND		0.014	0.00323
4,4'-DDE	0.555	D	0.014	0.00294
Dieldrin	ND		0.014	0.00294
Endrin	ND		0.014	0.00364
Endosulfan II	ND		0.014	0.0033
4,4'-DDD	0.170	D	0.014	0.00385
Endrin aldehyde	ND		0.014	0.00302
Endosulfan sulfate	ND		0.014	0.00357
4,4'-DDT	0.529	D	0.014	0.00268
Endrin ketone	ND		0.014	0.00281
Methoxychlor	ND		0.014	0.00386
alpha-Chlordane	ND		0.014	0.00318
gamma-Chlordane	ND		0.014	0.00283
Toxaphene	ND		0.180	0.072
Endosulfan (I and II)	ND		0.014	0.00323
Chlordane (alpha and gamma)	ND		0.014	0.00283

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-015
Client ID: SB8-401-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1687.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 6.20

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000708	0.000126
beta-BHC	ND		0.000708	0.000165
gamma-BHC (Lindane)	ND		0.000708	0.000158
delta-BHC	ND		0.000708	0.000137
Heptachlor	ND		0.000708	0.000168
Aldrin	ND		0.000708	0.000148
Heptachlor epoxide	ND		0.000708	0.000154
Endosulfan I	ND		0.000708	0.000158
4,4'-DDE	1.43	E	0.000708	0.000144
Dieldrin	ND		0.000708	0.000144
Endrin	ND		0.000708	0.000179
Endosulfan II	ND		0.000708	0.000162
4,4'-DDD	0.079		0.000708	0.000189
Endrin aldehyde	ND		0.000708	0.000148
Endosulfan sulfate	ND		0.000708	0.000175
4,4'-DDT	2.67	E	0.000708	0.000132
Endrin ketone	ND		0.000708	0.000138
Methoxychlor	ND		0.000708	0.000189
alpha-Chlordane	ND		0.000708	0.000156
gamma-Chlordane	ND		0.000708	0.000139
Toxaphene	ND		0.00885	0.00354
Endosulfan (I and II)	ND		0.000708	0.000158
Chlordane (alpha and gamma)	ND		0.000708	0.000139

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-015DL
Client ID: SB8-401-
Date Received: 11/17/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1696.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 50
% Moisture: 6.20

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.035	0.00632
beta-BHC	ND		0.035	0.00826
gamma-BHC (Lindane)	ND		0.035	0.00789
delta-BHC	ND		0.035	0.00686
Heptachlor	ND		0.035	0.0084
Aldrin	ND		0.035	0.0074
Heptachlor epoxide	ND		0.035	0.00768
Endosulfan I	ND		0.035	0.00792
4,4'-DDE	1.34	D	0.035	0.00722
Dieldrin	ND		0.035	0.00721
Endrin	ND		0.035	0.00893
Endosulfan II	ND		0.035	0.00811
4,4'-DDD	0.374	D	0.035	0.00944
Endrin aldehyde	ND		0.035	0.00741
Endosulfan sulfate	ND		0.035	0.00876
4,4'-DDT	1.58	D	0.035	0.00658
Endrin ketone	ND		0.035	0.00689
Methoxychlor	ND		0.035	0.00946
alpha-Chlordane	ND		0.035	0.00781
gamma-Chlordane	ND		0.035	0.00695
Toxaphene	ND		0.442	0.177
Endosulfan (I and II)	ND		0.035	0.00792
Chlordane (alpha and gamma)	ND		0.035	0.00695

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: BLKS231121-02
Client ID: Pest
Date Received: NA
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: V1645.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.00g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: NA

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000666	0.000119
beta-BHC	ND		0.000666	0.000156
gamma-BHC (Lindane)	ND		0.000666	0.000149
delta-BHC	ND		0.000666	0.000129
Heptachlor	ND		0.000666	0.000158
Aldrin	ND		0.000666	0.000139
Heptachlor epoxide	ND		0.000666	0.000145
Endosulfan I	ND		0.000666	0.000149
4,4'-DDE	ND		0.000666	0.000136
Dieldrin	ND		0.000666	0.000136
Endrin	ND		0.000666	0.000168
Endosulfan II	ND		0.000666	0.000153
4,4'-DDD	ND		0.000666	0.000178
Endrin aldehyde	ND		0.000666	0.00014
Endosulfan sulfate	ND		0.000666	0.000165
4,4'-DDT	ND		0.000666	0.000124
Endrin ketone	ND		0.000666	0.00013
Methoxychlor	ND		0.000666	0.000178
alpha-Chlordane	ND		0.000666	0.000147
gamma-Chlordane	ND		0.000666	0.000131
Toxaphene	ND		0.00833	0.00333
Endosulfan (I and II)	ND		0.000666	0.000149
Chlordane (alpha and gamma)	ND		0.000666	0.000131

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-016
Client ID: TWP1
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: O8770.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.010	0.00206
beta-BHC	ND		0.010	0.00303
gamma-BHC (Lindane)	ND		0.010	0.00201
delta-BHC	ND		0.010	0.00238
Heptachlor	ND		0.010	0.00235
Aldrin	ND		0.010	0.00187
Heptachlor epoxide	ND		0.010	0.00217
Endosulfan I	ND		0.010	0.00208
4,4'-DDE	ND		0.010	0.00197
Dieldrin	ND		0.010	0.00237
Endrin	ND		0.010	0.00289
Endosulfan II	ND		0.010	0.00258
4,4'-DDD	ND		0.010	0.00294
Endrin aldehyde	ND		0.010	0.0023
Endosulfan sulfate	ND		0.010	0.00314
4,4'-DDT	ND		0.010	0.00202
Endrin ketone	ND		0.010	0.00323
Methoxychlor	ND		0.010	0.00337
alpha-Chlordane	ND		0.010	0.00215
gamma-Chlordane	ND		0.010	0.00314
Toxaphene	ND		0.125	0.050
Endosulfan (I and II)	ND		0.010	0.00208
Chlordane (alpha and gamma)	ND		0.010	0.00215

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-017
Client ID: TWP4
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: O8771.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.010	0.00206
beta-BHC	ND		0.010	0.00303
gamma-BHC (Lindane)	ND		0.010	0.00201
delta-BHC	ND		0.010	0.00238
Heptachlor	ND		0.010	0.00235
Aldrin	ND		0.010	0.00187
Heptachlor epoxide	ND		0.010	0.00217
Endosulfan I	ND		0.010	0.00208
4,4'-DDE	ND		0.010	0.00197
Dieldrin	ND		0.010	0.00237
Endrin	ND		0.010	0.00289
Endosulfan II	ND		0.010	0.00258
4,4'-DDD	ND		0.010	0.00294
Endrin aldehyde	ND		0.010	0.0023
Endosulfan sulfate	ND		0.010	0.00314
4,4'-DDT	ND		0.010	0.00202
Endrin ketone	ND		0.010	0.00323
Methoxychlor	ND		0.010	0.00337
alpha-Chlordane	ND		0.010	0.00215
gamma-Chlordane	ND		0.010	0.00314
Toxaphene	ND		0.125	0.050
Endosulfan (I and II)	ND		0.010	0.00208
Chlordane (alpha and gamma)	ND		0.010	0.00215

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-018
Client ID: TWP2
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: O8772.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.010	0.00206
beta-BHC	ND		0.010	0.00303
gamma-BHC (Lindane)	ND		0.010	0.00201
delta-BHC	ND		0.010	0.00238
Heptachlor	ND		0.010	0.00235
Aldrin	ND		0.010	0.00187
Heptachlor epoxide	ND		0.010	0.00217
Endosulfan I	ND		0.010	0.00208
4,4'-DDE	ND		0.010	0.00197
Dieldrin	ND		0.010	0.00237
Endrin	ND		0.010	0.00289
Endosulfan II	ND		0.010	0.00258
4,4'-DDD	ND		0.010	0.00294
Endrin aldehyde	ND		0.010	0.0023
Endosulfan sulfate	ND		0.010	0.00314
4,4'-DDT	ND		0.010	0.00202
Endrin ketone	ND		0.010	0.00323
Methoxychlor	ND		0.010	0.00337
alpha-Chlordane	ND		0.010	0.00215
gamma-Chlordane	ND		0.010	0.00314
Toxaphene	ND		0.125	0.050
Endosulfan (I and II)	ND		0.010	0.00208
Chlordane (alpha and gamma)	ND		0.010	0.00215

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05066-019
Client ID: TWP5
Date Received: 11/17/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: O8773.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.010	0.00206
beta-BHC	ND		0.010	0.00303
gamma-BHC (Lindane)	ND		0.010	0.00201
delta-BHC	ND		0.010	0.00238
Heptachlor	ND		0.010	0.00235
Aldrin	ND		0.010	0.00187
Heptachlor epoxide	ND		0.010	0.00217
Endosulfan I	ND		0.010	0.00208
4,4'-DDE	ND		0.010	0.00197
Dieldrin	ND		0.010	0.00237
Endrin	ND		0.010	0.00289
Endosulfan II	ND		0.010	0.00258
4,4'-DDD	ND		0.010	0.00294
Endrin aldehyde	ND		0.010	0.0023
Endosulfan sulfate	ND		0.010	0.00314
4,4'-DDT	ND		0.010	0.00202
Endrin ketone	ND		0.010	0.00323
Methoxychlor	ND		0.010	0.00337
alpha-Chlordane	ND		0.010	0.00215
gamma-Chlordane	ND		0.010	0.00314
Toxaphene	ND		0.125	0.050
Endosulfan (I and II)	ND		0.010	0.00208
Chlordane (alpha and gamma)	ND		0.010	0.00215

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: BLKA231120-01
Client ID: Pest
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: O8757.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.010	0.00206
beta-BHC	ND		0.010	0.00303
gamma-BHC (Lindane)	ND		0.010	0.00201
delta-BHC	ND		0.010	0.00238
Heptachlor	ND		0.010	0.00235
Aldrin	ND		0.010	0.00187
Heptachlor epoxide	ND		0.010	0.00217
Endosulfan I	ND		0.010	0.00208
4,4'-DDE	ND		0.010	0.00197
Dieldrin	ND		0.010	0.00237
Endrin	ND		0.010	0.00289
Endosulfan II	ND		0.010	0.00258
4,4'-DDD	ND		0.010	0.00294
Endrin aldehyde	ND		0.010	0.0023
Endosulfan sulfate	ND		0.010	0.00314
4,4'-DDT	ND		0.010	0.00202
Endrin ketone	ND		0.010	0.00323
Methoxychlor	ND		0.010	0.00337
alpha-Chlordane	ND		0.010	0.00215
gamma-Chlordane	ND		0.010	0.00314
Toxaphene	ND		0.125	0.050
Endosulfan (I and II)	ND		0.010	0.00208
Chlordane (alpha and gamma)	ND		0.010	0.00215

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

Cyanide, Total

Client/Project: HK Engineering/HK2661.2

Date Received: 11/17/23 16:40
Method: SW 9012B

Analyst: B. Pillsbury

Lab ID	Client ID	Result	Q	DF	Matrix-Unit	MDL	RL	% Solid	Date Collected	Date Analyzed
E23-05066-001	SB10A	ND		1	Soil-mg/Kg	0.231	1.16	86.4	11/16/23 09:30	11/27/23 12:10
E23-05066-002	SB10B	ND		1	Soil-mg/Kg	0.223	1.12	89.6	11/16/23 09:45	11/27/23 12:10
E23-05066-003	SB2A	ND		1	Soil-mg/Kg	0.232	1.16	86.1	11/16/23 10:00	11/27/23 12:10
E23-05066-004	SB2B	ND		1	Soil-mg/Kg	0.209	1.05	95.5	11/16/23 10:20	11/27/23 12:10
E23-05066-005	SB5	ND		1	Soil-mg/Kg	0.225	1.13	88.7	11/16/23 13:40	11/27/23 12:10
E23-05066-006	SB3A	ND		1	Soil-mg/Kg	0.222	1.11	89.9	11/16/23 13:05	11/27/23 12:10
E23-05066-007	SB3B	ND		1	Soil-mg/Kg	0.208	1.04	94.3	11/16/23 13:10	11/27/23 12:10
E23-05066-008	SB9A	ND		1	Soil-mg/Kg	0.217	1.08	92.2	11/17/23 08:00	11/27/23 12:10
E23-05066-009	SB9B	ND		1	Soil-mg/Kg	0.210	1.05	95.3	11/17/23 08:10	11/27/23 12:10
E23-05066-010	SB1A	ND		1	Soil-mg/Kg	0.220	1.10	90.9	11/17/23 09:00	11/27/23 12:10
E23-05066-011	SB1B	ND		1	Soil-mg/Kg	0.223	1.11	89.8	11/17/23 09:15	11/27/23 12:10
E23-05066-012	SB4A	ND		1	Soil-mg/Kg	0.220	1.10	91.1	11/17/23 09:55	11/27/23 12:10
E23-05066-013	SB4B	ND		1	Soil-mg/Kg	0.211	1.05	94.8	11/17/23 10:05	11/27/23 12:10
E23-05066-014	SB6-419-CS	ND		1	Soil-mg/Kg	0.213	1.06	92.2	11/17/23 11:30	11/27/23 12:10
E23-05066-015	SB8-401-CS	ND		1	Soil-mg/Kg	0.213	1.07	93.8	11/17/23 11:40	11/27/23 12:10

Cyanide, Total

Client/Project: HK Engineering/HK2661.2

Date Received: 11/17/23 16:40
Method: EPA 335.4

Analyst: B. Pillsbury

Lab ID	Client ID	Result	Q	DF	Matrix-Unit	MDL	RL	% Solid	Date Collected	Date Analyzed
E23-05066-016	TWP1	ND		1	Aqueous-ug/L	4.00	20.0	0	11/16/23 09:30	11/22/23 11:29
E23-05066-017	TWP4	ND		1	Aqueous-ug/L	4.00	20.0	0	11/16/23 10:20	11/22/23 11:29
E23-05066-018	TWP2	ND		1	Aqueous-ug/L	4.00	20.0	0	11/16/23 10:00	11/22/23 11:29
E23-05066-019	TWP5	ND		1	Aqueous-ug/L	4.00	20.0	0	11/16/23 14:00	11/22/23 11:29

Certified for NJDEP, NY(DOH)
NJ ID# 14751
NY ID# 11402

General Chemistry Quality Control

Cyanide, Total

Matrix: Soil
Unit: mg/Kg

Batch: AP013-0115
Method: SW 9012B

Date: 11/27/2023

	Sample ID	Result	TrueValue / SpikeAdded	RPD	RPD Limit	% Recovery	%Recovery Limit
BLK	BLKS231127	< 0.200	NA	NA	NA	NA	NA
LCS (ppm)	ICV231127.007_07	12.0	12.5	NA	NA	96	85-115
SAMPLE	E23-05066-001	< 0.231	NA	NA	NA	NA	NA
DUP	E23-05066-001DUP	< 0.231	NA	NC	20	NA	NA
MS	E23-05066-001MS	14.3	14.5	NA	NA	98.6	90-110
MSD	E23-05066-001MSD	13.8	14.5	4	20	95.2	90-110

The above blank result applies to the follow samples:

E23-05066-001
E23-05058-001
E23-05066-002
E23-05066-003
E23-05066-004
E23-05066-005
E23-05066-006
E23-05066-007
E23-05066-008
E23-05066-009
E23-05066-010
E23-05066-011
E23-05066-012
E23-05066-013
E23-05066-014
E23-05066-015

See "Initial & Continuing Calibration Verification" page for ICV results. The ICV (Initial Calibration Verification) sample doubles as the LCS.

NA - Not Applicable
ND - Not Detected
NC - Non calculable RPD due to value less than the detection limit

INITIAL & CONTINUING CALIBRATION VERIFICATION

Cyanide, Total

Batch: AP013-0115	Date & Time: 11/27/2023 12:10
Method: SW 9012B	Analyst: Brianna Pillsbury

	True Value	Result	% REC	Unit
BLKS231127		< 0.200		mg/Kg
ICV231127	12.5	12.0	96.0	mg/Kg
CCV231127.009_09	0.250	0.254	102	mg/L
CCV231127.021_21	0.250	0.252	101	mg/L
CCV231127.033_33	0.250	0.250	100	mg/L
CCV231127.036_36	0.250	0.261	104	mg/L

The ICV (Initial Calibration Verification) sample doubles as the LCS.

NJDEP FORM M-9A (12/94)

Certified for NJDEP, NY(DOH)
NJ ID# 14751
NY ID# 11402

General Chemistry Quality Control

Cyanide, Total

Matrix: Aqueous
Unit: ug/L

Batch: AP013-0113
Method: EPA 335.4

Date: 11/22/2023

	Sample ID	Result	TrueValue / SpikeAdded	RPD	RPD Limit	% Recovery	%Recovery Limit
BLK	BLKA231122	< 4.00	NA	NA	NA	NA	NA
LCS	ICV231122.007_07	251	250	NA	NA	100	90-110
SAMPLE	E23-05046-011	< 4.00	NA	NA	NA	NA	NA
DUP	E23-05046-011DUP	< 4.00	NA	NC	20	NA	NA
MS	E23-05046-011MS	252	250	NA	NA	101	90-110
MSD	E23-05046-011MSD	253	250	0	20	101	90-110

The above blank result applies to the follow samples:

E23-05046-011
E23-04990-001
E23-05046-012
E23-05046-013
E23-05046-014
E23-05066-016
E23-05066-017
E23-05066-018
E23-05066-019

See "Initial & Continuing Calibration Verification" page for ICV results. The ICV (Initial Calibration Verification) sample doubles as the LCS.

NA - Not Applicable
ND - Not Detected
NC - Non calculable RPD due to value less than the detection limit

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD77365-1	E23-05066-001_SB10A					
Aluminum		4960	55		mg/kg	SW846 6010D
Arsenic		4.6	2.2		mg/kg	SW846 6010D
Barium		280	22		mg/kg	SW846 6010D
Beryllium		0.35	0.22		mg/kg	SW846 6010D
Calcium		24700	1100		mg/kg	SW846 6010D
Chromium		12.2	1.1		mg/kg	SW846 6010D
Copper		11.9	2.8		mg/kg	SW846 6010D
Iron		8700	55		mg/kg	SW846 6010D
Lead		248	2.2		mg/kg	SW846 6010D
Magnesium		2080	550		mg/kg	SW846 6010D
Manganese		318	1.7		mg/kg	SW846 6010D
Mercury		0.24	0.033		mg/kg	SW846 7471B
Nickel		8.6	4.4		mg/kg	SW846 6010D
Silver		0.55	0.55		mg/kg	SW846 6010D
Vanadium		19.6	5.5		mg/kg	SW846 6010D
Zinc		277	5.5		mg/kg	SW846 6010D
JD77365-2	E23-05066-002_SB10B					
Aluminum		5670	54		mg/kg	SW846 6010D
Arsenic		2.2	2.2		mg/kg	SW846 6010D
Barium		33.5	22		mg/kg	SW846 6010D
Beryllium		0.52	0.22		mg/kg	SW846 6010D
Calcium		1380	540		mg/kg	SW846 6010D
Chromium		11.9	1.1		mg/kg	SW846 6010D
Copper		9.7	2.7		mg/kg	SW846 6010D
Iron		9570	54		mg/kg	SW846 6010D
Lead		9.5	2.2		mg/kg	SW846 6010D
Magnesium		2050	540		mg/kg	SW846 6010D
Manganese		259	1.6		mg/kg	SW846 6010D
Mercury		0.064	0.033		mg/kg	SW846 7471B
Nickel		11.1	4.3		mg/kg	SW846 6010D
Potassium		1430	1100		mg/kg	SW846 6010D
Vanadium		16.1	5.4		mg/kg	SW846 6010D
Zinc		33.9	5.4		mg/kg	SW846 6010D
JD77365-3	E23-05066-003_SB2A					
Aluminum		6220	58		mg/kg	SW846 6010D
Arsenic		5.7	2.3		mg/kg	SW846 6010D
Barium		363	23		mg/kg	SW846 6010D
Beryllium		0.45	0.23		mg/kg	SW846 6010D
Calcium		31500	1200		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Chromium		14.2	1.2		mg/kg	SW846 6010D
Copper		34.7	2.9		mg/kg	SW846 6010D
Iron		9550	58		mg/kg	SW846 6010D
Lead		797	2.3		mg/kg	SW846 6010D
Magnesium		2970	580		mg/kg	SW846 6010D
Manganese		293	1.7		mg/kg	SW846 6010D
Mercury		0.70	0.033		mg/kg	SW846 7471B
Nickel		11.3	4.6		mg/kg	SW846 6010D
Potassium		1240	1200		mg/kg	SW846 6010D
Vanadium		22.4	5.8		mg/kg	SW846 6010D
Zinc		329	5.8		mg/kg	SW846 6010D
JD77365-4	E23-05066-004_SB2B					
Aluminum		3640	53		mg/kg	SW846 6010D
Barium		37.9	21		mg/kg	SW846 6010D
Beryllium		0.41	0.21		mg/kg	SW846 6010D
Calcium		1980	530		mg/kg	SW846 6010D
Chromium		9.9	1.1		mg/kg	SW846 6010D
Copper		10.9	2.6		mg/kg	SW846 6010D
Iron		7770	53		mg/kg	SW846 6010D
Lead		8.8	2.1		mg/kg	SW846 6010D
Magnesium		1920	530		mg/kg	SW846 6010D
Manganese		236	1.6		mg/kg	SW846 6010D
Nickel		8.4	4.2		mg/kg	SW846 6010D
Potassium		1150	1100		mg/kg	SW846 6010D
Vanadium		12.5	5.3		mg/kg	SW846 6010D
Zinc		25.4	5.3		mg/kg	SW846 6010D
JD77365-5	E23-05066-005_SB5					
Aluminum		9790	55		mg/kg	SW846 6010D
Arsenic		6.2	2.2		mg/kg	SW846 6010D
Barium		96.8	22		mg/kg	SW846 6010D
Beryllium		0.51	0.22		mg/kg	SW846 6010D
Calcium		3790	550		mg/kg	SW846 6010D
Chromium		31.5	1.1		mg/kg	SW846 6010D
Cobalt		6.5	5.5		mg/kg	SW846 6010D
Copper		25.3	2.8		mg/kg	SW846 6010D
Iron		13200	55		mg/kg	SW846 6010D
Lead		107	2.2		mg/kg	SW846 6010D
Magnesium		5470	550		mg/kg	SW846 6010D
Manganese		250	1.7		mg/kg	SW846 6010D
Mercury		0.13	0.029		mg/kg	SW846 7471B
Nickel		18.1	4.4		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Potassium		1180	1100		mg/kg	SW846 6010D
Silver		0.65	0.55		mg/kg	SW846 6010D
Vanadium		23.9	5.5		mg/kg	SW846 6010D
Zinc		105	5.5		mg/kg	SW846 6010D
JD77365-6	E23-05066-006_SB3A					
Aluminum		5880	56		mg/kg	SW846 6010D
Arsenic		4.2	2.2		mg/kg	SW846 6010D
Barium		206	22		mg/kg	SW846 6010D
Beryllium		0.45	0.22		mg/kg	SW846 6010D
Calcium		9640	560		mg/kg	SW846 6010D
Chromium		12.3	1.1		mg/kg	SW846 6010D
Copper		16.8	2.8		mg/kg	SW846 6010D
Iron		13900	56		mg/kg	SW846 6010D
Lead		301	2.2		mg/kg	SW846 6010D
Magnesium		3430	560		mg/kg	SW846 6010D
Manganese		258	1.7		mg/kg	SW846 6010D
Mercury		0.67	0.034		mg/kg	SW846 7471B
Nickel		12.6	4.5		mg/kg	SW846 6010D
Potassium		1530	1100		mg/kg	SW846 6010D
Silver		0.62	0.56		mg/kg	SW846 6010D
Vanadium		25.9	5.6		mg/kg	SW846 6010D
Zinc		164	5.6		mg/kg	SW846 6010D
JD77365-7	E23-05066-007_SB3B					
Aluminum		4440	52		mg/kg	SW846 6010D
Arsenic		2.4	2.1		mg/kg	SW846 6010D
Barium		41.1	21		mg/kg	SW846 6010D
Beryllium		0.40	0.21		mg/kg	SW846 6010D
Calcium		5710	520		mg/kg	SW846 6010D
Chromium		10.8	1.0		mg/kg	SW846 6010D
Copper		14.0	2.6		mg/kg	SW846 6010D
Iron		8580	52		mg/kg	SW846 6010D
Lead		26.2	2.1		mg/kg	SW846 6010D
Magnesium		2510	520		mg/kg	SW846 6010D
Manganese		299	1.6		mg/kg	SW846 6010D
Mercury		0.11	0.032		mg/kg	SW846 7471B
Nickel		14.0	4.2		mg/kg	SW846 6010D
Vanadium		14.9	5.2		mg/kg	SW846 6010D
Zinc		42.1	5.2		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD77365-8	E23-05066-008_SB9A					
Aluminum		6910	54		mg/kg	SW846 6010D
Arsenic		5.9	2.2		mg/kg	SW846 6010D
Barium		248	22		mg/kg	SW846 6010D
Beryllium		0.49	0.22		mg/kg	SW846 6010D
Cadmium		1.0	0.54		mg/kg	SW846 6010D
Calcium		47900	2700		mg/kg	SW846 6010D
Chromium		14.5	1.1		mg/kg	SW846 6010D
Copper		26.7	2.7		mg/kg	SW846 6010D
Iron		8460	54		mg/kg	SW846 6010D
Lead		381	2.2		mg/kg	SW846 6010D
Magnesium		5830	540		mg/kg	SW846 6010D
Manganese		272	1.6		mg/kg	SW846 6010D
Mercury		0.70	0.032		mg/kg	SW846 7471B
Nickel		10.0	4.3		mg/kg	SW846 6010D
Silver		0.63	0.54		mg/kg	SW846 6010D
Vanadium		23.2	5.4		mg/kg	SW846 6010D
Zinc		219	5.4		mg/kg	SW846 6010D
JD77365-9	E23-05066-009_SB9B					
Aluminum		6010	53		mg/kg	SW846 6010D
Arsenic		2.2	2.1		mg/kg	SW846 6010D
Barium		60.2	21		mg/kg	SW846 6010D
Beryllium		0.52	0.21		mg/kg	SW846 6010D
Calcium		7980	530		mg/kg	SW846 6010D
Chromium		13.3	1.1		mg/kg	SW846 6010D
Copper		16.7	2.6		mg/kg	SW846 6010D
Iron		9870	53		mg/kg	SW846 6010D
Lead		16.6	2.1		mg/kg	SW846 6010D
Magnesium		2890	530		mg/kg	SW846 6010D
Manganese		370	1.6		mg/kg	SW846 6010D
Mercury		0.040	0.030		mg/kg	SW846 7471B
Nickel		13.7	4.2		mg/kg	SW846 6010D
Potassium		1370	1100		mg/kg	SW846 6010D
Vanadium		17.1	5.3		mg/kg	SW846 6010D
Zinc		30.9	5.3		mg/kg	SW846 6010D
JD77365-10	E23-05066-010_SB1A					
Aluminum		2040	56		mg/kg	SW846 6010D
Barium		84.7	22		mg/kg	SW846 6010D
Beryllium		0.26	0.22		mg/kg	SW846 6010D
Calcium		17400	560		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Chromium		5.0	1.1		mg/kg	SW846 6010D
Copper		12.6	2.8		mg/kg	SW846 6010D
Iron		3370	56		mg/kg	SW846 6010D
Lead		130	2.2		mg/kg	SW846 6010D
Magnesium		2140	560		mg/kg	SW846 6010D
Manganese		97.7	1.7		mg/kg	SW846 6010D
Mercury		0.59	0.035		mg/kg	SW846 7471B
Nickel		4.5	4.5		mg/kg	SW846 6010D
Silver		1.2	0.56		mg/kg	SW846 6010D
Vanadium		5.8	5.6		mg/kg	SW846 6010D
Zinc		87.4	5.6		mg/kg	SW846 6010D
JD77365-11	E23-05066-011_SB1B					
Aluminum		3770	53		mg/kg	SW846 6010D
Arsenic		5.6	2.1		mg/kg	SW846 6010D
Barium		408	21		mg/kg	SW846 6010D
Beryllium		0.30	0.21		mg/kg	SW846 6010D
Cadmium		1.3	0.53		mg/kg	SW846 6010D
Calcium		14600	530		mg/kg	SW846 6010D
Chromium		12.8	1.1		mg/kg	SW846 6010D
Copper		19.7	2.6		mg/kg	SW846 6010D
Iron		9690	53		mg/kg	SW846 6010D
Lead		547	2.1		mg/kg	SW846 6010D
Magnesium		3550	530		mg/kg	SW846 6010D
Manganese		269	1.6		mg/kg	SW846 6010D
Mercury		0.62	0.033		mg/kg	SW846 7471B
Nickel		8.6	4.2		mg/kg	SW846 6010D
Silver		0.63	0.53		mg/kg	SW846 6010D
Vanadium		14.3	5.3		mg/kg	SW846 6010D
Zinc		616	5.3		mg/kg	SW846 6010D
JD77365-12	E23-05066-012_SB4A					
Aluminum		7330	54		mg/kg	SW846 6010D
Arsenic		12.2	2.2		mg/kg	SW846 6010D
Barium		246	22		mg/kg	SW846 6010D
Beryllium		0.33	0.22		mg/kg	SW846 6010D
Cadmium		0.61	0.54		mg/kg	SW846 6010D
Calcium		15500	540		mg/kg	SW846 6010D
Chromium		13.6	1.1		mg/kg	SW846 6010D
Copper		34.9	2.7		mg/kg	SW846 6010D
Iron		11600	54		mg/kg	SW846 6010D
Lead		500	2.2		mg/kg	SW846 6010D
Magnesium		2460	540		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Manganese		241	1.6		mg/kg	SW846 6010D
Mercury		1.2	0.069		mg/kg	SW846 7471B
Nickel		10.6	4.3		mg/kg	SW846 6010D
Silver		0.68	0.54		mg/kg	SW846 6010D
Vanadium		20.9	5.4		mg/kg	SW846 6010D
Zinc		288	5.4		mg/kg	SW846 6010D
JD77365-13	E23-05066-013_SB4B					
Aluminum		6130	55		mg/kg	SW846 6010D
Arsenic		6.7	2.2		mg/kg	SW846 6010D
Barium		194	22		mg/kg	SW846 6010D
Beryllium		0.42	0.22		mg/kg	SW846 6010D
Calcium		20000	550		mg/kg	SW846 6010D
Chromium		14.9	1.1		mg/kg	SW846 6010D
Copper		23.8	2.7		mg/kg	SW846 6010D
Iron		10300	55		mg/kg	SW846 6010D
Lead		353	2.2		mg/kg	SW846 6010D
Magnesium		2940	550		mg/kg	SW846 6010D
Manganese		337	1.6		mg/kg	SW846 6010D
Mercury		0.33	0.032		mg/kg	SW846 7471B
Nickel		12.0	4.4		mg/kg	SW846 6010D
Silver		0.58	0.55		mg/kg	SW846 6010D
Vanadium		16.3	5.5		mg/kg	SW846 6010D
Zinc		180	5.5		mg/kg	SW846 6010D
JD77365-14	E23-05066-014_SB6-419-CS					
Aluminum		4840	55		mg/kg	SW846 6010D
Arsenic		3.5	2.2		mg/kg	SW846 6010D
Barium		517	22		mg/kg	SW846 6010D
Beryllium		0.36	0.22		mg/kg	SW846 6010D
Cadmium		0.63	0.55		mg/kg	SW846 6010D
Calcium		32100	1100		mg/kg	SW846 6010D
Chromium		14.0	1.1		mg/kg	SW846 6010D
Copper		34.8	2.8		mg/kg	SW846 6010D
Iron		10200	55		mg/kg	SW846 6010D
Lead		1070	4.4		mg/kg	SW846 6010D
Magnesium		3800	550		mg/kg	SW846 6010D
Manganese		222	1.7		mg/kg	SW846 6010D
Mercury		0.37	0.032		mg/kg	SW846 7471B
Nickel		13.1	4.4		mg/kg	SW846 6010D
Silver		0.75	0.55		mg/kg	SW846 6010D
Vanadium		17.3	5.5		mg/kg	SW846 6010D
Zinc		405	5.5		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD77365-15	E23-05066-015_SB8-401-CS					
Aluminum		5230	53		mg/kg	SW846 6010D
Arsenic		4.5	2.1		mg/kg	SW846 6010D
Barium		341	21		mg/kg	SW846 6010D
Beryllium		0.41	0.21		mg/kg	SW846 6010D
Cadmium		0.68	0.53		mg/kg	SW846 6010D
Calcium		22400	1100		mg/kg	SW846 6010D
Chromium		14.5	1.1		mg/kg	SW846 6010D
Copper		20.8	2.6		mg/kg	SW846 6010D
Iron		9740	53		mg/kg	SW846 6010D
Lead		684	2.1		mg/kg	SW846 6010D
Magnesium		4360	530		mg/kg	SW846 6010D
Manganese		241	1.6		mg/kg	SW846 6010D
Mercury		0.98	0.065		mg/kg	SW846 7471B
Nickel		13.7	4.2		mg/kg	SW846 6010D
Potassium		1370	1100		mg/kg	SW846 6010D
Silver		0.60	0.53		mg/kg	SW846 6010D
Vanadium		16.4	5.3		mg/kg	SW846 6010D
Zinc		268	5.3		mg/kg	SW846 6010D
JD77365-16	E23-05066-016_TWP1					
Aluminum		23600	200		ug/l	SW846 6010D
Arsenic		10.6	3.0		ug/l	SW846 6010D
Barium		400	200		ug/l	SW846 6010D
Beryllium		3.3	1.0		ug/l	SW846 6010D
Calcium		94900	5000		ug/l	SW846 6010D
Chromium		66.7	10		ug/l	SW846 6010D
Copper		90.0	10		ug/l	SW846 6010D
Iron		30200	100		ug/l	SW846 6010D
Lead		89.7	3.0		ug/l	SW846 6010D
Magnesium		26800	5000		ug/l	SW846 6010D
Manganese		4020	15		ug/l	SW846 6010D
Nickel		99.9	10		ug/l	SW846 6010D
Potassium		14800	10000		ug/l	SW846 6010D
Sodium		138000	10000		ug/l	SW846 6010D
Vanadium		60.8	50		ug/l	SW846 6010D
Zinc		174	20		ug/l	SW846 6010D
JD77365-16F	E23-05066-020_TWP1 FILT					
Calcium		76700	5000		ug/l	SW846 6010D
Iron		165	100		ug/l	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Magnesium		13800	5000		ug/l	SW846 6010D
Manganese		195	15		ug/l	SW846 6010D
Potassium		11000	10000		ug/l	SW846 6010D
Sodium		141000	10000		ug/l	SW846 6010D
JD77365-17	E23-05066-017_TWP4					
Aluminum		3730	200		ug/l	SW846 6010D
Beryllium		1.0	1.0		ug/l	SW846 6010D
Calcium		51900	5000		ug/l	SW846 6010D
Copper		13.7	10		ug/l	SW846 6010D
Iron		4370	100		ug/l	SW846 6010D
Lead		9.8	3.0		ug/l	SW846 6010D
Magnesium		10000	5000		ug/l	SW846 6010D
Manganese		423	15		ug/l	SW846 6010D
Nickel		11.4	10		ug/l	SW846 6010D
Potassium		12000	10000		ug/l	SW846 6010D
Sodium		79500	10000		ug/l	SW846 6010D
Zinc		21.9	20		ug/l	SW846 6010D
JD77365-17F	E23-05066-021_TWP4 FILT					
Aluminum		1330	200		ug/l	SW846 6010D
Calcium		52300	5000		ug/l	SW846 6010D
Iron		1580	100		ug/l	SW846 6010D
Lead		4.6	3.0		ug/l	SW846 6010D
Magnesium		9420	5000		ug/l	SW846 6010D
Manganese		223	15		ug/l	SW846 6010D
Potassium		11500	10000		ug/l	SW846 6010D
Sodium		78900	10000		ug/l	SW846 6010D
Zinc		74.0	20		ug/l	SW846 6010D
JD77365-18	E23-05066-018_TWP2					
Aluminum		5200	200		ug/l	SW846 6010D
Arsenic		3.8	3.0		ug/l	SW846 6010D
Barium		298	200		ug/l	SW846 6010D
Calcium		81800	5000		ug/l	SW846 6010D
Chromium		15.1	10		ug/l	SW846 6010D
Copper		38.6	10		ug/l	SW846 6010D
Iron		6370	100		ug/l	SW846 6010D
Lead		299	3.0		ug/l	SW846 6010D
Magnesium		11900	5000		ug/l	SW846 6010D
Manganese		514	15		ug/l	SW846 6010D
Nickel		25.3	10		ug/l	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Sodium		84700	10000		ug/l	SW846 6010D
Zinc		129	20		ug/l	SW846 6010D
JD77365-18F	E23-05066-022_TWP2 FILT					
Aluminum		486	200		ug/l	SW846 6010D
Calcium		101000	5000		ug/l	SW846 6010D
Iron		630	100		ug/l	SW846 6010D
Lead		30.9	3.0		ug/l	SW846 6010D
Magnesium		12400	5000		ug/l	SW846 6010D
Manganese		496	15		ug/l	SW846 6010D
Sodium		85700	10000		ug/l	SW846 6010D
Zinc		29.9	20		ug/l	SW846 6010D
JD77365-19	E23-05066-019_TWP5					
Aluminum		22800	200		ug/l	SW846 6010D
Arsenic		8.0	3.0		ug/l	SW846 6010D
Barium		589	200		ug/l	SW846 6010D
Beryllium		3.1	1.0		ug/l	SW846 6010D
Calcium		41800	5000		ug/l	SW846 6010D
Chromium		64.0	10		ug/l	SW846 6010D
Copper		105	10		ug/l	SW846 6010D
Iron		29000	100		ug/l	SW846 6010D
Lead		30.2	3.0		ug/l	SW846 6010D
Magnesium		15600	5000		ug/l	SW846 6010D
Manganese		3540	15		ug/l	SW846 6010D
Nickel		78.7	10		ug/l	SW846 6010D
Potassium		11600	10000		ug/l	SW846 6010D
Sodium		67100	10000		ug/l	SW846 6010D
Vanadium		62.2	50		ug/l	SW846 6010D
Zinc		201	20		ug/l	SW846 6010D
JD77365-19F	E23-05066-023_TWP5 FILT					
Aluminum		6060	200		ug/l	SW846 6010D
Barium		296	200		ug/l	SW846 6010D
Beryllium		1.1	1.0		ug/l	SW846 6010D
Calcium		40500	5000		ug/l	SW846 6010D
Chromium		16.1	10		ug/l	SW846 6010D
Copper		33.7	10		ug/l	SW846 6010D
Iron		6950	100		ug/l	SW846 6010D
Lead		10.8	3.0		ug/l	SW846 6010D
Magnesium		10900	5000		ug/l	SW846 6010D
Manganese		1060	15		ug/l	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Nickel		25.5	10		ug/l	SW846 6010D
Sodium		66000	10000		ug/l	SW846 6010D
Zinc		84.5	20		ug/l	SW846 6010D

SGS

Dayton, NJ

Section 4

4

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-001_SB10A		
Lab Sample ID:	JD77365-1	Date Sampled:	11/16/23
Matrix:	SO - Soil	Date Received:	11/21/23
		Percent Solids:	90.9
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4960	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	4.6	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	280	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.35	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.55	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Calcium	24700	1100	mg/kg	2	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Chromium	12.2	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.5	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	11.9	2.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	8700	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	248	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	2080	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	318	1.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.24	0.033	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	8.6	4.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.55	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	19.6	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	277	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-002_SB10B		
Lab Sample ID:	JD77365-2	Date Sampled:	11/16/23
Matrix:	SO - Soil	Date Received:	11/21/23
		Percent Solids:	91.5
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5670	54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	33.5	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.52	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.54	0.54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	1380	540	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	11.9	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	< 5.4	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	9.7	2.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	9570	54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	9.5	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	2050	540	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	259	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.064	0.033	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	11.1	4.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1430	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	< 0.54	0.54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	16.1	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	33.9	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Prep QC Batch: MP43322
(4) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-003_SB2A		
Lab Sample ID:	JD77365-3	Date Sampled:	11/16/23
Matrix:	SO - Soil	Date Received:	11/21/23
		Percent Solids:	86.4
Project:	Integrated Analytical Lab, Randolph, NJ		

4.3

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Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6220	58	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.3	2.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	5.7	2.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	363	23	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.45	0.23	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.58	0.58	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Calcium	31500	1200	mg/kg	2	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Chromium	14.2	1.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.8	5.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	34.7	2.9	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	9550	58	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	797	2.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	2970	580	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	293	1.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.70	0.033	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	11.3	4.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	1240	1200	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.3	2.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	< 0.58	0.58	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1200	1200	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.2	1.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	22.4	5.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	329	5.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-004_SB2B		
Lab Sample ID:	JD77365-4	Date Sampled:	11/16/23
Matrix:	SO - Soil	Date Received:	11/21/23
		Percent Solids:	95.6
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	3640	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	37.9	21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.41	0.21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.53	0.53	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	1980	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	9.9	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.3	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	10.9	2.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	7770	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	8.8	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	1920	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	236	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	< 0.032	0.032	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	8.4	4.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	1150	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	< 0.53	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	12.5	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	25.4	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-005_SB5		
Lab Sample ID:	JD77365-5	Date Sampled:	11/16/23
Matrix:	SO - Soil	Date Received:	11/21/23
		Percent Solids:	92.1
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	9790	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	<2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	6.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	96.8	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.51	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	<0.55	0.55	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	3790	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	31.5	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	6.5	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	25.3	2.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	13200	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	107	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	5470	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	250	1.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.13	0.029	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	18.1	4.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	1180	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	<2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.65	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	<1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	<1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	23.9	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	105	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-006_SB3A		
Lab Sample ID:	JD77365-6	Date Sampled:	11/16/23
Matrix:	SO - Soil	Date Received:	11/21/23
		Percent Solids:	91.1
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5880	56	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	4.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	206	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.45	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.56	0.56	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	9640	560	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	12.3	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.6	5.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	16.8	2.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	13900	56	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	301	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	3430	560	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	258	1.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.67	0.034	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	12.6	4.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	1530	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.62	0.56	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	25.9	5.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	164	5.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-007_SB3B		
Lab Sample ID:	JD77365-7	Date Sampled:	11/16/23
Matrix:	SO - Soil	Date Received:	11/21/23
		Percent Solids:	94.8
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4440	52	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	2.4	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	41.1	21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.40	0.21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.52	0.52	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	5710	520	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	10.8	1.0	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.2	5.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	14.0	2.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	8580	52	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	26.2	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	2510	520	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	299	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.11	0.032	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	14.0	4.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1000	1000	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	< 0.52	0.52	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1000	1000	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.0	1.0	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	14.9	5.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	42.1	5.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-008_SB9A		
Lab Sample ID:	JD77365-8	Date Sampled:	11/17/23
Matrix:	SO - Soil	Date Received:	11/21/23
		Percent Solids:	92.9
Project:	Integrated Analytical Lab, Randolph, NJ		

4.8

4

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6910	54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	5.9	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	248	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.49	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	1.0	0.54	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	47900	2700	mg/kg	5	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Chromium	14.5	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.4	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	26.7	2.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	8460	54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	381	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	5830	540	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	272	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.70	0.032	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	10.0	4.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.63	0.54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	23.2	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	219	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-009_SB9B		
Lab Sample ID:	JD77365-9	Date Sampled:	11/17/23
Matrix:	SO - Soil	Date Received:	11/21/23
		Percent Solids:	95.1
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6010	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	2.2	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	60.2	21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.52	0.21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.53	0.53	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	7980	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	13.3	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.3	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	16.7	2.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	9870	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	16.6	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	2890	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	370	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.040	0.030	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	13.7	4.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	1370	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	< 0.53	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	17.1	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	30.9	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-010_SB1A		
Lab Sample ID:	JD77365-10	Date Sampled:	11/17/23
Matrix:	SO - Soil	Date Received:	11/21/23
		Percent Solids:	91.0
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	2040	56	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	84.7	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.26	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.56	0.56	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	17400	560	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	5.0	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.6	5.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	12.6	2.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	3370	56	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	130	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	2140	560	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	97.7	1.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.59	0.035	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	4.5	4.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	1.2	0.56	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	5.8	5.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	87.4	5.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-011_SB1B		
Lab Sample ID:	JD77365-11	Date Sampled:	11/17/23
Matrix:	SO - Soil	Date Received:	11/21/23
		Percent Solids:	93.8
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	3770	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	5.6	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	408	21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.30	0.21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	1.3	0.53	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	14600	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	12.8	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.3	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	19.7	2.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	9690	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	547	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	3550	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	269	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.62	0.033	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	8.6	4.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.63	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	14.3	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	616	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-012_SB4A		
Lab Sample ID:	JD77365-12	Date Sampled:	11/17/23
Matrix:	SO - Soil	Date Received:	11/21/23
		Percent Solids:	90.9
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	7330	54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	12.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	246	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.33	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	0.61	0.54	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	15500	540	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	13.6	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.4	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	34.9	2.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	11600	54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	500	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	2460	540	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	241	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	1.2	0.069	mg/kg	2	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	10.6	4.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.68	0.54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	20.9	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	288	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-013_SB4B		
Lab Sample ID:	JD77365-13	Date Sampled:	11/17/23
Matrix:	SO - Soil	Date Received:	11/21/23
		Percent Solids:	93.2
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6130	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	6.7	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	194	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.42	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.55	0.55	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	20000	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	14.9	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.5	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	23.8	2.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	10300	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	353	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	2940	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	337	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.33	0.032	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	12.0	4.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.58	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	16.3	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	180	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-014_SB6-419-CS		
Lab Sample ID:	JD77365-14	Date Sampled:	11/17/23
Matrix:	SO - Soil	Date Received:	11/21/23
		Percent Solids:	92.6
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4840	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	3.5	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	517	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.36	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	0.63	0.55	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	32100	1100	mg/kg	2	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Chromium	14.0	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.5	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	34.8	2.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	10200	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	1070	4.4	mg/kg	2	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Magnesium	3800	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	222	1.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.37	0.032	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	13.1	4.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.75	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	17.3	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	405	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-015_SB8-401-CS		
Lab Sample ID:	JD77365-15	Date Sampled:	11/17/23
Matrix:	SO - Soil	Date Received:	11/21/23
		Percent Solids:	93.7
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5230	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	4.5	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	341	21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.41	0.21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	0.68	0.53	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	22400	1100	mg/kg	2	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Chromium	14.5	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.3	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	20.8	2.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	9740	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	684	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	4360	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	241	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.98	0.065	mg/kg	2	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	13.7	4.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	1370	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.60	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	16.4	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	268	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-016_TWP1		
Lab Sample ID:	JD77365-16	Date Sampled:	11/16/23
Matrix:	AQ - Water	Date Received:	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	23600	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	10.6	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	400	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	3.3	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	94900	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	66.7	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	90.0	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	30200	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	89.7	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	26800	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	4020	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/30/23	11/30/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	99.9	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	14800	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	138000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	60.8	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	174	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55150
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-020_TWP1 FILT		
Lab Sample ID:	JD77365-16F	Date Sampled:	11/16/23
Matrix:	AQ - Water Filtered	Date Received:	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	76700	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	165	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	13800	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	195	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/29/23	11/29/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	11000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	141000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	< 20	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55142
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-017_TWP4		
Lab Sample ID:	JD77365-17	Date Sampled:	11/16/23
Matrix:	AQ - Water	Date Received:	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	3730	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	1.0	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	51900	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	13.7	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	4370	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	9.8	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	10000	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	423	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/29/23	11/29/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	11.4	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	12000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	79500	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	21.9	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55142
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-021_TWP4 FILT		
Lab Sample ID:	JD77365-17F	Date Sampled:	11/16/23
Matrix:	AQ - Water Filtered	Date Received:	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	1330	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	52300	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	1580	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	4.6	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	9420	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	223	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/29/23	11/29/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	11500	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	78900	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	74.0	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55142
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-018_TWP2		
Lab Sample ID:	JD77365-18	Date Sampled:	11/16/23
Matrix:	AQ - Water	Date Received:	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5200	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	3.8	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	298	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	81800	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	15.1	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	38.6	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	6370	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	299	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	11900	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	514	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/30/23	11/30/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	25.3	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	< 10000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	84700	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	129	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55150
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-022_TWP2 FILT		
Lab Sample ID:	JD77365-18F	Date Sampled:	11/16/23
Matrix:	AQ - Water Filtered	Date Received:	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	486	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	101000	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	630	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	30.9	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	12400	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	496	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/29/23	11/29/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	< 10000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	85700	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	29.9	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55142
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-019_TWP5		
Lab Sample ID:	JD77365-19	Date Sampled:	11/16/23
Matrix:	AQ - Water	Date Received:	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	22800	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	8.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	589	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	3.1	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	41800	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	64.0	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	105	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	29000	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	30.2	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	15600	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	3540	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/29/23	11/29/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	78.7	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	11600	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	67100	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	62.2	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	201	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55142
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-023_TWP5 FILT		
Lab Sample ID:	JD77365-19F	Date Sampled:	11/16/23
Matrix:	AQ - Water Filtered	Date Received:	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6060	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	296	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	1.1	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	40500	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	16.1	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	33.7	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	6950	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	10.8	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	10900	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	1060	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/29/23	11/29/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	25.5	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	< 10000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	66000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	84.5	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55142
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

SAMPLE TRACKING

Integrated Analytical Labs
273 Franklin Rd
Randolph, NJ 07869

Chain of Custody Record

Contact Us: 973 361-4252
Web: www.ialonline.com

Customer Information

Company: HK Engineering and Geology D.P.C.
Address: 1600 US 22 East
Union, NJ 07083
Telephone #: 908-688-7800
Project Manager: Chris Hirschmann
Email Address(es): chirschmann@hillmannconsulting.com
Project Name: HK2661.2
Project Location (State): NY
Bottle Order #:
☒ "Report to"/"Invoice To" same as above
Sampled by: D. Aponte

COMPLETED BY IAL:
_____ Field Sampling _____ Equipment Rental

Reporting Information

☒ Check here if same as "Customer Information"
REPORT TO:
Address:
Attn:
INVOICE TO:
Address:
Attn:
PO # ~~G62663~~ HK2661.2
Quote #

Sample Matrix

DW - Drinking Water
WW - Waste Water
GW - Groundwater
SW - Surface Water
LIQ - Liquid (specify)
M - Multiphasic
OI - Oil
S - Soil
SED - Sediment
SOL - Solid (specify)
SL - Sludge
W - Wipe

Rush TAT Charge

24 hr - 100%...
48 hr - 75%....
72 hr - 50%....
96 hr - 35%....
5 day - 25%....
6-9 day - 10%

Deliverables

*Surcharge may apply for regulatory

NJ, CT, PA	NY
☐ Results Only (Level I)	☒ ASP Category A
☐ Reduced (Level II/III)	☐ ASP Category B*
☐ Regulatory/ Full* (Level IV)	

EDDs

☐ NJ SRP
☐ NYSDEC EQuIS
☐ lab approved custom EDD
☒ NO EDD REQ'D

Concentrations Expected:

Low Med High

Known Hazard:
☐ YES ☐ NO
Describe:

Turn-Around Time (TAT)

5 Day TAT Hard Copy and Verbal

Hard Copy: Standard 3 week — Other - call for price

Petroleum Hydrocarbons - Selection is REQUIRED

☐ NJ EPH-DRO - Category 1
☐ NJ EPH-C40 - Category 2
☐ NJ EPH-Fractionated - Cat 2
☐ CT ETPH
☐ DRO-8015

TAT for PHC, if other than 2 weeks:

Regulatory Requirement

New Jersey	New York
☐ GWQS	☐ AWQS (TOGS Table 1)
☐ 2017 SRS/IGW	☐ GWEL (TOGS Table 5)
☐ 2021 SRS/MGW	☒ Part 375-6.8(a) - Unrestricted
☐ Ecological	☒ Part 375-6.8(b) - Restricted
☐ DW	☐ CP-51 Table 2 or 3 (selection required)
☐ SPLP	

Other States / Criteria
☐ Pennsylvania Act 2
☐ CT RCSA 22a-133k1-k3
☐ TSCA PCBs

OTHER Regulatory Requirements - specify in comments

SAMPLE INFORMATION

ANALYTICAL PARAMETERS (please note if contingent)

Client ID	Depth (ft only)	Sampling Date	Sampling Time	Matrix	# containers	IAL #	TAL/TCL + 30	Sample Specific Notes:
SB10A	0-2	11/16/2023	9:30	S	5	1	X	
SB10B	10-12'	11/16/2023	9:45	S	5	2	X	
SB2A	0-2	11/16/2023	10:00	S	5	3	X	
SB2B	10-12'	11/16/2023	10:20	S	5	4	X	
SB5	0-2	11/16/2023	13:40	S	5	5	X	
SB3A	0-2	11/16/2023	13:05	S	5	6	X	
SB3B	10-12'	11/16/2023	13:10	S	5	7	X	

Samples previously analyzed by IAL? YES / NO

Preservative Code:
1 = None
2 = HCl
3 = HNO3
4 = MeOH
5 = NaOH
6 = H2SO4
7 = Other

Container Code:
A = Amber Glass
B = Plastic
C = Vial
D = Glass
E = EnCore
T = Terracore

Preservative (use code)
Container Type (use code)

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time (TAT) will not start until any ambiguities have been resolved. TAT starts the following day if samples rec'd at lab ≥ 5PM. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY IAL'S TERMS & CONDITIONS (found on rear of pink copy).

IAL Rev 06/2021

Carrier (check one):
☐ IAL Courier
☐ Client Courier
☐ FedEx/UPS***
***Tracking #:

Special Instructions/QC Requirements & Comments:

5 Day TAT Hard Copy and Verbal.

Relinquished by (Signature and Company)	Date	Time	Received by (Signature and Company)	Date	Time
[signature]	11/17/23	1500	[signature]	11/17/23	1502
[signature]	11-17-23 ~~1435~~	16:40	[signature]	11/17/23 ~~1638~~	1640

FOR LAB USE ONLY
SDG #: J066
Cooler Temp: 5 °C

LAB COPIES - WHITE & YELLOW; CLIENT COPY - PINK

Certification IDs: TNI (TNI01284); CT (PH-0699); NJ (14751); NY (11402); PA (68-00773).

PAGE: 1 of 1

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Labs
273 Franklin Rd
Randolph, NJ 07869

Chain of Custody Record

Contact Us: 973 361-4252
Web: www.ialonline.com

Customer Information

Company: HK Engineering and Geology D.P.C.
Address: 1600 US 22 East
Union, NJ 07083
Telephone #: 908-688-7800
Project Manager: Chris Hirschmann
Email Address(es): chirschmann@hillmannconsulting.com
Project Name: HK2661.2
Project Location (State): NY
Bottle Order #:
☒ "Report to"/"Invoice To" same as above
Sampled by: D. Aponte

Reporting Information

☒ Check here if same as "Customer Information"
REPORT TO:
Address:
Attn:
INVOICE TO:
Address:
Attn:
PO # G62662
Quote #

Rush TAT Charge

24 hr - 100%...
48 hr - 75%....
72 hr - 50%....
96 hr - 35%....
5 day - 25%....
6-9 day - 10%

Deliverables *Surchage may apply for regulatory

NJ, CT, PA	NY
☐ Results Only (Level I)	☒ ASP Category A
☐ Reduced (Level II/III)	☐ ASP Category B*
☐ Regulatory/ Full* (Level IV)	

EDDs

☐ NJ SRP
☐ NYSDEC EQuIS
☐ lab approved custom EDD
☒ NO EDD REQ'D

Concentrations Expected:

Low Med High

Known Hazard: ☐ YES ☐ NO

Describe:

Turn-Around Time (TAT)

5 Day TAT Hard Copy and Verbal

Hard Copy: Standard 3 week — Other - call for price

Petroleum Hydrocarbons - Selection is REQUIRED

☐ NJ EPH-DRO - Category 1
☐ NJ EPH-C40 - Category 2
☐ NJ EPH-Fractionated - Cat 2
☐ CT ETPH
☐ DRO-8015

TAT for PHC, if other than 2 weeks:

Regulatory Requirement

New Jersey	New York
☐ GWQS	☐ AWQS (TOGS Table 1)
☐ 2017 SRS/IGW	☐ GWEL (TOGS Table 5)
☐ 2021 SRS/MGW	☒ Part 375-6.8(a) - Unrestricted
☐ Ecological	☒ Part 375-6.8(b) - Restricted
☐ DW	☐ CP-51 Table 2 or 3 (selection required)
☐ SPLP	

Other States / Criteria
☐ Pennsylvania Act 2
☐ CT RCSA 22a-133k1-k3
☐ TSCA PCBs

OTHER Regulatory Requirements - specify in comments

COMPLETED BY IAL:
____ Field Sampling ____ Equipment Rental

Sample Matrix

DW - Drinking Water
WW - Waste Water
GW - Groundwater
SW - Surface Water
LIQ - Liquid (specify)
M - Multiphasic
OI - Oil
S - Soil
SED - Sediment
SOL - Solid (specify)
SL - Sludge
W - Wipe

SAMPLE INFORMATION

ANALYTICAL PARAMETERS (please note if contingent)

Client ID	Depth (ft only)	Sampling Date	Sampling Time	Matrix	# containers	IAL #	TAL/TCL + 30	Sample Specific Notes:
SB9A	0-2	11/17/2023	8:00	S	5	8	X	
SB9B	10-12'	11/17/2023	8:10	S	5	9	X	
SB1A	0-2	11/17/2023	9:00	S	5	10	X	
SB1B	10-12'	11/17/2023	9:15	S	5	11	X	
SB4A	0-2	11/17/2023	9:55	S	5	12	X	
SB4B	10-12'	11/17/2023	10:05	S	5	13	X	
SB6 - 419 - CS	0-6"	11/17/2023	11:30	S	5	14	X	
SB8 - 401 - CS	0-6"	11/17/2023	11:40	S	5	15	X	

Samples previously analyzed by IAL? YES / NO

Preservative Code: 1 = None, 2 = HCl, 3 = HNO3, 4 = MeOH, 5 = NaOH, 6 = H2SO4, 7 = Other

Container Code: A = Amber Glass, B = Plastic, C = Vial, D = Glass, E = EnCore, T = Terracore

Preservative (use code)
Container Type (use code)

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time (TAT) will not start until any ambiguities have been resolved. TAT starts the following day if samples rec'd at lab ≥ 5PM. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY IAL'S TERMS & CONDITIONS (found on rear of pink copy).

IAL Rev 06/2021

Special Instructions/QC Requirements & Comments:

5 Day TAT Hard Copy and Verbal.

Carrier (check one):
☐ IAL Courier
☐ Client Courier
☐ FedEx/UPS***
***Tracking #:

Relinquished by (Signature and Company)	Date	Time	Received by (Signature and Company)	Date	Time
[signature] HK	11/17/23	15:00	[signature]	11/17/23	1502
[signature]	11/17/23	1680	[signature]	11/17/23	16:40

FOR LAB USE ONLY
SDG #: J066
Cooler Temp: 5 °C

LAB COPIES - WHITE & YELLOW; CLIENT COPY - PINK

Certification IDs: TNI (TNI01284); CT (PH-0699); NJ (14751); NY (11402); PA (68-00773).

PAGE: 1 of 1

FINALIZED 12/05/2023

INTEGRATED ANALYTICAL LABORATORIES, LLC

FINALIZED 12/05/2023

E23-05066 Page 240

INTEGRATED ANALYTICAL LABORATORIES, LLC

IAL

Integrated Analytical Labs
273 Franklin Rd
Randolph, NJ 07869

Chain of Custody Record

Contact Us: 973 361-4252
Web: www.ialonline.com

Customer Information

Company: HK Engineering and Geology D.P.C.
Address: 1600 US 22 East
Union, NJ 07083
Telephone #: 908-688-7800
Project Manager: Chris Hirschmann
Email Address(es): chirschmann@hillmannconsulting.com
Project Name: HK2661.2
Project Location (State): NY
Bottle Order #:
☒ "Report to"/"Invoice To" same as above
Sampled by: D. Aponte

COMPLETED BY IAL:
____ Field Sampling ____ Equipment Rental

Reporting Information

☒ Check here if same as "Customer Information"
REPORT TO:
Address:
Attn:
INVOICE TO:
Address:
Attn:
PO # ~~G02662~~ HK2661.02
Quote #

Rush TAT Charge: 24 hr - 100%... 48 hr - 75%.... 72 hr - 50%.... 96 hr - 35%.... 5 day - 25%.... 6-9 day - 10%

Deliverables
*Surchage may apply for regulatory

NJ, CT, PA	NY
☐ Results Only (Level I)	☒ ASP Category A
☐ Reduced (Level II/III)	☐ ASP Category B*
☐ Regulatory/ Full* (Level IV)	

EDDs

☐ NJ SRP
☐ NYSDEC EQuIS
☐ lab approved custom EDD
☒ NO EDD REQ'D

Concentrations Expected:

Low Med High

Known Hazard: ☐ YES ☐ NO

Describe:

Turn-Around Time (TAT)

5 Day TAT Hard Copy and Verbal

Hard Copy: Standard 3 week — Other - call for price

Petroleum Hydrocarbons - Selection is REQUIRED

TAT for PHC, if other than 2 weeks:

☐ NJ EPH-DRO - Category 1
☐ NJ EPH-C40 - Category 2 ☐ CT ETPH
☐ NJ EPH-Fractionated - Cat 2 ☐ DRO-8015

Regulatory Requirement

New Jersey	New York
☐ GWQS	☐ AWQS (TOGS Table 1)
☐ 2017 SRS/IGW	☐ GWEL (TOGS Table 5)
☐ 2021 SRS/MGW	☒ Part 375-6.8(a) - Unrestricted
☐ Ecological	☒ Part 375-6.8(b) - Restricted
☐ DW	☐ CP-51 Table 2 or 3 (selection required)
☐ SPLP	

Other States / Criteria
☐ Pennsylvania Act 2
☐ CT RCSA 22a-133k1-k3
☐ TSCA PCBs

OTHER Regulatory Requirements - specify in comments

Sample Matrix

DW - Drinking Water
WW - Waste Water
GW - Groundwater
SW - Surface Water
LIQ - Liquid (specify)
M - Multiphasic
OI - Oil
S - Soil
SED - Sediment
SOL - Solid (specify)
SL - Sludge
W - Wipe

SAMPLE INFORMATION

ANALYTICAL PARAMETERS (please note if contingent)

Client ID	Depth (ft only)	Sampling Date	Sampling Time	Matrix	# containers	IAL #	TAL/TCL + 30									Sample Specific Notes:
TWP1		11/16/2023	9:30	GW	11	16	X	250								
TWP4		11/16/2023	10:20	GW	11	17	X	251								

Samples previously analyzed by IAL? YES / NO

Preservative Code: 1 = None, 2 = HCl, 3 = HNO3, 4 = MeOH, 5 = NaOH, 6 = H2SO4, 7 = Other

Container Code: A = Amber Glass, B = Plastic, C = Vial, D = Glass, E = EnCore, T = Terracore

Preservative (use code)
Container Type (use code)

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time (TAT) will not start until any ambiguities have been resolved. TAT starts the following day if samples rec'd at lab ≥ 5PM. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY IAL'S TERMS & CONDITIONS (found on rear of pink copy).

IAL Rev 06/2021

Special Instructions/QC Requirements & Comments:

5 Day TAT Hard Copy and Verbal.

Carrier (check one):
☐ IAL Courier
☐ Client Courier
☐ FedEx/UPS***
***Tracking #:

Relinquished by (Signature and Company)	Date	Time	Received by (Signature and Company)	Date	Time
[signature]	11/17/23	1500	[signature]	11/17/23	1502
[signature]	11/17/23	1640	[signature]	11/17/23	1740

FOR LAB USE ONLY
SDG #: 5066
Cooler Temp: 5 °C

LAB COPIES - WHITE & YELLOW; CLIENT COPY - PINK

Certification IDs: TNI (TNI01284); CT (PH-0699); NJ (14751); NY (11402); PA (68-00773).

PAGE: 1 of 1

Integrated Analytical Labs
273 Franklin Rd
Randolph, NJ 07869

Chain of Custody Record

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Web: www.ialonline.com

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Address: 1600 US 22 East
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Telephone #: 908-688-7800
Project Manager: Chris Hirschmann
Email Address(es): chirschmann@hillmannconsulting.com
Project Name: HK2661.2
Project Location (State): NY
Bottle Order #:
☒ "Report to"/"Invoice To" same as above
Sampled by: D. Aponte

Reporting Information

☒ Check here if same as "Customer Information"
REPORT TO:
Address:
Attn:
INVOICE TO:
Address:
Attn:
PO # G62662
Quote #

COMPLETED BY IAL:
_____ Field Sampling _____ Equipment Rental

Sample Matrix

DW - Drinking Water; WW - Waste Water; GW - Groundwater; SW - Surface Water; LIQ - Liquid (specify); M - Multiphasic; OI - Oil; S - Soil; SED - Sediment; SOL - Solid (specify); SL - Sludge; W - Wipe

SAMPLE INFORMATION

Client ID	Depth (ft only)	Sampling Date	Sampling Time	Matrix	# containers	IAL #	TAL/TCL + 30	ANALYTICAL PARAMETERS (please note if contingent)								Sample Specific Notes:
TWP2		11/16/2023	10:00	GW	11	18	X	22								
TWP5		11/16/2023	14:00	GW	11	19	X	23								

Samples previously analyzed by IAL? YES / NO

Preservative Code: 1 = None; 2 = HCl; 3 = HNO3; 4 = MeOH; 5 = NaOH; 6 = H2SO4; 7 = Other

Container Code: A = Amber Glass; B = Plastic; C = Vial; D = Glass; E = EnCore; T = Terracore

Preservative (use code)
Container Type (use code)

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time (TAT) will not start until any ambiguities have been resolved. TAT starts the following day if samples rec'd at lab ≥ 5PM. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY IAL'S TERMS & CONDITIONS (found on rear of pink copy).

IAL Rev 06/2021

Carrier (check one):
☐ IAL Courier
☐ Client Courier
☐ FedEx/UPS***
***Tracking #:

Special Instructions/QC Requirements & Comments:

5 Day TAT Hard Copy and Verbal.

Relinquished by (Signature and Company)	Date	Time	Received by (Signature and Company)	Date	Time
[illegible] HG	11/17/23	1500	[illegible]	11-17-23	1502
[illegible]	11/17/23	1634 16:40	[illegible]	11/17/23	16:38 16:40

****Rush TAT Charge**
24 hr - 100%...
48 hr - 75%....
72 hr - 50%....
96 hr - 35%....
5 day - 25%....
6-9 day - 10%

Deliverables *Surcharge may apply for regulatory

NJ, CT, PA	NY
☐ Results Only (Level I)	☒ ASP Category A
☐ Reduced (Level II/III)	☐ ASP Category B*
☐ Regulatory/ Full* (Level IV)	

EDDs
☐ NJ SRP
☐ NYSDEC EQuIS
☐ lab approved custom EDD
☒ NO EDD REQ'D

Concentrations Expected: Low Med High

Known Hazard: ☐ YES ☐ NO
Describe:

Turn-Around Time (TAT)

5 Day TAT Hard Copy and Verbal

Hard Copy: Standard 3 week — Other - call for price

Petroleum Hydrocarbons - Selection is REQUIRED
☐ NJ EPH-DRO - Category 1
☐ NJ EPH-C40 - Category 2
☐ NJ EPH-Fractionated - Cat 2
☐ CT ETPH
☐ DRO-8015
TAT for PHC, if other than 2 weeks:

Regulatory Requirement

New Jersey	New York
☐ GWQS	☐ AWQS (TOGS Table 1)
☐ 2017 SRS/IGW	☐ GWEL (TOGS Table 5)
☐ 2021 SRS/MGW	☒ Part 375-6.8(a) - Unrestricted
☐ Ecological	☒ Part 375-6.8(b) - Restricted
☐ DW	☐ CP-51 Table 2 or 3 (selection required)
☐ SPLP	

Other States / Criteria
☐ Pennsylvania Act 2
☐ CT RCSA 22a-133k1-k3
☐ TSCA PCBs
OTHER Regulatory Requirements - specify in comments

FOR LAB USE ONLY
SDG #: J066
Cooler Temp: J °C

Certification IDs: TNI (TNI01284); CT (PH-0699); NJ (14751); NY (11402); PA (68-00773).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Nov 21, 2023 @ 09:25

RUSH

PROJECT INFORMATION

E23-05066: HK2661.2

To: Chris Hirschmann
HK Engineering & Geology, D.P.C.
Fax: 908-377-8909
EMail: chirschmann@hillmannconsulting.com;rpowell@hillmanngroup.com

Report To

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083
Attn: Chris Hirschmann

Bill To

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083
Attn: Chris Hirschmann

Report Format	P.O. #	Received At Lab	PHC Due	Verbal Due	Hardcopy Due
Category A	HK2661	Nov 17, 2023 @ 16:40	NA	Nov 28, 2023	Nov 29, 2023 *

* Any ***Conditional or Hold*** status will delay final hardcopy report sent date.

Diskette Req. Not Required

Criteria Requirement: NY Part 375-6.8(UUSCO+RUSCO)

Lab ID	Client Sample ID	Depth	Sampling Time	Matrix	Unit	Field pH/Temp
05066-001	SB10A	0/2	11/16/23@09:30	Soil	mg/Kg (ppm)	
05066-002	SB10B	10/12	11/16/23@09:45	Soil	mg/Kg (ppm)	
05066-003	SB2A	0/2	11/16/23@10:00	Soil	mg/Kg (ppm)	
05066-004	SB2B	10/12	11/16/23@10:20	Soil	mg/Kg (ppm)	
05066-005	SB5	0/2	11/16/23@13:40	Soil	mg/Kg (ppm)	
05066-006	SB3A	0/2	11/16/23@13:05	Soil	mg/Kg (ppm)	
05066-007	SB3B	10/12	11/16/23@13:10	Soil	mg/Kg (ppm)	
05066-008	SB9A	0/2	11/17/23@08:00	Soil	mg/Kg (ppm)	
05066-009	SB9B	10/12	11/17/23@08:10	Soil	mg/Kg (ppm)	
05066-010	SB1A	0/2	11/17/23@09:00	Soil	mg/Kg (ppm)	
05066-011	SB1B	10/12	11/17/23@09:15	Soil	mg/Kg (ppm)	
05066-012	SB4A	0/2	11/17/23@09:55	Soil	mg/Kg (ppm)	
05066-013	SB4B	10/12	11/17/23@10:05	Soil	mg/Kg (ppm)	
05066-014	SB6-419-CS	0/0.5	11/17/23@11:30	Soil	mg/Kg (ppm)	
05066-015	SB8-401-CS	0/0.5	11/17/23@11:40	Soil	mg/Kg (ppm)	
05066-016	TWP1	NA	11/16/23@09:30	Aqueous	ug/L (ppb)	
05066-017	TWP4	NA	11/16/23@10:20	Aqueous	ug/L (ppb)	
05066-018	TWP2	NA	11/16/23@10:00	Aqueous	ug/L (ppb)	
05066-019	TWP5	NA	11/16/23@14:00	Aqueous	ug/L (ppb)	
05066-020	TWP1 FILT	NA	11/16/23@09:30	Aqueous	ug/L (ppb)	
05066-021	TWP4 FILT	NA	11/16/23@10:20	Aqueous	ug/L (ppb)	
05066-022	TWP2 FILT	NA	11/16/23@10:00	Aqueous	ug/L (ppb)	
05066-023	TWP5 FILT	NA	11/16/23@14:00	Aqueous	ug/L (ppb)	

* No Cert = IAL does not hold certification for this test/method

Sample #	Test	Status	Analytical Method	TAT	Holding Time Expires
001	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/30/2023

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Nov 21, 2023 @ 09:25

PROJECT INFORMATION

RUSH

E23-05066: HK2661.2

Sample #	Test	Status	Analytical Method	TAT	Holding Time Expires
001	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/30/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/30/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/30/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
002	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/30/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/30/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/30/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/30/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
003	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/30/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/30/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/30/2023
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/30/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
004	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/30/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/30/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/30/2023
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/30/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
005	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/30/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/30/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/30/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/30/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
006	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/30/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/30/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/30/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/30/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
007	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/30/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/30/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/30/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/30/2023

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Nov 21, 2023 @ 09:25

PROJECT INFORMATION

RUSH

E23-05066: HK2661.2

Sample #	Test	Status	Analytical Method	TAT	Holding Time Expires
007	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
008	TCL VO + 15	Analyze	8260D	RUSH 1 WK	12/1/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	12/1/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	12/1/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/16/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	12/1/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/17/2023
009	TCL VO + 15	Analyze	8260D	RUSH 1 WK	12/1/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	12/1/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/16/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	12/1/2023
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	12/1/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/17/2023
010	TCL VO + 15	Analyze	8260D	RUSH 1 WK	12/1/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	12/1/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/16/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	12/1/2023
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	12/1/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/17/2023
011	TCL VO + 15	Analyze	8260D	RUSH 1 WK	12/1/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	12/1/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/16/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	12/1/2023
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	12/1/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/17/2023
012	TCL VO + 15	Analyze	8260D	RUSH 1 WK	12/1/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	12/1/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	12/1/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/16/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	12/1/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/17/2023
013	TCL VO + 15	Analyze	8260D	RUSH 1 WK	12/1/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	12/1/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	12/1/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/16/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	12/1/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/17/2023
014	TCL VO + 15	Analyze	8260D	RUSH 1 WK	12/1/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	12/1/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	12/1/2023

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Nov 21, 2023 @ 09:25

PROJECT INFORMATION

RUSH

E23-05066: HK2661.2

Sample #	Test	Status	Analytical Method	TAT	Holding Time Expires
014	TCL PCB	Analyze	8082A	RUSH 1 WK	11/16/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	12/1/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/17/2023
015	TCL VO + 15	Analyze	8260D	RUSH 1 WK	12/1/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	12/1/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	12/1/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/16/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	12/1/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/17/2023
016	Low Level TCL VO for 8260+8011 + 15	Analyze	8260D/8011	RUSH 1 WK	11/30/2023
	TCL BNA + SIMS + 15	Analyze	8270E SIM	RUSH 1 WK	11/23/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/23/2023
	Cyanide, Total	Analyze	335.4	RUSH 1 WK	11/30/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
017	Low Level TCL VO for 8260+8011 + 15	Analyze	8260D/8011	RUSH 1 WK	11/30/2023
	TCL BNA + SIMS + 15	Analyze	8270E SIM	RUSH 1 WK	11/23/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/23/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	Cyanide, Total	Analyze	335.4	RUSH 1 WK	11/30/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
018	Low Level TCL VO for 8260+8011 + 15	Analyze	8260D/8011	RUSH 1 WK	11/30/2023
	TCL BNA + SIMS + 15	Analyze	8270E SIM	RUSH 1 WK	11/23/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/23/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	Cyanide, Total	Analyze	335.4	RUSH 1 WK	11/30/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
019	Low Level TCL VO for 8260+8011 + 15	Analyze	8260D/8011	RUSH 1 WK	11/30/2023
	TCL BNA + SIMS + 15	Analyze	8270E SIM	RUSH 1 WK	11/23/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/23/2023
	Cyanide, Total	Analyze	335.4	RUSH 1 WK	11/30/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
020	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
021	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
022	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
023	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023

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Nov 21, 2023 @ 09:25

PROJECT INFORMATION

RUSH

E23-05066: HK2661.2

Project Notes:

NOTE 1 taken by kfalconer on 11/20/2023 09:37
CLIENT WAS NOTIFIED VIA E-MAIL THAT METALS ANALYSES WILL BE SUBCONTRACTED TO SGS DAYTON.

NOTE 5 taken by kfalconer on 11/20/2023 09:41
3 ENCORS RECEIVED - 1 INTO MEOH/2 INTO H2O

NOTE 6 taken by kim on 11/20/2023 11:17
COMPARE SOIL RESULTS TO NY Part 375-6.8(UUSCO+RUSCO).

COMPARE GW RESULTS TO NY TOGS Tbl1 (AWQS).

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SAMPLE RECEIPT VERIFICATION

CASE NO: **E 23** **05066** CLIENT: AK Eng. and Geo.

COOLER TEMPERATURE: 2° - 6°C: ✓ (See Chain of Custody)

COC: (COMPLETE) / INCOMPLETE

Comments

KEY

✓ = **YES/NA**
✗ = **NO**

VOA received: (check one) ☒ Encore ☐ Terra Core ☐ IGW - Methanol ☐ No Preservative

✓ Bottles Intact
✓ no-Missing Bottles
✓ no-Extra Bottles

✓ Sufficient Sample Volume
✓ no-headspace/bubbles in VOs
✓ Labels intact/correct
✗ pH Check[1] (refer to Receipt pH Log)
✓ Correct bottles/preservative
✓ Sufficient Holding/Prep Time[1]
☐ Multiphasic Sample
☐ Sample to be Subcontracted
✓ **Chain of Custody is Clear**

[1] All samples with "Analyze Immediately" holding times will be analyzed by this laboratory past the holding time. This includes but is not limited to the following tests: pH, Temperature, Free Residual Chlorine, Total Residual Chlorine, Dissolved Oxygen, Sulfite.

ADDITIONAL COMMENTS:

SAMPLE(S) VERIFIED BY: INITIAL [illegible] DATE 11/17/23

CORRECTIVE ACTION REQUIRED: **YES** ☐ (SEE BELOW) **NO** ☒

If COC is **NOT** clear, ***STOP*** until you get client to authorize/clarify work.

CLIENT NOTIFIED: YES ☐ Date/ Time: _____ NO ☐
PROJECT CONTACT:
SUBCONTRACTED LAB:
DATE SHIPPED:

ADDITIONAL COMMENTS:

VERIFIED/TAKEN BY: INITIAL KJ DATE 11/20/23

Rev 2 2/11/2021

Laboratory Custody Chronicle

IAL Case No. E23-05066

Client HK Engineering & Geology, D.P.C.

Project HK2661.2

Received On 11/17/2023@16:40

Department: Volatiles			Prep. Date	Analyst	Analysis Date	Analyst
Low Level TCL VO for 8260+8011 + 15	05066-016	Aqueous	n/a	n/a	11/22/23	Sylvia
"	-017	"	n/a	n/a	11/22/23	Sylvia
"	-018	"	n/a	n/a	11/22/23	Sylvia
"	-019	"	n/a	n/a	11/22/23	Sylvia
TCL VO + 15	-001	Soil	n/a	n/a	11/22/23	Mei
"	-002	"	n/a	n/a	11/22/23	Mei
"	-003	"	n/a	n/a	11/22/23	Mei
"	-004	"	n/a	n/a	11/22/23	Mei
"	-005	"	n/a	n/a	11/22/23	Mei
"	-006	"	n/a	n/a	11/22/23	Mei
"	-007	"	n/a	n/a	11/22/23	Mei
"	-008	"	n/a	n/a	11/22/23	Mei
"	-009	"	n/a	n/a	11/22/23	Mei
"	-010	"	n/a	n/a	11/22/23	Mei
"	-011	"	n/a	n/a	11/22/23	Mei
"	-012	"	n/a	n/a	11/22/23	Mei
"	-013	"	n/a	n/a	11/22/23	Mei
"	-014	"	n/a	n/a	11/22/23	Mei
"	-015	"	n/a	n/a	11/22/23	Mei

Department: Semivolatiles			Prep. Date	Analyst	Analysis Date	Analyst
TCL BNA + 15	-001	Soil	11/20/23	Frank L.	11/28/23	Thien
"	-002	"	11/20/23	Frank L.	11/28/23	Thien
"	-003	"	11/20/23	Frank L.	11/28/23	Thien
"	-004	"	11/20/23	Frank L.	11/28/23	Thien
"	-005	"	11/20/23	Frank L.	11/28/23	Thien
"	-006	"	11/20/23	Frank L.	11/28/23	Thien
"	-007	"	11/20/23	Frank L.	11/28/23	Thien
"	-008	"	11/20/23	Frank L.	11/28/23	Thien
"	-009	"	11/20/23	Frank L.	11/28/23	Thien
"	-010	"	11/20/23	Frank L.	11/28/23	Thien
"	-011	"	11/20/23	Frank L.	11/28/23	Thien
"	-012	"	11/20/23	Frank L.	11/28/23	Thien
"	-013	"	11/20/23	Frank L.	11/28/23	Thien
"	-014	"	11/20/23	Frank L.	11/28/23	Thien
"	-015	"	11/20/23	Frank L.	11/28/23	Thien
TCL BNA + SIMS + 15	-016	Aqueous	11/20/23	Frank L.	11/30/23	Dana Tryon
"	-017	"	11/20/23	Frank L.	11/30/23	Dana Tryon
"	-018	"	11/20/23	Frank L.	11/30/23	Dana Tryon
"	-019	"	11/20/23	Frank L.	11/30/23	Dana Tryon

Department: GC			Prep. Date	Analyst	Analysis Date	Analyst
TCL PCB	-001	Soil	11/21/23	Archimede	11/28/23	Iwona

NOTE: All soil, sediment, sludge, and solid samples are reported on a dry-weight basis.

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Laboratory Custody Chronicle

IAL Case No. E23-05066

Client HK Engineering & Geology, D.P.C.

Project HK2661.2

Received On 11/17/2023@16:40

"	-002	"	11/21/23	Archimede	11/28/23	Iwona
"	-003	"	11/21/23	Archimede	11/28/23	Iwona
"	-004	"	11/21/23	Archimede	11/28/23	Iwona
"	-005	"	11/21/23	Archimede	11/28/23	Iwona
"	-006	"	11/21/23	Archimede	11/28/23	Iwona
"	-007	"	11/21/23	Archimede	11/28/23	Iwona
"	-008	"	11/21/23	Archimede	11/28/23	Iwona
"	-009	"	11/21/23	Archimede	11/28/23	Iwona
"	-010	"	11/21/23	Archimede	11/28/23	Iwona
"	-011	"	11/21/23	Archimede	11/28/23	Iwona
"	-012	"	11/21/23	Archimede	11/28/23	Iwona
"	-013	"	11/21/23	Archimede	11/28/23	Iwona
"	-014	"	11/21/23	Archimede	11/28/23	Iwona
"	-015	"	11/21/23	Archimede	11/28/23	Iwona
"	-016	Aqueous	11/20/23	Archimede	11/28/23	Iwona
"	-017	"	11/20/23	Archimede	11/28/23	Iwona
"	-018	"	11/20/23	Archimede	11/28/23	Iwona
"	-019	"	11/20/23	Archimede	11/28/23	Iwona
TCL Pesticides	-001	Soil	11/21/23	Archimede	11/29/23	Iwona
"	-002	"	11/21/23	Archimede	11/29/23	Iwona
"	-003	"	11/21/23	Archimede	11/29/23	Iwona
"	-004	"	11/21/23	Archimede	11/29/23	Iwona
"	-005	"	11/21/23	Archimede	11/29/23	Iwona
"	-006	"	11/21/23	Archimede	11/29/23	Iwona
"	-007	"	11/21/23	Archimede	11/29/23	Iwona
"	-008	"	11/21/23	Archimede	11/29/23	Iwona
"	-009	"	11/21/23	Archimede	11/29/23	Iwona
"	-010	"	11/21/23	Archimede	11/29/23	Iwona
"	-011	"	11/21/23	Archimede	11/29/23	Iwona
"	-012	"	11/21/23	Archimede	11/29/23	Iwona
"	-013	"	11/21/23	Archimede	11/29/23	Iwona
"	-014	"	11/21/23	Archimede	11/29/23	Iwona
"	-015	"	11/21/23	Archimede	11/28/23	Iwona
"	-016	Aqueous	11/20/23	Archimede	11/27/23	Iwona
"	-017	"	11/20/23	Archimede	11/27/23	Iwona
"	-018	"	11/20/23	Archimede	11/27/23	Iwona
"	-019	"	11/20/23	Archimede	11/27/23	Iwona

Department: Wet Chemistry			***Prep. Date***	***Analyst***	***Analysis Date***	***Analyst***
Cyanide, Total	-001	Soil	n/a	n/a	11/27/23	Brianna P
"	-002	"	n/a	n/a	11/27/23	Brianna P
"	-003	"	n/a	n/a	11/27/23	Brianna P
"	-004	"	n/a	n/a	11/27/23	Brianna P
"	-005	"	n/a	n/a	11/27/23	Brianna P
"	-006	"	n/a	n/a	11/27/23	Brianna P

NOTE: All soil, sediment, sludge, and solid samples are reported on a dry-weight basis.

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IAL Case No.
E23-05066

Client HK Engineering & Geology, D.P.C.

Project HK2661.2

Received On 11/17/2023@16:40

"	-007	"	n/a	n/a	11/27/23	Brianna P
"	-008	"	n/a	n/a	11/27/23	Brianna P
"	-009	"	n/a	n/a	11/27/23	Brianna P
"	-010	"	n/a	n/a	11/27/23	Brianna P
"	-011	"	n/a	n/a	11/27/23	Brianna P
"	-012	"	n/a	n/a	11/27/23	Brianna P
"	-013	"	n/a	n/a	11/27/23	Brianna P
"	-014	"	n/a	n/a	11/27/23	Brianna P
"	-015	"	n/a	n/a	11/27/23	Brianna P
"	-016	Aqueous	n/a	n/a	11/22/23	Brianna P
"	-017	"	n/a	n/a	11/22/23	Brianna P
"	-018	"	n/a	n/a	11/22/23	Brianna P
"	-019	"	n/a	n/a	11/22/23	Brianna P

Department: Others			***Prep. Date***	***Analyst***	***Analysis Date***	***Analyst***
TAL Metals (6020B/7471B) by SGS Dayton	-001	Soil	11/20/23	Rob	n/a	n/a
"	-002	"	11/20/23	Rob	n/a	n/a
"	-003	"	11/20/23	Rob	n/a	n/a
"	-004	"	11/20/23	Rob	n/a	n/a
"	-005	"	11/20/23	Rob	n/a	n/a
"	-006	"	11/20/23	Rob	n/a	n/a
"	-007	"	11/20/23	Rob	n/a	n/a
"	-008	"	11/20/23	Rob	n/a	n/a
"	-009	"	11/20/23	Rob	n/a	n/a
"	-010	"	11/20/23	Rob	n/a	n/a
"	-011	"	11/20/23	Rob	n/a	n/a
"	-012	"	11/20/23	Rob	n/a	n/a
"	-013	"	11/20/23	Rob	n/a	n/a
"	-014	"	11/20/23	Rob	n/a	n/a
"	-015	"	11/20/23	Rob	n/a	n/a
"	-016	Aqueous	11/20/23	Rob	n/a	n/a
"	-017	"	11/20/23	Rob	n/a	n/a
"	-018	"	11/20/23	Rob	n/a	n/a
"	-019	"	11/20/23	Rob	n/a	n/a
"	-020	"	11/20/23	Rob	n/a	n/a
"	-021	"	11/20/23	Rob	n/a	n/a
"	-022	"	11/20/23	Rob	n/a	n/a
"	-023	"	11/20/23	Rob	n/a	n/a

NOTE: All soil, sediment, sludge, and solid samples are reported on a dry-weight basis.

Integrated Analytical Labs ~ 273 Franklin Road, Randolph, NJ 07869 ~ (973) 361-4252

LAST PAGE OF DOCUMENT

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Integrated Analytical Lab

Integrated Analytical Lab, Randolph, NJ

E23-05066

SGS Job Number: JD77365

Sampling Dates: 11/16/23 - 11/17/23

Report to:

Integrated Analytical Lab
273 Franklin Road
Randolph, NJ 07869
msimmons@ialonline.com

ATTN: Melissa Simmons

Total number of pages in report: 262

David Chastain
General Manager

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

Client Service contact: Victoria Pushkova 732-329-0200
Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA(68-00408), RI, SC, TX, UT, VA, WV

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SGS North America Inc.

Sample Summary

Integrated Analytical Lab

Job No: JD77365

Integrated Analytical Lab, Randolph, NJ
Project No: E23-05066

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD77365-1	11/16/23	09:30		11/21/23	SO	Soil	E23-05066-001_SB10A
JD77365-2	11/16/23	09:45		11/21/23	SO	Soil	E23-05066-002_SB10B
JD77365-3	11/16/23	10:00		11/21/23	SO	Soil	E23-05066-003_SB2A
JD77365-4	11/16/23	10:20		11/21/23	SO	Soil	E23-05066-004_SB2B
JD77365-5	11/16/23	13:40		11/21/23	SO	Soil	E23-05066-005_SB5
JD77365-6	11/16/23	13:05		11/21/23	SO	Soil	E23-05066-006_SB3A
JD77365-7	11/16/23	13:10		11/21/23	SO	Soil	E23-05066-007_SB3B
JD77365-8	11/17/23	08:00		11/21/23	SO	Soil	E23-05066-008_SB9A
JD77365-9	11/17/23	08:10		11/21/23	SO	Soil	E23-05066-009_SB9B
JD77365-10	11/17/23	09:00		11/21/23	SO	Soil	E23-05066-010_SB1A
JD77365-11	11/17/23	09:15		11/21/23	SO	Soil	E23-05066-011_SB1B
JD77365-12	11/17/23	09:55		11/21/23	SO	Soil	E23-05066-012_SB4A
JD77365-13	11/17/23	10:05		11/21/23	SO	Soil	E23-05066-013_SB4B

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SGS North America Inc.

Sample Summary
(continued)

Integrated Analytical Lab

Job No: JD77365

Integrated Analytical Lab, Randolph, NJ
Project No: E23-05066

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD77365-14	11/17/23	11:30		11/21/23	SO	Soil	E23-05066-014_SB6-419-CS
JD77365-15	11/17/23	11:40		11/21/23	SO	Soil	E23-05066-015_SB8-401-CS
JD77365-16	11/16/23	09:30		11/21/23	AQ	Water	E23-05066-016_TWP1
JD77365-16F	11/16/23	09:30		11/21/23	AQ	Water Filtered	E23-05066-020_TWP1 FILT
JD77365-17	11/16/23	10:20		11/21/23	AQ	Water	E23-05066-017_TWP4
JD77365-17F	11/16/23	10:20		11/21/23	AQ	Water Filtered	E23-05066-021_TWP4 FILT
JD77365-18	11/16/23	10:00		11/21/23	AQ	Water	E23-05066-018_TWP2
JD77365-18F	11/16/23	10:00		11/21/23	AQ	Water Filtered	E23-05066-022_TWP2 FILT
JD77365-19	11/16/23	14:00		11/21/23	AQ	Water	E23-05066-019_TWP5
JD77365-19F	11/16/23	14:00		11/21/23	AQ	Water Filtered	E23-05066-023_TWP5 FILT

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Integrated Analytical Lab	**Job No:**	JD77365
Site:	Integrated Analytical Lab, Randolph, NJ	**Report Date**	12/1/2023 8:11:50 AM

On 11/21/2023, 19 sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 0.6 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of JD77365 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals Analysis By Method SW846 6010D

Matrix: AQ **Batch ID:** MP43317

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD77367-1MS, JD77367-1MSD, JD77367-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Aluminum, Arsenic, Beryllium, Copper, Selenium, Silver, Vanadium, Zinc are outside control limits for sample MP43317-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP43317-SD1 for Zinc: Serial dilution indicates possible matrix interference.

Matrix: SO **Batch ID:** MP43322

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD77365-2MS, JD77365-2MSD, JD77365-2PS, JD77365-2SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Aluminum, Antimony, Potassium are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The matrix spike duplicate (MSD) recovery(s) of Antimony, Potassium are outside control limits. Probable cause due to matrix interference.
- The serial dilution RPD(s) for Antimony, Arsenic, Beryllium, Cadmium, Silver are outside control limits for sample MP43322-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

Metals Analysis By Method SW846 7470A

Matrix: AQ **Batch ID:** MP43408

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD77458-4FMS, JD77458-4FMSD were used as the QC samples for the metals analysis.

Metals Analysis By Method SW846 7471B

Matrix: SO	Batch ID: MP43401

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD77365-1MS, JD77365-1MSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Mercury are outside control limits. Probable cause due to matrix interference.

General Chemistry By Method SM2540 G 18TH ED MOD

Matrix: SO	Batch ID: GN48524

- Sample(s) JD77365-1DUP were used as the QC samples for the Solids, Percent analysis.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD77365-1	**E23-05066-001_SB10A**					
Aluminum		4960	55		mg/kg	SW846 6010D
Arsenic		4.6	2.2		mg/kg	SW846 6010D
Barium		280	22		mg/kg	SW846 6010D
Beryllium		0.35	0.22		mg/kg	SW846 6010D
Calcium		24700	1100		mg/kg	SW846 6010D
Chromium		12.2	1.1		mg/kg	SW846 6010D
Copper		11.9	2.8		mg/kg	SW846 6010D
Iron		8700	55		mg/kg	SW846 6010D
Lead		248	2.2		mg/kg	SW846 6010D
Magnesium		2080	550		mg/kg	SW846 6010D
Manganese		318	1.7		mg/kg	SW846 6010D
Mercury		0.24	0.033		mg/kg	SW846 7471B
Nickel		8.6	4.4		mg/kg	SW846 6010D
Silver		0.55	0.55		mg/kg	SW846 6010D
Vanadium		19.6	5.5		mg/kg	SW846 6010D
Zinc		277	5.5		mg/kg	SW846 6010D
JD77365-2	**E23-05066-002_SB10B**					
Aluminum		5670	54		mg/kg	SW846 6010D
Arsenic		2.2	2.2		mg/kg	SW846 6010D
Barium		33.5	22		mg/kg	SW846 6010D
Beryllium		0.52	0.22		mg/kg	SW846 6010D
Calcium		1380	540		mg/kg	SW846 6010D
Chromium		11.9	1.1		mg/kg	SW846 6010D
Copper		9.7	2.7		mg/kg	SW846 6010D
Iron		9570	54		mg/kg	SW846 6010D
Lead		9.5	2.2		mg/kg	SW846 6010D
Magnesium		2050	540		mg/kg	SW846 6010D
Manganese		259	1.6		mg/kg	SW846 6010D
Mercury		0.064	0.033		mg/kg	SW846 7471B
Nickel		11.1	4.3		mg/kg	SW846 6010D
Potassium		1430	1100		mg/kg	SW846 6010D
Vanadium		16.1	5.4		mg/kg	SW846 6010D
Zinc		33.9	5.4		mg/kg	SW846 6010D
JD77365-3	**E23-05066-003_SB2A**					
Aluminum		6220	58		mg/kg	SW846 6010D
Arsenic		5.7	2.3		mg/kg	SW846 6010D
Barium		363	23		mg/kg	SW846 6010D
Beryllium		0.45	0.23		mg/kg	SW846 6010D
Calcium		31500	1200		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Chromium		14.2	1.2		mg/kg	SW846 6010D
Copper		34.7	2.9		mg/kg	SW846 6010D
Iron		9550	58		mg/kg	SW846 6010D
Lead		797	2.3		mg/kg	SW846 6010D
Magnesium		2970	580		mg/kg	SW846 6010D
Manganese		293	1.7		mg/kg	SW846 6010D
Mercury		0.70	0.033		mg/kg	SW846 7471B
Nickel		11.3	4.6		mg/kg	SW846 6010D
Potassium		1240	1200		mg/kg	SW846 6010D
Vanadium		22.4	5.8		mg/kg	SW846 6010D
Zinc		329	5.8		mg/kg	SW846 6010D
JD77365-4	**E23-05066-004_SB2B**					
Aluminum		3640	53		mg/kg	SW846 6010D
Barium		37.9	21		mg/kg	SW846 6010D
Beryllium		0.41	0.21		mg/kg	SW846 6010D
Calcium		1980	530		mg/kg	SW846 6010D
Chromium		9.9	1.1		mg/kg	SW846 6010D
Copper		10.9	2.6		mg/kg	SW846 6010D
Iron		7770	53		mg/kg	SW846 6010D
Lead		8.8	2.1		mg/kg	SW846 6010D
Magnesium		1920	530		mg/kg	SW846 6010D
Manganese		236	1.6		mg/kg	SW846 6010D
Nickel		8.4	4.2		mg/kg	SW846 6010D
Potassium		1150	1100		mg/kg	SW846 6010D
Vanadium		12.5	5.3		mg/kg	SW846 6010D
Zinc		25.4	5.3		mg/kg	SW846 6010D
JD77365-5	**E23-05066-005_SB5**					
Aluminum		9790	55		mg/kg	SW846 6010D
Arsenic		6.2	2.2		mg/kg	SW846 6010D
Barium		96.8	22		mg/kg	SW846 6010D
Beryllium		0.51	0.22		mg/kg	SW846 6010D
Calcium		3790	550		mg/kg	SW846 6010D
Chromium		31.5	1.1		mg/kg	SW846 6010D
Cobalt		6.5	5.5		mg/kg	SW846 6010D
Copper		25.3	2.8		mg/kg	SW846 6010D
Iron		13200	55		mg/kg	SW846 6010D
Lead		107	2.2		mg/kg	SW846 6010D
Magnesium		5470	550		mg/kg	SW846 6010D
Manganese		250	1.7		mg/kg	SW846 6010D
Mercury		0.13	0.029		mg/kg	SW846 7471B
Nickel		18.1	4.4		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Potassium		1180	1100		mg/kg	SW846 6010D
Silver		0.65	0.55		mg/kg	SW846 6010D
Vanadium		23.9	5.5		mg/kg	SW846 6010D
Zinc		105	5.5		mg/kg	SW846 6010D
JD77365-6	**E23-05066-006_SB3A**					
Aluminum		5880	56		mg/kg	SW846 6010D
Arsenic		4.2	2.2		mg/kg	SW846 6010D
Barium		206	22		mg/kg	SW846 6010D
Beryllium		0.45	0.22		mg/kg	SW846 6010D
Calcium		9640	560		mg/kg	SW846 6010D
Chromium		12.3	1.1		mg/kg	SW846 6010D
Copper		16.8	2.8		mg/kg	SW846 6010D
Iron		13900	56		mg/kg	SW846 6010D
Lead		301	2.2		mg/kg	SW846 6010D
Magnesium		3430	560		mg/kg	SW846 6010D
Manganese		258	1.7		mg/kg	SW846 6010D
Mercury		0.67	0.034		mg/kg	SW846 7471B
Nickel		12.6	4.5		mg/kg	SW846 6010D
Potassium		1530	1100		mg/kg	SW846 6010D
Silver		0.62	0.56		mg/kg	SW846 6010D
Vanadium		25.9	5.6		mg/kg	SW846 6010D
Zinc		164	5.6		mg/kg	SW846 6010D
JD77365-7	**E23-05066-007_SB3B**					
Aluminum		4440	52		mg/kg	SW846 6010D
Arsenic		2.4	2.1		mg/kg	SW846 6010D
Barium		41.1	21		mg/kg	SW846 6010D
Beryllium		0.40	0.21		mg/kg	SW846 6010D
Calcium		5710	520		mg/kg	SW846 6010D
Chromium		10.8	1.0		mg/kg	SW846 6010D
Copper		14.0	2.6		mg/kg	SW846 6010D
Iron		8580	52		mg/kg	SW846 6010D
Lead		26.2	2.1		mg/kg	SW846 6010D
Magnesium		2510	520		mg/kg	SW846 6010D
Manganese		299	1.6		mg/kg	SW846 6010D
Mercury		0.11	0.032		mg/kg	SW846 7471B
Nickel		14.0	4.2		mg/kg	SW846 6010D
Vanadium		14.9	5.2		mg/kg	SW846 6010D
Zinc		42.1	5.2		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD77365-8	**E23-05066-008_SB9A**					
Aluminum		6910	54		mg/kg	SW846 6010D
Arsenic		5.9	2.2		mg/kg	SW846 6010D
Barium		248	22		mg/kg	SW846 6010D
Beryllium		0.49	0.22		mg/kg	SW846 6010D
Cadmium		1.0	0.54		mg/kg	SW846 6010D
Calcium		47900	2700		mg/kg	SW846 6010D
Chromium		14.5	1.1		mg/kg	SW846 6010D
Copper		26.7	2.7		mg/kg	SW846 6010D
Iron		8460	54		mg/kg	SW846 6010D
Lead		381	2.2		mg/kg	SW846 6010D
Magnesium		5830	540		mg/kg	SW846 6010D
Manganese		272	1.6		mg/kg	SW846 6010D
Mercury		0.70	0.032		mg/kg	SW846 7471B
Nickel		10.0	4.3		mg/kg	SW846 6010D
Silver		0.63	0.54		mg/kg	SW846 6010D
Vanadium		23.2	5.4		mg/kg	SW846 6010D
Zinc		219	5.4		mg/kg	SW846 6010D
JD77365-9	**E23-05066-009_SB9B**					
Aluminum		6010	53		mg/kg	SW846 6010D
Arsenic		2.2	2.1		mg/kg	SW846 6010D
Barium		60.2	21		mg/kg	SW846 6010D
Beryllium		0.52	0.21		mg/kg	SW846 6010D
Calcium		7980	530		mg/kg	SW846 6010D
Chromium		13.3	1.1		mg/kg	SW846 6010D
Copper		16.7	2.6		mg/kg	SW846 6010D
Iron		9870	53		mg/kg	SW846 6010D
Lead		16.6	2.1		mg/kg	SW846 6010D
Magnesium		2890	530		mg/kg	SW846 6010D
Manganese		370	1.6		mg/kg	SW846 6010D
Mercury		0.040	0.030		mg/kg	SW846 7471B
Nickel		13.7	4.2		mg/kg	SW846 6010D
Potassium		1370	1100		mg/kg	SW846 6010D
Vanadium		17.1	5.3		mg/kg	SW846 6010D
Zinc		30.9	5.3		mg/kg	SW846 6010D
JD77365-10	**E23-05066-010_SB1A**					
Aluminum		2040	56		mg/kg	SW846 6010D
Barium		84.7	22		mg/kg	SW846 6010D
Beryllium		0.26	0.22		mg/kg	SW846 6010D
Calcium		17400	560		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Chromium		5.0	1.1		mg/kg	SW846 6010D
Copper		12.6	2.8		mg/kg	SW846 6010D
Iron		3370	56		mg/kg	SW846 6010D
Lead		130	2.2		mg/kg	SW846 6010D
Magnesium		2140	560		mg/kg	SW846 6010D
Manganese		97.7	1.7		mg/kg	SW846 6010D
Mercury		0.59	0.035		mg/kg	SW846 7471B
Nickel		4.5	4.5		mg/kg	SW846 6010D
Silver		1.2	0.56		mg/kg	SW846 6010D
Vanadium		5.8	5.6		mg/kg	SW846 6010D
Zinc		87.4	5.6		mg/kg	SW846 6010D
JD77365-11	**E23-05066-011_SB1B**					
Aluminum		3770	53		mg/kg	SW846 6010D
Arsenic		5.6	2.1		mg/kg	SW846 6010D
Barium		408	21		mg/kg	SW846 6010D
Beryllium		0.30	0.21		mg/kg	SW846 6010D
Cadmium		1.3	0.53		mg/kg	SW846 6010D
Calcium		14600	530		mg/kg	SW846 6010D
Chromium		12.8	1.1		mg/kg	SW846 6010D
Copper		19.7	2.6		mg/kg	SW846 6010D
Iron		9690	53		mg/kg	SW846 6010D
Lead		547	2.1		mg/kg	SW846 6010D
Magnesium		3550	530		mg/kg	SW846 6010D
Manganese		269	1.6		mg/kg	SW846 6010D
Mercury		0.62	0.033		mg/kg	SW846 7471B
Nickel		8.6	4.2		mg/kg	SW846 6010D
Silver		0.63	0.53		mg/kg	SW846 6010D
Vanadium		14.3	5.3		mg/kg	SW846 6010D
Zinc		616	5.3		mg/kg	SW846 6010D
JD77365-12	**E23-05066-012_SB4A**					
Aluminum		7330	54		mg/kg	SW846 6010D
Arsenic		12.2	2.2		mg/kg	SW846 6010D
Barium		246	22		mg/kg	SW846 6010D
Beryllium		0.33	0.22		mg/kg	SW846 6010D
Cadmium		0.61	0.54		mg/kg	SW846 6010D
Calcium		15500	540		mg/kg	SW846 6010D
Chromium		13.6	1.1		mg/kg	SW846 6010D
Copper		34.9	2.7		mg/kg	SW846 6010D
Iron		11600	54		mg/kg	SW846 6010D
Lead		500	2.2		mg/kg	SW846 6010D
Magnesium		2460	540		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Manganese		241	1.6		mg/kg	SW846 6010D
Mercury		1.2	0.069		mg/kg	SW846 7471B
Nickel		10.6	4.3		mg/kg	SW846 6010D
Silver		0.68	0.54		mg/kg	SW846 6010D
Vanadium		20.9	5.4		mg/kg	SW846 6010D
Zinc		288	5.4		mg/kg	SW846 6010D
JD77365-13	**E23-05066-013_SB4B**					
Aluminum		6130	55		mg/kg	SW846 6010D
Arsenic		6.7	2.2		mg/kg	SW846 6010D
Barium		194	22		mg/kg	SW846 6010D
Beryllium		0.42	0.22		mg/kg	SW846 6010D
Calcium		20000	550		mg/kg	SW846 6010D
Chromium		14.9	1.1		mg/kg	SW846 6010D
Copper		23.8	2.7		mg/kg	SW846 6010D
Iron		10300	55		mg/kg	SW846 6010D
Lead		353	2.2		mg/kg	SW846 6010D
Magnesium		2940	550		mg/kg	SW846 6010D
Manganese		337	1.6		mg/kg	SW846 6010D
Mercury		0.33	0.032		mg/kg	SW846 7471B
Nickel		12.0	4.4		mg/kg	SW846 6010D
Silver		0.58	0.55		mg/kg	SW846 6010D
Vanadium		16.3	5.5		mg/kg	SW846 6010D
Zinc		180	5.5		mg/kg	SW846 6010D
JD77365-14	**E23-05066-014_SB6-419-CS**					
Aluminum		4840	55		mg/kg	SW846 6010D
Arsenic		3.5	2.2		mg/kg	SW846 6010D
Barium		517	22		mg/kg	SW846 6010D
Beryllium		0.36	0.22		mg/kg	SW846 6010D
Cadmium		0.63	0.55		mg/kg	SW846 6010D
Calcium		32100	1100		mg/kg	SW846 6010D
Chromium		14.0	1.1		mg/kg	SW846 6010D
Copper		34.8	2.8		mg/kg	SW846 6010D
Iron		10200	55		mg/kg	SW846 6010D
Lead		1070	4.4		mg/kg	SW846 6010D
Magnesium		3800	550		mg/kg	SW846 6010D
Manganese		222	1.7		mg/kg	SW846 6010D
Mercury		0.37	0.032		mg/kg	SW846 7471B
Nickel		13.1	4.4		mg/kg	SW846 6010D
Silver		0.75	0.55		mg/kg	SW846 6010D
Vanadium		17.3	5.5		mg/kg	SW846 6010D
Zinc		405	5.5		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD77365-15	**E23-05066-015_SB8-401-CS**					
Aluminum		5230	53		mg/kg	SW846 6010D
Arsenic		4.5	2.1		mg/kg	SW846 6010D
Barium		341	21		mg/kg	SW846 6010D
Beryllium		0.41	0.21		mg/kg	SW846 6010D
Cadmium		0.68	0.53		mg/kg	SW846 6010D
Calcium		22400	1100		mg/kg	SW846 6010D
Chromium		14.5	1.1		mg/kg	SW846 6010D
Copper		20.8	2.6		mg/kg	SW846 6010D
Iron		9740	53		mg/kg	SW846 6010D
Lead		684	2.1		mg/kg	SW846 6010D
Magnesium		4360	530		mg/kg	SW846 6010D
Manganese		241	1.6		mg/kg	SW846 6010D
Mercury		0.98	0.065		mg/kg	SW846 7471B
Nickel		13.7	4.2		mg/kg	SW846 6010D
Potassium		1370	1100		mg/kg	SW846 6010D
Silver		0.60	0.53		mg/kg	SW846 6010D
Vanadium		16.4	5.3		mg/kg	SW846 6010D
Zinc		268	5.3		mg/kg	SW846 6010D
JD77365-16	**E23-05066-016_TWP1**					
Aluminum		23600	200		ug/l	SW846 6010D
Arsenic		10.6	3.0		ug/l	SW846 6010D
Barium		400	200		ug/l	SW846 6010D
Beryllium		3.3	1.0		ug/l	SW846 6010D
Calcium		94900	5000		ug/l	SW846 6010D
Chromium		66.7	10		ug/l	SW846 6010D
Copper		90.0	10		ug/l	SW846 6010D
Iron		30200	100		ug/l	SW846 6010D
Lead		89.7	3.0		ug/l	SW846 6010D
Magnesium		26800	5000		ug/l	SW846 6010D
Manganese		4020	15		ug/l	SW846 6010D
Nickel		99.9	10		ug/l	SW846 6010D
Potassium		14800	10000		ug/l	SW846 6010D
Sodium		138000	10000		ug/l	SW846 6010D
Vanadium		60.8	50		ug/l	SW846 6010D
Zinc		174	20		ug/l	SW846 6010D
JD77365-16F	**E23-05066-020_TWP1 FILT**					
Calcium		76700	5000		ug/l	SW846 6010D
Iron		165	100		ug/l	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Magnesium		13800	5000		ug/l	SW846 6010D
Manganese		195	15		ug/l	SW846 6010D
Potassium		11000	10000		ug/l	SW846 6010D
Sodium		141000	10000		ug/l	SW846 6010D
JD77365-17	**E23-05066-017_TWP4**					
Aluminum		3730	200		ug/l	SW846 6010D
Beryllium		1.0	1.0		ug/l	SW846 6010D
Calcium		51900	5000		ug/l	SW846 6010D
Copper		13.7	10		ug/l	SW846 6010D
Iron		4370	100		ug/l	SW846 6010D
Lead		9.8	3.0		ug/l	SW846 6010D
Magnesium		10000	5000		ug/l	SW846 6010D
Manganese		423	15		ug/l	SW846 6010D
Nickel		11.4	10		ug/l	SW846 6010D
Potassium		12000	10000		ug/l	SW846 6010D
Sodium		79500	10000		ug/l	SW846 6010D
Zinc		21.9	20		ug/l	SW846 6010D
JD77365-17F	**E23-05066-021_TWP4 FILT**					
Aluminum		1330	200		ug/l	SW846 6010D
Calcium		52300	5000		ug/l	SW846 6010D
Iron		1580	100		ug/l	SW846 6010D
Lead		4.6	3.0		ug/l	SW846 6010D
Magnesium		9420	5000		ug/l	SW846 6010D
Manganese		223	15		ug/l	SW846 6010D
Potassium		11500	10000		ug/l	SW846 6010D
Sodium		78900	10000		ug/l	SW846 6010D
Zinc		74.0	20		ug/l	SW846 6010D
JD77365-18	**E23-05066-018_TWP2**					
Aluminum		5200	200		ug/l	SW846 6010D
Arsenic		3.8	3.0		ug/l	SW846 6010D
Barium		298	200		ug/l	SW846 6010D
Calcium		81800	5000		ug/l	SW846 6010D
Chromium		15.1	10		ug/l	SW846 6010D
Copper		38.6	10		ug/l	SW846 6010D
Iron		6370	100		ug/l	SW846 6010D
Lead		299	3.0		ug/l	SW846 6010D
Magnesium		11900	5000		ug/l	SW846 6010D
Manganese		514	15		ug/l	SW846 6010D
Nickel		25.3	10		ug/l	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Sodium		84700	10000		ug/l	SW846 6010D
Zinc		129	20		ug/l	SW846 6010D
JD77365-18F	**E23-05066-022_TWP2 FILT**					
Aluminum		486	200		ug/l	SW846 6010D
Calcium		101000	5000		ug/l	SW846 6010D
Iron		630	100		ug/l	SW846 6010D
Lead		30.9	3.0		ug/l	SW846 6010D
Magnesium		12400	5000		ug/l	SW846 6010D
Manganese		496	15		ug/l	SW846 6010D
Sodium		85700	10000		ug/l	SW846 6010D
Zinc		29.9	20		ug/l	SW846 6010D
JD77365-19	**E23-05066-019_TWP5**					
Aluminum		22800	200		ug/l	SW846 6010D
Arsenic		8.0	3.0		ug/l	SW846 6010D
Barium		589	200		ug/l	SW846 6010D
Beryllium		3.1	1.0		ug/l	SW846 6010D
Calcium		41800	5000		ug/l	SW846 6010D
Chromium		64.0	10		ug/l	SW846 6010D
Copper		105	10		ug/l	SW846 6010D
Iron		29000	100		ug/l	SW846 6010D
Lead		30.2	3.0		ug/l	SW846 6010D
Magnesium		15600	5000		ug/l	SW846 6010D
Manganese		3540	15		ug/l	SW846 6010D
Nickel		78.7	10		ug/l	SW846 6010D
Potassium		11600	10000		ug/l	SW846 6010D
Sodium		67100	10000		ug/l	SW846 6010D
Vanadium		62.2	50		ug/l	SW846 6010D
Zinc		201	20		ug/l	SW846 6010D
JD77365-19F	**E23-05066-023_TWP5 FILT**					
Aluminum		6060	200		ug/l	SW846 6010D
Barium		296	200		ug/l	SW846 6010D
Beryllium		1.1	1.0		ug/l	SW846 6010D
Calcium		40500	5000		ug/l	SW846 6010D
Chromium		16.1	10		ug/l	SW846 6010D
Copper		33.7	10		ug/l	SW846 6010D
Iron		6950	100		ug/l	SW846 6010D
Lead		10.8	3.0		ug/l	SW846 6010D
Magnesium		10900	5000		ug/l	SW846 6010D
Manganese		1060	15		ug/l	SW846 6010D

Summary of Hits

Job Number: JD77365
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/16/23 thru 11/17/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Nickel		25.5	10		ug/l	SW846 6010D
Sodium		66000	10000		ug/l	SW846 6010D
Zinc		84.5	20		ug/l	SW846 6010D

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-001_SB10A		
Lab Sample ID:	JD77365-1	**Date Sampled:**	11/16/23
Matrix:	SO - Soil	**Date Received:**	11/21/23
		Percent Solids:	90.9
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4960	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	4.6	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	280	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.35	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.55	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Calcium	24700	1100	mg/kg	2	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Chromium	12.2	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.5	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	11.9	2.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	8700	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	248	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	2080	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	318	1.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.24	0.033	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	8.6	4.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.55	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	19.6	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	277	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-002_SB10B		
Lab Sample ID:	JD77365-2	**Date Sampled:**	11/16/23
Matrix:	SO - Soil	**Date Received:**	11/21/23
		Percent Solids:	91.5
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5670	54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	33.5	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.52	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.54	0.54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	1380	540	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	11.9	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	< 5.4	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	9.7	2.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	9570	54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	9.5	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	2050	540	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	259	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.064	0.033	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	11.1	4.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1430	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	< 0.54	0.54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	16.1	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	33.9	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Prep QC Batch: MP43322
(4) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-003_SB2A		
Lab Sample ID:	JD77365-3	**Date Sampled:**	11/16/23
Matrix:	SO - Soil	**Date Received:**	11/21/23
		Percent Solids:	86.4
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6220	58	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.3	2.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	5.7	2.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	363	23	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.45	0.23	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.58	0.58	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Calcium	31500	1200	mg/kg	2	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Chromium	14.2	1.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.8	5.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	34.7	2.9	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	9550	58	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	797	2.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	2970	580	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	293	1.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.70	0.033	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	11.3	4.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	1240	1200	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.3	2.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	< 0.58	0.58	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1200	1200	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.2	1.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	22.4	5.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	329	5.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-004_SB2B		
Lab Sample ID:	JD77365-4	**Date Sampled:**	11/16/23
Matrix:	SO - Soil	**Date Received:**	11/21/23
		Percent Solids:	95.6
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	3640	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	37.9	21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.41	0.21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.53	0.53	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	1980	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	9.9	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.3	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	10.9	2.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	7770	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	8.8	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	1920	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	236	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	< 0.032	0.032	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	8.4	4.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	1150	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	< 0.53	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	12.5	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	25.4	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-005_SB5		
Lab Sample ID:	JD77365-5	**Date Sampled:**	11/16/23
Matrix:	SO - Soil	**Date Received:**	11/21/23
		Percent Solids:	92.1
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	9790	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	6.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	96.8	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.51	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.55	0.55	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	3790	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	31.5	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	6.5	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	25.3	2.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	13200	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	107	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	5470	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	250	1.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.13	0.029	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	18.1	4.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	1180	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.65	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	23.9	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	105	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05066-006_SB3A		
Lab Sample ID:	JD77365-6	**Date Sampled:**	11/16/23
Matrix:	SO - Soil	**Date Received:**	11/21/23
		Percent Solids:	91.1
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5880	56	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	4.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	206	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.45	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.56	0.56	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	9640	560	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	12.3	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.6	5.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	16.8	2.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	13900	56	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	301	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	3430	560	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	258	1.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.67	0.034	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	12.6	4.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	1530	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.62	0.56	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	25.9	5.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	164	5.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-007_SB3B		
Lab Sample ID:	JD77365-7	**Date Sampled:**	11/16/23
Matrix:	SO - Soil	**Date Received:**	11/21/23
		Percent Solids:	94.8
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4440	52	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	2.4	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	41.1	21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.40	0.21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.52	0.52	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	5710	520	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	10.8	1.0	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.2	5.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	14.0	2.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	8580	52	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	26.2	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	2510	520	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	299	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.11	0.032	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	14.0	4.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1000	1000	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	< 0.52	0.52	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1000	1000	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.0	1.0	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	14.9	5.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	42.1	5.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-008_SB9A		
Lab Sample ID:	JD77365-8	**Date Sampled:**	11/17/23
Matrix:	SO - Soil	**Date Received:**	11/21/23
		Percent Solids:	92.9
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6910	54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	5.9	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	248	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.49	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	1.0	0.54	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	47900	2700	mg/kg	5	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Chromium	14.5	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.4	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	26.7	2.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	8460	54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	381	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	5830	540	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	272	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.70	0.032	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	10.0	4.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.63	0.54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	23.2	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	219	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-009_SB9B		
Lab Sample ID:	JD77365-9	**Date Sampled:**	11/17/23
Matrix:	SO - Soil	**Date Received:**	11/21/23
		Percent Solids:	95.1
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6010	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	2.2	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	60.2	21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.52	0.21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.53	0.53	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	7980	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	13.3	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.3	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	16.7	2.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	9870	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	16.6	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	2890	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	370	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.040	0.030	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	13.7	4.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	1370	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	< 0.53	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	17.1	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	30.9	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05066-010_SB1A		
Lab Sample ID:	JD77365-10	**Date Sampled:**	11/17/23
Matrix:	SO - Soil	**Date Received:**	11/21/23
		Percent Solids:	91.0
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	2040	56	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	84.7	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.26	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.56	0.56	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	17400	560	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	5.0	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.6	5.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	12.6	2.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	3370	56	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	130	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	2140	560	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	97.7	1.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.59	0.035	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	4.5	4.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	1.2	0.56	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	5.8	5.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	87.4	5.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05066-011_SB1B		
Lab Sample ID:	JD77365-11	**Date Sampled:**	11/17/23
Matrix:	SO - Soil	**Date Received:**	11/21/23
		Percent Solids:	93.8
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	3770	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	5.6	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	408	21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.30	0.21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	1.3	0.53	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	14600	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	12.8	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.3	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	19.7	2.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	9690	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	547	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	3550	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	269	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.62	0.033	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	8.6	4.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.63	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	14.3	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	616	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05066-012_SB4A		
Lab Sample ID:	JD77365-12	**Date Sampled:**	11/17/23
Matrix:	SO - Soil	**Date Received:**	11/21/23
		Percent Solids:	90.9
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	7330	54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	12.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	246	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.33	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	0.61	0.54	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	15500	540	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	13.6	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.4	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	34.9	2.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	11600	54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	500	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	2460	540	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	241	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	1.2	0.069	mg/kg	2	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	10.6	4.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.68	0.54	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	20.9	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	288	5.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05066-013_SB4B		
Lab Sample ID:	JD77365-13	**Date Sampled:**	11/17/23
Matrix:	SO - Soil	**Date Received:**	11/21/23
		Percent Solids:	93.2
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6130	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	6.7	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	194	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.42	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.55	0.55	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	20000	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Chromium	14.9	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.5	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	23.8	2.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	10300	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	353	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	2940	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	337	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.33	0.032	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	12.0	4.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.58	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	16.3	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	180	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05066-014_SB6-419-CS		
Lab Sample ID:	JD77365-14	**Date Sampled:**	11/17/23
Matrix:	SO - Soil	**Date Received:**	11/21/23
		Percent Solids:	92.6
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4840	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	3.5	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	517	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.36	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	0.63	0.55	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	32100	1100	mg/kg	2	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Chromium	14.0	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.5	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	34.8	2.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	10200	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	1070	4.4	mg/kg	2	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Magnesium	3800	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	222	1.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.37	0.032	mg/kg	1	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	13.1	4.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.75	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	17.3	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	405	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05066-015_SB8-401-CS		
Lab Sample ID:	JD77365-15	**Date Sampled:**	11/17/23
Matrix:	SO - Soil	**Date Received:**	11/21/23
		Percent Solids:	93.7
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5230	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	4.5	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	341	21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.41	0.21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	0.68	0.53	mg/kg	1	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Calcium	22400	1100	mg/kg	2	11/27/23	11/29/23	ND	SW846 6010D [3]	SW846 3050B [4]
Chromium	14.5	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.3	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	20.8	2.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	9740	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	684	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	4360	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	241	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.98	0.065	mg/kg	2	11/28/23	11/29/23	LM	SW846 7471B [2]	SW846 7471B [5]
Nickel	13.7	4.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	1370	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.60	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	16.4	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	268	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55139
(2) Instrument QC Batch: MA55140
(3) Instrument QC Batch: MA55148
(4) Prep QC Batch: MP43322
(5) Prep QC Batch: MP43401

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05066-016_TWP1		
Lab Sample ID:	JD77365-16	**Date Sampled:**	11/16/23
Matrix:	AQ - Water	**Date Received:**	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	23600	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	10.6	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	400	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	3.3	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	94900	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	66.7	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	90.0	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	30200	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	89.7	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	26800	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	4020	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/30/23	11/30/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	99.9	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	14800	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	138000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	60.8	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	174	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55150
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-020_TWP1 FILT		
Lab Sample ID:	JD77365-16F	**Date Sampled:**	11/16/23
Matrix:	AQ - Water Filtered	**Date Received:**	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	76700	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	165	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	13800	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	195	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/29/23	11/29/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	11000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	141000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	< 20	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55142
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05066-017_TWP4		
Lab Sample ID:	JD77365-17	**Date Sampled:**	11/16/23
Matrix:	AQ - Water	**Date Received:**	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	3730	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	1.0	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	51900	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	13.7	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	4370	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	9.8	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	10000	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	423	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/29/23	11/29/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	11.4	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	12000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	79500	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	21.9	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55142
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05066-021_TWP4 FILT		
Lab Sample ID:	JD77365-17F	**Date Sampled:**	11/16/23
Matrix:	AQ - Water Filtered	**Date Received:**	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	1330	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	52300	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	1580	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	4.6	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	9420	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	223	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/29/23	11/29/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	11500	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	78900	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	74.0	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55142
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-018_TWP2		
Lab Sample ID:	JD77365-18	**Date Sampled:**	11/16/23
Matrix:	AQ - Water	**Date Received:**	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5200	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	3.8	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	298	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	81800	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	15.1	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	38.6	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	6370	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	299	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	11900	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	514	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/30/23	11/30/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	25.3	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	< 10000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	84700	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	129	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55150
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05066-022_TWP2 FILT		
Lab Sample ID:	JD77365-18F	**Date Sampled:**	11/16/23
Matrix:	AQ - Water Filtered	**Date Received:**	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	486	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	101000	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	630	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	30.9	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	12400	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	496	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/29/23	11/29/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	< 10000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	85700	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	29.9	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55142
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05066-019_TWP5		
Lab Sample ID:	JD77365-19	**Date Sampled:**	11/16/23
Matrix:	AQ - Water	**Date Received:**	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	22800	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	8.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	589	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	3.1	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	41800	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	64.0	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	105	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	29000	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	30.2	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	15600	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	3540	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/29/23	11/29/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	78.7	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	11600	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	67100	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	62.2	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	201	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55142
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05066-023_TWP5 FILT		
Lab Sample ID:	JD77365-19F	**Date Sampled:**	11/16/23
Matrix:	AQ - Water Filtered	**Date Received:**	11/21/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6060	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	296	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	1.1	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	40500	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	16.1	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	33.7	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	6950	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	10.8	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	10900	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	1060	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/29/23	11/29/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	25.5	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	< 10000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	66000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	84.5	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55131
(2) Instrument QC Batch: MA55142
(3) Prep QC Batch: MP43317
(4) Prep QC Batch: MP43408

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

D/O4945

SGS Dayton
Fresh Ponds Corporate Village, Building B 2235 Route 130, Dayton, NJ 08810

JD77365

CLIENT & PROJECT

Name: Integrated Analytical Laboratories LLC	
Address:	
273 Franklin Road	
Randolph, NJ 07869	
Telephone #: 973-361-4252	
Project Name: E23-05066	
Project Location (State): NY	
Project Manager:	
Reference ID#: PO#	

REPORTING & BILLING

Contact:	Kim James
Fax #:	
EMail to:	msimmons@ialonline.com
Report to:	Melissa Simmons
Address:	
Invoice to:	Brenda Barone
Address:	

Turnaround Time		Report Format
Verbal/Fax		Category A
24 hr* 48 hr* 72 hr* 1 wk* 2 wk Other:	1 WEEK	
Hard Copy		Special Requirements
72 hr* 1 wk* 2 wk* 3 wk Other:		
*Prior to sample arrival, Lab notification is required.		

Preservative
1 = HCL; 2 = NaOH; 3 = HNO_3
4 = H_2SO_4; 5 = MeOH; 6 = Other

ANALYTICAL PARAMETERS / PRESERVATIVES

SAMPLE INFORMATION

	Sample ID	Sample Depth (in Feet)	Sampling Date	Sampling Time	Matrix	# of Containers	TAL Metals (6020B/7471B)													
							1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
1	E23-05066-001_SB10A		11/16/23	09:30	Soil	1	Run													A7
2	E23-05066-002_SB10B		11/16/23	09:45	Soil	1	Run													D3374
3	E23-05066-003_SB2A		11/16/23	10:00	Soil	1	Run													
4	E23-05066-004_SB2B		11/16/23	10:20	Soil	1	Run													
5	E23-05066-005_SB5		11/16/23	13:40	Soil	1	Run													
6	E23-05066-006_SB3A		11/16/23	13:05	Soil	1	Run													
7	E23-05066-007_SB3B		11/16/23	13:10	Soil	1	Run													
8	E23-05066-008_SB9A		11/17/23	08:00	Soil	1	Run													
9	E23-05066-009_SB9B		11/17/23	08:10	Soil	1	Run													
10	E23-05066-010_SB1A		11/17/23	09:00	Soil	1	Run													

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time will not start until any ambiguities have been resolved.

COOLER TEMP.	Concentrations Expected	Known Hazard: yes no
0.6 °C	LOW MED HIGH	Describe:

11/21/23 Initial Assessment

Note: 1 WEEK TAT

Label Verification

EMAIL CONFIRMATION REQUIRED

SAMPLES 020 - 023 ARE FIELD FILTERED VOLUME OF SAMPLES 016 - 019.

CUSTODY LOG

	Signature/Company	Date	Time		Signature/Company
Relinquished by:	Kim James	11/21/23	8:00AM	Received by:	11/21/23 6:50
Relinquished by:		11/21/23	9:50	Received by:	
Relinquished by:				Received by:	

Lab Case #

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COC (001-010)

REV Feb 2013

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JD77365: Chain of Custody
Page 1 of 4

SGS Dayton
Fresh Ponds Corporate Village, Building B 2235 Route 130, Dayton, NJ 08810

D/O4945

JD77365

CLIENT & PROJECT		REPORTING & BILLING	
Name: Integrated Analytical Laboratories LLC		Contact:	Kim James
		Fax #:	
Address:		EMail to:	msimmons@ialonline.com
273 Franklin Road		Report to:	Melissa Simmons
Randolph, NJ 07869		Address:	
Telephone #:	973-361-4252		
Project Name:	E23-05066	Invoice to:	Brenda Barone
Project Location (State):	NY	Address:	
Project Manager:			
Reference ID#:	PO#		

Turnaround Time		Report Format
Verbal/Fax		Category A
24 hr* 48 hr* 72 hr* 1 wk* 2 wk Other:	1 WEEK	
Hard Copy		Special Requirements
72 hr* 1 wk* 2 wk* 3 wk Other:		
*Prior to sample arrival, Lab notification is required.		

Preservative
1 = HCL; 2 = NaOH; 3 = HNO_3
4 = H_2SO_4; 5 = MeOH; 6 = Other

ANALYTICAL PARAMETERS / PRESERVATIVES

SAMPLE INFORMATION

	Sample ID	Sample Depth (in Feet)	Sampling Date	Sampling Time	Matrix	# of Containers	TAL Metals (6020B/7471B)	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
11	E23-05066-011_SB1B		11/17/23	09:15	Soil	1	Run													
12	E23-05066-012_SB4A		11/17/23	09:55	Soil	1	Run													
13	E23-05066-013_SB4B		11/17/23	10:05	Soil	1	Run													
14	E23-05066-014_SB6-419-CS		11/17/23	11:30	Soil	1	Run													
15	E23-05066-015_SB8-401-CS		11/17/23	11:40	Soil	1	Run													
16	E23-05066-016_TWP1		11/16/23	09:30	Aqueous	1	Run													
17	E23-05066-017_TWP4		11/16/23	10:20	Aqueous	1	Run													
8	E23-05066-018_TWP2		11/16/23	10:00	Aqueous	1	Run													
19	E23-05066-019_TWP5		11/16/23	14:00	Aqueous	1	Run													
16F	E23-05066-020_TWP1 FILT		11/16/23	09:30	Aqueous	1	Run													

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time will not start until any ambiguities have been resolved.

COOLER TEMP. 0.6 °C 1R40

Concentrations Expected LOW MED HIGH

Known Hazard: yes no
Describe:

EMAIL CONFIRMATION REQUIRED

Note: 1 WEEK TAT

SAMPLES 020 - 023 ARE FIELD FILTERED VOLUME OF SAMPLES 016 - 019.

CUSTODY LOG

Signature/Company	Date	Time	Signature/Company
Relinquished by: Kim James	11/21/23	8:00AM	Received by: George [illegible] 11/21/23
Relinquished by: George [illegible]	11/21/23	9:50	Received by: [illegible]
Relinquished by:			Received by:

Lab Case #

PAGE: 2 OF 3

COC (011-020)

REV Feb 2013

5.1

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JD77365: Chain of Custody
Page 2 of 4

SGS Dayton
Fresh Ponds Corporate Village, Building B 2235 Route 130, Dayton, NJ 08810

D/O4945

JD77365

CLIENT & PROJECT

Name: Integrated Analytical Laboratories LLC	
Address:	
273 Franklin Road	
Randolph, NJ 07869	
Telephone #: 973-361-4252	
Project Name: E23-05066	
Project Location (State): NY	
Project Manager:	
Reference ID#: PO#	

REPORTING & BILLING

Contact:	Kim James
Fax #:	
EMail to:	msimmons@ialonline.com
Report to:	Melissa Simmons
Address:	
Invoice to:	Brenda Barone
Address:	

Turnaround Time	Report Format
Verbal/Fax: 24 hr* 48 hr* 72 hr* 1 wk* 2 wk Other: 1 WEEK	Category A
Hard Copy: 72 hr* 1 wk* 2 wk* 3 wk Other:	Special Requirements
*Prior to sample arrival, Lab notification is required.	

ANALYTICAL PARAMETERS / PRESERVATIVES

Preservative: 1 - HCL; 2 - NaOH; 3 - HNO_3; 4 - H_2SO_4; 5 - MeOH; 6 = Other

SAMPLE INFORMATION

	Sample ID	Sample Depth (in Feet)	Sampling Date	Sampling Time	Matrix	# of Containers	TAL Metals (6020B/7471B)
17	E23-05066-021_TWP4 FILT		11/16/23	10:20	Aqueous	1	Run
18	E23-05066-022_TWP2 FILT		11/16/23	10:00	Aqueous	1	Run
19	E23-05066-023_TWP5 FILT		11/16/23	14:00	Aqueous	1	Run

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time will not start until any ambiguities have been resolved.

COOLER TEMP. 0.6 °C

Concentrations Expected: LOW MED HIGH

Known Hazard: yes no

Describe:

Note: 1 WEEK TAT

SAMPLES 020 - 023 ARE FIELD FILTERED VOLUME OF SAMPLES 016 - 019.

EMAIL CONFIRMATION REQUIRED

CUSTODY LOG

Signature/Company	Date	Time	Signature/Company
Relinquished by:	11/21/23	8:00AM	Received by:
Relinquished by:	11/21/23	9:50	Received by: 11/21/23
Relinquished by:			Received by:

COC (021-023)

Lab Case #

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REV Feb 2013

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JD77365: Chain of Custody
Page 3 of 4

SGS Sample Receipt Summary

Job Number: JD77365 **Client:** INTEGRATED ANALYTICAL LABORATOR **Project:** E23-05066

Date / Time Received: 11/21/2023 9:50:00 AM **Delivery Method:** CLIENT **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (0.6);

Cooler Temps (Corrected) °C: Cooler 1: (0.6);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:			
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservatio	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Test Strip Lot #s: pH 1-12: 231619 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

JD77365: Chain of Custody
Page 4 of 4

Internal Sample Tracking Chronicle

Integrated Analytical Lab

Job No: JD77365

Integrated Analytical Lab, Randolph, NJ
Project No: E23-05066

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD77365-1	Collected: 16-NOV-23 09:30 By: E23-05066-001_SB10A		Received: 21-NOV-23 By: HR			
JD77365-1	SM2540 G 18TH ED MOD	22-NOV-23 15:37	MP			SOL104
JD77365-1	SW846 6010D	28-NOV-23 18:24	ND	27-NOV-23	NV	AG,AL,AS,BA,BE,CD,CO,CR,CU, FE,K,MG,MN,NA,NI,PB,SB,SE, TL,V,ZN
JD77365-1	SW846 7471B	29-NOV-23 13:04	LM	28-NOV-23	LM	HG
JD77365-1	SW846 6010D	29-NOV-23 15:06	ND	27-NOV-23	NV	CA
JD77365-2	Collected: 16-NOV-23 09:45 By: E23-05066-002_SB10B		Received: 21-NOV-23 By: HR			
JD77365-2	SM2540 G 18TH ED MOD	22-NOV-23 15:37	MP			SOL104
JD77365-2	SW846 6010D	28-NOV-23 18:04	ND	27-NOV-23	NV	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JD77365-2	SW846 7471B	29-NOV-23 13:06	LM	28-NOV-23	LM	HG
JD77365-3	Collected: 16-NOV-23 10:00 By: E23-05066-003_SB2A		Received: 21-NOV-23 By: HR			
JD77365-3	SM2540 G 18TH ED MOD	22-NOV-23 15:37	MP			SOL104
JD77365-3	SW846 6010D	28-NOV-23 18:29	ND	27-NOV-23	NV	AG,AL,AS,BA,BE,CD,CO,CR,CU, FE,K,MG,MN,NA,NI,PB,SB,SE, TL,V,ZN
JD77365-3	SW846 7471B	29-NOV-23 13:13	LM	28-NOV-23	LM	HG
JD77365-3	SW846 6010D	29-NOV-23 15:21	ND	27-NOV-23	NV	CA
JD77365-4	Collected: 16-NOV-23 10:20 By: E23-05066-004_SB2B		Received: 21-NOV-23 By: HR			
JD77365-4	SM2540 G 18TH ED MOD	22-NOV-23 15:37	MP			SOL104
JD77365-4	SW846 6010D	28-NOV-23 18:44	ND	27-NOV-23	NV	AG,AL,AS,BA,BE,CA,CO,CR,CU, FE,K,MG,MN,NA,NI,PB,SB,SE, TL,V,ZN
JD77365-4	SW846 7471B	29-NOV-23 13:14	LM	28-NOV-23	LM	HG
JD77365-4	SW846 6010D	29-NOV-23 13:54	ND	27-NOV-23	NV	CD

Internal Sample Tracking Chronicle

Integrated Analytical Lab

Job No: JD77365

Integrated Analytical Lab, Randolph, NJ
Project No: E23-05066

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD77365-5	Collected: 16-NOV-23 13:40 By: E23-05066-005_SB5		Received: 21-NOV-23 By: HR			
JD77365-5	SM2540 G 18TH ED MOD	22-NOV-23 15:37	MP			SOL104
JD77365-5	SW846 6010D	28-NOV-23 18:50	ND	27-NOV-23	NV	AG,AL,AS,BA,BE,CA,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JD77365-5	SW846 7471B	29-NOV-23 13:17	LM	28-NOV-23	LM	HG
JD77365-5	SW846 6010D	29-NOV-23 13:59	ND	27-NOV-23	NV	CD
JD77365-6	Collected: 16-NOV-23 13:05 By: E23-05066-006_SB3A		Received: 21-NOV-23 By: HR			
JD77365-6	SM2540 G 18TH ED MOD	22-NOV-23 15:37	MP			SOL104
JD77365-6	SW846 6010D	28-NOV-23 18:55	ND	27-NOV-23	NV	AG,AL,AS,BA,BE,CA,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JD77365-6	SW846 7471B	29-NOV-23 13:18	LM	28-NOV-23	LM	HG
JD77365-6	SW846 6010D	29-NOV-23 14:05	ND	27-NOV-23	NV	CD
JD77365-7	Collected: 16-NOV-23 13:10 By: E23-05066-007_SB3B		Received: 21-NOV-23 By: HR			
JD77365-7	SM2540 G 18TH ED MOD	22-NOV-23 15:37	MP			SOL104
JD77365-7	SW846 6010D	28-NOV-23 19:00	ND	27-NOV-23	NV	AG,AL,AS,BA,BE,CA,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JD77365-7	SW846 7471B	29-NOV-23 13:20	LM	28-NOV-23	LM	HG
JD77365-7	SW846 6010D	29-NOV-23 14:20	ND	27-NOV-23	NV	CD
JD77365-8	Collected: 17-NOV-23 08:00 By: E23-05066-008_SB9A		Received: 21-NOV-23 By: HR			
JD77365-8	SM2540 G 18TH ED MOD	22-NOV-23 15:37	MP			SOL104
JD77365-8	SW846 6010D	28-NOV-23 19:05	ND	27-NOV-23	NV	AG,AL,AS,BA,BE,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JD77365-8	SW846 7471B	29-NOV-23 13:23	LM	28-NOV-23	LM	HG
JD77365-8	SW846 6010D	29-NOV-23 14:25	ND	27-NOV-23	NV	CD

Internal Sample Tracking Chronicle

Integrated Analytical Lab

Job No: JD77365

Integrated Analytical Lab, Randolph, NJ
Project No: E23-05066

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD77365-8	SW846 6010D	29-NOV-23 15:27	ND	27-NOV-23	NV	CA
JD77365-9	Collected: 17-NOV-23 08:10 By: E23-05066-009_SB9B		Received: 21-NOV-23 By: HR			
JD77365-9	SM2540 G 18TH ED MOD	22-NOV-23 15:37	MP			SOL104
JD77365-9	SW846 6010D	28-NOV-23 19:10	ND	27-NOV-23	NV	AG,AL,AS,BA,BE,CA,CO,CR,CU, FE,K,MG,MN,NA,NI,PB,SB,SE, TL,V,ZN
JD77365-9	SW846 7471B	29-NOV-23 13:29	LM	28-NOV-23	LM	HG
JD77365-9	SW846 6010D	29-NOV-23 14:30	ND	27-NOV-23	NV	CD
JD77365-10	Collected: 17-NOV-23 09:00 By: E23-05066-010_SB1A		Received: 21-NOV-23 By: HR			
JD77365-10	SM2540 G 18TH ED MOD	22-NOV-23 15:37	MP			SOL104
JD77365-10	SW846 6010D	28-NOV-23 19:15	ND	27-NOV-23	NV	AG,AL,AS,BA,BE,CA,CO,CR,CU, FE,K,MG,MN,NA,NI,PB,SB,SE, TL,V,ZN
JD77365-10	SW846 7471B	29-NOV-23 13:31	LM	28-NOV-23	LM	HG
JD77365-10	SW846 6010D	29-NOV-23 14:35	ND	27-NOV-23	NV	CD
JD77365-11	Collected: 17-NOV-23 09:15 By: E23-05066-011_SB1B		Received: 21-NOV-23 By: HR			
JD77365-11	SM2540 G 18TH ED MOD	22-NOV-23 15:37	MP			SOL104
JD77365-11	SW846 6010D	28-NOV-23 19:20	ND	27-NOV-23	NV	AG,AL,AS,BA,BE,CA,CO,CR,CU, FE,K,MG,MN,NA,NI,PB,SB,SE, TL,V,ZN
JD77365-11	SW846 7471B	29-NOV-23 13:33	LM	28-NOV-23	LM	HG
JD77365-11	SW846 6010D	29-NOV-23 14:40	ND	27-NOV-23	NV	CD
JD77365-12	Collected: 17-NOV-23 09:55 By: E23-05066-012_SB4A		Received: 21-NOV-23 By: HR			
JD77365-12	SM2540 G 18TH ED MOD	22-NOV-23 15:37	MP			SOL104
JD77365-12	SW846 6010D	28-NOV-23 19:25	ND	27-NOV-23	NV	AG,AL,AS,BA,BE,CA,CO,CR,CU, FE,K,MG,MN,NA,NI,PB,SB,SE, TL,V,ZN
JD77365-12	SW846 6010D	29-NOV-23 14:45	ND	27-NOV-23	NV	CD

Internal Sample Tracking Chronicle

Integrated Analytical Lab

Job No: JD77365

Integrated Analytical Lab, Randolph, NJ
Project No: E23-05066

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD77365-12	SW846 7471B	29-NOV-23 16:48	LM	28-NOV-23	LM	HG
JD77365-13	Collected: 17-NOV-23 10:05 By: E23-05066-013_SB4B		Received: 21-NOV-23 By: HR			
JD77365-13	SM2540 G 18TH ED MOD	22-NOV-23 15:37	MP			SOL104
JD77365-13	SW846 6010D	28-NOV-23 19:30	ND	27-NOV-23	NV	AG,AL,AS,BA,BE,CA,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JD77365-13	SW846 7471B	29-NOV-23 13:37	LM	28-NOV-23	LM	HG
JD77365-13	SW846 6010D	29-NOV-23 14:51	ND	27-NOV-23	NV	CD
JD77365-14	Collected: 17-NOV-23 11:30 By: E23-05066-014_SB6-419-CS		Received: 21-NOV-23 By: HR			
JD77365-14	SM2540 G 18TH ED MOD	22-NOV-23 15:37	MP			SOL104
JD77365-14	SW846 6010D	28-NOV-23 19:45	ND	27-NOV-23	NV	AG,AL,AS,BA,BE,CO,CR,CU,FE,K,MG,MN,NA,NI,SB,SE,TL,V,ZN
JD77365-14	SW846 7471B	29-NOV-23 13:40	LM	28-NOV-23	LM	HG
JD77365-14	SW846 6010D	29-NOV-23 14:56	ND	27-NOV-23	NV	CD
JD77365-14	SW846 6010D	29-NOV-23 15:32	ND	27-NOV-23	NV	CA,PB
JD77365-15	Collected: 17-NOV-23 11:40 By: E23-05066-015_SB8-401-CS		Received: 21-NOV-23 By: HR			
JD77365-15	SM2540 G 18TH ED MOD	22-NOV-23 15:37	MP			SOL104
JD77365-15	SW846 6010D	28-NOV-23 19:50	ND	27-NOV-23	NV	AG,AL,AS,BA,BE,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JD77365-15	SW846 6010D	29-NOV-23 15:01	ND	27-NOV-23	NV	CD
JD77365-15	SW846 6010D	29-NOV-23 15:37	ND	27-NOV-23	NV	CA
JD77365-15	SW846 7471B	29-NOV-23 16:49	LM	28-NOV-23	LM	HG
JD77365-16	Collected: 16-NOV-23 09:30 By: E23-05066-016_TWP1		Received: 21-NOV-23 By: HR			
JD77365-16	SW846 6010D	27-NOV-23 09:24	ND	22-NOV-23	RE	AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,K,MG,MN,NA,NI,PB,SB,SE,TL,V,ZN
JD77365-16	SW846 7470A	30-NOV-23 17:22	LM	30-NOV-23	LM	HG

Internal Sample Tracking Chronicle

Integrated Analytical Lab

Job No: JD77365

Integrated Analytical Lab, Randolph, NJ
Project No: E23-05066

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD77365-17 Collected: 16-NOV-23 10:20 By: E23-05066-017_TWP4			Received: 21-NOV-23 By: HR			
JD77365-17	SW846 6010D	27-NOV-23 09:29	ND	22-NOV-23	RE	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JD77365-17	SW846 7470A	29-NOV-23 15:06	LM	29-NOV-23	MET	HG
JD77365-18 Collected: 16-NOV-23 10:00 By: E23-05066-018_TWP2			Received: 21-NOV-23 By: HR			
JD77365-18	SW846 6010D	27-NOV-23 09:44	ND	22-NOV-23	RE	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JD77365-18	SW846 7470A	30-NOV-23 17:23	LM	30-NOV-23	LM	HG
JD77365-19 Collected: 16-NOV-23 14:00 By: E23-05066-019_TWP5			Received: 21-NOV-23 By: HR			
JD77365-19	SW846 6010D	27-NOV-23 09:49	ND	22-NOV-23	RE	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JD77365-19	SW846 7470A	29-NOV-23 15:12	LM	29-NOV-23	MET	HG
JD77365-16F Collected: 16-NOV-23 09:30 By: E23-05066-020_TWP1 FILT			Received: 21-NOV-23 By: HR			
JD77365-16F	SW846 6010D	27-NOV-23 09:54	ND	22-NOV-23	RE	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JD77365-16F	SW846 7470A	29-NOV-23 15:14	LM	29-NOV-23	MET	HG
JD77365-17F Collected: 16-NOV-23 10:20 By: E23-05066-021_TWP4 FILT			Received: 21-NOV-23 By: HR			
JD77365-17F	SW846 6010D	27-NOV-23 09:59	ND	22-NOV-23	RE	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JD77365-17F	SW846 7470A	29-NOV-23 15:15	LM	29-NOV-23	MET	HG

Internal Sample Tracking Chronicle

Integrated Analytical Lab

Job No: JD77365

Integrated Analytical Lab, Randolph, NJ
Project No: E23-05066

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD77365-18F	Collected: 16-NOV-23 10:00 By:		Received: 21-NOV-23 By: HR			
E23-05066-022_TWP2 FILT						
JD77365-18E	SW846 6010D	27-NOV-23 10:04	ND	22-NOV-23	RE	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JD77365-18E	SW846 7470A	29-NOV-23 15:17	LM	29-NOV-23	MET	HG
JD77365-19F	Collected: 16-NOV-23 14:00 By:		Received: 21-NOV-23 By: HR			
E23-05066-023_TWP5 FILT						
JD77365-19E	SW846 6010D	27-NOV-23 10:09	ND	22-NOV-23	RE	AG,AL,AS,BA,BE,CA,CD,CO,CR, CU,FE,K,MG,MN,NA,NI,PB,SB, SE,TL,V,ZN
JD77365-19E	SW846 7470A	29-NOV-23 15:18	LM	29-NOV-23	MET	HG

SGS Internal Chain of Custody

Job Number: JD77365
Account: IALNJR Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Received: 11/21/23

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD77365-1.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-1.1	Secured Storage	Dave Hunkele	11/22/23 10:48	Retrieve from Storage
JD77365-1.1	Dave Hunkele	Secured Staging Area	11/22/23 10:48	Return to Storage
JD77365-1.1	Secured Staging Area	Mahendra Patel	11/22/23 13:03	Retrieve from Storage
JD77365-1.1	Mahendra Patel	Secured Storage	11/22/23 16:12	Return to Storage
JD77365-1.1	Secured Storage	Dave Hunkele	11/25/23 15:13	Retrieve from Storage
JD77365-1.1	Dave Hunkele	Secured Staging Area	11/25/23 15:13	Return to Storage
JD77365-1.1	Secured Storage	Dave Hunkele	11/28/23 06:09	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JD77365-1.1	Dave Hunkele	Secured Staging Area	11/28/23 06:09	Return to Storage
JD77365-1.1	Secured Staging Area	Lauren Matthews	11/28/23 10:13	Retrieve from Storage
JD77365-1.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-2.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-2.1	Secured Storage	Dave Hunkele	11/22/23 10:48	Retrieve from Storage
JD77365-2.1	Dave Hunkele	Secured Staging Area	11/22/23 10:48	Return to Storage
JD77365-2.1	Secured Staging Area	Mahendra Patel	11/22/23 13:03	Retrieve from Storage
JD77365-2.1	Mahendra Patel	Secured Storage	11/22/23 16:12	Return to Storage
JD77365-2.1	Secured Storage	Dave Hunkele	11/25/23 15:13	Retrieve from Storage
JD77365-2.1	Dave Hunkele	Secured Staging Area	11/25/23 15:13	Return to Storage
JD77365-2.1	Secured Storage	Dave Hunkele	11/28/23 06:09	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JD77365-2.1	Dave Hunkele	Secured Staging Area	11/28/23 06:09	Return to Storage
JD77365-2.1	Secured Staging Area	Lauren Matthews	11/28/23 10:13	Retrieve from Storage
JD77365-2.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-3.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-3.1	Secured Storage	Dave Hunkele	11/22/23 10:48	Retrieve from Storage
JD77365-3.1	Dave Hunkele	Secured Staging Area	11/22/23 10:48	Return to Storage
JD77365-3.1	Secured Staging Area	Mahendra Patel	11/22/23 13:03	Retrieve from Storage
JD77365-3.1	Mahendra Patel	Secured Storage	11/22/23 16:12	Return to Storage
JD77365-3.1	Secured Storage	Dave Hunkele	11/25/23 15:13	Retrieve from Storage
JD77365-3.1	Dave Hunkele	Secured Staging Area	11/25/23 15:13	Return to Storage
JD77365-3.1	Secured Storage	Dave Hunkele	11/28/23 06:09	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JD77365-3.1	Dave Hunkele	Secured Staging Area	11/28/23 06:09	Return to Storage
JD77365-3.1	Secured Staging Area	Lauren Matthews	11/28/23 10:13	Retrieve from Storage
JD77365-3.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-4.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-4.1	Secured Storage	Dave Hunkele	11/22/23 10:48	Retrieve from Storage
JD77365-4.1	Dave Hunkele	Secured Staging Area	11/22/23 10:48	Return to Storage
JD77365-4.1	Secured Staging Area	Mahendra Patel	11/22/23 13:03	Retrieve from Storage
JD77365-4.1	Mahendra Patel	Secured Storage	11/22/23 16:12	Return to Storage

SGS Internal Chain of Custody

Job Number: JD77365
Account: IALNJR Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Received: 11/21/23

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD77365-4.1	Secured Storage	Dave Hunkele	11/25/23 15:13	Retrieve from Storage
JD77365-4.1	Dave Hunkele	Secured Staging Area	11/25/23 15:13	Return to Storage
JD77365-4.1	Secured Storage	Dave Hunkele	11/28/23 06:09	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JD77365-4.1	Dave Hunkele	Secured Staging Area	11/28/23 06:09	Return to Storage
JD77365-4.1	Secured Staging Area	Lauren Matthews	11/28/23 10:13	Retrieve from Storage
JD77365-4.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-5.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-5.1	Secured Storage	Dave Hunkele	11/22/23 10:48	Retrieve from Storage
JD77365-5.1	Dave Hunkele	Secured Staging Area	11/22/23 10:48	Return to Storage
JD77365-5.1	Secured Staging Area	Mahendra Patel	11/22/23 13:03	Retrieve from Storage
JD77365-5.1	Mahendra Patel	Secured Storage	11/22/23 16:12	Return to Storage
JD77365-5.1	Secured Storage	Dave Hunkele	11/25/23 15:13	Retrieve from Storage
JD77365-5.1	Dave Hunkele	Secured Staging Area	11/25/23 15:13	Return to Storage
JD77365-5.1	Secured Storage	Dave Hunkele	11/28/23 06:09	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JD77365-5.1	Dave Hunkele	Secured Staging Area	11/28/23 06:09	Return to Storage
JD77365-5.1	Secured Staging Area	Lauren Matthews	11/28/23 10:13	Retrieve from Storage
JD77365-5.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-6.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-6.1	Secured Storage	Dave Hunkele	11/22/23 10:48	Retrieve from Storage
JD77365-6.1	Dave Hunkele	Secured Staging Area	11/22/23 10:48	Return to Storage
JD77365-6.1	Secured Staging Area	Mahendra Patel	11/22/23 13:03	Retrieve from Storage
JD77365-6.1	Mahendra Patel	Secured Storage	11/22/23 16:12	Return to Storage
JD77365-6.1	Secured Storage	Dave Hunkele	11/25/23 15:13	Retrieve from Storage
JD77365-6.1	Dave Hunkele	Secured Staging Area	11/25/23 15:13	Return to Storage
JD77365-6.1	Secured Storage	Dave Hunkele	11/28/23 06:09	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JD77365-6.1	Dave Hunkele	Secured Staging Area	11/28/23 06:09	Return to Storage
JD77365-6.1	Secured Staging Area	Lauren Matthews	11/28/23 10:13	Retrieve from Storage
JD77365-6.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-7.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-7.1	Secured Storage	Dave Hunkele	11/22/23 10:48	Retrieve from Storage
JD77365-7.1	Dave Hunkele	Secured Staging Area	11/22/23 10:48	Return to Storage
JD77365-7.1	Secured Staging Area	Mahendra Patel	11/22/23 13:03	Retrieve from Storage
JD77365-7.1	Mahendra Patel	Secured Storage	11/22/23 16:12	Return to Storage
JD77365-7.1	Secured Storage	Dave Hunkele	11/25/23 15:13	Retrieve from Storage
JD77365-7.1	Dave Hunkele	Secured Staging Area	11/25/23 15:13	Return to Storage
JD77365-7.1	Secured Storage	Dave Hunkele	11/28/23 06:09	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JD77365-7.1	Dave Hunkele	Secured Staging Area	11/28/23 06:09	Return to Storage

SGS Internal Chain of Custody

Job Number: JD77365
Account: IALNJR Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Received: 11/21/23

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD77365-7.1	Secured Staging Area	Lauren Matthews	11/28/23 10:13	Retrieve from Storage
JD77365-7.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-8.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-8.1	Secured Storage	Dave Hunkele	11/22/23 10:48	Retrieve from Storage
JD77365-8.1	Dave Hunkele	Secured Staging Area	11/22/23 10:48	Return to Storage
JD77365-8.1	Secured Staging Area	Mahendra Patel	11/22/23 13:03	Retrieve from Storage
JD77365-8.1	Mahendra Patel	Secured Storage	11/22/23 16:12	Return to Storage
JD77365-8.1	Secured Storage	Dave Hunkele	11/25/23 15:13	Retrieve from Storage
JD77365-8.1	Dave Hunkele	Secured Staging Area	11/25/23 15:13	Return to Storage
JD77365-8.1	Secured Storage	Dave Hunkele	11/28/23 06:09	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JD77365-8.1	Dave Hunkele	Secured Staging Area	11/28/23 06:09	Return to Storage
JD77365-8.1	Secured Staging Area	Lauren Matthews	11/28/23 10:13	Retrieve from Storage
JD77365-8.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-9.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-9.1	Secured Storage	Dave Hunkele	11/22/23 10:48	Retrieve from Storage
JD77365-9.1	Dave Hunkele	Secured Staging Area	11/22/23 10:48	Return to Storage
JD77365-9.1	Secured Staging Area	Mahendra Patel	11/22/23 13:03	Retrieve from Storage
JD77365-9.1	Mahendra Patel	Secured Storage	11/22/23 16:12	Return to Storage
JD77365-9.1	Secured Storage	Dave Hunkele	11/25/23 15:13	Retrieve from Storage
JD77365-9.1	Dave Hunkele	Secured Staging Area	11/25/23 15:13	Return to Storage
JD77365-9.1	Secured Storage	Dave Hunkele	11/28/23 06:09	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JD77365-9.1	Dave Hunkele	Secured Staging Area	11/28/23 06:09	Return to Storage
JD77365-9.1	Secured Staging Area	Lauren Matthews	11/28/23 10:13	Retrieve from Storage
JD77365-9.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-10.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-10.1	Secured Storage	Dave Hunkele	11/22/23 10:48	Retrieve from Storage
JD77365-10.1	Dave Hunkele	Secured Staging Area	11/22/23 10:48	Return to Storage
JD77365-10.1	Secured Staging Area	Mahendra Patel	11/22/23 13:03	Retrieve from Storage
JD77365-10.1	Mahendra Patel	Secured Storage	11/22/23 16:12	Return to Storage
JD77365-10.1	Secured Storage	Dave Hunkele	11/25/23 15:13	Retrieve from Storage
JD77365-10.1	Dave Hunkele	Secured Staging Area	11/25/23 15:13	Return to Storage
JD77365-10.1	Secured Storage	Dave Hunkele	11/28/23 06:09	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JD77365-10.1	Dave Hunkele	Secured Staging Area	11/28/23 06:09	Return to Storage
JD77365-10.1	Secured Staging Area	Lauren Matthews	11/28/23 10:13	Retrieve from Storage
JD77365-10.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-11.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-11.1	Secured Storage	Dave Hunkele	11/22/23 10:48	Retrieve from Storage

SGS Internal Chain of Custody

Job Number: JD77365
Account: IALNJR Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Received: 11/21/23

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD77365-11.1	Dave Hunkele	Secured Staging Area	11/22/23 10:48	Return to Storage
JD77365-11.1	Secured Staging Area	Mahendra Patel	11/22/23 13:03	Retrieve from Storage
JD77365-11.1	Mahendra Patel	Secured Storage	11/22/23 16:12	Return to Storage
JD77365-11.1	Secured Storage	Dave Hunkele	11/25/23 15:13	Retrieve from Storage
JD77365-11.1	Dave Hunkele	Secured Staging Area	11/25/23 15:13	Return to Storage
JD77365-11.1	Secured Storage	Dave Hunkele	11/28/23 06:09	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JD77365-11.1	Dave Hunkele	Secured Staging Area	11/28/23 06:09	Return to Storage
JD77365-11.1	Secured Staging Area	Lauren Matthews	11/28/23 10:13	Retrieve from Storage
JD77365-11.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-12.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-12.1	Secured Storage	Dave Hunkele	11/22/23 10:48	Retrieve from Storage
JD77365-12.1	Dave Hunkele	Secured Staging Area	11/22/23 10:48	Return to Storage
JD77365-12.1	Secured Staging Area	Mahendra Patel	11/22/23 13:03	Retrieve from Storage
JD77365-12.1	Mahendra Patel	Secured Storage	11/22/23 16:12	Return to Storage
JD77365-12.1	Secured Storage	Dave Hunkele	11/25/23 15:13	Retrieve from Storage
JD77365-12.1	Dave Hunkele	Secured Staging Area	11/25/23 15:13	Return to Storage
JD77365-12.1	Secured Storage	Dave Hunkele	11/28/23 06:09	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JD77365-12.1	Dave Hunkele	Secured Staging Area	11/28/23 06:09	Return to Storage
JD77365-12.1	Secured Staging Area	Lauren Matthews	11/28/23 10:13	Retrieve from Storage
JD77365-12.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-13.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-13.1	Secured Storage	Dave Hunkele	11/22/23 10:48	Retrieve from Storage
JD77365-13.1	Dave Hunkele	Secured Staging Area	11/22/23 10:48	Return to Storage
JD77365-13.1	Secured Staging Area	Mahendra Patel	11/22/23 13:03	Retrieve from Storage
JD77365-13.1	Mahendra Patel	Secured Storage	11/22/23 16:12	Return to Storage
JD77365-13.1	Secured Storage	Dave Hunkele	11/25/23 15:13	Retrieve from Storage
JD77365-13.1	Dave Hunkele	Secured Staging Area	11/25/23 15:13	Return to Storage
JD77365-13.1	Secured Storage	Dave Hunkele	11/28/23 06:09	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JD77365-13.1	Dave Hunkele	Secured Staging Area	11/28/23 06:09	Return to Storage
JD77365-13.1	Secured Staging Area	Lauren Matthews	11/28/23 10:13	Retrieve from Storage
JD77365-13.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-14.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-14.1	Secured Storage	Dave Hunkele	11/22/23 10:48	Retrieve from Storage
JD77365-14.1	Dave Hunkele	Secured Staging Area	11/22/23 10:48	Return to Storage
JD77365-14.1	Secured Staging Area	Mahendra Patel	11/22/23 13:03	Retrieve from Storage
JD77365-14.1	Mahendra Patel	Secured Storage	11/22/23 16:12	Return to Storage
JD77365-14.1	Secured Storage	Dave Hunkele	11/25/23 15:13	Retrieve from Storage
JD77365-14.1	Dave Hunkele	Secured Staging Area	11/25/23 15:13	Return to Storage

SGS Internal Chain of Custody

Job Number: JD77365
Account: IALNJR Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Received: 11/21/23

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD77365-14.1	Secured Storage	Dave Hunkele	11/28/23 06:09	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JD77365-14.1	Dave Hunkele	Secured Staging Area	11/28/23 06:09	Return to Storage
JD77365-14.1	Secured Staging Area	Lauren Matthews	11/28/23 10:13	Retrieve from Storage
JD77365-14.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-15.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-15.1	Secured Storage	Dave Hunkele	11/22/23 10:48	Retrieve from Storage
JD77365-15.1	Dave Hunkele	Secured Staging Area	11/22/23 10:48	Return to Storage
JD77365-15.1	Secured Staging Area	Mahendra Patel	11/22/23 13:03	Retrieve from Storage
JD77365-15.1	Mahendra Patel	Secured Storage	11/22/23 16:12	Return to Storage
JD77365-15.1	Secured Storage	Dave Hunkele	11/25/23 15:13	Retrieve from Storage
JD77365-15.1	Dave Hunkele	Secured Staging Area	11/25/23 15:13	Return to Storage
JD77365-15.1	Secured Storage	Dave Hunkele	11/28/23 06:09	Retrieve from Storage
Bottle was returned to secure storage, but inadvertently not scanned.				
JD77365-15.1	Dave Hunkele	Secured Staging Area	11/28/23 06:09	Return to Storage
JD77365-15.1	Secured Staging Area	Lauren Matthews	11/28/23 10:13	Retrieve from Storage
JD77365-15.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-16.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-16.1	Secured Storage	Dave Hunkele	11/22/23 07:00	Retrieve from Storage
JD77365-16.1	Dave Hunkele	Secured Staging Area	11/22/23 07:00	Return to Storage
JD77365-16.1	Secured Staging Area	Sean Sweeney	11/22/23 08:16	Retrieve from Storage
JD77365-16.1	Sean Sweeney	Secured Storage	11/22/23 14:06	Return to Storage
JD77365-16.1	Secured Storage	Dave Hunkele	11/28/23 06:32	Retrieve from Storage
JD77365-16.1	Dave Hunkele	Secured Staging Area	11/28/23 06:32	Return to Storage
JD77365-16.1	Secured Staging Area	Lauren Matthews	11/28/23 10:14	Retrieve from Storage
JD77365-16.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-16.1	Secured Storage	Dave Hunkele	11/30/23 13:13	Retrieve from Storage
JD77365-16.1	Dave Hunkele	Secured Staging Area	11/30/23 13:14	Return to Storage
JD77365-16.1	Secured Staging Area	Lauren Matthews	11/30/23 13:18	Retrieve from Storage
JD77365-16.1	Lauren Matthews	Secured Storage	11/30/23 19:08	Return to Storage
JD77365-16F.2	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-16F.2	Secured Storage	Dave Hunkele	11/22/23 07:00	Retrieve from Storage
JD77365-16F.2	Dave Hunkele	Secured Staging Area	11/22/23 07:00	Return to Storage
JD77365-16F.2	Secured Staging Area	Sean Sweeney	11/22/23 08:16	Retrieve from Storage
JD77365-16F.2	Sean Sweeney	Secured Storage	11/22/23 14:06	Return to Storage
JD77365-16F.2	Secured Storage	Dave Hunkele	11/28/23 06:32	Retrieve from Storage
JD77365-16F.2	Dave Hunkele	Secured Staging Area	11/28/23 06:32	Return to Storage
JD77365-16F.2	Secured Staging Area	Lauren Matthews	11/28/23 10:14	Retrieve from Storage
JD77365-16F.2	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-17.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage

SGS Internal Chain of Custody

Job Number: JD77365
Account: IALNJR Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Received: 11/21/23

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD77365-17.1	Secured Storage	Dave Hunkele	11/22/23 07:00	Retrieve from Storage
JD77365-17.1	Dave Hunkele	Secured Staging Area	11/22/23 07:00	Return to Storage
JD77365-17.1	Secured Staging Area	Sean Sweeney	11/22/23 08:16	Retrieve from Storage
JD77365-17.1	Sean Sweeney	Secured Storage	11/22/23 14:06	Return to Storage
JD77365-17.1	Secured Storage	Dave Hunkele	11/28/23 06:32	Retrieve from Storage
JD77365-17.1	Dave Hunkele	Secured Staging Area	11/28/23 06:32	Return to Storage
JD77365-17.1	Secured Staging Area	Lauren Matthews	11/28/23 10:14	Retrieve from Storage
JD77365-17.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-17F.2	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-17F.2	Secured Storage	Dave Hunkele	11/22/23 07:00	Retrieve from Storage
JD77365-17F.2	Dave Hunkele	Secured Staging Area	11/22/23 07:00	Return to Storage
JD77365-17F.2	Secured Staging Area	Sean Sweeney	11/22/23 08:16	Retrieve from Storage
JD77365-17F.2	Sean Sweeney	Secured Storage	11/22/23 14:06	Return to Storage
JD77365-17F.2	Secured Storage	Dave Hunkele	11/28/23 06:32	Retrieve from Storage
JD77365-17F.2	Dave Hunkele	Secured Staging Area	11/28/23 06:32	Return to Storage
JD77365-17F.2	Secured Staging Area	Lauren Matthews	11/28/23 10:14	Retrieve from Storage
JD77365-17F.2	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-18.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-18.1	Secured Storage	Dave Hunkele	11/22/23 07:00	Retrieve from Storage
JD77365-18.1	Dave Hunkele	Secured Staging Area	11/22/23 07:00	Return to Storage
JD77365-18.1	Secured Staging Area	Sean Sweeney	11/22/23 08:16	Retrieve from Storage
JD77365-18.1	Sean Sweeney	Secured Storage	11/22/23 14:06	Return to Storage
JD77365-18.1	Secured Storage	Dave Hunkele	11/28/23 06:32	Retrieve from Storage
JD77365-18.1	Dave Hunkele	Secured Staging Area	11/28/23 06:32	Return to Storage
JD77365-18.1	Secured Staging Area	Lauren Matthews	11/28/23 10:14	Retrieve from Storage
JD77365-18.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-18.1	Secured Storage	Dave Hunkele	11/30/23 13:13	Retrieve from Storage
JD77365-18.1	Dave Hunkele	Secured Staging Area	11/30/23 13:14	Return to Storage
JD77365-18.1	Secured Staging Area	Lauren Matthews	11/30/23 13:18	Retrieve from Storage
JD77365-18.1	Lauren Matthews	Secured Storage	11/30/23 19:08	Return to Storage
JD77365-18F.2	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-18F.2	Secured Storage	Dave Hunkele	11/22/23 07:00	Retrieve from Storage
JD77365-18F.2	Dave Hunkele	Secured Staging Area	11/22/23 07:00	Return to Storage
JD77365-18F.2	Secured Staging Area	Sean Sweeney	11/22/23 08:16	Retrieve from Storage
JD77365-18F.2	Sean Sweeney	Secured Storage	11/22/23 14:06	Return to Storage
JD77365-18F.2	Secured Storage	Dave Hunkele	11/28/23 06:32	Retrieve from Storage
JD77365-18F.2	Dave Hunkele	Secured Staging Area	11/28/23 06:32	Return to Storage
JD77365-18F.2	Secured Staging Area	Lauren Matthews	11/28/23 10:14	Retrieve from Storage
JD77365-18F.2	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-19.1	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage

SGS Internal Chain of Custody

Job Number: JD77365
Account: IALNJR Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Received: 11/21/23

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD77365-19.1	Secured Storage	Dave Hunkele	11/22/23 07:00	Retrieve from Storage
JD77365-19.1	Dave Hunkele	Secured Staging Area	11/22/23 07:00	Return to Storage
JD77365-19.1	Secured Staging Area	Sean Sweeney	11/22/23 08:16	Retrieve from Storage
JD77365-19.1	Sean Sweeney	Secured Storage	11/22/23 14:06	Return to Storage
JD77365-19.1	Secured Storage	Dave Hunkele	11/28/23 06:32	Retrieve from Storage
JD77365-19.1	Dave Hunkele	Secured Staging Area	11/28/23 06:32	Return to Storage
JD77365-19.1	Secured Staging Area	Lauren Matthews	11/28/23 10:14	Retrieve from Storage
JD77365-19.1	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage
JD77365-19F.2	Haleigh Rosado	Secured Storage	11/21/23 11:47	Return to Storage
JD77365-19F.2	Secured Storage	Dave Hunkele	11/22/23 07:00	Retrieve from Storage
JD77365-19F.2	Dave Hunkele	Secured Staging Area	11/22/23 07:00	Return to Storage
JD77365-19F.2	Secured Staging Area	Sean Sweeney	11/22/23 08:16	Retrieve from Storage
JD77365-19F.2	Sean Sweeney	Secured Storage	11/22/23 14:06	Return to Storage
JD77365-19F.2	Secured Storage	Dave Hunkele	11/28/23 06:32	Retrieve from Storage
JD77365-19F.2	Dave Hunkele	Secured Staging Area	11/28/23 06:32	Return to Storage
JD77365-19F.2	Secured Staging Area	Lauren Matthews	11/28/23 10:14	Retrieve from Storage
JD77365-19F.2	Lauren Matthews	Secured Storage	11/28/23 18:46	Return to Storage

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Instrument Runlogs
- Initial and Continuing Calibration Blanks
- Initial and Continuing Calibration Checks
- High and Low Check Standards
- Interfering Element Check Standards
- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55131
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
06:51	MA55131-STD1	1		STDA
06:56	MA55131-STD2	1		STDB
07:01	MA55131-ICV1	1		
07:09	MA55131-ICV2	1		
07:17	MA55131-ICB1	1		
07:24	MA55131-ICCV1	1		
07:32	MA55131-CCB1	1		
07:37	MA55131-CRI1	1		
07:42	MA55131-CRID1	1		
07:47	MA55131-ICSA1	1		
07:53	MA55131-ICSAB1	1		
07:57	MA55131-HSTD1	1		
08:03	MA55131-HSTD2	1		
08:08	ZZZZZZ	1		
08:13	ZZZZZZ	1		
08:18	ZZZZZZ	1		
08:23	MA55131-CCV1	1		
08:28	MA55131-CCB2	1		
08:33	MA55131-CRID2	1		
08:54	MP43317-MB1	1		
08:59	MP43317-B1	1		
09:04	MP43317-S1	1		
09:09	MP43317-S2	1		
09:14	JD77367-1	1		(sample used for QC only; not part of login JD77365)
09:19	MP43317-SD1	5		
09:24	JD77365-16	1		
09:29	JD77365-17	1		check undigested for Zn
09:34	MA55131-CCV2	1		
09:39	MA55131-CCB3	1		
09:44	JD77365-18	1		
09:49	JD77365-19	1		
09:54	JD77365-16F	1		
09:59	JD77365-17F	1		check undigested for Zn

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55131
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:04	JD77365-18F	1		
10:09	JD77365-19F	1		
10:14	ZZZZZZ	1		
10:19	ZZZZZZ	1		
10:24	ZZZZZZ	1		
10:29	MA55131-CCV3	1		
10:34	MA55131-CCB4	1		
10:39	ZZZZZZ	1		
10:44	ZZZZZZ	1		
10:49	ZZZZZZ	1		
10:54	ZZZZZZ	1		
10:59	ZZZZZZ	1		
11:04	ZZZZZZ	1		
11:09	ZZZZZZ	1		
11:14	MA55131-CCV4	1		
11:19	MA55131-CCB5	1		
11:24	MP43317-S1	2		
11:29	MP43317-S2	2		
11:34	JD77367-1	2		(sample used for QC only; not part of login JD77365)
11:39	MP43317-SD1	10		
---------->	Last reportable sample/prep for job JD77365			
11:44	JD77365-16	2		
11:49	JD77365-19	2		
11:54	ZZZZZZ	2		
11:59	ZZZZZZ	2		
12:04	ZZZZZZ	1		
12:09	MA55131-CCV5	1		
12:14	MA55131-CCB6	1		
---------->	Last reportable CCB for job JD77365			
12:19	ZZZZZZ	1		
12:24	MP43315-MB1	1		
12:29	MP43315-B1	1		
12:34	MP43315-S1	1		
12:39	MP43315-S2	1		
12:44	JD77362-3	1		(sample used for QC only; not part of login JD77365)

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55131
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:49	MP43315-SD1	5		
12:54	ZZZZZZ	1		
12:59	ZZZZZZ	1		
13:04	MA55131-CCV6	1		
13:09	MA55131-CCB7	1		
13:14	ZZZZZZ	1		
13:19	ZZZZZZ	1		
13:24	ZZZZZZ	1		
13:29	ZZZZZZ	1		
13:34	ZZZZZZ	1		
13:39	ZZZZZZ	1		
13:44	ZZZZZZ	1		
13:49	ZZZZZZ	1		
13:54	ZZZZZZ	1		
13:59	ZZZZZZ	1		
14:04	MA55131-CCV7	1		
14:09	MA55131-CCB8	1		
14:14	ZZZZZZ	1		
14:19	ZZZZZZ	1		
14:24	MP43315-S1	2		
14:29	MP43315-S2	2		
14:34	JD77362-3	2		(sample used for QC only; not part of login JD77365)
14:39	MP43315-SD1	10		
14:44	ZZZZZZ	2		
14:49	ZZZZZZ	2		
14:54	ZZZZZZ	2		
14:59	ZZZZZZ	2		
15:04	MA55131-CCV8	1		
15:09	MA55131-CCB9	1		
15:14	ZZZZZZ	5		
15:19	ZZZZZZ	1		
15:24	ZZZZZZ	1		
15:29	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55131
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:34	ZZZZZZ	1		
15:40	ZZZZZZ	1		
15:45	MA55131-CCV9	1		
15:50	MA55131-CCB10	1		

Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55131
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Element: Dilution	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	
07:01	MA55131-ICV1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:09	MA55131-ICV2	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:17	MA55131-ICB1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:24	MA55131-ICCV1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:32	MA55131-CCB1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:37	MA55131-CRI1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:42	MA55131-CRID1	1																							
07:47	MA55131-ICSA1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:53	MA55131-ICSAB1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:57	MA55131-HSTD1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
08:03	MA55131-HSTD2	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
08:08	ZZZZZZ	1																							
08:13	ZZZZZZ	1																							
08:18	ZZZZZZ	1																							
08:23	MA55131-CCV1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
08:28	MA55131-CCB2	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
08:33	MA55131-CRID2	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
08:54	MP43317-MB1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
08:59	MP43317-B1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
09:04	MP43317-S1	1	X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
09:09	MP43317-S2	1	X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
09:14	JD77367-1	1	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	(a)
09:19	MP43317-SD1	5	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
09:24	JD77365-16	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
09:29	JD77365-17	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
09:34	MA55131-CCV2	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
09:39	MA55131-CCB3	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
09:44	JD77365-18	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
09:49	JD77365-19	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
09:54	JD77365-16F	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
09:59	JD77365-17F	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10:04	JD77365-18F	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10:09	JD77365-19F	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
		Element:	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55131
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Element: Dilution	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	
10:14	ZZZZZZ	1																							
10:19	ZZZZZZ	1																							
10:24	ZZZZZZ	1																							
10:29	MA55131-CCV3	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10:34	MA55131-CCB4	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10:39	ZZZZZZ	1																							
10:44	ZZZZZZ	1																							
10:49	ZZZZZZ	1																							
10:54	ZZZZZZ	1																							
10:59	ZZZZZZ	1																							
11:04	ZZZZZZ	1																							
11:09	ZZZZZZ	1																							
11:14	MA55131-CCV4	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
11:19	MA55131-CCB5	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
11:24	MP43317-S1	2			X				X																
11:29	MP43317-S2	2			X				X																
11:34	JD77367-1	2			X																				(a)
11:39	MP43317-SD1	10			X																				
11:44	JD77365-16	2																							
11:49	JD77365-19	2																							
11:54	ZZZZZZ	2																							
11:59	ZZZZZZ	2																							
12:04	ZZZZZZ	1																							
12:09	MA55131-CCV5	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12:14	MA55131-CCB6	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12:19	ZZZZZZ	1																							
12:24	MP43315-MB1	1	X		X	X	X	X		X	X	X		X		X	X		X	X			X	X	
12:29	MP43315-B1	1	X		X	X	X	X		X	X	X		X		X	X		X	X			X	X	
12:34	MP43315-S1	1	X			X	X	X		X	X			X		X	X						X	X	
12:39	MP43315-S2	1	X			X	X	X		X	X			X		X	X						X	X	
12:44	JD77362-3	1	X					X		X	X			X		X	X						X	X	(a)
12:49	MP43315-SD1	5	X			X	X	X		X	X			X		X	X						X	X	
12:54	ZZZZZZ	1																							
		Element:	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55131
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Element: Dilution	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	
12:59	ZZZZZZ	1																							
13:04	MA55131-CCV6	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
13:09	MA55131-CCB7	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
13:14	ZZZZZZ	1																							
13:19	ZZZZZZ	1																							
13:24	ZZZZZZ	1																							
13:29	ZZZZZZ	1																							
13:34	ZZZZZZ	1																							
13:39	ZZZZZZ	1																							
13:44	ZZZZZZ	1																							
13:49	ZZZZZZ	1																							
13:54	ZZZZZZ	1																							
13:59	ZZZZZZ	1																							
14:04	MA55131-CCV7	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
14:09	MA55131-CCB8	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
14:14	ZZZZZZ	1																							
14:19	ZZZZZZ	1																							
14:24	MP43315-S1	2			X							X							X	X					
14:29	MP43315-S2	2			X							X							X	X					
14:34	JD77362-3	2			X							X							X						(a)
14:39	MP43315-SD1	10			X							X							X	X					
14:44	ZZZZZZ	2																							
14:49	ZZZZZZ	2																							
14:54	ZZZZZZ	2																							
14:59	ZZZZZZ	2																							
15:04	MA55131-CCV8	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
15:09	MA55131-CCB9	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
15:14	ZZZZZZ	5																							
15:19	ZZZZZZ	1																							
15:24	ZZZZZZ	1																							
15:29	ZZZZZZ	1																							
15:34	ZZZZZZ	1																							
15:40	ZZZZZZ	1																							
		Element:	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55131
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Element: Dilution	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn
15:45	MA55131-CCV9	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
15:50	MA55131-CCB10	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

(a) Sample used for QC only; not part of login JD77365.

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55131
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
06:51	MA55131-STD1	3028 R	126450 R	9125 R	7880 R
06:56	MA55131-STD2	2878	120100	8969	7630
07:01	MA55131-ICV1	3025	126850	9323	7929
07:09	MA55131-ICV2	2964	123990	9162	7784
07:17	MA55131-ICB1	3042	127310	9269	7941
07:24	MA55131-ICCV1	2941	122290	9165	7756
07:32	MA55131-CCB1	3021	126950	9274	7882
07:37	MA55131-CRI1	3003	125460	9184	7856
07:42	MA55131-CRID1	No results reported for the elements associated with this internal standard.			
07:47	MA55131-ICSA1	2806	117580	9101	7396
07:53	MA55131-ICSAB1	2831	119210	9209	7473
07:57	MA55131-HSTD1	3014	126500	9440	8146
08:03	MA55131-HSTD2	2870	119490	9180	7495
08:08	ZZZZZZ	3044	127310	9322	8208
08:13	ZZZZZZ	3021	130300	9477	8083
08:18	ZZZZZZ	3125	130550	9512	8137
08:23	MA55131-CCV1	3041	126470	9451	7988
08:28	MA55131-CCB2	3120	130660	9498	8124
08:33	MA55131-CRID2	3107	129900	9525	8113
08:54	MP43317-MB1	3077	129380	9507	8038
08:59	MP43317-B1	3025	125720	9506	7996
09:04	MP43317-S1	2910	121480	9334	7687
09:09	MP43317-S2	2929	121610	9374	7734
09:14	JD77367-1	2960	122690	9383	7783
09:19	MP43317-SD1	2995	124690	9347	7911
09:24	JD77365-16	3013	125230	9598	7749
09:29	JD77365-17	3041	126410	9578	7948
09:34	MA55131-CCV2	2940	122610	9365	7798
09:39	MA55131-CCB3	3039	126690	9411	7964
09:44	JD77365-18	2991	123400	9536	7839
09:49	JD77365-19	3058	126840	9776	7922
09:54	JD77365-16F	2988	123570	9468	7839
09:59	JD77365-17F	2976	123060	9462	7833

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55131
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
10:04	JD77365-18F	2966	121590	9475	7820
10:09	JD77365-19F	3009	124820	9612	7898
10:14	ZZZZZZ	3030	125600	9745	8031
10:19	ZZZZZZ	2997	123900	9714	7957
10:24	ZZZZZZ	2979	122850	9496	7898
10:29	MA55131-CCV3	2985	123200	9632	7939
10:34	MA55131-CCB4	3076	126970	9701	8100
10:39	ZZZZZZ	2988	123780	9682	7954
10:44	ZZZZZZ	2989	123530	9652	7940
10:49	ZZZZZZ	2967	122920	9673	7889
10:54	ZZZZZZ	2937	121180	9599	7813
10:59	ZZZZZZ	2967	121770	9718	7841
11:04	ZZZZZZ	2962	122610	9585	7838
11:09	ZZZZZZ	3031	126890	9618	8012
11:14	MA55131-CCV4	3016	125700	9551	7974
11:19	MA55131-CCB5	3107	130380	9625	8117
11:24	MP43317-S1	2988	125200	9522	7877
11:29	MP43317-S2	2997	124680	9537	7894
11:34	JD77367-1	3027	126020	9524	7952
11:39	MP43317-SD1	3074	128250	9542	8077
11:44	JD77365-16	No results reported for the elements associated with this internal standard.			
11:49	JD77365-19	No results reported for the elements associated with this internal standard.			
11:54	ZZZZZZ	No results reported for the elements associated with this internal standard.			
11:59	ZZZZZZ	3010	125590	9399	7914
12:04	ZZZZZZ	3042	126590	9292	7975
12:09	MA55131-CCV5	2955	123200	9252	7793
12:14	MA55131-CCB6	3107	130230	9522	8096
12:19	ZZZZZZ	3012	129860	9281	7906
12:24	MP43315-MB1	3116	131490	9712	8118
12:29	MP43315-B1	3035	127820	9540	7983
12:34	MP43315-S1	3057	128270	9803	7978
12:39	MP43315-S2	3040	127570	9778	7918
12:44	JD77362-3	3084	129740	9794	7982

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55131
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
12:49	MP43315-SD1	3122	131410	9643	8108
12:54	ZZZZZZ	3115	130790	9790	7980
12:59	ZZZZZZ	3148	132880	10036	7934
13:04	MA55131-CCV6	2995	125220	9315	7872
13:09	MA55131-CCB7	3090	129020	9436	8042
13:14	ZZZZZZ	3104	130190	9780	8051
13:19	ZZZZZZ	3083	130110	9614	7947
13:24	ZZZZZZ	3138	131980	9944	8039
13:29	ZZZZZZ	3102	130450	9816	7975
13:34	ZZZZZZ	3118	131360	9846	7923
13:39	ZZZZZZ	3170	133300	10001	8069
13:44	ZZZZZZ	3163	133190	9976	7977
13:49	ZZZZZZ	3103	129710	9697	8054
13:54	ZZZZZZ	3132	130670	9820	8029
13:59	ZZZZZZ	2931	124410	9315	7967
14:04	MA55131-CCV7	2981	124030	9190	7841
14:09	MA55131-CCB8	3093	128980	9383	8050
14:14	ZZZZZZ	3094	129240	9398	8057
14:19	ZZZZZZ	3095	129930	9401	8066
14:24	MP43315-S1	3049	127300	9527	7957
14:29	MP43315-S2	3052	127740	9517	7957
14:34	JD77362-3	3047	128760	9529	7927
14:39	MP43315-SD1	3058	129790	9444	7955
14:44	ZZZZZZ	3055	127310	9507	7971
14:49	ZZZZZZ	3076	127840	9514	7966
14:54	ZZZZZZ	3117	130220	9697	8081
14:59	ZZZZZZ	3136	130350	9641	8084
15:04	MA55131-CCV8	2984	124030	9181	7856
15:09	MA55131-CCB9	3049	128190	9277	7961
15:14	ZZZZZZ	3055	127310	9384	8048
15:19	ZZZZZZ	3072	128390	9277	8026
15:24	ZZZZZZ	3091	131100	9439	8040
15:29	ZZZZZZ	3080	129940	9264	8025

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55131
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
15:34	ZZZZZZ	3033	127430	9161	7971
15:40	ZZZZZZ	2914	120960	8972	7578
15:45	MA55131-CCV9	3003	124960	9218	7902
15:50	MA55131-CCB10	3083	128970	9201	8027

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55131 Units: ug/l

Time:			07:17		07:32		08:28		09:39	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.2	-4.40	<200	-8.50	<200	-4.70	<200	-7.20	<200
Antimony	6.0	2.8	0.100	<6.0	0.300	<6.0	0.100	<6.0	-0.300	<6.0
Arsenic	3.0	2.6	0.00	<3.0	0.300	<3.0	-0.300	<3.0	0.00	<3.0
Barium	200	.2	0.200	<200	0.200	<200	0.00	<200	0.200	<200
Beryllium	1.0	.2	0.100	<1.0	0.100	<1.0	0.100	<1.0	0.100	<1.0
Bismuth	20	2.5								
Boron	100	1.8								
Cadmium	3.0	.4	-0.100	<3.0	0.200	<3.0	0.200	<3.0	0.200	<3.0
Calcium	5000	13	-1.00	<5000	-2.60	<5000	-2.90	<5000	-1.40	<5000
Cerium	100									
Chromium	10	.7	0.00	<10	0.100	<10	0.100	<10	0.00	<10
Cobalt	50	.6	0.100	<50	0.100	<50	0.00	<50	0.100	<50
Copper	10	.7	-0.200	<10	0.700	<10	0.500	<10	1.30	<10
Iron	100	3.3	1.00	<100	0.500	<100	3.60	<100	0.600	<100
Lead	3.0	2	-0.800	<3.0	-0.300	<3.0	0.200	<3.0	-0.400	<3.0
Lithium	50	1.5								
Magnesium	5000	25	-6.20	<5000	-14.5	<5000	-23.0	<5000	-16.3	<5000
Manganese	15	.1	0.100	<15	0.100	<15	0.200	<15	0.200	<15
Molybdenum	20	.6								
Nickel	10	.8	0.400	<10	0.300	<10	0.00	<10	0.300	<10
Phosphorus	50	7								
Potassium	10000	35	-12.3	<10000	31.5	<10000	28.7	<10000	-9.10	<10000
Selenium	10	3.6	1.30	<10	2.60	<10	0.700	<10	2.90	<10
Silicon	200	2.2								
Silver	10	.6	0.00	<10	0.100	<10	0.00	<10	0.200	<10
Sodium	10000	14	-3.30	<10000	-2.90	<10000	-5.20	<10000	-9.40	<10000
Strontium	10	.1								
Sulfur	50	3.7								
Thallium	10	5.2	0.100	<10	-0.700	<10	0.900	<10	0.200	<10
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5	-0.100	<50	0.00	<50	0.200	<50	0.100	<50

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55131 Units: ug/l

Time:			07:17		07:32		08:28		09:39	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	0.200	<20	0.400	<20	0.300	<20	0.200	<20
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55131 Units: ug/l

Time:			10:34		11:19		12:14	
Sample ID:			CCB4		CCB5		CCB6	
Metal	RL	IDL	raw	final	raw	final	raw	final
Aluminum	200	9.2	-17.0	<200	-6.50	<200	-11.1	<200
Antimony	6.0	2.8	0.200	<6.0	0.700	<6.0	0.400	<6.0
Arsenic	3.0	2.6	0.200	<3.0	0.500	<3.0	0.400	<3.0
Barium	200	.2	-0.300	<200	0.300	<200	0.200	<200
Beryllium	1.0	.2	0.100	<1.0	0.100	<1.0	0.200	<1.0
Bismuth	20	2.5						
Boron	100	1.8						
Cadmium	3.0	.4	0.200	<3.0	0.200	<3.0	0.200	<3.0
Calcium	5000	13	-2.50	<5000	-1.10	<5000	-6.40	<5000
Cerium	100							
Chromium	10	.7	0.200	<10	0.200	<10	0.00	<10
Cobalt	50	.6	-0.100	<50	0.200	<50	-0.200	<50
Copper	10	.7	1.90	<10	0.600	<10	0.600	<10
Iron	100	3.3	3.00	<100	2.40	<100	5.80	<100
Lead	3.0	2	-0.500	<3.0	-1.30	<3.0	-0.700	<3.0
Lithium	50	1.5						
Magnesium	5000	25	-21.0	<5000	-39.0	<5000	-10.9	<5000
Manganese	15	.1	0.200	<15	0.200	<15	0.200	<15
Molybdenum	20	.6						
Nickel	10	.8	0.200	<10	0.00	<10	0.100	<10
Phosphorus	50	7						
Potassium	10000	35	0.00	<10000	13.2	<10000	-14.6	<10000
Selenium	10	3.6	1.10	<10	1.90	<10	2.10	<10
Silicon	200	2.2						
Silver	10	.6	0.700	<10	0.00	<10	-0.100	<10
Sodium	10000	14	-3.90	<10000	-9.90	<10000	-8.60	<10000
Strontium	10	.1						
Sulfur	50	3.7						
Thallium	10	5.2	-0.500	<10	0.800	<10	0.900	<10
Tin	10	1.4						
Titanium	10	.8						
Tungsten	50	1.3						
Vanadium	50	.5	0.200	<50	0.200	<50	0.100	<50

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55131 Units: ug/l

Time:			10:34		11:19		12:14	
Sample ID:			CCB4		CCB5		CCB6	
Metal	RL	IDL	raw	final	raw	final	raw	final
Zinc	20	.3	0.100	<20	0.100	<20	0.100	<20
Zirconium	10	.5						

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: to % Recovery Run ID: MA55131 Units: ug/l

Time:		07:24	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Aluminum	40000	39700	99.3
Antimony	2000	2010	100.5
Arsenic	2000	2000	100.0
Barium	2000	1980	99.0
Beryllium	2000	2020	101.0
Bismuth			
Boron			
Cadmium	2000	2000	100.0
Calcium	40000	40000	100.0
Cerium			
Chromium	2000	2040	102.0
Cobalt	2000	2010	100.5
Copper	2000	2000	100.0
Iron	40000	39100	97.8
Lead	2000	2030	101.5
Lithium			
Magnesium	40000	39500	98.8
Manganese	2000	2090	104.5
Molybdenum			
Nickel	2000	2040	102.0
Phosphorus			
Potassium	40000	39100	97.8
Selenium	2000	2010	100.5
Silicon			
Silver	250	248	99.2
Sodium	40000	38800	97.0
Strontium			
Sulfur			
Thallium	2000	2030	101.5
Tin			
Titanium			
Tungsten			
Vanadium	2000	2040	102.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: to % Recovery Run ID: MA55131 Units: ug/l

Time:		07:24	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Zinc	2000	2040	102.0
Zirconium			

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55131 Units: ug/l

Time:		07:01			07:09			08:23	
Sample ID:	ICV	ICV1		ICV	ICV2		CCV	CCV1	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	40000	38300	95.8	40000	39700	99.3	40000	38500	96.3
Antimony	2000	1930	96.5	2000	2000	100.0	2000	1940	97.0
Arsenic	2000	1930	96.5	2000	2000	100.0	2000	1940	97.0
Barium	2000	1940	97.0	2000	2000	100.0	2000	1920	96.0
Beryllium	2000	1960	98.0	2000	2020	101.0	2000	1950	97.5
Bismuth									
Boron									
Cadmium	2000	1930	96.5	2000	2000	100.0	2000	1930	96.5
Calcium	40000	38800	97.0	40000	40100	100.3	40000	38700	96.8
Cerium									
Chromium	2000	1950	97.5	2000	2030	101.5	2000	1970	98.5
Cobalt	2000	1950	97.5	2000	2020	101.0	2000	1950	97.5
Copper	2000	1910	95.5	2000	1980	99.0	2000	1930	96.5
Iron	40000	38700	96.8	40000	39900	99.8	40000	37700	94.3
Lead	2000	1970	98.5	2000	2040	102.0	2000	1970	98.5
Lithium									
Magnesium	40000	38600	96.5	40000	39800	99.5	40000	37900	94.8
Manganese	2000	1970	98.5	2000	2060	103.0	2000	2010	100.5
Molybdenum									
Nickel	2000	1980	99.0	2000	2050	102.5	2000	1980	99.0
Phosphorus									
Potassium	40000	38100	95.3	40000	39400	98.5	40000	37900	94.8
Selenium	2000	1930	96.5	2000	1990	99.5	2000	1940	97.0
Silicon									
Silver	250	238	95.2	250	246	98.4	250	240	96.0
Sodium	40000	38300	95.8	40000	39500	98.8	40000	37500	93.8
Strontium									
Sulfur									
Thallium	2000	1980	99.0	2000	2040	102.0	2000	1980	99.0
Tin									
Titanium									
Tungsten									
Vanadium	2000	1940	97.0	2000	2020	101.0	2000	1960	98.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55131 Units: ug/l

Time:		07:01			07:09			08:23	
Sample ID:	ICV	ICV1		ICV	ICV2		CCV	CCV1	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	2000	1970	98.5	2000	2040	102.0	2000	1960	98.0
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55131 Units: ug/l

Time:		09:34			10:29			11:14	
Sample ID:	CCV	CCV2		CCV	CCV3		CCV	CCV4	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	40000	39600	99.0	40000	39000	97.5	40000	38500	96.3
Antimony	2000	2020	101.0	2000	1990	99.5	2000	1970	98.5
Arsenic	2000	2010	100.5	2000	1980	99.0	2000	1950	97.5
Barium	2000	1960	98.0	2000	1910	95.5	2000	1920	96.0
Beryllium	2000	1980	99.0	2000	1940	97.0	2000	1930	96.5
Bismuth									
Boron									
Cadmium	2000	1990	99.5	2000	1960	98.0	2000	1950	97.5
Calcium	40000	39500	98.8	40000	38700	96.8	40000	38400	96.0
Cerium									
Chromium	2000	2040	102.0	2000	2020	101.0	2000	1980	99.0
Cobalt	2000	1990	99.5	2000	1960	98.0	2000	1950	97.5
Copper	2000	1990	99.5	2000	1960	98.0	2000	1940	97.0
Iron	40000	37900	94.8	40000	36300	90.8	40000	37000	92.5
Lead	2000	2010	100.5	2000	1970	98.5	2000	1970	98.5
Lithium									
Magnesium	40000	38400	96.0	40000	37200	93.0	40000	37300	93.3
Manganese	2000	2080	104.0	2000	2090	104.5	2000	2020	101.0
Molybdenum									
Nickel	2000	2040	102.0	2000	2010	100.5	2000	1990	99.5
Phosphorus									
Potassium	40000	38500	96.3	40000	37600	94.0	40000	37700	94.3
Selenium	2000	2020	101.0	2000	1990	99.5	2000	1960	98.0
Silicon									
Silver	250	247	98.8	250	244	97.6	250	241	96.4
Sodium	40000	38000	95.0	40000	36600	91.5	40000	37300	93.3
Strontium									
Sulfur									
Thallium	2000	2020	101.0	2000	1980	99.0	2000	1980	99.0
Tin									
Titanium									
Tungsten									
Vanadium	2000	2040	102.0	2000	2030	101.5	2000	1980	99.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55131 Units: ug/l

Time:		09:34			10:29			11:14	
Sample ID:	CCV	CCV2		CCV	CCV3		CCV	CCV4	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	2000	2030	101.5	2000	1980	99.0	2000	1960	98.0
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55131 Units: ug/l

Time:		12:09	
Sample ID:	CCV	CCV5	
Metal	True	Results	% Rec
Aluminum	40000	39200	98.0
Antimony	2000	2000	100.0
Arsenic	2000	1990	99.5
Barium	2000	1970	98.5
Beryllium	2000	1980	99.0
Bismuth			
Boron			
Cadmium	2000	1990	99.5
Calcium	40000	39200	98.0
Cerium			
Chromium	2000	2010	100.5
Cobalt	2000	1990	99.5
Copper	2000	1980	99.0
Iron	40000	38100	95.3
Lead	2000	2010	100.5
Lithium			
Magnesium	40000	38300	95.8
Manganese	2000	2070	103.5
Molybdenum			
Nickel	2000	2020	101.0
Phosphorus			
Potassium	40000	38600	96.5
Selenium	2000	1990	99.5
Silicon			
Silver	250	245	98.0
Sodium	40000	38200	95.5
Strontium			
Sulfur			
Thallium	2000	2030	101.5
Tin			
Titanium			
Tungsten			
Vanadium	2000	2020	101.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55131 Units: ug/l

Time:		12:09	
Sample ID:	CCV	CCV5	
Metal	True	Results	% Rec
Zinc	2000	2000	100.0
Zirconium			

(*) Outside of QC limits
(anr) Analyte not requested

HIGH STANDARD CHECK SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA55131 Units: ug/l

Time:		07:57			08:03	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum				300000	291000	97.0
Antimony	8000	7500	93.8			
Arsenic	8000	7480	93.5			
Barium	8000	7680	96.0			
Beryllium	8000	7740	96.8			
Bismuth						
Boron						
Cadmium	8000	7570	94.6			
Calcium				200000	201000	100.5
Cerium						
Chromium	8000	7970	99.6			
Cobalt	8000	7830	97.9			
Copper	8000	7710	96.4			
Iron				200000	189000	94.5
Lead	8000	7850	98.1			
Lithium						
Magnesium				300000	282000	94.0
Manganese	8000	7910	98.9			
Molybdenum						
Nickel	8000	7850	98.1			
Phosphorus						
Potassium				200000	197000	98.5
Selenium	8000	7680	96.0			
Silicon						
Silver	625	590	94.4			
Sodium				200000	194000	97.0
Strontium						
Sulfur						
Thallium	8000	7740	96.8			
Tin						
Titanium						
Tungsten						
Vanadium	8000	7880	98.5			

HIGH STANDARD CHECK SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA55131 Units: ug/l

Time:		07:57			08:03	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Zinc	8000	7930	99.1			
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA55131 Units: ug/l

Time:				07:37		08:33	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID2	
Metal	True	True	True	Results	% Rec	Results	% Rec
Aluminum	200	500	100	188	94.0	112	112.0
Antimony	6.0	20	3.0	5.90	98.3		
Arsenic	8.0	20	3.0	7.60	95.0	3.30	110.0
Barium	200		4.0	197	98.5	3.60	90.0
Beryllium	2.0		1.0	2.20	110.0	0.900	90.0
Bismuth	20						
Boron	100		10				
Cadmium	3.0		1.0	2.90	96.7	0.800	80.0
Calcium	5000	2000	1000	5100	102.0	1000	100.0
Cerium							
Chromium	10		2.0	10.1	101.0	2.10	105.0
Cobalt	50		3.0	51.1	102.2	2.90	96.7
Copper	10		2.0	10.5	105.0		
Iron	100	500		97.6	97.6		
Lead	3.0	20	2.5	3.10	103.3		
Lithium	50						
Magnesium	5000	2000	100	5010	100.2		
Manganese	15		3.0	16.0	106.7	3.10	103.3
Molybdenum	20						
Nickel	10		4.0	10.3	103.0	4.50	112.5
Phosphorus	50						
Potassium	5000		2000	4880	97.6	1930	96.5
Selenium	10	20	5.0	11.9	119.0	5.90	118.0
Silicon	200						
Silver	5.0		2.0	4.90	98.0		
Sodium	5000		1000	4730	94.6	928	92.8
Strontium	10						
Sulfur	50						
Thallium	10		2.0	8.80	88.0		
Tin	10						
Titanium	10						
Tungsten	50						
Vanadium	50		2.0	50.9	101.8	2.00	100.0

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA55131 Units: ug/l

Time:				07:37		08:33	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID2	
Metal	True	True	True	Results	% Rec	Results	% Rec
Zinc	20		10	22.4	112.0	10.2	102.0
Zirconium	10						

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA55131 Units: ug/l

Time:			07:47		07:53	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	474000	94.8	477000	95.4
Antimony		1000	-2.40		959	95.9
Arsenic		1000	0.300		959	95.9
Barium		500	-6.50		463	92.6
Beryllium		500	0.100		475	95.0
Bismuth		500	9.60		509	101.8
Boron		500	-1.50		490	98.0
Cadmium		1000	-0.200		1010	101.0
Calcium	400000	400000	371000	92.8	361000	90.3
Cerium			-23.6		8.80	
Chromium		500	-2.90		450	90.0
Cobalt		500	-0.400		461	92.2
Copper		500	0.500		492	98.4
Iron	200000	200000	174000	87.0	178000	89.0
Lead		1000	-1.10		919	91.9
Lithium		500	-10.8		483	96.6
Magnesium	500000	500000	455000	91.0	460000	92.0
Manganese		500	2.00		484	96.8
Molybdenum		500	-0.700		461	92.2
Nickel		1000	1.40		905	90.5
Phosphorus		500	15.9		507	101.4
Potassium			98.5		110	
Selenium		1000	-6.00		951	95.1
Silicon		500	-4.80		494	98.8
Silver		1000	1.90		918	91.8
Sodium			6.50		28.8	
Strontium		500	9.10		473	94.6
Sulfur		500	-0.400		469	93.8
Thallium		1000	5.00		933	93.3
Tin		500	-1.80		461	92.2
Titanium		500	-0.200		464	92.8
Tungsten		500	1.30		460	92.0
Vanadium		500	-0.200		472	94.4

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112723M1.ICP Date Analyzed: 11/27/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA55131 Units: ug/l

Time:			07:47		07:53	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Zinc		1000	4.60		925	92.5
Zirconium		500	1.40		452	90.4

(*) Outside of QC limits
(anr) Analyte not requested

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
06:37	MA55139-STD1	1		STDA
06:42	MA55139-STD2	1		STDB
06:47	MA55139-ICV1	1		
06:55	MA55139-ICB1	1		
07:00	MA55139-CCV1	1		
07:05	MA55139-CCB1	1		
07:10	MA55139-CRI1	1		
07:15	MA55139-CRID1	1		
07:21	MA55139-ICSA1	1		
07:26	MA55139-ICSAB1	1		
07:31	MA55139-HSTD1	1		
07:36	MA55139-HSTD2	1		
07:41	ZZZZZZ	1		
07:46	ZZZZZZ	1		
07:52	ZZZZZZ	1		
07:57	MA55139-CCV2	1		
08:02	MA55139-CCB2	1		
08:30	MP43343-MB1	1		HSTD out
08:35	MP43343-B1	1		HSTD out
08:40	MP43343-S1	1		HSTD out
08:45	MP43343-S2	1		HSTD out
08:50	JD77539-3	1		(sample used for QC only; not part of login JD77365)
08:56	MP43343-SD1	5		HSTD out
09:01	MP43343-PS1	1		
09:06	ZZZZZZ	1		
09:11	ZZZZZZ	1		
09:16	MA55139-CCV3	1		
09:20	MA55139-CCB3	1		
09:25	ZZZZZZ	1		
09:30	ZZZZZZ	1		
09:35	ZZZZZZ	1		
09:40	ZZZZZZ	1		
09:45	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
09:50	ZZZZZZ	1		
09:55	ZZZZZZ	1		
10:00	ZZZZZZ	1		
10:05	ZZZZZZ	1		
10:10	MA55139-CCV4	1		
10:15	MA55139-CCB4	1		
10:20	ZZZZZZ	1		
10:25	ZZZZZZ	1		
10:30	ZZZZZZ	1		
10:35	ZZZZZZ	1		
10:40	ZZZZZZ	1		
10:45	ZZZZZZ	1		
10:50	ZZZZZZ	1		
10:55	ZZZZZZ	1		
11:00	MA55139-CCV5	1		
11:05	MA55139-CCB5	1		
11:10	ZZZZZZ	1		
11:15	ZZZZZZ	5		
11:20	ZZZZZZ	5		
11:25	ZZZZZZ	5		
11:30	ZZZZZZ	5		
11:35	ZZZZZZ	1		
11:40	ZZZZZZ	5		
11:45	ZZZZZZ	1		
11:50	JD77329-4	1		(sample used for QC only; not part of login JD77365)
11:55	MP43295-SD1	5		
12:00	MA55139-CCV6	1		
12:05	MA55139-CCB6	1		
12:10	MP43295-S1	2		
12:15	MP43295-S2	2		
12:20	JD77329-4	2		(sample used for QC only; not part of login JD77365)
12:25	MP43295-SD1	10		
12:30	ZZZZZZ	5		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:35	ZZZZZZ	5		
12:40	ZZZZZZ	2		
12:45	ZZZZZZ	1		
12:50	ZZZZZZ	2		
12:55	ZZZZZZ	5		
13:00	MA55139-CCV7	1		
13:05	MA55139-CCB7	1		
13:10	ZZZZZZ	1		
13:29	ZZZZZZ	1		
13:35	ZZZZZZ	1		
13:39	ZZZZZZ	1		
13:45	MA55139-CCV8	1		
13:54	MA55139-CCB8	1		
13:59	MP43343-S1	5		
14:04	MP43343-S2	5		
14:08	JD77539-3	5		(sample used for QC only; not part of login JD77365)
14:13	MP43343-SD1	25		
14:18	MP43343-PS1	5		
14:23	ZZZZZZ	5		
14:28	ZZZZZZ	1		
14:33	ZZZZZZ	1		
14:38	MA55139-CCV9	1		
14:43	MA55139-CCB9	1		
14:48	ZZZZZZ	1		
14:53	ZZZZZZ	1		
14:59	ZZZZZZ	1		
15:04	ZZZZZZ	1		
15:09	MP43350-B1	1		
15:14	MP43350-MB1	1		
15:19	MP43350-S1	1		
15:24	MP43350-S2	1		
15:29	MA55139-CCV10	1		
15:34	MA55139-CCB10	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:39	JD77351-4	1		(sample used for QC only; not part of login JD77365)
15:44	MP43350-SD1	5		
15:49	ZZZZZZ	1		
15:54	ZZZZZZ	1		
15:59	ZZZZZZ	1		
16:04	ZZZZZZ	1		
16:09	ZZZZZZ	1		
16:14	ZZZZZZ	1		
16:19	ZZZZZZ	1		
16:25	MA55139-CCV11	1		
16:29	MA55139-CCB11	1		
16:34	ZZZZZZ	1		
16:40	ZZZZZZ	1		
16:45	ZZZZZZ	1		
16:50	ZZZZZZ	1		
16:55	ZZZZZZ	1		
17:00	ZZZZZZ	1		
17:05	ZZZZZZ	1		
17:10	ZZZZZZ	1		
17:15	MP43350-S1	2		
17:20	MP43350-S2	2		
17:25	MA55139-CCV12	1		
17:30	MA55139-CCB12	1		
17:35	JD77351-4	2		(sample used for QC only; not part of login JD77365)
17:40	MP43350-SD1	10		
17:45	MP43322-B1	1		
17:50	MP43322-MB1	1		
17:55	MP43322-S1	1		
18:00	MP43322-S2	1		
18:04	JD77365-2	1		
18:10	MP43322-SD1	5		
18:15	MP43322-PS1	1		
18:19	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	18:24	JD77365-1	1		Ca high
	18:29	JD77365-3	1		Ca high
	18:35	MA55139-CCV13	1		
	18:39	MA55139-CCB13	1		
	18:44	JD77365-4	1		CCV out
	18:50	JD77365-5	1		CCV out
	18:55	JD77365-6	1		CCV out
	19:00	JD77365-7	1		CCV out
	19:05	JD77365-8	1		Ca high. CCV out
	19:10	JD77365-9	1		CCV out
	19:15	JD77365-10	1		CCV out
	19:20	JD77365-11	1		CCV out
	19:25	JD77365-12	1		CCV out
	19:30	JD77365-13	1		CCV out
	19:35	MA55139-CCV14	1		
	19:40	MA55139-CCB14	1		
	19:45	JD77365-14	1		Ca, PB high. CCV out
	19:50	JD77365-15	1		Ca high. CCV out
---------->	Last reportable sample/prep for job JD77365				
	19:55	MP43324-B1	1		CCV out
	20:00	MP43324-MB1	1		CCV out
	20:05	MP43324-S1	1		CCV out
	20:10	MP43324-S2	1		CCV out
	20:14	JD77429-33	1		(sample used for QC only; not part of login JD77365)
	20:19	MP43324-SD1	1		missing DF
	20:24	MP43324-PS1	1		CCV out
	20:29	ZZZZZZ	1		
	20:34	MA55139-CCV15	1		
	20:39	MA55139-CCB15	1		
---------->	Last reportable CCB for job JD77365				
	20:44	ZZZZZZ	1		
	20:49	ZZZZZZ	1		
	20:54	ZZZZZZ	1		
	20:59	ZZZZZZ	1		
	21:04	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
21:09	ZZZZZZ	1		
21:14	ZZZZZZ	1		
21:19	ZZZZZZ	1		
21:24	ZZZZZZ	1		
21:29	ZZZZZZ	1		
21:34	MA55139-CCV16	1		
21:38	MA55139-CCB16	1		
21:44	ZZZZZZ	1		
21:49	ZZZZZZ	1		
21:54	ZZZZZZ	1		
21:59	ZZZZZZ	1		
22:03	ZZZZZZ	1		
22:08	ZZZZZZ	1		
22:13	ZZZZZZ	1		
22:18	ZZZZZZ	1		
22:23	MP43296-MB1	1		
22:28	MP43296-B1	1		
22:33	MA55139-CCV17	1		
22:38	MA55139-CCB17	1		
22:43	MP43296-S1	1		
22:48	MP43296-S2	1		
22:53	JD77223-1	1		(sample used for QC only; not part of login JD77365)
22:58	MP43296-SD1	5		
23:03	ZZZZZZ	1		
23:09	ZZZZZZ	1		
23:14	ZZZZZZ	1		
23:19	ZZZZZZ	1		
23:24	ZZZZZZ	1		
23:29	ZZZZZZ	1		
23:34	MA55139-CCV18	1		
23:39	MA55139-CCB18	1		
23:44	ZZZZZZ	1		
23:49	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
23:55	ZZZZZZ	1		
00:00	ZZZZZZ	1		
00:05	ZZZZZZ	1		
00:10	ZZZZZZ	1		
00:16	ZZZZZZ	1		
00:21	MA55139-CCV19	1		
00:26	MA55139-CCB19	1		
00:31	MP43386-MB1	1		CCV out
00:36	MP43386-LB1	1		CCV out
00:41	MP43386-B1	1		CCV out
00:45	MP43386-LS1	1		CCV out
00:50	MP43386-S1	1		CCV out
00:55	MP43386-S2	1		CCV out
01:00	JD76316-5T	1		(sample used for QC only; not part of login JD77365)
01:05	MP43386-SD1	5		CCV out
01:10	ZZZZZZ	1		
01:15	ZZZZZZ	1		
01:22	MA55139-CCV20	1		
01:27	MA55139-CCB20	1		
01:32	ZZZZZZ	1		
01:37	ZZZZZZ	1		
01:42	ZZZZZZ	1		
01:47	ZZZZZZ	1		
01:52	ZZZZZZ	1		
01:57	ZZZZZZ	1		
02:02	ZZZZZZ	1		
02:07	ZZZZZZ	1		
02:12	MP43387-B1	1		CCV out
02:16	MP43387-MB1	1		CCV out
02:23	MA55139-CCV21	1		
02:28	MA55139-CCB21	1		
02:33	MP43387-LB1	1		CCV out
02:39	MP43387-LS1	1		CCV out

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Dilution Factor	PS Recov	Comments
02:43	MP43387-S1	1		CCV out
02:48	MP43387-S2	1		CCV out
02:53	JD77551-1	1		(sample used for QC only; not part of login JD77365)
02:59	MP43387-SD1	1		no DF
03:04	ZZZZZZ	1		
03:09	ZZZZZZ	1		
03:14	ZZZZZZ	1		
03:19	ZZZZZZ	1		
03:26	MA55139-CCV22	1		
03:31	MA55139-CCB22	1		

Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Element: Dilution	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	
06:47	MA55139-ICV1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
06:55	MA55139-ICB1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:00	MA55139-CCV1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:05	MA55139-CCB1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:10	MA55139-CRI1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:15	MA55139-CRID1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:21	MA55139-ICSA1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:26	MA55139-ICSAB1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:31	MA55139-HSTD1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:36	MA55139-HSTD2	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
07:41	ZZZZZZ	1																							
07:46	ZZZZZZ	1																							
07:52	ZZZZZZ	1																							
07:57	MA55139-CCV2	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
08:02	MA55139-CCB2	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
08:30	MP43343-MB1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
08:35	MP43343-B1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
08:40	MP43343-S1	1	X	X	X		X	X		X	X	X	X		X	X	X	X	X	X	X	X	X		
08:45	MP43343-S2	1	X	X	X		X	X		X	X	X	X		X	X	X	X	X	X	X	X	X		
08:50	JD77539-3	1	X	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X	X		(a)
08:56	MP43343-SD1	5	X	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X	X		
09:01	MP43343-PS1	1		X																					
09:06	ZZZZZZ	1																							
09:11	ZZZZZZ	1																							
09:16	MA55139-CCV3	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
09:20	MA55139-CCB3	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
09:25	ZZZZZZ	1																							
09:30	ZZZZZZ	1																							
09:35	ZZZZZZ	1																							
09:40	ZZZZZZ	1																							
09:45	ZZZZZZ	1																							
09:50	ZZZZZZ	1																							
09:55	ZZZZZZ	1																							
		Element:	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Element: Dilution	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	
10:00	ZZZZZZ	1																							
10:05	ZZZZZZ	1																							
10:10	MA55139-CCV4	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10:15	MA55139-CCB4	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10:20	ZZZZZZ	1																							
10:25	ZZZZZZ	1																							
10:30	ZZZZZZ	1																							
10:35	ZZZZZZ	1																							
10:40	ZZZZZZ	1																							
10:45	ZZZZZZ	1																							
10:50	ZZZZZZ	1																							
10:55	ZZZZZZ	1																							
11:00	MA55139-CCV5	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
11:05	MA55139-CCB5	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
11:10	ZZZZZZ	1																							
11:15	ZZZZZZ	5																							
11:20	ZZZZZZ	5																							
11:25	ZZZZZZ	5																							
11:30	ZZZZZZ	5																							
11:35	ZZZZZZ	1																							
11:40	ZZZZZZ	5																							
11:45	ZZZZZZ	1																							
11:50	JD77329-4	1																							
11:55	MP43295-SD1	5																							
12:00	MA55139-CCV6	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12:05	MA55139-CCB6	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12:10	MP43295-S1	2					X																		
12:15	MP43295-S2	2					X																		
12:20	JD77329-4	2					X																		(a)
12:25	MP43295-SD1	10					X																		
12:30	ZZZZZZ	5																							
12:35	ZZZZZZ	5																							
12:40	ZZZZZZ	2																							
		Element:	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Element: Dilution	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	
12:45	ZZZZZZ	1																							
12:50	ZZZZZZ	2																							
12:55	ZZZZZZ	5																							
13:00	MA55139-CCV7	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
13:05	MA55139-CCB7	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
13:10	ZZZZZZ	1																							
13:29	ZZZZZZ	1																							
13:35	ZZZZZZ	1																							
13:39	ZZZZZZ	1																							
13:45	MA55139-CCV8	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
13:54	MA55139-CCB8	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
13:59	MP43343-S1	5				X			X					X										X	
14:04	MP43343-S2	5				X			X					X										X	
14:08	JD77539-3	5							X					X										X	(a)
14:13	MP43343-SD1	25							X					X										X	
14:18	MP43343-PS1	5																							
14:23	ZZZZZZ	5																							
14:28	ZZZZZZ	1																							
14:33	ZZZZZZ	1																							
14:38	MA55139-CCV9	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
14:43	MA55139-CCB9	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
14:48	ZZZZZZ	1																							
14:53	ZZZZZZ	1																							
14:59	ZZZZZZ	1																							
15:04	ZZZZZZ	1																							
15:09	MP43350-B1	1							X				X			X					X				
15:14	MP43350-MB1	1							X				X			X					X				
15:19	MP43350-S1	1							X				X			X									
15:24	MP43350-S2	1							X				X			X									
15:29	MA55139-CCV10	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
15:34	MA55139-CCB10	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
15:39	JD77351-4	1							X				X			X									(a)
15:44	MP43350-SD1	5							X				X			X									
		Element:	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Element: Dilution	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	
15:49	ZZZZZZ	1																							
15:54	ZZZZZZ	1																							
15:59	ZZZZZZ	1																							
16:04	ZZZZZZ	1																							
16:09	ZZZZZZ	1																							
16:14	ZZZZZZ	1																							
16:19	ZZZZZZ	1																							
16:25	MA55139-CCV11	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
16:29	MA55139-CCB11	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
16:34	ZZZZZZ	1																							
16:40	ZZZZZZ	1																							
16:45	ZZZZZZ	1																							
16:50	ZZZZZZ	1																							
16:55	ZZZZZZ	1																							
17:00	ZZZZZZ	1																							
17:05	ZZZZZZ	1																							
17:10	ZZZZZZ	1																							
17:15	MP43350-S1	2																			X				
17:20	MP43350-S2	2																			X				
17:25	MA55139-CCV12	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
17:30	MA55139-CCB12	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
17:35	JD77351-4	2																							(a)
17:40	MP43350-SD1	10																			X				
17:45	MP43322-B1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
17:50	MP43322-MB1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
17:55	MP43322-S1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
18:00	MP43322-S2	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
18:04	JD77365-2	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
18:10	MP43322-SD1	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
18:15	MP43322-PS1	1		X														X							
18:19	ZZZZZZ	1																							
18:24	JD77365-1	1	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
18:29	JD77365-3	1	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
		Element:	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Element: Dilution	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	
18:35	MA55139-CCV13	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
18:39	MA55139-CCB13	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
18:44	JD77365-4	1	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
18:50	JD77365-5	1	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
18:55	JD77365-6	1	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
19:00	JD77365-7	1	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
19:05	JD77365-8	1	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
19:10	JD77365-9	1	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
19:15	JD77365-10	1	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
19:20	JD77365-11	1	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
19:25	JD77365-12	1	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
19:30	JD77365-13	1	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
19:35	MA55139-CCV14	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
19:40	MA55139-CCB14	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
19:45	JD77365-14	1	X	X	X	X	X			X	X	X	X		X	X	X	X	X	X	X	X	X	X	
19:50	JD77365-15	1	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
19:55	MP43324-B1	1	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
20:00	MP43324-MB1	1	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
20:05	MP43324-S1	1	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
20:10	MP43324-S2	1	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
20:14	JD77429-33	1	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	(a)
20:19	MP43324-SD1	1	missing DF																						
20:24	MP43324-PS1	1		X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	
20:29	ZZZZZZ	1																							
20:34	MA55139-CCV15	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
20:39	MA55139-CCB15	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
20:44	ZZZZZZ	1																							
20:49	ZZZZZZ	1																							
20:54	ZZZZZZ	1																							
20:59	ZZZZZZ	1																							
21:04	ZZZZZZ	1																							
21:09	ZZZZZZ	1																							
21:14	ZZZZZZ	1																							
		Element:	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Element: Dilution	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	
21:19	ZZZZZZ	1																							
21:24	ZZZZZZ	1																							
21:29	ZZZZZZ	1																							
21:34	MA55139-CCV16	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
21:38	MA55139-CCB16	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
21:44	ZZZZZZ	1																							
21:49	ZZZZZZ	1																							
21:54	ZZZZZZ	1																							
21:59	ZZZZZZ	1																							
22:03	ZZZZZZ	1																							
22:08	ZZZZZZ	1																							
22:13	ZZZZZZ	1																							
22:18	ZZZZZZ	1																							
22:23	MP43296-MB1	1											X			X									
22:28	MP43296-B1	1											X			X									
22:33	MA55139-CCV17	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
22:38	MA55139-CCB17	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
22:43	MP43296-S1	1											X			X									
22:48	MP43296-S2	1											X			X									
22:53	JD77223-1	1											X			X									(a)
22:58	MP43296-SD1	5											X			X									
23:03	ZZZZZZ	1																							
23:09	ZZZZZZ	1																							
23:14	ZZZZZZ	1																							
23:19	ZZZZZZ	1																							
23:24	ZZZZZZ	1																							
23:29	ZZZZZZ	1																							
23:34	MA55139-CCV18	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
23:39	MA55139-CCB18	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
23:44	ZZZZZZ	1																							
23:49	ZZZZZZ	1																							
23:55	ZZZZZZ	1																							
00:00	ZZZZZZ	1																							
		Element:	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Element: Dilution	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	
00:05	ZZZZZZ	1																							
00:10	ZZZZZZ	1																							
00:16	ZZZZZZ	1																							
00:21	MA55139-CCV19	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
00:26	MA55139-CCB19	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
00:31	MP43386-MB1	1			X		X							X						X					
00:36	MP43386-LB1	1																							
00:41	MP43386-B1	1			X		X							X						X					
00:45	MP43386-LS1	1			X		X							X						X					
00:50	MP43386-S1	1			X		X							X						X					
00:55	MP43386-S2	1			X		X							X						X					
01:00	JD76316-5T	1					X							X						X					(a)
01:05	MP43386-SD1	5			X		X							X						X					
01:10	ZZZZZZ	1																							
01:15	ZZZZZZ	1																							
01:22	MA55139-CCV20	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
01:27	MA55139-CCB20	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
01:32	ZZZZZZ	1																							
01:37	ZZZZZZ	1																							
01:42	ZZZZZZ	1																							
01:47	ZZZZZZ	1																							
01:52	ZZZZZZ	1																							
01:57	ZZZZZZ	1																							
02:02	ZZZZZZ	1																							
02:07	ZZZZZZ	1																							
02:12	MP43387-B1	1			X	X				X				X					X	X					
02:16	MP43387-MB1	1			X	X				X				X					X	X					
02:23	MA55139-CCV21	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
02:28	MA55139-CCB21	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
02:33	MP43387-LB1	1																							
02:39	MP43387-LS1	1			X	X				X				X					X	X					
02:43	MP43387-S1	1			X	X				X				X					X	X					
02:48	MP43387-S2	1			X	X				X				X					X	X					
		Element:	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Element: Dilution	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Ni	K	Se	Ag	Na	Tl	V	Zn	
02:53	JD77551-1	1			X	X				X				X					X	X					(a)
02:59	MP43387-SD1	1	no DF																						
03:04	ZZZZZZ	1																							
03:09	ZZZZZZ	1																							
03:14	ZZZZZZ	1																							
03:19	ZZZZZZ	1																							
03:26	MA55139-CCV22	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
03:31	MA55139-CCB22	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

(a) Sample used for QC only; not part of login JD77365.

Element: Al Sb As Ba Be Cd Ca Cr Co Cu Fe Pb Mg Mn Ni K Se Ag Na Tl V Zn

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
06:37	MA55139-STD1	3085 R	128130 R	8450 R	8068 R
06:42	MA55139-STD2	2907	119890	8063	7777
06:47	MA55139-ICV1	2982	122620	8162	7890
06:55	MA55139-ICB1	3054	126210	8231	8025
07:00	MA55139-CCV1	2972	122360	8123	7873
07:05	MA55139-CCB1	3056	125550	8255	8026
07:10	MA55139-CRI1	2998	122930	8173	7901
07:15	MA55139-CRID1	3024	123430	8208	7955
07:21	MA55139-ICSA1	2756	113590	8002	7356
07:26	MA55139-ICSAB1	2779	113950	8060	7434
07:31	MA55139-HSTD1	2986	122600	8255	8170
07:36	MA55139-HSTD2	2821	114380	8067	7469
07:41	ZZZZZZ	2996	122170	8189	8150
07:46	ZZZZZZ	2944	124470	8281	7965
07:52	ZZZZZZ	3017	123290	8196	7944
07:57	MA55139-CCV2	2926	119250	8096	7790
08:02	MA55139-CCB2	3048	124760	8227	8024
08:30	MP43343-MB1	3066	126320	8412	8069
08:35	MP43343-B1	2977	122190	8320	7927
08:40	MP43343-S1	2879	119670	8391	7640
08:45	MP43343-S2	2853	118730	8351	7475
08:50	JD77539-3	2912	119220	8210	7608
08:56	MP43343-SD1	2988	122320	8243	7908
09:01	MP43343-PS1	2872	118490	8245	7558
09:06	ZZZZZZ	3113	127750	8701	8132
09:11	ZZZZZZ	3094	127240	8610	8007
09:16	MA55139-CCV3	2945	120820	8089	7855
09:20	MA55139-CCB3	3042	124810	8214	8015
09:25	ZZZZZZ	3134	128610	8704	8079
09:30	ZZZZZZ	3105	127720	8580	8015
09:35	ZZZZZZ	3086	126370	8491	8009
09:40	ZZZZZZ	3061	125920	8496	8016
09:45	ZZZZZZ	3074	126510	8453	8037

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
09:50	ZZZZZZ	3101	127200	8524	8068
09:55	ZZZZZZ	3131	129300	8706	8005
10:00	ZZZZZZ	3125	128790	8629	8123
10:05	ZZZZZZ	3094	127030	8587	8146
10:10	MA55139-CCV4	2945	120900	8074	7836
10:15	MA55139-CCB4	3054	126110	8241	8032
10:20	ZZZZZZ	3066	127400	8645	7932
10:25	ZZZZZZ	3108	127970	8617	8044
10:30	ZZZZZZ	3126	128180	8614	8137
10:35	ZZZZZZ	3260	133420	9053	8078
10:40	ZZZZZZ	3111	128030	8698	8025
10:45	ZZZZZZ	3124	128520	8699	7962
10:50	ZZZZZZ	3257	133830	9026	8096
10:55	ZZZZZZ	2905	120030	8284	7532
11:00	MA55139-CCV5	2963	121320	8012	7846
11:05	MA55139-CCB5	3047	126390	8213	7983
11:10	ZZZZZZ	3077	127280	8278	8046
11:15	ZZZZZZ	3074	125380	8341	7932
11:20	ZZZZZZ	3087	125350	8265	8002
11:25	ZZZZZZ	3031	124430	8241	7909
11:30	ZZZZZZ	3029	124620	8208	7923
11:35	ZZZZZZ	3045	126330	8239	7960
11:40	ZZZZZZ	3114	128540	8454	7977
11:45	ZZZZZZ	3115	128140	8346	8122
11:50	JD77329-4	No results reported for the elements associated with this internal standard.			
11:55	MP43295-SD1	No results reported for the elements associated with this internal standard.			
12:00	MA55139-CCV6	3018	124370	8249	7942
12:05	MA55139-CCB6	3092	127940	8234	8057
12:10	MP43295-S1	3042	125350	8302	7968
12:15	MP43295-S2	3042	122920	8311	7982
12:20	JD77329-4	3102	127210	8322	8105
12:25	MP43295-SD1	3096	128230	8338	8076
12:30	ZZZZZZ	3089	126710	8352	8070

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
12:35	ZZZZZZ	3094	127650	8388	8093
12:40	ZZZZZZ	3073	126130	8174	8042
12:45	ZZZZZZ	3104	128430	8385	8089
12:50	ZZZZZZ	3140	129190	8582	8070
12:55	ZZZZZZ	3103	128020	8344	8088
13:00	MA55139-CCV7	2998	123560	8176	7900
13:05	MA55139-CCB7	3098	127130	8398	8072
13:10	ZZZZZZ	3096	128090	8374	8064
13:29	ZZZZZZ	3178	130770	8444	8306
13:35	ZZZZZZ	3101	127730	8484	8231
13:39	ZZZZZZ	3093	127510	8572	8168
13:45	MA55139-CCV8	3004	122650	8193	7967
13:54	MA55139-CCB8	3040	125350	8154	8003
13:59	MP43343-S1	2985	121370	8164	7904
14:04	MP43343-S2	2992	122900	8200	7878
14:08	JD77539-3	3003	122500	7996	7934
14:13	MP43343-SD1	3058	124760	8169	8079
14:18	MP43343-PS1	2986	121960	8116	7901
14:23	ZZZZZZ	2976	120200	8134	7877
14:28	ZZZZZZ	3042	124440	8095	8044
14:33	ZZZZZZ	2880	117140	7902	7616
14:38	MA55139-CCV9	2940	119630	7974	7850
14:43	MA55139-CCB9	3066	125400	8182	8087
14:48	ZZZZZZ	3047	125060	8158	8053
14:53	ZZZZZZ	2877	116530	7903	7583
14:59	ZZZZZZ	3030	123440	8125	8004
15:04	ZZZZZZ	3047	125020	8151	8050
15:09	MP43350-B1	3011	121470	8096	8020
15:14	MP43350-MB1	3062	125330	8084	8099
15:19	MP43350-S1	2966	119310	7999	7829
15:24	MP43350-S2	2958	117810	7973	7812
15:29	MA55139-CCV10	2948	119950	7746	7898
15:34	MA55139-CCB10	3040	123740	7979	8053

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
15:39	JD77351-4	2995	120050	8018	7889
15:44	MP43350-SD1	3034	122770	7927	8056
15:49	ZZZZZZ	3031	119130	8186	7426
15:54	ZZZZZZ	3032	121960	8070	7994
15:59	ZZZZZZ	2978	117830	7955	7809
16:04	ZZZZZZ	3026	122820	8100	8005
16:09	ZZZZZZ	3011	120570	7988	8069
16:14	ZZZZZZ	3213	129210	8552	7944
16:19	ZZZZZZ	3055	118920	8236	7463
16:25	MA55139-CCV11	2982	121000	7863	7985
16:29	MA55139-CCB11	3082	125700	8000	8171
16:34	ZZZZZZ	3014	120040	7947	7954
16:40	ZZZZZZ	3019	121600	8003	7982
16:45	ZZZZZZ	2969	118290	7951	7782
16:50	ZZZZZZ	3024	121330	8031	7962
16:55	ZZZZZZ	3006	121930	8005	7996
17:00	ZZZZZZ	3222	128880	8483	8020
17:05	ZZZZZZ	3047	124450	8083	8060
17:10	ZZZZZZ	3122	126950	8170	8250
17:15	MP43350-S1	2998	120930	7898	7947
17:20	MP43350-S2	3035	122100	7990	8036
17:25	MA55139-CCV12	2978	120710	7884	7986
17:30	MA55139-CCB12	3104	124870	8000	8238
17:35	JD77351-4	3054	120910	7978	8092
17:40	MP43350-SD1	3068	124530	7986	8149
17:45	MP43322-B1	3021	122160	8040	8099
17:50	MP43322-MB1	3078	125260	8045	8181
17:55	MP43322-S1	3123	126010	8301	8165
18:00	MP43322-S2	3073	125200	8251	8043
18:04	JD77365-2	3128	126670	8266	8156
18:10	MP43322-SD1	3044	125100	8028	8061
18:15	MP43322-PS1	3041	122740	8136	8013
18:19	ZZZZZZ	3137	126870	8309	8223

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
18:24	JD77365-1	2974	120600	7968	7860
18:29	JD77365-3	2989	121080	8061	7848
18:35	MA55139-CCV13	2969	119860	7779	7992
18:39	MA55139-CCB13	3080	124230	7954	8200
18:44	JD77365-4	3130	126030	8198	8250
18:50	JD77365-5	3139	126750	8236	8135
18:55	JD77365-6	3051	122710	8074	8074
19:00	JD77365-7	3104	125750	8173	8149
19:05	JD77365-8	3056	124290	8385	7774
19:10	JD77365-9	3072	124170	8098	8053
19:15	JD77365-10	2970	121060	7937	7935
19:20	JD77365-11	3010	122050	8028	8033
19:25	JD77365-12	3008	120870	7846	7999
19:30	JD77365-13	3023	121890	8006	7957
19:35	MA55139-CCV14	2989	120030	7814	8051
19:40	MA55139-CCB14	3059	122710	7831	8166
19:45	JD77365-14	2964	120440	7943	7854
19:50	JD77365-15	2959	121800	8140	7860
19:55	MP43324-B1	2990	120310	7848	8066
20:00	MP43324-MB1	3086	124490	7901	8213
20:05	MP43324-S1	3040	123390	8083	8134
20:10	MP43324-S2	2998	122390	7998	8044
20:14	JD77429-33	3097	126440	8192	8252
20:19	MP43324-SD1	No results reported for the elements associated with this internal standard.			
20:24	MP43324-PS1	2973	120540	7918	8007
20:29	ZZZZZZ	3072	124020	7970	8163
20:34	MA55139-CCV15	2968	119580	7713	8005
20:39	MA55139-CCB15	3080	124050	7877	8204
20:44	ZZZZZZ	3177	127750	8263	8176
20:49	ZZZZZZ	3087	124470	7986	8168
20:54	ZZZZZZ	3163	127610	8344	8139
20:59	ZZZZZZ	3103	124770	8023	8221
21:04	ZZZZZZ	3040	122810	7903	8135

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
21:09	ZZZZZZ	3040	122640	7956	8105
21:14	ZZZZZZ	3059	123230	7881	8140
21:19	ZZZZZZ	3092	124400	7964	8195
21:24	ZZZZZZ	3077	126590	8139	8165
21:29	ZZZZZZ	3099	125270	8065	8232
21:34	MA55139-CCV16	2969	119050	7679	7999
21:38	MA55139-CCB16	3074	123470	7778	8188
21:44	ZZZZZZ	3072	124460	8000	8173
21:49	ZZZZZZ	3078	123950	7930	8192
21:54	ZZZZZZ	3055	123620	7860	8129
21:59	ZZZZZZ	3133	127170	8179	8186
22:03	ZZZZZZ	3038	122170	7805	8098
22:08	ZZZZZZ	3138	126850	8201	8148
22:13	ZZZZZZ	3022	122580	7909	8088
22:18	ZZZZZZ	3073	124000	7936	8184
22:23	MP43296-MB1	3051	124010	7707	8152
22:28	MP43296-B1	3019	121260	7796	8131
22:33	MA55139-CCV17	2976	119050	7613	8015
22:38	MA55139-CCB17	3073	123550	7725	8191
22:43	MP43296-S1	2957	117580	7748	7875
22:48	MP43296-S2	2961	117190	7697	7883
22:53	JD77223-1	3032	119910	7775	8022
22:58	MP43296-SD1	3063	122480	7750	8176
23:03	ZZZZZZ	2954	118660	7662	7840
23:09	ZZZZZZ	2972	118340	7710	7817
23:14	ZZZZZZ	2967	117970	7713	7883
23:19	ZZZZZZ	3091	124080	7893	8263
23:24	ZZZZZZ	2891	112370	7600	7496
23:29	ZZZZZZ	3055	121960	7747	8162
23:34	MA55139-CCV18	3039	121690	7715	8171
23:39	MA55139-CCB18	3086	124520	7764	8224
23:44	ZZZZZZ	2990	117880	7670	7903
23:49	ZZZZZZ	3009	119780	7727	7971

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
23:55	ZZZZZZ	2986	117900	7658	7868
00:00	ZZZZZZ	2947	118870	7714	7816
00:05	ZZZZZZ	3097	124560	7859	8278
00:10	ZZZZZZ	2875	111050	7533	7454
00:16	ZZZZZZ	3032	122440	7743	8100
00:21	MA55139-CCV19	3030	121410	7625	8156
00:26	MA55139-CCB19	3120	125460	7775	8311
00:31	MP43386-MB1	3110	125510	7751	8297
00:36	MP43386-LB1	3134	125700	7810	8356
00:41	MP43386-B1	3075	123540	7785	8261
00:45	MP43386-LS1	3030	123420	7783	8140
00:50	MP43386-S1	3101	123080	7717	8314
00:55	MP43386-S2	3053	122900	7717	8200
01:00	JD76316-5T	3090	124620	7626	8250
01:05	MP43386-SD1	3110	125180	7691	8307
01:10	ZZZZZZ	3104	124680	7756	8323
01:15	ZZZZZZ	3072	124100	7494	8207
01:22	MA55139-CCV20	3013	120490	7548	8124
01:27	MA55139-CCB20	3090	124440	7644	8252
01:32	ZZZZZZ	3051	127330	7746	8174
01:37	ZZZZZZ	3099	124310	7689	8292
01:42	ZZZZZZ	3130	125120	7756	8344
01:47	ZZZZZZ	3126	125220	7712	8346
01:52	ZZZZZZ	3138	125780	7811	8359
01:57	ZZZZZZ	3141	126200	7764	8388
02:02	ZZZZZZ	3103	124620	7680	8302
02:07	ZZZZZZ	3132	126000	7765	8342
02:12	MP43387-B1	3064	122980	7725	8247
02:16	MP43387-MB1	3111	125290	7671	8290
02:23	MA55139-CCV21	2996	120010	7462	8098
02:28	MA55139-CCB21	3119	124730	7628	8329
02:33	MP43387-LB1	2973	112560	7543	7666
02:39	MP43387-LS1	2941	113350	7496	7600

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55139
Parameters: Al,Sb,As,Ba,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Ni,K,Se,Ag,Na,Tl,V,Zn

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
02:43	MP43387-S1	2930	112840	7495	7564
02:48	MP43387-S2	2955	113840	7569	7620
02:53	JD77551-1	2963	112990	7515	7637
02:59	MP43387-SD1	No results reported for the elements associated with this internal standard.			
03:04	ZZZZZZ	2870	110500	7398	7405
03:09	ZZZZZZ	2968	113420	7515	7626
03:14	ZZZZZZ	2951	112720	7467	7570
03:19	ZZZZZZ	2915	110950	7397	7514
03:26	MA55139-CCV22	3030	120620	7382	8169
03:31	MA55139-CCB22	3114	125520	7496	8327

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55139 Units: ug/l

Time:			06:55		07:05		08:02		09:20	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.2	8.70	<200	-17.5	<200	-21.2	<200	-21.4	<200
Antimony	6.0	2.8	1.00	<6.0	-0.400	<6.0	0.500	<6.0	-0.100	<6.0
Arsenic	3.0	2.6	0.00	<3.0	-0.100	<3.0	-0.200	<3.0	-0.900	<3.0
Barium	200	.2	0.300	<200	0.00	<200	0.100	<200	-0.300	<200
Beryllium	1.0	.2	0.200	<1.0	0.00	<1.0	-0.100	<1.0	0.00	<1.0
Bismuth	20	2.5								
Boron	100	1.8	anr							
Cadmium	3.0	.4	0.100	<3.0	-0.100	<3.0	0.100	<3.0	-0.200	<3.0
Calcium	5000	13	2.90	<5000	-1.50	<5000	-2.00	<5000	-0.600	<5000
Cerium	100									
Chromium	10	.7	0.00	<10	-0.200	<10	-0.200	<10	-0.300	<10
Cobalt	50	.6	0.200	<50	-0.400	<50	-0.300	<50	-0.300	<50
Copper	10	.7	0.300	<10	0.600	<10	0.700	<10	0.900	<10
Iron	100	3.3	5.40	<100	-0.400	<100	-0.300	<100	-0.800	<100
Lead	3.0	2	0.300	<3.0	0.400	<3.0	-0.500	<3.0	0.100	<3.0
Lithium	50	1.5								
Magnesium	5000	25	17.9	<5000	2.40	<5000	8.00	<5000	5.60	<5000
Manganese	15	.1	0.100	<15	-0.100	<15	-0.200	<15	-0.100	<15
Molybdenum	20	.6	anr							
Nickel	10	.8	0.400	<10	0.100	<10	-0.100	<10	-0.200	<10
Phosphorus	50	7								
Potassium	10000	35	6.90	<10000	13.1	<10000	-8.80	<10000	-3.40	<10000
Selenium	10	3.6	-0.700	<10	-0.400	<10	-0.600	<10	-1.60	<10
Silicon	200	2.2								
Silver	10	.6	0.00	<10	0.00	<10	0.00	<10	0.100	<10
Sodium	10000	14	-1.70	<10000	1.60	<10000	-8.20	<10000	-0.400	<10000
Strontium	10	.1	anr							
Sulfur	50	3.7	anr							
Thallium	10	5.2	1.20	<10	-0.100	<10	0.00	<10	-1.10	<10
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5	0.200	<50	-0.100	<50	-0.100	<50	0.100	<50

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55139 Units: ug/l

Time:			06:55		07:05		08:02		09:20	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	0.100	<20	-0.400	<20	-0.500	<20	-0.400	<20
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55139 Units: ug/l

Time:			10:15		11:05		12:05		13:05	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.2	5.00	<200	-11.7	<200	-26.1	<200	-16.0	<200
Antimony	6.0	2.8	0.100	<6.0	0.400	<6.0	0.400	<6.0	0.300	<6.0
Arsenic	3.0	2.6	0.200	<3.0	-1.00	<3.0	-0.100	<3.0	-0.200	<3.0
Barium	200	.2	0.00	<200	0.100	<200	0.300	<200	-0.100	<200
Beryllium	1.0	.2	-0.100	<1.0	-0.100	<1.0	-0.100	<1.0	0.00	<1.0
Bismuth	20	2.5								
Boron	100	1.8	anr							
Cadmium	3.0	.4	0.00	<3.0	0.00	<3.0	0.100	<3.0	0.00	<3.0
Calcium	5000	13	-2.10	<5000	-2.70	<5000	-3.10	<5000	-2.20	<5000
Cerium	100									
Chromium	10	.7	-0.100	<10	-0.100	<10	0.00	<10	0.00	<10
Cobalt	50	.6	-0.400	<50	-0.100	<50	0.100	<50	-0.300	<50
Copper	10	.7	0.600	<10	-0.200	<10	-0.500	<10	-0.300	<10
Iron	100	3.3	-3.20	<100	-0.100	<100	1.50	<100	2.50	<100
Lead	3.0	2	-0.700	<3.0	-0.500	<3.0	-0.700	<3.0	-0.200	<3.0
Lithium	50	1.5								
Magnesium	5000	25	32.2	<5000	5.60	<5000	2.70	<5000	8.10	<5000
Manganese	15	.1	-0.100	<15	-0.100	<15	0.00	<15	0.00	<15
Molybdenum	20	.6	anr							
Nickel	10	.8	-0.200	<10	0.100	<10	0.100	<10	0.00	<10
Phosphorus	50	7								
Potassium	10000	35	14.3	<10000	12.6	<10000	25.7	<10000	38.9	<10000
Selenium	10	3.6	-0.500	<10	-0.500	<10	-2.00	<10	0.600	<10
Silicon	200	2.2								
Silver	10	.6	0.100	<10	-0.100	<10	-0.500	<10	-0.600	<10
Sodium	10000	14	-5.70	<10000	-13.3	<10000	-16.1	<10000	-10.5	<10000
Strontium	10	.1	anr							
Sulfur	50	3.7	anr							
Thallium	10	5.2	0.200	<10	0.100	<10	-1.00	<10	0.600	<10
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5	0.00	<50	-0.100	<50	-0.200	<50	0.00	<50

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55139 Units: ug/l

Time:			10:15		11:05		12:05		13:05	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	-0.400	<20	-0.300	<20	-0.300	<20	-0.200	<20
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55139 Units: ug/l

Time:			13:54		14:43		15:34		16:29	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.2	-15.5	<200	-12.7	<200	-13.0	<200	-7.40	<200
Antimony	6.0	2.8	-0.500	<6.0	-0.100	<6.0	0.100	<6.0	-0.500	<6.0
Arsenic	3.0	2.6	0.300	<3.0	-0.300	<3.0	-0.500	<3.0	-0.100	<3.0
Barium	200	.2	0.00	<200	-0.100	<200	0.00	<200	0.00	<200
Beryllium	1.0	.2	0.100	<1.0	0.200	<1.0	0.100	<1.0	-0.100	<1.0
Bismuth	20	2.5								
Boron	100	1.8	anr							
Cadmium	3.0	.4	0.200	<3.0	0.100	<3.0	0.200	<3.0	-0.100	<3.0
Calcium	5000	13	0.200	<5000	2.30	<5000	2.70	<5000	2.70	<5000
Cerium	100									
Chromium	10	.7	0.00	<10	-0.100	<10	-0.100	<10	-0.400	<10
Cobalt	50	.6	-0.200	<50	0.100	<50	-0.200	<50	-0.500	<50
Copper	10	.7	1.20	<10	1.20	<10	1.60	<10	1.10	<10
Iron	100	3.3	0.900	<100	1.80	<100	1.30	<100	-6.20	<100
Lead	3.0	2	0.400	<3.0	-0.300	<3.0	0.600	<3.0	-0.100	<3.0
Lithium	50	1.5								
Magnesium	5000	25	4.50	<5000	-9.30	<5000	3.10	<5000	-0.300	<5000
Manganese	15	.1	0.00	<15	0.00	<15	0.00	<15	-0.300	<15
Molybdenum	20	.6	anr							
Nickel	10	.8	0.00	<10	-0.100	<10	-0.100	<10	-0.200	<10
Phosphorus	50	7								
Potassium	10000	35	34.6	<10000	21.5	<10000	5.10	<10000	46.0	<10000
Selenium	10	3.6	0.200	<10	1.20	<10	1.40	<10	0.400	<10
Silicon	200	2.2								
Silver	10	.6	0.200	<10	0.200	<10	0.600	<10	0.400	<10
Sodium	10000	14	-10.8	<10000	-9.90	<10000	0.900	<10000	31.1	<10000
Strontium	10	.1	anr							
Sulfur	50	3.7	anr							
Thallium	10	5.2	-0.100	<10	-0.300	<10	-0.200	<10	0.300	<10
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5	0.00	<50	0.300	<50	0.200	<50	-0.300	<50

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55139 Units: ug/l

Time:			13:54		14:43		15:34		16:29	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	-0.100	<20	-0.300	<20	-0.100	<20	-0.400	<20
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55139 Units: ug/l

Time:			17:30		18:39		19:40		20:39	
Sample ID:			CCB12		CCB13		CCB14		CCB15	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.2	-14.1	<200	-14.1	<200	-26.0	<200	-24.1	<200
Antimony	6.0	2.8	-1.00	<6.0	-0.300	<6.0	0.100	<6.0	-0.900	<6.0
Arsenic	3.0	2.6	-0.200	<3.0	-0.700	<3.0	-0.600	<3.0	-0.400	<3.0
Barium	200	.2	-0.200	<200	-0.200	<200	-0.200	<200	-0.300	<200
Beryllium	1.0	.2	-0.100	<1.0	-0.200	<1.0	-0.100	<1.0	-0.100	<1.0
Bismuth	20	2.5								
Boron	100	1.8	anr							
Cadmium	3.0	.4	-0.100	<3.0	-0.100	<3.0	0.00	<3.0	-0.200	<3.0
Calcium	5000	13	3.20	<5000	4.50	<5000	5.90	<5000	3.70	<5000
Cerium	100									
Chromium	10	.7	-0.100	<10	-0.300	<10	-0.200	<10	-0.100	<10
Cobalt	50	.6	-0.300	<50	-0.300	<50	-0.300	<50	-0.400	<50
Copper	10	.7	1.20	<10	2.00	<10	2.30	<10	2.00	<10
Iron	100	3.3	-3.90	<100	-1.30	<100	-4.10	<100	-6.70	<100
Lead	3.0	2	-0.600	<3.0	-0.800	<3.0	-0.900	<3.0	-0.600	<3.0
Lithium	50	1.5								
Magnesium	5000	25	-22.2	<5000	-19.5	<5000	-9.90	<5000	-12.9	<5000
Manganese	15	.1	-0.200	<15	-0.200	<15	-0.200	<15	-0.200	<15
Molybdenum	20	.6	anr							
Nickel	10	.8	-0.100	<10	-0.100	<10	-0.100	<10	-0.100	<10
Phosphorus	50	7								
Potassium	10000	35	5.40	<10000	12.8	<10000	14.2	<10000	25.0	<10000
Selenium	10	3.6	1.10	<10	0.300	<10	-0.200	<10	0.300	<10
Silicon	200	2.2								
Silver	10	.6	0.300	<10	0.800	<10	0.600	<10	0.700	<10
Sodium	10000	14	2.20	<10000	1.10	<10000	-0.500	<10000	-11.4	<10000
Strontium	10	.1	anr							
Sulfur	50	3.7	anr							
Thallium	10	5.2	-0.700	<10	-0.400	<10	-0.400	<10	0.00	<10
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5	0.00	<50	-0.100	<50	-0.200	<50	-0.200	<50

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55139 Units: ug/l

Time:			17:30		18:39		19:40		20:39	
Sample ID:			CCB12		CCB13		CCB14		CCB15	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	-0.500	<20	-0.500	<20	-0.400	<20	-0.400	<20
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55139 Units: ug/l

Time:		06:47			07:00			07:57	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	40000	39700	99.3	40000	39200	98.0	40000	38400	96.0
Antimony	2000	1980	99.0	2000	2040	102.0	2000	2080	104.0
Arsenic	2000	2010	100.5	2000	2040	102.0	2000	2070	103.5
Barium	2000	1880	94.0*(a)	2000	1880	94.0	2000	1870	93.5
Beryllium	2000	1880	94.0*(a)	2000	1900	95.0	2000	1910	95.5
Bismuth									
Boron	anr								
Cadmium	2000	1880	94.0*(a)	2000	1880	94.0	2000	1910	95.5
Calcium	40000	39200	98.0	40000	40600	101.5	40000	40600	101.5
Cerium									
Chromium	2000	1920	96.0	2000	1930	96.5	2000	1960	98.0
Cobalt	2000	1900	95.0	2000	1910	95.5	2000	1930	96.5
Copper	2000	1880	94.0*(a)	2000	1860	93.0	2000	1900	95.0
Iron	40000	39200	98.0	40000	40000	100.0	40000	39200	98.0
Lead	2000	1900	95.0	2000	1930	96.5	2000	1940	97.0
Lithium									
Magnesium	40000	39200	98.0	40000	40400	101.0	40000	40000	100.0
Manganese	2000	1930	96.5	2000	1940	97.0	2000	2000	100.0
Molybdenum	anr								
Nickel	2000	1890	94.5*(a)	2000	1930	96.5	2000	1940	97.0
Phosphorus									
Potassium	40000	38600	96.5	40000	39700	99.3	40000	39500	98.8
Selenium	2000	1870	93.5*(a)	2000	1860	93.0	2000	1900	95.0
Silicon									
Silver	250	245	98.0	250	252	100.8	250	257	102.8
Sodium	40000	38700	96.8	40000	39600	99.0	40000	38900	97.3
Strontium	anr								
Sulfur	anr								
Thallium	2000	1900	95.0	2000	1930	96.5	2000	1940	97.0
Tin									
Titanium									
Tungsten									
Vanadium	2000	1910	95.5	2000	1910	95.5	2000	1950	97.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55139 Units: ug/l

Time:		06:47			07:00			07:57	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	2000	1900	95.0	2000	1920	96.0	2000	1920	96.0
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested
(a) Within 90 to 110 percent limits required for SW846 6010. No EPA 200.7 samples reported for this element in the area bracketed by this QC.

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55139 Units: ug/l

Time:		09:16			10:10			11:00	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	40000	38200	95.5	40000	38300	95.8	40000	38400	96.0
Antimony	2000	2030	101.5	2000	2020	101.0	2000	2010	100.5
Arsenic	2000	2020	101.0	2000	2030	101.5	2000	2010	100.5
Barium	2000	1850	92.5	2000	1850	92.5	2000	1840	92.0
Beryllium	2000	1870	93.5	2000	1870	93.5	2000	1850	92.5
Bismuth									
Boron	anr								
Cadmium	2000	1870	93.5	2000	1860	93.0	2000	1860	93.0
Calcium	40000	39900	99.8	40000	39900	99.8	40000	39500	98.8
Cerium									
Chromium	2000	1910	95.5	2000	1910	95.5	2000	1900	95.0
Cobalt	2000	1890	94.5	2000	1890	94.5	2000	1860	93.0
Copper	2000	1860	93.0	2000	1860	93.0	2000	1860	93.0
Iron	40000	38700	96.8	40000	38800	97.0	40000	38900	97.3
Lead	2000	1900	95.0	2000	1900	95.0	2000	1870	93.5
Lithium									
Magnesium	40000	39300	98.3	40000	39300	98.3	40000	39200	98.0
Manganese	2000	1940	97.0	2000	1940	97.0	2000	1920	96.0
Molybdenum	anr								
Nickel	2000	1900	95.0	2000	1900	95.0	2000	1890	94.5
Phosphorus									
Potassium	40000	39000	97.5	40000	39100	97.8	40000	39100	97.8
Selenium	2000	1860	93.0	2000	1860	93.0	2000	1840	92.0
Silicon									
Silver	250	251	100.4	250	251	100.4	250	250	100.0
Sodium	40000	38700	96.8	40000	38800	97.0	40000	38800	97.0
Strontium	anr								
Sulfur	anr								
Thallium	2000	1910	95.5	2000	1900	95.0	2000	1880	94.0
Tin									
Titanium									
Tungsten									
Vanadium	2000	1900	95.0	2000	1900	95.0	2000	1890	94.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55139 Units: ug/l

Time:		09:16			10:10			11:00	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	2000	1880	94.0	2000	1890	94.5	2000	1880	94.0
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55139 Units: ug/l

Time:		12:00			13:00			13:45	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	40000	37600	94.0	40000	37500	93.8	40000	37600	94.0
Antimony	2000	1980	99.0	2000	1980	99.0	2000	2010	100.5
Arsenic	2000	1990	99.5	2000	1990	99.5	2000	2010	100.5
Barium	2000	1800	90.0	2000	1800	90.0	2000	1820	91.0
Beryllium	2000	1820	91.0	2000	1810	90.5	2000	1840	92.0
Bismuth									
Boron	anr								
Cadmium	2000	1840	92.0	2000	1840	92.0	2000	1850	92.5
Calcium	40000	38500	96.3	40000	38400	96.0	40000	39300	98.3
Cerium									
Chromium	2000	1860	93.0	2000	1860	93.0	2000	1900	95.0
Cobalt	2000	1820	91.0	2000	1820	91.0	2000	1870	93.5
Copper	2000	1820	91.0	2000	1820	91.0	2000	1830	91.5
Iron	40000	38400	96.0	40000	38200	95.5	40000	38000	95.0
Lead	2000	1830	91.5	2000	1830	91.5	2000	1880	94.0
Lithium									
Magnesium	40000	38500	96.3	40000	38400	96.0	40000	38700	96.8
Manganese	2000	1880	94.0	2000	1880	94.0	2000	1940	97.0
Molybdenum	anr								
Nickel	2000	1870	93.5	2000	1870	93.5	2000	1890	94.5
Phosphorus									
Potassium	40000	38300	95.8	40000	38300	95.8	40000	38700	96.8
Selenium	2000	1820	91.0	2000	1820	91.0	2000	1840	92.0
Silicon									
Silver	250	245	98.0	250	245	98.0	250	248	99.2
Sodium	40000	38000	95.0	40000	37900	94.8	40000	37900	94.8
Strontium	anr								
Sulfur	anr								
Thallium	2000	1840	92.0	2000	1840	92.0	2000	1880	94.0
Tin									
Titanium									
Tungsten									
Vanadium	2000	1850	92.5	2000	1850	92.5	2000	1890	94.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55139 Units: ug/l

Time:		12:00			13:00			13:45	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	2000	1860	93.0	2000	1860	93.0	2000	1870	93.5
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55139 Units: ug/l

Time:		14:38			15:29			16:25	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	40000	38200	95.5	40000	38800	97.0	40000	38000	95.0
Antimony	2000	2030	101.5	2000	2020	101.0	2000	1980	99.0
Arsenic	2000	2030	101.5	2000	2020	101.0	2000	1980	99.0
Barium	2000	1850	92.5	2000	1880	94.0	2000	1830	91.5
Beryllium	2000	1870	93.5	2000	1890	94.5	2000	1830	91.5
Bismuth									
Boron	anr								
Cadmium	2000	1860	93.0	2000	1850	92.5	2000	1810	90.5
Calcium	40000	40100	100.3	40000	41000	102.5	40000	39800	99.5
Cerium									
Chromium	2000	1940	97.0	2000	1930	96.5	2000	1900	95.0
Cobalt	2000	1900	95.0	2000	1900	95.0	2000	1880	94.0
Copper	2000	1860	93.0	2000	1850	92.5	2000	1810	90.5
Iron	40000	38400	96.0	40000	38800	97.0	40000	37700	94.3
Lead	2000	1920	96.0	2000	1920	96.0	2000	1910	95.5
Lithium									
Magnesium	40000	39300	98.3	40000	40100	100.3	40000	38800	97.0
Manganese	2000	1970	98.5	2000	1960	98.0	2000	1910	95.5
Molybdenum	anr								
Nickel	2000	1910	95.5	2000	1890	94.5	2000	1870	93.5
Phosphorus									
Potassium	40000	39300	98.3	40000	40000	100.0	40000	39000	97.5
Selenium	2000	1870	93.5	2000	1860	93.0	2000	1820	91.0
Silicon									
Silver	250	252	100.8	250	251	100.4	250	247	98.8
Sodium	40000	38600	96.5	40000	39200	98.0	40000	38300	95.8
Strontium	anr								
Sulfur	anr								
Thallium	2000	1920	96.0	2000	1920	96.0	2000	1900	95.0
Tin									
Titanium									
Tungsten									
Vanadium	2000	1920	96.0	2000	1910	95.5	2000	1870	93.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55139 Units: ug/l

Time:		14:38			15:29			16:25	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	2000	1890	94.5	2000	1890	94.5	2000	1850	92.5
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55139 Units: ug/l

Time:		17:25			18:35			19:35	
Sample ID:	CCV	CCV12		CCV	CCV13		CCV	CCV14	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	40000	36300	90.8	40000	38100	95.3	40000	37500	93.8
Antimony	2000	1990	99.5	2000	1980	99.0	2000	1960	98.0
Arsenic	2000	1990	99.5	2000	1980	99.0	2000	1960	98.0
Barium	2000	1820	91.0	2000	1840	92.0	2000	1820	91.0
Beryllium	2000	1830	91.5	2000	1840	92.0	2000	1820	91.0
Bismuth									
Boron	anr								
Cadmium	2000	1810	90.5	2000	1810	90.5	2000	1790	89.5*(a)
Calcium	40000	39800	99.5	40000	40200	100.5	40000	39700	99.3
Cerium									
Chromium	2000	1910	95.5	2000	1920	96.0	2000	1910	95.5
Cobalt	2000	1820	91.0	2000	1900	95.0	2000	1890	94.5
Copper	2000	1810	90.5	2000	1820	91.0	2000	1800	90.0
Iron	40000	37300	93.3	40000	37400	93.5	40000	36700	91.8
Lead	2000	1840	92.0	2000	1930	96.5	2000	1920	96.0
Lithium									
Magnesium	40000	38700	96.8	40000	38900	97.3	40000	38400	96.0
Manganese	2000	1930	96.5	2000	1930	96.5	2000	1910	95.5
Molybdenum	anr								
Nickel	2000	1870	93.5	2000	1870	93.5	2000	1850	92.5
Phosphorus									
Potassium	40000	39000	97.5	40000	39400	98.5	40000	38900	97.3
Selenium	2000	1830	91.5	2000	1830	91.5	2000	1810	90.5
Silicon									
Silver	250	247	98.8	250	249	99.6	250	246	98.4
Sodium	40000	38100	95.3	40000	38500	96.3	40000	38000	95.0
Strontium	anr								
Sulfur	anr								
Thallium	2000	1840	92.0	2000	1920	96.0	2000	1910	95.5
Tin									
Titanium									
Tungsten									
Vanadium	2000	1890	94.5	2000	1890	94.5	2000	1880	94.0

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55139 Units: ug/l

Time:		17:25			18:35			19:35	
Sample ID:	CCV	CCV12		CCV	CCV13		CCV	CCV14	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	2000	1860	93.0	2000	1850	92.5	2000	1840	92.0
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested
(a) No samples reported for this element in the area bracketed by this QC.

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55139 Units: ug/l

Time:		20:34	
Sample ID:	CCV	CCV15	
Metal	True	Results	% Rec
Aluminum	40000	38400	96.0
Antimony	2000	1990	99.5
Arsenic	2000	1990	99.5
Barium	2000	1850	92.5
Beryllium	2000	1840	92.0
Bismuth			
Boron	anr		
Cadmium	2000	1810	90.5
Calcium	40000	40300	100.8
Cerium			
Chromium	2000	1920	96.0
Cobalt	2000	1910	95.5
Copper	2000	1820	91.0
Iron	40000	37500	93.8
Lead	2000	1950	97.5
Lithium			
Magnesium	40000	39000	97.5
Manganese	2000	1920	96.0
Molybdenum	anr		
Nickel	2000	1870	93.5
Phosphorus			
Potassium	40000	39600	99.0
Selenium	2000	1830	91.5
Silicon			
Silver	250	249	99.6
Sodium	40000	38900	97.3
Strontium	anr		
Sulfur	anr		
Thallium	2000	1940	97.0
Tin			
Titanium			
Tungsten			
Vanadium	2000	1890	94.5

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55139 Units: ug/l

Time:		20:34	
Sample ID:	CCV	CCV15	
Metal	True	Results	% Rec
Zinc	2000	1860	93.0
Zirconium			

(*) Outside of QC limits
(anr) Analyte not requested

HIGH STANDARD CHECK SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA55139 Units: ug/l

Time:		07:31			07:36	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum				300000	291000	97.0
Antimony	8000	7760	97.0			
Arsenic	8000	7750	96.9			
Barium	8000	7280	91.0			
Beryllium	8000	7390	92.4			
Bismuth						
Boron	anr					
Cadmium	8000	7250	90.6			
Calcium				200000	206000	103.0
Cerium						
Chromium	8000	7720	96.5			
Cobalt	8000	7480	93.5			
Copper	8000	7400	92.5			
Iron				200000	191000	95.5
Lead	8000	7480	93.5			
Lithium						
Magnesium				300000	288000	96.0
Manganese	8000	7660	95.8			
Molybdenum	anr					
Nickel	8000	7490	93.6			
Phosphorus						
Potassium				200000	199000	99.5
Selenium	8000	7280	91.0			
Silicon						
Silver	625	615	98.4			
Sodium				200000	196000	98.0
Strontium	anr					
Sulfur	anr					
Thallium	8000	7360	92.0			
Tin						
Titanium						
Tungsten						
Vanadium	8000	7620	95.3			

HIGH STANDARD CHECK SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA55139 Units: ug/l

Time:		07:31			07:36	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Zinc	8000	7550	94.4			
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA55139 Units: ug/l

Time:				07:10		07:15	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1	
Metal	True	True	True	Results	% Rec	Results	% Rec
Aluminum	200	500	100	184	92.0	105	105.0
Antimony	6.0	20	3.0	5.60	93.3		
Arsenic	8.0	20	3.0	7.30	91.3		
Barium	200		4.0	186	93.0	3.70	92.5
Beryllium	2.0		1.0	2.10	105.0	0.900	90.0
Bismuth	20						
Boron	100		10	anr			
Cadmium	3.0		1.0	2.70	90.0		
Calcium	5000	2000	1000	5180	103.6	1020	102.0
Cerium							
Chromium	10		2.0	9.70	97.0	1.80	90.0
Cobalt	50		3.0	48.1	96.2	2.60	86.7
Copper	10		2.0	10.6	106.0		
Iron	100	500		101	101.0		
Lead	3.0	20	2.5	3.20	106.7		
Lithium	50						
Magnesium	5000	2000	100	5150	103.0	101	101.0
Manganese	15		3.0	15.1	100.7	2.80	93.3
Molybdenum	20			anr			
Nickel	10		4.0	9.80	98.0	3.90	97.5
Phosphorus	50						
Potassium	5000		2000	4980	99.6	1920	96.0
Selenium	10	20	5.0	10.7	107.0	4.30	86.0
Silicon	200						
Silver	5.0		2.0	4.90	98.0		
Sodium	5000		1000	4820	96.4	933	93.3
Strontium	10			anr			
Sulfur	50			anr			
Thallium	10		2.0	9.10	91.0		
Tin	10						
Titanium	10						
Tungsten	50						
Vanadium	50		2.0	49.1	98.2	1.70	85.0

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA55139 Units: ug/l

Time:				07:10		07:15	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1	
Metal	True	True	True	Results	% Rec	Results	% Rec
Zinc	20		10	21.0	105.0	9.40	94.0
Zirconium	10						

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA55139 Units: ug/l

Time:			07:21		07:26	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	477000	95.4	483000	96.6
Antimony		1000	-2.20		997	99.7
Arsenic		1000	1.80		1010	101.0
Barium		500	-6.80		439	87.8
Beryllium		500	0.200		453	90.6
Bismuth		500	-2.30		514	102.8
Boron		500	-0.500		470	94.0
Cadmium		1000	-0.300		968	96.8
Calcium	400000	400000	379000	94.8	373000	93.3
Cerium			-26.6		1.80	
Chromium		500	-3.10		441	88.2
Cobalt		500	-1.50		444	88.8
Copper		500	0.600		475	95.0
Iron	200000	200000	177000	88.5	181000	90.5
Lead		1000	2.30		887	88.7
Lithium		500	-9.30		495	99.0
Magnesium	500000	500000	464000	92.8	472000	94.4
Manganese		500	1.80		472	94.4
Molybdenum		500	-0.700		483	96.6
Nickel		1000	0.400		867	86.7
Phosphorus		500	11.5		472	94.4
Potassium			71.4		106	
Selenium		1000	-6.60		908	90.8
Silicon		500	1.00		515	103.0
Silver		1000	0.500		965	96.5
Sodium			0.200		29.7	
Strontium		500	8.10		447	89.4
Sulfur		500	-1.30		479	95.8
Thallium		1000	5.70		899	89.9
Tin		500	-2.50		481	96.2
Titanium		500	-0.300		487	97.4
Tungsten		500	-0.600		483	96.6
Vanadium		500	-0.600		462	92.4

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SF112823M1.ICP Date Analyzed: 11/28/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA55139 Units: ug/l

Time:			07:21		07:26	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Zinc		1000	4.20		887	88.7
Zirconium		500	0.500		465	93.0

(*) Outside of QC limits
(anr) Analyte not requested

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
Analyst: LM Run ID: MA55140
Parameters: Hg

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:34	MA55140-STD1	1		b=8.7014e-005,c=-3.5400e-003,rho=0.9998660
12:36	MA55140-STD2	1		STDB
12:37	MA55140-STD3	1		STDC
12:39	MA55140-STD4	1		STDD
12:41	MA55140-STD5	1		STDE
12:43	MA55140-STD6	1		STDF
12:46	ZZZZZZ	1		
12:47	MA55140-ICV1	1		
12:49	MA55140-ICB1	1		
12:51	MA55140-CCV1	1		
12:52	MA55140-CCB1	1		
12:54	MA55140-CRI1	1		
12:56	MP43401-MB1	1		
12:58	MP43401-B1	1		
12:59	MP43401-S1	1		
13:02	MP43401-S2	1		
13:04	JD77365-1	1		
13:06	JD77365-2	1		
13:09	MA55140-CCV2	1		
13:11	MA55140-CCB2	1		
13:13	JD77365-3	1		
13:14	JD77365-4	1		
13:17	JD77365-5	1		
13:18	JD77365-6	1		
13:20	JD77365-7	1		
13:23	JD77365-8	1		
13:25	MA55140-CCV3	1		
13:27	MA55140-CCB3	1		
13:29	JD77365-9	1		
13:31	JD77365-10	1		
13:33	JD77365-11	1		
13:35	JD77365-12	1		
13:37	JD77365-13	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
Analyst: LM Run ID: MA55140
Parameters: Hg

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:40	JD77365-14	1		
13:42	JD77365-15	1		
13:44	MA55140-CCV4	1		
13:47	MA55140-CCB4	1		
13:49	MP43402-MB1	1		
13:51	MP43402-B1	1		
13:52	MP43402-S1	1		
13:54	MP43402-S2	1		
13:57	JD77387-1	1		(sample used for QC only; not part of login JD77365)
13:59	ZZZZZZ	1		
14:01	ZZZZZZ	1		
14:03	ZZZZZZ	1		
14:05	MA55140-CCV5	1		
14:07	MA55140-CCB5	1		
14:09	ZZZZZZ	1		
14:11	ZZZZZZ	1		
14:13	ZZZZZZ	1		
14:15	ZZZZZZ	1		
14:17	ZZZZZZ	1		
14:18	ZZZZZZ	1		
14:20	ZZZZZZ	1		
14:22	ZZZZZZ	1		
14:24	MA55140-CCV6	1		
14:26	MA55140-CCB6	1		
14:28	ZZZZZZ	1		
14:31	ZZZZZZ	1		
14:33	ZZZZZZ	1		
14:34	ZZZZZZ	1		
14:36	ZZZZZZ	1		
14:38	ZZZZZZ	1		
14:40	ZZZZZZ	1		
14:42	ZZZZZZ	1		
14:44	MA55140-CCV7	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
Analyst: LM Run ID: MA55140
Parameters: Hg

Time	Sample Description	Dilution Factor	PS Recov	Comments
14:46	MA55140-CCB7	1		
14:48	MP43403-MB1	1		
14:50	MP43403-B1	1		
14:51	MP43403-S1	1		
14:53	MP43403-S2	1		
14:56	JD77435-1	1		(sample used for QC only; not part of login JD77365)
14:58	ZZZZZZ	1		
15:00	ZZZZZZ	1		
15:01	ZZZZZZ	1		
15:03	MA55140-CCV8	1		
15:05	MA55140-CCB8	1		
15:07	ZZZZZZ	1		
15:09	ZZZZZZ	1		
15:10	ZZZZZZ	1		
15:12	ZZZZZZ	1		
15:14	ZZZZZZ	1		
15:16	ZZZZZZ	1		
15:18	ZZZZZZ	1		
15:20	ZZZZZZ	1		
15:22	MA55140-CCV9	1		
15:24	MA55140-CCB9	1		
15:26	ZZZZZZ	1		
15:27	ZZZZZZ	1		
15:29	ZZZZZZ	1		
15:31	ZZZZZZ	1		
15:32	ZZZZZZ	1		
15:34	ZZZZZZ	1		
15:36	ZZZZZZ	1		
15:38	ZZZZZZ	1		
15:40	MA55140-CCV10	1		
15:42	MA55140-CCB10	1		
15:44	MP43404-MB1	1		
15:46	MP43404-B1	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
Analyst: LM Run ID: MA55140
Parameters: Hg

	Time	Sample Description	Dilution Factor	PS Recov	Comments
	15:47	MP43404-S1	1		
	15:50	MP43404-S2	1		
	15:52	JD77163-1	1		(sample used for QC only; not part of login JD77365)
	15:54	ZZZZZZ	1		
	15:56	MA55140-CCV11	1		
	15:58	MA55140-CCB11	1		
	16:00	ZZZZZZ	1		
	16:02	ZZZZZZ	1		
	16:04	ZZZZZZ	1		
	16:06	ZZZZZZ	1		
	16:08	ZZZZZZ	1		
	16:10	ZZZZZZ	1		
	16:12	ZZZZZZ	1		
	16:14	MA55140-CCV12	1		
	16:16	MA55140-CCB12	1		
	16:19	ZZZZZZ	1		
	16:20	ZZZZZZ	1		
	16:22	ZZZZZZ	1		
	16:25	ZZZZZZ	1		
	16:27	ZZZZZZ	1		
	16:30	ZZZZZZ	1		
	16:32	ZZZZZZ	1		
	16:35	MA55140-CCV13	1		
	16:38	MA55140-CCB13	1		
	16:48	JD77365-12	2		
	16:49	JD77365-15	2		
---------->	Last reportable sample/prep for job JD77365				
	16:57	ZZZZZZ	5		
	16:58	ZZZZZZ	2		
	17:00	ZZZZZZ	5		
	17:02	MA55140-CCV14	1		
	17:05	MA55140-CCB14	1		
---------->	Last reportable CCB for job JD77365				
	17:10	ZZZZZZ	5		
	17:12	ZZZZZZ	5		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
Analyst: LM Run ID: MA55140
Parameters: Hg

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:14	ZZZZZZ	5		
17:16	ZZZZZZ	5		
17:18	ZZZZZZ	5		
17:20	MA55140-CCV15	1		
17:23	MA55140-CCB15	1		

Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
Analyst: LM Run ID: MA55140
Parameters: Hg

Time	Sample Description	Element: Dilution	Hg
12:46	ZZZZZZ	1	
12:47	MA55140-ICV1	1	X
12:49	MA55140-ICB1	1	X
12:51	MA55140-CCV1	1	X
12:52	MA55140-CCB1	1	X
12:54	MA55140-CRI1	1	X
12:56	MP43401-MB1	1	X
12:58	MP43401-B1	1	X
12:59	MP43401-S1	1	X
13:02	MP43401-S2	1	X
13:04	JD77365-1	1	X
13:06	JD77365-2	1	X
13:09	MA55140-CCV2	1	X
13:11	MA55140-CCB2	1	X
13:13	JD77365-3	1	X
13:14	JD77365-4	1	X
13:17	JD77365-5	1	X
13:18	JD77365-6	1	X
13:20	JD77365-7	1	X
13:23	JD77365-8	1	X
13:25	MA55140-CCV3	1	X
13:27	MA55140-CCB3	1	X
13:29	JD77365-9	1	X
13:31	JD77365-10	1	X
13:33	JD77365-11	1	X
13:35	JD77365-12	1	
13:37	JD77365-13	1	X
13:40	JD77365-14	1	X
13:42	JD77365-15	1	
13:44	MA55140-CCV4	1	X
13:47	MA55140-CCB4	1	X
13:49	MP43402-MB1	1	X
13:51	MP43402-B1	1	X
		Element:	Hg

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
Analyst: LM Run ID: MA55140
Parameters: Hg

Time	Sample Description	Element: Dilution	Hg	
13:52	MP43402-S1	1	X	
13:54	MP43402-S2	1	X	
13:57	JD77387-1	1	X	(a)
13:59	ZZZZZZ	1		
14:01	ZZZZZZ	1		
14:03	ZZZZZZ	1		
14:05	MA55140-CCV5	1	X	
14:07	MA55140-CCB5	1	X	
14:09	ZZZZZZ	1		
14:11	ZZZZZZ	1		
14:13	ZZZZZZ	1		
14:15	ZZZZZZ	1		
14:17	ZZZZZZ	1		
14:18	ZZZZZZ	1		
14:20	ZZZZZZ	1		
14:22	ZZZZZZ	1		
14:24	MA55140-CCV6	1	X	
14:26	MA55140-CCB6	1	X	
14:28	ZZZZZZ	1		
14:31	ZZZZZZ	1		
14:33	ZZZZZZ	1		
14:34	ZZZZZZ	1		
14:36	ZZZZZZ	1		
14:38	ZZZZZZ	1		
14:40	ZZZZZZ	1		
14:42	ZZZZZZ	1		
14:44	MA55140-CCV7	1	X	
14:46	MA55140-CCB7	1	X	
14:48	MP43403-MB1	1	X	
14:50	MP43403-B1	1	X	
14:51	MP43403-S1	1	X	
14:53	MP43403-S2	1	X	
14:56	JD77435-1	1	X	(a)
		Element:	Hg	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
Analyst: LM Run ID: MA55140
Parameters: Hg

Time	Sample Description	Element: Dilution	Hg	
14:58	ZZZZZZ	1		
15:00	ZZZZZZ	1		
15:01	ZZZZZZ	1		
15:03	MA55140-CCV8	1	X	
15:05	MA55140-CCB8	1	X	
15:07	ZZZZZZ	1		
15:09	ZZZZZZ	1		
15:10	ZZZZZZ	1		
15:12	ZZZZZZ	1		
15:14	ZZZZZZ	1		
15:16	ZZZZZZ	1		
15:18	ZZZZZZ	1		
15:20	ZZZZZZ	1		
15:22	MA55140-CCV9	1	X	
15:24	MA55140-CCB9	1	X	
15:26	ZZZZZZ	1		
15:27	ZZZZZZ	1		
15:29	ZZZZZZ	1		
15:31	ZZZZZZ	1		
15:32	ZZZZZZ	1		
15:34	ZZZZZZ	1		
15:36	ZZZZZZ	1		
15:38	ZZZZZZ	1		
15:40	MA55140-CCV10	1	X	
15:42	MA55140-CCB10	1	X	
15:44	MP43404-MB1	1	X	
15:46	MP43404-B1	1	X	
15:47	MP43404-S1	1	X	
15:50	MP43404-S2	1	X	
15:52	JD77163-1	1	X	(a)
15:54	ZZZZZZ	1		
15:56	MA55140-CCV11	1	X	
15:58	MA55140-CCB11	1	X	
		Element:	Hg	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
Analyst: LM Run ID: MA55140
Parameters: Hg

Time	Sample Description	Element: Dilution	Hg
16:00	ZZZZZZ	1	
16:02	ZZZZZZ	1	
16:04	ZZZZZZ	1	
16:06	ZZZZZZ	1	
16:08	ZZZZZZ	1	
16:10	ZZZZZZ	1	
16:12	ZZZZZZ	1	
16:14	MA55140-CCV12	1	X
16:16	MA55140-CCB12	1	X
16:19	ZZZZZZ	1	
16:20	ZZZZZZ	1	
16:22	ZZZZZZ	1	
16:25	ZZZZZZ	1	
16:27	ZZZZZZ	1	
16:30	ZZZZZZ	1	
16:32	ZZZZZZ	1	
16:35	MA55140-CCV13	1	X
16:38	MA55140-CCB13	1	X
16:48	JD77365-12	2	X
16:49	JD77365-15	2	X
16:57	ZZZZZZ	5	
16:58	ZZZZZZ	2	
17:00	ZZZZZZ	5	
17:02	MA55140-CCV14	1	X
17:05	MA55140-CCB14	1	X
17:10	ZZZZZZ	5	
17:12	ZZZZZZ	5	
17:14	ZZZZZZ	5	
17:16	ZZZZZZ	5	
17:18	ZZZZZZ	5	
17:20	MA55140-CCV15	1	X
17:23	MA55140-CCB15	1	X

(a) Sample used for QC only; not part of login JD77365.

Element: Hg

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
QC Limits: result < RL Run ID: MA55140 Units: ug/l

Time:			12:49		12:52		13:11		13:27	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Mercury	0.20	.034	0.000300	<0.20	-0.00800	<0.20	-0.0343	<0.20	-0.0424	<0.20

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
QC Limits: result < RL Run ID: MA55140 Units: ug/l

Time:			13:47		14:07		14:26		14:46	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Mercury	0.20	.034	-0.0243	<0.20	-0.0313	<0.20	-0.0334	<0.20	-0.0277	<0.20

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
QC Limits: result < RL Run ID: MA55140 Units: ug/l

Time:			15:05		15:24		15:42		15:58	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Mercury	0.20	.034	-0.0186	<0.20	-0.0144	<0.20	-0.0138	<0.20	-0.0194	<0.20

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
QC Limits: result < RL Run ID: MA55140 Units: ug/l

Time:			16:16		16:38		17:05	
Sample ID:			CCB12		CCB13		CCB14	
Metal	RL	IDL	raw	final	raw	final	raw	final
Mercury	0.20	.034	-0.0197	<0.20	-0.0376	<0.20	-0.00810	<0.20

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
QC Limits: 90 to 110 % Recovery Run ID: MA55140 Units: ug/l

Time:		12:47			12:51			13:09	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Mercury	3	3.25	108.3	2.5	2.54	101.6	2.5	2.39	95.6

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
QC Limits: 90 to 110 % Recovery Run ID: MA55140 Units: ug/l

Time:		13:25			13:44			14:05	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Mercury	2.5	2.38	95.2	2.5	2.35	94.0	2.5	2.42	96.8

(*) Outside of QC limits
(anr) Analyte not requested

6.3.3
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
QC Limits: 90 to 110 % Recovery Run ID: MA55140 Units: ug/l

Time:		14:24			14:44			15:03	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Mercury	2.5	2.38	95.2	2.5	2.42	96.8	2.5	2.40	96.0

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
QC Limits: 90 to 110 % Recovery Run ID: MA55140 Units: ug/l

Time:		15:22			15:40			15:56	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Mercury	2.5	2.42	96.8	2.5	2.35	94.0	2.5	2.42	96.8

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
QC Limits: 90 to 110 % Recovery Run ID: MA55140 Units: ug/l

Time:		16:14			16:35			17:02	
Sample ID:	CCV	CCV12		CCV	CCV13		CCV	CCV14	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Mercury	2.5	2.47	98.8	2.5	2.31	92.4	2.5	2.36	94.4

(*) Outside of QC limits
(anr) Analyte not requested

6.3.3
6

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H9112923S1.CSV Date Analyzed: 11/29/23 Methods: SW846 7471B
QC Limits: 70 to 130 % Recovery Run ID: MA55140 Units: ug/l

Time:			12:54	
Sample ID:	CRI	CRIA	CRI1	
Metal	True	True	Results	% Rec
Mercury	0.20		0.228	114.0

(*) Outside of QC limits
(anr) Analyte not requested

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8112923W1.CSV Date Analyzed: 11/29/23 Methods: SW846 7470A
Analyst: LM Run ID: MA55142
Parameters: Hg

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:01	MA55142-STD1	1		b=1.8215e-004,c=1.4647e-003,rho=0.9998197
13:03	MA55142-STD2	1		STDB
13:04	MA55142-STD3	1		STDC
13:06	MA55142-STD4	1		STDD
13:07	MA55142-STD5	1		STDE
13:09	MA55142-STD6	1		STDF
13:14	ZZZZZZ	1		
13:16	MA55142-ICV1	1		
13:17	MA55142-ICB1	1		
13:19	MA55142-CCV1	1		
13:20	MA55142-CCB1	1		
13:22	MA55142-CRI1	1		
13:24	MP43406-MB1	1		
13:26	MP43406-LB1	1		
13:27	MP43406-B1	1		
13:29	MP43406-LS1	1		
13:30	MP43406-S1	1		
13:32	MP43406-S2	1		
13:34	JD76316-5Q	1		(sample used for QC only; not part of login JD77365)
13:36	ZZZZZZ	1		
13:37	MA55142-CCV2	1		
13:39	MA55142-CCB2	1		
13:40	ZZZZZZ	1		
13:42	MP43407-MB1	1		
13:43	MP43407-LB1	1		
13:45	MP43407-B1	1		
13:46	MP43407-LS1	1		
13:48	MP43407-S1	1		
13:49	MP43407-S2	1		
13:51	FC11327-1L	1		(sample used for QC only; not part of login JD77365)
13:53	MA55142-CCV3	1		
13:54	MA55142-CCB3	1		
13:56	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8112923W1.CSV Date Analyzed: 11/29/23 Methods: SW846 7470A
Analyst: LM Run ID: MA55142
Parameters: Hg

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:57	ZZZZZZ	1		
13:59	ZZZZZZ	1		
14:00	ZZZZZZ	1		
14:02	ZZZZZZ	1		
14:03	ZZZZZZ	1		
14:05	ZZZZZZ	1		
14:06	MA55142-CCV4	1		
14:07	MA55142-CCB4	1		
14:44	MP43408-MB1	1		
14:45	MP43408-B1	1		
14:46	MP43408-S1	1		
14:48	MP43408-S2	1		
14:50	JD77458-4F	1		(sample used for QC only; not part of login JD77365)
14:52	ZZZZZZ	1		
14:53	ZZZZZZ	1		
14:55	MA55142-CCV5	1		
14:56	MA55142-CCB5	1		
14:58	ZZZZZZ	1		
14:59	ZZZZZZ	1		
15:01	ZZZZZZ	1		
15:02	ZZZZZZ	1		
15:03	ZZZZZZ	1		
15:05	JD77365-16	1		
15:06	JD77365-17	1		
15:08	MA55142-CCV6	1		
15:09	MA55142-CCB6	1		
15:11	JD77365-18	1		
15:12	JD77365-19	1		
15:14	JD77365-16F	1		
15:15	JD77365-17F	1		
15:17	JD77365-18F	1		
15:18	JD77365-19F	1		
15:20	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8112923W1.CSV Date Analyzed: 11/29/23 Methods: SW846 7470A
Analyst: LM Run ID: MA55142
Parameters: Hg

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:21	MA55142-CCV7	1		
15:22	MA55142-CCB7	1		
15:24	ZZZZZZ	1		
15:26	MP43409-B1	1		
15:27	MP43409-S1	1		
15:29	MP43409-S2	1		
15:30	JD77574-1	1		(sample used for QC only; not part of login JD77365)
15:32	ZZZZZZ	1		
15:34	ZZZZZZ	1		
15:35	MA55142-CCV8	1		
15:36	MA55142-CCB8	1		
15:38	ZZZZZZ	1		
15:40	ZZZZZZ	1		
15:41	ZZZZZZ	1		
15:42	ZZZZZZ	1		
15:44	ZZZZZZ	1		
15:45	MP43408-MB1	1		
---------->	Last reportable sample/prep for job JD77365			
15:47	MP43409-MB1	1		
15:48	MA55142-CCV9	1		
15:50	MA55142-CCB9	1		
---------->	Last reportable CCB for job JD77365			

Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8112923W1.CSV Date Analyzed: 11/29/23 Methods: SW846 7470A
Analyst: LM Run ID: MA55142
Parameters: Hg

Time	Sample Description	Element: Dilution	Hg
13:14	ZZZZZZ	1	
13:16	MA55142-ICV1	1	X
13:17	MA55142-ICB1	1	X
13:19	MA55142-CCV1	1	X
13:20	MA55142-CCB1	1	X
13:22	MA55142-CRI1	1	X
13:24	MP43406-MB1	1	X
13:26	MP43406-LB1	1	
13:27	MP43406-B1	1	X
13:29	MP43406-LS1	1	X
13:30	MP43406-S1	1	X
13:32	MP43406-S2	1	X
13:34	JD76316-5Q	1	X (a)
13:36	ZZZZZZ	1	
13:37	MA55142-CCV2	1	X
13:39	MA55142-CCB2	1	X
13:40	ZZZZZZ	1	
13:42	MP43407-MB1	1	X
13:43	MP43407-LB1	1	
13:45	MP43407-B1	1	X
13:46	MP43407-LS1	1	X
13:48	MP43407-S1	1	X
13:49	MP43407-S2	1	X
13:51	FC11327-1L	1	X (a)
13:53	MA55142-CCV3	1	X
13:54	MA55142-CCB3	1	X
13:56	ZZZZZZ	1	
13:57	ZZZZZZ	1	
13:59	ZZZZZZ	1	
14:00	ZZZZZZ	1	
14:02	ZZZZZZ	1	
14:03	ZZZZZZ	1	
14:05	ZZZZZZ	1	
		Element:	Hg

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8112923W1.CSV Date Analyzed: 11/29/23 Methods: SW846 7470A
Analyst: LM Run ID: MA55142
Parameters: Hg

Time	Sample Description	Element: Dilution	Hg	
14:06	MA55142-CCV4	1	X	
14:07	MA55142-CCB4	1	X	
14:44	MP43408-MB1	1		
14:45	MP43408-B1	1	X	
14:46	MP43408-S1	1	X	
14:48	MP43408-S2	1	X	
14:50	JD77458-4F	1	X	(a)
14:52	ZZZZZZ	1		
14:53	ZZZZZZ	1		
14:55	MA55142-CCV5	1	X	
14:56	MA55142-CCB5	1	X	
14:58	ZZZZZZ	1		
14:59	ZZZZZZ	1		
15:01	ZZZZZZ	1		
15:02	ZZZZZZ	1		
15:03	ZZZZZZ	1		
15:05	JD77365-16	1		
15:06	JD77365-17	1	X	
15:08	MA55142-CCV6	1	X	
15:09	MA55142-CCB6	1	X	
15:11	JD77365-18	1		
15:12	JD77365-19	1	X	
15:14	JD77365-16F	1	X	
15:15	JD77365-17F	1	X	
15:17	JD77365-18F	1	X	
15:18	JD77365-19F	1	X	
15:20	ZZZZZZ	1		
15:21	MA55142-CCV7	1	X	
15:22	MA55142-CCB7	1	X	
15:24	ZZZZZZ	1		
15:26	MP43409-B1	1	X	
15:27	MP43409-S1	1	X	
15:29	MP43409-S2	1	X	
		Element:	Hg	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8112923W1.CSV Date Analyzed: 11/29/23 Methods: SW846 7470A
Analyst: LM Run ID: MA55142
Parameters: Hg

Time	Sample Description	Element: Dilution	Hg
15:30	JD77574-1	1	X (a)
15:32	ZZZZZZ	1	
15:34	ZZZZZZ	1	
15:35	MA55142-CCV8	1	X
15:36	MA55142-CCB8	1	X
15:38	ZZZZZZ	1	
15:40	ZZZZZZ	1	
15:41	ZZZZZZ	1	
15:42	ZZZZZZ	1	
15:44	ZZZZZZ	1	
15:45	MP43408-MB1	1	X
15:47	MP43409-MB1	1	X
15:48	MA55142-CCV9	1	X
15:50	MA55142-CCB9	1	X

(a) Sample used for QC only; not part of login JD77365.

Element: Hg

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8112923W1.CSV Date Analyzed: 11/29/23 Methods: SW846 7470A
QC Limits: result < RL Run ID: MA55142 Units: ug/l

Time:			13:17		13:20		13:39		13:54	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Mercury	0.20	.024	-0.0200	<0.20	-0.0162	<0.20	-0.0140	<0.20	-0.0180	<0.20

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8112923W1.CSV Date Analyzed: 11/29/23 Methods: SW846 7470A
QC Limits: result < RL Run ID: MA55142 Units: ug/l

Time:			14:07		14:56		15:09		15:22	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Mercury	0.20	.024	-0.00840	<0.20	-0.00780	<0.20	-0.00580	<0.20	-0.00910	<0.20

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8112923W1.CSV Date Analyzed: 11/29/23 Methods: SW846 7470A
QC Limits: result < RL Run ID: MA55142 Units: ug/l

Time:			15:36		15:50	
Sample ID:			CCB8		CCB9	
Metal	RL	IDL	raw	final	raw	final
Mercury	0.20	.024	-0.0117	<0.20	-0.0100	<0.20

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8112923W1.CSV Date Analyzed: 11/29/23 Methods: SW846 7470A
QC Limits: 90 to 110 % Recovery Run ID: MA55142 Units: ug/l

Time:		13:16			13:19			13:37	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Mercury	3	3.10	103.3	2.5	2.35	94.0	2.5	2.39	95.6

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8112923W1.CSV Date Analyzed: 11/29/23 Methods: SW846 7470A
QC Limits: 90 to 110 % Recovery Run ID: MA55142 Units: ug/l

Time:		13:53			14:06			14:55	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Mercury	2.5	2.40	96.0	2.5	2.39	95.6	2.5	2.37	94.8

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8112923W1.CSV Date Analyzed: 11/29/23 Methods: SW846 7470A
QC Limits: 90 to 110 % Recovery Run ID: MA55142 Units: ug/l

Time:		15:08			15:21			15:35	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Mercury	2.5	2.36	94.4	2.5	2.35	94.0	2.5	2.41	96.4

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8112923W1.CSV Date Analyzed: 11/29/23 Methods: SW846 7470A
QC Limits: 90 to 110 % Recovery Run ID: MA55142 Units: ug/l

Time:		15:48	
Sample ID:	CCV	CCV9	
Metal	True	Results	% Rec
Mercury	2.5	2.38	95.2

(*) Outside of QC limits
(anr) Analyte not requested

6.4.3
6

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8112923W1.CSV Date Analyzed: 11/29/23 Methods: SW846 7470A
QC Limits: 70 to 130 % Recovery Run ID: MA55142 Units: ug/l

Time:			13:22	
Sample ID:	CRI	CRIA	CRI1	
Metal	True	True	Results	% Rec
Mercury	0.20		0.203	101.5

(*) Outside of QC limits
(anr) Analyte not requested

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55148
Parameters: Cd,Ca,Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
07:49	MA55148-STD1	1		STDA
07:54	MA55148-STD2	1		STDB
08:00	MA55148-ICV1	1		
08:06	MA55148-ICV2	1		
08:15	MA55148-ICB1	1		
08:22	MA55148-ICCV1	1		
08:32	MA55148-CCB1	1		
08:36	MA55148-CRI1	1		
08:41	MA55148-CRID1	1		
08:46	MA55148-ICSA1	1		
08:51	MA55148-ICSAB1	1		
08:56	MA55148-CRID2	1		
09:01	MA55148-HSTD1	1		
09:07	MA55148-HSTD2	1		
09:13	ZZZZZZ	1		
09:18	ZZZZZZ	1		
09:23	ZZZZZZ	1		
09:28	MA55148-CCV1	1		
09:33	MA55148-CCB2	1		
09:38	MP43373-MB1	1		
09:43	MP43373-B1	1		
09:48	MP43373-S1	1		
09:53	MP43373-S2	1		
09:58	JD77566-1	1		(sample used for QC only; not part of login JD77365)
10:03	MP43373-SD1	5		
10:08	ZZZZZZ	1		
10:13	ZZZZZZ	1		
10:18	ZZZZZZ	1		
10:23	MA55148-CCV2	1		
10:28	MA55148-CCB3	1		
10:33	ZZZZZZ	1		
10:38	ZZZZZZ	1		
10:43	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55148
Parameters: Cd,Ca,Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:48	ZZZZZZ	1		
10:53	MP43371-MB1	1		
10:58	MP43371-MB2	1		
11:03	MP43371-B1	1		
11:08	MP43371-B2	1		
11:13	MP43371-S1	1		
11:18	MA55148-CCV3	1		
11:23	MA55148-CCB4	1		
11:28	ZZZZZZ	1		
11:33	ZZZZZZ	1		
11:38	MP43371-S2	1		
11:43	ZZZZZZ	1		
11:48	MP43371-SD1	5		wrong sample
11:53	ZZZZZZ	1		
11:58	ZZZZZZ	1		
12:04	ZZZZZZ	1		
12:09	ZZZZZZ	1		
12:14	MA55148-CCV4	1		
12:19	MA55148-CCB5	1		
12:24	ZZZZZZ	1		
12:29	ZZZZZZ	1		
12:34	ZZZZZZ	1		
12:40	ZZZZZZ	1		
12:45	ZZZZZZ	1		
12:50	ZZZZZZ	1		
12:55	ZZZZZZ	1		
13:00	ZZZZZZ	1		
13:05	ZZZZZZ	1		
13:10	MA55148-CCV5	1		
13:15	MA55148-CCB6	1		
13:20	ZZZZZZ	1		
13:25	JD77507-2F	1		(sample used for QC only; not part of login JD77365)
13:30	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55148
Parameters: Cd,Ca,Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:35	ZZZZZZ	1		
13:40	ZZZZZZ	1		
13:45	ZZZZZZ	1		
13:50	ZZZZZZ	1		
13:54	JD77365-4	1		
13:59	JD77365-5	1		
14:05	JD77365-6	1		
14:10	MA55148-CCV6	1		
14:15	MA55148-CCB7	1		
14:20	JD77365-7	1		
14:25	JD77365-8	1		
14:30	JD77365-9	1		
14:35	JD77365-10	1		
14:40	JD77365-11	1		
14:45	JD77365-12	1		
14:51	JD77365-13	1		
14:56	JD77365-14	1		
15:01	JD77365-15	1		
15:06	JD77365-1	2		
15:11	MA55148-CCV7	1		
15:17	MA55148-CCB8	1		
15:21	JD77365-3	2		
15:27	JD77365-8	5		
15:32	JD77365-14	2		
15:37	JD77365-15	2		
---------->	Last reportable sample/prep for job JD77365			
15:42	MP43324-MB1	1		
15:47	MP43324-B1	1		
15:52	MP43324-S1	1		
15:57	MP43324-S2	1		
16:02	JD77429-33	1		(sample used for QC only; not part of login JD77365)
16:07	MP43324-SD1	5		
16:12	MA55148-CCV8	1		
16:17	MA55148-CCB9	1		
---------->	Last reportable CCB for job JD77365			

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55148
Parameters: Cd,Ca,Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
16:22	MP43324-PS1	1		
16:27	ZZZZZZ	1		
16:32	ZZZZZZ	1		
16:37	ZZZZZZ	5		
16:42	ZZZZZZ	5		
16:47	MP43393-MB1	1		
16:52	MP43393-B1	1		
16:57	MP43393-S1	1		
17:02	MP43393-S2	1		
17:07	JD77602-1	1		(sample used for QC only; not part of login JD77365)
17:13	MA55148-CCV9	1		
17:18	MA55148-CCB10	1		
17:23	MP43393-SD1	5		
17:28	MP43393-S3	1		
17:33	MP43393-S4	1		
17:39	JD77602-1F	1		(sample used for QC only; not part of login JD77365)
17:44	MP43393-SD2	5		
17:49	ZZZZZZ	1		
17:55	ZZZZZZ	1		
18:00	ZZZZZZ	1		
18:05	ZZZZZZ	1		
18:10	ZZZZZZ	1		
18:15	MA55148-CCV10	1		
18:21	MA55148-CCB11	1		
18:26	ZZZZZZ	1		
18:31	ZZZZZZ	1		
18:36	ZZZZZZ	1		
18:41	ZZZZZZ	2		
18:46	ZZZZZZ	2		
18:51	ZZZZZZ	2		
18:57	ZZZZZZ	2		
19:02	ZZZZZZ	2		
19:07	ZZZZZZ	2		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55148
Parameters: Cd,Ca,Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
19:12	ZZZZZZ	2		
19:17	MA55148-CCV11	1		
19:22	MA55148-CCB12	1		
19:27	ZZZZZZ	2		
19:32	ZZZZZZ	1		
19:37	ZZZZZZ	2		
19:42	ZZZZZZ	2		
19:47	ZZZZZZ	2		
19:52	ZZZZZZ	1		
19:57	ZZZZZZ	1		
20:02	ZZZZZZ	1		
20:07	ZZZZZZ	1		
20:12	ZZZZZZ	1		
20:17	MA55148-CCV12	1		
20:23	MA55148-CCB13	1		

Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55148
Parameters: Cd,Ca,Pb

Time	Sample Description	Element: Dilution	Cd	Ca	Pb	
08:00	MA55148-ICV1	1				
08:06	MA55148-ICV2	1	X	X	X	
08:15	MA55148-ICB1	1	X	X	X	
08:22	MA55148-ICCV1	1	X	X	X	
08:32	MA55148-CCB1	1	X	X	X	
08:36	MA55148-CRI1	1	X	X	X	
08:41	MA55148-CRID1	1				
08:46	MA55148-ICSA1	1	X	X	X	
08:51	MA55148-ICSAB1	1	X	X	X	
08:56	MA55148-CRID2	1	X	X	X	
09:01	MA55148-HSTD1	1	X	X	X	
09:07	MA55148-HSTD2	1	X	X	X	
09:13	ZZZZZZ	1				
09:18	ZZZZZZ	1				
09:23	ZZZZZZ	1				
09:28	MA55148-CCV1	1	X	X	X	
09:33	MA55148-CCB2	1	X	X	X	
09:38	MP43373-MB1	1	X		X	
09:43	MP43373-B1	1	X		X	
09:48	MP43373-S1	1	X		X	
09:53	MP43373-S2	1	X		X	
09:58	JD77566-1	1	X		X	(a)
10:03	MP43373-SD1	5	X		X	
10:08	ZZZZZZ	1				
10:13	ZZZZZZ	1				
10:18	ZZZZZZ	1				
10:23	MA55148-CCV2	1	X	X	X	
10:28	MA55148-CCB3	1	X	X	X	
10:33	ZZZZZZ	1				
10:38	ZZZZZZ	1				
10:43	ZZZZZZ	1				
10:48	ZZZZZZ	1				
10:53	MP43371-MB1	1	X	X	X	
		Element:	Cd	Ca	Pb	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55148
Parameters: Cd,Ca,Pb

Time	Sample Description	Element: Dilution	Cd	Ca	Pb	
10:58	MP43371-MB2	1	X	X	X	
11:03	MP43371-B1	1	X	X	X	
11:08	MP43371-B2	1	X	X	X	
11:13	MP43371-S1	1	X	X	X	
11:18	MA55148-CCV3	1	X	X	X	
11:23	MA55148-CCB4	1	X	X	X	
11:28	ZZZZZZ	1				
11:33	ZZZZZZ	1				
11:38	MP43371-S2	1	X	X	X	
11:43	ZZZZZZ	1				
11:48	MP43371-SD1	5	wrong sample			
11:53	ZZZZZZ	1				
11:58	ZZZZZZ	1				
12:04	ZZZZZZ	1				
12:09	ZZZZZZ	1				
12:14	MA55148-CCV4	1	X	X	X	
12:19	MA55148-CCB5	1	X	X	X	
12:24	ZZZZZZ	1				
12:29	ZZZZZZ	1				
12:34	ZZZZZZ	1				
12:40	ZZZZZZ	1				
12:45	ZZZZZZ	1				
12:50	ZZZZZZ	1				
12:55	ZZZZZZ	1				
13:00	ZZZZZZ	1				
13:05	ZZZZZZ	1				
13:10	MA55148-CCV5	1	X	X	X	
13:15	MA55148-CCB6	1	X	X	X	
13:20	ZZZZZZ	1				
13:25	JD77507-2F	1	X		X	(a)
13:30	ZZZZZZ	1				
13:35	ZZZZZZ	1				
13:40	ZZZZZZ	1				
		Element:	Cd	Ca	Pb	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55148
Parameters: Cd,Ca,Pb

Time	Sample Description	Element: Dilution	Cd	Ca	Pb	
13:45	ZZZZZZ	1				
13:50	ZZZZZZ	1				
13:54	JD77365-4	1	X			
13:59	JD77365-5	1	X			
14:05	JD77365-6	1	X			
14:10	MA55148-CCV6	1	X	X	X	
14:15	MA55148-CCB7	1	X	X	X	
14:20	JD77365-7	1	X			
14:25	JD77365-8	1	X			
14:30	JD77365-9	1	X			
14:35	JD77365-10	1	X			
14:40	JD77365-11	1	X			
14:45	JD77365-12	1	X			
14:51	JD77365-13	1	X			
14:56	JD77365-14	1	X			
15:01	JD77365-15	1	X			
15:06	JD77365-1	2		X		
15:11	MA55148-CCV7	1	X	X	X	
15:17	MA55148-CCB8	1	X	X	X	
15:21	JD77365-3	2		X		
15:27	JD77365-8	5		X		
15:32	JD77365-14	2		X	X	
15:37	JD77365-15	2		X		
15:42	MP43324-MB1	1	X			
15:47	MP43324-B1	1	X			
15:52	MP43324-S1	1	X			
15:57	MP43324-S2	1	X			
16:02	JD77429-33	1	X			(a)
16:07	MP43324-SD1	5	X	X	X	
16:12	MA55148-CCV8	1	X	X	X	
16:17	MA55148-CCB9	1	X	X	X	
16:22	MP43324-PS1	1	X			
16:27	ZZZZZZ	1				
		Element:	Cd	Ca	Pb	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55148
Parameters: Cd,Ca,Pb

Time	Sample Description	Element: Dilution	Cd	Ca	Pb	
16:32	ZZZZZZ	1				
16:37	ZZZZZZ	5				
16:42	ZZZZZZ	5				
16:47	MP43393-MB1	1				
16:52	MP43393-B1	1				
16:57	MP43393-S1	1				
17:02	MP43393-S2	1				
17:07	JD77602-1	1				(a)
17:13	MA55148-CCV9	1	X	X	X	
17:18	MA55148-CCB10	1	X	X	X	
17:23	MP43393-SD1	5				
17:28	MP43393-S3	1				
17:33	MP43393-S4	1				
17:39	JD77602-1F	1				(a)
17:44	MP43393-SD2	5				
17:49	ZZZZZZ	1				
17:55	ZZZZZZ	1				
18:00	ZZZZZZ	1				
18:05	ZZZZZZ	1				
18:10	ZZZZZZ	1				
18:15	MA55148-CCV10	1	X	X	X	
18:21	MA55148-CCB11	1	X	X	X	
18:26	ZZZZZZ	1				
18:31	ZZZZZZ	1				
18:36	ZZZZZZ	1				
18:41	ZZZZZZ	2				
18:46	ZZZZZZ	2				
18:51	ZZZZZZ	2				
18:57	ZZZZZZ	2				
19:02	ZZZZZZ	2				
19:07	ZZZZZZ	2				
19:12	ZZZZZZ	2				
19:17	MA55148-CCV11	1	X	X	X	
		Element:	Cd	Ca	Pb	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55148
Parameters: Cd,Ca,Pb

Time	Sample Description	Element: Dilution	Cd	Ca	Pb
19:22	MA55148-CCB12	1	X	X	X
19:27	ZZZZZZ	2			
19:32	ZZZZZZ	1			
19:37	ZZZZZZ	2			
19:42	ZZZZZZ	2			
19:47	ZZZZZZ	2			
19:52	ZZZZZZ	1			
19:57	ZZZZZZ	1			
20:02	ZZZZZZ	1			
20:07	ZZZZZZ	1			
20:12	ZZZZZZ	1			
20:17	MA55148-CCV12	1	X	X	X
20:23	MA55148-CCB13	1	X	X	X

(a) Sample used for QC only; not part of login JD77365.

Element:	Cd	Ca	Pb

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55148
Parameters: Cd,Ca,Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
07:49	MA55148-STD1	7530 R	166780 R	20832 R	14482 R
07:54	MA55148-STD2	7047	157810	20590	13142
08:00	MA55148-ICV1	No results reported for the elements associated with this internal standard.			
08:06	MA55148-ICV2	7277	161140	20701	13463
08:15	MA55148-ICB1	7548	165940	20924	14495
08:22	MA55148-ICCV1	7277	159400	20650	13445
08:32	MA55148-CCB1	7560	167220	20949	14515
08:36	MA55148-CRI1	7500	164140	21090	14268
08:41	MA55148-CRID1	No results reported for the elements associated with this internal standard.			
08:46	MA55148-ICSA1	6877	151820	20377	12315
08:51	MA55148-ICSAB1	6780	148450	20191	12215
08:56	MA55148-CRID2	7560	165710	21045	14496
09:01	MA55148-HSTD1	7228	160870	21070	14506
09:07	MA55148-HSTD2	6849	150680	20167	12263
09:13	ZZZZZZ	7486	164540	20963	14710
09:18	ZZZZZZ	7384	166970	21108	14576
09:23	ZZZZZZ	7659	166570	21191	14720
09:28	MA55148-CCV1	7341	159600	20708	13595
09:33	MA55148-CCB2	7619	165190	21035	14649
09:38	MP43373-MB1	7627	165020	21000	14844
09:43	MP43373-B1	7363	159560	20893	13886
09:48	MP43373-S1	7241	158330	20780	13473
09:53	MP43373-S2	7221	156820	20724	13435
09:58	JD77566-1	7368	159450	20912	13844
10:03	MP43373-SD1	7615	164270	20976	14512
10:08	ZZZZZZ	7421	160040	21231	13866
10:13	ZZZZZZ	7469	159940	20799	14198
10:18	ZZZZZZ	7314	158060	20728	13716
10:23	MA55148-CCV2	7361	156870	20774	13639
10:28	MA55148-CCB3	7633	163260	20808	14689
10:33	ZZZZZZ	7414	160930	20922	13951
10:38	ZZZZZZ	7397	159870	20767	13868
10:43	ZZZZZZ	7463	159900	20962	14093

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55148
Parameters: Cd,Ca,Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
10:48	ZZZZZZ	7642	164360	21197	14842
10:53	MP43371-MB1	7573	162340	20920	14569
10:58	MP43371-MB2	7589	163770	20747	14625
11:03	MP43371-B1	7402	158250	20654	13876
11:08	MP43371-B2	7380	156240	20582	13842
11:13	MP43371-S1	7397	157970	21052	13506
11:18	MA55148-CCV3	7372	156540	20486	13679
11:23	MA55148-CCB4	7675	160450	20835	14785
11:28	ZZZZZZ	7756	163340	20945	15172
11:33	ZZZZZZ	7671	162600	20886	15023
11:38	MP43371-S2	7434	156520	20946	13555
11:43	ZZZZZZ	7110	150720	20759	12810
11:48	MP43371-SD1	No results reported for the elements associated with this internal standard.			
11:53	ZZZZZZ	7399	156030	20595	13802
11:58	ZZZZZZ	7434	156450	20852	13872
12:04	ZZZZZZ	7058	149180	20621	12703
12:09	ZZZZZZ	7323	153540	20967	13491
12:14	MA55148-CCV4	7417	155910	20703	13763
12:19	MA55148-CCB5	7646	161400	20976	14747
12:24	ZZZZZZ	6867	143660	20397	12211
12:29	ZZZZZZ	7285	156080	21156	13373
12:34	ZZZZZZ	6909	147110	20895	12283
12:40	ZZZZZZ	7345	155690	21023	13089
12:45	ZZZZZZ	7324	156550	20704	13151
12:50	ZZZZZZ	7926	167450	22096	13985
12:55	ZZZZZZ	8102	173420	22588	13839
13:00	ZZZZZZ	8876	189290	24698	14031
13:05	ZZZZZZ	7605	161970	21038	14618
13:10	MA55148-CCV5	7340	159340	20835	13608
13:15	MA55148-CCB6	7624	162580	21024	14662
13:20	ZZZZZZ	7525	162120	20998	13926
13:25	JD77507-2F	7595	163020	21338	13830
13:30	ZZZZZZ	7646	165570	21599	13922

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55148
Parameters: Cd,Ca,Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
13:35	ZZZZZZ	7562	164760	21056	14534
13:40	ZZZZZZ	7391	160060	21087	13731
13:45	ZZZZZZ	7352	159360	21105	13657
13:50	ZZZZZZ	7641	164980	21388	14639
13:54	JD77365-4	7788	168780	21939	14249
13:59	JD77365-5	7867	169190	22533	13879
14:05	JD77365-6	7578	163820	21983	13763
14:10	MA55148-CCV6	7335	157880	20899	13579
14:15	MA55148-CCB7	7617	165030	21027	14639
14:20	JD77365-7	7789	167870	22100	14073
14:25	JD77365-8	7586	164840	22298	12787
14:30	JD77365-9	7809	168390	22157	13935
14:35	JD77365-10	7470	162570	21278	13634
14:40	JD77365-11	7574	164970	21818	13765
14:45	JD77365-12	7704	166280	21960	13800
14:51	JD77365-13	7710	166040	22083	13651
14:56	JD77365-14	7481	160580	21660	13268
15:01	JD77365-15	7383	162060	21599	13145
15:06	JD77365-1	7634	165490	21604	13830
15:11	MA55148-CCV7	7329	159710	20694	13541
15:17	MA55148-CCB8	7635	165960	20867	14662
15:21	JD77365-3	7646	166780	21471	13754
15:27	JD77365-8	7704	168310	21480	13960
15:32	JD77365-14	7596	165660	21566	13660
15:37	JD77365-15	7567	166020	21621	13597
15:42	MP43324-MB1	7639	169700	21398	14554
15:47	MP43324-B1	7351	162630	21073	13684
15:52	MP43324-S1	7449	163890	21364	13704
15:57	MP43324-S2	7436	165220	21535	13685
16:02	JD77429-33	7587	168090	21605	14072
16:07	MP43324-SD1	7772	171700	21831	14579
16:12	MA55148-CCV8	7366	162550	21119	13524
16:17	MA55148-CCB9	7642	170270	21250	14572

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55148
Parameters: Cd,Ca,Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
16:22	MP43324-PS1	7379	163910	21616	13619
16:27	ZZZZZZ	7674	171310	21841	14072
16:32	ZZZZZZ	7530	167940	21325	14306
16:37	ZZZZZZ	7470	167830	21274	13786
16:42	ZZZZZZ	7465	168940	21491	13788
16:47	MP43393-MB1	7560	166420	21063	14607
16:52	MP43393-B1	7326	162400	20837	13729
16:57	MP43393-S1	6407	144380	20186	11394
17:02	MP43393-S2	6392	143040	19954	11363
17:07	JD77602-1	6443	145930	19964	11313
17:13	MA55148-CCV9	7398	163230	21070	13566
17:18	MA55148-CCB10	7691	169640	21438	14644
17:23	MP43393-SD1	7299	162230	21069	13091
17:28	MP43393-S3	6403	144140	20004	11390
17:33	MP43393-S4	6410	143910	19996	11390
17:39	JD77602-1F	6447	145430	20260	11289
17:44	MP43393-SD2	7405	167030	21498	13230
17:49	ZZZZZZ	6153	138350	20163	10727
17:55	ZZZZZZ	6385	144820	21065	11114
18:00	ZZZZZZ	6849	153030	20893	12041
18:05	ZZZZZZ	6298	141890	20857	10909
18:10	ZZZZZZ	6316	143330	20796	10944
18:15	MA55148-CCV10	7405	162730	20485	13570
18:21	MA55148-CCB11	7701	168980	21328	14656
18:26	ZZZZZZ	6513	147220	20742	11345
18:31	ZZZZZZ	6937	152860	21121	12222
18:36	ZZZZZZ	6308	140920	20491	10972
18:41	ZZZZZZ	7645	166960	21024	14538
18:46	ZZZZZZ	7648	169800	21325	13617
18:51	ZZZZZZ	7919	171700	22066	13981
18:57	ZZZZZZ	7726	169940	21294	14665
19:02	ZZZZZZ	7910	172240	21740	14607
19:07	ZZZZZZ	7429	162140	20335	14165

INTERNAL STANDARD SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA55148
Parameters: Cd,Ca,Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
19:12	ZZZZZZ	7376	163610	20513	13659
19:17	MA55148-CCV11	7365	161970	20676	13520
19:22	MA55148-CCB12	7691	167170	20995	14631
19:27	ZZZZZZ	7510	165270	20970	13896
19:32	ZZZZZZ	7710	169680	21300	14638
19:37	ZZZZZZ	7097	157550	20172	12854
19:42	ZZZZZZ	7217	159720	20437	13073
19:47	ZZZZZZ	7177	159140	20010	13104
19:52	ZZZZZZ	7674	167490	21020	14550
19:57	ZZZZZZ	7729	167190	21104	14664
20:02	ZZZZZZ	7750	168600	21148	15155
20:07	ZZZZZZ	7226	159690	20717	13144
20:12	ZZZZZZ	7852	170920	21618	15012
20:17	MA55148-CCV12	7395	162030	20759	13570
20:23	MA55148-CCB13	7689	168730	20921	14632

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55148 Units: ug/l

Time:			08:15		08:32		09:33		10:28	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	27	anr							
Antimony	6.0	2.2	anr							
Arsenic	3.0	1.3	anr							
Barium	200	1	anr							
Beryllium	1.0	.2	anr							
Bismuth	20	2.1								
Boron	100	1								
Cadmium	3.0	.2	0.300	<3.0	0.500	<3.0	0.400	<3.0	0.200	<3.0
Calcium	5000	7.7	4.80	<5000	3.80	<5000	4.30	<5000	4.90	<5000
Cerium	100									
Chromium	10	.5	anr							
Cobalt	50	.4	anr							
Copper	10	6.8	anr							
Iron	100	15	anr							
Lead	3.0	1.6	0.900	<3.0	1.30	<3.0	0.600	<3.0	1.10	<3.0
Lithium	50	3.7								
Magnesium	5000	54	anr							
Manganese	15	.1	anr							
Molybdenum	20	.5								
Nickel	10	.3	anr							
Phosphorus	50	1.8								
Potassium	10000	77	anr							
Selenium	10	2	anr							
Silicon	200	1.3								
Silver	10	.9	anr							
Sodium	10000	23	anr							
Strontium	10	.4								
Sulfur	50	4.1	anr							
Thallium	10	1.6	anr							
Tin	10	.9	anr							
Titanium	10	.9								
Tungsten	50	2								
Vanadium	50	.8	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55148 Units: ug/l

Time:			08:15		08:32		09:33		10:28	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.2	anr							
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55148 Units: ug/l

Time:			11:23		12:19		13:15		14:15	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	27	anr							
Antimony	6.0	2.2	anr							
Arsenic	3.0	1.3	anr							
Barium	200	1	anr							
Beryllium	1.0	.2	anr							
Bismuth	20	2.1								
Boron	100	1								
Cadmium	3.0	.2	0.300	<3.0	0.400	<3.0	0.600	<3.0	0.500	<3.0
Calcium	5000	7.7	6.40	<5000	4.10	<5000	7.10	<5000	5.40	<5000
Cerium	100									
Chromium	10	.5	anr							
Cobalt	50	.4	anr							
Copper	10	6.8	anr							
Iron	100	15	anr							
Lead	3.0	1.6	0.500	<3.0	0.600	<3.0	1.00	<3.0	0.600	<3.0
Lithium	50	3.7								
Magnesium	5000	54	anr							
Manganese	15	.1	anr							
Molybdenum	20	.5								
Nickel	10	.3	anr							
Phosphorus	50	1.8								
Potassium	10000	77	anr							
Selenium	10	2	anr							
Silicon	200	1.3								
Silver	10	.9	anr							
Sodium	10000	23	anr							
Strontium	10	.4								
Sulfur	50	4.1	anr							
Thallium	10	1.6	anr							
Tin	10	.9	anr							
Titanium	10	.9								
Tungsten	50	2								
Vanadium	50	.8	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55148 Units: ug/l

Time:			11:23		12:19		13:15		14:15	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.2	anr							
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55148 Units: ug/l

Time:			15:17		16:17	
Sample ID:			CCB8		CCB9	
Metal	RL	IDL	raw	final	raw	final
Aluminum	200	27	anr			
Antimony	6.0	2.2	anr			
Arsenic	3.0	1.3	anr			
Barium	200	1	anr			
Beryllium	1.0	.2	anr			
Bismuth	20	2.1				
Boron	100	1				
Cadmium	3.0	.2	0.600	<3.0	0.400	<3.0
Calcium	5000	7.7	8.40	<5000	3.30	<5000
Cerium	100					
Chromium	10	.5	anr			
Cobalt	50	.4	anr			
Copper	10	6.8	anr			
Iron	100	15	anr			
Lead	3.0	1.6	0.600	<3.0	0.600	<3.0
Lithium	50	3.7				
Magnesium	5000	54	anr			
Manganese	15	.1	anr			
Molybdenum	20	.5				
Nickel	10	.3	anr			
Phosphorus	50	1.8				
Potassium	10000	77	anr			
Selenium	10	2	anr			
Silicon	200	1.3				
Silver	10	.9	anr			
Sodium	10000	23	anr			
Strontium	10	.4				
Sulfur	50	4.1	anr			
Thallium	10	1.6	anr			
Tin	10	.9	anr			
Titanium	10	.9				
Tungsten	50	2				
Vanadium	50	.8	anr			

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA55148 Units: ug/l

Time:			15:17		16:17	
Sample ID:			CCB8		CCB9	
Metal	RL	IDL	raw	final	raw	final
Zinc	20	.2	anr			
Zirconium	10	.5				

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: to % Recovery Run ID: MA55148 Units: ug/l

Time:		08:22	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Aluminum	anr		
Antimony	anr		
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Bismuth			
Boron			
Cadmium	2000	1980	99.0
Calcium	40000	40800	102.0
Cerium			
Chromium	anr		
Cobalt	anr		
Copper	anr		
Iron	anr		
Lead	2000	1990	99.5
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	anr		
Phosphorus			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Strontium			
Sulfur	anr		
Thallium	anr		
Tin	anr		
Titanium			
Tungsten			
Vanadium	anr		

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: to % Recovery Run ID: MA55148 Units: ug/l

Time:		08:22	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Zinc	anr		
Zirconium			

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55148 Units: ug/l

Time:		08:06			09:28			10:23	
Sample ID:	ICV	ICV2		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	2000	1980	99.0	2000	1970	98.5	2000	1950	97.5
Calcium	40000	40900	102.3	40000	41600	104.0	40000	41700	104.3
Cerium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	1990	99.5	2000	1990	99.5	2000	1990	99.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur	anr								
Thallium	anr								
Tin	anr								
Titanium									
Tungsten									
Vanadium	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55148 Units: ug/l

Time:		08:06			09:28			10:23	
Sample ID:	ICV	ICV2		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55148 Units: ug/l

Time:		11:18			12:14			13:10	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	2000	1930	96.5	2000	1910	95.5	2000	1970	98.5
Calcium	40000	42000	105.0	40000	41900	104.8	40000	41600	104.0
Cerium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2000	100.0	2000	1990	99.5	2000	2010	100.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur	anr								
Thallium	anr								
Tin	anr								
Titanium									
Tungsten									
Vanadium	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55148 Units: ug/l

Time:		11:18			12:14			13:10	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55148 Units: ug/l

Time:		14:10			15:11			16:12	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	2000	1980	99.0	2000	1980	99.0	2000	2000	100.0
Calcium	40000	41400	103.5	40000	41600	104.0	40000	41000	102.5
Cerium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2010	100.5	2000	2010	100.5	2000	2010	100.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur	anr								
Thallium	anr								
Tin	anr								
Titanium									
Tungsten									
Vanadium	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA55148 Units: ug/l

Time:		14:10			15:11			16:12	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

HIGH STANDARD CHECK SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA55148 Units: ug/l

Time:		09:01			09:07	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	8000	7660	95.8			
Calcium				200000	218000	109.0
Cerium						
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron						
Lead	8000	7980	99.8			
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Sulfur	anr					
Thallium	anr					
Tin	anr					
Titanium						
Tungsten						
Vanadium	anr					

HIGH STANDARD CHECK SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA55148 Units: ug/l

Time:		09:01			09:07	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Zinc	anr					
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA55148 Units: ug/l

Time:				08:36		08:56	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID2	
Metal	True	True	True	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr			
Antimony	6.0	20	3.0	anr			
Arsenic	8.0	20	3.0	anr			
Barium	200		4.0	anr			
Beryllium	2.0		1.0	anr			
Bismuth	20						
Boron	100		10				
Cadmium	3.0		1.0	3.00	100.0	1.10	110.0
Calcium	5000	2000	1000	4960	99.2	1040	104.0
Cerium							
Chromium	10		2.0	anr			
Cobalt	50		3.0	anr			
Copper	10		2.0	anr			
Iron	100	500		anr			
Lead	3.0	20	2.5	3.10	103.3		
Lithium	50						
Magnesium	5000	2000	100	anr			
Manganese	15		3.0	anr			
Molybdenum	20						
Nickel	10		4.0	anr			
Phosphorus	50						
Potassium	5000		2000	anr			
Selenium	10	20	5.0	anr			
Silicon	200						
Silver	5.0		2.0	anr			
Sodium	5000		1000	anr			
Strontium	10						
Sulfur	50			anr			
Thallium	10		2.0	anr			
Tin	10			anr			
Titanium	10						
Tungsten	50						
Vanadium	50		2.0	anr			

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA55148 Units: ug/l

Time:				08:36		08:56	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID2	
Metal	True	True	True	Results	% Rec	Results	% Rec
Zinc	20		10	anr			
Zirconium	10						

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA55148 Units: ug/l

Time:			08:46		08:51	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	481000	96.2	496000	99.2
Antimony		1000	2.50		990	99.0
Arsenic		1000	1.90		1000	100.0
Barium		500	-2.20		491	98.2
Beryllium		500	0.100		505	101.0
Bismuth		500	5.20		498	99.6
Boron		500	36.3		533	106.6
Cadmium		1000	0.200		1040	104.0
Calcium	400000	400000	381000	95.3	385000	96.3
Cerium			-33.9		-48.0	
Chromium		500	2.50		477	95.4
Cobalt		500	1.10		474	94.8
Copper		500	3.00		549	109.8
Iron	200000	200000	180000	90.0	187000	93.5
Lead		1000	-1.00		939	93.9
Lithium		500	11.2		531	106.2
Magnesium	500000	500000	472000	94.4	488000	97.6
Manganese		500	10.6		514	102.8
Molybdenum		500	0.600		470	94.0
Nickel		1000	0.300		929	92.9
Phosphorus		500	-9.10		458	91.6
Potassium			-113		-93.3	
Selenium		1000	2.40		981	98.1
Silicon		500	-11.7		490	98.0
Silver		1000	1.20		999	99.9
Sodium			-152		-124	
Strontium		500	7.90		520	104.0
Sulfur		500	43.8		522	104.4
Thallium		1000	0.600		962	96.2
Tin		500	-3.00		475	95.0
Titanium		500	5.80		502	100.4
Tungsten		500	-1.70		460	92.0
Vanadium		500	-39.6		449	89.8

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: SD112923M1.ICP Date Analyzed: 11/29/23 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA55148 Units: ug/l

Time:			08:46		08:51	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Zinc		1000	5.60		946	94.6
Zirconium		500	-5.00		461	92.2

(*) Outside of QC limits
(anr) Analyte not requested

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
Analyst: LM Run ID: MA55150
Parameters: Hg

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:39	MA55150-STD1	1		STDA
13:41	MA55150-STD2	1		STDB
13:42	MA55150-STD3	1		STDC
13:44	MA55150-STD4	1		STDD
13:45	MA55150-STD5	1		STDE
13:47	MA55150-STD6	1		STDF
13:49	MA55150-STD7	1		STDA
13:52	ZZZZZZ	1		
13:53	MA55150-ICV1	1		
13:54	MA55150-ICB1	1		
13:56	MA55150-CCV1	1		
13:57	MA55150-CCB1	1		
13:59	MA55150-CRI1	1		
14:01	MP43432-MB1	1		
14:02	MP43432-LB1	1		
14:03	MP43432-B1	1		
14:05	MP43432-LS1	1		
14:07	MP43432-S1	1		
14:08	MP43432-S2	1		
14:10	FC11327-9L	1		(sample used for QC only; not part of login JD77365)
14:12	ZZZZZZ	1		
14:13	MA55150-CCV2	1		
14:15	MA55150-CCB2	1		
14:16	ZZZZZZ	1		
14:18	ZZZZZZ	1		
14:19	ZZZZZZ	1		
14:21	ZZZZZZ	1		
14:22	ZZZZZZ	1		
14:23	ZZZZZZ	1		
14:25	ZZZZZZ	1		
14:26	ZZZZZZ	1		
14:28	ZZZZZZ	1		
14:29	MA55150-CCV3	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
Analyst: LM Run ID: MA55150
Parameters: Hg

Time	Sample Description	Dilution Factor	PS Recov	Comments
14:30	MA55150-CCB3	1		
14:32	ZZZZZZ	1		
14:34	ZZZZZZ	1		
14:35	ZZZZZZ	1		
14:36	ZZZZZZ	1		
14:38	ZZZZZZ	1		
14:39	ZZZZZZ	1		
14:41	ZZZZZZ	1		
14:42	ZZZZZZ	1		
14:43	MA55150-CCV4	1		
14:45	MA55150-CCB4	1		
14:47	MP43433-MB1	1		
14:48	MP43433-LB1	1		
14:49	MP43433-B1	1		
14:51	MP43433-LS1	1		
14:53	MP43433-S1	1		
14:54	MP43433-S2	1		
14:56	JD77594-1A	1		(sample used for QC only; not part of login JD77365)
14:58	ZZZZZZ	1		
14:59	MA55150-CCV5	1		
15:01	MA55150-CCB5	1		
15:30	MP43434-MB1	1		
15:31	MP43434-LB1	1		
15:33	MP43434-B1	1		
15:34	MP43434-LS1	1		
15:36	MP43434-S1	1		
15:37	MP43434-S2	1		
15:39	MA55150-CCV6	1		
15:41	MA55150-CCB6	1		
15:43	FC11362-1L	1		(sample used for QC only; not part of login JD77365)
15:44	ZZZZZZ	1		
15:46	ZZZZZZ	1		
15:47	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
Analyst: LM Run ID: MA55150
Parameters: Hg

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:48	ZZZZZZ	1		
15:50	ZZZZZZ	1		
15:51	ZZZZZZ	1		
15:53	MA55150-CCV7	1		
15:54	MA55150-CCB7	1		
15:56	MP43435-MB1	1		
15:57	MP43435-B1	1		
15:59	MP43435-S1	1		
16:00	MP43435-S2	1		
16:02	JD77518-3	1		(sample used for QC only; not part of login JD77365)
16:04	ZZZZZZ	1		
16:06	ZZZZZZ	1		
16:07	MA55150-CCV8	1		
16:09	MA55150-CCB8	1		
16:10	ZZZZZZ	1		
16:12	ZZZZZZ	1		
16:13	ZZZZZZ	1		
16:15	ZZZZZZ	1		
16:16	ZZZZZZ	1		
16:18	ZZZZZZ	1		
16:19	ZZZZZZ	1		
16:20	MA55150-CCV9	1		
16:22	MA55150-CCB9	1		
16:24	ZZZZZZ	1		
16:25	ZZZZZZ	1		
16:26	ZZZZZZ	1		
16:28	ZZZZZZ	1		
16:29	ZZZZZZ	1		
16:31	ZZZZZZ	1		
16:32	ZZZZZZ	1		
16:33	MA55150-CCV10	1		
16:35	MA55150-CCB10	1		
16:36	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
Analyst: LM Run ID: MA55150
Parameters: Hg

Time	Sample Description	Dilution Factor	PS Recov	Comments
16:38	ZZZZZZ	1		
16:39	ZZZZZZ	1		
16:41	ZZZZZZ	1		
16:42	ZZZZZZ	1		
16:43	ZZZZZZ	1		
16:45	ZZZZZZ	1		
16:46	MA55150-CCV11	1		
16:48	MA55150-CCB11	1		
16:49	MP43436-MB1	1		
16:51	MP43436-B1	1		
16:52	MP43436-S1	1		
16:54	MP43436-S2	1		
16:56	JD77521-2F	1		(sample used for QC only; not part of login JD77365)
16:57	ZZZZZZ	1		
16:59	ZZZZZZ	1		
17:00	ZZZZZZ	1		
17:01	MA55150-CCV12	1		
17:03	MA55150-CCB12	1		
17:05	ZZZZZZ	1		
17:06	ZZZZZZ	1		
17:07	ZZZZZZ	1		
17:09	ZZZZZZ	1		
17:10	ZZZZZZ	1		
17:12	ZZZZZZ	1		
17:13	ZZZZZZ	1		
17:14	ZZZZZZ	1		
17:16	MA55150-CCV13	1		
17:17	MA55150-CCB13	1		
17:19	MP43408-MB2	1		
17:20	MP43408-B2	1		
17:22	JD77365-16	1		
17:23	JD77365-18	1		

----------> Last reportable sample/prep for job JD77365

17:25	MA55150-CCV14	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
Analyst: LM Run ID: MA55150
Parameters: Hg

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:26	MA55150-CCB14	1		
17:31	MA55150-CRI2	1		
17:34	MA55150-CCV15	1		
17:35	MA55150-CCB15	1		

----------> Last reportable CCB for job JD77365
Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
Analyst: LM Run ID: MA55150
Parameters: Hg

Time	Sample Description	Element: Dilution	Hg	
13:52	ZZZZZZ	1		
13:53	MA55150-ICV1	1	X	
13:54	MA55150-ICB1	1	X	
13:56	MA55150-CCV1	1	X	
13:57	MA55150-CCB1	1	X	
13:59	MA55150-CRI1	1	X	
14:01	MP43432-MB1	1	X	
14:02	MP43432-LB1	1		
14:03	MP43432-B1	1	X	
14:05	MP43432-LS1	1	X	
14:07	MP43432-S1	1	X	
14:08	MP43432-S2	1	X	
14:10	FC11327-9L	1	X	(a)
14:12	ZZZZZZ	1		
14:13	MA55150-CCV2	1	X	
14:15	MA55150-CCB2	1	X	
14:16	ZZZZZZ	1		
14:18	ZZZZZZ	1		
14:19	ZZZZZZ	1		
14:21	ZZZZZZ	1		
14:22	ZZZZZZ	1		
14:23	ZZZZZZ	1		
14:25	ZZZZZZ	1		
14:26	ZZZZZZ	1		
14:28	ZZZZZZ	1		
14:29	MA55150-CCV3	1	X	
14:30	MA55150-CCB3	1	X	
14:32	ZZZZZZ	1		
14:34	ZZZZZZ	1		
14:35	ZZZZZZ	1		
14:36	ZZZZZZ	1		
14:38	ZZZZZZ	1		
14:39	ZZZZZZ	1		
		Element:	Hg	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
Analyst: LM Run ID: MA55150
Parameters: Hg

Time	Sample Description	Element: Dilution	Hg	
14:41	ZZZZZZ	1		
14:42	ZZZZZZ	1		
14:43	MA55150-CCV4	1	X	
14:45	MA55150-CCB4	1	X	
14:47	MP43433-MB1	1	X	
14:48	MP43433-LB1	1		
14:49	MP43433-B1	1	X	
14:51	MP43433-LS1	1	X	
14:53	MP43433-S1	1	X	
14:54	MP43433-S2	1	X	
14:56	JD77594-1A	1	X	(a)
14:58	ZZZZZZ	1		
14:59	MA55150-CCV5	1	X	
15:01	MA55150-CCB5	1	X	
15:30	MP43434-MB1	1	X	
15:31	MP43434-LB1	1		
15:33	MP43434-B1	1	X	
15:34	MP43434-LS1	1	X	
15:36	MP43434-S1	1	X	
15:37	MP43434-S2	1	X	
15:39	MA55150-CCV6	1	X	
15:41	MA55150-CCB6	1	X	
15:43	FC11362-1L	1	X	(a)
15:44	ZZZZZZ	1		
15:46	ZZZZZZ	1		
15:47	ZZZZZZ	1		
15:48	ZZZZZZ	1		
15:50	ZZZZZZ	1		
15:51	ZZZZZZ	1		
15:53	MA55150-CCV7	1	X	
15:54	MA55150-CCB7	1	X	
15:56	MP43435-MB1	1	X	
15:57	MP43435-B1	1	X	
		Element:	Hg	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
Analyst: LM Run ID: MA55150
Parameters: Hg

Time	Sample Description	Element: Dilution	Hg	
15:59	MP43435-S1	1	X	
16:00	MP43435-S2	1	X	
16:02	JD77518-3	1	X	(a)
16:04	ZZZZZZ	1		
16:06	ZZZZZZ	1		
16:07	MA55150-CCV8	1	X	
16:09	MA55150-CCB8	1	X	
16:10	ZZZZZZ	1		
16:12	ZZZZZZ	1		
16:13	ZZZZZZ	1		
16:15	ZZZZZZ	1		
16:16	ZZZZZZ	1		
16:18	ZZZZZZ	1		
16:19	ZZZZZZ	1		
16:20	MA55150-CCV9	1	X	
16:22	MA55150-CCB9	1	X	
16:24	ZZZZZZ	1		
16:25	ZZZZZZ	1		
16:26	ZZZZZZ	1		
16:28	ZZZZZZ	1		
16:29	ZZZZZZ	1		
16:31	ZZZZZZ	1		
16:32	ZZZZZZ	1		
16:33	MA55150-CCV10	1	X	
16:35	MA55150-CCB10	1	X	
16:36	ZZZZZZ	1		
16:38	ZZZZZZ	1		
16:39	ZZZZZZ	1		
16:41	ZZZZZZ	1		
16:42	ZZZZZZ	1		
16:43	ZZZZZZ	1		
16:45	ZZZZZZ	1		
16:46	MA55150-CCV11	1	X	
		Element:	Hg	

REPORTED ELEMENTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
Analyst: LM Run ID: MA55150
Parameters: Hg

Time	Sample Description	Element: Dilution	Hg
16:48	MA55150-CCB11	1	X
16:49	MP43436-MB1	1	X
16:51	MP43436-B1	1	X
16:52	MP43436-S1	1	X
16:54	MP43436-S2	1	X
16:56	JD77521-2F	1	X (a)
16:57	ZZZZZZ	1	
16:59	ZZZZZZ	1	
17:00	ZZZZZZ	1	
17:01	MA55150-CCV12	1	X
17:03	MA55150-CCB12	1	X
17:05	ZZZZZZ	1	
17:06	ZZZZZZ	1	
17:07	ZZZZZZ	1	
17:09	ZZZZZZ	1	
17:10	ZZZZZZ	1	
17:12	ZZZZZZ	1	
17:13	ZZZZZZ	1	
17:14	ZZZZZZ	1	
17:16	MA55150-CCV13	1	X
17:17	MA55150-CCB13	1	X
17:19	MP43408-MB2	1	X
17:20	MP43408-B2	1	X
17:22	JD77365-16	1	X
17:23	JD77365-18	1	X
17:25	MA55150-CCV14	1	X
17:26	MA55150-CCB14	1	X
17:31	MA55150-CRI2	1	X
17:34	MA55150-CCV15	1	X
17:35	MA55150-CCB15	1	X

(a) Sample used for QC only; not part of login JD77365.

Element: Hg

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
QC Limits: result < RL Run ID: MA55150 Units: ug/l

Time:			13:54		13:57		14:15		14:30	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Mercury	0.20	.024	-0.0306	<0.20	-0.0150	<0.20	-0.00800	<0.20	-0.0114	<0.20

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
QC Limits: result < RL Run ID: MA55150 Units: ug/l

Time:			14:45		15:01		15:41		15:54	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Mercury	0.20	.024	-0.00600	<0.20	-0.0161	<0.20	-0.0132	<0.20	-0.0206	<0.20

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
QC Limits: result < RL Run ID: MA55150 Units: ug/l

Time:			16:09		16:22		16:35		16:48	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Mercury	0.20	.024	-0.00580	<0.20	-0.00170	<0.20	-0.00400	<0.20	-0.00960	<0.20

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
QC Limits: result < RL Run ID: MA55150 Units: ug/l

Time:			17:03		17:17		17:26		17:35	
Sample ID:			CCB12		CCB13		CCB14		CCB15	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Mercury	0.20	.024	-0.00760	<0.20	-0.00110	<0.20	-0.00420	<0.20	-0.00740	<0.20

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
QC Limits: 90 to 110 % Recovery Run ID: MA55150 Units: ug/l

Time:		13:53			13:56			14:13	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Mercury	3	3.22	107.3	2.5	2.43	97.2	2.5	2.38	95.2

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
QC Limits: 90 to 110 % Recovery Run ID: MA55150 Units: ug/l

Time:		14:29			14:43			14:59	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Mercury	2.5	2.44	97.6	2.5	2.44	97.6	2.5	2.37	94.8

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
QC Limits: 90 to 110 % Recovery Run ID: MA55150 Units: ug/l

Time:		15:39			15:53			16:07	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Mercury	2.5	2.45	98.0	2.5	2.49	99.6	2.5	2.51	100.4

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
QC Limits: 90 to 110 % Recovery Run ID: MA55150 Units: ug/l

Time:		16:20			16:33			16:46	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Mercury	2.5	2.45	98.0	2.5	2.39	95.6	2.5	2.42	96.8

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
QC Limits: 90 to 110 % Recovery Run ID: MA55150 Units: ug/l

Time:		17:01			17:16			17:25	
Sample ID:	CCV	CCV12		CCV	CCV13		CCV	CCV14	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Mercury	2.5	2.39	95.6	2.5	2.40	96.0	2.5	2.39	95.6

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
QC Limits: 90 to 110 % Recovery Run ID: MA55150 Units: ug/l

Time:		17:34	
Sample ID:	CCV	CCV15	
Metal	True	Results	% Rec
Mercury	2.5	2.49	99.6

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

File ID: H8113023W1.CSV Date Analyzed: 11/30/23 Methods: SW846 7470A
QC Limits: 70 to 130 % Recovery Run ID: MA55150 Units: ug/l

Time:			13:59		17:31	
Sample ID:	CRI	CRIA	CRI1		CRI2	
Metal	True	True	Results	% Rec	Results	% Rec
Mercury	0.20		0.163	81.5	0.206	103.0

(*) Outside of QC limits
(anr) Analyte not requested

6.6.4

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BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43317
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 11/22/23

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	9.2	150	12.2	<200
Antimony	6.0	2.8	4.7	0.50	<6.0
Arsenic	3.0	2.6	2.8	-0.10	<3.0
Barium	200	.2	13	-0.20	<200
Beryllium	1.0	.2	.5	-0.20	<1.0
Bismuth	20	2.5	8.6		
Boron	100	1.8	10		
Cadmium	3.0	.4	1	-0.10	<3.0
Calcium	5000	13	99	-0.50	<5000
Cerium	100				
Chromium	10	.7	2	-0.10	<10
Cobalt	50	.6	2.6	-0.60	<50
Copper	10	.7	5.9	0.80	<10
Iron	100	3.3	32	-1.2	<100
Lead	3.0	2	1.8	-1.4	<3.0
Lithium	50	1.5	7.3		
Magnesium	5000	25	140	-34	<5000
Manganese	15	.1	1.4	0.0	<15
Molybdenum	20	.6	3.6		
Nickel	10	.8	1.7	0.0	<10
Phosphorus	50	7	18		
Potassium	10000	35	200	-8.2	<10000
Selenium	10	3.6	4.9	2.8	<10
Silicon	200	2.2	32		
Silver	10	.6	6.1	0.20	<10
Sodium	10000	14	570	-15	<10000
Strontium	10	.1	2.7		
Sulfur	50	3.7	45		
Thallium	10	5.2	1.8	-0.40	<10
Tin	10	1.4	3.7		
Titanium	10	.8	2.5		
Tungsten	50	1.3	40		
Vanadium	50	.5	1.8	-0.20	<50

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43317
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 11/22/23

Metal	RL	IDL	MDL	MB raw	final
Zinc	20	.3	6.9	3.5	<20
Zirconium	10	.5	4.1		

Associated samples MP43317: JD77365-16, JD77365-17, JD77365-18, JD77365-19, JD77365-16F, JD77365-17F, JD77365-18F, JD77365-19F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43317
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 11/22/23

Metal	JD77367-1 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum	22.5	24200	25000	96.7	75-125
Antimony	0.0	1910	2000	95.5	75-125
Arsenic	6.0	1910	2000	95.2	75-125
Barium	66.0	1950	2000	94.2	75-125
Beryllium	1.0	1890	2000	94.5	75-125
Bismuth					
Boron					
Cadmium	0.0	1920	2000	96.0	75-125
Calcium	188000	207000	25000	76.0	75-125
Cerium					
Chromium	0.0	1930	2000	96.5	75-125
Cobalt	0.0	1890	2000	94.5	75-125
Copper	3.8	1920	2000	95.8	75-125
Iron	901	24000	25000	92.4	75-125
Lead	0.0	1900	2000	95.0	75-125
Lithium					
Magnesium	18100	40600	25000	90.0	75-125
Manganese	921	2830	2000	95.5	75-125
Molybdenum					
Nickel	50.1	1970	2000	96.0	75-125
Phosphorus					
Potassium	16100	39500	25000	93.6	75-125
Selenium	5.1	1920	2000	95.7	75-125
Silicon					
Silver	1.0	233	250	92.8	75-125
Sodium	53800	76100	25000	89.2	75-125
Strontium					
Thallium	0.0	1920	2000	96.0	75-125
Tin					
Titanium					
Tungsten					
Vanadium	0.70	1940	2000	97.0	75-125
Zinc	75.3	1960	2000	94.2	75-125

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43317
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 11/22/23

Metal	JD77367-1 Original MS	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP43317: JD77365-16, JD77365-17, JD77365-18, JD77365-19, JD77365-16F, JD77365-17F, JD77365-18F, JD77365-19F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43317
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 11/22/23

Metal	JD77367-1 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum	22.5	25300	25000	101.1	4.4	20
Antimony	0.0	1990	2000	99.5	4.1	20
Arsenic	6.0	2000	2000	99.7	4.6	20
Barium	66.0	2050	2000	99.2	5.0	20
Beryllium	1.0	1990	2000	99.5	5.2	20
Bismuth						
Boron						
Cadmium	0.0	2010	2000	100.5	4.6	20
Calcium	188000	223000	25000	140.0(a)	7.4	20
Cerium						
Chromium	0.0	2020	2000	101.0	4.6	20
Cobalt	0.0	1990	2000	99.5	5.2	20
Copper	3.8	2020	2000	100.8	5.1	20
Iron	901	25000	25000	96.4	4.1	20
Lead	0.0	1990	2000	99.5	4.6	20
Lithium						
Magnesium	18100	42700	25000	98.4	5.0	20
Manganese	921	2990	2000	103.5	5.5	20
Molybdenum						
Nickel	50.1	2070	2000	101.0	5.0	20
Phosphorus						
Potassium	16100	41600	25000	102.0	5.2	20
Selenium	5.1	2010	2000	100.2	4.6	20
Silicon						
Silver	1.0	243	250	96.8	4.2	20
Sodium	53800	80500	25000	106.8	5.6	20
Strontium						
Thallium	0.0	2020	2000	101.0	5.1	20
Tin						
Titanium						
Tungsten						
Vanadium	0.70	2040	2000	102.0	5.0	20
Zinc	75.3	2050	2000	98.7	4.5	20

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43317 Methods: SW846 6010D
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 11/22/23

Metal	JD77367-1 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Zirconium					

Associated samples MP43317: JD77365-16, JD77365-17, JD77365-18, JD77365-19, JD77365-16F, JD77365-17F, JD77365-18F, JD77365-19F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43317
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 11/22/23

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum	24700	25000	98.8	80-120
Antimony	1920	2000	96.0	80-120
Arsenic	1900	2000	95.0	80-120
Barium	1930	2000	96.5	80-120
Beryllium	1970	2000	98.5	80-120
Bismuth				
Boron				
Cadmium	1950	2000	97.5	80-120
Calcium	24800	25000	99.2	80-120
Cerium				
Chromium	2020	2000	101.0	80-120
Cobalt	1980	2000	99.0	80-120
Copper	1960	2000	98.0	80-120
Iron	23900	25000	95.6	80-120
Lead	1990	2000	99.5	80-120
Lithium				
Magnesium	24200	25000	96.8	80-120
Manganese	2070	2000	103.5	80-120
Molybdenum				
Nickel	2020	2000	101.0	80-120
Phosphorus				
Potassium	23900	25000	95.6	80-120
Selenium	1940	2000	97.0	80-120
Silicon				
Silver	234	250	93.6	80-120
Sodium	23700	25000	94.8	80-120
Strontium				
Sulfur				
Thallium	2000	2000	100.0	80-120
Tin				
Titanium				
Tungsten				
Vanadium	2020	2000	101.0	80-120

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43317
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 11/22/23

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zinc	2000	2000	100.0	80-120
Zirconium				

Associated samples MP43317: JD77365-16, JD77365-17, JD77365-18, JD77365-19, JD77365-16F, JD77365-17F, JD77365-18F, JD77365-19F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43317
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 11/22/23

Metal	JD77367-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum	22.5	477	2018.2(a	0-10
Antimony	0.00	0.00	NC	0-10
Arsenic	6.00	0.00	100.0(a)	0-10
Barium	66.0	69.0	4.5	0-10
Beryllium	1.00	0.00	100.0(a)	0-10
Bismuth				
Boron				
Cadmium	0.00	0.00	NC	0-10
Calcium	188000	198000	5.0	0-10
Cerium				
Chromium	0.00	0.00	NC	0-10
Cobalt	0.00	0.00	NC	0-10
Copper	3.80	7.90	107.9(a)	0-10
Iron	901	956	6.0	0-10
Lead	0.00	0.00	NC	0-10
Lithium				
Magnesium	18100	19100	5.4	0-10
Manganese	921	957	3.9	0-10
Molybdenum				
Nickel	50.1	51.7	3.2	0-10
Phosphorus				
Potassium	16100	16300	1.8	0-10
Selenium	5.10	0.00	100.0(a)	0-10
Silicon				
Silver	1.00	0.00	100.0(a)	0-10
Sodium	53800	55000	2.3	0-10
Strontium				
Sulfur				
Thallium	0.00	0.00	NC	0-10
Tin				
Titanium				
Tungsten				
Vanadium	0.700	0.00	100.0(a)	0-10

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43317
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 11/22/23

Metal	JD77367-1 Original	SDL 1:5	%DIF	QC Limits
Zinc	75.3	90.5	20.2*(b)	0-10
Zirconium				

Associated samples MP43317: JD77365-16, JD77365-17, JD77365-18, JD77365-19, JD77365-16F, JD77365-17F, JD77365-18F, JD77365-19F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
(b) Serial dilution indicates possible matrix interference.

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43322
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 11/27/23

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.92	8.1	5.2	<50
Antimony	2.0	.28	.41	0.040	<2.0
Arsenic	2.0	.26	.28	-0.050	<2.0
Barium	20	.02	1.9	0.22	<20
Beryllium	0.20	.02	.08	0.010	<0.20
Bismuth	2.0	.25	.52		
Boron	10	.18	3.7		
Cadmium	0.50	.04	.07	0.010	<0.50
Calcium	500	1.3	21	30.2	<500
Chromium	1.0	.07	.37	0.10	<1.0
Cobalt	5.0	.06	.28	-0.010	<5.0
Copper	2.5	.07	.84	0.86	<2.5
Iron	50	.33	19	14.5	<50
Lead	2.0	.2	.41	0.10	<2.0
Lithium	5.0	.15	.92		
Magnesium	500	2.5	14	4.3	<500
Manganese	1.5	.01	.41	0.48	<1.5
Molybdenum	2.0	.06	.32		
Nickel	4.0	.08	.35	0.030	<4.0
Phosphorus	20	.7	3.3		
Potassium	1000	3.5	32	4.8	<1000
Selenium	2.0	.36	.65	-0.10	<2.0
Silicon	20	.22	11		
Silver	0.50	.06	.17	0.050	<0.50
Sodium	1000	1.4	78	14.3	<1000
Strontium	5.0	.01	.18		
Sulfur	10	.37	3.9		
Thallium	1.0	.52	.58	-0.14	<1.0
Tin	20	.14	3.8		
Titanium	1.0	.08	.34		
Tungsten	5.0	.13	1.8		
Vanadium	5.0	.05	.19	0.050	<5.0
Zinc	5.0	.03	2.3	1.7	<5.0

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43322 Methods: SW846 6010D
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/27/23

Metal	RL	IDL	MDL	MB raw	final
Zirconium	2.0	.05	.54		

Associated samples MP43322: JD77365-1, JD77365-2, JD77365-3, JD77365-4, JD77365-5, JD77365-6, JD77365-7, JD77365-8, JD77365-9, JD77365-10, JD77365-11, JD77365-12, JD77365-13, JD77365-14, JD77365-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43322
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 11/27/23

Metal	JD77365-2 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum	5670	12000	2730	231.7N(a	75-125
Antimony	0.77	111	219	50.4N(a)	75-125
Arsenic	2.2	196	219	88.7	75-125
Barium	33.5	237	219	93.1	75-125
Beryllium	0.52	186	219	84.9	75-125
Bismuth					
Boron					
Cadmium	0.12	183	219	83.7	75-125
Calcium	1380	4320	2730	107.6	75-125
Chromium	11.9	207	219	89.3	75-125
Cobalt	4.8	201	219	89.8	75-125
Copper	9.7	196	219	85.2	75-125
Iron	9570	12700	2730	114.6	75-125
Lead	9.5	210	219	91.7	75-125
Lithium					
Magnesium	2050	5080	2730	110.9	75-125
Manganese	259	500	219	110.3	75-125
Molybdenum					
Nickel	11.1	205	219	88.7	75-125
Phosphorus					
Potassium	1430	5110	2730	134.7N(a	75-125
Selenium	0.0	179	219	81.9	75-125
Silicon					
Silver	0.40	24.9	27.3	89.7	75-125
Sodium	114	2670	2730	93.5	75-125
Strontium					
Sulfur					
Thallium	0.0	199	219	91.0	75-125
Tin					
Titanium					
Tungsten					
Vanadium	16.1	206	219	86.9	75-125
Zinc	33.9	224	219	87.0	75-125

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43322 Methods: SW846 6010D
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/27/23

Metal	JD77365-2 Original MS	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP43322: JD77365-1, JD77365-2, JD77365-3, JD77365-4, JD77365-5, JD77365-6, JD77365-7, JD77365-8, JD77365-9, JD77365-10, JD77365-11, JD77365-12, JD77365-13, JD77365-14, JD77365-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43322 Methods: SW846 6010D
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/27/23

Metal	JD77365-2 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum	5670	11900	2730	228.0N(a	0.8	20
Antimony	0.77	111	219	50.4N(a)	0.0	20
Arsenic	2.2	198	219	89.6	1.0	20
Barium	33.5	231	219	90.4	2.6	20
Beryllium	0.52	186	219	84.9	0.0	20
Bismuth						
Boron						
Cadmium	0.12	185	219	84.6	1.1	20
Calcium	1380	4340	2730	108.3	0.5	20
Chromium	11.9	208	219	89.7	0.5	20
Cobalt	4.8	204	219	91.1	1.5	20
Copper	9.7	197	219	85.7	0.5	20
Iron	9570	12700	2730	114.6	0.0	20
Lead	9.5	212	219	92.6	0.9	20
Lithium						
Magnesium	2050	5110	2730	112.0	0.6	20
Manganese	259	458	219	91.0	8.8	20
Molybdenum						
Nickel	11.1	207	219	89.6	1.0	20
Phosphorus						
Potassium	1430	5130	2730	135.4N(a	0.4	20
Selenium	0.0	182	219	83.3	1.7	20
Silicon						
Silver	0.40	24.9	27.3	89.7	0.0	20
Sodium	114	2670	2730	93.5	0.0	20
Strontium						
Sulfur						
Thallium	0.0	201	219	92.0	1.0	20
Tin						
Titanium						
Tungsten						
Vanadium	16.1	207	219	87.3	0.5	20
Zinc	33.9	228	219	88.8	1.8	20

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43322 Methods: SW846 6010D
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/27/23

Metal	JD77365-2 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Zirconium					

Associated samples MP43322: JD77365-1, JD77365-2, JD77365-3, JD77365-4, JD77365-5, JD77365-6, JD77365-7, JD77365-8, JD77365-9, JD77365-10, JD77365-11, JD77365-12, JD77365-13, JD77365-14, JD77365-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43322
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 11/27/23

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum	2390	2500	95.6	80-120
Antimony	188	200	94.0	80-120
Arsenic	189	200	94.5	80-120
Barium	180	200	90.0	80-120
Beryllium	180	200	90.0	80-120
Bismuth				
Boron				
Cadmium	176	200	88.0	80-120
Calcium	2520	2500	100.8	80-120
Chromium	189	200	94.5	80-120
Cobalt	187	200	93.5	80-120
Copper	179	200	89.5	80-120
Iron	2370	2500	94.8	80-120
Lead	189	200	94.5	80-120
Lithium				
Magnesium	2420	2500	96.8	80-120
Manganese	191	200	95.5	80-120
Molybdenum				
Nickel	184	200	92.0	80-120
Phosphorus				
Potassium	2440	2500	97.6	80-120
Selenium	174	200	87.0	80-120
Silicon				
Silver	23.5	25	94.0	80-120
Sodium	2400	2500	96.0	80-120
Strontium				
Sulfur				
Thallium	188	200	94.0	80-120
Tin				
Titanium				
Tungsten				
Vanadium	185	200	92.5	80-120
Zinc	187	200	93.5	80-120

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43322 Methods: SW846 6010D
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/27/23

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP43322: JD77365-1, JD77365-2, JD77365-3, JD77365-4, JD77365-5, JD77365-6, JD77365-7, JD77365-8, JD77365-9, JD77365-10, JD77365-11, JD77365-12, JD77365-13, JD77365-14, JD77365-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43322
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 11/27/23

Metal	JD77365-2 Original	SDL 1:5	%DIF	QC Limits
Aluminum	52400	49400	5.7	0-10
Antimony	7.10	0.00	100.0(a)	0-10
Arsenic	20.6	14.5	29.6 (a)	0-10
Barium	310	309	0.1	0-10
Beryllium	4.80	4.20	12.5 (a)	0-10
Bismuth				
Boron				
Cadmium	1.10	0.00	100.0(a)	0-10
Calcium	12700	12700	0.1	0-10
Chromium	110	109	1.4	0-10
Cobalt	43.9	43.3	1.4	0-10
Copper	89.3	94.5	5.8	0-10
Iron	88500	89200	0.9	0-10
Lead	88.0	79.6	9.5	0-10
Lithium				
Magnesium	18900	19100	1.0	0-10
Manganese	2400	2400	0.0	0-10
Molybdenum				
Nickel	103	104	1.6	0-10
Phosphorus				
Potassium	13200	13000	1.1	0-10
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	3.70	6.40	73.0 (a)	0-10
Sodium	1050	1010	3.9	0-10
Strontium				
Sulfur				
Thallium	0.00	0.00	NC	0-10
Tin				
Titanium				
Tungsten				
Vanadium	149	147	1.3	0-10
Zinc	313	326	4.1	0-10

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43322 Methods: SW846 6010D
Matrix Type: SOLID Units: ug/l

Prep Date: 11/27/23

Metal	JD77365-2 Original SDL 1:5	%DIF	QC Limits
Zirconium			

Associated samples MP43322: JD77365-1, JD77365-2, JD77365-3, JD77365-4, JD77365-5, JD77365-6, JD77365-7, JD77365-8, JD77365-9, JD77365-10, JD77365-11, JD77365-12, JD77365-13, JD77365-14, JD77365-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

POST DIGESTATE SPIKE SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43322
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 11/27/23

Metal	Sample ml	Final ml	JD77365-2 Raw	Corr.**	PS ug/l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
Aluminum										
Antimony	19.25	20	7.1	6.83375	1848	0.2	200	2000	92.1	80-120
Arsenic										
Barium										
Beryllium										
Bismuth										
Boron										
Cadmium										
Calcium										
Chromium										
Cobalt										
Copper										
Iron										
Lead										
Lithium										
Magnesium										
Manganese										
Molybdenum										
Nickel										
Phosphorus										
Potassium	19.25	20	13180	12685.75	36130	0.1	5000	25000	93.8	80-120
Selenium										
Silicon										
Silver										
Sodium										
Strontium										
Sulfur										
Thallium										
Tin										
Titanium										
Tungsten										
Vanadium										
Zinc										

POST DIGESTATE SPIKE SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43322
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 11/27/23

Metal	Sample ml	Final ml	JD77365-2 Raw	Corr.**	PS ug/l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
Zirconium										

Associated samples MP43322: JD77365-1, JD77365-2, JD77365-3, JD77365-4, JD77365-5, JD77365-6, JD77365-7, JD77365-8, JD77365-9, JD77365-10, JD77365-11, JD77365-12, JD77365-13, JD77365-14, JD77365-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(**) Corr. sample result = Raw * (sample volume / final volume)
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43401
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 11/28/23

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.033	.0057	.015	0.011	<0.033

Associated samples MP43401: JD77365-1, JD77365-2, JD77365-3, JD77365-4, JD77365-5, JD77365-6, JD77365-7, JD77365-8, JD77365-9, JD77365-10, JD77365-11, JD77365-12, JD77365-13, JD77365-14, JD77365-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43401 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/28/23

Metal	JD77365-1 Original	MS	Spikelot HGPWS1	% Rec	QC Limits
Mercury	0.24	0.59	0.275	127.1N	80-120

Associated samples MP43401: JD77365-1, JD77365-2, JD77365-3, JD77365-4, JD77365-5, JD77365-6, JD77365-7, JD77365-8, JD77365-9, JD77365-10, JD77365-11, JD77365-12, JD77365-13, JD77365-14, JD77365-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43401 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 11/28/23

Metal	JD77365-1 Original	MSD	Spikelot HGPWS1	% Rec	MSD RPD	QC Limit
Mercury	0.24	0.58	0.327	103.8	1.7	20

Associated samples MP43401: JD77365-1, JD77365-2, JD77365-3, JD77365-4, JD77365-5, JD77365-6, JD77365-7, JD77365-8, JD77365-9, JD77365-10, JD77365-11, JD77365-12, JD77365-13, JD77365-14, JD77365-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43401
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 11/28/23

Metal	BSP Result	Spikelot HGPWS1	% Rec	QC Limits
Mercury	0.36	0.333	108.0	80-120

Associated samples MP43401: JD77365-1, JD77365-2, JD77365-3, JD77365-4, JD77365-5, JD77365-6, JD77365-7, JD77365-8, JD77365-9, JD77365-10, JD77365-11, JD77365-12, JD77365-13, JD77365-14, JD77365-15

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43408 Methods: SW846 7470A
Matrix Type: AQUEOUS Units: ug/l

Prep Date:				11/29/23		11/30/23	
Metal	RL	IDL	MDL	MB raw	final	MB raw	final
Mercury	0.20	.024	.095	0.14	<0.20	-0.092	<0.20

Associated samples MP43408: JD77365-16, JD77365-17, JD77365-18, JD77365-19, JD77365-16F, JD77365-17F, JD77365-18F, JD77365-19F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43408
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date: 11/29/23

Metal	JD77458-4F Original	MS	Spikelot HGPW3	% Rec	QC Limits
Mercury	0.11	2.2	2	104.5	75-125

Associated samples MP43408: JD77365-16, JD77365-17, JD77365-18, JD77365-19, JD77365-16F, JD77365-17F, JD77365-18F, JD77365-19F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43408 Methods: SW846 7470A
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 11/29/23

Metal	JD77458-4F Original	MSD	Spikelot HGPW3	% Rec	MSD RPD	QC Limit
Mercury	0.11	2.2	2	104.5	0.0	20

Associated samples MP43408: JD77365-16, JD77365-17, JD77365-18, JD77365-19, JD77365-16F, JD77365-17F, JD77365-18F, JD77365-19F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD77365
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43408
Matrix Type: AQUEOUS

Methods: SW846 7470A
Units: ug/l

Prep Date:		11/29/23				11/30/23		
Metal	BSP Result	Spikelot HGPW3	% Rec	QC Limits	BSP Result	Spikelot HGPW3	% Rec	QC Limits
Mercury	2.2	2	110.0	80-120	1.9	2	95.0	80-120

Associated samples MP43408: JD77365-16, JD77365-17, JD77365-18, JD77365-19, JD77365-16F, JD77365-17F, JD77365-18F, JD77365-19F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: JD77365
Account: IALNJR Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

Sample: JD77365-1 **Analyzed:** 22-NOV-23 by MP **Method:** SM2540 G 18TH ED MOD
ClientID: E23-05066-001_SB10A

Wet Weight (Total)	39.36	g
Tare Weight	32.53	g
Dry Weight (Total)	38.74	g
Solids, Percent	90.9	%

Sample: JD77365-2 **Analyzed:** 22-NOV-23 by MP **Method:** SM2540 G 18TH ED MOD
ClientID: E23-05066-002_SB10B

Wet Weight (Total)	37.05	g
Tare Weight	31.97	g
Dry Weight (Total)	36.62	g
Solids, Percent	91.5	%

Sample: JD77365-3 **Analyzed:** 22-NOV-23 by MP **Method:** SM2540 G 18TH ED MOD
ClientID: E23-05066-003_SB2A

Wet Weight (Total)	32.35	g
Tare Weight	26.16	g
Dry Weight (Total)	31.51	g
Solids, Percent	86.4	%

Sample: JD77365-4 **Analyzed:** 22-NOV-23 by MP **Method:** SM2540 G 18TH ED MOD
ClientID: E23-05066-004_SB2B

Wet Weight (Total)	38.26	g
Tare Weight	31.47	g
Dry Weight (Total)	37.96	g
Solids, Percent	95.6	%

Sample: JD77365-5 **Analyzed:** 22-NOV-23 by MP **Method:** SM2540 G 18TH ED MOD
ClientID: E23-05066-005_SB5

Wet Weight (Total)	33.73	g
Tare Weight	27.44	g
Dry Weight (Total)	33.23	g
Solids, Percent	92.1	%

Sample: JD77365-6 **Analyzed:** 22-NOV-23 by MP **Method:** SM2540 G 18TH ED MOD
ClientID: E23-05066-006_SB3A

Wet Weight (Total)	34.03	g
Tare Weight	28.43	g
Dry Weight (Total)	33.53	g
Solids, Percent	91.1	%

Percent Solids Raw Data Summary

Job Number: JD77365
Account: IALNJR Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

Sample: JD77365-7 **Analyzed:** 22-NOV-23 by MP **Method:** SM2540 G 18TH ED MOD
ClientID: E23-05066-007_SB3B

Wet Weight (Total)	31.74	g
Tare Weight	24.86	g
Dry Weight (Total)	31.38	g
Solids, Percent	94.8	%

Sample: JD77365-8 **Analyzed:** 22-NOV-23 by MP **Method:** SM2540 G 18TH ED MOD
ClientID: E23-05066-008_SB9A

Wet Weight (Total)	34.6	g
Tare Weight	30.65	g
Dry Weight (Total)	34.32	g
Solids, Percent	92.9	%

Sample: JD77365-9 **Analyzed:** 22-NOV-23 by MP **Method:** SM2540 G 18TH ED MOD
ClientID: E23-05066-009_SB9B

Wet Weight (Total)	39.78	g
Tare Weight	33.5	g
Dry Weight (Total)	39.47	g
Solids, Percent	95.1	%

Sample: JD77365-10 **Analyzed:** 22-NOV-23 by MP **Method:** SM2540 G 18TH ED MOD
ClientID: E23-05066-010_SB1A

Wet Weight (Total)	32.33	g
Tare Weight	26.52	g
Dry Weight (Total)	31.81	g
Solids, Percent	91	%

Sample: JD77365-11 **Analyzed:** 22-NOV-23 by MP **Method:** SM2540 G 18TH ED MOD
ClientID: E23-05066-011_SB1B

Wet Weight (Total)	33.42	g
Tare Weight	26.34	g
Dry Weight (Total)	32.98	g
Solids, Percent	93.8	%

Sample: JD77365-12 **Analyzed:** 22-NOV-23 by MP **Method:** SM2540 G 18TH ED MOD
ClientID: E23-05066-012_SB4A

Wet Weight (Total)	33.97	g
Tare Weight	28.72	g
Dry Weight (Total)	33.49	g
Solids, Percent	90.9	%

Percent Solids Raw Data Summary

Job Number: JD77365
Account: IALNJR Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

Sample: JD77365-13 **Analyzed:** 22-NOV-23 by MP **Method:** SM2540 G 18TH ED MOD
ClientID: E23-05066-013_SB4B

Wet Weight (Total)	39.09	g
Tare Weight	33.65	g
Dry Weight (Total)	38.72	g
Solids, Percent	93.2	%

Sample: JD77365-14 **Analyzed:** 22-NOV-23 by MP **Method:** SM2540 G 18TH ED MOD
ClientID: E23-05066-014_SB6-419-CS

Wet Weight (Total)	32.59	g
Tare Weight	26.92	g
Dry Weight (Total)	32.17	g
Solids, Percent	92.6	%

Sample: JD77365-15 **Analyzed:** 22-NOV-23 by MP **Method:** SM2540 G 18TH ED MOD
ClientID: E23-05066-015_SB8-401-CS

Wet Weight (Total)	34.45	g
Tare Weight	28.39	g
Dry Weight (Total)	34.07	g
Solids, Percent	93.7	%

EPA TO-15 DATA PACKAGE

ANALYTICAL DATA PACKAGE FOR THE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY NEW YORK 12233

Integrated Analytical Laboratories, LLC — **Randolph, NJ 07869**
Project#: HK2661 — **NY ELAP Certification#: 11402**
SDG #: E23-05047 — **NJDEP (Primary AB) Certification#: 14751**
Date of first sample receipt: 11/16/2023 — **Date of last sample receipt: 11/16/2023**

Client: HK Engineering+Geology, D.P.C.

Project/Site: HK2661/NY

Client Sample Number	Laboratory Sample	Sample Location	Date/Time of Collection
SV1	E23-05047-01	NA	11/15/2023 10:17
SV2	E23-05047-02	NA	11/15/2023 9:30
SV3	E23-05047-03	NA	11/15/2023 10:40
SV6	E23-05047-04	NA	11/15/2023 12:39
SV7	E23-05047-05	NA	11/16/2023 8:24
SV8	E23-05047-06	NA	11/16/2023 8:30

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I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of data contained in this hardcopy data package and in the computer-readable data submitted on CD/diskette and by electronic mail has been authorized by the laboratory manager or his designee, as verified by the following signature.

Michael H. Leftin, Ph.D.
Laboratory Director

Date: December 20, 2023

Ming-Hwa Reitan
QA/QC Manager

Date: December 20, 2023

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Laboratory Acronyms

The following is a list of laboratory acronyms commonly used in EPA Method TO-15 testing:

Acronym	Definition
BLK	Blank/Method Blank
BFB	4-Bromofluorobenzene (Tuning Standard)
CAS Number	Chemical Abstract Service Registry Number
cc	cubic centimeters
CCCVS	Closing Calibration Check Verification Standard
COC	Chain of Custody
DCVS	Daily Calibration Verification Standard
DF	Dilution Factor
EPA	U. S. Environmental Protection Agency (aka USEPA)
"Hg	Inches of Mercury
IA	Indoor Air
IASL	Indoor Air Screening Level
ICAL	Initial Calibration
ICVSS	Initial Calibration Verification Standard
ISTD	Internal Standard
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LCS	Laboratory Control Sample/Spike
LLTO-15	Low Level TO-15
MDL	Method Detection Limit
MDLV	Method Detection Limit Verification
ml	milliliters
ND	Not Detected (at or above RL)
NJDEP	New Jersey Department of Environmental Protection
PM	Project Manager
ppbv	parts per billion, volume-to-volume ratio
PQL	Practical Quantitation Limit - MDLx3
QA	Quality Assurance
QC	Quality Control
RAL	Rapid Action Limit
RL	Reporting Limit
RLLCS	Reporting Limit Laboratory Control Sample
RPD	Relative Percent Difference
RRF	Relative Response Factor
RSD	Relative Standard Deviation
SDG	Sample Delivery Group
SGSL	Soil Gas Screening Levels
SS	Sub Slab
TAT	Turnaround Time
TIC	Tentatively Identified Compound
µg/m3	micrograms per cubic meter

Section I: Chain of Custody

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Labs
273 Franklin Road
Randolph, NJ 07869

External Chain of Custody Record/
Field Test Data Sheet
USEPA Method TO-15

Contact Us: 973-361-4252
Fax: 973-366-5613
Web: www.ialonline.com

Carrier (check one): ____ IAL Courier ____ Client Courier ____ FedEx/UPS pg ____ of ____

Client Contact Information	Project Information	Invoice Information
Company: HK Eng + Geo	Project Name: HK2661	Attn:
Address: 1600 Rt. 22 East	Project Location (State): NY	Address:
Union NJ 07083	Project Manager:	
Phone: (908) 688-7800	PM Signature:	
Fax:	PM E-Mail:	PO #: HK2661
Report to:	Sampler:	Quote #:

Analysis Turnaround Time - IF NO TAT IS SPECIFIED, 2 WEEK TAT IS ASSUMED

IAL Standard: 2 weeks (10 business days)

Rush (**pre-approved by lab): 24hr** 48hr** 72hr** 96hr** 1wk**

Barometric Pressure: Start ____ Stop ____

	Sample Identification	Start DATE & TIME (24hr Clock)	End DATE & TIME (24hr Clock)	Starting Vacuum ("Hg)	Ending Vacuum ("Hg)	Starting Temp. (°F)	Ending Temp. (°F)	Outgoing Vacuum - Lab ("Hg)	Incoming Vacuum - Lab ("Hg)	Flow Regulator ID	Canister ID	Canister Size (1L or 6L)	Flow Controller Readout (cc/min)	EPA TO - 15	NJDEP LLTO-15 (includes 30 TICs)	Library Search (10, 20, or 30 TICs)	Other (Explain in Comments)	Regulatory/ NY Cat B / Full (NJ Required)	Reduced / NY Cat A Data Package	Results Only	Indoor Air	Ambient / Outdoor Air	Sub Slab / Soil Gas / Near Slab (Circle One)	Stack Emission / SVE System	High Concentrations Expected
1	SV1	11-15-23-1017	11-15-23-1300	-30	-4	45	57	-29.0	-3.5	A0098864-9	2902	6L	33.5	X											
2	SV2	-0938	-1220	-30	-4	49	51	-29.0	-3.5	A0113955-9	2037		33.2	X											
3	SV3	-1040	-1315	-30	-5	45	57	-29.0	-5.0	A0160008-4	3811		33.3	X											
4	SV6	-1239	-1440	-30	-8	80	80	-29.0	-7.5	A0098643-3	3283		34.5	X											
5	SV7	11-16-23-0824	11-16-23-1043	-29	-7	83	73	-29.0	-7.0	A0113955-5	2749		34.2	X											
6	SV8	-0830	-1033	-30	-7	83	76	-29.0	-7.0	7301021	5091		33.3	X											

Comments/ Special Analysis Instructions / QC Requirements:

110323aa → #2902 100223aa: 2037
110223a1: 1,3,4,5,6 092223a1: 2

Note: Hold or contingent samples may be designated by writing an "H" or "C" in the appropriate analysis box.

ALL FIELDS IN RED ARE REQUIRED

Shipping Information / Canister Preparation (for laboratory use only)

Individual Preparing Canisters / Title: ~~P. Jenkins, J. Walukiewicz~~ / Air Department Sample Custodians
Lab Affixed Seal Number(s): Desmond Flores
Date/Time Shipping Container Sealed: 4:15 PM 11/13/23

Laboratory Canister Certification
GC/MS Analyst Signature
Joseph J Walukiewicz III (JJW)

IAL SDG#: 05047

External Chain of Custody

Relinquished	Received	Date / Time	Reason for Change of External Custody
Desmond Flores	R. K. Todd	4:15 PM 11/13/23	shipment from laboratory to client
R. K. Todd	Joe Walukiewicz	11-16-23 1350	
Joe Walukiewicz	Joseph J Walukiewicz III (JJW)	11-16-23 1205	Received at air lab

Name/Title Resealing Shipping Container Name:
Date/Time Sample Shipping Container Resealed:
Date/Time Sample Shipping Container Opened: 11/16/23 1205

NJDEP Affixed Seal Number:
Individual Opening Sample Shipping Container: ~~Padraic Jenkins~~ / Joseph Walukiewicz
Date/Time Internal Chain of Custody Initiated: 11/17/23 0930

White and yellow - lab copies; Pink - client copy

Use appropriate care with IAL sampling equipment when sampling and packing for shipment. The client is responsible for all damage incurred to IAL equipment. Notify IAL if equipment is damaged upon receipt. Holding time before sampling is 15 days, after sampling is 30 days; failure to follow these times may result in data rejection by regulatory agencies. The lab will contact you if your COC is not clear, incomplete, or if discrepancies exist. The use of initials is not permitted on the COC except when correcting errors. 06/2014

INTEGRATED ANALYTICAL LABORATORIES, LLC

Dec 19, 2023 @ 09:14

PROJECT INFORMATION

RUSH

E23-05047: HK2661

To: Ryan Powell
HK Engineering & Geology, D.P.C.
Fax: 908-323-4051 cell
EMail: rpowell@hillmanngroup.com;chirschmann@hillmanngroup.com

Report To

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083
Attn: Ryan Powell

Bill To

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083
Attn: Chris Hirschmann

Report Format	P.O. #	Received At Lab	PHC Due	Verbal Due	Hardcopy Due	
Air Regulatory		Nov 16, 2023 @ 17:05	NA	Nov 27, 2023	Nov 28, 2023	*

* Any ***Conditional or Hold*** status will delay final hardcopy report sent date.

Diskette Req. Not Required

Lab ID	Client Sample ID	Depth	Sampling Time	Matrix	Unit	Field pH/Temp
05047-001	SV1	NA	11/15/23@13:00	Air-Indoor	ppbV	
05047-002	SV2	NA	11/15/23@12:20	Air-Indoor	ppbV	
05047-003	SV3	NA	11/15/23@13:15	Air-Indoor	ppbV	
05047-004	SV6	NA	11/15/23@14:40	Air-Indoor	ppbV	
05047-005	SV7	NA	11/16/23@10:43	Air-Indoor	ppbV	
05047-006	SV8	NA	11/16/23@10:33	Air-Indoor	ppbV	

* No Cert = IAL does not hold certification for this test/method

Sample #	Test	Status	Analytical Method	TAT	Holding Time Expires
001	EPA TO-15	Analyze	TO-15	RUSH 1 WK	12/15/2023
002	EPA TO-15	Analyze	TO-15	RUSH 1 WK	12/15/2023
003	EPA TO-15	Analyze	TO-15	RUSH 1 WK	12/15/2023
004	EPA TO-15	Analyze	TO-15	RUSH 1 WK	12/15/2023
005	EPA TO-15	Analyze	TO-15	RUSH 1 WK	12/16/2023
006	EPA TO-15	Analyze	TO-15	RUSH 1 WK	12/16/2023

273 Franklin Road
Randolph, NJ 07869
Phone: 973 361 4252
www.ialonline.com

IAL is a NELAP accredited lab (TNI01284) and maintains certification in Connecticut (PH-0699), New Jersey (14751), New York (11402), and Pennsylvania (68-00773).

Internal Chain of Custody

Instructions: Use 1 form for each 20 samples of aliquot.

Laboratory Person Accepting Responsibility for Sample(s)

Laboratory: Integrated Analytical Laboratories
Name: Joseph Walukiewicz
Case No.: E23- 05047
Location: 273 Franklin Rd Randolph, NJ 07869
Title: Air Department Receiving
Analytical Parameter/Fraction: (check one) ____ NJDEP LLTO-15 __x__ EPA TO-15

Sample No.	Aliquot/Extract No.
SV1	E23- 05047-01
" 2	E23- " -02
" 3	E23- " -03
" 6	E23- " -04
" 7	E23- " -05
" 8	E23 " -06
	E23-
	E23-
	E23-
	E23-

Sample No.	Aliquot/Extract No.
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-

Date	Time	Relinquished By	Received By	Purpose of Change of Custody
11 17 23	09 30	SIGNATURE / PRINTED NAME	SIGNATURE Joseph Walukiewicz / PRINTED NAME JOSEPH WALUKIEWICZ	1. Sample log-in 2. Pressure Check 3. Pre-analysis storage
11 17 23	09 40	SIGNATURE Joseph Walukiewicz / PRINTED NAME JOSEPH WALUKIEWICZ	SIGNATURE / PRINTED NAME	Placement in TO-15 sample storage area until ready for analysis
12 12 23	09 47	SIGNATURE / PRINTED NAME	SIGNATURE Joseph Walukiewicz / PRINTED NAME JOSEPH WALUKIEWICZ	TO-15 analysis on: 05047-01 to -06
		SIGNATURE / PRINTED NAME	SIGNATURE Joseph Walukiewicz / PRINTED NAME JOSEPH WALUKIEWICZ	TO-15 analysis on:
		SIGNATURE / PRINTED NAME	SIGNATURE / PRINTED NAME	
		SIGNATURE / PRINTED NAME	SIGNATURE / PRINTED NAME	
		SIGNATURE / PRINTED NAME	SIGNATURE / PRINTED NAME	
		SIGNATURE / PRINTED NAME	SIGNATURE / PRINTED NAME	

Rev. 12/16

Section II: Methodology Review

Methodology Summary for Air Collected from Hazardous Waste Site Contract

Laboratory:	**Integrated Analytical Lab, LLC**	**Project No:**	**HK2661**
Location:	**Randolph, NJ**	**SDG No:**	**E23-05047**

Name	Required Methodology	Indicate Method
Volatile Organics	US EPA TO-15	US EPA Method TO-15

Section III: Case Narrative

CASE NARRATIVE

Integrated Analytical Laboratories, LLC — **Randolph, NJ 07869**
Project #: HK2661 — **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05047 — **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 — **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/16/2023 — **Date of last sample receipt: 11/16/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661 / NY

Client ID	Lab ID	Receipt Date	Analysis Date	DF	Diluted For
SV1	E23-05047-01	11/16/2023	12/08/2023	1.0	NA
SV2	E23-05047-02	11/16/2023	12/08/2023	1.0	NA
SV3	E23-05047-03	11/16/2023	12/11/2023	10.0	Ethylbenzene Xylenes (m&p)
SV3	E23-05047-03	11/16/2023	12/08/2023	1.0	NA
SV6	E23-05047-04	11/16/2023	12/11/2023	5.0	Acetone
SV6	E23-05047-04	11/16/2023	12/08/2023	1.0	NA
SV7	E23-05047-05	11/16/2023	12/08/2023	1.0	NA
SV8	E23-05047-06	11/16/2023	12/11/2023	5.0	Acetone
SV8	E23-05047-06	11/16/2023	12/11/2023	1.0	NA

IAL Sample ID	Canister ID	Outgoing Pressure ("Hg)	Incoming Pressure ("Hg)	Flow Controller ID	Outgoing Flow Rate (cc/min)	Incoming Flow Rate (cc/min)	Flow Rate RPD*
E23-05047-01	2902	-29	-3.5	A00988641-9	33.50	33.00	1.50
E23-05047-02	2037	-29	-3.5	A0113955-9	33.20	32.80	1.21
E23-05047-03	3811	-29	-5	A0160008-4	33.30	32.70	1.82
E23-05047-04	3283	-29	-7.5	A0098643-3	34.50	33.90	1.75
E23-05047-05	2749	-29	-7	A0113955-5	34.20	33.60	1.77
E23-05047-06	5091	-29	-7	7301021	33.30	32.60	2.12

*Pre-sampling and Post-sampling Flow Controller calibration check RPD ≤ 20%

Flow Controller Note: none

Sample Receipt: Samples were received in good condition. Documentation was in order.
Samples were received at IAL by: Joseph Walukiewicz

Sample Preparation: None required.

Sample Analysis:
Hold Time: All within recommended hold times.
Instrument Calibration: Meets method criteria.
Analysis performed by: jjw
SDG Non-Conformances: none

CASE NARRATIVE

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CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 | **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/16/2023 | **Date of last sample receipt: 11/16/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661 / NY

Tentatively Identified Compounds: Tentatively Identified Compounds (TICs) are determined using a NIST library search. TICs are reported at 10% of the applicable internal standard. Dilution factors are calculated into the final reported result. Since the compounds found are tentatively identified, the conversion from ppbv to ug/m3 may not be made.

Canister-to-Canister dilutions: none

Dilutions: Dilutions, if necessary, will be conducted directly on the instrument up to a 500x dilution. When dilutions of 1000x or higher are necessary, the laboratory must inject a volume of sample into another certified clean canister and add humidified Z-1 zero air to the remainder of the canister volume. Tedlar bags are not used for dilutions.

If a sample is received with historically high levels of analytes, a 100x can-to-can dilution my be used from the start. A 100x canister-to-canister dilution may be also be used at the analyst's discretion.

On-instrument dilutions are conducted as follows:

Dilution Factor	Sample Volume Injected (cc)
1	500
2.5	200
5	100
10	50
20	25
25	20
50	10
100	5
200	2.5
250	2
500	1

Canister-to-canister dilutions are conducted as follows:

A certified clean canister is obtained and evacuated to approximately -30"Hg. Both the clean/dilution canister and sample canister are fitted with a ¼" Swagelok® nut fitting equipped with septa. Depending on dilution factor necessary, a sample aliquot is removed from the canister and injected into the clean canister using 30cc Multifit gas-tight syringe. Once the correct sample aliquot has been transferred, the dilution canister should be connected to the humidified Z-1 zero air supply and filled to ambient pressure (0"Hg).

Dilution Factor	Sample Aliquot	Z-1 Make-up Added
100	60ml	5940ml
1000	6ml	5994ml

CASE NARRATIVE

Integrated Analytical Laboratories, LLC | **Randolph, NJ 07869**
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Analytical Method: EPA Method TO-15 | **PADEP Certification#: 68-00773**

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Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661 / NY

If further dilutions need to be made from the dilution canister, they may be made on-instrument. Using a 100x dilution canister, the following on-instrument dilutions can be produced:

Dilution Factor	Sample Volume Injected
100	500ml
250	200ml
500	100ml
1000	50ml
2000	25ml
2500	20ml
5000	10ml

Using a 1000x dilution canister, the following on-instrument dilutions can be produced:

Dilution Factor	Sample Volume Injected
1000	500ml
2500	200ml
5000	100ml
10,000	50ml
20,000	25ml
25,000	20ml
50,000	10ml

If further dilutions need to be made from the dilution canister, beyond 50,000x, a subsequent canister-to-canister dilution must be made using the above prescribed protocol.

GC Column and ID: RTX-1 SN 1119138, RTX-VMS SN 1586881, or equivalent

Calibration Standards: Only gas phase standards were used. Primary and second-source standards provided by Scott Specialty Gases or Airgas Specialty Gases/ Air Liquide

Working Standards: Primary source standards* are created from:
- Airgas Specialty Gases #EB0103704, valid 1/18/2021 through 12/30/2024, @ approximately 100ppb per compound, with exception of m&p-xylenes @ 200ppb. Standard is directly introduced into the instrument for all calibration standard concentrations. Dilutions are made accordingly, on instrument. The 10ppbv standard is also used for the Daily Calibration Verification Standard (DCVS), the Laboratory Control Sample (LCS) and Closing Calibration Verification Standard (CCCVS).

The second source standard*, used as the Initial Calibration Verification Standard (ICVSS), is introduced into the instrument in the same manner as the primary source standard, using:

CASE NARRATIVE

Integrated Analytical Laboratories, LLC **Randolph, NJ 07869**
Project #: HK2661 **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05047 **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/16/2023 **Date of last sample receipt: 11/16/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661 / NY

- Airgas Specialty Gases Cylinder #EB0116272, valid 7/28/2021 through 5/12/2025, @ approximately 100ppb per compound, with exception of m&p-xylenes @ 200ppb.

Internal standards* are created from:
- Airgas Specialty Gases Cylinder #ALM018474, valid 2/24/2022 through 2/24/2025. @ 5ppm per compound. Standard is directly introduced into the instrument to reach the 10ppbv concentrations. 1cc of internal standard is added to every standard, method blank, instrument blank, and sample run.

*Standard may be used past its expiration date provided that concentrations are verified by a current/unexpired second source standard.

08/15/2023
100 ppbv internal standard mix (AA3401BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (aa3406std01) - prepared in cylinder #EB0103704
40 ppbv standard - 200 ml injected
20 ppbv standard - 100 ml injected
10 ppbv standard* - 50 ml injected
*Standard also used for CCCVS
2 ppbv standard - 10 ml injected
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS

10/02/2023
100 ppbv internal standard mix (AA4101BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (AA4102DCVS) - prepared in cylinder #EB0103704
10 ppbv standard* - 50 ml injected
*Standard also used for DCVS & CCCVS
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
Method Blank (AA4104BLK) - prepared in canister #1127
500 ml injected

10/10/2023
100 ppbv internal standard mix (AA4131BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (aa4136std01) - prepared in cylinder #EB0103704
40 ppbv standard - 200 ml injected
20 ppbv standard - 100 ml injected
10 ppbv standard* - 50 ml injected
*Standard also used for CCCVS
2 ppbv standard - 10 ml injected

CASE NARRATIVE

Integrated Analytical Laboratories, LLC **Randolph, NJ 07869**
Project #: HK2661 **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05047 **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/16/2023 **Date of last sample receipt: 11/16/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661 / NY

10/10/2023
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
Method Blank (AA4139BLK) - prepared in canister #1127
500 ml injected

11/03/2023
100 ppbv internal standard mix (AA4527BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (AA4528DCVS) - prepared in cylinder #EB0103704
10 ppbv standard* - 50 ml injected
*Standard also used for DCVS & CCCVS
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
Method Blank (AA4530BLK) - prepared in canister #1127
500 ml injected

12/08/2023
100 ppbv internal standard mix (AA4881BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (AA4882DCVS) - prepared in cylinder #EB0103704
10 ppbv standard* - 50 ml injected
*Standard also used for DCVS & CCCVS
Method Blank (AA4884BLK) - prepared in canister #1127
500 ml injected
Sample E23-05047-01 (AA4886) - sample taken in canister #2902
500 ml sample volume injected, 1x dilution
Sample E23-05047-02 (AA4887) - sample taken in canister #2037
500 ml sample volume injected, 1x dilution
Sample E23-05047-03 (AA4888) - sample taken in canister #3811
500 ml sample volume injected, 1x dilution
Sample E23-05047-04 (AA4889) - sample taken in canister #3283
500 ml sample volume injected, 1x dilution
Sample E23-05047-05 (AA4890) - sample taken in canister #2749
500 ml sample volume injected, 1x dilution

12/11/2023
100 ppbv internal standard mix (AA4901BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (AA4902DCVS) - prepared in cylinder #EB0103704
10 ppbv standard* - 50 ml injected
*Standard also used for DCVS & CCCVS
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS

CASE NARRATIVE

Integrated Analytical Laboratories, LLC | **Randolph, NJ 07869**
Project #: HK2661 | **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05047 | **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 | **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/16/2023 | **Date of last sample receipt: 11/16/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661 / NY

12/11/2023

Method Blank (AA4904BLK) - prepared in canister #1127
500 ml injected
Sample E23-05047-03 (AA4909) - sample taken in canister #3811
50 ml sample volume injected, 10x dilution
Sample E23-05047-04 (AA4910) - sample taken in canister #3283
100 ml sample volume injected, 5x dilution
Sample E23-05047-06 (AA4914) - sample taken in canister #5091
100 ml sample volume injected, 5x dilution
Sample E23-05047-06 (AA4915) - sample taken in canister #5091
500 ml sample volume injected, 1x dilution

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. All conversions are based upon a room temperature of 77°F(25°C) and room pressure of 101.325 kPa (1atm).

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of data contained in this hardcopy data package and in the computer-readable data submitted on CD/diskette and by electronic mail has been authorized by the laboratory manager or his designee, as verified by the following signature.

Michael H. Leftin, Ph.D.
Laboratory Director

December 20, 2023
Date

Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

R 362

Received 01/06/2023

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED HYDROCARBON

Customer:	INTEGRATED ANALYTICAL LABS		
Part Number:	X76NI99C15AC001	Reference Number:	160-402619255-1
Cylinder Number:	EB0103704	Cylinder Volume:	101.0 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	1400 PSIG
Analysis Date:	Dec 30, 2022	Valve Outlet:	350SS
Lot Number:	160-402619255-1	Expiration Date:	Dec 30, 2024

Traceability Statement: Hydrocarbon Process standards are NIST traceable either directly by weight or by comparison to Airgas laboratory standards that are directly NIST traceable by weight.

CERTIFIED CONCENTRATIONS

Component	Requested Concentration	Reported Mole %	Accuracy
1,1 DICHLOROETHANE	100.000 PPB	107.000 PPB	+/- 10%
1,1 DICHLOROETHYLENE	100.000 PPB	104.000 PPB	+/- 10%
1,1,1 TRICHLOROETHANE	100.000 PPB	109.000 PPB	+/- 10%
1,1,2 TRICHLORO ETHANE	100.000 PPB	108.000 PPB	+/- 10%
1,1,2,2 TETRACHLOROETHANE	100.000 PPB	114.000 PPB	+/- 10%
1,2 DIBROMO ETHANE	100.000 PPB	108.000 PPB	+/- 10%
1,2 DICHLORO PROPANE	100.000 PPB	110.000 PPB	+/- 10%
1,2 DICHLOROBENZENE	100.000 PPB	107.000 PPB	+/- 10%
1,2 DICHLOROETHANE	100.000 PPB	109.000 PPB	+/- 10%
1,2,4 TRICHLOROBENZENE	100.000 PPB	110.000 PPB	+/- 10%
1,2,4 TRIMETHYLBENZENE	100.000 PPB	108.000 PPB	+/- 10%
1,3 BUTADIENE	100.000 PPB	107.000 PPB	+/- 10%
1,3 DICHLORO BENZENE	100.000 PPB	111.000 PPB	+/- 10%
1,3,5 TRIMETHYL BENZENE	100.000 PPB	109.000 PPB	+/- 10%
1,4 DICHLOROBENZENE	100.000 PPB	107.000 PPB	+/- 10%
1,4 DIOXANE	100.000 PPB	117.000 PPB	+/- 10%
2 CHLOROTOLUENE	100.000 PPB	109.000 PPB	+/- 10%
3 CHLOROPROPYLENE	100.000 PPB	108.000 PPB	+/- 10%
4 ETHYL TOLUENE	100.000 PPB	108.000 PPB	+/- 10%
ACETONE	100.000 PPB	108.000 PPB	+/- 10%
ACROLEIN	100.000 PPB	100.000 PPB	+/- 10%
BENZENE	100.000 PPB	108.000 PPB	+/- 10%
BENZYL CHLORIDE	100.000 PPB	100.000 PPB	+/- 10%
BROMO DICHLORO METHANE	100.000 PPB	115.000 PPB	+/- 10%
BROMOFORM	100.000 PPB	113.000 PPB	+/- 10%
CARBON DISULFIDE	100.000 PPB	107.000 PPB	+/- 10%
CARBON TETRACHLORIDE	100.000 PPB	110.000 PPB	+/- 10%
CHLORO DIBROMO METHANE	100.000 PPB	112.000 PPB	+/- 10%
CHLOROBENZENE	100.000 PPB	111.000 PPB	+/- 10%
CHLOROFORM	100.000 PPB	108.000 PPB	+/- 10%
CIS 1,2 DICHLOROETHYLENE	100.000 PPB	109.000 PPB	+/- 10%
CIS 1,3 DICHLOROPROPENE	100.000 PPB	111.000 PPB	+/- 10%
CUMENE	100.000 PPB	107.000 PPB	+/- 10%
CYCLOHEXANE	100.000 PPB	112.000 PPB	+/- 10%
ETHANOL	100.000 PPB	104.000 PPB	+/- 10%
ETHYL ACETATE	100.000 PPB	108.000 PPB	+/- 10%
ETHYL BENZENE	100.000 PPB	111.000 PPB	+/- 10%
ETHYL CHLORIDE	100.000 PPB	106.000 PPB	+/- 10%
HEXACHLORO 1,3 BUTADIENE	100.000 PPB	111.000 PPB	+/- 10%

Approved for Release

Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

HEXANE	100.000 PPB	111.000 PPB	+/- 10%
ISOOCTANE	100.000 PPB	109.000 PPB	+/- 10%
ISOPROPYL ALCOHOL	100.000 PPB	89.000 PPB	+/- 10%
M XYLENE	100.000 PPB	112.000 PPB	+/- 10%
METHYL BROMIDE	100.000 PPB	100.000 PPB	+/- 10%
METHYL BUTYL KETONE	100.000 PPB	113.000 PPB	+/- 10%
METHYL CHLORIDE	100.000 PPB	112.000 PPB	+/- 10%
METHYL ETHYL KETONE	100.000 PPB	110.000 PPB	+/- 10%
METHYL ISOBUTYL KETONE	100.000 PPB	109.000 PPB	+/- 10%
METHYL METHACRYLATE	100.000 PPB	110.000 PPB	+/- 10%
METHYL TERT BUTYL ETHER	100.000 PPB	112.000 PPB	+/- 10%
METHYLENE CHLORIDE	100.000 PPB	108.000 PPB	+/- 10%
N BUTANE	100.000 PPB	109.000 PPB	+/- 10%
N HEPTANE	100.000 PPB	111.000 PPB	+/- 10%
N NONANE	100.000 PPB	110.000 PPB	+/- 10%
N PENTANE	100.000 PPB	108.000 PPB	+/- 10%
N PROPYL BENZENE	100.000 PPB	108.000 PPB	+/- 10%
NAPHTHALENE	100.000 PPB	100.000 PPB	+/- 10%
O XYLENE	100.000 PPB	110.000 PPB	+/- 10%
P XYLENE	100.000 PPB	111.000 PPB	+/- 10%
PERCHLOROETHYLENE	100.000 PPB	112.000 PPB	+/- 10%
PROPYLENE	100.000 PPB	109.000 PPB	+/- 10%
R11 TRICHLOROFLUOROMETHANE	100.000 PPB	110.000 PPB	+/- 10%
R113 TRICHLOROTRIFLUOROETHANE	100.000 PPB	109.000 PPB	+/- 10%
R114 DICHLOROTETRAFLUOROETHANE	100.000 PPB	98.000 PPB	+/- 10%
R12 DICHLORODIFLUOROMETHANE	100.000 PPB	106.000 PPB	+/- 10%
STYRENE	100.000 PPB	113.000 PPB	+/- 10%
TERT BUTANOL	100.000 PPB	115.000 PPB	+/- 10%
TETRAHYDROFURAN	100.000 PPB	110.000 PPB	+/- 10%
TOLUENE	100.000 PPB	108.000 PPB	+/- 10%
TRANS 1,2 DICHLOROETHYLENE	100.000 PPB	111.000 PPB	+/- 10%
TRANS 1,3 DICHLOROPROPENE	100.000 PPB	111.000 PPB	+/- 10%
TRICHLOROETHYLENE	100.000 PPB	100.000 PPB	+/- 10%
VINYL ACETATE	100.000 PPB	110.000 PPB	+/- 10%
VINYL BROMIDE	100.000 PPB	101.000 PPB	+/- 10%
VINYL CHLORIDE	100.000 PPB	108.000 PPB	+/- 10%
NITROGEN	99.99925 %	99.999187 %	+/- 10%

Permanent Notes:CUSTOM TO MIX - TO-15/17 MODIFIED NJ STD + NAPHTHALENE

Notes:PO number: 22578

Approved for Release

Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

R 366

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED HYDROCARBON

Customer:	INTEGRATED ANALYTICAL LABS		
Part Number:	X76NI99C15AC001	Reference Number:	160-402744241-1
Cylinder Number:	EB0116272	Cylinder Volume:	146.0 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	2050 PSIG
Analysis Date:	May 12, 2023	Valve Outlet:	350SS
Lot Number:	160-402744241-1	Expiration Date:	May 12, 2025

Traceability Statement: Hydrocarbon Process standards are NIST traceable either directly by weight or by comparison to Airgas laboratory standards that are directly NIST traceable by weight.

CERTIFIED CONCENTRATIONS

Component	Requested Concentration	Reported Mole %	Accuracy
1,1 DICHLOROETHANE	100.000 PPB	100.000 PPB	+/- 10%
1,1 DICHLOROETHYLENE	100.000 PPB	100.000 PPB	+/- 10%
1,1,1 TRICHLOROETHANE	100.000 PPB	104.000 PPB	+/- 10%
1,1,2 TRICHLORO ETHANE	100.000 PPB	101.000 PPB	+/- 10%
1,1,2,2 TETRACHLOROETHANE	100.000 PPB	104.000 PPB	+/- 10%
1,2 DIBROMO ETHANE	100.000 PPB	103.000 PPB	+/- 10%
1,2 DICHLORO PROPANE	100.000 PPB	103.000 PPB	+/- 10%
1,2 DICHLOROBENZENE	100.000 PPB	101.000 PPB	+/- 10%
1,2 DICHLOROETHANE	100.000 PPB	102.000 PPB	+/- 10%
1,2,4 TRICHLOROBENZENE	100.000 PPB	100.000 PPB	+/- 10%
1,2,4 TRIMETHYLBENZENE	100.000 PPB	102.000 PPB	+/- 10%
1,3 BUTADIENE	100.000 PPB	106.000 PPB	+/- 10%
1,3 DICHLORO BENZENE	100.000 PPB	105.000 PPB	+/- 10%
1,3,5 TRIMETHYL BENZENE	100.000 PPB	103.000 PPB	+/- 10%
1,4 DICHLOROBENZENE	100.000 PPB	100.000 PPB	+/- 10%
1,4 DIOXANE	100.000 PPB	113.000 PPB	+/- 10%
2 CHLOROTOLUENE	100.000 PPB	107.000 PPB	+/- 10%
3 CHLOROPROPYLENE	100.000 PPB	106.000 PPB	+/- 10%
4 ETHYL TOLUENE	100.000 PPB	106.000 PPB	+/- 10%
ACETONE	100.000 PPB	108.000 PPB	+/- 10%
ACROLEIN	100.000 PPB	105.000 PPB	+/- 10%
BENZENE	100.000 PPB	103.000 PPB	+/- 10%
BENZYL CHLORIDE	100.000 PPB	102.000 PPB	+/- 10%
BROMO DICHLORO METHANE	100.000 PPB	112.000 PPB	+/- 10%
BROMOFORM	100.000 PPB	113.000 PPB	+/- 10%
CARBON DISULFIDE	100.000 PPB	95.000 PPB	+/- 10%
CARBON TETRACHLORIDE	100.000 PPB	107.000 PPB	+/- 10%
CHLORO DIBROMO METHANE	100.000 PPB	110.000 PPB	+/- 10%
CHLOROBENZENE	100.000 PPB	104.000 PPB	+/- 10%
CHLOROFORM	100.000 PPB	106.000 PPB	+/- 10%
CIS 1,2 DICHLOROETHYLENE	100.000 PPB	102.000 PPB	+/- 10%
CIS 1,3 DICHLOROPROPENE	100.000 PPB	94.000 PPB	+/- 10%
CUMENE	100.000 PPB	106.000 PPB	+/- 10%
CYCLOHEXANE	100.000 PPB	109.000 PPB	+/- 10%
ETHANOL	100.000 PPB	98.000 PPB	+/- 10%
ETHYL ACETATE	100.000 PPB	104.000 PPB	+/- 10%
ETHYL BENZENE	100.000 PPB	105.000 PPB	+/- 10%
ETHYL CHLORIDE	100.000 PPB	104.000 PPB	+/- 10%
HEXACHLORO 1,3 BUTADIENE	100.000 PPB	101.000 PPB	+/- 10%

Approved for Release

Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

HEXANE	100.000 PPB	107.000 PPB	+/- 10%
ISOOCTANE	100.000 PPB	106.000 PPB	+/- 10%
ISOPROPYL ALCOHOL	100.000 PPB	95.000 PPB	+/- 10%
M XYLENE	100.000 PPB	106.000 PPB	+/- 10%
METHYL BROMIDE	100.000 PPB	103.000 PPB	+/- 10%
METHYL BUTYL KETONE	100.000 PPB	109.000 PPB	+/- 10%
METHYL CHLORIDE	100.000 PPB	108.000 PPB	+/- 10%
METHYL ETHYL KETONE	100.000 PPB	105.000 PPB	+/- 10%
METHYL ISOBUTYL KETONE	100.000 PPB	105.000 PPB	+/- 10%
METHYL METHACRYLATE	100.000 PPB	106.000 PPB	+/- 10%
METHYL TERT BUTYL ETHER	100.000 PPB	107.000 PPB	+/- 10%
METHYLENE CHLORIDE	100.000 PPB	101.000 PPB	+/- 10%
N BUTANE	100.000 PPB	107.000 PPB	+/- 10%
N HEPTANE	100.000 PPB	107.000 PPB	+/- 10%
N NONANE	100.000 PPB	108.000 PPB	+/- 10%
N PENTANE	100.000 PPB	105.000 PPB	+/- 10%
N PROPYL BENZENE	100.000 PPB	112.000 PPB	+/- 10%
NAPHTHALENE	100.000 PPB	101.000 PPB	+/- 10%
O XYLENE	100.000 PPB	102.000 PPB	+/- 10%
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R114 DICHLOROTETRAFLUOROETHANE	100.000 PPB	99.000 PPB	+/- 10%
R12 DICHLORODIFLUOROMETHANE	100.000 PPB	109.000 PPB	+/- 10%
STYRENE	100.000 PPB	106.000 PPB	+/- 10%
TERT BUTANOL	100.000 PPB	111.000 PPB	+/- 10%
TETRAHYDROFURAN	100.000 PPB	106.000 PPB	+/- 10%
TOLUENE	100.000 PPB	101.000 PPB	+/- 10%
TRANS 1,2 DICHLOROETHYLENE	100.000 PPB	108.000 PPB	+/- 10%
TRANS 1,3 DICHLOROPROPENE	100.000 PPB	106.000 PPB	+/- 10%
TRICHLOROETHYLENE	100.000 PPB	102.000 PPB	+/- 10%
VINYL ACETATE	100.000 PPB	105.000 PPB	+/- 10%
VINYL BROMIDE	100.000 PPB	100.000 PPB	+/- 10%
VINYL CHLORIDE	100.000 PPB	107.000 PPB	+/- 10%
NITROGEN	99.99925 %	99.999216 %	

Permanent Notes: CUSTOM TO MIX - TO-15/17 MODIFIED NJ STD + NAPHTHALENE

Notes: PO Number: 22896

Approved for Release

Section IV: Method Detection Limit Summary

INTEGRATED ANALYTICAL LABORATORIES, LLC
REPORTING METHOD DETECTION LIMIT (MDL) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Matrix: Air
Column ID: Restek RtX-VMS, 30 meter, 0.32mm ID, 1.8 um DF
Instrument ID: GC - Agilent 7890A / MS - Agilent 5975C (IAL ID: *Instrument AA*)
Report Prepared by: Joe Waluliewicz

MDL Effective Date: 8/16/2023
Analyst: Joe Waluliewicz

Compound Name	CAS #	Molecular Weight	MDL ppbv	MDL µg/m^3	PQL ppbv	RL ppbv	RL µg/m^3	True value/ MDL
Propene	115-07-1	42.08	0.18	0.31	0.54	0.20	0.34	1
Dichlorodifluoromethane	75-71-8	120.9	0.081	0.40	0.24	0.20	0.99	3
1,2-Dichlorotetrafluoroethane	76-14-2	170.9	0.071	0.50	0.21	0.20	1.4	3
n-Butane	106-97-8	58	0.13	0.32	0.40	0.20	0.47	2
Chloromethane	74-87-3	50.49	0.15	0.30	0.44	0.20	0.41	1
Vinyl chloride	75-01-4	62.5	0.11	0.29	0.34	0.20	0.51	2
1,3-Butadiene	106-99-0	54.09	0.12	0.27	0.37	0.20	0.44	2
Bromomethane	74-83-9	94.94	0.12	0.46	0.36	0.20	0.78	2
Chloroethane	75-00-3	64.52	0.12	0.32	0.36	0.20	0.53	2
Vinyl bromide	593-60-2	106.9	0.080	0.35	0.24	0.20	0.87	3
Trichlorofluoromethane	75-69-4	137.4	0.068	0.38	0.20	0.20	1.1	3
Ethanol	64-17-5	46.07	0.17	0.32	0.51	0.20	0.38	1
1,1-Dichloroethene	75-35-4	96.94	0.086	0.34	0.26	0.20	0.79	3
Carbon disulfide	75-15-0	76.14	0.076	0.24	0.23	0.20	0.62	3
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	187.40	0.087	0.66	0.26	0.20	1.5	3
Acrolein	107-02-8	56.06	0.15	0.34	0.44	0.20	0.46	2
Allyl Chloride	107-05-1	76.53	0.088	0.27	0.26	0.20	0.63	3
Isopropanol	67-63-0	60.1	0.10	0.25	0.30	0.20	0.49	2
Methylene chloride	75-09-2	84.94	0.10	0.36	0.31	0.20	0.69	2
Acetone	67-64-1	58.08	0.12	0.28	0.36	0.20	0.48	2
1,2-Dichloroethene (trans)	156-60-5	96.94	0.080	0.32	0.24	0.20	0.79	3
n-Pentane	109-66-0	72.15	0.16	0.48	0.49	0.20	0.59	1
n-Hexane	110-54-3	86.17	0.087	0.31	0.26	0.20	0.70	3
Methyl tert-butyl ether	1634-04-4	88.15	0.080	0.29	0.24	0.20	0.72	3
Tert-butyl alcohol	75-65-0	74.12	0.14	0.44	0.43	0.20	0.61	2
1,1-Dichloroethane	75-34-3	98.96	0.079	0.32	0.24	0.20	0.81	3
1,2-Dichloroethene (cis)	156-59-2	96.94	0.083	0.33	0.25	0.20	0.79	3
Cyclohexane	110-82-7	84.16	0.078	0.27	0.23	0.20	0.69	3
Chloroform	67-66-3	119.4	0.077	0.38	0.23	0.20	0.98	3
Ethyl acetate	141-78-6	88.11	0.11	0.40	0.33	0.20	0.72	2
Carbon tetrachloride	56-23-5	153.8	0.080	0.50	0.24	0.20	1.3	3
Tetrahydrofuran	109-99-9	72.11	0.11	0.31	0.32	0.20	0.59	2
1,1,1-Trichloroethane	71-55-6	133.4	0.071	0.39	0.21	0.20	1.1	3
Methyl ethyl ketone	78-93-3	72.11	0.11	0.31	0.32	0.20	0.59	2
n-Heptane	142-82-5	100.2	0.090	0.37	0.27	0.20	0.82	2
Benzene	71-43-2	78.11	0.076	0.24	0.23	0.20	0.64	3
1,2-Dichloroethane	107-06-2	98.96	0.079	0.32	0.24	0.20	0.81	3
Trichloroethene	79-01-6	131.4	0.064	0.34	0.19	0.20	1.1	3
2,2,4-Trimethylpentane	540-84-1	114.2	0.085	0.40	0.26	0.20	0.93	3
1,2-Dichloropropane	78-87-5	113	0.085	0.39	0.25	0.20	0.92	3
Bromodichloromethane	75-27-4	163.8	0.066	0.44	0.20	0.20	1.3	3
Methyl methacrylate	80-62-6	100.12	0.079	0.32	0.24	0.20	0.82	3
1,4-Dioxane	123-91-1	88.12	0.092	0.33	0.28	0.20	0.72	2
1,3-Dichloropropene (cis)	10061-01-5	111.0	0.070	0.32	0.21	0.20	0.91	3
Toluene	108-88-3	92.14	0.064	0.24	0.19	0.20	0.75	3
Methyl isobutyl ketone	108-10-1	100.2	0.11	0.43	0.32	0.20	0.82	2
Tetrachloroethene	127-18-4	165.8	0.063	0.43	0.19	0.20	1.4	3
1,3-Dichloropropene (trans)	10061-02-6	111	0.077	0.35	0.23	0.20	0.91	3
1,1,2-Trichloroethane	79-00-5	133.4	0.075	0.41	0.22	0.20	1.1	3
Dibromochloromethane	124-48-1	208.3	0.073	0.62	0.22	0.20	1.7	3
1,2-Dibromoethane	106-93-4	187.9	0.067	0.52	0.20	0.20	1.5	3
Methyl n-butyl ketone	591-78-6	100.16	0.13	0.54	0.40	0.20	0.82	2
n-Nonane	111-84-2	128.2	0.10	0.52	0.30	0.20	1.0	2
Chlorobenzene	108-90-7	112.6	0.073	0.34	0.22	0.20	0.92	3
Ethylbenzene	100-41-4	106.2	0.067	0.29	0.20	0.20	0.9	3
Xylenes (m&p)	179601-23-1	106.2	0.15	0.64	0.44	0.40	1.74	3
Xylene (o)	79-34-5	167.9	0.073	0.50	0.22	0.20	1.4	3
Styrene	100-42-5	104.1	0.072	0.31	0.22	0.20	0.85	3
Bromoform	75-25-2	252.8	0.075	0.77	0.22	0.20	2.1	3
Cumene (Isopropylbenzene)	98-82-8	120.2	0.069	0.34	0.21	0.20	0.98	3
n-Propyl benzene	103-65-1	120.19	0.085	0.42	0.25	0.20	0.98	3
1,1,2,2-Tetrachloroethane	95-47-6	106.2	0.069	0.30	0.21	0.20	0.87	3
4-Ethyltoluene	622-96-8	120.2	0.090	0.44	0.27	0.20	0.98	2
2-Chlorotoluene	95-49-8	126.6	0.077	0.40	0.23	0.20	1.0	3
1,3,5-Trimethylbenzene	108-67-8	120.2	0.076	0.37	0.23	0.20	0.98	3
1,2,4-Trimethylbenzene	95-63-6	120.2	0.080	0.39	0.24	0.20	0.98	3

INTEGRATED ANALYTICAL LABORATORIES, LLC
REPORTING METHOD DETECTION LIMIT (MDL) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Matrix: Air
Column ID: Restek RtX-VMS, 30 meter, 0.32mm ID, 1.8 um DF
Instrument ID: GC - Agilent 7890A / MS - Agilent 5975C (IAL ID: *Instrument AA*)
Report Prepared by: Joe Waluliewicz

MDL Effective Date: 8/16/2023
Analyst: Joe Waluliewicz

Compound Name	CAS #	Molecular Weight	MDL ppbv	MDL µg/m^3	PQL ppbv	RL ppbv	RL µg/m^3	True value/ MDL
1,3-Dichlorobenzene	541-73-1	147	0.086	0.52	0.26	0.20	1.2	3
1,4-Dichlorobenzene	106-46-7	147.0	0.089	0.54	0.27	0.20	1.2	2
Benzyl chloride	100-44-7	126.6	0.064	0.33	0.19	0.20	1.0	3
1,2-Dichlorobenzene	95-50-1	147.0	0.083	0.50	0.25	0.20	1.2	3
1,3-Hexachlorobutadiene	87-68-3	260.8	0.096	1.03	0.29	0.20	2.1	2
1,2,4-Trichlorobenzene	120-82-1	181.5	0.12	0.89	0.36	0.20	1.5	2
Naphthalene	91-20-3	128	0.15	0.79	0.45	0.20	1.0	2

Where:
MDL is defined as the higher of the MDL Spike and MDL Blank
PQL is MDLx3
RL is defined as the lowest point of the calibration curve
ppbv is parts per billion by volume and is how results come off the instrument
µg/m^3 = ppbv x molecular weight / 24.45

Location of this file: P:\PAL Reports\LLTO-15 and TO-15 Common Files\Agilent MDL

Instrument used for Clean Canister Certification Analysis? YES

Michael Leftin, Ph.D.
Laboratory Director

Date: August 16, 2023

INTEGRATED ANALYTICAL LABORATORIES, LLC
METHOD DETECTION LIMIT VERIFICATION (MDLV) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Analysis Level:	0.20 ppbv, 0.40 for m&p-xylenes
Matrix:	Air
Column ID:	RTX-VMS, 30-meter, 0.32 mm ID, 1.8 µm d_f
Instrument Identification:	AA
Date of Verification Study:	8/16/2023
Study Identification File #:	aa3415rllcs
Analyst:	Joe Walukiewicz
Analysis/Processing Method:	C:\MSDCHEM\1\METHODS\230815.M
Cylinder ID:	EB0103704

Michael Leftin, Ph.D.
Laboratory Director

Date: August 16, 2023

Compound Name	CAS #	MDLV (ppbv)	RL (ppbv)	RL/MDLV Ratio
Propene	115-07-1	0.23	0.20	1
Dichlorodifluoromethane	124-48-1	0.24	0.20	1
1,2-Dichlorotetrafluoroethane	76-14-2	0.26	0.20	1
n-Butane	106-97-8	0.23	0.20	1
Chloromethane	74-87-3	0.24	0.20	1
Vinyl chloride	75-01-4	0.26	0.20	1
1,3-Butadiene	106-99-0	0.23	0.20	1
Bromomethane	74-83-9	0.23	0.20	1
Chloroethane	75-00-3	0.22	0.20	1
Vinyl bromide	593-60-2	0.23	0.20	1
Trichlorofluoromethane	75-69-4	0.26	0.20	1
Ethanol	64-17-5	0.30	0.20	2
1,1-Dichloroethene	75-35-4	0.22	0.20	1
Carbon disulfide	75-15-0	0.22	0.20	1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.27	0.20	1
Acrolein	107-02-8	0.24	0.20	1
Allyl Chloride	107-05-1	0.22	0.20	1
Isopropanol	67-63-0	0.20	0.20	1
Methylene chloride	75-09-2	0.35	0.20	2
Acetone	67-64-1	0.27	0.20	1
1,2-Dichloroethene (trans)	156-60-5	0.22	0.20	1
n-Pentane	109-66-0	0.25	0.20	1
n-Hexane	110-54-3	0.26	0.20	1
Methyl tert-butyl ether	1634-04-4	0.25	0.20	1
Tert-butyl alcohol	75-65-0	0.24	0.20	1
1,1-Dichloroethane	75-34-3	0.24	0.20	1
1,2-Dichloroethene (cis)	156-59-2	0.21	0.20	1
Cyclohexane	110-82-7	0.24	0.20	1
Chloroform	67-66-3	0.23	0.20	1
Ethyl acetate	141-78-6	0.23	0.20	1
Carbon tetrachloride	56-23-5	0.26	0.20	1
Tetrahydrofuran	109-99-9	0.23	0.20	1
1,1,1-Trichloroethane	71-55-6	0.24	0.20	1
Methyl ethyl ketone	78-93-3	0.24	0.20	1
n-Heptane	142-82-5	0.23	0.20	1
Benzene	71-43-2	0.24	0.20	1
1,2-Dichloroethane	106-93-4	0.23	0.20	1
Trichloroethene	79-01-6	0.25	0.20	1
2,2,4-Trimethylpentane	540-84-1	0.29	0.20	1
1,2-Dichloropropane	78-87-5	0.26	0.20	1
Bromodichloromethane	75-27-4	0.28	0.20	1
Methyl methacrylate	80-62-6	0.22	0.20	1
1,4-Dioxane	123-91-1	0.28	0.20	1
1,3-Dichloropropene (cis)	10061-01-5	0.25	0.20	1
Toluene	108-88-3	0.24	0.20	1
Methyl isobutyl ketone	108-10-1	0.22	0.20	1
Tetrachloroethene	127-18-4	0.26	0.20	1
1,3-Dichloropropene (trans)	10061-02-6	0.24	0.20	1
1,1,2-Trichloroethane	79-00-5	0.23	0.20	1
Dibromochloromethane	75-71-8	0.24	0.20	1
1,2-Dibromoethane	107-06-2	0.22	0.20	1
Methyl n-butyl ketone	591-78-6	0.21	0.20	1

INTEGRATED ANALYTICAL LABORATORIES, LLC
METHOD DETECTION LIMIT VERIFICATION (MDLV) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Analysis Level:	0.20 ppbv, 0.40 for m&p-xylenes
Matrix:	Air
Column ID:	RTX-VMS, 30-meter, 0.32 mm ID, 1.8 µm d_f
Instrument Identification:	AA
Date of Verification Study:	8/16/2023
Study Identification File #:	aa3415rllcs
Analyst:	Joe Walukiewicz
Analysis/Processing Method:	C:\MSDCHEM\1\METHODS\230815.M
Cylinder ID:	EB0103704

Michael Leftin, Ph.D.
Laboratory Director

Date: August 16, 2023

Compound Name	CAS #	MDLV (ppbv)	RL (ppbv)	RL/MDLV Ratio
n-Nonane	111-84-2	0.21	0.20	1
Chlorobenzene	108-90-7	0.28	0.20	1
Ethylbenzene	100-41-4	0.26	0.20	1
Xylenes (m&p)	179601-23-1	0.54	0.40	1
Xylene (o)	95-47-6	0.26	0.20	1
Styrene	100-42-5	0.23	0.20	1
Bromoform	75-25-2	0.26	0.20	1
Cumene	98-82-8	0.24	0.20	1
n-Propyl benzene	103-65-1	0.25	0.20	1
1,1,2,2-Tetrachloroethane	79-34-5	0.25	0.20	1
4-Ethyltoluene	622-96-8	0.24	0.20	1
2-Chlorotoluene	95-49-8	0.25	0.20	1
1,3,5-Trimethylbenzene	108-67-8	0.24	0.20	1
1,2,4-Trimethylbenzene	95-63-6	0.22	0.20	1
1,3-Dichlorobenzene	541-73-1	0.27	0.20	1
1,4-Dichlorobenzene	106-46-7	0.24	0.20	1
Benzyl chloride	100-44-7	0.17	0.20	1
1,2-Dichlorobenzene	95-50-1	0.25	0.20	1
1,3-Hexachlorobutadiene	87-68-3	0.31	0.20	2
1,2,4-Trichlorobenzene	120-82-1	0.25	0.20	1
Naphthalene	91-20-3	0.28	0.20	1

Section V: Quality Control Data Summary

BFB Tune Summary

Method Blank

Laboratory Control Sample

Laboratory Sample Duplicate

Internal Standard Area Summary

BFB

Data Path: C:\DATA\2023\08-2023\08-15-2023\
Data File: AA3401BFB.D
Acq On: 8/15/2023 10:11:00AM
Operator: jls
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230525.M
Last Update: Tue May 30 13:24:12 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	251499	18.7
PASS	75	95	30	66	703104	52.3
PASS	95	95	100	100	1345024	100.0
PASS	96	95	5	9	89525	6.7
PASS	173	174	0.00	2	8293	0.8
PASS	174	95	50	100	1069397	79.5
PASS	175	174	4	9	78181	7.3
PASS	176	174	93	101	1035413	96.8
PASS	177	176	5	9	68613	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA3401BFB	NA	8/15/2023 10:11:00 AM
0.2 PPBV STD	AA3402STD05	NA	8/15/2023 11:15:00 AM
10 PPBV STD	AA3404STD03	NA	8/15/2023 1:09:00 PM
2 PPBV STD	AA3403STD04	NA	8/15/2023 1:45:00 PM
20 PPBV STD	AA3405STD02	NA	8/15/2023 3:12:00 PM
40 PPBV STD	AA3406STD01	NA	8/15/2023 4:47:00 PM
10 PPBV ICVSS	AA3407ICVSS	NA	8/15/2023 6:09:00 PM

BFB

Data Path: C:\DATA\2023\10-2023\10-02-2023\
Data File: AA4101BFB.D
Acq On: 10/2/2023 11:11:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230815.M
Last Update: Wed Aug 16 10:00:51 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	199211	20.1
PASS	75	95	30	66	539733	54.5
PASS	95	95	100	100	990848	100.0
PASS	96	95	5	9	66717	6.7
PASS	173	174	0.00	2	6585	0.9
PASS	174	95	50	100	748288	75.5
PASS	175	174	4	9	56397	7.5
PASS	176	174	93	101	739904	98.9
PASS	177	176	5	9	48976	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4101BFB	NA	10/2/2023 11:11:00 AM
10 PPBV DCVS	AA4102DCVS	NA	10/2/2023 12:19:00 PM
10 PPBV LCS	AA4103LCS	NA	10/2/2023 12:50:00 PM
METHOD BLANK	AA4104BLK	NA	10/2/2023 1:32:00 PM
02 PPBV RLLCS	AA4105RLLCS	NA	10/2/2023 2:08:00 PM
3830	AA4106	NA	10/2/2023 2:44:00 PM
5087	AA4107	NA	10/2/2023 3:14:00 PM
2037	AA4108	NA	10/2/2023 3:45:00 PM
10 PPBV CCCVS	AA4125CCCVS	NA	10/3/2023 12:49:00 AM

INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path: C:\DATA\2023\10-2023\10-10-2023\

Data File: AA4131BFB.D

Acq On: 10/10/2023 10:13:00AM

Operator: jls

Sample: BFB

Misc: ALM018474

ALS Vial: 1 **Multiplier:** 1

Integration File: rteint.p

Method: C:\msdchem\1\METHODS\231009.M

Last Update: Tue Oct 10 09:54:56 2023

Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	65523	16.8
PASS	75	95	30	66	182571	46.8
PASS	95	95	100	100	389867	100.0
PASS	96	95	5	9	25643	6.6
PASS	173	174	0.00	2	0	0.0
PASS	174	95	50	100	293952	75.4
PASS	175	174	4	9	22269	7.6
PASS	176	174	93	101	282667	96.2
PASS	177	176	5	9	18629	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4131BFB	NA	10/10/2023 10:13:00 AM
0.2 PPBV STD	AA4132STD05	NA	10/10/2023 10:40:00 AM
2 PPBV STD	AA4133STD04	NA	10/10/2023 11:46:00 AM
10 PPBV STANDARD STD	AA4134STD03	NA	10/10/2023 12:21:00 PM
20 PPBV STD	AA4135STD02	NA	10/10/2023 12:55:00 PM
40 PPBV STD	AA4136STD01	NA	10/10/2023 2:05:00 PM
10 PPBV ICVSS	AA4137ICVSS	NA	10/10/2023 4:48:00 PM
10 PPBV LCS	AA4138LCS	NA	10/10/2023 5:39:00 PM
METHOD BLANK	AA4139BLK	NA	10/10/2023 6:07:00 PM
02 PPBV RLLCS	AA4140RLLCS	NA	10/10/2023 6:35:00 PM
5101	AA4142	NA	10/10/2023 7:36:00 PM
4869	AA4143	NA	10/10/2023 8:06:00 PM
2157	AA4144	NA	10/10/2023 8:36:00 PM
10 PPBV CCCVS	AA4154CCCVS	NA	10/11/2023 1:53:00 AM

BFB

Data Path: C:\DATA\2023\11-2023\11-03-2023\
Data File: AA4527BFB.D
Acq On: 11/3/2023 9:42:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\231009.M
Last Update: Tue Oct 10 15:12:35 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	181269	18.0
PASS	75	95	30	66	495573	49.1
PASS	95	95	100	100	1008683	100.0
PASS	96	95	5	9	66328	6.6
PASS	173	174	0.00	2	7271	0.9
PASS	174	95	50	100	784213	77.7
PASS	175	174	4	9	57285	7.3
PASS	176	174	93	101	752875	96.0
PASS	177	176	5	9	49968	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4527BFB	NA	11/3/2023 9:42:00 AM
10 PPBV DCVS	AA4528DCVS	NA	11/3/2023 10:14:00 AM
10 PPBV LCS	AA4529LCS	NA	11/3/2023 10:43:00 AM
METHOD BLANK	AA4530BLK	NA	11/3/2023 11:41:00 AM
02 PPBV RLLCS	AA4531RLLCS	NA	11/3/2023 12:15:00 PM
2902	AA4532	NA	11/3/2023 1:01:00 PM
10 PPBV CCCVS	AA4549CCCVS	NA	11/3/2023 10:29:00 PM

BFB

Data Path: C:\DATA\2023\12-2023\12-08-2023\
Data File: AA4881BFB.D
Acq On: 12/8/2023 10:21:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\231009.M
Last Update: Tue Oct 10 15:12:35 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	185045	18.5
PASS	75	95	30	66	508523	50.7
PASS	95	95	100	100	1002688	100.0
PASS	96	95	5	9	66973	6.7
PASS	173	174	0.00	2	4685	0.6
PASS	174	95	50	100	744704	74.3
PASS	175	174	4	9	56251	7.6
PASS	176	174	93	101	716907	96.3
PASS	177	176	5	9	46309	6.5

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4881BFB	NA	12/8/2023 10:21:00 AM
10 PPBV DCVS	AA4882DCVS	NA	12/8/2023 10:50:00 AM
10 PPBV LCS	AA4883LCS	NA	12/8/2023 11:21:00 AM
METHOD BLANK	AA4884BLK	NA	12/8/2023 12:26:00 PM
E23-05047-01	AA4886	SV1	12/8/2023 2:03:00 PM
E23-05047-02	AA4887	SV2	12/8/2023 2:35:00 PM
E23-05047-03	AA4888	SV3	12/8/2023 3:06:00 PM
E23-05047-04	AA4889	SV6	12/8/2023 3:42:00 PM
E23-05047-05	AA4890	SV7	12/8/2023 4:15:00 PM

BFB

Data Path: C:\DATA\2023\12-2023\12-11-2023\
Data File: AA4901BFB.D
Acq On: 12/11/2023 9:24:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\231009.M
Last Update: Tue Oct 10 15:12:35 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	267904	18.4
PASS	75	95	30	66	717035	49.1
PASS	95	95	100	100	1459371	100.0
PASS	96	95	5	9	91040	6.2
PASS	173	174	0.00	2	10848	1.0
PASS	174	95	50	100	1053269	72.2
PASS	175	174	4	9	81547	7.7
PASS	176	174	93	101	1021824	97.0
PASS	177	176	5	9	65264	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4901BFB	NA	12/11/2023 9:24:00 AM
10 PPBV DCVS	AA4902DCVS	NA	12/11/2023 10:26:00 AM
10 PPBV LCS	AA4903LCS	NA	12/11/2023 10:57:00 AM
METHOD BLANK	AA4904BLK	NA	12/11/2023 11:51:00 AM
02 PPBV RLLCS	AA4905RLLCS	NA	12/11/2023 12:18:00 PM
1458	AA4906	NA	12/11/2023 12:50:00 PM
1588	AA4907	NA	12/11/2023 1:19:00 PM
3012	AA4908	NA	12/11/2023 1:49:00 PM
E23-05047-03	AA4909	SV3	12/11/2023 2:18:00 PM
E23-05047-04	AA4910	SV6	12/11/2023 2:50:00 PM
E23-05047-06	AA4914	SV8	12/11/2023 4:52:00 PM
E23-05047-06	AA4915	SV8	12/11/2023 5:43:00 PM
10 PPBV CCCVS	AA4931CCCVS	NA	12/12/2023 1:59:00 AM

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4104BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**10/2/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4101BFB]	10/02/2023 11:11
10 PPBV DCVS [AA4102DCVS]	10/02/2023 12:19
10 PPBV LCS [AA4103LCS]	10/02/2023 12:50
METHOD BLANK [AA4104BLK]	10/02/2023 13:32
02 PPBV RLLCS [AA4105RLLCS]	10/02/2023 14:08
3830 [AA4106]	10/02/2023 14:44
5087 [AA4107]	10/02/2023 15:14
2037 [AA4108]	10/02/2023 15:45
10 PPBV CCCVS [AA4125CCCVS]	10/03/2023 0:49

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4104BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**10/2/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4101BFB]	10/02/2023 11:11
10 PPBV DCVS [AA4102DCVS]	10/02/2023 12:19
10 PPBV LCS [AA4103LCS]	10/02/2023 12:50
METHOD BLANK [AA4104BLK]	10/02/2023 13:32
02 PPBV RLLCS [AA4105RLLCS]	10/02/2023 14:08
3830 [AA4106]	10/02/2023 14:44
5087 [AA4107]	10/02/2023 15:14
2037 [AA4108]	10/02/2023 15:45
10 PPBV CCCVS [AA4125CCCVS]	10/03/2023 0:49

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4530BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**11/3/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4527BFB]	11/03/2023 9:42
10 PPBV DCVS [AA4528DCVS]	11/03/2023 10:14
10 PPBV LCS [AA4529LCS]	11/03/2023 10:43
METHOD BLANK [AA4530BLK]	11/03/2023 11:41
02 PPBV RLLCS [AA4531RLLCS]	11/03/2023 12:15
2902 [AA4532]	11/03/2023 13:01
10 PPBV CCCVS [AA4549CCCVS]	11/03/2023 22:29

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4530BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**11/3/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4527BFB]	11/03/2023 9:42
10 PPBV DCVS [AA4528DCVS]	11/03/2023 10:14
10 PPBV LCS [AA4529LCS]	11/03/2023 10:43
METHOD BLANK [AA4530BLK]	11/03/2023 11:41
02 PPBV RLLCS [AA4531RLLCS]	11/03/2023 12:15
2902 [AA4532]	11/03/2023 13:01
10 PPBV CCCVS [AA4549CCCVS]	11/03/2023 22:29

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4884BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/8/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05047-01 [AA4886]	12/08/2023 14:03
E23-05047-02 [AA4887]	12/08/2023 14:35
E23-05047-03 [AA4888]	12/08/2023 15:06
E23-05047-04 [AA4889]	12/08/2023 15:42
E23-05047-05 [AA4890]	12/08/2023 16:15

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4884BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/8/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05047-01 [AA4886]	12/08/2023 14:03
E23-05047-02 [AA4887]	12/08/2023 14:35
E23-05047-03 [AA4888]	12/08/2023 15:06
E23-05047-04 [AA4889]	12/08/2023 15:42
E23-05047-05 [AA4890]	12/08/2023 16:15

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05047-03 [AA4909]	12/11/2023 14:18
E23-05047-04 [AA4910]	12/11/2023 14:50
E23-05047-06 [AA4914]	12/11/2023 16:52
E23-05047-06 [AA4915]	12/11/2023 17:43
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05047-03 [AA4909]	12/11/2023 14:18
E23-05047-04 [AA4910]	12/11/2023 14:50
E23-05047-06 [AA4914]	12/11/2023 16:52
E23-05047-06 [AA4915]	12/11/2023 17:43
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4103LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 10/2/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4101BFB]	10/02/2023 11:11
10 PPBV DCVS [AA4102DCVS]	10/02/2023 12:19
10 PPBV LCS [AA4103LCS]	10/02/2023 12:50
METHOD BLANK [AA4104BLK]	10/02/2023 13:32
02 PPBV RLLCS [AA4105RLLCS]	10/02/2023 14:08
3830 [AA4106]	10/02/2023 14:44
5087 [AA4107]	10/02/2023 15:14
2037 [AA4108]	10/02/2023 15:45
10 PPBV CCCVS [AA4125CCCVS]	10/03/2023 0:49

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	13	120
Benzene	71-43-2	11	110
Bromodichloromethane	75-27-4	11	100
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	13	120
1,3-Butadiene	106-99-0	12	120
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	12	120
Chloroform	67-66-3	11	110
Chloromethane	74-87-3	15	130
Carbon disulfide	75-15-0	14	130
Carbon tetrachloride	56-23-5	9.9	99
Cyclohexane	110-82-7	11	110
Dibromochloromethane	124-48-1	8.9	81
1,2-Dibromoethane	106-93-4	8.6	78
1,2-Dichlorobenzene	95-50-1	9.9	90
1,3-Dichlorobenzene	541-73-1	9.7	88
1,4-Dichlorobenzene	106-46-7	10	91
Dichlorodifluoromethane	75-71-8	13	120
1,1-Dichloroethane	75-34-3	12	110
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	13	120
1,2-Dichloroethene (cis)	156-59-2	12	110
1,2-Dichloroethene (trans)	156-60-5	13	120
1,2-Dichloropropane	78-87-5	9.6	96
1,3-Dichloropropene (cis)	10061-01-5	9.7	88
1,3-Dichloropropene (trans)	10061-02-6	9.8	99
1,2-Dichlorotetrafluoroethane	76-14-2	10	91
1,4-Dioxane	123-91-1	9.7	81
Ethylbenzene	100-41-4	9.7	97
n-Heptane	142-82-5	9.1	91

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4103LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 10/2/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4101BFB]	10/02/2023 11:11
10 PPBV DCVS [AA4102DCVS]	10/02/2023 12:19
10 PPBV LCS [AA4103LCS]	10/02/2023 12:50
METHOD BLANK [AA4104BLK]	10/02/2023 13:32
02 PPBV RLLCS [AA4105RLLCS]	10/02/2023 14:08
3830 [AA4106]	10/02/2023 14:44
5087 [AA4107]	10/02/2023 15:14
2037 [AA4108]	10/02/2023 15:45
10 PPBV CCCVS [AA4125CCCVS]	10/03/2023 0:49

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
1,3-Hexachlorobutadiene	87-68-3	10	88
n-Hexane	110-54-3	11	110
Methylene chloride	75-09-2	14	130
Methyl ethyl ketone	78-93-3	12	100
Methyl isobutyl ketone	108-10-1	8.5	77
Methyl tert-butyl ether	1634-04-4	11	100
Styrene	100-42-5	10	91
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	9.6	87
Tetrachloroethene	127-18-4	8.5	85
Toluene	108-88-3	8.5	85
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	9.6	96
1,1,2-Trichloroethane	79-00-5	8.4	76
Trichloroethene	79-01-6	9.3	93
Trichlorofluoromethane	75-69-4	12	110
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.6	96
1,2,4-Trimethylbenzene	95-63-6	9.8	89
1,3,5-Trimethylbenzene	108-67-8	9.7	88
2,2,4-Trimethylpentane	540-84-1	13	130
Vinyl bromide	593-60-2	13	130
Vinyl chloride	75-01-4	14	130
Xylenes (m&p)	179601-23-1	21	110
Xylenes (o)	95-47-6	9.5	95

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: **10 PPBV LCS** **Data File:** **AA4529LCS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **11/3/2023**

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4527BFB]	11/03/2023 9:42
10 PPBV DCVS [AA4528DCVS]	11/03/2023 10:14
10 PPBV LCS [AA4529LCS]	11/03/2023 10:43
METHOD BLANK [AA4530BLK]	11/03/2023 11:41
02 PPBV RLLCS [AA4531RLLCS]	11/03/2023 12:15
2902 [AA4532]	11/03/2023 13:01
10 PPBV CCCVS [AA4549CCCVS]	11/03/2023 22:29

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	13	120
Benzene	71-43-2	11	110
Bromodichloromethane	75-27-4	12	110
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	12	110
1,3-Butadiene	106-99-0	11	110
Chlorobenzene	108-90-7	11	110
Chloroethane	75-00-3	13	130
Chloroform	67-66-3	12	120
Chloromethane	74-87-3	13	110
Carbon disulfide	75-15-0	12	110
Carbon tetrachloride	56-23-5	11	110
Cyclohexane	110-82-7	11	110
Dibromochloromethane	124-48-1	12	110
1,2-Dibromoethane	106-93-4	12	110
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	11	100
1,4-Dichlorobenzene	106-46-7	11	100
Dichlorodifluoromethane	75-71-8	12	110
1,1-Dichloroethane	75-34-3	12	110
1,2-Dichloroethane	107-06-2	13	130
1,1-Dichloroethene	75-35-4	13	120
1,2-Dichloroethene (cis)	156-59-2	13	120
1,2-Dichloroethene (trans)	156-60-5	13	120
1,2-Dichloropropane	78-87-5	11	110
1,3-Dichloropropene (cis)	10061-01-5	11	100
1,3-Dichloropropene (trans)	10061-02-6	12	120
1,2-Dichlorotetrafluoroethane	76-14-2	10	91
1,4-Dioxane	123-91-1	12	100
Ethylbenzene	100-41-4	10	100
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	10	88
n-Hexane	110-54-3	11	110

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4529LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 11/3/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4527BFB]	11/03/2023 9:42
10 PPBV DCVS [AA4528DCVS]	11/03/2023 10:14
10 PPBV LCS [AA4529LCS]	11/03/2023 10:43
METHOD BLANK [AA4530BLK]	11/03/2023 11:41
02 PPBV RLLCS [AA4531RLLCS]	11/03/2023 12:15
2902 [AA4532]	11/03/2023 13:01
10 PPBV CCCVS [AA4549CCCVS]	11/03/2023 22:29

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Methylene chloride	75-09-2	10	91
Methyl ethyl ketone	78-93-3	12	100
Methyl isobutyl ketone	108-10-1	11	100
Methyl tert-butyl ether	1634-04-4	11	100
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	12	100
1,1,2,2-Tetrachloroethane	79-34-5	10	91
Tetrachloroethene	127-18-4	12	120
Toluene	108-88-3	11	110
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	11	110
1,1,2-Trichloroethane	79-00-5	11	100
Trichloroethene	79-01-6	10	100
Trichlorofluoromethane	75-69-4	13	120
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	110
1,2,4-Trimethylbenzene	95-63-6	10	91
1,3,5-Trimethylbenzene	108-67-8	10.0	91
2,2,4-Trimethylpentane	540-84-1	10.0	100
Vinyl bromide	593-60-2	12	120
Vinyl chloride	75-01-4	12	120
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	9.9	99

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4883LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/8/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05047-01 [AA4886]	12/08/2023 14:03
E23-05047-02 [AA4887]	12/08/2023 14:35
E23-05047-03 [AA4888]	12/08/2023 15:06
E23-05047-04 [AA4889]	12/08/2023 15:42
E23-05047-05 [AA4890]	12/08/2023 16:15

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	100
Benzene	71-43-2	9.3	93
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	11	100
1,3-Butadiene	106-99-0	9.9	99
Chlorobenzene	108-90-7	9.9	99
Chloroethane	75-00-3	11	110
Chloroform	67-66-3	10.0	100
Chloromethane	74-87-3	12	100
Carbon disulfide	75-15-0	11	100
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	10	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	9.7	88
1,3-Dichlorobenzene	541-73-1	9.8	89
1,4-Dichlorobenzene	106-46-7	9.6	87
Dichlorodifluoromethane	75-71-8	11	100
1,1-Dichloroethane	75-34-3	9.4	85
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	100
1,2-Dichloroethene (cis)	156-59-2	10	91
1,2-Dichloroethene (trans)	156-60-5	11	100
1,2-Dichloropropane	78-87-5	11	110
1,3-Dichloropropene (cis)	10061-01-5	11	100
1,3-Dichloropropene (trans)	10061-02-6	12	120
1,2-Dichlorotetrafluoroethane	76-14-2	9.0	82
1,4-Dioxane	123-91-1	12	100
Ethylbenzene	100-41-4	10	100
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	10.0	88
n-Hexane	110-54-3	10.0	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: **10 PPBV LCS** **Data File:** **AA4883LCS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **12/8/2023**

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05047-01 [AA4886]	12/08/2023 14:03
E23-05047-02 [AA4887]	12/08/2023 14:35
E23-05047-03 [AA4888]	12/08/2023 15:06
E23-05047-04 [AA4889]	12/08/2023 15:42
E23-05047-05 [AA4890]	12/08/2023 16:15

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Methylene chloride	75-09-2	9.5	86
Methyl ethyl ketone	78-93-3	10	85
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	10	91
Styrene	100-42-5	10	91
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	10	91
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	10	88
1,1,1-Trichloroethane	71-55-6	10	100
1,1,2-Trichloroethane	79-00-5	10	91
Trichloroethene	79-01-6	9.3	93
Trichlorofluoromethane	75-69-4	11	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.2	92
1,2,4-Trimethylbenzene	95-63-6	10.0	91
1,3,5-Trimethylbenzene	108-67-8	10	91
2,2,4-Trimethylpentane	540-84-1	10	100
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	10	100
Xylenes (m&p)	179601-23-1	21	110
Xylenes (o)	95-47-6	9.9	99

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4903LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/11/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05047-03 [AA4909]	12/11/2023 14:18
E23-05047-04 [AA4910]	12/11/2023 14:50
E23-05047-06 [AA4914]	12/11/2023 16:52
E23-05047-06 [AA4915]	12/11/2023 17:43
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	100
Benzene	71-43-2	9.5	95
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	10	91
1,3-Butadiene	106-99-0	10	100
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	11	110
Chloroform	67-66-3	10	100
Chloromethane	74-87-3	11	96
Carbon disulfide	75-15-0	11	100
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	10	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	10	91
1,4-Dichlorobenzene	106-46-7	10	91
Dichlorodifluoromethane	75-71-8	11	100
1,1-Dichloroethane	75-34-3	9.8	89
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	100
1,2-Dichloroethene (cis)	156-59-2	10	91
1,2-Dichloroethene (trans)	156-60-5	11	100
1,2-Dichloropropane	78-87-5	10	100
1,3-Dichloropropene (cis)	10061-01-5	11	100
1,3-Dichloropropene (trans)	10061-02-6	11	110
1,2-Dichlorotetrafluoroethane	76-14-2	8.8	80
1,4-Dioxane	123-91-1	11	92

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4903LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/11/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05047-03 [AA4909]	12/11/2023 14:18
E23-05047-04 [AA4910]	12/11/2023 14:50
E23-05047-06 [AA4914]	12/11/2023 16:52
E23-05047-06 [AA4915]	12/11/2023 17:43
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Ethylbenzene	100-41-4	11	110
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	10	88
n-Hexane	110-54-3	10	100
Methylene chloride	75-09-2	9.6	87
Methyl ethyl ketone	78-93-3	11	93
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	11	100
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	11	100
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	10	100
1,1,2-Trichloroethane	79-00-5	10	91
Trichloroethene	79-01-6	9.1	91
Trichlorofluoromethane	75-69-4	11	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.4	94
1,2,4-Trimethylbenzene	95-63-6	11	100
1,3,5-Trimethylbenzene	108-67-8	11	100
2,2,4-Trimethylpentane	540-84-1	10	100
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	11	110
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	10	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**50**		**54**		4.0	**-7.69%**
Allyl Chloride	107-05-1	4.0	U	4.0	U	4.0	0.00%
Benzene	71-43-2	2.0	U	2.0	U	2.0	0.00%
Bromodichloromethane	75-27-4	4.0	U	4.0	U	4.0	0.00%
Bromoform	75-25-2	4.0	U	4.0	U	4.0	0.00%
Bromomethane	74-83-9	4.0	U	4.0	U	4.0	0.00%
1,3-Butadiene	106-99-0	4.0	U	4.0	U	4.0	0.00%
Chlorobenzene	108-90-7	4.0	U	4.0	U	4.0	0.00%
Chloroethane	75-00-3	4.0	U	4.0	U	4.0	0.00%
Chloroform	67-66-3	4.0	U	4.0	U	4.0	0.00%
Chloromethane	74-87-3	4.0	U	4.0	U	4.0	0.00%
Carbon disulfide	75-15-0	**10.0**		**11**		4.0	**-9.52%**
Carbon tetrachloride	56-23-5	2.0	U	2.0	U	2.0	0.00%
2-Chlorotoluene	95-49-8	4.0	U	4.0	U	4.0	0.00%
Cyclohexane	110-82-7	4.0	U	4.0	U	4.0	0.00%
Dibromochloromethane	124-48-1	4.0	U	4.0	U	4.0	0.00%
1,2-Dibromoethane	106-93-4	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorobenzene	95-50-1	4.0	U	4.0	U	4.0	0.00%
1,3-Dichlorobenzene	541-73-1	4.0	U	4.0	U	4.0	0.00%
1,4-Dichlorobenzene	106-46-7	4.0	U	4.0	U	4.0	0.00%
Dichlorodifluoromethane	75-71-8	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethane	75-34-3	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethane	107-06-2	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethene	75-35-4	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (cis)	156-59-2	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (trans)	156-60-5	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloropropane	78-87-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (cis)	10061-01-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (trans)	10061-02-6	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	4.0	U	4.0	U	4.0	0.00%
Ethylbenzene	100-41-4	2.0	U	2.0	U	2.0	0.00%
4-Ethyltoluene	622-96-8	4.0	U	4.0	U	4.0	0.00%
n-Heptane	142-82-5	4.0	U	4.0	U	4.0	0.00%
1,3-Hexachlorobutadiene	87-68-3	4.0	U	4.0	U	4.0	0.00%
n-Hexane	110-54-3	4.0	U	4.0	U	4.0	0.00%
Methylene chloride	75-09-2	4.0	U	4.0	U	4.0	0.00%
Methyl ethyl ketone	78-93-3	**8.1**		**10**		4.0	**-20.99%**
Methyl isobutyl ketone	108-10-1	4.0	U	4.0	U	4.0	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	4.0	U	4.0	U	4.0	0.00%
Styrene	100-42-5	4.0	U	4.0	U	4.0	0.00%
Tert-butyl alcohol	75-65-0	4.0	U	4.0	U	4.0	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	4.0	U	4.0	U	4.0	0.00%
Tetrachloroethene	127-18-4	4.0	U	4.0	U	4.0	0.00%
Toluene	108-88-3	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trichlorobenzene	120-82-1	4.0	U	4.0	U	4.0	0.00%
1,1,1-Trichloroethane	71-55-6	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloroethane	79-00-5	4.0	U	4.0	U	4.0	0.00%
Trichloroethene	79-01-6	2.0	U	2.0	U	2.0	0.00%
Trichlorofluoromethane	75-69-4	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trimethylbenzene	95-63-6	4.0	U	4.0	U	4.0	0.00%
1,3,5-Trimethylbenzene	108-67-8	4.0	U	4.0	U	4.0	0.00%
2,2,4-Trimethylpentane	540-84-1	4.0	U	4.0	U	4.0	0.00%
Vinyl bromide	593-60-2	4.0	U	4.0	U	4.0	0.00%
Vinyl chloride	75-01-4	2.0	U	2.0	U	2.0	0.00%
Xylenes (m&p)	179601-23-1	4.0	U	**4.2**		4.0	**NC**
Xylenes (o)	95-47-6	4.0	U	4.0	U	4.0	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/1/23
SDG Number:	E23-04828	Date Analyzed:	11/3/23,11/3/23
IAL Sample ID:	E23-04828-06	Lab Data File#:	AA4537,AA4538
Matrix:	Air	Dilution Factor:	1
Summa ID:	2883	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04828-06 Concentration Reported ppbv	Q	Sample Dup E23-04828-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**16**		**16**		0.40	**0.00%**
Allyl Chloride	107-05-1	0.40	U	0.40	U	0.40	0.00%
Benzene	71-43-2	**0.31**		**0.30**		0.20	**3.28%**
Bromodichloromethane	75-27-4	0.40	U	0.40	U	0.40	0.00%
Bromoform	75-25-2	0.40	U	0.40	U	0.40	0.00%
Bromomethane	74-83-9	0.40	U	0.40	U	0.40	0.00%
1,3-Butadiene	106-99-0	0.40	U	0.40	U	0.40	0.00%
Chlorobenzene	108-90-7	0.40	U	0.40	U	0.40	0.00%
Chloroethane	75-00-3	0.40	U	0.40	U	0.40	0.00%
Chloroform	67-66-3	0.40	U	0.40	U	0.40	0.00%
Chloromethane	74-87-3	0.40	U	0.40	U	0.40	0.00%
Carbon disulfide	75-15-0	0.40	U	0.40	U	0.40	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.40	U	0.40	U	0.40	0.00%
Cyclohexane	110-82-7	0.40	U	0.40	U	0.40	0.00%
Dibromochloromethane	124-48-1	0.40	U	0.40	U	0.40	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.40	U	0.40	U	0.40	0.00%
1,3-Dichlorobenzene	541-73-1	0.40	U	0.40	U	0.40	0.00%
1,4-Dichlorobenzene	106-46-7	0.40	U	0.40	U	0.40	0.00%
Dichlorodifluoromethane	75-71-8	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethane	75-34-3	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethane	107-06-2	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethene	75-35-4	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.40	U	0.40	U	0.40	0.00%
Ethylbenzene	100-41-4	0.20	U	0.20	U	0.20	0.00%
4-Ethyltoluene	622-96-8	0.40	U	0.40	U	0.40	0.00%
n-Heptane	142-82-5	0.40	U	0.40	U	0.40	0.00%
1,3-Hexachlorobutadiene	87-68-3	0.40	U	0.40	U	0.40	0.00%
n-Hexane	110-54-3	0.40	U	0.40	U	0.40	0.00%
Methylene chloride	75-09-2	0.40	U	0.40	U	0.40	0.00%
Methyl ethyl ketone	78-93-3	0.40	U	0.40	U	0.40	0.00%
Methyl isobutyl ketone	108-10-1	0.40	U	0.40	U	0.40	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/1/23
SDG Number:	E23-04828	Date Analyzed:	11/3/23,11/3/23
IAL Sample ID:	E23-04828-06	Lab Data File#:	AA4537,AA4538
Matrix:	Air	Dilution Factor:	1
Summa ID:	2883	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04828-06 Concentration Reported ppbv	Q	Sample Dup E23-04828-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	0.40	U	0.40	U	0.40	0.00%
Styrene	100-42-5	0.40	U	0.40	U	0.40	0.00%
Tert-butyl alcohol	75-65-0	0.40	U	0.40	U	0.40	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.40	U	0.40	U	0.40	0.00%
Tetrachloroethene	127-18-4	0.40	U	0.40	U	0.40	0.00%
Toluene	108-88-3	**0.47**		**0.43**		0.40	**8.89%**
1,2,4-Trichlorobenzene	120-82-1	0.40	U	0.40	U	0.40	0.00%
1,1,1-Trichloroethane	71-55-6	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloroethane	79-00-5	0.40	U	0.40	U	0.40	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	**1.8**	X	**1.3**	X	0.40	**32.26%**
1,2,4-Trimethylbenzene	95-63-6	0.40	U	0.40	U	0.40	0.00%
1,3,5-Trimethylbenzene	108-67-8	0.40	U	0.40	U	0.40	0.00%
2,2,4-Trimethylpentane	540-84-1	0.40	U	0.40	U	0.40	0.00%
Vinyl bromide	593-60-2	0.40	U	0.40	U	0.40	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	0.40	U	0.40	U	0.40	0.00%
Xylenes (o)	95-47-6	0.40	U	0.40	U	0.40	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
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INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/17/23
SDG Number:	E23-05061	Date Analyzed:	12/7/23,12/7/23
IAL Sample ID:	E23-05061-03	Lab Data File#:	AA4869,AA4870
Matrix:	Air	Dilution Factor:	1
Summa ID:	3045a	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05061-03 Concentration Reported ppbv	Q	Sample Dup E23-05061-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**11**		**11**		0.20	**0.00%**
Allyl Chloride	107-05-1	0.20	U	0.20	U	0.20	0.00%
Benzene	71-43-2	**2.6**		**2.3**		0.20	**12.24%**
Bromodichloromethane	75-27-4	0.20	U	0.20	U	0.20	0.00%
Bromoform	75-25-2	0.20	U	0.20	U	0.20	0.00%
Bromomethane	74-83-9	0.20	U	0.20	U	0.20	0.00%
1,3-Butadiene	106-99-0	0.20	U	0.20	U	0.20	0.00%
Chlorobenzene	108-90-7	0.20	U	0.20	U	0.20	0.00%
Chloroethane	75-00-3	0.20	U	0.20	U	0.20	0.00%
Chloroform	67-66-3	0.20	U	0.20	U	0.20	0.00%
Chloromethane	74-87-3	0.20	U	0.20	U	0.20	0.00%
Carbon disulfide	75-15-0	0.20	U	0.20	U	0.20	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.20	U	**0.27**		0.20	**NC**
Cyclohexane	110-82-7	**3.9**		**3.4**		0.20	**13.70%**
Dibromochloromethane	124-48-1	0.20	U	0.20	U	0.20	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	U	0.20	0.00%
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	U	0.20	0.00%
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	U	0.20	0.00%
Dichlorodifluoromethane	75-71-8	0.20	U	0.20	U	0.20	0.00%
1,1-Dichloroethane	75-34-3	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethane	107-06-2	0.20	U	0.20	U	0.20	0.00%
1,1-Dichloroethene	75-35-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	U	0.20	0.00%
1,4-Dioxane	123-91-1	0.20	U	0.20	U	0.20	0.00%
Ethanol	64-17-5	**10**		0.20	U	0.20	**NC**
Ethylbenzene	100-41-4	**1.9**		**1.6**		0.20	**17.14%**
4-Ethyltoluene	622-96-8	**1.9**	X	**1.4**	X	0.20	**30.30%**
n-Heptane	142-82-5	**3.7**		**3.4**		0.20	**8.45%**
1,3-Hexachlorobutadiene	87-68-3	0.20	U	0.20	U	0.20	0.00%
n-Hexane	110-54-3	**4.4**		**3.8**		0.20	**14.63%**
Isopropanol	67-63-0	**2.7**		0.20	U	0.20	**NC**

Qualifiers:
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INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/17/23
SDG Number:	E23-05061	Date Analyzed:	12/7/23,12/7/23
IAL Sample ID:	E23-05061-03	Lab Data File#:	AA4869,AA4870
Matrix:	Air	Dilution Factor:	1
Summa ID:	3045a	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05061-03 Concentration Reported ppbv	Q	Sample Dup E23-05061-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methylene chloride	75-09-2	**2.8**		0.20	U	0.20	**NC**
Methyl ethyl ketone	78-93-3	**0.85**		**0.83**		0.20	**2.38%**
Methyl isobutyl ketone	108-10-1	0.20	U	**0.24**		0.20	**NC**
Methyl methacrylate	80-62-6	0.20	U	**3.4**		0.20	**NC**
Methyl tert-butyl ether	1634-04-4	0.20	U	0.20	U	0.20	0.00%
Styrene	100-42-5	0.20	U	0.20	U	0.20	0.00%
Tert-butyl alcohol	75-65-0	0.20	U	0.20	U	0.20	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	U	0.20	0.00%
Tetrachloroethene	127-18-4	0.20	U	0.20	U	0.20	0.00%
Tetrahydrofuran	109-99-9	**0.96**		**0.90**		0.20	**6.45%**
Toluene	108-88-3	**7.1**		**7.1**		0.20	**0.00%**
1,2,4-Trichlorobenzene	120-82-1	0.20	U	0.20	U	0.20	0.00%
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	U	0.20	0.00%
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	U	0.20	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	**0.33**		**0.33**		0.20	**0.00%**
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	U	0.20	U	0.20	0.00%
1,2,4-Trimethylbenzene	95-63-6	**1.9**		**1.5**		0.20	**23.53%**
1,3,5-Trimethylbenzene	108-67-8	**0.53**		**0.45**		0.20	**16.33%**
2,2,4-Trimethylpentane	540-84-1	**6.9**		**7.0**		0.20	**-1.44%**
Vinyl bromide	593-60-2	0.20	U	0.20	U	0.20	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	**7.0**		**5.9**		0.40	**17.05%**
Xylenes (o)	95-47-6	**2.3**		**2.0**		0.20	**13.95%**

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INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SDG Number:	E23-05079	Date Received:	11/20/23
IAL Sample ID:	E23-05079-03	Date Analyzed:	12/12/23,12/12/23
Matrix:	Air	Lab Data File#:	AA4929,AA4930
Summa ID:	3830	Dilution Factor:	1
		Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**6.1**		**5.9**		0.40	**3.33%**
Allyl Chloride	107-05-1	0.40	U	0.40	U	0.40	0.00%
Benzene	71-43-2	**0.31**		**0.32**		0.20	**-3.17%**
Bromodichloromethane	75-27-4	0.40	U	0.40	U	0.40	0.00%
Bromoform	75-25-2	0.40	U	0.40	U	0.40	0.00%
Bromomethane	74-83-9	0.40	U	0.40	U	0.40	0.00%
1,3-Butadiene	106-99-0	0.40	U	0.40	U	0.40	0.00%
Chlorobenzene	108-90-7	0.40	U	0.40	U	0.40	0.00%
Chloroethane	75-00-3	0.40	U	0.40	U	0.40	0.00%
Chloroform	67-66-3	0.40	U	0.40	U	0.40	0.00%
Chloromethane	74-87-3	0.40	U	0.40	U	0.40	0.00%
Carbon disulfide	75-15-0	0.40	U	0.40	U	0.40	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.40	U	0.40	U	0.40	0.00%
Cyclohexane	110-82-7	0.40	U	0.40	U	0.40	0.00%
Dibromochloromethane	124-48-1	0.40	U	0.40	U	0.40	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.40	U	0.40	U	0.40	0.00%
1,3-Dichlorobenzene	541-73-1	0.40	U	0.40	U	0.40	0.00%
1,4-Dichlorobenzene	106-46-7	0.40	U	0.40	U	0.40	0.00%
Dichlorodifluoromethane	75-71-8	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethane	75-34-3	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethane	107-06-2	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethene	75-35-4	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.40	U	0.40	U	0.40	0.00%
Ethylbenzene	100-41-4	0.20	U	0.20	U	0.20	0.00%
4-Ethyltoluene	622-96-8	0.40	U	0.40	U	0.40	0.00%
n-Heptane	142-82-5	0.40	U	0.40	U	0.40	0.00%
1,3-Hexachlorobutadiene	87-68-3	0.40	U	0.40	U	0.40	0.00%
n-Hexane	110-54-3	0.40	U	0.40	U	0.40	0.00%
Methylene chloride	75-09-2	**3.5**		**3.4**		0.40	**2.90%**
Methyl ethyl ketone	78-93-3	0.40	U	0.40	U	0.40	0.00%
Methyl isobutyl ketone	108-10-1	0.40	U	0.40	U	0.40	0.00%

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INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/20/23
SDG Number:	E23-05079	Date Analyzed:	12/12/23,12/12/23
IAL Sample ID:	E23-05079-03	Lab Data File#:	AA4929,AA4930
Matrix:	Air	Dilution Factor:	1
Summa ID:	3830	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	0.40	U	0.40	U	0.40	0.00%
Styrene	100-42-5	0.40	U	0.40	U	0.40	0.00%
Tert-butyl alcohol	75-65-0	0.40	U	0.40	U	0.40	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.40	U	0.40	U	0.40	0.00%
Tetrachloroethene	127-18-4	0.40	U	0.40	U	0.40	0.00%
Toluene	108-88-3	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trichlorobenzene	120-82-1	0.40	U	0.40	U	0.40	0.00%
1,1,1-Trichloroethane	71-55-6	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloroethane	79-00-5	0.40	U	0.40	U	0.40	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trimethylbenzene	95-63-6	0.40	U	0.40	U	0.40	0.00%
1,3,5-Trimethylbenzene	108-67-8	0.40	U	0.40	U	0.40	0.00%
2,2,4-Trimethylpentane	540-84-1	0.40	U	0.40	U	0.40	0.00%
Vinyl bromide	593-60-2	0.40	U	0.40	U	0.40	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	0.40	U	0.40	U	0.40	0.00%
Xylenes (o)	95-47-6	0.40	U	0.40	U	0.40	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

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Initial Calibration Curve Internal Standard Area and Retention Time Summary

Instrument: AA **ICAL Date:** 8/15/2023

	BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
	Area #		RT		Area #		RT		Area #		RT	
AVERAGE OF CALIBRATION STANDARDS	520465		4.395		2280663		5.455		2627605		8.318	
UPPER LIMIT	728651		4.725		3192928		5.785		3678646		8.648	
LOWER LIMIT	312279		4.065		1368398		5.125		1576563		7.988	
Lab ID	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
40 PPBV STD AA 3406 STD01	487271	-6.38	4.406	0.01	2425798	6.36	5.457	0.00	2732166	3.98	8.319	0.00
20 PPBV STD AA 3405 STD02	499473	-4.03	4.399	0.00	2278768	-0.08	5.457	0.00	2812211	7.03	8.319	0.00
10 PPBV STD AA 3404 STD03	530723	1.97	4.396	0.00	2268530	-0.53	5.457	0.00	2737620	4.19	8.319	0.00
2 PPBV STD AA 3403 STD04	541075	3.96	4.393	0.00	2325427	1.96	5.454	0.00	2787489	6.08	8.319	0.00
0.2 PPBV STD AA 3402 STD05	543782	4.48	4.380	-0.01	2104790	-7.71	5.448	0.01	2068537	-21.28	8.316	0.00
ICVSS AA 3407 ICVSS	614925	18.15	4.396	0.00	2660514	16.66	5.454	0.00	3151139	19.92	8.319	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.

* Values outsite QC limits.

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA4102DCVS **Date Analyzed:** 10/2/2023

Instrument: AA **ICAL Date:** 8/15/2023

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
			Area #		RT		Area #		RT		Area #		RT	
	CALIBRATION STANDARD		421448		4.386		1774693		5.447		1689020		8.315	
	UPPER LIMIT		590027		4.72		2484570		5.78		2364628		8.65	
	LOWER LIMIT		252869		4.06		1064816		5.12		1013412		7.99	
Lab ID		DF	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Method Blank	AA4104BLK	1.0	331240	-21.40	4.377	-0.01	1219678	-31.27	5.444	0.00	1233959	-26.94	8.316	0.00
Reporting Limit Laboratory Control Standard	AA4105RLLCS	1.0	418465	-0.71	4.383	0.00	1618964	-8.77	5.448	0.00	1530070	-9.41	8.316	0.00
3830	AA4106	1.0	388357	-7.85	4.380	-0.01	1396568	-21.31	5.447	0.00	1337662	-20.80	8.316	0.00
5087	AA4107	1.0	509711	20.94	4.393	0.01	2144733	20.85	5.454	0.01	2201740	30.36	8.319	0.00
2037	AA4108	1.0	333630	-20.84	4.383	0.00	1375928	-22.47	5.447	0.00	1301571	-22.94	8.316	0.00
Closing Calibration	AA4125CCCVS	1.0	369891	-12.23	4.400	0.01	1759193	-0.87	5.457	0.01	2197381	30.10	8.316	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.
* Values outsite QC limits.

Initial Calibration Curve Internal Standard Area and Retention Time Summary

Instrument: AA **ICAL Date:** 10/10/2023

	BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
	Area #		RT		Area #		RT		Area #		RT	
AVERAGE OF CALIBRATION STANDARDS	343159		4.390		1499624		5.451		1637040		8.316	
UPPER LIMIT	480423		4.720		2099474		5.781		2291856		8.646	
LOWER LIMIT	205896		4.060		899774		5.121		982224		7.986	
Lab ID	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
40 PPBV STD AA 4136 STD01	356266	3.82	4.400	0.01	1769398	17.99	5.458	-0.01	1970985	20.40	8.319	0.00
20 PPBV STD AA 4135 STD02	363381	5.89	4.397	0.01	1661895	10.82	5.455	0.00	1933627	18.12	8.316	0.00
10 PPBV STD AA 4134 STD03	393970	14.81	4.394	0.00	1695876	13.09	5.452	0.00	1964329	19.99	8.316	0.00
2 PPBV STD AA 4133 STD04	266219	-22.42	4.378	-0.01	1004403	-33.02	5.445	0.01	1028709	-37.16	8.313	0.00
0.2 PPBV STD AA 4132 STD05	335961	-2.10	4.380	-0.01	1366548	-8.87	5.444	0.01	1287551	-21.35	8.316	0.00
ICVSS AA 4137 ICVSS	450439	31.26	4.394	0.00	1936760	29.15	5.451	0.00	2279414	39.24	8.316	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.

* Values outsite QC limits.

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA4528DCVS **Date Analyzed:** 11/3/2023

Instrument: AA **ICAL Date:** 10/10/2023

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
			Area #		RT		Area #		RT		Area #		RT	
	CALIBRATION STANDARD		402106		4.393		1842775		5.454		2190337		8.316	
	UPPER LIMIT		562948		4.72		2579885		5.78		3066472		8.65	
	LOWER LIMIT		241264		4.06		1105665		5.12		1314202		7.99	
Lab ID		DF	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Method Blank	AA4530BLK	1.0	489033	21.62	4.391	0.00	2096750	13.78	5.448	-0.01	2579796	17.78	8.316	0.00
Reporting Limit Laboratory Control Standard	AA4531RLLCS	1.0	350931	-12.73	4.381	-0.01	1369799	-25.67	5.442	-0.01	1343426	-38.67	8.316	0.00
2902	AA4532	1.0	411812	2.41	4.377	-0.02	1437377	-22.00	5.445	-0.01	1386432	-36.70	8.313	0.00
Closing Calibration	AA4549CCCVS	1.0	430912	7.16	4.393	0.00	2004860	8.80	5.454	0.00	2387866	9.02	8.316	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.
* Values outsite QC limits.

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA4882DCVS **Date Analyzed:** 12/8/2023

Instrument: AA **ICAL Date:** 10/10/2023

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
			Area #		RT		Area #		RT		Area #		RT	
	CALIBRATION STANDARD		497428		4.390		1995098		5.451		2342927		8.315	
	UPPER LIMIT		696399		4.72		2793137		5.78		3280098		8.65	
	LOWER LIMIT		298457		4.06		1197059		5.12		1405756		7.99	
Lab ID		DF	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Method Blank	AA4884BLK	1.0	407142	-18.15	4.377	-0.01	1506485	-24.49	5.444	-0.01	1527551	-34.80	8.316	0.00
E23-05047-01	AA4886	1.0	441127	-11.32	4.406	0.02	2103111	5.41	5.454	0.00	1883278	-19.62	8.322	0.01
E23-05047-02	AA4887	1.0	463696	-6.78	4.409	0.02	2102202	5.37	5.457	0.01	1902313	-18.81	8.319	0.00
E23-05047-03	AA4888	1.0	395958	-20.40	4.415	0.03	2148109	7.67	5.457	0.01	1907941	-18.57	8.319	0.00
E23-05047-04	AA4889	1.0	366574	-26.31	4.409	0.02	1819787	-8.79	5.451	0.00	1669922	-28.72	8.322	0.01
E23-05047-05	AA4890	1.0	419490	-15.67	4.422	0.03	2159308	8.23	5.457	0.01	1909354	-18.51	8.322	0.01

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.
* Values outsite QC limits.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA4902DCVS **Date Analyzed:** 12/11/2023

Instrument: AA **ICAL Date:** 10/10/2023

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
			Area #		RT		Area #		RT		Area #		RT	
	CALIBRATION STANDARD		596109		4.393		2484518		5.454		2791354		8.319	
	UPPER LIMIT		834553		4.72		3478325		5.78		3907896		8.65	
	LOWER LIMIT		357665		4.06		1490711		5.12		1674812		7.99	
Lab ID		DF	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Method Blank	AA4904BLK	1.0	518939	-12.95	4.377	-0.02	1920464	-22.70	5.444	-0.01	1920350	-31.20	8.315	0.00
Reporting Limit Laboratory Control Standard	AA4905RLLCS	1.0	566007	-5.05	4.380	-0.01	2290490	-7.81	5.447	-0.01	2210970	-20.79	8.315	0.00
1458	AA4906	1.0	809785	35.85	4.393	0.00	3431480	38.11	5.451	0.00	3836872	37.46	8.316	0.00
1588	AA4907	1.0	706799	18.57	4.393	0.00	3079067	23.93	5.454	0.00	3708162	32.84	8.316	0.00
3012	AA4908	1.0	589784	-1.06	4.380	-0.01	2099848	-15.48	5.444	-0.01	2006025	-28.13	8.316	0.00
E23-05047-03	AA4909	10.0	496847	-16.65	4.386	-0.01	2142143	-13.78	5.451	0.00	1996652	-28.47	8.316	0.00
E23-05047-04	AA4910	5.0	523935	-12.11	4.406	0.01	2718271	9.41	5.454	0.00	3097691	10.97	8.319	0.00
E23-05047-06	AA4914	5.0	467822	-21.52	4.396	0.00	2227257	-10.35	5.447	-0.01	2074010	-25.70	8.316	0.00
E23-05047-06	AA4915	1.0	461164	-22.64	4.419	0.03	2637042	6.14	5.457	0.00	2277752	-18.40	8.319	0.00
Closing Calibration	AA4931CCCVS	1.0	737975	23.80	4.393	0.00	3126526	25.84	5.454	0.00	3543265	26.94	8.316	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.
* Values outsite QC limits.

Section VI: Sample Data Summary

Certificate of Analysis

Summary of Results

**Quantitation Reports, Chromatograms,
and Peak Integration Reports**

CERTIFICATE OF ANALYSIS

ANALYTICAL DATA PACKAGE FOR THE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY NEW YORK 12233

Integrated Analytical Laboratories, LLC — **Randolph, NJ 07869**
Project#: HK2661 — **NY ELAP Certification#: 11402**
SDG #: E23-05047 — **NJDEP (Primary AB) Certification#: 14751**
Date of first sample receipt: 11/16/2023 — **Date of last sample receipt: 11/16/2023**

Client: HK Engineering+Geology, D.P.C.
1600 US Route 22 East
Union, NJ 07083
Attention: Attention: Ryan Powell

Project/Site: HK2661/NY

Analysis conducted at: Integrated Analytical Laboratories, LLC
273 Franklin Road
Randolph, NJ 07869
Contact: Michael H. Leftin, Ph.D.

Sample(s):
E23-05047-01
E23-05047-02
E23-05047-03
E23-05047-04
E23-05047-05
E23-05047-06

Samples for this analysis were received in good condition with a chain of custody.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Once analysis has been performed on canisters that meets regulatory criteria, samples are recycled for future use, unless other provisions have been made by the client.

Michael H. Leftin, Ph.D.
Laboratory Director

Date: December 20, 2023

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05047-01	Instrument ID:	AA
Client ID:	SV1	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/15/2023 10:17	Injection Volmue:	500ml
Date Received:	11/16/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 14:03	% Moisture:	NA
Data File:	AA4886	Dilution Factor:	1
Summa ID:	2902	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Acetone	67-64-1		11	27	0.20	0.48
Benzene	71-43-2		1.2	3.9	0.20	0.64
Bromodichloromethane	75-27-4		ND	ND	0.20	1.3
Bromoform	75-25-2		ND	ND	0.20	2.1
Bromomethane	74-83-9		ND	ND	0.20	0.78
1,3-Butadiene	106-99-0		ND	ND	0.20	0.44
Chlorobenzene	108-90-7		ND	ND	0.20	0.92
Chloroethane	75-00-3		ND	ND	0.20	0.53
Chloroform	67-66-3		ND	ND	0.20	0.98
Chloromethane	74-87-3		ND	ND	0.20	0.41
Carbon disulfide	75-15-0		1.4	4.4	0.20	0.62
Carbon tetrachloride	56-23-5		ND	ND	0.040	0.25
Cyclohexane	110-82-7		3.2	11	0.20	0.69
Dibromochloromethane	124-48-1		ND	ND	0.20	1.7
1,2-Dibromoethane	106-93-4		ND	ND	0.20	1.5
1,2-Dichlorobenzene	95-50-1		ND	ND	0.20	1.2
1,3-Dichlorobenzene	541-73-1		ND	ND	0.20	1.2
1,4-Dichlorobenzene	106-46-7		ND	ND	0.20	1.2
Dichlorodifluoromethane	75-71-8		ND	ND	0.20	0.99
1,1-Dichloroethane	75-34-3		ND	ND	0.20	0.81
1,2-Dichloroethane	107-06-2		ND	ND	0.20	0.81
1,1-Dichloroethene	75-35-4		ND	ND	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2		ND	ND	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5		ND	ND	0.20	0.79
1,2-Dichloropropane	78-87-5		ND	ND	0.20	0.92
1,3-Dichloropropene (cis)	10061-01-5		ND	ND	0.20	0.91
1,3-Dichloropropene (trans)	10061-02-6		ND	ND	0.20	0.91
1,2-Dichlorotetrafluoroethane	76-14-2		ND	ND	0.20	1.4
1,4-Dioxane	123-91-1		ND	ND	0.20	0.72
Ethylbenzene	100-41-4		14	63	0.20	0.87
n-Heptane	142-82-5		13	51	0.20	0.82
1,3-Hexachlorobutadiene	87-68-3		ND	ND	0.20	2.1
n-Hexane	110-54-3		25	87	0.20	0.70
Methylene chloride	75-09-2		ND	ND	0.20	0.69
Methyl ethyl ketone	78-93-3		ND	ND	0.20	0.59
Methyl isobutyl ketone	108-10-1		ND	ND	0.20	0.82
Methyl tert-butyl ether	1634-04-4		ND	ND	0.20	0.72
Styrene	100-42-5		ND	ND	0.20	0.85
Tert-butyl alcohol	75-65-0		1.6	4.8	0.20	0.61
1,1,2,2-Tetrachloroethane	79-34-5		ND	ND	0.20	1.4
Tetrachloroethene	127-18-4		1.7	11	0.20	1.4
Toluene	108-88-3		1.0	3.8	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1		ND	ND	0.20	1.5
1,1,1-Trichloroethane	71-55-6		ND	ND	0.20	1.1
1,1,2-Trichloroethane	79-00-5		ND	ND	0.20	1.1

Qualifiers:
D = Dilution required

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05047-01	Instrument ID:	AA
Client ID:	SV1	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/15/2023 10:17	Injection Volmue:	500ml
Date Received:	11/16/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 14:03	% Moisture:	NA
Data File:	AA4886	Dilution Factor:	1
Summa ID:	2902	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Trichloroethene	79-01-6		ND	ND	0.046	0.25
Trichlorofluoromethane	75-69-4		0.31	1.8	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		ND	ND	0.20	1.5
1,2,4-Trimethylbenzene	95-63-6		0.66	3.3	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8		0.22	1.1	0.20	0.98
2,2,4-Trimethylpentane	540-84-1		ND	ND	0.20	0.93
Vinyl bromide	593-60-2		ND	ND	0.20	0.87
Vinyl chloride	75-01-4		ND	ND	0.20	0.51
Xylenes (m&p)	179601-23-1		63	270	0.20	0.87
Xylenes (o)	95-47-6		11	46	0.20	0.87

Qualifiers:
D = Dilution required

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4886.D
Acq On : 8 Dec 2023 2:03 pm
Operator : jjw
Sample : E23-05047-01
Misc : 2902, 500cc
ALS Vial : 9 Sample Multiplier: 1

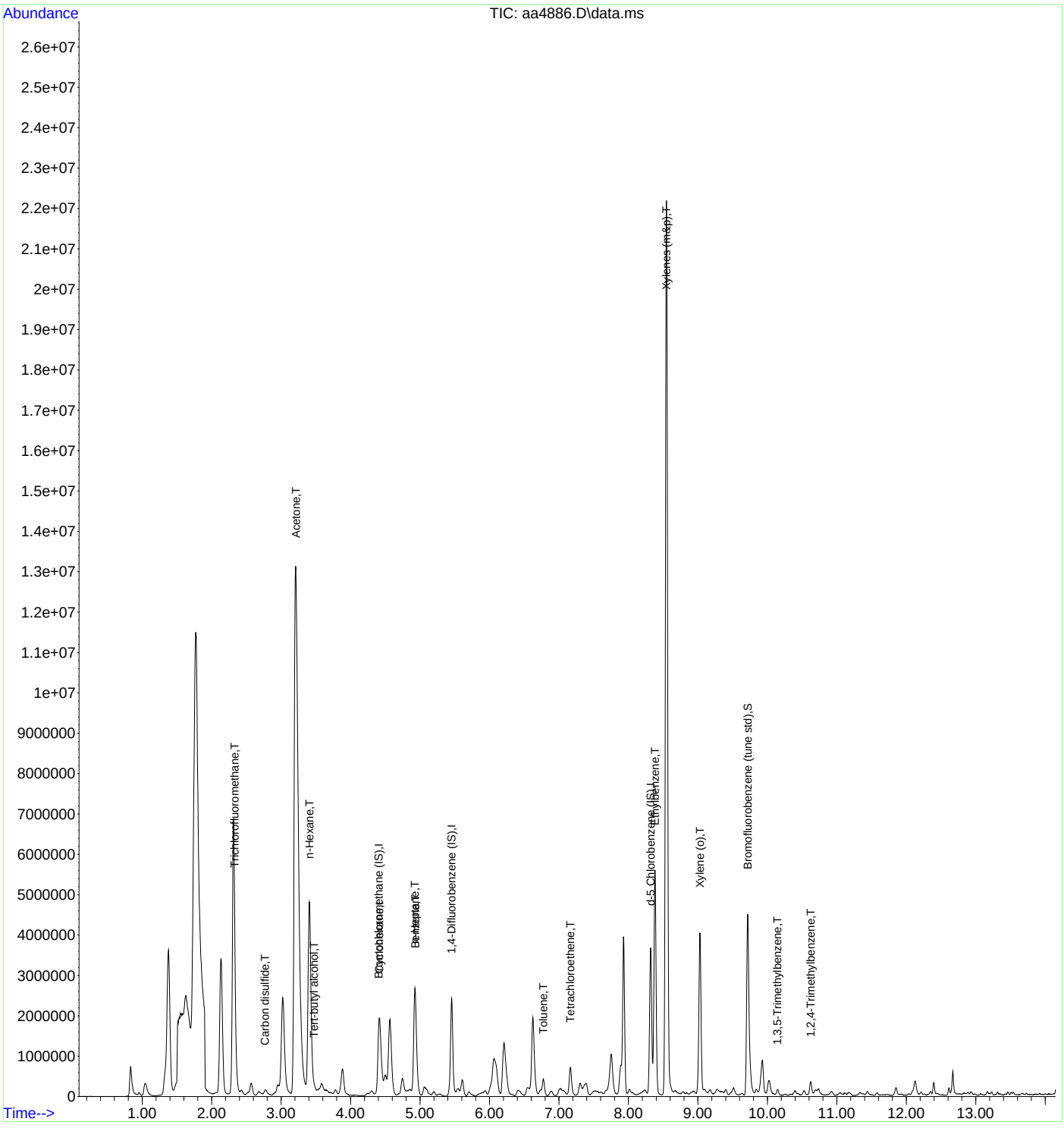
Quant Time: Dec 12 09:47:19 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

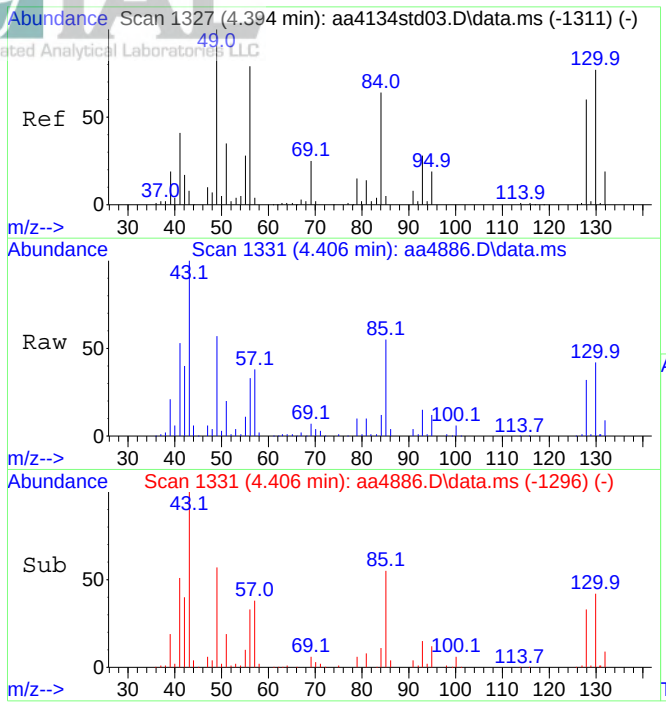
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.406	130	441127	10.00	ppbV	0.012
39) 1,4-Difluorobenzene (IS)	5.454	114	2103111	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.322	117	1883278	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	1811400	11.03	ppbV	0.000
Target Compounds						Qvalue
12) Trichlorofluoromethane	2.332	101	38820	0.31	ppbV	99
15) Carbon disulfide	2.769	76	189897	1.41	ppbV #	88
21) Acetone	3.216	43	745514	11.20	ppbV #	86
24) n-Hexane	3.409	57	3443294	24.76	ppbV	88
26) Tert-butyl alcohol	3.473	59	183234	1.59	ppbV	100
29) Cyclohexane	4.412	56	310226	3.19	ppbV #	42
36) n-Heptane	4.926	43	1529996	12.55	ppbV	100
37) Benzene	4.933	78	214812	1.23	ppbV #	69
47) Toluene	6.775	91	298006	1.01	ppbV	100
49) Tetrachloroethene	7.164	166	212038	1.66	ppbV	99
58) Ethylbenzene	8.383	91	5014173	14.45	ppbV	99
59) Xylenes (m&p)	8.547	91	16210948	63.04	ppbV	100
60) Xylene (o)	9.029	91	2946669	10.50	ppbV	98
69) 1,3,5-Trimethylbenzene	10.145	105	71080	0.22	ppbV	97
70) 1,2,4-Trimethylbenzene	10.624	105	216009	0.66	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4886.D
Acq On : 8 Dec 2023 2:03 pm
Operator : jjw
Sample : E23-05047-01
Misc : 2902, 500cc
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Dec 12 09:47:19 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

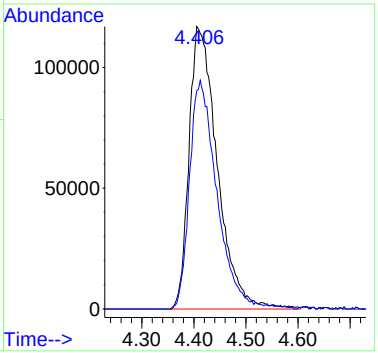


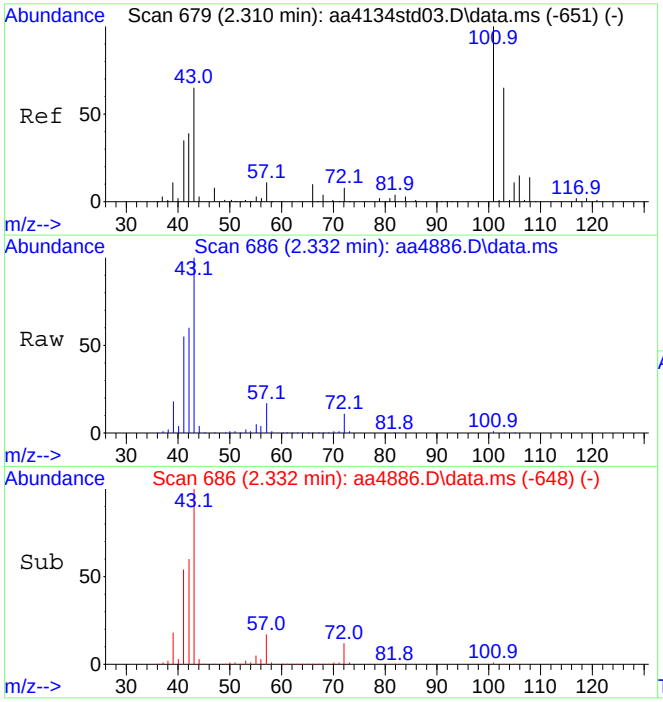


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.406 min Scan# 1331
Delta R.T. 0.012 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion:130 Resp: 441127

Ion	Ratio	Lower	Upper
130	100		
128	78.7	62.2	93.4

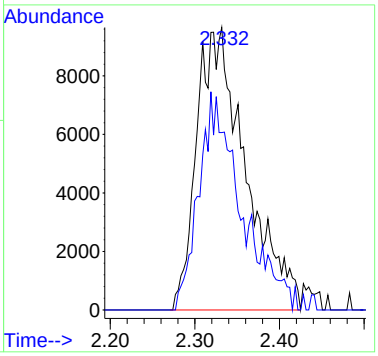


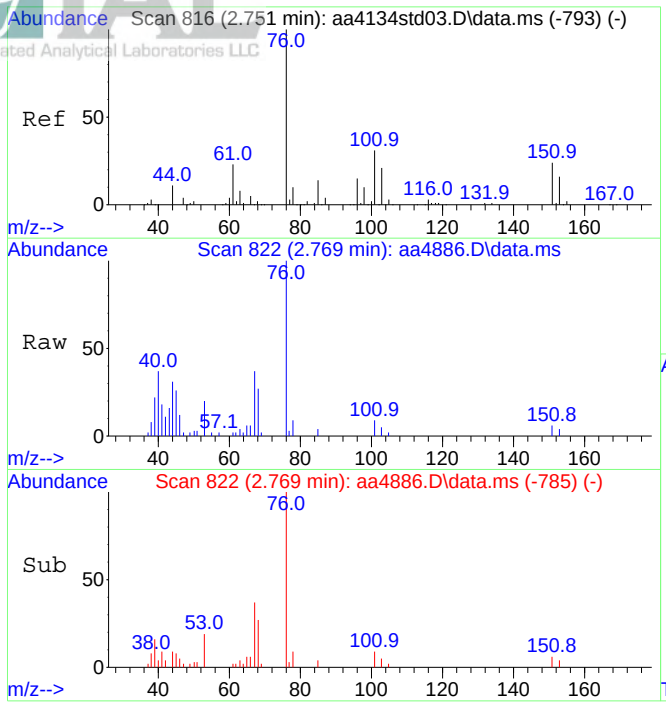


#12
Trichlorofluoromethane
Concen: 0.31 ppbV
RT: 2.332 min Scan# 686
Delta R.T. 0.021 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion:101 Resp: 38820

Ion	Ratio	Lower	Upper
101	100		
103	66.4	52.5	78.7

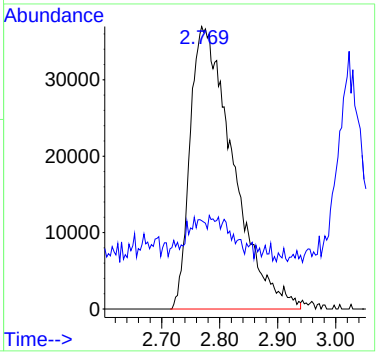


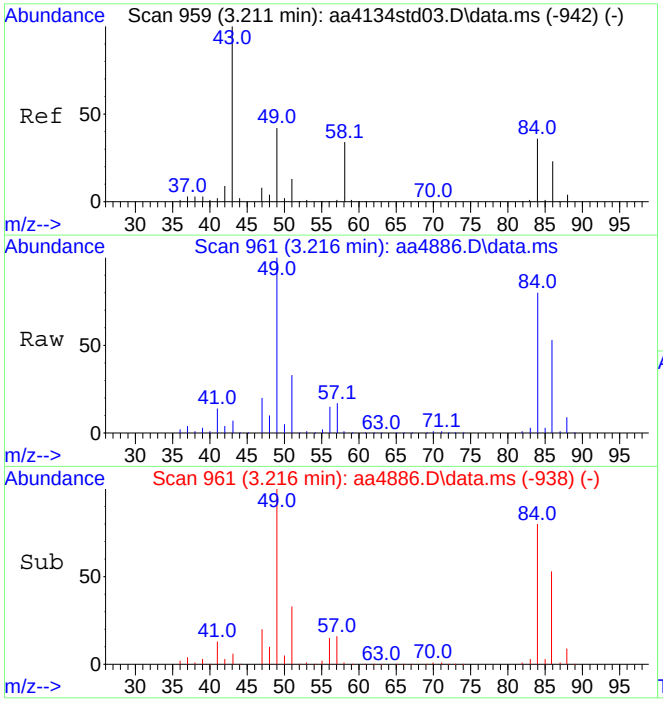


#15
Carbon disulfide
Concen: 1.41 ppbV
RT: 2.769 min Scan# 822
Delta R.T. 0.018 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion: 76 Resp: 189897

Ion	Ratio	Lower	Upper
76	100		
44	6.5	9.0	13.4#

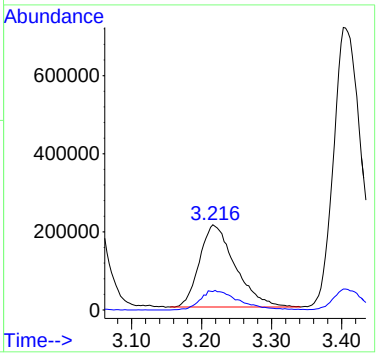


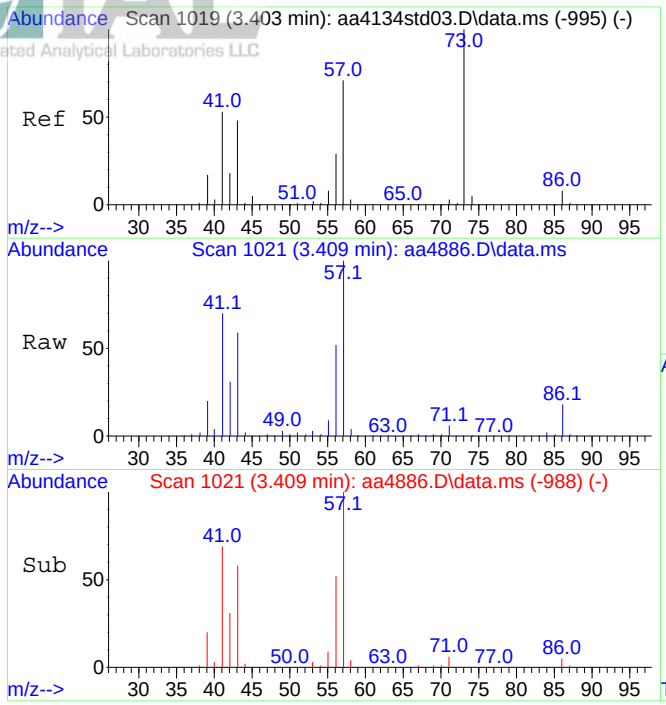


#21
Acetone
Concen: 11.20 ppbV
RT: 3.216 min Scan# 961
Delta R.T. 0.005 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion: 43 Resp: 745514

Ion	Ratio	Lower	Upper
43	100		
58	25.6	27.1	40.7#

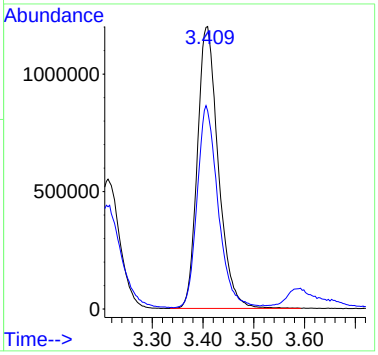


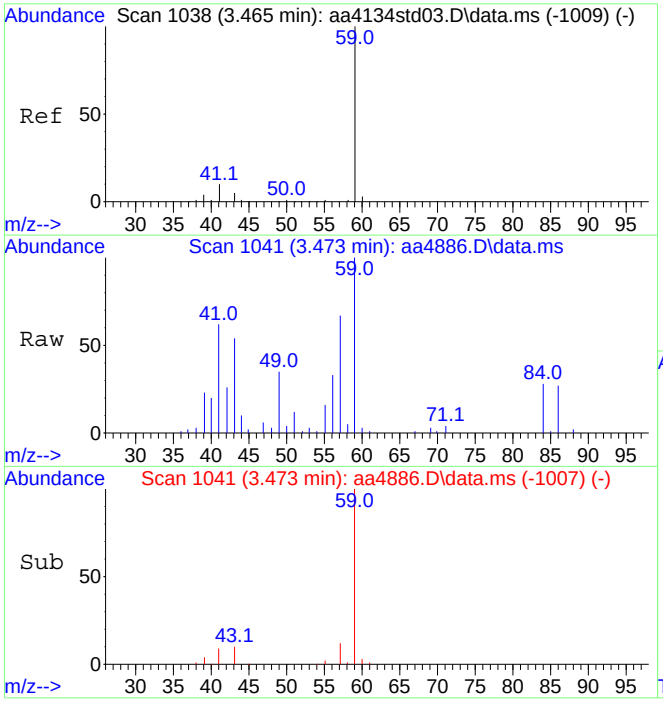


#24
n-Hexane
Concen: 24.76 ppbV
RT: 3.409 min Scan# 1021
Delta R.T. 0.005 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion: 57 Resp: 3443294

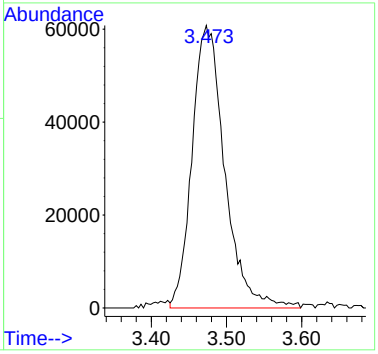
Ion	Ratio	Lower	Upper
57	100		
41	71.9	66.4	99.6

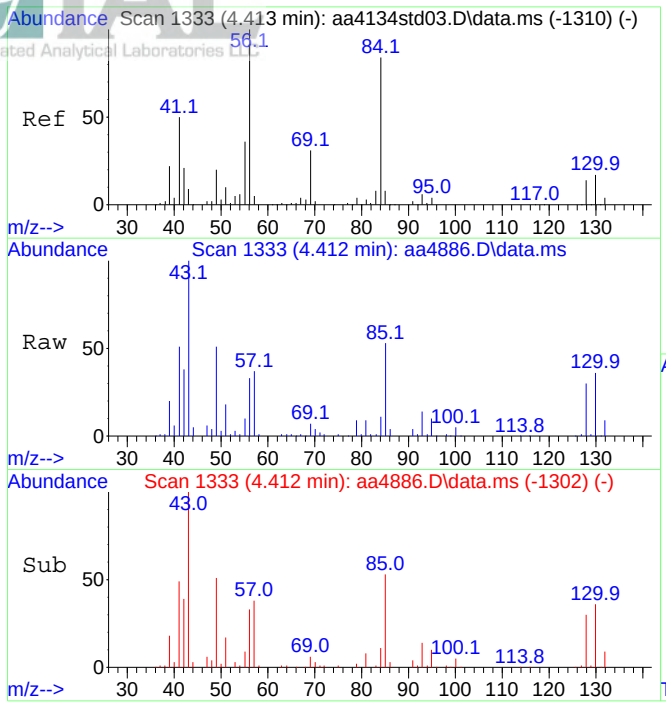




#26
Tert-butyl alcohol
Concen: 1.59 ppbV
RT: 3.473 min Scan# 1041
Delta R.T. 0.009 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion: 59 Resp: 183234

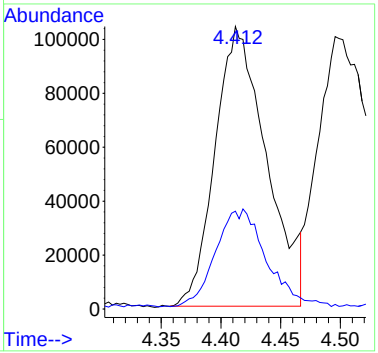


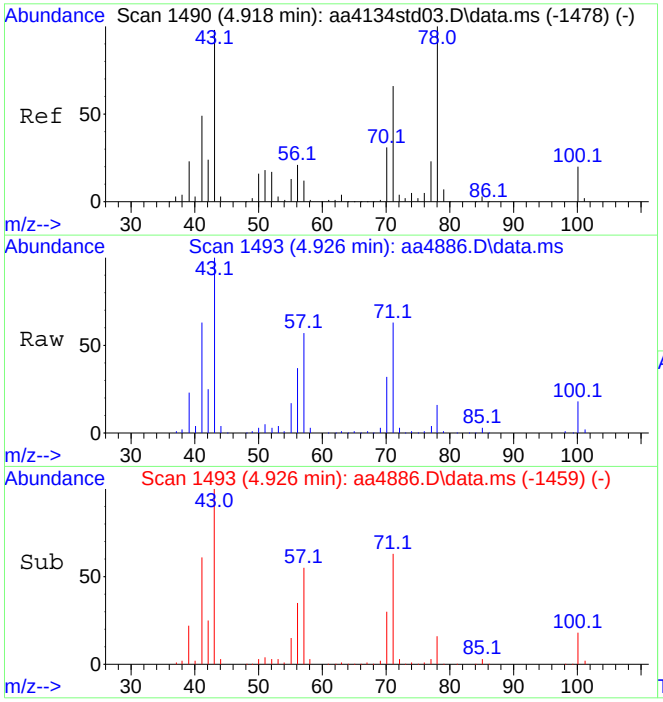


#29
Cyclohexane
Concen: 3.19 ppbV
RT: 4.412 min Scan# 1333
Delta R.T. -0.001 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion: 56 Resp: 310226

Ion	Ratio	Lower	Upper
56	100		
84	34.3	71.2	106.8#

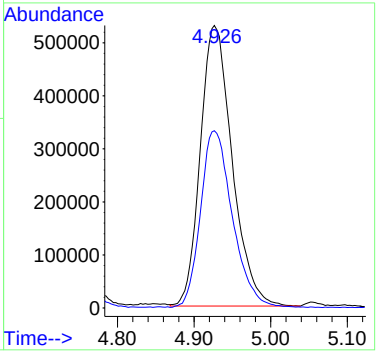


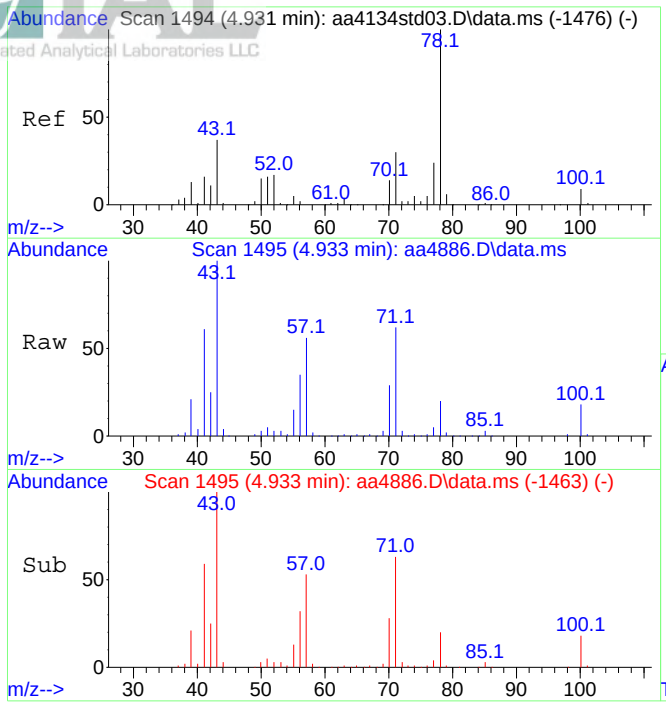


#36
n-Heptane
Concen: 12.55 ppbV
RT: 4.926 min Scan# 1493
Delta R.T. 0.009 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion: 43 Resp: 1529996

Ion	Ratio	Lower	Upper
43	100		
71	62.9	50.5	75.7

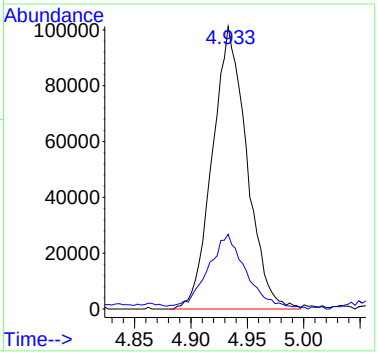


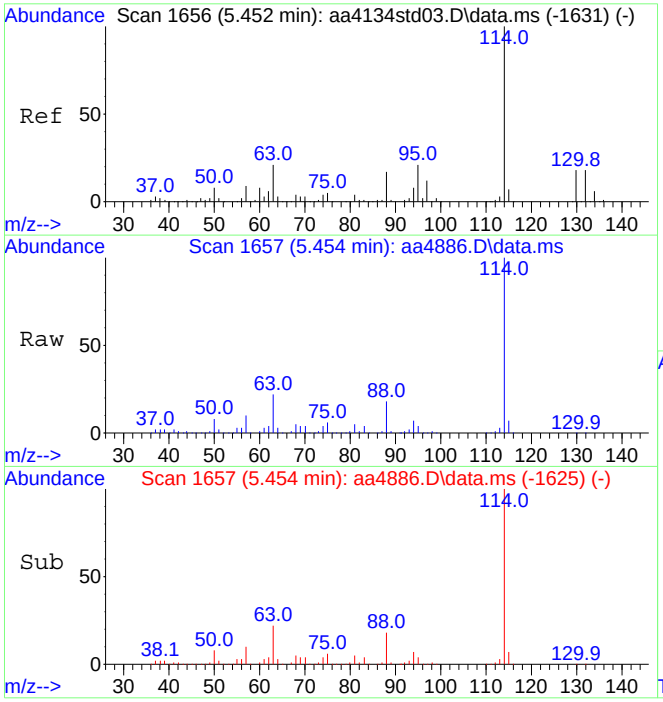


#37
Benzene
Concen: 1.23 ppbV
RT: 4.933 min Scan# 1495
Delta R.T. 0.002 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion: 78 Resp: 214812

Ion	Ratio	Lower	Upper
78	100		
51	29.9	13.4	20.0#

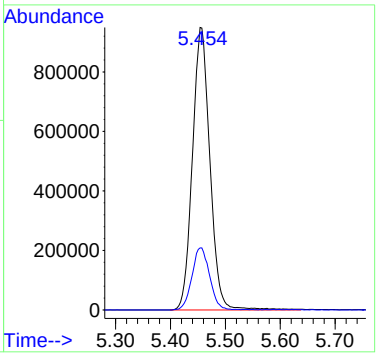


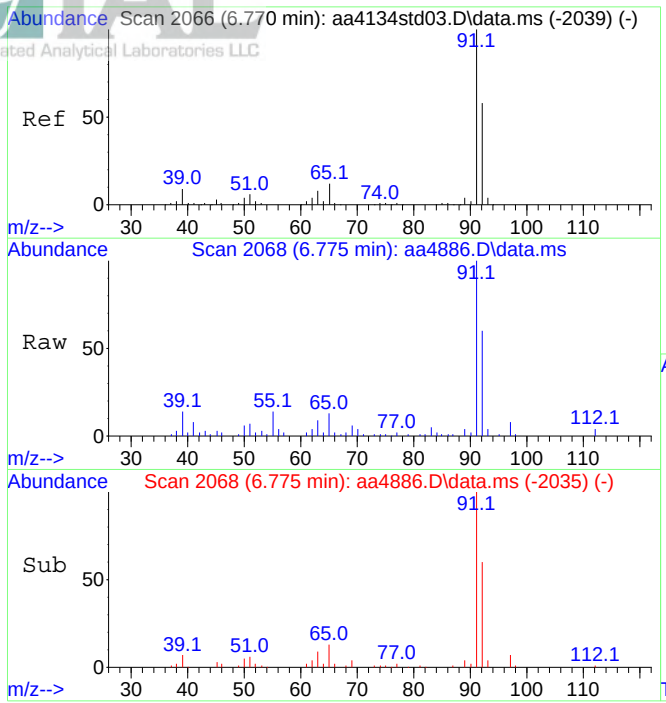


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.454 min Scan# 1657
Delta R.T. 0.002 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion:114 Resp: 2103111

Ion	Ratio	Lower	Upper
114	100		
63	22.3	17.0	25.6

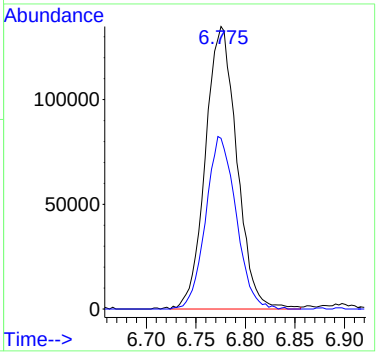


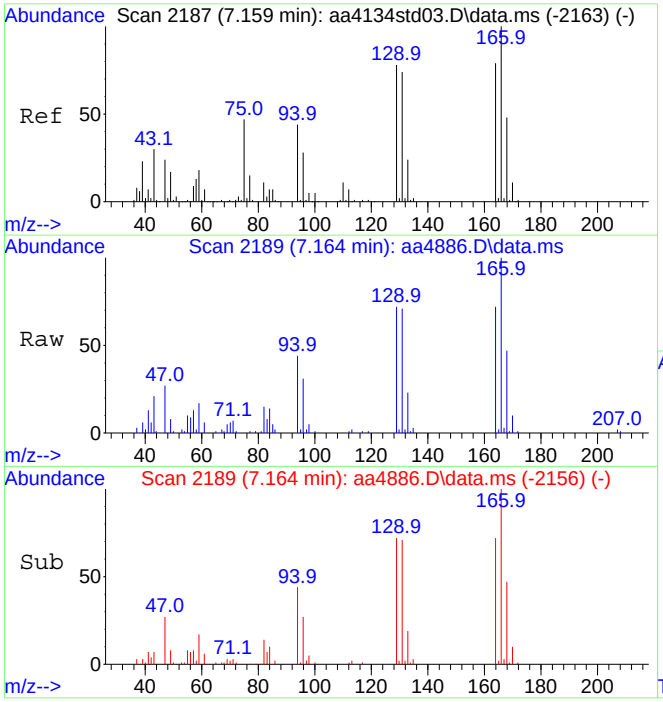


#47
Toluene
Concen: 1.01 ppbV
RT: 6.775 min Scan# 2068
Delta R.T. 0.005 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion: 91 Resp: 298006

Ion	Ratio	Lower	Upper
91	100		
92	58.7	47.3	70.9

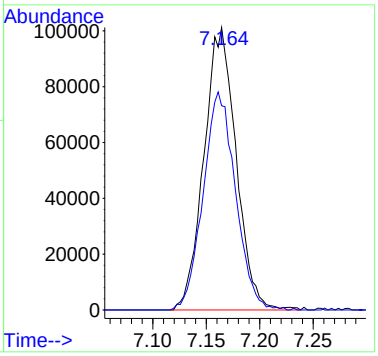


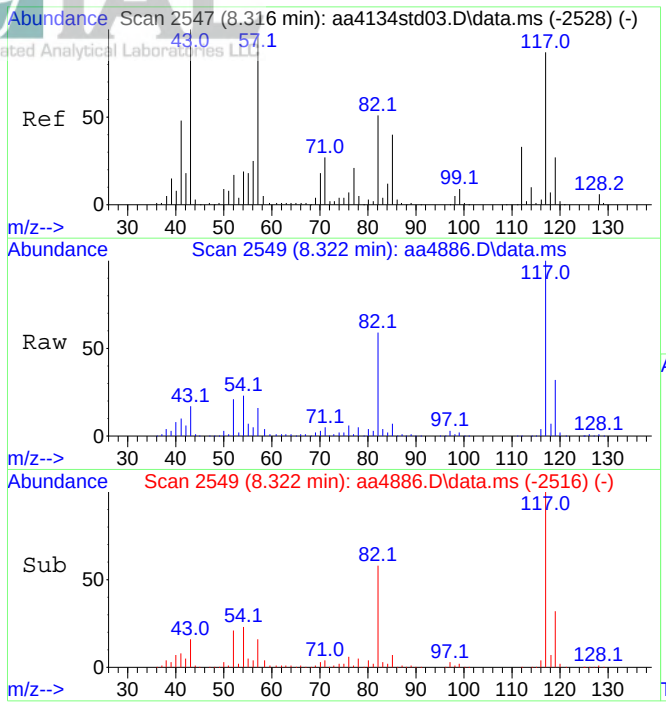


#49
Tetrachloroethene
Concen: 1.66 ppbV
RT: 7.164 min Scan# 2189
Delta R.T. 0.005 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion:166 Resp: 212038

Ion	Ratio	Lower	Upper
166	100		
164	77.5	62.3	93.5

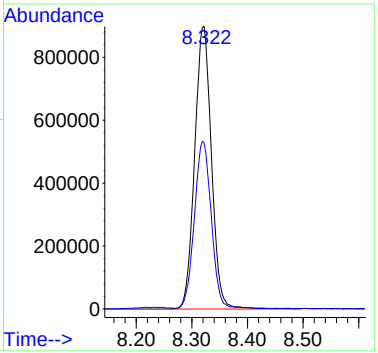


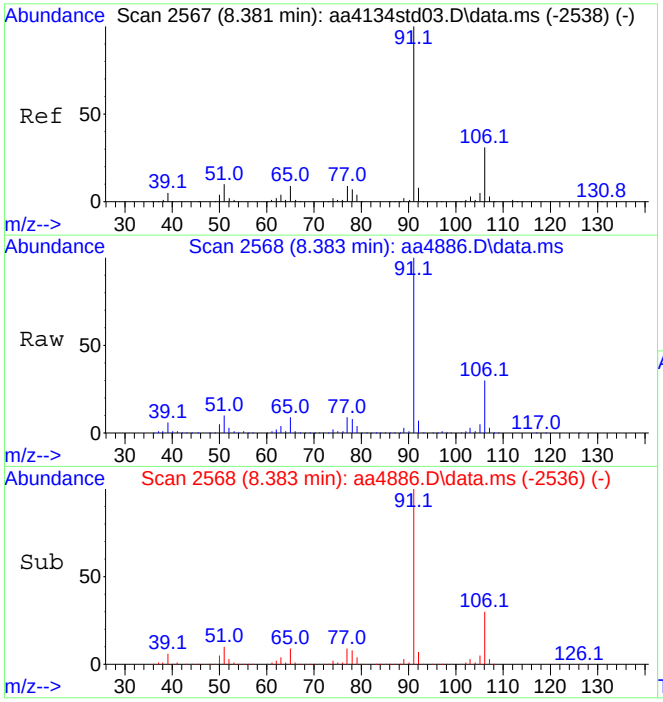


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.322 min Scan# 2549
Delta R.T. 0.005 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion:117 Resp: 1883278

Ion	Ratio	Lower	Upper
117	100		
82	59.4	47.0	70.4

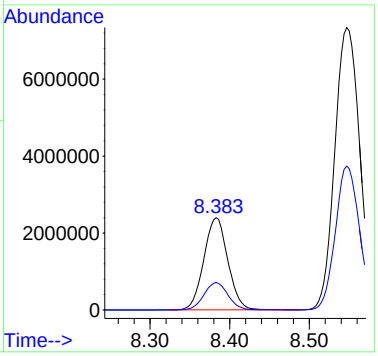


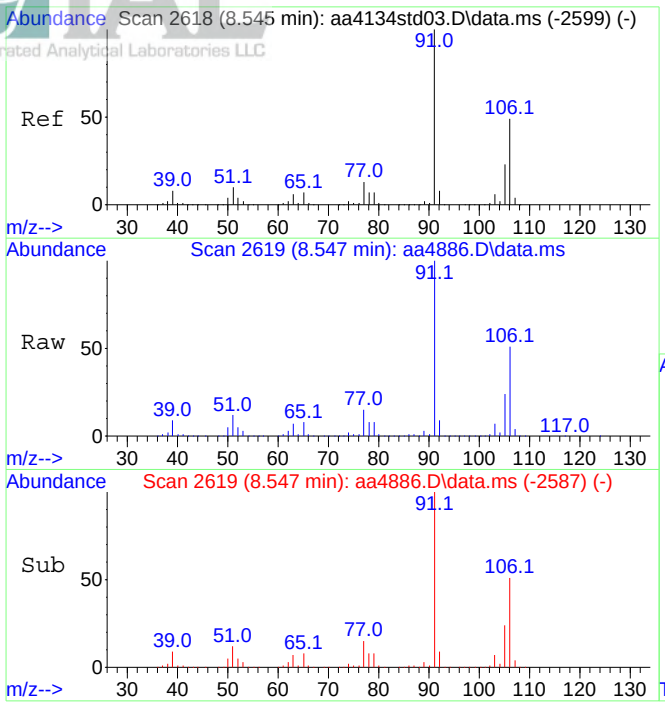


#58
Ethylbenzene
Concen: 14.45 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion: 91 Resp: 5014173

Ion	Ratio	Lower	Upper
91	100		
106	29.9	24.6	36.8

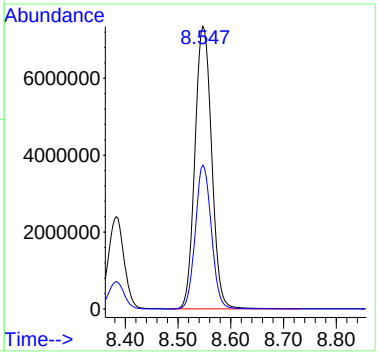


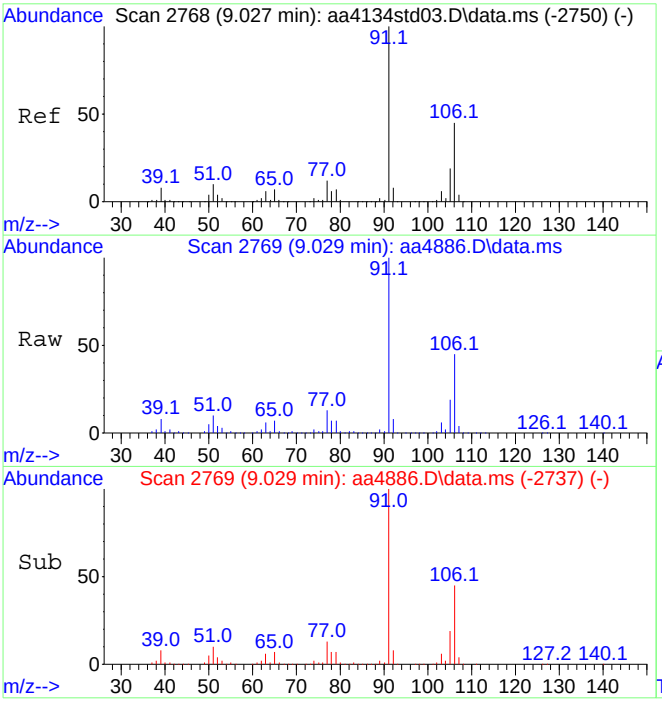


#59
Xylenes (m&p)
Concen: 63.04 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. 0.002 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion: 91 Resp:16210948

Ion	Ratio	Lower	Upper
91	100		
106	49.0	39.0	58.4

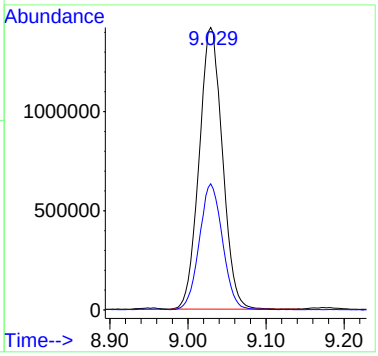


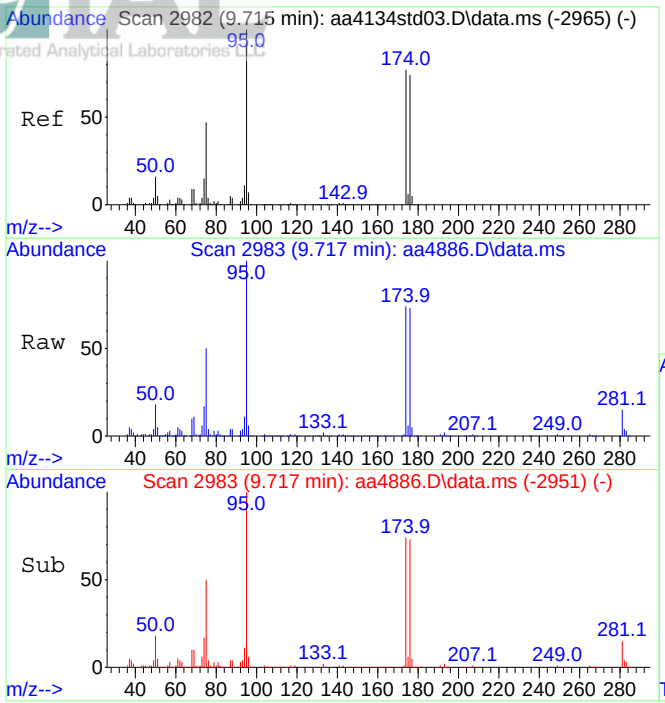


#60
Xylene (o)
Concen: 10.50 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion: 91 Resp: 2946669

Ion	Ratio	Lower	Upper
91	100		
106	44.5	36.8	55.2

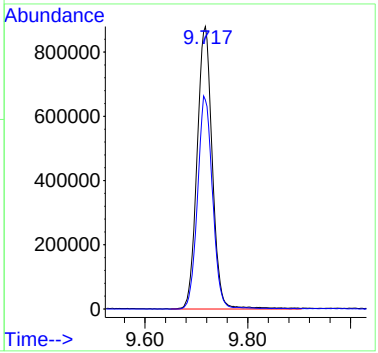


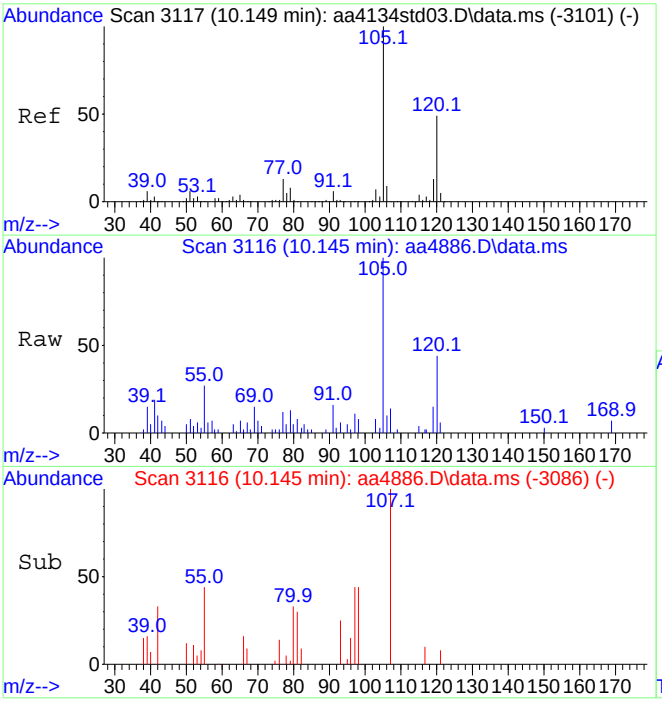


#64
Bromofluorobenzene (tune std)
Concen: 11.03 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion: 95 Resp: 1811400

Ion	Ratio	Lower	Upper
95	100		
174	74.4	61.1	91.7

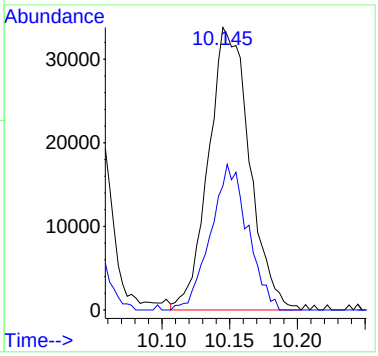


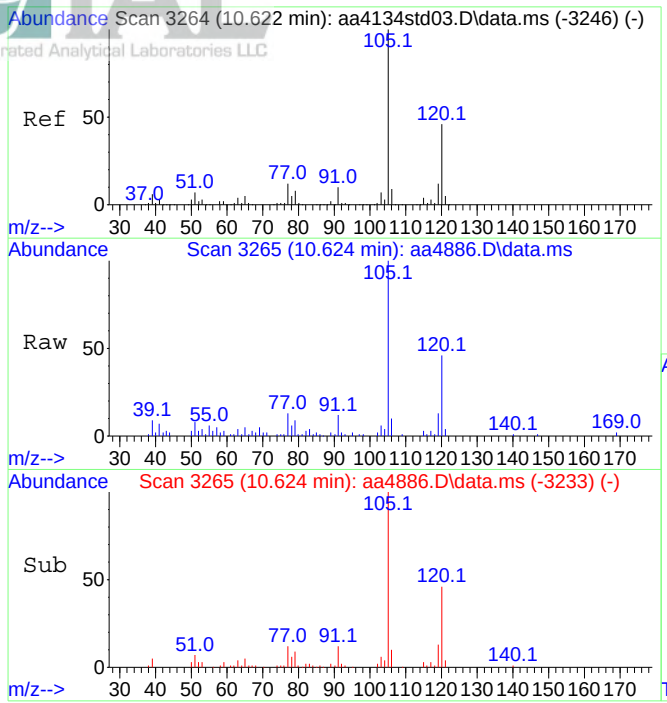


#69
1,3,5-Trimethylbenzene
Concen: 0.22 ppbV
RT: 10.145 min Scan# 3116
Delta R.T. -0.004 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion:105 Resp: 71080

Ion	Ratio	Lower	Upper
105	100		
120	46.7	38.9	58.3

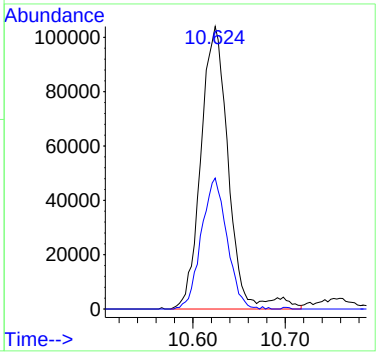




#70
1,2,4-Trimethylbenzene
Concen: 0.66 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4886.D
Acq: 8 Dec 2023 2:03 pm

Tgt Ion:105 Resp: 216009

Ion	Ratio	Lower	Upper
105	100		
120	43.1	36.3	54.5



INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05047-02	Instrument ID:	AA
Client ID:	SV2	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/15/2023 09:30	Injection Volmue:	500ml
Date Received:	11/16/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 14:35	% Moisture:	NA
Data File:	AA4887	Dilution Factor:	1
Summa ID:	2037	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Acetone	67-64-1		6.3	15	0.20	0.48
Benzene	71-43-2		0.31	1.00	0.20	0.64
Bromodichloromethane	75-27-4		ND	ND	0.20	1.3
Bromoform	75-25-2		ND	ND	0.20	2.1
Bromomethane	74-83-9		ND	ND	0.20	0.78
1,3-Butadiene	106-99-0		ND	ND	0.20	0.44
Chlorobenzene	108-90-7		ND	ND	0.20	0.92
Chloroethane	75-00-3		ND	ND	0.20	0.53
Chloroform	67-66-3		ND	ND	0.20	0.98
Chloromethane	74-87-3		ND	ND	0.20	0.41
Carbon disulfide	75-15-0		ND	ND	0.20	0.62
Carbon tetrachloride	56-23-5		ND	ND	0.040	0.25
Cyclohexane	110-82-7		ND	ND	0.20	0.69
Dibromochloromethane	124-48-1		ND	ND	0.20	1.7
1,2-Dibromoethane	106-93-4		ND	ND	0.20	1.5
1,2-Dichlorobenzene	95-50-1		ND	ND	0.20	1.2
1,3-Dichlorobenzene	541-73-1		ND	ND	0.20	1.2
1,4-Dichlorobenzene	106-46-7		ND	ND	0.20	1.2
Dichlorodifluoromethane	75-71-8		ND	ND	0.20	0.99
1,1-Dichloroethane	75-34-3		ND	ND	0.20	0.81
1,2-Dichloroethane	107-06-2		ND	ND	0.20	0.81
1,1-Dichloroethene	75-35-4		ND	ND	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2		ND	ND	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5		ND	ND	0.20	0.79
1,2-Dichloropropane	78-87-5		ND	ND	0.20	0.92
1,3-Dichloropropene (cis)	10061-01-5		ND	ND	0.20	0.91
1,3-Dichloropropene (trans)	10061-02-6		ND	ND	0.20	0.91
1,2-Dichlorotetrafluoroethane	76-14-2		ND	ND	0.20	1.4
1,4-Dioxane	123-91-1		ND	ND	0.20	0.72
Ethylbenzene	100-41-4		1.1	5.0	0.20	0.87
n-Heptane	142-82-5		ND	ND	0.20	0.82
1,3-Hexachlorobutadiene	87-68-3		ND	ND	0.20	2.1
n-Hexane	110-54-3		0.38	1.3	0.20	0.70
Methylene chloride	75-09-2		ND	ND	0.20	0.69
Methyl ethyl ketone	78-93-3		0.32	0.94	0.20	0.59
Methyl isobutyl ketone	108-10-1		ND	ND	0.20	0.82
Methyl tert-butyl ether	1634-04-4		ND	ND	0.20	0.72
Styrene	100-42-5		ND	ND	0.20	0.85
Tert-butyl alcohol	75-65-0		ND	ND	0.20	0.61
1,1,2,2-Tetrachloroethane	79-34-5		ND	ND	0.20	1.4
Tetrachloroethene	127-18-4		ND	ND	0.20	1.4
Toluene	108-88-3		0.35	1.3	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1		ND	ND	0.20	1.5
1,1,1-Trichloroethane	71-55-6		ND	ND	0.20	1.1
1,1,2-Trichloroethane	79-00-5		ND	ND	0.20	1.1

Qualifiers:
D = Dilution required

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05047-02	Instrument ID:	AA
Client ID:	SV2	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/15/2023 09:30	Injection Volmue:	500ml
Date Received:	11/16/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 14:35	% Moisture:	NA
Data File:	AA4887	Dilution Factor:	1
Summa ID:	2037	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Trichloroethene	79-01-6		ND	ND	0.046	0.25
Trichlorofluoromethane	75-69-4		0.34	1.9	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		ND	ND	0.20	1.5
1,2,4-Trimethylbenzene	95-63-6		ND	ND	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8		ND	ND	0.20	0.98
2,2,4-Trimethylpentane	540-84-1		ND	ND	0.20	0.93
Vinyl bromide	593-60-2		ND	ND	0.20	0.87
Vinyl chloride	75-01-4		ND	ND	0.20	0.51
Xylenes (m&p)	179601-23-1		5.3	23	0.20	0.87
Xylenes (o)	95-47-6		0.89	3.9	0.20	0.87

Qualifiers:
D = Dilution required

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4887.D
Acq On : 8 Dec 2023 2:35 pm
Operator : jjw
Sample : E23-05047-02
Misc : 2037, 500cc
ALS Vial : 10 Sample Multiplier: 1

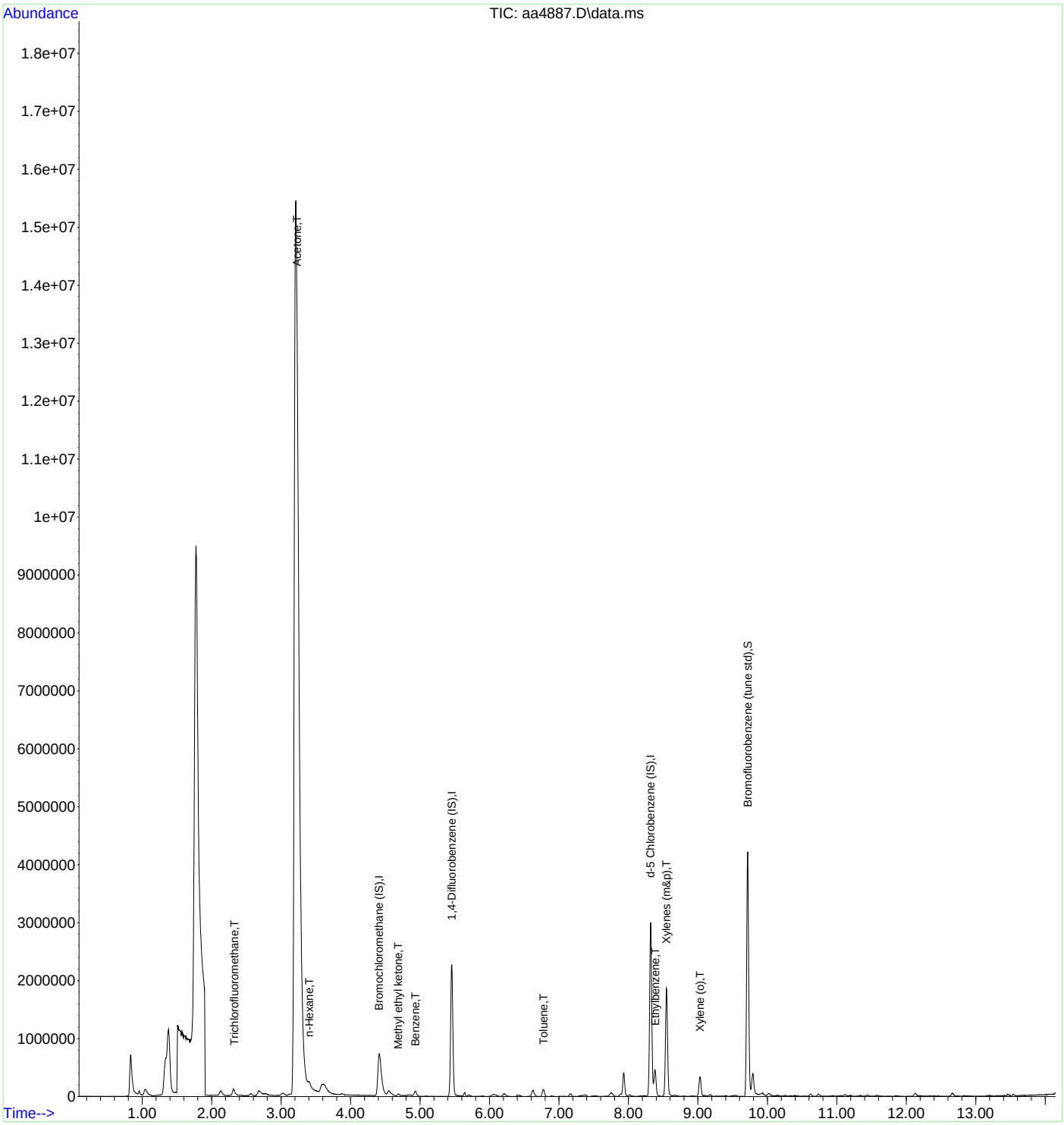
Quant Time: Dec 12 09:50:46 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

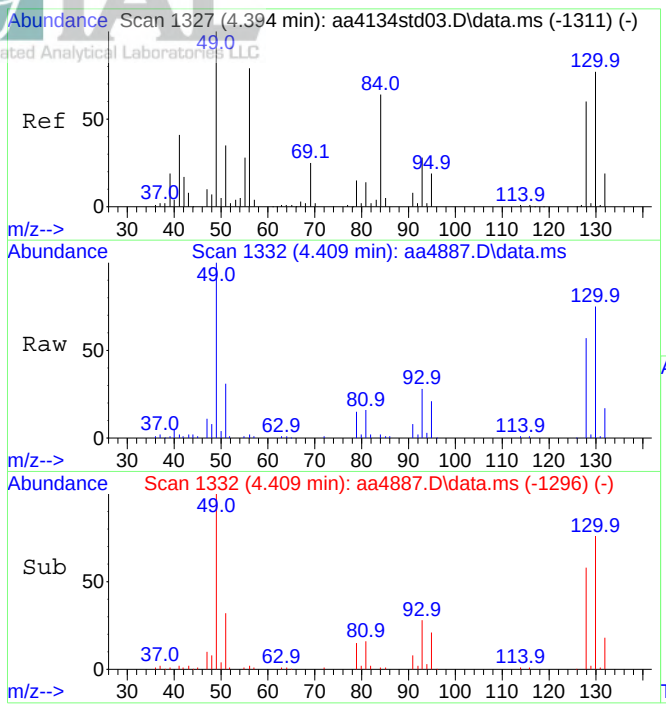
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.409	130	463696	10.00	ppbV	0.015
39) 1,4-Difluorobenzene (IS)	5.457	114	2102202	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1902313	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	1837891	11.08	ppbV	0.000
Target Compounds						Qvalue
12) Trichlorofluoromethane	2.329	101	43909	0.34	ppbV	99
21) Acetone	3.229	43	441196	6.31	ppbV	90
24) n-Hexane	3.406	57	55844	0.38	ppbV	91
35) Methyl ethyl ketone	4.686	43	36088	0.32	ppbV	99
37) Benzene	4.933	78	57578	0.31	ppbV	93
47) Toluene	6.779	91	104406	0.35	ppbV	98
58) Ethylbenzene	8.386	91	401239	1.14	ppbV	98
59) Xylenes (m&p)	8.547	91	1369890	5.27	ppbV	97
60) Xylene (o)	9.029	91	253611	0.89	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4887.D
Acq On : 8 Dec 2023 2:35 pm
Operator : jjw
Sample : E23-05047-02
Misc : 2037, 500cc
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 12 09:50:46 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

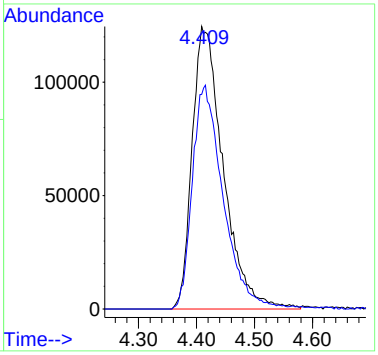


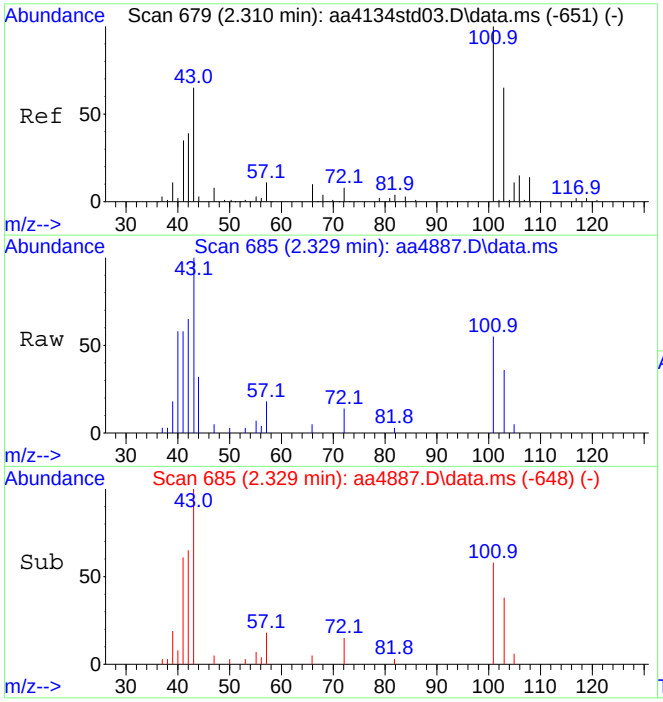


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.409 min Scan# 1332
Delta R.T. 0.015 min
Lab File: aa4887.D
Acq: 8 Dec 2023 2:35 pm

Tgt Ion:130 Resp: 463696

Ion	Ratio	Lower	Upper
130	100		
128	78.9	62.2	93.4

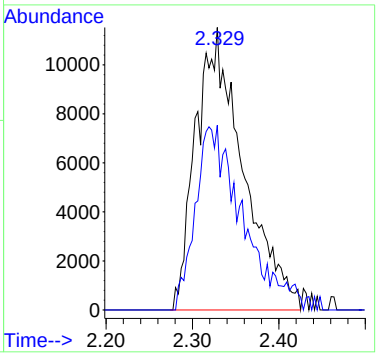


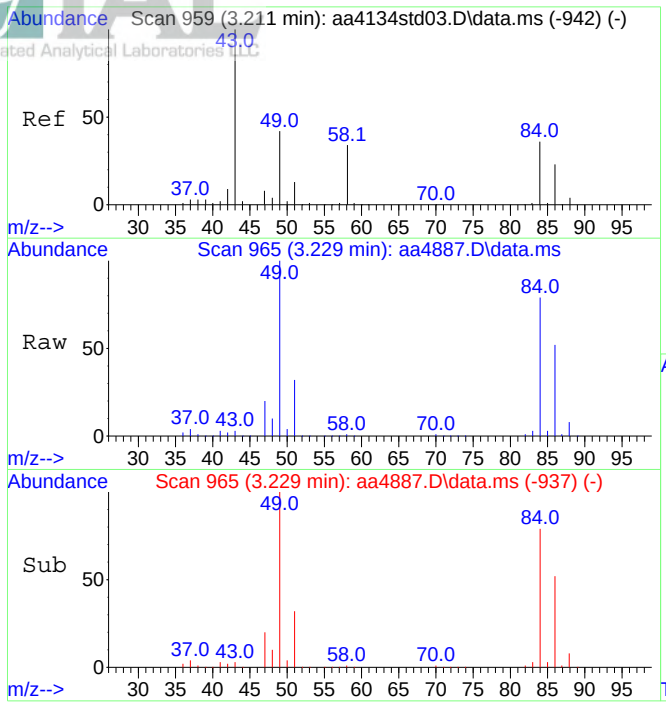


#12
Trichlorofluoromethane
Concen: 0.34 ppbV
RT: 2.329 min Scan# 685
Delta R.T. 0.018 min
Lab File: aa4887.D
Acq: 8 Dec 2023 2:35 pm

Tgt Ion:101 Resp: 43909

Ion	Ratio	Lower	Upper
101	100		
103	64.8	52.5	78.7

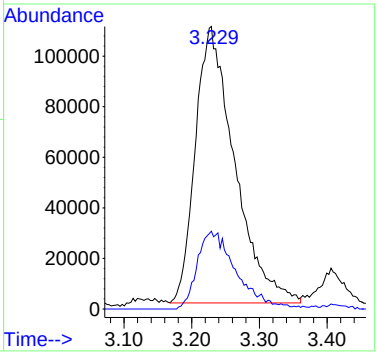


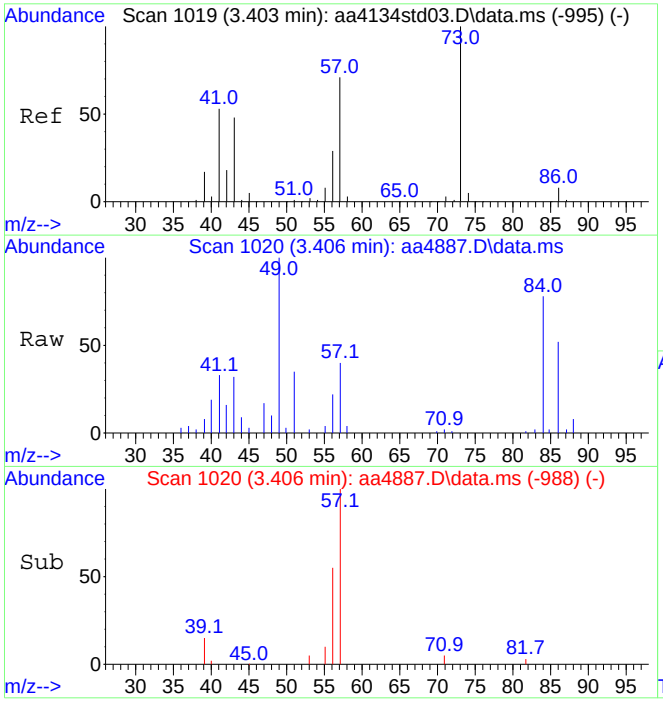


#21
Acetone
Concen: 6.31 ppbV
RT: 3.229 min Scan# 965
Delta R.T. 0.018 min
Lab File: aa4887.D
Acq: 8 Dec 2023 2:35 pm

Tgt Ion: 43 Resp: 441196

Ion	Ratio	Lower	Upper
43	100		
58	28.0	27.1	40.7

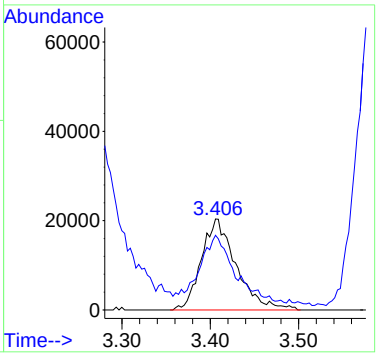


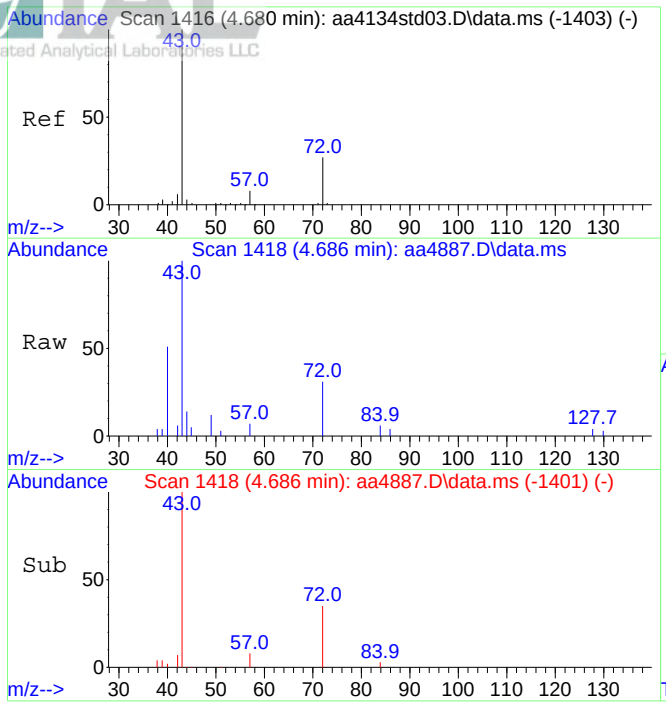


#24
n-Hexane
Concen: 0.38 ppbV
RT: 3.406 min Scan# 1020
Delta R.T. 0.002 min
Lab File: aa4887.D
Acq: 8 Dec 2023 2:35 pm

Tgt Ion: 57 Resp: 55844

Ion	Ratio	Lower	Upper
57	100		
41	74.6	66.4	99.6

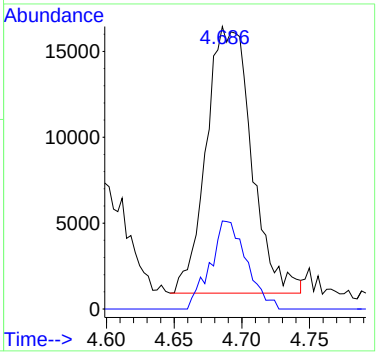


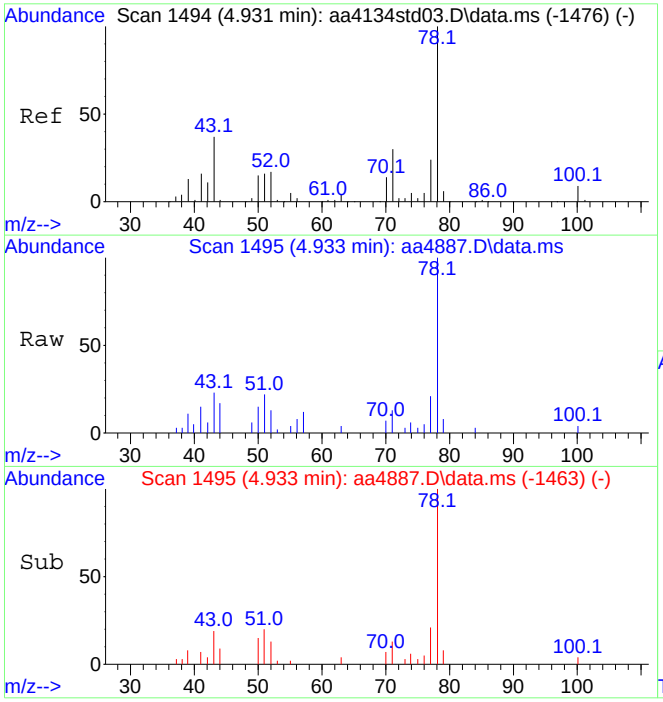


#35
Methyl ethyl ketone
Concen: 0.32 ppbV
RT: 4.686 min Scan# 1418
Delta R.T. 0.006 min
Lab File: aa4887.D
Acq: 8 Dec 2023 2:35 pm

Tgt Ion: 43 Resp: 36088

Ion	Ratio	Lower	Upper
43	100		
72	26.4	21.6	32.4

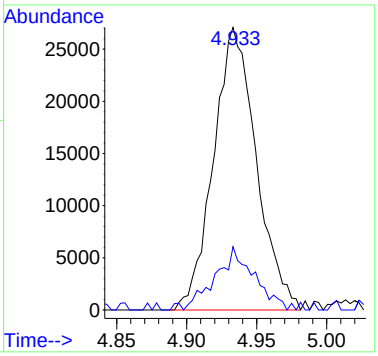


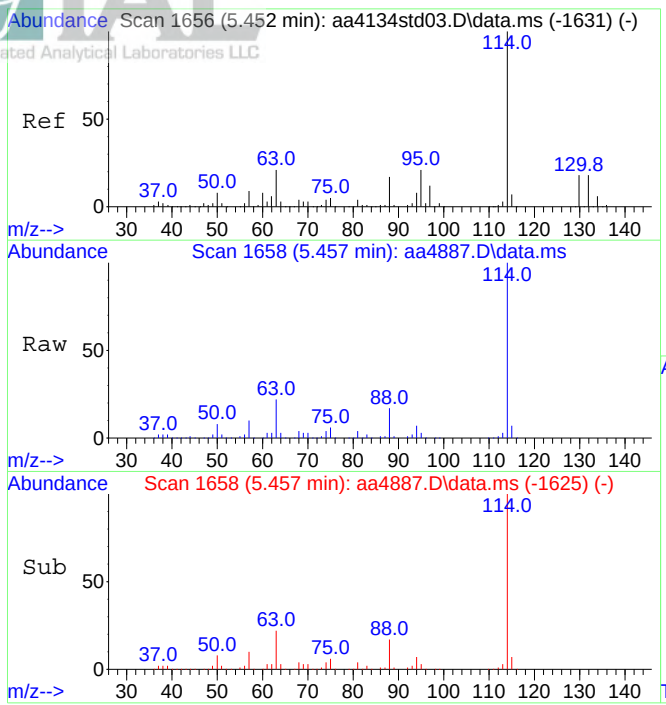


#37
Benzene
Concen: 0.31 ppbV
RT: 4.933 min Scan# 1495
Delta R.T. 0.002 min
Lab File: aa4887.D
Acq: 8 Dec 2023 2:35 pm

Tgt Ion: 78 Resp: 57578

Ion	Ratio	Lower	Upper
78	100		
51	19.9	13.4	20.0

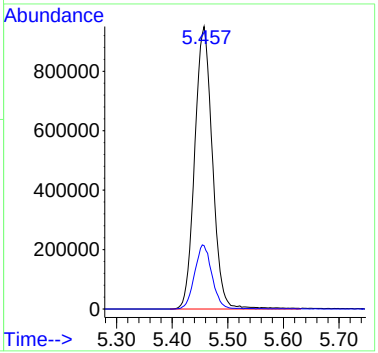


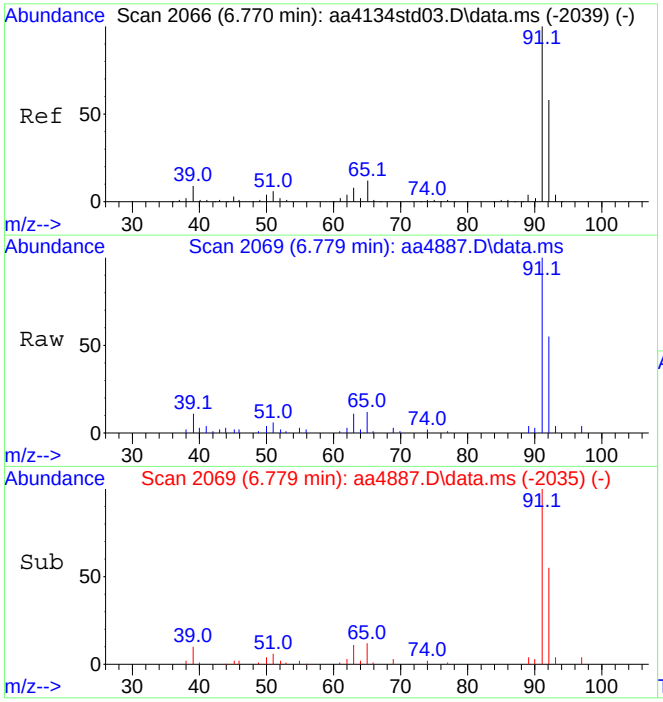


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.005 min
Lab File: aa4887.D
Acq: 8 Dec 2023 2:35 pm

Tgt Ion:114 Resp: 2102202

Ion	Ratio	Lower	Upper
114	100		
63	22.3	17.0	25.6

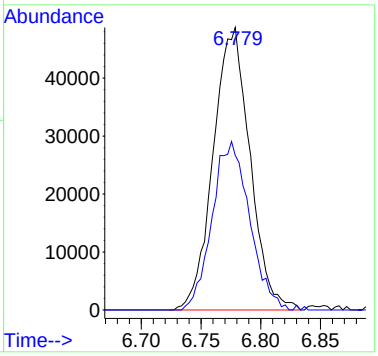


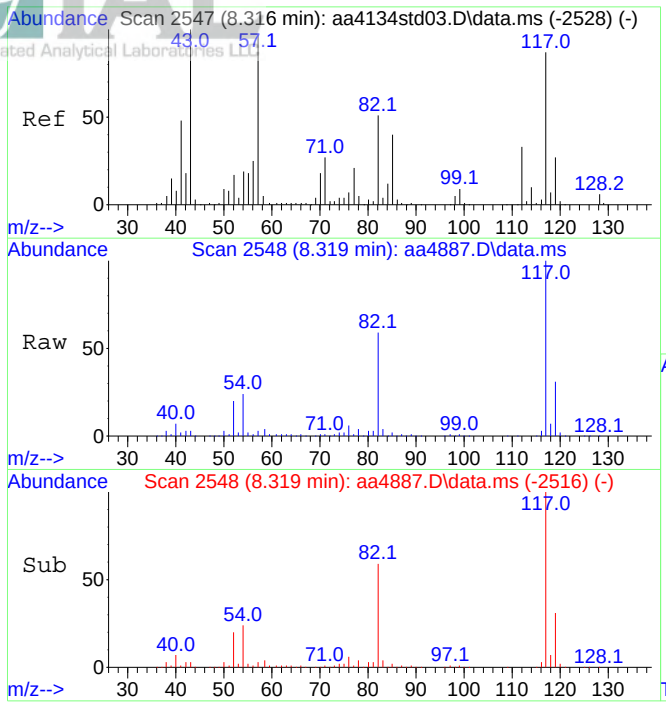


#47
Toluene
Concen: 0.35 ppbV
RT: 6.779 min Scan# 2069
Delta R.T. 0.009 min
Lab File: aa4887.D
Acq: 8 Dec 2023 2:35 pm

Tgt Ion: 91 Resp: 104406

Ion	Ratio	Lower	Upper
91	100		
92	60.4	47.3	70.9

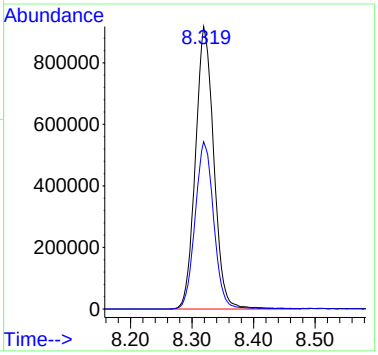


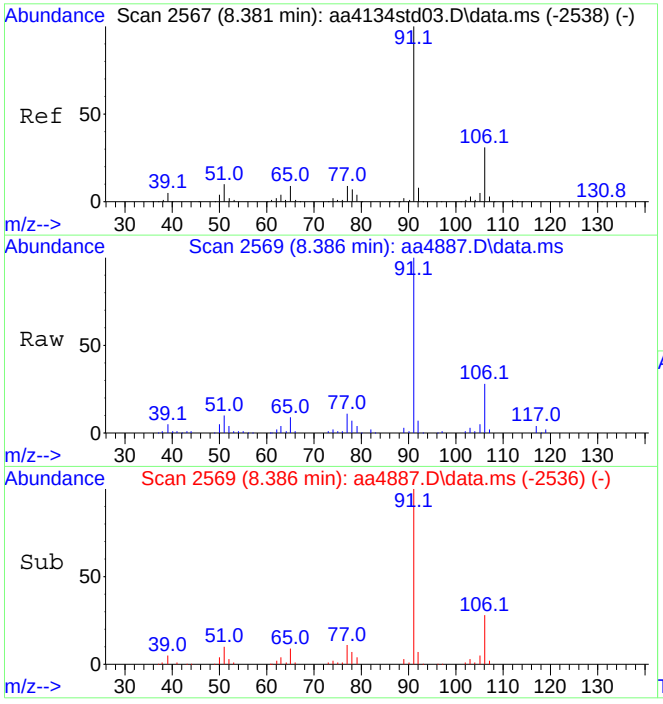


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4887.D
Acq: 8 Dec 2023 2:35 pm

Tgt Ion:117 Resp: 1902313

Ion	Ratio	Lower	Upper
117	100		
82	60.0	47.0	70.4

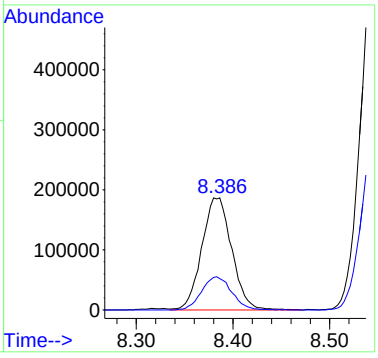


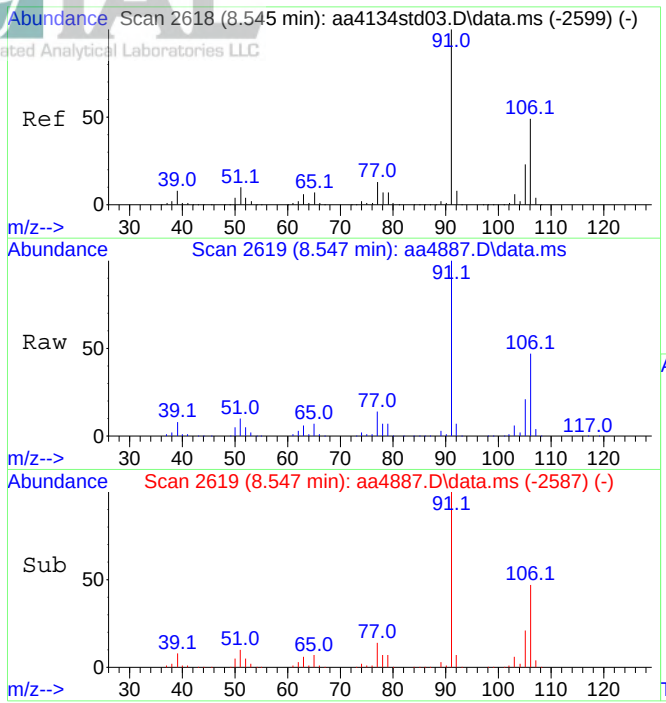


#58
Ethylbenzene
Concen: 1.14 ppbV
RT: 8.386 min Scan# 2569
Delta R.T. 0.006 min
Lab File: aa4887.D
Acq: 8 Dec 2023 2:35 pm

Tgt Ion: 91 Resp: 401239

Ion	Ratio	Lower	Upper
91	100		
106	29.7	24.6	36.8

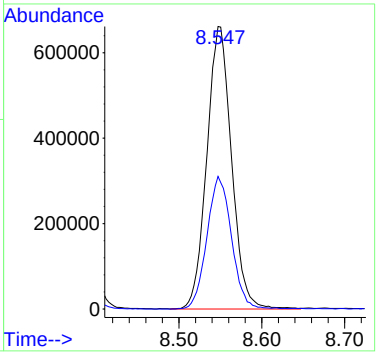


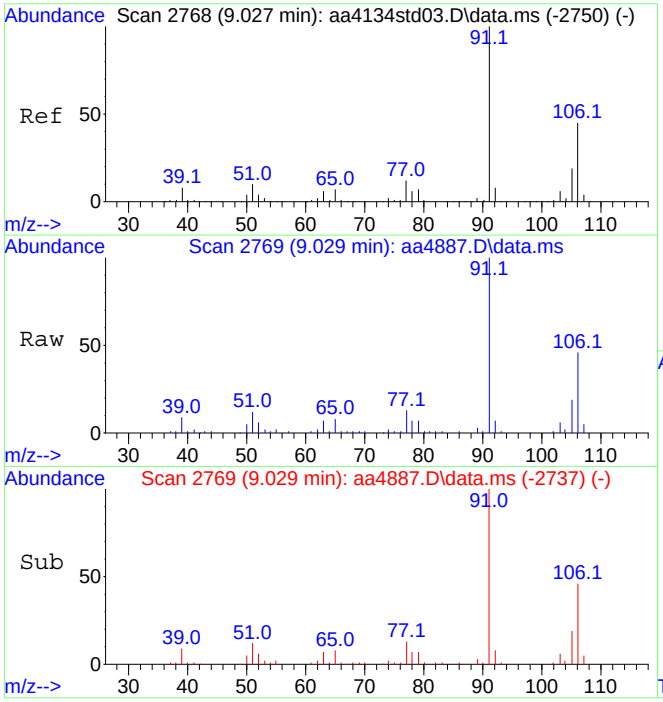


#59
Xylenes (m&p)
Concen: 5.27 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. 0.002 min
Lab File: aa4887.D
Acq: 8 Dec 2023 2:35 pm

Tgt Ion: 91 Resp: 1369890

Ion	Ratio	Lower	Upper
91	100		
106	46.6	39.0	58.4

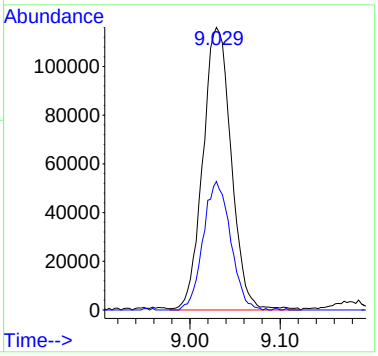


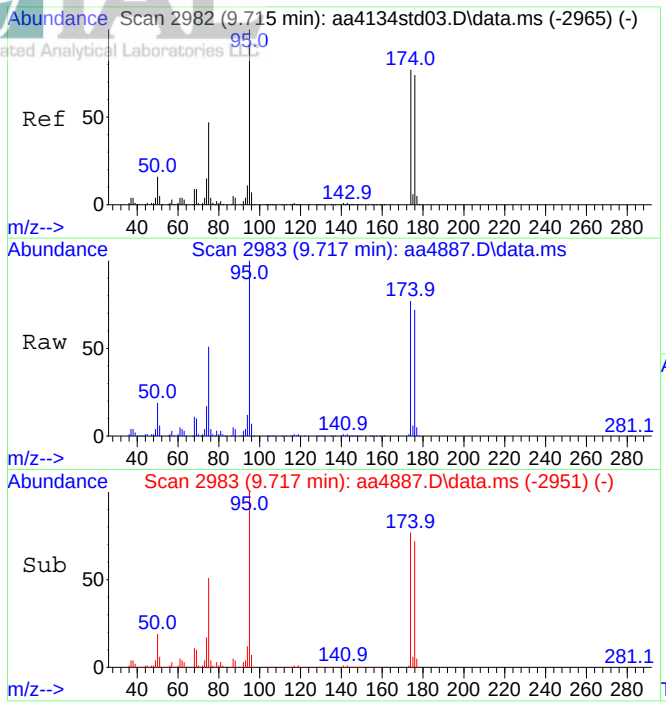


#60
Xylene (o)
Concen: 0.89 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4887.D
Acq: 8 Dec 2023 2:35 pm

Tgt Ion: 91 Resp: 253611

Ion	Ratio	Lower	Upper
91	100		
106	44.0	36.8	55.2

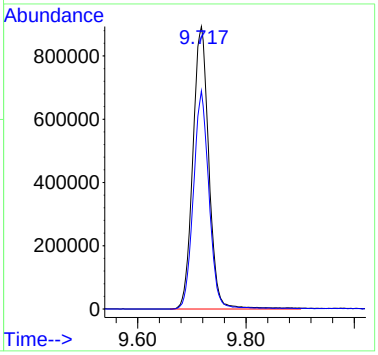




#64
Bromofluorobenzene (tune std)
Concen: 11.08 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4887.D
Acq: 8 Dec 2023 2:35 pm

Tgt Ion: 95 Resp: 1837891

Ion	Ratio	Lower	Upper
95	100		
174	74.8	61.1	91.7



INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05047-03	Instrument ID:	AA
Client ID:	SV3	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/15/2023 10:40	Injection Volmue:	500ml, 50ml
Date Received:	11/16/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 15:06, 12/11/2023 14:18	% Moisture:	NA
Data File:	AA4888, AA4909	Dilution Factor:	1, 10
Summa ID:	3811	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Acetone	67-64-1		33	78	0.20	0.48
Benzene	71-43-2		10	32	0.20	0.64
Bromodichloromethane	75-27-4		ND	ND	0.20	1.3
Bromoform	75-25-2		ND	ND	0.20	2.1
Bromomethane	74-83-9		ND	ND	0.20	0.78
1,3-Butadiene	106-99-0		ND	ND	0.20	0.44
Chlorobenzene	108-90-7		ND	ND	0.20	0.92
Chloroethane	75-00-3		ND	ND	0.20	0.53
Chloroform	67-66-3		ND	ND	0.20	0.98
Chloromethane	74-87-3		ND	ND	0.20	0.41
Carbon disulfide	75-15-0		25	79	0.20	0.62
Carbon tetrachloride	56-23-5		2.2	14	0.040	0.25
Cyclohexane	110-82-7		3.4	12	0.20	0.69
Dibromochloromethane	124-48-1		ND	ND	0.20	1.7
1,2-Dibromoethane	106-93-4		ND	ND	0.20	1.5
1,2-Dichlorobenzene	95-50-1		ND	ND	0.20	1.2
1,3-Dichlorobenzene	541-73-1		ND	ND	0.20	1.2
1,4-Dichlorobenzene	106-46-7		ND	ND	0.20	1.2
Dichlorodifluoromethane	75-71-8		ND	ND	0.20	0.99
1,1-Dichloroethane	75-34-3		ND	ND	0.20	0.81
1,2-Dichloroethane	107-06-2		ND	ND	0.20	0.81
1,1-Dichloroethene	75-35-4		ND	ND	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2		ND	ND	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5		ND	ND	0.20	0.79
1,2-Dichloropropane	78-87-5		ND	ND	0.20	0.92
1,3-Dichloropropene (cis)	10061-01-5		ND	ND	0.20	0.91
1,3-Dichloropropene (trans)	10061-02-6		ND	ND	0.20	0.91
1,2-Dichlorotetrafluoroethane	76-14-2		ND	ND	0.20	1.4
1,4-Dioxane	123-91-1		ND	ND	0.20	0.72
Ethylbenzene	100-41-4	D	40	170	2.0	8.7
n-Heptane	142-82-5		6.5	27	0.20	0.82
1,3-Hexachlorobutadiene	87-68-3		ND	ND	0.20	2.1
n-Hexane	110-54-3		7.4	26	0.20	0.70
Methylene chloride	75-09-2		4.9	17	0.20	0.69
Methyl ethyl ketone	78-93-3		3.0	8.8	0.20	0.59
Methyl isobutyl ketone	108-10-1		ND	ND	0.20	0.82
Methyl tert-butyl ether	1634-04-4		ND	ND	0.20	0.72
Styrene	100-42-5		0.88	3.7	0.20	0.85
Tert-butyl alcohol	75-65-0		8.8	27	0.20	0.61
1,1,2,2-Tetrachloroethane	79-34-5		ND	ND	0.20	1.4
Tetrachloroethene	127-18-4		6.4	44	0.20	1.4
Toluene	108-88-3		6.0	23	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1		ND	ND	0.20	1.5
1,1,1-Trichloroethane	71-55-6		0.21	1.1	0.20	1.1
1,1,2-Trichloroethane	79-00-5		0.61	3.4	0.20	1.1

Qualifiers:
D = Dilution required

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05047-03	Instrument ID:	AA
Client ID:	SV3	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/15/2023 10:40	Injection Volmue:	500ml, 50ml
Date Received:	11/16/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 15:06, 12/11/2023 14:18	% Moisture:	NA
Data File:	AA4888, AA4909	Dilution Factor:	1, 10
Summa ID:	3811	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Trichloroethene	79-01-6		ND	ND	0.046	0.25
Trichlorofluoromethane	75-69-4		0.52	2.9	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		ND	ND	0.20	1.5
1,2,4-Trimethylbenzene	95-63-6		1.8	8.8	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8		0.83	4.1	0.20	0.98
2,2,4-Trimethylpentane	540-84-1		ND	ND	0.20	0.93
Vinyl bromide	593-60-2		ND	ND	0.20	0.87
Vinyl chloride	75-01-4		ND	ND	0.20	0.51
Xylenes (m&p)	179601-23-1	D	170	750	2.0	8.7
Xylenes (o)	95-47-6		39	170	0.20	0.87

Qualifiers:
D = Dilution required

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4888.D
Acq On : 8 Dec 2023 3:06 pm
Operator : jjw
Sample : E23-05047-03
Misc : 3811, 500cc
ALS Vial : 11 Sample Multiplier: 1

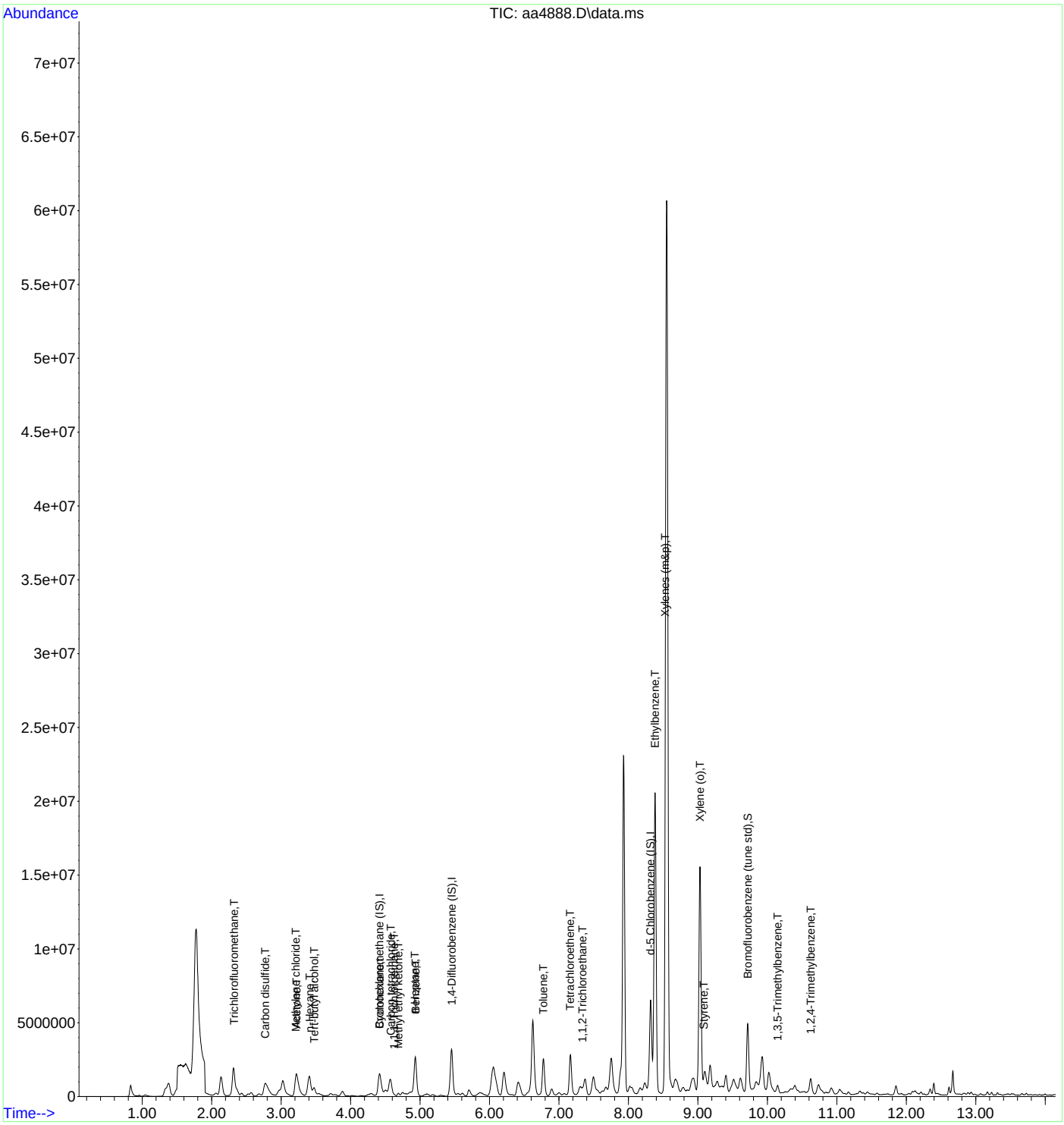
Quant Time: Dec 12 09:52:15 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

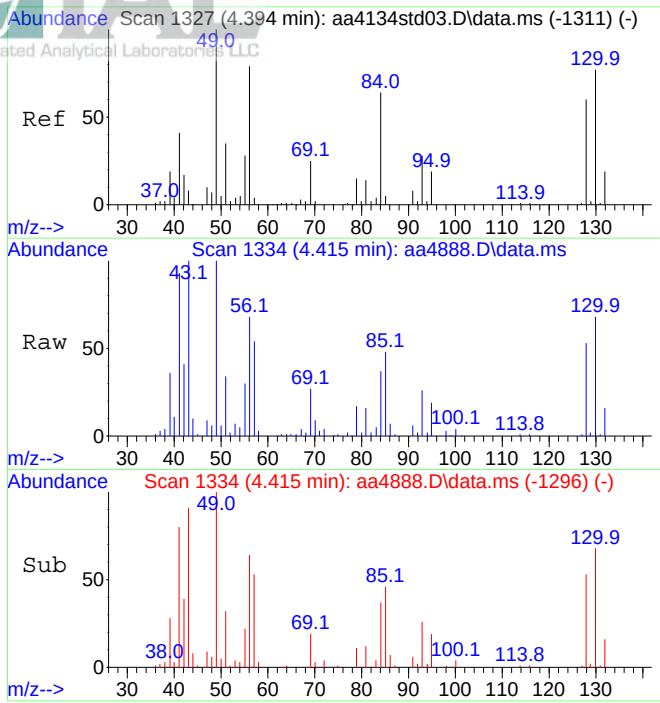
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.415	130	395958	10.00	ppbV	0.021
39) 1,4-Difluorobenzene (IS)	5.457	114	2148109	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1907941	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2032578	12.22	ppbV	0.000
Target Compounds						Qvalue
12) Trichlorofluoromethane	2.322	101	57174	0.52	ppbV	99
15) Carbon disulfide	2.772	76	3076802	25.41	ppbV	95
20) Methylene chloride	3.210	49	237038	4.87	ppbV	90
21) Acetone	3.222	43	1951192	32.67	ppbV	96
24) n-Hexane	3.412	57	925952	7.42	ppbV #	72
26) Tert-butyl alcohol	3.477	59	904351	8.76	ppbV	100
29) Cyclohexane	4.419	56	296816	3.40	ppbV #	59
32) Carbon tetrachloride	4.579	117	272441	2.17	ppbV	100
34) 1,1,1-Trichloroethane	4.628	97	23000	0.21	ppbV	97
35) Methyl ethyl ketone	4.689	43	287451	2.97	ppbV	99
36) n-Heptane	4.927	43	709633	6.48	ppbV	99
37) Benzene	4.936	78	1583423	10.07	ppbV	98
47) Toluene	6.772	91	1820630	6.03	ppbV	99
49) Tetrachloroethene	7.161	166	836083	6.42	ppbV	99
51) 1,1,2-Trichloroethane	7.338	97	62558	0.61	ppbV	82
58) Ethylbenzene	8.383	91	18127485	51.56	ppbV	98
59) Xylenes (m&p)	8.531	91	29204371	112.10	ppbV #	57
60) Xylene (o)	9.029	91	11073879	38.96	ppbV	99
61) Styrene	9.087	104	171344	0.88	ppbV	97
69) 1,3,5-Trimethylbenzene	10.148	105	272514	0.83	ppbV	100
70) 1,2,4-Trimethylbenzene	10.624	105	591659	1.79	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4888.D
Acq On : 8 Dec 2023 3:06 pm
Operator : jjw
Sample : E23-05047-03
Misc : 3811, 500cc
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Dec 12 09:52:15 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

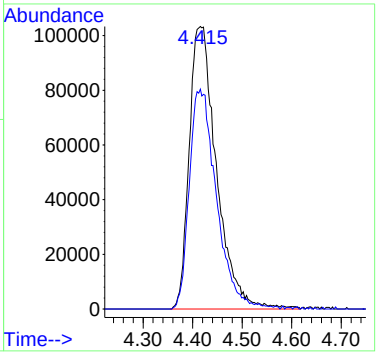


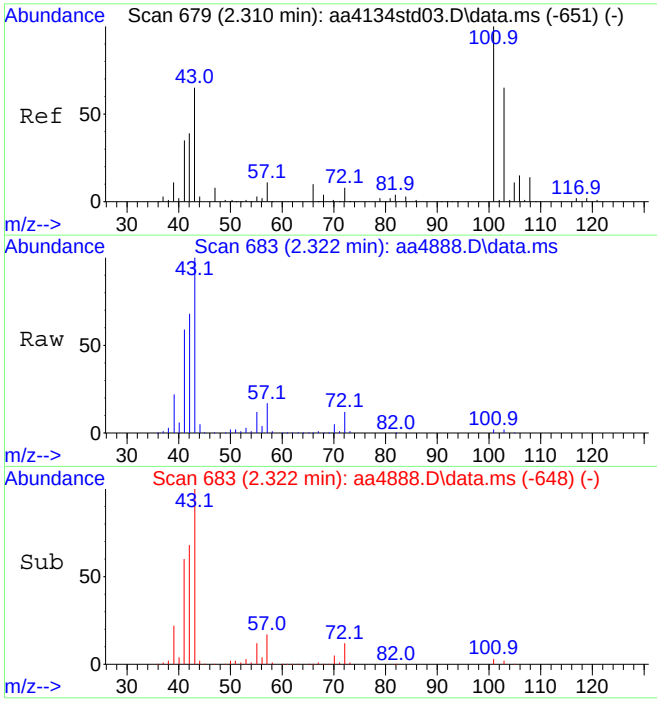


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.415 min Scan# 1334
Delta R.T. 0.021 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion:130 Resp: 395958

Ion	Ratio	Lower	Upper
130	100		
128	77.4	62.2	93.4

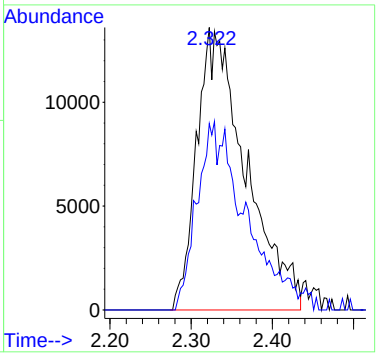


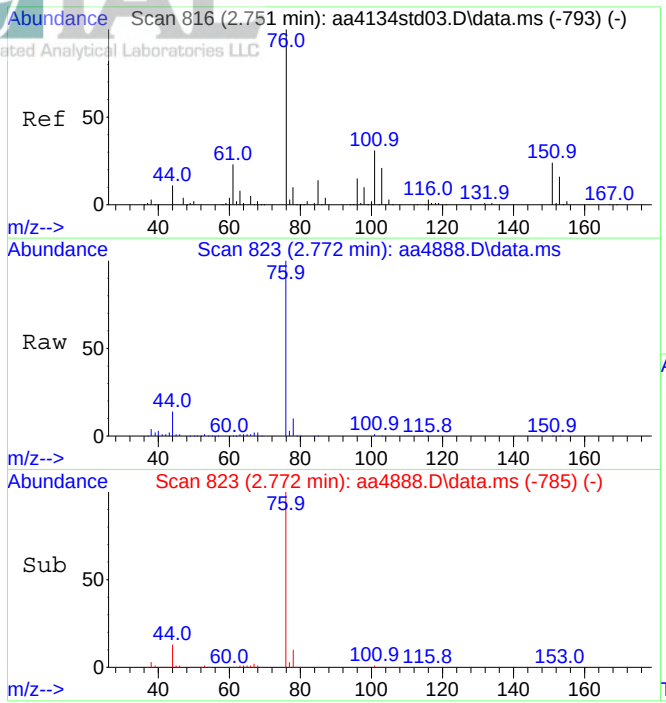


#12
Trichlorofluoromethane
Concen: 0.52 ppbV
RT: 2.322 min Scan# 683
Delta R.T. 0.012 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion:101 Resp: 57174

Ion	Ratio	Lower	Upper
101	100		
103	66.7	52.5	78.7

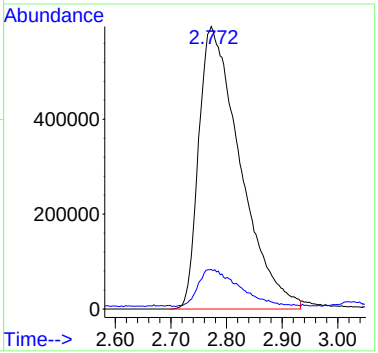


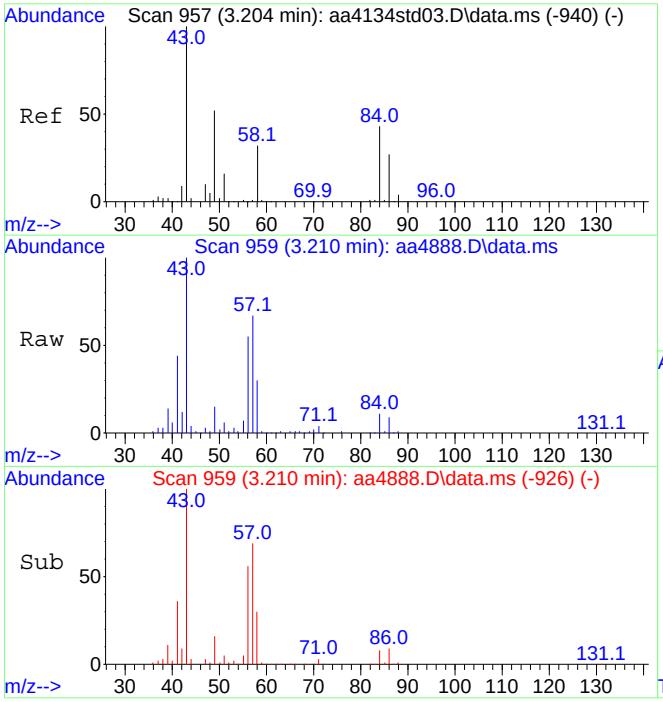


#15
Carbon disulfide
Concen: 25.41 ppbV
RT: 2.772 min Scan# 823
Delta R.T. 0.022 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 76 Resp: 3076802

Ion	Ratio	Lower	Upper
76	100		
44	13.2	9.0	13.4

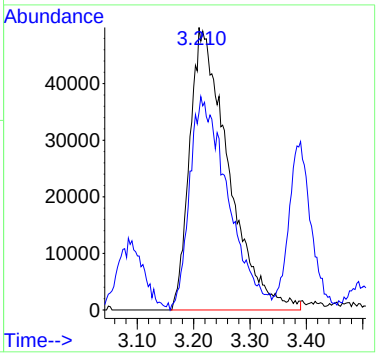


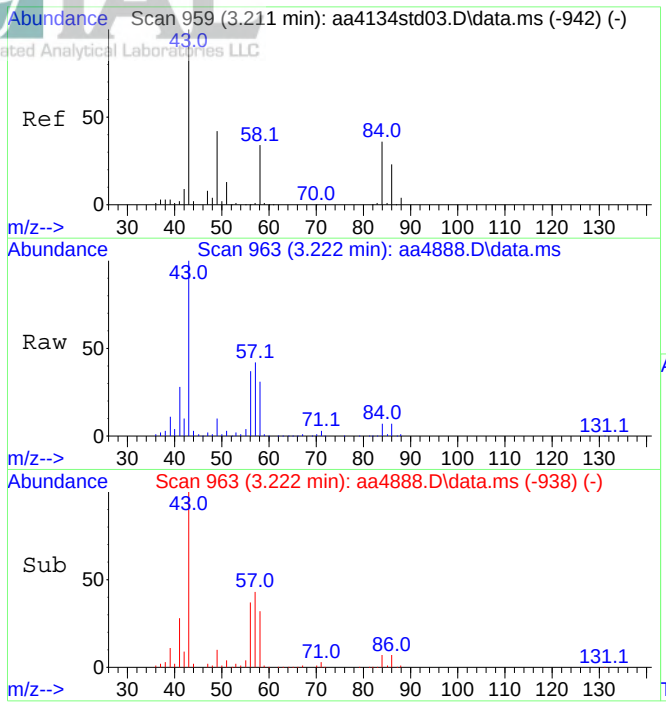


#20
Methylene chloride
Concen: 4.87 ppbV
RT: 3.210 min Scan# 959
Delta R.T. 0.006 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 49 Resp: 237038

Ion	Ratio	Lower	Upper
49	100		
84	75.3	64.8	104.8

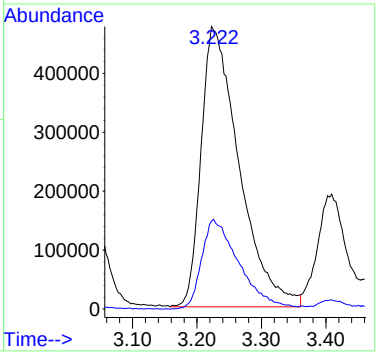


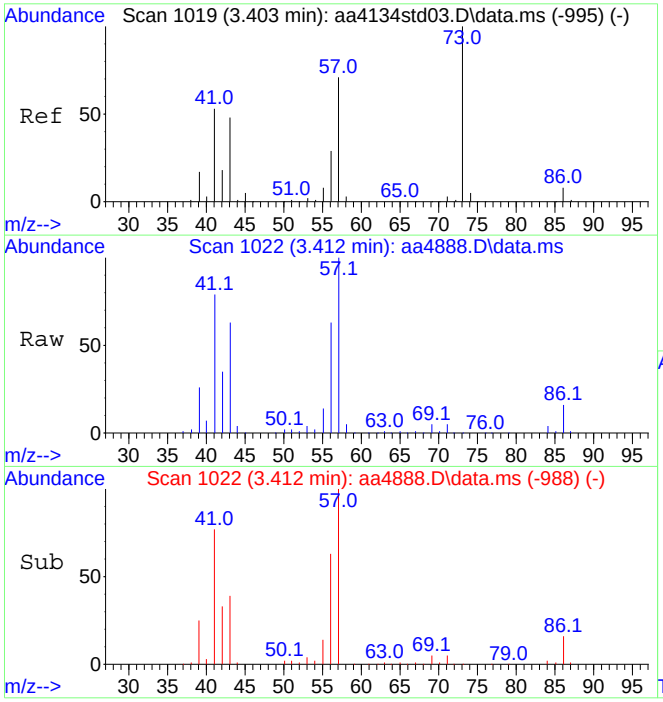


#21
Acetone
Concen: 32.67 ppbV
RT: 3.222 min Scan# 963
Delta R.T. 0.012 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 43 Resp: 1951192

Ion	Ratio	Lower	Upper
43	100		
58	31.3	27.1	40.7

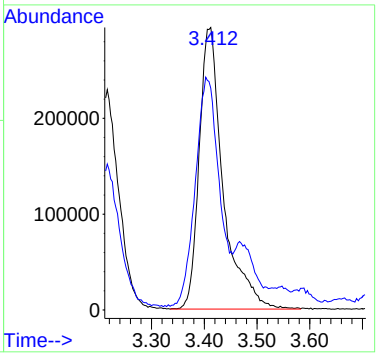


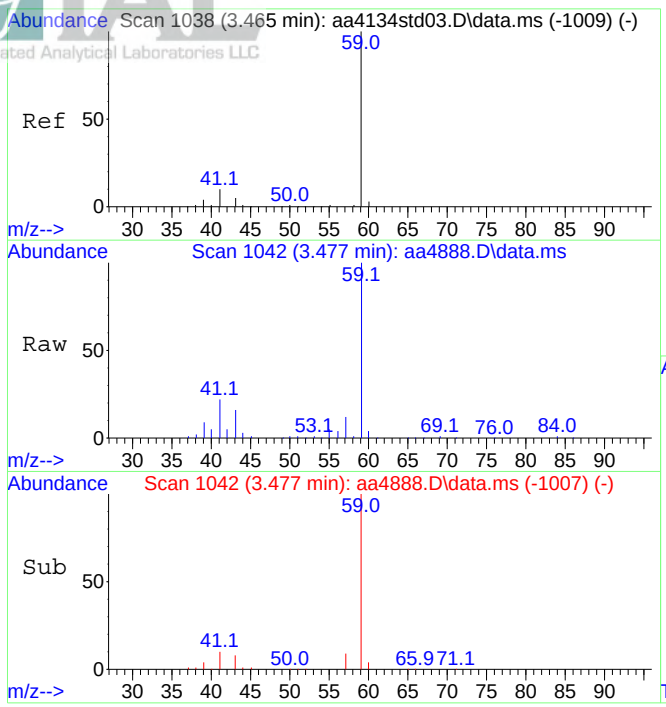


#24
n-Hexane
Concen: 7.42 ppbV
RT: 3.412 min Scan# 1022
Delta R.T. 0.009 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 57 Resp: 925952

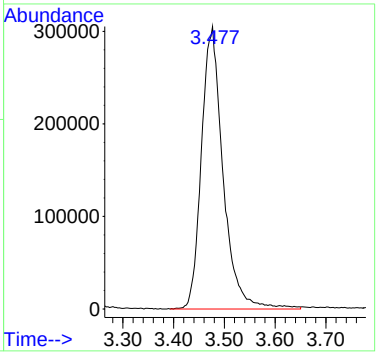
Ion	Ratio	Lower	Upper
57	100		
41	108.6	66.4	99.6#

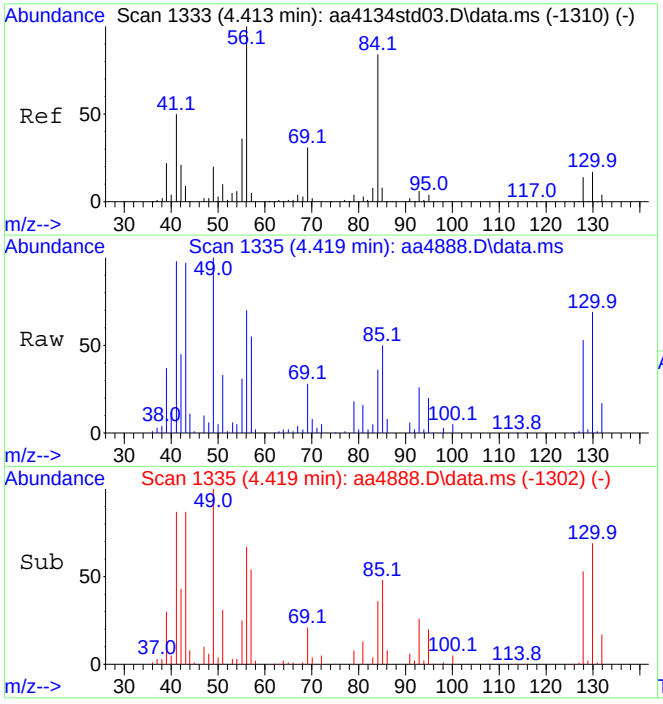




#26
Tert-butyl alcohol
Concen: 8.76 ppbV
RT: 3.477 min Scan# 1042
Delta R.T. 0.012 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 59 Resp: 904351

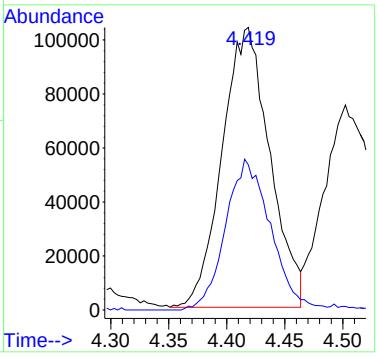


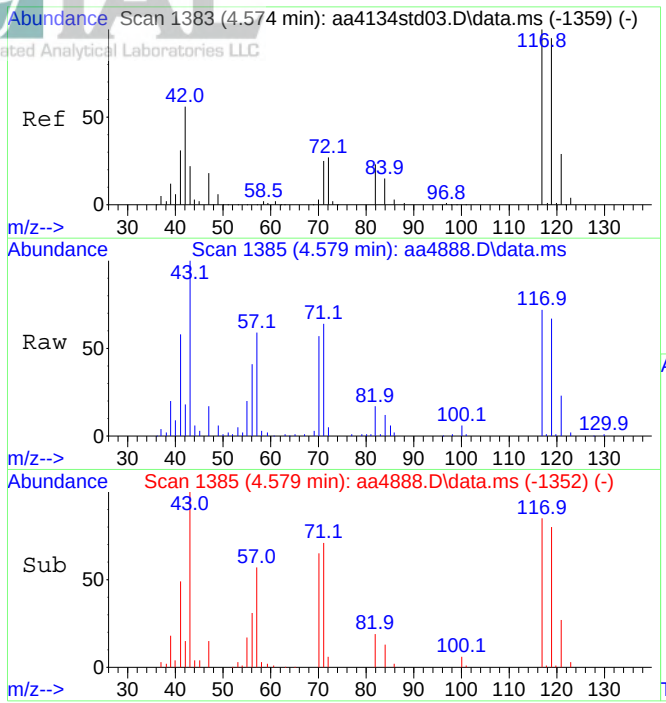


#29
Cyclohexane
Concen: 3.40 ppbV
RT: 4.419 min Scan# 1335
Delta R.T. 0.006 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 56 Resp: 296816

Ion	Ratio	Lower	Upper
56	100		
84	50.5	71.2	106.8#

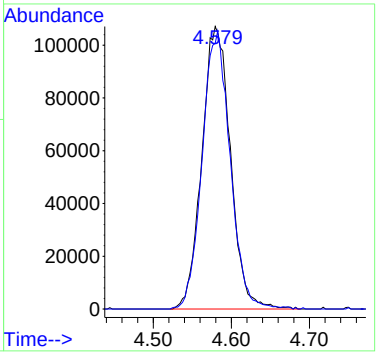


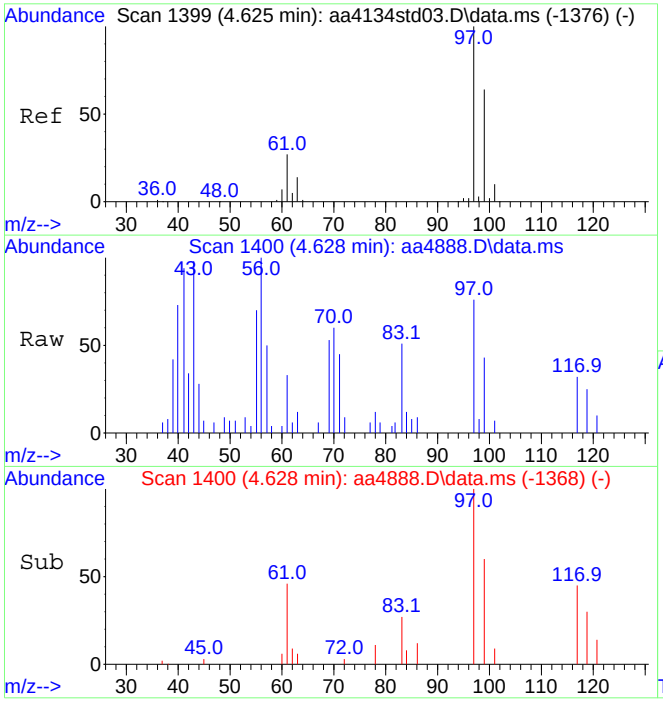


#32
Carbon tetrachloride
Concen: 2.17 ppbV
RT: 4.579 min Scan# 1385
Delta R.T. 0.006 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion:117 Resp: 272441

Ion	Ratio	Lower	Upper
117	100		
119	96.0	76.7	115.1

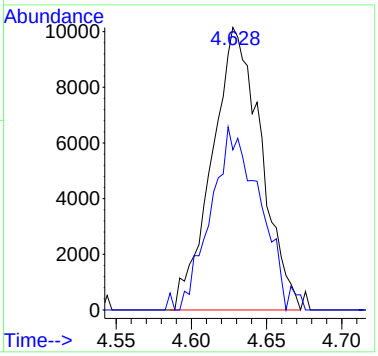


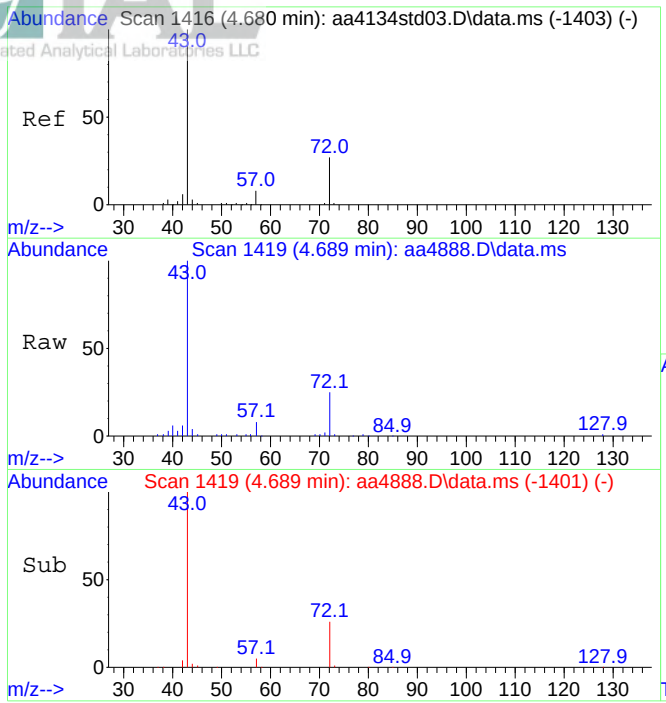


#34
1,1,1-Trichloroethane
Concen: 0.21 ppbV
RT: 4.628 min Scan# 1400
Delta R.T. 0.002 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 97 Resp: 23000

Ion	Ratio	Lower	Upper
97	100		
99	63.3	52.3	78.5

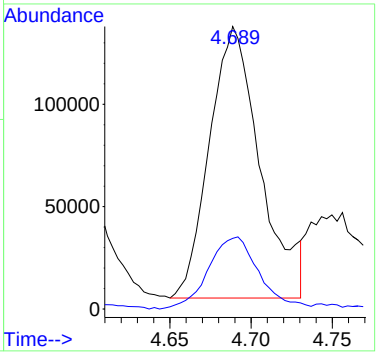


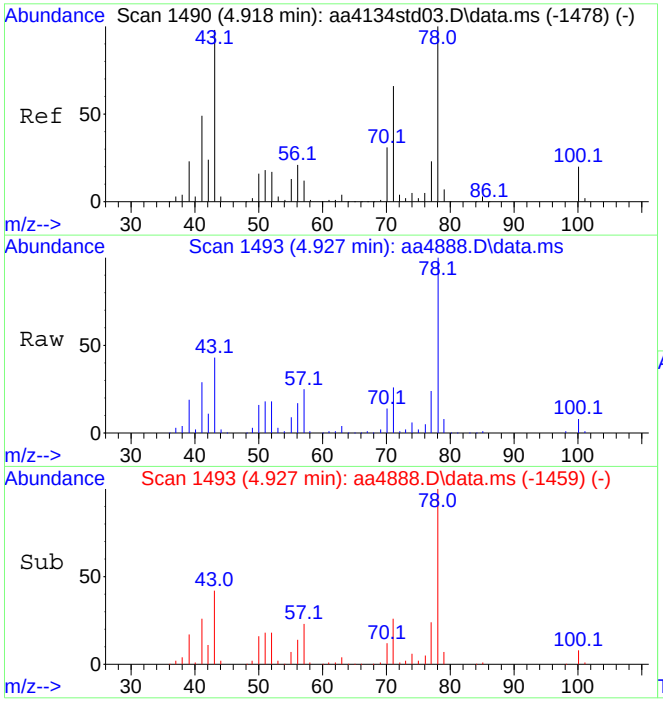


#35
Methyl ethyl ketone
Concen: 2.97 ppbV
RT: 4.689 min Scan# 1419
Delta R.T. 0.009 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 43 Resp: 287451

Ion	Ratio	Lower	Upper
43	100		
72	26.5	21.6	32.4

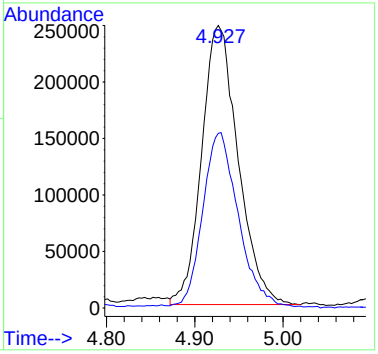


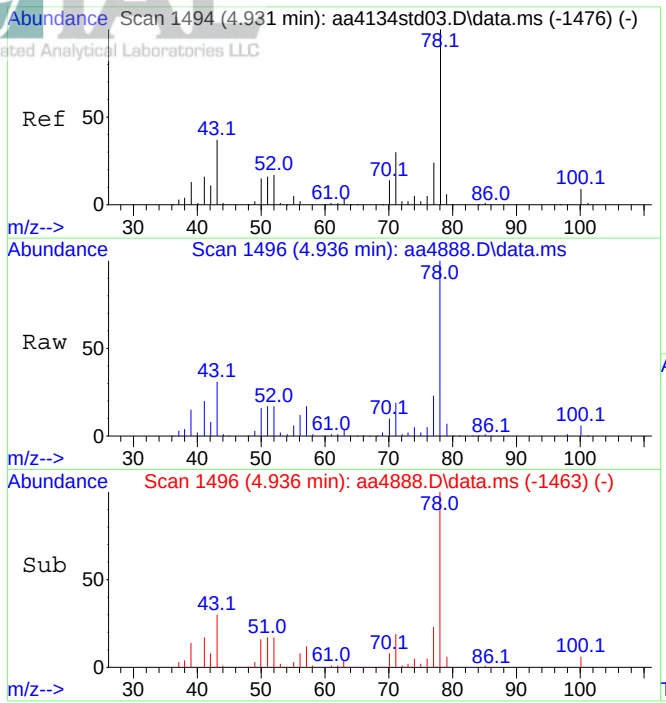


#36
n-Heptane
Concen: 6.48 ppbV
RT: 4.927 min Scan# 1493
Delta R.T. 0.009 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 43 Resp: 709633

Ion	Ratio	Lower	Upper
43	100		
71	62.0	50.5	75.7

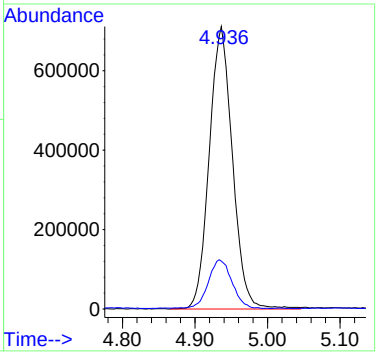


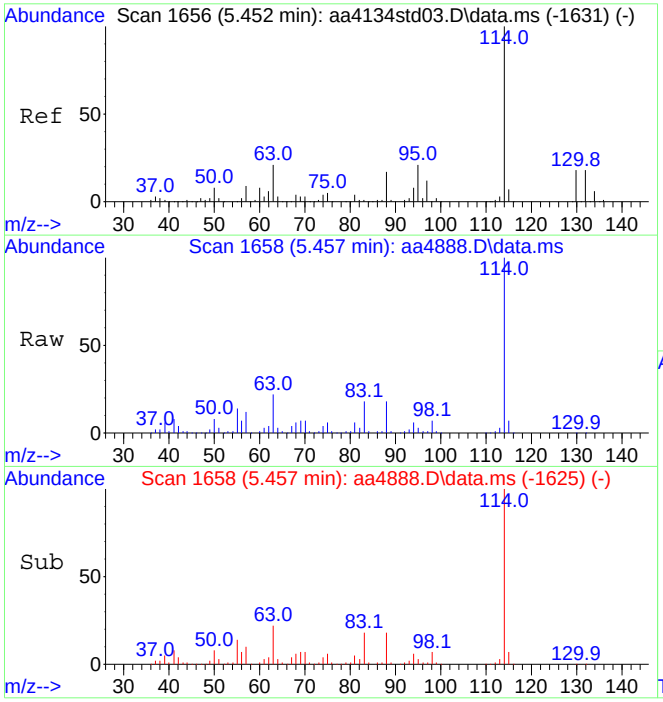


#37
Benzene
Concen: 10.07 ppbV
RT: 4.936 min Scan# 1496
Delta R.T. 0.006 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 78 Resp: 1583423

Ion	Ratio	Lower	Upper
78	100		
51	17.8	13.4	20.0

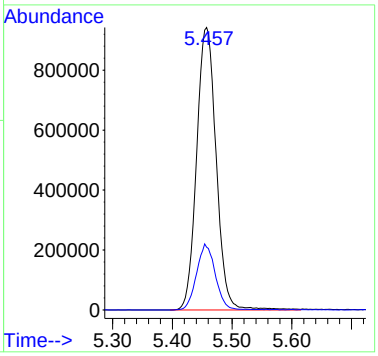


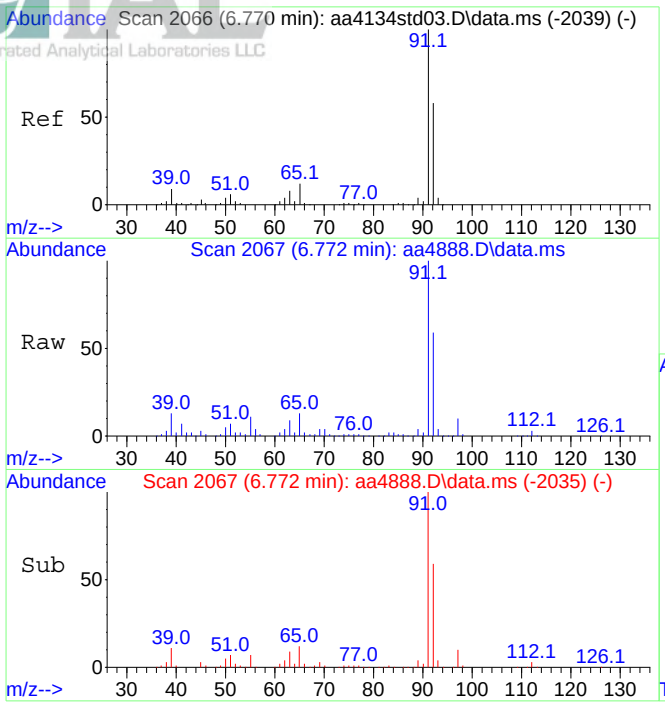


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.005 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion:114 Resp: 2148109

Ion	Ratio	Lower	Upper
114	100		
63	22.4	17.0	25.6

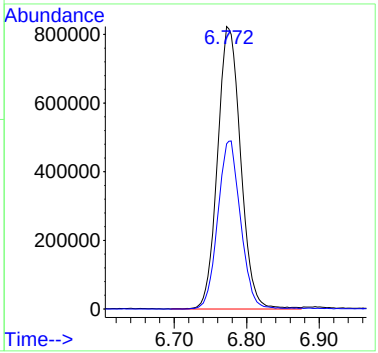


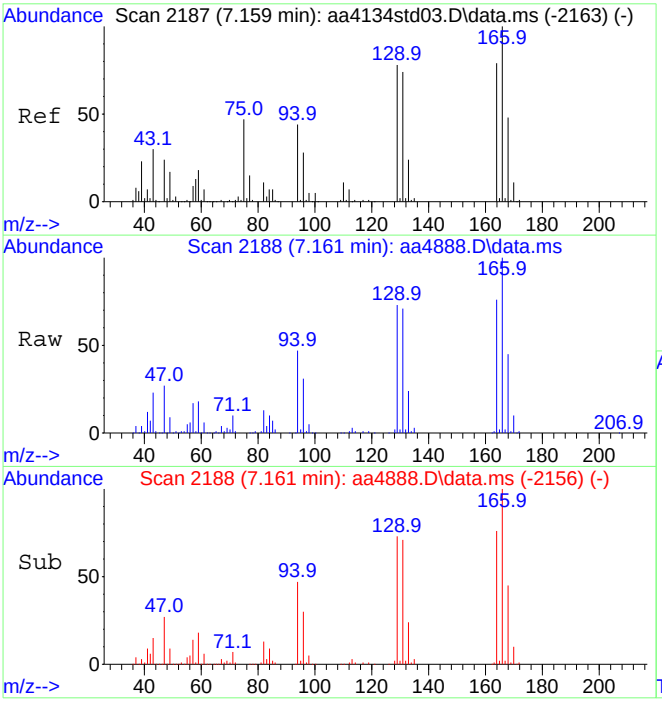


#47
Toluene
Concen: 6.03 ppbV
RT: 6.772 min Scan# 2067
Delta R.T. 0.002 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 91 Resp: 1820630

Ion	Ratio	Lower	Upper
91	100		
92	58.7	47.3	70.9

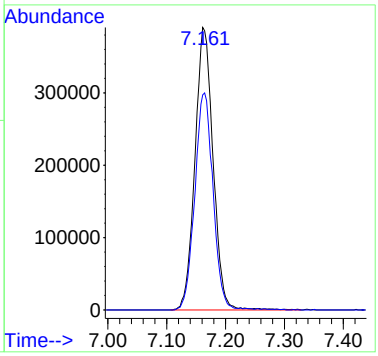


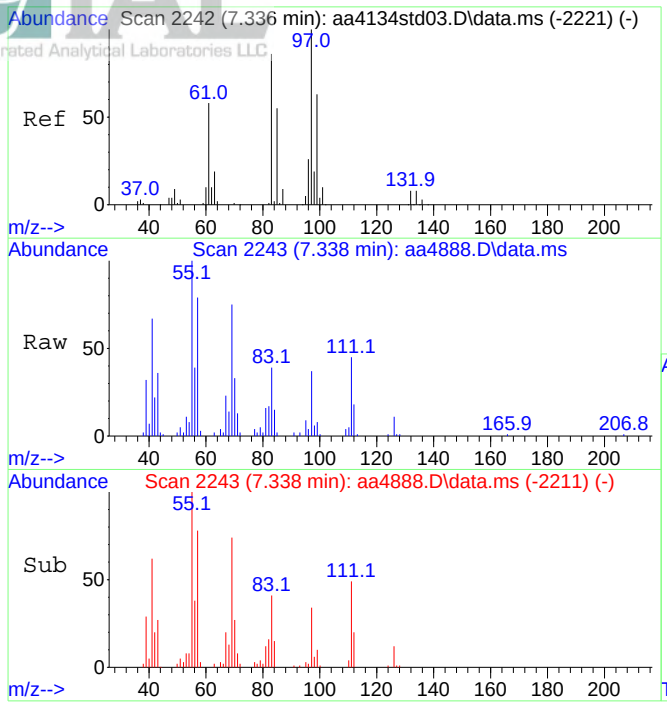


#49
Tetrachloroethene
Concen: 6.42 ppbV
RT: 7.161 min Scan# 2188
Delta R.T. 0.002 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion:166 Resp: 836083

Ion	Ratio	Lower	Upper
166	100		
164	77.3	62.3	93.5

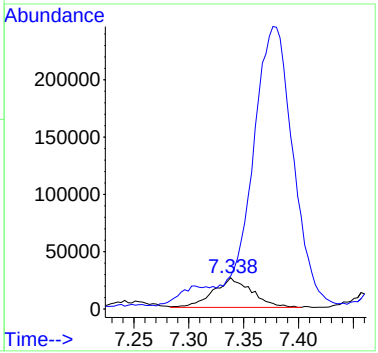


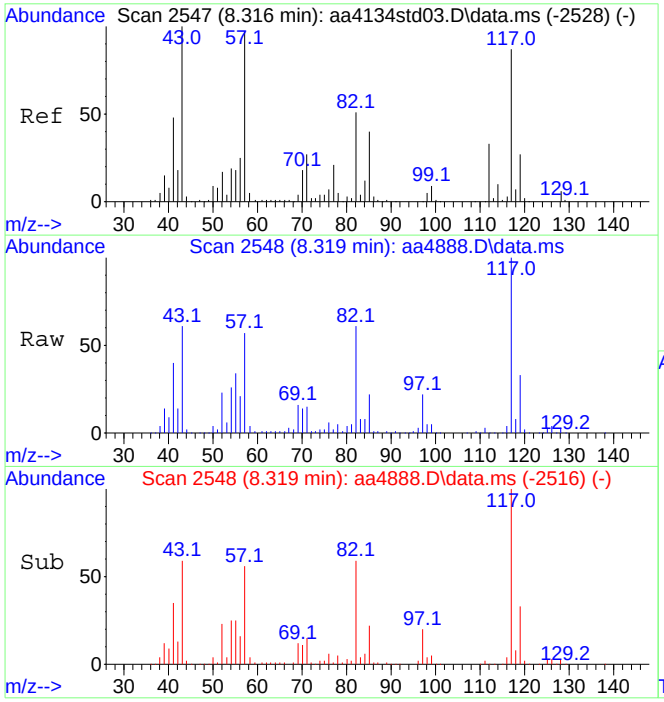


#51
1,1,2-Trichloroethane
Concen: 0.61 ppbV
RT: 7.338 min Scan# 2243
Delta R.T. 0.002 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 97 Resp: 62558

Ion	Ratio	Lower	Upper
97	100		
83	69.4	69.0	103.4

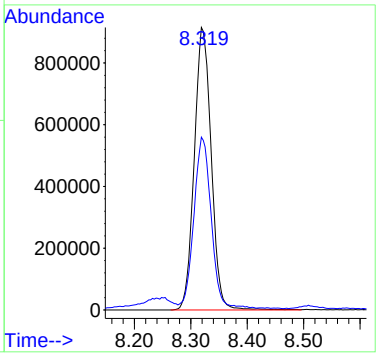


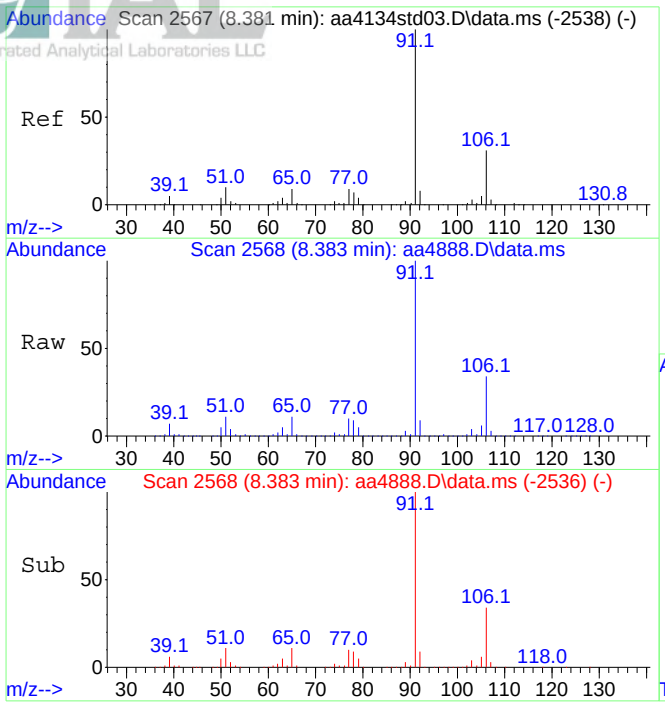


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion:117 Resp: 1907941

Ion	Ratio	Lower	Upper
117	100		
82	61.5	47.0	70.4

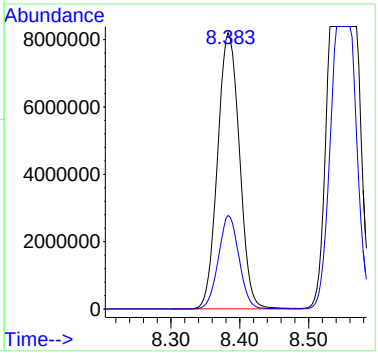


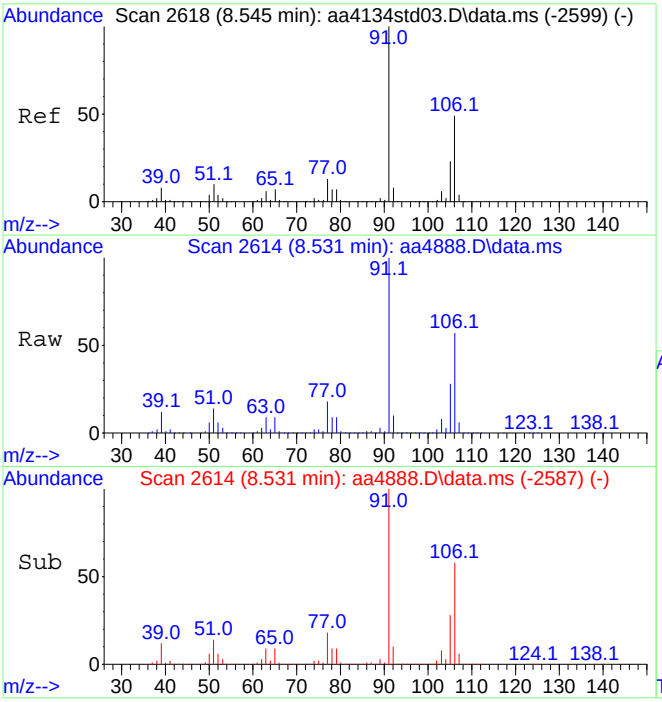


#58
Ethylbenzene
Concen: 51.56 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 91 Resp:18127485

Ion	Ratio	Lower	Upper
91	100		
106	31.9	24.6	36.8

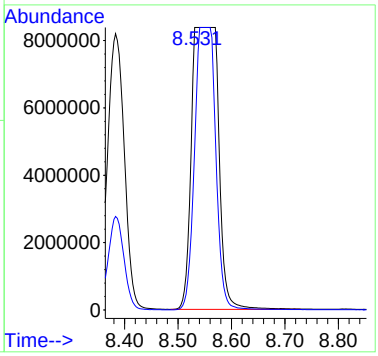


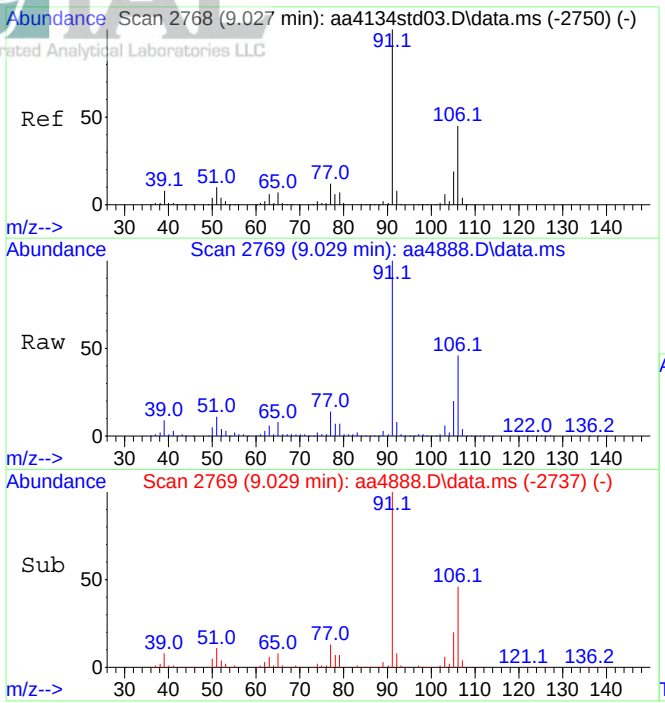


#59
Xylenes (m&p)
Concen: 112.10 ppbV
RT: 8.531 min Scan# 2614
Delta R.T. -0.014 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 91 Resp:29204371

Ion	Ratio	Lower	Upper
91	100		
106	78.1	39.0	58.4#

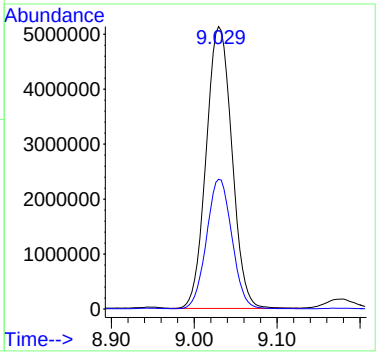


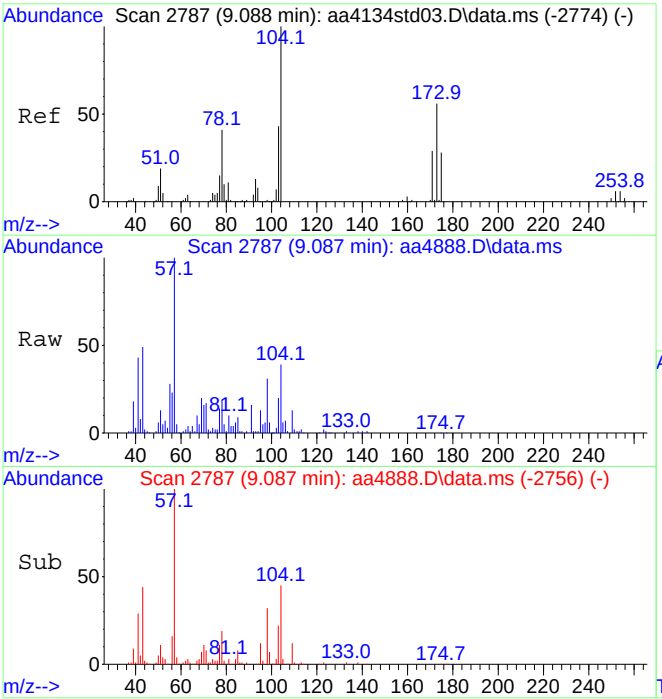


#60
Xylene (o)
Concen: 38.96 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 91 Resp:11073879

Ion	Ratio	Lower	Upper
91	100		
106	45.3	36.8	55.2

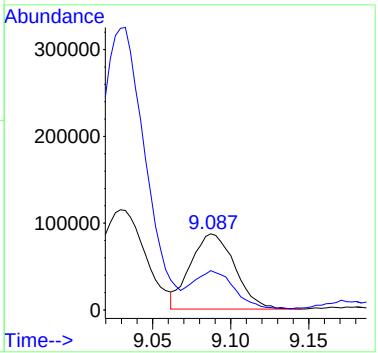


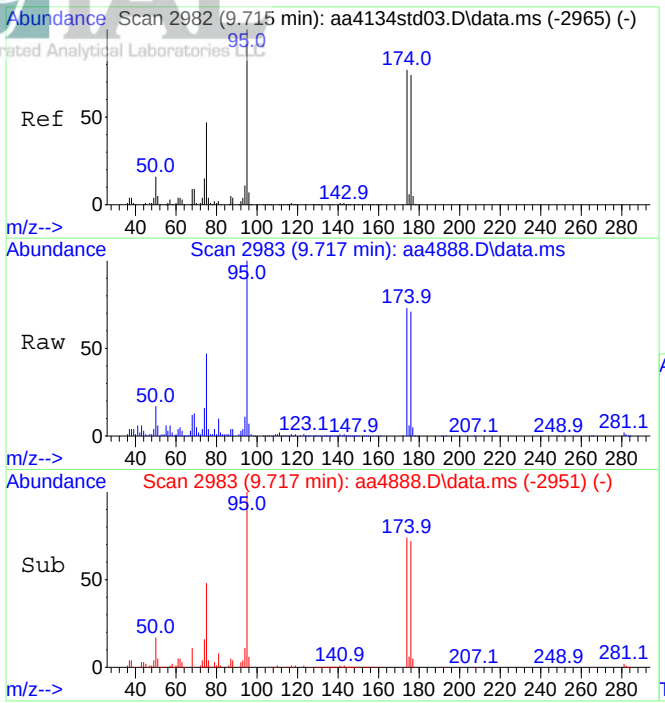


#61
Styrene
Concen: 0.88 ppbV
RT: 9.087 min Scan# 2787
Delta R.T. -0.001 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion:104 Resp: 171344

Ion	Ratio	Lower	Upper
104	100		
103	45.0	37.8	56.6

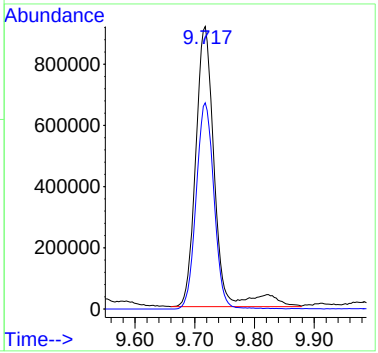


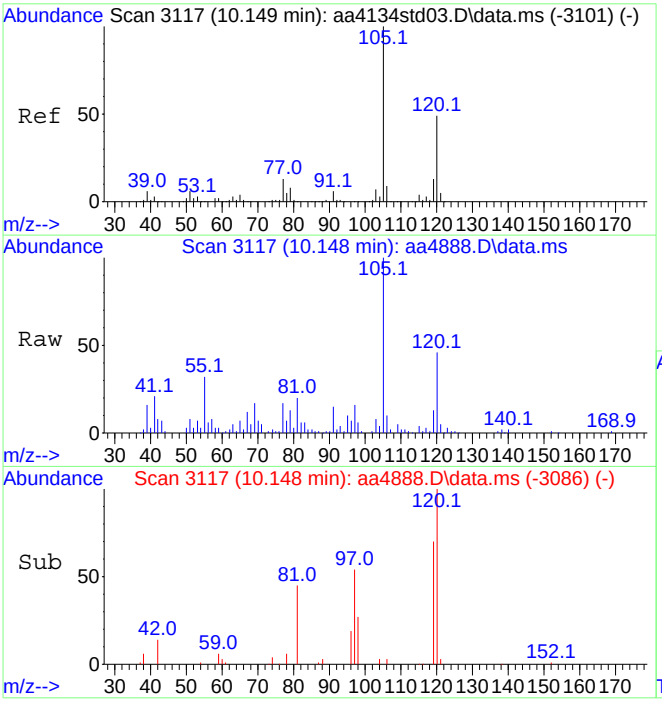


#64
Bromofluorobenzene (tune std)
Concen: 12.22 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion: 95 Resp: 2032578

Ion	Ratio	Lower	Upper
95	100		
174	68.9	61.1	91.7

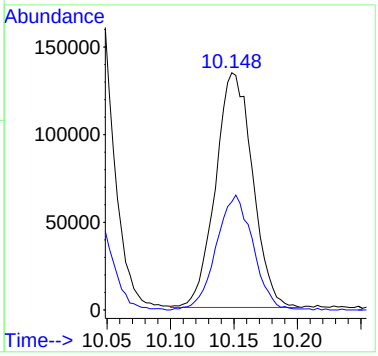


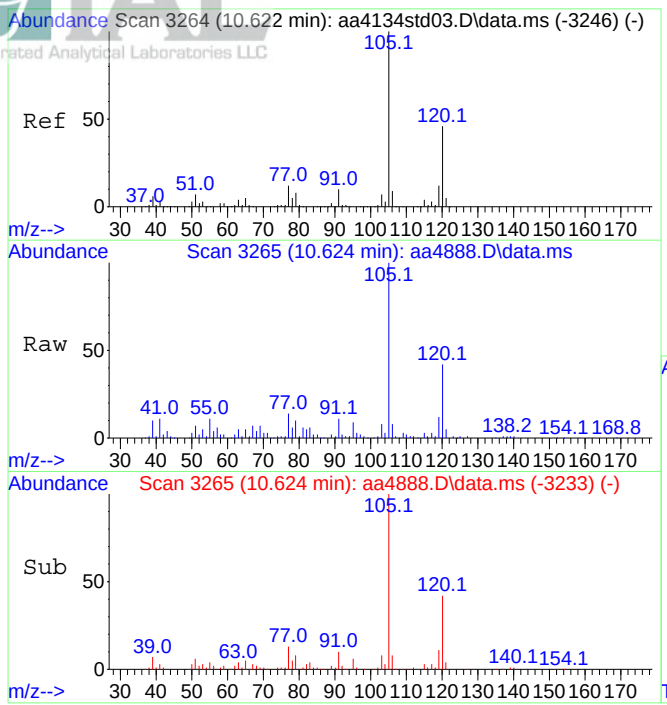


#69
1,3,5-Trimethylbenzene
Concen: 0.83 ppbV
RT: 10.148 min Scan# 3117
Delta R.T. -0.001 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion:105 Resp: 272514

Ion	Ratio	Lower	Upper
105	100		
120	48.5	38.9	58.3

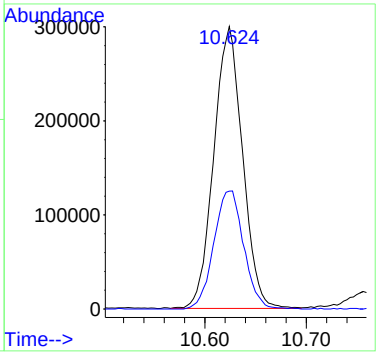




#70
1,2,4-Trimethylbenzene
Concen: 1.79 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4888.D
Acq: 8 Dec 2023 3:06 pm

Tgt Ion:105 Resp: 591659

Ion	Ratio	Lower	Upper
105	100		
120	43.5	36.3	54.5



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4909.D
Acq On : 11 Dec 2023 2:18 pm
Operator : jjw
Sample : E23-05047-03x10 dil
Misc : 3811, 50cc
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 12 10:32:51 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.386	130	496847	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	2142143	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1996652	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1647117	9.46	ppbV	0.000
Target Compounds						Qvalue
15) Carbon disulfide	2.737	76	316899	2.09	ppbV #	90
21) Acetone	3.200	43	203694	2.72	ppbV	96
24) n-Hexane	3.393	57	78009	0.50	ppbV	95
26) Tert-butyl alcohol	3.451	59	80564	0.62	ppbV	100
29) Cyclohexane	4.402	56	24995	0.23	ppbV #	63
36) n-Heptane	4.914	43	59954	0.44	ppbV	95
37) Benzene	4.923	78	134689	0.68	ppbV	97
47) Toluene	6.769	91	155148	0.52	ppbV	98
49) Tetrachloroethene	7.152	166	64939	0.50	ppbV	96
58) Ethylbenzene	8.380	91	1467544	3.99	ppbV	99
59) Xylenes (m&p)	8.544	91	4731462	17.36	ppbV	98
60) Xylene (o)	9.026	91	841179	2.83	ppbV	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

```
Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4909.D
Acq On    : 11 Dec 2023   2:18 pm
Operator  : jjw
Sample    : E23-05047-03x10 dil
Misc      : 3811, 50cc
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Dec 12 10:32:51 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title  : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration
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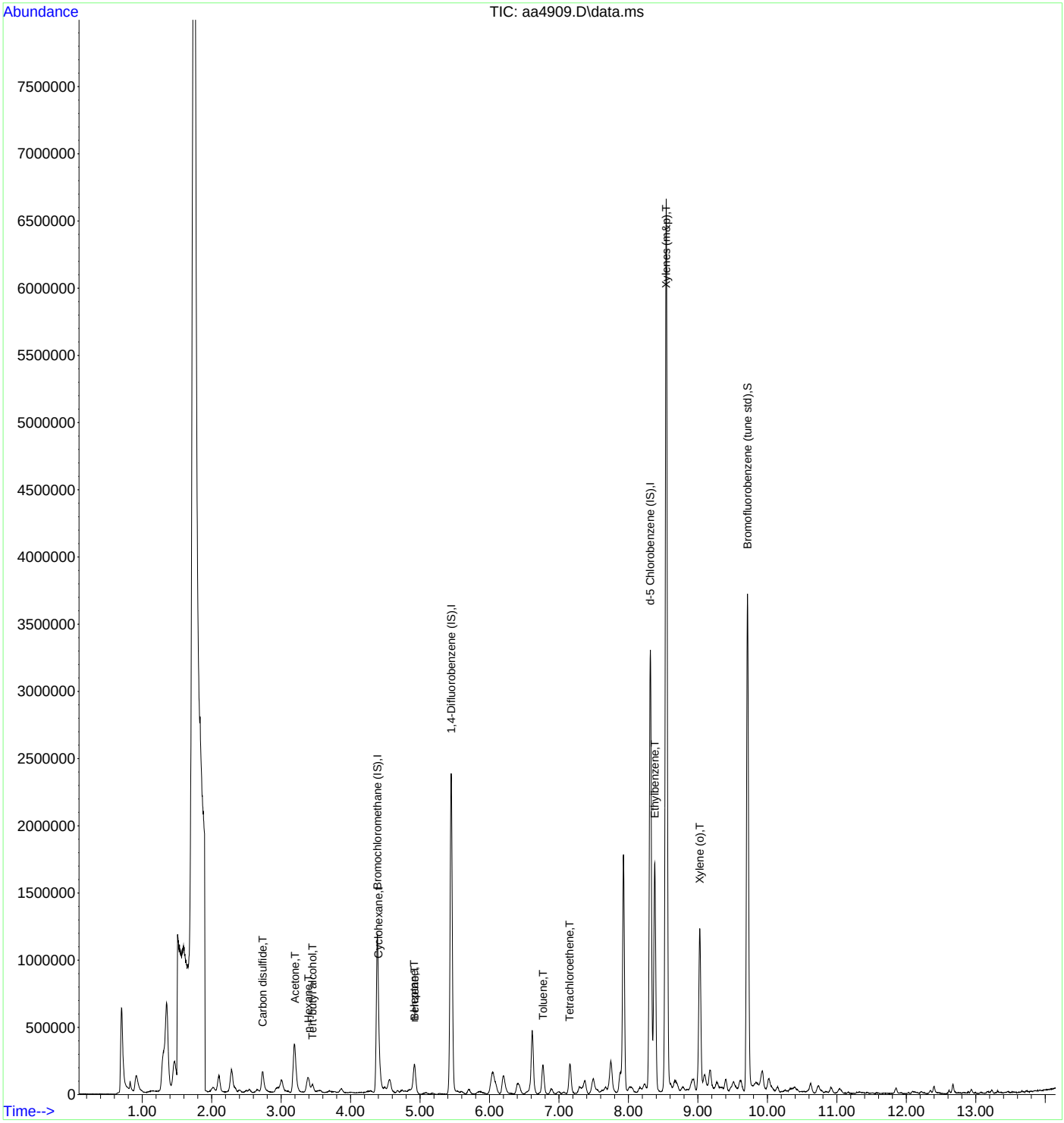
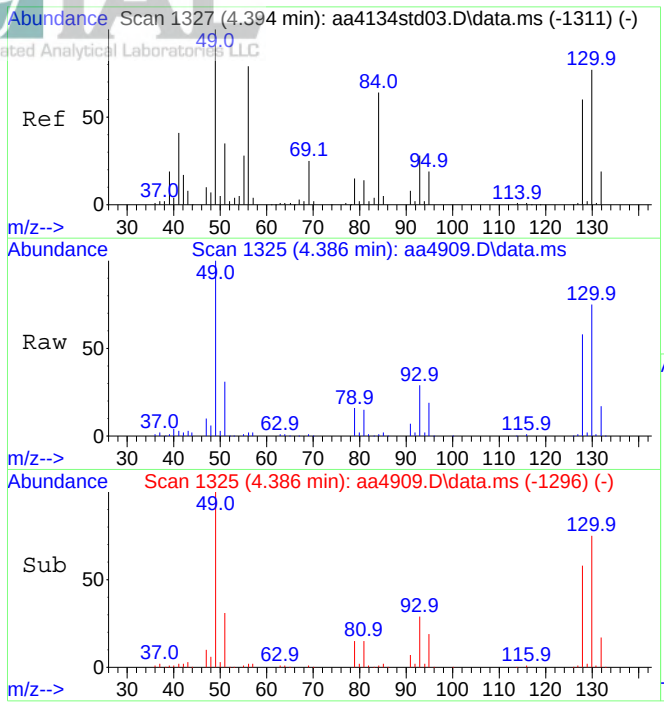
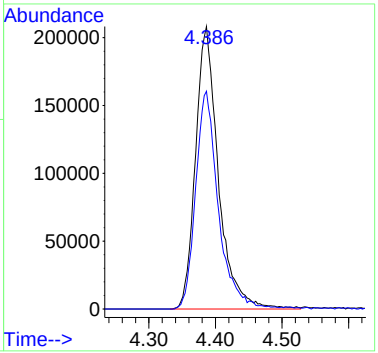


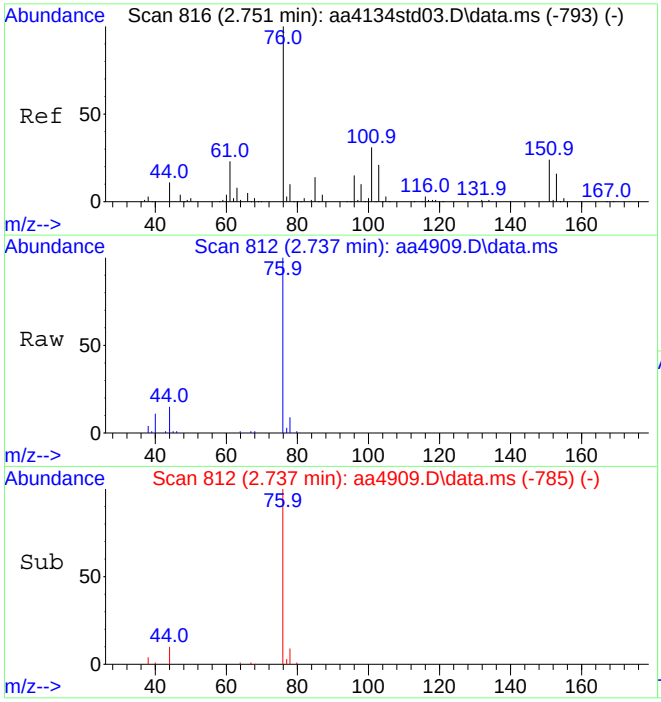


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.386 min Scan# 1325
Delta R.T. -0.008 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion:130 Resp: 496847

Ion	Ratio	Lower	Upper
130	100		
128	76.6	62.2	93.4

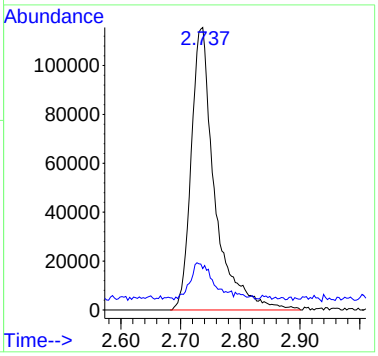


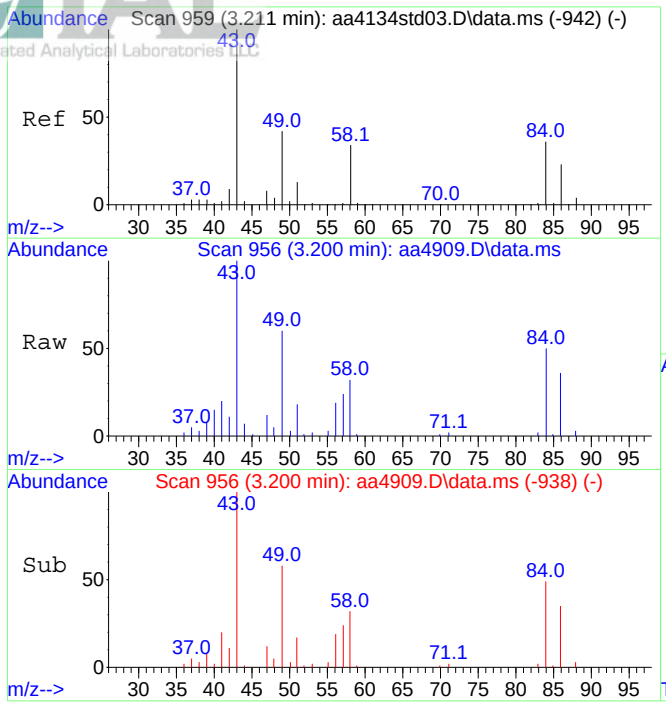


#15
Carbon disulfide
Concen: 2.09 ppbV
RT: 2.737 min Scan# 812
Delta R.T. -0.014 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion: 76 Resp: 316899

Ion	Ratio	Lower	Upper
76	100		
44	14.8	9.0	13.4#

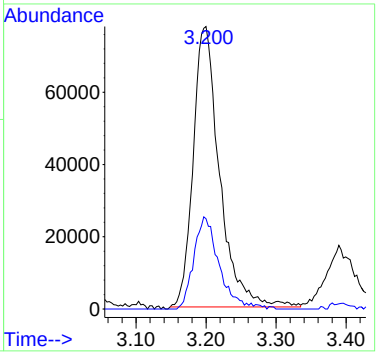


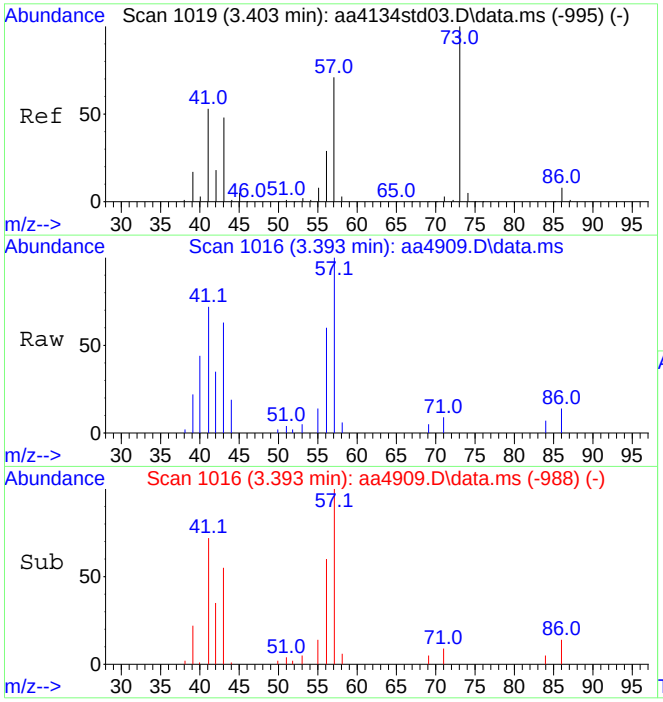


#21
Acetone
Concen: 2.72 ppbV
RT: 3.200 min Scan# 956
Delta R.T. -0.011 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion: 43 Resp: 203694

Ion	Ratio	Lower	Upper
43	100		
58	31.5	27.1	40.7

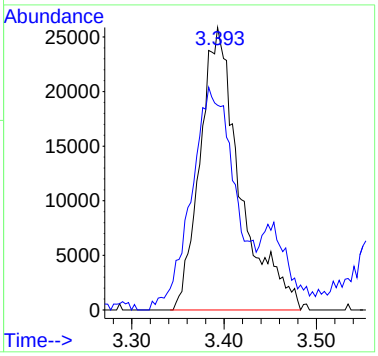


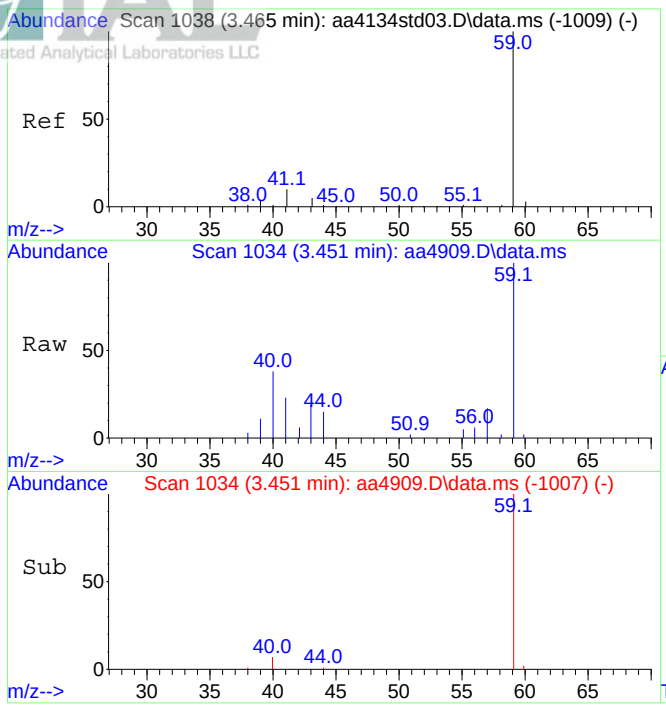


#24
n-Hexane
Concen: 0.50 ppbV
RT: 3.393 min Scan# 1016
Delta R.T. -0.011 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion: 57 Resp: 78009

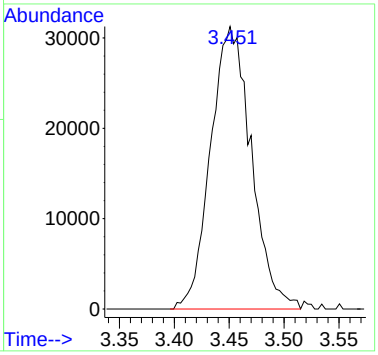
Ion	Ratio	Lower	Upper
57	100		
41	87.5	66.4	99.6

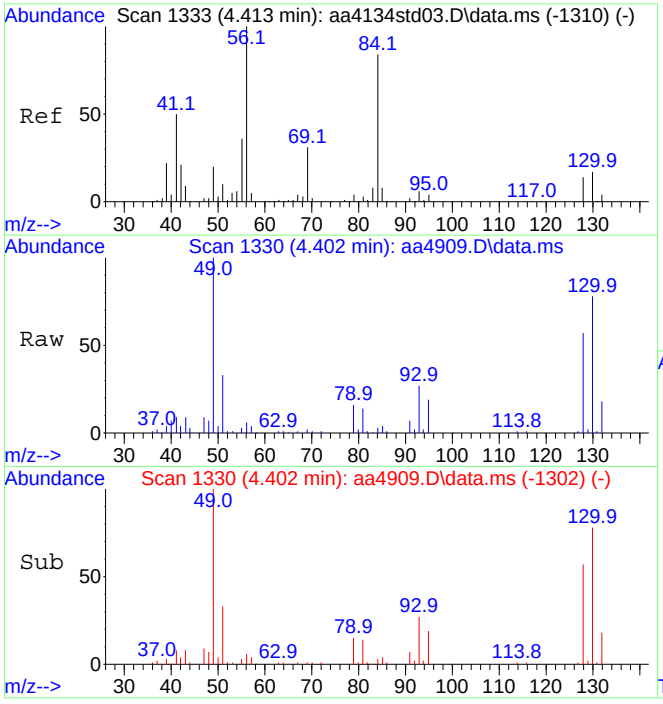




#26
Tert-butyl alcohol
Concen: 0.62 ppbV
RT: 3.451 min Scan# 1034
Delta R.T. -0.014 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion: 59 Resp: 80564

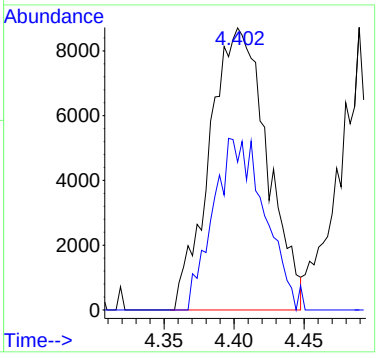


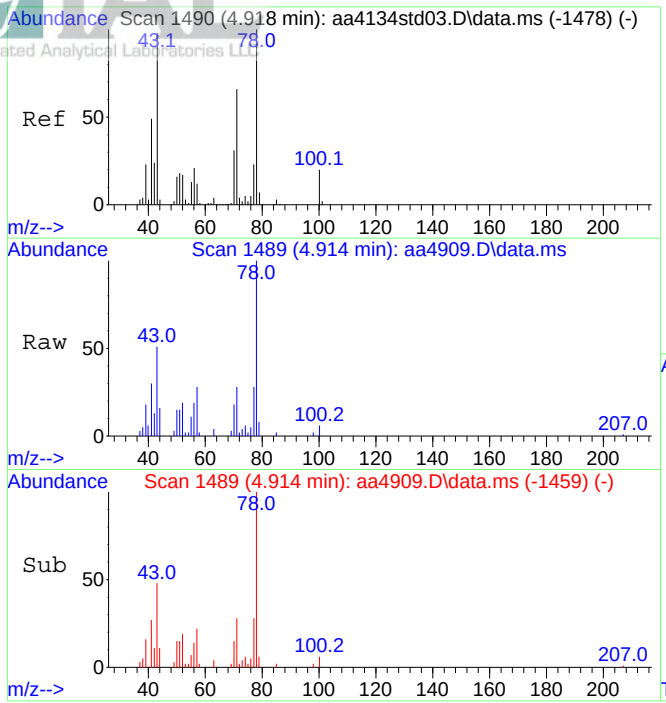


#29
Cyclohexane
Concen: 0.23 ppbV
RT: 4.402 min Scan# 1330
Delta R.T. -0.011 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion: 56 Resp: 24995

Ion	Ratio	Lower	Upper
56	100		
84	54.1	71.2	106.8#

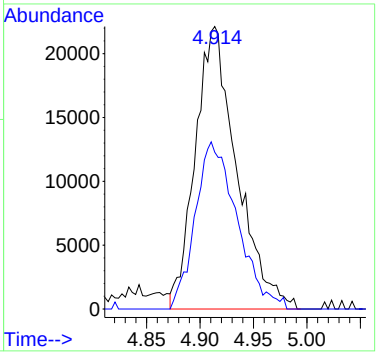


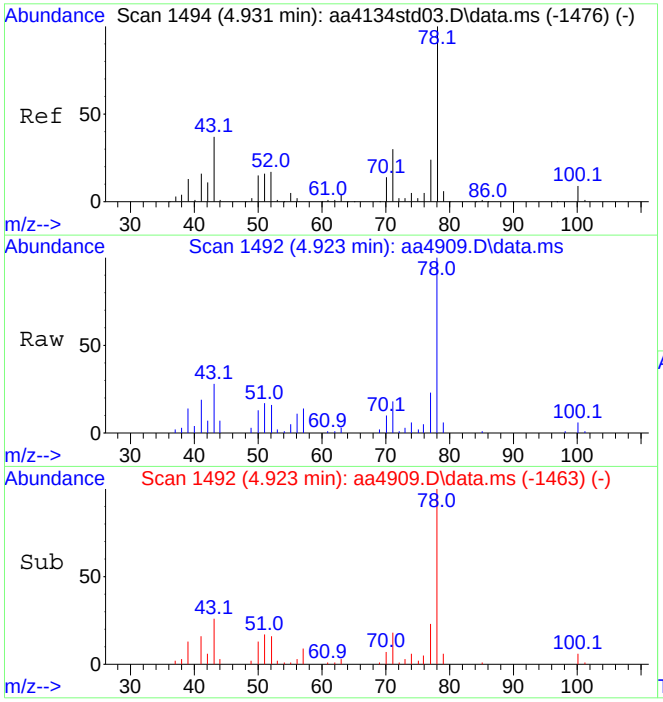


#36
n-Heptane
Concen: 0.44 ppbV
RT: 4.914 min Scan# 1489
Delta R.T. -0.004 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion: 43 Resp: 59954

Ion	Ratio	Lower	Upper
43	100		
71	59.6	50.5	75.7

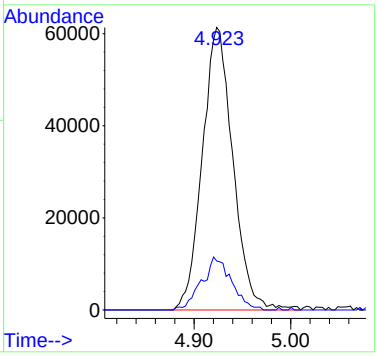


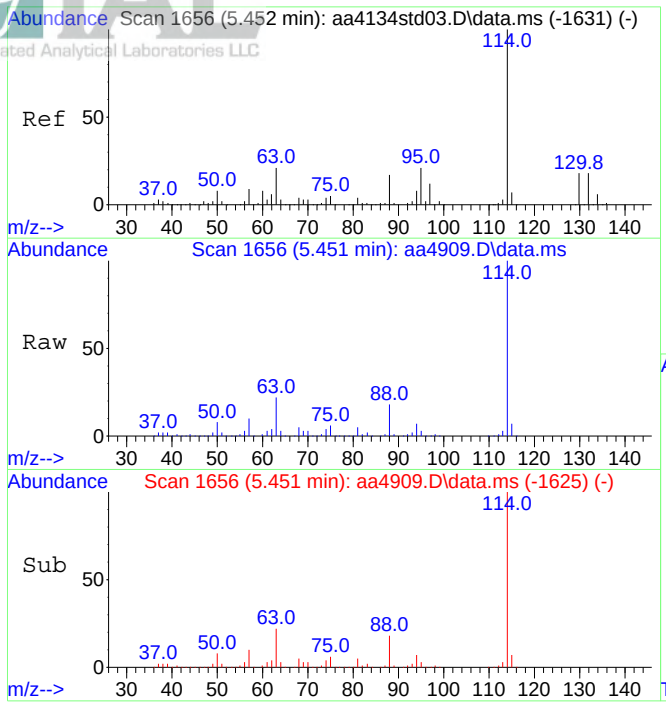


#37
Benzene
Concen: 0.68 ppbV
RT: 4.923 min Scan# 1492
Delta R.T. -0.007 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion: 78 Resp: 134689

Ion	Ratio	Lower	Upper
78	100		
51	18.2	13.4	20.0

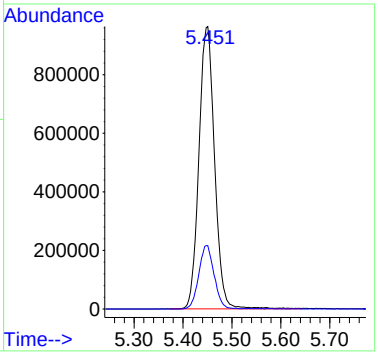


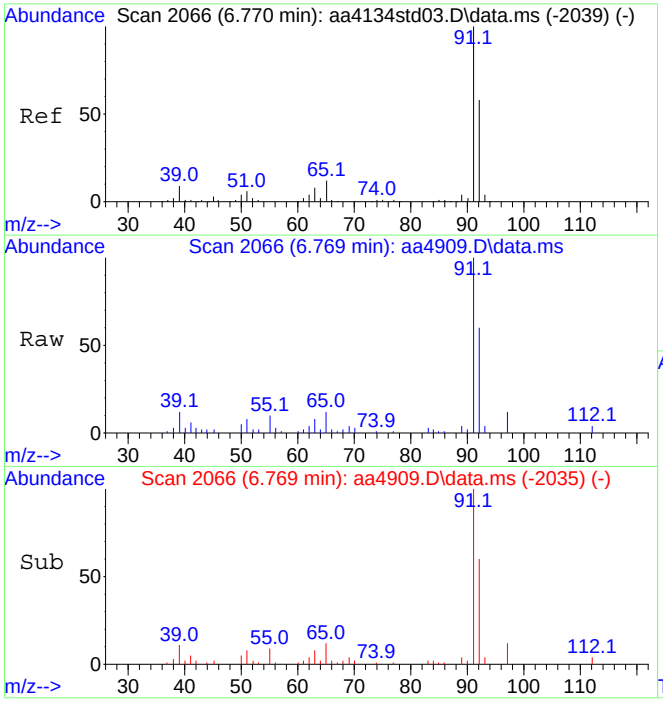


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.451 min Scan# 1656
Delta R.T. -0.001 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion:114 Resp: 2142143

Ion	Ratio	Lower	Upper
114	100		
63	22.1	17.0	25.6

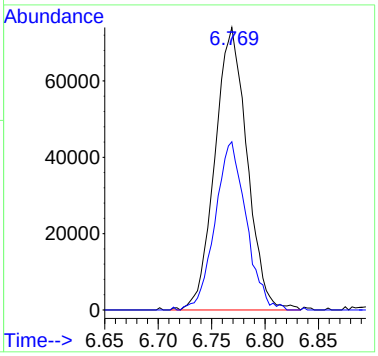


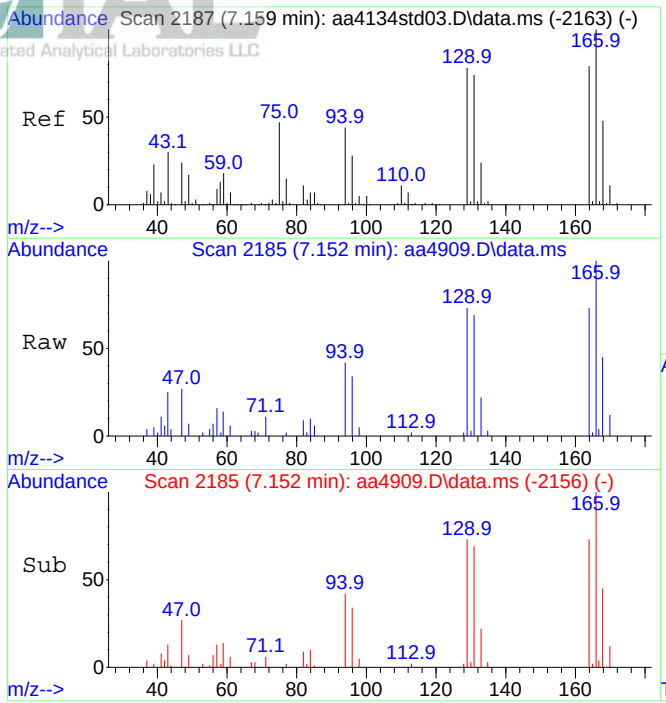


#47
Toluene
Concen: 0.52 ppbV
RT: 6.769 min Scan# 2066
Delta R.T. -0.001 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion: 91 Resp: 155148

Ion	Ratio	Lower	Upper
91	100		
92	57.5	47.3	70.9

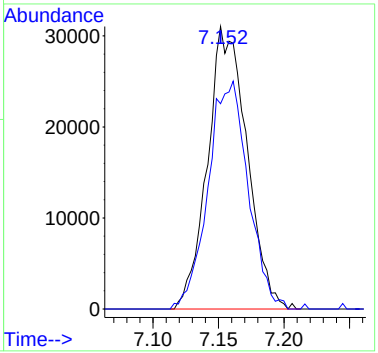


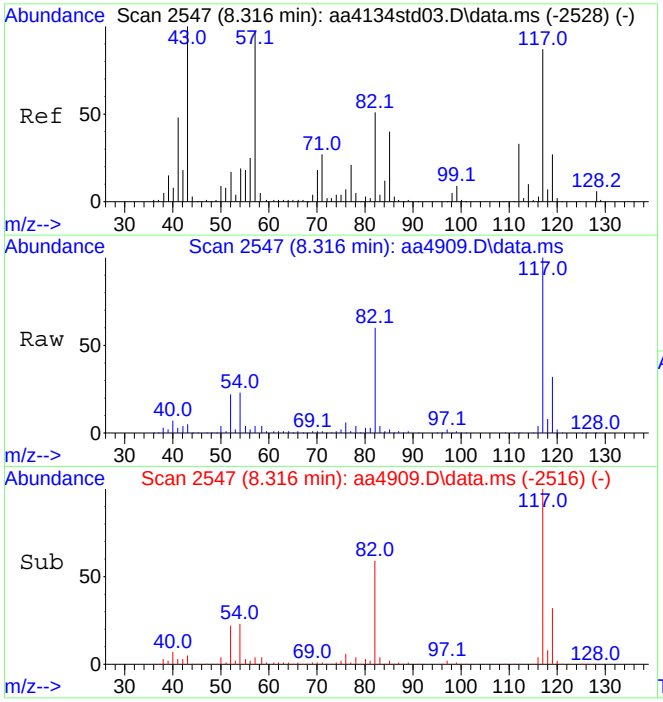


#49
Tetrachloroethene
Concen: 0.50 ppbV
RT: 7.152 min Scan# 2185
Delta R.T. -0.007 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion:166 Resp: 64939

Ion	Ratio	Lower	Upper
166	100		
164	81.7	62.3	93.5

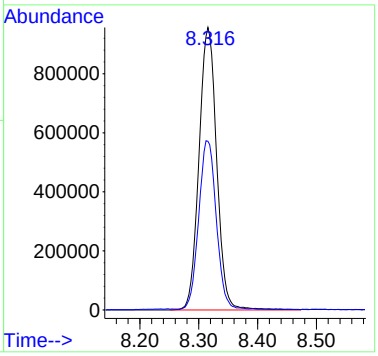


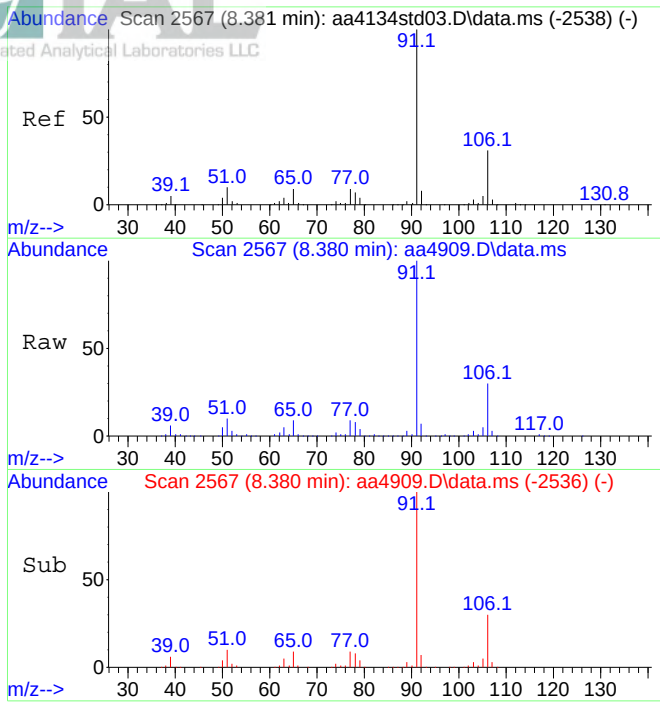


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.316 min Scan# 2547
Delta R.T. -0.001 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion:117 Resp: 1996652

Ion	Ratio	Lower	Upper
117	100		
82	59.4	47.0	70.4

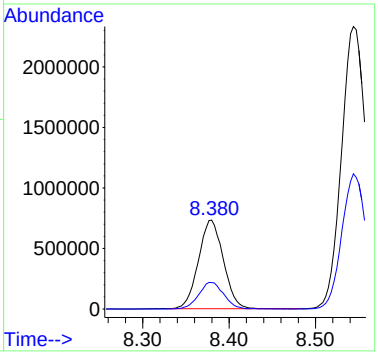


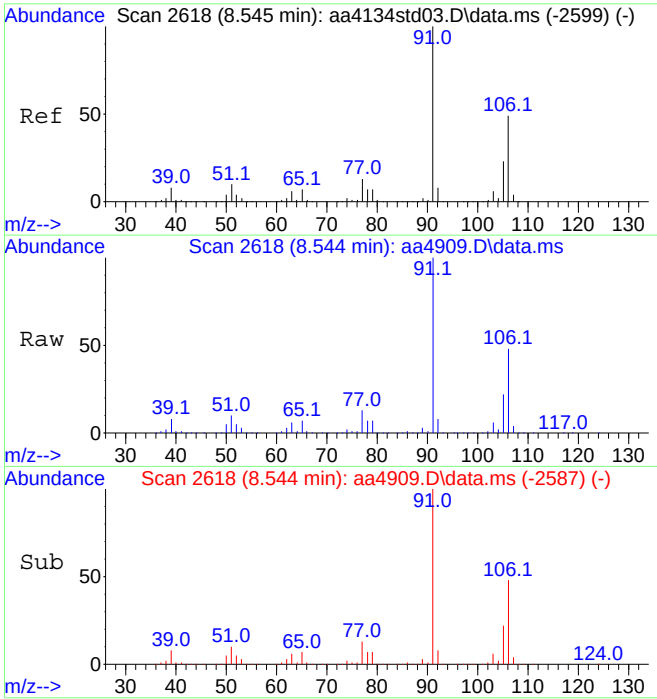


#58
Ethylbenzene
Concen: 3.99 ppbV
RT: 8.380 min Scan# 2567
Delta R.T. -0.001 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion: 91 Resp: 1467544

Ion	Ratio	Lower	Upper
91	100		
106	30.3	24.6	36.8

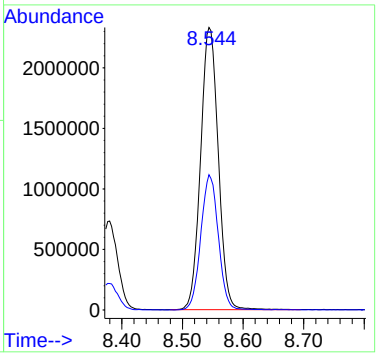


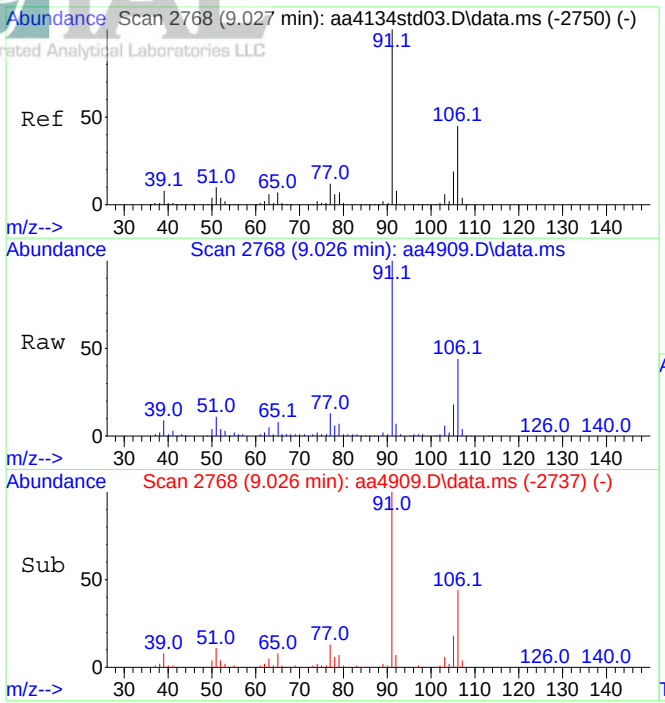


#59
Xylenes (m&p)
Concen: 17.36 ppbV
RT: 8.544 min Scan# 2618
Delta R.T. -0.001 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion: 91 Resp: 4731462

Ion	Ratio	Lower	Upper
91	100		
106	47.4	39.0	58.4

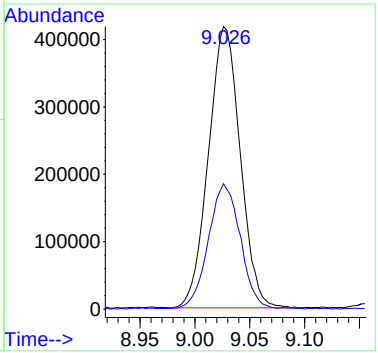


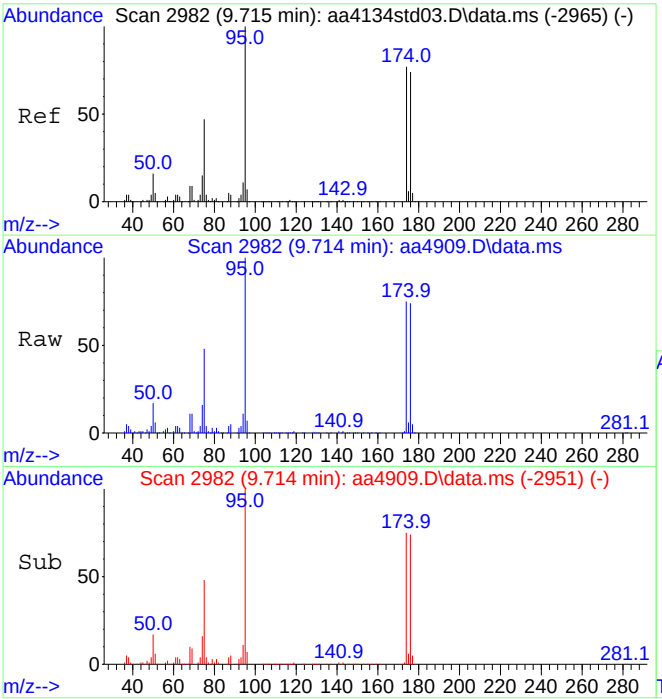


#60
Xylene (o)
Concen: 2.83 ppbV
RT: 9.026 min Scan# 2768
Delta R.T. -0.001 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion: 91 Resp: 841179

Ion	Ratio	Lower	Upper
91	100		
106	45.0	36.8	55.2

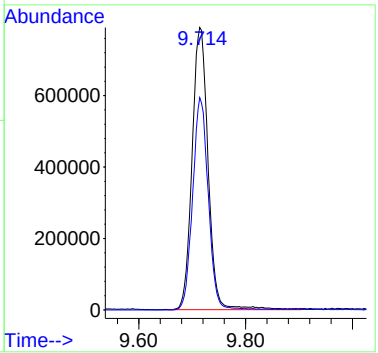




#64
Bromofluorobenzene (tune std)
Concen: 9.46 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4909.D
Acq: 11 Dec 2023 2:18 pm

Tgt Ion: 95 Resp: 1647117

Ion	Ratio	Lower	Upper
95	100		
174	73.1	61.1	91.7



INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05047-04	Instrument ID:	AA
Client ID:	SV6	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/15/2023 12:39	Injection Volmue:	500ml, 100ml
Date Received:	11/16/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 15:42, 12/11/2023 14:50	% Moisture:	NA
Data File:	AA4889, AA4910	Dilution Factor:	1, 5
Summa ID:	3283	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Acetone	67-64-1	D	43	100	1.0	2.4
Benzene	71-43-2		9.4	30	0.20	0.64
Bromodichloromethane	75-27-4		ND	ND	0.20	1.3
Bromoform	75-25-2		ND	ND	0.20	2.1
Bromomethane	74-83-9		ND	ND	0.20	0.78
1,3-Butadiene	106-99-0		ND	ND	0.20	0.44
Chlorobenzene	108-90-7		ND	ND	0.20	0.92
Chloroethane	75-00-3		ND	ND	0.20	0.53
Chloroform	67-66-3		ND	ND	0.20	0.98
Chloromethane	74-87-3		ND	ND	0.20	0.41
Carbon disulfide	75-15-0		15	48	0.20	0.62
Carbon tetrachloride	56-23-5		ND	ND	0.040	0.25
Cyclohexane	110-82-7		8.1	28	0.20	0.69
Dibromochloromethane	124-48-1		ND	ND	0.20	1.7
1,2-Dibromoethane	106-93-4		ND	ND	0.20	1.5
1,2-Dichlorobenzene	95-50-1		ND	ND	0.20	1.2
1,3-Dichlorobenzene	541-73-1		ND	ND	0.20	1.2
1,4-Dichlorobenzene	106-46-7		ND	ND	0.20	1.2
Dichlorodifluoromethane	75-71-8		ND	ND	0.20	0.99
1,1-Dichloroethane	75-34-3		ND	ND	0.20	0.81
1,2-Dichloroethane	107-06-2		ND	ND	0.20	0.81
1,1-Dichloroethene	75-35-4		ND	ND	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2		ND	ND	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5		ND	ND	0.20	0.79
1,2-Dichloropropane	78-87-5		ND	ND	0.20	0.92
1,3-Dichloropropene (cis)	10061-01-5		ND	ND	0.20	0.91
1,3-Dichloropropene (trans)	10061-02-6		ND	ND	0.20	0.91
1,2-Dichlorotetrafluoroethane	76-14-2		ND	ND	0.20	1.4
1,4-Dioxane	123-91-1		ND	ND	0.20	0.72
Ethylbenzene	100-41-4		1.8	7.9	0.20	0.87
n-Heptane	142-82-5		7.0	29	0.20	0.82
1,3-Hexachlorobutadiene	87-68-3		ND	ND	0.20	2.1
n-Hexane	110-54-3		10	36	0.20	0.70
Methylene chloride	75-09-2		ND	ND	0.20	0.69
Methyl ethyl ketone	78-93-3		3.2	9.3	0.20	0.59
Methyl isobutyl ketone	108-10-1		ND	ND	0.20	0.82
Methyl tert-butyl ether	1634-04-4		ND	ND	0.20	0.72
Styrene	100-42-5		0.79	3.4	0.20	0.85
Tert-butyl alcohol	75-65-0		14	43	0.20	0.61
1,1,2,2-Tetrachloroethane	79-34-5		ND	ND	0.20	1.4
Tetrachloroethene	127-18-4		11	73	0.20	1.4
Toluene	108-88-3		6.3	24	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1		ND	ND	0.20	1.5
1,1,1-Trichloroethane	71-55-6		ND	ND	0.20	1.1
1,1,2-Trichloroethane	79-00-5		ND	ND	0.20	1.1

Qualifiers:
D = Dilution required

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05047-04	Instrument ID:	AA
Client ID:	SV6	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/15/2023 12:39	Injection Volmue:	500ml, 100ml
Date Received:	11/16/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 15:42, 12/11/2023 14:50	% Moisture:	NA
Data File:	AA4889, AA4910	Dilution Factor:	1, 5
Summa ID:	3283	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Trichloroethene	79-01-6		ND	ND	0.046	0.25
Trichlorofluoromethane	75-69-4		0.32	1.8	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		ND	ND	0.20	1.5
1,2,4-Trimethylbenzene	95-63-6		1.7	8.2	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8		0.54	2.6	0.20	0.98
2,2,4-Trimethylpentane	540-84-1		ND	ND	0.20	0.93
Vinyl bromide	593-60-2		ND	ND	0.20	0.87
Vinyl chloride	75-01-4		ND	ND	0.20	0.51
Xylenes (m&p)	179601-23-1		6.6	29	0.20	0.87
Xylenes (o)	95-47-6		2.6	11	0.20	0.87

Qualifiers:
D = Dilution required

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4889.D
Acq On : 8 Dec 2023 3:42 pm
Operator : jjw
Sample : E23-05047-04
Misc : 3283, 500cc
ALS Vial : 12 Sample Multiplier: 1

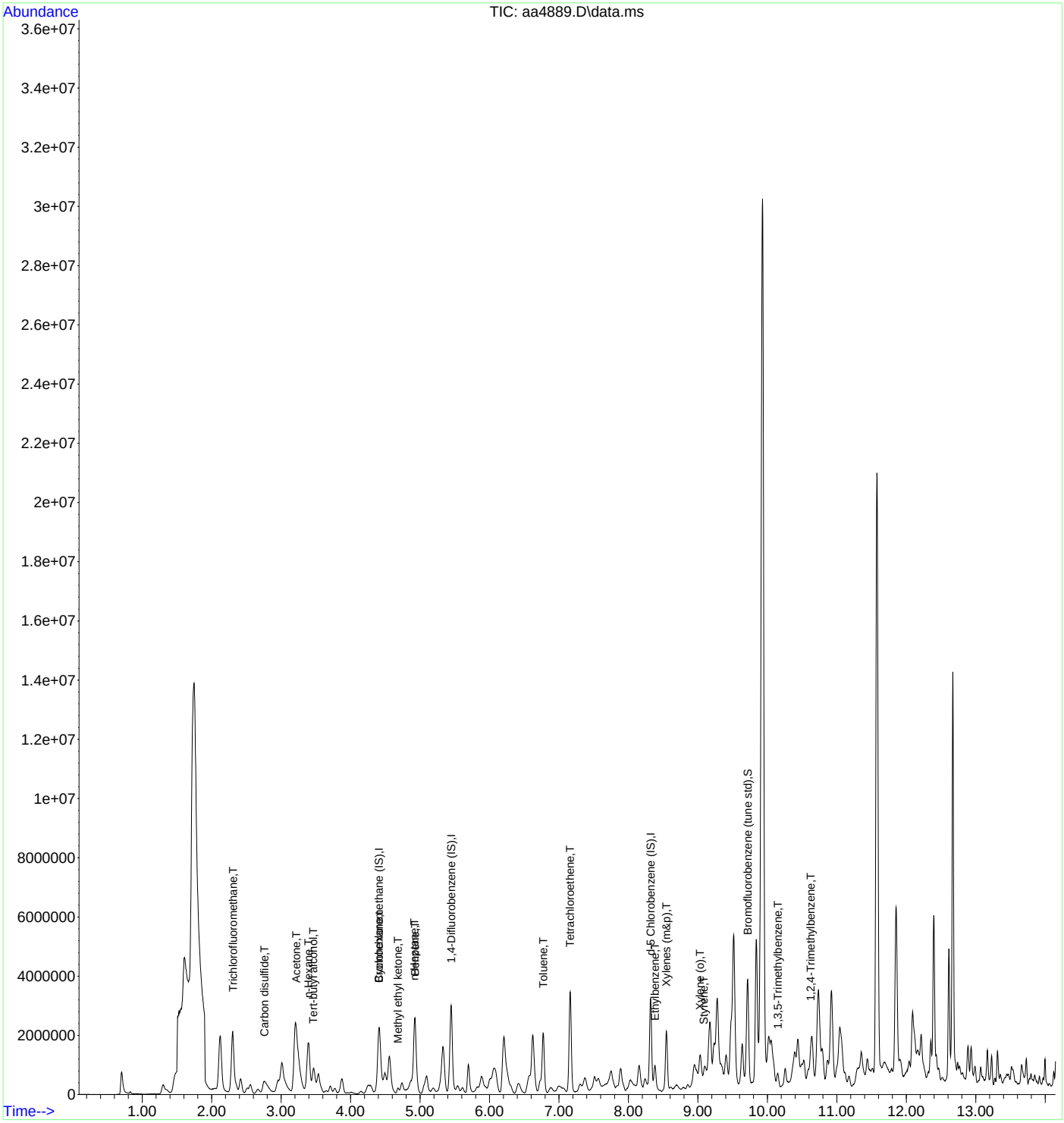
Quant Time: Dec 12 09:56:21 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

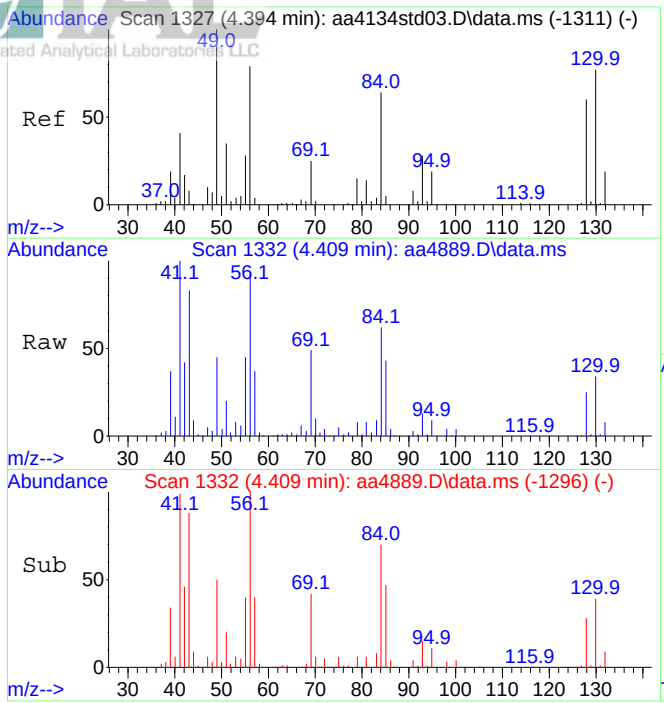
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.409	130	366574	10.00	ppbV	0.015
39) 1,4-Difluorobenzene (IS)	5.451	114	1819787	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.322	117	1669922	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	1364662	9.37	ppbV	0.000
Target Compounds						Qvalue
12) Trichlorofluoromethane	2.309	101	32721	0.32	ppbV	84
15) Carbon disulfide	2.759	76	1715653	15.31	ppbV	97
21) Acetone	3.219	43	3105449	56.16	ppbV	97
24) n-Hexane	3.393	57	1187609	10.28	ppbV #	76
26) Tert-butyl alcohol	3.464	59	1365923	14.29	ppbV	100
29) Cyclohexane	4.409	56	655655	8.12	ppbV #	75
35) Methyl ethyl ketone	4.682	43	283133	3.16	ppbV	96
36) n-Heptane	4.917	43	713281	7.04	ppbV	95
37) Benzene	4.930	78	1361218	9.35	ppbV	96
47) Toluene	6.772	91	1610617	6.30	ppbV	100
49) Tetrachloroethene	7.161	166	1192125	10.81	ppbV	100
58) Ethylbenzene	8.383	91	562236	1.83	ppbV	98
59) Xylenes (m&p)	8.547	91	1512765	6.63	ppbV	98
60) Xylene (o)	9.029	91	635844	2.56	ppbV	98
61) Styrene	9.087	104	134831	0.79	ppbV	98
69) 1,3,5-Trimethylbenzene	10.151	105	155230	0.54	ppbV	99
70) 1,2,4-Trimethylbenzene	10.624	105	481421	1.67	ppbV	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4889.D
Acq On : 8 Dec 2023 3:42 pm
Operator : jjw
Sample : E23-05047-04
Misc : 3283, 500cc
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Dec 12 09:56:21 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

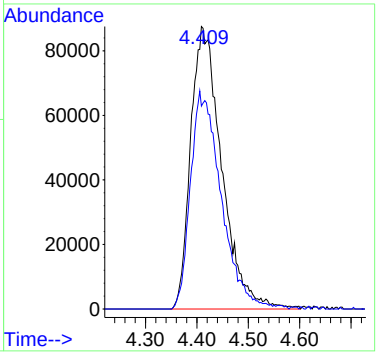


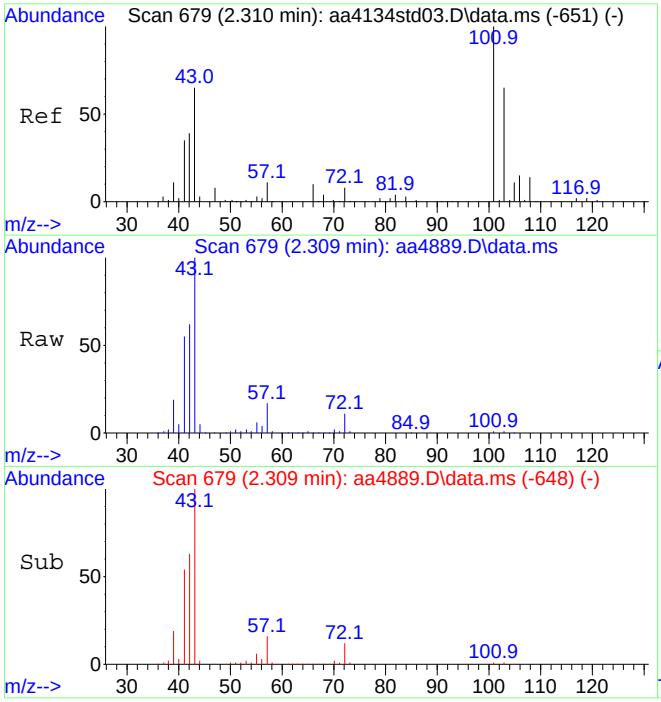


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.409 min Scan# 1332
Delta R.T. 0.015 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion:130 Resp: 366574

Ion	Ratio	Lower	Upper
130	100		
128	76.5	62.2	93.4

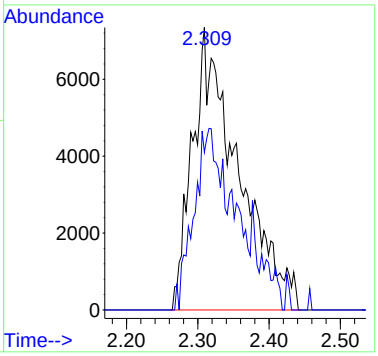


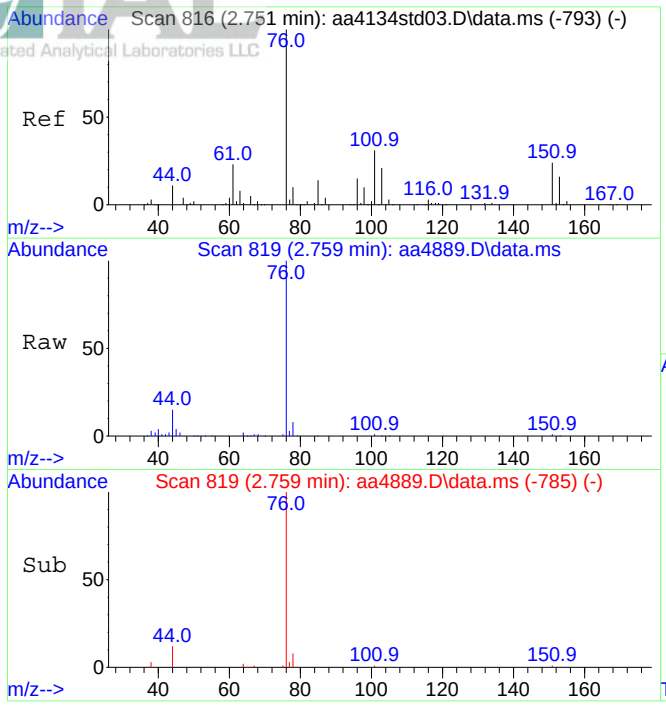


#12
Trichlorofluoromethane
Concen: 0.32 ppbV
RT: 2.309 min Scan# 679
Delta R.T. -0.001 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion:101 Resp: 32721

Ion	Ratio	Lower	Upper
101	100		
103	52.9	52.5	78.7

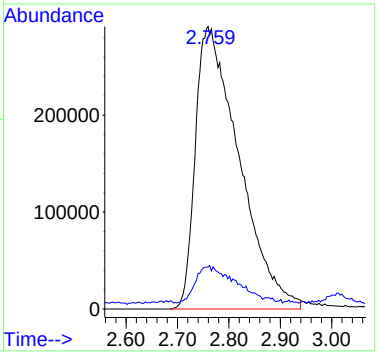


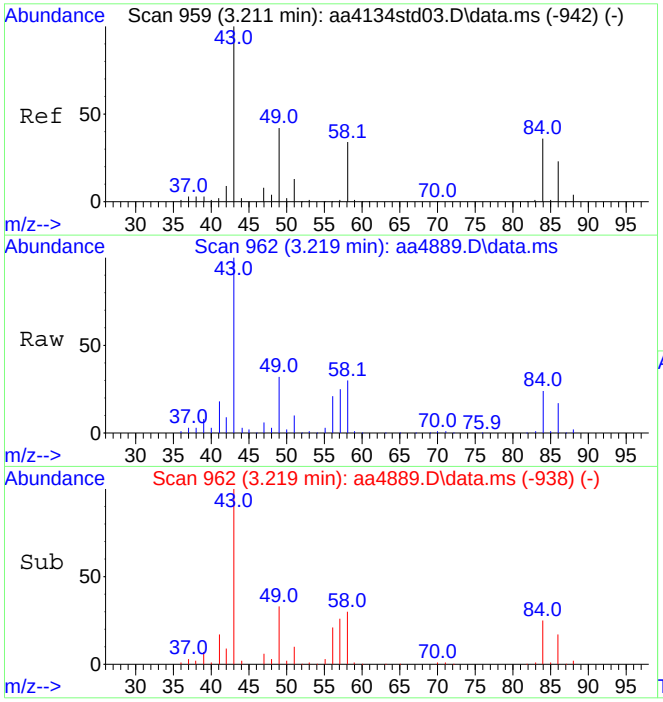


#15
Carbon disulfide
Concen: 15.31 ppbV
RT: 2.759 min Scan# 819
Delta R.T. 0.009 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion: 76 Resp: 1715653

Ion	Ratio	Lower	Upper
76	100		
44	12.4	9.0	13.4

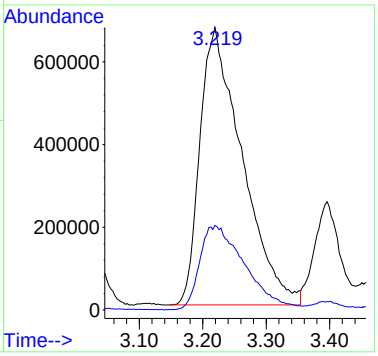


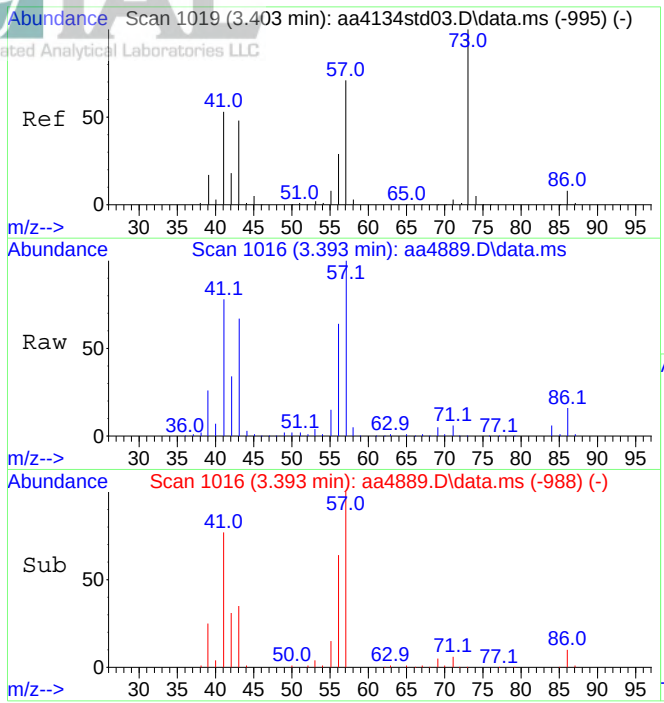


#21
Acetone
Concen: 56.16 ppbV
RT: 3.219 min Scan# 962
Delta R.T. 0.009 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion: 43 Resp: 3105449

Ion	Ratio	Lower	Upper
43	100		
58	32.5	27.1	40.7

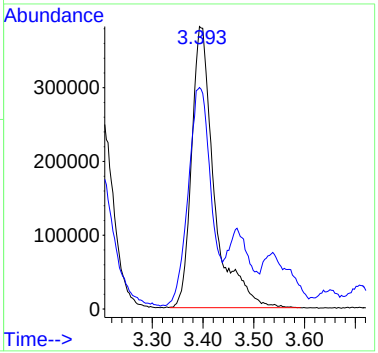


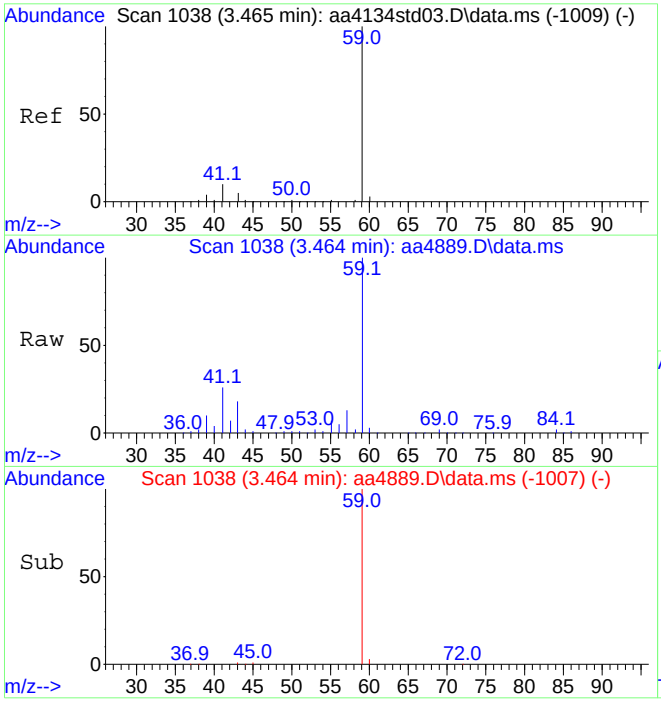


#24
n-Hexane
Concen: 10.28 ppbV
RT: 3.393 min Scan# 1016
Delta R.T. -0.011 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion: 57 Resp: 1187609

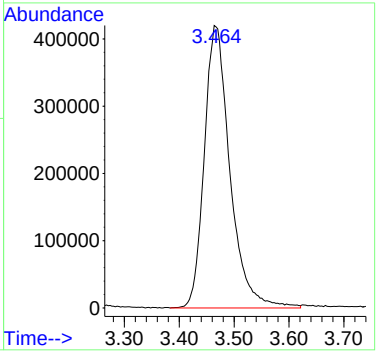
Ion	Ratio	Lower	Upper
57	100		
41	104.5	66.4	99.6#

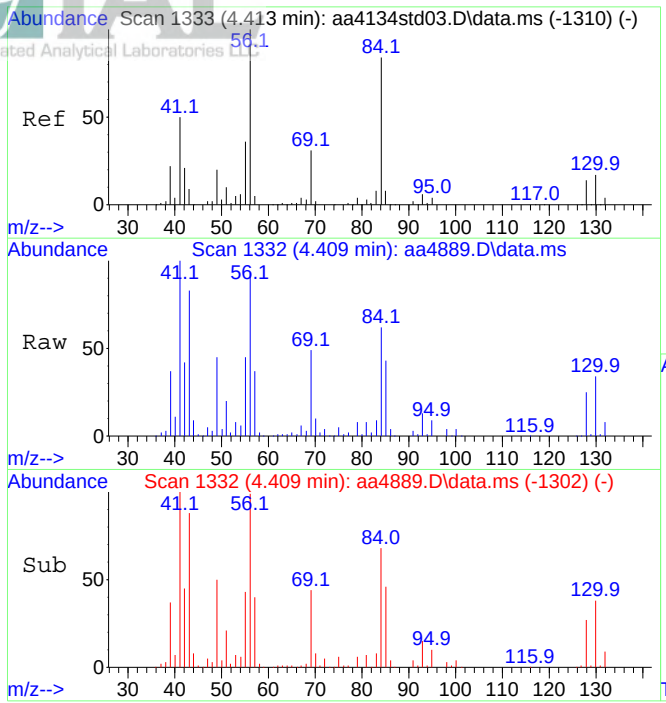




#26
Tert-butyl alcohol
Concen: 14.29 ppbV
RT: 3.464 min Scan# 1038
Delta R.T. -0.001 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion: 59 Resp: 1365923

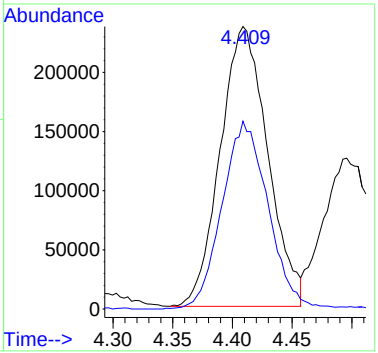


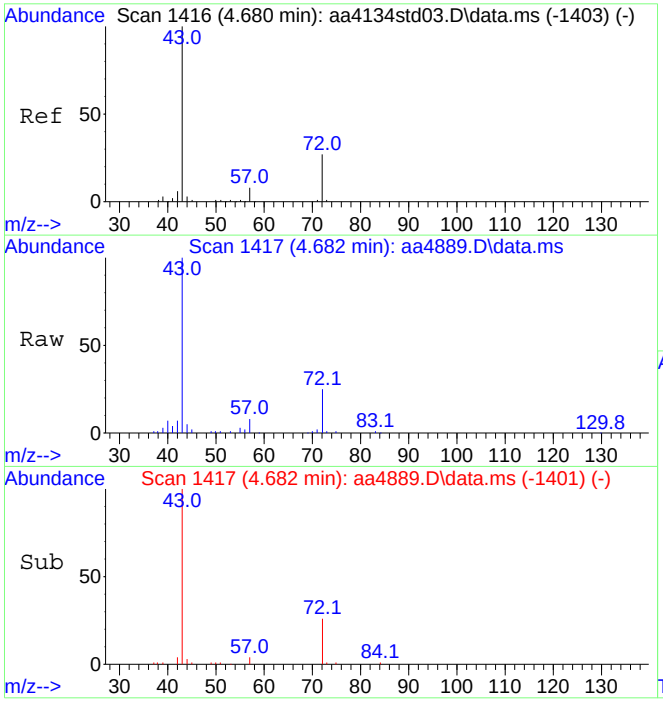


#29
Cyclohexane
Concen: 8.12 ppbV
RT: 4.409 min Scan# 1332
Delta R.T. -0.004 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion: 56 Resp: 655655

Ion	Ratio	Lower	Upper
56	100		
84	65.2	71.2	106.8#

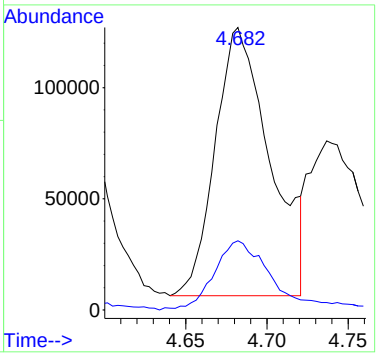


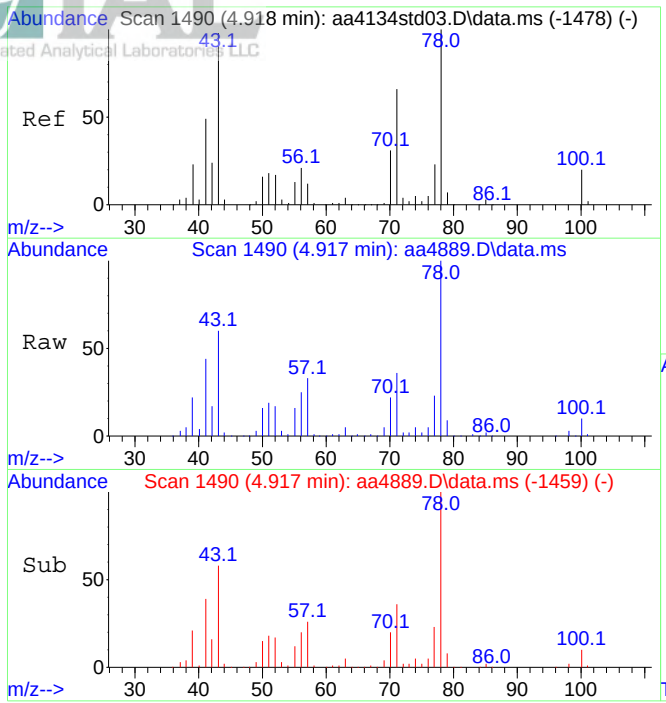


#35
Methyl ethyl ketone
Concen: 3.16 ppbV
RT: 4.682 min Scan# 1417
Delta R.T. 0.002 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion: 43 Resp: 283133

Ion	Ratio	Lower	Upper
43	100		
72	24.9	21.6	32.4

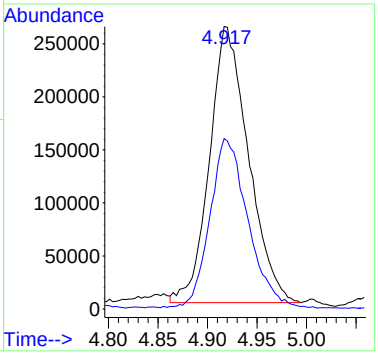


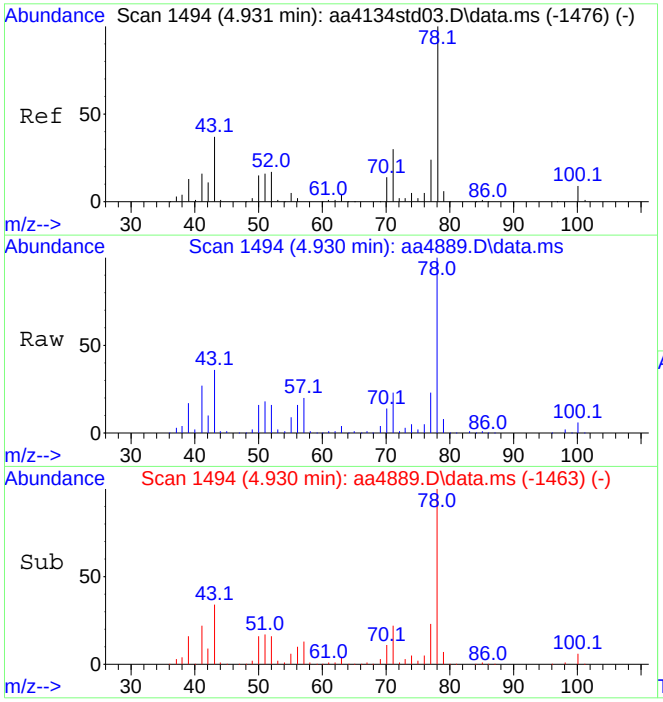


#36
n-Heptane
Concen: 7.04 ppbV
RT: 4.917 min Scan# 1490
Delta R.T. -0.001 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion: 43 Resp: 713281

Ion	Ratio	Lower	Upper
43	100		
71	59.6	50.5	75.7

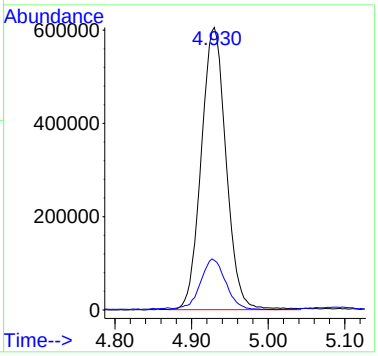


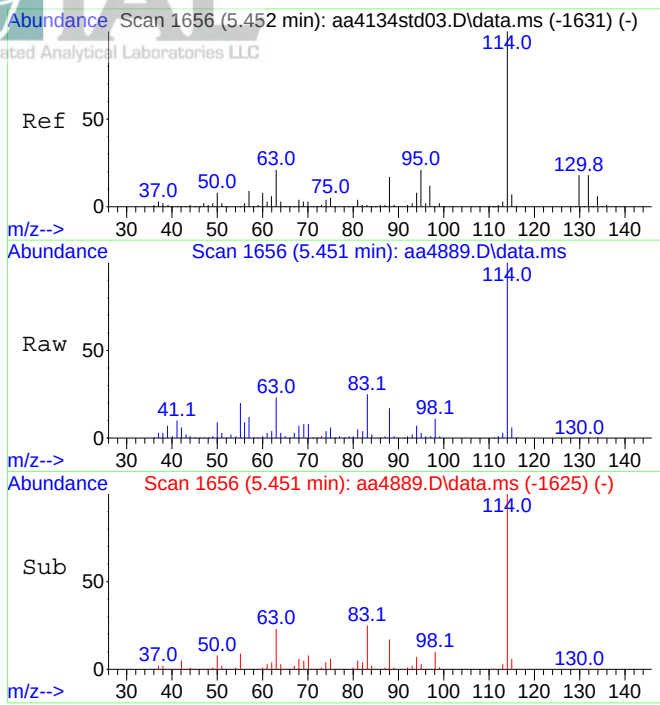


#37
Benzene
Concen: 9.35 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. -0.001 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion: 78 Resp: 1361218

Ion	Ratio	Lower	Upper
78	100		
51	18.3	13.4	20.0

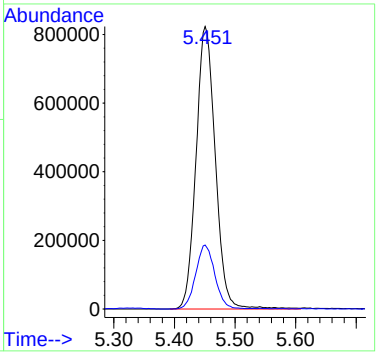


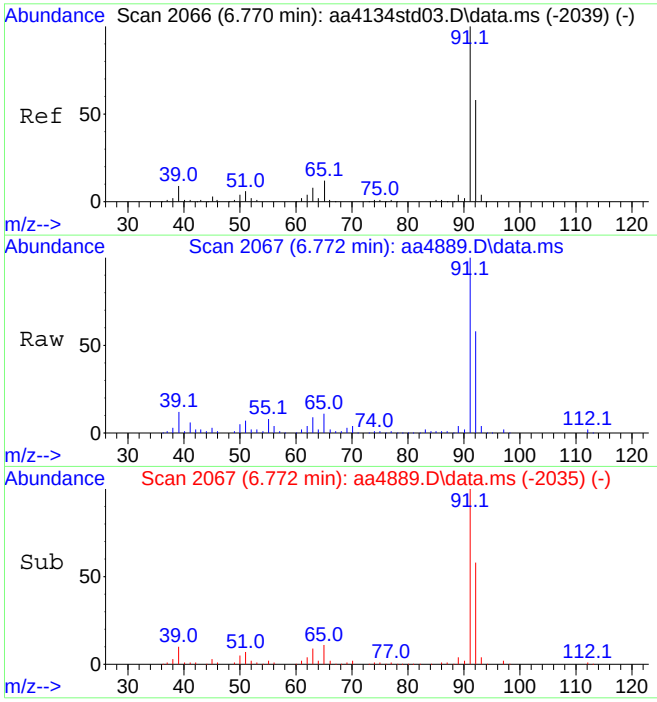


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.451 min Scan# 1656
Delta R.T. -0.001 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion:114 Resp: 1819787

Ion	Ratio	Lower	Upper
114	100		
63	22.5	17.0	25.6

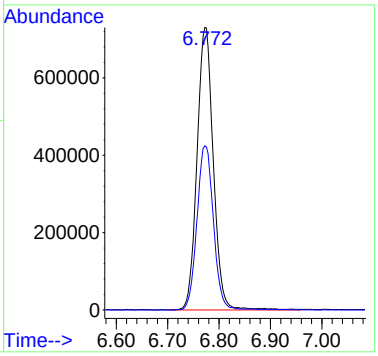


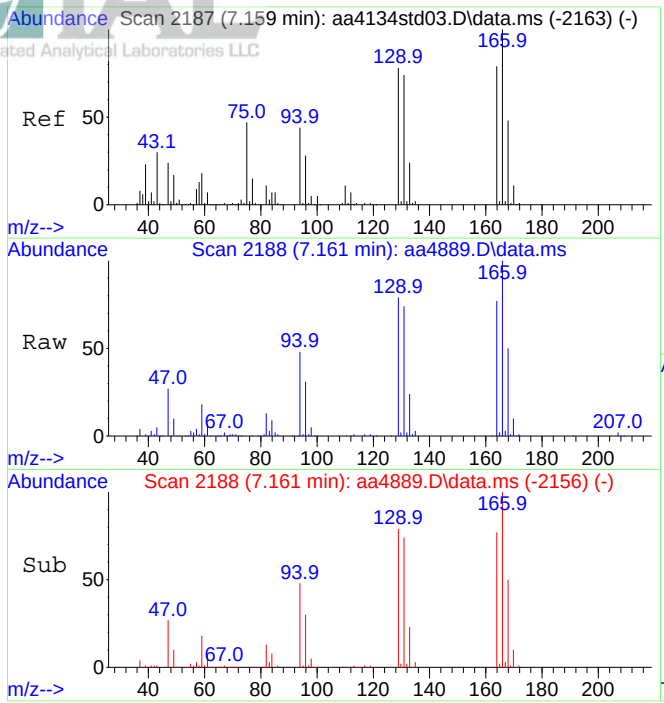


#47
Toluene
Concen: 6.30 ppbV
RT: 6.772 min Scan# 2067
Delta R.T. 0.002 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion: 91 Resp: 1610617

Ion	Ratio	Lower	Upper
91	100		
92	58.9	47.3	70.9

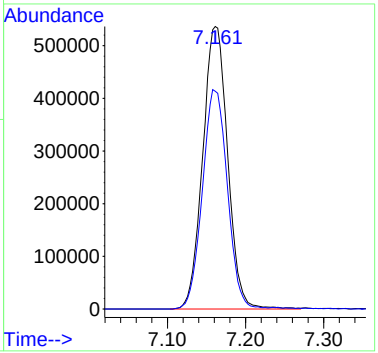


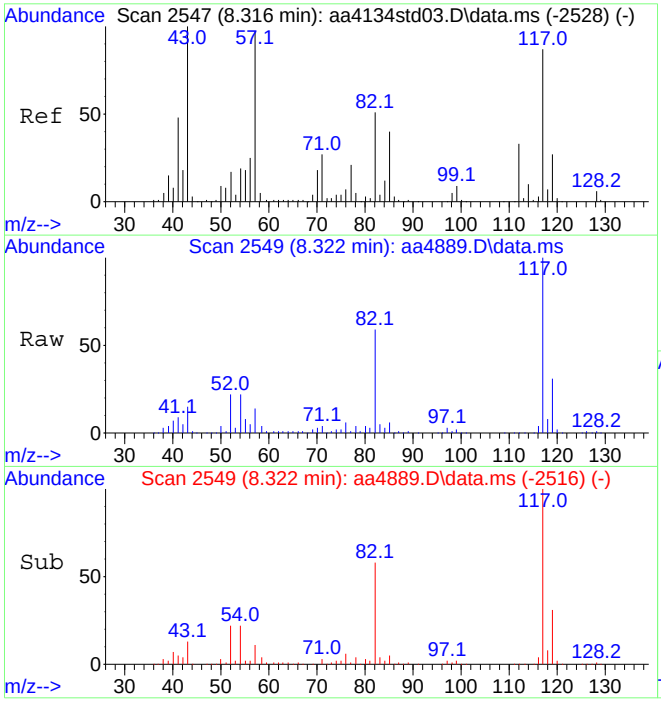


#49
Tetrachloroethene
Concen: 10.81 ppbV
RT: 7.161 min Scan# 2188
Delta R.T. 0.002 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion:166 Resp: 1192125

Ion	Ratio	Lower	Upper
166	100		
164	78.2	62.3	93.5

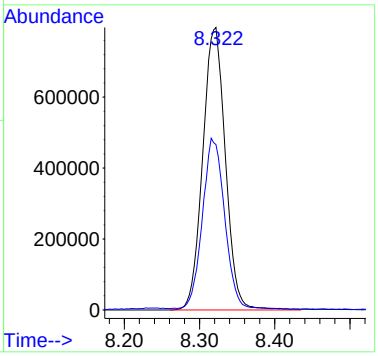


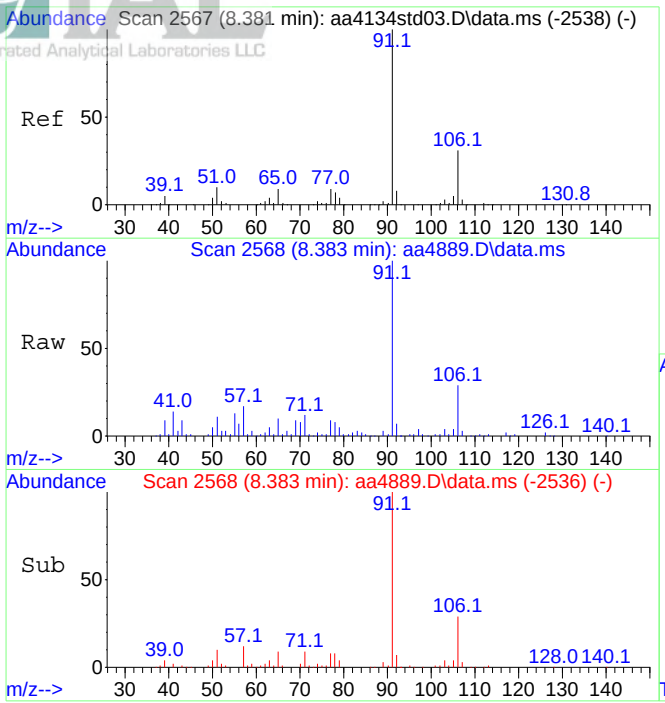


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.322 min Scan# 2549
Delta R.T. 0.005 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion:117 Resp: 1669922

Ion	Ratio	Lower	Upper
117	100		
82	59.6	47.0	70.4

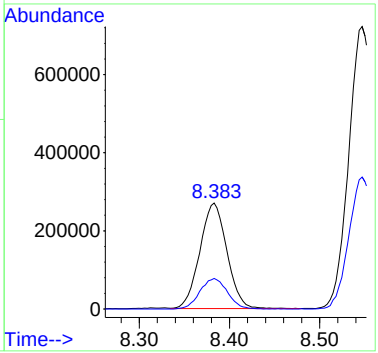


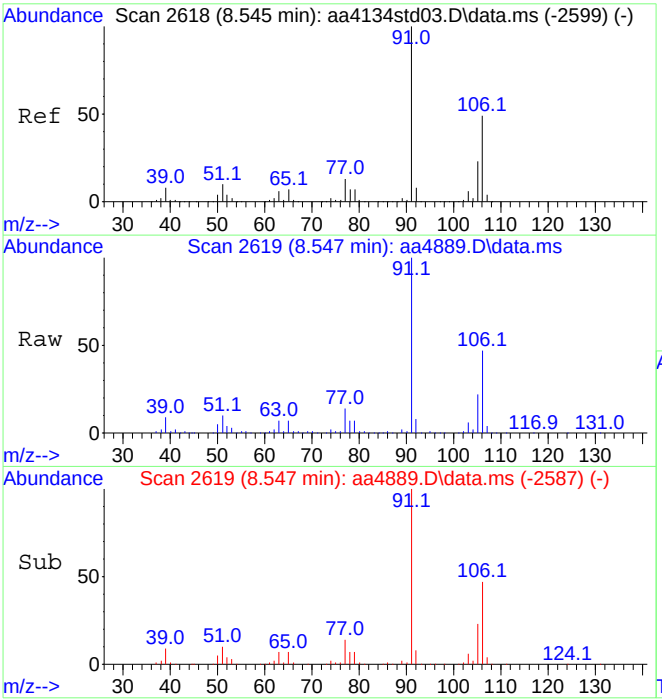


#58
Ethylbenzene
Concen: 1.83 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion: 91 Resp: 562236

Ion	Ratio	Lower	Upper
91	100		
106	29.4	24.6	36.8

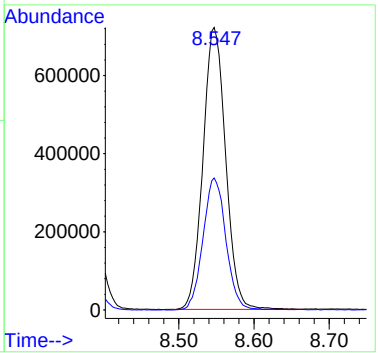


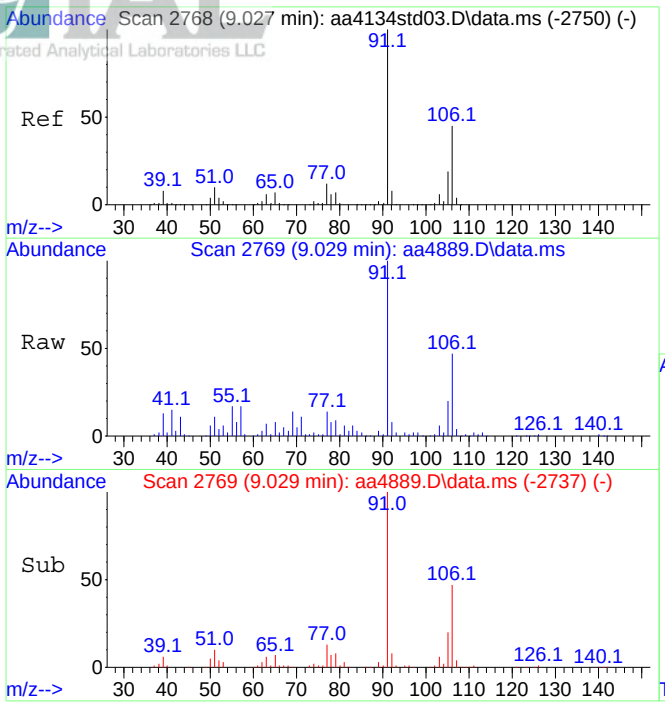


#59
Xylenes (m&p)
Concen: 6.63 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. 0.002 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion: 91 Resp: 1512765

Ion	Ratio	Lower	Upper
91	100		
106	47.3	39.0	58.4

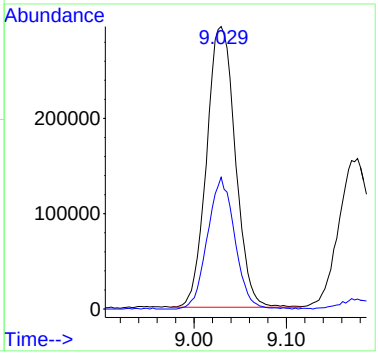


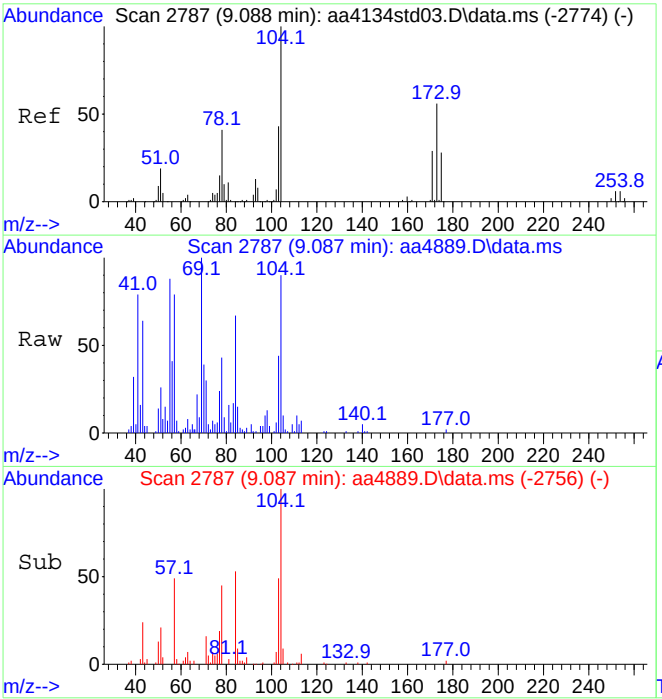


#60
Xylene (o)
Concen: 2.56 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion: 91 Resp: 635844

Ion	Ratio	Lower	Upper
91	100		
106	44.5	36.8	55.2

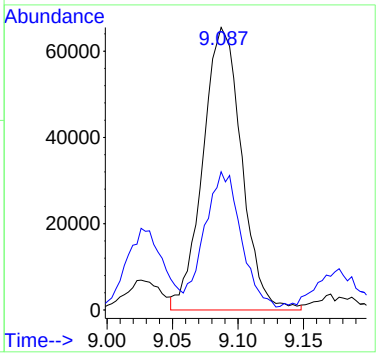


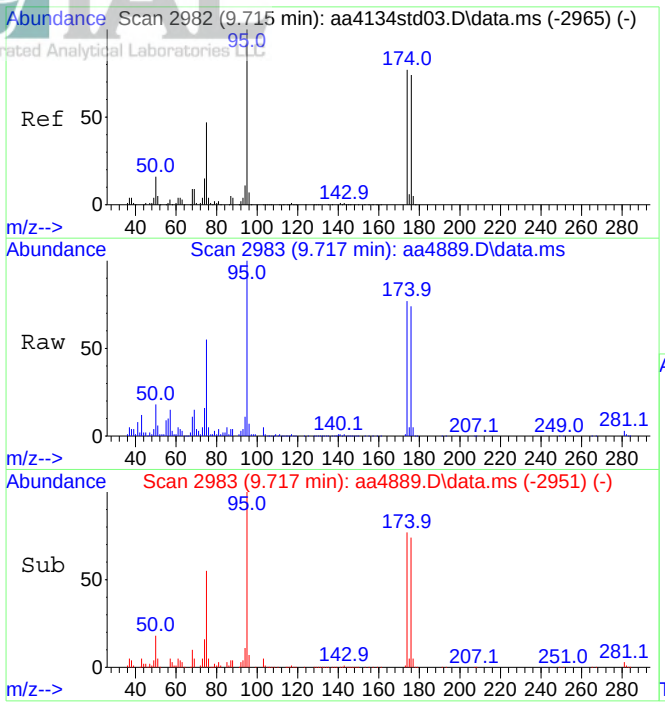


#61
Styrene
Concen: 0.79 ppbV
RT: 9.087 min Scan# 2787
Delta R.T. -0.001 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion:104 Resp: 134831

Ion	Ratio	Lower	Upper
104	100		
103	45.7	37.8	56.6

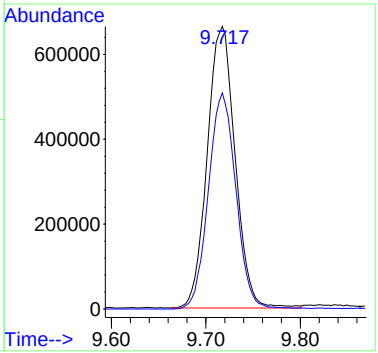


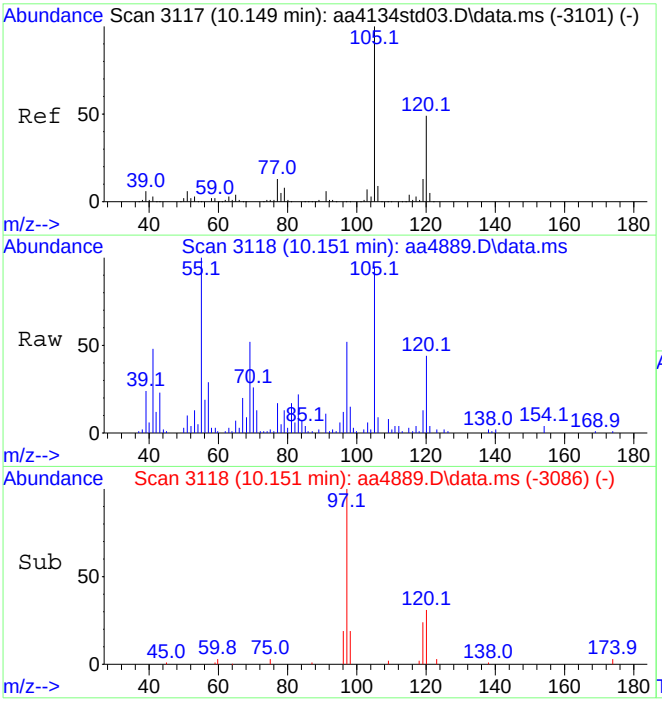


#64
Bromofluorobenzene (tune std)
Concen: 9.37 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion: 95 Resp: 1364662

Ion	Ratio	Lower	Upper
95	100		
174	75.7	61.1	91.7

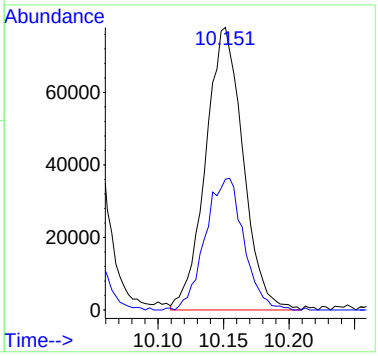


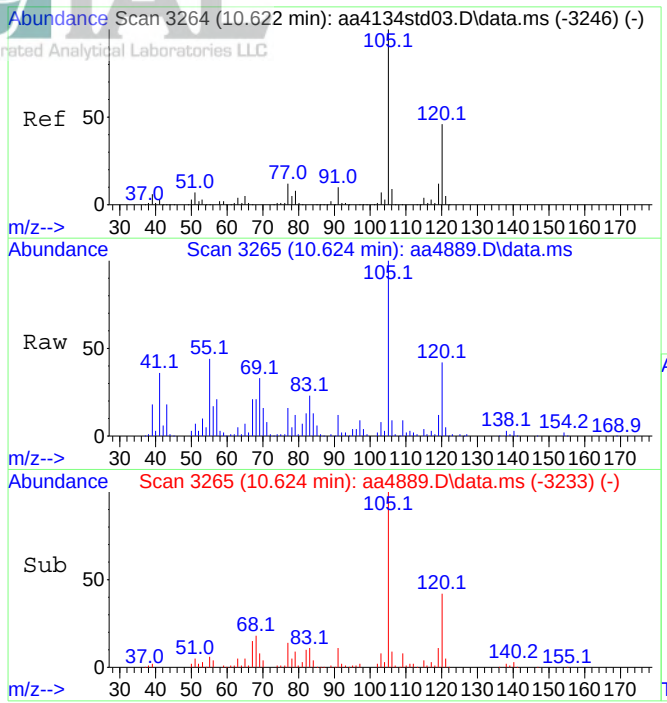


#69
1,3,5-Trimethylbenzene
Concen: 0.54 ppbV
RT: 10.151 min Scan# 3118
Delta R.T. 0.002 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion:105 Resp: 155230

Ion	Ratio	Lower	Upper
105	100		
120	47.8	38.9	58.3

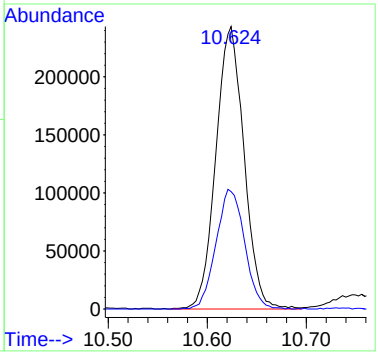




#70
1,2,4-Trimethylbenzene
Concen: 1.67 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4889.D
Acq: 8 Dec 2023 3:42 pm

Tgt Ion:105 Resp: 481421

Ion	Ratio	Lower	Upper
105	100		
120	42.9	36.3	54.5



Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4910.D
Acq On : 11 Dec 2023 2:50 pm
Operator : jjw
Sample : E23-05047-04x5 dil
Misc : 3283, 100cc
ALS Vial : 13 Sample Multiplier: 1

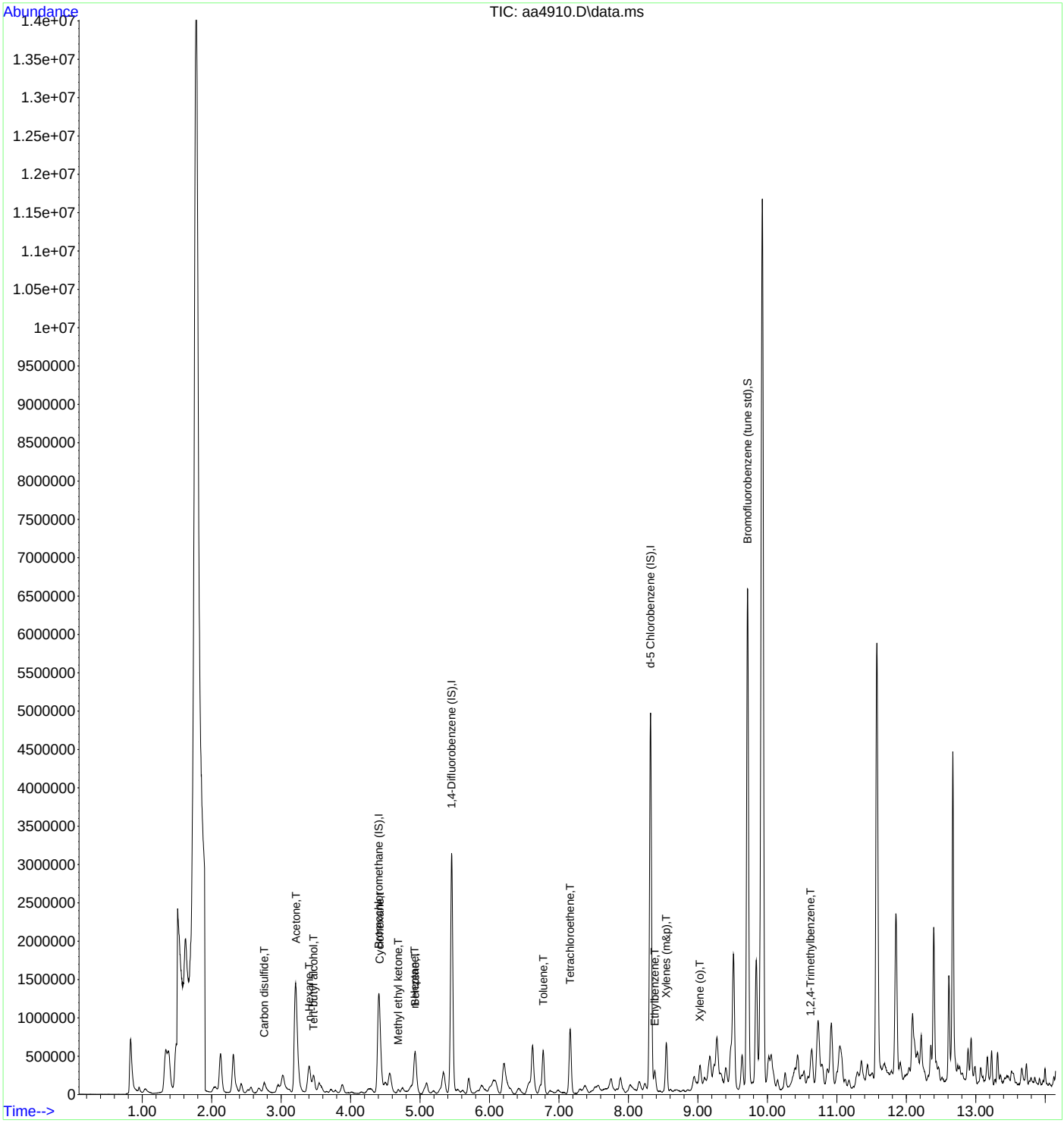
Quant Time: Dec 12 10:38:45 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

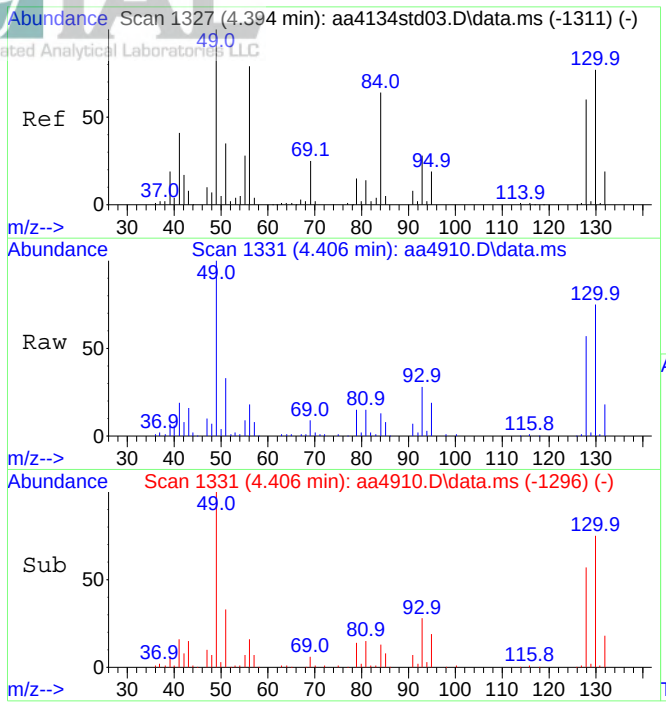
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.406	130	523935	10.00	ppbV	0.012
39) 1,4-Difluorobenzene (IS)	5.454	114	2718271	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	3097691	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2843915	10.53	ppbV	0.000
Target Compounds						Qvalue
15) Carbon disulfide	2.756	76	337797	2.11	ppbV	95
21) Acetone	3.216	43	675559	8.55	ppbV	97
24) n-Hexane	3.406	57	258354	1.56	ppbV #	78
26) Tert-butyl alcohol	3.467	59	298400	2.18	ppbV	100
29) Cyclohexane	4.419	56	139491	1.21	ppbV #	76
35) Methyl ethyl ketone	4.685	43	70473	0.55	ppbV	95
36) n-Heptane	4.923	43	166495	1.15	ppbV	96
37) Benzene	4.930	78	292594	1.41	ppbV	95
47) Toluene	6.772	91	422471	1.11	ppbV	99
49) Tetrachloroethene	7.161	166	290054	1.76	ppbV	100
58) Ethylbenzene	8.380	91	174768	0.31	ppbV	97
59) Xylenes (m&p)	8.544	91	461126	1.09	ppbV	97
60) Xylene (o)	9.026	91	193185	0.42	ppbV	94
70) 1,2,4-Trimethylbenzene	10.621	105	140843	0.26	ppbV	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4910.D
Acq On : 11 Dec 2023 2:50 pm
Operator : jjw
Sample : E23-05047-04x5 dil
Misc : 3283, 100cc
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 12 10:38:45 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

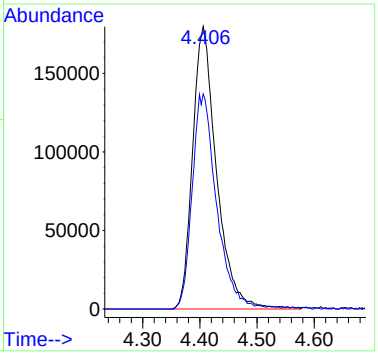


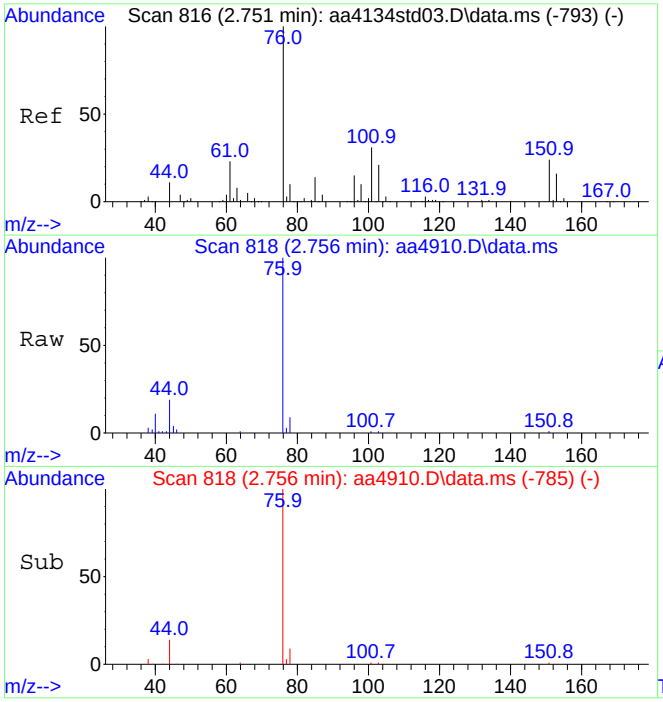


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.406 min Scan# 1331
Delta R.T. 0.012 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion:130 Resp: 523935

Ion	Ratio	Lower	Upper
130	100		
128	77.1	62.2	93.4

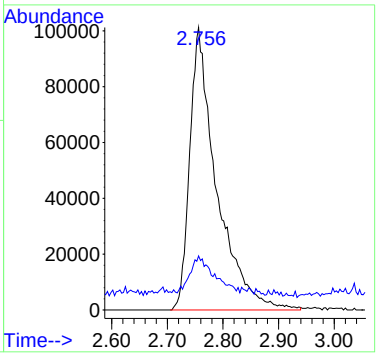


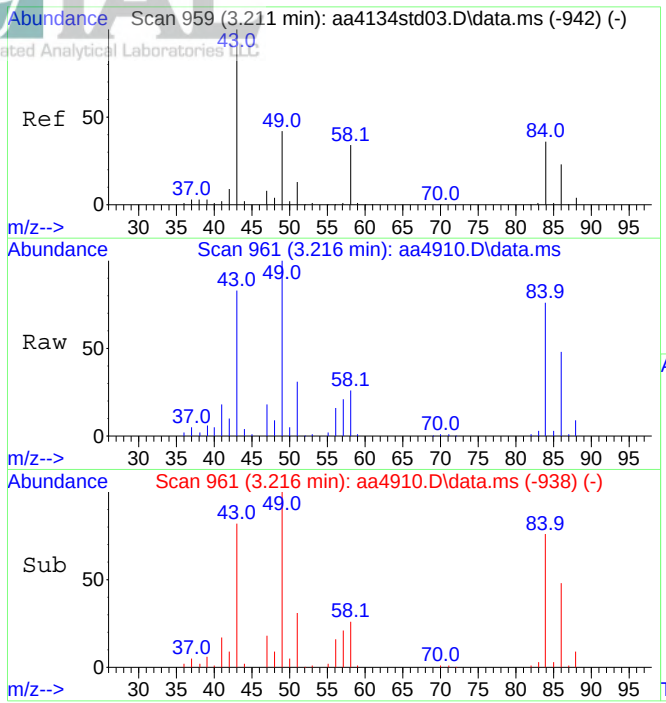


#15
Carbon disulfide
Concen: 2.11 ppbV
RT: 2.756 min Scan# 818
Delta R.T. 0.005 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion: 76 Resp: 337797

Ion	Ratio	Lower	Upper
76	100		
44	13.3	9.0	13.4

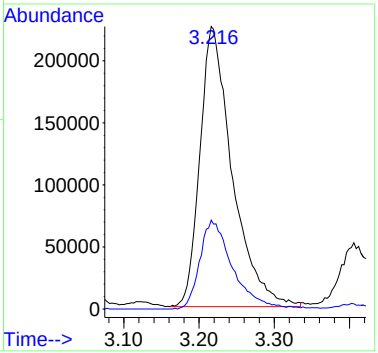


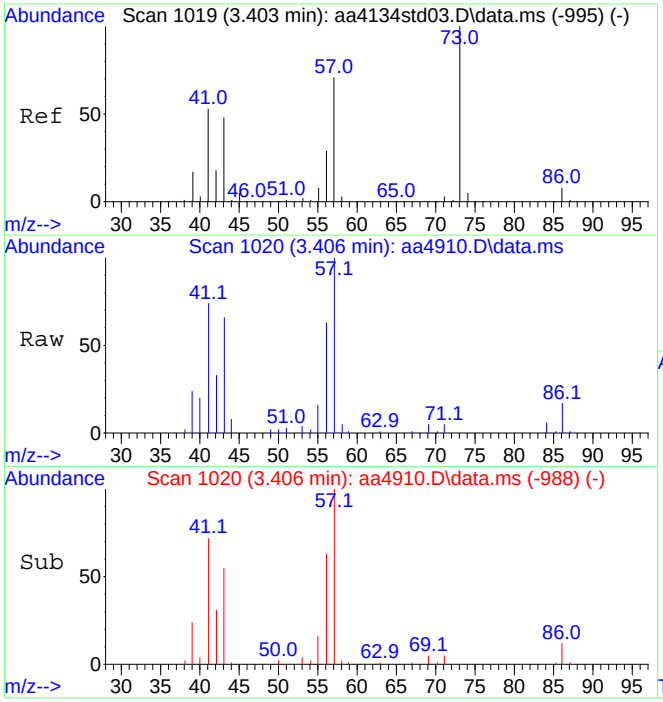


#21
Acetone
Concen: 8.55 ppbV
RT: 3.216 min Scan# 961
Delta R.T. 0.005 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion: 43 Resp: 675559

Ion	Ratio	Lower	Upper
43	100		
58	32.0	27.1	40.7

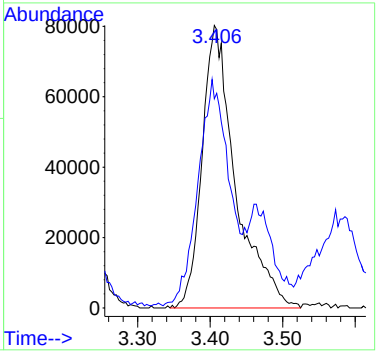


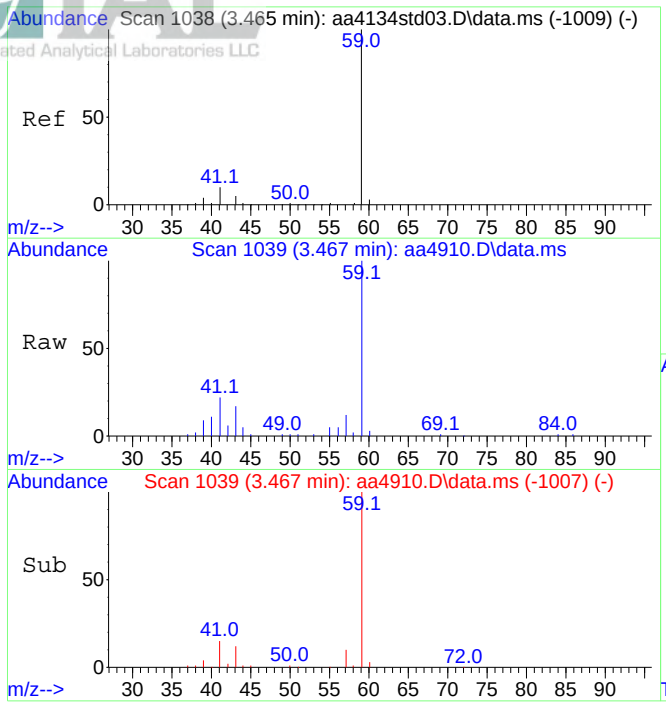


#24
n-Hexane
Concen: 1.56 ppbV
RT: 3.406 min Scan# 1020
Delta R.T. 0.002 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion: 57 Resp: 258354

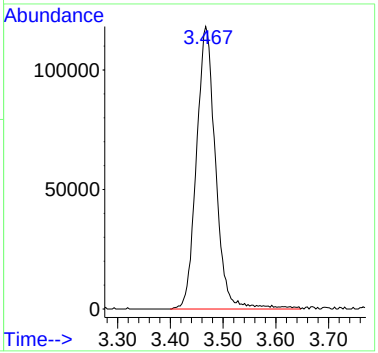
Ion	Ratio	Lower	Upper
57	100		
41	102.5	66.4	99.6#

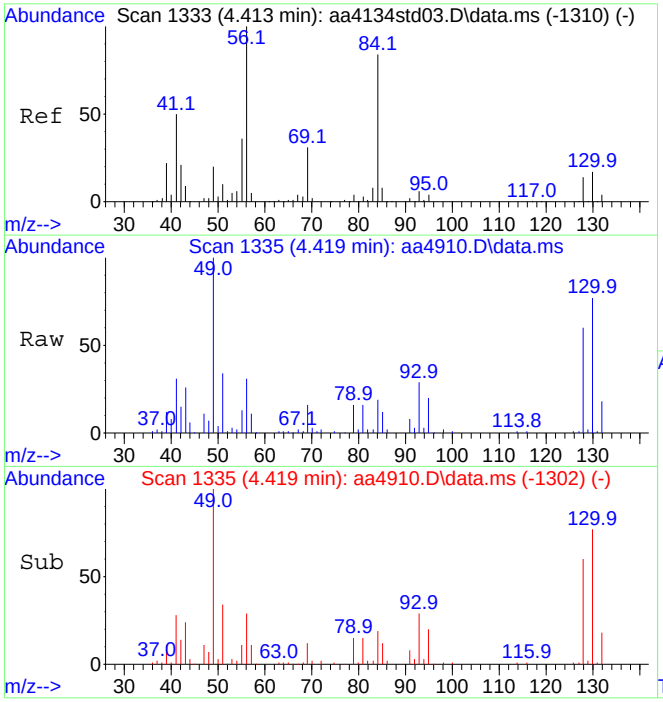




#26
Tert-butyl alcohol
Concen: 2.18 ppbV
RT: 3.467 min Scan# 1039
Delta R.T. 0.002 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion: 59 Resp: 298400

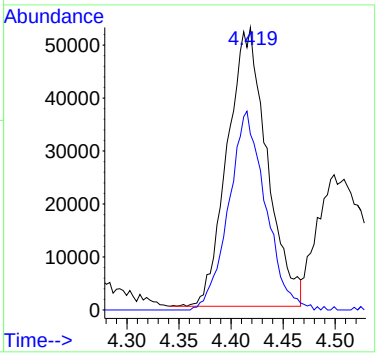


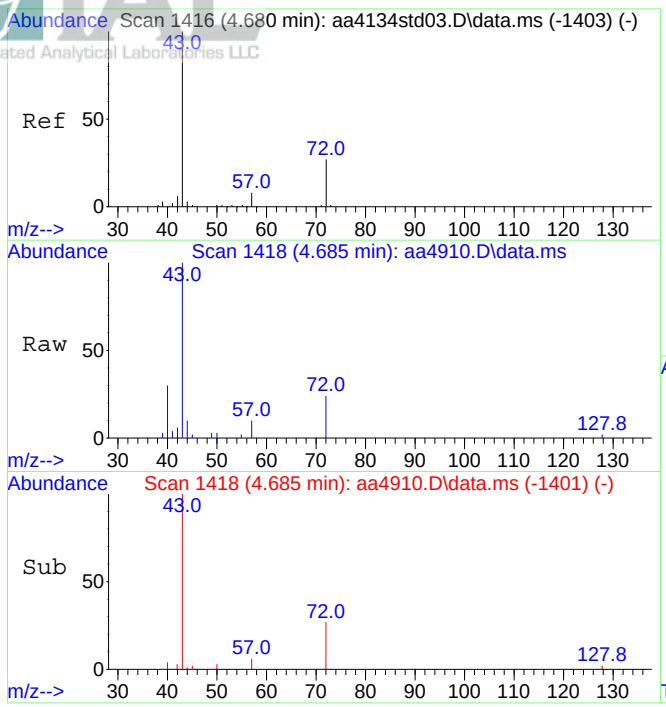


#29
Cyclohexane
Concen: 1.21 ppbV
RT: 4.419 min Scan# 1335
Delta R.T. 0.005 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion: 56 Resp: 139491

Ion	Ratio	Lower	Upper
56	100		
84	66.3	71.2	106.8#

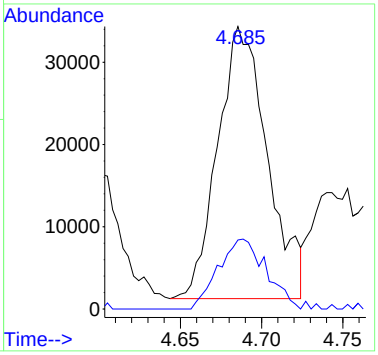


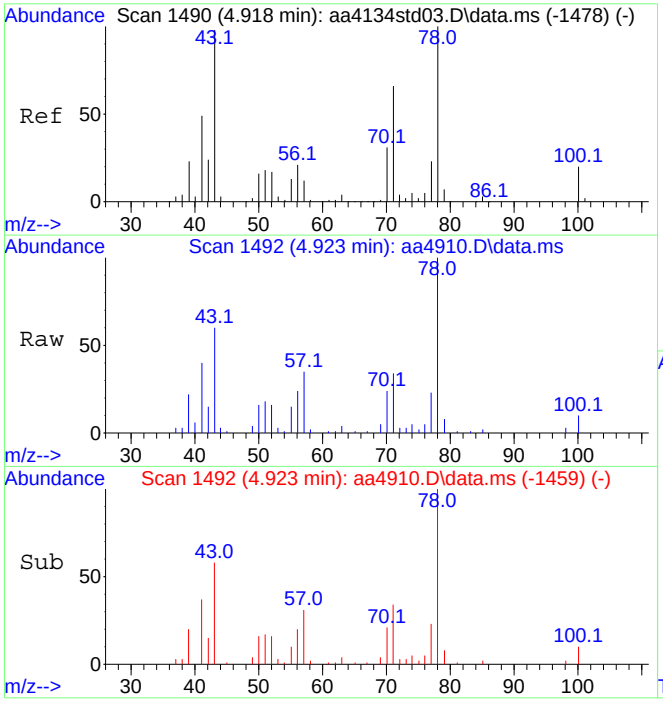


#35
Methyl ethyl ketone
Concen: 0.55 ppbV
RT: 4.685 min Scan# 1418
Delta R.T. 0.005 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion: 43 Resp: 70473

Ion	Ratio	Lower	Upper
43	100		
72	24.6	21.6	32.4

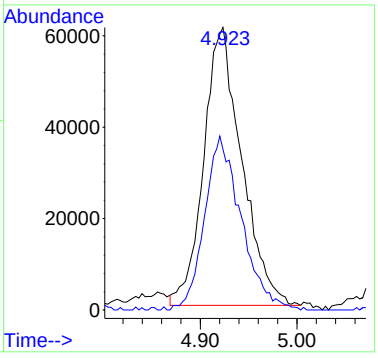


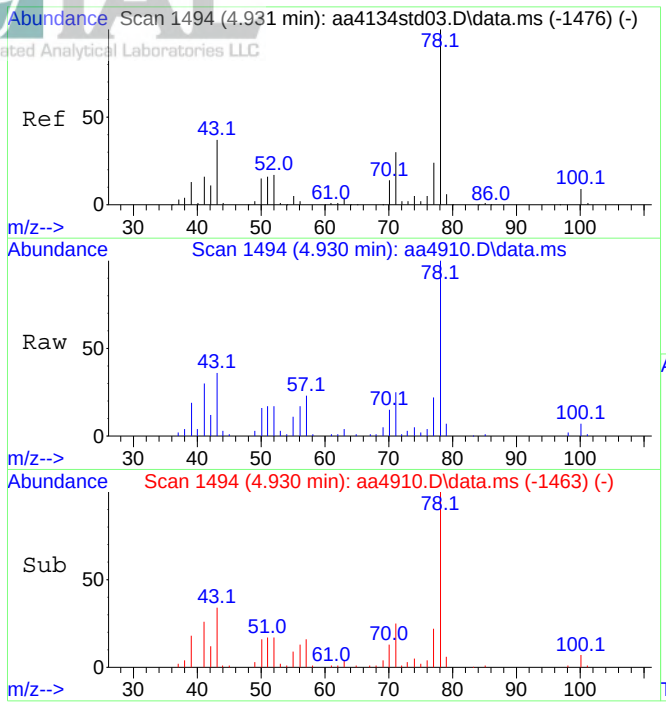


#36
n-Heptane
Concen: 1.15 ppbV
RT: 4.923 min Scan# 1492
Delta R.T. 0.005 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion: 43 Resp: 166495

Ion	Ratio	Lower	Upper
43	100		
71	60.2	50.5	75.7

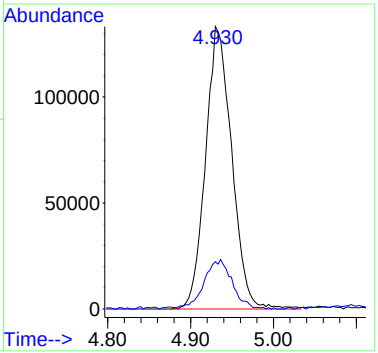


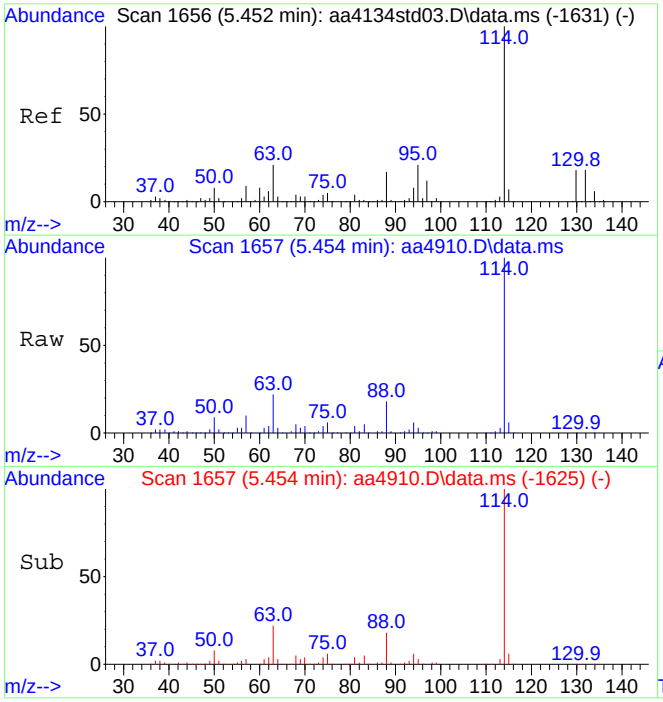


#37
Benzene
Concen: 1.41 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. -0.001 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion: 78 Resp: 292594

Ion	Ratio	Lower	Upper
78	100		
51	18.8	13.4	20.0

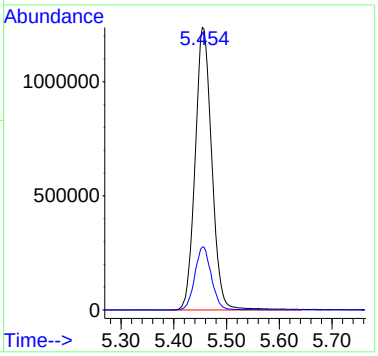


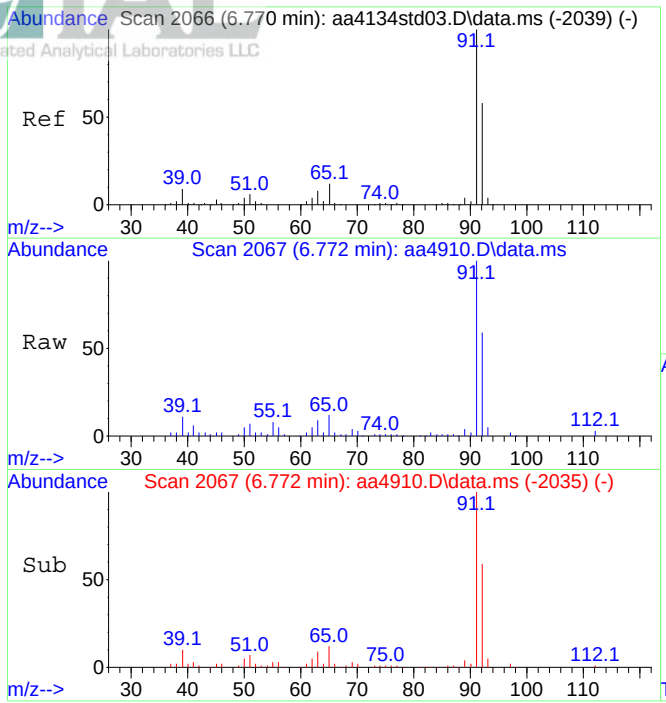


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.454 min Scan# 1657
Delta R.T. 0.002 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion:114 Resp: 2718271

Ion	Ratio	Lower	Upper
114	100		
63	22.1	17.0	25.6

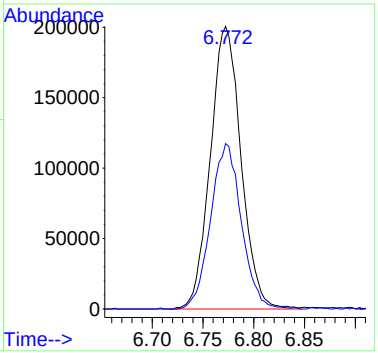


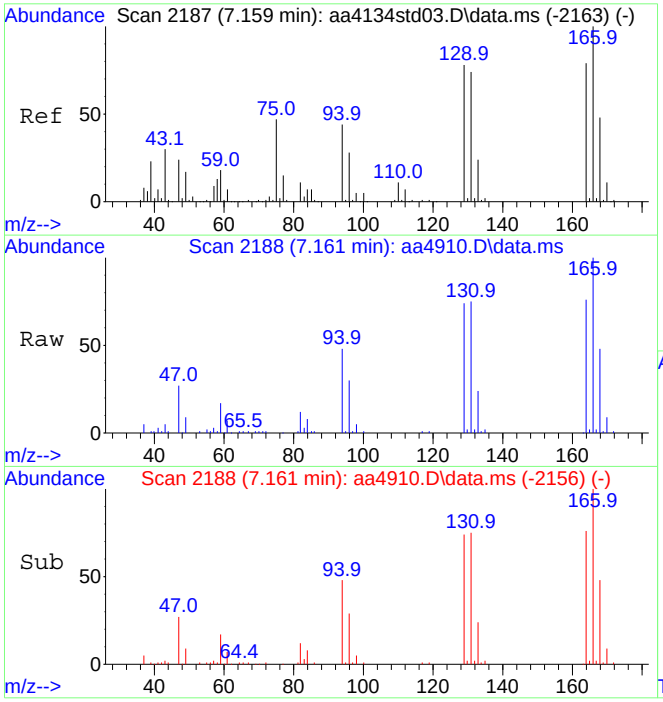


#47
Toluene
Concen: 1.11 ppbV
RT: 6.772 min Scan# 2067
Delta R.T. 0.002 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion: 91 Resp: 422471

Ion	Ratio	Lower	Upper
91	100		
92	58.4	47.3	70.9

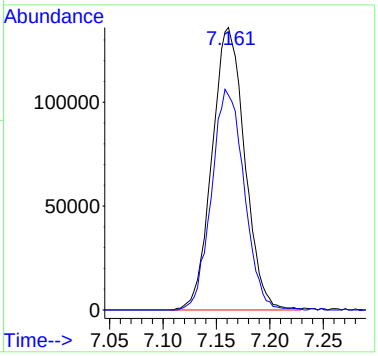


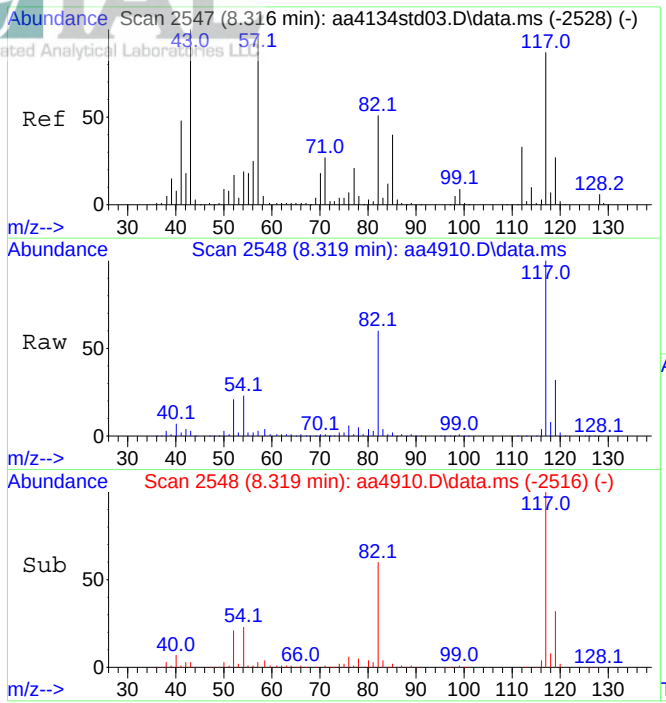


#49
Tetrachloroethene
Concen: 1.76 ppbV
RT: 7.161 min Scan# 2188
Delta R.T. 0.002 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion:166 Resp: 290054

Ion	Ratio	Lower	Upper
166	100		
164	77.6	62.3	93.5

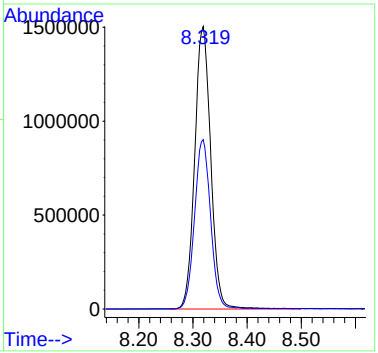


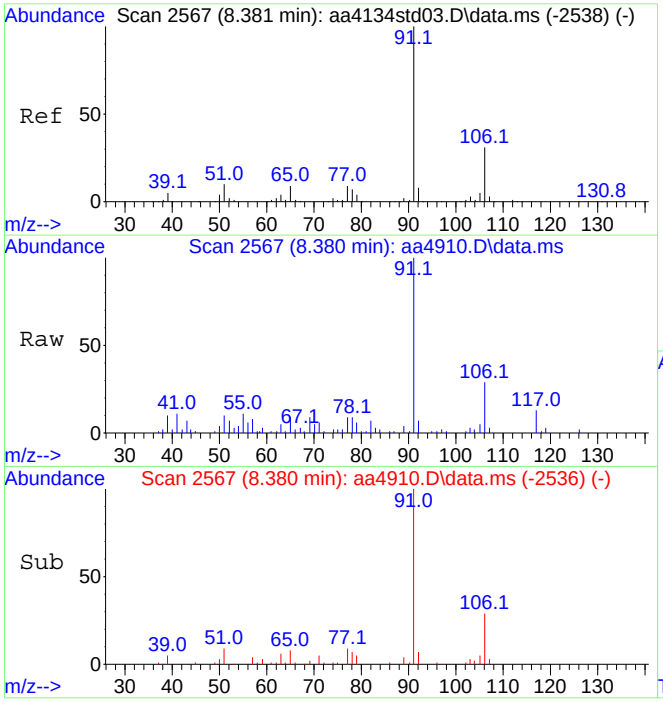


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion:117 Resp: 3097691

Ion	Ratio	Lower	Upper
117	100		
82	59.9	47.0	70.4

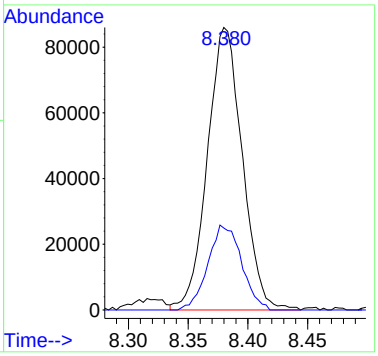


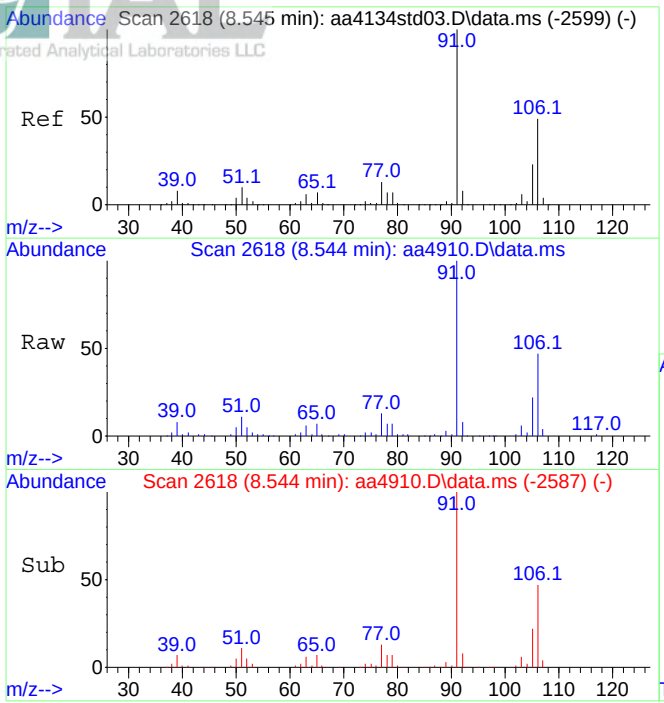


#58
Ethylbenzene
Concen: 0.31 ppbV
RT: 8.380 min Scan# 2567
Delta R.T. -0.001 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion: 91 Resp: 174768

Ion	Ratio	Lower	Upper
91	100		
106	28.9	24.6	36.8

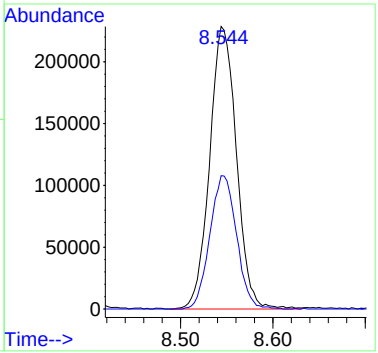


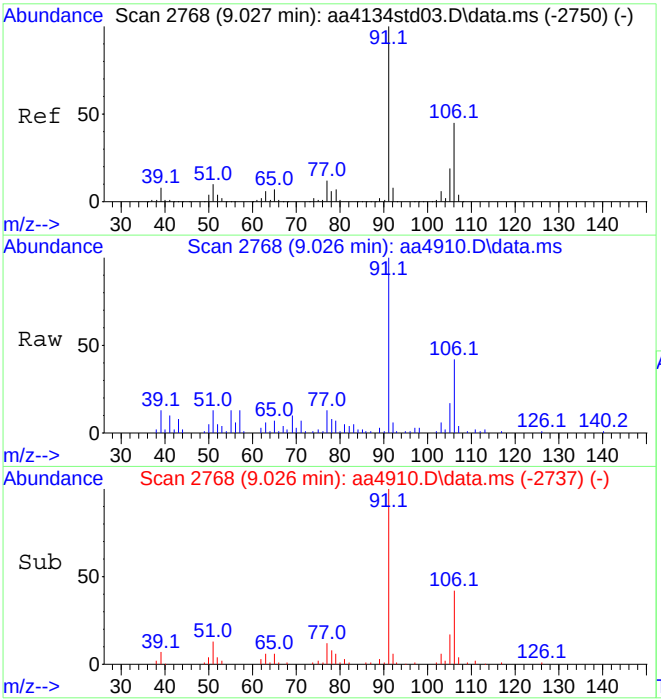


#59
Xylenes (m&p)
Concen: 1.09 ppbV
RT: 8.544 min Scan# 2618
Delta R.T. -0.001 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion: 91 Resp: 461126

Ion	Ratio	Lower	Upper
91	100		
106	47.0	39.0	58.4

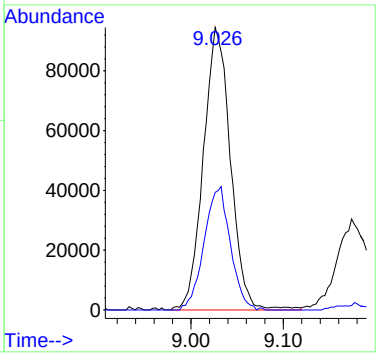


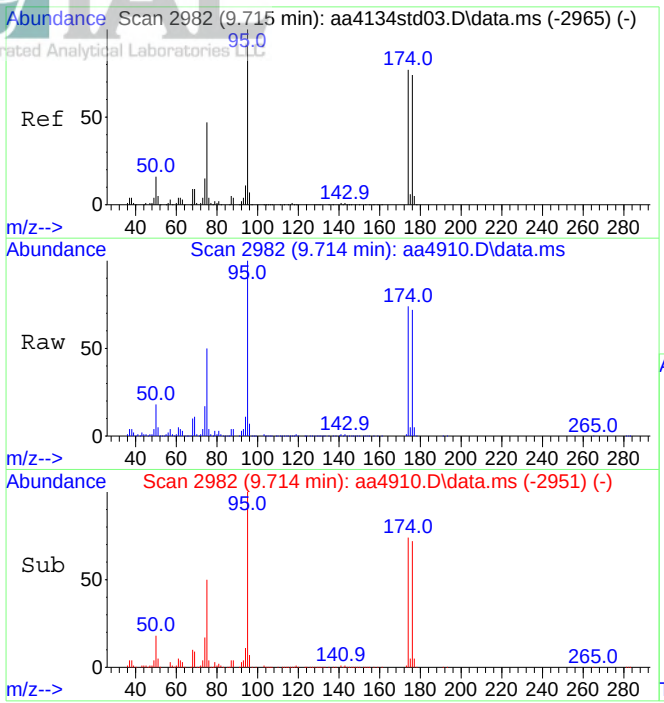


#60
Xylene (o)
Concen: 0.42 ppbV
RT: 9.026 min Scan# 2768
Delta R.T. -0.001 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion: 91 Resp: 193185

Ion	Ratio	Lower	Upper
91	100		
106	42.2	36.8	55.2

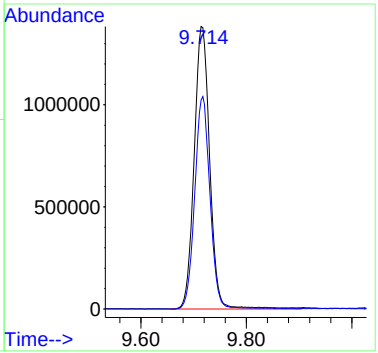


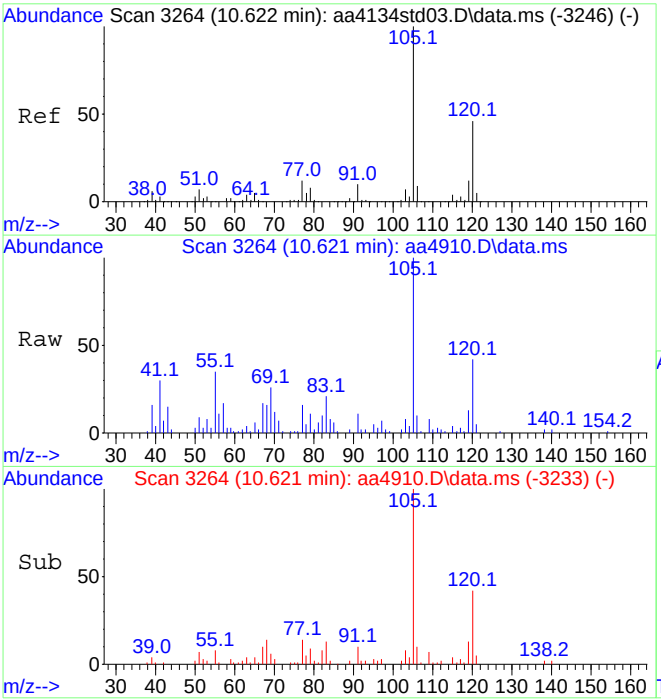


#64
Bromofluorobenzene (tune std)
Concen: 10.53 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion: 95 Resp: 2843915

Ion	Ratio	Lower	Upper
95	100		
174	73.8	61.1	91.7

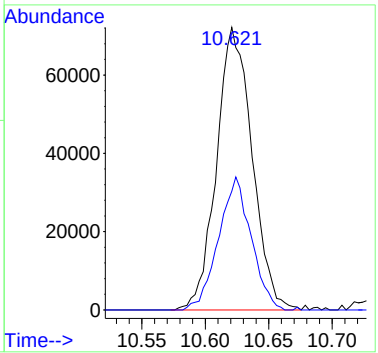




#70
1,2,4-Trimethylbenzene
Concen: 0.26 ppbV
RT: 10.621 min Scan# 3264
Delta R.T. -0.001 min
Lab File: aa4910.D
Acq: 11 Dec 2023 2:50 pm

Tgt Ion:105 Resp: 140843

Ion	Ratio	Lower	Upper
105	100		
120	43.1	36.3	54.5



INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05047-05	Instrument ID:	AA
Client ID:	SV7	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/16/2023 08:24	Injection Volmue:	500ml
Date Received:	11/16/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 16:15	% Moisture:	NA
Data File:	AA4890	Dilution Factor:	1
Summa ID:	2749	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Acetone	67-64-1		6.2	15	0.20	0.48
Benzene	71-43-2		ND	ND	0.20	0.64
Bromodichloromethane	75-27-4		ND	ND	0.20	1.3
Bromoform	75-25-2		ND	ND	0.20	2.1
Bromomethane	74-83-9		ND	ND	0.20	0.78
1,3-Butadiene	106-99-0		ND	ND	0.20	0.44
Chlorobenzene	108-90-7		ND	ND	0.20	0.92
Chloroethane	75-00-3		ND	ND	0.20	0.53
Chloroform	67-66-3		1.1	5.5	0.20	0.98
Chloromethane	74-87-3		ND	ND	0.20	0.41
Carbon disulfide	75-15-0		ND	ND	0.20	0.62
Carbon tetrachloride	56-23-5		ND	ND	0.040	0.25
Cyclohexane	110-82-7		ND	ND	0.20	0.69
Dibromochloromethane	124-48-1		ND	ND	0.20	1.7
1,2-Dibromoethane	106-93-4		ND	ND	0.20	1.5
1,2-Dichlorobenzene	95-50-1		ND	ND	0.20	1.2
1,3-Dichlorobenzene	541-73-1		ND	ND	0.20	1.2
1,4-Dichlorobenzene	106-46-7		ND	ND	0.20	1.2
Dichlorodifluoromethane	75-71-8		ND	ND	0.20	0.99
1,1-Dichloroethane	75-34-3		ND	ND	0.20	0.81
1,2-Dichloroethane	107-06-2		ND	ND	0.20	0.81
1,1-Dichloroethene	75-35-4		ND	ND	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2		ND	ND	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5		ND	ND	0.20	0.79
1,2-Dichloropropane	78-87-5		ND	ND	0.20	0.92
1,3-Dichloropropene (cis)	10061-01-5		ND	ND	0.20	0.91
1,3-Dichloropropene (trans)	10061-02-6		ND	ND	0.20	0.91
1,2-Dichlorotetrafluoroethane	76-14-2		ND	ND	0.20	1.4
1,4-Dioxane	123-91-1		ND	ND	0.20	0.72
Ethylbenzene	100-41-4		0.26	1.1	0.20	0.87
n-Heptane	142-82-5		ND	ND	0.20	0.82
1,3-Hexachlorobutadiene	87-68-3		ND	ND	0.20	2.1
n-Hexane	110-54-3		0.23	0.82	0.20	0.70
Methylene chloride	75-09-2		ND	ND	0.20	0.69
Methyl ethyl ketone	78-93-3		0.60	1.8	0.20	0.59
Methyl isobutyl ketone	108-10-1		ND	ND	0.20	0.82
Methyl tert-butyl ether	1634-04-4		ND	ND	0.20	0.72
Styrene	100-42-5		ND	ND	0.20	0.85
Tert-butyl alcohol	75-65-0		1.4	4.1	0.20	0.61
1,1,2,2-Tetrachloroethane	79-34-5		ND	ND	0.20	1.4
Tetrachloroethene	127-18-4		1.7	12	0.20	1.4
Toluene	108-88-3		0.63	2.4	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1		ND	ND	0.20	1.5
1,1,1-Trichloroethane	71-55-6		ND	ND	0.20	1.1
1,1,2-Trichloroethane	79-00-5		ND	ND	0.20	1.1

Qualifiers:
D = Dilution required

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05047-05	Instrument ID:	AA
Client ID:	SV7	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/16/2023 08:24	Injection Volmue:	500ml
Date Received:	11/16/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 16:15	% Moisture:	NA
Data File:	AA4890	Dilution Factor:	1
Summa ID:	2749	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Trichloroethene	79-01-6		ND	ND	0.046	0.25
Trichlorofluoromethane	75-69-4		0.32	1.8	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		ND	ND	0.20	1.5
1,2,4-Trimethylbenzene	95-63-6		0.20	0.99	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8		ND	ND	0.20	0.98
2,2,4-Trimethylpentane	540-84-1		ND	ND	0.20	0.93
Vinyl bromide	593-60-2		ND	ND	0.20	0.87
Vinyl chloride	75-01-4		ND	ND	0.20	0.51
Xylenes (m&p)	179601-23-1		1.0	4.4	0.20	0.87
Xylenes (o)	95-47-6		0.41	1.8	0.20	0.87

Qualifiers:
D = Dilution required

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4890.D
Acq On : 8 Dec 2023 4:15 pm
Operator : jjw
Sample : E23-05047-05
Misc : 2749, 500cc
ALS Vial : 13 Sample Multiplier: 1

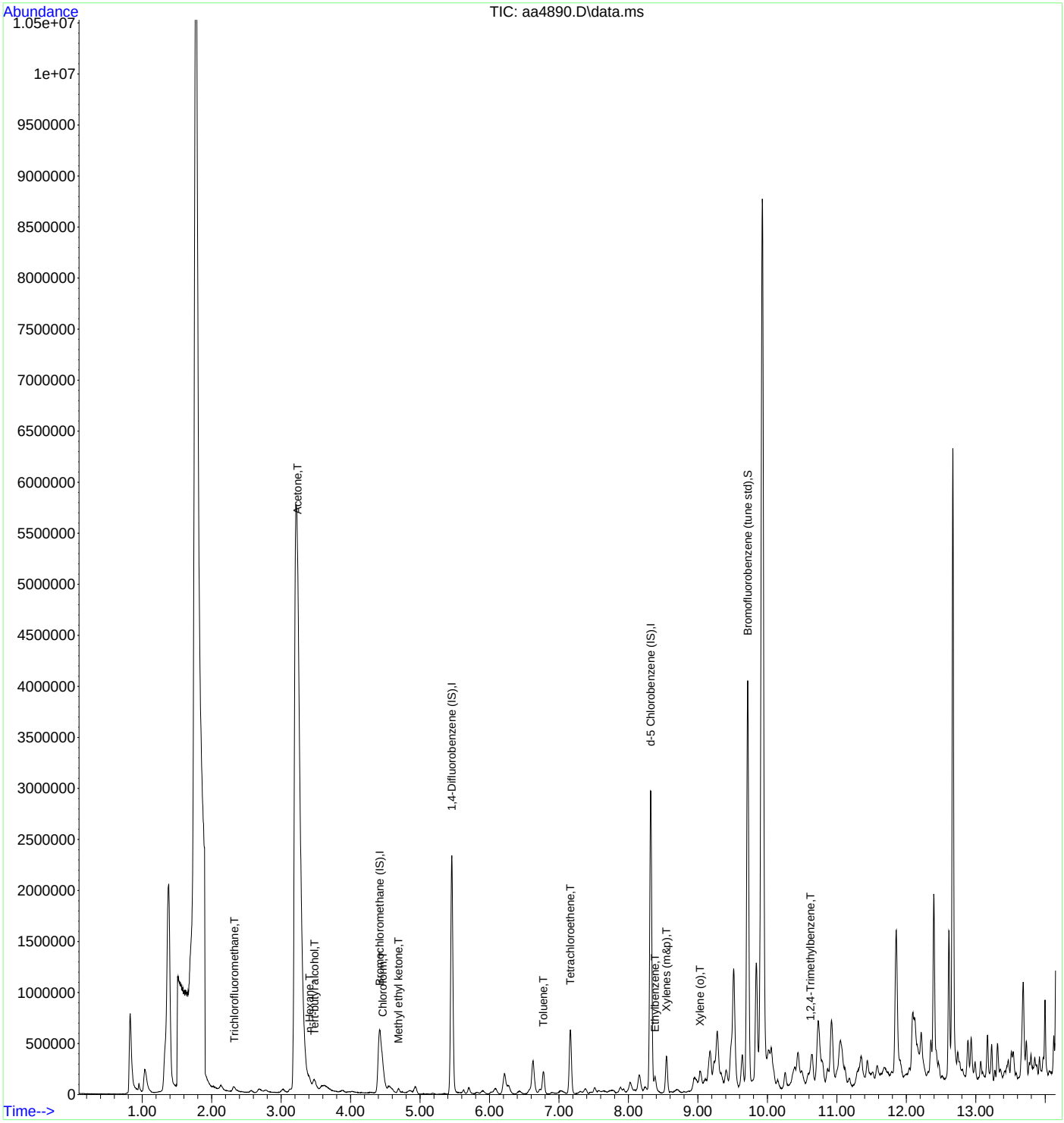
Quant Time: Dec 12 10:00:18 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

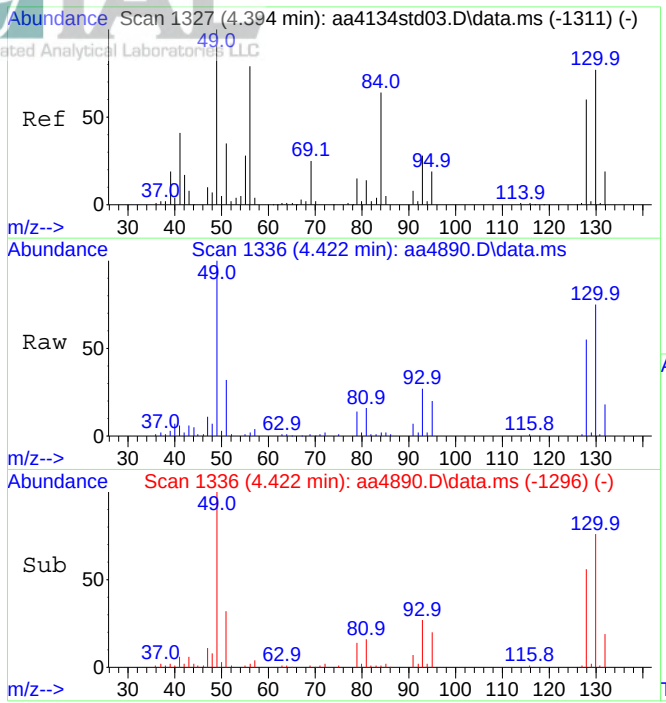
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.422	130	419490	10.00	ppbV	0.028
39) 1,4-Difluorobenzene (IS)	5.457	114	2159308	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.322	117	1909354	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	1735350	10.43	ppbV	0.000
Target Compounds						Qvalue
12) Trichlorofluoromethane	2.329	101	37734	0.32	ppbV	99
21) Acetone	3.238	43	390753	6.18	ppbV	95
24) n-Hexane	3.409	57	30862	0.23	ppbV #	68
26) Tert-butyl alcohol	3.480	59	148890	1.36	ppbV	100
30) Chloroform	4.464	83	125490	1.12	ppbV	97
35) Methyl ethyl ketone	4.692	43	61297	0.60	ppbV	99
47) Toluene	6.775	91	191623	0.63	ppbV	100
49) Tetrachloroethene	7.164	166	222151	1.70	ppbV	100
58) Ethylbenzene	8.383	91	90057	0.26	ppbV	96
59) Xylenes (m&p)	8.547	91	265039	1.02	ppbV	97
60) Xylene (o)	9.032	91	117086	0.41	ppbV	95
70) 1,2,4-Trimethylbenzene	10.621	105	66452	0.20	ppbV	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4890.D
Acq On : 8 Dec 2023 4:15 pm
Operator : jjw
Sample : E23-05047-05
Misc : 2749, 500cc
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 12 10:00:18 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

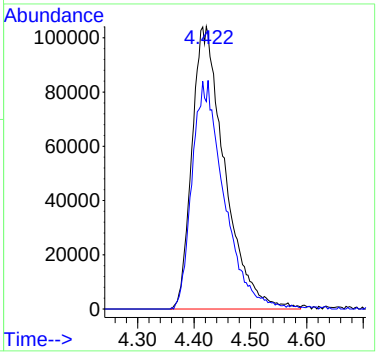


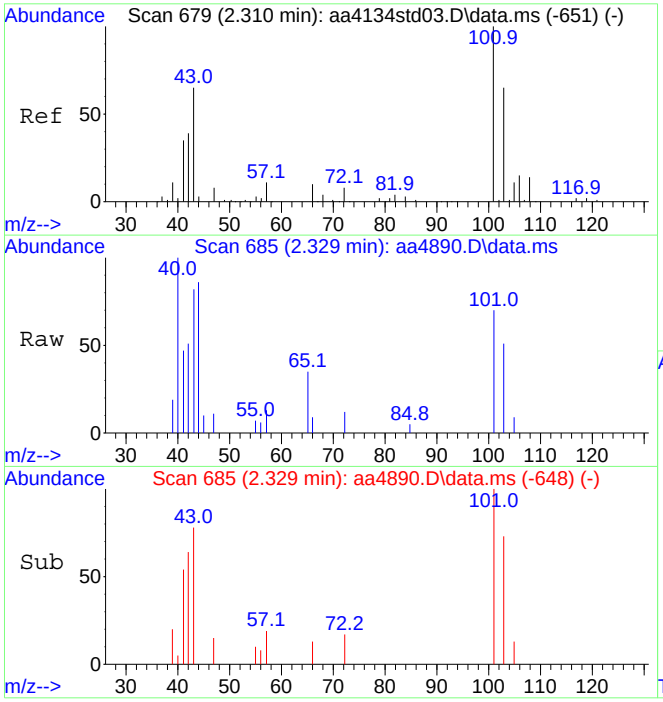


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.422 min Scan# 1336
Delta R.T. 0.028 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion:130 Resp: 419490

Ion	Ratio	Lower	Upper
130	100		
128	78.8	62.2	93.4

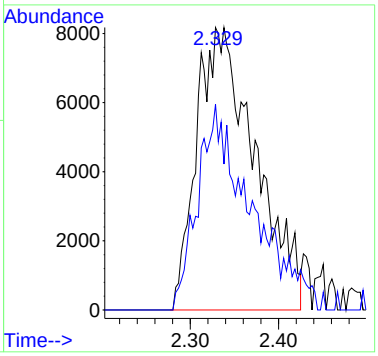


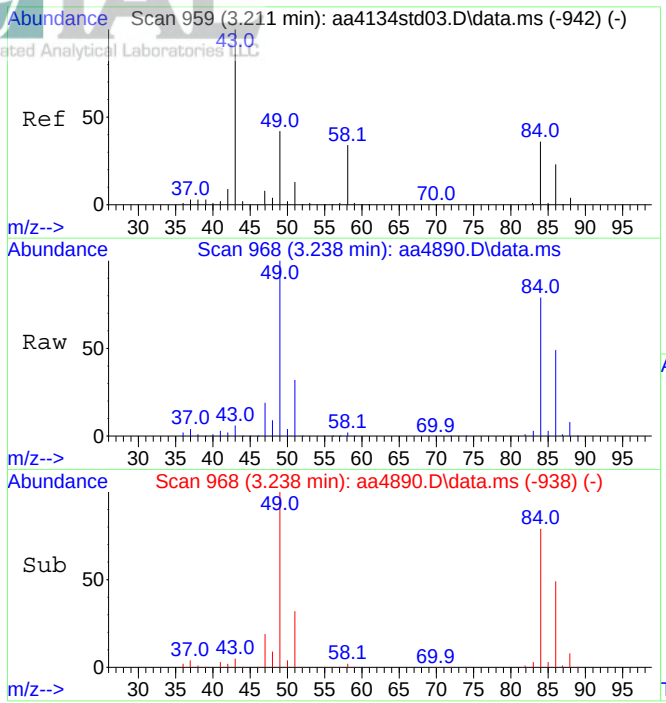


#12
Trichlorofluoromethane
Concen: 0.32 ppbV
RT: 2.329 min Scan# 685
Delta R.T. 0.018 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion:101 Resp: 37734

Ion	Ratio	Lower	Upper
101	100		
103	66.2	52.5	78.7

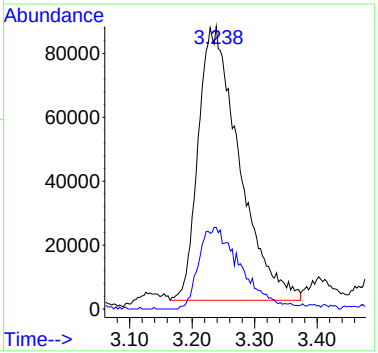


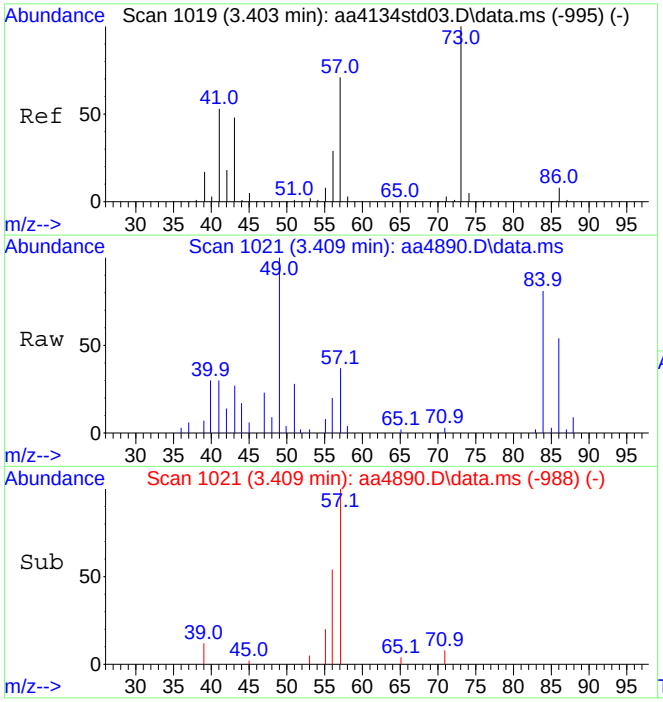


#21
Acetone
Concen: 6.18 ppbV
RT: 3.238 min Scan# 968
Delta R.T. 0.028 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion: 43 Resp: 390753

Ion	Ratio	Lower	Upper
43	100		
58	30.8	27.1	40.7

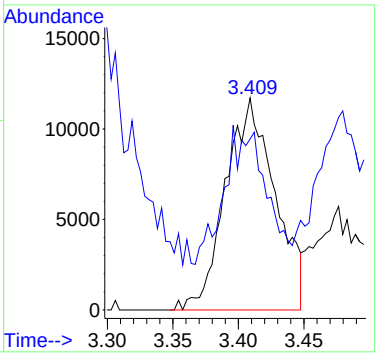


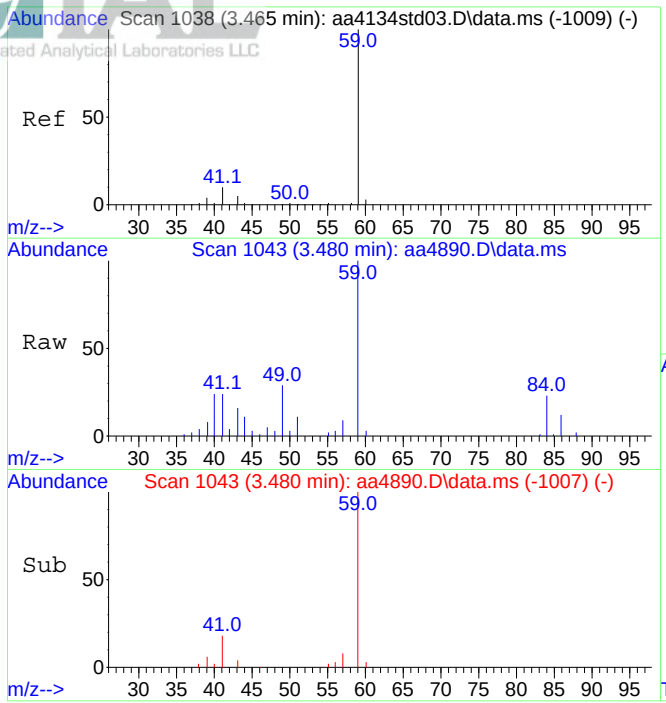


#24
n-Hexane
Concen: 0.23 ppbV
RT: 3.409 min Scan# 1021
Delta R.T. 0.006 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion: 57 Resp: 30862

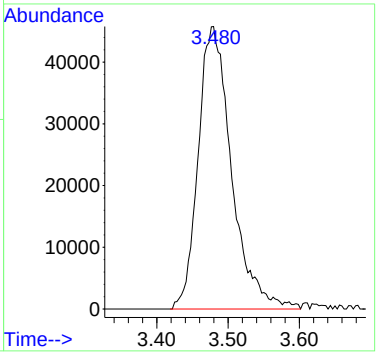
Ion	Ratio	Lower	Upper
57	100		
41	54.1	66.4	99.6#

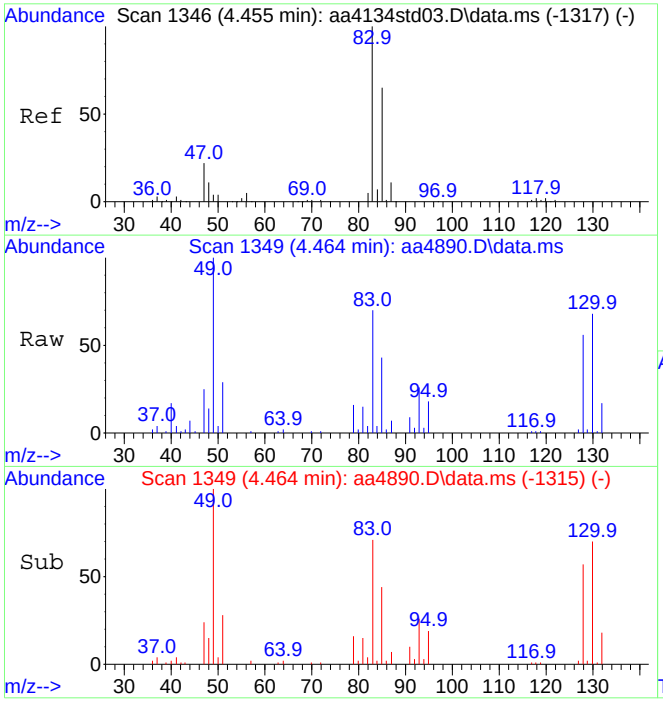




#26
Tert-butyl alcohol
Concen: 1.36 ppbV
RT: 3.480 min Scan# 1043
Delta R.T. 0.015 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion: 59 Resp: 148890

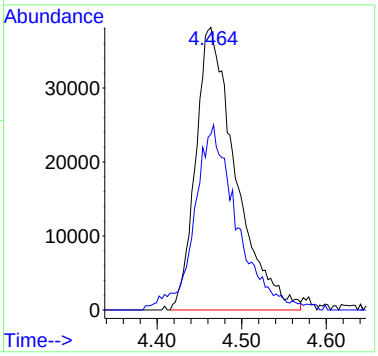


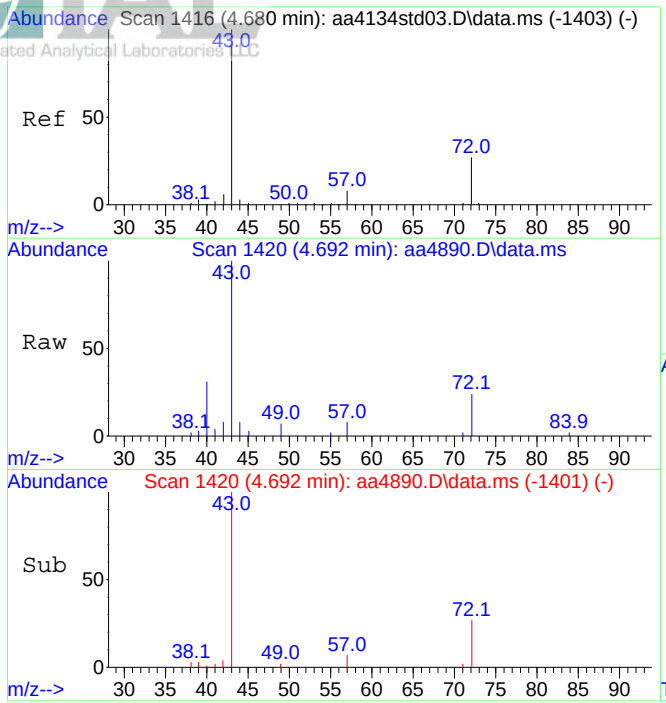


#30
Chloroform
Concen: 1.12 ppbV
RT: 4.464 min Scan# 1349
Delta R.T. 0.009 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion: 83 Resp: 125490

Ion	Ratio	Lower	Upper
83	100		
85	69.9	53.9	80.9

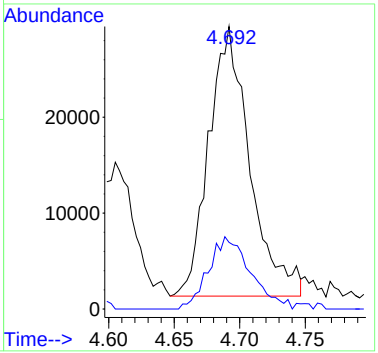


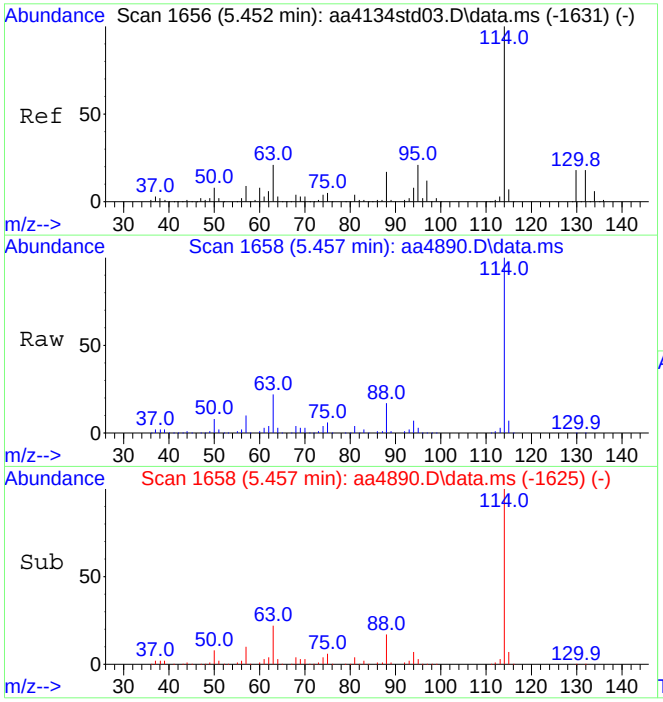


#35
Methyl ethyl ketone
Concen: 0.60 ppbV
RT: 4.692 min Scan# 1420
Delta R.T. 0.012 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion: 43 Resp: 61297

Ion	Ratio	Lower	Upper
43	100		
72	27.3	21.6	32.4

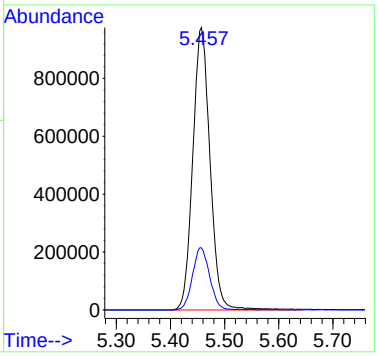


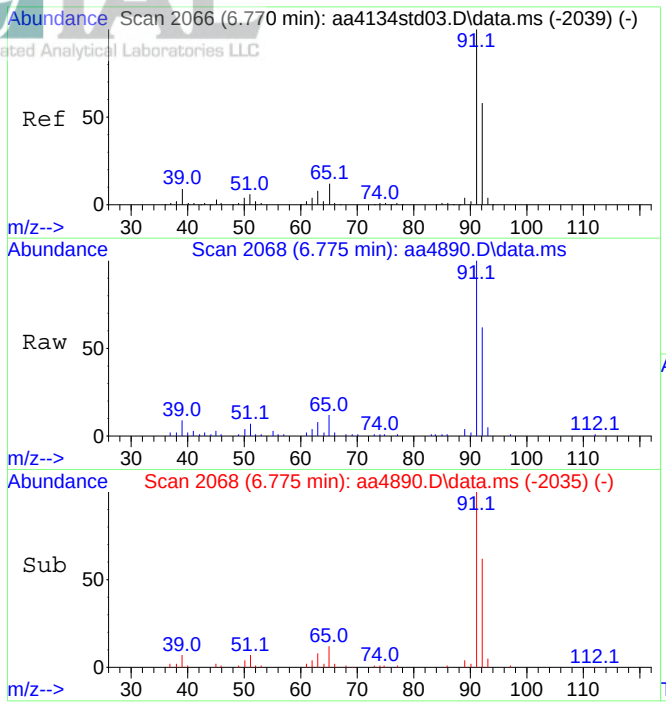


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.005 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion:114 Resp: 2159308

Ion	Ratio	Lower	Upper
114	100		
63	21.9	17.0	25.6

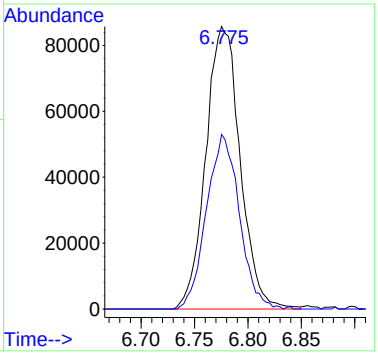


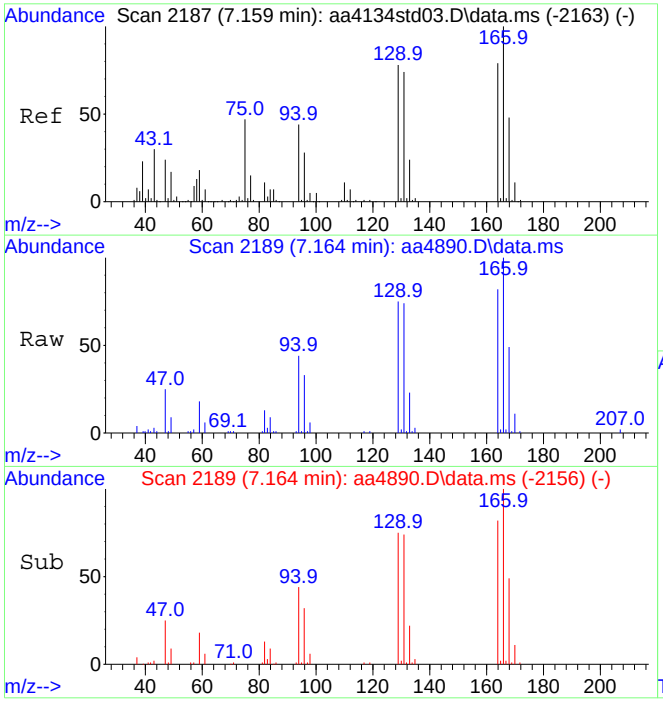


#47
Toluene
Concen: 0.63 ppbV
RT: 6.775 min Scan# 2068
Delta R.T. 0.005 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion: 91 Resp: 191623

Ion	Ratio	Lower	Upper
91	100		
92	59.0	47.3	70.9

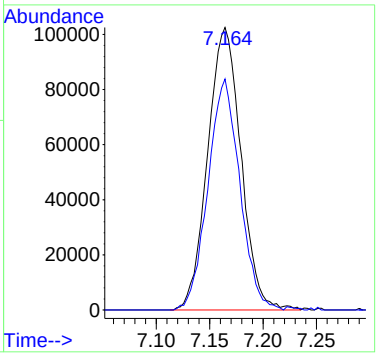


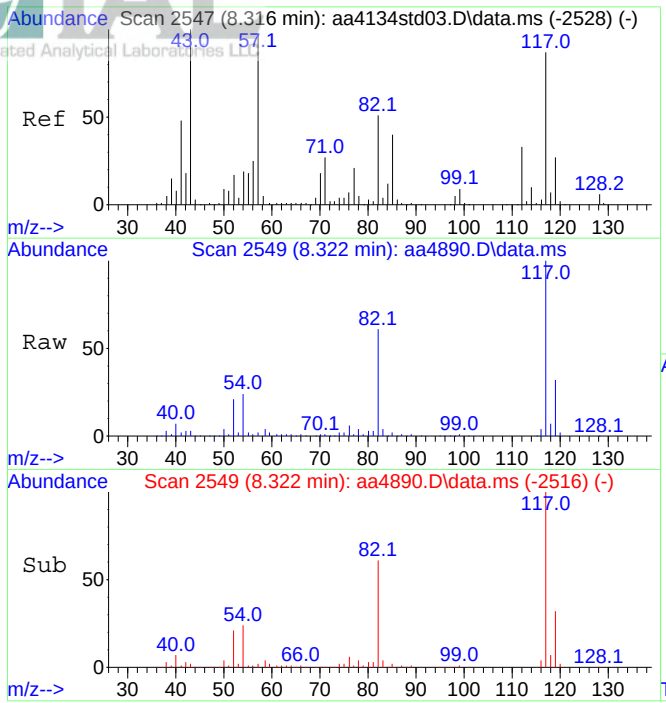


#49
Tetrachloroethene
Concen: 1.70 ppbV
RT: 7.164 min Scan# 2189
Delta R.T. 0.005 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion:166 Resp: 222151

Ion	Ratio	Lower	Upper
166	100		
164	78.1	62.3	93.5

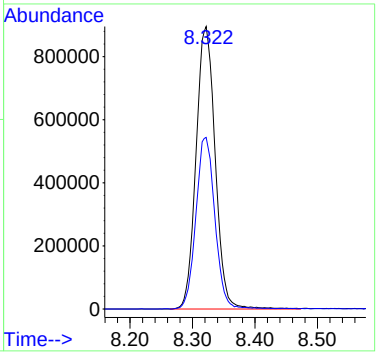


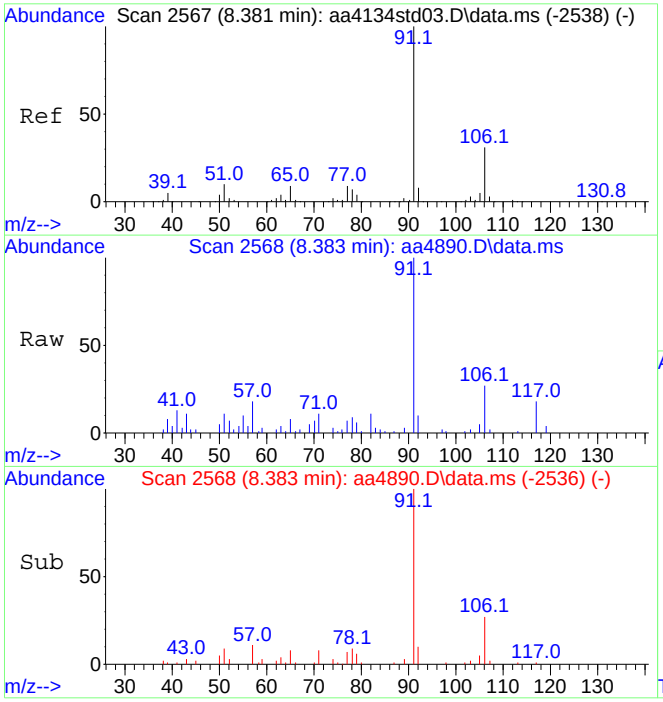


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.322 min Scan# 2549
Delta R.T. 0.005 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion:117 Resp: 1909354

Ion	Ratio	Lower	Upper
117	100		
82	60.3	47.0	70.4

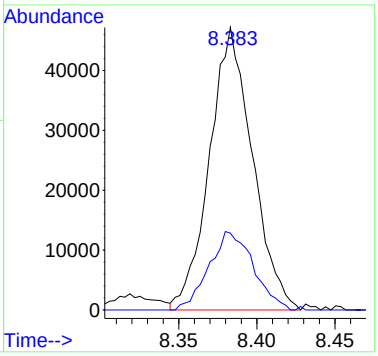


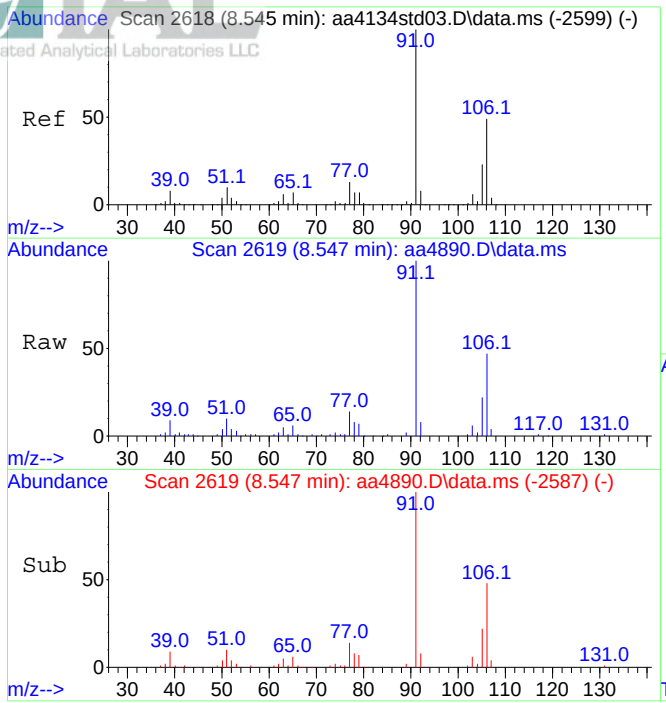


#58
Ethylbenzene
Concen: 0.26 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion: 91 Resp: 90057

Ion	Ratio	Lower	Upper
91	100		
106	28.6	24.6	36.8

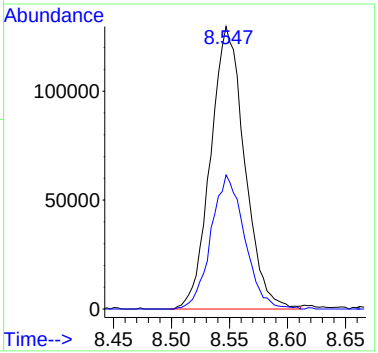


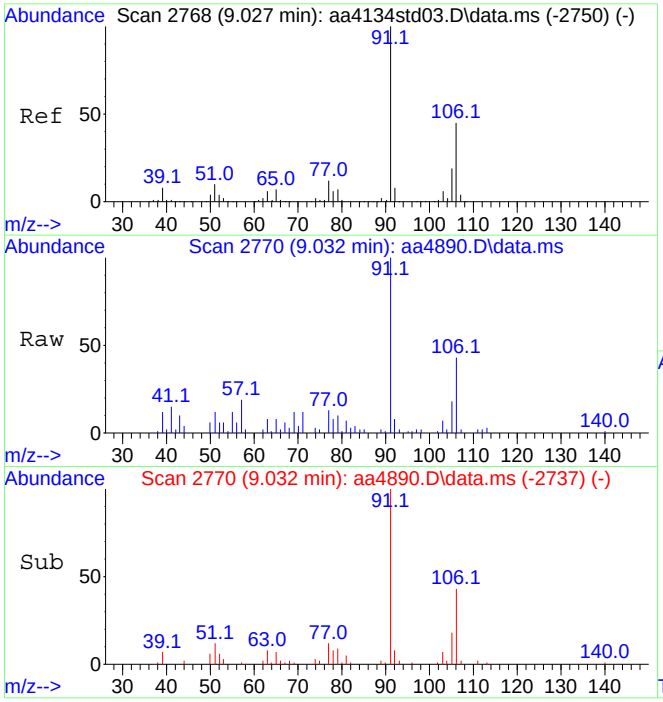


#59
Xylenes (m&p)
Concen: 1.02 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. 0.002 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion: 91 Resp: 265039

Ion	Ratio	Lower	Upper
91	100		
106	46.7	39.0	58.4

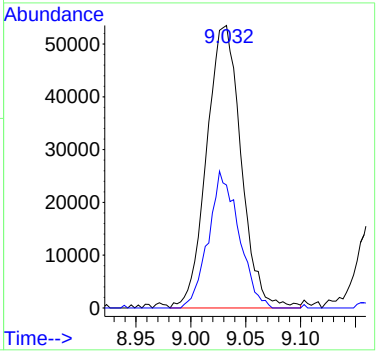


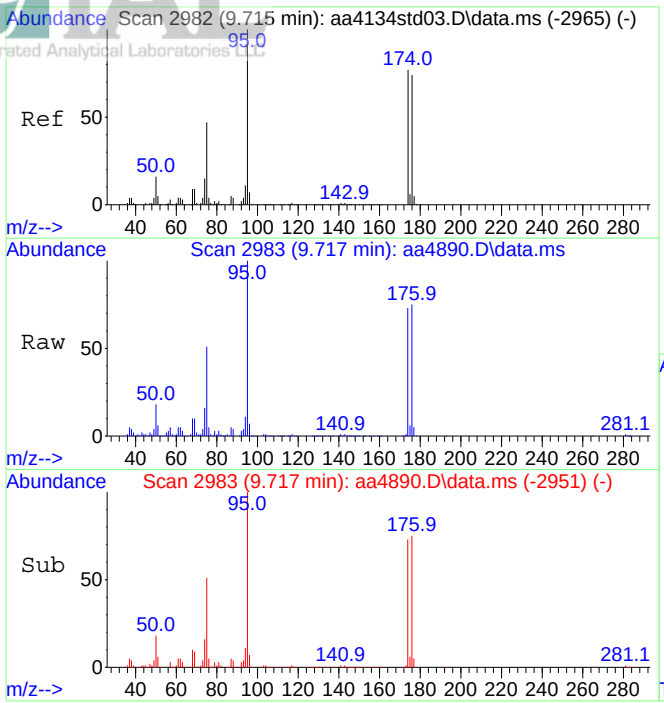


#60
Xylene (o)
Concen: 0.41 ppbV
RT: 9.032 min Scan# 2770
Delta R.T. 0.005 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion: 91 Resp: 117086

Ion	Ratio	Lower	Upper
91	100		
106	42.7	36.8	55.2

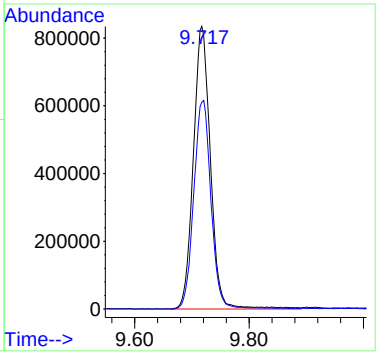


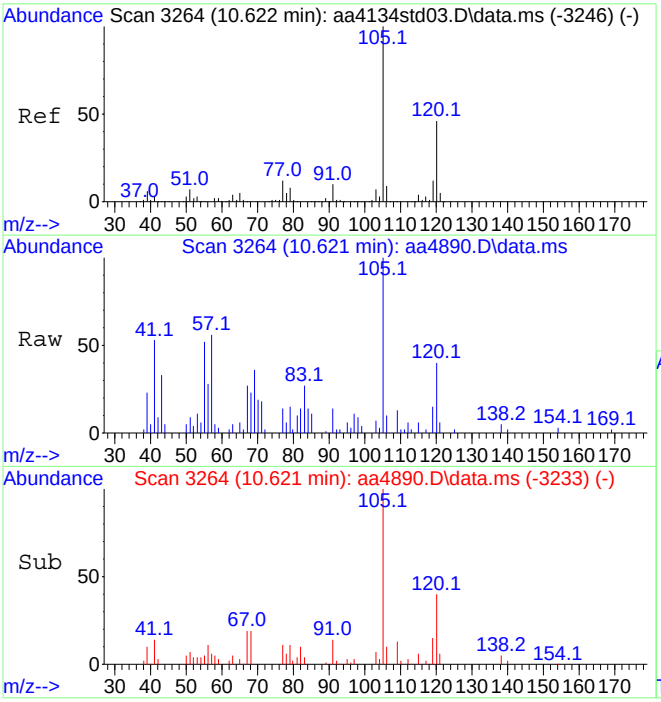


#64
Bromofluorobenzene (tune std)
Concen: 10.43 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion: 95 Resp: 1735350

Ion	Ratio	Lower	Upper
95	100		
174	74.8	61.1	91.7

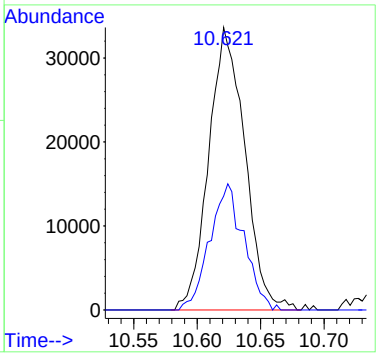




#70
1,2,4-Trimethylbenzene
Concen: 0.20 ppbV
RT: 10.621 min Scan# 3264
Delta R.T. -0.001 min
Lab File: aa4890.D
Acq: 8 Dec 2023 4:15 pm

Tgt Ion:105 Resp: 66452

Ion	Ratio	Lower	Upper
105	100		
120	42.3	36.3	54.5



INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05047-06	Instrument ID:	AA
Client ID:	SV8	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/16/2023 08:30	Injection Volmue:	500ml, 100ml
Date Received:	11/16/2023	Matrix:	Air-Other
Date Analyzed:	12/11/2023 17:43, 12/11/2023 16:52	% Moisture:	NA
Data File:	AA4915, AA4914	Dilution Factor:	1, 5
Summa ID:	5091	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Acetone	67-64-1	D	99	230	1.0	2.4
Benzene	71-43-2		1.9	6.0	0.20	0.64
Bromodichloromethane	75-27-4		ND	ND	0.20	1.3
Bromoform	75-25-2		ND	ND	0.20	2.1
Bromomethane	74-83-9		ND	ND	0.20	0.78
1,3-Butadiene	106-99-0		ND	ND	0.20	0.44
Chlorobenzene	108-90-7		ND	ND	0.20	0.92
Chloroethane	75-00-3		ND	ND	0.20	0.53
Chloroform	67-66-3		15	72	0.20	0.98
Chloromethane	74-87-3		ND	ND	0.20	0.41
Carbon disulfide	75-15-0		5.8	18	0.20	0.62
Carbon tetrachloride	56-23-5		ND	ND	0.040	0.25
Cyclohexane	110-82-7		1.5	5.2	0.20	0.69
Dibromochloromethane	124-48-1		ND	ND	0.20	1.7
1,2-Dibromoethane	106-93-4		ND	ND	0.20	1.5
1,2-Dichlorobenzene	95-50-1		ND	ND	0.20	1.2
1,3-Dichlorobenzene	541-73-1		ND	ND	0.20	1.2
1,4-Dichlorobenzene	106-46-7		ND	ND	0.20	1.2
Dichlorodifluoromethane	75-71-8		ND	ND	0.20	0.99
1,1-Dichloroethane	75-34-3		ND	ND	0.20	0.81
1,2-Dichloroethane	107-06-2		ND	ND	0.20	0.81
1,1-Dichloroethene	75-35-4		ND	ND	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2		ND	ND	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5		ND	ND	0.20	0.79
1,2-Dichloropropane	78-87-5		ND	ND	0.20	0.92
1,3-Dichloropropene (cis)	10061-01-5		ND	ND	0.20	0.91
1,3-Dichloropropene (trans)	10061-02-6		ND	ND	0.20	0.91
1,2-Dichlorotetrafluoroethane	76-14-2		ND	ND	0.20	1.4
1,4-Dioxane	123-91-1		ND	ND	0.20	0.72
Ethylbenzene	100-41-4		1.4	6.0	0.20	0.87
n-Heptane	142-82-5		0.59	2.4	0.20	0.82
1,3-Hexachlorobutadiene	87-68-3		ND	ND	0.20	2.1
n-Hexane	110-54-3		0.79	2.8	0.20	0.70
Methylene chloride	75-09-2		4.9	17	0.20	0.69
Methyl ethyl ketone	78-93-3		9.7	29	0.20	0.59
Methyl isobutyl ketone	108-10-1		ND	ND	0.20	0.82
Methyl tert-butyl ether	1634-04-4		ND	ND	0.20	0.72
Styrene	100-42-5		0.27	1.1	0.20	0.85
Tert-butyl alcohol	75-65-0		1.7	5.2	0.20	0.61
1,1,2,2-Tetrachloroethane	79-34-5		ND	ND	0.20	1.4
Tetrachloroethene	127-18-4		5.8	39	0.20	1.4
Toluene	108-88-3		4.5	17	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1		ND	ND	0.20	1.5
1,1,1-Trichloroethane	71-55-6		ND	ND	0.20	1.1
1,1,2-Trichloroethane	79-00-5		ND	ND	0.20	1.1

Qualifiers:
D = Dilution required

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05047-06	Instrument ID:	AA
Client ID:	SV8	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/16/2023 08:30	Injection Volmue:	500ml, 100ml
Date Received:	11/16/2023	Matrix:	Air-Other
Date Analyzed:	12/11/2023 17:43, 12/11/2023 16:52	% Moisture:	NA
Data File:	AA4915, AA4914	Dilution Factor:	1, 5
Summa ID:	5091	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Trichloroethene	79-01-6		ND	ND	0.046	0.25
Trichlorofluoromethane	75-69-4		0.32	1.8	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		ND	ND	0.20	1.5
1,2,4-Trimethylbenzene	95-63-6		0.71	3.5	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8		0.35	1.7	0.20	0.98
2,2,4-Trimethylpentane	540-84-1		ND	ND	0.20	0.93
Vinyl bromide	593-60-2		ND	ND	0.20	0.87
Vinyl chloride	75-01-4		ND	ND	0.20	0.51
Xylenes (m&p)	179601-23-1		4.6	20	0.20	0.87
Xylenes (o)	95-47-6		2.0	8.9	0.20	0.87

Qualifiers:
D = Dilution required

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4915.D
Acq On : 11 Dec 2023 5:43 pm
Operator : jjw
Sample : E23-05047-06
Misc : 5091, 500cc
ALS Vial : 18 Sample Multiplier: 1

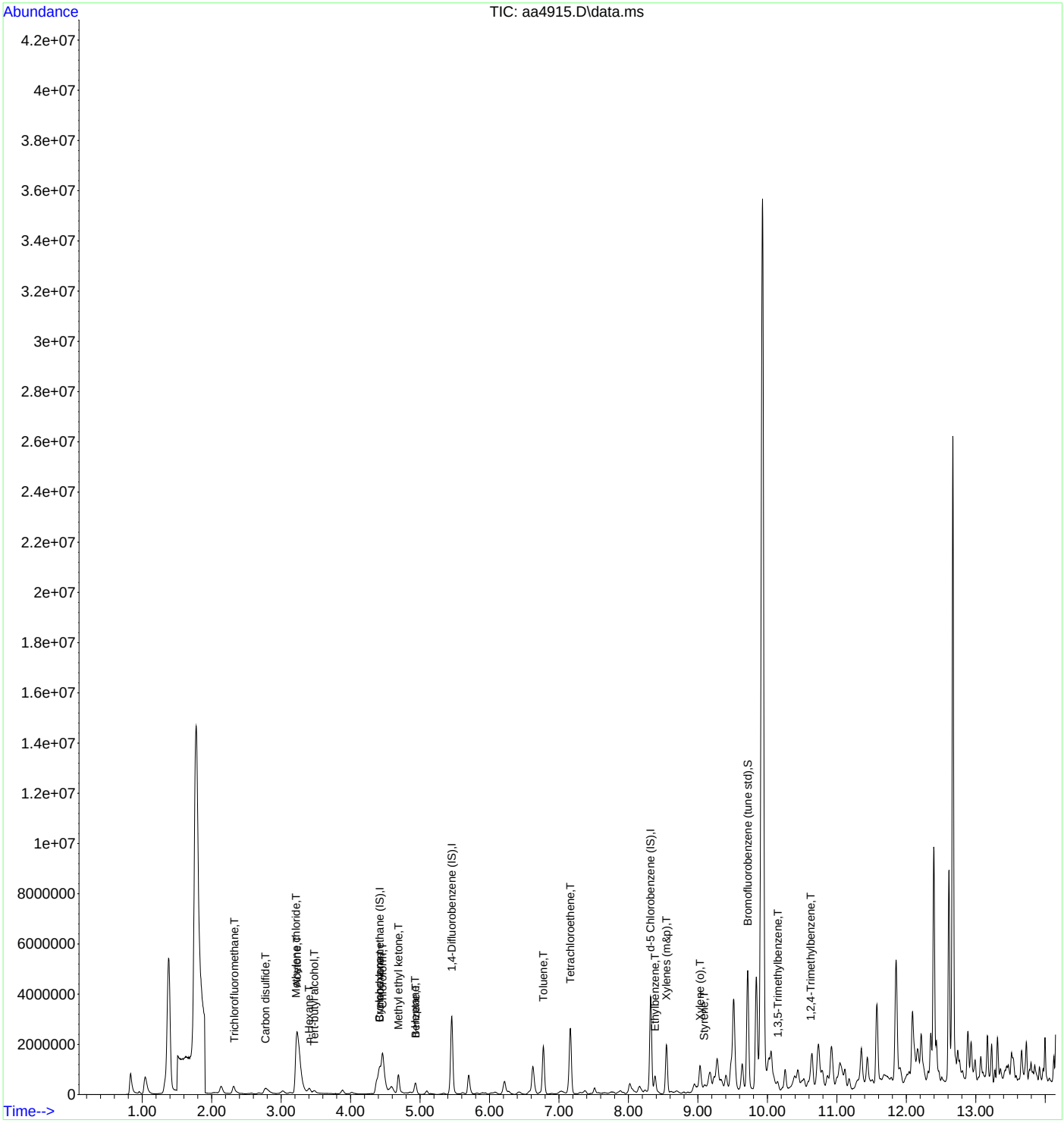
Quant Time: Dec 12 10:46:56 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

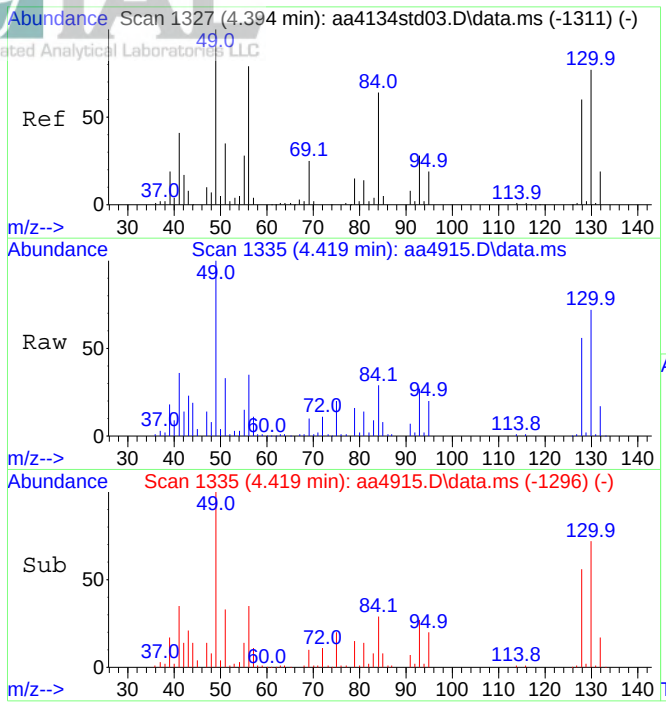
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.419	130	461164	10.00	ppbV		0.025
39) 1,4-Difluorobenzene (IS)	5.457	114	2637042	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2277752	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.717	95	2042254	10.29	ppbV		0.000
Target Compounds							Qvalue
12) Trichlorofluoromethane	2.329	101	41506	0.32	ppbV		99
15) Carbon disulfide	2.776	76	814375	5.78	ppbV		95
20) Methylene chloride	3.216	49	277071	4.89	ppbV		93
21) Acetone	3.229	43	6852640	98.52	ppbV		97
24) n-Hexane	3.403	57	115089	0.79	ppbV		98
26) Tert-butyl alcohol	3.477	59	205448	1.71	ppbV		100
29) Cyclohexane	4.415	56	154376	1.52	ppbV	#	65
30) Chloroform	4.460	83	1829985	14.83	ppbV		98
35) Methyl ethyl ketone	4.689	43	1088491	9.66	ppbV		95
36) n-Heptane	4.930	43	74759	0.59	ppbV	#	80
37) Benzene	4.936	78	343896	1.88	ppbV		97
47) Toluene	6.776	91	1681160	4.54	ppbV		100
49) Tetrachloroethene	7.165	166	920941	5.76	ppbV		100
58) Ethylbenzene	8.383	91	575940	1.37	ppbV		98
59) Xylenes (m&p)	8.547	91	1431945	4.60	ppbV		97
60) Xylene (o)	9.029	91	694972	2.05	ppbV		98
61) Styrene	9.091	104	62118	0.27	ppbV		98
69) 1,3,5-Trimethylbenzene	10.152	105	138092	0.35	ppbV		97
70) 1,2,4-Trimethylbenzene	10.624	105	279979	0.71	ppbV		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4915.D
Acq On : 11 Dec 2023 5:43 pm
Operator : jjw
Sample : E23-05047-06
Misc : 5091, 500cc
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Dec 12 10:46:56 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

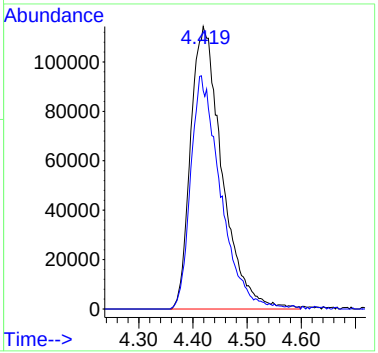


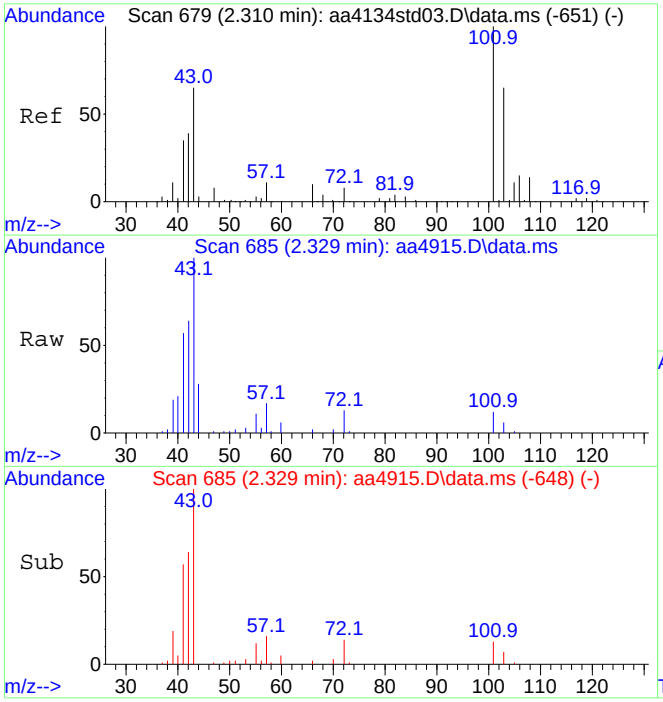


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.419 min Scan# 1335
Delta R.T. 0.025 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion:130 Resp: 461164

Ion	Ratio	Lower	Upper
130	100		
128	78.4	62.2	93.4

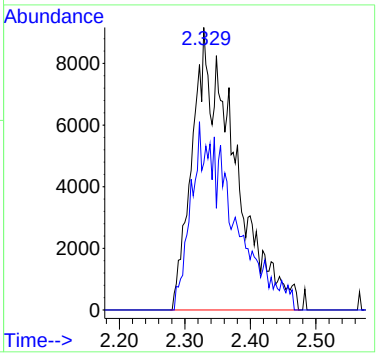


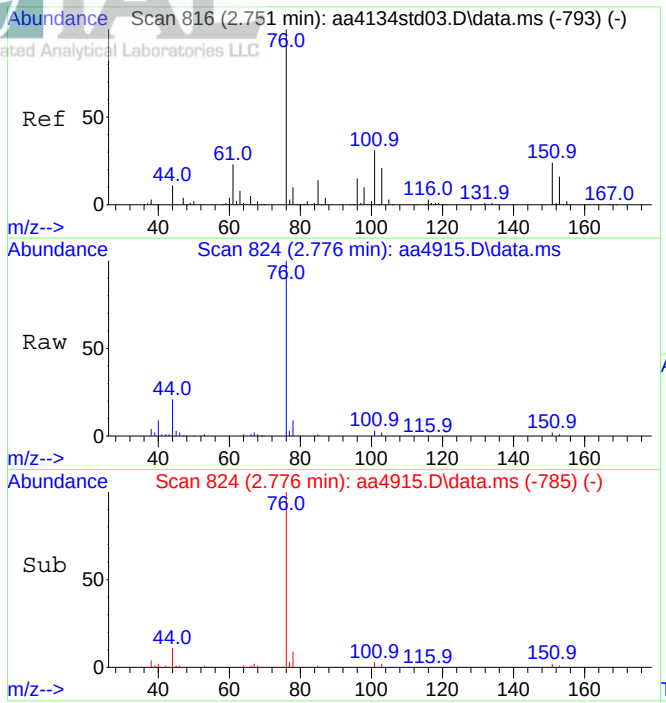


#12
Trichlorofluoromethane
Concen: 0.32 ppbV
RT: 2.329 min Scan# 685
Delta R.T. 0.018 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion:101 Resp: 41506

Ion	Ratio	Lower	Upper
101	100		
103	66.2	52.5	78.7

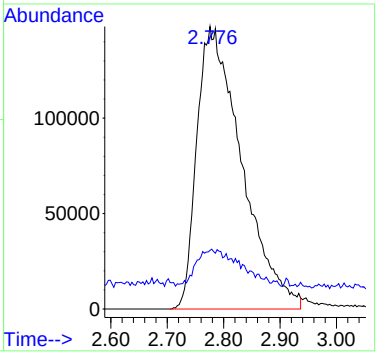


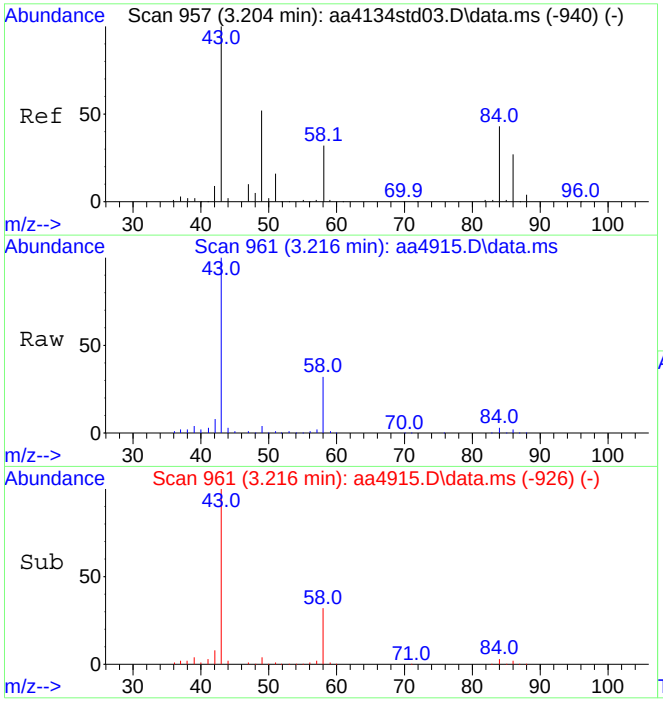


#15
Carbon disulfide
Concen: 5.78 ppbV
RT: 2.776 min Scan# 824
Delta R.T. 0.025 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion: 76 Resp: 814375

Ion	Ratio	Lower	Upper
76	100		
44	13.0	9.0	13.4

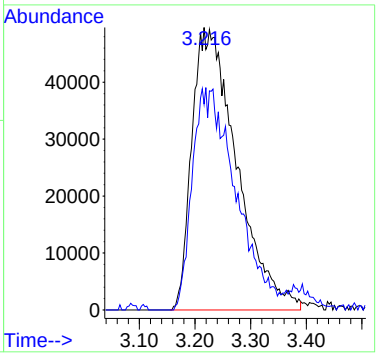


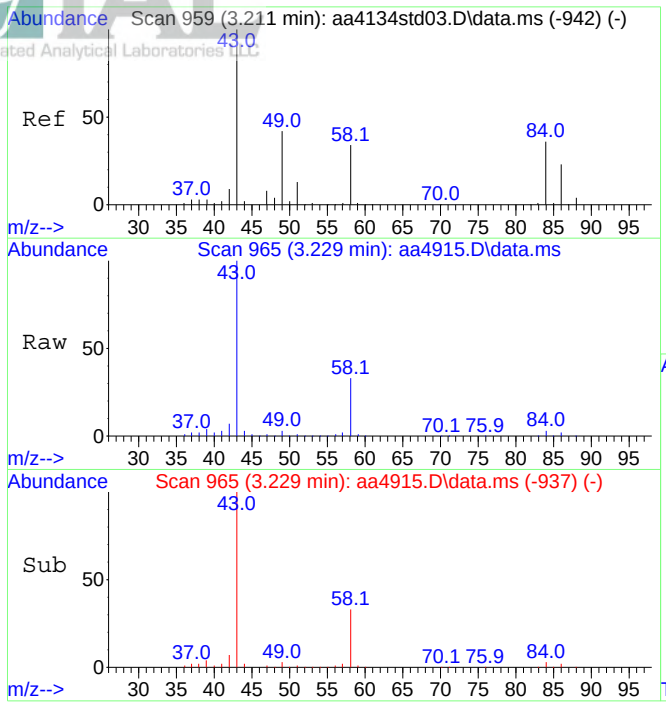


#20
Methylene chloride
Concen: 4.89 ppbV
RT: 3.216 min Scan# 961
Delta R.T. 0.012 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion: 49 Resp: 277071

Ion	Ratio	Lower	Upper
49	100		
84	78.8	64.8	104.8

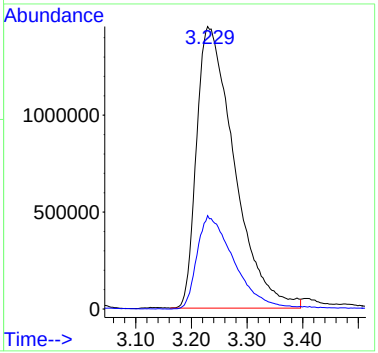


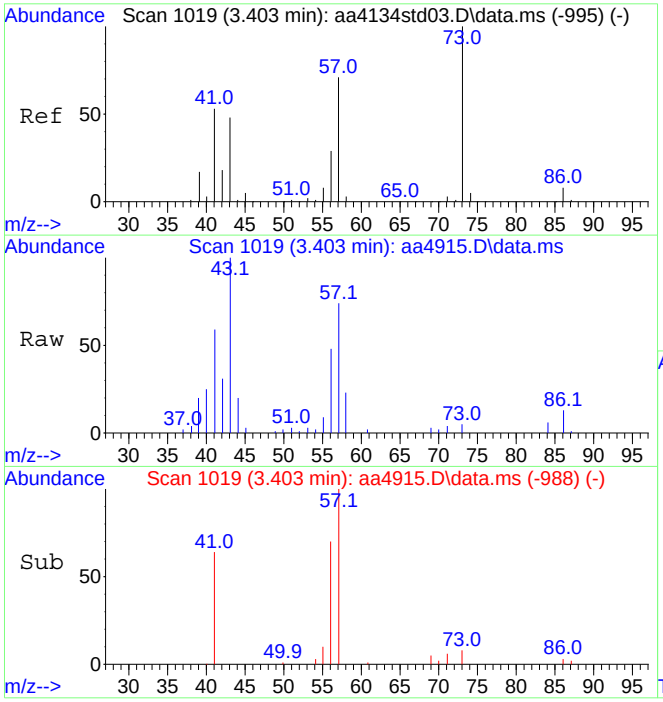


#21
Acetone
Concen: 98.52 ppbV
RT: 3.229 min Scan# 965
Delta R.T. 0.018 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion: 43 Resp: 6852640

Ion	Ratio	Lower	Upper
43	100		
58	32.4	27.1	40.7

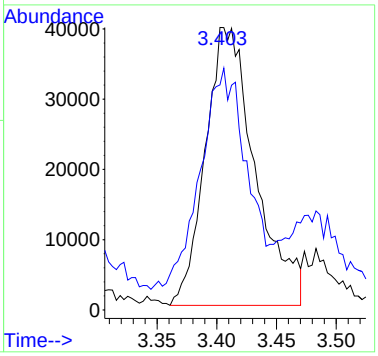


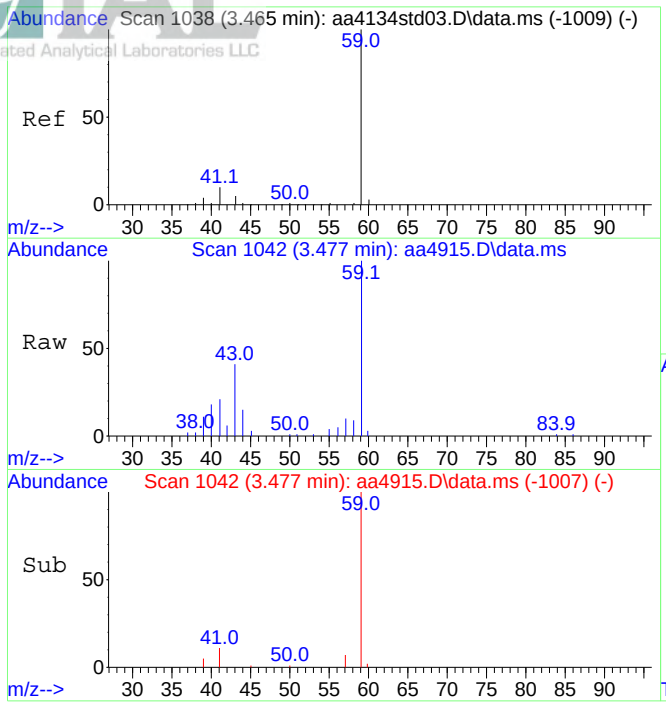


#24
n-Hexane
Concen: 0.79 ppbV
RT: 3.403 min Scan# 1019
Delta R.T. -0.000 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion: 57 Resp: 115089

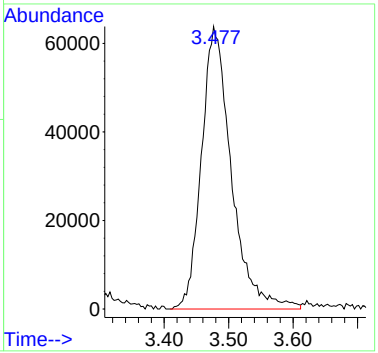
Ion	Ratio	Lower	Upper
57	100		
41	81.2	66.4	99.6

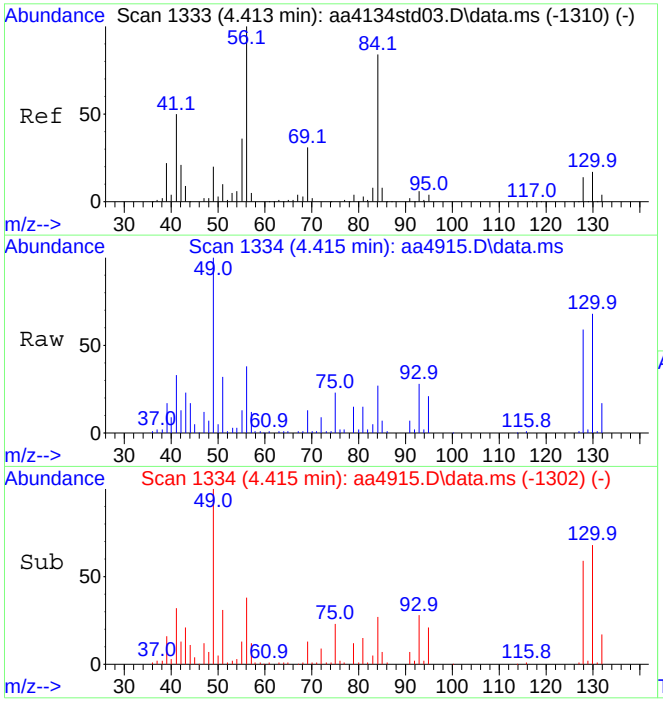




#26
Tert-butyl alcohol
Concen: 1.71 ppbV
RT: 3.477 min Scan# 1042
Delta R.T. 0.012 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion: 59 Resp: 205448

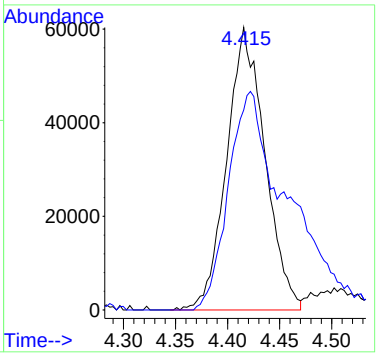


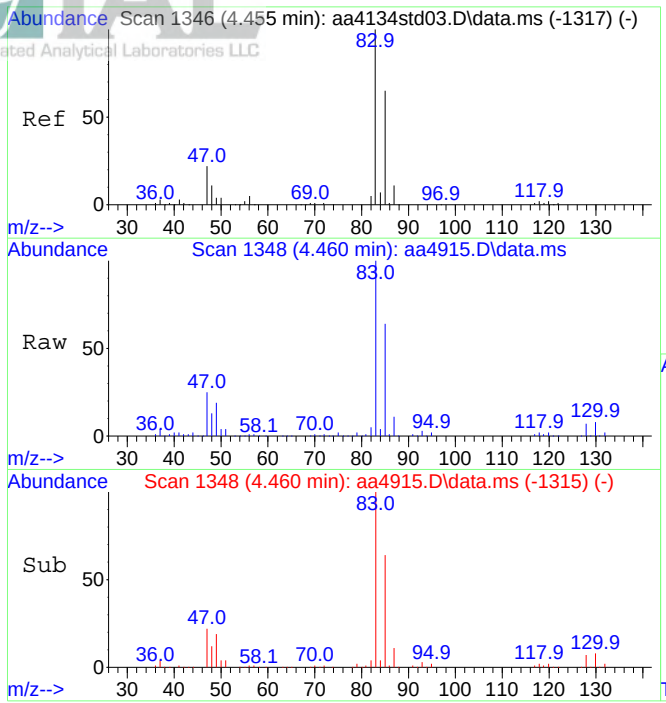


#29
Cyclohexane
Concen: 1.52 ppbV
RT: 4.415 min Scan# 1334
Delta R.T. 0.002 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion: 56 Resp: 154376

Ion	Ratio	Lower	Upper
56	100		
84	122.0	71.2	106.8#

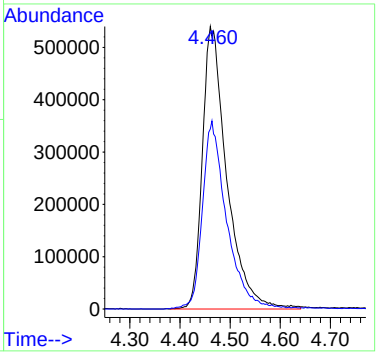


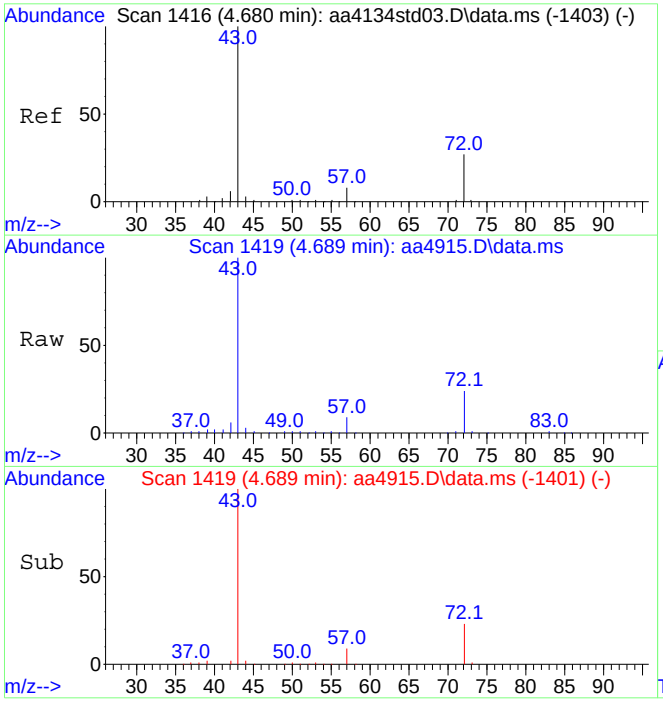


#30
Chloroform
Concen: 14.83 ppbV
RT: 4.460 min Scan# 1348
Delta R.T. 0.006 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion: 83 Resp: 1829985

Ion	Ratio	Lower	Upper
83	100		
85	66.0	53.9	80.9

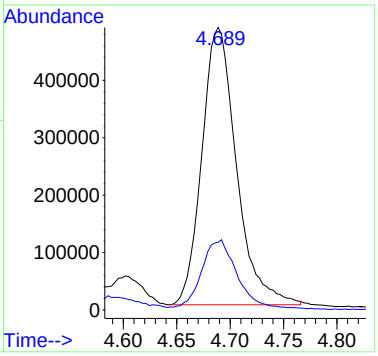


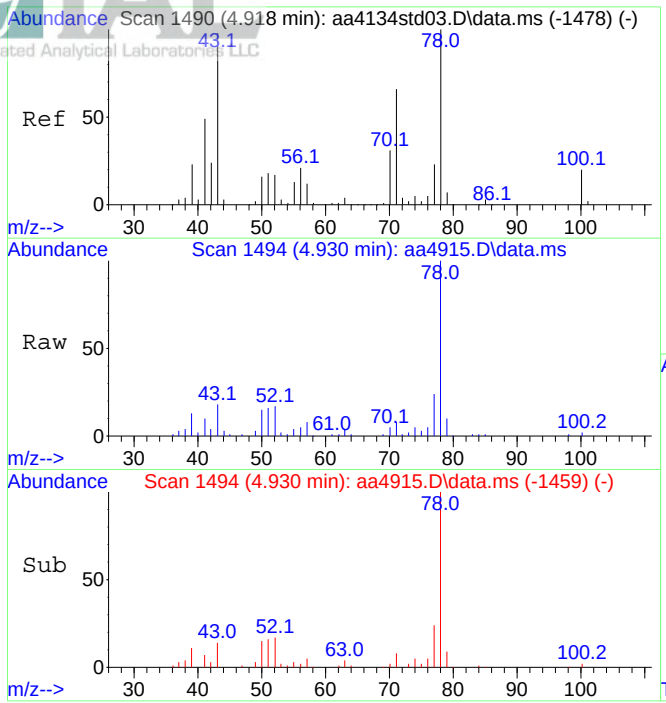


#35
Methyl ethyl ketone
Concen: 9.66 ppbV
RT: 4.689 min Scan# 1419
Delta R.T. 0.009 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion: 43 Resp: 1088491

Ion	Ratio	Lower	Upper
43	100		
72	24.5	21.6	32.4

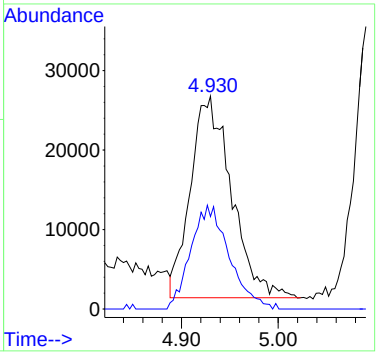


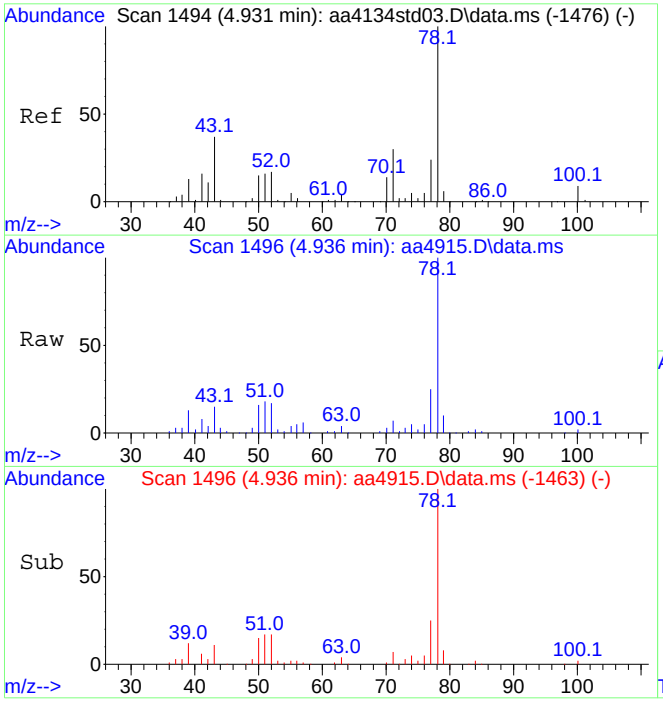


#36
n-Heptane
Concen: 0.59 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. 0.012 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion: 43 Resp: 74759

Ion	Ratio	Lower	Upper
43	100		
71	47.9	50.5	75.7#

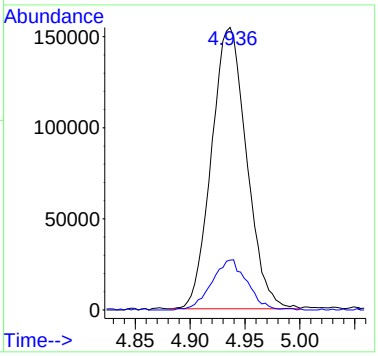


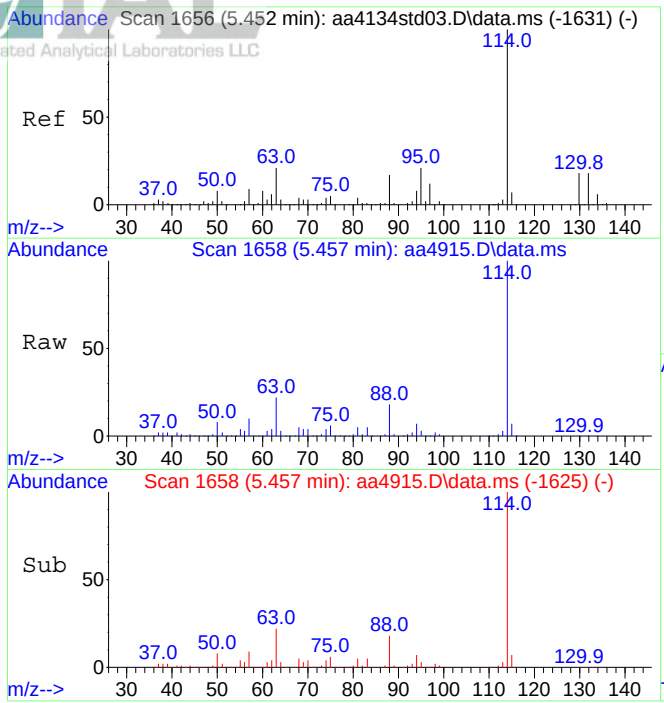


#37
Benzene
Concen: 1.88 ppbV
RT: 4.936 min Scan# 1496
Delta R.T. 0.006 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion: 78 Resp: 343896

Ion	Ratio	Lower	Upper
78	100		
51	17.8	13.4	20.0

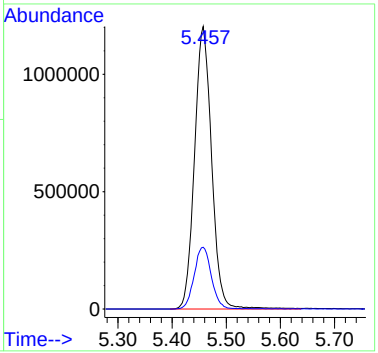


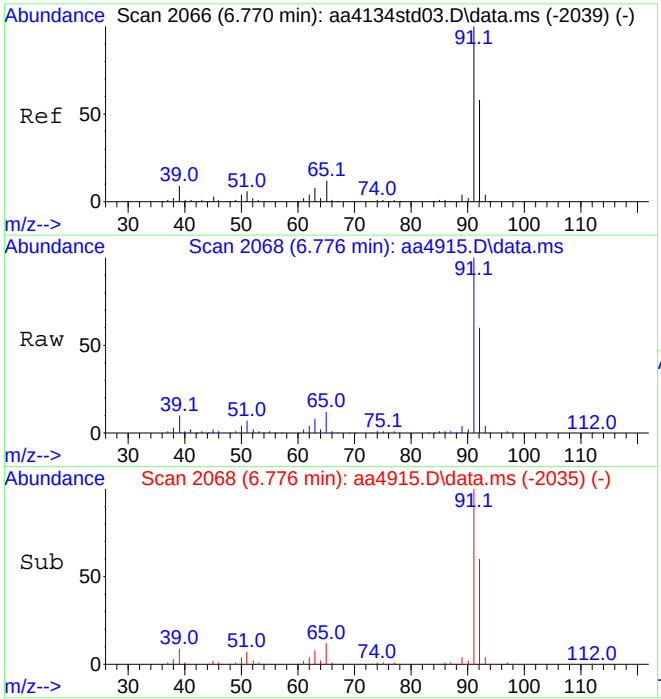


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.005 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion:114 Resp: 2637042

Ion	Ratio	Lower	Upper
114	100		
63	22.0	17.0	25.6

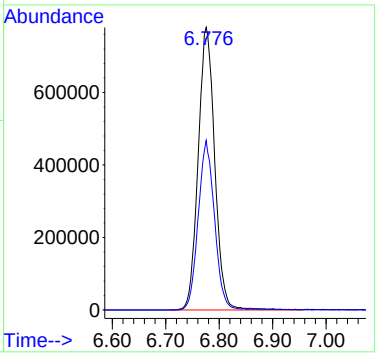


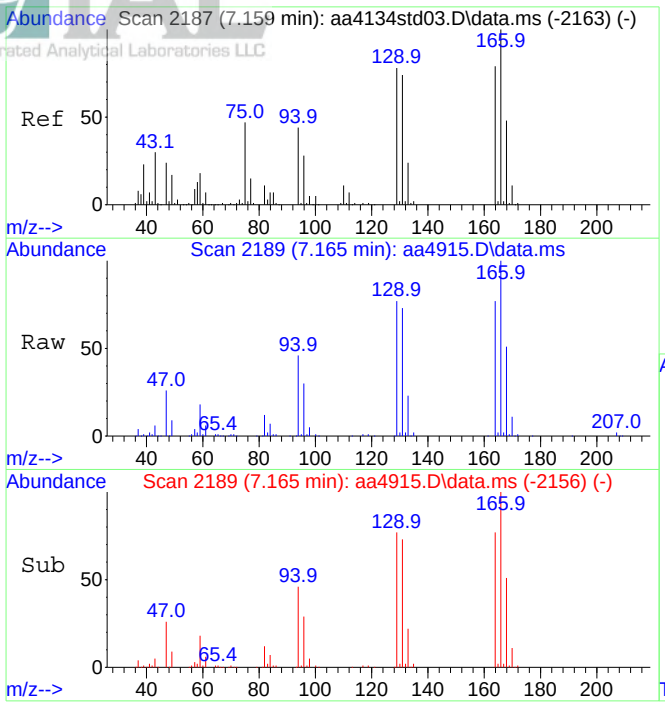


#47
Toluene
Concen: 4.54 ppbV
RT: 6.776 min Scan# 2068
Delta R.T. 0.006 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion: 91 Resp: 1681160

Ion	Ratio	Lower	Upper
91	100		
92	59.2	47.3	70.9

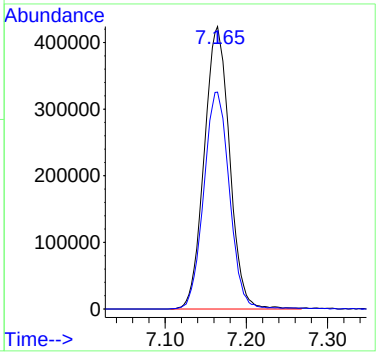


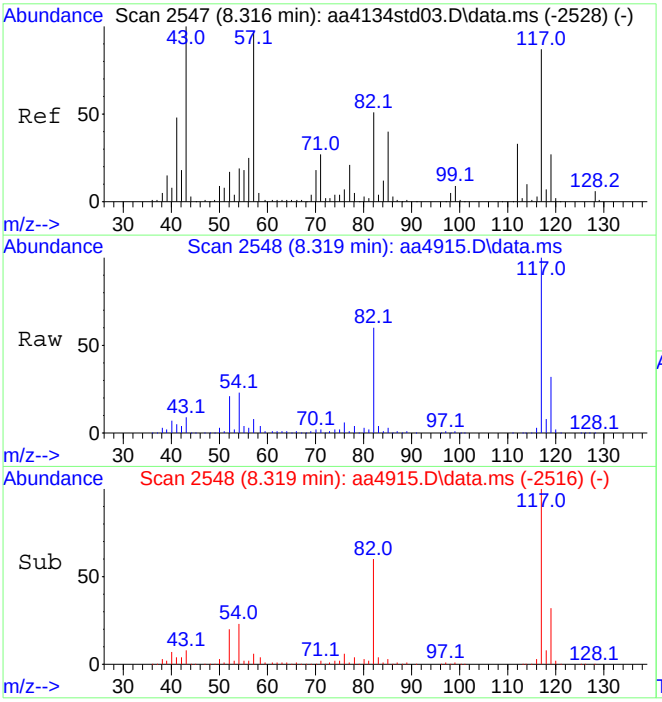


#49
Tetrachloroethene
Concen: 5.76 ppbV
RT: 7.165 min Scan# 2189
Delta R.T. 0.006 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion:166 Resp: 920941

Ion	Ratio	Lower	Upper
166	100		
164	77.8	62.3	93.5

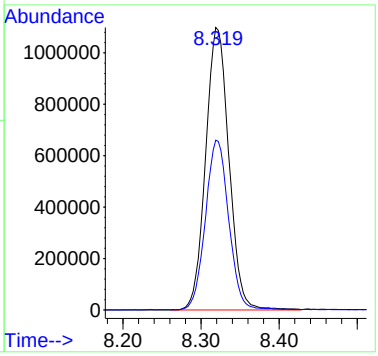


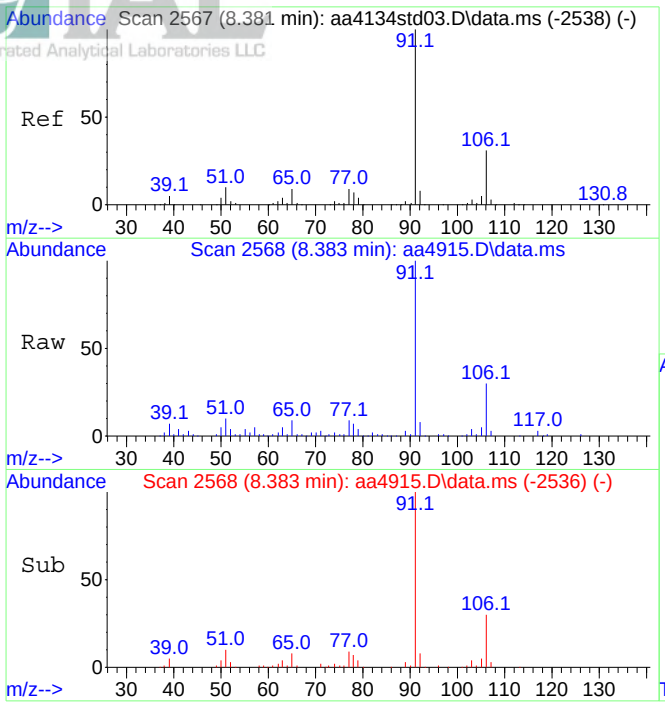


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion:117 Resp: 2277752

Ion	Ratio	Lower	Upper
117	100		
82	59.9	47.0	70.4

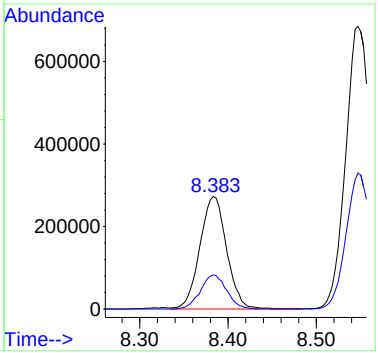


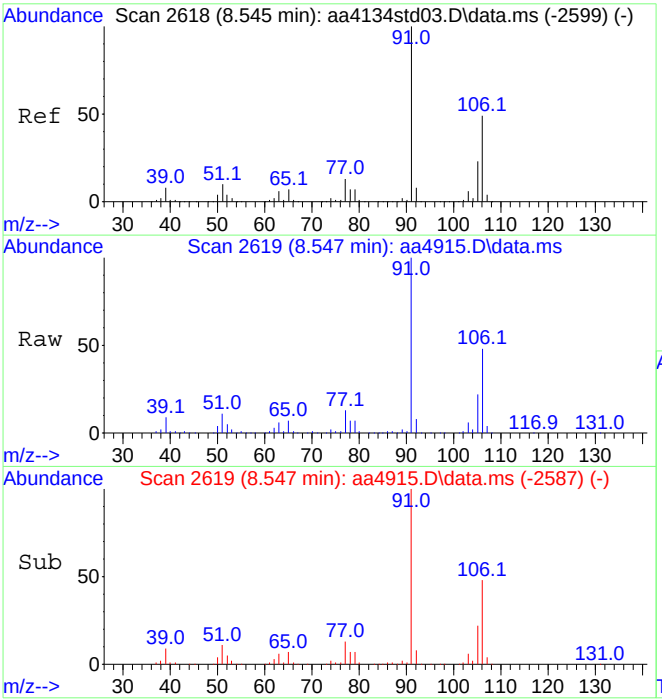


#58
Ethylbenzene
Concen: 1.37 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion: 91 Resp: 575940

Ion	Ratio	Lower	Upper
91	100		
106	29.5	24.6	36.8

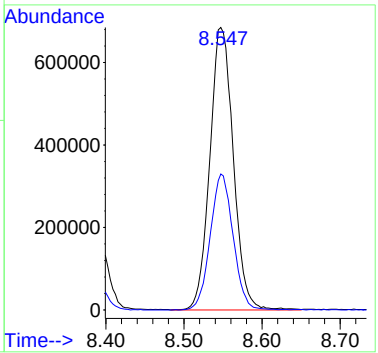


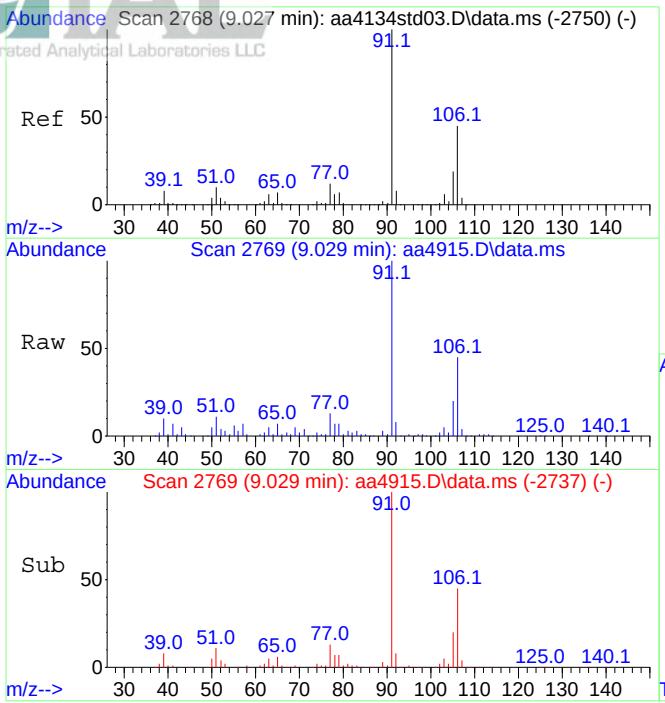


#59
Xylenes (m&p)
Concen: 4.60 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. 0.002 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion: 91 Resp: 1431945

Ion	Ratio	Lower	Upper
91	100		
106	46.8	39.0	58.4

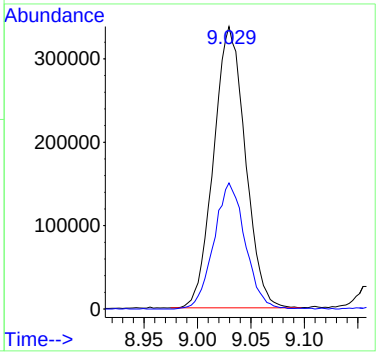


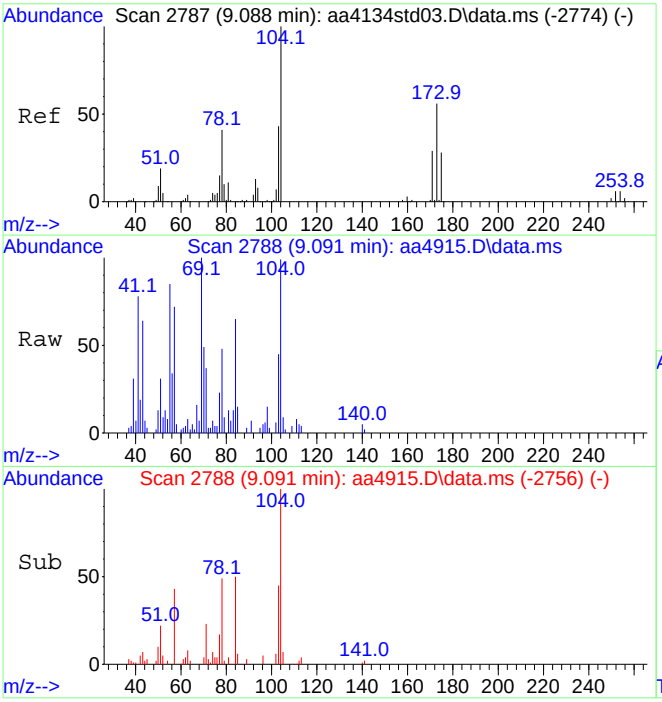


#60
Xylene (o)
Concen: 2.05 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion: 91 Resp: 694972

Ion	Ratio	Lower	Upper
91	100		
106	44.5	36.8	55.2

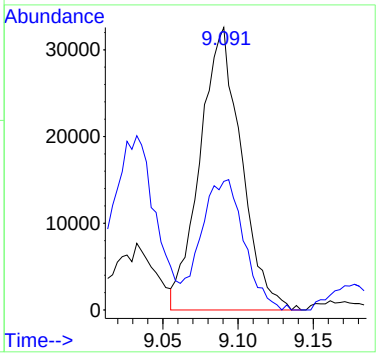


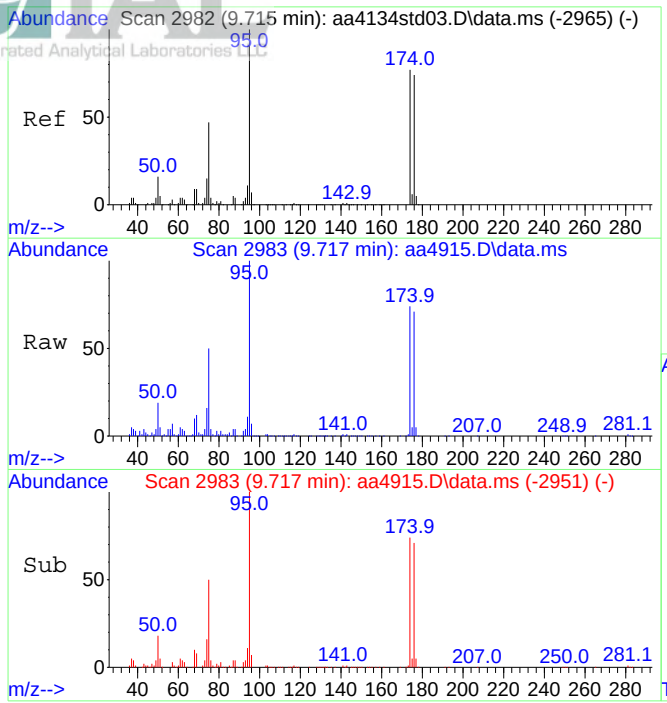


#61
Styrene
Concen: 0.27 ppbV
RT: 9.091 min Scan# 2788
Delta R.T. 0.002 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion:104 Resp: 62118

Ion	Ratio	Lower	Upper
104	100		
103	48.3	37.8	56.6

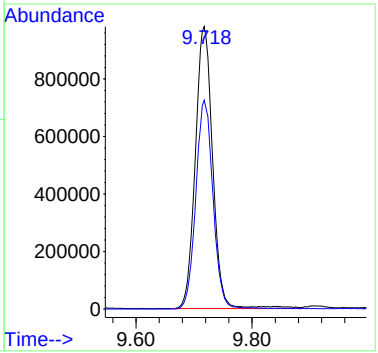


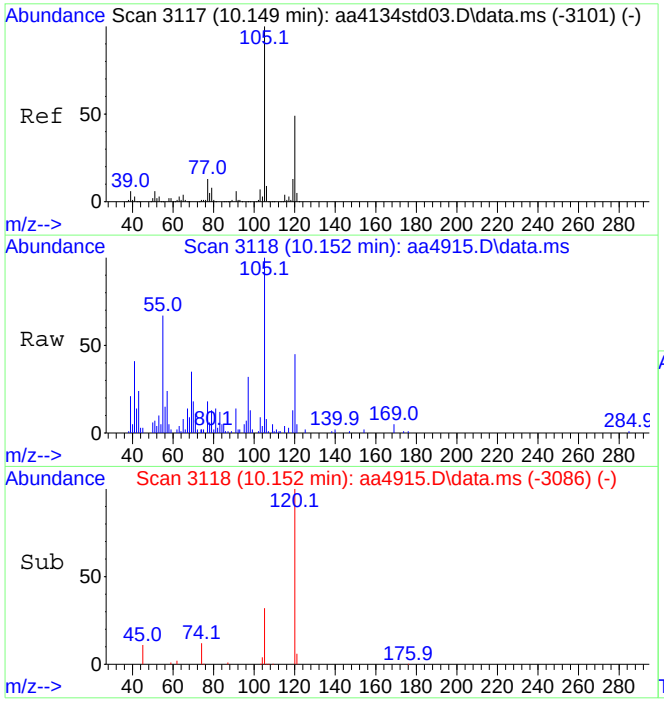


#64
Bromofluorobenzene (tune std)
Concen: 10.29 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion: 95 Resp: 2042254

Ion	Ratio	Lower	Upper
95	100		
174	73.7	61.1	91.7

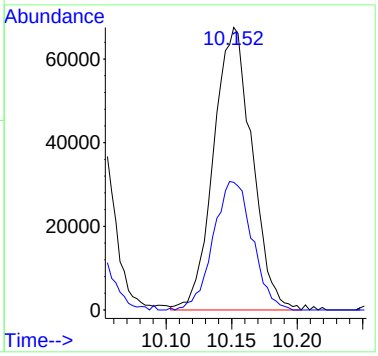


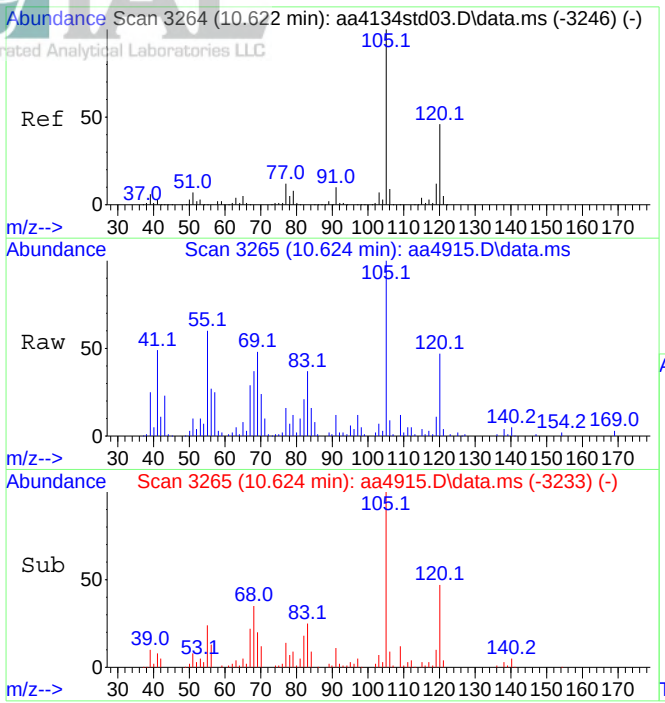


#69
1,3,5-Trimethylbenzene
Concen: 0.35 ppbV
RT: 10.152 min Scan# 3118
Delta R.T. 0.002 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion:105 Resp: 138092

Ion	Ratio	Lower	Upper
105	100		
120	46.2	38.9	58.3

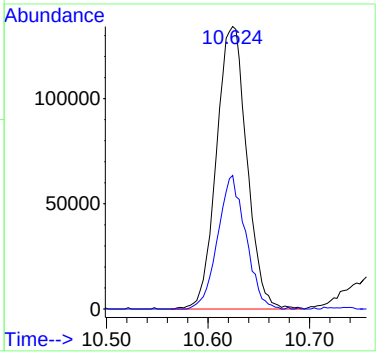




#70
1,2,4-Trimethylbenzene
Concen: 0.71 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4915.D
Acq: 11 Dec 2023 5:43 pm

Tgt Ion:105 Resp: 279979

Ion	Ratio	Lower	Upper
105	100		
120	43.6	36.3	54.5



Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4914.D
Acq On : 11 Dec 2023 4:52 pm
Operator : jjw
Sample : E23-05047-06x5 dil
Misc : 5091, 100cc
ALS Vial : 17 Sample Multiplier: 1

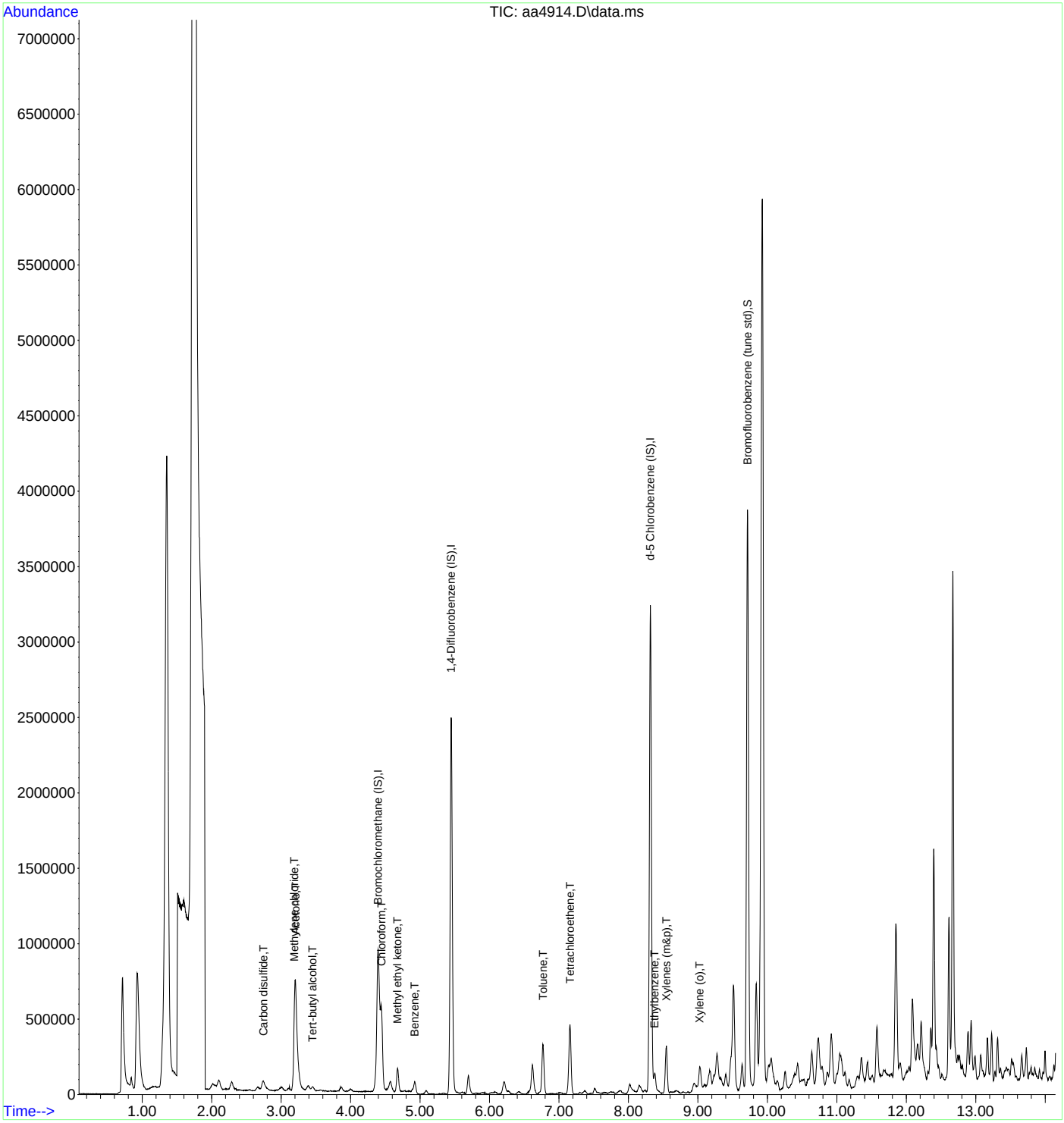
Quant Time: Dec 12 10:40:43 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

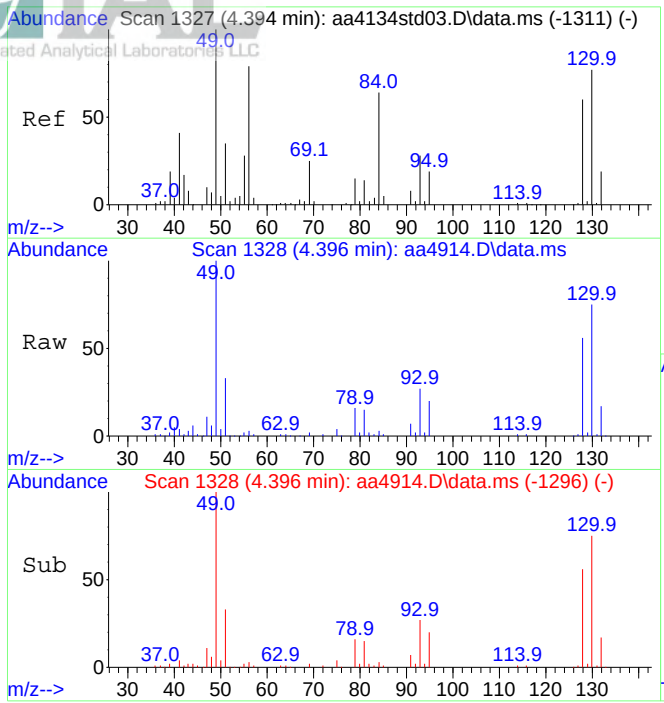
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.396	130	467822	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.447	114	2227257	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2074010	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1708588	9.45	ppbV	0.000
Target Compounds						Qvalue
15) Carbon disulfide	2.747	76	167158	1.17	ppbV	# 84
20) Methylene chloride	3.190	49	65854	1.15	ppbV	93
21) Acetone	3.206	43	1394735	19.77	ppbV	98
26) Tert-butyl alcohol	3.454	59	38006	0.31	ppbV	100
30) Chloroform	4.447	83	367540	2.94	ppbV	99
35) Methyl ethyl ketone	4.676	43	201974	1.77	ppbV	98
37) Benzene	4.923	78	61844	0.33	ppbV	98
47) Toluene	6.772	91	288540	0.92	ppbV	99
49) Tetrachloroethene	7.161	166	160244	1.19	ppbV	98
58) Ethylbenzene	8.377	91	90996	0.24	ppbV	96
59) Xylenes (m&p)	8.547	91	222215	0.78	ppbV	98
60) Xylene (o)	9.023	91	111780	0.36	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4914.D
Acq On : 11 Dec 2023 4:52 pm
Operator : jjw
Sample : E23-05047-06x5 dil
Misc : 5091, 100cc
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Dec 12 10:40:43 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

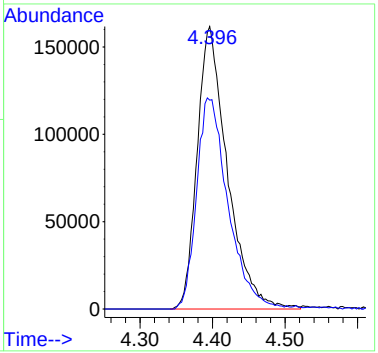


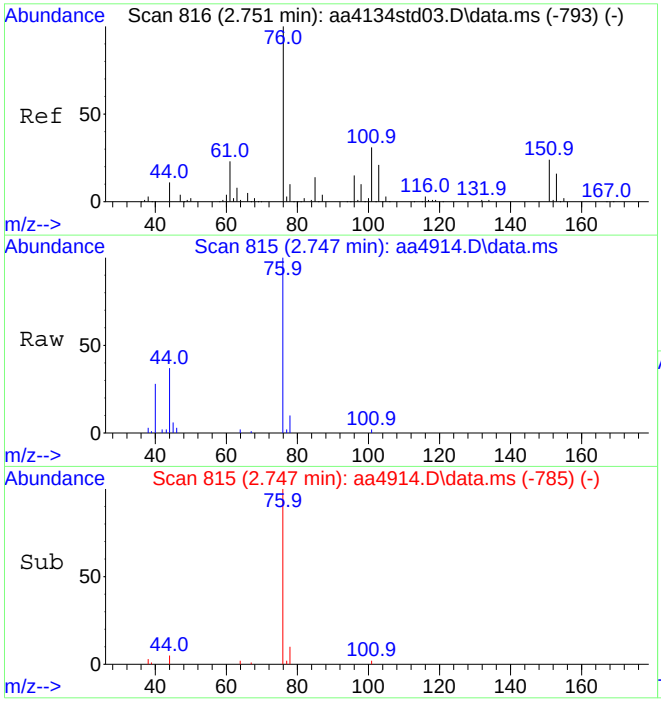


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.396 min Scan# 1328
Delta R.T. 0.002 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion:130 Resp: 467822

Ion	Ratio	Lower	Upper
130	100		
128	77.9	62.2	93.4

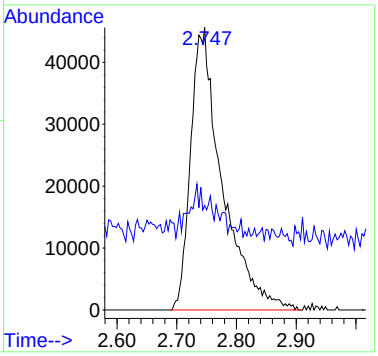


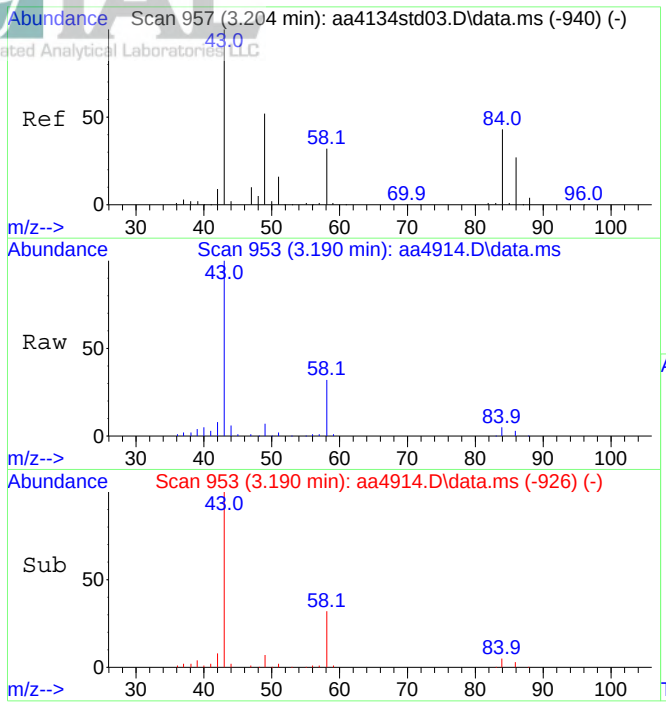


#15
Carbon disulfide
Concen: 1.17 ppbV
RT: 2.747 min Scan# 815
Delta R.T. -0.004 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion: 76 Resp: 167158

Ion	Ratio	Lower	Upper
76	100		
44	17.5	9.0	13.4#

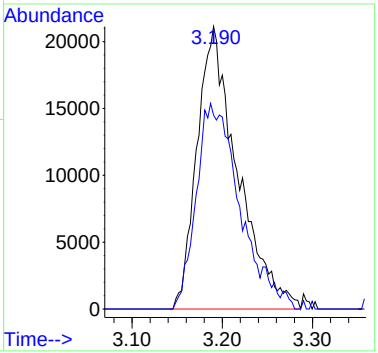


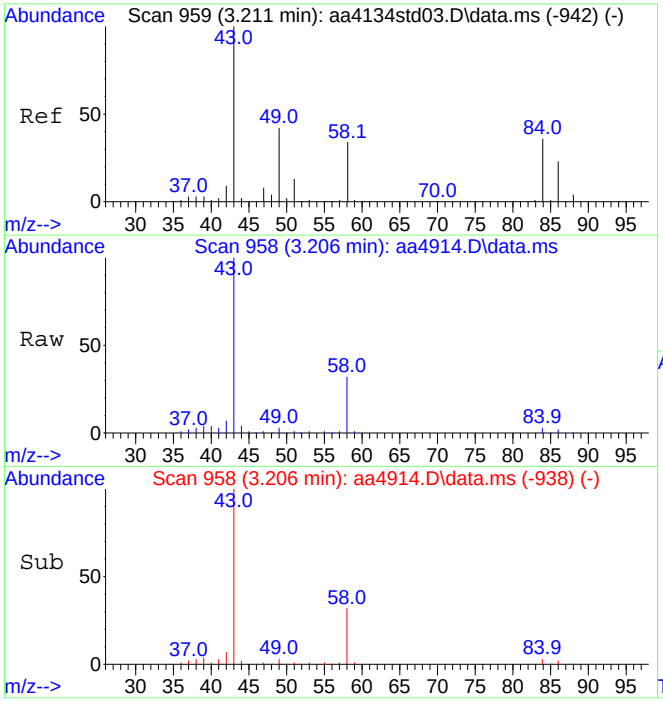


#20
Methylene chloride
Concen: 1.15 ppbV
RT: 3.190 min Scan# 953
Delta R.T. -0.014 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion: 49 Resp: 65854

Ion	Ratio	Lower	Upper
49	100		
84	78.3	64.8	104.8

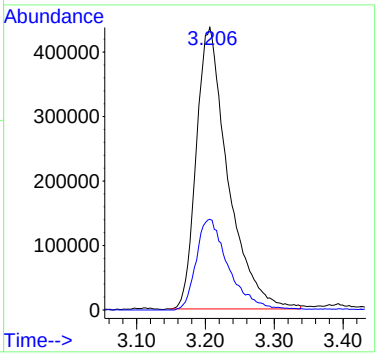


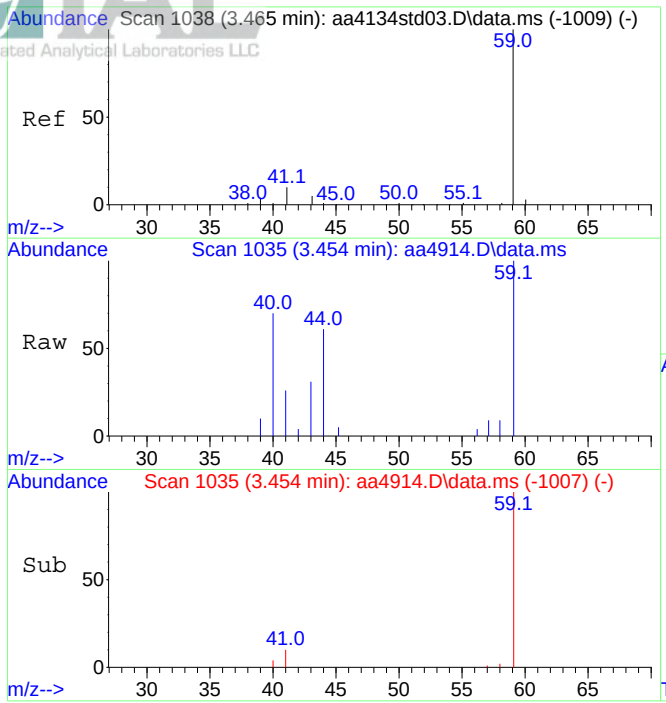


#21
Acetone
Concen: 19.77 ppbV
RT: 3.206 min Scan# 958
Delta R.T. -0.005 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion: 43 Resp: 1394735

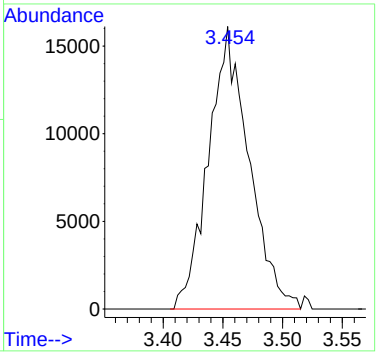
Ion	Ratio	Lower	Upper
43	100		
58	33.0	27.1	40.7

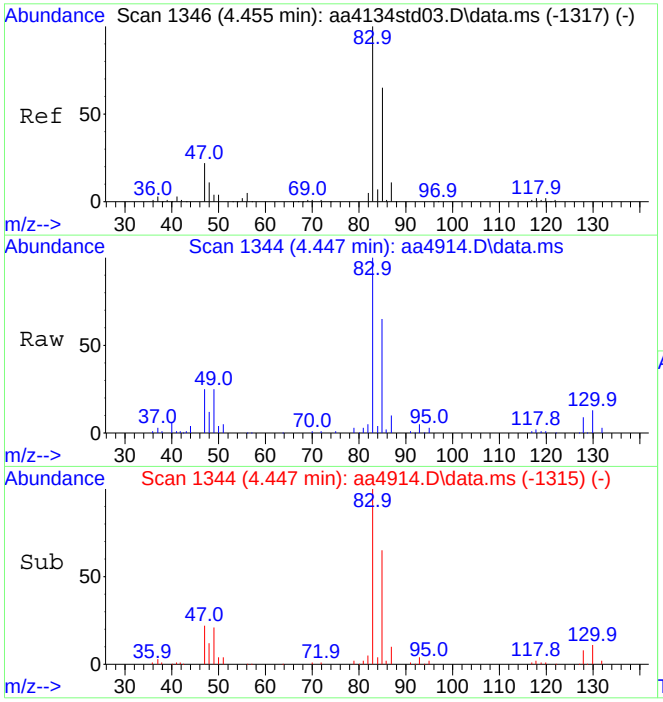




#26
Tert-butyl alcohol
Concen: 0.31 ppbV
RT: 3.454 min Scan# 1035
Delta R.T. -0.011 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion: 59 Resp: 38006

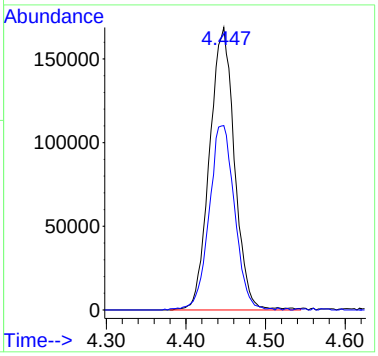


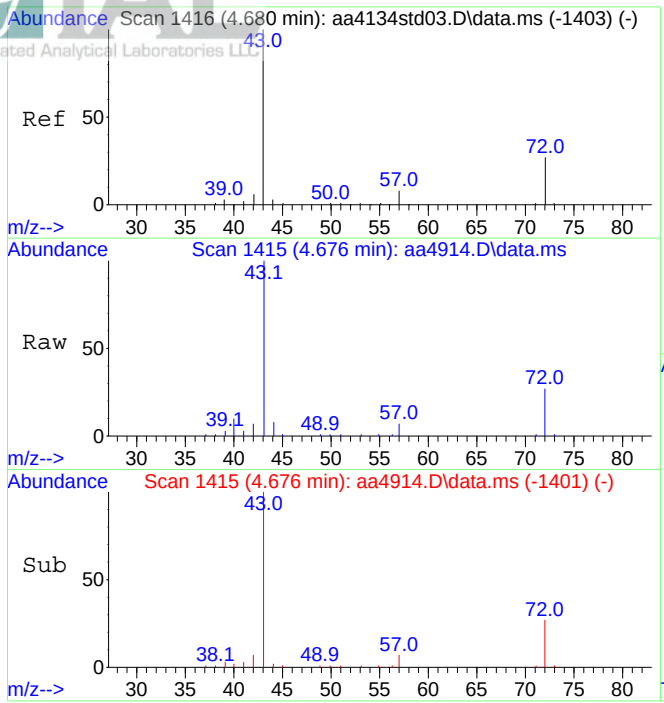


#30
Chloroform
Concen: 2.94 ppbV
RT: 4.447 min Scan# 1344
Delta R.T. -0.007 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion: 83 Resp: 367540

Ion	Ratio	Lower	Upper
83	100		
85	66.7	53.9	80.9

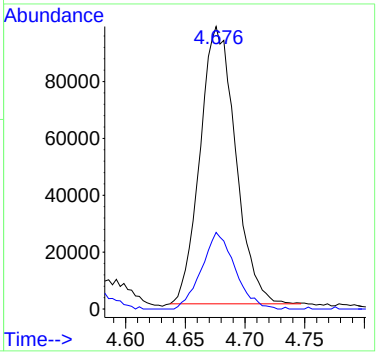


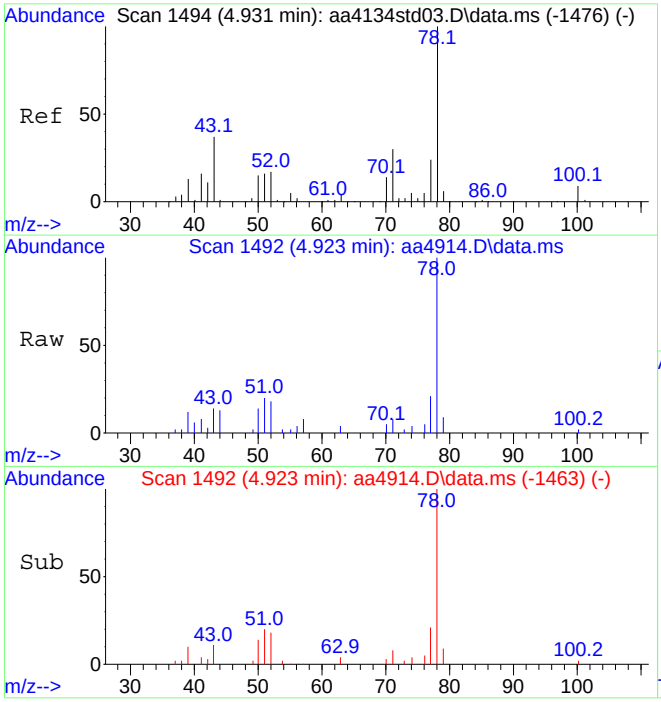


#35
Methyl ethyl ketone
Concen: 1.77 ppbV
RT: 4.676 min Scan# 1415
Delta R.T. -0.004 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion: 43 Resp: 201974

Ion	Ratio	Lower	Upper
43	100		
72	25.9	21.6	32.4

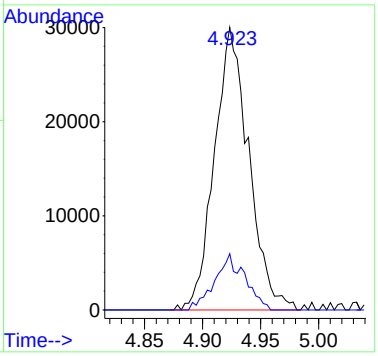


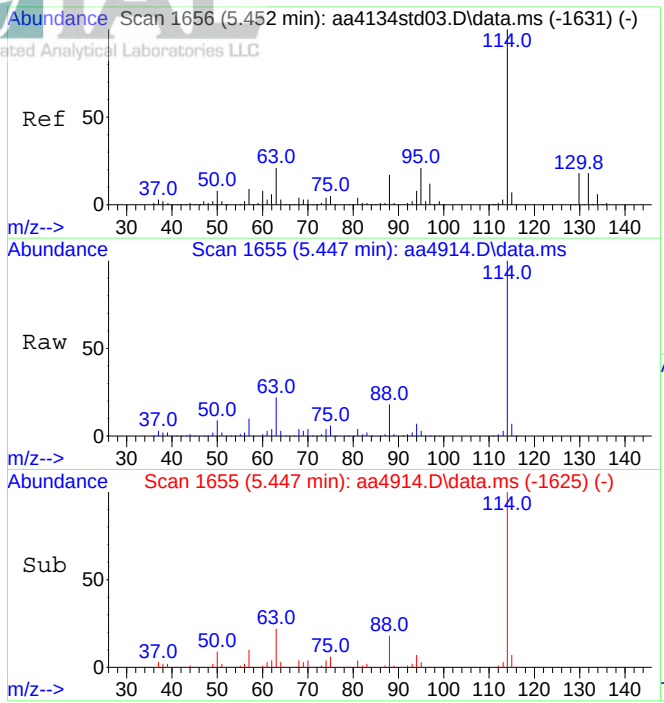


#37
Benzene
Concen: 0.33 ppbV
RT: 4.923 min Scan# 1492
Delta R.T. -0.007 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion: 78 Resp: 61844

Ion	Ratio	Lower	Upper
78	100		
51	17.4	13.4	20.0

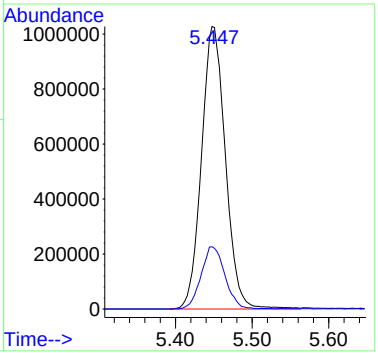


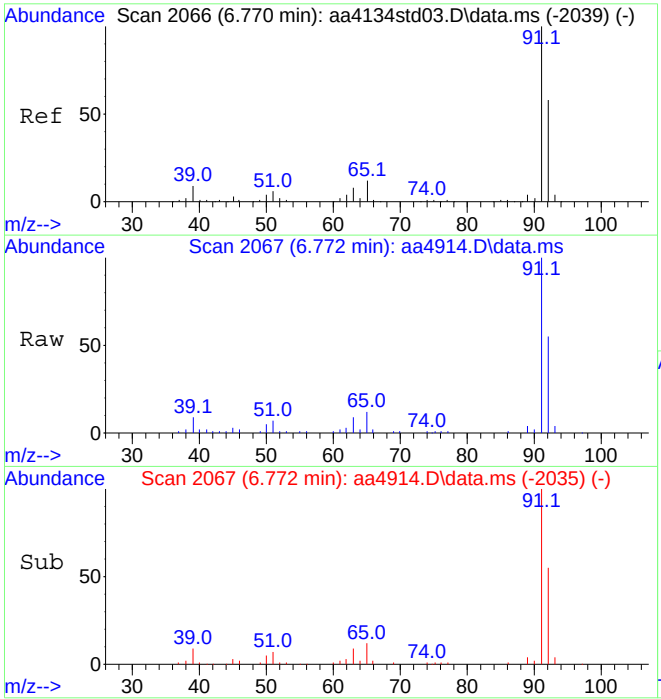


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.447 min Scan# 1655
Delta R.T. -0.005 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion:114 Resp: 2227257

Ion	Ratio	Lower	Upper
114	100		
63	22.2	17.0	25.6

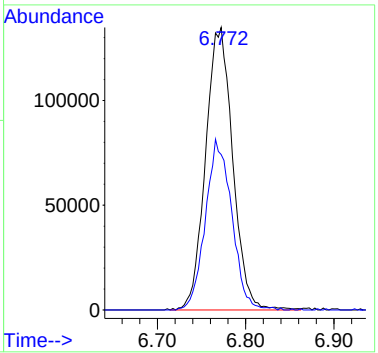


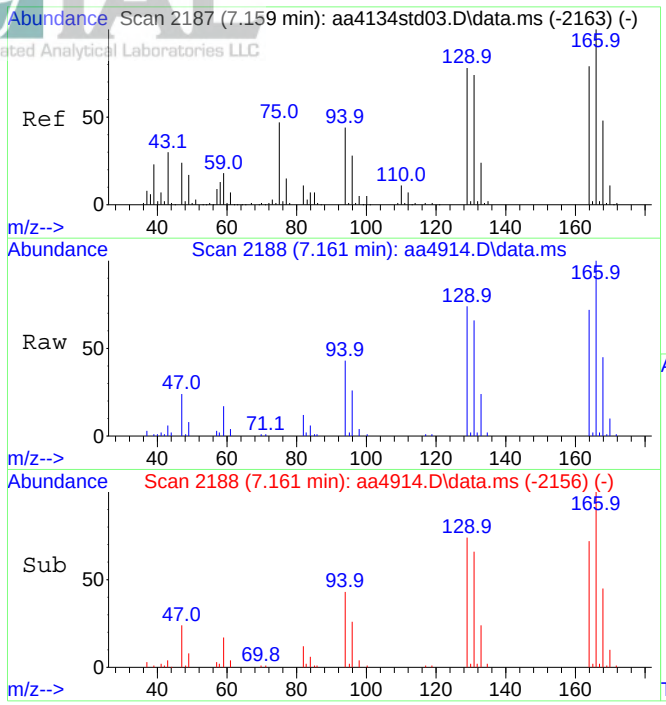


#47
Toluene
Concen: 0.92 ppbV
RT: 6.772 min Scan# 2067
Delta R.T. 0.002 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion: 91 Resp: 288540

Ion	Ratio	Lower	Upper
91	100		
92	58.4	47.3	70.9

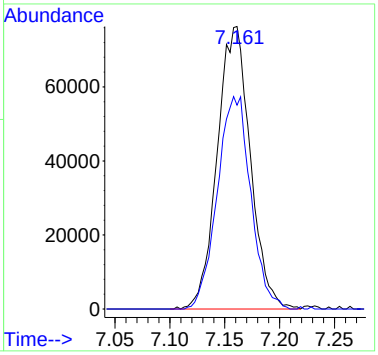


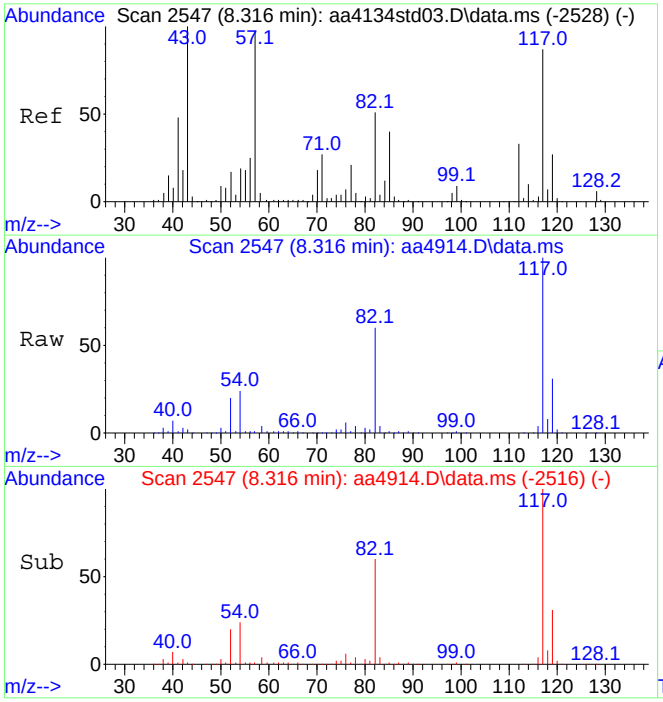


#49
Tetrachloroethene
Concen: 1.19 ppbV
RT: 7.161 min Scan# 2188
Delta R.T. 0.002 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion:166 Resp: 160244

Ion	Ratio	Lower	Upper
166	100		
164	75.9	62.3	93.5

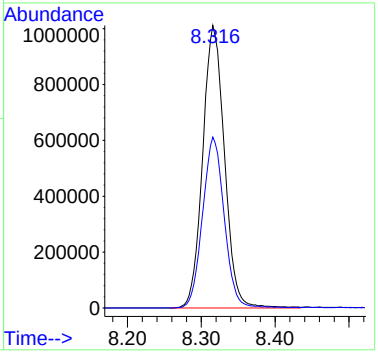


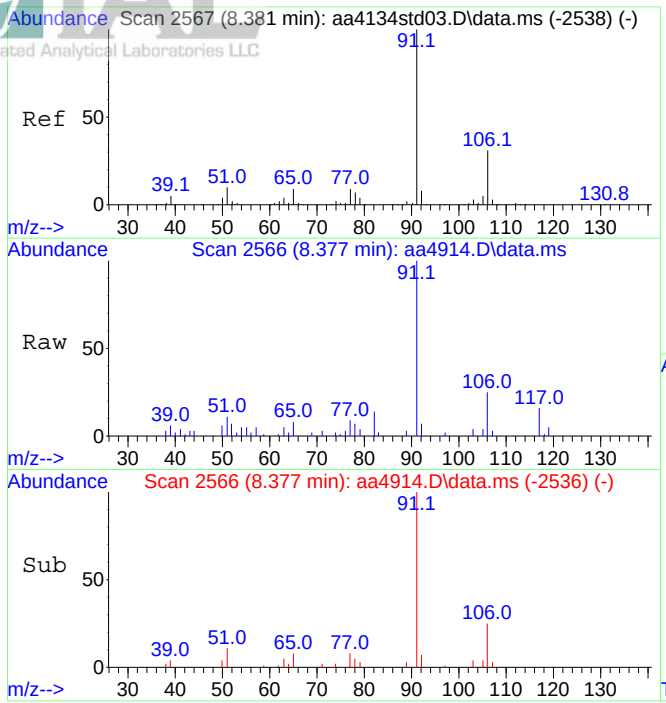


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.316 min Scan# 2547
Delta R.T. -0.001 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion:117 Resp: 2074010

Ion	Ratio	Lower	Upper
117	100		
82	60.1	47.0	70.4

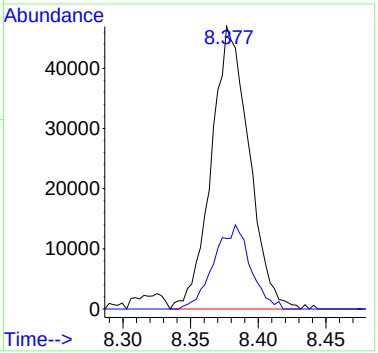


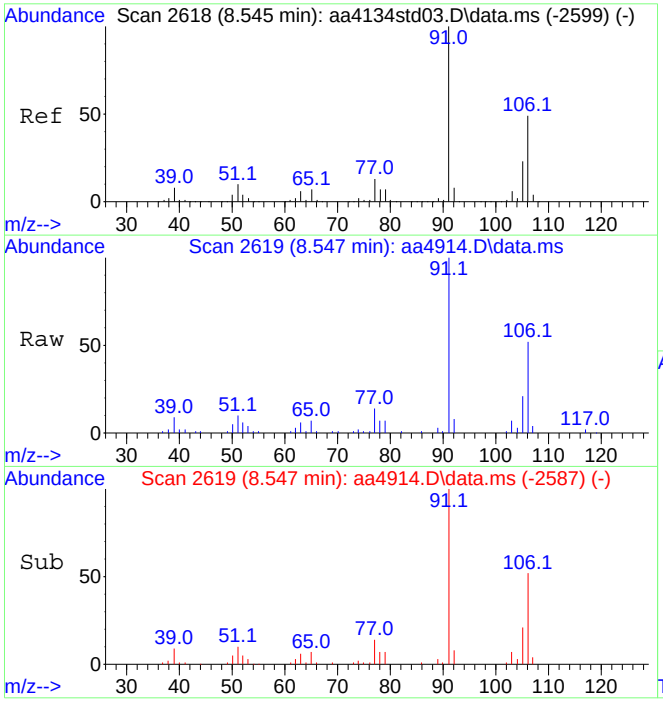


#58
Ethylbenzene
Concen: 0.24 ppbV
RT: 8.377 min Scan# 2566
Delta R.T. -0.004 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion: 91 Resp: 90996

Ion	Ratio	Lower	Upper
91	100		
106	28.6	24.6	36.8

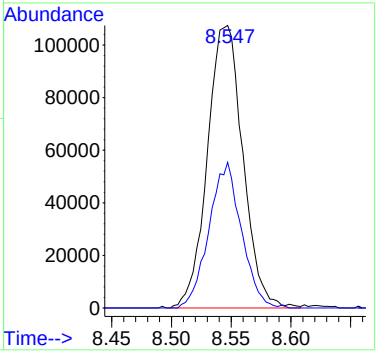


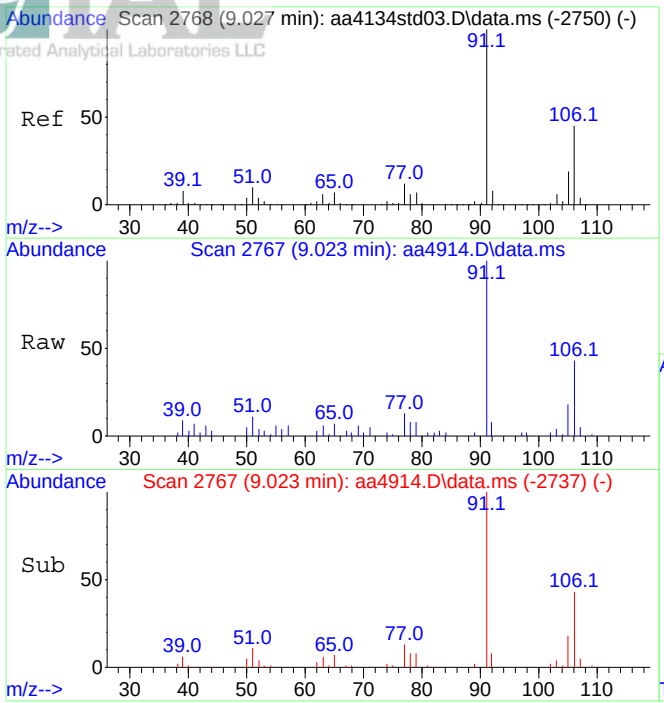


#59
Xylenes (m&p)
Concen: 0.78 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. 0.002 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion: 91 Resp: 222215

Ion	Ratio	Lower	Upper
91	100		
106	47.1	39.0	58.4

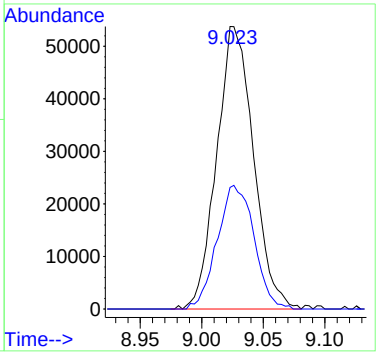


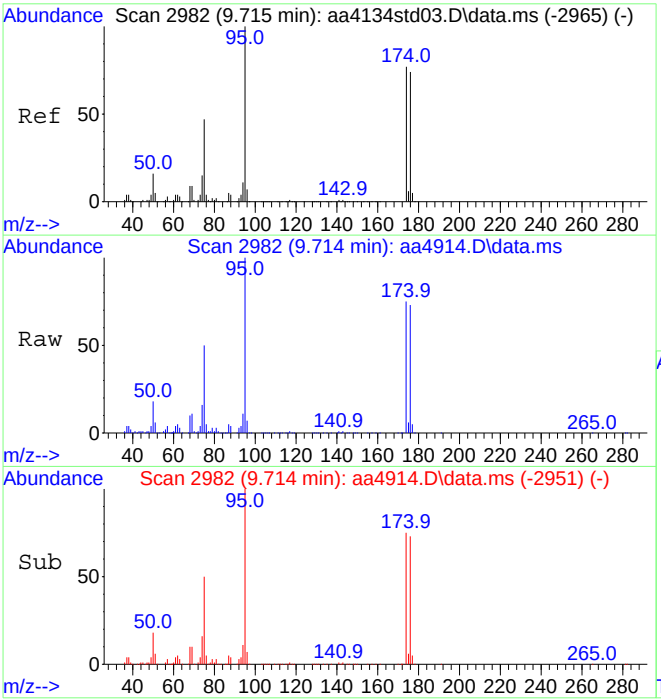


#60
Xylene (o)
Concen: 0.36 ppbV
RT: 9.023 min Scan# 2767
Delta R.T. -0.004 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion: 91 Resp: 111780

Ion	Ratio	Lower	Upper
91	100		
106	43.8	36.8	55.2

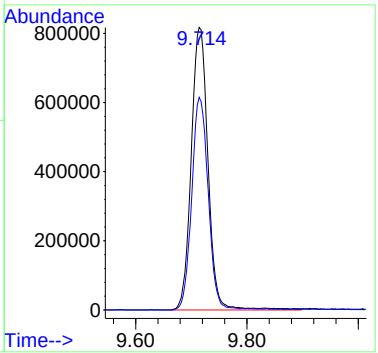




#64
Bromofluorobenzene (tune std)
Concen: 9.45 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4914.D
Acq: 11 Dec 2023 4:52 pm

Tgt Ion: 95 Resp: 1708588

Ion	Ratio	Lower	Upper
95	100		
174	74.6	61.1	91.7



Section VII: Standards Data

Initial Calibration Data

Initial Calibration Verification Data

Continuing Calibration Data

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 8/15/2023 **Method ID:** 230815.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

	Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
1)	Bromochloromethane	----------ISTD----------						
3)	Dichlorodifluoromethane	2.6	2.1	2.4	2.6	2.9	2.5	12
4)	1,2-Dichlorotetrafluoroethane	4.7	3.4	3.2	3.3	3.6	3.6	17
6)	Chloromethane	0.073	0.12	0.12	0.13	0.15	0.12	23
7)	Vinyl chloride	0.87	0.81	0.94	1.0	1.1	0.95	14
8)	1,3-Butadiene	0.94	0.96	0.93	0.99	1.0	0.97	4.6
9)	Bromomethane	0.75	0.65	0.78	0.85	0.96	0.80	14
10)	Chloroethane	0.44	0.40	0.52	0.57	0.65	0.52	19
11)	Vinyl bromide	0.89	0.81	0.99	1.1	1.2	1.0	17
12)	Trichlorofluoromethane	3.8	3.2	3.1	3.4	3.6	3.4	8.1
14)	1,1-Dichloroethene	1.8	1.7	2.1	2.3	2.5	2.1	15
15)	Carbon disulfide	3.2	2.8	3.5	3.7	3.9	3.4	12
16)	1,1,2-Trichloro-1,2,2-trifluoroethane	4.1	3.6	2.8	3.0	3.3	3.4	16
17)	Acrolein	0.45	0.34	0.43	0.45	0.49	0.43	13
18)	Allyl Chloride	0.51	0.46	0.56	0.62	0.65	0.56	14
19)	Isopropanol	2.2	2.0	2.3	2.5	2.6	2.3	10
20)	Methylene chloride	1.9	0.89	1.1	1.2	1.3	1.3	29
21)	Acetone	2.2	1.5	1.8	1.9	1.9	1.9	14
22)	1,2-Dichloroethene (trans)	1.6	1.5	1.9	2.1	2.3	1.9	17
24)	n-Hexane	3.6	3.4	3.0	3.2	3.6	3.3	7.2
25)	Methyl tert-butyl ether	4.7	5.1	4.0	4.3	4.7	4.6	9.5
26)	Tert-butyl alcohol	2.9	3.2	2.6	2.8	3.2	2.9	8.1
27)	1,1-Dichloroethane	2.9	2.3	2.4	2.7	2.9	2.6	11
28)	1,2-Dichloroethene (cis)	1.7	1.5	1.8	2.0	2.2	1.8	14
29)	Cyclohexane	2.5	2.7	2.1	2.3	2.5	2.4	9.8
30)	Chloroform	3.3	2.8	3.0	3.3	3.6	3.2	9.6
32)	Carbon tetrachloride	4.2	4.4	3.4	3.5	3.9	3.9	11
33)	Tetrahydrofuran	1.8	1.6	1.7	1.9	2.0	1.8	8.7
34)	1,1,1-Trichloroethane	3.8	4.0	3.0	3.2	3.5	3.5	12
35)	Methyl ethyl ketone	2.9	2.5	2.7	3.0	3.3	2.9	11
36)	n-Heptane	3.0	4.0	3.2	3.3	3.3	3.4	11
37)	Benzene	5.1	4.3	4.2	4.6	4.9	4.6	8.4
38)	1,2-Dichloroethane	2.0	1.8	1.9	2.2	2.4	2.1	11
39)	1,4-Difluorobenzene	----------ISTD----------						
40)	Trichloroethene	0.60	0.46	0.48	0.50	0.50	0.51	11
41)	2,2,4-Trimethylpentane	1.4	1.3	1.2	1.2	1.3	1.3	7.7
42)	1,2-Dichloropropane	0.54	0.45	0.43	0.44	0.42	0.46	11
43)	Bromodichloromethane	0.91	0.75	0.76	0.79	0.77	0.80	8.1

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 8/15/2023 **Method ID:** 230815.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
44) Methyl methacrylate	0.53	0.60	0.60	0.62	0.59	0.59	5.4
45) 1,4-Dioxane	0.30	0.29	0.27	0.28	0.27	0.28	3.5
46) 1,3-Dichloropropene (cis)	0.76	0.67	0.69	0.72	0.69	0.71	4.8
47) Toluene	1.6	1.8	1.6	1.6	1.4	1.6	7.6
48) Methyl isobutyl ketone	1.0	1.4	1.2	1.2	1.1	1.2	11
49) Tetrachloroethene	0.80	0.79	0.70	0.69	0.63	0.72	10
50) 1,3-Dichloropropene (trans)	0.59	0.70	0.73	0.76	0.71	0.70	9.3
51) 1,1,2-Trichloroethane	0.60	0.58	0.55	0.56	0.53	0.57	4.9
52) Dibromochloromethane	0.94	0.97	0.94	0.96	0.91	0.94	2.5
53) 1,2-Dibromoethane	0.77	0.84	0.84	0.87	0.82	0.83	4.3
54) Methyl n-butyl ketone	0.82	1.2	1.1	1.2	1.1	1.1	14
55) d-5 Chlorbenzene	----------ISTD----------						
57) Chlorobenzene	1.3	1.1	1.0	1.0	1.0	1.1	11
58) Ethylbenzene	2.3	2.4	1.9	1.8	1.7	2.0	15
59) Xylenes (m&p)	1.7	1.8	1.5	1.3	0.99	1.5	22
60) Xylenes (o)	1.7	1.9	1.5	1.5	1.5	1.6	11
61) Styrene	0.95	1.2	1.1	1.1	1.1	1.1	8.3
62) Bromoform	0.90	0.87	0.81	0.79	0.79	0.83	6.3
63) Cumene	2.2	2.6	2.0	1.9	1.8	2.1	14
66) 1,1,2,2-Tetrachloroethane	1.4	1.4	1.1	1.1	1.1	1.2	11
67) 4-Ethyltoluene	2.4	2.7	2.3	2.1	1.8	2.3	14
68) 2-Chlorotoluene	2.0	2.2	1.8	1.7	1.7	1.9	11
69) 1,3,5-Trimethylbenzene	1.8	2.2	1.8	1.7	1.6	1.8	12
70) 1,2,4-Trimethylbenzene	1.6	2.2	1.9	1.8	1.7	1.8	13
71) 1,3-Dichlorobenzene	1.5	1.2	1.1	1.1	1.2	1.2	12
72) 1,4-Dichlorobenzene	1.2	1.2	1.2	1.1	1.2	1.2	1.4
73) Benzyl chloride	1.2	1.6	1.7	1.7	1.8	1.6	16
74) 1,2-Dichlorobenzene	1.2	1.2	1.1	1.1	1.1	1.1	4.8
75) 1,3-Hexachlorobutadiene	1.2	0.86	0.73	0.67	0.63	0.82	29
76) 1,2,4-Trichlorobenzene	1.2	0.85	0.86	0.82	0.78	0.90	18
77) Naphthalene	2.3	1.8	1.9	1.8	1.5	1.9	16

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Response Factor Report GCMS2B

Method Path : C:\msdchem\1\METHODS\
Method File : 230815.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Wed Aug 16 10:00:51 2023
Response Via : Initial Calibration

Calibration Files
0.2 =aa3402std05.D 2 =aa3403std04.D 10 =aa3404std03.D 20 =aa3405std02.D 40 =aa3406std01.D

		Compound	0.2	2	10	20	40	Avg	%RSD
1)	I	Bromochloromethane...	----------ISTD----------						
2)	T	Propene	0.693	0.590	0.649	0.708	0.804	0.689	11.46
3)	T	Dichlorodifluoro...	2.627	2.060	2.419	2.640	2.888	2.527	12.25
4)	T	1,2-Dichlorotetr...	4.698	3.379	3.171	3.318	3.612	3.636	16.92
5)	T	n-Butane	1.529	1.686	1.607	1.650	1.703	1.635	4.27
6)	T	Chloromethane	0.073	0.121	0.116	0.128	0.147	0.117	23.33
7)	T	Vinyl chloride	0.866	0.806	0.938	1.004	1.138	0.950	13.56
8)	T	1,3-Butadiene	0.939	0.962	0.929	0.985	1.043	0.972	4.66
9)	T	Bromomethane	0.754	0.650	0.781	0.852	0.955	0.798	14.26
10)	T	Chloroethane	0.437	0.404	0.524	0.567	0.652	0.517	19.32
11)	T	Vinyl bromide	0.891	0.806	0.989	1.088	1.246	1.004	17.12
12)	T	Trichlorofluorom...	3.753	3.179	3.089	3.381	3.599	3.400	8.19
13)	T	Ethanol	0.566	0.336	0.323	0.344	0.433	0.400	25.53
14)	T	1,1-Dichloroethene	1.836	1.703	2.114	2.324	2.466	2.088	15.36
15)	T	Carbon disulfide	3.198	2.847	3.522	3.709	3.868	3.429	11.95
16)	T	1,1,2-Trichloro-...	4.138	3.589	2.807	2.990	3.274	3.360	15.67
17)	T	Acrolein	0.446	0.337	0.430	0.447	0.488	0.430	13.07
18)	T	Allyl chloride	0.510	0.458	0.563	0.616	0.651	0.559	13.89
19)	T	Isopropanol	2.218	2.002	2.266	2.475	2.597	2.312	10.02
20)	T	Methylene chloride	1.853	0.894	1.059	1.168	1.335	1.262	29.12
21)	T	Acetone	2.238	1.490	1.826	1.890	1.937	1.876	14.27
22)	T	trans-1,2-Dichlo...	1.626	1.515	1.873	2.082	2.300	1.879	17.14
23)	T	n-Pentane	2.737	2.398	2.021	2.278	2.555	2.398	11.35
24)	T	n-Hexane	3.560	3.405	3.010	3.196	3.573	3.349	7.26
25)	T	Methyl tert-buty...	4.721	5.118	3.992	4.267	4.676	4.555	9.56
26)	T	Tert-butyl alcohol	2.872	3.165	2.601	2.846	3.159	2.929	8.11
27)	T	1,1-Dichloroethane	2.886	2.279	2.406	2.680	2.935	2.637	10.96
28)	T	cis-1,2-Dichloro...	1.666	1.532	1.766	1.984	2.173	1.824	14.01
29)	t	Cyclohexane	2.480	2.742	2.109	2.281	2.488	2.420	9.87
30)	T	Chloroform	3.341	2.813	3.029	3.345	3.610	3.228	9.60
31)	T	Ethyl acetate	0.519	0.459	0.476	0.532	0.583	0.514	9.56
32)	T	Carbon tetrachlo...	4.190	4.380	3.355	3.527	3.897	3.870	11.16
33)	T	Tetrahydrofuran	1.813	1.612	1.725	1.883	2.033	1.813	8.79
34)	T	1,1,1-Trichloroe...	3.831	3.967	2.981	3.175	3.465	3.484	12.03
35)	T	Methyl ethyl ketone	2.907	2.461	2.724	3.040	3.340	2.894	11.42
36)	T	n-Heptane	3.009	3.965	3.169	3.287	3.321	3.350	10.89
37)	T	Benzene	5.118	4.274	4.213	4.582	4.885	4.614	8.43
38)	T	1,2-Dichloroethane	2.033	1.799	1.949	2.171	2.385	2.067	10.78
39)	I	1,4-Difluorobenzen...	----------ISTD----------						
40)	T	Trichloroethene	0.604	0.461	0.476	0.499	0.498	0.508	11.08
41)	T	2,2,4-Trimethylp...	1.422	1.283	1.173	1.194	1.261	1.267	7.75
42)	T	1,2-Dichloropropane	0.544	0.451	0.428	0.436	0.423	0.456	10.95
43)	T	Bromodichloromet...	0.909	0.753	0.759	0.786	0.768	0.795	8.19
44)	T	Methyl methacrylate	0.533	0.595	0.599	0.618	0.589	0.587	5.41
45)	T	1,4-Dioxane	0.295	0.288	0.274	0.280	0.270	0.281	3.52
46)	T	cis-1,3-Dichloro...	0.756	0.671	0.693	0.721	0.685	0.705	4.82
47)	T	Toluene	1.603	1.770	1.615	1.607	1.423	1.603	7.69
48)	T	Methyl isobutyl ...	1.020	1.358	1.158	1.169	1.085	1.158	10.96
49)	T	Tetrachloroethene	0.802	0.785	0.698	0.693	0.626	0.721	10.04
50)	T	trans-1,3-Dichlo...	0.586	0.696	0.728	0.757	0.709	0.695	9.37
51)	T	1,1,2-Trichloroe...	0.602	0.582	0.549	0.561	0.531	0.565	4.93
52)	T	Dibromochloromet...	0.941	0.968	0.936	0.964	0.910	0.944	2.50
53)	T	1,2-Dibromoethane	0.770	0.838	0.835	0.869	0.822	0.827	4.35
54)	T	Methyl n-butyl k...	0.821	1.172	1.136	1.176	1.120	1.085	13.80
55)	I	d-5 Chlorobenzene ...	----------ISTD----------						
56)	T	n-Nonane	1.127	1.476	1.174	1.162	1.180	1.224	11.64
57)	T	Chlorobenzene	1.289	1.143	1.029	1.009	1.005	1.095	11.15
58)	T	Ethylbenzene	2.334	2.354	1.930	1.830	1.678	2.025	15.04
59)	T	Xylenes (m&p)	1.738	1.788	1.455	1.324	0.993	1.460	22.23
60)	T	Xylene (o)	1.710	1.878	1.542	1.505	1.471	1.621	10.51

Method Path : C:\msdchem\1\METHODS\
Method File : 230815.M

61)	T	Styrene	0.947	1.200	1.093	1.071	1.068	1.076	8.35
62)	T	Bromoform	0.903	0.872	0.806	0.789	0.786	0.831	6.38
63)	T	Cumene	2.186	2.576	2.043	1.945	1.808	2.112	13.92
64)	S	Bromofluorobenze...	0.736	0.817	0.818	0.845	0.943	0.832	8.94
65)	T	n-Propyl benzene	2.996	3.397	2.766	2.573	2.034	2.753	18.37
66)	T	1,1,2,2-Tetrachl...	1.381	1.376	1.137	1.117	1.132	1.228	11.16
67)	T	4-Ethyltoluene	2.355	2.737	2.278	2.143	1.835	2.270	14.45
68)	T	2-Chlorotoluene	1.964	2.171	1.778	1.722	1.704	1.868	10.62
69)	T	1,3,5-Trimethylb...	1.800	2.225	1.792	1.719	1.648	1.837	12.28
70)	T	1,2,4-Trimethylb...	1.568	2.188	1.854	1.793	1.705	1.821	12.71
71)	T	1,3-Dichlorobenzene	1.459	1.183	1.126	1.114	1.157	1.208	11.85
72)	T	1,4-Dichlorobenzene	1.161	1.161	1.153	1.142	1.187	1.161	1.43
73)	T	Benzyl chloride	1.168	1.566	1.708	1.744	1.770	1.591	15.67
74)	T	1,2-Dichlorobenzene	1.169	1.225	1.111	1.083	1.128	1.143	4.82
75)	T	1,3-Hexachlorobu...	1.209	0.857	0.729	0.674	0.629	0.820	28.53
76)	T	1,2,4-Trichlorob...	1.191	0.845	0.860	0.816	0.781	0.899	18.48
77)	T	Naphthalene	2.270	1.826	1.920	1.809	1.459	1.857	15.61

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3402std05.D
Acq On : 15 Aug 2023 11:15 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 15 17:16:53 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:15:22 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.380	130	543782	10.00	ppbV	-0.016
39) 1,4-Difluorobenzene (IS)	5.448	114	2104790	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2068537	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1523370	8.85	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.454	41	8216	0.22	ppbV #	67
3) Dichlorodifluoromethane	1.492	85	30288	0.22	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.626	85	50076	0.25	ppbV	96
5) n-Butane	1.698	43	18121	0.20	ppbV	97
6) Chloromethane	1.763	52	890	0.14	ppbV	54
7) Vinyl chloride	1.760	62	10168	0.20	ppbV	97
8) 1,3-Butadiene	1.767	39	10931	0.21	ppbV	84
9) Bromomethane	2.049	94	8195	0.19	ppbV	87
10) Chloroethane	2.171	64	5038	0.18	ppbV #	73
11) Vinyl bromide	2.271	106	9786	0.18	ppbV	94
12) Trichlorofluoromethane	2.287	101	44897	0.24	ppbV	99
13) Ethanol	2.650	45	6400	0.29	ppbV #	53
14) 1,1-Dichloroethene	2.711	61	20761	0.18	ppbV	99
15) Carbon disulfide	2.731	76	37217	0.20	ppbV #	87
16) 1,1,2-Trichloro-1,2,2-...	2.750	101	49053	0.27	ppbV	100
17) Acrolein	2.956	56	4855	0.21	ppbV	84
18) Allyl chloride	3.091	76	5995	0.20	ppbV	100
19) Isopropanol	3.097	45	21471	0.17	ppbV #	78
20) Methylene chloride	3.184	49	21768	0.31	ppbV	94
21) Acetone	3.194	43	26290	0.26	ppbV #	87
22) trans-1,2-Dichloroethene	3.309	61	19630	0.19	ppbV	99
23) n-Pentane	3.393	43	32143	0.25	ppbV	94
24) n-Hexane	3.387	57	42982	0.24	ppbV	89
25) Methyl tert-butyl ether	3.396	73	57505	0.23	ppbV	99
26) Tert-butyl alcohol	3.454	59	35922	0.23	ppbV	100
27) 1,1-Dichloroethane	3.798	63	33581	0.23	ppbV	93
28) cis-1,2-Dichloroethene	4.223	61	19745	0.20	ppbV	100
29) Cyclohexane	4.396	56	30214	0.23	ppbV	97
30) Chloroform	4.441	83	39248	0.22	ppbV	97
31) Ethyl acetate	4.534	61	6099	0.22	ppbV	99
32) Carbon tetrachloride	4.560	117	50587	0.24	ppbV	99
33) Tetrahydrofuran	4.567	42	21884	0.22	ppbV	96
34) 1,1,1-Trichloroethane	4.608	97	45414	0.24	ppbV	97
35) Methyl ethyl ketone	4.676	43	34778	0.22	ppbV	96
36) n-Heptane	4.907	43	36329	0.20	ppbV	98
37) Benzene	4.923	78	60118	0.24	ppbV	100
38) 1,2-Dichloroethane	5.087	62	24098	0.21	ppbV	100
40) Trichloroethene	5.425	130	25424	0.24	ppbV	97
41) 2,2,4-Trimethylpentane	4.833	57	65257	0.24	ppbV	99
42) 1,2-Dichloropropane	5.875	63	25405	0.26	ppbV	97
43) Bromodichloromethane	5.943	83	44017	0.26	ppbV	100
44) Methyl methacrylate	6.081	41	24702	0.20	ppbV	95
45) 1,4-Dioxane	6.116	88	14508	0.25	ppbV	92
46) cis-1,3-Dichloropropene	6.534	75	35333	0.24	ppbV	100
47) Toluene	6.769	91	72857	0.22	ppbV	97
48) Methyl isobutyl ketone	7.132	43	46816	0.19	ppbV	96
49) Tetrachloroethene	7.161	166	37803	0.25	ppbV	99
50) trans-1,3-Dichloropropene	7.174	75	27399	0.19	ppbV	93
51) 1,1,2-Trichloroethane	7.335	97	27389	0.23	ppbV	98

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3402std05.D
Acq On : 15 Aug 2023 11:15 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

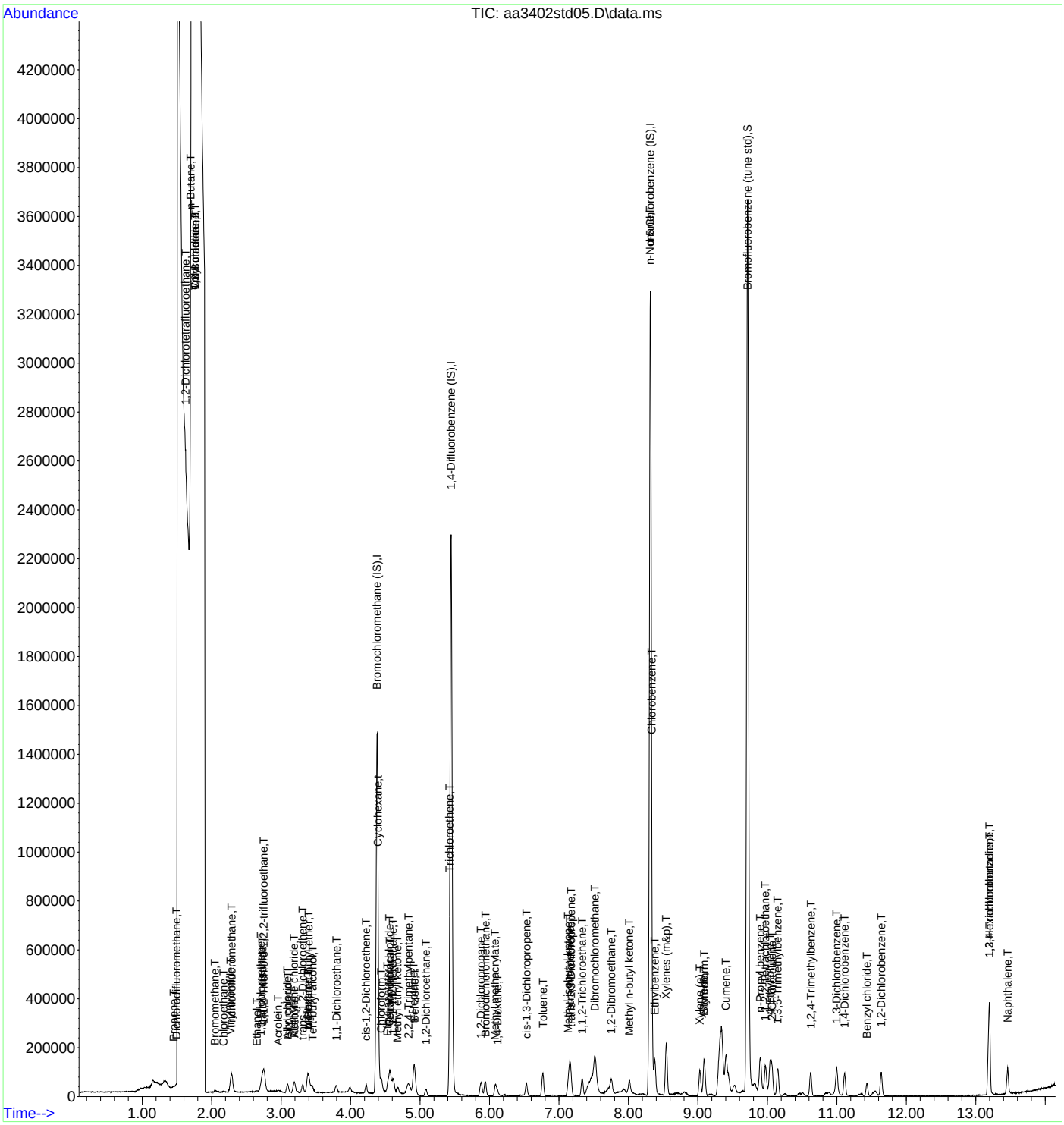
Quant Time: Aug 15 17:16:53 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:15:22 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.518	129	44365	0.22	ppbV		98
53)	1,2-Dibromoethane	7.753	107	35025	0.20	ppbV		99
54)	Methyl n-butyl ketone	8.010	43	39036	0.17	ppbV		94
56)	n-Nonane	8.312	43	51740	0.20	ppbV		94
57)	Chlorobenzene	8.335	112	59186	0.26	ppbV	#	57
58)	Ethylbenzene	8.380	91	107190	0.26	ppbV		98
59)	Xylenes (m&p)	8.544	91	160319	0.53	ppbV		96
60)	Xylene (o)	9.026	91	77796	0.23	ppbV		100
61)	Styrene	9.087	104	44277	0.20	ppbV		97
62)	Bromoform	9.094	173	42204	0.25	ppbV		99
63)	Cumene	9.402	105	96781	0.22	ppbV		99
65)	n-Propyl benzene	9.898	91	133875	0.24	ppbV		91
66)	1,1,2,2-Tetrachloroethane	9.968	83	65139	0.26	ppbV		99
67)	4-Ethyltoluene	10.039	105	105229	0.22	ppbV		94
68)	2-Chlorotoluene	10.068	91	88564	0.23	ppbV		100
69)	1,3,5-Trimethylbenzene	10.148	105	81154	0.21	ppbV		99
70)	1,2,4-Trimethylbenzene	10.627	105	70043	0.19	ppbV		100
71)	1,3-Dichlorobenzene	10.997	146	67007	0.27	ppbV		97
72)	1,4-Dichlorobenzene	11.113	146	51408	0.21	ppbV		98
73)	Benzyl chloride	11.431	91	48312	0.15	ppbV		99
74)	1,2-Dichlorobenzene	11.640	146	51755	0.22	ppbV		97
75)	1,3-Hexachlorobutadiene	13.196	225	55512	0.33	ppbV		100
76)	1,2,4-Trichlorobenzene	13.196	180	54202	0.29	ppbV		99
77)	Naphthalene	13.460	128	93896	0.24	ppbV		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3402std05.D
Acq On : 15 Aug 2023 11:15 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 15 17:16:53 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:15:22 2023
Response via : Initial Calibration



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Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3403std04.D
Acq On : 15 Aug 2023 1:45 pm
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 16 09:55:55 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.393	130	541075	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2325427	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2787489	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2277207	9.82	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	69587	1.87	ppbV	98
3) Dichlorodifluoromethane	1.529	85	236252	1.73	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.650	85	358355	1.82	ppbV	100
5) n-Butane	1.729	43	199054	2.26	ppbV	98
6) Chloromethane	1.791	52	14658	2.32	ppbV	76
7) Vinyl chloride	1.780	62	94169	1.83	ppbV	96
8) 1,3-Butadiene	1.794	39	111420	2.12	ppbV	99
9) Bromomethane	2.081	94	70289	1.63	ppbV	99
10) Chloroethane	2.190	64	46371	1.66	ppbV	96
11) Vinyl bromide	2.296	106	88069	1.62	ppbV	100
12) Trichlorofluoromethane	2.313	101	378425	2.06	ppbV	100
13) Ethanol	2.676	45	37762	1.74	ppbV	98
14) 1,1-Dichloroethene	2.731	61	191611	1.70	ppbV	99
15) Carbon disulfide	2.753	76	329694	1.78	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	423345	2.33	ppbV	99
17) Acrolein	2.985	56	36438	1.57	ppbV	98
18) Allyl chloride	3.110	76	53539	1.77	ppbV	100
19) Isopropanol	3.113	45	192840	1.54	ppbV	99
20) Methylene chloride	3.203	49	104527	1.53	ppbV	97
21) Acetone	3.213	43	174115	1.72	ppbV	100
22) trans-1,2-Dichloroethene	3.325	61	182032	1.79	ppbV	100
23) n-Pentane	3.406	43	280301	2.16	ppbV	97
24) n-Hexane	3.403	57	408984	2.26	ppbV	97
25) Methyl tert-butyl ether	3.409	73	620249	2.52	ppbV	91
26) Tert-butyl alcohol	3.460	59	393824	2.49	ppbV	100
27) 1,1-Dichloroethane	3.808	63	246573	1.73	ppbV	100
28) cis-1,2-Dichloroethene	4.239	61	180663	1.83	ppbV	99
29) Cyclohexane	4.409	56	332356	2.54	ppbV	100
30) Chloroform	4.454	83	328798	1.88	ppbV	100
31) Ethyl acetate	4.544	61	53660	1.93	ppbV	98
32) Carbon tetrachloride	4.573	117	526172	2.51	ppbV	100
33) Tetrahydrofuran	4.576	42	193630	1.97	ppbV	100
34) 1,1,1-Trichloroethane	4.624	97	467891	2.48	ppbV	99
35) Methyl ethyl ketone	4.685	43	292932	1.87	ppbV	98
36) n-Heptane	4.917	43	476323	2.63	ppbV	99
37) Benzene	4.933	78	499517	2.00	ppbV	99
38) 1,2-Dichloroethane	5.094	62	212238	1.90	ppbV	100
40) Trichloroethene	5.435	130	214306	1.82	ppbV	99
41) 2,2,4-Trimethylpentane	4.837	57	650366	2.21	ppbV	100
42) 1,2-Dichloropropane	5.885	63	232645	2.19	ppbV	99
43) Bromodichloromethane	5.946	83	402522	2.18	ppbV	98
44) Methyl methacrylate	6.091	41	304586	2.23	ppbV	100
45) 1,4-Dioxane	6.113	88	156518	2.39	ppbV	99
46) cis-1,3-Dichloropropene	6.534	75	346212	2.11	ppbV	100
47) Toluene	6.772	91	889263	2.39	ppbV	98
48) Methyl isobutyl ketone	7.136	43	688572	2.56	ppbV	99
49) Tetrachloroethene	7.161	166	408926	2.44	ppbV	99
50) trans-1,3-Dichloropropene	7.177	75	359255	2.22	ppbV	99
51) 1,1,2-Trichloroethane	7.338	97	292415	2.23	ppbV	99

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3403std04.D
Acq On : 15 Aug 2023 1:45 pm
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 16 09:55:55 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

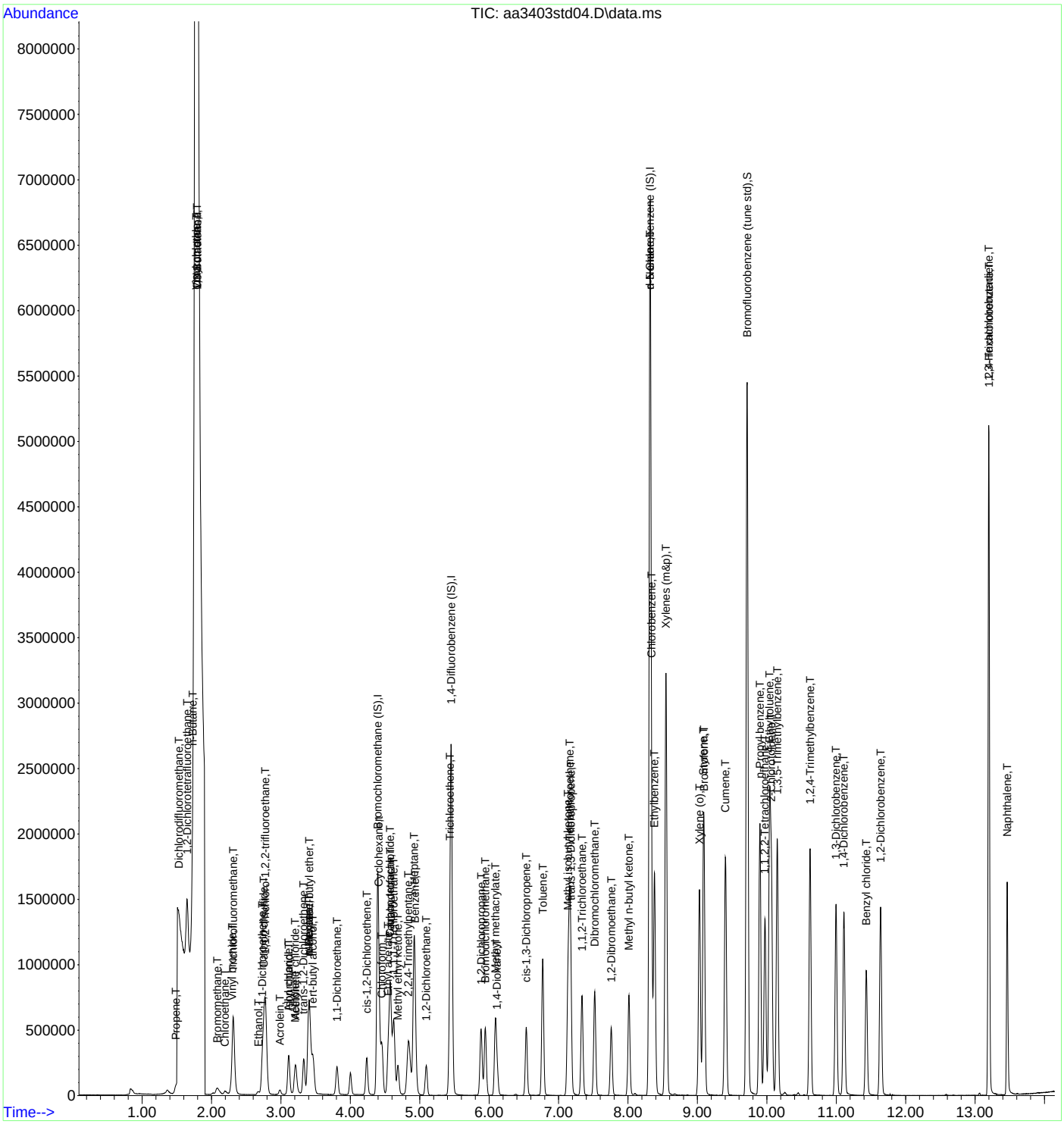
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	504182	2.30	ppbV	99
53)	1,2-Dibromoethane	7.759	107	421042	2.19	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	615992	2.44	ppbV	99
56)	n-Nonane	8.319	43	913232	2.68	ppbV	98
57)	Chlorobenzene	8.338	112	707397	2.32	ppbV	96
58)	Ethylbenzene	8.380	91	1456927	2.58	ppbV	100
59)	Xylenes (m&p)	8.547	91	2222904	5.46	ppbV	99
60)	Xylene (o)	9.029	91	1151590	2.55	ppbV	99
61)	Styrene	9.087	104	755721	2.52	ppbV	98
62)	Bromoform	9.097	173	549148	2.37	ppbV	100
63)	Cumene	9.402	105	1536381	2.61	ppbV	99
65)	n-Propyl benzene	9.901	91	2045481	2.67	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.971	83	874245	2.55	ppbV	100
67)	4-Ethyltoluene	10.039	105	1647910	2.60	ppbV	99
68)	2-Chlorotoluene	10.065	91	1319338	2.53	ppbV	99
69)	1,3,5-Trimethylbenzene	10.151	105	1352228	2.64	ppbV	100
70)	1,2,4-Trimethylbenzene	10.624	105	1317527	2.59	ppbV	99
71)	1,3-Dichlorobenzene	10.997	146	732133	2.17	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	692835	2.14	ppbV	99
73)	Benzyl chloride	11.431	91	873022	1.97	ppbV	99
74)	1,2-Dichlorobenzene	11.640	146	730471	2.29	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	530064	2.32	ppbV	99
76)	1,2,4-Trichlorobenzene	13.200	180	518457	2.07	ppbV	100
77)	Naphthalene	13.463	128	1018158	1.97	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3403std04.D
Acq On : 15 Aug 2023 1:45 pm
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 16 09:55:55 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3404std03.D
Acq On : 15 Aug 2023 1:09 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 16 09:54:13 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.396	130	530723	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	2268530	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2737620	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.718	95	2240242	9.84	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.492	41	375623	10.28	ppbV	100
3) Dichlorodifluoromethane	1.529	85	1361127	10.15	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.650	85	1649087	8.55	ppbV	100
5) n-Butane	1.732	43	929570	10.75	ppbV	98
6) Chloromethane	1.794	52	69017	11.11	ppbV	100
7) Vinyl chloride	1.784	62	537570	10.66	ppbV	100
8) 1,3-Butadiene	1.794	39	527528	10.23	ppbV	100
9) Bromomethane	2.084	94	414507	9.79	ppbV	100
10) Chloroethane	2.197	64	294705	10.74	ppbV	100
11) Vinyl bromide	2.297	106	529947	9.94	ppbV	100
12) Trichlorofluoromethane	2.313	101	1803210	9.99	ppbV	100
13) Ethanol	2.670	45	178190	8.39	ppbV	100
14) 1,1-Dichloroethene	2.734	61	1166579	10.54	ppbV	100
15) Carbon disulfide	2.753	76	2000133	10.99	ppbV	100
16) 1,1,2-Trichloro-1,2,2-...	2.779	101	1623708	9.11	ppbV	100
17) Acrolein	2.988	56	228259	10.01	ppbV	100
18) Allyl chloride	3.113	76	322565	10.86	ppbV	100
19) Isopropanol	3.113	45	1070426	8.72	ppbV	100
20) Methylene chloride	3.203	49	607018	9.06	ppbV	100
21) Acetone	3.213	43	1046415	10.51	ppbV	100
22) trans-1,2-Dichloroethene	3.329	61	1103133	11.06	ppbV	100
23) n-Pentane	3.409	43	1158219	9.10	ppbV	100
24) n-Hexane	3.406	57	1757143	9.89	ppbV	100
25) Methyl tert-butyl ether	3.412	73	2372793	9.82	ppbV	100
26) Tert-butyl alcohol	3.467	59	1587668	10.21	ppbV	100
27) 1,1-Dichloroethane	3.811	63	1366393	9.76	ppbV	100
28) cis-1,2-Dichloroethene	4.235	61	1021823	10.55	ppbV	100
29) Cyclohexane	4.415	56	1253558	9.76	ppbV	100
30) Chloroform	4.457	83	1736397	10.14	ppbV	100
31) Ethyl acetate	4.544	61	272622	10.00	ppbV	100
32) Carbon tetrachloride	4.579	117	1958808	9.54	ppbV	100
33) Tetrahydrofuran	4.576	42	1006885	10.46	ppbV	100
34) 1,1,1-Trichloroethane	4.628	97	1724281	9.33	ppbV	100
35) Methyl ethyl ketone	4.686	43	1590191	10.35	ppbV	100
36) n-Heptane	4.920	43	1866612	10.50	ppbV	100
37) Benzene	4.933	78	2414826	9.86	ppbV	100
38) 1,2-Dichloroethane	5.094	62	1127298	10.27	ppbV	100
40) Trichloroethene	5.435	130	1079500	9.38	ppbV	100
41) 2,2,4-Trimethylpentane	4.846	57	2899901	10.09	ppbV	100
42) 1,2-Dichloropropane	5.885	63	1067336	10.31	ppbV	100
43) Bromodichloromethane	5.946	83	1979492	10.98	ppbV	100
44) Methyl methacrylate	6.091	41	1493887	11.22	ppbV	100
45) 1,4-Dioxane	6.113	88	728333	11.41	ppbV	100
46) cis-1,3-Dichloropropene	6.534	75	1744754	10.91	ppbV	100
47) Toluene	6.772	91	3957437	10.88	ppbV	100
48) Methyl isobutyl ketone	7.136	43	2863824	10.90	ppbV	100
49) Tetrachloroethene	7.161	166	1772265	10.84	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	1834063	11.63	ppbV	100
51) 1,1,2-Trichloroethane	7.338	97	1345722	10.50	ppbV	100

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3404std03.D
Acq On : 15 Aug 2023 1:09 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

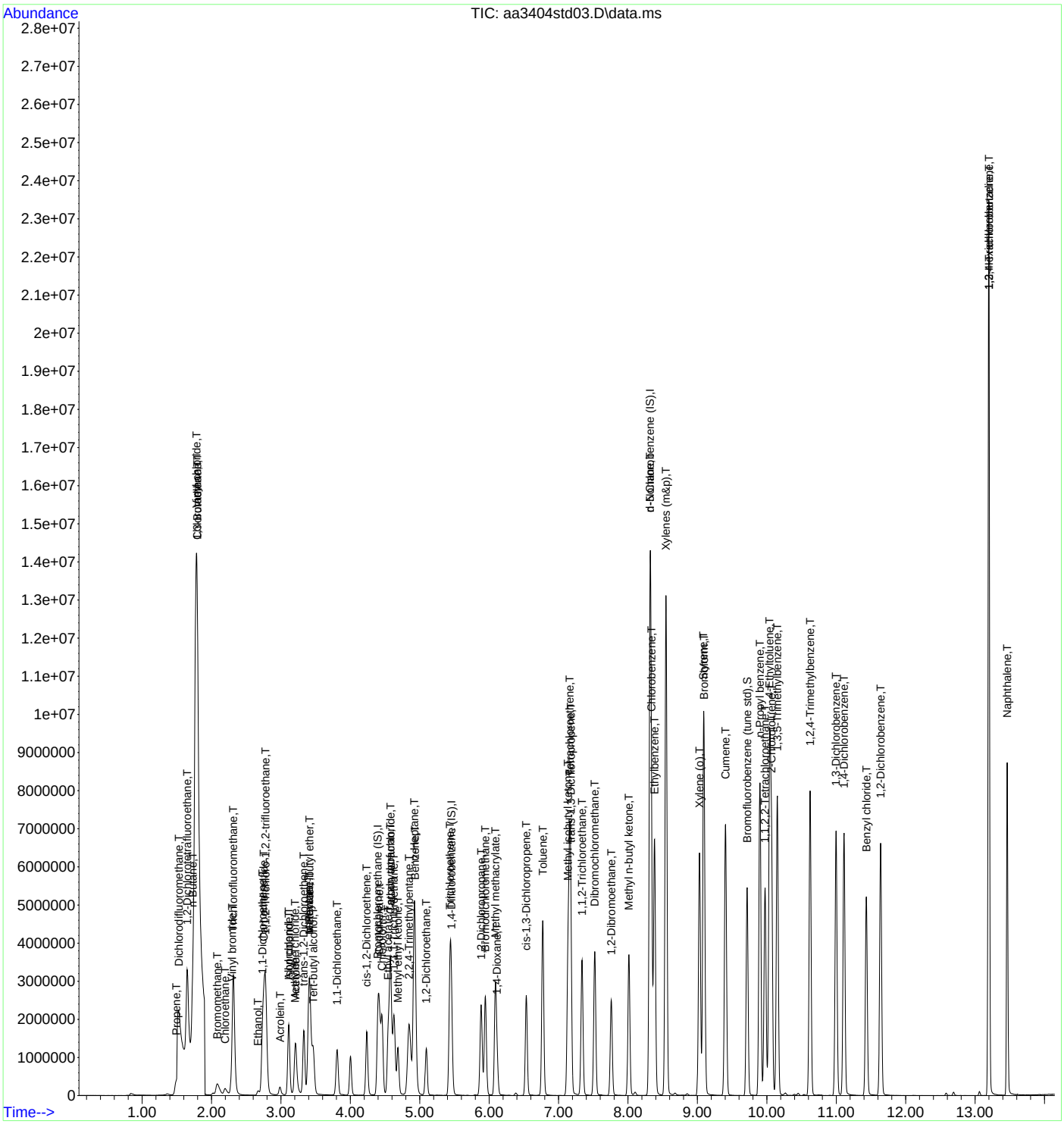
Quant Time: Aug 16 09:54:13 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2376959	11.11	ppbV	100
53)	1,2-Dibromoethane	7.759	107	2045235	10.91	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	2912111	11.83	ppbV	100
56)	n-Nonane	8.319	43	3534946	10.55	ppbV	100
57)	Chlorobenzene	8.338	112	3126708	10.43	ppbV	100
58)	Ethylbenzene	8.383	91	5864430	10.58	ppbV	100
59)	Xylenes (m&p)	8.547	91	8881004	22.23	ppbV	100
60)	Xylene (o)	9.029	91	4642943	10.46	ppbV	100
61)	Styrene	9.087	104	3380250	11.48	ppbV	100
62)	Bromoform	9.097	173	2491890	10.95	ppbV	100
63)	Cumene	9.406	105	5984852	10.35	ppbV	100
65)	n-Propyl benzene	9.901	91	8177614	10.85	ppbV	100
66)	1,1,2,2-Tetrachloroethane	9.975	83	3547036	10.55	ppbV	100
67)	4-Ethyltoluene	10.039	105	6733965	10.84	ppbV	100
68)	2-Chlorotoluene	10.068	91	5305123	10.37	ppbV	100
69)	1,3,5-Trimethylbenzene	10.152	105	5348299	10.64	ppbV	100
70)	1,2,4-Trimethylbenzene	10.624	105	5481212	10.99	ppbV	100
71)	1,3-Dichlorobenzene	10.997	146	3421975	10.35	ppbV	100
72)	1,4-Dichlorobenzene	11.113	146	3376978	10.63	ppbV	100
73)	Benzyl chloride	11.434	91	4675578	10.73	ppbV	100
74)	1,2-Dichlorobenzene	11.640	146	3254751	10.40	ppbV	100
75)	1,3-Hexachlorobutadiene	13.200	225	2216471	9.88	ppbV	100
76)	1,2,4-Trichlorobenzene	13.200	180	2590387	10.53	ppbV	100
77)	Naphthalene	13.463	128	5257288	10.34	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3404std03.D
Acq On : 15 Aug 2023 1:09 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 16 09:54:13 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3405std02.D
Acq On : 15 Aug 2023 3:12 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 16 09:53:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.399	130	499473	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	2278768	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2812211	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2375515	10.15	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.499	41	770871	22.41	ppbV	99
3) Dichlorodifluoromethane	1.533	85	2795748	22.15	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.657	85	3247750	17.89	ppbV	100
5) n-Butane	1.736	43	1882829	23.14	ppbV	99
6) Chloromethane	1.798	52	142733	24.42	ppbV	98
7) Vinyl chloride	1.787	62	1083251	22.82	ppbV	99
8) 1,3-Butadiene	1.801	39	1052739	21.69	ppbV	99
9) Bromomethane	2.091	94	850633	21.34	ppbV	100
10) Chloroethane	2.200	64	600686	23.27	ppbV	98
11) Vinyl bromide	2.300	106	1097918	21.89	ppbV	100
12) Trichlorofluoromethane	2.319	101	3715497	21.88	ppbV	100
13) Ethanol	2.673	45	357760	17.89	ppbV	99
14) 1,1-Dichloroethene	2.737	61	2414830	23.18	ppbV	100
15) Carbon disulfide	2.756	76	3964880	23.15	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.779	101	3255314	19.40	ppbV	100
17) Acrolein	2.991	56	446408	20.80	ppbV	98
18) Allyl chloride	3.113	76	664077	23.76	ppbV	100
19) Isopropanol	3.113	45	2200207	19.06	ppbV	99
20) Methylene chloride	3.207	49	1260244	19.99	ppbV	100
21) Acetone	3.216	43	2038682	21.76	ppbV	100
22) trans-1,2-Dichloroethene	3.332	61	2308104	24.59	ppbV	99
23) n-Pentane	3.409	43	2302426	19.23	ppbV	99
24) n-Hexane	3.412	57	3543404	21.18	ppbV	99
25) Methyl tert-butyl ether	3.412	73	4774341	20.99	ppbV	99
26) Tert-butyl alcohol	3.467	59	3269773	22.35	ppbV	100
27) 1,1-Dichloroethane	3.811	63	2864453	21.75	ppbV	100
28) cis-1,2-Dichloroethene	4.239	61	2160622	23.71	ppbV	100
29) Cyclohexane	4.419	56	2552240	21.11	ppbV	100
30) Chloroform	4.457	83	3608439	22.38	ppbV	99
31) Ethyl acetate	4.544	61	573589	22.35	ppbV	98
32) Carbon tetrachloride	4.579	117	3910518	20.23	ppbV	100
33) Tetrahydrofuran	4.576	42	2087668	23.05	ppbV	99
34) 1,1,1-Trichloroethane	4.631	97	3456960	19.87	ppbV	100
35) Methyl ethyl ketone	4.686	43	3340979	23.11	ppbV	100
36) n-Heptane	4.920	43	3644916	21.78	ppbV	99
37) Benzene	4.936	78	4942978	21.45	ppbV	99
38) 1,2-Dichloroethane	5.097	62	2363649	22.89	ppbV	99
40) Trichloroethene	5.435	130	2273330	19.66	ppbV	99
41) 2,2,4-Trimethylpentane	4.846	57	5933707	20.56	ppbV	100
42) 1,2-Dichloropropane	5.885	63	2205432	21.21	ppbV	99
43) Bromodichloromethane	5.946	83	4121290	22.75	ppbV	100
44) Methyl methacrylate	6.091	41	3097965	23.17	ppbV	99
45) 1,4-Dioxane	6.113	88	1493343	23.30	ppbV	99
46) cis-1,3-Dichloropropene	6.538	75	3649298	22.71	ppbV	100
47) Toluene	6.772	91	7908022	21.65	ppbV	99
48) Methyl isobutyl ketone	7.136	43	5805171	22.00	ppbV	99
49) Tetrachloroethene	7.161	166	3535315	21.53	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	3830549	24.18	ppbV	98
51) 1,1,2-Trichloroethane	7.338	97	2762664	21.45	ppbV	99

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3405std02.D
Acq On : 15 Aug 2023 3:12 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 7 Sample Multiplier: 1

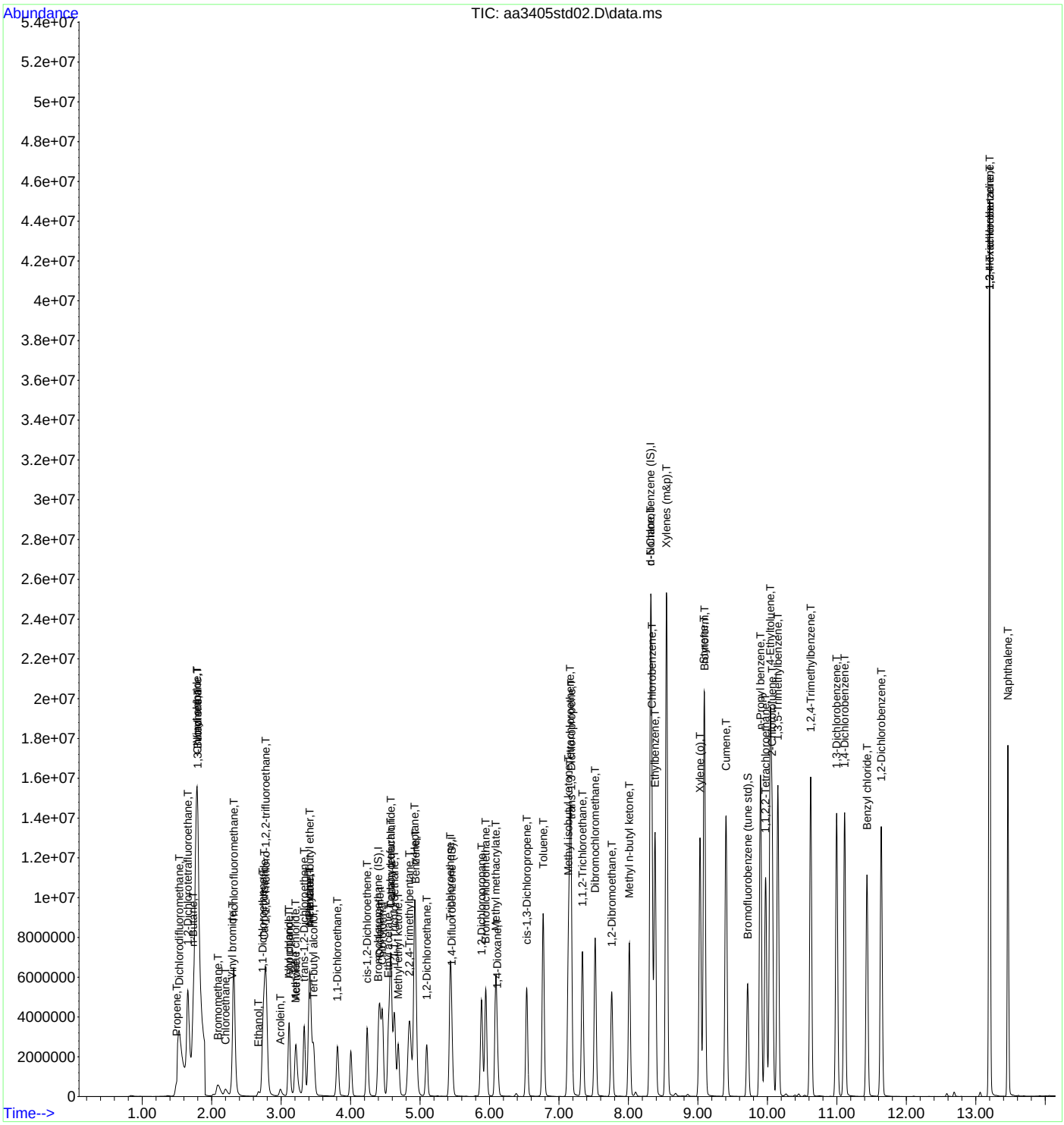
Quant Time: Aug 16 09:53:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	4920304	22.89	ppbV	99
53)	1,2-Dibromoethane	7.759	107	4277090	22.71	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	6056833	24.50	ppbV	99
56)	n-Nonane	8.319	43	7191778	20.90	ppbV	100
57)	Chlorobenzene	8.338	112	6300402	20.46	ppbV	99
58)	Ethylbenzene	8.383	91	11427551	20.06	ppbV	98
59)	Xylenes (m&p)	8.547	91	16612160	40.47	ppbV	96
60)	Xylene (o)	9.029	91	9308971	20.42	ppbV	99
61)	Styrene	9.087	104	6805349	22.50	ppbV	100
62)	Bromoform	9.097	173	5013505	21.45	ppbV	99
63)	Cumene	9.406	105	11708179	19.72	ppbV	98
65)	n-Propyl benzene	9.901	91	15630674	20.19	ppbV	97
66)	1,1,2,2-Tetrachloroethane	9.975	83	7162257	20.73	ppbV	100
67)	4-Ethyltoluene	10.042	105	13015117	20.39	ppbV	97
68)	2-Chlorotoluene	10.068	91	10557525	20.10	ppbV	99
69)	1,3,5-Trimethylbenzene	10.152	105	10540320	20.40	ppbV	98
70)	1,2,4-Trimethylbenzene	10.624	105	10891140	21.26	ppbV	98
71)	1,3-Dichlorobenzene	10.997	146	6954730	20.48	ppbV	99
72)	1,4-Dichlorobenzene	11.113	146	6870236	21.05	ppbV	99
73)	Benzyl chloride	11.434	91	9809727	21.92	ppbV	99
74)	1,2-Dichlorobenzene	11.640	146	6519746	20.28	ppbV	99
75)	1,3-Hexachlorobutadiene	13.200	225	4206699	18.25	ppbV	99
76)	1,2,4-Trichlorobenzene	13.200	180	5049468	19.98	ppbV	100
77)	Naphthalene	13.463	128	10176689	19.49	ppbV	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3405std02.D
Acq On : 15 Aug 2023 3:12 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 16 09:53:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3406std01.D
Acq On : 15 Aug 2023 4:47 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 09:52:28 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.406	130	487271	10.00	ppbV		0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	2425798	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2732166	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.717	95	2577792	11.34	ppbV		0.000
Target Compounds							Qvalue
2) Propene	1.512	41	1707516	50.87	ppbV		99
3) Dichlorodifluoromethane	1.536	85	5966633	48.46	ppbV		100
4) 1,2-Dichlorotetrafluor...	1.660	85	6899713	38.95	ppbV		99
5) n-Butane	1.739	43	3778324	47.60	ppbV		100
6) Chloromethane	1.798	52	321722	56.43	ppbV	#	1
7) Vinyl chloride	1.791	62	2395758	51.74	ppbV		99
8) 1,3-Butadiene	1.801	39	2174685	45.93	ppbV		97
9) Bromomethane	2.097	94	1861404	47.86	ppbV		100
10) Chloroethane	2.200	64	1346794	53.48	ppbV		100
11) Vinyl bromide	2.300	106	2453541	50.15	ppbV		100
12) Trichlorofluoromethane	2.319	101	7717062	46.58	ppbV		100
13) Ethanol	2.673	45	877297	44.97	ppbV	#	88
14) 1,1-Dichloroethene	2.737	61	4997972	49.17	ppbV		100
15) Carbon disulfide	2.763	76	8067769	48.28	ppbV		99
16) 1,1,2-Trichloro-1,2,2-...	2.782	101	6956660	42.50	ppbV		100
17) Acrolein	2.994	56	951140	45.44	ppbV		98
18) Allyl chloride	3.116	76	1369570	50.24	ppbV		100
19) Isopropanol	3.116	45	4505255	40.00	ppbV		98
20) Methylene chloride	3.206	49	2810050	45.70	ppbV		100
21) Acetone	3.222	43	4077485	44.60	ppbV		100
22) trans-1,2-Dichloroethene	3.332	61	4976980	54.35	ppbV		98
23) n-Pentane	3.412	43	5051897	43.24	ppbV		99
24) n-Hexane	3.412	57	7730831	47.37	ppbV		99
25) Methyl tert-butyl ether	3.412	73	10208419	46.00	ppbV		97
26) Tert-butyl alcohol	3.467	59	7080253	49.62	ppbV		100
27) 1,1-Dichloroethane	3.814	63	6120009	47.63	ppbV		99
28) cis-1,2-Dichloroethene	4.238	61	4615777	51.93	ppbV		100
29) Cyclohexane	4.419	56	5431445	46.06	ppbV		100
30) Chloroform	4.457	83	7598750	48.31	ppbV		100
31) Ethyl acetate	4.547	61	1228122	49.05	ppbV		99
32) Carbon tetrachloride	4.583	117	8430867	44.71	ppbV		100
33) Tetrahydrofuran	4.576	42	4398645	49.79	ppbV		99
34) 1,1,1-Trichloroethane	4.631	97	7362144	43.37	ppbV		100
35) Methyl ethyl ketone	4.685	43	7160721	50.77	ppbV		99
36) n-Heptane	4.920	43	7185919	44.02	ppbV		100
37) Benzene	4.936	78	10281932	45.73	ppbV		98
38) 1,2-Dichloroethane	5.097	62	5067261	50.30	ppbV		99
40) Trichloroethene	5.438	130	4836394	39.29	ppbV		100
41) 2,2,4-Trimethylpentane	4.849	57	13336894	43.41	ppbV		98
42) 1,2-Dichloropropane	5.888	63	4560844	41.21	ppbV		99
43) Bromodichloromethane	5.949	83	8574056	44.47	ppbV		99
44) Methyl methacrylate	6.090	41	6283616	44.15	ppbV		100
45) 1,4-Dioxane	6.116	88	3065935	44.93	ppbV		99
46) cis-1,3-Dichloropropene	6.537	75	7375814	43.13	ppbV		99
47) Toluene	6.772	91	14907224	38.33	ppbV		96
48) Methyl isobutyl ketone	7.135	43	11479037	40.87	ppbV		98
49) Tetrachloroethene	7.164	166	6808224	38.95	ppbV		100
50) trans-1,3-Dichloropropene	7.177	75	7633904	45.27	ppbV		99
51) 1,1,2-Trichloroethane	7.338	97	5566488	40.60	ppbV		99

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3406std01.D
Acq On : 15 Aug 2023 4:47 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 8 Sample Multiplier: 1

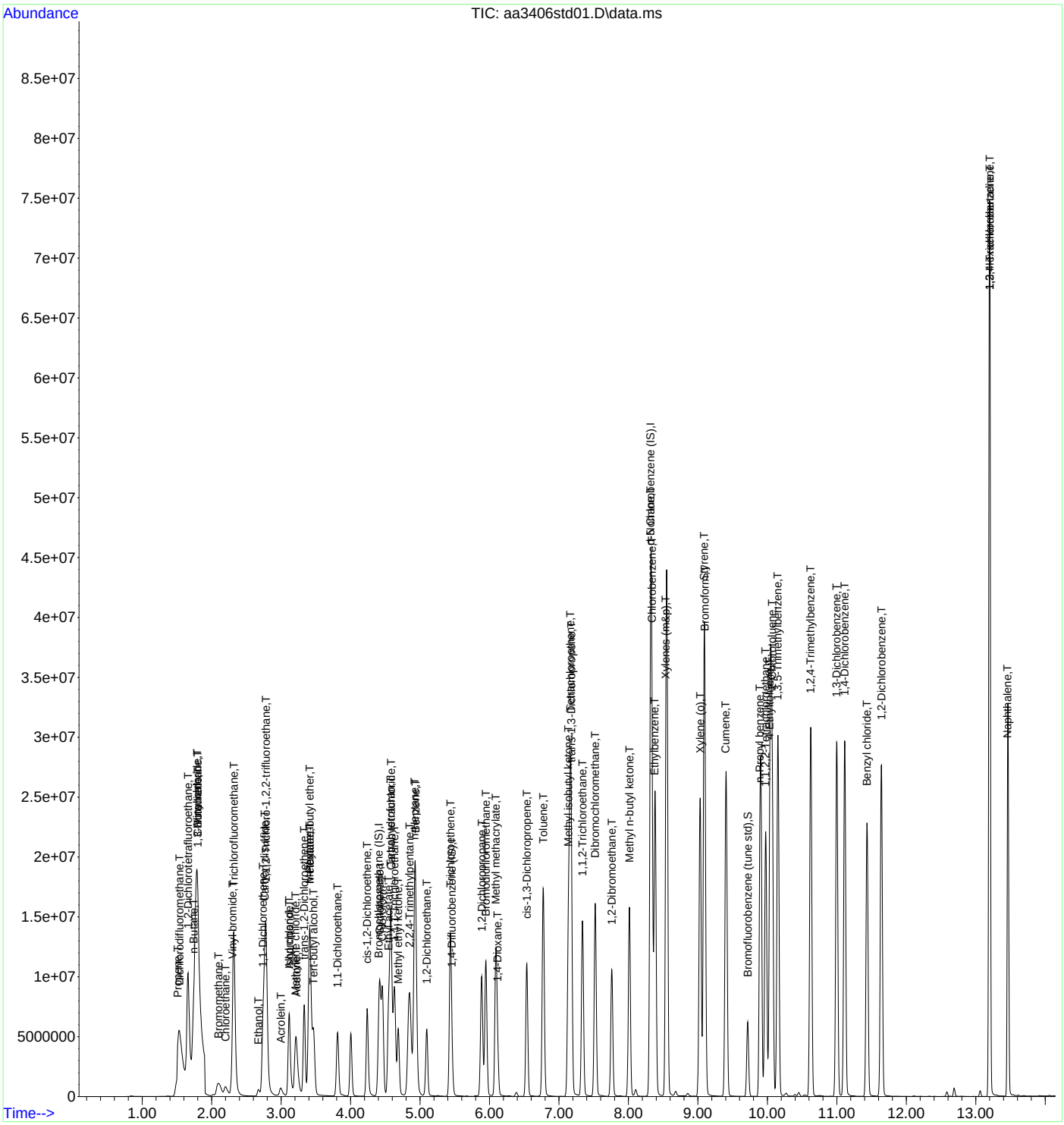
Quant Time: Aug 16 09:52:28 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.521	129	9886675	43.20	ppbV		99
53)	1,2-Dibromoethane	7.759	107	8609104	42.93	ppbV		100
54)	Methyl n-butyl ketone	8.013	43	12284613	46.68	ppbV		97
56)	n-Nonane	8.319	43	14182361	42.42	ppbV		98
57)	Chlorobenzene	8.338	112	12196934	40.77	ppbV		96
58)	Ethylbenzene	8.377	91	20355846	36.79	ppbV		90
59)	Xylenes (m&p)	8.537	91	24199756	60.68	ppbV	#	74
60)	Xylene (o)	9.033	91	17688374	39.94	ppbV		95
61)	Styrene	9.090	104	13186398	44.87	ppbV		97
62)	Bromoform	9.100	173	9710978	42.77	ppbV		98
63)	Cumene	9.399	105	21140296	36.64	ppbV		91
65)	n-Propyl benzene	9.891	91	24008413	31.92	ppbV	#	80
66)	1,1,2,2-Tetrachloroethane	9.975	83	14100555	42.01	ppbV		97
67)	4-Ethyltoluene	10.032	105	21664037	34.94	ppbV	#	84
68)	2-Chlorotoluene	10.068	91	20299207	39.78	ppbV		97
69)	1,3,5-Trimethylbenzene	10.148	105	19633662	39.12	ppbV		92
70)	1,2,4-Trimethylbenzene	10.621	105	20118523	40.43	ppbV		91
71)	1,3-Dichlorobenzene	10.997	146	14030394	42.52	ppbV		97
72)	1,4-Dichlorobenzene	11.113	146	13876826	43.76	ppbV		97
73)	Benzyl chloride	11.431	91	19339251	44.49	ppbV		93
74)	1,2-Dichlorobenzene	11.643	146	13190929	42.23	ppbV		97
75)	1,3-Hexachlorobutadiene	13.200	225	7629643	34.08	ppbV		97
76)	1,2,4-Trichlorobenzene	13.200	180	9392234	38.25	ppbV		99
77)	Naphthalene	13.457	128	15939992	31.42	ppbV	#	83

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3406std01.D
Acq On : 15 Aug 2023 4:47 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 09:52:28 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 10/10/2023 **Method ID:** 231009.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48

	Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
1)	Bromochloromethane	----------ISTD----------						
3)	Dichlorodifluoromethane	1.9	2.0	2.2	2.4	2.6	2.2	13
4)	1,2-Dichlorotetrafluoroethane	3.2	3.4	2.9	3.2	3.5	3.2	6.1
6)	Chloromethane	0.085	0.098	0.11	0.12	0.14	0.11	18
7)	Vinyl chloride	0.70	0.84	0.91	0.98	1.1	0.91	17
8)	1,3-Butadiene	0.87	0.82	0.80	0.84	0.91	0.85	4.8
9)	Bromomethane	0.49	0.70	0.75	0.81	0.91	0.73	22
10)	Chloroethane	0.24	0.45	0.50	0.55	0.63	0.48	31
11)	Vinyl bromide	0.53	0.86	0.92	1.0	1.1	0.90	26
12)	Trichlorofluoromethane	2.6	2.6	2.7	2.9	3.2	2.8	8.9
14)	1,1-Dichloroethene	1.4	1.5	1.9	2.1	2.3	1.9	21
15)	Carbon disulfide	2.4	2.6	3.2	3.4	3.7	3.1	18
16)	1,1,2-Trichloro-1,2,2-trifluoroethane	2.8	3.0	2.5	2.7	3.0	2.8	7.4
17)	Acrolein	0.39	0.33	0.43	0.45	0.49	0.42	15
18)	Allyl Chloride	0.35	0.42	0.54	0.58	0.62	0.50	23
19)	Isopropanol	1.6	1.7	2.1	2.3	2.4	2.0	17
20)	Methylene chloride	1.7	0.97	1.0	1.1	1.3	1.2	25
21)	Acetone	1.5	1.2	1.5	1.6	1.7	1.5	12
22)	1,2-Dichloroethene (trans)	1.4	1.3	1.8	2.0	2.2	1.7	21
24)	n-Hexane	3.1	3.0	3.0	3.1	3.5	3.2	7.1
25)	Methyl tert-butyl ether	3.5	4.1	3.6	3.9	4.3	3.9	8.5
26)	Tert-butyl alcohol	2.3	2.5	2.5	2.7	3.0	2.6	11
27)	1,1-Dichloroethane	2.2	2.0	2.2	2.4	2.7	2.3	12
28)	1,2-Dichloroethene (cis)	1.3	1.4	1.7	1.8	2.0	1.6	18
29)	Cyclohexane	2.1	2.2	2.1	2.2	2.4	2.2	6.8
30)	Chloroform	2.2	2.3	2.6	2.9	3.2	2.7	15
32)	Carbon tetrachloride	3.0	3.1	3.0	3.2	3.5	3.2	6.9
33)	Tetrahydrofuran	1.5	1.3	1.5	1.6	1.7	1.5	9.4
34)	1,1,1-Trichloroethane	2.5	2.7	2.7	2.9	3.1	2.8	8.7
35)	Methyl ethyl ketone	2.3	2.1	2.4	2.6	2.9	2.4	13
36)	n-Heptane	2.6	2.6	2.9	2.9	2.9	2.8	6.9
37)	Benzene	3.6	3.8	3.8	4.1	4.5	4.0	9.3
38)	1,2-Dichloroethane	1.3	1.5	1.7	1.8	2.0	1.7	17
39)	1,4-Difluorobenzene	----------ISTD----------						
40)	Trichloroethene	0.38	0.47	0.44	0.45	0.47	0.44	8.1
41)	2,2,4-Trimethylpentane	1.2	1.5	1.2	1.3	1.3	1.3	9.8
42)	1,2-Dichloropropane	0.38	0.40	0.39	0.39	0.39	0.39	2.1
43)	Bromodichloromethane	0.59	0.68	0.66	0.68	0.68	0.66	6.0

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 10/10/2023 **Method ID:** 231009.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48

Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
44) Methyl methacrylate	0.42	0.46	0.50	0.50	0.48	0.47	6.8
45) 1,4-Dioxane	0.21	0.24	0.24	0.25	0.25	0.24	5.9
46) 1,3-Dichloropropene (cis)	0.55	0.59	0.63	0.63	0.62	0.60	5.6
47) Toluene	1.2	1.5	1.5	1.5	1.4	1.4	7.6
48) Methyl isobutyl ketone	0.76	0.92	0.95	0.93	0.86	0.88	8.6
49) Tetrachloroethene	0.53	0.61	0.63	0.64	0.61	0.61	7.1
50) 1,3-Dichloropropene (trans)	0.46	0.57	0.63	0.65	0.62	0.59	13
51) 1,1,2-Trichloroethane	0.40	0.48	0.49	0.51	0.50	0.48	9.3
52) Dibromochloromethane	0.64	0.78	0.83	0.86	0.85	0.79	12
53) 1,2-Dibromoethane	0.54	0.67	0.73	0.75	0.74	0.69	13
54) Methyl n-butyl ketone	0.70	0.78	0.93	0.93	0.90	0.85	12
55) d-5 Chlorbenzene	----------ISTD----------						
57) Chlorobenzene	0.97	1.1	0.99	0.99	0.99	1.00	3.0
58) Ethylbenzene	1.8	2.0	1.9	1.8	1.8	1.8	4.5
59) Xylenes (m&p)	1.3	1.5	1.4	1.4	1.2	1.4	9.3
60) Xylenes (o)	1.4	1.6	1.5	1.5	1.5	1.5	5.0
61) Styrene	0.85	1.0	1.1	1.1	1.1	1.0	9.4
62) Bromoform	0.63	0.72	0.75	0.77	0.80	0.73	8.7
63) Cumene	1.8	2.2	2.0	1.9	1.9	1.9	7.1
66) 1,1,2,2-Tetrachloroethane	0.96	1.1	1.0	1.0	1.1	1.0	5.5
67) 4-Ethyltoluene	2.1	2.2	2.2	2.2	2.1	2.2	3.8
68) 2-Chlorotoluene	1.6	1.8	1.7	1.7	1.7	1.7	4.3
69) 1,3,5-Trimethylbenzene	1.5	1.9	1.8	1.8	1.7	1.7	7.6
70) 1,2,4-Trimethylbenzene	1.4	1.9	1.8	1.8	1.8	1.7	9.6
71) 1,3-Dichlorobenzene	1.0	1.0	1.1	1.1	1.1	1.1	4.2
72) 1,4-Dichlorobenzene	0.94	1.0	1.1	1.1	1.2	1.1	8.6
73) Benzyl chloride	1.2	1.4	1.6	1.7	1.7	1.5	15
74) 1,2-Dichlorobenzene	0.90	1.1	1.0	1.1	1.1	1.0	7.4
75) 1,3-Hexachlorobutadiene	0.73	0.78	0.70	0.69	0.66	0.71	6.1
76) 1,2,4-Trichlorobenzene	0.83	0.81	0.82	0.84	0.83	0.82	1.4
77) Naphthalene	2.0	1.9	1.9	1.9	1.7	1.9	4.8

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Response Factor Report GCMS2B

Method Path : C:\msdchem\1\METHODS\
Method File : 231009.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Tue Oct 10 15:12:35 2023
Response Via : Initial Calibration

Calibration Files
0.2 =aa4132std05.D 2 =aa4133std04.D 10 =aa4134std03.D 20 =aa4135std02.D 40 =aa4136std01.D

		Compound	0.2	2	10	20	40	Avg	%RSD
1)	I	Bromochloromethane...	----------ISTD----------						
2)	T	Propene	0.779	0.688	0.601	0.651	0.751	0.694	10.44
3)	T	Dichlorodifluoro...	1.907	1.983	2.168	2.390	2.633	2.216	13.46
4)	T	1,2-Dichlorotetr...	3.185	3.352	2.944	3.158	3.458	3.219	6.12
5)	T	n-Butane	1.490	1.596	1.532	1.649	1.719	1.597	5.69
6)	T	Chloromethane	0.085	0.098	0.113	0.121	0.137	0.111	18.16
7)	T	Vinyl chloride	0.695	0.837	0.907	0.984	1.107	0.906	17.06
8)	T	1,3-Butadiene	0.868	0.820	0.800	0.839	0.905	0.846	4.88
9)	T	Bromomethane	0.486	0.695	0.751	0.814	0.911	0.731	21.71
10)	T	Chloroethane	0.242	0.451	0.502	0.547	0.634	0.475	30.85
11)	T	Vinyl bromide	0.534	0.864	0.915	1.018	1.146	0.895	25.58
12)	T	Trichlorofluorom...	2.621	2.609	2.656	2.932	3.178	2.799	8.92
13)	T	Ethanol	0.278	0.262	0.269	0.289	0.366	0.293	14.44
14)	T	1,1-Dichloroethene	1.413	1.490	1.944	2.133	2.308	1.858	21.17
15)	T	Carbon disulfide	2.407	2.574	3.227	3.426	3.653	3.058	17.73
16)	T	1,1,2-Trichloro-...	2.836	3.030	2.523	2.712	2.994	2.819	7.42
17)	T	Acrolein	0.385	0.331	0.431	0.447	0.494	0.418	14.91
18)	T	Allyl chloride	0.345	0.421	0.535	0.582	0.624	0.501	23.11
19)	T	Isopropanol	1.617	1.677	2.082	2.254	2.397	2.005	17.28
20)	T	Methylene chloride	1.726	0.973	1.020	1.121	1.307	1.229	24.89
21)	T	Acetone	1.489	1.226	1.538	1.595	1.694	1.508	11.62
22)	T	trans-1,2-Dichlo...	1.377	1.330	1.784	1.951	2.181	1.724	21.29
23)	T	n-Pentane	2.223	2.305	2.173	2.308	2.616	2.325	7.41
24)	T	n-Hexane	3.143	2.995	2.967	3.122	3.534	3.152	7.19
25)	T	Methyl tert-buty...	3.476	4.059	3.641	3.875	4.310	3.872	8.54
26)	T	Tert-butyl alcohol	2.280	2.528	2.502	2.698	3.027	2.607	10.66
27)	T	1,1-Dichloroethane	2.208	2.008	2.236	2.445	2.714	2.322	11.56
28)	T	cis-1,2-Dichloro...	1.343	1.351	1.654	1.825	2.018	1.638	18.03
29)	t	Cyclohexane	2.057	2.245	2.081	2.192	2.434	2.202	6.86
30)	T	Chloroform	2.233	2.343	2.644	2.933	3.225	2.676	15.36
31)	T	Ethyl acetate	0.310	0.390	0.450	0.493	0.533	0.435	20.09
32)	T	Carbon tetrachlo...	2.964	3.097	3.048	3.232	3.528	3.174	6.95
33)	T	Tetrahydrofuran	1.456	1.307	1.488	1.591	1.681	1.504	9.42
34)	T	1,1,1-Trichloroe...	2.481	2.746	2.667	2.869	3.137	2.780	8.79
35)	T	Methyl ethyl ketone	2.291	2.066	2.372	2.620	2.862	2.442	12.58
36)	T	n-Heptane	2.552	2.559	2.850	2.930	2.928	2.764	6.98
37)	T	Benzene	3.627	3.758	3.801	4.128	4.544	3.972	9.30
38)	T	1,2-Dichloroethane	1.312	1.486	1.666	1.833	2.016	1.663	16.69
39)	I	1,4-Difluorobenzen...	----------ISTD----------						
40)	T	Trichloroethene	0.381	0.468	0.441	0.454	0.469	0.442	8.16
41)	T	2,2,4-Trimethylp...	1.199	1.522	1.226	1.268	1.298	1.303	9.87
42)	T	1,2-Dichloropropane	0.377	0.399	0.391	0.393	0.385	0.389	2.16
43)	T	Bromodichloromet...	0.586	0.682	0.655	0.678	0.675	0.655	6.09
44)	T	Methyl methacrylate	0.419	0.464	0.497	0.498	0.481	0.472	6.88
45)	T	1,4-Dioxane	0.214	0.238	0.243	0.249	0.248	0.238	5.94
46)	T	cis-1,3-Dichloro...	0.549	0.592	0.626	0.634	0.615	0.603	5.69
47)	T	Toluene	1.225	1.453	1.484	1.478	1.387	1.405	7.68
48)	T	Methyl isobutyl ...	0.759	0.922	0.947	0.925	0.863	0.883	8.63
49)	T	Tetrachloroethene	0.531	0.613	0.633	0.639	0.613	0.606	7.17
50)	T	trans-1,3-Dichlo...	0.459	0.568	0.633	0.647	0.618	0.585	13.11
51)	T	1,1,2-Trichloroe...	0.399	0.475	0.494	0.506	0.500	0.475	9.30
52)	T	Dibromochloromet...	0.636	0.778	0.834	0.857	0.849	0.791	11.62
53)	T	1,2-Dibromoethane	0.535	0.672	0.732	0.751	0.743	0.686	13.15
54)	T	Methyl n-butyl k...	0.704	0.779	0.932	0.932	0.900	0.849	12.07
55)	I	d-5 Chlorobenzene ...	----------ISTD----------						
56)	T	n-Nonane	0.927	1.067	1.027	0.986	0.955	0.992	5.62
57)	T	Chlorobenzene	0.971	1.050	0.990	0.986	0.988	0.997	3.09
58)	T	Ethylbenzene	1.789	1.981	1.852	1.820	1.771	1.843	4.51
59)	T	Xylenes (m&p)	1.326	1.536	1.415	1.363	1.186	1.365	9.36
60)	T	Xylene (o)	1.445	1.623	1.468	1.461	1.451	1.490	5.05

Method Path : C:\msdchem\1\METHODS\
Method File : 231009.M

61)	T	Styrene	0.849	1.047	1.067	1.065	1.073	1.020	9.41
62)	T	Bromoform	0.629	0.724	0.745	0.767	0.797	0.732	8.70
63)	T	Cumene	1.783	2.168	1.955	1.932	1.897	1.947	7.18
64)	S	Bromofluorobenze...	0.801	0.842	0.870	0.891	0.954	0.872	6.54
65)	T	n-Propyl benzene	2.478	2.727	2.610	2.556	2.335	2.541	5.77
66)	T	1,1,2,2-Tetrachl...	0.959	1.120	1.040	1.040	1.055	1.043	5.50
67)	T	4-Ethyltoluene	2.059	2.245	2.204	2.174	2.073	2.151	3.80
68)	T	2-Chlorotoluene	1.626	1.829	1.701	1.690	1.690	1.707	4.35
69)	T	1,3,5-Trimethylb...	1.513	1.880	1.755	1.754	1.747	1.730	7.69
70)	T	1,2,4-Trimethylb...	1.441	1.880	1.785	1.775	1.764	1.729	9.68
71)	T	1,3-Dichlorobenzene	1.031	1.007	1.050	1.081	1.124	1.059	4.27
72)	T	1,4-Dichlorobenzene	0.943	1.005	1.082	1.123	1.174	1.065	8.65
73)	T	Benzyl chloride	1.159	1.435	1.619	1.688	1.742	1.529	15.48
74)	T	1,2-Dichlorobenzene	0.895	1.065	1.034	1.054	1.089	1.027	7.47
75)	T	1,3-Hexachlorobu...	0.731	0.778	0.703	0.687	0.664	0.713	6.17
76)	T	1,2,4-Trichlorob...	0.829	0.807	0.819	0.838	0.828	0.824	1.43
77)	T	Naphthalene	1.972	1.901	1.894	1.926	1.733	1.885	4.80

(#) = Out of Range

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4132std05.D
Acq On : 10 Oct 2023 10:40 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 15:08:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:03:48 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.380	130	335961	10.00	ppbV		-0.014
39) 1,4-Difluorobenzene (IS)	5.444	114	1366548	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1287551	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.714	95	1031937	9.01	ppbV		0.000
Target Compounds							Qvalue
2) Propene	1.451	41	5709	0.25	ppbV		95
3) Dichlorodifluoromethane	1.499	85	13581	0.18	ppbV	#	83
4) 1,2-Dichlorotetrafluor...	1.619	85	20971	0.19	ppbV		99
5) n-Butane	1.702	43	10916	0.20	ppbV	#	85
6) Chloromethane	1.684	52	641	0.16	ppbV		65
7) Vinyl chloride	1.753	62	5046	0.16	ppbV	#	50
8) 1,3-Butadiene	1.760	39	6239	0.22	ppbV		75
9) Bromomethane	2.059	94	3266	0.12	ppbV		66
10) Chloroethane	2.168	64	1724	0.10	ppbV		80
11) Vinyl bromide	2.261	106	3625	0.11	ppbV		95
12) Trichlorofluoromethane	2.287	101	19370	0.20	ppbV		97
13) Ethanol	2.654	45	1944	0.20	ppbV	#	47
14) 1,1-Dichloroethene	2.708	61	9877	0.15	ppbV		99
15) Carbon disulfide	2.728	76	17305	0.16	ppbV		100
16) 1,1,2-Trichloro-1,2,2-...	2.750	101	20772	0.22	ppbV		98
17) Acrolein	2.969	56	2586	0.18	ppbV	#	42
18) Allyl chloride	3.084	76	2500	0.14	ppbV		100
19) Isopropanol	3.094	45	9669	0.14	ppbV	#	84
20) Methylene chloride	3.178	49	12526	0.34	ppbV		92
21) Acetone	3.194	43	10805	0.21	ppbV	#	83
22) trans-1,2-Dichloroethene	3.306	61	10268	0.17	ppbV		100
23) n-Pentane	3.393	43	16132	0.20	ppbV		92
24) n-Hexane	3.380	57	23439	0.22	ppbV		95
25) Methyl tert-butyl ether	3.393	73	26157	0.20	ppbV		89
26) Tert-butyl alcohol	3.445	59	17620	0.20	ppbV		100
27) 1,1-Dichloroethane	3.792	63	15876	0.20	ppbV		91
28) cis-1,2-Dichloroethene	4.219	61	9833	0.17	ppbV		98
29) Cyclohexane	4.396	56	15483	0.21	ppbV		99
30) Chloroform	4.445	83	16203	0.17	ppbV		96
31) Ethyl acetate	4.535	61	2253	0.14	ppbV		88
32) Carbon tetrachloride	4.563	117	22109	0.20	ppbV		100
33) Tetrahydrofuran	4.570	42	10856	0.21	ppbV		87
34) 1,1,1-Trichloroethane	4.615	97	18169	0.19	ppbV		97
35) Methyl ethyl ketone	4.676	43	16932	0.20	ppbV		91
36) n-Heptane	4.911	43	19030	0.20	ppbV		92
37) Benzene	4.920	78	26320	0.19	ppbV		98
38) 1,2-Dichloroethane	5.078	62	9608	0.16	ppbV		97
40) Trichloroethene	5.428	130	10418	0.17	ppbV		93
41) 2,2,4-Trimethylpentane	4.827	57	35716	0.20	ppbV		97
42) 1,2-Dichloropropane	5.882	63	11430	0.21	ppbV		90
43) Bromodichloromethane	5.940	83	18430	0.20	ppbV		98
44) Methyl methacrylate	6.081	41	12606	0.19	ppbV		96
45) 1,4-Dioxane	6.116	88	6852	0.21	ppbV		97
46) cis-1,3-Dichloropropene	6.528	75	16642	0.20	ppbV		95
47) Toluene	6.766	91	36156	0.18	ppbV		100
48) Methyl isobutyl ketone	7.136	43	22603	0.18	ppbV		98
49) Tetrachloroethene	7.155	166	16259	0.19	ppbV		100
50) trans-1,3-Dichloropropene	7.174	75	13916	0.17	ppbV		98
51) 1,1,2-Trichloroethane	7.332	97	11763	0.17	ppbV		94

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4132std05.D
Acq On : 10 Oct 2023 10:40 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 15:08:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:03:48 2023
Response via : Initial Calibration

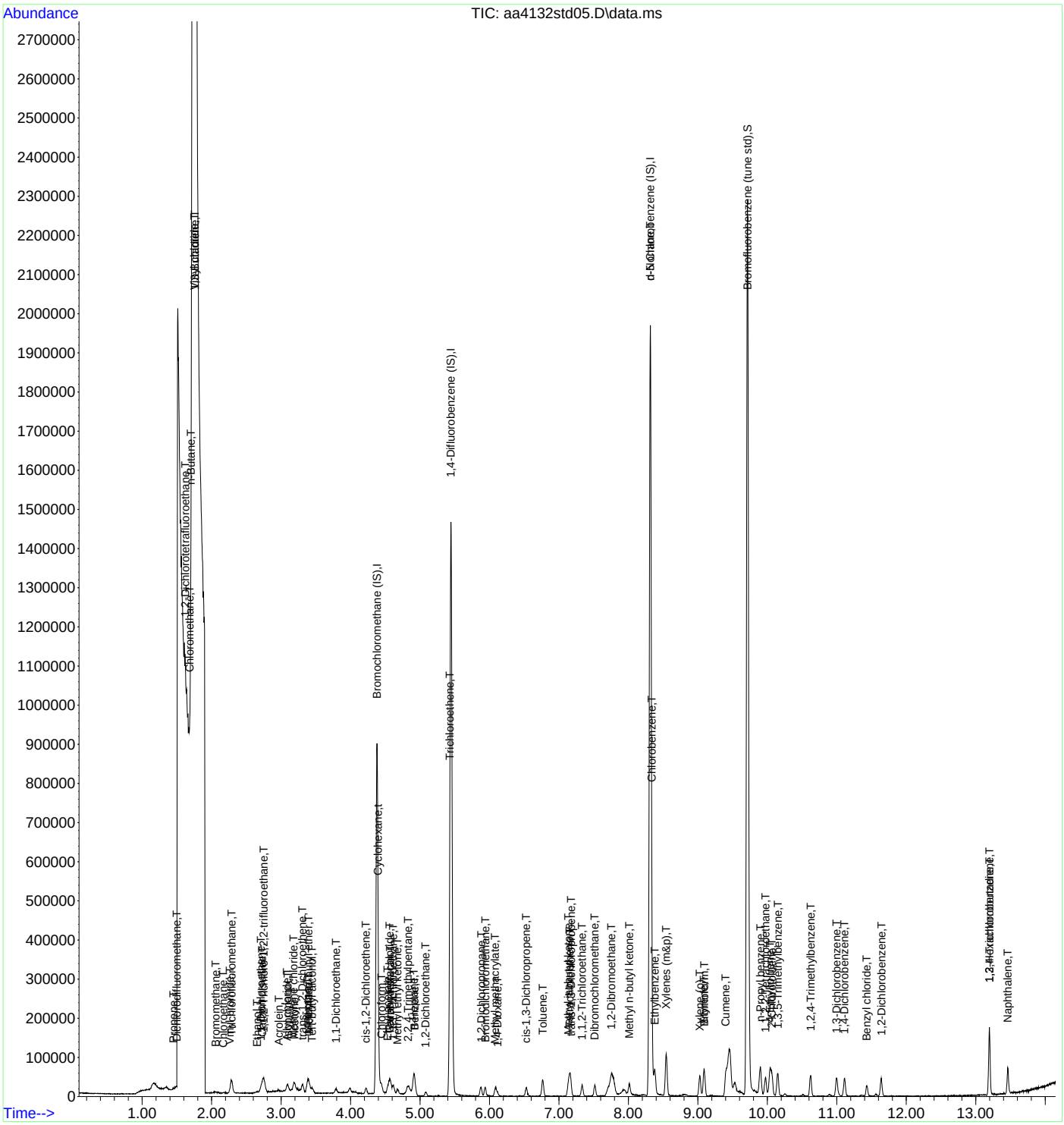
	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.515	129	19465	0.17	ppbV		100
53)	1,2-Dibromoethane	7.753	107	15790	0.16	ppbV		99
54)	Methyl n-butyl ketone	8.014	43	21755	0.18	ppbV		91
56)	n-Nonane	8.316	43	26498	0.20	ppbV		95
57)	Chlorobenzene	8.335	112	27757	0.21	ppbV	#	47
58)	Ethylbenzene	8.380	91	51133	0.21	ppbV		99
59)	Xylenes (m&p)	8.544	91	76173	0.43	ppbV		98
60)	Xylene (o)	9.026	91	40935	0.21	ppbV		95
61)	Styrene	9.087	104	24712	0.18	ppbV		97
62)	Bromoform	9.094	173	18307	0.19	ppbV		99
63)	Cumene	9.399	105	49138	0.19	ppbV		100
65)	n-Propyl benzene	9.901	91	68920	0.21	ppbV		97
66)	1,1,2,2-Tetrachloroethane	9.975	83	28157	0.21	ppbV		96
67)	4-Ethyltoluene	10.039	105	57273	0.20	ppbV		99
68)	2-Chlorotoluene	10.065	91	45637	0.21	ppbV		98
69)	1,3,5-Trimethylbenzene	10.152	105	42479	0.18	ppbV		99
70)	1,2,4-Trimethylbenzene	10.624	105	40083	0.17	ppbV		96
71)	1,3-Dichlorobenzene	10.997	146	29481	0.21	ppbV		95
72)	1,4-Dichlorobenzene	11.110	146	25984	0.18	ppbV		99
73)	Benzyl chloride	11.428	91	29858	0.14	ppbV		95
74)	1,2-Dichlorobenzene	11.644	146	24649	0.18	ppbV		99
75)	1,3-Hexachlorobutadiene	13.197	225	20901	0.23	ppbV		99
76)	1,2,4-Trichlorobenzene	13.197	180	23485	0.22	ppbV		97
77)	Naphthalene	13.460	128	50770	0.21	ppbV		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4132std05.D
Acq On : 10 Oct 2023 10:40 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 15:08:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:03:48 2023
Response via : Initial Calibration



Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4133std04.D
Acq On : 10 Oct 2023 11:46 am
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 10 15:14:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.378	130	266219	10.00	ppbV	-0.016
39) 1,4-Difluorobenzene (IS)	5.445	114	1004403	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.313	117	1028709	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	866440	9.66	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.454	41	39983	2.16	ppbV	100
3) Dichlorodifluoromethane	1.496	85	111937	1.90	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.613	85	174894	2.04	ppbV	97
5) n-Butane	1.699	43	92630	2.18	ppbV	97
6) Chloromethane	1.767	52	6226	2.11	ppbV	99
7) Vinyl chloride	1.761	62	48102	1.99	ppbV	99
8) 1,3-Butadiene	1.764	39	46700	2.07	ppbV	98
9) Bromomethane	2.046	94	37014	1.90	ppbV	98
10) Chloroethane	2.172	64	25446	2.01	ppbV	97
11) Vinyl bromide	2.262	106	46443	1.95	ppbV	99
12) Trichlorofluoromethane	2.284	101	152810	2.05	ppbV	98
13) Ethanol	2.641	45	14500	1.86	ppbV	99
14) 1,1-Dichloroethene	2.706	61	82725	1.67	ppbV	100
15) Carbon disulfide	2.728	76	146663	1.80	ppbV	96
16) 1,1,2-Trichloro-1,2,2-...	2.747	101	175871	2.34	ppbV	99
17) Acrolein	2.963	56	17616	1.58	ppbV	96
18) Allyl chloride	3.091	76	24227	1.82	ppbV	100
19) Isopropanol	3.088	45	79453	1.49	ppbV	96
20) Methylene chloride	3.178	49	55923	1.71	ppbV	98
21) Acetone	3.188	43	70498	1.76	ppbV	98
22) trans-1,2-Dichloroethene	3.307	61	78613	1.71	ppbV	100
23) n-Pentane	3.390	43	132521	2.14	ppbV	97
24) n-Hexane	3.387	57	176979	2.11	ppbV	97
25) Methyl tert-butyl ether	3.390	73	242041	2.35	ppbV	92
26) Tert-butyl alcohol	3.442	59	154807	2.23	ppbV	100
27) 1,1-Dichloroethane	3.789	63	106902	1.73	ppbV	99
28) cis-1,2-Dichloroethene	4.217	61	78716	1.80	ppbV	98
29) Cyclohexane	4.397	56	133883	2.28	ppbV	98
30) Chloroform	4.439	83	134737	1.89	ppbV	98
31) Ethyl acetate	4.532	61	22449	1.94	ppbV	99
32) Carbon tetrachloride	4.561	117	183055	2.17	ppbV	99
33) Tetrahydrofuran	4.564	42	77218	1.93	ppbV	99
34) 1,1,1-Trichloroethane	4.612	97	159351	2.15	ppbV	97
35) Methyl ethyl ketone	4.670	43	121249	1.86	ppbV	100
36) n-Heptane	4.905	43	151248	2.06	ppbV	99
37) Benzene	4.921	78	216088	2.04	ppbV	99
38) 1,2-Dichloroethane	5.079	62	86250	1.95	ppbV	100
40) Trichloroethene	5.423	130	93973	2.11	ppbV	100
41) 2,2,4-Trimethylpentane	4.828	57	337914	2.58	ppbV	98
42) 1,2-Dichloropropane	5.873	63	89006	2.28	ppbV	98
43) Bromodichloromethane	5.937	83	157497	2.39	ppbV	99
44) Methyl methacrylate	6.082	41	102545	2.16	ppbV	96
45) 1,4-Dioxane	6.107	88	55879	2.33	ppbV	99
46) cis-1,3-Dichloropropene	6.529	75	132030	2.18	ppbV	98
47) Toluene	6.767	91	315155	2.23	ppbV	100
48) Methyl isobutyl ketone	7.133	43	201872	2.28	ppbV	98
49) Tetrachloroethene	7.152	166	137965	2.27	ppbV	99
50) trans-1,3-Dichloropropene	7.175	75	126648	2.16	ppbV	100
51) 1,1,2-Trichloroethane	7.336	97	103047	2.16	ppbV	99

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4133std04.D
Acq On : 10 Oct 2023 11:46 am
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

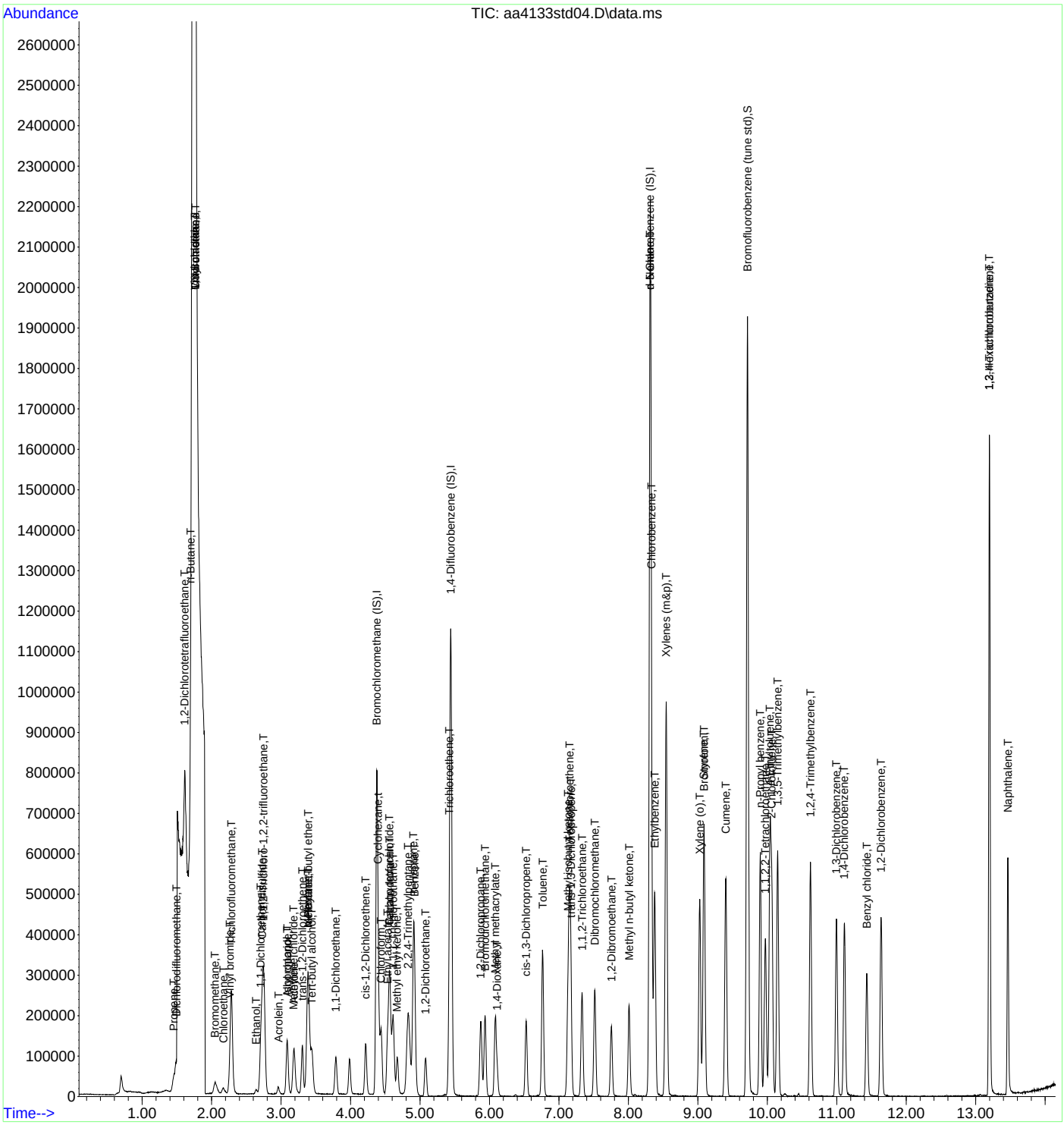
Quant Time: Oct 10 15:14:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.516	129	175087	2.20	ppbV	99
53)	1,2-Dibromoethane	7.757	107	145737	2.11	ppbV	99
54)	Methyl n-butyl ketone	8.011	43	176926	2.07	ppbV	99
56)	n-Nonane	8.313	43	243566	2.39	ppbV	99
57)	Chlorobenzene	8.332	112	239887	2.34	ppbV	96
58)	Ethylbenzene	8.381	91	452392	2.39	ppbV	99
59)	Xylenes (m&p)	8.545	91	704842	5.02	ppbV	98
60)	Xylene (o)	9.027	91	367407	2.40	ppbV	99
61)	Styrene	9.088	104	243368	2.32	ppbV	99
62)	Bromoform	9.091	173	168245	2.23	ppbV	100
63)	Cumene	9.403	105	477213	2.38	ppbV	99
65)	n-Propyl benzene	9.898	91	606010	2.32	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.972	83	262772	2.45	ppbV	100
67)	4-Ethyltoluene	10.037	105	498880	2.25	ppbV	98
68)	2-Chlorotoluene	10.062	91	410155	2.34	ppbV	99
69)	1,3,5-Trimethylbenzene	10.149	105	421510	2.37	ppbV	100
70)	1,2,4-Trimethylbenzene	10.622	105	417786	2.35	ppbV	99
71)	1,3-Dichlorobenzene	10.995	146	230016	2.11	ppbV	99
72)	1,4-Dichlorobenzene	11.107	146	221287	2.02	ppbV	99
73)	Benzyl chloride	11.432	91	295275	1.88	ppbV	98
74)	1,2-Dichlorobenzene	11.638	146	234385	2.22	ppbV	99
75)	1,3-Hexachlorobutadiene	13.197	225	177745	2.42	ppbV	99
76)	1,2,4-Trichlorobenzene	13.197	180	182140	2.15	ppbV	99
77)	Naphthalene	13.464	128	391079	2.02	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4133std04.D
Acq On : 10 Oct 2023 11:46 am
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 10 15:14:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4134std03.D
Acq On : 10 Oct 2023 12:21 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 10 15:20:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.394	130	393970	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.452	114	1695876	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1964329	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1708242	9.98	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.487	41	258254	9.44	ppbV	100
3) Dichlorodifluoromethane	1.523	85	905524	10.37	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.644	85	1136761	8.96	ppbV	100
5) n-Butane	1.730	43	657868	10.46	ppbV	100
6) Chloromethane	1.792	52	50221	11.51	ppbV	98
7) Vinyl chloride	1.781	62	385978	10.81	ppbV	100
8) 1,3-Butadiene	1.792	39	337213	10.11	ppbV	100
9) Bromomethane	2.082	94	295814	10.27	ppbV	100
10) Chloroethane	2.195	64	209472	11.19	ppbV	100
11) Vinyl bromide	2.288	106	363736	10.31	ppbV	100
12) Trichlorofluoromethane	2.310	101	1152906	10.45	ppbV	100
13) Ethanol	2.667	45	110171	9.55	ppbV	100
14) 1,1-Dichloroethene	2.728	61	796558	10.88	ppbV	100
15) Carbon disulfide	2.751	76	1360498	11.29	ppbV	100
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	1083429	9.75	ppbV	100
17) Acrolein	2.982	56	169981	10.33	ppbV	100
18) Allyl chloride	3.111	76	227552	11.52	ppbV	100
19) Isopropanol	3.108	45	729204	9.23	ppbV	100
20) Methylene chloride	3.204	49	433980	8.96	ppbV	100
21) Acetone	3.211	43	654299	11.01	ppbV	100
22) trans-1,2-Dichloroethene	3.326	61	780121	11.48	ppbV	100
23) n-Pentane	3.407	43	924569	10.09	ppbV	100
24) n-Hexane	3.403	57	1285851	10.35	ppbV	100
25) Methyl tert-butyl ether	3.410	73	1606753	10.53	ppbV	100
26) Tert-butyl alcohol	3.465	59	1133398	11.03	ppbV	100
27) 1,1-Dichloroethane	3.805	63	942517	10.30	ppbV	100
28) cis-1,2-Dichloroethene	4.230	61	719414	11.15	ppbV	99
29) Cyclohexane	4.413	56	918448	10.59	ppbV	100
30) Chloroform	4.455	83	1125163	10.67	ppbV	100
31) Ethyl acetate	4.538	61	191456	11.17	ppbV	100
32) Carbon tetrachloride	4.574	117	1320797	10.56	ppbV	100
33) Tetrahydrofuran	4.571	42	644824	10.88	ppbV	100
34) 1,1,1-Trichloroethane	4.625	97	1145085	10.46	ppbV	100
35) Methyl ethyl ketone	4.680	43	1033883	10.75	ppbV	100
36) n-Heptane	4.918	43	1246184	11.45	ppbV	100
37) Benzene	4.931	78	1617158	10.34	ppbV	100
38) 1,2-Dichloroethane	5.091	62	715639	10.92	ppbV	100
40) Trichloroethene	5.432	130	747440	9.96	ppbV	100
41) 2,2,4-Trimethylpentane	4.844	57	2224941	10.07	ppbV	100
42) 1,2-Dichloropropane	5.882	63	729348	11.06	ppbV	100
43) Bromodichloromethane	5.944	83	1277100	11.49	ppbV	100
44) Methyl methacrylate	6.088	41	926458	11.58	ppbV	100
45) 1,4-Dioxane	6.114	88	481882	11.92	ppbV	100
46) cis-1,3-Dichloropropene	6.532	75	1178257	11.52	ppbV	100
47) Toluene	6.770	91	2718261	11.40	ppbV	100
48) Methyl isobutyl ketone	7.133	43	1751107	11.69	ppbV	100
49) Tetrachloroethene	7.159	166	1202779	11.70	ppbV	100
50) trans-1,3-Dichloropropene	7.175	75	1191758	12.01	ppbV	100
51) 1,1,2-Trichloroethane	7.336	97	904123	11.23	ppbV	100

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4134std03.D
Acq On : 10 Oct 2023 12:21 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 10 15:20:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

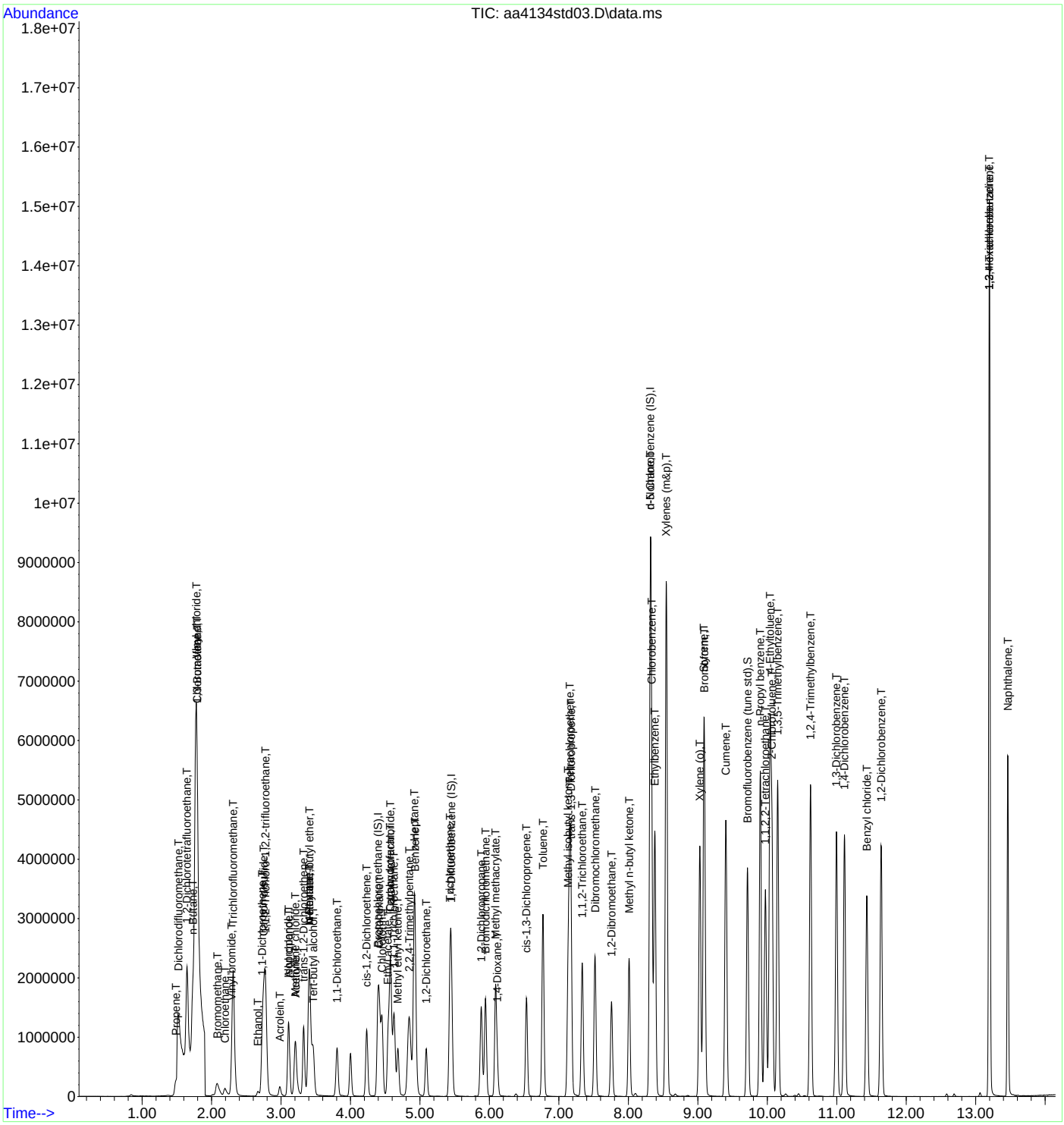
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.522	129	1584449	11.81	ppbV	100
53)	1,2-Dibromoethane	7.757	107	1340384	11.51	ppbV	100
54)	Methyl n-butyl ketone	8.011	43	1785511	12.39	ppbV	100
56)	n-Nonane	8.316	43	2220175	11.39	ppbV	100
57)	Chlorobenzene	8.336	112	2157593	11.02	ppbV	100
58)	Ethylbenzene	8.381	91	4038783	11.16	ppbV	100
59)	Xylenes (m&p)	8.545	91	6199781	23.12	ppbV	100
60)	Xylene (o)	9.027	91	3172411	10.84	ppbV	100
61)	Styrene	9.088	104	2368407	11.82	ppbV	100
62)	Bromoform	9.095	173	1652936	11.49	ppbV	100
63)	Cumene	9.403	105	4108750	10.74	ppbV	100
65)	n-Propyl benzene	9.898	91	5536013	11.09	ppbV	100
66)	1,1,2,2-Tetrachloroethane	9.972	83	2329432	11.37	ppbV	100
67)	4-Ethyltoluene	10.040	105	4675293	11.06	ppbV	100
68)	2-Chlorotoluene	10.066	91	3642460	10.86	ppbV	100
69)	1,3,5-Trimethylbenzene	10.149	105	3757367	11.06	ppbV	100
70)	1,2,4-Trimethylbenzene	10.622	105	3786813	11.15	ppbV	100
71)	1,3-Dichlorobenzene	10.995	146	2289894	11.01	ppbV	100
72)	1,4-Dichlorobenzene	11.111	146	2273891	10.87	ppbV	100
73)	Benzyl chloride	11.432	91	3179639	10.59	ppbV	100
74)	1,2-Dichlorobenzene	11.641	146	2172244	10.77	ppbV	100
75)	1,3-Hexachlorobutadiene	13.197	225	1532545	10.95	ppbV	100
76)	1,2,4-Trichlorobenzene	13.197	180	1768989	10.93	ppbV	100
77)	Naphthalene	13.464	128	3720647	10.05	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4134std03.D
Acq On : 10 Oct 2023 12:21 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 10 15:20:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4135std02.D
Acq On : 10 Oct 2023 12:55 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 10 15:20:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.397	130	363381	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.455	114	1661895	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1933627	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1722328	10.22	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.490	41	515568	20.44	ppbV	98
3) Dichlorodifluoromethane	1.530	85	1841081	22.86	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.650	85	2249237	19.23	ppbV	99
5) n-Butane	1.730	43	1305900	22.50	ppbV	99
6) Chloromethane	1.788	52	98143	24.39	ppbV	93
7) Vinyl chloride	1.781	62	772248	23.46	ppbV	100
8) 1,3-Butadiene	1.795	39	652429	21.21	ppbV	98
9) Bromomethane	2.085	94	591691	22.26	ppbV	98
10) Chloroethane	2.194	64	421571	24.42	ppbV	99
11) Vinyl bromide	2.294	106	747200	22.97	ppbV	100
12) Trichlorofluoromethane	2.313	101	2343589	23.04	ppbV	100
13) Ethanol	2.667	45	218329	20.52	ppbV	96
14) 1,1-Dichloroethene	2.735	61	1612191	23.88	ppbV	100
15) Carbon disulfide	2.754	76	2664558	23.98	ppbV	100
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	2148248	20.97	ppbV	100
17) Acrolein	2.989	56	325182	21.42	ppbV	99
18) Allyl chloride	3.111	76	456662	25.07	ppbV	100
19) Isopropanol	3.111	45	1457678	20.00	ppbV	99
20) Methylene chloride	3.204	49	879522	19.69	ppbV	98
21) Acetone	3.214	43	1252029	22.84	ppbV	99
22) trans-1,2-Dichloroethene	3.326	61	1573792	25.11	ppbV	99
23) n-Pentane	3.407	43	1811231	21.44	ppbV	99
24) n-Hexane	3.407	57	2518540	21.99	ppbV	100
25) Methyl tert-butyl ether	3.410	73	3154053	22.42	ppbV	100
26) Tert-butyl alcohol	3.464	59	2254575	23.80	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1901162	22.53	ppbV	99
28) cis-1,2-Dichloroethene	4.236	61	1445410	24.28	ppbV	99
29) Cyclohexane	4.413	56	1783891	22.29	ppbV	99
30) Chloroform	4.455	83	2301846	23.67	ppbV	99
31) Ethyl acetate	4.542	61	386835	24.46	ppbV	99
32) Carbon tetrachloride	4.577	117	2607121	22.61	ppbV	100
33) Tetrahydrofuran	4.574	42	1283380	23.48	ppbV	99
34) 1,1,1-Trichloroethane	4.625	97	2272798	22.50	ppbV	99
35) Methyl ethyl ketone	4.683	43	2094715	23.60	ppbV	100
36) n-Heptane	4.918	43	2363613	23.53	ppbV	100
37) Benzene	4.934	78	3240471	22.45	ppbV	100
38) 1,2-Dichloroethane	5.091	62	1451918	24.03	ppbV	100
40) Trichloroethene	5.432	130	1508747	20.52	ppbV	98
41) 2,2,4-Trimethylpentane	4.841	57	4438426	20.50	ppbV	100
42) 1,2-Dichloropropane	5.886	63	1448431	22.41	ppbV	99
43) Bromodichloromethane	5.943	83	2592041	23.80	ppbV	99
44) Methyl methacrylate	6.088	41	1821528	23.23	ppbV	99
45) 1,4-Dioxane	6.114	88	966504	24.40	ppbV	99
46) cis-1,3-Dichloropropene	6.535	75	2338061	23.33	ppbV	100
47) Toluene	6.773	91	5305706	22.72	ppbV	100
48) Methyl isobutyl ketone	7.133	43	3350206	22.82	ppbV	99
49) Tetrachloroethene	7.162	166	2379736	23.63	ppbV	100
50) trans-1,3-Dichloropropene	7.175	75	2387243	24.55	ppbV	98
51) 1,1,2-Trichloroethane	7.339	97	1817644	23.04	ppbV	100

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4135std02.D
Acq On : 10 Oct 2023 12:55 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 5 Sample Multiplier: 1

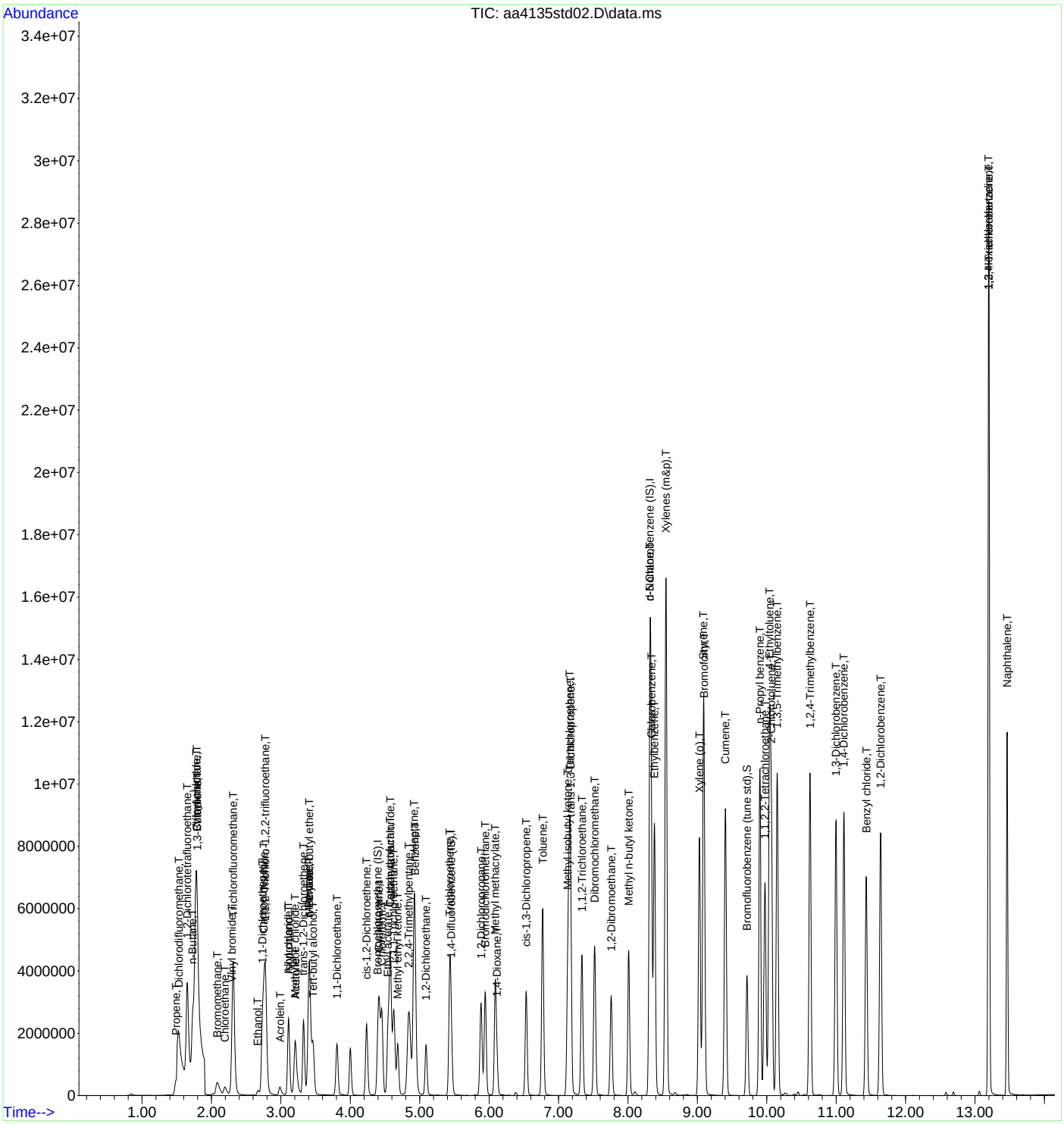
Quant Time: Oct 10 15:20:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.522	129	3189477	24.27	ppbV	99
53)	1,2-Dibromoethane	7.760	107	2695314	23.62	ppbV	100
54)	Methyl n-butyl ketone	8.011	43	3500354	24.80	ppbV	100
56)	n-Nonane	8.316	43	4196367	21.87	ppbV	99
57)	Chlorobenzene	8.339	112	4231170	21.95	ppbV	100
58)	Ethylbenzene	8.381	91	7813775	21.93	ppbV	99
59)	Xylenes (m&p)	8.548	91	11753861	44.52	ppbV	98
60)	Xylene (o)	9.030	91	6215156	21.57	ppbV	100
61)	Styrene	9.088	104	4654583	23.60	ppbV	99
62)	Bromoform	9.098	173	3352006	23.67	ppbV	99
63)	Cumene	9.403	105	7994834	21.23	ppbV	99
65)	n-Propyl benzene	9.901	91	10677156	21.73	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.975	83	4583433	22.73	ppbV	99
67)	4-Ethyltoluene	10.040	105	9079626	21.83	ppbV	99
68)	2-Chlorotoluene	10.065	91	7122967	21.58	ppbV	99
69)	1,3,5-Trimethylbenzene	10.149	105	7395052	22.11	ppbV	99
70)	1,2,4-Trimethylbenzene	10.625	105	7412335	22.17	ppbV	99
71)	1,3-Dichlorobenzene	10.998	146	4641497	22.67	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	4645158	22.55	ppbV	100
73)	Benzyl chloride	11.435	91	6527364	22.08	ppbV	99
74)	1,2-Dichlorobenzene	11.641	146	4361556	21.96	ppbV	99
75)	1,3-Hexachlorobutadiene	13.197	225	2950129	21.41	ppbV	100
76)	1,2,4-Trichlorobenzene	13.200	180	3565503	22.37	ppbV	99
77)	Naphthalene	13.464	128	7448434	20.44	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4135std02.D
Acq On : 10 Oct 2023 12:55 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 10 15:20:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4136std01.D
Acq On : 10 Oct 2023 2:05 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 10 15:21:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.400	130	356266	10.00	ppbV		0.000
39) 1,4-Difluorobenzene (IS)	5.458	114	1769398	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1970985	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.718	95	1881267	10.95	ppbV		0.000
Target Compounds							Qvalue
2) Propene	1.493	41	1166461	47.16	ppbV		99
3) Dichlorodifluoromethane	1.530	85	3976819	50.37	ppbV		100
4) 1,2-Dichlorotetrafluor...	1.654	85	4829984	42.11	ppbV		100
5) n-Butane	1.733	43	2669458	46.92	ppbV		100
6) Chloromethane	1.798	52	218685	55.44	ppbV	#	1
7) Vinyl chloride	1.788	62	1703493	52.78	ppbV		100
8) 1,3-Butadiene	1.798	39	1380202	45.78	ppbV		97
9) Bromomethane	2.088	94	1297810	49.81	ppbV		98
10) Chloroethane	2.197	64	957066	56.55	ppbV		99
11) Vinyl bromide	2.294	106	1649730	51.72	ppbV		99
12) Trichlorofluoromethane	2.316	101	4982088	49.96	ppbV		100
13) Ethanol	2.670	45	542733	52.03	ppbV		98
14) 1,1-Dichloroethene	2.734	61	3420744	51.68	ppbV		100
15) Carbon disulfide	2.757	76	5570013	51.13	ppbV		99
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	4651123	46.31	ppbV		99
17) Acrolein	2.991	56	704002	47.31	ppbV		100
18) Allyl chloride	3.114	76	960536	53.78	ppbV		100
19) Isopropanol	3.114	45	3040718	42.56	ppbV		99
20) Methylene chloride	3.204	49	2011731	45.94	ppbV		99
21) Acetone	3.217	43	2606931	48.51	ppbV		99
22) trans-1,2-Dichloroethene	3.329	61	3449388	56.15	ppbV		99
23) n-Pentane	3.409	43	4025985	48.61	ppbV		99
24) n-Hexane	3.409	57	5589811	49.78	ppbV		100
25) Methyl tert-butyl ether	3.409	73	6879864	49.87	ppbV		99
26) Tert-butyl alcohol	3.464	59	4961423	53.42	ppbV		100
27) 1,1-Dichloroethane	3.811	63	4139076	50.03	ppbV		98
28) cis-1,2-Dichloroethene	4.236	61	3134852	53.71	ppbV		99
29) Cyclohexane	4.416	56	3885234	49.53	ppbV		100
30) Chloroform	4.454	83	4963958	52.07	ppbV		99
31) Ethyl acetate	4.541	61	819660	52.86	ppbV		99
32) Carbon tetrachloride	4.580	117	5580598	49.35	ppbV		99
33) Tetrahydrofuran	4.573	42	2658620	49.61	ppbV		98
34) 1,1,1-Trichloroethane	4.628	97	4872977	49.20	ppbV		99
35) Methyl ethyl ketone	4.686	43	4486611	51.57	ppbV		99
36) n-Heptane	4.921	43	4632338	47.05	ppbV		99
37) Benzene	4.933	78	6993711	49.43	ppbV		100
38) 1,2-Dichloroethane	5.094	62	3131902	52.87	ppbV		100
40) Trichloroethene	5.435	130	3316781	42.37	ppbV		99
41) 2,2,4-Trimethylpentane	4.843	57	9712768	42.14	ppbV		98
42) 1,2-Dichloropropane	5.885	63	3027090	43.98	ppbV		99
43) Bromodichloromethane	5.946	83	5494302	47.39	ppbV		99
44) Methyl methacrylate	6.088	41	3747387	44.88	ppbV		99
45) 1,4-Dioxane	6.114	88	2055391	48.74	ppbV		98
46) cis-1,3-Dichloropropene	6.535	75	4834720	45.30	ppbV		99
47) Toluene	6.773	91	10605745	42.65	ppbV		98
48) Methyl isobutyl ketone	7.133	43	6661468	42.63	ppbV		99
49) Tetrachloroethene	7.162	166	4858576	45.31	ppbV		99
50) trans-1,3-Dichloropropene	7.178	75	4856047	46.91	ppbV		100
51) 1,1,2-Trichloroethane	7.339	97	3819106	45.48	ppbV		100

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4136std01.D
Acq On : 10 Oct 2023 2:05 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 10 15:21:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.522	129	6730612	48.10	ppbV		99
53)	1,2-Dibromoethane	7.760	107	5679586	46.76	ppbV		100
54)	Methyl n-butyl ketone	8.011	43	7194438	47.87	ppbV		98
56)	n-Nonane	8.319	43	8278410	42.32	ppbV		98
57)	Chlorobenzene	8.338	112	8642594	43.99	ppbV		100
58)	Ethylbenzene	8.384	91	15502498	42.68	ppbV		96
59)	Xylenes (m&p)	8.541	91	20852616	77.48	ppbV		89
60)	Xylene (o)	9.030	91	12586480	42.86	ppbV		98
61)	Styrene	9.088	104	9555594	47.52	ppbV		98
62)	Bromoform	9.097	173	7098495	49.18	ppbV		99
63)	Cumene	9.406	105	16006588	41.71	ppbV		96
65)	n-Propyl benzene	9.898	91	19885132	39.70	ppbV		93
66)	1,1,2,2-Tetrachloroethane	9.975	83	9484025	46.14	ppbV		99
67)	4-Ethyltoluene	10.043	105	17650930	41.63	ppbV		95
68)	2-Chlorotoluene	10.068	91	14525182	43.17	ppbV		97
69)	1,3,5-Trimethylbenzene	10.152	105	15012049	44.03	ppbV		96
70)	1,2,4-Trimethylbenzene	10.625	105	15021608	44.08	ppbV		97
71)	1,3-Dichlorobenzene	10.998	146	9832383	47.12	ppbV		99
72)	1,4-Dichlorobenzene	11.113	146	9906545	47.18	ppbV		99
73)	Benzyl chloride	11.435	91	13735706	45.59	ppbV		96
74)	1,2-Dichlorobenzene	11.641	146	9184158	45.37	ppbV		98
75)	1,3-Hexachlorobutadiene	13.200	225	5812342	41.37	ppbV		99
76)	1,2,4-Trichlorobenzene	13.200	180	7183784	44.22	ppbV		99
77)	Naphthalene	13.460	128	13659104	36.76	ppbV	#	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

```
Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4136std01.D
Acq On    : 10 Oct 2023   2:05 pm
Operator  : jjw
Sample    : 40 ppbv standard
Misc      : EB0103704
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Oct 10 15:21:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title  : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration
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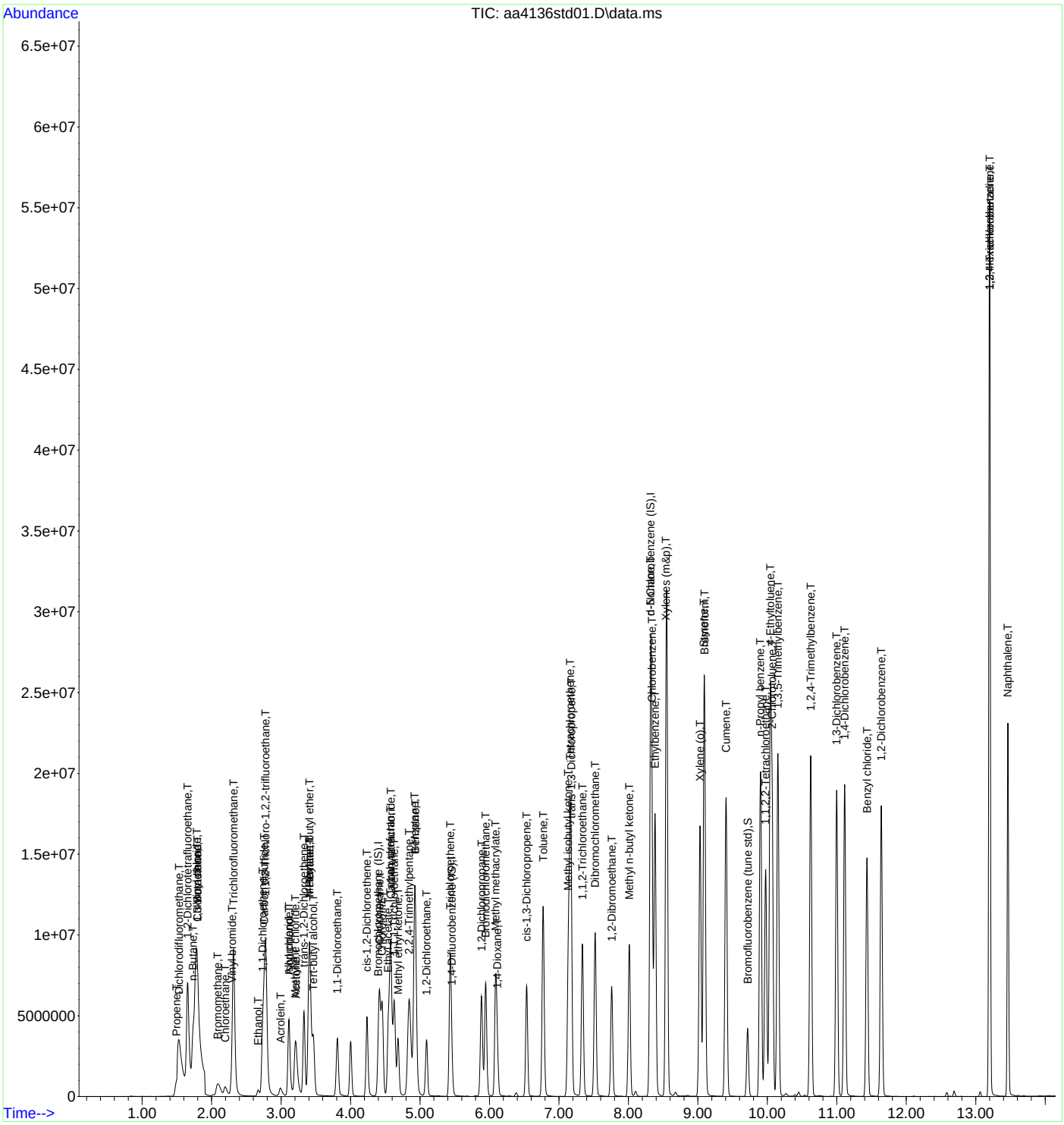


INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA3407ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 8/15/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STANDARD STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Acetone	67-64-1	11	10	95	
Acrolein	107-02-8	9.4	10.0	110	
Allyl Chloride	107-05-1	11	11	99	
Benzene	71-43-2	10	9.7	93	
Benzyl chloride	100-44-7	11	11	100	
Bromodichloromethane	75-27-4	11	11	100	
Bromoform	75-25-2	11	11	96	
Bromomethane	74-83-9	11	10	92	
1,3-Butadiene	106-99-0	11	10	92	
n-Butane	106-97-8	11	11	100	
Chlorobenzene	108-90-7	10	11	110	
Chloroethane	75-00-3	9.8	11	110	
Chloroform	67-66-3	11	10	92	
Chloromethane	74-87-3	9.9	12	120	
Carbon disulfide	75-15-0	10	11	110	
Carbon tetrachloride	56-23-5	11	9.7	91	
2-Chlorotoluene	95-49-8	11	10	91	
Cumene	98-82-8	10	10	99	
Cyclohexane	110-82-7	11	9.7	89	
Dibromochloromethane	124-48-1	11	11	100	
1,2-Dibromoethane	106-93-4	11	11	100	
1,2-Dichlorobenzene	95-50-1	10	10	97	
1,3-Dichlorobenzene	541-73-1	10	10	96	
1,4-Dichlorobenzene	106-46-7	10	11	110	
Dichlorodifluoromethane	75-71-8	11	10	92	
1,1-Dichloroethane	75-34-3	11	9.7	92	
1,2-Dichloroethane	107-06-2	11	10	95	
1,1-Dichloroethene	75-35-4	11	11	100	
1,2-Dichloroethene (cis)	156-59-2	10	11	110	
1,2-Dichloroethene (trans)	156-60-5	11	11	100	
1,2-Dichloropropane	78-87-5	11	10.0	95	
1,3-Dichloropropene (cis)	10061-01-5	9.9	11	110	
1,3-Dichloropropene (trans)	10061-02-6	11	11	100	
1,2-Dichlorotetrafluoroethane	76-14-2	11	8.6	77	
1,4-Dioxane	123-91-1	11	11	98	
Ethanol	64-17-5	9.8	8.5	87	
Ethyl acetate	141-78-6	10	9.9	96	
Ethylbenzene	100-41-4	10	11	110	
4-Ethyltoluene	622-96-8	11	11	100	
n-Heptane	142-82-5	11	10	92	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA3407ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 8/15/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STANDARD STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
1,3-Hexachlorobutadiene	87-68-3	9.8	9.8	100	
n-Hexane	110-54-3	11	9.7	90	
Isopropanol	67-63-0	8.1	8.8	110	
Methylene chloride	75-09-2	11	9.1	85	
Methyl ethyl ketone	78-93-3	11	10	92	
Methyl isobutyl ketone	108-10-1	10	11	110	
Methyl methacrylate	80-62-6	11	11	100	
Methyl n-butyl ketone	591-78-6	11	12	110	
Methyl tert-butyl ether	1634-04-4	11	9.9	91	
Naphthalene	91-20-3	11	10	93	
n-Nonane	111-84-2	11	10	89	
n-Pentane	109-66-0	11	9.1	82	
Propene	115-07-1	11	10	91	
n-Propyl benzene	103-65-1	11	11	100	
Styrene	100-42-5	11	12	110	
Tert-butyl alcohol	75-65-0	12	10	87	
1,1,2,2-Tetrachloroethane	79-34-5	10	10	97	
Tetrachloroethene	127-18-4	12	11	93	
Tetrahydrofuran	109-99-9	11	10	93	
Toluene	108-88-3	11	11	100	
1,2,4-Trichlorobenzene	120-82-1	10	10	100	
1,1,1-Trichloroethane	71-55-6	11	9.4	88	
1,1,2-Trichloroethane	79-00-5	11	10	93	
Trichloroethene	79-01-6	10	9.5	93	
Trichlorofluoromethane	75-69-4	11	10	94	
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	9.1	83	
1,2,4-Trimethylbenzene	95-63-6	10	11	100	
1,3,5-Trimethylbenzene	108-67-8	10	11	110	
2,2,4-Trimethylpentane	540-84-1	11	10	92	
Vinyl bromide	593-60-2	10	10	100	
Vinyl chloride	75-01-4	11	11	97	
Xylenes (m&p)	179601-23-1	21	22	110	
Xylenes (o)	95-47-6	10	11	110	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3407icvss.D
Acq On : 15 Aug 2023 6:09 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 10:02:33 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.396	130	614925	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2660514	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	3151139	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2639252	10.07	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	437009	10.32	ppbV	100
3) Dichlorodifluoromethane	1.526	85	1589571	10.23	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.646	85	1915451	8.57	ppbV	100
5) n-Butane	1.729	43	1085164	10.79	ppbV	99
6) Chloromethane	1.791	52	84692	11.77	ppbV	91
7) Vinyl chloride	1.780	62	624265	10.68	ppbV	99
8) 1,3-Butadiene	1.794	39	615975	10.31	ppbV	99
9) Bromomethane	2.084	94	497818	10.14	ppbV	99
10) Chloroethane	2.197	64	339826	10.69	ppbV	99
11) Vinyl bromide	2.293	106	630457	10.21	ppbV	100
12) Trichlorofluoromethane	2.312	101	2122221	10.15	ppbV	100
13) Ethanol	2.669	45	210384	8.55	ppbV	99
14) 1,1-Dichloroethene	2.734	61	1353018	10.54	ppbV	100
15) Carbon disulfide	2.753	76	2291667	10.87	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	1880237	9.10	ppbV	99
17) Acrolein	2.984	56	263590	9.98	ppbV	99
18) Allyl chloride	3.113	76	378917	11.01	ppbV	100
19) Isopropanol	3.113	45	1247145	8.77	ppbV	99
20) Methylene chloride	3.203	49	707555	9.12	ppbV	99
21) Acetone	3.213	43	1199665	10.40	ppbV	99
22) trans-1,2-Dichloroethene	3.329	61	1279551	11.07	ppbV	99
23) n-Pentane	3.409	43	1345011	9.12	ppbV	99
24) n-Hexane	3.409	57	2003979	9.73	ppbV	100
25) Methyl tert-butyl ether	3.412	73	2769119	9.89	ppbV	99
26) Tert-butyl alcohol	3.464	59	1862648	10.34	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1576537	9.72	ppbV	100
28) cis-1,2-Dichloroethene	4.235	61	1186018	10.57	ppbV	99
29) Cyclohexane	4.415	56	1446092	9.72	ppbV	99
30) Chloroform	4.454	83	2014411	10.15	ppbV	99
31) Ethyl acetate	4.541	61	312517	9.89	ppbV	100
32) Carbon tetrachloride	4.576	117	2310805	9.71	ppbV	100
33) Tetrahydrofuran	4.576	42	1135151	10.18	ppbV	99
34) 1,1,1-Trichloroethane	4.631	97	2017204	9.42	ppbV	100
35) Methyl ethyl ketone	4.685	43	1824867	10.25	ppbV	99
36) n-Heptane	4.917	43	2119295	10.29	ppbV	99
37) Benzene	4.933	78	2760579	9.73	ppbV	100
38) 1,2-Dichloroethane	5.094	62	1306989	10.28	ppbV	99
40) Trichloroethene	5.435	130	1277643	9.46	ppbV	100
41) 2,2,4-Trimethylpentane	4.846	57	3384494	10.04	ppbV	100
42) 1,2-Dichloropropane	5.881	63	1210091	9.97	ppbV	99
43) Bromodichloromethane	5.946	83	2297408	10.86	ppbV	100
44) Methyl methacrylate	6.087	41	1707517	10.94	ppbV	100
45) 1,4-Dioxane	6.113	88	839393	11.21	ppbV	99
46) cis-1,3-Dichloropropene	6.534	75	2028992	10.81	ppbV	99
47) Toluene	6.772	91	4536523	10.63	ppbV	99
48) Methyl isobutyl ketone	7.135	43	3266617	10.60	ppbV	100
49) Tetrachloroethene	7.161	166	2057579	10.73	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	2121255	11.47	ppbV	99
51) 1,1,2-Trichloroethane	7.338	97	1545574	10.28	ppbV	100

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3407icvss.D
Acq On : 15 Aug 2023 6:09 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 10:02:33 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

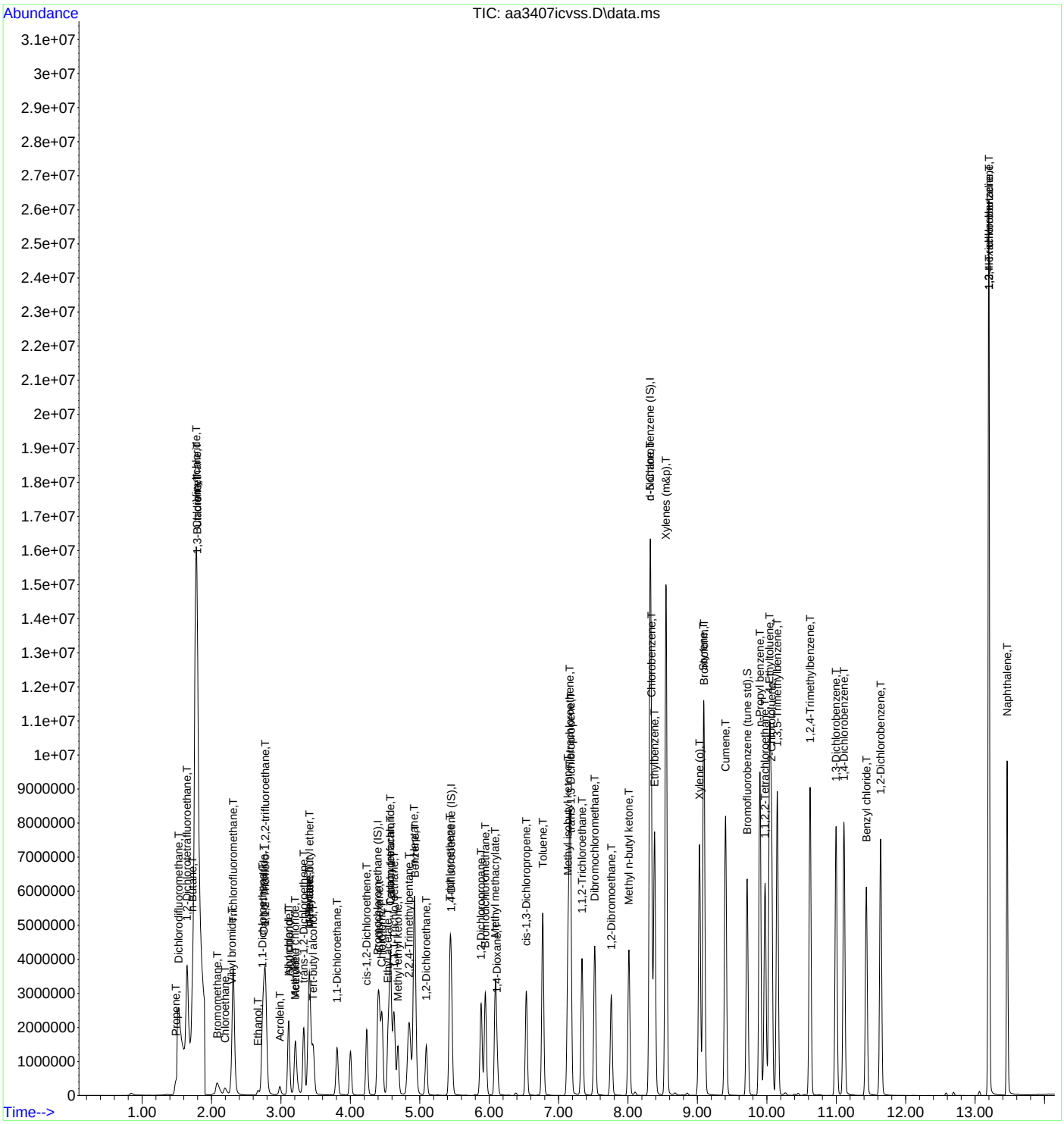
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	7.521	129	2775633	11.06	ppbV	100
53) 1,2-Dibromoethane	7.759	107	2393720	10.88	ppbV	100
54) Methyl n-butyl ketone	8.013	43	3342265	11.58	ppbV	99
56) n-Nonane	8.319	43	3980940	10.32	ppbV	99
57) Chlorobenzene	8.338	112	3631305	10.52	ppbV	99
58) Ethylbenzene	8.383	91	6749535	10.58	ppbV	99
59) Xylenes (m&p)	8.547	91	10243811	22.27	ppbV	100
60) Xylene (o)	9.029	91	5367160	10.51	ppbV	100
61) Styrene	9.087	104	3897707	11.50	ppbV	99
62) Bromoform	9.097	173	2909911	11.11	ppbV	100
63) Cumene	9.405	105	6858593	10.31	ppbV	100
65) n-Propyl benzene	9.901	91	9335682	10.76	ppbV	99
66) 1,1,2,2-Tetrachloroethane	9.975	83	4046668	10.45	ppbV	100
67) 4-Ethyltoluene	10.039	105	7675301	10.73	ppbV	100
68) 2-Chlorotoluene	10.068	91	6134373	10.42	ppbV	100
69) 1,3,5-Trimethylbenzene	10.151	105	6150320	10.63	ppbV	100
70) 1,2,4-Trimethylbenzene	10.624	105	6292442	10.96	ppbV	100
71) 1,3-Dichlorobenzene	10.997	146	3955353	10.39	ppbV	100
72) 1,4-Dichlorobenzene	11.113	146	3900278	10.66	ppbV	99
73) Benzyl chloride	11.434	91	5411364	10.79	ppbV	100
74) 1,2-Dichlorobenzene	11.640	146	3729037	10.35	ppbV	100
75) 1,3-Hexachlorobutadiene	13.200	225	2519603	9.76	ppbV	99
76) 1,2,4-Trichlorobenzene	13.200	180	2920155	10.31	ppbV	100
77) Naphthalene	13.463	128	6029829	10.31	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3407icvss.D
Acq On : 15 Aug 2023 6:09 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 10:02:33 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA4137ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 10/10/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48
10 PPBV LCS [AA4138LCS]	10/10/2023 17:39
METHOD BLANK [AA4139BLK]	10/10/2023 18:07
02 PPBV RLLCS [AA4140RLLCS]	10/10/2023 18:35
10 PPBV CCCVS [AA4154CCCVS]	10/11/2023 1:53

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Acetone	67-64-1	11	10	95	
Acrolein	107-02-8	9.4	9.5	100	
Allyl Chloride	107-05-1	11	11	99	
Benzene	71-43-2	10	9.7	93	
Benzyl chloride	100-44-7	11	10	93	
Bromodichloromethane	75-27-4	11	11	100	
Bromoform	75-25-2	11	11	96	
Bromomethane	74-83-9	11	10	92	
1,3-Butadiene	106-99-0	11	10	92	
n-Butane	106-97-8	11	10	94	
Chlorobenzene	108-90-7	10	10	96	
Chloroethane	75-00-3	9.8	11	110	
Chloroform	67-66-3	11	9.9	91	
Chloromethane	74-87-3	9.9	11	110	
Carbon disulfide	75-15-0	10	11	110	
Carbon tetrachloride	56-23-5	11	10	93	
2-Chlorotoluene	95-49-8	11	10	91	
Cumene	98-82-8	10	10	99	
Cyclohexane	110-82-7	11	10	92	
Dibromochloromethane	124-48-1	11	12	110	
1,2-Dibromoethane	106-93-4	11	11	100	
1,2-Dichlorobenzene	95-50-1	10	10.0	97	
1,3-Dichlorobenzene	541-73-1	10	10	96	
1,4-Dichlorobenzene	106-46-7	10	10.0	97	
Dichlorodifluoromethane	75-71-8	11	10	92	
1,1-Dichloroethane	75-34-3	11	9.4	90	
1,2-Dichloroethane	107-06-2	11	10	95	
1,1-Dichloroethene	75-35-4	11	10.0	93	
1,2-Dichloroethene (cis)	156-59-2	10	10	97	
1,2-Dichloroethene (trans)	156-60-5	11	11	100	
1,2-Dichloropropane	78-87-5	11	10	95	
1,3-Dichloropropene (cis)	10061-01-5	9.9	11	110	
1,3-Dichloropropene (trans)	10061-02-6	11	11	100	
1,2-Dichlorotetrafluoroethane	76-14-2	11	9.0	80	
1,4-Dioxane	123-91-1	11	11	98	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA4137ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 10/10/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48
10 PPBV LCS [AA4138LCS]	10/10/2023 17:39
METHOD BLANK [AA4139BLK]	10/10/2023 18:07
02 PPBV RLLCS [AA4140RLLCS]	10/10/2023 18:35
10 PPBV CCCVS [AA4154CCCVS]	10/11/2023 1:53

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Ethanol	64-17-5	9.8	7.0	71	
Ethyl acetate	141-78-6	10	11	110	
Ethylbenzene	100-41-4	10	10	96	
4-Ethyltoluene	622-96-8	11	11	100	
n-Heptane	142-82-5	11	11	100	
1,3-Hexachlorobutadiene	87-68-3	9.8	9.8	100	
n-Hexane	110-54-3	11	10	93	
Isopropanol	67-63-0	8.1	8.4	100	
Methylene chloride	75-09-2	11	8.1	76	
Methyl ethyl ketone	78-93-3	11	10.0	92	
Methyl isobutyl ketone	108-10-1	10	11	110	
Methyl methacrylate	80-62-6	11	11	100	
Methyl n-butyl ketone	591-78-6	11	11	99	
Methyl tert-butyl ether	1634-04-4	11	10	92	
Naphthalene	91-20-3	11	9.7	91	
n-Nonane	111-84-2	11	11	97	
n-Pentane	109-66-0	11	9.7	87	
Propene	115-07-1	11	9.2	84	
n-Propyl benzene	103-65-1	11	11	100	
Styrene	100-42-5	11	11	100	
Tert-butyl alcohol	75-65-0	12	11	96	
1,1,2,2-Tetrachloroethane	79-34-5	10	11	110	
Tetrachloroethene	127-18-4	12	11	93	
Tetrahydrofuran	109-99-9	11	10	93	
Toluene	108-88-3	11	11	100	
1,2,4-Trichlorobenzene	120-82-1	10	9.7	97	
1,1,1-Trichloroethane	71-55-6	11	10.0	93	
1,1,2-Trichloroethane	79-00-5	11	11	100	
Trichloroethene	79-01-6	10	9.2	90	
Trichlorofluoromethane	75-69-4	11	10	94	
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	9.3	85	
1,2,4-Trimethylbenzene	95-63-6	10	10	100	
1,3,5-Trimethylbenzene	108-67-8	10	10	96	
2,2,4-Trimethylpentane	540-84-1	11	9.6	88	
Vinyl bromide	593-60-2	10	10	100	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: **10 PPBV ICVSS** **Data File:** **AA4137ICVSS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **10/10/2023**

Amount of standard injected (ml): **50**

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48
10 PPBV LCS [AA4138LCS]	10/10/2023 17:39
METHOD BLANK [AA4139BLK]	10/10/2023 18:07
02 PPBV RLLCS [AA4140RLLCS]	10/10/2023 18:35
10 PPBV CCCVS [AA4154CCCVS]	10/11/2023 1:53

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Vinyl chloride	75-01-4	11	11	97	
Xylenes (m&p)	179601-23-1	21	22	110	
Xylenes (o)	95-47-6	10	10	96	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4137icvss.D
Acq On : 10 Oct 2023 4:48 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 11 12:34:17 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.394	130	450439	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	1936760	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2279414	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1999577	10.06	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.487	41	289233	9.25	ppbV	98
3) Dichlorodifluoromethane	1.527	85	1032587	10.34	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.647	85	1304952	9.00	ppbV	100
5) n-Butane	1.730	43	750417	10.43	ppbV	99
6) Chloromethane	1.792	52	54388	10.90	ppbV	98
7) Vinyl chloride	1.781	62	431150	10.57	ppbV	99
8) 1,3-Butadiene	1.795	39	382252	10.03	ppbV	97
9) Bromomethane	2.079	94	336675	10.22	ppbV	97
10) Chloroethane	2.191	64	232639	10.87	ppbV	99
11) Vinyl bromide	2.291	106	412014	10.22	ppbV	100
12) Trichlorofluoromethane	2.313	101	1310652	10.39	ppbV	99
13) Ethanol	2.664	45	92719	7.03	ppbV	99
14) 1,1-Dichloroethene	2.731	61	835358	9.98	ppbV	99
15) Carbon disulfide	2.751	76	1485573	10.79	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.773	101	1177177	9.27	ppbV	100
17) Acrolein	2.985	56	178709	9.50	ppbV	99
18) Allyl chloride	3.111	76	250470	11.09	ppbV	100
19) Isopropanol	3.111	45	759040	8.40	ppbV	100
20) Methylene chloride	3.204	49	449695	8.12	ppbV	99
21) Acetone	3.210	43	693658	10.21	ppbV	98
22) trans-1,2-Dichloroethene	3.329	61	849185	10.93	ppbV	100
23) n-Pentane	3.403	43	1018939	9.73	ppbV	98
24) n-Hexane	3.403	57	1426750	10.05	ppbV	99
25) Methyl tert-butyl ether	3.413	73	1803139	10.34	ppbV	99
26) Tert-butyl alcohol	3.464	59	1242393	10.58	ppbV	100
27) 1,1-Dichloroethane	3.808	63	977991	9.35	ppbV	99
28) cis-1,2-Dichloroethene	4.233	61	755931	10.24	ppbV	99
29) Cyclohexane	4.416	56	1026465	10.35	ppbV	99
30) Chloroform	4.455	83	1194486	9.91	ppbV	99
31) Ethyl acetate	4.545	61	208391	10.63	ppbV	99
32) Carbon tetrachloride	4.577	117	1452418	10.16	ppbV	100
33) Tetrahydrofuran	4.574	42	693411	10.23	ppbV	100
34) 1,1,1-Trichloroethane	4.625	97	1251697	10.00	ppbV	99
35) Methyl ethyl ketone	4.683	43	1099463	9.99	ppbV	100
36) n-Heptane	4.915	43	1406396	11.30	ppbV	100
37) Benzene	4.934	78	1734004	9.69	ppbV	100
38) 1,2-Dichloroethane	5.091	62	756182	10.10	ppbV	100
40) Trichloroethene	5.432	130	792615	9.25	ppbV	97
41) 2,2,4-Trimethylpentane	4.844	57	2425296	9.61	ppbV	100
42) 1,2-Dichloropropane	5.882	63	788220	10.46	ppbV	100
43) Bromodichloromethane	5.943	83	1432936	11.29	ppbV	99
44) Methyl methacrylate	6.088	41	1025399	11.22	ppbV	100
45) 1,4-Dioxane	6.111	88	520094	11.27	ppbV	99
46) cis-1,3-Dichloropropene	6.535	75	1277949	10.94	ppbV	99
47) Toluene	6.770	91	2952624	10.85	ppbV	100
48) Methyl isobutyl ketone	7.133	43	1919423	11.22	ppbV	99
49) Tetrachloroethene	7.159	166	1314607	11.20	ppbV	100
50) trans-1,3-Dichloropropene	7.178	75	1281531	11.31	ppbV	97
51) 1,1,2-Trichloroethane	7.336	97	989955	10.77	ppbV	99

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4137icvss.D
Acq On : 10 Oct 2023 4:48 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 11 12:34:17 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

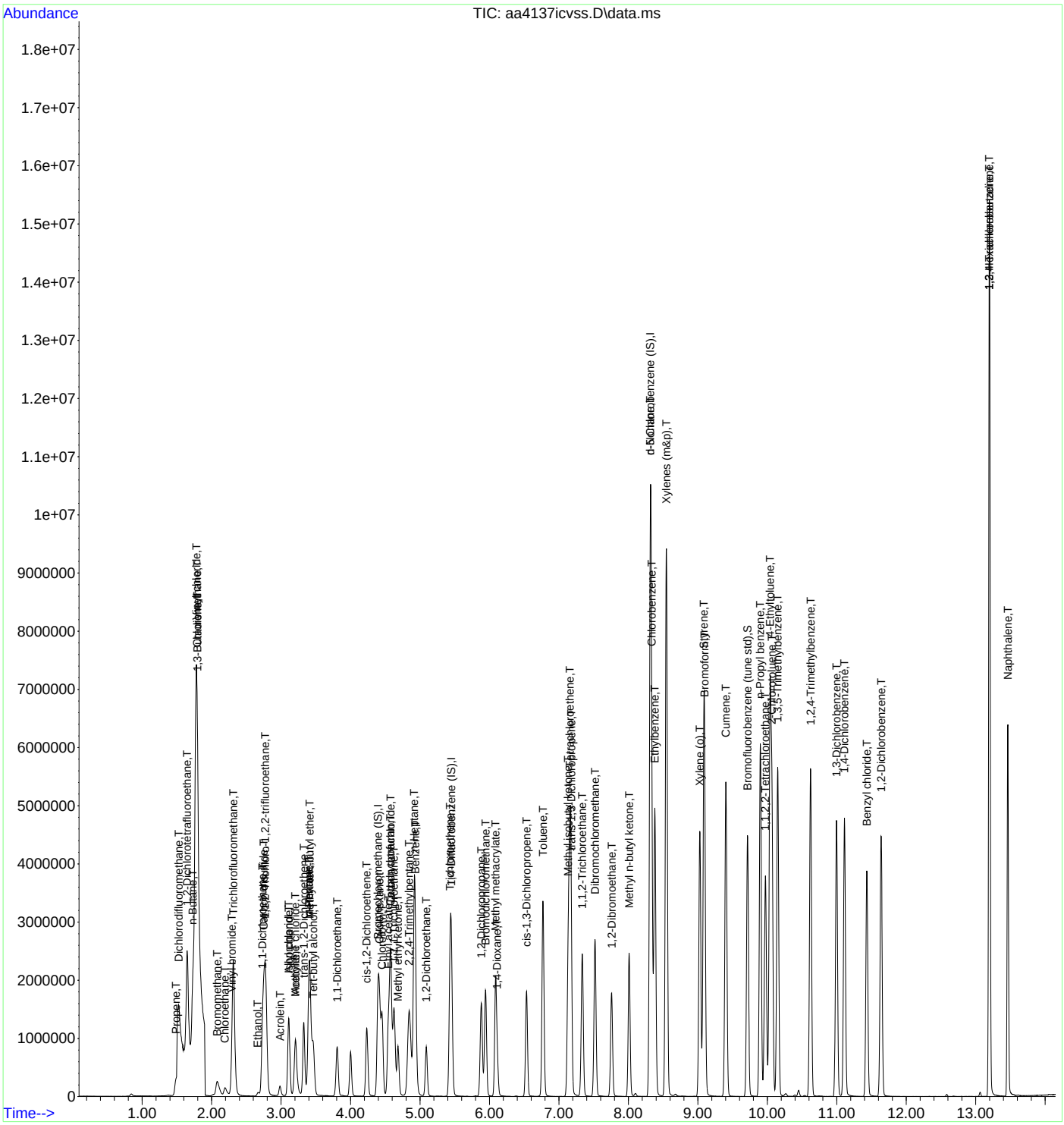
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.519	129	1775637	11.59	ppbV	100
53)	1,2-Dibromoethane	7.760	107	1480875	11.14	ppbV	100
54)	Methyl n-butyl ketone	8.011	43	1847140	11.23	ppbV	100
56)	n-Nonane	8.316	43	2482776	10.98	ppbV	100
57)	Chlorobenzene	8.336	112	2343720	10.31	ppbV	100
58)	Ethylbenzene	8.381	91	4399658	10.47	ppbV	100
59)	Xylenes (m&p)	8.548	91	6725199	21.61	ppbV	100
60)	Xylene (o)	9.027	91	3439926	10.13	ppbV	100
61)	Styrene	9.088	104	2542191	10.93	ppbV	98
62)	Bromoform	9.098	173	1858650	11.14	ppbV	100
63)	Cumene	9.403	105	4624440	10.42	ppbV	99
65)	n-Propyl benzene	9.898	91	6209527	10.72	ppbV	100
66)	1,1,2,2-Tetrachloroethane	9.972	83	2517951	10.59	ppbV	100
67)	4-Ethyltoluene	10.040	105	5225612	10.66	ppbV	100
68)	2-Chlorotoluene	10.065	91	4079374	10.48	ppbV	99
69)	1,3,5-Trimethylbenzene	10.149	105	4048872	10.27	ppbV	100
70)	1,2,4-Trimethylbenzene	10.625	105	4049729	10.28	ppbV	100
71)	1,3-Dichlorobenzene	10.998	146	2445218	10.13	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	2419709	9.96	ppbV	99
73)	Benzyl chloride	11.432	91	3624814	10.40	ppbV	100
74)	1,2-Dichlorobenzene	11.641	146	2329520	9.95	ppbV	100
75)	1,3-Hexachlorobutadiene	13.197	225	1597275	9.83	ppbV	100
76)	1,2,4-Trichlorobenzene	13.197	180	1825252	9.71	ppbV	100
77)	Naphthalene	13.464	128	4147327	9.65	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4137icvss.D
Acq On : 10 Oct 2023 4:48 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 11 12:34:17 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**8/15/2023**	**Date/Time of Calibration:**	**10/2/2023 12:19**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4102DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4101BFB]	10/02/2023 11:11
10 PPBV DCVS [AA4102DCVS]	10/02/2023 12:19
10 PPBV LCS [AA4103LCS]	10/02/2023 12:50
METHOD BLANK [AA4104BLK]	10/02/2023 13:32
02 PPBV RLLCS [AA4105RLLCS]	10/02/2023 14:08
CLEAN CAN CERTIFICATION, BATCH MASTER 3830 [AA4106]	10/02/2023 14:44
CLEAN CAN CERTIFICATION, BATCH MASTER 5087 [AA4107]	10/02/2023 15:14
CLEAN CAN CERTIFICATION, BATCH MASTER 2037 [AA4108]	10/02/2023 15:45
10 PPBV CCCVS [AA4125CCCVS]	10/03/2023 00:49

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Acetone	1.9	2.2	-18	PASS	
Benzene	4.6	4.5	1.8	PASS	
Bromodichloromethane	0.80	0.76	4.4	PASS	
Bromoform	0.83	0.78	6.1	PASS	
Bromomethane	0.80	1.0	-29	PASS	
1,3-Butadiene	0.97	1.1	-13	PASS	
Chlorobenzene	1.1	0.99	10	PASS	
Chloroethane	0.52	0.60	-15	PASS	
Chloroform	3.2	3.3	-2.3	PASS	
Chloromethane	0.12	0.15	-26	PASS	
Carbon disulfide	3.4	4.3	-26	PASS	
Carbon tetrachloride	3.9	3.4	12	PASS	
Cyclohexane	2.4	2.2	9.5	PASS	
Dibromochloromethane	0.94	0.75	21	PASS	
1,2-Dibromoethane	0.83	0.66	21	PASS	
1,2-Dichlorobenzene	1.1	1.0	9.1	PASS	
1,3-Dichlorobenzene	1.2	1.0	14	PASS	
1,4-Dichlorobenzene	1.2	1.1	6.9	PASS	
Dichlorodifluoromethane	2.5	3.0	-17	PASS	
1,1-Dichloroethane	2.6	2.8	-5.9	PASS	
1,2-Dichloroethane	2.1	2.1	-3.4	PASS	
1,1-Dichloroethene	2.1	2.5	-18	PASS	
1,2-Dichloroethene (cis)	1.8	2.0	-9.1	PASS	
1,2-Dichloroethene (trans)	1.9	2.2	-15	PASS	
1,2-Dichloropropane	0.46	0.40	13	PASS	
1,3-Dichloropropene (cis)	0.71	0.61	14	PASS	
1,3-Dichloropropene (trans)	0.70	0.61	12	PASS	
1,2-Dichlorotetrafluoroethane	3.6	3.8	-4.8	PASS	
1,4-Dioxane	0.28	0.24	15	PASS	
Ethylbenzene	2.0	1.7	14	PASS	
n-Heptane	3.4	2.7	20	PASS	
1,3-Hexachlorobutadiene	0.82	0.74	9.9	PASS	
n-Hexane	3.3	3.3	2.4	PASS	
Methylene chloride	1.3	1.6	-28	PASS	
Methyl ethyl ketone	2.9	3.0	-5.0	PASS	
Methyl isobutyl ketone	1.2	0.90	22	PASS	
Methyl tert-butyl ether	4.6	4.2	7.7	PASS	
Styrene	1.1	0.97	10	PASS	
Tert-butyl alcohol	2.9	2.7	7.2	PASS	
1,1,2,2-Tetrachloroethane	1.2	1.0	17	PASS	
Tetrachloroethene	0.72	0.55	24	PASS	

***%Difference must be within +/- 30%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**8/15/2023**	**Date/Time of Calibration:**	**10/2/2023 12:19**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4102DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4101BFB]	10/02/2023 11:11
10 PPBV DCVS [AA4102DCVS]	10/02/2023 12:19
10 PPBV LCS [AA4103LCS]	10/02/2023 12:50
METHOD BLANK [AA4104BLK]	10/02/2023 13:32
02 PPBV RLLCS [AA4105RLLCS]	10/02/2023 14:08
CLEAN CAN CERTIFICATION, BATCH MASTER 3830 [AA4106]	10/02/2023 14:44
CLEAN CAN CERTIFICATION, BATCH MASTER 5087 [AA4107]	10/02/2023 15:14
CLEAN CAN CERTIFICATION, BATCH MASTER 2037 [AA4108]	10/02/2023 15:45
10 PPBV CCCVS [AA4125CCCVS]	10/03/2023 00:49

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Toluene	1.6	1.3	21	PASS	
1,2,4-Trichlorobenzene	0.90	0.86	4.9	PASS	
1,1,1-Trichloroethane	3.5	3.0	14	PASS	
1,1,2-Trichloroethane	0.57	0.44	22	PASS	
Trichloroethene	0.51	0.48	6.5	PASS	
Trichlorofluoromethane	3.4	3.5	-2.6	PASS	
1,1,2-Trichloro-1,2,2-trifluoroethane	3.4	2.9	14	PASS	
1,2,4-Trimethylbenzene	1.8	1.6	10	PASS	
1,3,5-Trimethylbenzene	1.8	1.6	13	PASS	
2,2,4-Trimethylpentane	1.3	1.5	-22	PASS	
Vinyl bromide	1.0	1.3	-28	PASS	
Vinyl chloride	0.95	1.2	-28	PASS	
Xylenes (m&p)	1.5	1.3	8.6	PASS	
Xylenes (o)	1.6	1.4	15	PASS	

***%Difference must be within +/- 30%**
RRF - Relative Response Factor

Evaluate Continuing Calibration Report

Data Path : C:\DATA\2023\10-2023\10-02-2023\
Data File : aa4102dcvs.D
Acq On : 2 Oct 2023 12:19 pm
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 03 11:26:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS)	1.000	1.000	0.0	79	0.00
2	T	Propene	0.689	0.812	-17.9	99	-0.02
3	T	Dichlorodifluoromethane	2.527	2.954	-16.9	97	-0.03
4	T	1,2-Dichlorotetrafluoroetha	3.636	3.811	-4.8	95	-0.03
5	T	n-Butane	1.635	1.816	-11.1	90	-0.03
6	T	Chloromethane	0.117	0.147	-25.6	101	-0.02
7	T	Vinyl chloride	0.950	1.216	-28.0	103	-0.03
8	T	1,3-Butadiene	0.972	1.100	-13.2	94	-0.02
9	T	Bromomethane	0.798	1.031	-29.2	105	-0.02
10	T	Chloroethane	0.517	0.596	-15.3	90	-0.03
11	T	Vinyl bromide	1.004	1.286	-28.1	103	-0.02
12	T	Trichlorofluoromethane	3.400	3.490	-2.6	90	-0.02
13	T	Ethanol	0.400	0.469	-17.2	115	-0.02
14	T	1,1-Dichloroethene	2.088	2.457	-17.7	92	-0.02
15	T	Carbon disulfide	3.429	4.325	-26.1	98	-0.02
16	T	1,1,2-Trichloro-1,2,2-trifl	3.360	2.890	14.0	82	-0.03
17	T	Acrolein	0.430	0.513	-19.3	95	-0.02
18	T	Allyl chloride	0.559	0.662	-18.4	93	-0.02
19	T	Isopropanol	2.312	2.683	-16.0	94	-0.02
20	T	Methylene chloride	1.262	1.612	-27.7	121	-0.02
21	T	Acetone	1.876	2.220	-18.3	97	-0.02
22	T	trans-1,2-Dichloroethene	1.879	2.161	-15.0	92	-0.02
23	T	n-Pentane	2.398	2.548	-6.3	100	-0.02
24	T	n-Hexane	3.349	3.269	2.4	86	-0.01
25	T	Methyl tert-butyl ether	4.555	4.203	7.7	84	-0.02
26	T	Tert-butyl alcohol	2.929	2.717	7.2	83	-0.02
27	T	1,1-Dichloroethane	2.637	2.792	-5.9	92	-0.02
28	T	cis-1,2-Dichloroethene	1.824	1.990	-9.1	89	-0.01
29	t	Cyclohexane	2.420	2.189	9.5	82	0.00
30	T	Chloroform	3.228	3.301	-2.3	87	-0.01
31	T	Ethyl acetate	0.514	0.474	7.8	79	-0.01
32	T	Carbon tetrachloride	3.870	3.414	11.8	81	0.00
33	T	Tetrahydrofuran	1.813	1.931	-6.5	89	-0.01
34	T	1,1,1-Trichloroethane	3.484	2.998	13.9	80	0.00
35	T	Methyl ethyl ketone	2.894	3.038	-5.0	89	-0.01
36	T	n-Heptane	3.350	2.677	20.1	67	0.00
37	T	Benzene	4.614	4.532	1.8	85	0.00
38	T	1,2-Dichloroethane	2.067	2.137	-3.4	87	0.00
39	I	1,4-Difluorobenzene (IS)	1.000	1.000	0.0	78	0.00
40	T	Trichloroethene	0.508	0.475	6.5	78	0.00
41	T	2,2,4-Trimethylpentane	1.267	1.542	-21.7	103	0.00
42	T	1,2-Dichloropropane	0.456	0.395	13.4	72	0.00
43	T	Bromodichloromethane	0.795	0.760	4.4	78	0.00
44	T	Methyl methacrylate	0.587	0.500	14.8	65	0.00
45	T	1,4-Dioxane	0.281	0.240	14.6	68	0.00
46	T	cis-1,3-Dichloropropene	0.705	0.610	13.5	69	0.00
47	T	Toluene	1.603	1.262	21.3	61	0.00
48	T	Methyl isobutyl ketone	1.158	0.902	22.1	61	0.00
49	T	Tetrachloroethene	0.721	0.548	24.0	62	0.00
50	T	trans-1,3-Dichloropropene	0.695	0.611	12.1	66	0.00
51	T	1,1,2-Trichloroethane	0.565	0.441	21.9	63	0.00
52	T	Dibromochloromethane	0.944	0.749	20.7	63	0.00
53	T	1,2-Dibromoethane	0.827	0.655	20.8	61	0.00

Data Path : C:\DATA\2023\10-2023\10-02-2023\
Data File : aa4102dcvs.D
Acq On : 2 Oct 2023 12:19 pm
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 03 11:26:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	T	Methyl n-butyl ketone	1.085	0.835	23.0	58	0.00
55	I	d-5 Chlorobenzene (IS)	1.000	1.000	0.0	62	0.00
56	T	n-Nonane	1.224	0.971	20.7	51	0.00
57	T	Chlorobenzene	1.095	0.985	10.0	59	0.00
58	T	Ethylbenzene	2.025	1.747	13.7	56	0.00
59	T	Xylenes (m&p)	1.460	1.334	8.6	57	0.00
60	T	Xylene (o)	1.621	1.386	14.5	55	0.00
61	T	Styrene	1.076	0.968	10.0	55	0.00
62	T	Bromoform	0.831	0.780	6.1	60	0.00
63	T	Cumene	2.112	1.798	14.9	54	0.00
64	S	Bromofluorobenzene (tune st	0.832	0.784	5.8	59	0.00
65	T	n-Propyl benzene	2.753	2.404	12.7	54	0.00
66	T	1,1,2,2-Tetrachloroethane	1.228	1.021	16.9	55	0.00
67	T	4-Ethyltoluene	2.270	1.976	13.0	54	0.00
68	T	2-Chlorotoluene	1.868	1.627	12.9	56	0.00
69	T	1,3,5-Trimethylbenzene	1.837	1.600	12.9	55	0.00
70	T	1,2,4-Trimethylbenzene	1.821	1.635	10.2	54	0.00
71	T	1,3-Dichlorobenzene	1.208	1.040	13.9	57	0.00
72	T	1,4-Dichlorobenzene	1.161	1.081	6.9	58	0.00
73	T	Benzyl chloride	1.591	1.575	1.0	57	0.00
74	T	1,2-Dichlorobenzene	1.143	1.039	9.1	58	0.00
75	T	1,3-Hexachlorobutadiene	0.820	0.739	9.9	62	0.00
76	T	1,2,4-Trichlorobenzene	0.899	0.855	4.9	61	0.00
77	T	Naphthalene	1.857	1.932	-4.0	62	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : C:\DATA\2023\10-2023\10-02-2023\
Data File : aa4102dcvs.D
Acq On : 2 Oct 2023 12:19 pm
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 03 11:26:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.386	130	421448	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.447	114	1774693	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	1689020	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1324848	9.43	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.470	41	373018	12.85	ppbV	98
3) Dichlorodifluoromethane	1.499	85	1319752	12.39	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.622	85	1574176	10.27	ppbV	95
5) n-Butane	1.701	43	834362	12.11	ppbV	99
6) Chloromethane	1.770	52	69453	14.08	ppbV	96
7) Vinyl chloride	1.756	62	553593	13.82	ppbV	99
8) 1,3-Butadiene	1.770	39	496026	12.11	ppbV	96
9) Bromomethane	2.065	94	434635	12.92	ppbV	99
10) Chloroethane	2.168	64	266152	12.22	ppbV	99
11) Vinyl bromide	2.274	106	547568	12.94	ppbV	100
12) Trichlorofluoromethane	2.290	101	1617886	11.29	ppbV	100
13) Ethanol	2.647	45	205595	12.19	ppbV	98
14) 1,1-Dichloroethene	2.711	61	1077127	12.24	ppbV	97
15) Carbon disulfide	2.734	76	1950525	13.50	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.753	101	1327379	9.37	ppbV	99
17) Acrolein	2.965	56	216245	11.94	ppbV	98
18) Allyl chloride	3.097	76	301302	12.78	ppbV	100
19) Isopropanol	3.091	45	1006533	10.33	ppbV	99
20) Methylene chloride	3.184	49	733651	13.79	ppbV	94
21) Acetone	3.193	43	1010271	12.78	ppbV	98
22) trans-1,2-Dichloroethene	3.309	61	1010752	12.76	ppbV	94
23) n-Pentane	3.393	43	1159620	11.48	ppbV	100
24) n-Hexane	3.393	57	1515538	10.74	ppbV	95
25) Methyl tert-butyl ether	3.396	73	1983720	10.33	ppbV	97
26) Tert-butyl alcohol	3.451	59	1317010	10.67	ppbV	100
27) 1,1-Dichloroethane	3.792	63	1259101	11.33	ppbV	100
28) cis-1,2-Dichloroethene	4.222	61	914228	11.89	ppbV	96
29) Cyclohexane	4.406	56	1033349	10.13	ppbV	97
30) Chloroform	4.444	83	1502390	11.04	ppbV	99
31) Ethyl acetate	4.531	61	215897	9.97	ppbV	94
32) Carbon tetrachloride	4.570	117	1582589	9.70	ppbV	100
33) Tetrahydrofuran	4.563	42	895020	11.71	ppbV	97
34) 1,1,1-Trichloroethane	4.618	97	1377393	9.38	ppbV	99
35) Methyl ethyl ketone	4.673	43	1408564	11.55	ppbV	98
36) n-Heptane	4.914	43	1252306	8.87	ppbV	97
37) Benzene	4.923	78	2062981	10.61	ppbV	100
38) 1,2-Dichloroethane	5.084	62	981849	11.27	ppbV	100
40) Trichloroethene	5.425	130	842485	9.35	ppbV	99
41) 2,2,4-Trimethylpentane	4.837	57	2983822	13.27	ppbV	98
42) 1,2-Dichloropropane	5.878	63	771020	9.52	ppbV	100
43) Bromodichloromethane	5.939	83	1550446	10.99	ppbV	99
44) Methyl methacrylate	6.084	41	976227	9.37	ppbV	99
45) 1,4-Dioxane	6.110	88	497762	9.97	ppbV	98
46) cis-1,3-Dichloropropene	6.531	75	1200755	9.59	ppbV	99
47) Toluene	6.769	91	2418760	8.50	ppbV	100
48) Methyl isobutyl ketone	7.132	43	1744576	8.49	ppbV	97
49) Tetrachloroethene	7.158	166	1090171	8.52	ppbV	100
50) trans-1,3-Dichloropropene	7.174	75	1202910	9.75	ppbV	97
51) 1,1,2-Trichloroethane	7.332	97	845754	8.43	ppbV	99

Data Path : C:\DATA\2023\10-2023\10-02-2023\
Data File : aa4102dcvs.D
Acq On : 2 Oct 2023 12:19 pm
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 03 11:26:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

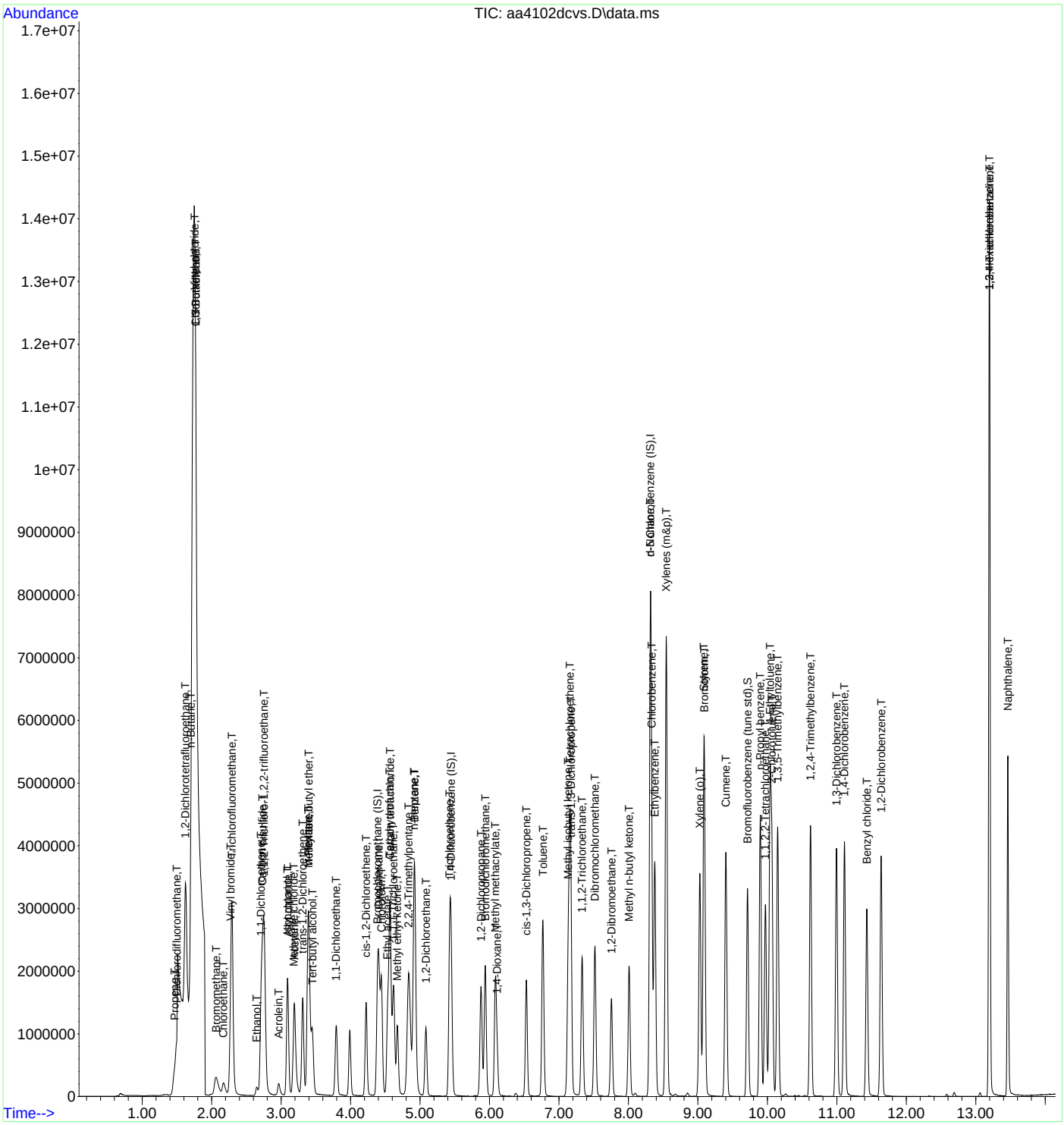
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.518	129	1489344	8.89	ppbV	99
53)	1,2-Dibromoethane	7.756	107	1256251	8.56	ppbV	100
54)	Methyl n-butyl ketone	8.007	43	1675257	8.70	ppbV	97
56)	n-Nonane	8.315	43	1803781	8.73	ppbV	96
57)	Chlorobenzene	8.335	112	1845812	9.98	ppbV	99
58)	Ethylbenzene	8.380	91	3274773	9.57	ppbV	98
59)	Xylenes (m&p)	8.544	91	5023704	20.38	ppbV	98
60)	Xylene (o)	9.026	91	2575487	9.41	ppbV	99
61)	Styrene	9.087	104	1848267	10.17	ppbV	99
62)	Bromoform	9.094	173	1488294	10.60	ppbV	100
63)	Cumene	9.402	105	3249245	9.11	ppbV	98
65)	n-Propyl benzene	9.897	91	4386123	9.43	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.971	83	1966345	9.48	ppbV	99
67)	4-Ethyltoluene	10.039	105	3604007	9.40	ppbV	98
68)	2-Chlorotoluene	10.065	91	2995852	9.50	ppbV	99
69)	1,3,5-Trimethylbenzene	10.148	105	2945099	9.49	ppbV	99
70)	1,2,4-Trimethylbenzene	10.621	105	2982260	9.69	ppbV	97
71)	1,3-Dichlorobenzene	10.997	146	1949852	9.56	ppbV	99
72)	1,4-Dichlorobenzene	11.110	146	1953237	9.96	ppbV	99
73)	Benzyl chloride	11.431	91	2660662	9.90	ppbV	98
74)	1,2-Dichlorobenzene	11.640	146	1878582	9.73	ppbV	99
75)	1,3-Hexachlorobutadiene	13.196	225	1385197	10.01	ppbV	100
76)	1,2,4-Trichlorobenzene	13.196	180	1588948	10.47	ppbV	99
77)	Naphthalene	13.463	128	3262446	10.40	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-02-2023\
Data File : aa4102dcvs.D
Acq On : 2 Oct 2023 12:19 pm
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 03 11:26:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**11/3/2023 10:14**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4528DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4527BFB]	11/03/2023 09:42
10 PPBV DCVS [AA4528DCVS]	11/03/2023 10:14
10 PPBV LCS [AA4529LCS]	11/03/2023 10:43
METHOD BLANK [AA4530BLK]	11/03/2023 11:41
02 PPBV RLLCS [AA4531RLLCS]	11/03/2023 12:15
CLEAN CAN CERTIFICATION, BATCH MASTER 2902 [AA4532]	11/03/2023 13:01
10 PPBV CCCVS [AA4549CCCVS]	11/03/2023 22:29

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Acetone	1.5	1.8	-20	PASS	
Benzene	4.0	4.2	-6.0	PASS	
Bromodichloromethane	0.66	0.71	-7.9	PASS	
Bromoform	0.73	0.75	-1.8	PASS	
Bromomethane	0.73	0.83	-13	PASS	
1,3-Butadiene	0.85	0.85	-0.70	PASS	
Chlorobenzene	1.00	0.97	3.1	PASS	
Chloroethane	0.48	0.58	-22	PASS	
Chloroform	2.7	3.1	-16	PASS	
Chloromethane	0.11	0.13	-19	PASS	
Carbon disulfide	3.1	3.6	-18	PASS	
Carbon tetrachloride	3.2	3.3	-2.9	PASS	
Cyclohexane	2.2	2.2	1.5	PASS	
Dibromochloromethane	0.79	0.86	-8.2	PASS	
1,2-Dibromoethane	0.69	0.74	-7.9	PASS	
1,2-Dichlorobenzene	1.0	1.00	2.7	PASS	
1,3-Dichlorobenzene	1.1	1.0	2.5	PASS	
1,4-Dichlorobenzene	1.1	1.1	-0.50	PASS	
Dichlorodifluoromethane	2.2	2.6	-16	PASS	
1,1-Dichloroethane	2.3	2.6	-12	PASS	
1,2-Dichloroethane	1.7	2.0	-21	PASS	
1,1-Dichloroethene	1.9	2.3	-25	PASS	
1,2-Dichloroethene (cis)	1.6	1.9	-17	PASS	
1,2-Dichloroethene (trans)	1.7	2.1	-20	PASS	
1,2-Dichloropropane	0.39	0.39	-0.50	PASS	
1,3-Dichloropropene (cis)	0.60	0.63	-4.3	PASS	
1,3-Dichloropropene (trans)	0.59	0.64	-10	PASS	
1,2-Dichlorotetrafluoroethane	3.2	3.4	-4.1	PASS	
1,4-Dioxane	0.24	0.24	-0.80	PASS	
Ethylbenzene	1.8	1.8	3.8	PASS	
n-Heptane	2.8	2.8	-2.1	PASS	
1,3-Hexachlorobutadiene	0.71	0.69	3.1	PASS	
n-Hexane	3.2	3.2	-2.4	PASS	
Methylene chloride	1.2	1.2	3.3	PASS	
Methyl ethyl ketone	2.4	2.6	-8.2	PASS	
Methyl isobutyl ketone	0.88	0.89	-1.0	PASS	
Methyl tert-butyl ether	3.9	3.9	-0.60	PASS	
Styrene	1.0	1.0	0.10	PASS	
Tert-butyl alcohol	2.6	2.7	-2.0	PASS	
1,1,2,2-Tetrachloroethane	1.0	0.97	6.7	PASS	
Tetrachloroethene	0.61	0.64	-5.4	PASS	
Toluene	1.4	1.5	-3.6	PASS	
1,2,4-Trichlorobenzene	0.82	0.81	1.6	PASS	

***%Difference must be within +/- 30%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**11/3/2023 10:14**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4528DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4527BFB]	11/03/2023 09:42
10 PPBV DCVS [AA4528DCVS]	11/03/2023 10:14
10 PPBV LCS [AA4529LCS]	11/03/2023 10:43
METHOD BLANK [AA4530BLK]	11/03/2023 11:41
02 PPBV RLLCS [AA4531RLLCS]	11/03/2023 12:15
CLEAN CAN CERTIFICATION, BATCH MASTER 2902 [AA4532]	11/03/2023 13:01
10 PPBV CCCVS [AA4549CCCVS]	11/03/2023 22:29

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
1,1,1-Trichloroethane	2.8	2.9	-5.7	PASS	
1,1,2-Trichloroethane	0.48	0.50	-4.6	PASS	
Trichloroethene	0.44	0.46	-4.3	PASS	
Trichlorofluoromethane	2.8	3.3	-16	PASS	
1,1,2-Trichloro-1,2,2-trifluoroethane	2.8	2.8	-0.10	PASS	
1,2,4-Trimethylbenzene	1.7	1.7	3.5	PASS	
1,3,5-Trimethylbenzene	1.7	1.6	6.0	PASS	
2,2,4-Trimethylpentane	1.3	1.2	8.3	PASS	
Vinyl bromide	0.90	1.0	-16	PASS	
Vinyl chloride	0.91	1.00	-10	PASS	
Xylenes (m&p)	1.4	1.4	-0.10	PASS	
Xylenes (o)	1.5	1.4	7.8	PASS	

***%Difference must be within +/- 30%**
RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Evaluate Continuing Calibration Report

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4528dcvs.D
Acq On : 3 Nov 2023 10:14 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 03 10:51:28 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS)	1.000	1.000	0.0	102	0.00
2	T	Propene	0.694	0.686	1.2	116	0.00
3	T	Dichlorodifluoromethane	2.216	2.568	-15.9	121	0.00
4	T	1,2-Dichlorotetrafluoroetha	3.219	3.352	-4.1	116	0.00
5	T	n-Butane	1.597	1.727	-8.1	115	0.00
6	T	Chloromethane	0.111	0.132	-18.9	119	0.00
7	T	Vinyl chloride	0.906	0.999	-10.3	112	0.00
8	T	1,3-Butadiene	0.846	0.852	-0.7	109	0.00
9	T	Bromomethane	0.731	0.827	-13.1	112	0.00
10	T	Chloroethane	0.475	0.577	-21.5	117	0.00
11	T	Vinyl bromide	0.895	1.042	-16.4	116	0.00
12	T	Trichlorofluoromethane	2.799	3.258	-16.4	125	0.00
13	T	Ethanol	0.293	0.337	-15.0	128	0.00
14	T	1,1-Dichloroethene	1.858	2.313	-24.5	121	0.00
15	T	Carbon disulfide	3.058	3.601	-17.8	114	0.00
16	T	1,1,2-Trichloro-1,2,2-trifl	2.819	2.821	-0.1	114	0.00
17	T	Acrolein	0.418	0.479	-14.6	113	0.00
18	T	Allyl chloride	0.501	0.588	-17.4	112	0.00
19	T	Isopropanol	2.005	2.225	-11.0	109	0.00
20	T	Methylene chloride	1.229	1.189	3.3	119	0.00
21	T	Acetone	1.508	1.813	-20.2	120	0.00
22	T	trans-1,2-Dichloroethene	1.724	2.069	-20.0	118	0.00
23	T	n-Pentane	2.325	2.438	-4.9	115	0.00
24	T	n-Hexane	3.152	3.229	-2.4	111	0.00
25	T	Methyl tert-butyl ether	3.872	3.896	-0.6	109	0.00
26	T	Tert-butyl alcohol	2.607	2.660	-2.0	109	0.00
27	T	1,1-Dichloroethane	2.322	2.592	-11.6	118	0.00
28	T	cis-1,2-Dichloroethene	1.638	1.919	-17.2	118	0.00
29	t	Cyclohexane	2.202	2.168	1.5	106	0.00
30	T	Chloroform	2.676	3.091	-15.5	119	0.00
31	T	Ethyl acetate	0.435	0.491	-12.9	111	0.00
32	T	Carbon tetrachloride	3.174	3.266	-2.9	109	0.00
33	T	Tetrahydrofuran	1.504	1.653	-9.9	113	0.00
34	T	1,1,1-Trichloroethane	2.780	2.938	-5.7	112	0.00
35	T	Methyl ethyl ketone	2.442	2.643	-8.2	114	0.00
36	T	n-Heptane	2.764	2.823	-2.1	101	0.00
37	T	Benzene	3.972	4.212	-6.0	113	0.00
38	T	1,2-Dichloroethane	1.663	2.017	-21.3	124	0.00
39	I	1,4-Difluorobenzene (IS)	1.000	1.000	0.0	109	0.00
40	T	Trichloroethene	0.442	0.461	-4.3	114	0.00
41	T	2,2,4-Trimethylpentane	1.303	1.195	8.3	106	0.00
42	T	1,2-Dichloropropane	0.389	0.391	-0.5	109	0.00
43	T	Bromodichloromethane	0.655	0.707	-7.9	117	0.00
44	T	Methyl methacrylate	0.472	0.496	-5.1	109	0.00
45	T	1,4-Dioxane	0.238	0.240	-0.8	107	0.00
46	T	cis-1,3-Dichloropropene	0.603	0.629	-4.3	109	0.00
47	T	Toluene	1.405	1.456	-3.6	107	0.00
48	T	Methyl isobutyl ketone	0.883	0.892	-1.0	102	0.00
49	T	Tetrachloroethene	0.606	0.639	-5.4	110	0.00
50	T	trans-1,3-Dichloropropene	0.585	0.644	-10.1	111	0.00
51	T	1,1,2-Trichloroethane	0.475	0.497	-4.6	109	0.00
52	T	Dibromochloromethane	0.791	0.856	-8.2	111	0.00
53	T	1,2-Dibromoethane	0.686	0.740	-7.9	110	0.00

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4528dcvs.D
Acq On : 3 Nov 2023 10:14 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 03 10:51:28 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	T	Methyl n-butyl ketone	0.849	0.916	-7.9	107	0.00
55	I	d-5 Chlorobenzene (IS)	1.000	1.000	0.0	112	0.00
56	T	n-Nonane	0.992	0.957	3.5	104	0.00
57	T	Chlorobenzene	0.997	0.966	3.1	109	0.00
58	T	Ethylbenzene	1.843	1.773	3.8	107	0.00
59	T	Xylenes (m&p)	1.365	1.366	-0.1	108	0.00
60	T	Xylene (o)	1.490	1.374	7.8	104	0.00
61	T	Styrene	1.020	1.019	0.1	106	0.00
62	T	Bromoform	0.732	0.745	-1.8	112	0.00
63	T	Cumene	1.947	1.800	7.6	103	0.00
64	S	Bromofluorobenzene (tune st	0.872	0.864	0.9	111	0.00
65	T	n-Propyl benzene	2.541	2.521	0.8	108	0.00
66	T	1,1,2,2-Tetrachloroethane	1.043	0.973	6.7	104	0.00
67	T	4-Ethyltoluene	2.151	2.109	2.0	107	0.00
68	T	2-Chlorotoluene	1.707	1.630	4.5	107	0.00
69	T	1,3,5-Trimethylbenzene	1.730	1.626	6.0	103	0.00
70	T	1,2,4-Trimethylbenzene	1.729	1.669	3.5	104	0.00
71	T	1,3-Dichlorobenzene	1.059	1.032	2.5	110	0.00
72	T	1,4-Dichlorobenzene	1.065	1.070	-0.5	110	0.00
73	T	Benzyl chloride	1.529	1.527	0.1	105	0.00
74	T	1,2-Dichlorobenzene	1.027	0.999	2.7	108	0.00
75	T	1,3-Hexachlorobutadiene	0.713	0.691	3.1	110	0.00
76	T	1,2,4-Trichlorobenzene	0.824	0.811	1.6	110	0.00
77	T	Naphthalene	1.885	1.788	5.1	105	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (Not Reviewed)

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4528dcvs.D
Acq On : 3 Nov 2023 10:14 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 03 10:51:28 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.393	130	402106	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	1842775	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2190337	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1893256	9.92	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.489	41	300839	10.78	ppbV	99
3) Dichlorodifluoromethane	1.530	85	1094513	12.28	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.650	85	1320758	10.20	ppbV	99
5) n-Butane	1.729	43	756920	11.79	ppbV	100
6) Chloromethane	1.794	52	59416	13.35	ppbV	100
7) Vinyl chloride	1.781	62	433894	11.91	ppbV	100
8) 1,3-Butadiene	1.794	39	366762	10.78	ppbV	99
9) Bromomethane	2.091	94	332671	11.31	ppbV	96
10) Chloroethane	2.191	64	245991	12.88	ppbV	98
11) Vinyl bromide	2.294	106	423269	11.76	ppbV	98
12) Trichlorofluoromethane	2.313	101	1441021	12.80	ppbV	99
13) Ethanol	2.670	45	140968	11.97	ppbV	98
14) 1,1-Dichloroethene	2.731	61	967376	12.95	ppbV	98
15) Carbon disulfide	2.753	76	1549237	12.60	ppbV	97
16) 1,1,2-Trichloro-1,2,2-...	2.773	101	1236230	10.91	ppbV	99
17) Acrolein	2.985	56	192698	11.47	ppbV	98
18) Allyl chloride	3.110	76	255314	12.67	ppbV	100
19) Isopropanol	3.110	45	796203	9.87	ppbV	98
20) Methylene chloride	3.200	49	516193	10.44	ppbV	98
21) Acetone	3.210	43	787410	12.98	ppbV	99
22) trans-1,2-Dichloroethene	3.326	61	923680	13.32	ppbV	99
23) n-Pentane	3.406	43	1058680	11.33	ppbV	99
24) n-Hexane	3.406	57	1428358	11.27	ppbV	97
25) Methyl tert-butyl ether	3.409	73	1754542	11.27	ppbV	98
26) Tert-butyl alcohol	3.464	59	1230051	11.73	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1115249	11.94	ppbV	100
28) cis-1,2-Dichloroethene	4.236	61	841261	12.77	ppbV	97
29) Cyclohexane	4.416	56	976382	11.03	ppbV	100
30) Chloroform	4.451	83	1342236	12.48	ppbV	100
31) Ethyl acetate	4.541	61	213209	12.18	ppbV	98
32) Carbon tetrachloride	4.580	117	1444676	11.32	ppbV	100
33) Tetrahydrofuran	4.573	42	730997	12.08	ppbV	99
34) 1,1,1-Trichloroethane	4.628	97	1287929	11.52	ppbV	98
35) Methyl ethyl ketone	4.683	43	1168905	11.90	ppbV	99
36) n-Heptane	4.917	43	1260078	11.34	ppbV	99
37) Benzene	4.930	78	1829360	11.45	ppbV	98
38) 1,2-Dichloroethane	5.091	62	883874	13.22	ppbV	99
40) Trichloroethene	5.432	130	849210	10.42	ppbV	100
41) 2,2,4-Trimethylpentane	4.843	57	2400454	10.00	ppbV	100
42) 1,2-Dichloropropane	5.882	63	792706	11.06	ppbV	100
43) Bromodichloromethane	5.943	83	1498982	12.41	ppbV	100
44) Methyl methacrylate	6.088	41	1005449	11.56	ppbV	98
45) 1,4-Dioxane	6.113	88	517635	11.79	ppbV	100
46) cis-1,3-Dichloropropene	6.531	75	1287090	11.58	ppbV	99
47) Toluene	6.769	91	2897365	11.19	ppbV	100
48) Methyl isobutyl ketone	7.133	43	1791184	11.00	ppbV	99
49) Tetrachloroethene	7.158	166	1319653	11.82	ppbV	100
50) trans-1,3-Dichloropropene	7.178	75	1317803	12.22	ppbV	100
51) 1,1,2-Trichloroethane	7.335	97	989700	11.32	ppbV	100

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4528dcvs.D
Acq On : 3 Nov 2023 10:14 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 03 10:51:28 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

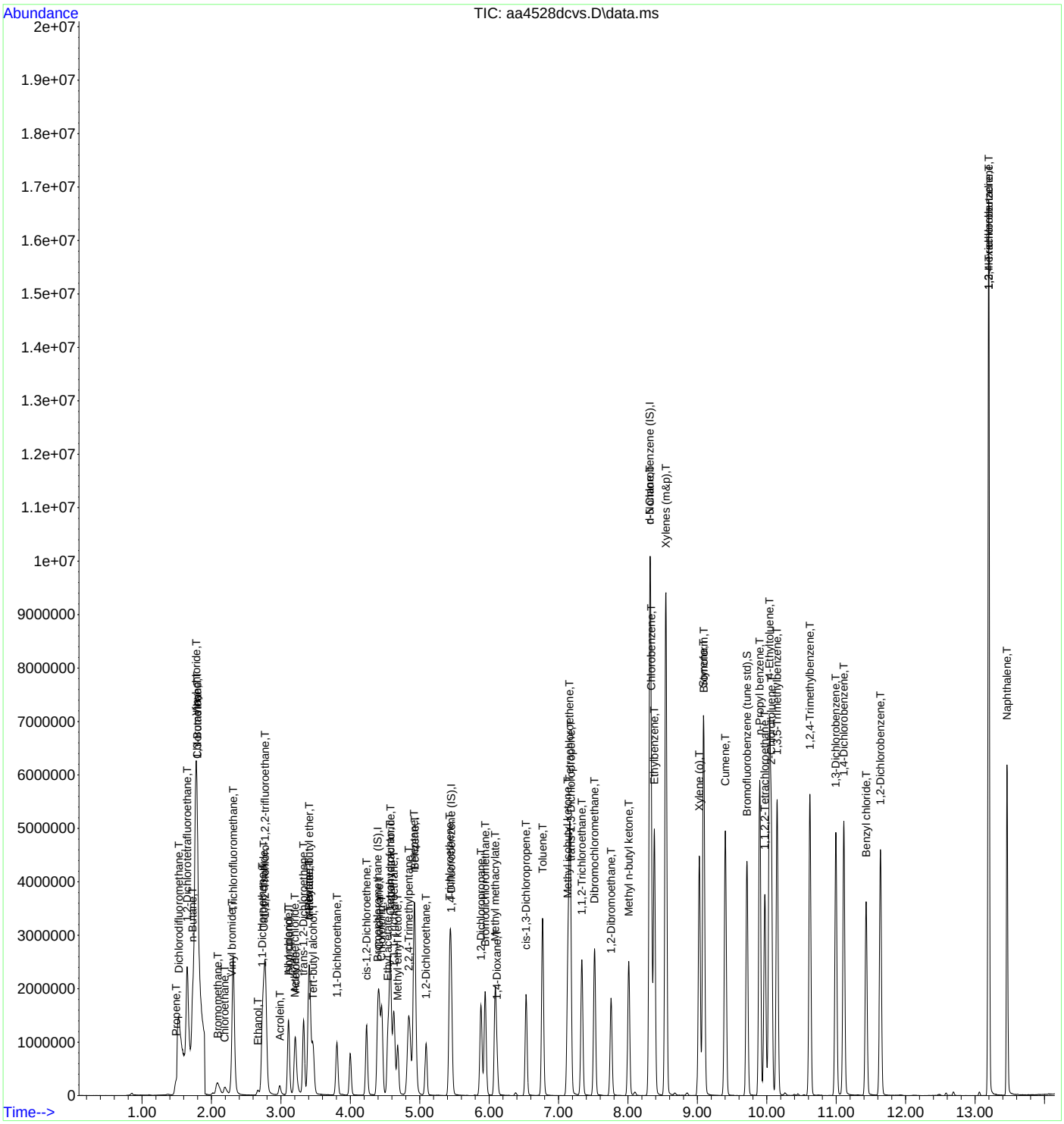
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.518	129	1766542	12.12	ppbV	100
53)	1,2-Dibromoethane	7.756	107	1472100	11.64	ppbV	100
54)	Methyl n-butyl ketone	8.010	43	1908448	12.19	ppbV	99
56)	n-Nonane	8.316	43	2306127	10.61	ppbV	99
57)	Chlorobenzene	8.335	112	2349078	10.76	ppbV	99
58)	Ethylbenzene	8.380	91	4309455	10.68	ppbV	99
59)	Xylenes (m&p)	8.547	91	6672663	22.31	ppbV	99
60)	Xylene (o)	9.026	91	3309649	10.14	ppbV	99
61)	Styrene	9.084	104	2521027	11.28	ppbV	99
62)	Bromoform	9.094	173	1845091	11.50	ppbV	99
63)	Cumene	9.403	105	4219399	9.89	ppbV	100
65)	n-Propyl benzene	9.898	91	5962442	10.71	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.972	83	2429495	10.64	ppbV	99
67)	4-Ethyltoluene	10.039	105	4987827	10.59	ppbV	100
68)	2-Chlorotoluene	10.065	91	3891125	10.41	ppbV	100
69)	1,3,5-Trimethylbenzene	10.149	105	3882304	10.25	ppbV	99
70)	1,2,4-Trimethylbenzene	10.621	105	3948867	10.43	ppbV	100
71)	1,3-Dichlorobenzene	10.994	146	2509234	10.82	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	2506983	10.74	ppbV	100
73)	Benzyl chloride	11.431	91	3344698	9.99	ppbV	99
74)	1,2-Dichlorobenzene	11.637	146	2341147	10.41	ppbV	100
75)	1,3-Hexachlorobutadiene	13.197	225	1678816	10.75	ppbV	100
76)	1,2,4-Trichlorobenzene	13.197	180	1954320	10.82	ppbV	99
77)	Naphthalene	13.460	128	3916989	9.49	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4528dcvs.D
Acq On : 3 Nov 2023 10:14 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 03 10:51:28 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**12/8/2023 10:50**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4882DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05047-01 [AA4886]	12/08/2023 14:03
E23-05047-02 [AA4887]	12/08/2023 14:35
E23-05047-03 [AA4888]	12/08/2023 15:06
E23-05047-04 [AA4889]	12/08/2023 15:42
E23-05047-05 [AA4890]	12/08/2023 16:15

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Acetone	1.5	1.5	-0.30	PASS	
Benzene	4.0	3.4	15	PASS	
Bromoform	0.73	0.73	0.70	PASS	
Bromomethane	0.73	0.78	-6.2	PASS	
1,3-Butadiene	0.85	0.76	9.7	PASS	
Chlorobenzene	1.00	0.90	10	PASS	
Chloroethane	0.48	0.50	-5.7	PASS	
Chloroform	2.7	2.4	8.5	PASS	
Chloromethane	0.11	0.11	3.6	PASS	
Carbon disulfide	3.1	3.0	1.4	PASS	
Carbon tetrachloride	3.2	2.9	7.1	PASS	
Cyclohexane	2.2	2.0	11	PASS	
1,2-Dibromoethane	0.69	0.69	-1.2	PASS	
1,2-Dichlorobenzene	1.0	0.95	7.9	PASS	
1,3-Dichlorobenzene	1.1	0.95	9.9	PASS	
1,4-Dichlorobenzene	1.1	0.99	7.1	PASS	
Dichlorodifluoromethane	2.2	2.2	1.0	PASS	
1,1-Dichloroethane	2.3	2.0	13	PASS	
1,2-Dichloroethane	1.7	1.6	2.3	PASS	
1,1-Dichloroethene	1.9	1.8	0.80	PASS	
1,2-Dichloroethene (cis)	1.6	1.5	8.3	PASS	
1,2-Dichloroethene (trans)	1.7	1.7	3.9	PASS	
1,2-Dichloropropane	0.39	0.37	3.9	PASS	
1,3-Dichloropropene (cis)	0.60	0.59	2.3	PASS	
1,3-Dichloropropene (trans)	0.59	0.61	-4.4	PASS	
1,2-Dichlorotetrafluoroethane	3.2	2.9	11	PASS	
1,4-Dioxane	0.24	0.24	-0.40	PASS	
Ethylbenzene	1.8	1.7	7.2	PASS	
n-Heptane	2.8	2.6	4.3	PASS	
1,3-Hexachlorobutadiene	0.71	0.66	8.1	PASS	
n-Hexane	3.2	2.8	12	PASS	
Methylene chloride	1.2	1.1	13	PASS	
Methyl ethyl ketone	2.4	2.2	8.0	PASS	
Methyl isobutyl ketone	0.88	0.96	-8.5	PASS	
Methyl tert-butyl ether	3.9	3.5	9.8	PASS	
Styrene	1.0	0.95	6.9	PASS	
Tert-butyl alcohol	2.6	2.3	11	PASS	
1,1,2,2-Tetrachloroethane	1.0	0.97	7.4	PASS	
Tetrachloroethene	0.61	0.59	3.1	PASS	
Toluene	1.4	1.4	2.8	PASS	
1,2,4-Trichlorobenzene	0.82	0.78	5.5	PASS	

***%Difference must be within +/- 30%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**12/8/2023 10:50**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4882DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05047-01 [AA4886]	12/08/2023 14:03
E23-05047-02 [AA4887]	12/08/2023 14:35
E23-05047-03 [AA4888]	12/08/2023 15:06
E23-05047-04 [AA4889]	12/08/2023 15:42
E23-05047-05 [AA4890]	12/08/2023 16:15

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
1,1,1-Trichloroethane	2.8	2.6	7.2	PASS	
1,1,2-Trichloroethane	0.48	0.46	2.7	PASS	
Trichloroethene	0.44	0.42	6.1	PASS	
Trichlorofluoromethane	2.8	2.8	1.6	PASS	
1,1,2-Trichloro-1,2,2-trifluoroethane	2.8	2.4	16	PASS	
1,2,4-Trimethylbenzene	1.7	1.6	5.2	PASS	
1,3,5-Trimethylbenzene	1.7	1.6	7.1	PASS	
2,2,4-Trimethylpentane	1.3	1.3	2.8	PASS	
Vinyl bromide	0.90	0.89	0.80	PASS	
Vinyl chloride	0.91	0.87	4.1	PASS	
Xylenes (m&p)	1.4	1.3	4.2	PASS	
Xylenes (o)	1.5	1.4	9.2	PASS	

***%Difference must be within +/- 30%**
RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Evaluate Continuing Calibration Report

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4882dcvs.D
Acq On : 8 Dec 2023 10:50 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 12 09:41:42 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS)	1.000	1.000	0.0	126	0.00
2	T	Propene	0.694	0.600	13.5	126	0.00
3	T	Dichlorodifluoromethane	2.216	2.193	1.0	128	0.00
4	T	1,2-Dichlorotetrafluoroetha	3.219	2.869	10.9	123	0.00
5	T	n-Butane	1.597	1.500	6.1	124	0.00
6	T	Chloromethane	0.111	0.107	3.6	120	0.00
7	T	Vinyl chloride	0.906	0.869	4.1	121	0.00
8	T	1,3-Butadiene	0.846	0.764	9.7	121	0.00
9	T	Bromomethane	0.731	0.776	-6.2	130	0.00
10	T	Chloroethane	0.475	0.502	-5.7	126	0.00
11	T	Vinyl bromide	0.895	0.888	0.8	123	0.00
12	T	Trichlorofluoromethane	2.799	2.753	1.6	131	0.00
13	T	Ethanol	0.293	0.309	-5.5	145	0.00
14	T	1,1-Dichloroethene	1.858	1.844	0.8	120	0.00
15	T	Carbon disulfide	3.058	3.016	1.4	118	0.00
16	T	1,1,2-Trichloro-1,2,2-trifl	2.819	2.364	16.1	118	0.00
17	T	Acrolein	0.418	0.406	2.9	119	0.00
18	T	Allyl chloride	0.501	0.485	3.2	114	0.00
19	T	Isopropanol	2.005	1.954	2.5	118	0.00
20	T	Methylene chloride	1.229	1.073	12.7	133	0.00
21	T	Acetone	1.508	1.512	-0.3	124	0.00
22	T	trans-1,2-Dichloroethene	1.724	1.657	3.9	117	0.00
23	T	n-Pentane	2.325	2.146	7.7	125	0.00
24	T	n-Hexane	3.152	2.784	11.7	118	0.00
25	T	Methyl tert-butyl ether	3.872	3.493	9.8	121	0.00
26	T	Tert-butyl alcohol	2.607	2.316	11.2	117	0.00
27	T	1,1-Dichloroethane	2.322	2.010	13.4	114	0.00
28	T	cis-1,2-Dichloroethene	1.638	1.502	8.3	115	0.00
29	t	Cyclohexane	2.202	1.965	10.8	119	0.00
30	T	Chloroform	2.676	2.449	8.5	117	0.00
31	T	Ethyl acetate	0.435	0.410	5.7	115	0.00
32	T	Carbon tetrachloride	3.174	2.948	7.1	122	0.00
33	T	Tetrahydrofuran	1.504	1.387	7.8	118	0.00
34	T	1,1,1-Trichloroethane	2.780	2.579	7.2	122	0.00
35	T	Methyl ethyl ketone	2.442	2.246	8.0	120	0.00
36	T	n-Heptane	2.764	2.646	4.3	117	0.00
37	T	Benzene	3.972	3.382	14.9	112	0.00
38	T	1,2-Dichloroethane	1.663	1.624	2.3	123	0.00
39	I	1,4-Difluorobenzene (IS)	1.000	1.000	0.0	118	0.00
40	T	Trichloroethene	0.442	0.415	6.1	111	0.00
41	T	2,2,4-Trimethylpentane	1.303	1.266	2.8	122	0.00
42	T	1,2-Dichloropropane	0.389	0.374	3.9	113	0.00
43	T	Bromodichloromethane	0.655	0.674	-2.9	121	0.00
44	T	Methyl methacrylate	0.472	0.490	-3.8	116	0.00
45	T	1,4-Dioxane	0.238	0.239	-0.4	116	0.00
46	T	cis-1,3-Dichloropropene	0.603	0.589	2.3	111	0.00
47	T	Toluene	1.405	1.366	2.8	108	0.00
48	T	Methyl isobutyl ketone	0.883	0.958	-8.5	119	0.00
49	T	Tetrachloroethene	0.606	0.587	3.1	109	0.00
50	T	trans-1,3-Dichloropropene	0.585	0.611	-4.4	114	0.00
51	T	1,1,2-Trichloroethane	0.475	0.462	2.7	110	0.00
52	T	Dibromochloromethane	0.791	0.812	-2.7	115	0.00
53	T	1,2-Dibromoethane	0.686	0.694	-1.2	112	0.00

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4882dcvs.D
Acq On : 8 Dec 2023 10:50 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 12 09:41:42 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	T	Methyl n-butyl ketone	0.849	0.929	-9.4	117	0.00
55	I	d-5 Chlorobenzene (IS)	1.000	1.000	0.0	119	0.00
56	T	n-Nonane	0.992	1.014	-2.2	118	0.00
57	T	Chlorobenzene	0.997	0.897	10.0	108	0.00
58	T	Ethylbenzene	1.843	1.711	7.2	110	0.00
59	T	Xylenes (m&p)	1.365	1.308	4.2	110	0.00
60	T	Xylene (o)	1.490	1.353	9.2	110	0.00
61	T	Styrene	1.020	0.950	6.9	106	0.00
62	T	Bromoform	0.732	0.727	0.7	117	0.00
63	T	Cumene	1.947	1.854	4.8	113	0.00
64	S	Bromofluorobenzene (tune st	0.872	0.895	-2.6	123	0.00
65	T	n-Propyl benzene	2.541	2.507	1.3	115	0.00
66	T	1,1,2,2-Tetrachloroethane	1.043	0.966	7.4	111	0.00
67	T	4-Ethyltoluene	2.151	2.065	4.0	112	0.00
68	T	2-Chlorotoluene	1.707	1.639	4.0	115	0.00
69	T	1,3,5-Trimethylbenzene	1.730	1.608	7.1	109	0.00
70	T	1,2,4-Trimethylbenzene	1.729	1.639	5.2	109	0.00
71	T	1,3-Dichlorobenzene	1.059	0.954	9.9	108	0.00
72	T	1,4-Dichlorobenzene	1.065	0.989	7.1	109	0.00
73	T	Benzyl chloride	1.529	1.550	-1.4	114	0.00
74	T	1,2-Dichlorobenzene	1.027	0.946	7.9	109	0.00
75	T	1,3-Hexachlorobutadiene	0.713	0.655	8.1	111	0.00
76	T	1,2,4-Trichlorobenzene	0.824	0.779	5.5	113	0.00
77	T	Naphthalene	1.885	1.868	0.9	118	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4882dcvs.D
Acq On : 8 Dec 2023 10:50 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 12 09:41:42 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.390	130	497428	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	1995098	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	2342927	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2097748	10.27	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.483	41	325585	9.43	ppbV	97
3) Dichlorodifluoromethane	1.522	85	1156523	10.49	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.643	85	1398478	8.73	ppbV	97
5) n-Butane	1.725	43	813377	10.24	ppbV	99
6) Chloromethane	1.787	52	59773	10.85	ppbV	90
7) Vinyl chloride	1.777	62	466932	10.36	ppbV	100
8) 1,3-Butadiene	1.791	39	406894	9.67	ppbV	98
9) Bromomethane	2.075	94	385826	10.61	ppbV	98
10) Chloroethane	2.190	64	264511	11.19	ppbV	99
11) Vinyl bromide	2.287	106	446119	10.02	ppbV	99
12) Trichlorofluoromethane	2.306	101	1506447	10.82	ppbV	100
13) Ethanol	2.666	45	159941	10.98	ppbV	98
14) 1,1-Dichloroethene	2.727	61	954181	10.33	ppbV	96
15) Carbon disulfide	2.747	76	1604997	10.55	ppbV	96
16) 1,1,2-Trichloro-1,2,2-...	2.769	101	1281549	9.14	ppbV	99
17) Acrolein	2.981	56	201838	9.71	ppbV	99
18) Allyl chloride	3.110	76	260522	10.45	ppbV	100
19) Isopropanol	3.107	45	865101	8.67	ppbV	97
20) Methylene chloride	3.197	49	576215	9.42	ppbV	94
21) Acetone	3.210	43	812442	10.83	ppbV	98
22) trans-1,2-Dichloroethene	3.322	61	914937	10.67	ppbV	99
23) n-Pentane	3.402	43	1153103	9.97	ppbV	98
24) n-Hexane	3.402	57	1523505	9.72	ppbV	95
25) Methyl tert-butyl ether	3.406	73	1946245	10.10	ppbV	98
26) Tert-butyl alcohol	3.460	59	1324915	10.22	ppbV	100
27) 1,1-Dichloroethane	3.804	63	1070062	9.26	ppbV	99
28) cis-1,2-Dichloroethene	4.232	61	814529	10.00	ppbV	97
29) Cyclohexane	4.412	56	1094521	9.99	ppbV	99
30) Chloroform	4.451	83	1315872	9.89	ppbV	100
31) Ethyl acetate	4.544	61	220415	10.18	ppbV	96
32) Carbon tetrachloride	4.573	117	1612899	10.22	ppbV	100
33) Tetrahydrofuran	4.570	42	759074	10.14	ppbV	98
34) 1,1,1-Trichloroethane	4.624	97	1398155	10.11	ppbV	98
35) Methyl ethyl ketone	4.682	43	1229080	10.12	ppbV	97
36) n-Heptane	4.917	43	1460837	10.63	ppbV	97
37) Benzene	4.930	78	1816777	9.20	ppbV	97
38) 1,2-Dichloroethane	5.087	62	880596	10.65	ppbV	100
40) Trichloroethene	5.431	130	827314	9.37	ppbV	99
41) 2,2,4-Trimethylpentane	4.843	57	2753707	10.60	ppbV	100
42) 1,2-Dichloropropane	5.881	63	821769	10.59	ppbV	100
43) Bromodichloromethane	5.943	83	1546117	11.83	ppbV	99
44) Methyl methacrylate	6.084	41	1074952	11.42	ppbV	96
45) 1,4-Dioxane	6.113	88	556955	11.71	ppbV	100
46) cis-1,3-Dichloropropene	6.534	75	1304823	10.84	ppbV	100
47) Toluene	6.769	91	2943669	10.50	ppbV	100
48) Methyl isobutyl ketone	7.129	43	2083775	11.83	ppbV	97
49) Tetrachloroethene	7.158	166	1312474	10.86	ppbV	100
50) trans-1,3-Dichloropropene	7.174	75	1353861	11.60	ppbV	98
51) 1,1,2-Trichloroethane	7.335	97	994836	10.51	ppbV	99

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4882dcvs.D
Acq On : 8 Dec 2023 10:50 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

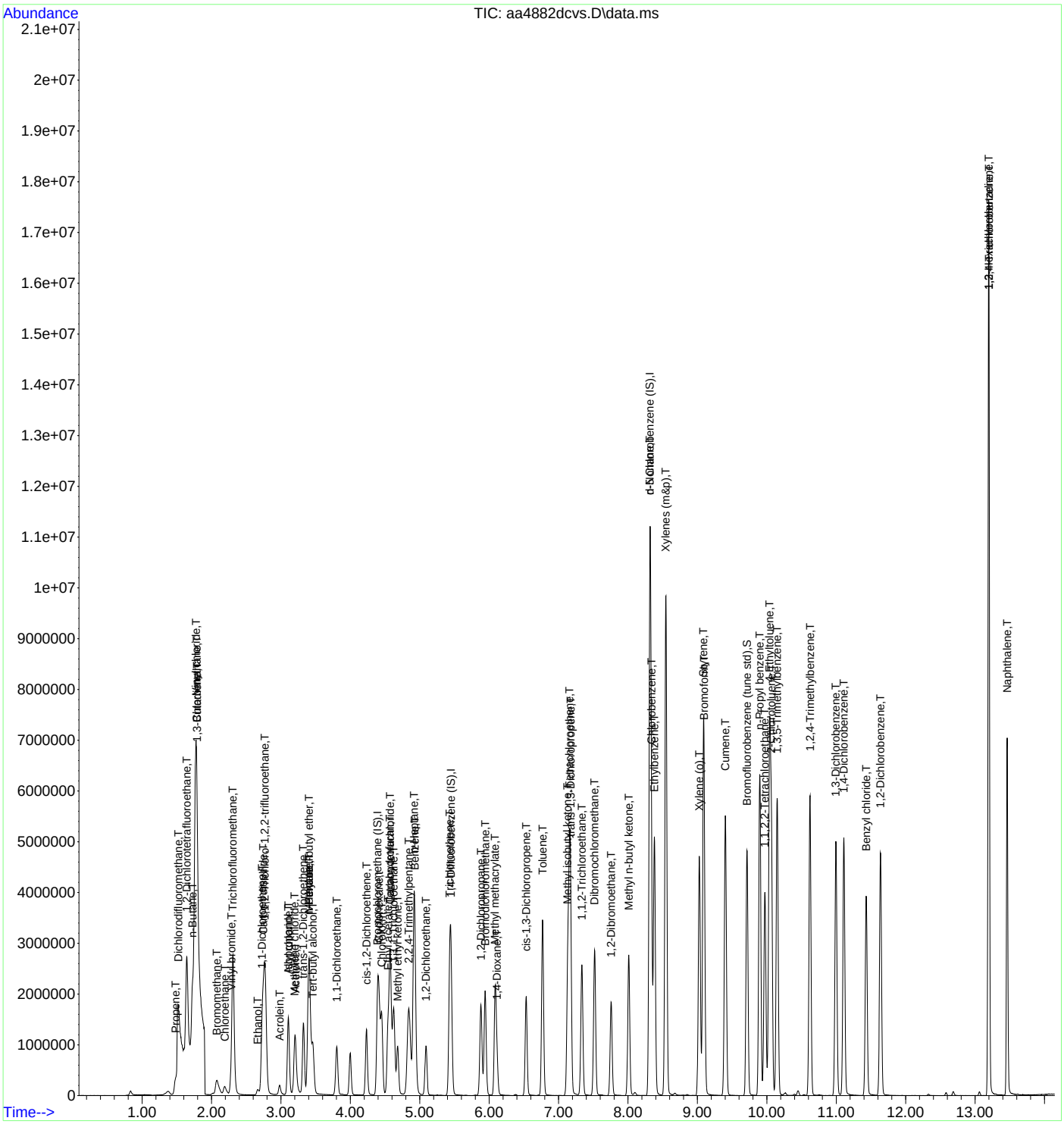
Quant Time: Dec 12 09:41:42 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.518	129	1815407	11.51	ppbV	99
53)	1,2-Dibromoethane	7.756	107	1495380	10.92	ppbV	100
54)	Methyl n-butyl ketone	8.010	43	2094056	12.36	ppbV	97
56)	n-Nonane	8.315	43	2612956	11.24	ppbV	97
57)	Chlorobenzene	8.338	112	2332552	9.99	ppbV	97
58)	Ethylbenzene	8.380	91	4450991	10.31	ppbV	98
59)	Xylenes (m&p)	8.544	91	6834641	21.36	ppbV	99
60)	Xylene (o)	9.026	91	3488106	9.99	ppbV	98
61)	Styrene	9.087	104	2516387	10.53	ppbV	98
62)	Bromoform	9.097	173	1925681	11.22	ppbV	100
63)	Cumene	9.402	105	4647970	10.19	ppbV	100
65)	n-Propyl benzene	9.897	91	6343495	10.65	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.971	83	2579002	10.55	ppbV	99
67)	4-Ethyltoluene	10.039	105	5223938	10.37	ppbV	100
68)	2-Chlorotoluene	10.065	91	4185953	10.47	ppbV	99
69)	1,3,5-Trimethylbenzene	10.148	105	4107061	10.13	ppbV	99
70)	1,2,4-Trimethylbenzene	10.624	105	4146495	10.24	ppbV	99
71)	1,3-Dichlorobenzene	10.994	146	2479981	10.00	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	2478669	9.93	ppbV	99
73)	Benzyl chloride	11.431	91	3632702	10.14	ppbV	99
74)	1,2-Dichlorobenzene	11.637	146	2370759	9.85	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	1704319	10.21	ppbV	100
76)	1,2,4-Trichlorobenzene	13.199	180	2007051	10.39	ppbV	99
77)	Naphthalene	13.463	128	4377391	9.91	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4882dcvs.D
Acq On : 8 Dec 2023 10:50 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 12 09:41:42 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**12/11/2023 10:26**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4902DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 09:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
CLEAN CAN CERTIFICATION, BATCH MASTER 1458 [AA4906]	12/11/2023 12:50
CLEAN CAN CERTIFICATION, BATCH MASTER 1588 [AA4907]	12/11/2023 13:19
CLEAN CAN CERTIFICATION, BATCH MASTER 3012 [AA4908]	12/11/2023 13:49
E23-05047-03 [AA4909]	12/11/2023 14:18
E23-05047-04 [AA4910]	12/11/2023 14:50
E23-05047-06 [AA4914]	12/11/2023 16:52
E23-05047-06 [AA4915]	12/11/2023 17:43
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 01:59

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Acetone	1.5	1.6	-2.9	PASS	
Benzene	4.0	3.4	14	PASS	
Bromoform	0.73	0.73	0.10	PASS	
Bromomethane	0.73	0.76	-4.4	PASS	
1,3-Butadiene	0.85	0.80	5.7	PASS	
Chlorobenzene	1.00	0.92	7.3	PASS	
Chloroethane	0.48	0.52	-9.3	PASS	
Chloroform	2.7	2.5	8.2	PASS	
Chloromethane	0.11	0.12	-5.4	PASS	
Carbon disulfide	3.1	3.1	-0.90	PASS	
Carbon tetrachloride	3.2	2.9	9.9	PASS	
Cyclohexane	2.2	2.0	7.9	PASS	
1,2-Dibromoethane	0.69	0.69	0.10	PASS	
1,2-Dichlorobenzene	1.0	0.97	5.6	PASS	
1,3-Dichlorobenzene	1.1	0.98	7.4	PASS	
1,4-Dichlorobenzene	1.1	1.0	4.5	PASS	
Dichlorodifluoromethane	2.2	2.2	1.3	PASS	
1,1-Dichloroethane	2.3	2.1	10	PASS	
1,2-Dichloroethane	1.7	1.6	3.6	PASS	
1,1-Dichloroethene	1.9	1.9	-1.0	PASS	
1,2-Dichloroethene (cis)	1.6	1.6	3.8	PASS	
1,2-Dichloroethene (trans)	1.7	1.7	0.20	PASS	
1,2-Dichloropropane	0.39	0.37	4.6	PASS	
1,3-Dichloropropene (cis)	0.60	0.59	2.7	PASS	
1,3-Dichloropropene (trans)	0.59	0.60	-2.6	PASS	
1,2-Dichlorotetrafluoroethane	3.2	2.9	11	PASS	
1,4-Dioxane	0.24	0.23	2.5	PASS	
Ethylbenzene	1.8	1.7	5.1	PASS	
n-Heptane	2.8	2.7	1.0	PASS	
1,3-Hexachlorobutadiene	0.71	0.67	6.3	PASS	
n-Hexane	3.2	2.9	7.9	PASS	
Methylene chloride	1.2	1.1	12	PASS	
Methyl ethyl ketone	2.4	2.4	3.5	PASS	
Methyl isobutyl ketone	0.88	0.96	-8.5	PASS	
Methyl tert-butyl ether	3.9	3.6	6.7	PASS	
Styrene	1.0	0.98	3.7	PASS	
Tert-butyl alcohol	2.6	2.4	6.1	PASS	

***%Difference must be within +/- 30%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**12/11/2023 10:26**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4902DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 09:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
CLEAN CAN CERTIFICATION, BATCH MASTER 1458 [AA4906]	12/11/2023 12:50
CLEAN CAN CERTIFICATION, BATCH MASTER 1588 [AA4907]	12/11/2023 13:19
CLEAN CAN CERTIFICATION, BATCH MASTER 3012 [AA4908]	12/11/2023 13:49
E23-05047-03 [AA4909]	12/11/2023 14:18
E23-05047-04 [AA4910]	12/11/2023 14:50
E23-05047-06 [AA4914]	12/11/2023 16:52
E23-05047-06 [AA4915]	12/11/2023 17:43
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 01:59

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
1,1,2,2-Tetrachloroethane	1.0	1.00	4.3	PASS	
Tetrachloroethene	0.61	0.57	5.4	PASS	
Toluene	1.4	1.3	4.0	PASS	
1,2,4-Trichlorobenzene	0.82	0.79	3.9	PASS	
1,1,1-Trichloroethane	2.8	2.5	8.6	PASS	
1,1,2-Trichloroethane	0.48	0.46	4.0	PASS	
Trichloroethene	0.44	0.41	8.4	PASS	
Trichlorofluoromethane	2.8	2.7	3.1	PASS	
1,1,2-Trichloro-1,2,2-trifluoroethane	2.8	2.4	15	PASS	
1,2,4-Trimethylbenzene	1.7	1.7	3.1	PASS	
1,3,5-Trimethylbenzene	1.7	1.7	4.2	PASS	
2,2,4-Trimethylpentane	1.3	1.2	4.3	PASS	
Vinyl bromide	0.90	0.91	-1.8	PASS	
Vinyl chloride	0.91	0.89	1.5	PASS	
Xylenes (m&p)	1.4	1.3	2.0	PASS	
Xylenes (o)	1.5	1.4	6.4	PASS	

***%Difference must be within +/- 30%**
RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Evaluate Continuing Calibration Report

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS)	1.000	1.000	0.0	151	0.00
2	T	Propene	0.694	0.638	8.1	161	0.00
3	T	Dichlorodifluoromethane	2.216	2.188	1.3	153	0.00
4	T	1,2-Dichlorotetrafluoroetha	3.219	2.870	10.8	147	0.00
5	T	n-Butane	1.597	1.560	2.3	154	0.00
6	T	Chloromethane	0.111	0.117	-5.4	157	0.00
7	T	Vinyl chloride	0.906	0.892	1.5	149	0.00
8	T	1,3-Butadiene	0.846	0.798	5.7	151	0.00
9	T	Bromomethane	0.731	0.763	-4.4	154	0.00
10	T	Chloroethane	0.475	0.519	-9.3	156	0.00
11	T	Vinyl bromide	0.895	0.911	-1.8	151	0.00
12	T	Trichlorofluoromethane	2.799	2.713	3.1	155	0.00
13	T	Ethanol	0.293	0.325	-10.9	183	0.00
14	T	1,1-Dichloroethene	1.858	1.877	-1.0	146	0.00
15	T	Carbon disulfide	3.058	3.087	-0.9	145	0.00
16	T	1,1,2-Trichloro-1,2,2-trifl	2.819	2.390	15.2	143	0.00
17	T	Acrolein	0.418	0.423	-1.2	149	0.00
18	T	Allyl chloride	0.501	0.513	-2.4	145	0.00
19	T	Isopropanol	2.005	2.110	-5.2	153	0.00
20	T	Methylene chloride	1.229	1.083	11.9	161	0.00
21	T	Acetone	1.508	1.551	-2.9	153	0.00
22	T	trans-1,2-Dichloroethene	1.724	1.721	0.2	146	0.00
23	T	n-Pentane	2.325	2.210	4.9	154	0.00
24	T	n-Hexane	3.152	2.903	7.9	148	0.00
25	T	Methyl tert-butyl ether	3.872	3.613	6.7	150	0.00
26	T	Tert-butyl alcohol	2.607	2.448	6.1	148	0.00
27	T	1,1-Dichloroethane	2.322	2.083	10.3	141	0.00
28	T	cis-1,2-Dichloroethene	1.638	1.576	3.8	144	0.00
29	t	Cyclohexane	2.202	2.029	7.9	148	0.00
30	T	Chloroform	2.676	2.457	8.2	141	0.00
31	T	Ethyl acetate	0.435	0.434	0.2	146	0.00
32	T	Carbon tetrachloride	3.174	2.860	9.9	142	0.00
33	T	Tetrahydrofuran	1.504	1.466	2.5	149	0.00
34	T	1,1,1-Trichloroethane	2.780	2.541	8.6	144	0.00
35	T	Methyl ethyl ketone	2.442	2.356	3.5	150	0.00
36	T	n-Heptane	2.764	2.735	1.0	145	0.00
37	T	Benzene	3.972	3.428	13.7	136	0.00
38	T	1,2-Dichloroethane	1.663	1.603	3.6	146	0.00
39	I	1,4-Difluorobenzene (IS)	1.000	1.000	0.0	147	0.00
40	T	Trichloroethene	0.442	0.405	8.4	135	0.00
41	T	2,2,4-Trimethylpentane	1.303	1.247	4.3	149	0.00
42	T	1,2-Dichloropropane	0.389	0.371	4.6	139	0.00
43	T	Bromodichloromethane	0.655	0.640	2.3	143	0.00
44	T	Methyl methacrylate	0.472	0.494	-4.7	146	0.00
45	T	1,4-Dioxane	0.238	0.232	2.5	140	0.00
46	T	cis-1,3-Dichloropropene	0.603	0.587	2.7	137	0.00
47	T	Toluene	1.405	1.349	4.0	133	0.00
48	T	Methyl isobutyl ketone	0.883	0.958	-8.5	148	0.00
49	T	Tetrachloroethene	0.606	0.573	5.4	133	0.00
50	T	trans-1,3-Dichloropropene	0.585	0.600	-2.6	139	0.00
51	T	1,1,2-Trichloroethane	0.475	0.456	4.0	135	0.00
52	T	Dibromochloromethane	0.791	0.789	0.3	139	0.00
53	T	1,2-Dibromoethane	0.686	0.685	0.1	137	0.00

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	T	Methyl n-butyl ketone	0.849	0.947	-11.5	149	0.00
55	I	d-5 Chlorobenzene (IS)	1.000	1.000	0.0	142	0.00
56	T	n-Nonane	0.992	1.053	-6.1	146	0.00
57	T	Chlorobenzene	0.997	0.924	7.3	133	0.00
58	T	Ethylbenzene	1.843	1.749	5.1	134	0.00
59	T	Xylenes (m&p)	1.365	1.338	2.0	134	0.00
60	T	Xylene (o)	1.490	1.395	6.4	135	0.00
61	T	Styrene	1.020	0.982	3.7	131	0.00
62	T	Bromoform	0.732	0.731	0.1	139	0.00
63	T	Cumene	1.947	1.907	2.1	139	0.00
64	S	Bromofluorobenzene (tune st	0.872	0.871	0.1	142	0.00
65	T	n-Propyl benzene	2.541	2.576	-1.4	140	0.00
66	T	1,1,2,2-Tetrachloroethane	1.043	0.998	4.3	136	0.00
67	T	4-Ethyltoluene	2.151	2.143	0.4	138	0.00
68	T	2-Chlorotoluene	1.707	1.675	1.9	140	0.00
69	T	1,3,5-Trimethylbenzene	1.730	1.657	4.2	134	0.00
70	T	1,2,4-Trimethylbenzene	1.729	1.675	3.1	133	0.00
71	T	1,3-Dichlorobenzene	1.059	0.981	7.4	133	0.00
72	T	1,4-Dichlorobenzene	1.065	1.017	4.5	134	0.00
73	T	Benzyl chloride	1.529	1.639	-7.2	144	0.00
74	T	1,2-Dichlorobenzene	1.027	0.970	5.6	133	0.00
75	T	1,3-Hexachlorobutadiene	0.713	0.668	6.3	135	0.00
76	T	1,2,4-Trichlorobenzene	0.824	0.792	3.9	137	0.00
77	T	Naphthalene	1.885	1.937	-2.8	145	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.393	130	596109	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2484518	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2791354	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2431677	9.99	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	414687	10.02	ppbV	98
3) Dichlorodifluoromethane	1.522	85	1382298	10.46	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.646	85	1676477	8.74	ppbV	97
5) n-Butane	1.729	43	1013335	10.64	ppbV	99
6) Chloromethane	1.791	52	78218	11.85	ppbV	100
7) Vinyl chloride	1.784	62	574429	10.64	ppbV	100
8) 1,3-Butadiene	1.794	39	509282	10.09	ppbV	97
9) Bromomethane	2.081	94	454826	10.43	ppbV	98
10) Chloroethane	2.194	64	327772	11.57	ppbV	98
11) Vinyl bromide	2.293	106	548259	10.27	ppbV	99
12) Trichlorofluoromethane	2.309	101	1779124	10.66	ppbV	99
13) Ethanol	2.666	45	201466	11.54	ppbV	97
14) 1,1-Dichloroethene	2.731	61	1163954	10.51	ppbV	96
15) Carbon disulfide	2.750	76	1969223	10.80	ppbV	97
16) 1,1,2-Trichloro-1,2,2-...	2.772	101	1553181	9.24	ppbV	99
17) Acrolein	2.985	56	252446	10.14	ppbV	100
18) Allyl chloride	3.110	76	330196	11.05	ppbV	100
19) Isopropanol	3.110	45	1119255	9.36	ppbV	100
20) Methylene chloride	3.203	49	696985	9.51	ppbV	95
21) Acetone	3.210	43	998590	11.11	ppbV	100
22) trans-1,2-Dichloroethene	3.325	61	1138568	11.08	ppbV	98
23) n-Pentane	3.409	43	1422770	10.27	ppbV	98
24) n-Hexane	3.406	57	1903376	10.13	ppbV	98
25) Methyl tert-butyl ether	3.409	73	2411960	10.45	ppbV	99
26) Tert-butyl alcohol	3.464	59	1678450	10.80	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1328374	9.60	ppbV	100
28) cis-1,2-Dichloroethene	4.232	61	1023865	10.48	ppbV	96
29) Cyclohexane	4.412	56	1354780	10.32	ppbV	97
30) Chloroform	4.454	83	1581616	9.92	ppbV	99
31) Ethyl acetate	4.541	61	279320	10.77	ppbV	96
32) Carbon tetrachloride	4.576	117	1875059	9.91	ppbV	99
33) Tetrahydrofuran	4.573	42	961491	10.72	ppbV	97
34) 1,1,1-Trichloroethane	4.628	97	1650986	9.96	ppbV	99
35) Methyl ethyl ketone	4.682	43	1545036	10.61	ppbV	98
36) n-Heptane	4.914	43	1809408	10.98	ppbV	97
37) Benzene	4.930	78	2206639	9.32	ppbV	97
38) 1,2-Dichloroethane	5.091	62	1041657	10.51	ppbV	100
40) Trichloroethene	5.431	130	1006216	9.15	ppbV	100
41) 2,2,4-Trimethylpentane	4.846	57	3376289	10.43	ppbV	100
42) 1,2-Dichloropropane	5.885	63	1014651	10.50	ppbV	99
43) Bromodichloromethane	5.943	83	1828286	11.23	ppbV	100
44) Methyl methacrylate	6.087	41	1350577	11.52	ppbV	96
45) 1,4-Dioxane	6.113	88	673669	11.38	ppbV	99
46) cis-1,3-Dichloropropene	6.534	75	1619348	10.81	ppbV	99
47) Toluene	6.772	91	3618902	10.36	ppbV	100
48) Methyl isobutyl ketone	7.135	43	2595670	11.83	ppbV	98
49) Tetrachloroethene	7.161	166	1595415	10.60	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	1655291	11.39	ppbV	98
51) 1,1,2-Trichloroethane	7.335	97	1222341	10.37	ppbV	100

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2194895	11.17	ppbV	99
53)	1,2-Dibromoethane	7.759	107	1838806	10.78	ppbV	100
54)	Methyl n-butyl ketone	8.010	43	2657481	12.59	ppbV	97
56)	n-Nonane	8.316	43	3233636	11.67	ppbV	98
57)	Chlorobenzene	8.335	112	2863155	10.29	ppbV	98
58)	Ethylbenzene	8.380	91	5418295	10.53	ppbV	99
59)	Xylenes (m&p)	8.547	91	8329861	21.86	ppbV	99
60)	Xylene (o)	9.029	91	4282583	10.30	ppbV	98
61)	Styrene	9.087	104	3096431	10.87	ppbV	99
62)	Bromoform	9.097	173	2305769	11.28	ppbV	100
63)	Cumene	9.402	105	5696839	10.48	ppbV	100
65)	n-Propyl benzene	9.897	91	7764284	10.95	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.971	83	3175462	10.91	ppbV	100
67)	4-Ethyltoluene	10.039	105	6460729	10.76	ppbV	99
68)	2-Chlorotoluene	10.065	91	5096400	10.69	ppbV	99
69)	1,3,5-Trimethylbenzene	10.148	105	5041969	10.44	ppbV	99
70)	1,2,4-Trimethylbenzene	10.621	105	5048160	10.46	ppbV	99
71)	1,3-Dichlorobenzene	10.997	146	3039816	10.29	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	3038927	10.22	ppbV	99
73)	Benzyl chloride	11.431	91	4575705	10.72	ppbV	99
74)	1,2-Dichlorobenzene	11.640	146	2896425	10.10	ppbV	99
75)	1,3-Hexachlorobutadiene	13.200	225	2068735	10.40	ppbV	99
76)	1,2,4-Trichlorobenzene	13.200	180	2432158	10.57	ppbV	99
77)	Naphthalene	13.463	128	5407318	10.28	ppbV	100

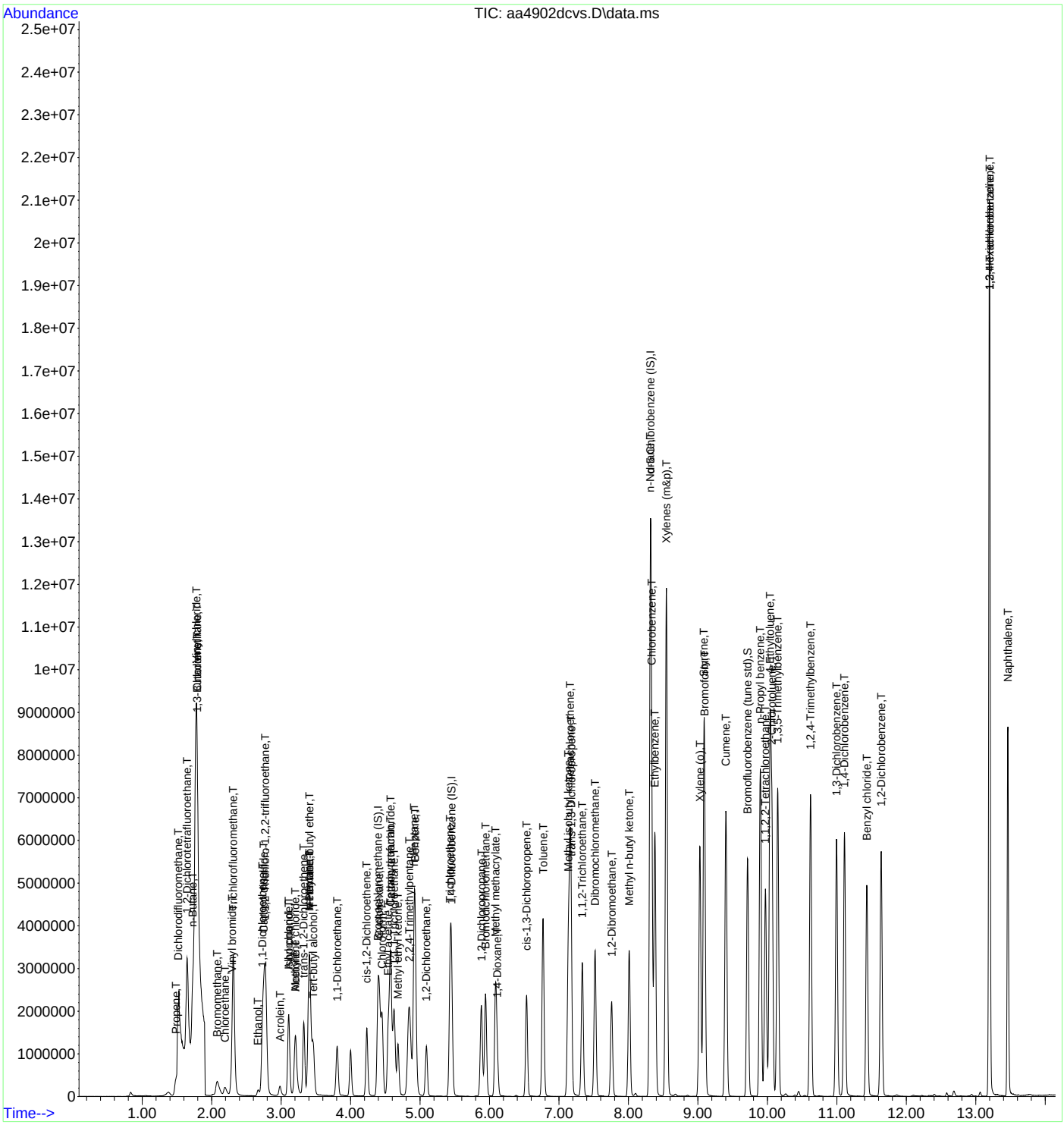
(#) = qualifier out of range (m) = manual integration (+) = signals summed

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



Section VIII: Raw Quality Control Data Package

BFB Tune Spectra

Method Blank

Laboratory Control Sample

Laboratory Sample Duplicate

Instrument Run Logs

Pressure Gauge Readings (initial and final)

Example Calculations

Screening Data

Clean Canister Certification

BFB

Data Path: C:\DATA\2023\08-2023\08-15-2023\
Data File: AA3401BFB.D
Acq On: 8/15/2023 10:11:00AM
Operator: jls
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230525.M
Last Update: Tue May 30 13:24:12 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	251499	18.7
PASS	75	95	30	66	703104	52.3
PASS	95	95	100	100	1345024	100.0
PASS	96	95	5	9	89525	6.7
PASS	173	174	0.00	2	8293	0.8
PASS	174	95	50	100	1069397	79.5
PASS	175	174	4	9	78181	7.3
PASS	176	174	93	101	1035413	96.8
PASS	177	176	5	9	68613	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA3401BFB	NA	8/15/2023 10:11:00 AM
0.2 PPBV STD	AA3402STD05	NA	8/15/2023 11:15:00 AM
10 PPBV STD	AA3404STD03	NA	8/15/2023 1:09:00 PM
2 PPBV STD	AA3403STD04	NA	8/15/2023 1:45:00 PM
20 PPBV STD	AA3405STD02	NA	8/15/2023 3:12:00 PM
40 PPBV STD	AA3406STD01	NA	8/15/2023 4:47:00 PM
10 PPBV ICVSS	AA3407ICVSS	NA	8/15/2023 6:09:00 PM

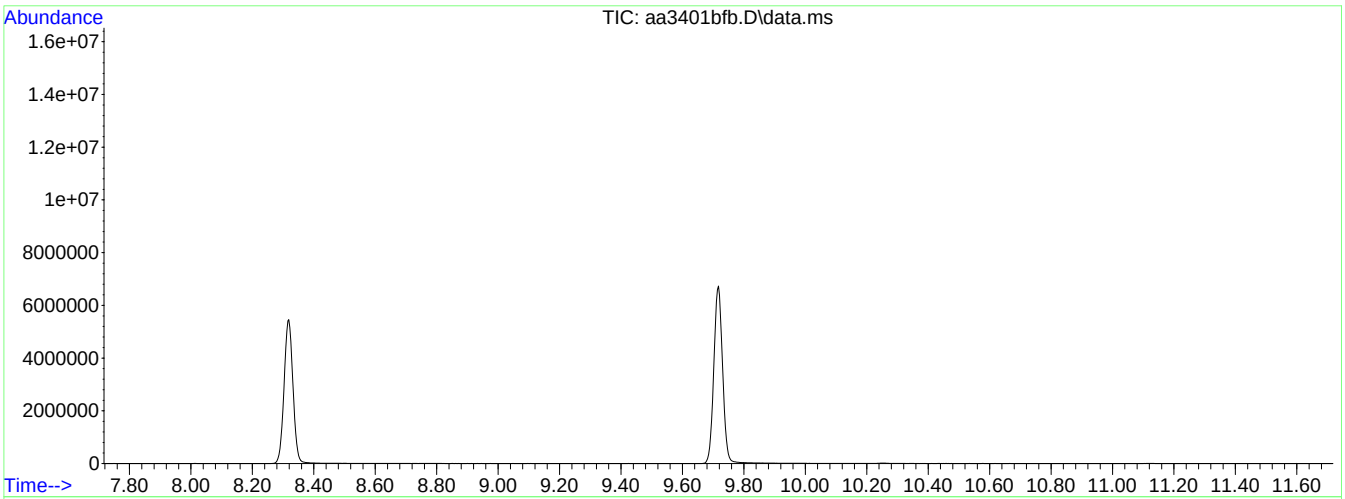
INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3401bfb.D
Acq On : 15 Aug 2023 10:11 am
Operator : jjw
Sample : BFB
Misc : ALM018474
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\230525.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Tue May 30 13:24:12 2023



AutoFind: Scans 2982, 2983, 2984; Background Corrected with Scan 2964

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.7	251499	PASS
75	95	30	66	52.3	703104	PASS
95	95	100	100	100.0	1345024	PASS
96	95	5	9	6.7	89525	PASS
173	174	0.00	2	0.8	8293	PASS
174	95	50	100	79.5	1069397	PASS
175	174	4	9	7.3	78181	PASS
176	174	93	101	96.8	1035413	PASS
177	176	5	9	6.6	68613	PASS

BFB

Data Path: C:\DATA\2023\10-2023\10-02-2023\
Data File: AA4101BFB.D
Acq On: 10/2/2023 11:11:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230815.M
Last Update: Wed Aug 16 10:00:51 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	199211	20.1
PASS	75	95	30	66	539733	54.5
PASS	95	95	100	100	990848	100.0
PASS	96	95	5	9	66717	6.7
PASS	173	174	0.00	2	6585	0.9
PASS	174	95	50	100	748288	75.5
PASS	175	174	4	9	56397	7.5
PASS	176	174	93	101	739904	98.9
PASS	177	176	5	9	48976	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4101BFB	NA	10/2/2023 11:11:00 AM
10 PPBV DCVS	AA4102DCVS	NA	10/2/2023 12:19:00 PM
10 PPBV LCS	AA4103LCS	NA	10/2/2023 12:50:00 PM
METHOD BLANK	AA4104BLK	NA	10/2/2023 1:32:00 PM
02 PPBV RLLCS	AA4105RLLCS	NA	10/2/2023 2:08:00 PM
3830	AA4106	NA	10/2/2023 2:44:00 PM
5087	AA4107	NA	10/2/2023 3:14:00 PM
2037	AA4108	NA	10/2/2023 3:45:00 PM
10 PPBV CCCVS	AA4125CCCVS	NA	10/3/2023 12:49:00 AM

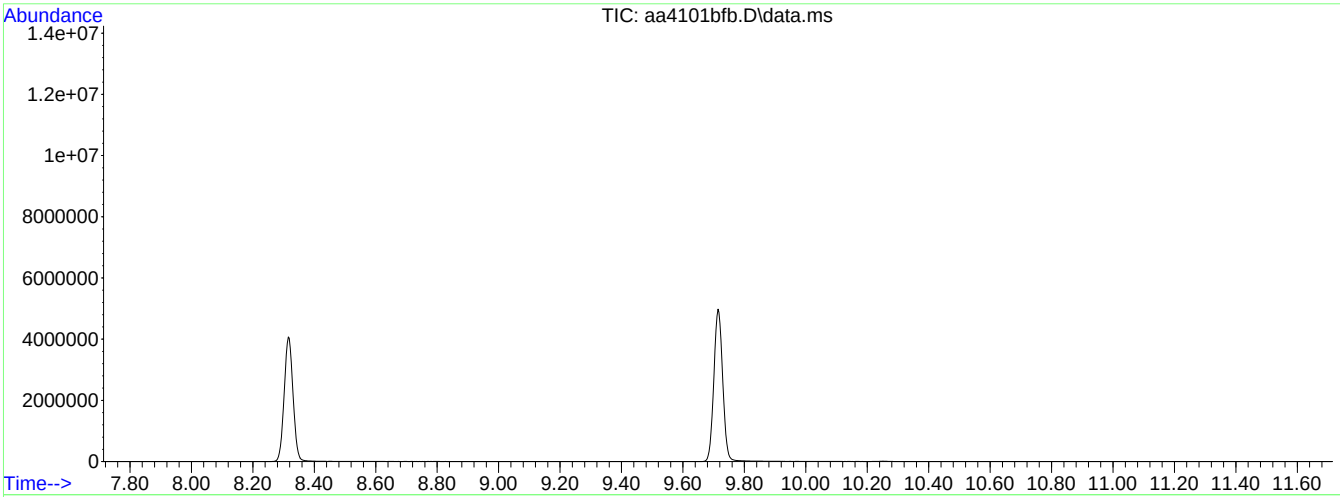
INTEGRATED ANALYTICAL LABORATORIES, LLC

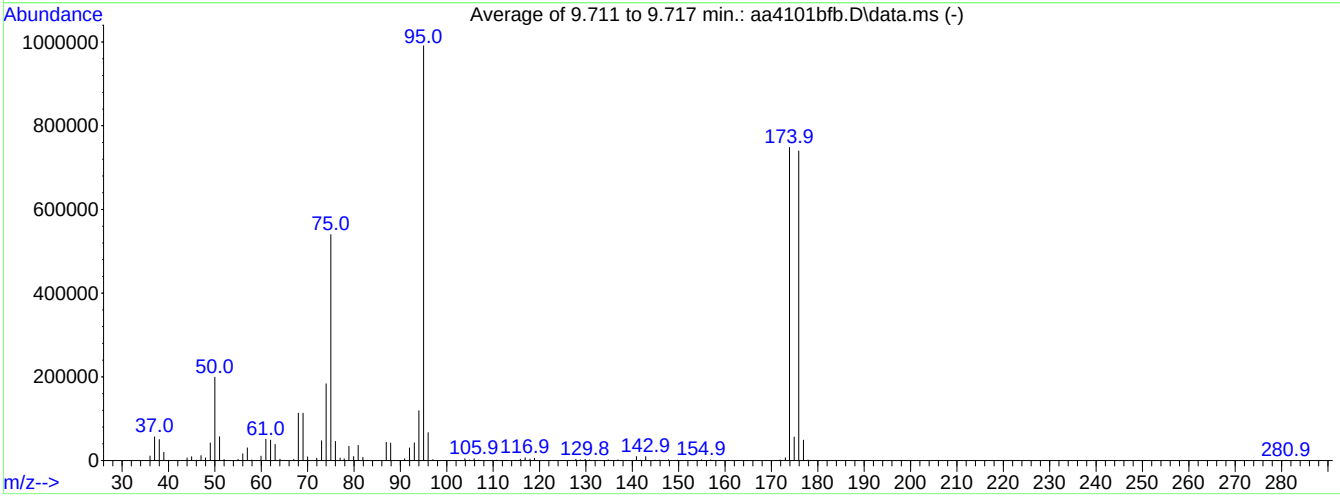
BFB

Data Path : C:\DATA\2023\10-2023\10-02-2023\
Data File : aa4101bfb.D
Acq On : 2 Oct 2023 11:11 am
Operator : jjw
Sample : BFB
Misc : ALM018474
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\230815.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Wed Aug 16 10:00:51 2023





AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2964

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	20.1	199211	PASS
75	95	30	66	54.5	539733	PASS
95	95	100	100	100.0	990848	PASS
96	95	5	9	6.7	66717	PASS
173	174	0.00	2	0.9	6585	PASS
174	95	50	100	75.5	748288	PASS
175	174	4	9	7.5	56397	PASS
176	174	93	101	98.9	739904	PASS
177	176	5	9	6.6	48976	PASS

INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path: C:\DATA\2023\10-2023\10-10-2023\

Data File: AA4131BFB.D

Acq On: 10/10/2023 10:13:00AM

Operator: jls

Sample: BFB

Misc: ALM018474

ALS Vial: 1 **Multiplier:** 1

Integration File: rteint.p

Method: C:\msdchem\1\METHODS\231009.M

Last Update: Tue Oct 10 09:54:56 2023

Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	65523	16.8
PASS	75	95	30	66	182571	46.8
PASS	95	95	100	100	389867	100.0
PASS	96	95	5	9	25643	6.6
PASS	173	174	0.00	2	0	0.0
PASS	174	95	50	100	293952	75.4
PASS	175	174	4	9	22269	7.6
PASS	176	174	93	101	282667	96.2
PASS	177	176	5	9	18629	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4131BFB	NA	10/10/2023 10:13:00 AM
0.2 PPBV STD	AA4132STD05	NA	10/10/2023 10:40:00 AM
2 PPBV STD	AA4133STD04	NA	10/10/2023 11:46:00 AM
10 PPBV STANDARD STD	AA4134STD03	NA	10/10/2023 12:21:00 PM
20 PPBV STD	AA4135STD02	NA	10/10/2023 12:55:00 PM
40 PPBV STD	AA4136STD01	NA	10/10/2023 2:05:00 PM
10 PPBV ICVSS	AA4137ICVSS	NA	10/10/2023 4:48:00 PM
10 PPBV LCS	AA4138LCS	NA	10/10/2023 5:39:00 PM
METHOD BLANK	AA4139BLK	NA	10/10/2023 6:07:00 PM
02 PPBV RLLCS	AA4140RLLCS	NA	10/10/2023 6:35:00 PM
5101	AA4142	NA	10/10/2023 7:36:00 PM
4869	AA4143	NA	10/10/2023 8:06:00 PM
2157	AA4144	NA	10/10/2023 8:36:00 PM
10 PPBV CCCVS	AA4154CCCVS	NA	10/11/2023 1:53:00 AM

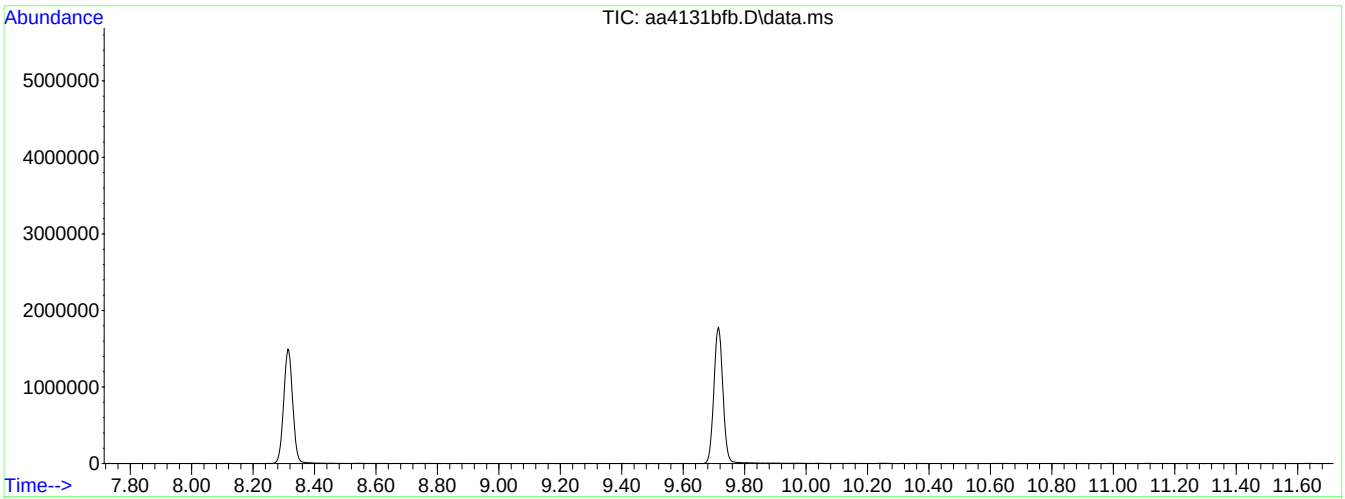
INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4131bfb.D
Acq On : 10 Oct 2023 10:13 am
Operator : jjw
Sample : BFB
Misc : ALM018474
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\231009.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Tue Oct 10 09:54:56 2023



AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2964

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	16.8	65523	PASS
75	95	30	66	46.8	182571	PASS
95	95	100	100	100.0	389867	PASS
96	95	5	9	6.6	25643	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	75.4	293952	PASS
175	174	4	9	7.6	22269	PASS
176	174	93	101	96.2	282667	PASS
177	176	5	9	6.6	18629	PASS

BFB

Data Path: C:\DATA\2023\11-2023\11-03-2023\
Data File: AA4527BFB.D
Acq On: 11/3/2023 9:42:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\231009.M
Last Update: Tue Oct 10 15:12:35 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	181269	18.0
PASS	75	95	30	66	495573	49.1
PASS	95	95	100	100	1008683	100.0
PASS	96	95	5	9	66328	6.6
PASS	173	174	0.00	2	7271	0.9
PASS	174	95	50	100	784213	77.7
PASS	175	174	4	9	57285	7.3
PASS	176	174	93	101	752875	96.0
PASS	177	176	5	9	49968	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4527BFB	NA	11/3/2023 9:42:00 AM
10 PPBV DCVS	AA4528DCVS	NA	11/3/2023 10:14:00 AM
10 PPBV LCS	AA4529LCS	NA	11/3/2023 10:43:00 AM
METHOD BLANK	AA4530BLK	NA	11/3/2023 11:41:00 AM
02 PPBV RLLCS	AA4531RLLCS	NA	11/3/2023 12:15:00 PM
2902	AA4532	NA	11/3/2023 1:01:00 PM
10 PPBV CCCVS	AA4549CCCVS	NA	11/3/2023 10:29:00 PM

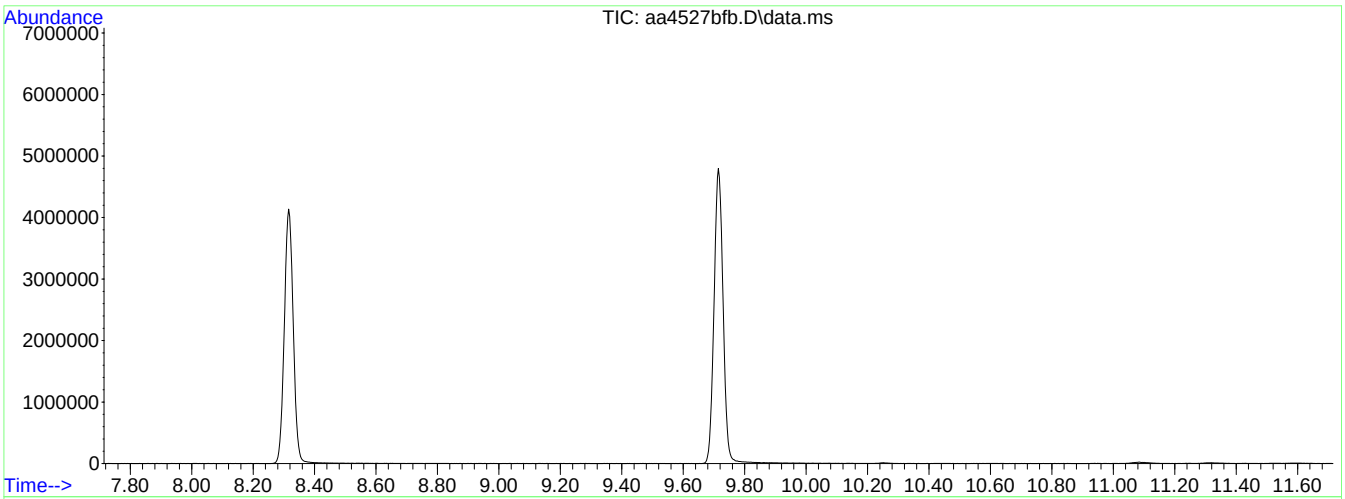
INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

```
Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4527bfb.D
Acq On    :  3 Nov 2023   9:42 am
Operator  : jjw
Sample    : BFB
Misc      : ALM018474
ALS Vial  : 1   Sample Multiplier: 1

Integration File: rteint.p

Method    : C:\msdchem\1\METHODS\231009.M
Title     : TO-15 on the Agilent 7890A / 5975C
Last Update  : Tue Oct 10 15:12:35 2023
```



AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2964

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.0	181269	PASS
75	95	30	66	49.1	495573	PASS
95	95	100	100	100.0	1008683	PASS
96	95	5	9	6.6	66328	PASS
173	174	0.00	2	0.9	7271	PASS
174	95	50	100	77.7	784213	PASS
175	174	4	9	7.3	57285	PASS
176	174	93	101	96.0	752875	PASS
177	176	5	9	6.6	49968	PASS

BFB

Data Path: C:\DATA\2023\12-2023\12-08-2023\
Data File: AA4881BFB.D
Acq On: 12/8/2023 10:21:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\231009.M
Last Update: Tue Oct 10 15:12:35 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	185045	18.5
PASS	75	95	30	66	508523	50.7
PASS	95	95	100	100	1002688	100.0
PASS	96	95	5	9	66973	6.7
PASS	173	174	0.00	2	4685	0.6
PASS	174	95	50	100	744704	74.3
PASS	175	174	4	9	56251	7.6
PASS	176	174	93	101	716907	96.3
PASS	177	176	5	9	46309	6.5

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4881BFB	NA	12/8/2023 10:21:00 AM
10 PPBV DCVS	AA4882DCVS	NA	12/8/2023 10:50:00 AM
10 PPBV LCS	AA4883LCS	NA	12/8/2023 11:21:00 AM
METHOD BLANK	AA4884BLK	NA	12/8/2023 12:26:00 PM
E23-05047-01	AA4886	SV1	12/8/2023 2:03:00 PM
E23-05047-02	AA4887	SV2	12/8/2023 2:35:00 PM
E23-05047-03	AA4888	SV3	12/8/2023 3:06:00 PM
E23-05047-04	AA4889	SV6	12/8/2023 3:42:00 PM
E23-05047-05	AA4890	SV7	12/8/2023 4:15:00 PM

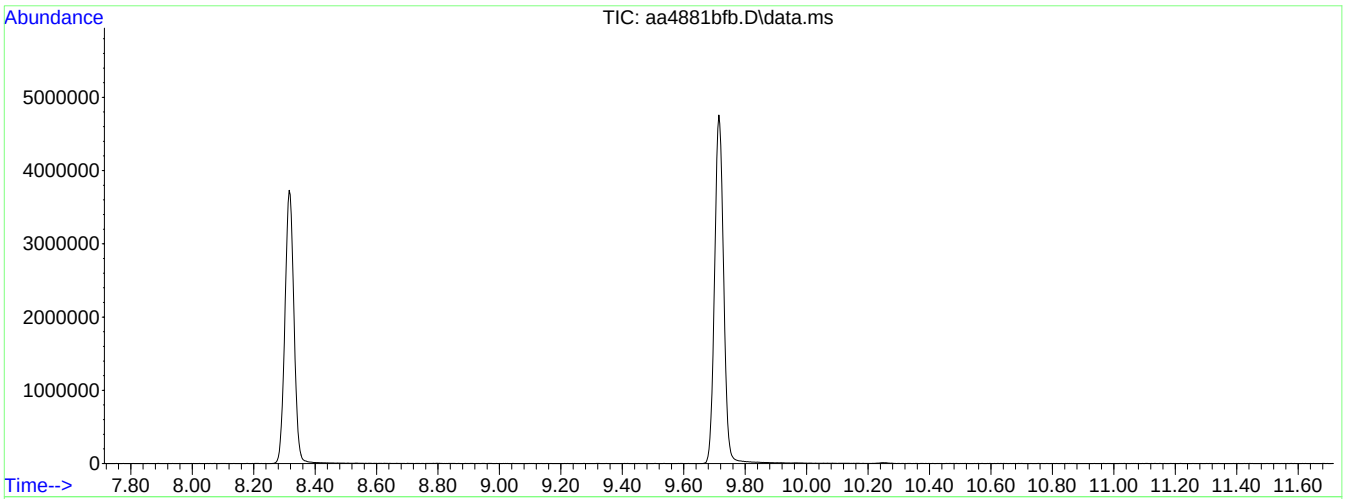
INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4881bfb.D
Acq On : 8 Dec 2023 10:21 am
Operator : jjw
Sample : BFB
Misc : ALM018474
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\231009.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Tue Oct 10 15:12:35 2023



AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2964

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.5	185045	PASS
75	95	30	66	50.7	508523	PASS
95	95	100	100	100.0	1002688	PASS
96	95	5	9	6.7	66973	PASS
173	174	0.00	2	0.6	4685	PASS
174	95	50	100	74.3	744704	PASS
175	174	4	9	7.6	56251	PASS
176	174	93	101	96.3	716907	PASS
177	176	5	9	6.5	46309	PASS

BFB

Data Path: C:\DATA\2023\12-2023\12-11-2023\
Data File: AA4901BFB.D
Acq On: 12/11/2023 9:24:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\231009.M
Last Update: Tue Oct 10 15:12:35 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	267904	18.4
PASS	75	95	30	66	717035	49.1
PASS	95	95	100	100	1459371	100.0
PASS	96	95	5	9	91040	6.2
PASS	173	174	0.00	2	10848	1.0
PASS	174	95	50	100	1053269	72.2
PASS	175	174	4	9	81547	7.7
PASS	176	174	93	101	1021824	97.0
PASS	177	176	5	9	65264	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4901BFB	NA	12/11/2023 9:24:00 AM
10 PPBV DCVS	AA4902DCVS	NA	12/11/2023 10:26:00 AM
10 PPBV LCS	AA4903LCS	NA	12/11/2023 10:57:00 AM
METHOD BLANK	AA4904BLK	NA	12/11/2023 11:51:00 AM
02 PPBV RLLCS	AA4905RLLCS	NA	12/11/2023 12:18:00 PM
1458	AA4906	NA	12/11/2023 12:50:00 PM
1588	AA4907	NA	12/11/2023 1:19:00 PM
3012	AA4908	NA	12/11/2023 1:49:00 PM
E23-05047-03	AA4909	SV3	12/11/2023 2:18:00 PM
E23-05047-04	AA4910	SV6	12/11/2023 2:50:00 PM
E23-05047-06	AA4914	SV8	12/11/2023 4:52:00 PM
E23-05047-06	AA4915	SV8	12/11/2023 5:43:00 PM
10 PPBV CCCVS	AA4931CCCVS	NA	12/12/2023 1:59:00 AM

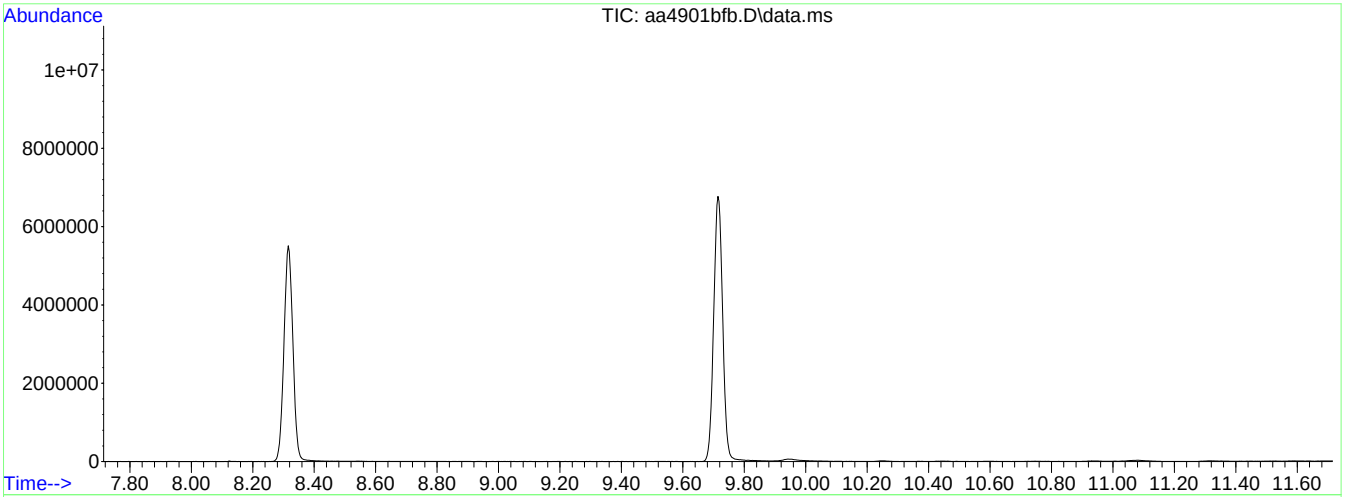
INTEGRATED ANALYTICAL LABORATORIES, LLC

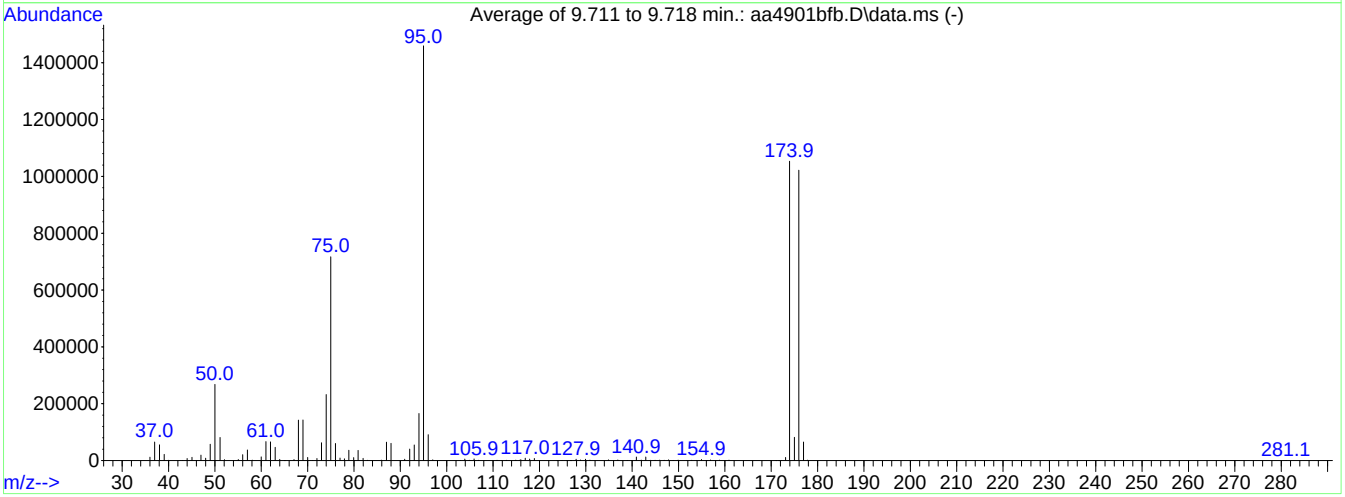
BFB

```
Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4901bfb.D
Acq On    : 11 Dec 2023   9:24 am
Operator  : jjw
Sample    : BFB
Misc      : ALM018474
ALS Vial  : 1   Sample Multiplier: 1

Integration File: rteint.p

Method    : C:\msdchem\1\METHODS\231009.M
Title     : TO-15 on the Agilent 7890A / 5975C
Last Update  : Tue Oct 10 15:12:35 2023
```





AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2963

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.4	267904	PASS
75	95	30	66	49.1	717035	PASS
95	95	100	100	100.0	1459371	PASS
96	95	5	9	6.2	91040	PASS
173	174	0.00	2	1.0	10848	PASS
174	95	50	100	72.2	1053269	PASS
175	174	4	9	7.7	81547	PASS
176	174	93	101	97.0	1021824	PASS
177	176	5	9	6.4	65264	PASS

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4104BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**10/2/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4101BFB]	10/02/2023 11:11
10 PPBV DCVS [AA4102DCVS]	10/02/2023 12:19
10 PPBV LCS [AA4103LCS]	10/02/2023 12:50
METHOD BLANK [AA4104BLK]	10/02/2023 13:32
02 PPBV RLLCS [AA4105RLLCS]	10/02/2023 14:08
3830 [AA4106]	10/02/2023 14:44
5087 [AA4107]	10/02/2023 15:14
2037 [AA4108]	10/02/2023 15:45
10 PPBV CCCVS [AA4125CCCVS]	10/03/2023 0:49

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4104BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**10/2/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4101BFB]	10/02/2023 11:11
10 PPBV DCVS [AA4102DCVS]	10/02/2023 12:19
10 PPBV LCS [AA4103LCS]	10/02/2023 12:50
METHOD BLANK [AA4104BLK]	10/02/2023 13:32
02 PPBV RLLCS [AA4105RLLCS]	10/02/2023 14:08
3830 [AA4106]	10/02/2023 14:44
5087 [AA4107]	10/02/2023 15:14
2037 [AA4108]	10/02/2023 15:45
10 PPBV CCCVS [AA4125CCCVS]	10/03/2023 0:49

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-02-2023\
Data File : aa4104blk.D
Acq On : 2 Oct 2023 1:32 pm
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 02 13:47:49 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

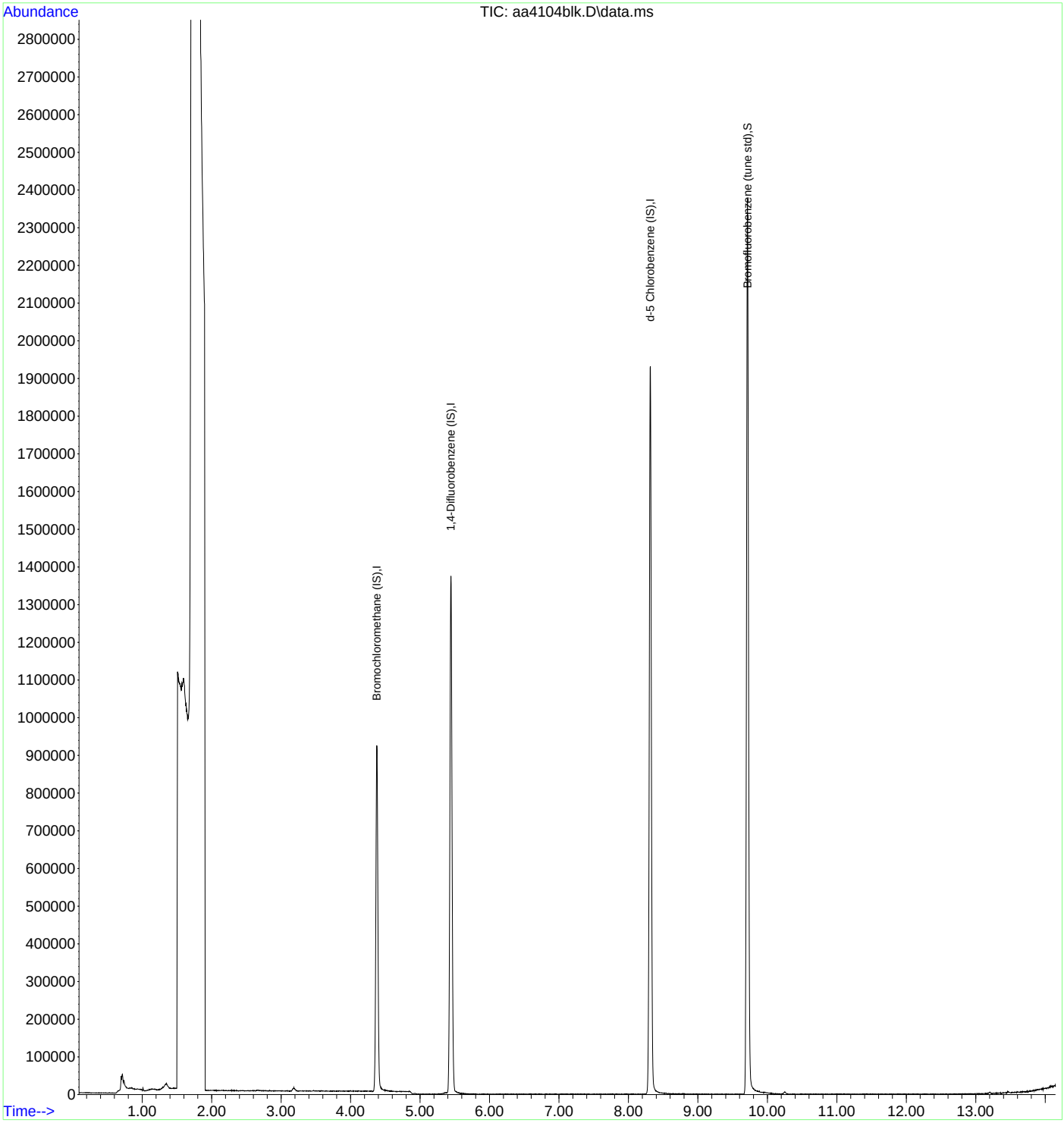
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.377	130	331240	10.00	ppbV	-0.019
39) 1,4-Difluorobenzene (IS)	5.444	114	1219678	10.00	ppbV	-0.013
55) d-5 Chlorobenzene (IS)	8.316	117	1233959	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	986736	9.61	ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\10-2023\10-02-2023\
Data File : aa4104blk.D
Acq On : 2 Oct 2023 1:32 pm
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 02 13:47:49 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4530BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**11/3/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4527BFB]	11/03/2023 9:42
10 PPBV DCVS [AA4528DCVS]	11/03/2023 10:14
10 PPBV LCS [AA4529LCS]	11/03/2023 10:43
METHOD BLANK [AA4530BLK]	11/03/2023 11:41
02 PPBV RLLCS [AA4531RLLCS]	11/03/2023 12:15
2902 [AA4532]	11/03/2023 13:01
10 PPBV CCCVS [AA4549CCCVS]	11/03/2023 22:29

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4530BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**11/3/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4527BFB]	11/03/2023 9:42
10 PPBV DCVS [AA4528DCVS]	11/03/2023 10:14
10 PPBV LCS [AA4529LCS]	11/03/2023 10:43
METHOD BLANK [AA4530BLK]	11/03/2023 11:41
02 PPBV RLLCS [AA4531RLLCS]	11/03/2023 12:15
2902 [AA4532]	11/03/2023 13:01
10 PPBV CCCVS [AA4549CCCVS]	11/03/2023 22:29

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4530blk.D
Acq On : 3 Nov 2023 11:41 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 03 11:57:45 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

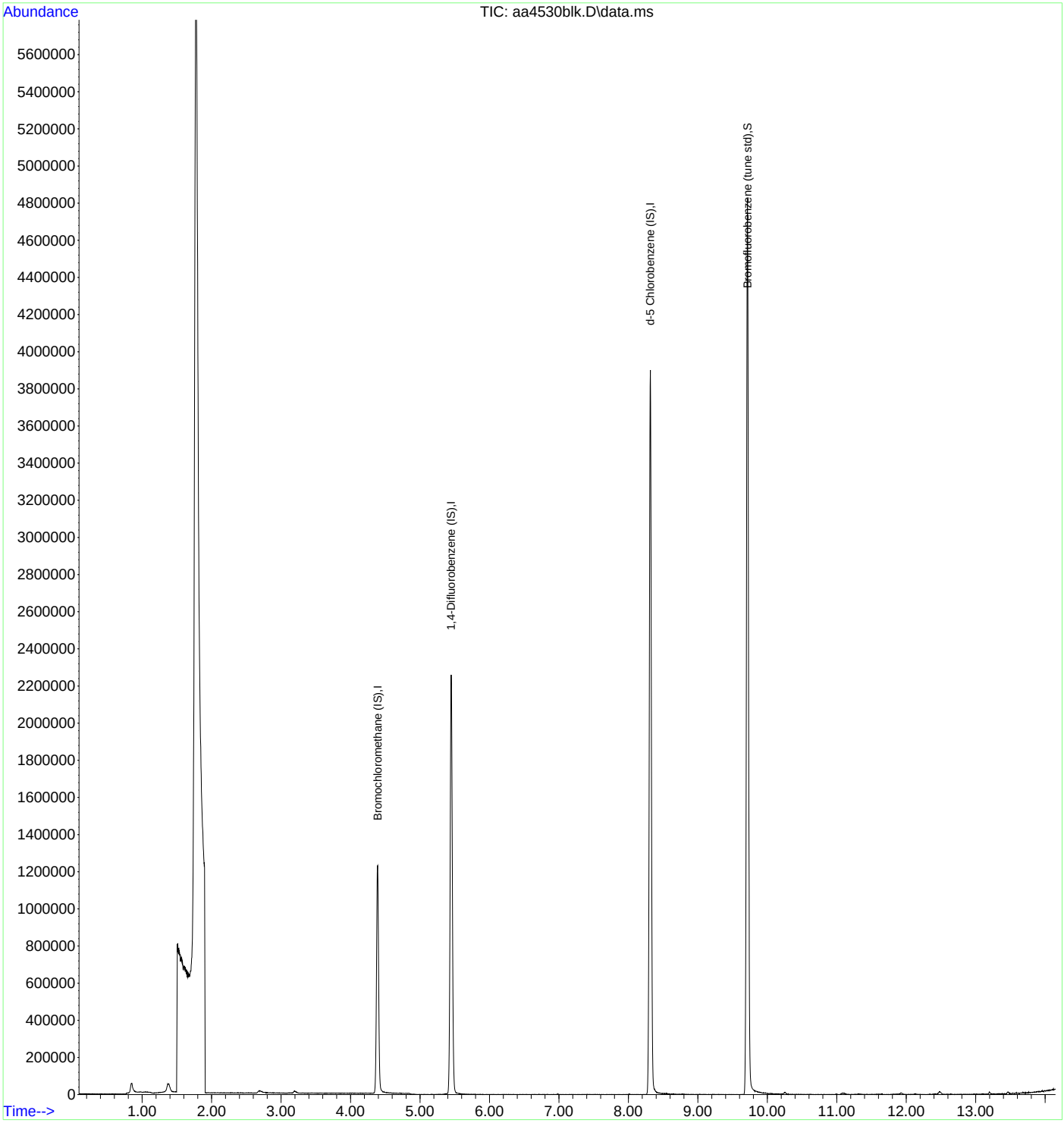
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.391	130	489033	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.448	114	2096750	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2579796	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	2133306	9.49	ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4530blk.D
Acq On : 3 Nov 2023 11:41 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 03 11:57:45 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4884BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/8/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05047-01 [AA4886]	12/08/2023 14:03
E23-05047-02 [AA4887]	12/08/2023 14:35
E23-05047-03 [AA4888]	12/08/2023 15:06
E23-05047-04 [AA4889]	12/08/2023 15:42
E23-05047-05 [AA4890]	12/08/2023 16:15

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4884BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/8/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05047-01 [AA4886]	12/08/2023 14:03
E23-05047-02 [AA4887]	12/08/2023 14:35
E23-05047-03 [AA4888]	12/08/2023 15:06
E23-05047-04 [AA4889]	12/08/2023 15:42
E23-05047-05 [AA4890]	12/08/2023 16:15

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4884blk.D
Acq On : 8 Dec 2023 12:26 pm
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 12 09:46:27 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

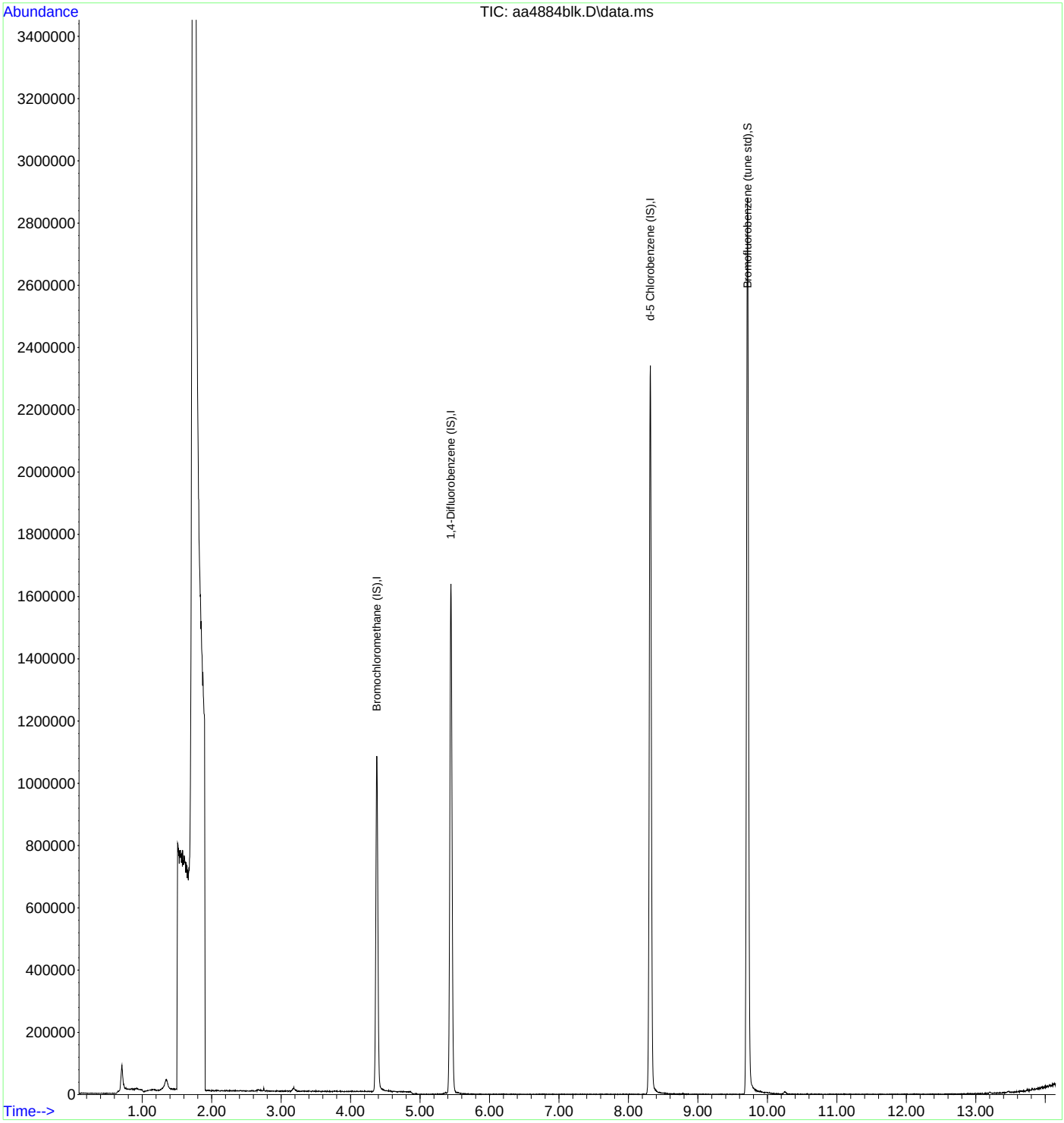
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.377	130	407142	10.00	ppbV	-0.017
39) 1,4-Difluorobenzene (IS)	5.444	114	1506485	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1527551	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1276284	9.58	ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4884blk.D
Acq On : 8 Dec 2023 12:26 pm
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 12 09:46:27 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05047-03 [AA4909]	12/11/2023 14:18
E23-05047-04 [AA4910]	12/11/2023 14:50
E23-05047-06 [AA4914]	12/11/2023 16:52
E23-05047-06 [AA4915]	12/11/2023 17:43
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05047-03 [AA4909]	12/11/2023 14:18
E23-05047-04 [AA4910]	12/11/2023 14:50
E23-05047-06 [AA4914]	12/11/2023 16:52
E23-05047-06 [AA4915]	12/11/2023 17:43
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4904blk.D
Acq On : 11 Dec 2023 11:51 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 11 12:06:14 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

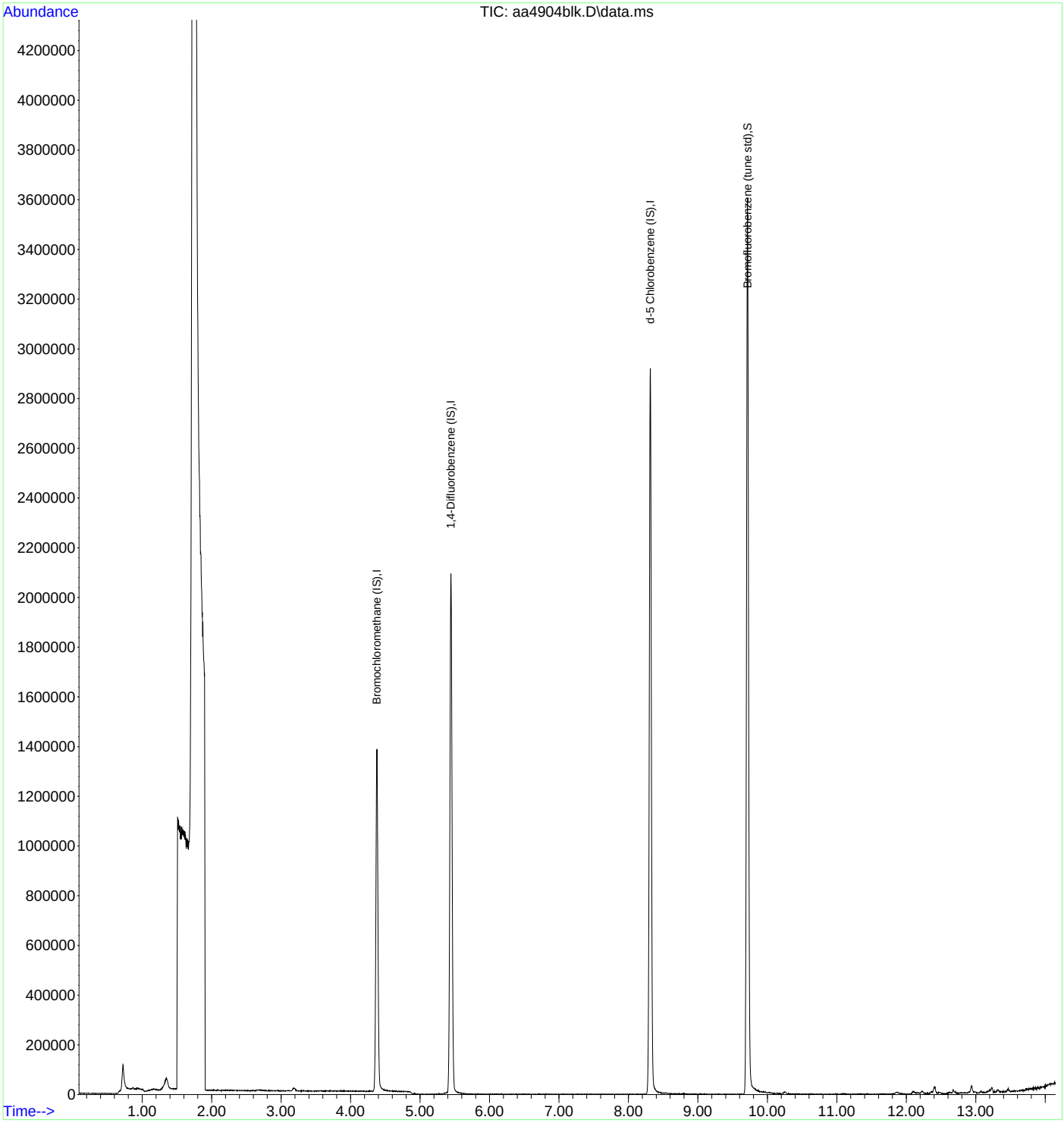
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.377	130	518939	10.00	ppbV	-0.017
39) 1,4-Difluorobenzene (IS)	5.444	114	1920464	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	1920350	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1609305	9.61	ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4904blk.D
Acq On : 11 Dec 2023 11:51 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 11 12:06:14 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4103LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 10/2/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4101BFB]	10/02/2023 11:11
10 PPBV DCVS [AA4102DCVS]	10/02/2023 12:19
10 PPBV LCS [AA4103LCS]	10/02/2023 12:50
METHOD BLANK [AA4104BLK]	10/02/2023 13:32
02 PPBV RLLCS [AA4105RLLCS]	10/02/2023 14:08
3830 [AA4106]	10/02/2023 14:44
5087 [AA4107]	10/02/2023 15:14
2037 [AA4108]	10/02/2023 15:45
10 PPBV CCCVS [AA4125CCCVS]	10/03/2023 0:49

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	13	120
Benzene	71-43-2	11	110
Bromodichloromethane	75-27-4	11	100
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	13	120
1,3-Butadiene	106-99-0	12	120
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	12	120
Chloroform	67-66-3	11	110
Chloromethane	74-87-3	15	130
Carbon disulfide	75-15-0	14	130
Carbon tetrachloride	56-23-5	9.9	99
Cyclohexane	110-82-7	11	110
Dibromochloromethane	124-48-1	8.9	81
1,2-Dibromoethane	106-93-4	8.6	78
1,2-Dichlorobenzene	95-50-1	9.9	90
1,3-Dichlorobenzene	541-73-1	9.7	88
1,4-Dichlorobenzene	106-46-7	10	91
Dichlorodifluoromethane	75-71-8	13	120
1,1-Dichloroethane	75-34-3	12	110
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	13	120
1,2-Dichloroethene (cis)	156-59-2	12	110
1,2-Dichloroethene (trans)	156-60-5	13	120
1,2-Dichloropropane	78-87-5	9.6	96
1,3-Dichloropropene (cis)	10061-01-5	9.7	88
1,3-Dichloropropene (trans)	10061-02-6	9.8	99
1,2-Dichlorotetrafluoroethane	76-14-2	10	91
1,4-Dioxane	123-91-1	9.7	81
Ethylbenzene	100-41-4	9.7	97
n-Heptane	142-82-5	9.1	91

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: **10 PPBV LCS** **Data File:** **AA4103LCS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **10/2/2023**

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4101BFB]	10/02/2023 11:11
10 PPBV DCVS [AA4102DCVS]	10/02/2023 12:19
10 PPBV LCS [AA4103LCS]	10/02/2023 12:50
METHOD BLANK [AA4104BLK]	10/02/2023 13:32
02 PPBV RLLCS [AA4105RLLCS]	10/02/2023 14:08
3830 [AA4106]	10/02/2023 14:44
5087 [AA4107]	10/02/2023 15:14
2037 [AA4108]	10/02/2023 15:45
10 PPBV CCCVS [AA4125CCCVS]	10/03/2023 0:49

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
1,3-Hexachlorobutadiene	87-68-3	10	88
n-Hexane	110-54-3	11	110
Methylene chloride	75-09-2	14	130
Methyl ethyl ketone	78-93-3	12	100
Methyl isobutyl ketone	108-10-1	8.5	77
Methyl tert-butyl ether	1634-04-4	11	100
Styrene	100-42-5	10	91
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	9.6	87
Tetrachloroethene	127-18-4	8.5	85
Toluene	108-88-3	8.5	85
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	9.6	96
1,1,2-Trichloroethane	79-00-5	8.4	76
Trichloroethene	79-01-6	9.3	93
Trichlorofluoromethane	75-69-4	12	110
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.6	96
1,2,4-Trimethylbenzene	95-63-6	9.8	89
1,3,5-Trimethylbenzene	108-67-8	9.7	88
2,2,4-Trimethylpentane	540-84-1	13	130
Vinyl bromide	593-60-2	13	130
Vinyl chloride	75-01-4	14	130
Xylenes (m&p)	179601-23-1	21	110
Xylenes (o)	95-47-6	9.5	95

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.
*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-02-2023\
Data File : aa4103lcs.D
Acq On : 2 Oct 2023 12:50 pm
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 03 11:32:44 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.383	130	386186	10.00	ppbV	-0.013
39) 1,4-Difluorobenzene (IS)	5.447	114	1668212	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1565045	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1234820	9.48	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.463	41	332480	12.50	ppbV	99
3) Dichlorodifluoromethane	1.499	85	1234244	12.65	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.626	85	1470693	10.47	ppbV	94
5) n-Butane	1.701	43	786787	12.46	ppbV	99
6) Chloromethane	1.763	52	65925	14.59	ppbV	96
7) Vinyl chloride	1.760	62	495439	13.50	ppbV	99
8) 1,3-Butadiene	1.770	39	465616	12.41	ppbV	97
9) Bromomethane	2.062	94	394452	12.80	ppbV	99
10) Chloroethane	2.178	64	240136	12.03	ppbV	95
11) Vinyl bromide	2.271	106	489128	12.62	ppbV	100
12) Trichlorofluoromethane	2.290	101	1537322	11.71	ppbV	99
13) Ethanol	2.650	45	193101	12.49	ppbV	100
14) 1,1-Dichloroethene	2.711	61	1014153	12.57	ppbV	96
15) Carbon disulfide	2.734	76	1830136	13.82	ppbV	98
16) 1,1,2-Trichloro-1,2,2-...	2.753	101	1246805	9.61	ppbV	97
17) Acrolein	2.965	56	208067	12.54	ppbV	99
18) Allyl chloride	3.094	76	294646	13.64	ppbV	100
19) Isopropanol	3.094	45	960434	10.76	ppbV	99
20) Methylene chloride	3.187	49	678721	13.93	ppbV	92
21) Acetone	3.194	43	952353	13.14	ppbV	98
22) trans-1,2-Dichloroethene	3.309	61	949249	13.08	ppbV	93
23) n-Pentane	3.396	43	1082894	11.70	ppbV	99
24) n-Hexane	3.393	57	1444158	11.17	ppbV	96
25) Methyl tert-butyl ether	3.393	73	1863109	10.59	ppbV	95
26) Tert-butyl alcohol	3.451	59	1245475	11.01	ppbV	100
27) 1,1-Dichloroethane	3.795	63	1180655	11.59	ppbV	100
28) cis-1,2-Dichloroethene	4.222	61	856695	12.16	ppbV	95
29) Cyclohexane	4.403	56	983570	10.52	ppbV	96
30) Chloroform	4.444	83	1410664	11.32	ppbV	98
31) Ethyl acetate	4.531	61	205271	10.34	ppbV	93
32) Carbon tetrachloride	4.570	117	1475247	9.87	ppbV	100
33) Tetrahydrofuran	4.563	42	839913	12.00	ppbV	98
34) 1,1,1-Trichloroethane	4.618	97	1285888	9.56	ppbV	100
35) Methyl ethyl ketone	4.676	43	1339903	11.99	ppbV	97
36) n-Heptane	4.911	43	1180319	9.12	ppbV	96
37) Benzene	4.923	78	1929835	10.83	ppbV	100
38) 1,2-Dichloroethane	5.084	62	912184	11.43	ppbV	100
40) Trichloroethene	5.425	130	787139	9.30	ppbV	100
41) 2,2,4-Trimethylpentane	4.837	57	2800785	13.25	ppbV	98
42) 1,2-Dichloropropane	5.878	63	728214	9.57	ppbV	98
43) Bromodichloromethane	5.939	83	1466856	11.06	ppbV	98
44) Methyl methacrylate	6.084	41	925465	9.45	ppbV	97
45) 1,4-Dioxane	6.110	88	456357	9.72	ppbV	96
46) cis-1,3-Dichloropropene	6.531	75	1140290	9.69	ppbV	99
47) Toluene	6.769	91	2276726	8.51	ppbV	100
48) Methyl isobutyl ketone	7.132	43	1646826	8.52	ppbV	97
49) Tetrachloroethene	7.155	166	1025434	8.53	ppbV	99
50) trans-1,3-Dichloropropene	7.171	75	1135683	9.79	ppbV	97
51) 1,1,2-Trichloroethane	7.335	97	790890	8.39	ppbV	99

Data Path : C:\DATA\2023\10-2023\10-02-2023\
Data File : aa4103lcs.D
Acq On : 2 Oct 2023 12:50 pm
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 03 11:32:44 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

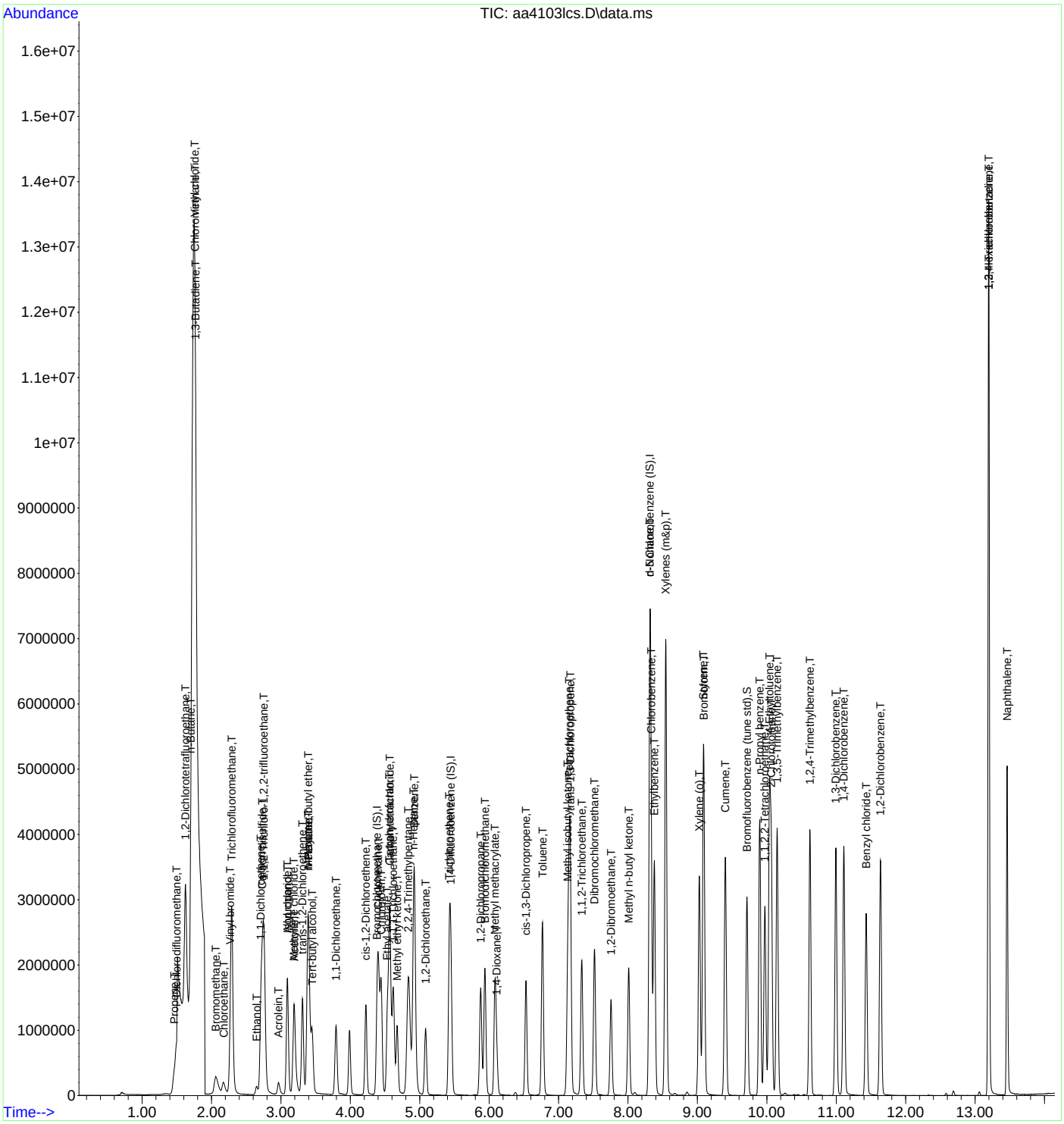
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.518	129	1399914	8.89	ppbV	100
53)	1,2-Dibromoethane	7.756	107	1179631	8.55	ppbV	100
54)	Methyl n-butyl ketone	8.010	43	1578315	8.72	ppbV	97
56)	n-Nonane	8.316	43	1703288	8.89	ppbV	96
57)	Chlorobenzene	8.335	112	1719116	10.03	ppbV	99
58)	Ethylbenzene	8.380	91	3068555	9.68	ppbV	99
59)	Xylenes (m&p)	8.544	91	4712578	20.63	ppbV	98
60)	Xylene (o)	9.026	91	2421061	9.54	ppbV	99
61)	Styrene	9.087	104	1737193	10.32	ppbV	99
62)	Bromoform	9.094	173	1391335	10.70	ppbV	100
63)	Cumene	9.402	105	3049165	9.23	ppbV	98
65)	n-Propyl benzene	9.897	91	4121000	9.56	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.971	83	1849747	9.62	ppbV	99
67)	4-Ethyltoluene	10.039	105	3385481	9.53	ppbV	98
68)	2-Chlorotoluene	10.065	91	2826291	9.67	ppbV	99
69)	1,3,5-Trimethylbenzene	10.148	105	2785543	9.69	ppbV	98
70)	1,2,4-Trimethylbenzene	10.621	105	2793536	9.80	ppbV	97
71)	1,3-Dichlorobenzene	10.994	146	1831435	9.69	ppbV	99
72)	1,4-Dichlorobenzene	11.110	146	1837098	10.11	ppbV	100
73)	Benzyl chloride	11.431	91	2506674	10.07	ppbV	98
74)	1,2-Dichlorobenzene	11.637	146	1767351	9.88	ppbV	99
75)	1,3-Hexachlorobutadiene	13.196	225	1302827	10.16	ppbV	100
76)	1,2,4-Trichlorobenzene	13.196	180	1497882	10.65	ppbV	99
77)	Naphthalene	13.463	128	3095756	10.65	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-02-2023\
Data File : aa4103lcs.D
Acq On : 2 Oct 2023 12:50 pm
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 03 11:32:44 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: **10 PPBV LCS** **Data File:** **AA4529LCS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **11/3/2023**

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4527BFB]	11/03/2023 9:42
10 PPBV DCVS [AA4528DCVS]	11/03/2023 10:14
10 PPBV LCS [AA4529LCS]	11/03/2023 10:43
METHOD BLANK [AA4530BLK]	11/03/2023 11:41
02 PPBV RLLCS [AA4531RLLCS]	11/03/2023 12:15
2902 [AA4532]	11/03/2023 13:01
10 PPBV CCCVS [AA4549CCCVS]	11/03/2023 22:29

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	13	120
Benzene	71-43-2	11	110
Bromodichloromethane	75-27-4	12	110
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	12	110
1,3-Butadiene	106-99-0	11	110
Chlorobenzene	108-90-7	11	110
Chloroethane	75-00-3	13	130
Chloroform	67-66-3	12	120
Chloromethane	74-87-3	13	110
Carbon disulfide	75-15-0	12	110
Carbon tetrachloride	56-23-5	11	110
Cyclohexane	110-82-7	11	110
Dibromochloromethane	124-48-1	12	110
1,2-Dibromoethane	106-93-4	12	110
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	11	100
1,4-Dichlorobenzene	106-46-7	11	100
Dichlorodifluoromethane	75-71-8	12	110
1,1-Dichloroethane	75-34-3	12	110
1,2-Dichloroethane	107-06-2	13	130
1,1-Dichloroethene	75-35-4	13	120
1,2-Dichloroethene (cis)	156-59-2	13	120
1,2-Dichloroethene (trans)	156-60-5	13	120
1,2-Dichloropropane	78-87-5	11	110
1,3-Dichloropropene (cis)	10061-01-5	11	100
1,3-Dichloropropene (trans)	10061-02-6	12	120
1,2-Dichlorotetrafluoroethane	76-14-2	10	91
1,4-Dioxane	123-91-1	12	100
Ethylbenzene	100-41-4	10	100
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	10	88
n-Hexane	110-54-3	11	110

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4529LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 11/3/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4527BFB]	11/03/2023 9:42
10 PPBV DCVS [AA4528DCVS]	11/03/2023 10:14
10 PPBV LCS [AA4529LCS]	11/03/2023 10:43
METHOD BLANK [AA4530BLK]	11/03/2023 11:41
02 PPBV RLLCS [AA4531RLLCS]	11/03/2023 12:15
2902 [AA4532]	11/03/2023 13:01
10 PPBV CCCVS [AA4549CCCVS]	11/03/2023 22:29

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Methylene chloride	75-09-2	10	91
Methyl ethyl ketone	78-93-3	12	100
Methyl isobutyl ketone	108-10-1	11	100
Methyl tert-butyl ether	1634-04-4	11	100
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	12	100
1,1,2,2-Tetrachloroethane	79-34-5	10	91
Tetrachloroethene	127-18-4	12	120
Toluene	108-88-3	11	110
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	11	110
1,1,2-Trichloroethane	79-00-5	11	100
Trichloroethene	79-01-6	10	100
Trichlorofluoromethane	75-69-4	13	120
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	110
1,2,4-Trimethylbenzene	95-63-6	10	91
1,3,5-Trimethylbenzene	108-67-8	10.0	91
2,2,4-Trimethylpentane	540-84-1	10.0	100
Vinyl bromide	593-60-2	12	120
Vinyl chloride	75-01-4	12	120
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	9.9	99

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4529lcs.D
Acq On : 3 Nov 2023 10:43 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 03 10:59:59 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.393	130	413938	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	1886379	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2273352	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1959253	9.89	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	301523	10.49	ppbV	97
3) Dichlorodifluoromethane	1.530	85	1105693	12.05	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.650	85	1374956	10.32	ppbV	98
5) n-Butane	1.726	43	745609	11.28	ppbV	95
6) Chloromethane	1.795	52	60841	13.27	ppbV	90
7) Vinyl chloride	1.784	62	442207	11.79	ppbV	100
8) 1,3-Butadiene	1.795	39	369243	10.54	ppbV	99
9) Bromomethane	2.082	94	356701	11.78	ppbV	97
10) Chloroethane	2.194	64	250658	12.75	ppbV	100
11) Vinyl bromide	2.291	106	443135	11.96	ppbV	99
12) Trichlorofluoromethane	2.313	101	1471169	12.70	ppbV	100
13) Ethanol	2.664	45	149890	12.37	ppbV	99
14) 1,1-Dichloroethene	2.731	61	975292	12.68	ppbV	97
15) Carbon disulfide	2.750	76	1573732	12.43	ppbV	98
16) 1,1,2-Trichloro-1,2,2-...	2.773	101	1263504	10.83	ppbV	98
17) Acrolein	2.985	56	193430	11.19	ppbV	99
18) Allyl chloride	3.107	76	257726	12.42	ppbV	100
19) Isopropanol	3.110	45	802103	9.66	ppbV	98
20) Methylene chloride	3.200	49	529989	10.42	ppbV	98
21) Acetone	3.210	43	791795	12.68	ppbV	99
22) trans-1,2-Dichloroethene	3.323	61	932569	13.06	ppbV	100
23) n-Pentane	3.406	43	1072527	11.15	ppbV	98
24) n-Hexane	3.406	57	1459500	11.19	ppbV	98
25) Methyl tert-butyl ether	3.409	73	1784635	11.13	ppbV	98
26) Tert-butyl alcohol	3.461	59	1258149	11.66	ppbV	100
27) 1,1-Dichloroethane	3.805	63	1128475	11.74	ppbV	99
28) cis-1,2-Dichloroethene	4.233	61	852708	12.57	ppbV	99
29) Cyclohexane	4.413	56	984909	10.81	ppbV	99
30) Chloroform	4.454	83	1369379	12.36	ppbV	99
31) Ethyl acetate	4.541	61	216935	12.04	ppbV	98
32) Carbon tetrachloride	4.577	117	1484214	11.30	ppbV	99
33) Tetrahydrofuran	4.570	42	737395	11.84	ppbV	98
34) 1,1,1-Trichloroethane	4.628	97	1295709	11.26	ppbV	99
35) Methyl ethyl ketone	4.683	43	1186642	11.74	ppbV	99
36) n-Heptane	4.917	43	1266938	11.07	ppbV	99
37) Benzene	4.930	78	1850254	11.25	ppbV	99
38) 1,2-Dichloroethane	5.091	62	874996	12.71	ppbV	100
40) Trichloroethene	5.432	130	865530	10.37	ppbV	100
41) 2,2,4-Trimethylpentane	4.847	57	2456432	10.00	ppbV	100
42) 1,2-Dichloropropane	5.882	63	799646	10.90	ppbV	99
43) Bromodichloromethane	5.943	83	1494594	12.09	ppbV	99
44) Methyl methacrylate	6.088	41	1021586	11.48	ppbV	98
45) 1,4-Dioxane	6.110	88	528037	11.75	ppbV	99
46) cis-1,3-Dichloropropene	6.535	75	1305859	11.48	ppbV	100
47) Toluene	6.769	91	2943811	11.10	ppbV	100
48) Methyl isobutyl ketone	7.133	43	1815317	10.90	ppbV	99
49) Tetrachloroethene	7.159	166	1349018	11.80	ppbV	100
50) trans-1,3-Dichloropropene	7.175	75	1343500	12.17	ppbV	98
51) 1,1,2-Trichloroethane	7.335	97	1013520	11.32	ppbV	99

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4529lcs.D
Acq On : 3 Nov 2023 10:43 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 03 10:59:59 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	7.519	129	1799846	12.06	ppbV	99
53) 1,2-Dibromoethane	7.757	107	1503561	11.61	ppbV	100
54) Methyl n-butyl ketone	8.007	43	1934779	12.07	ppbV	99
56) n-Nonane	8.313	43	2314591	10.26	ppbV	99
57) Chlorobenzene	8.335	112	2400145	10.59	ppbV	100
58) Ethylbenzene	8.380	91	4394992	10.49	ppbV	100
59) Xylenes (m&p)	8.544	91	6772167	21.82	ppbV	99
60) Xylene (o)	9.027	91	3358898	9.92	ppbV	99
61) Styrene	9.084	104	2535586	10.93	ppbV	99
62) Bromoform	9.094	173	1885582	11.33	ppbV	100
63) Cumene	9.403	105	4250848	9.60	ppbV	100
65) n-Propyl benzene	9.898	91	6037566	10.45	ppbV	99
66) 1,1,2,2-Tetrachloroethane	9.969	83	2464317	10.39	ppbV	99
67) 4-Ethyltoluene	10.039	105	5062902	10.35	ppbV	100
68) 2-Chlorotoluene	10.062	91	3942826	10.16	ppbV	100
69) 1,3,5-Trimethylbenzene	10.149	105	3927296	9.99	ppbV	99
70) 1,2,4-Trimethylbenzene	10.621	105	3993584	10.16	ppbV	100
71) 1,3-Dichlorobenzene	10.994	146	2543288	10.57	ppbV	100
72) 1,4-Dichlorobenzene	11.110	146	2550157	10.53	ppbV	99
73) Benzyl chloride	11.432	91	3424946	9.86	ppbV	99
74) 1,2-Dichlorobenzene	11.637	146	2367662	10.14	ppbV	99
75) 1,3-Hexachlorobutadiene	13.197	225	1693602	10.45	ppbV	100
76) 1,2,4-Trichlorobenzene	13.197	180	1968588	10.51	ppbV	99
77) Naphthalene	13.464	128	3946320	9.21	ppbV	100

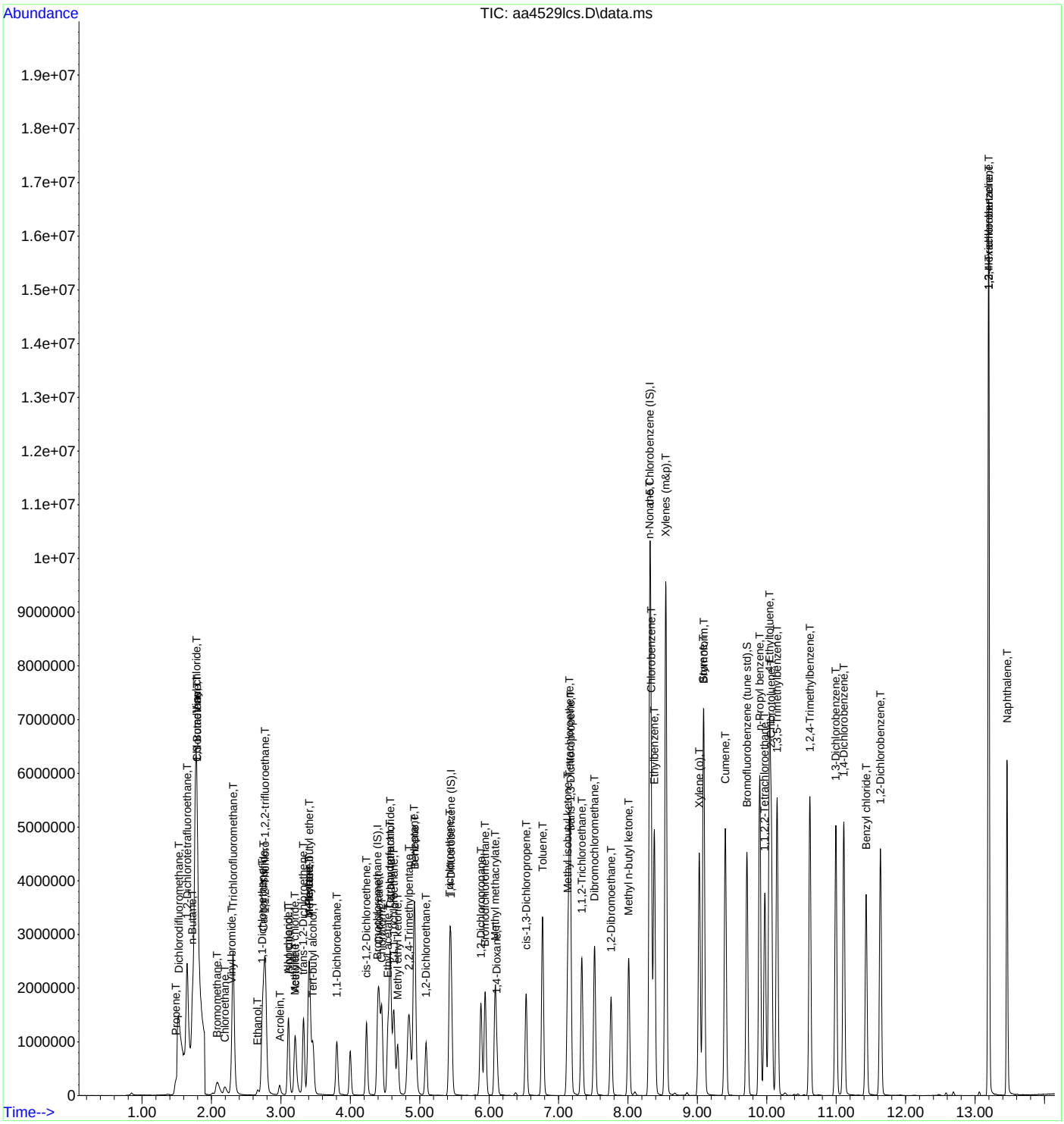
(#) = qualifier out of range (m) = manual integration (+) = signals summed

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4529lcs.D
Acq On : 3 Nov 2023 10:43 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 03 10:59:59 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4883LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/8/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05047-01 [AA4886]	12/08/2023 14:03
E23-05047-02 [AA4887]	12/08/2023 14:35
E23-05047-03 [AA4888]	12/08/2023 15:06
E23-05047-04 [AA4889]	12/08/2023 15:42
E23-05047-05 [AA4890]	12/08/2023 16:15

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	100
Benzene	71-43-2	9.3	93
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	11	100
1,3-Butadiene	106-99-0	9.9	99
Chlorobenzene	108-90-7	9.9	99
Chloroethane	75-00-3	11	110
Chloroform	67-66-3	10.0	100
Chloromethane	74-87-3	12	100
Carbon disulfide	75-15-0	11	100
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	10	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	9.7	88
1,3-Dichlorobenzene	541-73-1	9.8	89
1,4-Dichlorobenzene	106-46-7	9.6	87
Dichlorodifluoromethane	75-71-8	11	100
1,1-Dichloroethane	75-34-3	9.4	85
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	100
1,2-Dichloroethene (cis)	156-59-2	10	91
1,2-Dichloroethene (trans)	156-60-5	11	100
1,2-Dichloropropane	78-87-5	11	110
1,3-Dichloropropene (cis)	10061-01-5	11	100
1,3-Dichloropropene (trans)	10061-02-6	12	120
1,2-Dichlorotetrafluoroethane	76-14-2	9.0	82
1,4-Dioxane	123-91-1	12	100
Ethylbenzene	100-41-4	10	100
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	10.0	88
n-Hexane	110-54-3	10.0	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4883LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/8/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05047-01 [AA4886]	12/08/2023 14:03
E23-05047-02 [AA4887]	12/08/2023 14:35
E23-05047-03 [AA4888]	12/08/2023 15:06
E23-05047-04 [AA4889]	12/08/2023 15:42
E23-05047-05 [AA4890]	12/08/2023 16:15

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Methylene chloride	75-09-2	9.5	86
Methyl ethyl ketone	78-93-3	10	85
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	10	91
Styrene	100-42-5	10	91
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	10	91
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	10	88
1,1,1-Trichloroethane	71-55-6	10	100
1,1,2-Trichloroethane	79-00-5	10	91
Trichloroethene	79-01-6	9.3	93
Trichlorofluoromethane	75-69-4	11	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.2	92
1,2,4-Trimethylbenzene	95-63-6	10.0	91
1,3,5-Trimethylbenzene	108-67-8	10	91
2,2,4-Trimethylpentane	540-84-1	10	100
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	10	100
Xylenes (m&p)	179601-23-1	21	110
Xylenes (o)	95-47-6	9.9	99

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4883lcs.D
Acq On : 8 Dec 2023 11:21 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 08 11:44:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.390	130	505072	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	2076916	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2432062	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2156035	10.17	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.483	41	339866	9.69	ppbV	98
3) Dichlorodifluoromethane	1.522	85	1193354	10.66	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.646	85	1455605	8.95	ppbV	97
5) n-Butane	1.725	43	845634	10.48	ppbV	100
6) Chloromethane	1.791	52	65331	11.68	ppbV	99
7) Vinyl chloride	1.777	62	478632	10.46	ppbV	99
8) 1,3-Butadiene	1.791	39	422824	9.89	ppbV	100
9) Bromomethane	2.078	94	388679	10.52	ppbV	99
10) Chloroethane	2.190	64	273833	11.41	ppbV	98
11) Vinyl bromide	2.293	106	461478	10.21	ppbV	100
12) Trichlorofluoromethane	2.309	101	1567568	11.09	ppbV	99
13) Ethanol	2.663	45	169372	11.45	ppbV	98
14) 1,1-Dichloroethene	2.727	61	987655	10.53	ppbV	95
15) Carbon disulfide	2.750	76	1643881	10.64	ppbV	96
16) 1,1,2-Trichloro-1,2,2-...	2.772	101	1310794	9.21	ppbV	99
17) Acrolein	2.978	56	207019	9.81	ppbV	100
18) Allyl chloride	3.110	76	275622	10.89	ppbV	100
19) Isopropanol	3.107	45	904477	8.93	ppbV	98
20) Methylene chloride	3.197	49	591035	9.52	ppbV	94
21) Acetone	3.210	43	830614	10.90	ppbV	98
22) trans-1,2-Dichloroethene	3.325	61	938844	10.78	ppbV	99
23) n-Pentane	3.403	43	1185445	10.10	ppbV	97
24) n-Hexane	3.403	57	1587921	9.97	ppbV	96
25) Methyl tert-butyl ether	3.409	73	2034430	10.40	ppbV	97
26) Tert-butyl alcohol	3.460	59	1390520	10.56	ppbV	100
27) 1,1-Dichloroethane	3.804	63	1101260	9.39	ppbV	98
28) cis-1,2-Dichloroethene	4.232	61	832929	10.07	ppbV	98
29) Cyclohexane	4.412	56	1127775	10.14	ppbV	98
30) Chloroform	4.451	83	1346283	9.96	ppbV	99
31) Ethyl acetate	4.541	61	230413	10.48	ppbV	97
32) Carbon tetrachloride	4.576	117	1656389	10.33	ppbV	100
33) Tetrahydrofuran	4.570	42	788257	10.37	ppbV	98
34) 1,1,1-Trichloroethane	4.624	97	1432554	10.20	ppbV	99
35) Methyl ethyl ketone	4.682	43	1259095	10.21	ppbV	97
36) n-Heptane	4.917	43	1499293	10.74	ppbV	98
37) Benzene	4.930	78	1864968	9.30	ppbV	97
38) 1,2-Dichloroethane	5.091	62	898599	10.70	ppbV	99
40) Trichloroethene	5.431	130	856754	9.32	ppbV	99
41) 2,2,4-Trimethylpentane	4.840	57	2788828	10.31	ppbV	99
42) 1,2-Dichloropropane	5.882	63	862133	10.67	ppbV	97
43) Bromodichloromethane	5.943	83	1584233	11.64	ppbV	98
44) Methyl methacrylate	6.087	41	1124187	11.47	ppbV	97
45) 1,4-Dioxane	6.110	88	569216	11.50	ppbV	98
46) cis-1,3-Dichloropropene	6.534	75	1357719	10.84	ppbV	99
47) Toluene	6.769	91	3039671	10.41	ppbV	99
48) Methyl isobutyl ketone	7.132	43	2139470	11.66	ppbV	97
49) Tetrachloroethene	7.158	166	1350560	10.73	ppbV	99
50) trans-1,3-Dichloropropene	7.174	75	1400019	11.52	ppbV	98
51) 1,1,2-Trichloroethane	7.335	97	1033705	10.49	ppbV	99

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4883lcs.D
Acq On : 8 Dec 2023 11:21 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 08 11:44:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	1892252	11.52	ppbV	99
53)	1,2-Dibromoethane	7.756	107	1547631	10.85	ppbV	100
54)	Methyl n-butyl ketone	8.010	43	2159034	12.24	ppbV	97
56)	n-Nonane	8.316	43	2654309	11.00	ppbV	98
57)	Chlorobenzene	8.335	112	2403740	9.91	ppbV	97
58)	Ethylbenzene	8.380	91	4537964	10.13	ppbV	99
59)	Xylenes (m&p)	8.547	91	7032687	21.18	ppbV	98
60)	Xylene (o)	9.029	91	3571722	9.86	ppbV	99
61)	Styrene	9.087	104	2552482	10.29	ppbV	99
62)	Bromoform	9.097	173	1990020	11.17	ppbV	100
63)	Cumene	9.402	105	4737625	10.00	ppbV	100
65)	n-Propyl benzene	9.897	91	6446429	10.43	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.971	83	2658446	10.48	ppbV	100
67)	4-Ethyltoluene	10.039	105	5335012	10.20	ppbV	99
68)	2-Chlorotoluene	10.065	91	4272712	10.29	ppbV	99
69)	1,3,5-Trimethylbenzene	10.152	105	4211249	10.01	ppbV	99
70)	1,2,4-Trimethylbenzene	10.621	105	4189424	9.96	ppbV	99
71)	1,3-Dichlorobenzene	10.994	146	2515699	9.77	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	2495448	9.63	ppbV	100
73)	Benzyl chloride	11.431	91	3717594	10.00	ppbV	98
74)	1,2-Dichlorobenzene	11.640	146	2414336	9.67	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	1728324	9.97	ppbV	99
76)	1,2,4-Trichlorobenzene	13.196	180	2026696	10.11	ppbV	99
77)	Naphthalene	13.463	128	4433251	9.67	ppbV	100

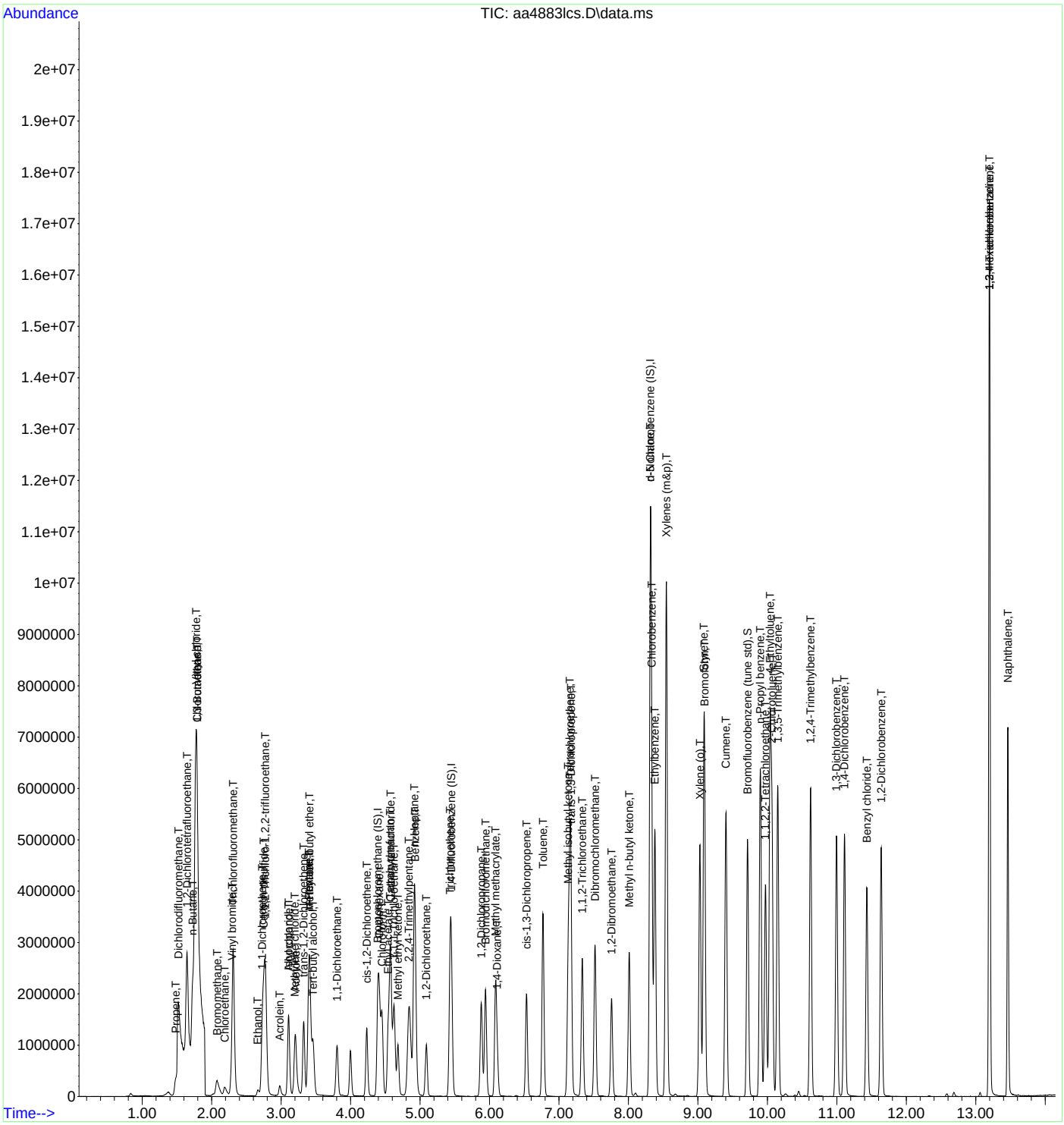
(#) = qualifier out of range (m) = manual integration (+) = signals summed

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4883lcs.D
Acq On : 8 Dec 2023 11:21 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 08 11:44:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4903LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/11/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05047-03 [AA4909]	12/11/2023 14:18
E23-05047-04 [AA4910]	12/11/2023 14:50
E23-05047-06 [AA4914]	12/11/2023 16:52
E23-05047-06 [AA4915]	12/11/2023 17:43
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	100
Benzene	71-43-2	9.5	95
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	10	91
1,3-Butadiene	106-99-0	10	100
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	11	110
Chloroform	67-66-3	10	100
Chloromethane	74-87-3	11	96
Carbon disulfide	75-15-0	11	100
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	10	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	10	91
1,4-Dichlorobenzene	106-46-7	10	91
Dichlorodifluoromethane	75-71-8	11	100
1,1-Dichloroethane	75-34-3	9.8	89
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	100
1,2-Dichloroethene (cis)	156-59-2	10	91
1,2-Dichloroethene (trans)	156-60-5	11	100
1,2-Dichloropropane	78-87-5	10	100
1,3-Dichloropropene (cis)	10061-01-5	11	100
1,3-Dichloropropene (trans)	10061-02-6	11	110
1,2-Dichlorotetrafluoroethane	76-14-2	8.8	80
1,4-Dioxane	123-91-1	11	92

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4903LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/11/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05047-03 [AA4909]	12/11/2023 14:18
E23-05047-04 [AA4910]	12/11/2023 14:50
E23-05047-06 [AA4914]	12/11/2023 16:52
E23-05047-06 [AA4915]	12/11/2023 17:43
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Ethylbenzene	100-41-4	11	110
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	10	88
n-Hexane	110-54-3	10	100
Methylene chloride	75-09-2	9.6	87
Methyl ethyl ketone	78-93-3	11	93
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	11	100
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	11	100
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	10	100
1,1,2-Trichloroethane	79-00-5	10	91
Trichloroethene	79-01-6	9.1	91
Trichlorofluoromethane	75-69-4	11	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.4	94
1,2,4-Trimethylbenzene	95-63-6	11	100
1,3,5-Trimethylbenzene	108-67-8	11	100
2,2,4-Trimethylpentane	540-84-1	10	100
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	11	110
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	10	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4903lcs.D
Acq On : 11 Dec 2023 10:57 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 11 11:13:35 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.390	130	647607	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2729004	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	3090532	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2704486	10.04	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	448674	9.98	ppbV	100
3) Dichlorodifluoromethane	1.522	85	1540061	10.73	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.650	85	1837270	8.81	ppbV	99
5) n-Butane	1.729	43	1071383	10.36	ppbV	100
6) Chloromethane	1.794	52	79721	11.12	ppbV	100
7) Vinyl chloride	1.784	62	624707	10.65	ppbV	99
8) 1,3-Butadiene	1.794	39	556597	10.16	ppbV	97
9) Bromomethane	2.081	94	492205	10.39	ppbV	96
10) Chloroethane	2.190	64	343138	11.15	ppbV	98
11) Vinyl bromide	2.296	106	601925	10.38	ppbV	100
12) Trichlorofluoromethane	2.309	101	1958992	10.81	ppbV	99
13) Ethanol	2.669	45	223820	11.80	ppbV	98
14) 1,1-Dichloroethene	2.730	61	1287938	10.71	ppbV	96
15) Carbon disulfide	2.753	76	2170829	10.96	ppbV	98
16) 1,1,2-Trichloro-1,2,2-...	2.775	101	1721921	9.43	ppbV	99
17) Acrolein	2.981	56	275902	10.20	ppbV	98
18) Allyl chloride	3.110	76	363800	11.21	ppbV	100
19) Isopropanol	3.107	45	1249280	9.62	ppbV	99
20) Methylene chloride	3.203	49	760938	9.56	ppbV	96
21) Acetone	3.209	43	1102830	11.29	ppbV	100
22) trans-1,2-Dichloroethene	3.325	61	1261504	11.30	ppbV	98
23) n-Pentane	3.409	43	1563342	10.38	ppbV	98
24) n-Hexane	3.409	57	2086837	10.22	ppbV	98
25) Methyl tert-butyl ether	3.409	73	2641389	10.53	ppbV	99
26) Tert-butyl alcohol	3.460	59	1870916	11.08	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1473126	9.80	ppbV	100
28) cis-1,2-Dichloroethene	4.232	61	1109173	10.46	ppbV	97
29) Cyclohexane	4.415	56	1494221	10.48	ppbV	98
30) Chloroform	4.454	83	1763283	10.18	ppbV	99
31) Ethyl acetate	4.544	61	310143	11.00	ppbV	98
32) Carbon tetrachloride	4.576	117	2075194	10.10	ppbV	99
33) Tetrahydrofuran	4.573	42	1055760	10.84	ppbV	98
34) 1,1,1-Trichloroethane	4.627	97	1829339	10.16	ppbV	98
35) Methyl ethyl ketone	4.682	43	1694596	10.71	ppbV	98
36) n-Heptane	4.917	43	1984236	11.09	ppbV	98
37) Benzene	4.933	78	2436463	9.47	ppbV	98
38) 1,2-Dichloroethane	5.090	62	1158367	10.76	ppbV	100
40) Trichloroethene	5.431	130	1104206	9.14	ppbV	98
41) 2,2,4-Trimethylpentane	4.843	57	3701197	10.41	ppbV	100
42) 1,2-Dichloropropane	5.885	63	1110425	10.46	ppbV	100
43) Bromodichloromethane	5.946	83	2026843	11.34	ppbV	100
44) Methyl methacrylate	6.087	41	1477655	11.47	ppbV	97
45) 1,4-Dioxane	6.113	88	746186	11.47	ppbV	98
46) cis-1,3-Dichloropropene	6.534	75	1788041	10.86	ppbV	99
47) Toluene	6.772	91	4000386	10.43	ppbV	100
48) Methyl isobutyl ketone	7.132	43	2867635	11.90	ppbV	98
49) Tetrachloroethene	7.161	166	1771569	10.71	ppbV	99
50) trans-1,3-Dichloropropene	7.174	75	1825213	11.43	ppbV	98
51) 1,1,2-Trichloroethane	7.335	97	1347280	10.40	ppbV	99

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4903lcs.D
Acq On : 11 Dec 2023 10:57 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 11 11:13:35 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

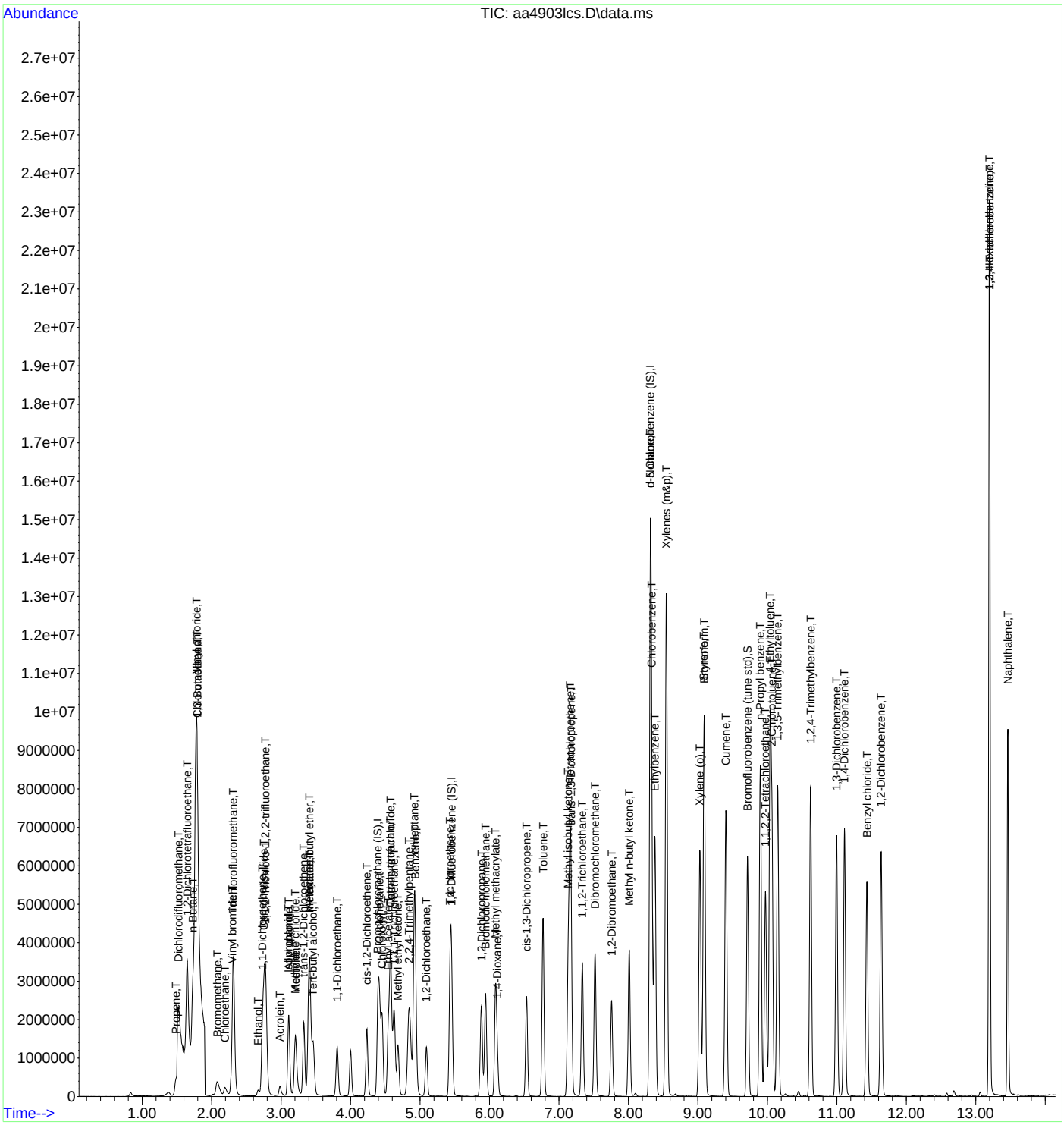
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2436418	11.29	ppbV	99
53)	1,2-Dibromoethane	7.759	107	2033372	10.85	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	2915562	12.58	ppbV	98
56)	n-Nonane	8.315	43	3624209	11.82	ppbV	98
57)	Chlorobenzene	8.335	112	3170809	10.29	ppbV	98
58)	Ethylbenzene	8.380	91	6016260	10.56	ppbV	99
59)	Xylenes (m&p)	8.547	91	9208112	21.82	ppbV	99
60)	Xylene (o)	9.026	91	4740095	10.29	ppbV	99
61)	Styrene	9.087	104	3439384	10.91	ppbV	100
62)	Bromoform	9.094	173	2568104	11.35	ppbV	100
63)	Cumene	9.402	105	6358038	10.57	ppbV	100
65)	n-Propyl benzene	9.897	91	8673958	11.04	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.971	83	3528435	10.95	ppbV	100
67)	4-Ethyltoluene	10.039	105	7191816	10.82	ppbV	100
68)	2-Chlorotoluene	10.065	91	5637797	10.69	ppbV	99
69)	1,3,5-Trimethylbenzene	10.148	105	5654494	10.58	ppbV	99
70)	1,2,4-Trimethylbenzene	10.624	105	5639014	10.55	ppbV	99
71)	1,3-Dichlorobenzene	10.997	146	3401177	10.39	ppbV	100
72)	1,4-Dichlorobenzene	11.109	146	3376653	10.26	ppbV	99
73)	Benzyl chloride	11.434	91	5116198	10.83	ppbV	99
74)	1,2-Dichlorobenzene	11.637	146	3236300	10.20	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	2308103	10.48	ppbV	100
76)	1,2,4-Trichlorobenzene	13.199	180	2718525	10.67	ppbV	100
77)	Naphthalene	13.463	128	6001329	10.30	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4903lcs.D
Acq On : 11 Dec 2023 10:57 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 11 11:13:35 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**50**		**54**		4.0	**-7.69%**
Allyl Chloride	107-05-1	4.0	U	4.0	U	4.0	0.00%
Benzene	71-43-2	2.0	U	2.0	U	2.0	0.00%
Bromodichloromethane	75-27-4	4.0	U	4.0	U	4.0	0.00%
Bromoform	75-25-2	4.0	U	4.0	U	4.0	0.00%
Bromomethane	74-83-9	4.0	U	4.0	U	4.0	0.00%
1,3-Butadiene	106-99-0	4.0	U	4.0	U	4.0	0.00%
Chlorobenzene	108-90-7	4.0	U	4.0	U	4.0	0.00%
Chloroethane	75-00-3	4.0	U	4.0	U	4.0	0.00%
Chloroform	67-66-3	4.0	U	4.0	U	4.0	0.00%
Chloromethane	74-87-3	4.0	U	4.0	U	4.0	0.00%
Carbon disulfide	75-15-0	**10.0**		**11**		4.0	**-9.52%**
Carbon tetrachloride	56-23-5	2.0	U	2.0	U	2.0	0.00%
2-Chlorotoluene	95-49-8	4.0	U	4.0	U	4.0	0.00%
Cyclohexane	110-82-7	4.0	U	4.0	U	4.0	0.00%
Dibromochloromethane	124-48-1	4.0	U	4.0	U	4.0	0.00%
1,2-Dibromoethane	106-93-4	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorobenzene	95-50-1	4.0	U	4.0	U	4.0	0.00%
1,3-Dichlorobenzene	541-73-1	4.0	U	4.0	U	4.0	0.00%
1,4-Dichlorobenzene	106-46-7	4.0	U	4.0	U	4.0	0.00%
Dichlorodifluoromethane	75-71-8	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethane	75-34-3	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethane	107-06-2	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethene	75-35-4	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (cis)	156-59-2	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (trans)	156-60-5	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloropropane	78-87-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (cis)	10061-01-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (trans)	10061-02-6	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	4.0	U	4.0	U	4.0	0.00%
Ethylbenzene	100-41-4	2.0	U	2.0	U	2.0	0.00%
4-Ethyltoluene	622-96-8	4.0	U	4.0	U	4.0	0.00%
n-Heptane	142-82-5	4.0	U	4.0	U	4.0	0.00%
1,3-Hexachlorobutadiene	87-68-3	4.0	U	4.0	U	4.0	0.00%
n-Hexane	110-54-3	4.0	U	4.0	U	4.0	0.00%
Methylene chloride	75-09-2	4.0	U	4.0	U	4.0	0.00%
Methyl ethyl ketone	78-93-3	**8.1**		**10**		4.0	**-20.99%**
Methyl isobutyl ketone	108-10-1	4.0	U	4.0	U	4.0	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	4.0	U	4.0	U	4.0	0.00%
Styrene	100-42-5	4.0	U	4.0	U	4.0	0.00%
Tert-butyl alcohol	75-65-0	4.0	U	4.0	U	4.0	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	4.0	U	4.0	U	4.0	0.00%
Tetrachloroethene	127-18-4	4.0	U	4.0	U	4.0	0.00%
Toluene	108-88-3	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trichlorobenzene	120-82-1	4.0	U	4.0	U	4.0	0.00%
1,1,1-Trichloroethane	71-55-6	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloroethane	79-00-5	4.0	U	4.0	U	4.0	0.00%
Trichloroethene	79-01-6	2.0	U	2.0	U	2.0	0.00%
Trichlorofluoromethane	75-69-4	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trimethylbenzene	95-63-6	4.0	U	4.0	U	4.0	0.00%
1,3,5-Trimethylbenzene	108-67-8	4.0	U	4.0	U	4.0	0.00%
2,2,4-Trimethylpentane	540-84-1	4.0	U	4.0	U	4.0	0.00%
Vinyl bromide	593-60-2	4.0	U	4.0	U	4.0	0.00%
Vinyl chloride	75-01-4	2.0	U	2.0	U	2.0	0.00%
Xylenes (m&p)	179601-23-1	4.0	U	**4.2**		4.0	**NC**
Xylenes (o)	95-47-6	4.0	U	4.0	U	4.0	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4087.D
Acq On : 28 Sep 2023 9:29 pm
Operator : jjw
Sample : E23-04122-06x10 dil
Misc : 1781, 50cc
ALS Vial : 21 Sample Multiplier: 1

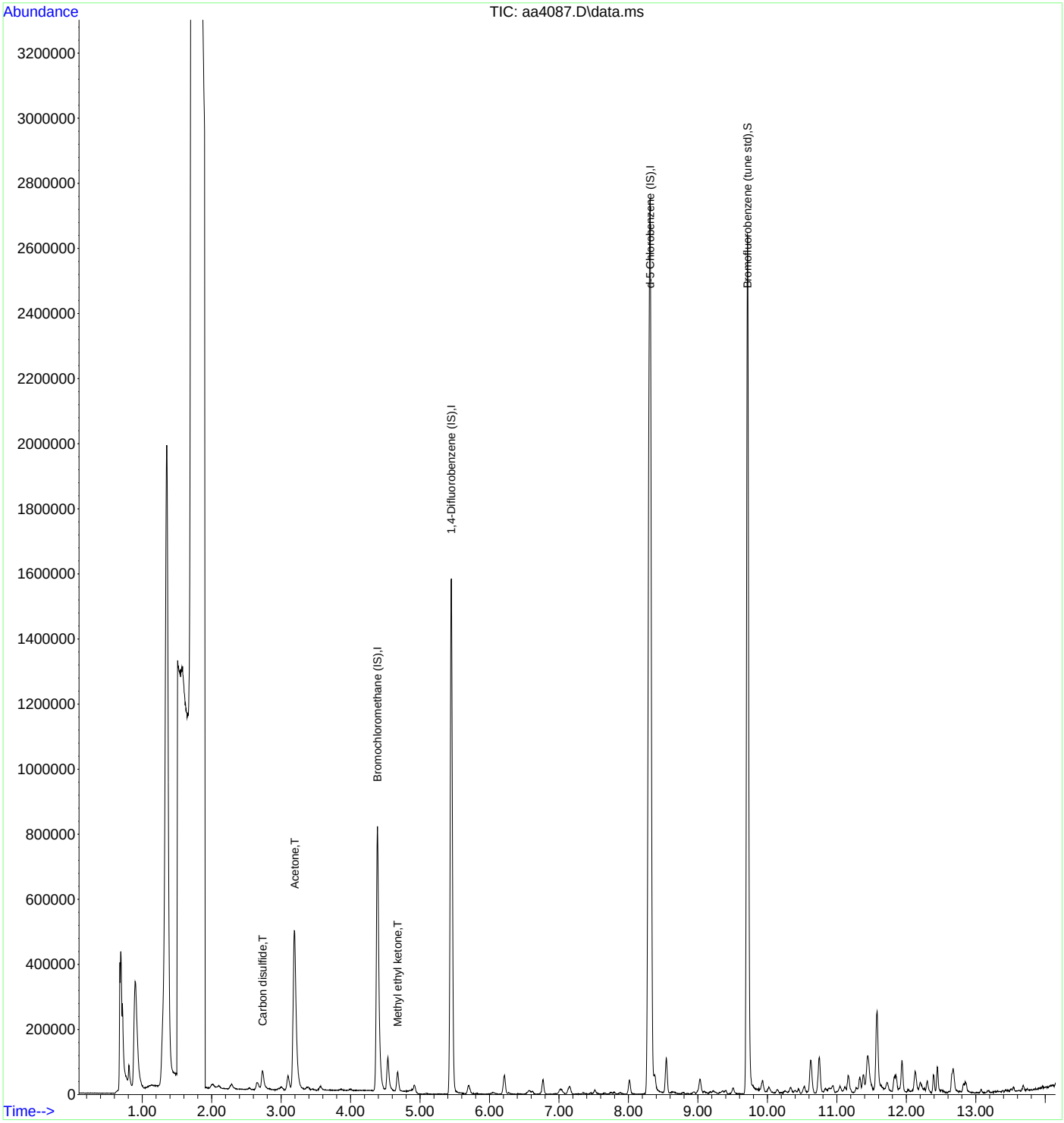
Quant Time: Oct 04 12:38:10 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

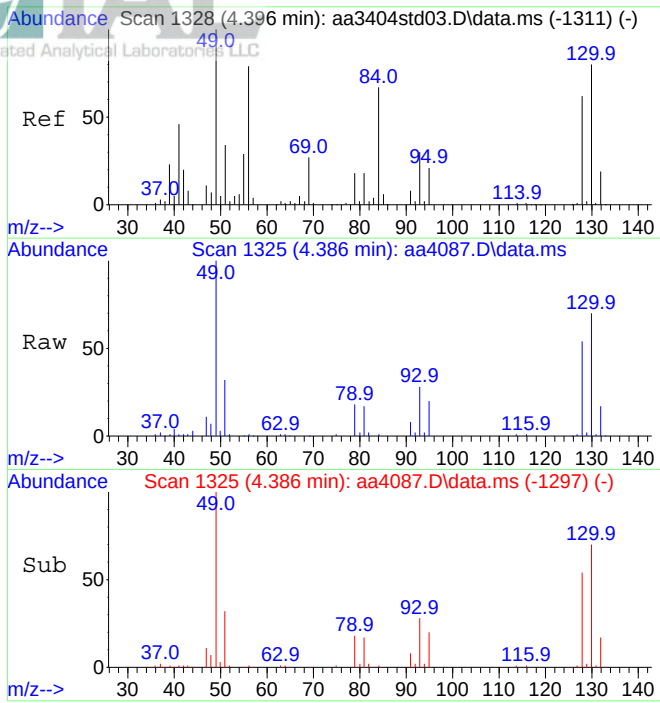
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.386	130	333645	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	1400704	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	1383190	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1064307	9.25	ppbV	0.000
Target Compounds						Qvalue
15) Carbon disulfide	2.734	76	114195	1.00	ppbV	97
21) Acetone	3.197	43	311157	4.97	ppbV	99
35) Methyl ethyl ketone	4.679	43	78641	0.81	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4087.D
Acq On : 28 Sep 2023 9:29 pm
Operator : jjw
Sample : E23-04122-06x10 dil
Misc : 1781, 50cc
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Oct 04 12:38:10 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

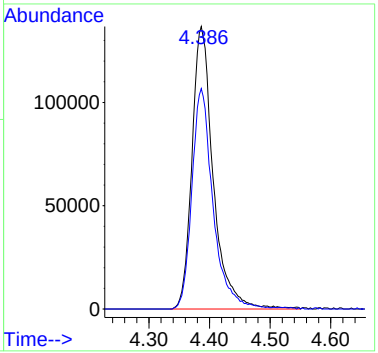


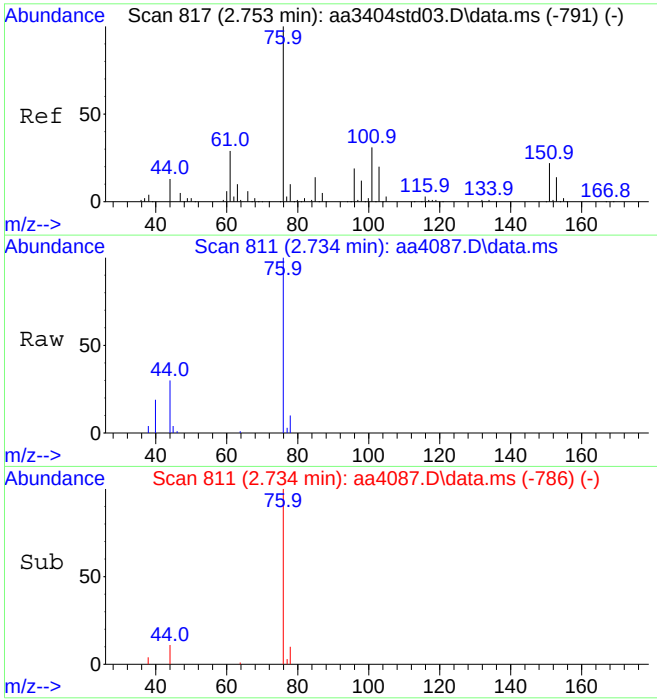


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.386 min Scan# 1325
Delta R.T. -0.010 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion:130 Resp: 333645

Ion	Ratio	Lower	Upper
130	100		
128	78.0	61.8	92.6

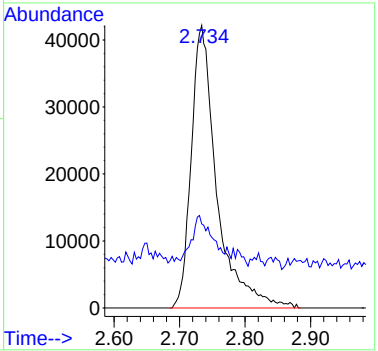


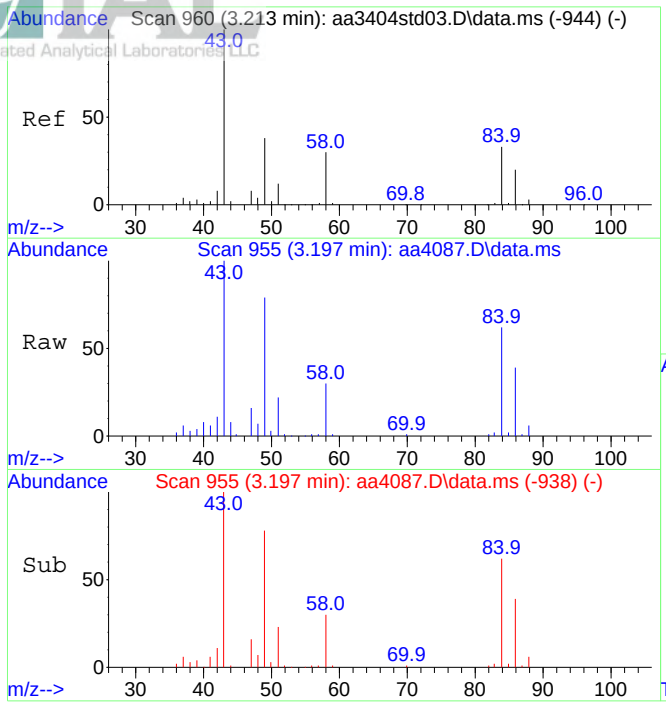


#15
Carbon disulfide
Concen: 1.00 ppbV
RT: 2.734 min Scan# 811
Delta R.T. -0.020 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 76 Resp: 114195

Ion	Ratio	Lower	Upper
76	100		
44	14.2	10.5	15.7

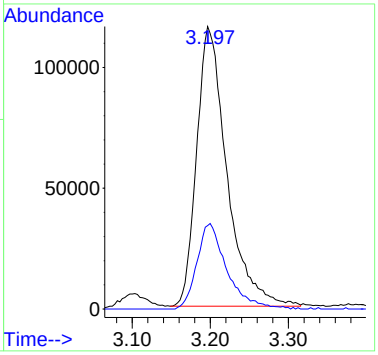


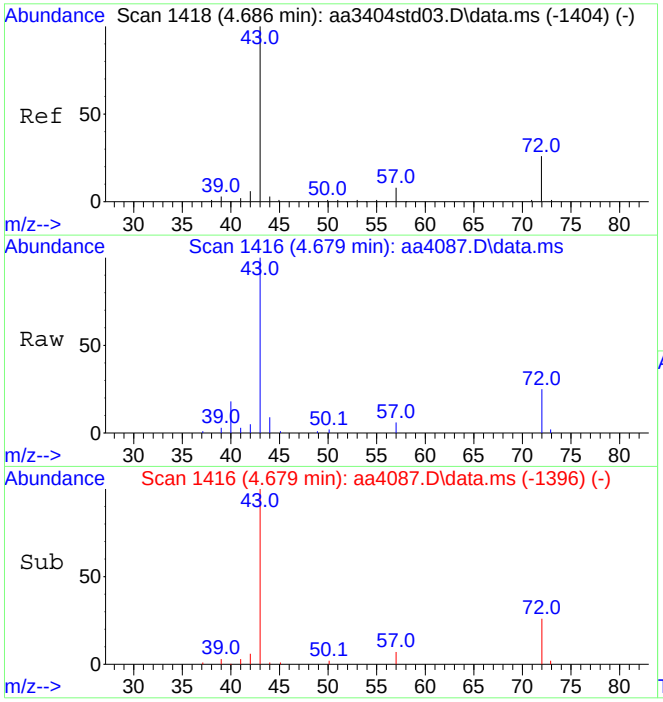


#21
Acetone
Concen: 4.97 ppbV
RT: 3.197 min Scan# 955
Delta R.T. -0.016 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 43 Resp: 311157

Ion	Ratio	Lower	Upper
43	100		
58	30.3	24.9	37.3

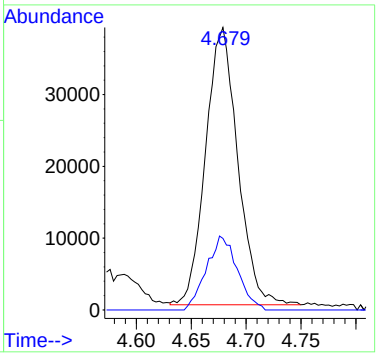


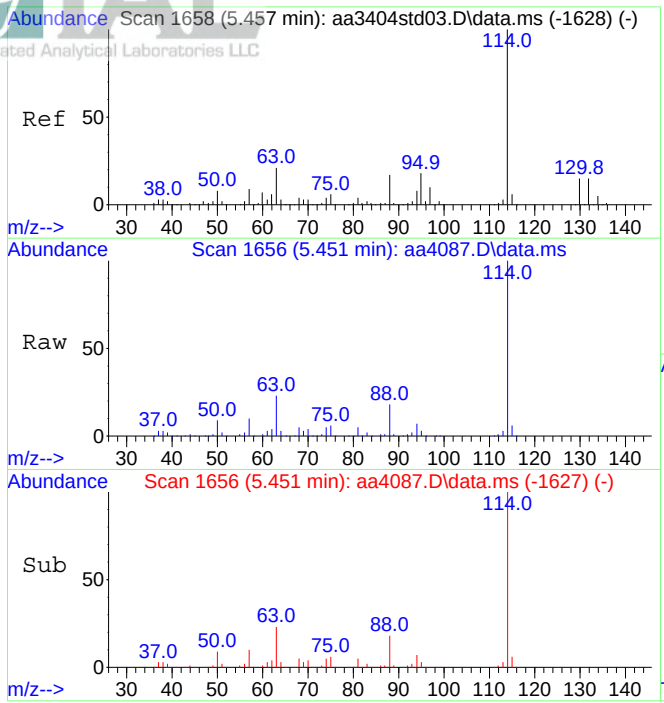


#35
Methyl ethyl ketone
Concen: 0.81 ppbV
RT: 4.679 min Scan# 1416
Delta R.T. -0.007 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 43 Resp: 78641

Ion	Ratio	Lower	Upper
43	100		
72	25.5	20.8	31.2

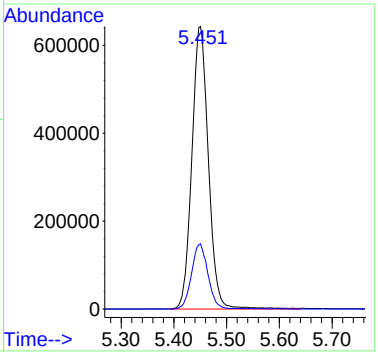


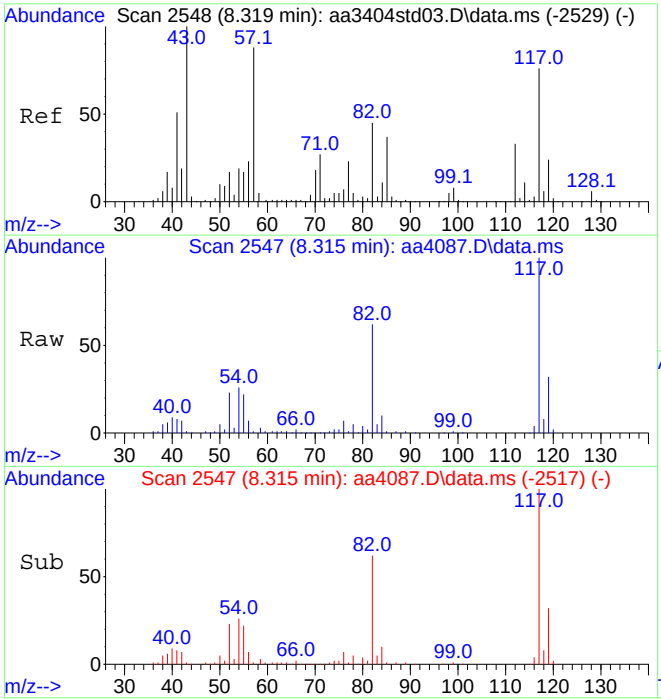


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.451 min Scan# 1656
Delta R.T. -0.006 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion:114 Resp: 1400704

Ion	Ratio	Lower	Upper
114	100		
63	23.0	17.4	26.2

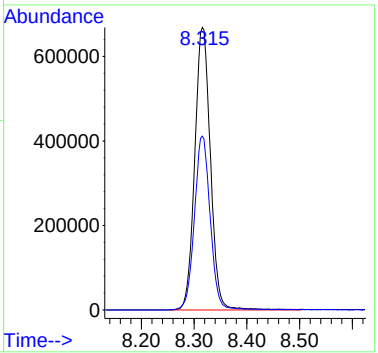


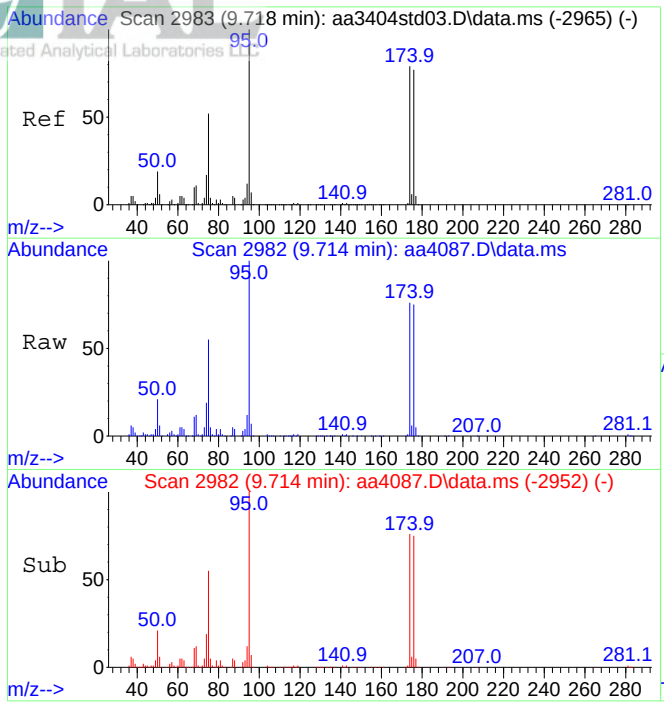


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.315 min Scan# 2547
Delta R.T. -0.004 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion:117 Resp: 1383190

Ion	Ratio	Lower	Upper
117	100		
82	62.2	47.4	71.0

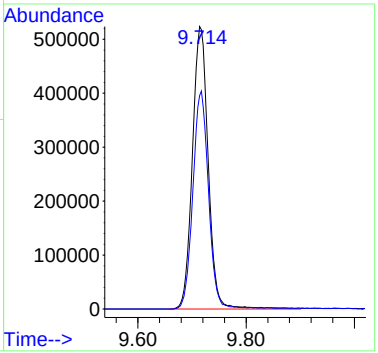




#64
Bromofluorobenzene (tune std)
Concen: 9.25 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.003 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 95 Resp: 1064307

Ion	Ratio	Lower	Upper
95	100		
174	77.0	62.9	94.3



Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4088.D
Acq On : 28 Sep 2023 10:00 pm
Operator : jjw
Sample : E23-04122-26x10 dil
Misc : Dup of E23-04122-06x10 dil, Can # 1781
ALS Vial : 22 Sample Multiplier: 1

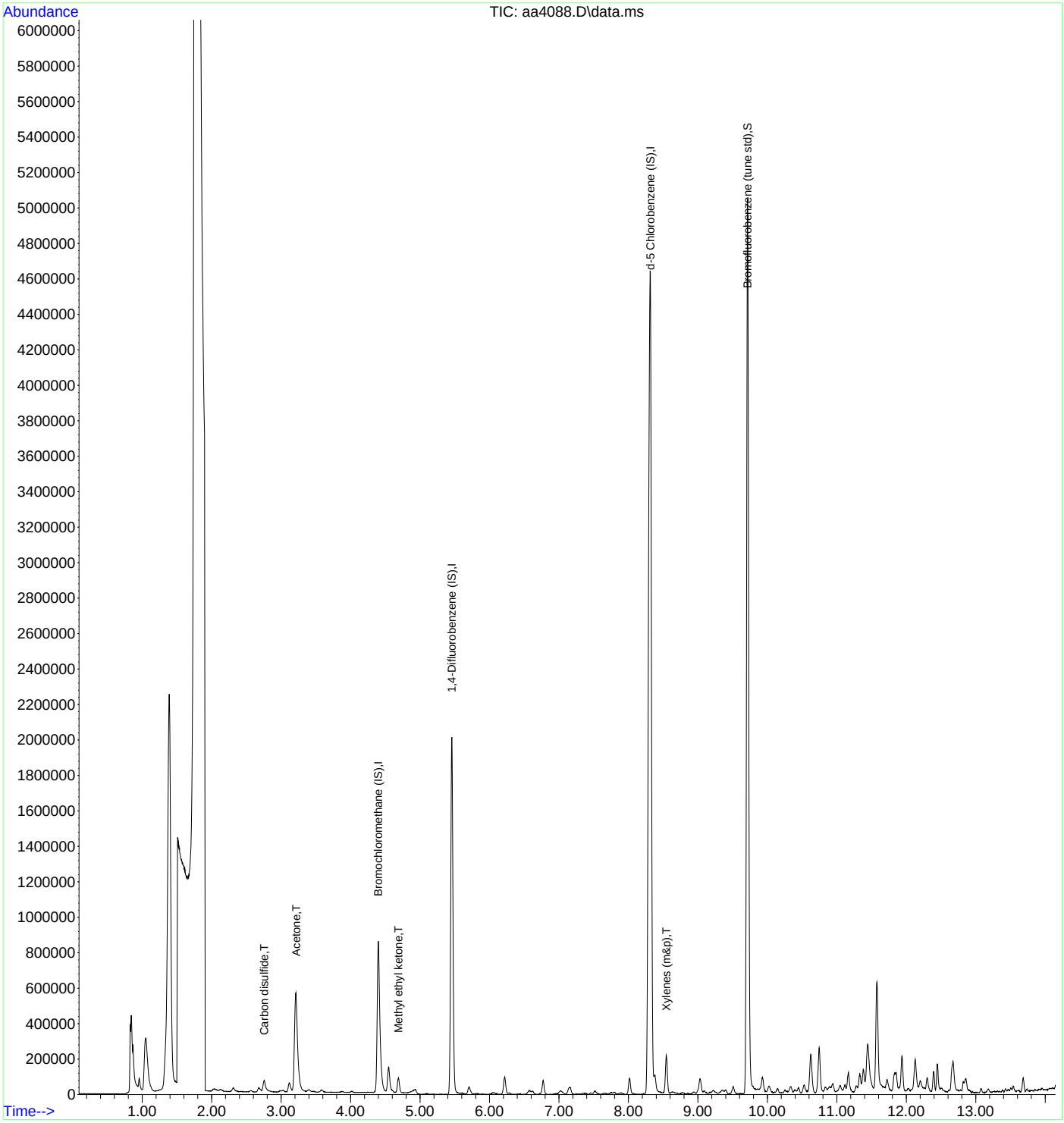
Quant Time: Oct 04 12:49:41 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

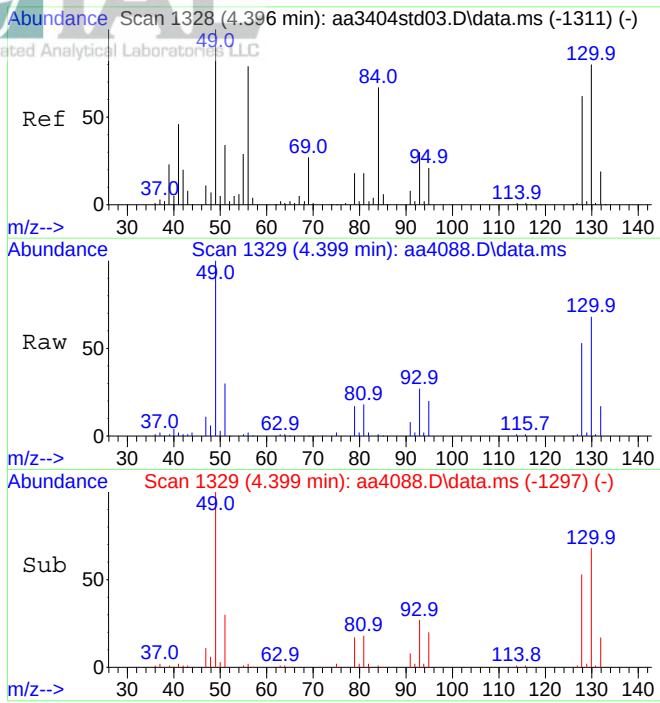
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.399	130	378421	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	1821981	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2357353	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2004719	10.22	ppbV	0.000
Target Compounds						Qvalue
15) Carbon disulfide	2.756	76	137474	1.06	ppbV	97
21) Acetone	3.219	43	384617	5.42	ppbV	98
35) Methyl ethyl ketone	4.689	43	112963	1.03	ppbV	98
59) Xylenes (m&p)	8.547	91	145250	0.42	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4088.D
Acq On : 28 Sep 2023 10:00 pm
Operator : jjw
Sample : E23-04122-26x10 dil
Misc : Dup of E23-04122-06x10 dil, Can # 1781
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Oct 04 12:49:41 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

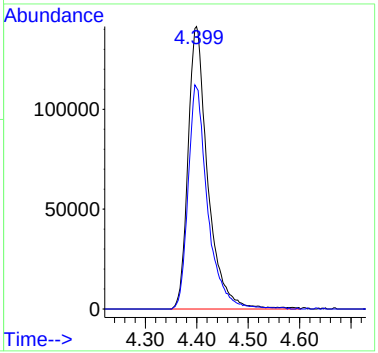


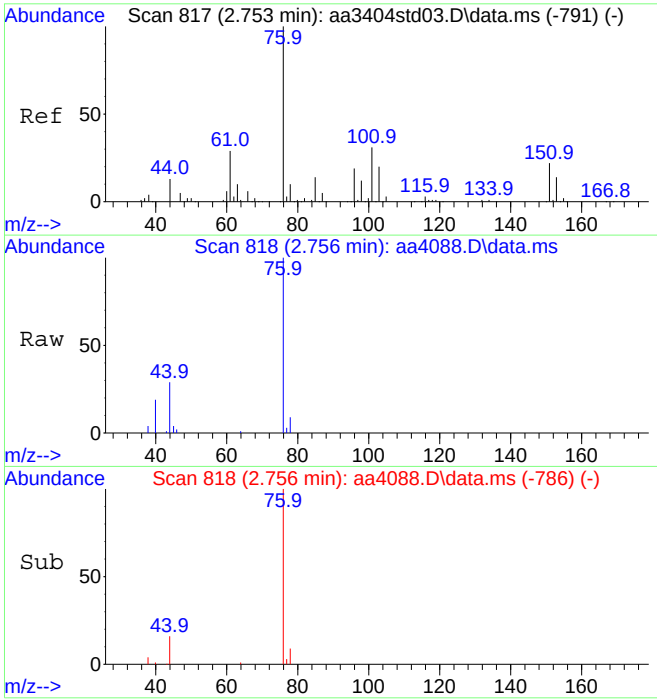


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.399 min Scan# 1329
Delta R.T. 0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion:130 Resp: 378421

Ion	Ratio	Lower	Upper
130	100		
128	78.2	61.8	92.6

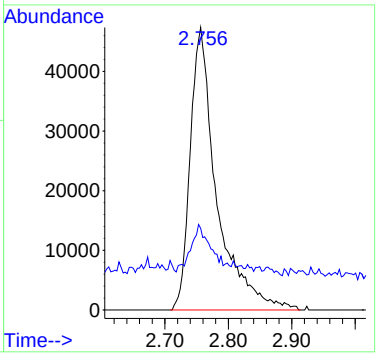


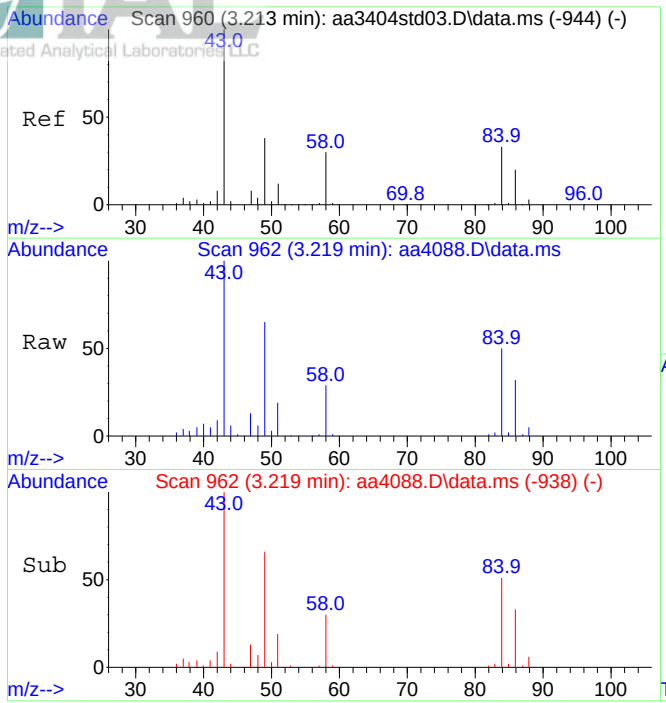


#15
Carbon disulfide
Concen: 1.06 ppbV
RT: 2.756 min Scan# 818
Delta R.T. 0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 76 Resp: 137474

Ion	Ratio	Lower	Upper
76	100		
44	14.5	10.5	15.7

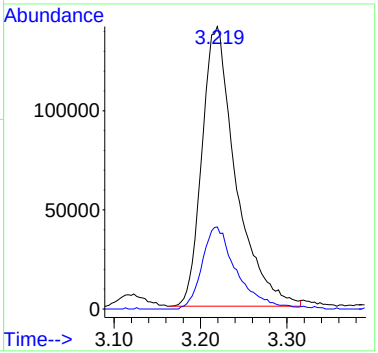


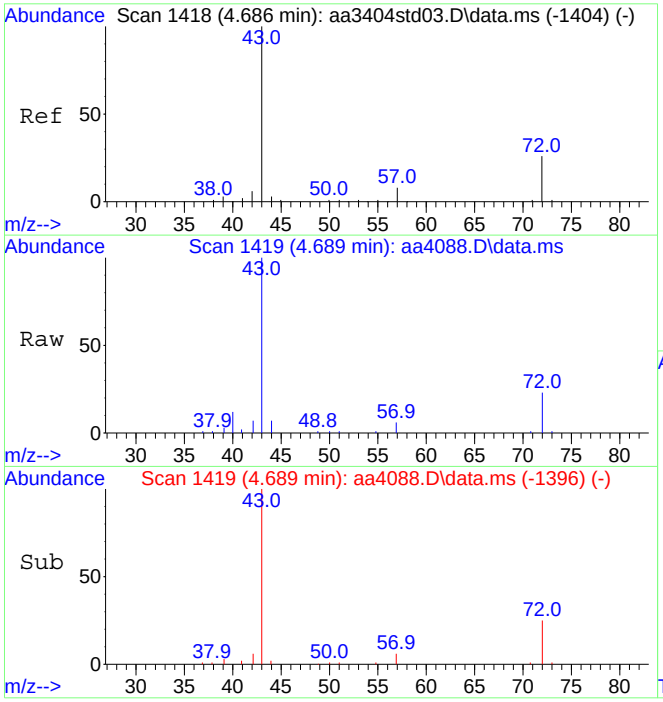


#21
Acetone
Concen: 5.42 ppbV
RT: 3.219 min Scan# 962
Delta R.T. 0.006 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 43 Resp: 384617

Ion	Ratio	Lower	Upper
43	100		
58	30.0	24.9	37.3

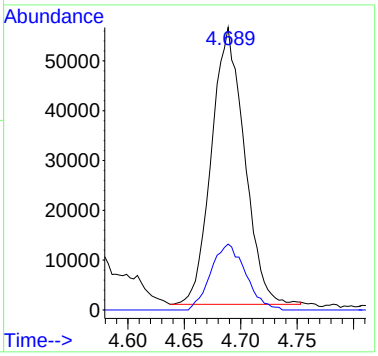


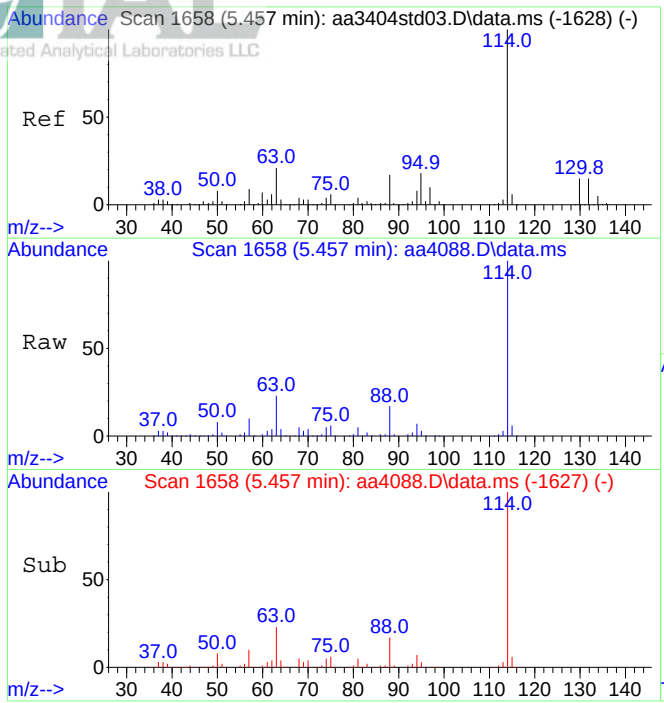


#35
Methyl ethyl ketone
Concen: 1.03 ppbV
RT: 4.689 min Scan# 1419
Delta R.T. 0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 43 Resp: 112963

Ion	Ratio	Lower	Upper
43	100		
72	25.1	20.8	31.2

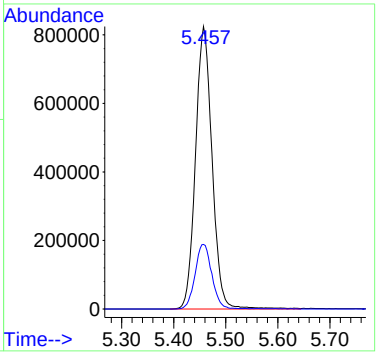


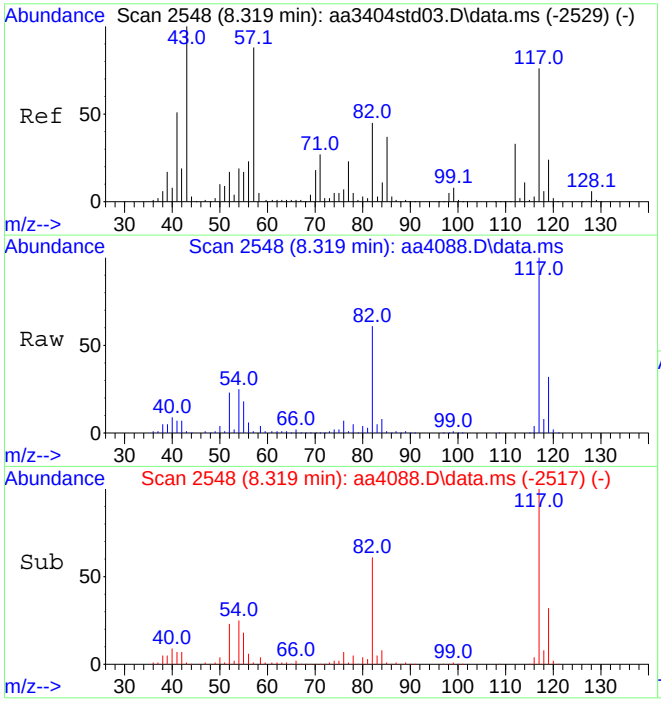


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.000 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion:114 Resp: 1821981

Ion	Ratio	Lower	Upper
114	100		
63	23.3	17.4	26.2

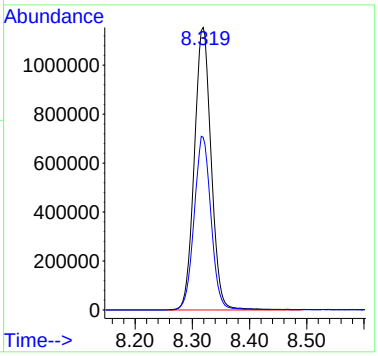


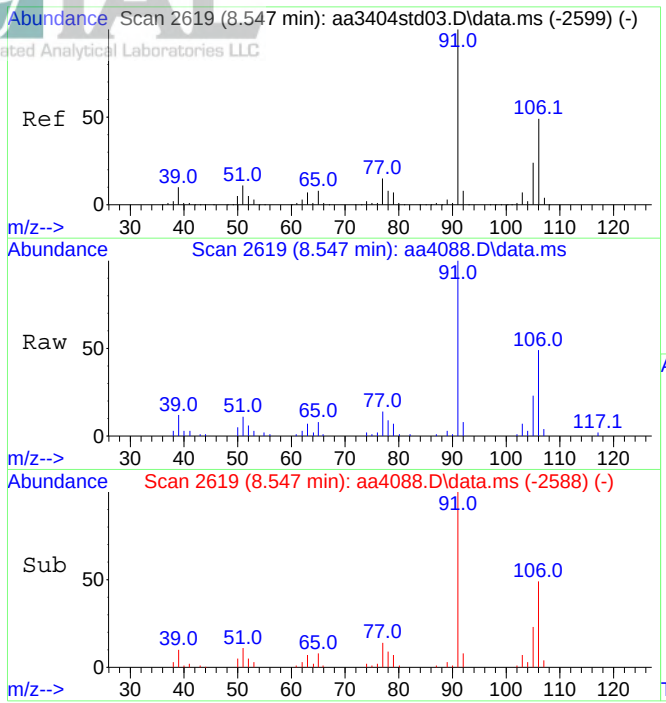


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. -0.000 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion:117 Resp: 2357353

Ion	Ratio	Lower	Upper
117	100		
82	61.9	47.4	71.0

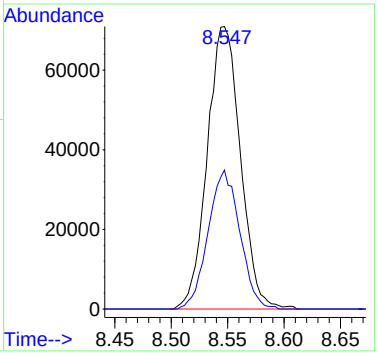


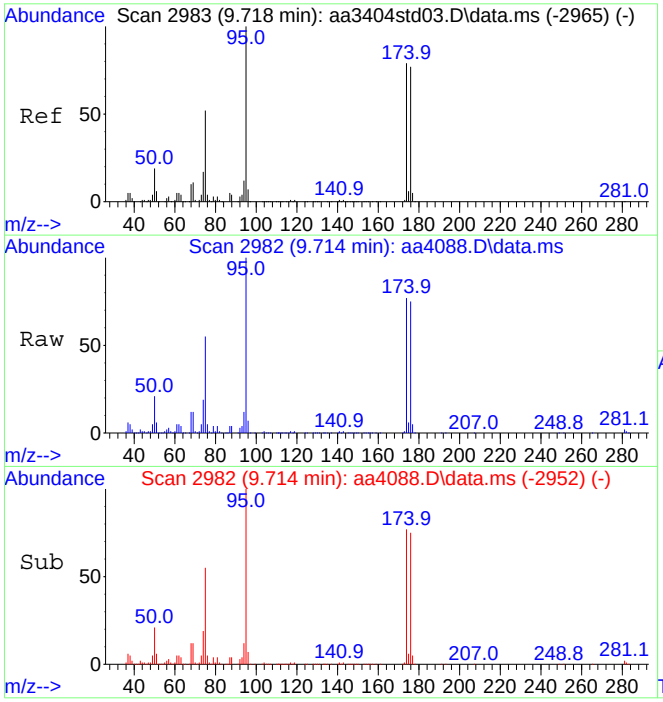


#59
Xylenes (m&p)
Concen: 0.42 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. -0.000 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 91 Resp: 145250

Ion	Ratio	Lower	Upper
91	100		
106	46.9	39.2	58.8

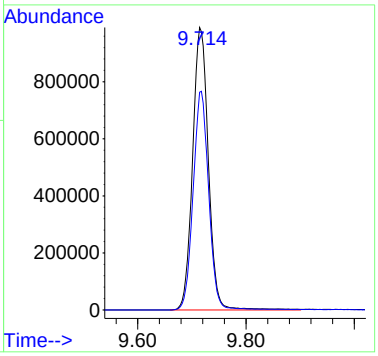




#64
Bromofluorobenzene (tune std)
Concen: 10.22 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 95 Resp: 2004719

Ion	Ratio	Lower	Upper
95	100		
174	76.8	62.9	94.3



INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/1/23
SDG Number:	E23-04828	Date Analyzed:	11/3/23,11/3/23
IAL Sample ID:	E23-04828-06	Lab Data File#:	AA4537,AA4538
Matrix:	Air	Dilution Factor:	1
Summa ID:	2883	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04828-06 Concentration Reported ppbv	Q	Sample Dup E23-04828-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**16**		**16**		0.40	**0.00%**
Allyl Chloride	107-05-1	0.40	U	0.40	U	0.40	0.00%
Benzene	71-43-2	**0.31**		**0.30**		0.20	**3.28%**
Bromodichloromethane	75-27-4	0.40	U	0.40	U	0.40	0.00%
Bromoform	75-25-2	0.40	U	0.40	U	0.40	0.00%
Bromomethane	74-83-9	0.40	U	0.40	U	0.40	0.00%
1,3-Butadiene	106-99-0	0.40	U	0.40	U	0.40	0.00%
Chlorobenzene	108-90-7	0.40	U	0.40	U	0.40	0.00%
Chloroethane	75-00-3	0.40	U	0.40	U	0.40	0.00%
Chloroform	67-66-3	0.40	U	0.40	U	0.40	0.00%
Chloromethane	74-87-3	0.40	U	0.40	U	0.40	0.00%
Carbon disulfide	75-15-0	0.40	U	0.40	U	0.40	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.40	U	0.40	U	0.40	0.00%
Cyclohexane	110-82-7	0.40	U	0.40	U	0.40	0.00%
Dibromochloromethane	124-48-1	0.40	U	0.40	U	0.40	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.40	U	0.40	U	0.40	0.00%
1,3-Dichlorobenzene	541-73-1	0.40	U	0.40	U	0.40	0.00%
1,4-Dichlorobenzene	106-46-7	0.40	U	0.40	U	0.40	0.00%
Dichlorodifluoromethane	75-71-8	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethane	75-34-3	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethane	107-06-2	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethene	75-35-4	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.40	U	0.40	U	0.40	0.00%
Ethylbenzene	100-41-4	0.20	U	0.20	U	0.20	0.00%
4-Ethyltoluene	622-96-8	0.40	U	0.40	U	0.40	0.00%
n-Heptane	142-82-5	0.40	U	0.40	U	0.40	0.00%
1,3-Hexachlorobutadiene	87-68-3	0.40	U	0.40	U	0.40	0.00%
n-Hexane	110-54-3	0.40	U	0.40	U	0.40	0.00%
Methylene chloride	75-09-2	0.40	U	0.40	U	0.40	0.00%
Methyl ethyl ketone	78-93-3	0.40	U	0.40	U	0.40	0.00%
Methyl isobutyl ketone	108-10-1	0.40	U	0.40	U	0.40	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/1/23
SDG Number:	E23-04828	Date Analyzed:	11/3/23,11/3/23
IAL Sample ID:	E23-04828-06	Lab Data File#:	AA4537,AA4538
Matrix:	Air	Dilution Factor:	1
Summa ID:	2883	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04828-06 Concentration Reported ppbv	Q	Sample Dup E23-04828-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	0.40	U	0.40	U	0.40	0.00%
Styrene	100-42-5	0.40	U	0.40	U	0.40	0.00%
Tert-butyl alcohol	75-65-0	0.40	U	0.40	U	0.40	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.40	U	0.40	U	0.40	0.00%
Tetrachloroethene	127-18-4	0.40	U	0.40	U	0.40	0.00%
Toluene	108-88-3	**0.47**		**0.43**		0.40	**8.89%**
1,2,4-Trichlorobenzene	120-82-1	0.40	U	0.40	U	0.40	0.00%
1,1,1-Trichloroethane	71-55-6	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloroethane	79-00-5	0.40	U	0.40	U	0.40	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	**1.8**	X	**1.3**	X	0.40	**32.26%**
1,2,4-Trimethylbenzene	95-63-6	0.40	U	0.40	U	0.40	0.00%
1,3,5-Trimethylbenzene	108-67-8	0.40	U	0.40	U	0.40	0.00%
2,2,4-Trimethylpentane	540-84-1	0.40	U	0.40	U	0.40	0.00%
Vinyl bromide	593-60-2	0.40	U	0.40	U	0.40	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	0.40	U	0.40	U	0.40	0.00%
Xylenes (o)	95-47-6	0.40	U	0.40	U	0.40	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4537.D
Acq On : 3 Nov 2023 4:28 pm
Operator : jjw
Sample : E23-04828-06
Misc : 2883, 500cc
ALS Vial : 15 Sample Multiplier: 1

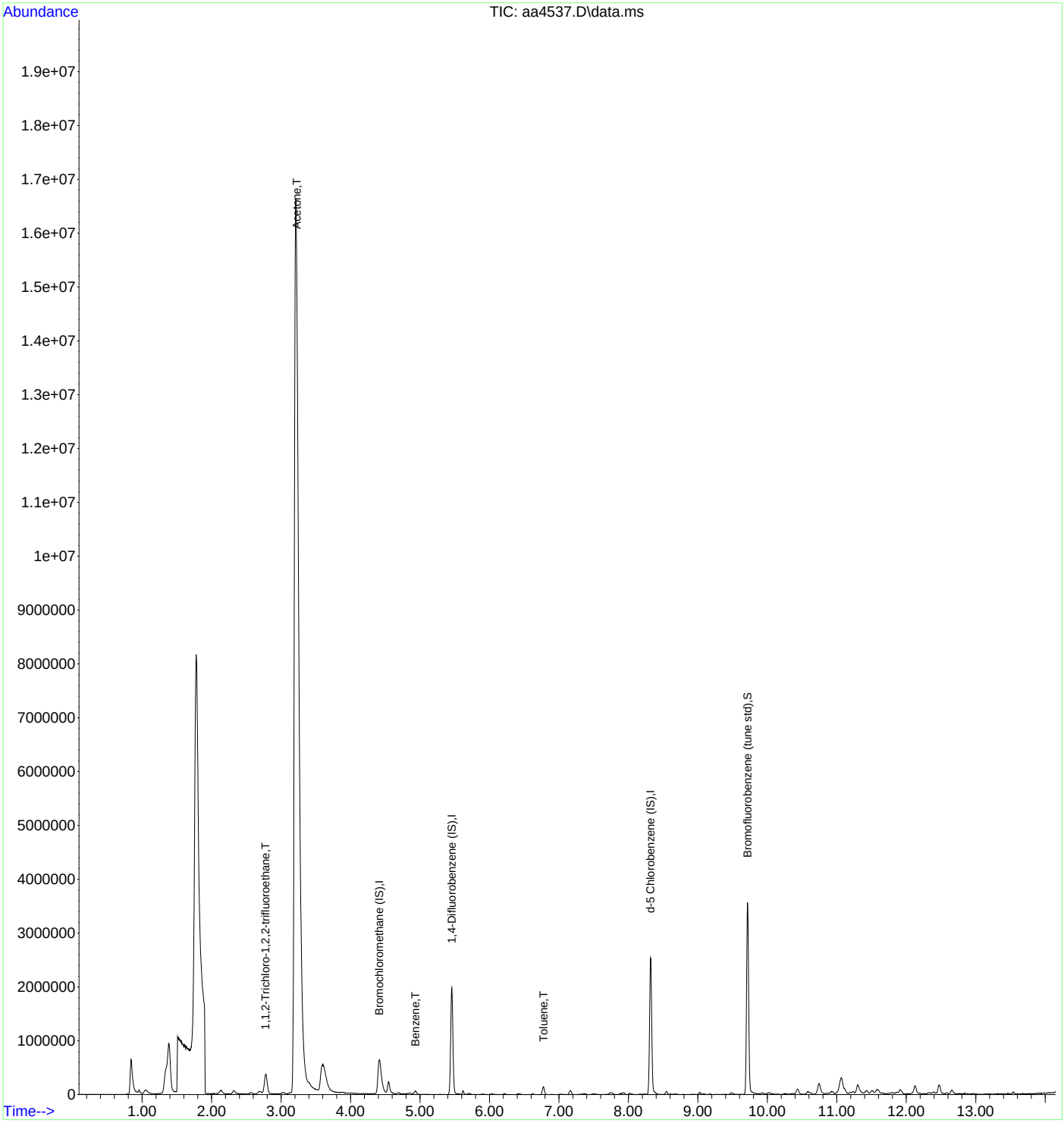
Quant Time: Nov 06 13:31:19 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

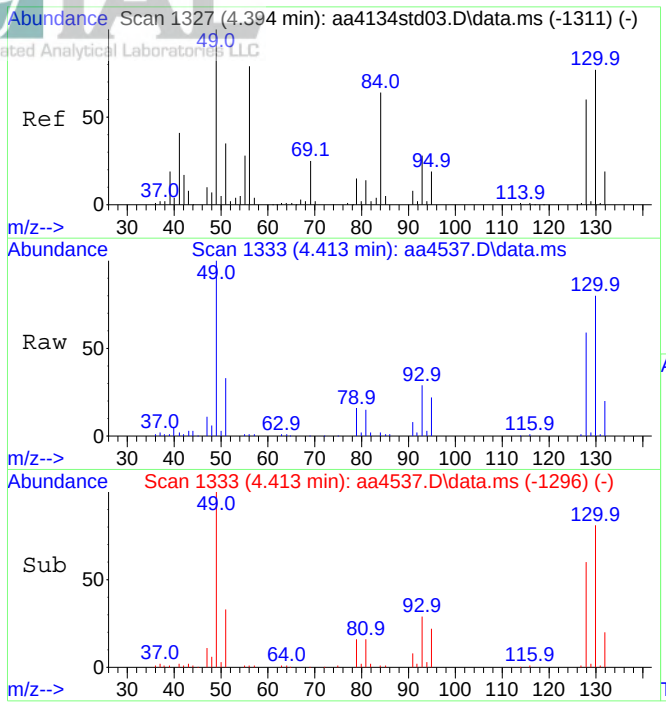
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.413	130	428021	10.00	ppbV	0.019
39) 1,4-Difluorobenzene (IS)	5.458	114	1879222	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1677425	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1601039	10.95	ppbV	0.000
Target Compounds						Qvalue
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	222466	1.84	ppbV	99
21) Acetone	3.226	43	1028001	15.92	ppbV	94
37) Benzene	4.934	78	53556	0.32	ppbV #	87
47) Toluene	6.779	91	124325	0.47	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4537.D
Acq On : 3 Nov 2023 4:28 pm
Operator : jjw
Sample : E23-04828-06
Misc : 2883, 500cc
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 06 13:31:19 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

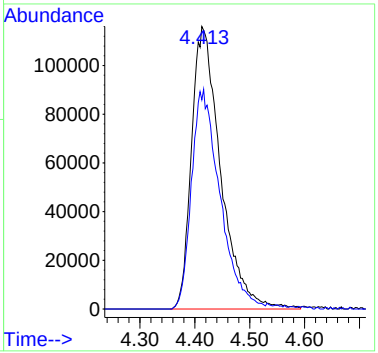


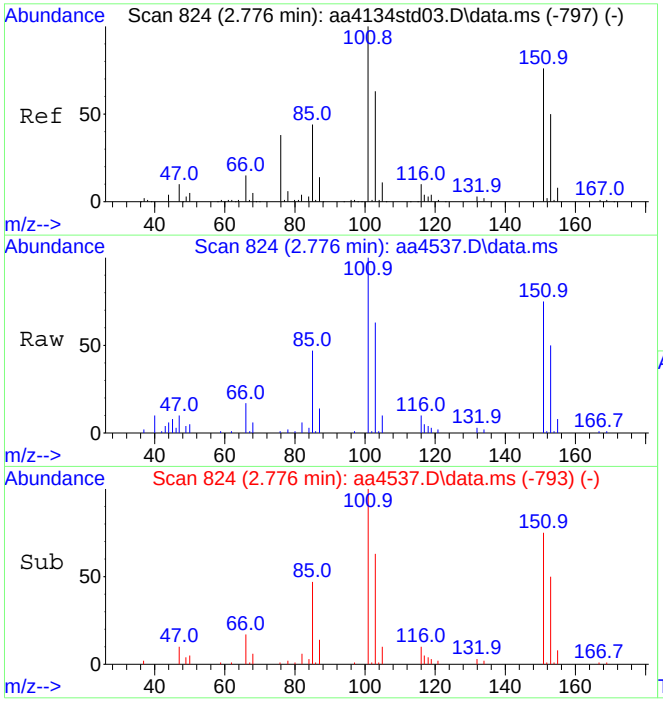


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.413 min Scan# 1333
Delta R.T. 0.019 min
Lab File: aa4537.D
Acq: 3 Nov 2023 4:28 pm

Tgt Ion:130 Resp: 428021

Ion	Ratio	Lower	Upper
130	100		
128	76.0	62.2	93.4

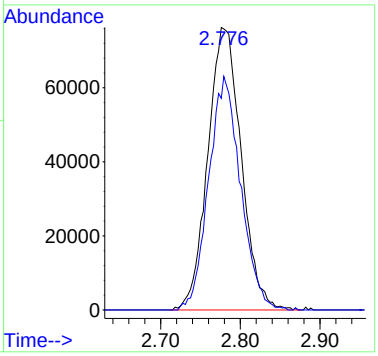


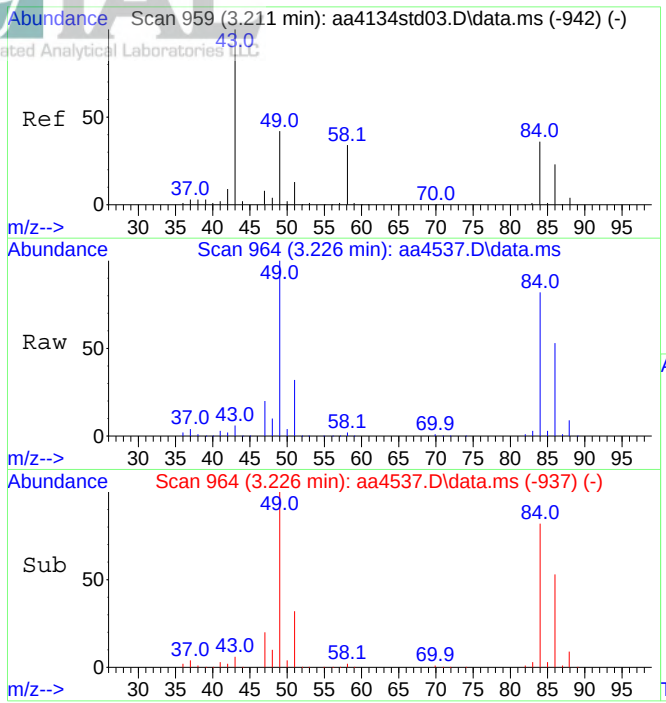


#16
1,1,2-Trichloro-1,2,2-trifluoroethane
Concen: 1.84 ppbV
RT: 2.776 min Scan# 824
Delta R.T. -0.000 min
Lab File: aa4537.D
Acq: 3 Nov 2023 4:28 pm

Tgt Ion:101 Resp: 222466

Ion	Ratio	Lower	Upper
101	100		
151	78.9	62.4	93.6

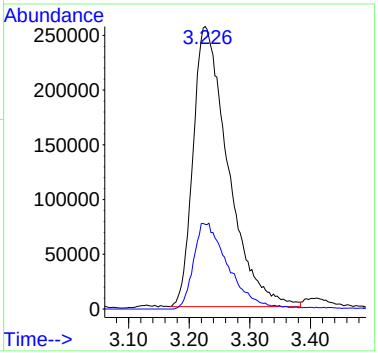


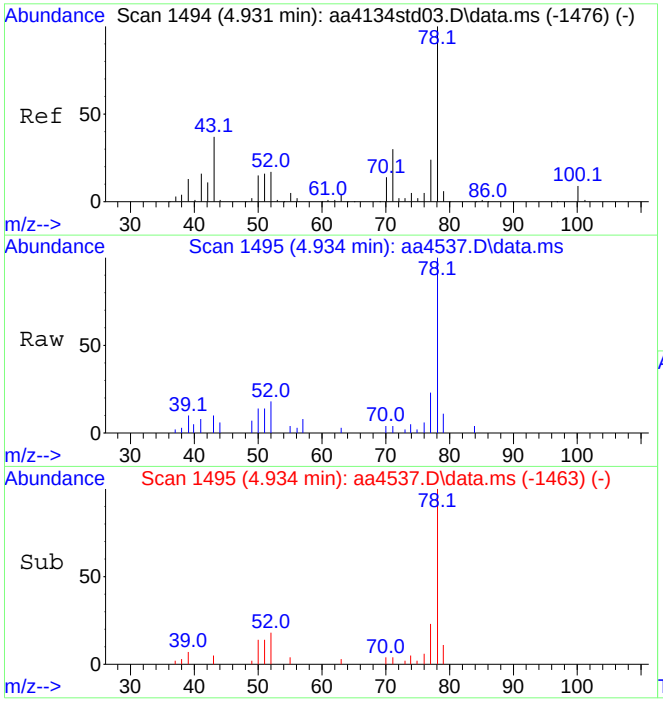


#21
Acetone
Concen: 15.92 ppbV
RT: 3.226 min Scan# 964
Delta R.T. 0.016 min
Lab File: aa4537.D
Acq: 3 Nov 2023 4:28 pm

Tgt Ion: 43 Resp: 1028001

Ion	Ratio	Lower	Upper
43	100		
58	30.5	27.1	40.7

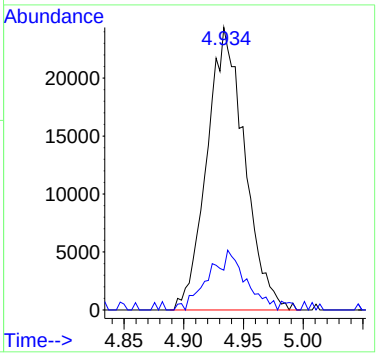


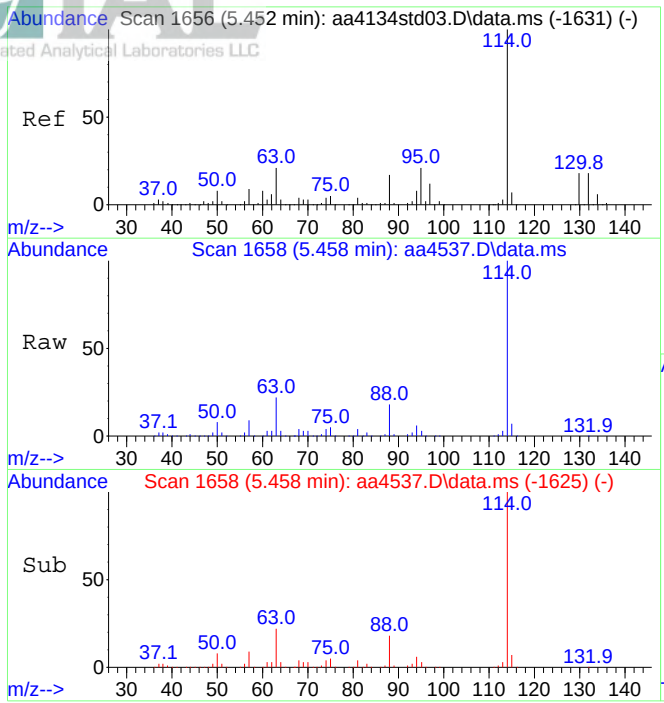


#37
Benzene
Concen: 0.32 ppbV
RT: 4.934 min Scan# 1495
Delta R.T. 0.003 min
Lab File: aa4537.D
Acq: 3 Nov 2023 4:28 pm

Tgt Ion: 78 Resp: 53556

Ion	Ratio	Lower	Upper
78	100		
51	11.1	13.4	20.0#

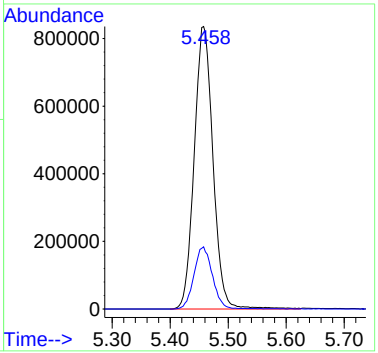


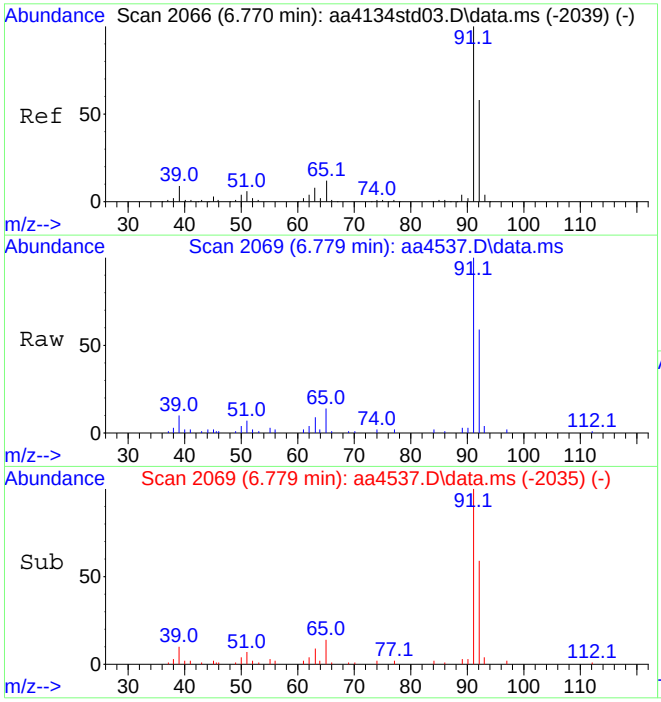


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.458 min Scan# 1658
Delta R.T. 0.006 min
Lab File: aa4537.D
Acq: 3 Nov 2023 4:28 pm

Tgt Ion:114 Resp: 1879222

Ion	Ratio	Lower	Upper
114	100		
63	21.7	17.0	25.6

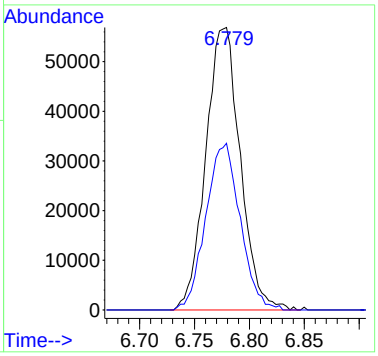


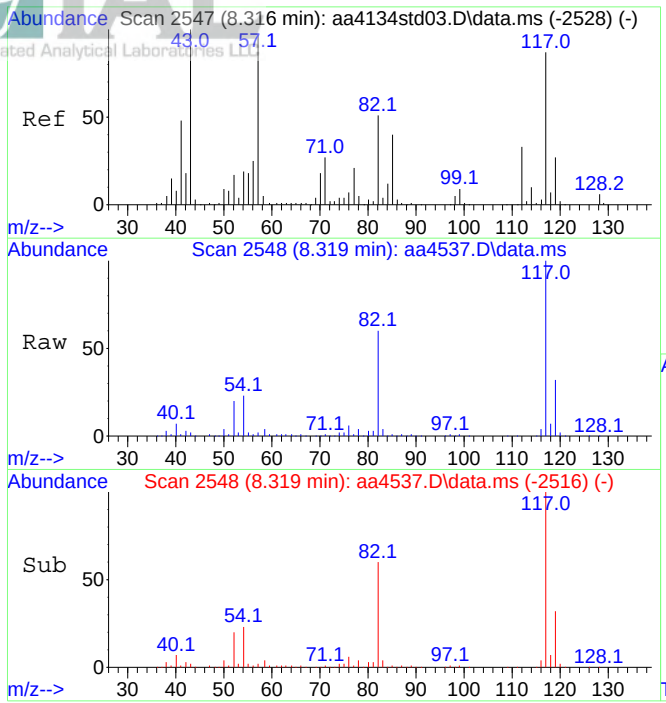


#47
Toluene
Concen: 0.47 ppbV
RT: 6.779 min Scan# 2069
Delta R.T. 0.009 min
Lab File: aa4537.D
Acq: 3 Nov 2023 4:28 pm

Tgt Ion: 91 Resp: 124325

Ion	Ratio	Lower	Upper
91	100		
92	58.7	47.3	70.9

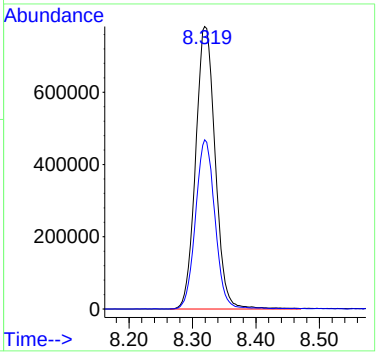


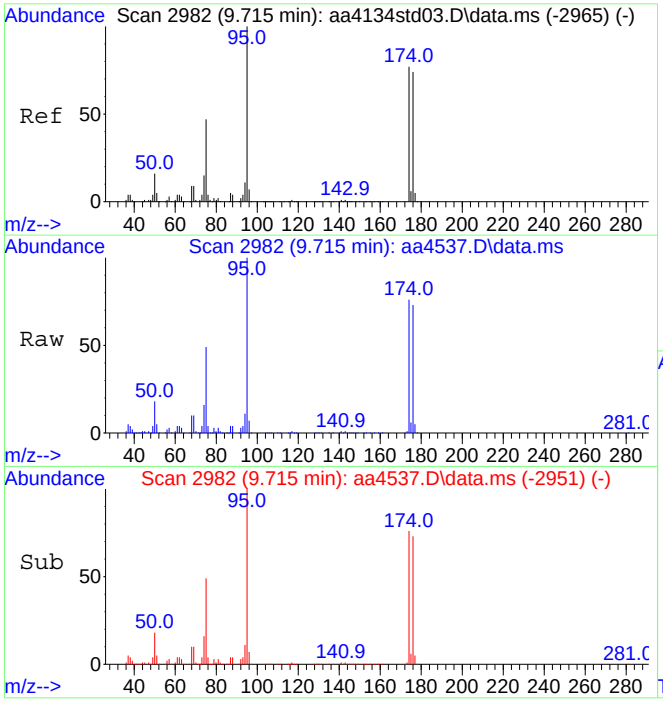


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.003 min
Lab File: aa4537.D
Acq: 3 Nov 2023 4:28 pm

Tgt Ion:117 Resp: 1677425

Ion	Ratio	Lower	Upper
117	100		
82	59.5	47.0	70.4

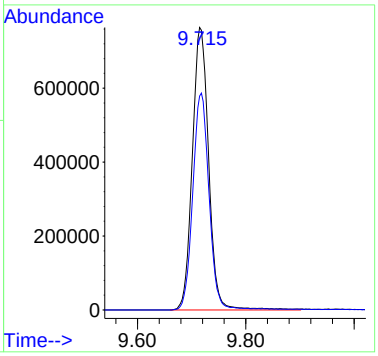




#64
Bromofluorobenzene (tune std)
Concen: 10.95 ppbV
RT: 9.715 min Scan# 2982
Delta R.T. -0.000 min
Lab File: aa4537.D
Acq: 3 Nov 2023 4:28 pm

Tgt Ion: 95 Resp: 1601039

Ion	Ratio	Lower	Upper
95	100		
174	76.7	61.1	91.7



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4538.D
Acq On : 3 Nov 2023 5:00 pm
Operator : jjw
Sample : E23-04828-26
Misc : Dup of E23-04828-06, Can # 2883
ALS Vial : 16 Sample Multiplier: 1

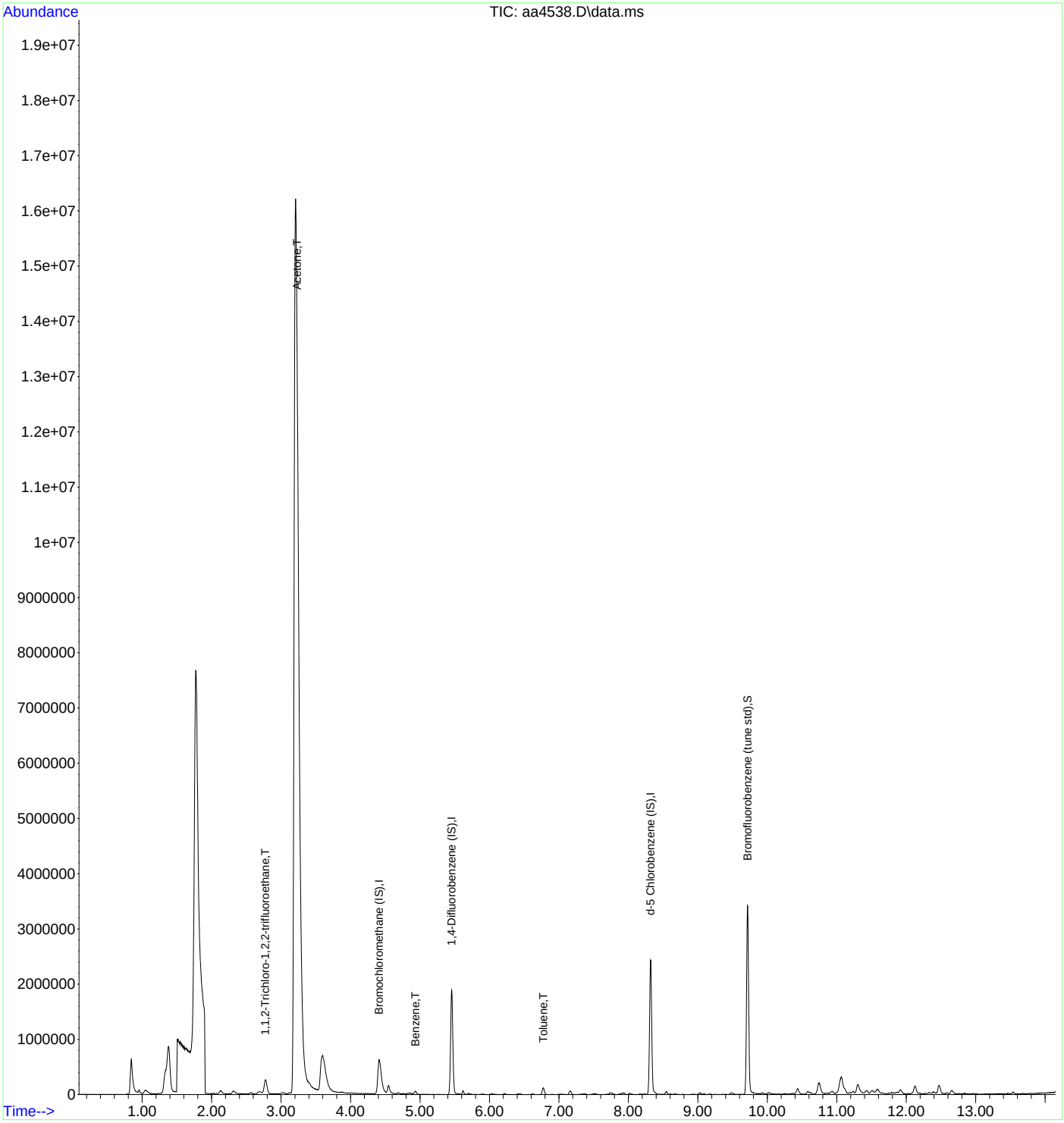
Quant Time: Nov 06 13:32:47 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

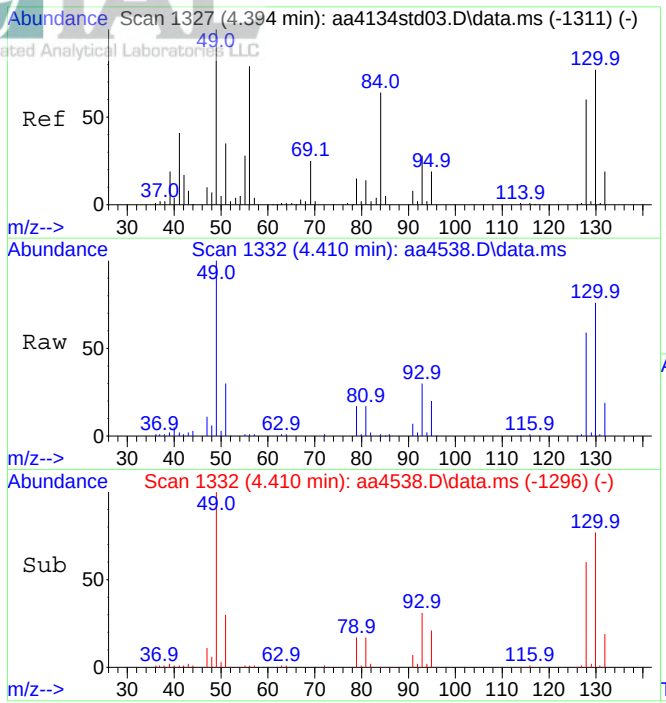
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.410	130	412173	10.00	ppbV	0.016
39) 1,4-Difluorobenzene (IS)	5.455	114	1787711	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.320	117	1608463	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1519429	10.84	ppbV	0.000
Target Compounds						Qvalue
16) 1,1,2-Trichloro-1,2,2-...	2.773	101	153436	1.32	ppbV	100
21) Acetone	3.230	43	1007238	16.20	ppbV	93
37) Benzene	4.934	78	48667	0.30	ppbV #	91
47) Toluene	6.776	91	108950	0.43	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4538.D
Acq On : 3 Nov 2023 5:00 pm
Operator : jjw
Sample : E23-04828-26
Misc : Dup of E23-04828-06, Can # 2883
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 06 13:32:47 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

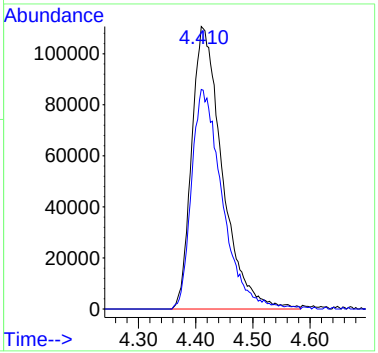


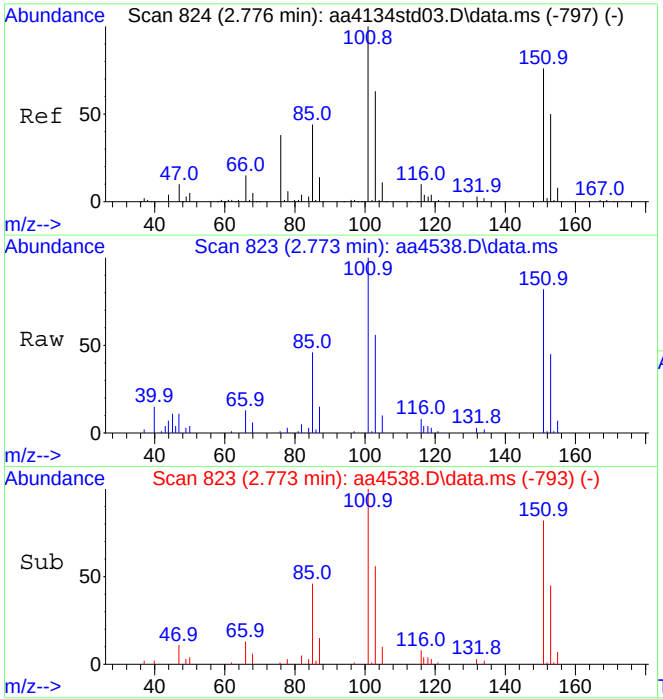


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.410 min Scan# 1332
Delta R.T. 0.016 min
Lab File: aa4538.D
Acq: 3 Nov 2023 5:00 pm

Tgt Ion:130 Resp: 412173

Ion	Ratio	Lower	Upper
130	100		
128	78.1	62.2	93.4

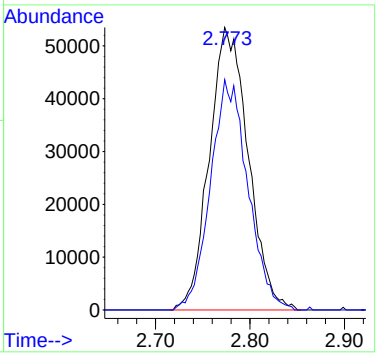


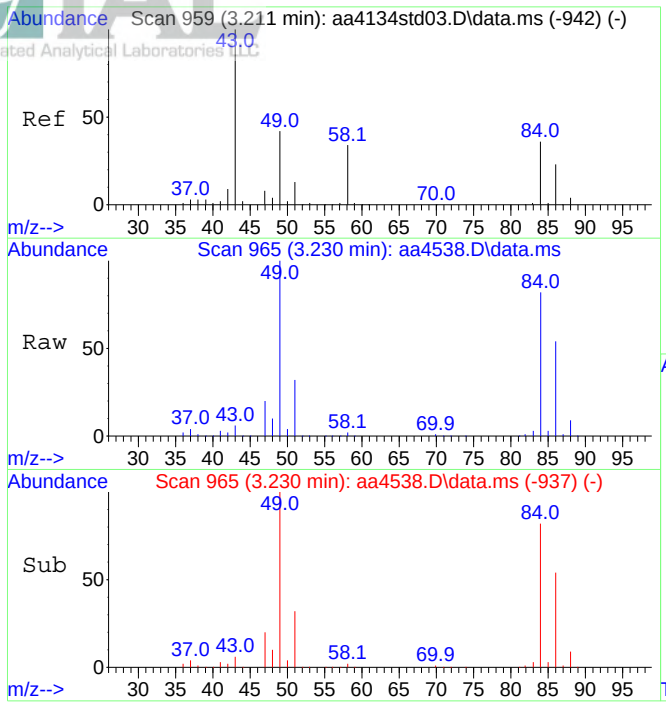


#16
1,1,2-Trichloro-1,2,2-trifluoroethane
Concen: 1.32 ppbV
RT: 2.773 min Scan# 823
Delta R.T. -0.003 min
Lab File: aa4538.D
Acq: 3 Nov 2023 5:00 pm

Tgt Ion:101 Resp: 153436

Ion	Ratio	Lower	Upper
101	100		
151	78.2	62.4	93.6

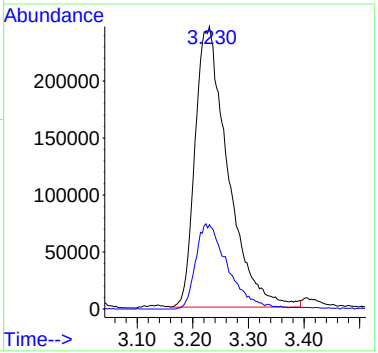


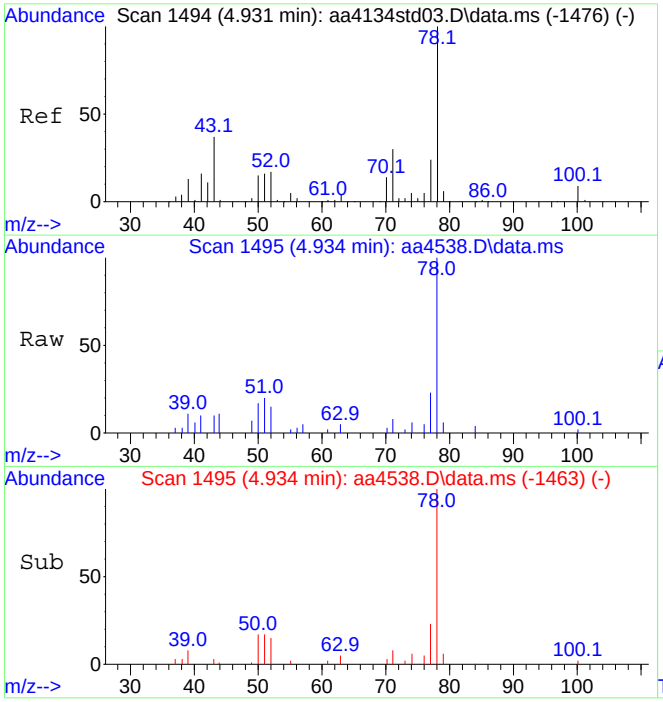


#21
Acetone
Concen: 16.20 ppbV
RT: 3.230 min Scan# 965
Delta R.T. 0.019 min
Lab File: aa4538.D
Acq: 3 Nov 2023 5:00 pm

Tgt Ion: 43 Resp: 1007238

Ion	Ratio	Lower	Upper
43	100		
58	30.0	27.1	40.7

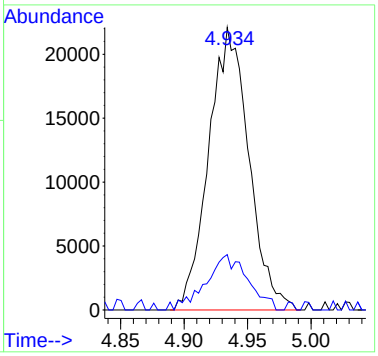


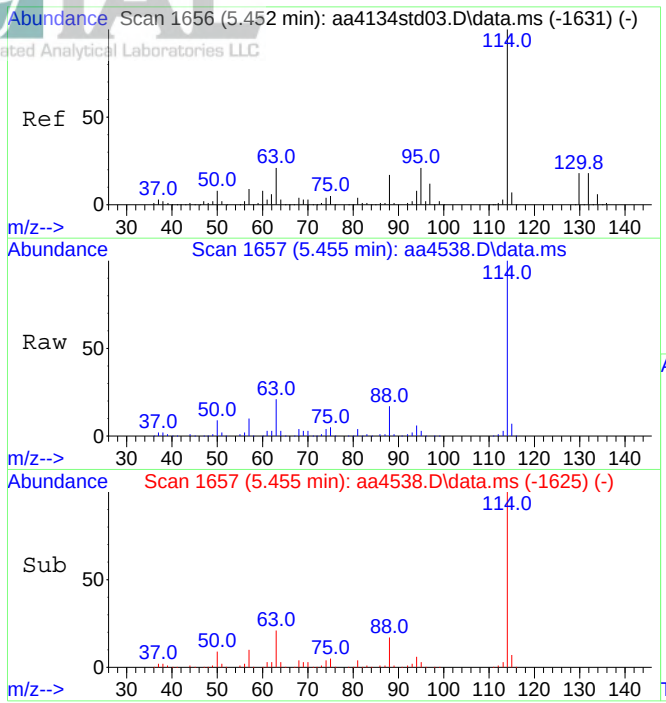


#37
Benzene
Concen: 0.30 ppbV
RT: 4.934 min Scan# 1495
Delta R.T. 0.003 min
Lab File: aa4538.D
Acq: 3 Nov 2023 5:00 pm

Tgt Ion: 78 Resp: 48667

Ion	Ratio	Lower	Upper
78	100		
51	20.4	13.4	20.0#

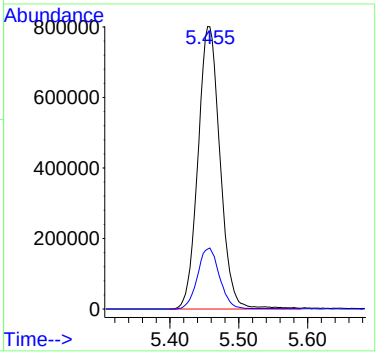


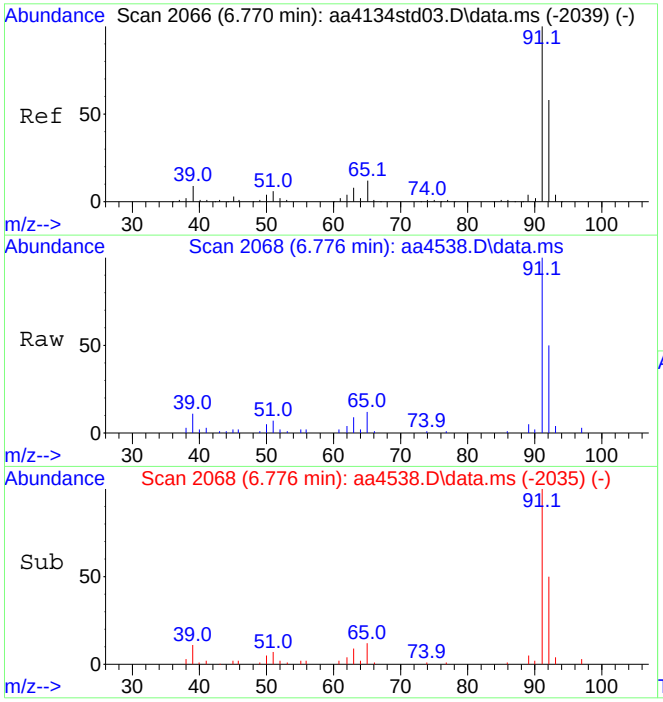


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.455 min Scan# 1657
Delta R.T. 0.003 min
Lab File: aa4538.D
Acq: 3 Nov 2023 5:00 pm

Tgt Ion:114 Resp: 1787711

Ion	Ratio	Lower	Upper
114	100		
63	21.7	17.0	25.6

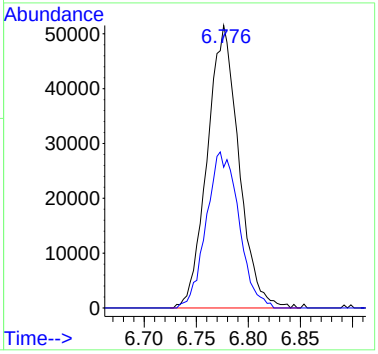


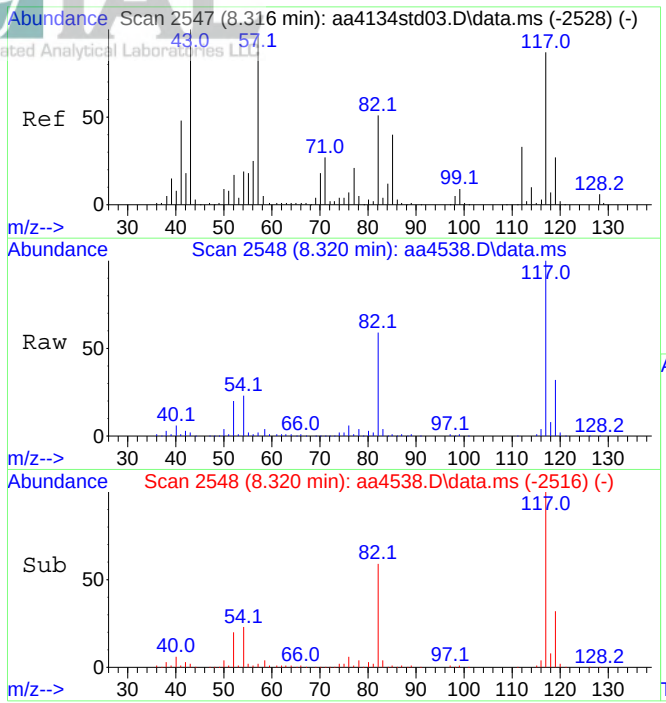


#47
Toluene
Concen: 0.43 ppbV
RT: 6.776 min Scan# 2068
Delta R.T. 0.006 min
Lab File: aa4538.D
Acq: 3 Nov 2023 5:00 pm

Tgt Ion: 91 Resp: 108950

Ion	Ratio	Lower	Upper
91	100		
92	56.9	47.3	70.9

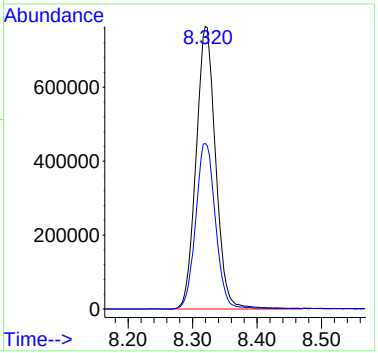


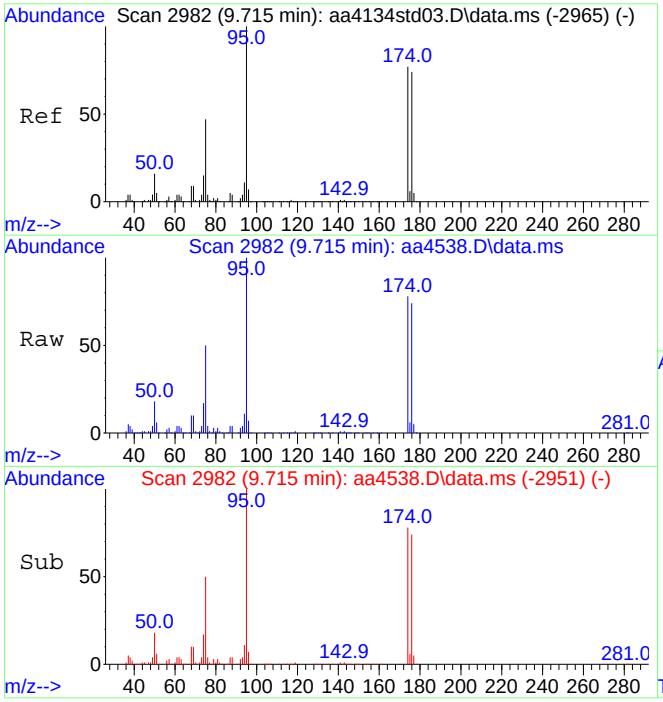


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.320 min Scan# 2548
Delta R.T. 0.003 min
Lab File: aa4538.D
Acq: 3 Nov 2023 5:00 pm

Tgt Ion:117 Resp: 1608463

Ion	Ratio	Lower	Upper
117	100		
82	59.5	47.0	70.4

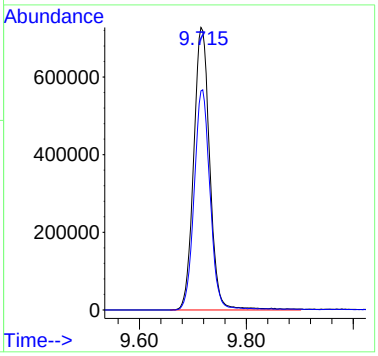




#64
Bromofluorobenzene (tune std)
Concen: 10.84 ppbV
RT: 9.715 min Scan# 2982
Delta R.T. -0.000 min
Lab File: aa4538.D
Acq: 3 Nov 2023 5:00 pm

Tgt Ion: 95 Resp: 1519429

Ion	Ratio	Lower	Upper
95	100		
174	77.4	61.1	91.7



INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/17/23
SDG Number:	E23-05061	Date Analyzed:	12/7/23,12/7/23
IAL Sample ID:	E23-05061-03	Lab Data File#:	AA4869,AA4870
Matrix:	Air	Dilution Factor:	1
Summa ID:	3045a	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05061-03 Concentration Reported ppbv	Q	Sample Dup E23-05061-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**11**		**11**		0.20	**0.00%**
Allyl Chloride	107-05-1	0.20	U	0.20	U	0.20	0.00%
Benzene	71-43-2	**2.6**		**2.3**		0.20	**12.24%**
Bromodichloromethane	75-27-4	0.20	U	0.20	U	0.20	0.00%
Bromoform	75-25-2	0.20	U	0.20	U	0.20	0.00%
Bromomethane	74-83-9	0.20	U	0.20	U	0.20	0.00%
1,3-Butadiene	106-99-0	0.20	U	0.20	U	0.20	0.00%
Chlorobenzene	108-90-7	0.20	U	0.20	U	0.20	0.00%
Chloroethane	75-00-3	0.20	U	0.20	U	0.20	0.00%
Chloroform	67-66-3	0.20	U	0.20	U	0.20	0.00%
Chloromethane	74-87-3	0.20	U	0.20	U	0.20	0.00%
Carbon disulfide	75-15-0	0.20	U	0.20	U	0.20	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.20	U	**0.27**		0.20	**NC**
Cyclohexane	110-82-7	**3.9**		**3.4**		0.20	**13.70%**
Dibromochloromethane	124-48-1	0.20	U	0.20	U	0.20	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	U	0.20	0.00%
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	U	0.20	0.00%
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	U	0.20	0.00%
Dichlorodifluoromethane	75-71-8	0.20	U	0.20	U	0.20	0.00%
1,1-Dichloroethane	75-34-3	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethane	107-06-2	0.20	U	0.20	U	0.20	0.00%
1,1-Dichloroethene	75-35-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	U	0.20	0.00%
1,4-Dioxane	123-91-1	0.20	U	0.20	U	0.20	0.00%
Ethanol	64-17-5	**10**		0.20	U	0.20	**NC**
Ethylbenzene	100-41-4	**1.9**		**1.6**		0.20	**17.14%**
4-Ethyltoluene	622-96-8	**1.9**	X	**1.4**	X	0.20	**30.30%**
n-Heptane	142-82-5	**3.7**		**3.4**		0.20	**8.45%**
1,3-Hexachlorobutadiene	87-68-3	0.20	U	0.20	U	0.20	0.00%
n-Hexane	110-54-3	**4.4**		**3.8**		0.20	**14.63%**
Isopropanol	67-63-0	**2.7**		0.20	U	0.20	**NC**

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/17/23
SDG Number:	E23-05061	Date Analyzed:	12/7/23,12/7/23
IAL Sample ID:	E23-05061-03	Lab Data File#:	AA4869,AA4870
Matrix:	Air	Dilution Factor:	1
Summa ID:	3045a	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05061-03 Concentration Reported ppbv	Q	Sample Dup E23-05061-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methylene chloride	75-09-2	**2.8**		0.20	U	0.20	**NC**
Methyl ethyl ketone	78-93-3	**0.85**		**0.83**		0.20	**2.38%**
Methyl isobutyl ketone	108-10-1	0.20	U	**0.24**		0.20	**NC**
Methyl methacrylate	80-62-6	0.20	U	**3.4**		0.20	**NC**
Methyl tert-butyl ether	1634-04-4	0.20	U	0.20	U	0.20	0.00%
Styrene	100-42-5	0.20	U	0.20	U	0.20	0.00%
Tert-butyl alcohol	75-65-0	0.20	U	0.20	U	0.20	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	U	0.20	0.00%
Tetrachloroethene	127-18-4	0.20	U	0.20	U	0.20	0.00%
Tetrahydrofuran	109-99-9	**0.96**		**0.90**		0.20	**6.45%**
Toluene	108-88-3	**7.1**		**7.1**		0.20	**0.00%**
1,2,4-Trichlorobenzene	120-82-1	0.20	U	0.20	U	0.20	0.00%
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	U	0.20	0.00%
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	U	0.20	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	**0.33**		**0.33**		0.20	**0.00%**
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	U	0.20	U	0.20	0.00%
1,2,4-Trimethylbenzene	95-63-6	**1.9**		**1.5**		0.20	**23.53%**
1,3,5-Trimethylbenzene	108-67-8	**0.53**		**0.45**		0.20	**16.33%**
2,2,4-Trimethylpentane	540-84-1	**6.9**		**7.0**		0.20	**-1.44%**
Vinyl bromide	593-60-2	0.20	U	0.20	U	0.20	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	**7.0**		**5.9**		0.40	**17.05%**
Xylenes (o)	95-47-6	**2.3**		**2.0**		0.20	**13.95%**

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-07-2023\
Data File : aa4869.D
Acq On : 7 Dec 2023 7:50 pm
Operator : jjw
Sample : E23-05061-03
Misc : 3045A, 500cc
ALS Vial : 23 Sample Multiplier: 1

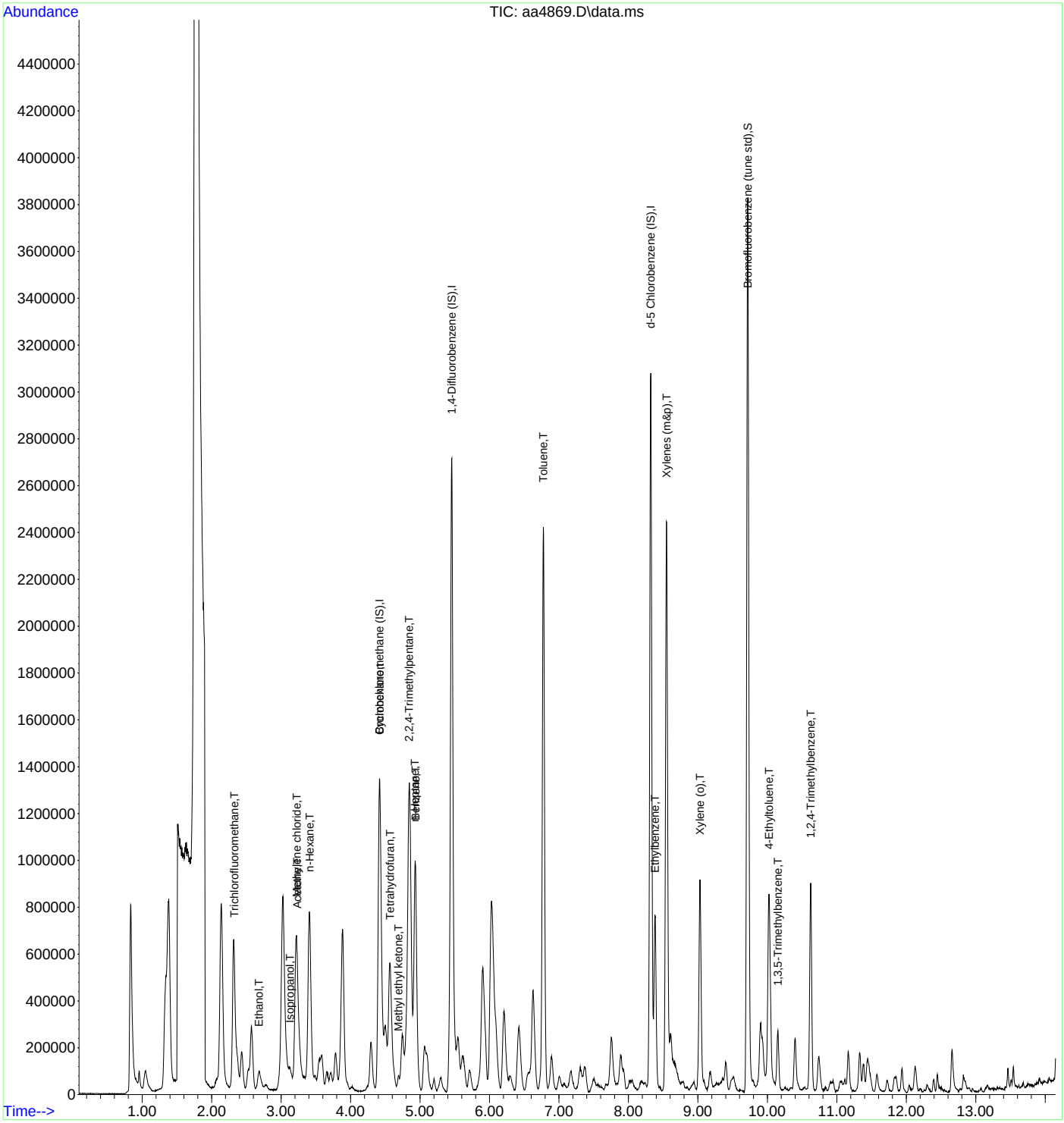
Quant Time: Dec 13 12:49:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

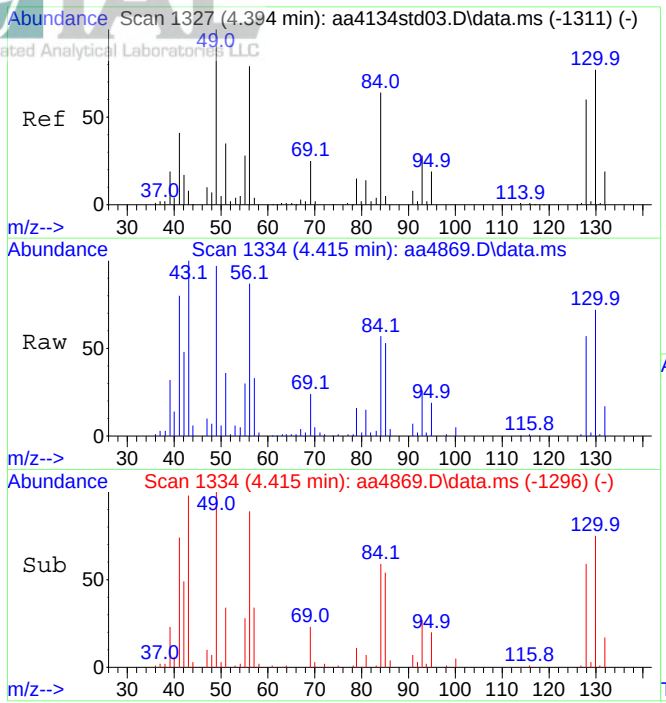
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.415	130	377969	10.00	ppbV		0.021
39) 1,4-Difluorobenzene (IS)	5.457	114	2104054	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.322	117	1855524	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.717	95	1687506	10.43	ppbV		0.000
Target Compounds							Qvalue
12) Trichlorofluoromethane	2.329	101	35340	0.33	ppbV		84
13) Ethanol	2.682	45	111256	10.05	ppbV		96
19) Isopropanol	3.129	45	208140	2.75	ppbV	#	74
20) Methylene chloride	3.226	49	129701	2.79	ppbV		90
21) Acetone	3.232	43	610229	10.70	ppbV		96
24) n-Hexane	3.412	57	520146	4.37	ppbV		97
29) Cyclohexane	4.419	56	324297	3.90	ppbV	#	74
33) Tetrahydrofuran	4.570	42	54848	0.96	ppbV	#	80
35) Methyl ethyl ketone	4.689	43	78559	0.85	ppbV		96
36) n-Heptane	4.927	43	386594	3.70	ppbV		97
37) Benzene	4.936	78	388496	2.59	ppbV		94
41) 2,2,4-Trimethylpentane	4.843	57	1877837	6.85	ppbV		96
47) Toluene	6.775	91	2112833	7.14	ppbV		100
58) Ethylbenzene	8.383	91	655687	1.92	ppbV		98
59) Xylenes (m&p)	8.550	91	1780980	7.03	ppbV		97
60) Xylene (o)	9.029	91	648554	2.35	ppbV		97
67) 4-Ethyltoluene	10.023	105	762163	1.91	ppbV		99
69) 1,3,5-Trimethylbenzene	10.151	105	170234	0.53	ppbV		99
70) 1,2,4-Trimethylbenzene	10.624	105	614979	1.92	ppbV		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-07-2023\
Data File : aa4869.D
Acq On : 7 Dec 2023 7:50 pm
Operator : jjw
Sample : E23-05061-03
Misc : 3045A, 500cc
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Dec 13 12:49:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

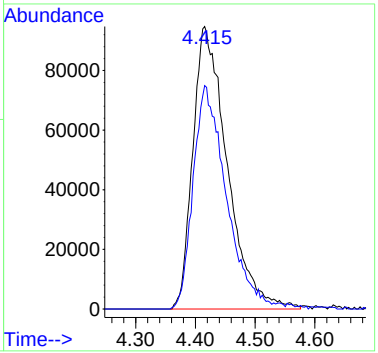


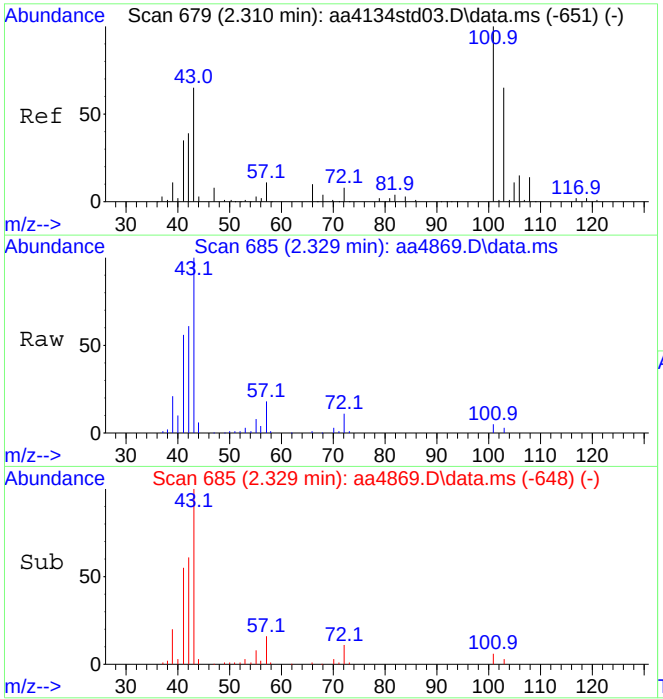


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.415 min Scan# 1334
Delta R.T. 0.021 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:130 Resp: 377969

Ion	Ratio	Lower	Upper
130	100		
128	76.5	62.2	93.4

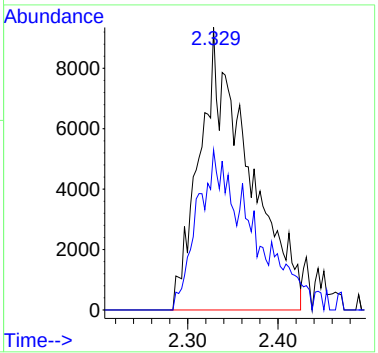


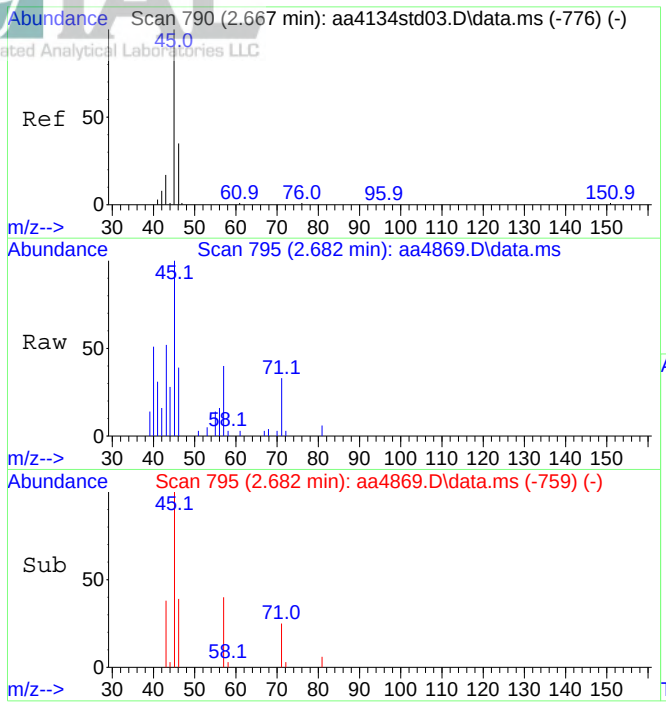


#12
Trichlorofluoromethane
Concen: 0.33 ppbV
RT: 2.329 min Scan# 685
Delta R.T. 0.018 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:101 Resp: 35340

Ion	Ratio	Lower	Upper
101	100		
103	53.1	52.5	78.7

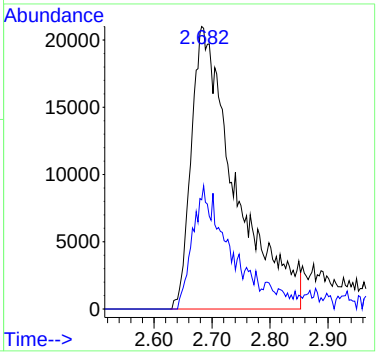


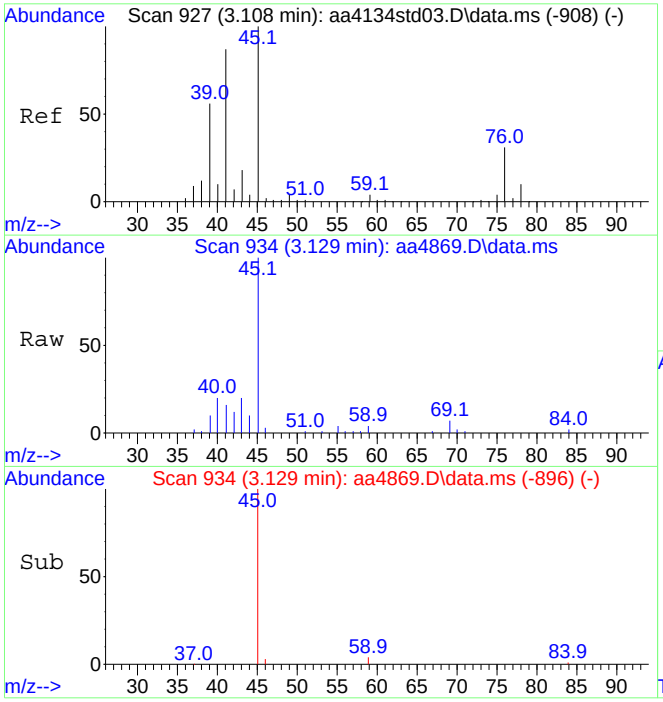


#13
Ethanol
Concen: 10.05 ppbV
RT: 2.682 min Scan# 795
Delta R.T. 0.015 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 45 Resp: 111256

Ion	Ratio	Lower	Upper
45	100		
46	35.3	30.0	45.0

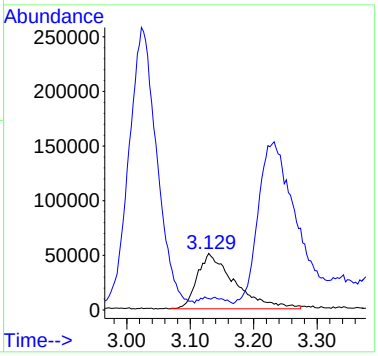


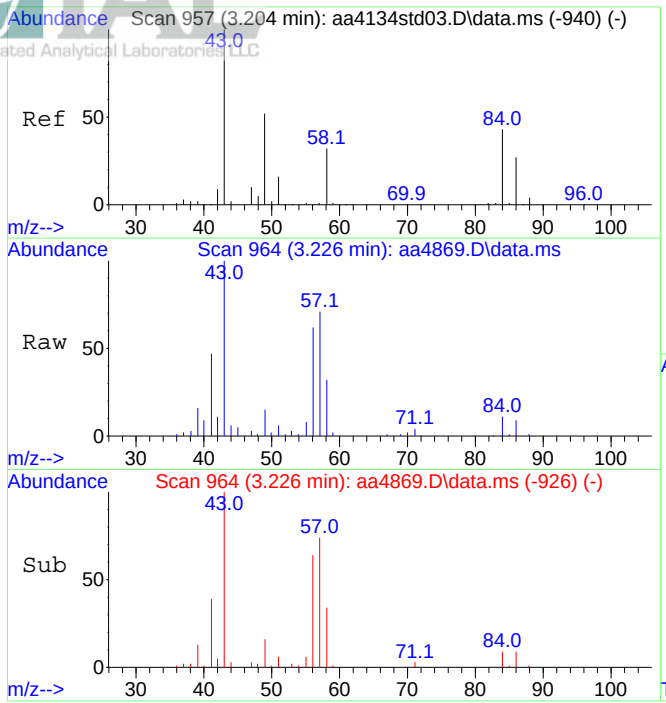


#19
Isopropanol
Concen: 2.75 ppbV
RT: 3.129 min Scan# 934
Delta R.T. 0.021 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 45 Resp: 208140

Ion	Ratio	Lower	Upper
45	100		
43	6.6	14.6	21.8#

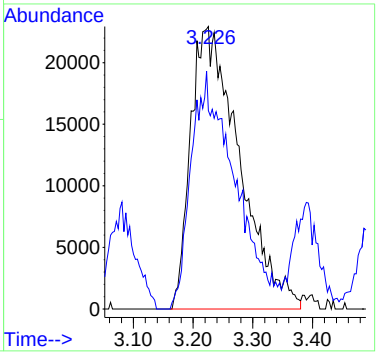


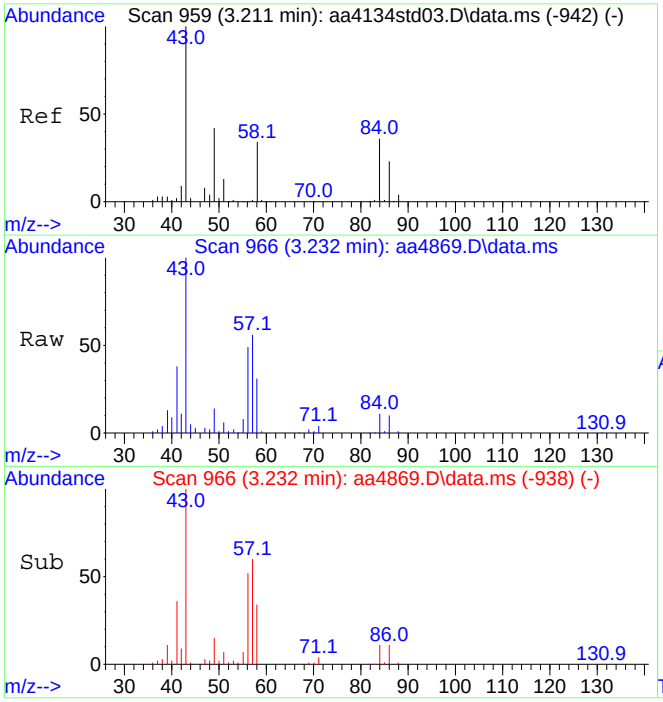


#20
Methylene chloride
Concen: 2.79 ppbV
RT: 3.226 min Scan# 964
Delta R.T. 0.022 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 49 Resp: 129701

Ion	Ratio	Lower	Upper
49	100		
84	75.6	64.8	104.8

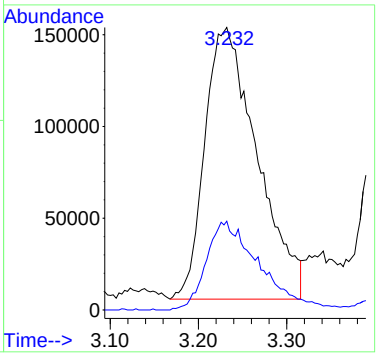


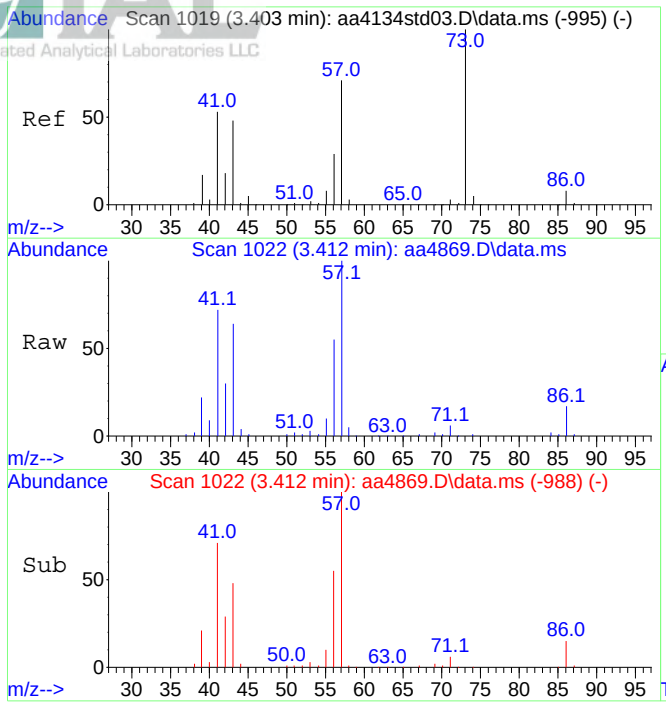


#21
Acetone
Concen: 10.70 ppbV
RT: 3.232 min Scan# 966
Delta R.T. 0.021 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 43 Resp: 610229

Ion	Ratio	Lower	Upper
43	100		
58	31.8	27.1	40.7

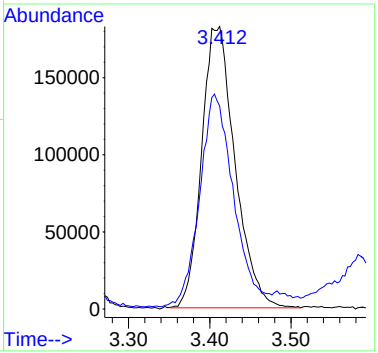


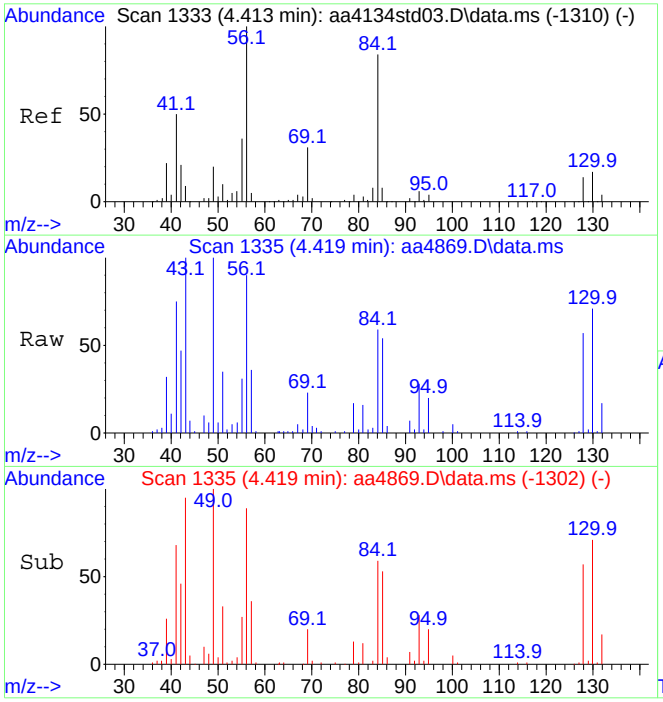


#24
n-Hexane
Concen: 4.37 ppbV
RT: 3.412 min Scan# 1022
Delta R.T. 0.009 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 57 Resp: 520146

Ion	Ratio	Lower	Upper
57	100		
41	80.4	66.4	99.6

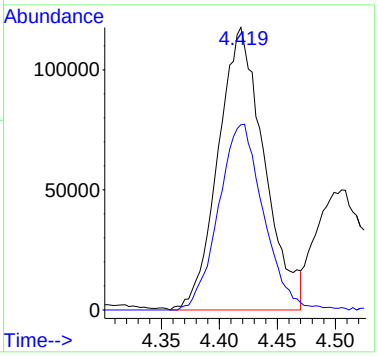


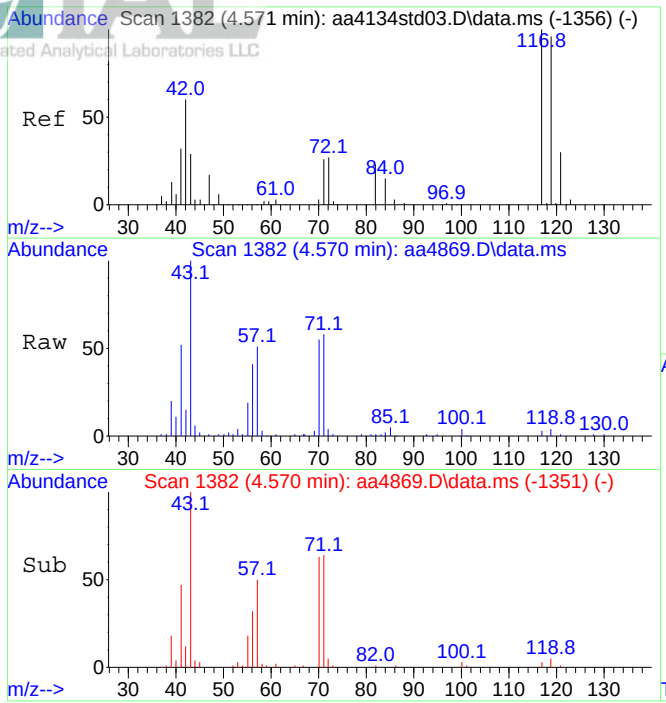


#29
Cyclohexane
Concen: 3.90 ppbV
RT: 4.419 min Scan# 1335
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 56 Resp: 324297

Ion	Ratio	Lower	Upper
56	100		
84	64.3	71.2	106.8#

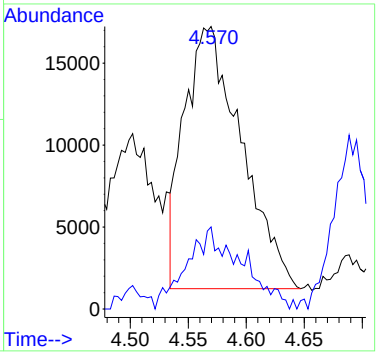


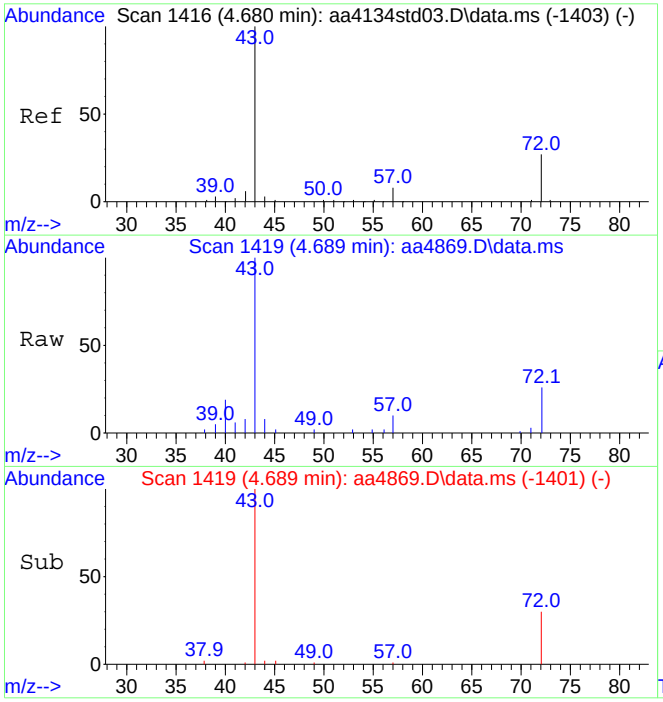


#33
Tetrahydrofuran
Concen: 0.96 ppbV
RT: 4.570 min Scan# 1382
Delta R.T. -0.001 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 42 Resp: 54848

Ion	Ratio	Lower	Upper
42	100		
72	29.9	33.8	50.8#

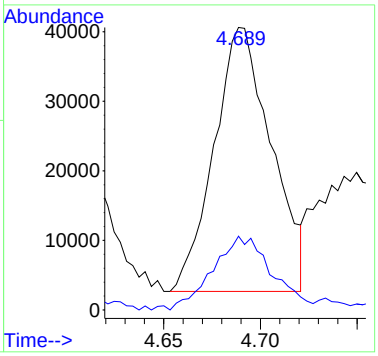


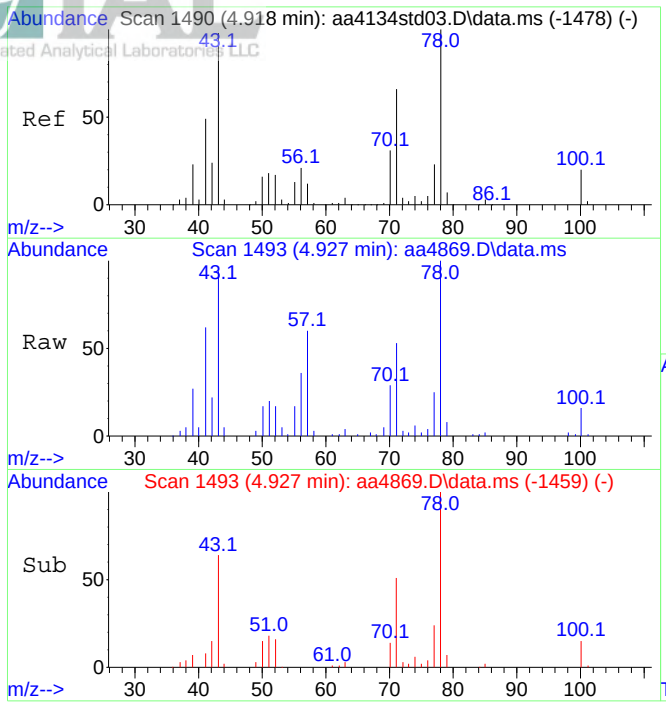


#35
Methyl ethyl ketone
Concen: 0.85 ppbV
RT: 4.689 min Scan# 1419
Delta R.T. 0.009 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 43 Resp: 78559

Ion	Ratio	Lower	Upper
43	100		
72	29.0	21.6	32.4

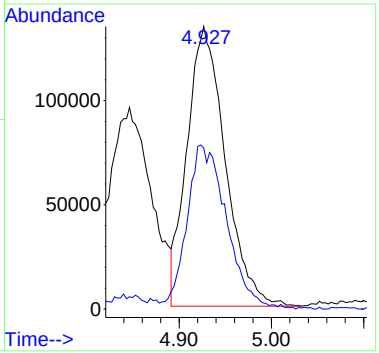


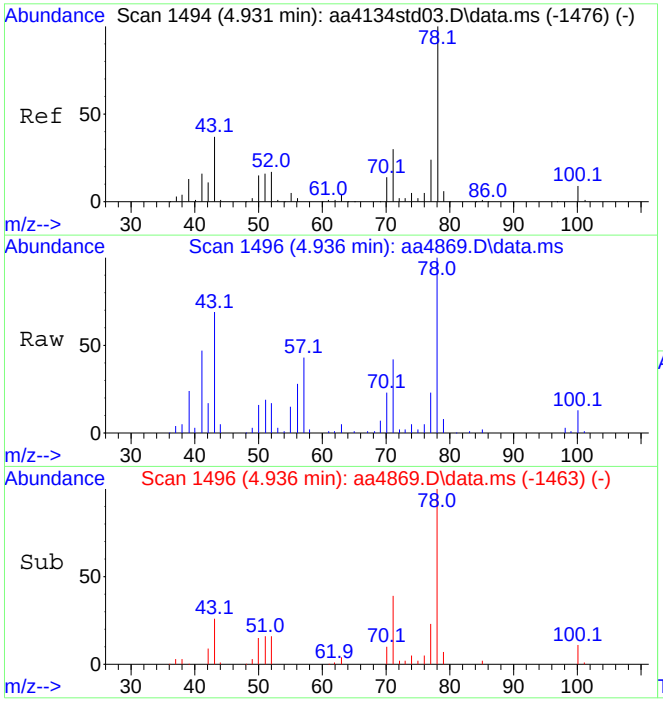


#36
n-Heptane
Concen: 3.70 ppbV
RT: 4.927 min Scan# 1493
Delta R.T. 0.009 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 43 Resp: 386594

Ion	Ratio	Lower	Upper
43	100		
71	60.7	50.5	75.7

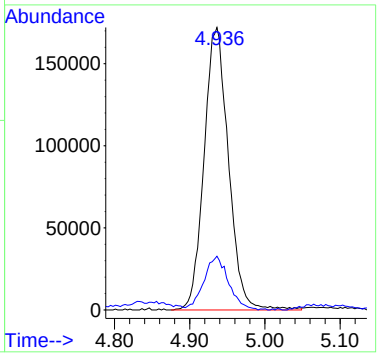


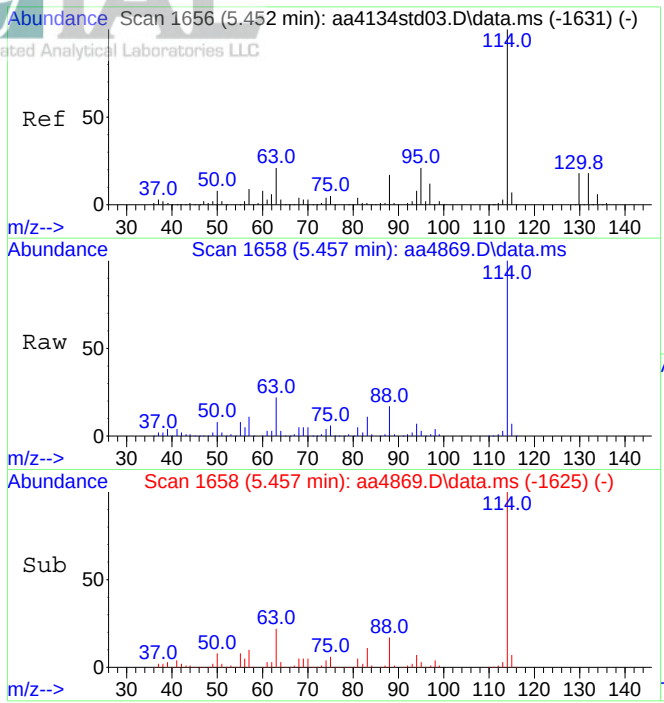


#37
Benzene
Concen: 2.59 ppbV
RT: 4.936 min Scan# 1496
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 78 Resp: 388496

Ion	Ratio	Lower	Upper
78	100		
51	19.2	13.4	20.0

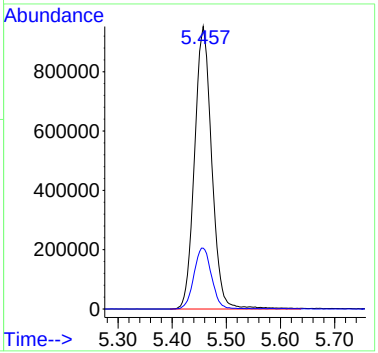


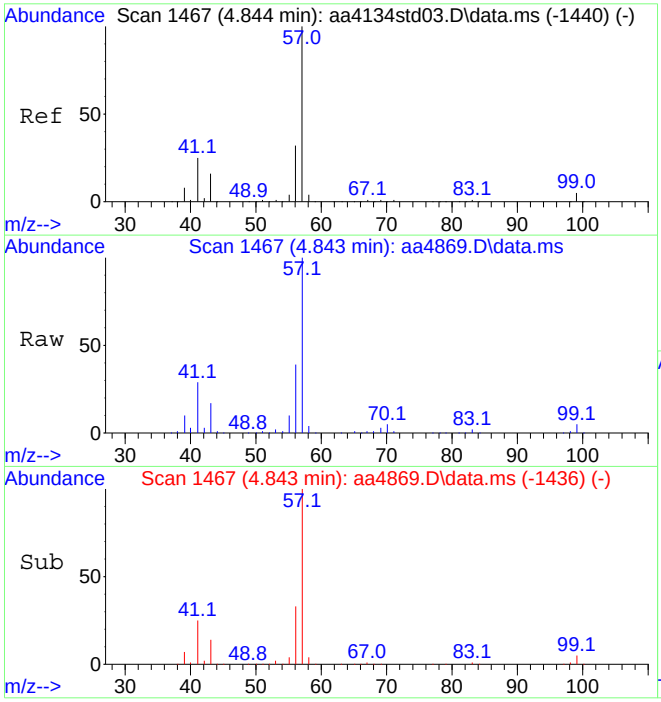


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:114 Resp: 2104054

Ion	Ratio	Lower	Upper
114	100		
63	22.1	17.0	25.6

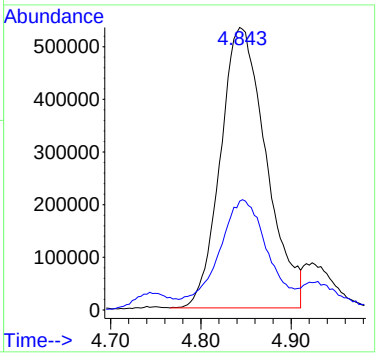


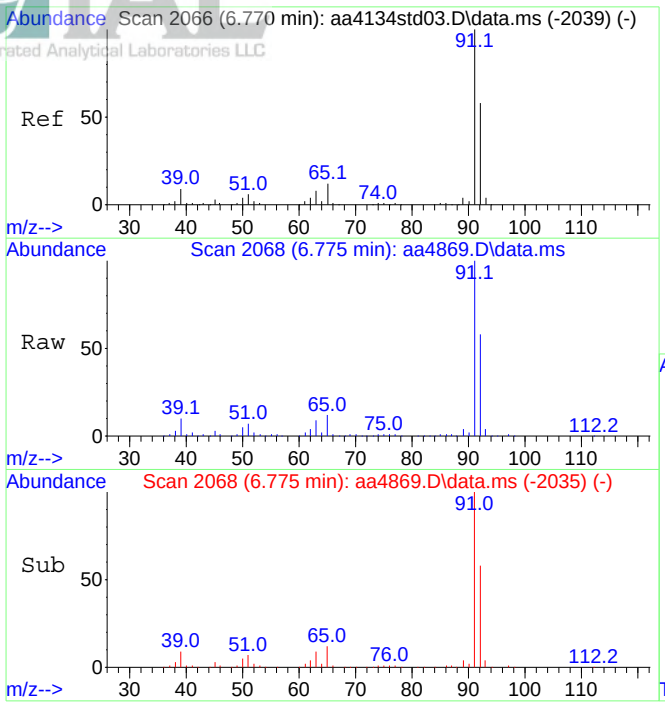


#41
2,2,4-Trimethylpentane
Concen: 6.85 ppbV
RT: 4.843 min Scan# 1467
Delta R.T. -0.001 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 57 Resp: 1877837

Ion	Ratio	Lower	Upper
57	100		
56	34.6	25.7	38.5

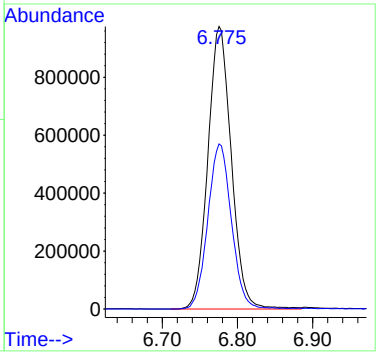


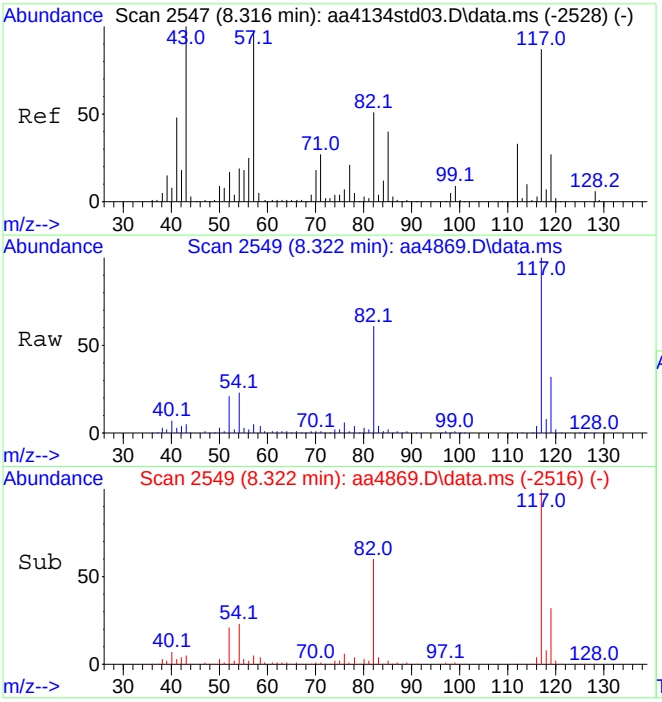


#47
Toluene
Concen: 7.14 ppbV
RT: 6.775 min Scan# 2068
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 91 Resp: 2112833

Ion	Ratio	Lower	Upper
91	100		
92	59.0	47.3	70.9

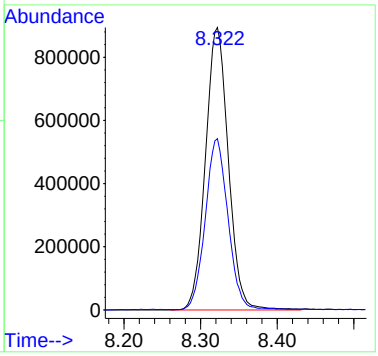


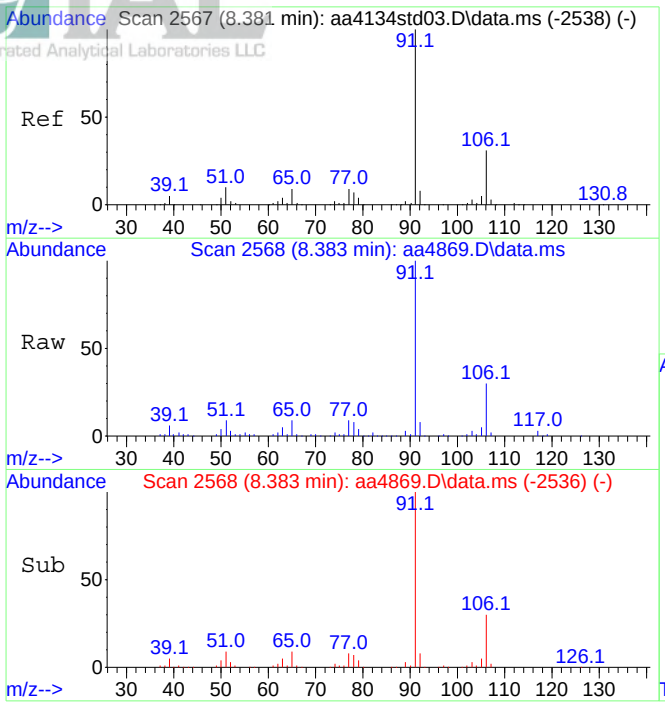


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.322 min Scan# 2549
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:117 Resp: 1855524

Ion	Ratio	Lower	Upper
117	100		
82	60.2	47.0	70.4

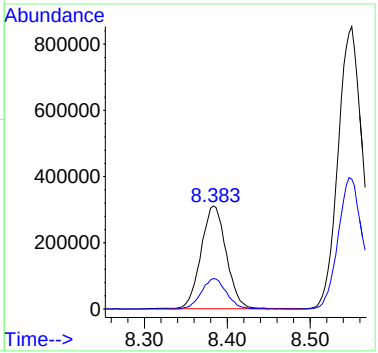


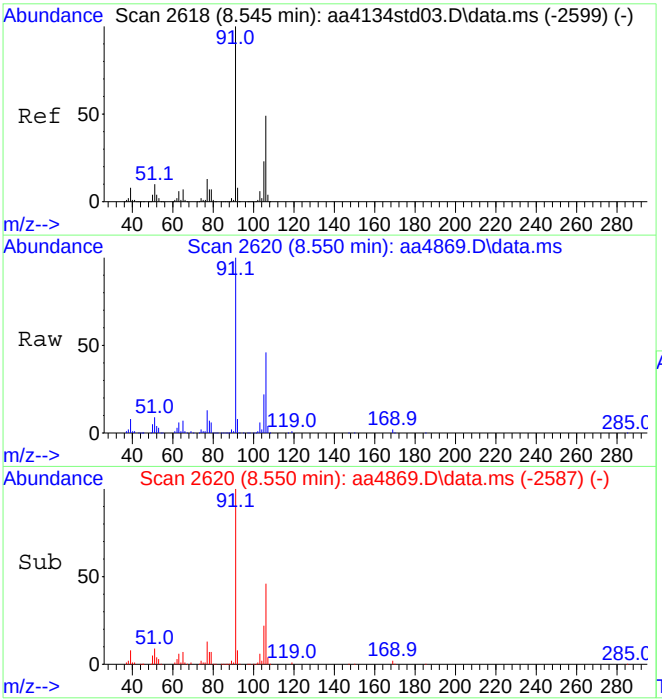


#58
Ethylbenzene
Concen: 1.92 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 91 Resp: 655687

Ion	Ratio	Lower	Upper
91	100		
106	29.4	24.6	36.8

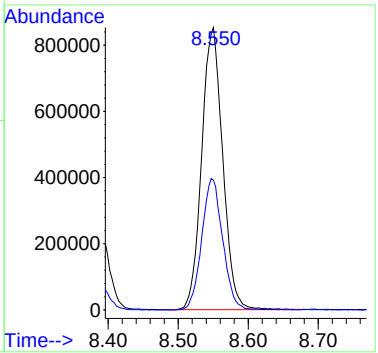


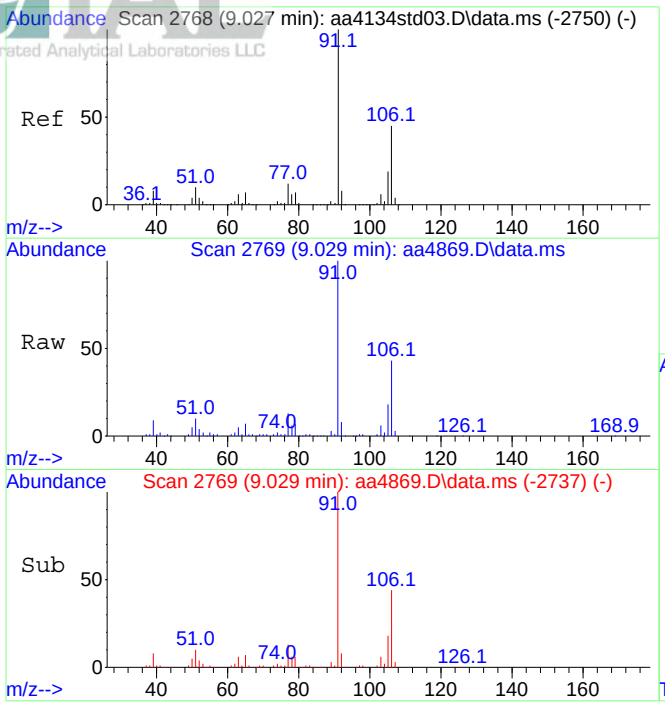


#59
Xylenes (m&p)
Concen: 7.03 ppbV
RT: 8.550 min Scan# 2620
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 91 Resp: 1780980

Ion	Ratio	Lower	Upper
91	100		
106	46.5	39.0	58.4

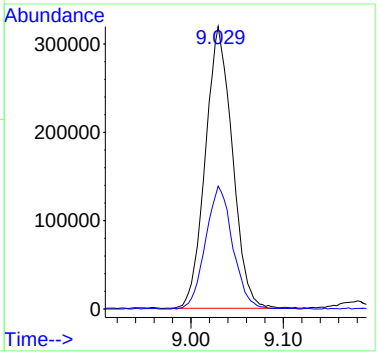


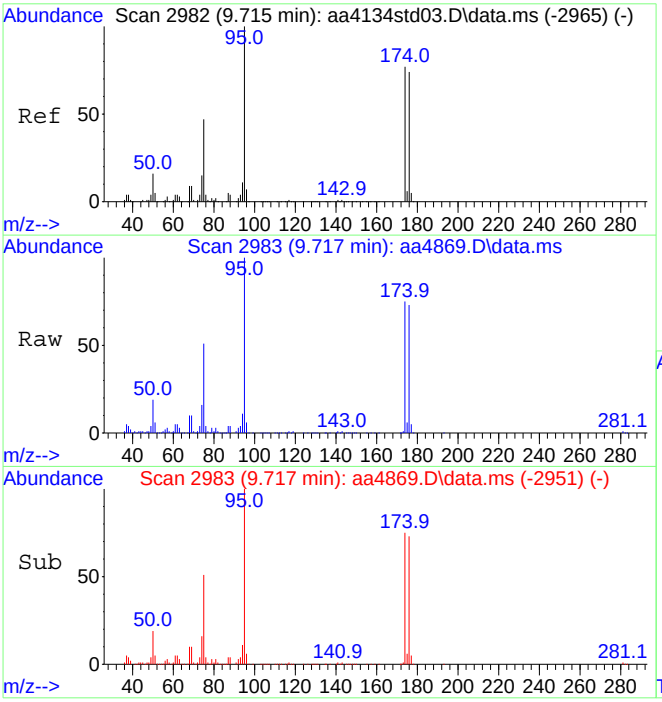


#60
Xylene (o)
Concen: 2.35 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 91 Resp: 648554

Ion	Ratio	Lower	Upper
91	100		
106	44.0	36.8	55.2

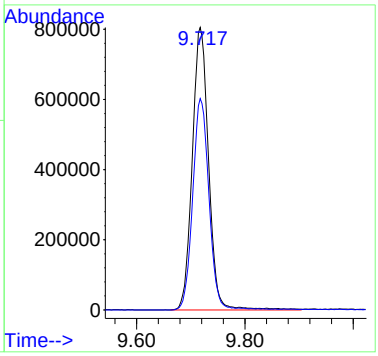


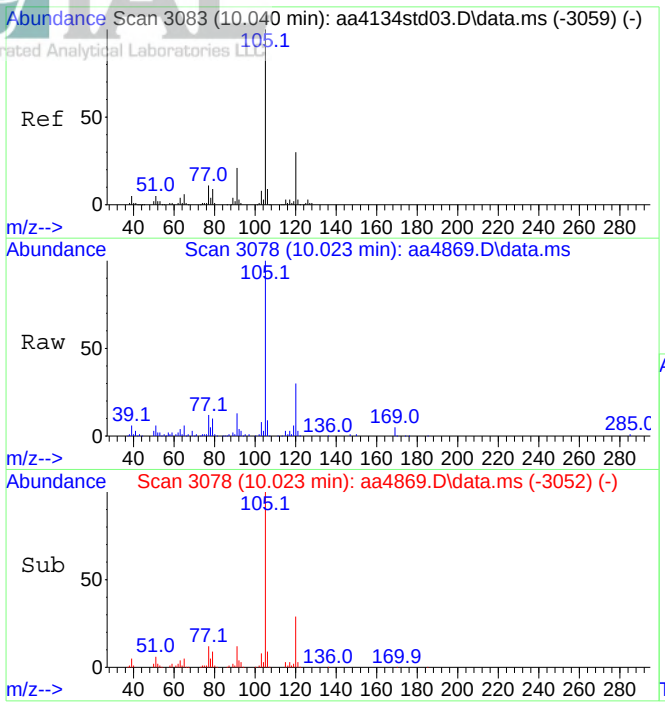


#64
Bromofluorobenzene (tune std)
Concen: 10.43 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 95 Resp: 1687506

Ion	Ratio	Lower	Upper
95	100		
174	75.1	61.1	91.7

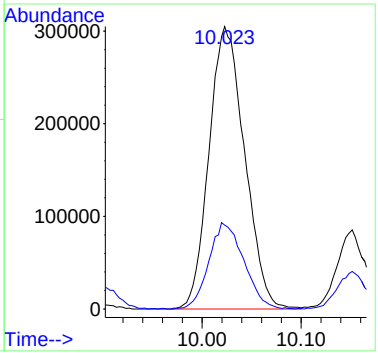


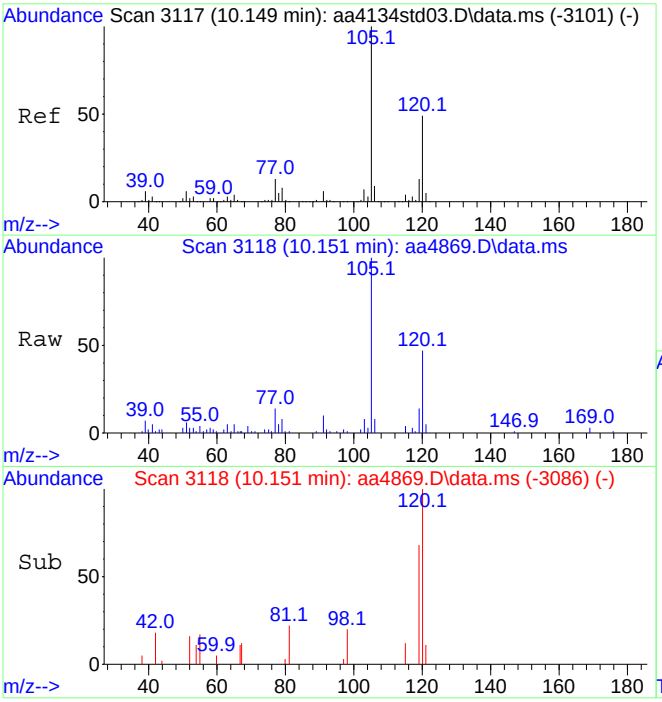


#67
4-Ethyltoluene
Concen: 1.91 ppbV
RT: 10.023 min Scan# 3078
Delta R.T. -0.017 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:105 Resp: 762163

Ion	Ratio	Lower	Upper
105	100		
120	30.0	23.4	35.2

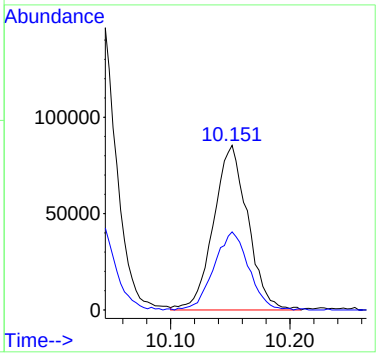


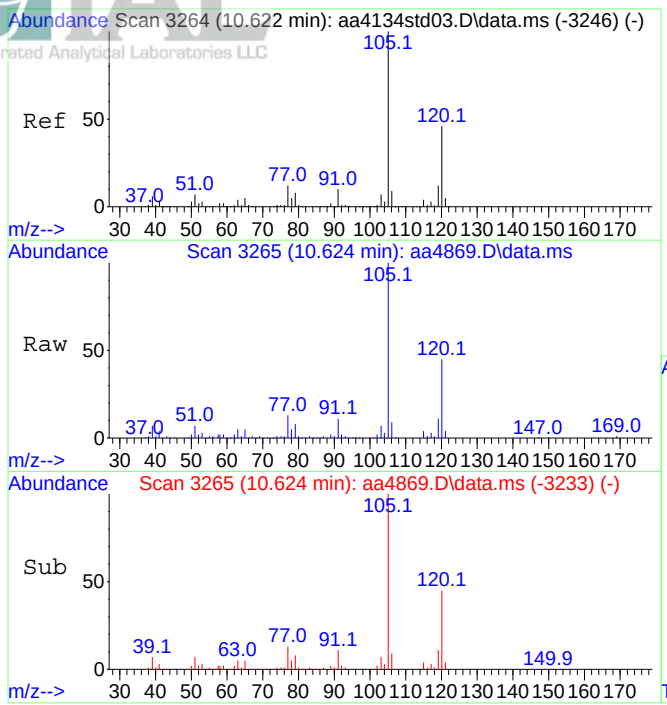


#69
1,3,5-Trimethylbenzene
Concen: 0.53 ppbV
RT: 10.151 min Scan# 3118
Delta R.T. 0.002 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:105 Resp: 170234

Ion	Ratio	Lower	Upper
105	100		
120	48.2	38.9	58.3

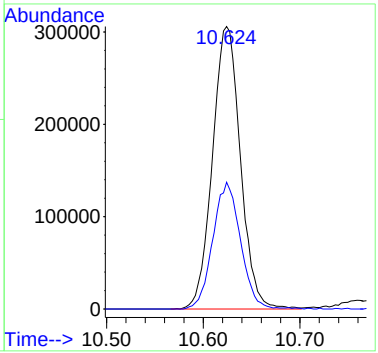




#70
1,2,4-Trimethylbenzene
Concen: 1.92 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:105 Resp: 614979

Ion	Ratio	Lower	Upper
105	100		
120	44.4	36.3	54.5



Data Path : C:\DATA\2023\12-2023\12-07-2023\
Data File : aa4870.D
Acq On : 7 Dec 2023 8:30 pm
Operator : jjw
Sample : E23-05061-23
Misc : Dup of E23-05061-03, Can # 3045A
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Dec 13 12:53:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

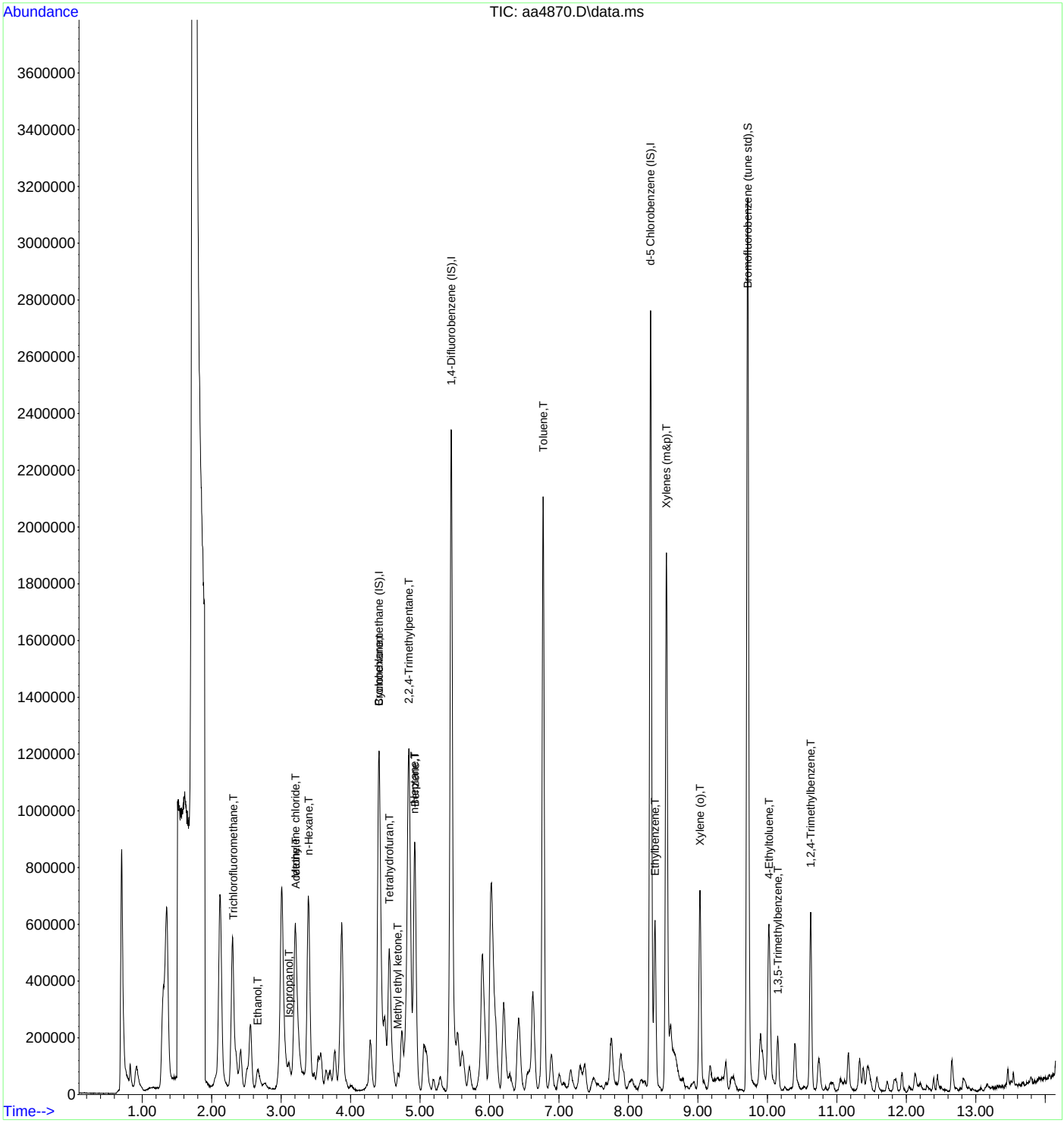
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.409	130	368396	10.00	ppbV		0.015
39) 1,4-Difluorobenzene (IS)	5.451	114	1818981	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1692684	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.717	95	1387863	9.41	ppbV		0.000
Target Compounds							Qvalue
12) Trichlorofluoromethane	2.313	101	33879	0.33	ppbV		90
13) Ethanol	2.663	45	109072	10.11	ppbV		99
19) Isopropanol	3.113	45	208075	2.82	ppbV	#	70
20) Methylene chloride	3.206	49	125882	2.78	ppbV	#	7
21) Acetone	3.213	43	562689	10.13	ppbV		99
24) n-Hexane	3.396	57	444919	3.83	ppbV		97
29) Cyclohexane	4.409	56	279096	3.44	ppbV	#	74
33) Tetrahydrofuran	4.557	42	49663	0.90	ppbV	#	75
35) Methyl ethyl ketone	4.679	43	75094	0.83	ppbV		98
36) n-Heptane	4.917	43	341229	3.35	ppbV		97
37) Benzene	4.930	78	338080	2.31	ppbV		95
41) 2,2,4-Trimethylpentane	4.840	57	1725941	7.28	ppbV		95
47) Toluene	6.772	91	1825367	7.14	ppbV		100
58) Ethylbenzene	8.383	91	499733	1.60	ppbV		99
59) Xylenes (m&p)	8.547	91	1368186	5.92	ppbV		97
60) Xylene (o)	9.029	91	512360	2.03	ppbV		97
67) 4-Ethyltoluene	10.023	105	521383	1.43	ppbV		99
69) 1,3,5-Trimethylbenzene	10.151	105	130813	0.45	ppbV		99
70) 1,2,4-Trimethylbenzene	10.624	105	434326	1.48	ppbV		98

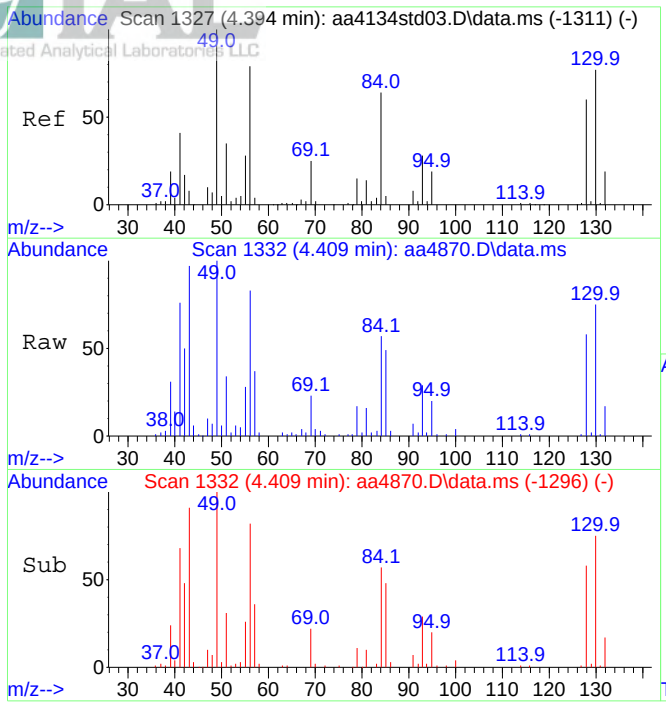
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-07-2023\
Data File : aa4870.D
Acq On : 7 Dec 2023 8:30 pm
Operator : jjw
Sample : E23-05061-23
Misc : Dup of E23-05061-03, Can # 3045A
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Dec 13 12:53:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

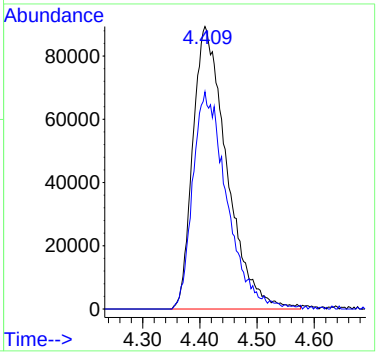


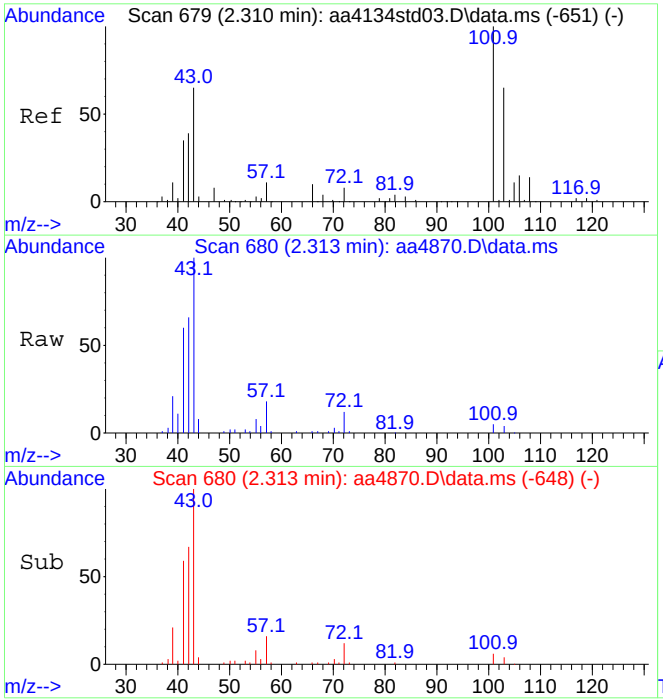


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.409 min Scan# 1332
Delta R.T. 0.015 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:130 Resp: 368396

Ion	Ratio	Lower	Upper
130	100		
128	76.6	62.2	93.4

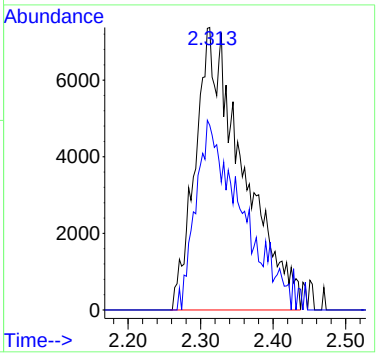


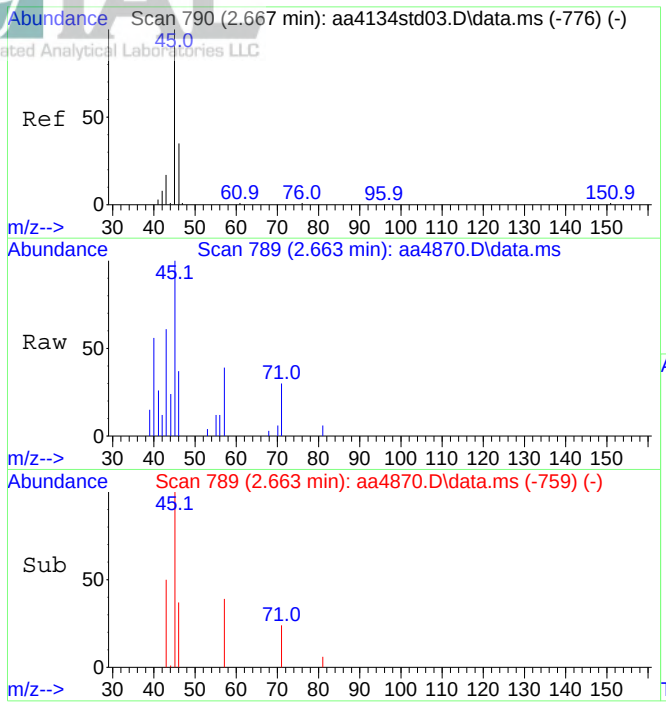


#12
Trichlorofluoromethane
Concen: 0.33 ppbV
RT: 2.313 min Scan# 680
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:101 Resp: 33879

Ion	Ratio	Lower	Upper
101	100		
103	57.5	52.5	78.7

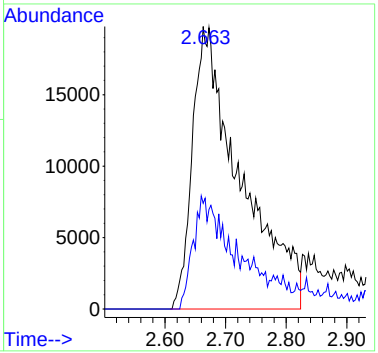


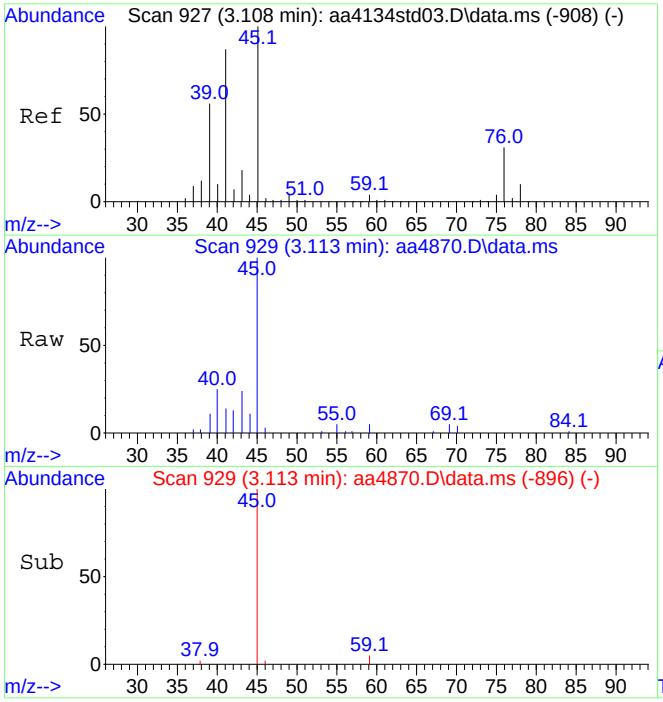


#13
Ethanol
Concen: 10.11 ppbV
RT: 2.663 min Scan# 789
Delta R.T. -0.004 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 45 Resp: 109072

Ion	Ratio	Lower	Upper
45	100		
46	37.9	30.0	45.0

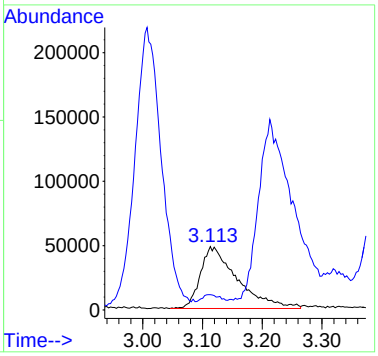


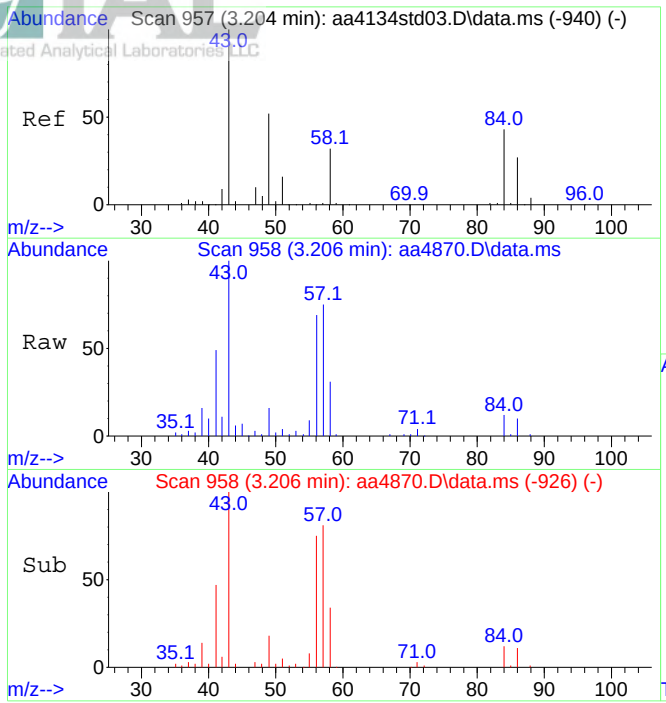


#19
Isopropanol
Concen: 2.82 ppbV
RT: 3.113 min Scan# 929
Delta R.T. 0.005 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 45 Resp: 208075

Ion	Ratio	Lower	Upper
45	100		
43	5.0	14.6	21.8#

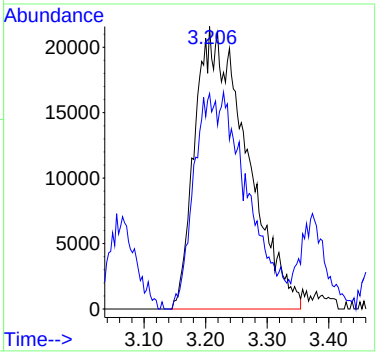


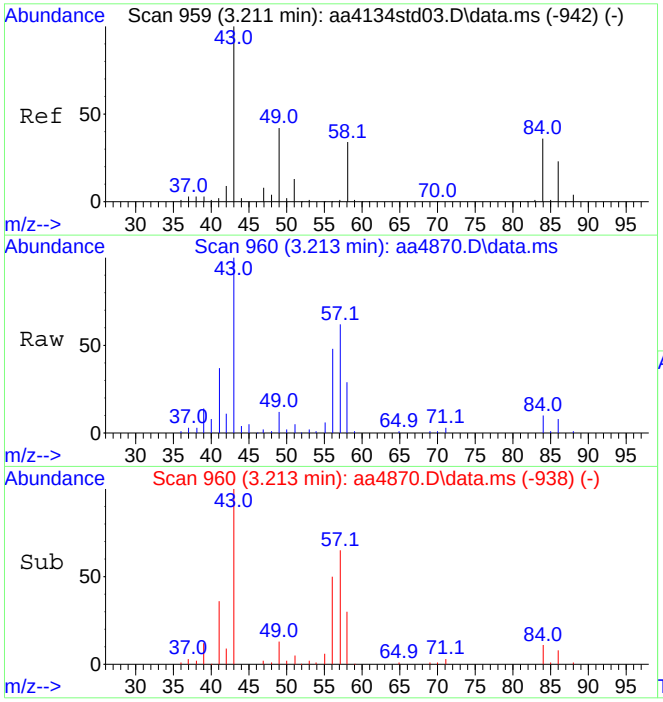


#20
Methylene chloride
Concen: 2.78 ppbV
RT: 3.206 min Scan# 958
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 49 Resp: 125882

Ion	Ratio	Lower	Upper
49	100		
84	0.0	64.8	104.8#

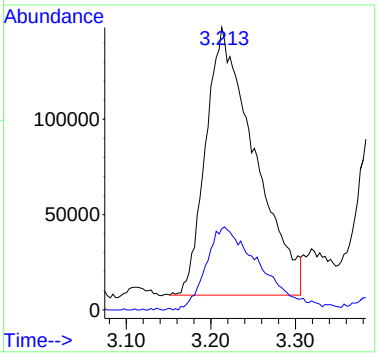


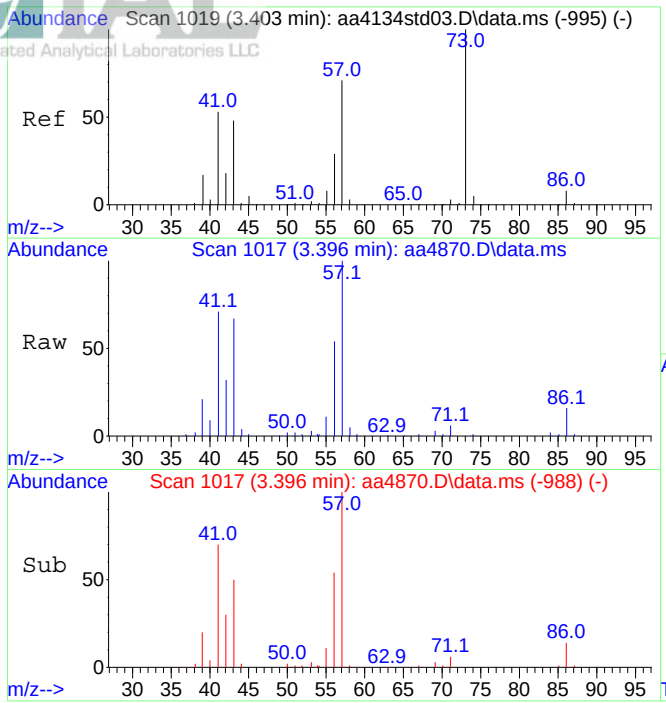


#21
Acetone
Concen: 10.13 ppbV
RT: 3.213 min Scan# 960
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 43 Resp: 562689

Ion	Ratio	Lower	Upper
43	100		
58	33.1	27.1	40.7

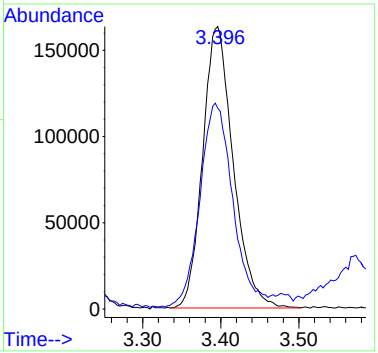


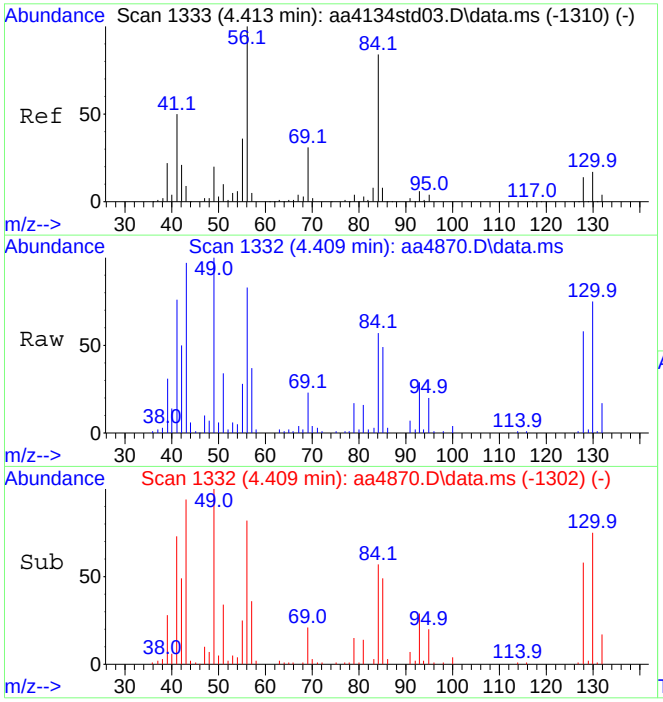


#24
n-Hexane
Concen: 3.83 ppbV
RT: 3.396 min Scan# 1017
Delta R.T. -0.007 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 57 Resp: 444919

Ion	Ratio	Lower	Upper
57	100		
41	80.6	66.4	99.6

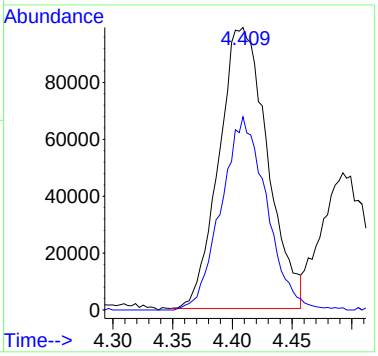


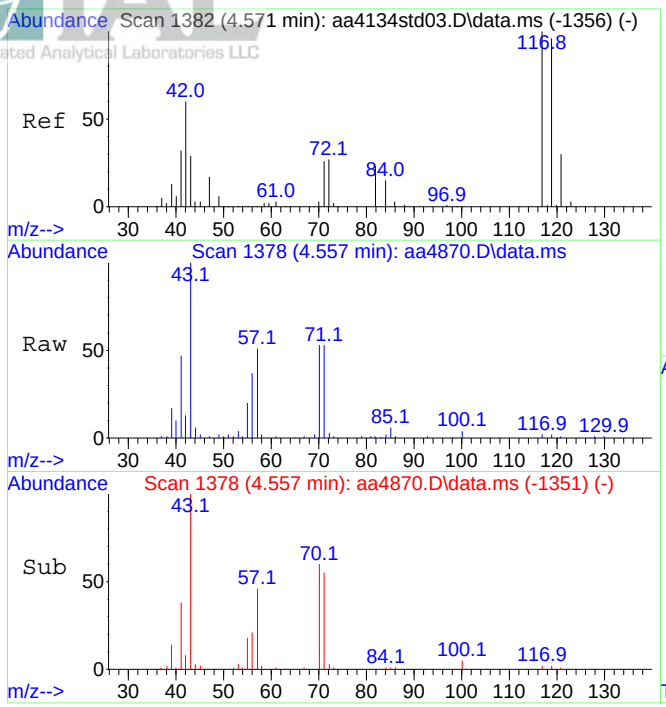


#29
Cyclohexane
Concen: 3.44 ppbV
RT: 4.409 min Scan# 1332
Delta R.T. -0.004 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 56 Resp: 279096

Ion	Ratio	Lower	Upper
56	100		
84	64.4	71.2	106.8#

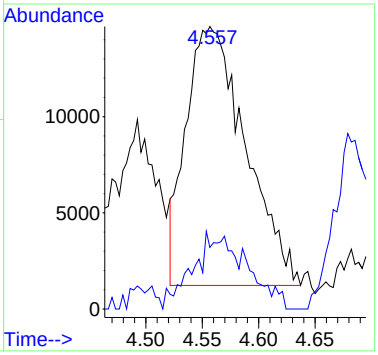


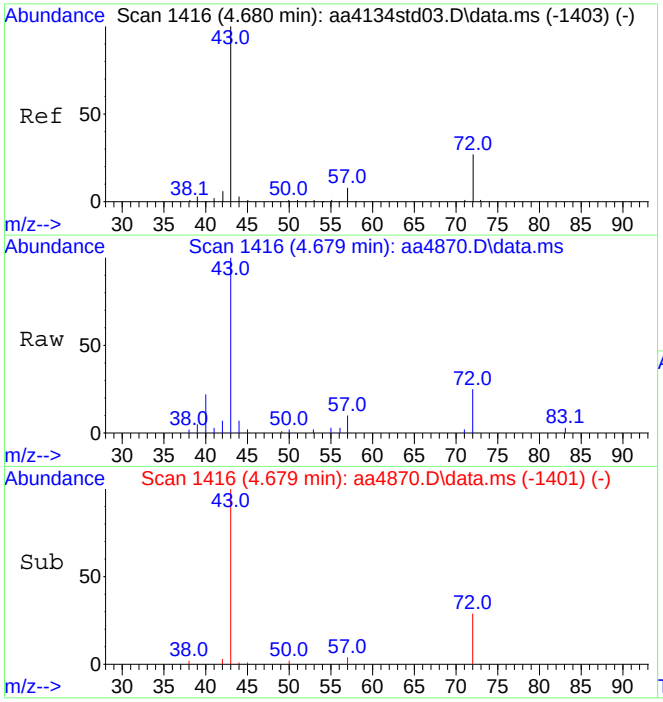


#33
Tetrahydrofuran
Concen: 0.90 ppbV
RT: 4.557 min Scan# 1378
Delta R.T. -0.014 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 42 Resp: 49663

Ion	Ratio	Lower	Upper
42	100		
72	26.4	33.8	50.8#

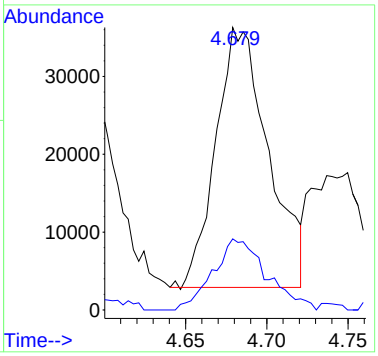


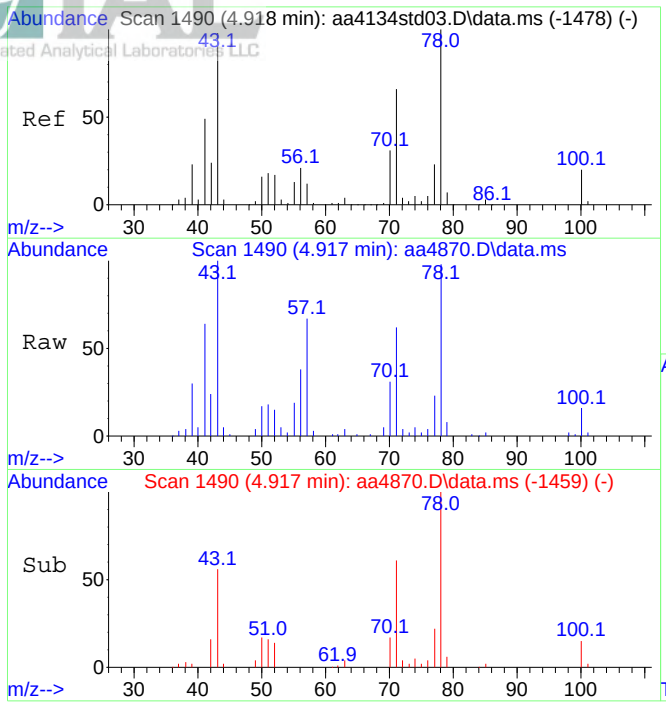


#35
Methyl ethyl ketone
Concen: 0.83 ppbV
RT: 4.679 min Scan# 1416
Delta R.T. -0.001 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 43 Resp: 75094

Ion	Ratio	Lower	Upper
43	100		
72	27.9	21.6	32.4

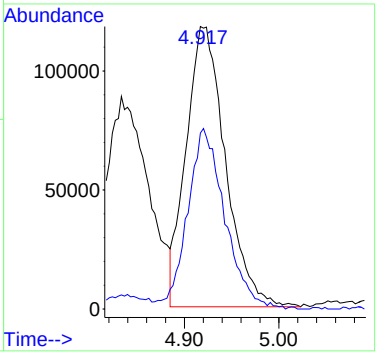


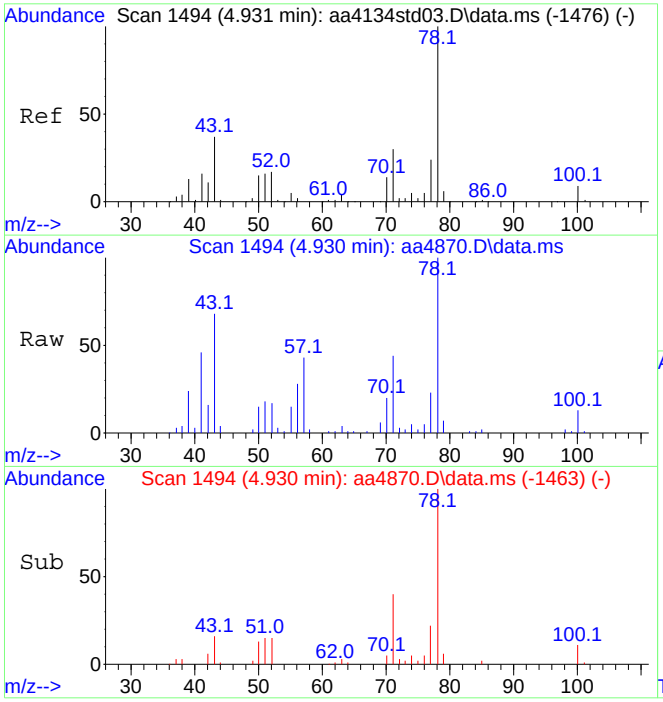


#36
n-Heptane
Concen: 3.35 ppbV
RT: 4.917 min Scan# 1490
Delta R.T. -0.001 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 43 Resp: 341229

Ion	Ratio	Lower	Upper
43	100		
71	61.1	50.5	75.7

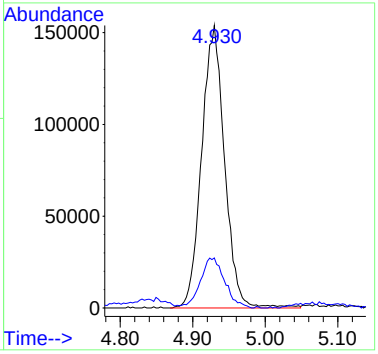


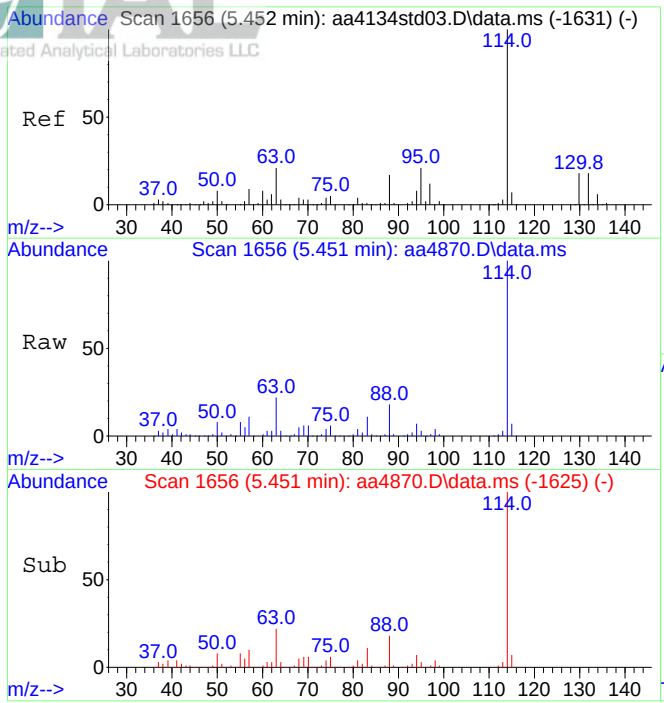


#37
Benzene
Concen: 2.31 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. -0.001 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 78 Resp: 338080

Ion	Ratio	Lower	Upper
78	100		
51	18.8	13.4	20.0

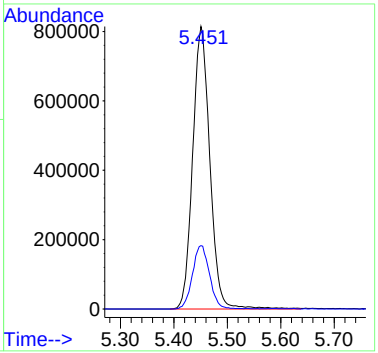


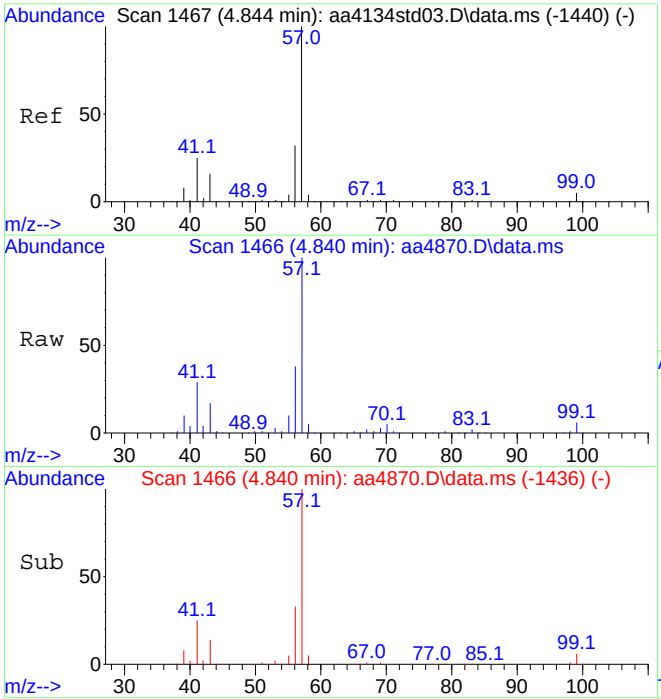


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.451 min Scan# 1656
Delta R.T. -0.001 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:114 Resp: 1818981

Ion	Ratio	Lower	Upper
114	100		
63	22.3	17.0	25.6

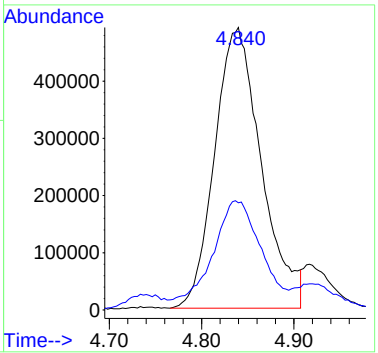


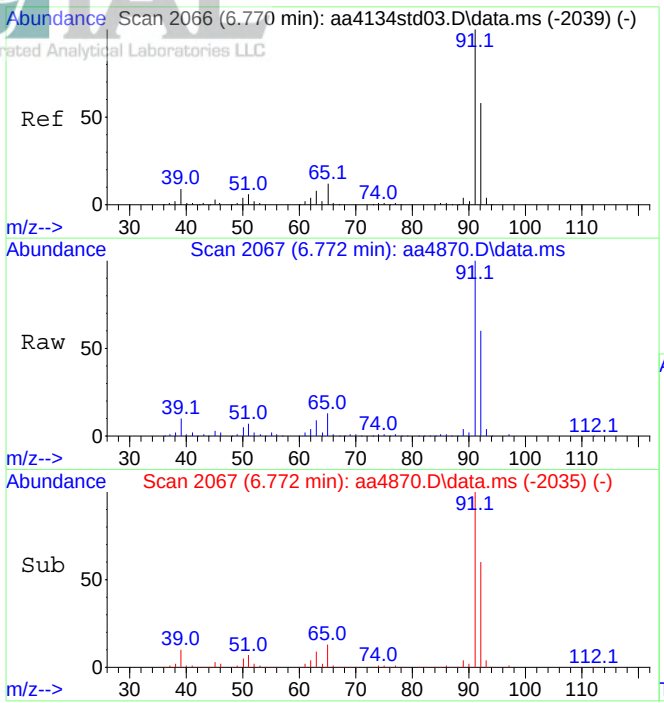


#41
2,2,4-Trimethylpentane
Concen: 7.28 ppbV
RT: 4.840 min Scan# 1466
Delta R.T. -0.004 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 57 Resp: 1725941

Ion	Ratio	Lower	Upper
57	100		
56	34.7	25.7	38.5

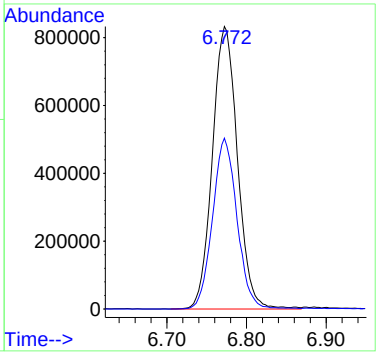


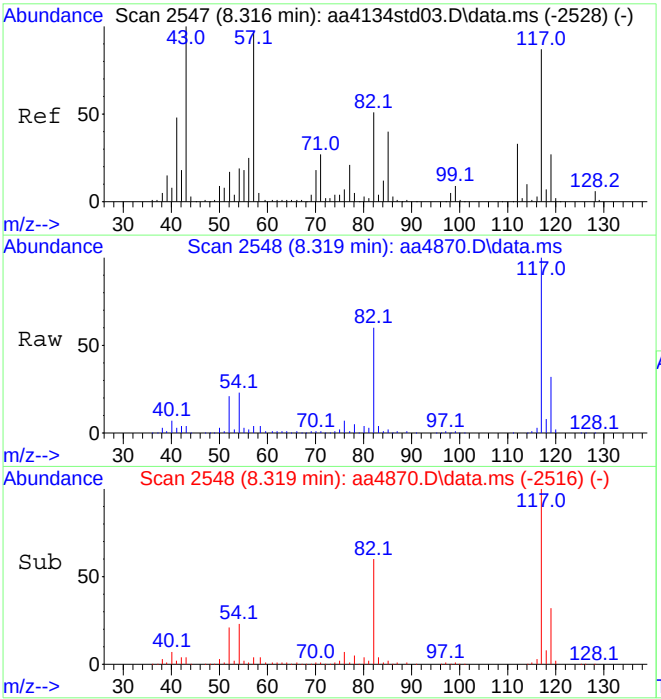


#47
Toluene
Concen: 7.14 ppbV
RT: 6.772 min Scan# 2067
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 91 Resp: 1825367

Ion	Ratio	Lower	Upper
91	100		
92	59.2	47.3	70.9

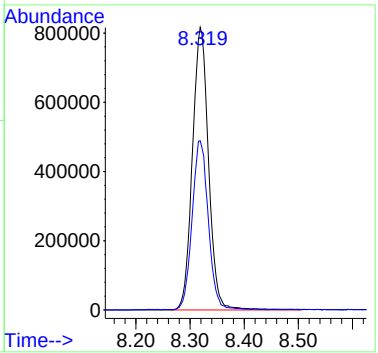


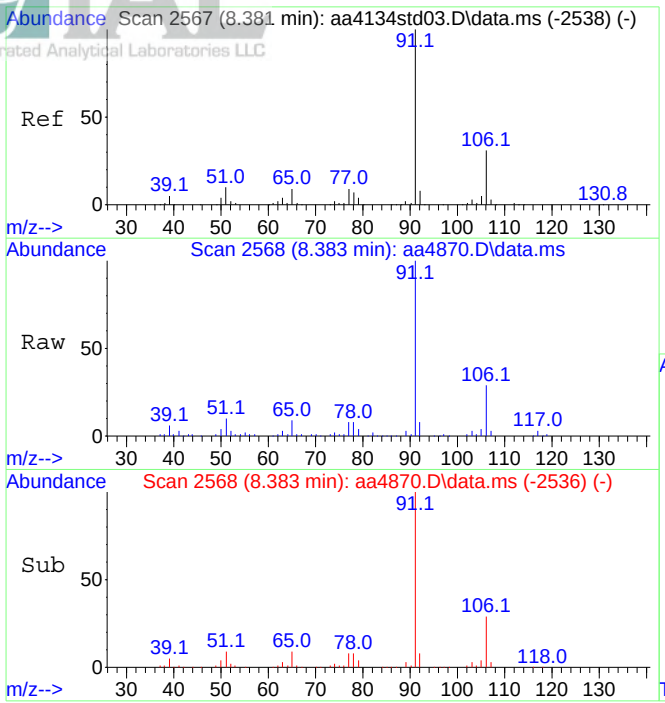


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:117 Resp: 1692684

Ion	Ratio	Lower	Upper
117	100		
82	59.7	47.0	70.4

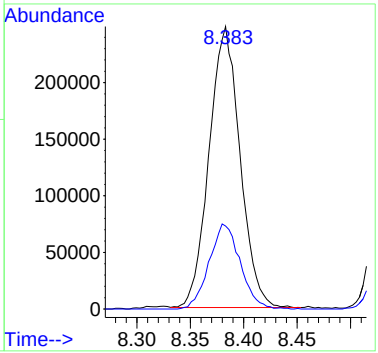


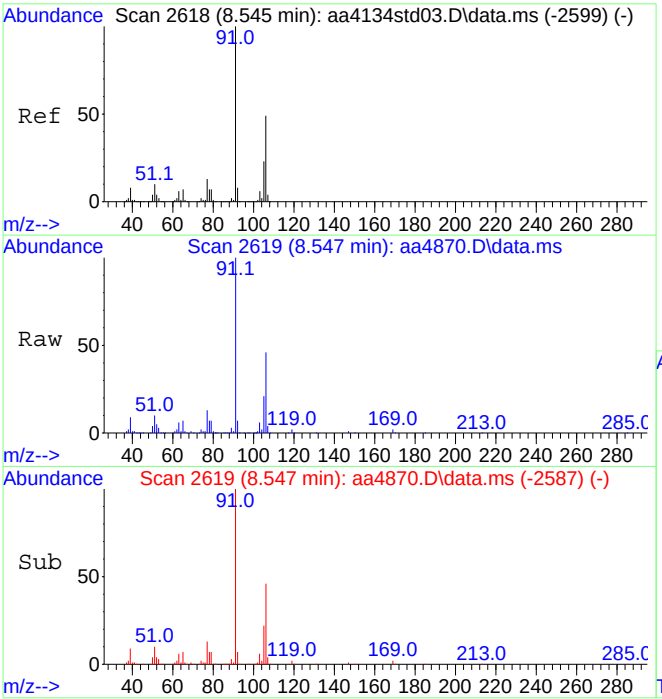


#58
Ethylbenzene
Concen: 1.60 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 91 Resp: 499733

Ion	Ratio	Lower	Upper
91	100		
106	30.4	24.6	36.8

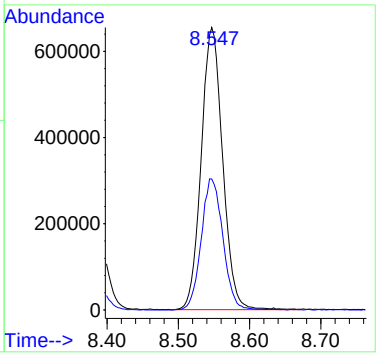


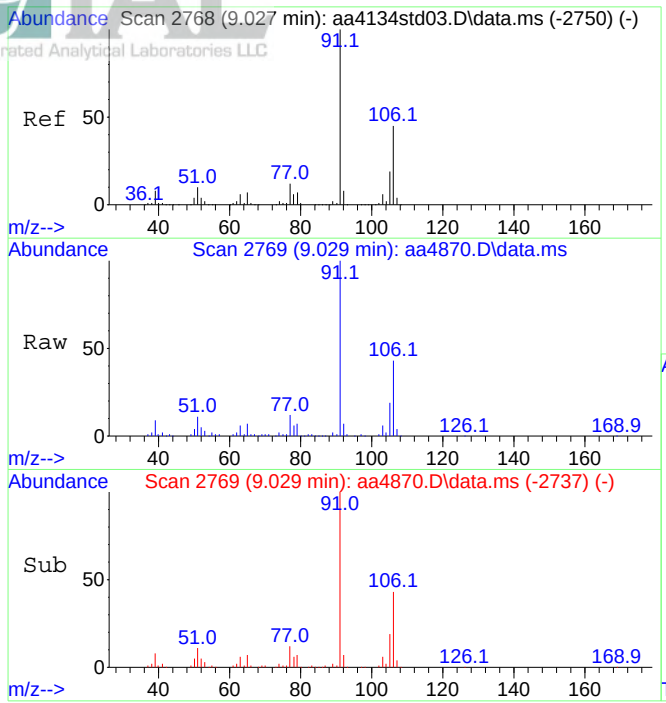


#59
Xylenes (m&p)
Concen: 5.92 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 91 Resp: 1368186

Ion	Ratio	Lower	Upper
91	100		
106	47.0	39.0	58.4

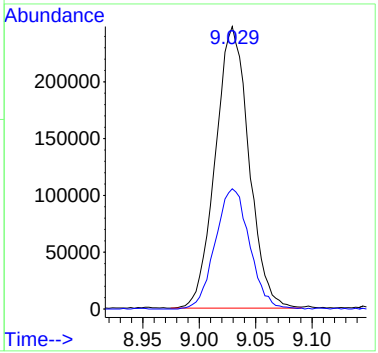


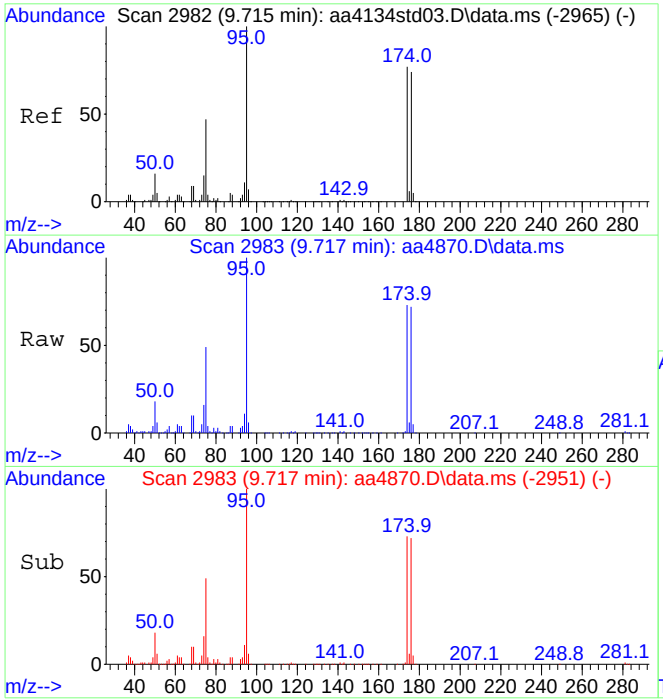


#60
Xylene (o)
Concen: 2.03 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 91 Resp: 512360

Ion	Ratio	Lower	Upper
91	100		
106	43.7	36.8	55.2

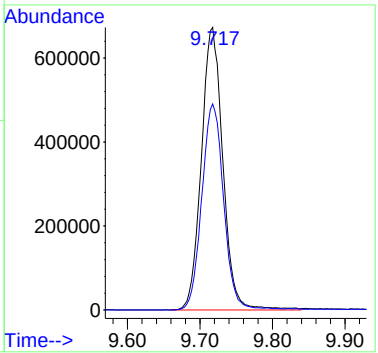


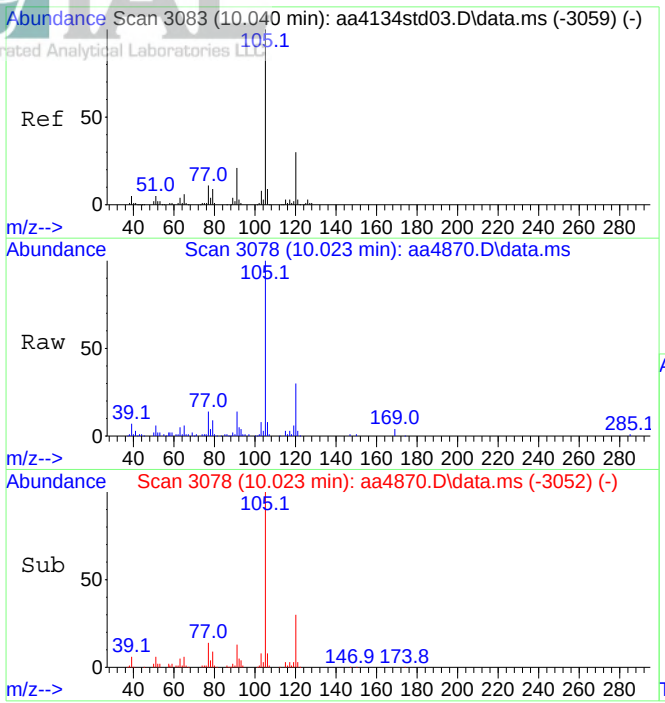


#64
Bromofluorobenzene (tune std)
Concen: 9.41 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 95 Resp: 1387863

Ion	Ratio	Lower	Upper
95	100		
174	74.3	61.1	91.7

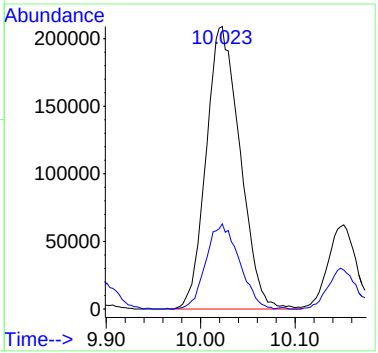


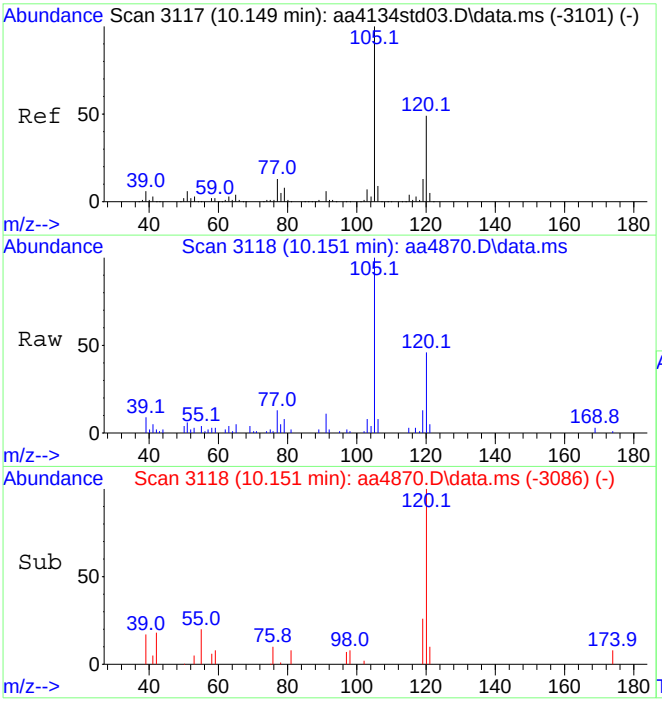


#67
4-Ethyltoluene
Concen: 1.43 ppbV
RT: 10.023 min Scan# 3078
Delta R.T. -0.017 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:105 Resp: 521383

Ion	Ratio	Lower	Upper
105	100		
120	29.6	23.4	35.2

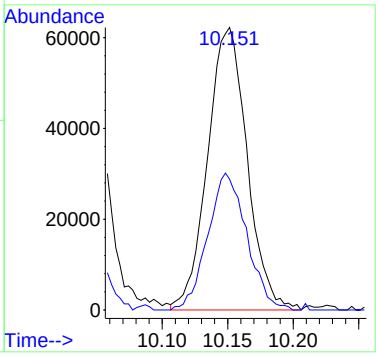


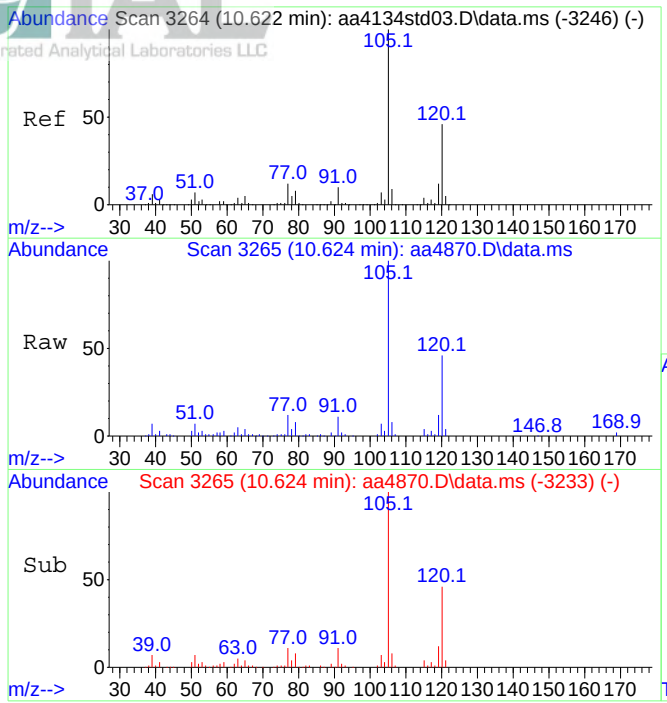


#69
1,3,5-Trimethylbenzene
Concen: 0.45 ppbV
RT: 10.151 min Scan# 3118
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:105 Resp: 130813

Ion	Ratio	Lower	Upper
105	100		
120	47.7	38.9	58.3

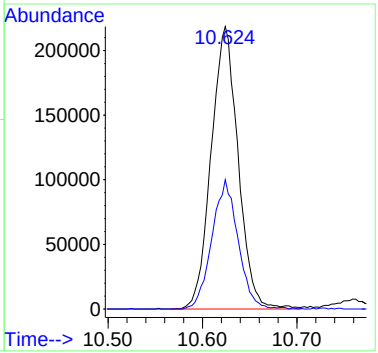




#70
1,2,4-Trimethylbenzene
Concen: 1.48 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:105 Resp: 434326

Ion	Ratio	Lower	Upper
105	100		
120	44.2	36.3	54.5



INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SDG Number:	E23-05079	Date Received:	11/20/23
IAL Sample ID:	E23-05079-03	Date Analyzed:	12/12/23,12/12/23
Matrix:	Air	Lab Data File#:	AA4929,AA4930
Summa ID:	3830	Dilution Factor:	1
		Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**6.1**		**5.9**		0.40	**3.33%**
Allyl Chloride	107-05-1	0.40	U	0.40	U	0.40	0.00%
Benzene	71-43-2	**0.31**		**0.32**		0.20	**-3.17%**
Bromodichloromethane	75-27-4	0.40	U	0.40	U	0.40	0.00%
Bromoform	75-25-2	0.40	U	0.40	U	0.40	0.00%
Bromomethane	74-83-9	0.40	U	0.40	U	0.40	0.00%
1,3-Butadiene	106-99-0	0.40	U	0.40	U	0.40	0.00%
Chlorobenzene	108-90-7	0.40	U	0.40	U	0.40	0.00%
Chloroethane	75-00-3	0.40	U	0.40	U	0.40	0.00%
Chloroform	67-66-3	0.40	U	0.40	U	0.40	0.00%
Chloromethane	74-87-3	0.40	U	0.40	U	0.40	0.00%
Carbon disulfide	75-15-0	0.40	U	0.40	U	0.40	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.40	U	0.40	U	0.40	0.00%
Cyclohexane	110-82-7	0.40	U	0.40	U	0.40	0.00%
Dibromochloromethane	124-48-1	0.40	U	0.40	U	0.40	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.40	U	0.40	U	0.40	0.00%
1,3-Dichlorobenzene	541-73-1	0.40	U	0.40	U	0.40	0.00%
1,4-Dichlorobenzene	106-46-7	0.40	U	0.40	U	0.40	0.00%
Dichlorodifluoromethane	75-71-8	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethane	75-34-3	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethane	107-06-2	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethene	75-35-4	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.40	U	0.40	U	0.40	0.00%
Ethylbenzene	100-41-4	0.20	U	0.20	U	0.20	0.00%
4-Ethyltoluene	622-96-8	0.40	U	0.40	U	0.40	0.00%
n-Heptane	142-82-5	0.40	U	0.40	U	0.40	0.00%
1,3-Hexachlorobutadiene	87-68-3	0.40	U	0.40	U	0.40	0.00%
n-Hexane	110-54-3	0.40	U	0.40	U	0.40	0.00%
Methylene chloride	75-09-2	**3.5**		**3.4**		0.40	**2.90%**
Methyl ethyl ketone	78-93-3	0.40	U	0.40	U	0.40	0.00%
Methyl isobutyl ketone	108-10-1	0.40	U	0.40	U	0.40	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SDG Number:	E23-05079	Date Received:	11/20/23
IAL Sample ID:	E23-05079-03	Date Analyzed:	12/12/23,12/12/23
Matrix:	Air	Lab Data File#:	AA4929,AA4930
Summa ID:	3830	Dilution Factor:	1
		Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	0.40	U	0.40	U	0.40	0.00%
Styrene	100-42-5	0.40	U	0.40	U	0.40	0.00%
Tert-butyl alcohol	75-65-0	0.40	U	0.40	U	0.40	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.40	U	0.40	U	0.40	0.00%
Tetrachloroethene	127-18-4	0.40	U	0.40	U	0.40	0.00%
Toluene	108-88-3	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trichlorobenzene	120-82-1	0.40	U	0.40	U	0.40	0.00%
1,1,1-Trichloroethane	71-55-6	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloroethane	79-00-5	0.40	U	0.40	U	0.40	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trimethylbenzene	95-63-6	0.40	U	0.40	U	0.40	0.00%
1,3,5-Trimethylbenzene	108-67-8	0.40	U	0.40	U	0.40	0.00%
2,2,4-Trimethylpentane	540-84-1	0.40	U	0.40	U	0.40	0.00%
Vinyl bromide	593-60-2	0.40	U	0.40	U	0.40	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	0.40	U	0.40	U	0.40	0.00%
Xylenes (o)	95-47-6	0.40	U	0.40	U	0.40	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4929.D
Acq On : 12 Dec 2023 12:58 am
Operator : jjw
Sample : E23-05079-03
Misc : 3830, 500cc
ALS Vial : 32 Sample Multiplier: 1

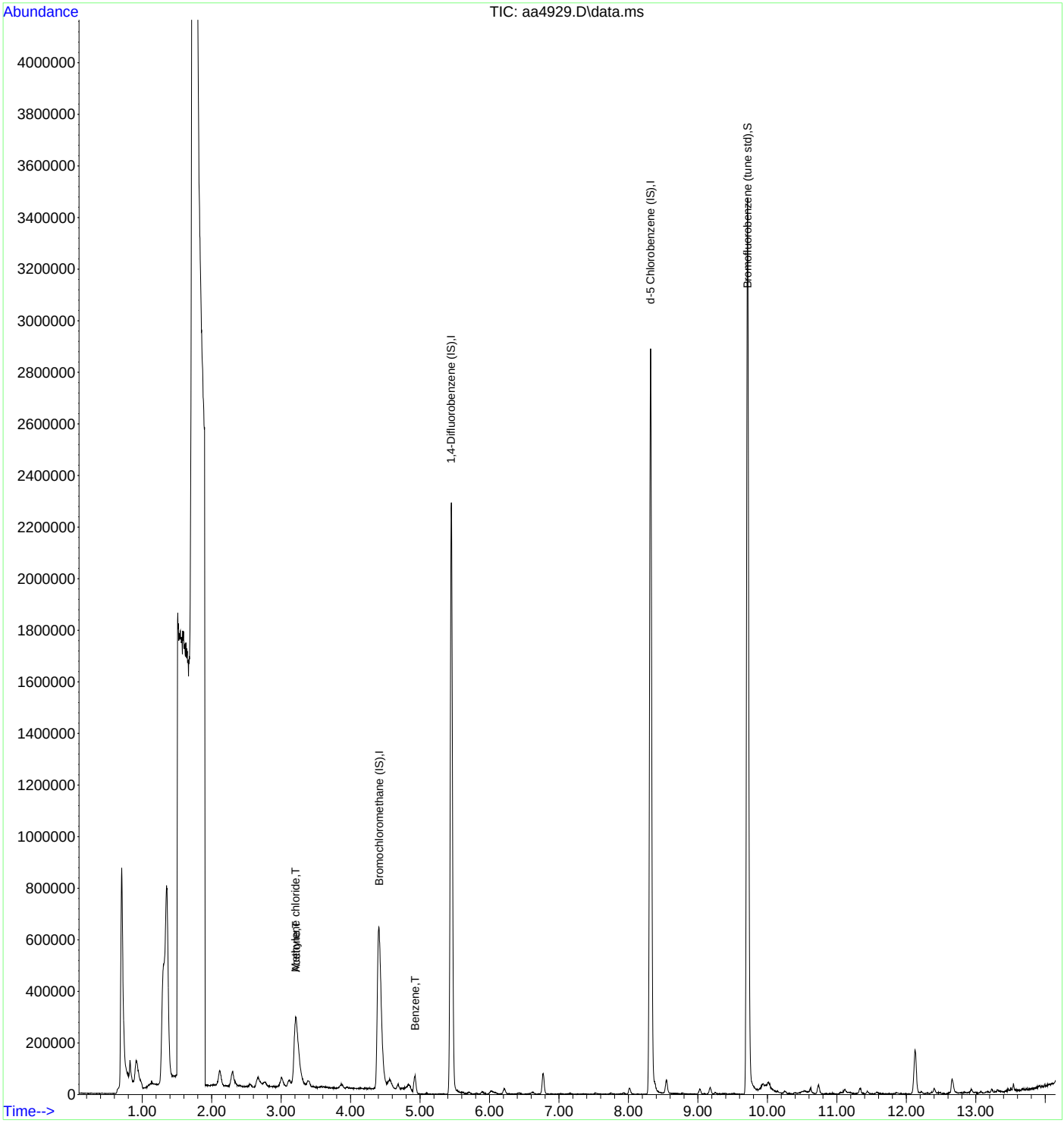
Quant Time: Dec 13 11:23:02 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

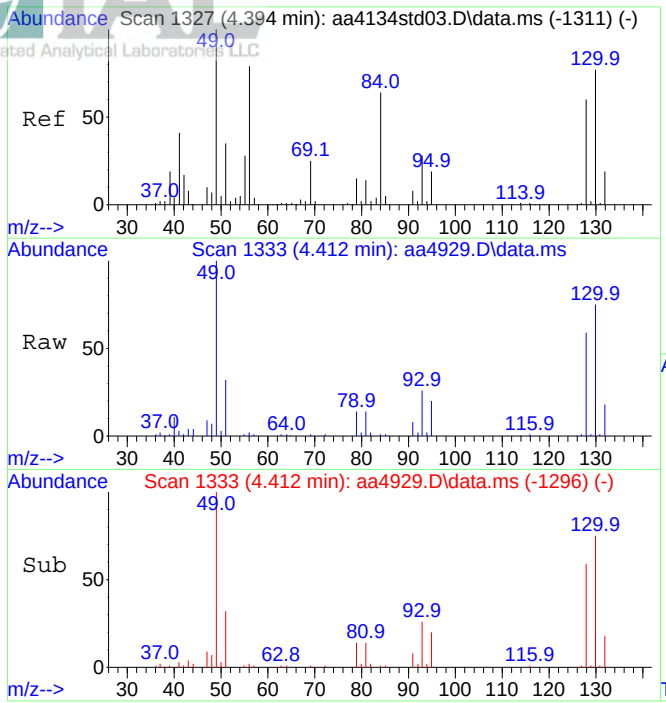
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Bromochloromethane (IS)	4.412	130	441232	10.00 ppbV	0.018
39) 1,4-Difluorobenzene (IS)	5.448	114	2147334	10.00 ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1948898	10.00 ppbV	0.000
System Monitoring Compounds					
64) Bromofluorobenzene (tu...	9.714	95	1597112	9.40 ppbV	0.000
Target Compounds					Qvalue
20) Methylene chloride	3.210	49	190775	3.52 ppbV	93
21) Acetone	3.216	43	404473	6.08 ppbV	99
37) Benzene	4.930	78	54291	0.31 ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4929.D
Acq On : 12 Dec 2023 12:58 am
Operator : jjw
Sample : E23-05079-03
Misc : 3830, 500cc
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Dec 13 11:23:02 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

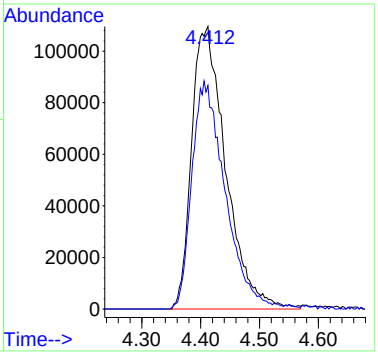


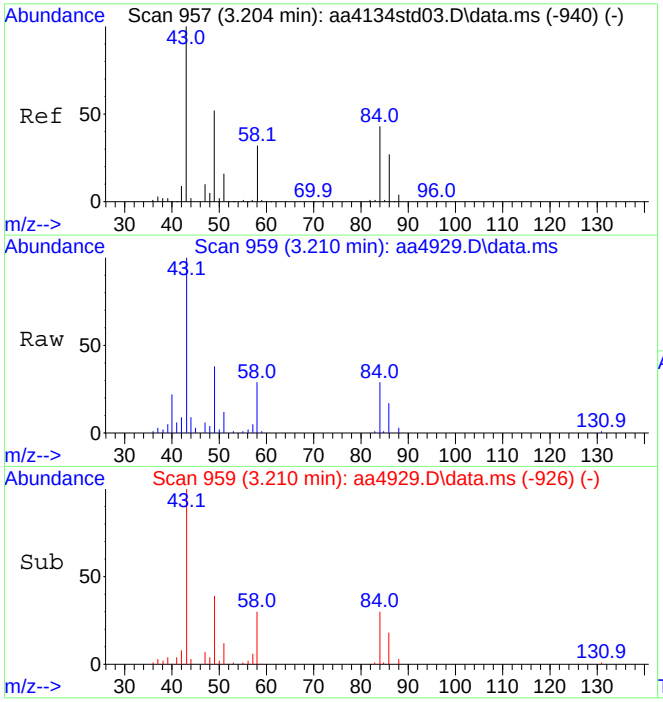


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.412 min Scan# 1333
Delta R.T. 0.018 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion:130 Resp: 441232

Ion	Ratio	Lower	Upper
130	100		
128	78.4	62.2	93.4

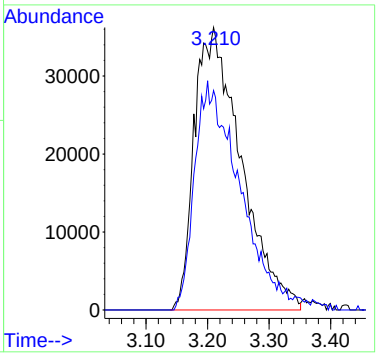


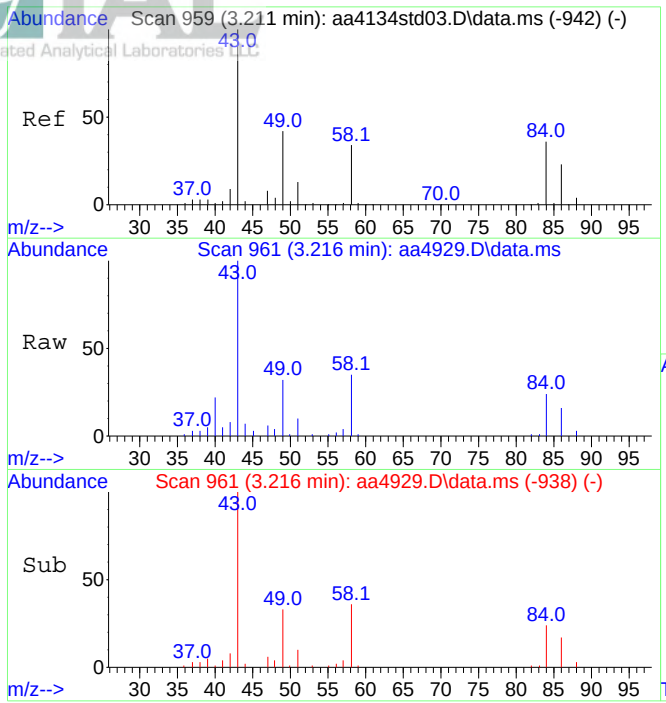


#20
Methylene chloride
Concen: 3.52 ppbV
RT: 3.210 min Scan# 959
Delta R.T. 0.006 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 49 Resp: 190775

Ion	Ratio	Lower	Upper
49	100		
84	78.6	64.8	104.8

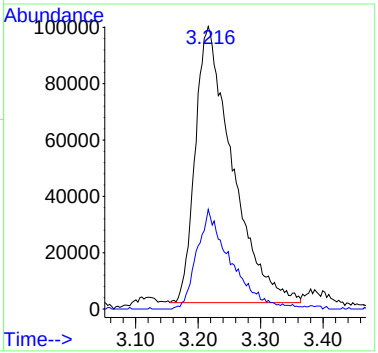


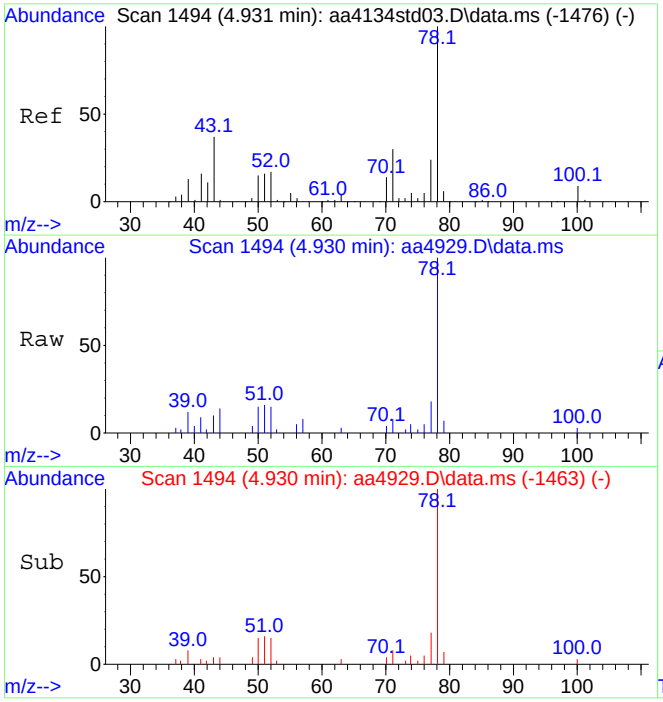


#21
Acetone
Concen: 6.08 ppbV
RT: 3.216 min Scan# 961
Delta R.T. 0.006 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 43 Resp: 404473

Ion	Ratio	Lower	Upper
43	100		
58	33.2	27.1	40.7

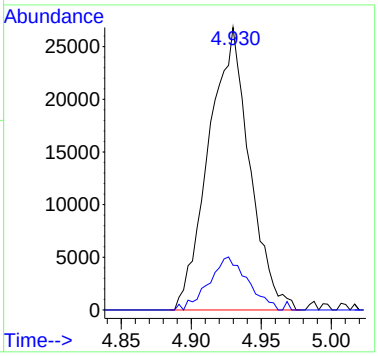


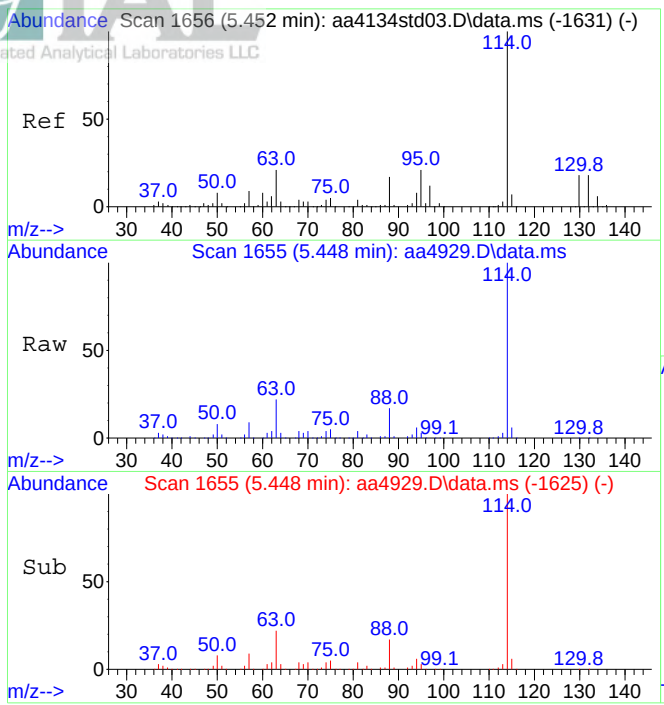


#37
Benzene
Concen: 0.31 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. -0.001 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 78 Resp: 54291

Ion	Ratio	Lower	Upper
78	100		
51	17.9	13.4	20.0

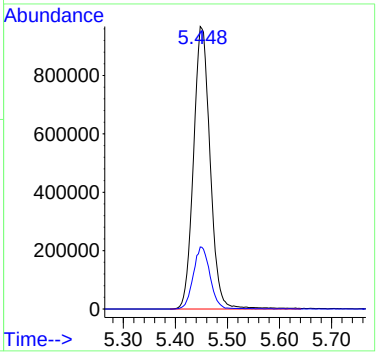


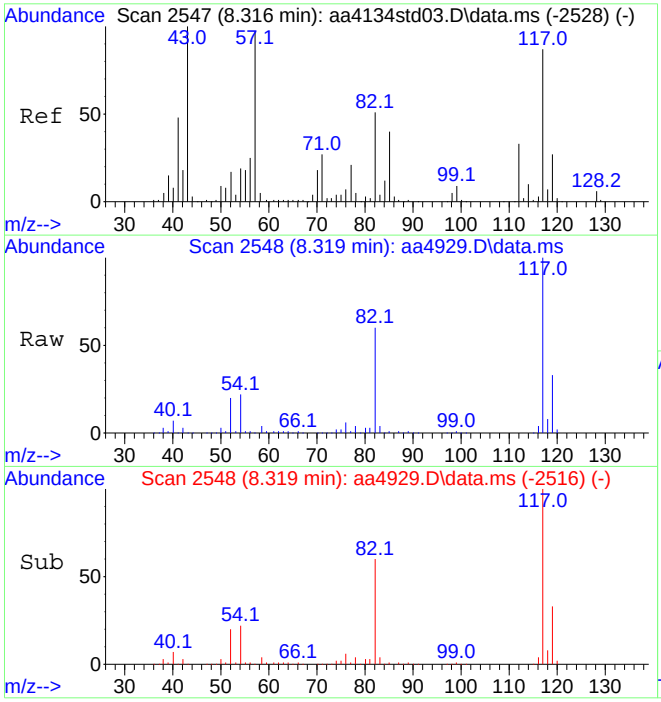


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.448 min Scan# 1655
Delta R.T. -0.004 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion:114 Resp: 2147334

Ion	Ratio	Lower	Upper
114	100		
63	22.0	17.0	25.6

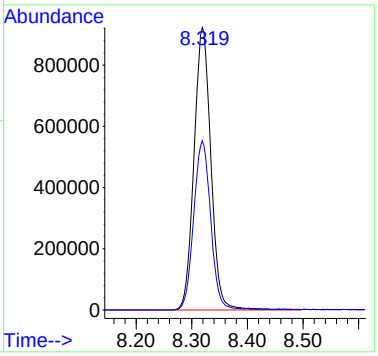


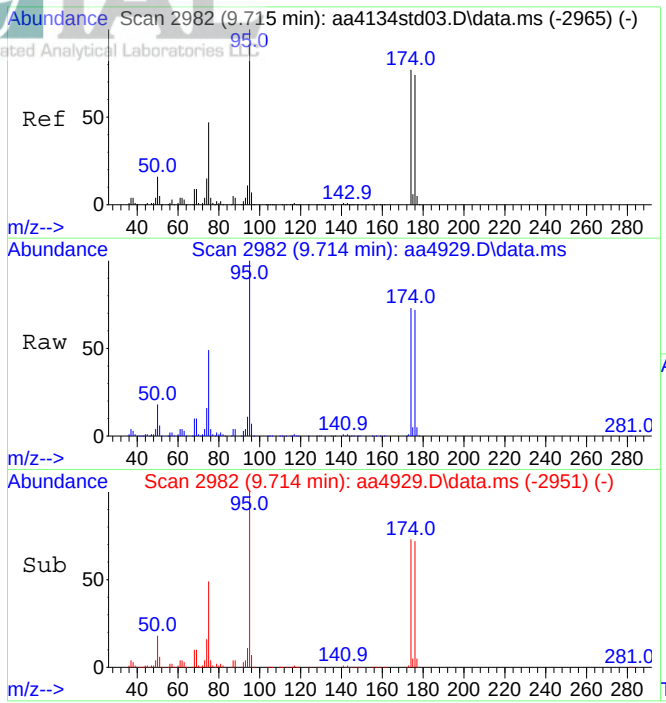


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion:117 Resp: 1948898

Ion	Ratio	Lower	Upper
117	100		
82	60.3	47.0	70.4

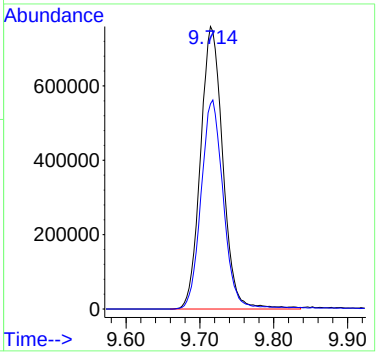




#64
Bromofluorobenzene (tune std)
Concen: 9.40 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 95 Resp: 1597112

Ion	Ratio	Lower	Upper
95	100		
174	74.1	61.1	91.7



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4930.D
Acq On : 12 Dec 2023 1:31 am
Operator : jjw
Sample : E23-05079-23
Misc : Dup of E23-05079-03, Can # 3830
ALS Vial : 33 Sample Multiplier: 1

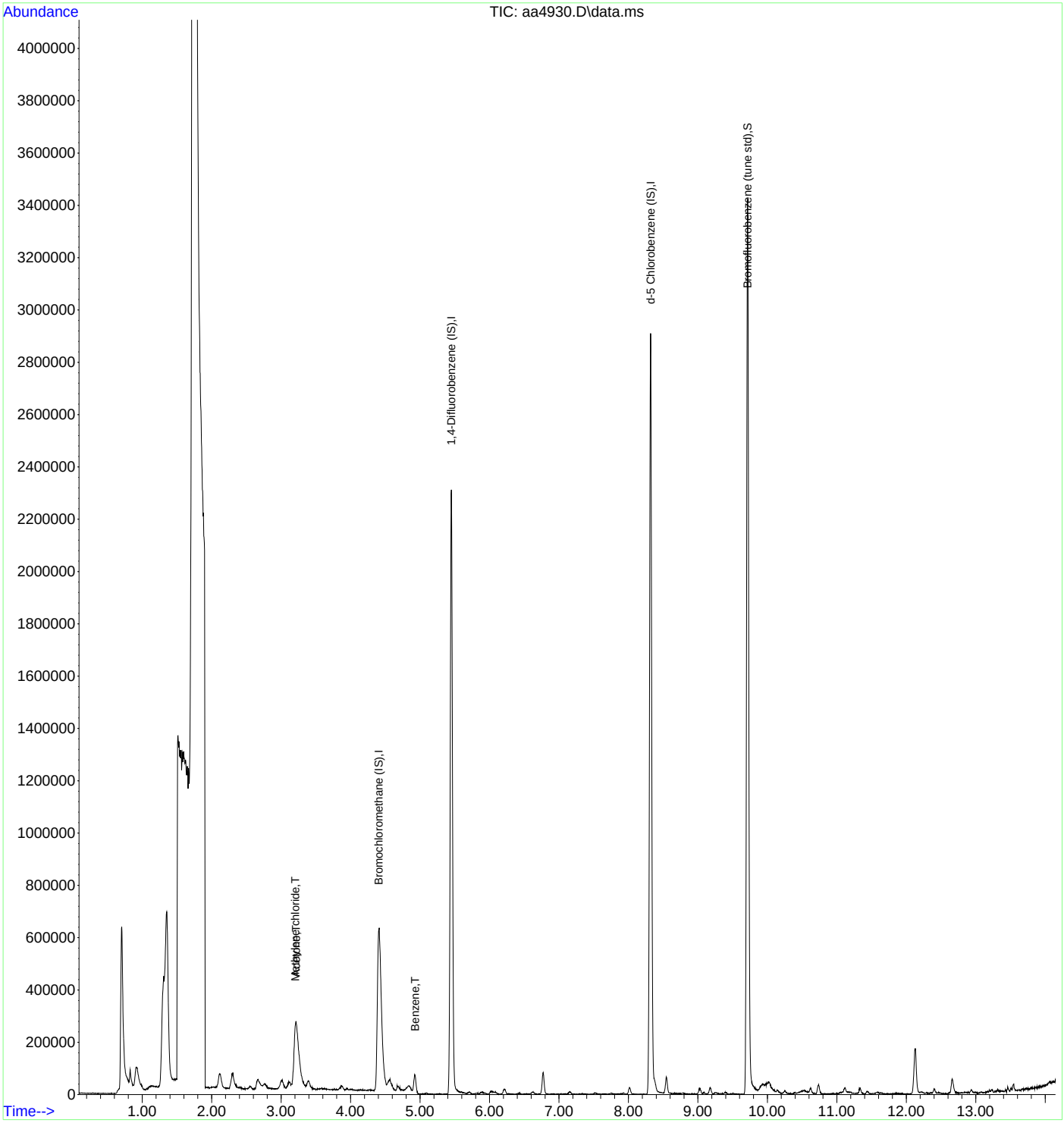
Quant Time: Dec 13 11:24:13 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

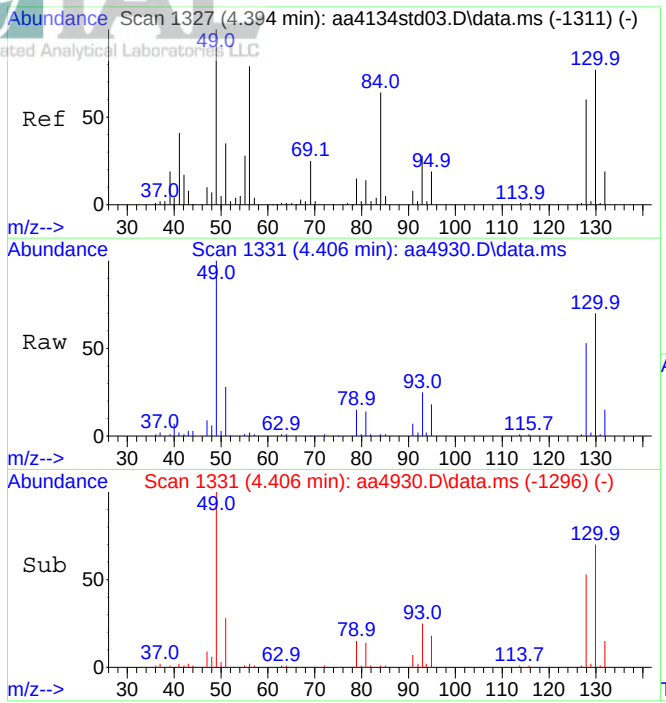
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.406	130	452291	10.00	ppbV	0.012
39) 1,4-Difluorobenzene (IS)	5.451	114	2167232	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.322	117	1931386	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1574669	9.35	ppbV	0.000
Target Compounds						Qvalue
20) Methylene chloride	3.203	49	191374	3.44	ppbV	90
21) Acetone	3.216	43	399825	5.86	ppbV	99
37) Benzene	4.930	78	56929	0.32	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4930.D
Acq On : 12 Dec 2023 1:31 am
Operator : jjw
Sample : E23-05079-23
Misc : Dup of E23-05079-03, Can # 3830
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Dec 13 11:24:13 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

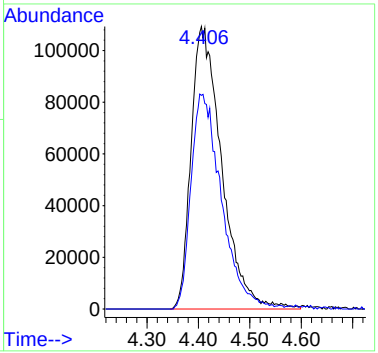


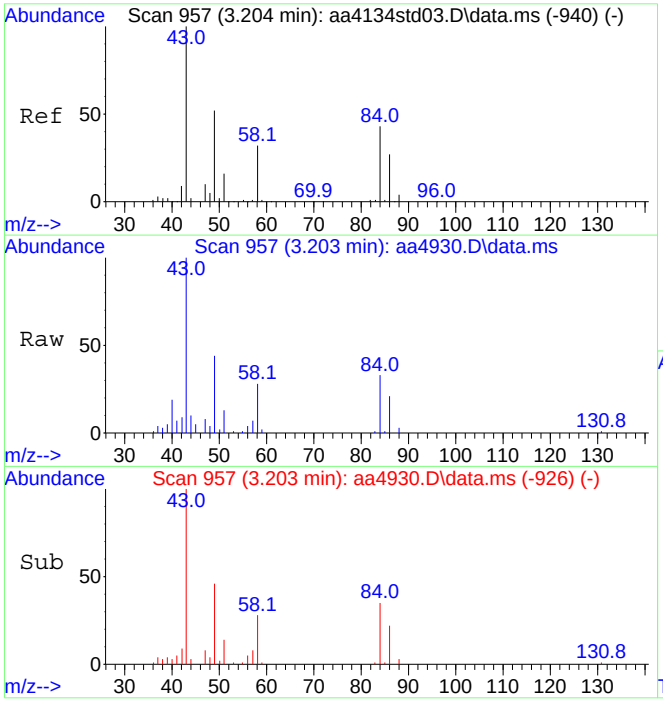


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.406 min Scan# 1331
Delta R.T. 0.012 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion:130 Resp: 452291

Ion	Ratio	Lower	Upper
130	100		
128	75.9	62.2	93.4

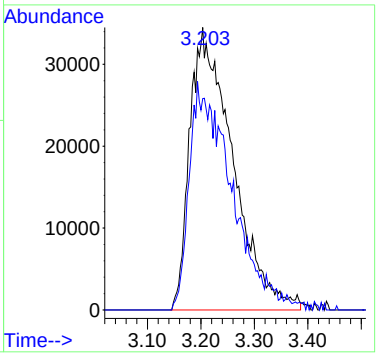


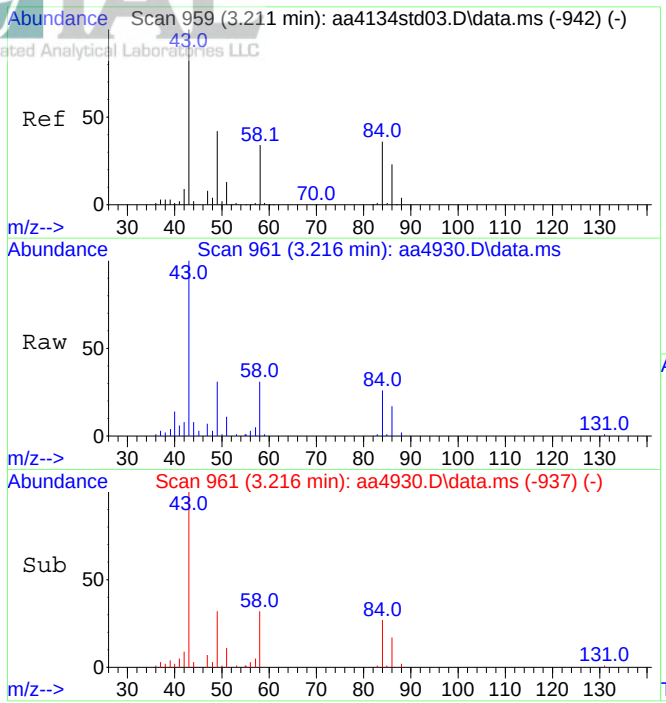


#20
Methylene chloride
Concen: 3.44 ppbV
RT: 3.203 min Scan# 957
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 49 Resp: 191374

Ion	Ratio	Lower	Upper
49	100		
84	76.0	64.8	104.8

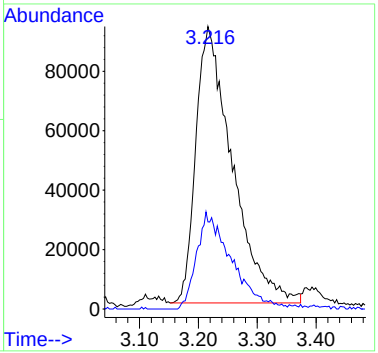


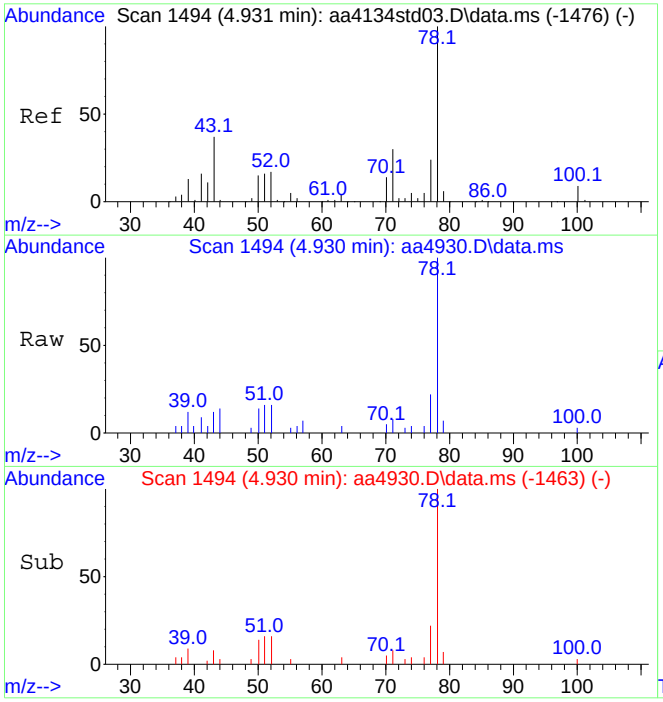


#21
Acetone
Concen: 5.86 ppbV
RT: 3.216 min Scan# 961
Delta R.T. 0.006 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 43 Resp: 399825

Ion	Ratio	Lower	Upper
43	100		
58	33.3	27.1	40.7

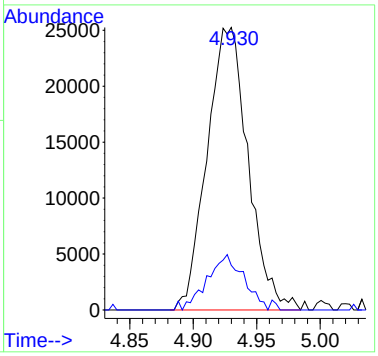


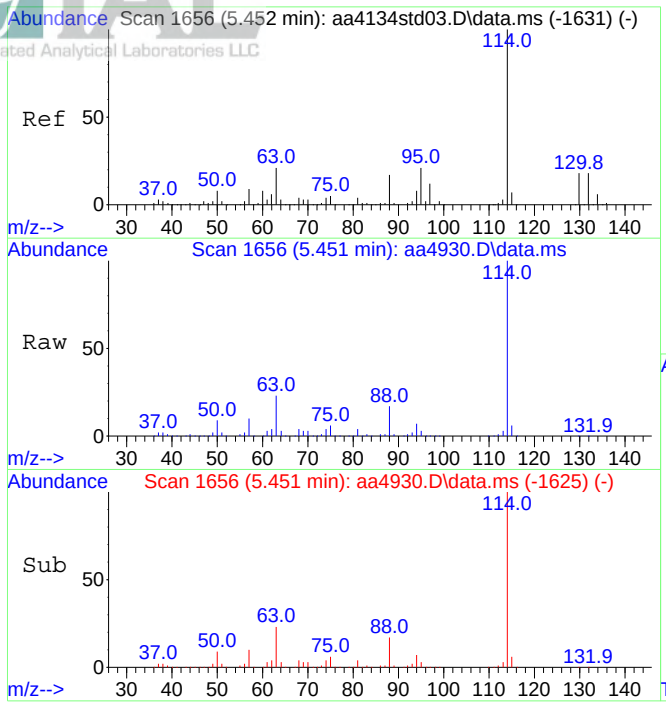


#37
Benzene
Concen: 0.32 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 78 Resp: 56929

Ion	Ratio	Lower	Upper
78	100		
51	17.1	13.4	20.0

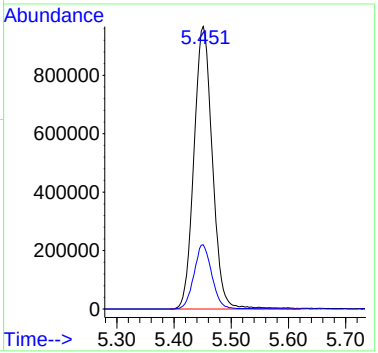


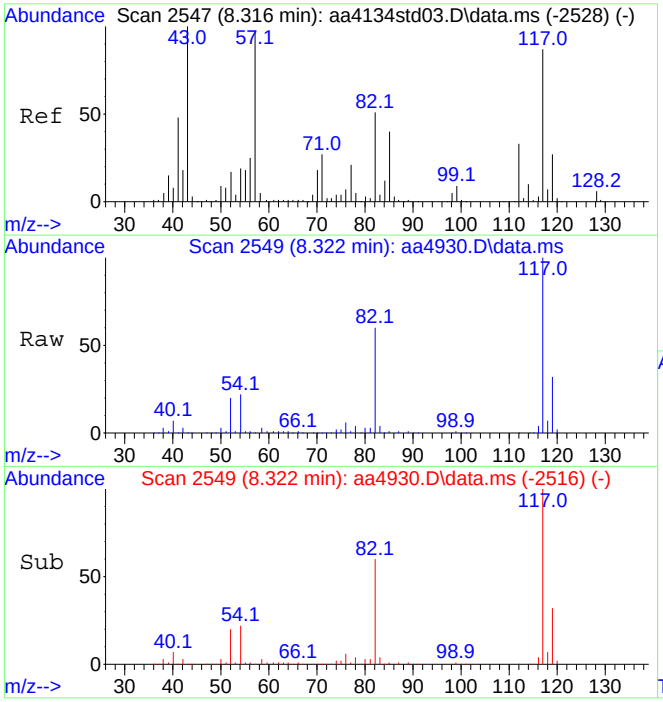


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.451 min Scan# 1656
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion:114 Resp: 2167232

Ion	Ratio	Lower	Upper
114	100		
63	22.0	17.0	25.6

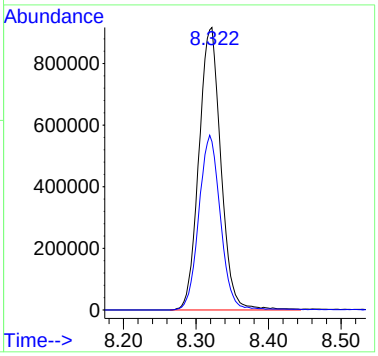


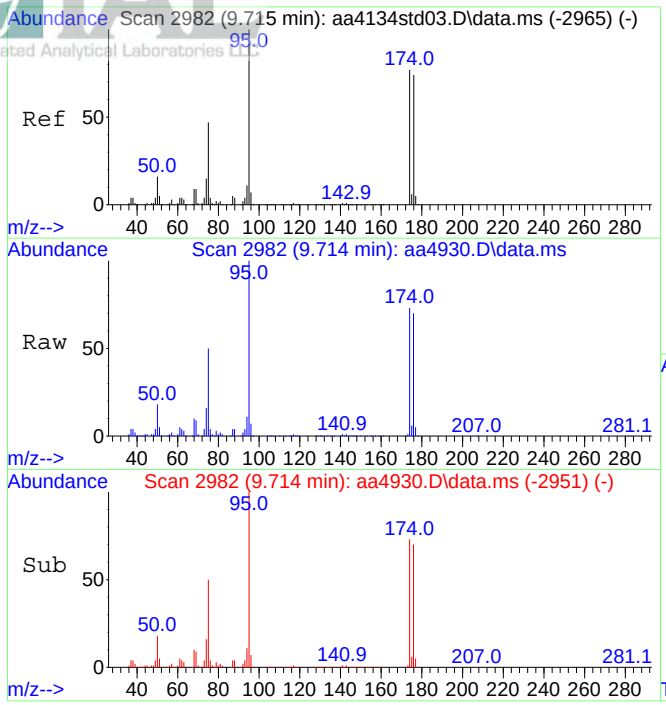


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.322 min Scan# 2549
Delta R.T. 0.006 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion:117 Resp: 1931386

Ion	Ratio	Lower	Upper
117	100		
82	61.0	47.0	70.4

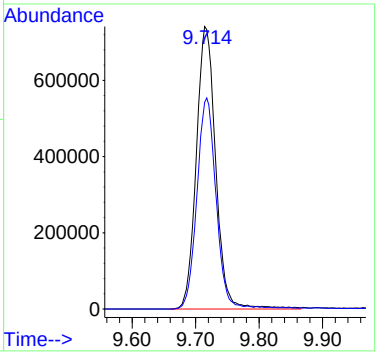




#64
Bromofluorobenzene (tune std)
Concen: 9.35 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 95 Resp: 1574669

Ion	Ratio	Lower	Upper
95	100		
174	74.6	61.1	91.7



INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories

GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05047

								Make-up Air		*Acquisition*		*Room*		*TO-15 Standard*	
File #	**Laboratory Sample ID**	**QC Check**	**Dilution Factor**	**Can #**	**Analyst**	**Injection Volume (cc)**	**Comments**	**Added to canister (cc)**	**Added for dilution**	**Date**	**Time**	**Temp**	**BP "Hg**	**Working ID**	**Vendor ID (Lot#)**
aa3401bfb	BFB	✓		ALM018474	JJW	0.5				**8/15/2023**	10:11	70	30.30		160-402352677-1
aa3402std05	0.2 ppbv Std	✓		EB0103704	JJW	1								8/15/2023	160-402619255-1
aa3403std04	2 ppbv Std	✓		EB0103704	JJW	10								8/15/2023	160-402619255-1
aa3404std03	10 ppbv Std	✓		EB0103704	JJW	50								8/15/2023	160-402619255-1
aa3405std02	20 ppbv Std	✓		EB0103704	JJW	100								8/15/2023	160-402619255-1
aa3406std01	40 ppbv Std	✓		EB0103704	JJW	200								8/15/2023	160-402619255-1
aa3407icvss	10 ppbv ICVSS	✓		EB0116272	JJW	50								8/15/2023	160-402744241-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
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Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05047

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	*Make-up Air* Added to canister (cc)	*Make-up Air* Added for dilution	*Acquisition* Date	*Acquisition* Time	*Room* Temp	*Room* BP "Hg	*TO-15 Standard* Working ID	*TO-15 Standard* Vendor ID (Lot#)
aa4101bfb	BFB	✓		ALM018474	JJW	0.5				**10/2/2023**	11:11	70	30.46		160-402352677-1
aa4102dcvs	10 ppbv DCVS	✓		EB0103704	JJW	50								8/15/2023	160-401980152-1
aa4103lcs	10 ppbv LCS	✓		EB0103704	JJW	50								8/15/2023	160-401980152-1
aa4104blk	Method Blank	✓		1127	JJW	500									
aa4105rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								8/15/2023	160-401980152-1
aa4106	3830	✓		9122301	JJW	500									
aa4107	5087	✓		9182301	JJW	500									
aa4108	2037	✓		9232301	JJW	500									
aa4109	E23-04100-01 x 10	✓	10	3001	JJW	50									
aa4110	E23-04251-01 x 10	✓	10	1773	JJW	50									
aa4111	E23-04251-21 x 10	✓	10	04251-01 x 10	JJW	50									
aa4112	blk	✓		x	JJW	500									
aa4113	E23-04251-02 x 10	✓	10	1771	JJW	50									
aa4114	E23-04251-03 x 10	✓	10	1399	JJW	50									
aa4115	E23-04251-04 x 10	✓	10	1568	JJW	50									
aa4116	blk	✓		x	JJW	500									
aa4117	E23-04251-05 x 10	✓	10	1526	JJW	50									
aa4118	E23-04251-06 x 10	✓	10	1601	JJW	50									
aa4119	E23-04251-07 x 10	✓	10	1597	JJW	50									
aa4120	blk	✓		x	JJW	500									
aa4121	E23-04251-08 x 10	✓	10	1520	JJW	50									
aa4122	E23-04154-06 x 20	✓	20	1565	JJW	25									
aa4123	blk	✓		x	JJW	500									
aa4124	blk	✓		x	JJW	500									
aa4125cccvs	10 ppbv CCCVS	✓		EB0103704	JJW	50				10/3/2023	0:49			8/15/2023	160-402619255-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05047

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	*Make-up Air* Added to canister (cc)	*Make-up Air* Added for dilution	*Acquisition* Date	*Acquisition* Time	*Room* Temp	*Room* BP "Hg	*TO-15 Standard* Working ID	*TO-15 Standard* Vendor ID (Lot#)
aa4131bfb	BFB	✓		ALM018474	JJW	0.5				**10/10/2023**	10:13	70	30.10		160-402352677-1
aa4132std05	0.2 ppbv Std	✓		EB0103704	JJW	1								10/10/2023	160-402619255-1
aa4133std04	2 ppbv Std	✓		EB0103704	JJW	10								10/10/2023	160-402619255-1
aa4134std03	10 ppbv Std	✓		EB0103704	JJW	50								10/10/2023	160-402619255-1
aa4135std02	20 ppbv Std	✓		EB0103704	JJW	100								10/10/2023	160-402619255-1
aa4136std01	40 ppbv Std	✓		EB0103704	JJW	200								10/10/2023	160-402619255-1
aa4137icvss	10 ppbv ICVSS	✓		EB0116272	JJW	50								10/10/2023	160-402744241-1
aa4138lcs	10 ppbv LCS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4139blk	Method Blank	✓		1127	JJW	500									
aa4140rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								10/10/2023	160-401980152-1
aa4141	5078	✓		9252301	JJW	500									
aa4142	5101	✓		9262301	JJW	500									
aa4143	4869	✓		9272301	JJW	500									
aa4144	2157	✓		10022301	JJW	500									
aa4145	E23-04192-01	✓		5100	JJW	500									
aa4146	E23-04192-02	✓		2072	JJW	500									
aa4147	blank	✓		x	JJW	500									
aa4148	E23-04378-01	✓		2033	JJW	500									
aa4149	E23-04378-02	✓		5080	JJW	500									
aa4150	E23-04378-22	✓	Dup of E23-04378-02, (		JJW	500									
aa4151	E23-04513-01	✓		3814	JJW	500									
aa4152	blank	✓		x	JJW	500									
aa4153	blank	✓		x	JJW	500									
aa4154cccvs	10 ppbv CCCVS	✓		EB0103704	JJW	50				10/11/2023	1:53			10/10/2023	160-402619255-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05047

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	*Make-up Air* Added to canister (cc)	*Make-up Air* Added for dilution	*Acquisition* Date	*Acquisition* Time	*Room* Temp	*Room* BP "Hg	*TO-15 Standard* Working ID	*TO-15 Standard* Vendor ID (Lot#)
aa4527bfb	BFB	✓		ALM018474	JJW	0.5				**11/3/2023**	9:42	70	30.43		160-402352677-1
aa4528dcvs	10 ppbv DCVS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4529lcs	10 ppbv LCS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4530blk	Method Blank	✓		1127	JJW	500									
aa4531rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								10/10/2023	160-401980152-1
aa4532	2902	✓		11022301	JJW	500									
aa4533	E23-04828-04 x 2	✓	2	5100	JJW	250									
aa4534	E23-04828-07 x 10	✓	10	1406	JJW	50									
aa4535	E23-04828-08 x 10	✓	10	1772	JJW	50									
aa4536	E23-04828-09 x 10	✓	10	1770	JJW	50									
aa4537	E23-04828-06	✓		2883	JJW	500									
aa4538	E23-04828-26	✓	dup of E23-04828-06, (		JJW	500									
aa4539	E23-04828-11	✓		3285	JJW	500									
aa4540	blk	✓		x	JJW	500									
aa4541	E23-04828-12	✓		5078	JJW	500									
aa4542	E23-04828-13	✓		2029	JJW	500									
aa4543	E23-04828-14	✓		3426	JJW	500									
aa4544	blk	✓		x	JJW	500									
aa4545	E23-04828-10 x 10	✓	10	1778	JJW	50									
aa4546	E23-04830-01 x 10	✓	10	1199	JJW	50									
aa4547	blk	✓		x	JJW	500									
aa4548	blk	✓		x	JJW	500									
aa4549cccvs	10 ppbv CCCVS	✓		EB0103704	JJW	50				11/3/2023	22:29			10/10/2023	160-402619255-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05047

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	*Make-up Air* Added to canister (cc)	*Make-up Air* Added for dilution	*Acquisition* Date	*Acquisition* Time	*Room* Temp	*Room* BP "Hg	*TO-15 Standard* Working ID	*TO-15 Standard* Vendor ID (Lot#)
aa4881bfb	BFB	✓		ALM018474	JJW	0.5				**12/8/2023**	10:21	68	30.46		160-402352677-1
aa4882dcvs	10 ppbv DCVS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4883lcs	10 ppbv LCS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4884blk	Method Blank	✓		1127	JJW	500									
aa4885rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								10/10/2023	160-401980152-1
aa4886	E23-05047-01	✓		2902	JJW	500									
aa4887	E23-05047-02	✓		2037	JJW	500									
aa4888	E23-05047-03	✓		3811	JJW	500									
aa4889	E23-05047-04	✓		3283	JJW	500									
aa4890	E23-05047-05	✓		2749	JJW	500									
aa4891	E23-05047-06	✓		5091	JJW	500									
aa4892	blk	✓		x	JJW	500									
aa4893	E23-05080-01	✓		3006	JJW	500									
aa4894	E23-05080-02	✓		2155	JJW	500									
aa4895	E23-05093-01	✓		3044A	JJW	500									
aa4896	E23-05047-01x10 dil	✓	10	2902	JJW	50									
aa4897	E23-05047-03x10 dil	✓	10	3811	JJW	50									
aa4898	E23-05047-04x10 dil	✓	10	3283	JJW	50									

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05047

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	*Make-up Air* Added to canister (cc)	*Make-up Air* Added for dilution	*Acquisition* Date	*Acquisition* Time	*Room* Temp	*Room* BP "Hg	*TO-15 Standard* Working ID	*TO-15 Standard* Vendor ID (Lot#)
aa4901bfb	BFB	✓		ALM018474	JJW	0.5				**12/11/2023**	9:24	68	30.07		160-402352677-1
aa4902dcvs	10 ppbv DCVS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4903lcs	10 ppbv LCS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4904blk	Method Blank	✓		1127	JJW	500									
aa4905rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								10/10/2023	160-401980152-1
aa4906	1458	✓		12062301	JJW	50									
aa4907	1588	✓		12082301	JJW	50									
aa4908	3012	✓		12072301	JJW	500									
aa4909	E23-05047-03x10 dil	✓	10	3811	JJW	50									
aa4910	E23-05047-04x5 dil	✓	5	3283	JJW	100									
aa4911	E23-05080-01x10 dil	✓	10	3006	JJW	50									
aa4912	E23-05080-02x10 dil	✓	10	2155	JJW	50									
aa4913	E23-05093-01x5 dil	✓	5	3044Ac	JJW	100									
aa4914	E23-05047-06x5 dil	✓	5	5091	JJW	100									
aa4915	E23-05047-06	✓		5091	JJW	500									
aa4916	E23-05081-01x5 dil	✓	5	5073	JJW	100									
aa4917	E23-05081-01	✓		5073	JJW	500									
aa4918	E23-05081-02x5 dil	✓	5	2758	JJW	100									
aa4919	E23-05081-02	✓		2758	JJW	500									
aa4920	E23-05081-03x5 dil	✓	5	3809	JJW	100									
aa4921	E23-05081-03	✓		3809	JJW	500									
aa4922	E23-05081-04x5 dil	✓	5	2896B	JJW	100									
aa4923	E23-05081-04	✓		2896B	JJW	500									
aa4924	blk	✓		x	JJW	500									
aa4925	E23-05007-01x10 dil	✓	10	1543	JJW	50									
aa4926	E23-05007-02x10 dil	✓	10	1601	JJW	50									
aa4927	E23-05007-03x10 dil	✓	10	1773	JJW	50									
aa4928	blk	✓		x	JJW	500									
aa4929	E23-05079-03	✓		3830	JJW	500									
aa4930	E23-05079-23	✓	Dup of E23-05079-03, (		JJW	500									
aa4931cccvs	10 ppbv CCCVS	✓		EB0103704	JJW	50				12/12/2023	1:59			10/10/2023	160-401980152-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Labs
273 Franklin Road
Randolph, NJ 07869

External Chain of Custody Record/ Field Test Data Sheet
USEPA Method TO-15

Contact Us: 973-361-4252
Fax: 973-366-5613
Web: www.ialonline.com

Carrier (check one): ____ IAL Courier ____ Client Courier ____ FedEx/UPS pg ____ of ____

Client Contact Information	Project Information	Invoice Information
Company: HK Eng + Geo	Project Name: HK2661	
Address: 1600 Rt. 22 East	Project Location (State): NY	Attn:
Union NJ 07083	Project Manager:	Address:
Phone: (908) 688-7800	PM Signature:	
Fax:	PM E-Mail:	PO #: HK2661
Report to:	Sampler:	Quote #:

Analysis Turnaround Time - IF NO TAT IS SPECIFIED, 2 WEEK TAT IS ASSUMED

IAL Standard: 2 weeks (10 business days)

Rush (**pre-approved by lab): 24hr** 48hr** 72hr** 96hr** 1wk**

Barometric Pressure: Start ____ Stop ____

	Sample Identification	Start DATE & TIME (24hr Clock)	End DATE & TIME (24hr Clock)	Starting Vacuum ("Hg)	Ending Vacuum ("Hg)	Starting Temp. (°F)	Ending Temp. (°F)	Outgoing Vacuum - Lab ("Hg)	Incoming Vacuum - Lab ("Hg)	Flow Regulator ID	Canister ID	Canister Size (1L or 6L)	Flow Controller Readout (cc/min)	EPA TO - 15	NJDEP LLTO-15 (includes 30 TICs)	Library Search (10, 20, or 30 TICs)	Other (Explain in Comments)	Regulatory/ NY Cat B / Full (NJ Required)	Reduced / NY Cat A Data Package	Results Only	Indoor Air	Ambient / Outdoor Air	Sub Slab / Soil Gas / Near Slab (Circle One)	Stack Emission / SVE System	High Concentrations Expected
1	SV1	11-15-23-1017	11-15-23-1300	-30	-4	45	57	-29.0	-3.5	A0098864-9	2902	6L	33.5	X											
2	SV2	-0938	-1220	-30	-4	49	51	-29.0	-3.5	A0113955-9	2037		33.2	X											
3	SV3	-1040	-1315	-30	-5	45	57	-29.0	-5.0	A0160008-4	3811		33.3	X											
4	SV6	-1239	-1440	-30	-8	80	80	-29.0	-7.5	A0098643-3	3283		34.5	X											
5	SV7	11-16-23-0824	11-16-23-1043	-29	-7	83	73	-29.0	-7.0	A0113955-5	2749		34.2	X											
6	SV8	-0830	-1033	-30	-7	83	76	-29.0	-7.0	7301021	5091		33.3	X											

Comments/ Special Analysis Instructions / QC Requirements:

110323aa → #2902 100223aa: 2037
110223a1: 1,3,4,5,6 092223a1: 2

Note: Hold or contingent samples may be designated by writing an "H" or "C" in the appropriate analysis box.

ALL FIELDS IN RED ARE REQUIRED

Shipping Information / Canister Preparation (for laboratory use only)

Individual Preparing Canisters / Title: ~~P. Jenkins, J. Walukiewicz~~ / Air Department Sample Custodians
Lab Affixed Seal Number(s): Desmond Flores
Date/Time Shipping Container Sealed: 4:15PM 11/13/23

Laboratory Canister Certification
GC/MS Analyst Signature: Joseph J Walukiewicz III (JJW)

IAL SDG#: 05047

External Chain of Custody

Relinquished	Received	Date / Time	Reason for Change of External Custody
Desmond Flores	R. K. Todd	4:15PM 11/13/23	shipment from laboratory to client
R. K. Todd	Joe Walukiewicz	11-16-23 1350	
Joe Walukiewicz	Joseph J Walukiewicz III (JJW)	11-16-23 1205	Received at air lab

Name/Title Resealing Shipping Container Name:
Date/Time Sample Shipping Container Resealed:
Date/Time Sample Shipping Container Opened: 11/16/23 1205

NJDEP Affixed Seal Number:
Individual Opening Sample Shipping Container: ~~Padraic Jenkins~~ / Joseph Walukiewicz
Date/Time Internal Chain of Custody Initiated: 11/17/23 0930

White and yellow - lab copies; Pink - client copy

Use appropriate care with IAL sampling equipment when sampling and packing for shipment. The client is responsible for all damage incurred to IAL equipment. Notify IAL if equipment is damaged upon receipt. Holding time before sampling is 15 days, after sampling is 30 days; failure to follow these times may result in data rejection by regulatory agencies. The lab will contact you if your COC is not clear, incomplete, or if discrepancies exist. The use of initials is not permitted on the COC except when correcting errors. 06/2014

Example Calculation (EPA TO-15)

$$\frac{\text{Area of Compound}}{\text{Area of Internal Standard}} \times \frac{\text{Concentration of Internal Standard (10 ppbv)}}{\text{Response Factor}} = \text{Concentration of Compound (ppbv)}$$

Conversion from ppbv to µg/m^3

$$\frac{\text{Concentration of Compound (ppbv)} \times \text{Molecular Weight of Compound}}{24.45} = \text{Concentration of Compound (µg/m3)}$$

INTEGRATED ANALYTICAL LABORATORIES, LLC

Clean Canister Certification Report

Lab Sample Name:	**Clean Canister, Batch Master 2037**	**Data File:**	**AA4108**
Field Sample Name:	**Canister 2037**	**Date Analyzed:**	**10/2/2023**
Sample Volume:	**500ml**	**Matrix:**	**Air**

Canisters associated with this run: 2037 (used for E23-05047-02), 2897, 2750, 4853, 3278, 2885, 3008, 2063

Runs with this Clean Canister Certification:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4101BFB]	10/02/2023 11:11
10 PPBV DCVS [AA4102DCVS]	10/02/2023 12:19
10 PPBV LCS [AA4103LCS]	10/02/2023 12:50
METHOD BLANK [AA4104BLK]	10/02/2023 13:32
02 PPBV RLLCS [AA4105RLLCS]	10/02/2023 14:08
CLEAN CAN CERTIFICATION, BATCH MASTER 3830 [AA4106]	10/02/2023 14:44
CLEAN CAN CERTIFICATION, BATCH MASTER 5087 [AA4107]	10/02/2023 15:14
CLEAN CAN CERTIFICATION, BATCH MASTER 2037 [AA4108]	10/02/2023 15:45
10 PPBV CCCVS [AA4125CCCVS]	10/03/2023 00:49

This canister has been certified clean, all compounds are below 0.2 ppbv.

Compound	CAS #	RL (ppbv)	Calculated Amount (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.20	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.20	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.20	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND

Clean Canister Certification Report

Lab Sample Name:	**Clean Canister, Batch Master 2037**	**Data File:**	**AA4108**
Field Sample Name:	**Canister 2037**	**Date Analyzed:**	**10/2/2023**
Sample Volume:	**500ml**	**Matrix:**	**Air**

Canisters associated with this run: 2037 (used for E23-05047-02), 2897, 2750, 4853, 3278, 2885, 3008, 2063

Runs with this Clean Canister Certification:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4101BFB]	10/02/2023 11:11
10 PPBV DCVS [AA4102DCVS]	10/02/2023 12:19
10 PPBV LCS [AA4103LCS]	10/02/2023 12:50
METHOD BLANK [AA4104BLK]	10/02/2023 13:32
02 PPBV RLLCS [AA4105RLLCS]	10/02/2023 14:08
CLEAN CAN CERTIFICATION, BATCH MASTER 3830 [AA4106]	10/02/2023 14:44
CLEAN CAN CERTIFICATION, BATCH MASTER 5087 [AA4107]	10/02/2023 15:14
CLEAN CAN CERTIFICATION, BATCH MASTER 2037 [AA4108]	10/02/2023 15:45
10 PPBV CCCVS [AA4125CCCVS]	10/03/2023 00:49

This canister has been certified clean, all compounds are below 0.2 ppbv.

Compound	CAS #	RL (ppbv)	Calculated Amount (ppbv)
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.20	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.20	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.40	ND
Xylenes (o)	95-47-6	0.20	ND

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-02-2023\
Data File : aa4108.D
Acq On : 2 Oct 2023 3:45 pm
Operator : jjw
Sample : 2037
Misc : 2897, 2750, 4853, 3278, 2885, 3008, 2063
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 05 12:31:19 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

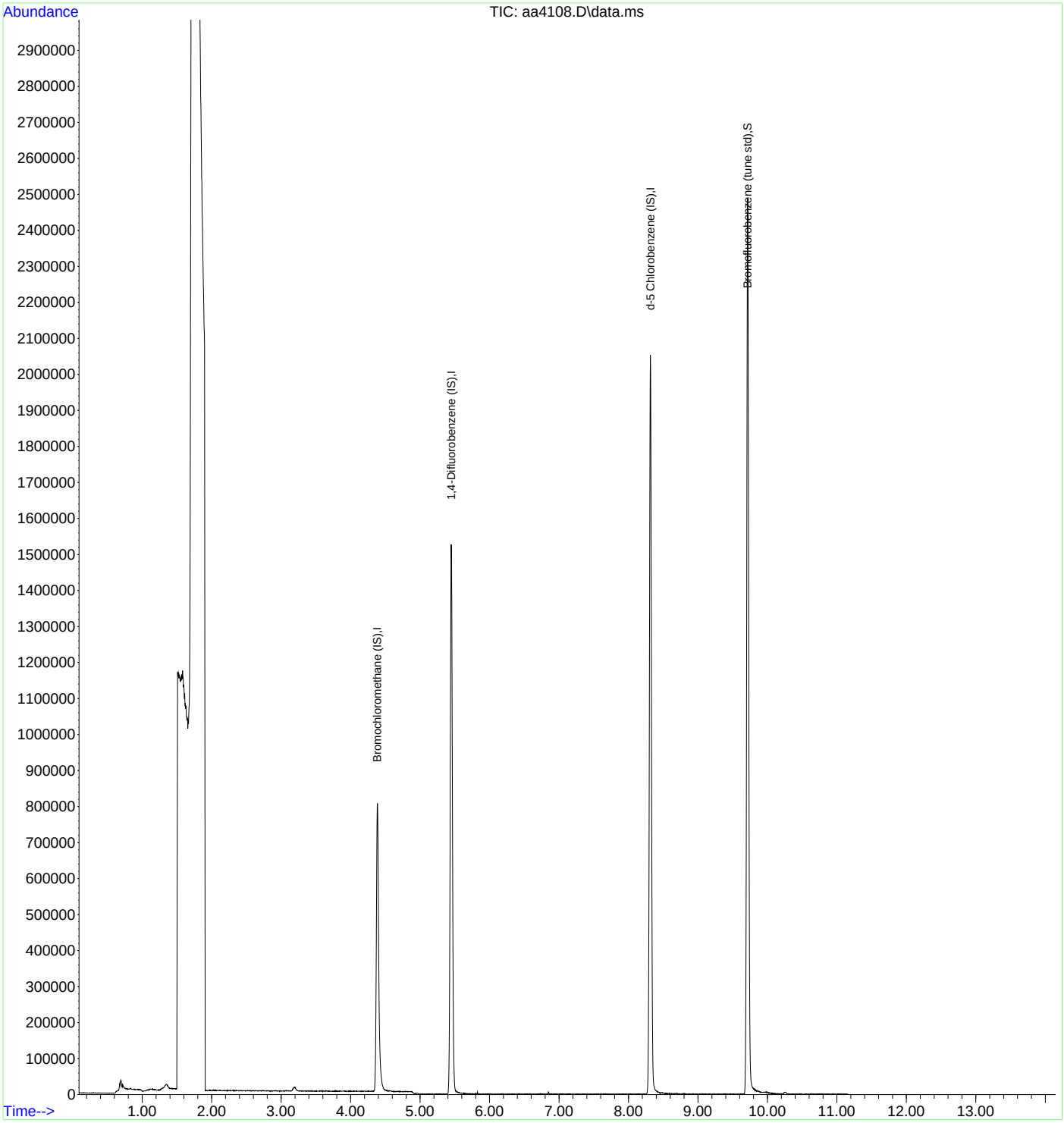
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.383	130	333630	10.00	ppbV	-0.013
39) 1,4-Difluorobenzene (IS)	5.447	114	1375928	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1301571	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1012829	9.35	ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\10-2023\10-02-2023\
Data File : aa4108.D
Acq On : 2 Oct 2023 3:45 pm
Operator : jjw
Sample : 2037
Misc : 2897, 2750, 4853, 3278, 2885, 3008, 2063
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 05 12:31:19 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Clean Canister Certification Report

Lab Sample Name:	**Clean Canister, Batch Master 2902**	**Data File:**	**AA4532**
Field Sample Name:	**Canister 2902**	**Date Analyzed:**	**11/3/2023**
Sample Volume:	**500ml**	**Matrix:**	**Air**

Canisters associated with this run: 2902 (used for E23-05047-01), 2893, 2749 (used for E23-05047-05), 3100, 3811 (used for E23-05047-03), 3283 (used for E23-05047-04), 5091 (used for E23-05047-06), 2886

Runs with this Clean Canister Certification:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4527BFB]	11/03/2023 09:42
10 PPBV DCVS [AA4528DCVS]	11/03/2023 10:14
10 PPBV LCS [AA4529LCS]	11/03/2023 10:43
METHOD BLANK [AA4530BLK]	11/03/2023 11:41
02 PPBV RLLCS [AA4531RLLCS]	11/03/2023 12:15
CLEAN CAN CERTIFICATION, BATCH MASTER 2902 [AA4532]	11/03/2023 13:01
10 PPBV CCCVS [AA4549CCCVS]	11/03/2023 22:29

This canister has been certified clean, all compounds are below 0.2 ppbv.

Compound	CAS #	RL (ppbv)	Calculated Amount (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.20	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.20	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.20	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND

Clean Canister Certification Report

Lab Sample Name:	**Clean Canister, Batch Master 2902**	**Data File:**	**AA4532**
Field Sample Name:	**Canister 2902**	**Date Analyzed:**	**11/3/2023**
Sample Volume:	**500ml**	**Matrix:**	**Air**

Canisters associated with this run: 2902 (used for E23-05047-01), 2893, 2749 (used for E23-05047-05), 3100, 3811 (used for E23-05047-03), 3283 (used for E23-05047-04), 5091 (used for E23-05047-06), 2886

Runs with this Clean Canister Certification:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4527BFB]	11/03/2023 09:42
10 PPBV DCVS [AA4528DCVS]	11/03/2023 10:14
10 PPBV LCS [AA4529LCS]	11/03/2023 10:43
METHOD BLANK [AA4530BLK]	11/03/2023 11:41
02 PPBV RLLCS [AA4531RLLCS]	11/03/2023 12:15
CLEAN CAN CERTIFICATION, BATCH MASTER 2902 [AA4532]	11/03/2023 13:01
10 PPBV CCCVS [AA4549CCCVS]	11/03/2023 22:29

This canister has been certified clean, all compounds are below 0.2 ppbv.

Compound	CAS #	RL (ppbv)	Calculated Amount (ppbv)
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.20	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.20	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.40	ND
Xylenes (o)	95-47-6	0.20	ND

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4532.D
Acq On : 3 Nov 2023 1:01 pm
Operator : jjw
Sample : 2902
Misc : 2893, 2749, 3100, 3811, 3283, 5091, 2886
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 06 12:35:05 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

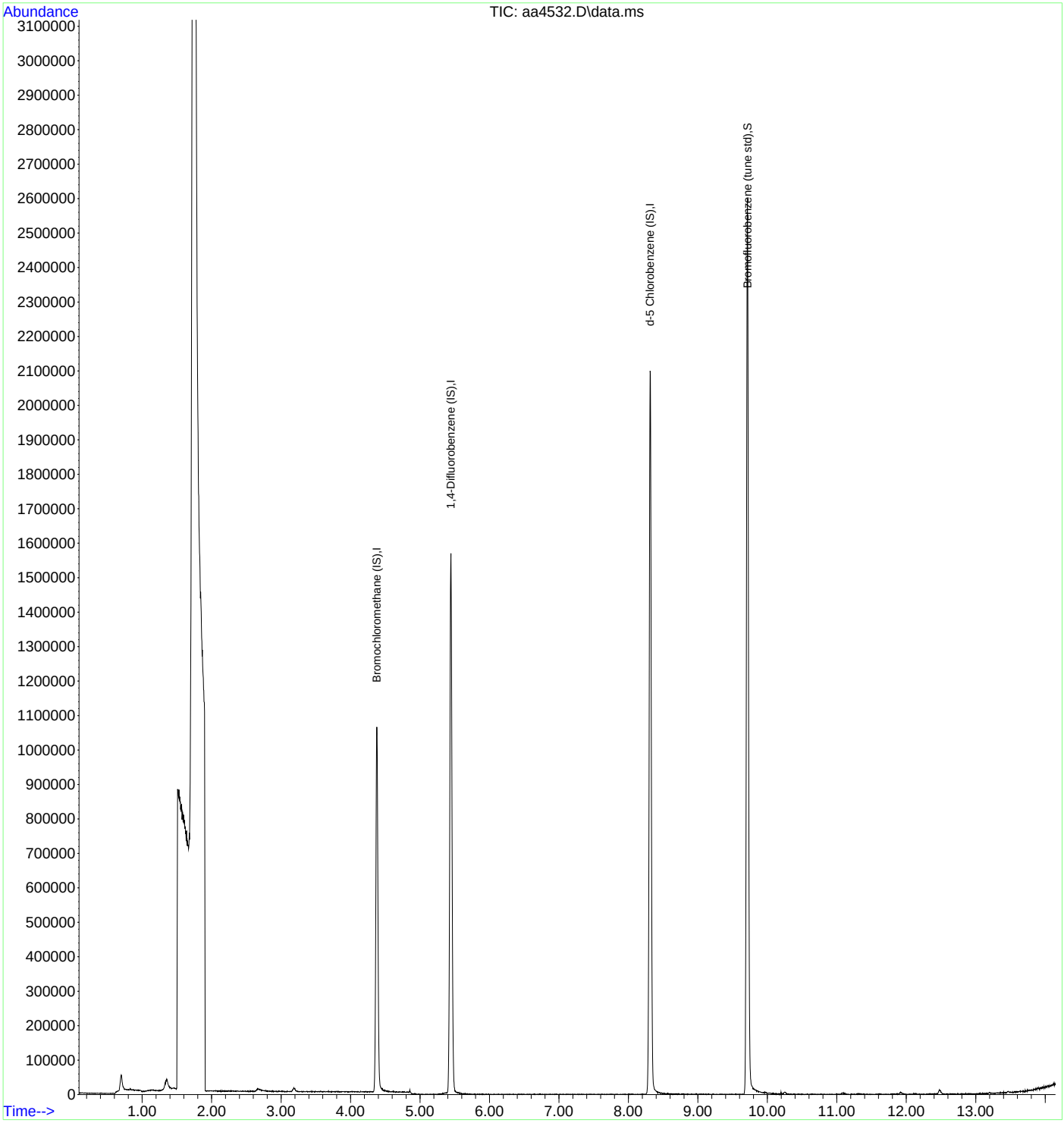
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.377	130	411812	10.00	ppbV	-0.017
39) 1,4-Difluorobenzene (IS)	5.445	114	1437377	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.313	117	1386432	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1146616	9.49	ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\11-2023\11-03-2023\
Data File : aa4532.D
Acq On : 3 Nov 2023 1:01 pm
Operator : jjw
Sample : 2902
Misc : 2893, 2749, 3100, 3811, 3283, 5091, 2886
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 06 12:35:05 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



LAST PAGE OF DOCUMENT

EPA TO-15 DATA PACKAGE

ANALYTICAL DATA PACKAGE FOR THE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY NEW YORK 12233

Integrated Analytical Laboratories, LLC — **Randolph, NJ 07869**
Project#: HK2661.1 — **NY ELAP Certification#: 11402**
SDG #: E23-05093 — **NJDEP (Primary AB) Certification#: 14751**
Date of first sample receipt: 11/20/2023 — **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.

Project/Site: HK2661.1/NY

Client Sample Number	Laboratory Sample	Sample Location	Date/Time of Collection
SV9	E23-05093-01	NA	11/20/2023 8:30

This report shall not be reproduced, except in its entirety, without the written consent of Integrated Analytical Laboratories, LLC. The test results included in this report relate only to the samples analyzed. The results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of data contained in this hardcopy data package and in the computer-readable data submitted on CD/diskette and by electronic mail has been authorized by the laboratory manager or his designee, as verified by the following signature.

Michael H. Leftin, Ph.D.
Laboratory Director

Date: December 19, 2023

Ming-Hwa Reitan
QA/QC Manager

Date: December 19, 2023

Integrated Analytical Laboratories LLC

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Laboratory Acronyms

The following is a list of laboratory acronyms commonly used in EPA Method TO-15 testing:

Acronym	Definition
BLK	Blank/Method Blank
BFB	4-Bromofluorobenzene (Tuning Standard)
CAS Number	Chemical Abstract Service Registry Number
cc	cubic centimeters
CCCVS	Closing Calibration Check Verification Standard
COC	Chain of Custody
DCVS	Daily Calibration Verification Standard
DF	Dilution Factor
EPA	U. S. Environmental Protection Agency (aka USEPA)
"Hg	Inches of Mercury
IA	Indoor Air
IASL	Indoor Air Screening Level
ICAL	Initial Calibration
ICVSS	Initial Calibration Verification Standard
ISTD	Internal Standard
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LCS	Laboratory Control Sample/Spike
LLTO-15	Low Level TO-15
MDL	Method Detection Limit
MDLV	Method Detection Limit Verification
ml	milliliters
ND	Not Detected (at or above RL)
NJDEP	New Jersey Department of Environmental Protection
PM	Project Manager
ppbv	parts per billion, volume-to-volume ratio
PQL	Practical Quantitation Limit - MDLx3
QA	Quality Assurance
QC	Quality Control
RAL	Rapid Action Limit
RL	Reporting Limit
RLLCS	Reporting Limit Laboratory Control Sample
RPD	Relative Percent Difference
RRF	Relative Response Factor
RSD	Relative Standard Deviation
SDG	Sample Delivery Group
SGSL	Soil Gas Screening Levels
SS	Sub Slab
TAT	Turnaround Time
TIC	Tentatively Identified Compound
µg/m3	micrograms per cubic meter

Section I: Chain of Custody

Integrated Analytical Labs
273 Franklin Rd
Randolph, NJ 07869

External Chain of Custody Record/
Field Test Data Sheet
USEPA Method TO-15

Contact Us: 973 361-4252
fax: 973 366-5613
Web: www.ialonline.com

Carrier (check one): ____ IAL Courier ____Client Courier _____FedEx/UPS

pg __1__ of __1__

Client Contact Information	Project Information	Invoice Information
Company: HK Engineering and Geology D.P.C.	Project Name: HK2661.1	Attn:
Address: 1600 US 22 East	Project Location (State): NY	Address:
Union, NJ 07083	Project Manager: Chris Hirschmann	
Phone: 908 -688-7800	PM Signature:	PO #: HK2661.1
Fax:	PM E-Mail: chirschmann@hillmannconsulting.com	Quote #:
Report to: Chris Hirschmann	Sampler: D. Aponte	

Analysis Turnaround Time - IF NO TAT IS SPECIFIED, 2 WEEK TAT IS ASSUMED

IAL Standard: 2 weeks (10 business days)

Rush (**pre-approved by lab): 24hr** 48hr** 72hr** 96hr** 1wk**

Sample Identification	Start DATE & TIME (24hr Clock)	End DATE & TIME (24hr Clock)	Starting Vacuum ("Hg)	Ending Vacuum ("Hg)	Starting Temp. (°F)	Ending Temp. (°F)	Outgoing Vacuum - Lab ("Hg)	Barometric Pressure Start: Incoming Vacuum - Lab ("Hg)	Flow Regulator ID	Barometric Pressure Stop: Canister ID	Canister Size (1L or 6L)	Flow Controller Readout (cc/min)	EPA TO - 15	NJDEP LLTO-15 (includes 30 TICs)	Library Search (10, 20, or 30 TICs)	Other (Explain in Comments)	Regulatory/ NY Cat B / Full (NJ Required)	Reduced / NY Cat A Data Package	Results Only	Indoor Air	Ambient / Outdoor Air	Sub Slab / Soil Gas / Near Slab (Circle One)	Stack Emission / SVE System	High Concentrations Expected
(1) SV9	11/20/23 - 8:30	11/20/23 - 10:56	-29	-7	38	42	-24.0	-7.0	A0224857-7	3044A	6L	31.80	X											

Comments/ Special Analysis Instructions / QC Requirements:

5 Day TAT Hard Copy and Verbal.

09132301 : 1
100223aa : 3830

Note: Hold or contingent samples may be designated by writing an "H" or "C" in the appropriate analysis box.

ALL FIELDS IN RED ARE REQUIRED

Shipping Information / Canister Preparation (for laboratory use only)

Individual Preparing Canisters / Title: Desmond Flores / Air Department Sample Custodian

Lab Affixed Seal Number(s):

Date/Time Shipping Container Sealed: 1615 11/13/23

Laboratory Canister Certification

GC/MS Analyst Signature: Joseph J Walukiewicz III (IAL)

IAL 5093

External Chain of Custody

Relinquished	Received	Date / Time	Reason for Change of External Custody
[signature]	[signature]	11/20/23 1518	shipment from laboratory to client
[signature]	Joseph J Walukiewicz III (IAL)	11/20/23 1643	Received at air Lab

Name/Title Resealing Shipping Container Name:

Date/Time Sample Shipping Container Resealed:

Date/Time Sample Shipping Container Opened: 11/20/23 1643

NJDEP Affixed Seal Number:

Individual Opening Sample Shipping Container: Joseph Walukiewicz/Desmond Flores

Date/Time Internal Chain of Custody Initiated: 11/21/23 09 15

White and yellow - lab copies; Pink - client copy

e appropriate care with IAL sampling equipment when sampling and packing for shipment. The client is responsible for all damage incurred to IAL equipment. Notify IAL if equipment is damaged upon receipt. Holding time before sampling is 15 days, er sampling is 30 days; failure to follow these times may result in data rejection by regulatory agencies. The lab will contact you if your COC is not clear, incomplete, or if discrepancies exist. The use of initials is not permitted on the COC except en correcting errors.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Dec 20, 2023 @ 08:21

PROJECT INFORMATION

RUSH

E23-05093: HK2661.1

To: Chris Hirschmann
HK Engineering & Geology, D.P.C.
Fax: 908-377-8909 cell
EMail: chirschmann@hillmannconsulting.com;rpowell@hillmanngroup.com

Report To

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083
Attn: Chris Hirschmann

Bill To

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083
Attn: Chris Hirschmann

Report Format	P.O. #	Received At Lab	PHC Due	Verbal Due	Hardcopy Due	
Air Regulatory	HK2661.1	Nov 20, 2023 @ 16:43	NA	Nov 29, 2023	Nov 30, 2023	*

* Any ***Conditional or Hold*** status will delay final hardcopy report sent date.

Diskette Req. Not Required

Lab ID	Client Sample ID	Depth	Sampling Time	Matrix	Unit	Field pH/Temp
05093-001	SV9	NA	11/20/23@10:56	Air-Indoor	ppbV	

* No Cert = IAL does not hold certification for this test/method

Sample #	Test	Status	Analytical Method	TAT	Holding Time Expires
001	EPA TO-15	Analyze	TO-15	RUSH 1 WK	12/20/2023

Project Notes:

NOTE 1 taken by kfalconer on 11/21/2023 09:32
CLIENT DID NOT RECORD BAROMETRIC PRESSURE.

273 Franklin Road
Randolph, NJ 07869
Phone: 973 361 4252
www.ialonline.com

IAL is a NELAP accredited lab (TNI01284) and maintains certification in Connecticut (PH-0699), New Jersey (14751), New York (11402), and Pennsylvania (68-00773).

Internal Chain of Custody

Instructions: Use 1 form for each 20 samples of aliquot.

Laboratory Person Accepting Responsibility for Sample(s)

Laboratory: Integrated Analytical Laboratories
Name: Joseph Walukiewicz
Case No.: E23-05093

Location: 273 Franklin Rd Randolph, NJ 07869
Title: Air Department Receiving
Analytical Parameter/Fraction: (check one) ____ NJDEP LLTO-15 _x_ EPA TO-15

Sample No.	Aliquot/Extract No.
8V9	E23-05093-01
	E23-
	E23-
	E23-
	E23-
	E23
	E23-
	E23-
	E23-
	E23-

Sample No.	Aliquot/Extract No.
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-

Date	Time	Relinquished By	Received By	Purpose of Change of Custody
11/21/23	09:15	SIGNATURE / PRINTED NAME	SIGNATURE Joseph Walukiewicz / PRINTED NAME JOSEPH WALUKIEWICZ	1. Sample log-in 2. Pressure Check 3. Pre-analysis storage
11/21/23	09:20	SIGNATURE Joseph Walukiewicz / PRINTED NAME JOSEPH WALUKIEWICZ	SIGNATURE / PRINTED NAME	Placement in TO-15 sample storage area until ready for analysis
12/12/23	10:20	SIGNATURE / PRINTED NAME	SIGNATURE Joseph Walukiewicz / PRINTED NAME JOSEPH WALUKIEWICZ	TO-15 analysis on: 05093-01
		SIGNATURE / PRINTED NAME	SIGNATURE Joseph Walukiewicz / PRINTED NAME JOSEPH WALUKIEWICZ	TO-15 analysis on:
		SIGNATURE / PRINTED NAME	SIGNATURE / PRINTED NAME	
		SIGNATURE / PRINTED NAME	SIGNATURE / PRINTED NAME	
		SIGNATURE / PRINTED NAME	SIGNATURE / PRINTED NAME	
		SIGNATURE / PRINTED NAME	SIGNATURE / PRINTED NAME	

Rev. 12/16

Section II: Methodology Review

Methodology Summary for Air Collected from Hazardous Waste Site Contract

Laboratory:	**Integrated Analytical Lab, LLC**	**Project No:**	**HK2661.1**
Location:	**Randolph, NJ**	**SDG No:**	**E23-05093**

Name	Required Methodology	Indicate Method
Volatile Organics	US EPA TO-15	US EPA Method TO-15

Section III: Case Narrative

CASE NARRATIVE

Integrated Analytical Laboratories, LLC — **Randolph, NJ 07869**
Project #: HK2661.1 — **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05093 — **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 — **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 — **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.1 / NY

Client ID	Lab ID	Receipt Date	Analysis Date	DF	Diluted For
SV9	E23-05093-01	11/20/2023	12/11/2023	5.0	Acetone Methyl ethyl ketone
SV9	E23-05093-01	11/20/2023	12/08/2023	1.0	NA

IAL Sample ID	Canister ID	Outgoing Pressure ("Hg)	Incoming Pressure ("Hg)	Flow Controller ID	Outgoing Flow Rate (cc/min)	Incoming Flow Rate (cc/min)	Flow Rate RPD*
E23-05093-01	3044A	-29	-7	A0224857-7	31.80	31.20	1.90

*Pre-sampling and Post-sampling Flow Controller calibration check RPD ≤ 20%

Flow Controller Note: none

Sample Receipt: Samples were received in good condition. Documentation was in order.
Samples were received at IAL by: Joseph Walukiewicz

Sample Preparation: None required.

Sample Analysis:

Hold Time: All within recommended hold times.

Instrument Calibration: Meets method criteria.

Analysis performed by: jjw

SDG Non-Conformances: none

Tentatively Identified Compounds: Tentatively Identified Compounds (TICs) are determined using a NIST library search. TICs are reported at 10% of the applicable internal standard. Dilution factors are calculated into the final reported result. Since the compounds found are tentatively identified, the conversion from ppbv to ug/m3 may not be made.

Canister-to-Canister dilutions: none

Dilutions: Dilutions, if necessary, will be conducted directly on the instrument up to a 500x dilution. When dilutions of 1000x or higher are necessary, the laboratory must inject a volume of sample into another certified clean canister and add humidified Z-1 zero air to the remainder of the canister volume. Tedlar bags are not used for dilutions.

If a sample is received with historically high levels of analytes, a 100x can-to-can dilution my be used from the start. A 100x canister-to-canister dilution may be also be used at the analyst's discretion.

On-instrument dilutions are conducted as follows:

CASE NARRATIVE

Integrated Analytical Laboratories, LLC | **Randolph, NJ 07869**
Project #: HK2661.1 | **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05093 | **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 | **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 | **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.1 / NY

Dilution Factor	Sample Volume Injected (cc)
1	500
2.5	200
5	100
10	50
20	25
25	20
50	10
100	5
200	2.5
250	2
500	1

Canister-to-canister dilutions are conducted as follows:

A certified clean canister is obtained and evacuated to approximately -30"Hg. Both the clean/dilution canister and sample canister are fitted with a ¼" Swagelok® nut fitting equipped with septa. Depending on dilution factor necessary, a sample aliquot is removed from the canister and injected into the clean canister using 30cc Multifit gas-tight syringe. Once the correct sample aliquot has been transferred, the dilution canister should be connected to the humidified Z-1 zero air supply and filled to ambient pressure (0"Hg).

Dilution Factor	Sample Aliquot	Z-1 Make-up Added
100	60ml	5940ml
1000	6ml	5994ml

If further dilutions need to be made from the dilution canister, they may be made on-instrument. Using a 100x dilution canister, the following on-instrument dilutions can be produced:

Dilution Factor	Sample Volume Injected
100	500ml
250	200ml
500	100ml
1000	50ml
2000	25ml
2500	20ml
5000	10ml

Using a 1000x dilution canister, the following on-instrument dilutions can be produced:

CASE NARRATIVE

Integrated Analytical Laboratories, LLC | **Randolph, NJ 07869**
Project #: HK2661.1 | **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05093 | **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 | **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 | **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.1 / NY

Dilution Factor	Sample Volume Injected
1000	500ml
2500	200ml
5000	100ml
10,000	50ml
20,000	25ml
25,000	20ml
50,000	10ml

If further dilutions need to be made from the dilution canister, beyond 50,000x, a subsequent canister-to-canister dilution must be made using the above prescribed protocol.

GC Column and ID: RTX-1 SN 1119138, RTX-VMS SN 1586881, or equivalent

Calibration Standards: Only gas phase standards were used. Primary and second-source standards provided by Scott Specialty Gases or Airgas Specialty Gases/ Air Liquide

Working Standards: Primary source standards* are created from:
- Airgas Specialty Gases #EB0103704, valid 1/18/2021 through 12/30/2024, @ approximately 100ppb per compound, with exception of m&p-xylenes @ 200ppb. Standard is directly introduced into the instrument for all calibration standard concentrations. Dilutions are made accordingly, on instrument. The 10ppbv standard is also used for the Daily Calibration Verification Standard (DCVS), the Laboratory Control Sample (LCS) and Closing Calibration Verification Standard (CCCVS).

The second source standard*, used as the Initial Calibration Verification Standard (ICVSS), is introduced into the instrument in the same manner as the primary source standard, using:
- Airgas Specialty Gases Cylinder #EB0116272, valid 7/28/2021 through 5/12/2025, @ approximately 100ppb per compound, with exception of m&p-xylenes @ 200ppb.

Internal standards* are created from:
- Airgas Specialty Gases Cylinder #ALM018474, valid 2/24/2022 through 2/24/2025. @ 5ppm per compound. Standard is directly introduced into the instrument to reach the 10ppbv concentrations. 1cc of internal standard is added to every standard, method blank, instrument blank, and sample run.

*Standard may be used past its expiration date provided that concentrations are verified by a current/unexpired second source standard.

08/15/2023

100 ppbv internal standard mix (AA3401BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected

CASE NARRATIVE

Integrated Analytical Laboratories, LLC | **Randolph, NJ 07869**
Project #: HK2661.1 | **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05093 | **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 | **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 | **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.1 / NY

08/15/2023
100 ppbv calibration standard (aa3406std01) - prepared in cylinder #EB0103704
40 ppbv standard - 200 ml injected
20 ppbv standard - 100 ml injected
10 ppbv standard* - 50 ml injected
*Standard also used for CCCVS
2 ppbv standard - 10 ml injected
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS

09/28/2023
100 ppbv internal standard mix (AA4071BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (AA4072DCVS) - prepared in cylinder #EB0103704
10 ppbv standard* - 50 ml injected
*Standard also used for DCVS & CCCVS
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
Method Blank (AA4074BLK) - prepared in canister #1127
500 ml injected

10/10/2023
100 ppbv internal standard mix (AA4131BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (aa4136std01) - prepared in cylinder #EB0103704
40 ppbv standard - 200 ml injected
20 ppbv standard - 100 ml injected
10 ppbv standard* - 50 ml injected
*Standard also used for CCCVS
2 ppbv standard - 10 ml injected
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
Method Blank (AA4139BLK) - prepared in canister #1127
500 ml injected

12/08/2023
100 ppbv internal standard mix (AA4881BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (AA4882DCVS) - prepared in cylinder #EB0103704
10 ppbv standard* - 50 ml injected
*Standard also used for DCVS & CCCVS
Method Blank (AA4884BLK) - prepared in canister #1127
500 ml injected
Sample E23-05093-01 (AA4895) - sample taken in canister #3044A

CASE NARRATIVE

Integrated Analytical Laboratories, LLC **Randolph, NJ 07869**
Project #: HK2661.1 **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05093 **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.1 / NY

12/08/2023
500 ml sample volume injected, 1x dilution
12/11/2023
100 ppbv internal standard mix (AA4901BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (AA4902DCVS) - prepared in cylinder #EB0103704
10 ppbv standard* - 50 ml injected
*Standard also used for DCVS & CCCVS
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
Method Blank (AA4904BLK) - prepared in canister #1127
500 ml injected
Sample E23-05093-01 (AA4913) - sample taken in canister #3044A
100 ml sample volume injected, 5x dilution

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. All conversions are based upon a room temperature of 77°F(25°C) and room pressure of 101.325 kPa (1atm).

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of data contained in this hardcopy data package and in the computer-readable data submitted on CD/diskette and by electronic mail has been authorized by the laboratory manager or his designee, as verified by the following signature.

Michael H. Leftin, Ph.D.
Laboratory Director

December 20, 2023
Date

Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

R 362

Received 01/06/2023

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED HYDROCARBON

Customer:	INTEGRATED ANALYTICAL LABS		
Part Number:	X76NI99C15AC001	Reference Number:	160-402619255-1
Cylinder Number:	EB0103704	Cylinder Volume:	101.0 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	1400 PSIG
Analysis Date:	Dec 30, 2022	Valve Outlet:	350SS
Lot Number:	160-402619255-1	Expiration Date:	Dec 30, 2024

Traceability Statement: Hydrocarbon Process standards are NIST traceable either directly by weight or by comparison to Airgas laboratory standards that are directly NIST traceable by weight.

CERTIFIED CONCENTRATIONS

Component	Requested Concentration	Reported Mole %	Accuracy
1,1 DICHLOROETHANE	100.000 PPB	107.000 PPB	+/- 10%
1,1 DICHLOROETHYLENE	100.000 PPB	104.000 PPB	+/- 10%
1,1,1 TRICHLOROETHANE	100.000 PPB	109.000 PPB	+/- 10%
1,1,2 TRICHLORO ETHANE	100.000 PPB	108.000 PPB	+/- 10%
1,1,2,2 TETRACHLOROETHANE	100.000 PPB	114.000 PPB	+/- 10%
1,2 DIBROMO ETHANE	100.000 PPB	108.000 PPB	+/- 10%
1,2 DICHLORO PROPANE	100.000 PPB	110.000 PPB	+/- 10%
1,2 DICHLOROBENZENE	100.000 PPB	107.000 PPB	+/- 10%
1,2 DICHLOROETHANE	100.000 PPB	109.000 PPB	+/- 10%
1,2,4 TRICHLOROBENZENE	100.000 PPB	110.000 PPB	+/- 10%
1,2,4 TRIMETHYLBENZENE	100.000 PPB	108.000 PPB	+/- 10%
1,3 BUTADIENE	100.000 PPB	107.000 PPB	+/- 10%
1,3 DICHLORO BENZENE	100.000 PPB	111.000 PPB	+/- 10%
1,3,5 TRIMETHYL BENZENE	100.000 PPB	109.000 PPB	+/- 10%
1,4 DICHLOROBENZENE	100.000 PPB	107.000 PPB	+/- 10%
1,4 DIOXANE	100.000 PPB	117.000 PPB	+/- 10%
2 CHLOROTOLUENE	100.000 PPB	109.000 PPB	+/- 10%
3 CHLOROPROPYLENE	100.000 PPB	108.000 PPB	+/- 10%
4 ETHYL TOLUENE	100.000 PPB	108.000 PPB	+/- 10%
ACETONE	100.000 PPB	108.000 PPB	+/- 10%
ACROLEIN	100.000 PPB	100.000 PPB	+/- 10%
BENZENE	100.000 PPB	108.000 PPB	+/- 10%
BENZYL CHLORIDE	100.000 PPB	100.000 PPB	+/- 10%
BROMO DICHLORO METHANE	100.000 PPB	115.000 PPB	+/- 10%
BROMOFORM	100.000 PPB	113.000 PPB	+/- 10%
CARBON DISULFIDE	100.000 PPB	107.000 PPB	+/- 10%
CARBON TETRACHLORIDE	100.000 PPB	110.000 PPB	+/- 10%
CHLORO DIBROMO METHANE	100.000 PPB	112.000 PPB	+/- 10%
CHLOROBENZENE	100.000 PPB	111.000 PPB	+/- 10%
CHLOROFORM	100.000 PPB	108.000 PPB	+/- 10%
CIS 1,2 DICHLOROETHYLENE	100.000 PPB	109.000 PPB	+/- 10%
CIS 1,3 DICHLOROPROPENE	100.000 PPB	111.000 PPB	+/- 10%
CUMENE	100.000 PPB	107.000 PPB	+/- 10%
CYCLOHEXANE	100.000 PPB	112.000 PPB	+/- 10%
ETHANOL	100.000 PPB	104.000 PPB	+/- 10%
ETHYL ACETATE	100.000 PPB	108.000 PPB	+/- 10%
ETHYL BENZENE	100.000 PPB	111.000 PPB	+/- 10%
ETHYL CHLORIDE	100.000 PPB	106.000 PPB	+/- 10%
HEXACHLORO 1,3 BUTADIENE	100.000 PPB	111.000 PPB	+/- 10%

Approved for Release

Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

HEXANE	100.000 PPB	111.000 PPB	+/- 10%
ISOOCTANE	100.000 PPB	109.000 PPB	+/- 10%
ISOPROPYL ALCOHOL	100.000 PPB	89.000 PPB	+/- 10%
M XYLENE	100.000 PPB	112.000 PPB	+/- 10%
METHYL BROMIDE	100.000 PPB	100.000 PPB	+/- 10%
METHYL BUTYL KETONE	100.000 PPB	113.000 PPB	+/- 10%
METHYL CHLORIDE	100.000 PPB	112.000 PPB	+/- 10%
METHYL ETHYL KETONE	100.000 PPB	110.000 PPB	+/- 10%
METHYL ISOBUTYL KETONE	100.000 PPB	109.000 PPB	+/- 10%
METHYL METHACRYLATE	100.000 PPB	110.000 PPB	+/- 10%
METHYL TERT BUTYL ETHER	100.000 PPB	112.000 PPB	+/- 10%
METHYLENE CHLORIDE	100.000 PPB	108.000 PPB	+/- 10%
N BUTANE	100.000 PPB	109.000 PPB	+/- 10%
N HEPTANE	100.000 PPB	111.000 PPB	+/- 10%
N NONANE	100.000 PPB	110.000 PPB	+/- 10%
N PENTANE	100.000 PPB	108.000 PPB	+/- 10%
N PROPYL BENZENE	100.000 PPB	108.000 PPB	+/- 10%
NAPHTHALENE	100.000 PPB	100.000 PPB	+/- 10%
O XYLENE	100.000 PPB	110.000 PPB	+/- 10%
P XYLENE	100.000 PPB	111.000 PPB	+/- 10%
PERCHLOROETHYLENE	100.000 PPB	112.000 PPB	+/- 10%
PROPYLENE	100.000 PPB	109.000 PPB	+/- 10%
R11 TRICHLOROFLUOROMETHANE	100.000 PPB	110.000 PPB	+/- 10%
R113 TRICHLOROTRIFLUOROETHANE	100.000 PPB	109.000 PPB	+/- 10%
R114 DICHLOROTETRAFLUOROETHANE	100.000 PPB	98.000 PPB	+/- 10%
R12 DICHLORODIFLUOROMETHANE	100.000 PPB	106.000 PPB	+/- 10%
STYRENE	100.000 PPB	113.000 PPB	+/- 10%
TERT BUTANOL	100.000 PPB	115.000 PPB	+/- 10%
TETRAHYDROFURAN	100.000 PPB	110.000 PPB	+/- 10%
TOLUENE	100.000 PPB	108.000 PPB	+/- 10%
TRANS 1,2 DICHLOROETHYLENE	100.000 PPB	111.000 PPB	+/- 10%
TRANS 1,3 DICHLOROPROPENE	100.000 PPB	111.000 PPB	+/- 10%
TRICHLOROETHYLENE	100.000 PPB	100.000 PPB	+/- 10%
VINYL ACETATE	100.000 PPB	110.000 PPB	+/- 10%
VINYL BROMIDE	100.000 PPB	101.000 PPB	+/- 10%
VINYL CHLORIDE	100.000 PPB	108.000 PPB	+/- 10%
NITROGEN	99.99925 %	99.999187 %	+/- 10%

Permanent Notes:CUSTOM TO MIX - TO-15/17 MODIFIED NJ STD + NAPHTHALENE

Notes:PO number: 22578

Approved for Release

Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

R 366

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED HYDROCARBON

Customer:	INTEGRATED ANALYTICAL LABS		
Part Number:	X76NI99C15AC001	Reference Number:	160-402744241-1
Cylinder Number:	EB0116272	Cylinder Volume:	146.0 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	2050 PSIG
Analysis Date:	May 12, 2023	Valve Outlet:	350SS
Lot Number:	160-402744241-1	Expiration Date:	May 12, 2025

Traceability Statement: Hydrocarbon Process standards are NIST traceable either directly by weight or by comparison to Airgas laboratory standards that are directly NIST traceable by weight.

CERTIFIED CONCENTRATIONS

Component	Requested Concentration	Reported Mole %	Accuracy
1,1 DICHLOROETHANE	100.000 PPB	100.000 PPB	+/- 10%
1,1 DICHLOROETHYLENE	100.000 PPB	100.000 PPB	+/- 10%
1,1,1 TRICHLOROETHANE	100.000 PPB	104.000 PPB	+/- 10%
1,1,2 TRICHLORO ETHANE	100.000 PPB	101.000 PPB	+/- 10%
1,1,2,2 TETRACHLOROETHANE	100.000 PPB	104.000 PPB	+/- 10%
1,2 DIBROMO ETHANE	100.000 PPB	103.000 PPB	+/- 10%
1,2 DICHLORO PROPANE	100.000 PPB	103.000 PPB	+/- 10%
1,2 DICHLOROBENZENE	100.000 PPB	101.000 PPB	+/- 10%
1,2 DICHLOROETHANE	100.000 PPB	102.000 PPB	+/- 10%
1,2,4 TRICHLOROBENZENE	100.000 PPB	100.000 PPB	+/- 10%
1,2,4 TRIMETHYLBENZENE	100.000 PPB	102.000 PPB	+/- 10%
1,3 BUTADIENE	100.000 PPB	106.000 PPB	+/- 10%
1,3 DICHLORO BENZENE	100.000 PPB	105.000 PPB	+/- 10%
1,3,5 TRIMETHYL BENZENE	100.000 PPB	103.000 PPB	+/- 10%
1,4 DICHLOROBENZENE	100.000 PPB	100.000 PPB	+/- 10%
1,4 DIOXANE	100.000 PPB	113.000 PPB	+/- 10%
2 CHLOROTOLUENE	100.000 PPB	107.000 PPB	+/- 10%
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BENZENE	100.000 PPB	103.000 PPB	+/- 10%
BENZYL CHLORIDE	100.000 PPB	102.000 PPB	+/- 10%
BROMO DICHLORO METHANE	100.000 PPB	112.000 PPB	+/- 10%
BROMOFORM	100.000 PPB	113.000 PPB	+/- 10%
CARBON DISULFIDE	100.000 PPB	95.000 PPB	+/- 10%
CARBON TETRACHLORIDE	100.000 PPB	107.000 PPB	+/- 10%
CHLORO DIBROMO METHANE	100.000 PPB	110.000 PPB	+/- 10%
CHLOROBENZENE	100.000 PPB	104.000 PPB	+/- 10%
CHLOROFORM	100.000 PPB	106.000 PPB	+/- 10%
CIS 1,2 DICHLOROETHYLENE	100.000 PPB	102.000 PPB	+/- 10%
CIS 1,3 DICHLOROPROPENE	100.000 PPB	94.000 PPB	+/- 10%
CUMENE	100.000 PPB	106.000 PPB	+/- 10%
CYCLOHEXANE	100.000 PPB	109.000 PPB	+/- 10%
ETHANOL	100.000 PPB	98.000 PPB	+/- 10%
ETHYL ACETATE	100.000 PPB	104.000 PPB	+/- 10%
ETHYL BENZENE	100.000 PPB	105.000 PPB	+/- 10%
ETHYL CHLORIDE	100.000 PPB	104.000 PPB	+/- 10%
HEXACHLORO 1,3 BUTADIENE	100.000 PPB	101.000 PPB	+/- 10%

Approved for Release

Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

HEXANE	100.000 PPB	107.000 PPB	+/- 10%
ISOOCTANE	100.000 PPB	106.000 PPB	+/- 10%
ISOPROPYL ALCOHOL	100.000 PPB	95.000 PPB	+/- 10%
M XYLENE	100.000 PPB	106.000 PPB	+/- 10%
METHYL BROMIDE	100.000 PPB	103.000 PPB	+/- 10%
METHYL BUTYL KETONE	100.000 PPB	109.000 PPB	+/- 10%
METHYL CHLORIDE	100.000 PPB	108.000 PPB	+/- 10%
METHYL ETHYL KETONE	100.000 PPB	105.000 PPB	+/- 10%
METHYL ISOBUTYL KETONE	100.000 PPB	105.000 PPB	+/- 10%
METHYL METHACRYLATE	100.000 PPB	106.000 PPB	+/- 10%
METHYL TERT BUTYL ETHER	100.000 PPB	107.000 PPB	+/- 10%
METHYLENE CHLORIDE	100.000 PPB	101.000 PPB	+/- 10%
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N NONANE	100.000 PPB	108.000 PPB	+/- 10%
N PENTANE	100.000 PPB	105.000 PPB	+/- 10%
N PROPYL BENZENE	100.000 PPB	112.000 PPB	+/- 10%
NAPHTHALENE	100.000 PPB	101.000 PPB	+/- 10%
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R114 DICHLOROTETRAFLUOROETHANE	100.000 PPB	99.000 PPB	+/- 10%
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STYRENE	100.000 PPB	106.000 PPB	+/- 10%
TERT BUTANOL	100.000 PPB	111.000 PPB	+/- 10%
TETRAHYDROFURAN	100.000 PPB	106.000 PPB	+/- 10%
TOLUENE	100.000 PPB	101.000 PPB	+/- 10%
TRANS 1,2 DICHLOROETHYLENE	100.000 PPB	108.000 PPB	+/- 10%
TRANS 1,3 DICHLOROPROPENE	100.000 PPB	106.000 PPB	+/- 10%
TRICHLOROETHYLENE	100.000 PPB	102.000 PPB	+/- 10%
VINYL ACETATE	100.000 PPB	105.000 PPB	+/- 10%
VINYL BROMIDE	100.000 PPB	100.000 PPB	+/- 10%
VINYL CHLORIDE	100.000 PPB	107.000 PPB	+/- 10%
NITROGEN	99.99925 %	99.999216 %	

Permanent Notes: CUSTOM TO MIX - TO-15/17 MODIFIED NJ STD + NAPHTHALENE

Notes: PO Number: 22896

Approved for Release

Section IV: Method Detection Limit Summary

INTEGRATED ANALYTICAL LABORATORIES, LLC
REPORTING METHOD DETECTION LIMIT (MDL) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Matrix: Air
Column ID: Restek RtX-VMS, 30 meter, 0.32mm ID, 1.8 um DF
Instrument ID: GC - Agilent 7890A / MS - Agilent 5975C (IAL ID: *Instrument AA*)
Report Prepared by: Joe Waluliewicz

MDL Effective Date: 8/16/2023
Analyst: Joe Waluliewicz

Compound Name	CAS #	Molecular Weight	MDL ppbv	MDL µg/m^3	PQL ppbv	RL ppbv	RL µg/m^3	True value/ MDL
Propene	115-07-1	42.08	0.18	0.31	0.54	0.20	0.34	1
Dichlorodifluoromethane	75-71-8	120.9	0.081	0.40	0.24	0.20	0.99	3
1,2-Dichlorotetrafluoroethane	76-14-2	170.9	0.071	0.50	0.21	0.20	1.4	3
n-Butane	106-97-8	58	0.13	0.32	0.40	0.20	0.47	2
Chloromethane	74-87-3	50.49	0.15	0.30	0.44	0.20	0.41	1
Vinyl chloride	75-01-4	62.5	0.11	0.29	0.34	0.20	0.51	2
1,3-Butadiene	106-99-0	54.09	0.12	0.27	0.37	0.20	0.44	2
Bromomethane	74-83-9	94.94	0.12	0.46	0.36	0.20	0.78	2
Chloroethane	75-00-3	64.52	0.12	0.32	0.36	0.20	0.53	2
Vinyl bromide	593-60-2	106.9	0.080	0.35	0.24	0.20	0.87	3
Trichlorofluoromethane	75-69-4	137.4	0.068	0.38	0.20	0.20	1.1	3
Ethanol	64-17-5	46.07	0.17	0.32	0.51	0.20	0.38	1
1,1-Dichloroethene	75-35-4	96.94	0.086	0.34	0.26	0.20	0.79	3
Carbon disulfide	75-15-0	76.14	0.076	0.24	0.23	0.20	0.62	3
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	187.40	0.087	0.66	0.26	0.20	1.5	3
Acrolein	107-02-8	56.06	0.15	0.34	0.44	0.20	0.46	2
Allyl Chloride	107-05-1	76.53	0.088	0.27	0.26	0.20	0.63	3
Isopropanol	67-63-0	60.1	0.10	0.25	0.30	0.20	0.49	2
Methylene chloride	75-09-2	84.94	0.10	0.36	0.31	0.20	0.69	2
Acetone	67-64-1	58.08	0.12	0.28	0.36	0.20	0.48	2
1,2-Dichloroethene (trans)	156-60-5	96.94	0.080	0.32	0.24	0.20	0.79	3
n-Pentane	109-66-0	72.15	0.16	0.48	0.49	0.20	0.59	1
n-Hexane	110-54-3	86.17	0.087	0.31	0.26	0.20	0.70	3
Methyl tert-butyl ether	1634-04-4	88.15	0.080	0.29	0.24	0.20	0.72	3
Tert-butyl alcohol	75-65-0	74.12	0.14	0.44	0.43	0.20	0.61	2
1,1-Dichloroethane	75-34-3	98.96	0.079	0.32	0.24	0.20	0.81	3
1,2-Dichloroethene (cis)	156-59-2	96.94	0.083	0.33	0.25	0.20	0.79	3
Cyclohexane	110-82-7	84.16	0.078	0.27	0.23	0.20	0.69	3
Chloroform	67-66-3	119.4	0.077	0.38	0.23	0.20	0.98	3
Ethyl acetate	141-78-6	88.11	0.11	0.40	0.33	0.20	0.72	2
Carbon tetrachloride	56-23-5	153.8	0.080	0.50	0.24	0.20	1.3	3
Tetrahydrofuran	109-99-9	72.11	0.11	0.31	0.32	0.20	0.59	2
1,1,1-Trichloroethane	71-55-6	133.4	0.071	0.39	0.21	0.20	1.1	3
Methyl ethyl ketone	78-93-3	72.11	0.11	0.31	0.32	0.20	0.59	2
n-Heptane	142-82-5	100.2	0.090	0.37	0.27	0.20	0.82	2
Benzene	71-43-2	78.11	0.076	0.24	0.23	0.20	0.64	3
1,2-Dichloroethane	107-06-2	98.96	0.079	0.32	0.24	0.20	0.81	3
Trichloroethene	79-01-6	131.4	0.064	0.34	0.19	0.20	1.1	3
2,2,4-Trimethylpentane	540-84-1	114.2	0.085	0.40	0.26	0.20	0.93	3
1,2-Dichloropropane	78-87-5	113	0.085	0.39	0.25	0.20	0.92	3
Bromodichloromethane	75-27-4	163.8	0.066	0.44	0.20	0.20	1.3	3
Methyl methacrylate	80-62-6	100.12	0.079	0.32	0.24	0.20	0.82	3
1,4-Dioxane	123-91-1	88.12	0.092	0.33	0.28	0.20	0.72	2
1,3-Dichloropropene (cis)	10061-01-5	111.0	0.070	0.32	0.21	0.20	0.91	3
Toluene	108-88-3	92.14	0.064	0.24	0.19	0.20	0.75	3
Methyl isobutyl ketone	108-10-1	100.2	0.11	0.43	0.32	0.20	0.82	2
Tetrachloroethene	127-18-4	165.8	0.063	0.43	0.19	0.20	1.4	3
1,3-Dichloropropene (trans)	10061-02-6	111	0.077	0.35	0.23	0.20	0.91	3
1,1,2-Trichloroethane	79-00-5	133.4	0.075	0.41	0.22	0.20	1.1	3
Dibromochloromethane	124-48-1	208.3	0.073	0.62	0.22	0.20	1.7	3
1,2-Dibromoethane	106-93-4	187.9	0.067	0.52	0.20	0.20	1.5	3
Methyl n-butyl ketone	591-78-6	100.16	0.13	0.54	0.40	0.20	0.82	2
n-Nonane	111-84-2	128.2	0.10	0.52	0.30	0.20	1.0	2
Chlorobenzene	108-90-7	112.6	0.073	0.34	0.22	0.20	0.92	3
Ethylbenzene	100-41-4	106.2	0.067	0.29	0.20	0.20	0.9	3
Xylenes (m&p)	179601-23-1	106.2	0.15	0.64	0.44	0.40	1.74	3
Xylene (o)	79-34-5	167.9	0.073	0.50	0.22	0.20	1.4	3
Styrene	100-42-5	104.1	0.072	0.31	0.22	0.20	0.85	3
Bromoform	75-25-2	252.8	0.075	0.77	0.22	0.20	2.1	3
Cumene (Isopropylbenzene)	98-82-8	120.2	0.069	0.34	0.21	0.20	0.98	3
n-Propyl benzene	103-65-1	120.19	0.085	0.42	0.25	0.20	0.98	3
1,1,2,2-Tetrachloroethane	95-47-6	106.2	0.069	0.30	0.21	0.20	0.87	3
4-Ethyltoluene	622-96-8	120.2	0.090	0.44	0.27	0.20	0.98	2
2-Chlorotoluene	95-49-8	126.6	0.077	0.40	0.23	0.20	1.0	3
1,3,5-Trimethylbenzene	108-67-8	120.2	0.076	0.37	0.23	0.20	0.98	3
1,2,4-Trimethylbenzene	95-63-6	120.2	0.080	0.39	0.24	0.20	0.98	3

INTEGRATED ANALYTICAL LABORATORIES, LLC
REPORTING METHOD DETECTION LIMIT (MDL) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Matrix: Air
Column ID: Restek RtX-VMS, 30 meter, 0.32mm ID, 1.8 um DF
Instrument ID: GC - Agilent 7890A / MS - Agilent 5975C (IAL ID: *Instrument AA*)
Report Prepared by: Joe Waluliewicz

MDL Effective Date: 8/16/2023
Analyst: Joe Waluliewicz

Compound Name	CAS #	Molecular Weight	MDL ppbv	MDL µg/m^3	PQL ppbv	RL ppbv	RL µg/m^3	True value/ MDL
1,3-Dichlorobenzene	541-73-1	147	0.086	0.52	0.26	0.20	1.2	3
1,4-Dichlorobenzene	106-46-7	147.0	0.089	0.54	0.27	0.20	1.2	2
Benzyl chloride	100-44-7	126.6	0.064	0.33	0.19	0.20	1.0	3
1,2-Dichlorobenzene	95-50-1	147.0	0.083	0.50	0.25	0.20	1.2	3
1,3-Hexachlorobutadiene	87-68-3	260.8	0.096	1.03	0.29	0.20	2.1	2
1,2,4-Trichlorobenzene	120-82-1	181.5	0.12	0.89	0.36	0.20	1.5	2
Naphthalene	91-20-3	128	0.15	0.79	0.45	0.20	1.0	2

Where:
MDL is defined as the higher of the MDL Spike and MDL Blank
PQL is MDLx3
RL is defined as the lowest point of the calibration curve
ppbv is parts per billion by volume and is how results come off the instrument
µg/m^3 = ppbv x molecular weight / 24.45

Location of this file: P:\PAL Reports\LLTO-15 and TO-15 Common Files\Agilent MDL

Instrument used for Clean Canister Certification Analysis? YES

Michael Leftin, Ph.D.
Laboratory Director

Date: August 16, 2023

INTEGRATED ANALYTICAL LABORATORIES, LLC
METHOD DETECTION LIMIT VERIFICATION (MDLV) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Analysis Level:	0.20 ppbv, 0.40 for m&p-xylenes
Matrix:	Air
Column ID:	RTX-VMS, 30-meter, 0.32 mm ID, 1.8 µm d_f
Instrument Identification:	AA
Date of Verification Study:	8/16/2023
Study Identification File #:	aa3415rllcs
Analyst:	Joe Walukiewicz
Analysis/Processing Method:	C:\MSDCHEM\1\METHODS\230815.M
Cylinder ID:	EB0103704

Michael Leftin, Ph.D.
Laboratory Director

Date: August 16, 2023

Compound Name	CAS #	MDLV (ppbv)	RL (ppbv)	RL/MDLV Ratio
Propene	115-07-1	0.23	0.20	1
Dichlorodifluoromethane	124-48-1	0.24	0.20	1
1,2-Dichlorotetrafluoroethane	76-14-2	0.26	0.20	1
n-Butane	106-97-8	0.23	0.20	1
Chloromethane	74-87-3	0.24	0.20	1
Vinyl chloride	75-01-4	0.26	0.20	1
1,3-Butadiene	106-99-0	0.23	0.20	1
Bromomethane	74-83-9	0.23	0.20	1
Chloroethane	75-00-3	0.22	0.20	1
Vinyl bromide	593-60-2	0.23	0.20	1
Trichlorofluoromethane	75-69-4	0.26	0.20	1
Ethanol	64-17-5	0.30	0.20	2
1,1-Dichloroethene	75-35-4	0.22	0.20	1
Carbon disulfide	75-15-0	0.22	0.20	1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.27	0.20	1
Acrolein	107-02-8	0.24	0.20	1
Allyl Chloride	107-05-1	0.22	0.20	1
Isopropanol	67-63-0	0.20	0.20	1
Methylene chloride	75-09-2	0.35	0.20	2
Acetone	67-64-1	0.27	0.20	1
1,2-Dichloroethene (trans)	156-60-5	0.22	0.20	1
n-Pentane	109-66-0	0.25	0.20	1
n-Hexane	110-54-3	0.26	0.20	1
Methyl tert-butyl ether	1634-04-4	0.25	0.20	1
Tert-butyl alcohol	75-65-0	0.24	0.20	1
1,1-Dichloroethane	75-34-3	0.24	0.20	1
1,2-Dichloroethene (cis)	156-59-2	0.21	0.20	1
Cyclohexane	110-82-7	0.24	0.20	1
Chloroform	67-66-3	0.23	0.20	1
Ethyl acetate	141-78-6	0.23	0.20	1
Carbon tetrachloride	56-23-5	0.26	0.20	1
Tetrahydrofuran	109-99-9	0.23	0.20	1
1,1,1-Trichloroethane	71-55-6	0.24	0.20	1
Methyl ethyl ketone	78-93-3	0.24	0.20	1
n-Heptane	142-82-5	0.23	0.20	1
Benzene	71-43-2	0.24	0.20	1
1,2-Dichloroethane	106-93-4	0.23	0.20	1
Trichloroethene	79-01-6	0.25	0.20	1
2,2,4-Trimethylpentane	540-84-1	0.29	0.20	1
1,2-Dichloropropane	78-87-5	0.26	0.20	1
Bromodichloromethane	75-27-4	0.28	0.20	1
Methyl methacrylate	80-62-6	0.22	0.20	1
1,4-Dioxane	123-91-1	0.28	0.20	1
1,3-Dichloropropene (cis)	10061-01-5	0.25	0.20	1
Toluene	108-88-3	0.24	0.20	1
Methyl isobutyl ketone	108-10-1	0.22	0.20	1
Tetrachloroethene	127-18-4	0.26	0.20	1
1,3-Dichloropropene (trans)	10061-02-6	0.24	0.20	1
1,1,2-Trichloroethane	79-00-5	0.23	0.20	1
Dibromochloromethane	75-71-8	0.24	0.20	1
1,2-Dibromoethane	107-06-2	0.22	0.20	1
Methyl n-butyl ketone	591-78-6	0.21	0.20	1

INTEGRATED ANALYTICAL LABORATORIES, LLC
METHOD DETECTION LIMIT VERIFICATION (MDLV) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Analysis Level:	0.20 ppbv, 0.40 for m&p-xylenes
Matrix:	Air
Column ID:	RTX-VMS, 30-meter, 0.32 mm ID, 1.8 µm d_f
Instrument Identification:	AA
Date of Verification Study:	8/16/2023
Study Identification File #:	aa3415rllcs
Analyst:	Joe Walukiewicz
Analysis/Processing Method:	C:\MSDCHEM\1\METHODS\230815.M
Cylinder ID:	EB0103704

Michael Leftin, Ph.D.
Laboratory Director

Date: August 16, 2023

Compound Name	CAS #	MDLV (ppbv)	RL (ppbv)	RL/MDLV Ratio
n-Nonane	111-84-2	0.21	0.20	1
Chlorobenzene	108-90-7	0.28	0.20	1
Ethylbenzene	100-41-4	0.26	0.20	1
Xylenes (m&p)	179601-23-1	0.54	0.40	1
Xylene (o)	95-47-6	0.26	0.20	1
Styrene	100-42-5	0.23	0.20	1
Bromoform	75-25-2	0.26	0.20	1
Cumene	98-82-8	0.24	0.20	1
n-Propyl benzene	103-65-1	0.25	0.20	1
1,1,2,2-Tetrachloroethane	79-34-5	0.25	0.20	1
4-Ethyltoluene	622-96-8	0.24	0.20	1
2-Chlorotoluene	95-49-8	0.25	0.20	1
1,3,5-Trimethylbenzene	108-67-8	0.24	0.20	1
1,2,4-Trimethylbenzene	95-63-6	0.22	0.20	1
1,3-Dichlorobenzene	541-73-1	0.27	0.20	1
1,4-Dichlorobenzene	106-46-7	0.24	0.20	1
Benzyl chloride	100-44-7	0.17	0.20	1
1,2-Dichlorobenzene	95-50-1	0.25	0.20	1
1,3-Hexachlorobutadiene	87-68-3	0.31	0.20	2
1,2,4-Trichlorobenzene	120-82-1	0.25	0.20	1
Naphthalene	91-20-3	0.28	0.20	1

Section V: Quality Control Data Summary

BFB Tune Summary

Method Blank

Laboratory Control Sample

Laboratory Sample Duplicate

Internal Standard Area Summary

BFB

Data Path: C:\DATA\2023\08-2023\08-15-2023\
Data File: AA3401BFB.D
Acq On: 8/15/2023 10:11:00AM
Operator: jls
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230525.M
Last Update: Tue May 30 13:24:12 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	251499	18.7
PASS	75	95	30	66	703104	52.3
PASS	95	95	100	100	1345024	100.0
PASS	96	95	5	9	89525	6.7
PASS	173	174	0.00	2	8293	0.8
PASS	174	95	50	100	1069397	79.5
PASS	175	174	4	9	78181	7.3
PASS	176	174	93	101	1035413	96.8
PASS	177	176	5	9	68613	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA3401BFB	NA	8/15/2023 10:11:00 AM
0.2 PPBV STD	AA3402STD05	NA	8/15/2023 11:15:00 AM
10 PPBV STD	AA3404STD03	NA	8/15/2023 1:09:00 PM
2 PPBV STD	AA3403STD04	NA	8/15/2023 1:45:00 PM
20 PPBV STD	AA3405STD02	NA	8/15/2023 3:12:00 PM
40 PPBV STD	AA3406STD01	NA	8/15/2023 4:47:00 PM
10 PPBV ICVSS	AA3407ICVSS	NA	8/15/2023 6:09:00 PM

BFB

Data Path: C:\DATA\2023\09-2023\09-28-2023\
Data File: AA4071BFB.D
Acq On: 9/28/2023 10:01:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230815.M
Last Update: Wed Aug 16 10:00:51 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	96931	19.9
PASS	75	95	30	66	265259	54.6
PASS	95	95	100	100	485931	100.0
PASS	96	95	5	9	33264	6.8
PASS	173	174	0.00	2	3017	0.8
PASS	174	95	50	100	366187	75.4
PASS	175	174	4	9	27080	7.4
PASS	176	174	93	101	360832	98.5
PASS	177	176	5	9	23088	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4071BFB	NA	9/28/2023 10:01:00 AM
10 PPBV DCVS	AA4072DCVS	NA	9/28/2023 10:31:00 AM
10 PPBV LCS	AA4073LCS	NA	9/28/2023 11:19:00 AM
METHOD BLANK	AA4074BLK	NA	9/28/2023 11:47:00 AM
02 PPBV RLLCS	AA4075RLLCS	NA	9/28/2023 1:22:00 PM
2164	AA4076	NA	9/28/2023 3:00:00 PM
4870	AA4077	NA	9/28/2023 3:30:00 PM
2160	AA4078	NA	9/28/2023 4:00:00 PM
10 PPBV CCCVS	AA4093CCCVS	NA	9/29/2023 12:28:00 AM

INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path: C:\DATA\2023\10-2023\10-10-2023\

Data File: AA4131BFB.D

Acq On: 10/10/2023 10:13:00AM

Operator: jls

Sample: BFB

Misc: ALM018474

ALS Vial: 1 **Multiplier:** 1

Integration File: rteint.p

Method: C:\msdchem\1\METHODS\231009.M

Last Update: Tue Oct 10 09:54:56 2023

Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	65523	16.8
PASS	75	95	30	66	182571	46.8
PASS	95	95	100	100	389867	100.0
PASS	96	95	5	9	25643	6.6
PASS	173	174	0.00	2	0	0.0
PASS	174	95	50	100	293952	75.4
PASS	175	174	4	9	22269	7.6
PASS	176	174	93	101	282667	96.2
PASS	177	176	5	9	18629	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4131BFB	NA	10/10/2023 10:13:00 AM
0.2 PPBV STD	AA4132STD05	NA	10/10/2023 10:40:00 AM
2 PPBV STD	AA4133STD04	NA	10/10/2023 11:46:00 AM
10 PPBV STANDARD STD	AA4134STD03	NA	10/10/2023 12:21:00 PM
20 PPBV STD	AA4135STD02	NA	10/10/2023 12:55:00 PM
40 PPBV STD	AA4136STD01	NA	10/10/2023 2:05:00 PM
10 PPBV ICVSS	AA4137ICVSS	NA	10/10/2023 4:48:00 PM
10 PPBV LCS	AA4138LCS	NA	10/10/2023 5:39:00 PM
METHOD BLANK	AA4139BLK	NA	10/10/2023 6:07:00 PM
02 PPBV RLLCS	AA4140RLLCS	NA	10/10/2023 6:35:00 PM
5101	AA4142	NA	10/10/2023 7:36:00 PM
4869	AA4143	NA	10/10/2023 8:06:00 PM
2157	AA4144	NA	10/10/2023 8:36:00 PM
10 PPBV CCCVS	AA4154CCCVS	NA	10/11/2023 1:53:00 AM

BFB

Data Path: C:\DATA\2023\12-2023\12-08-2023\
Data File: AA4881BFB.D
Acq On: 12/8/2023 10:21:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\231009.M
Last Update: Tue Oct 10 15:12:35 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	185045	18.5
PASS	75	95	30	66	508523	50.7
PASS	95	95	100	100	1002688	100.0
PASS	96	95	5	9	66973	6.7
PASS	173	174	0.00	2	4685	0.6
PASS	174	95	50	100	744704	74.3
PASS	175	174	4	9	56251	7.6
PASS	176	174	93	101	716907	96.3
PASS	177	176	5	9	46309	6.5

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4881BFB	NA	12/8/2023 10:21:00 AM
10 PPBV DCVS	AA4882DCVS	NA	12/8/2023 10:50:00 AM
10 PPBV LCS	AA4883LCS	NA	12/8/2023 11:21:00 AM
METHOD BLANK	AA4884BLK	NA	12/8/2023 12:26:00 PM
E23-05093-01	AA4895	SV9	12/8/2023 7:11:00 PM

BFB

Data Path: C:\DATA\2023\12-2023\12-11-2023\
Data File: AA4901BFB.D
Acq On: 12/11/2023 9:24:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\231009.M
Last Update: Tue Oct 10 15:12:35 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	267904	18.4
PASS	75	95	30	66	717035	49.1
PASS	95	95	100	100	1459371	100.0
PASS	96	95	5	9	91040	6.2
PASS	173	174	0.00	2	10848	1.0
PASS	174	95	50	100	1053269	72.2
PASS	175	174	4	9	81547	7.7
PASS	176	174	93	101	1021824	97.0
PASS	177	176	5	9	65264	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4901BFB	NA	12/11/2023 9:24:00 AM
10 PPBV DCVS	AA4902DCVS	NA	12/11/2023 10:26:00 AM
10 PPBV LCS	AA4903LCS	NA	12/11/2023 10:57:00 AM
METHOD BLANK	AA4904BLK	NA	12/11/2023 11:51:00 AM
02 PPBV RLLCS	AA4905RLLCS	NA	12/11/2023 12:18:00 PM
1458	AA4906	NA	12/11/2023 12:50:00 PM
1588	AA4907	NA	12/11/2023 1:19:00 PM
3012	AA4908	NA	12/11/2023 1:49:00 PM
E23-05093-01	AA4913	SV9	12/11/2023 4:20:00 PM
10 PPBV CCCVS	AA4931CCCVS	NA	12/12/2023 1:59:00 AM

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4074BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**9/28/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4074BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**9/28/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4884BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/8/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05093-01 [AA4895]	12/08/2023 19:11

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4884BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/8/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05093-01 [AA4895]	12/08/2023 19:11

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05093-01 [AA4913]	12/11/2023 16:20
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05093-01 [AA4913]	12/11/2023 16:20
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4073LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 9/28/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	13	120
Benzene	71-43-2	12	120
Bromodichloromethane	75-27-4	12	110
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	12	110
1,3-Butadiene	106-99-0	14	130
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	13	130
Chloroform	67-66-3	13	130
Chloromethane	74-87-3	14	120
Carbon disulfide	75-15-0	14	130
Carbon tetrachloride	56-23-5	11	110
Cyclohexane	110-82-7	12	120
Dibromochloromethane	124-48-1	11	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	10	91
1,4-Dichlorobenzene	106-46-7	11	100
Dichlorodifluoromethane	75-71-8	13	120
1,1-Dichloroethane	75-34-3	13	120
1,2-Dichloroethane	107-06-2	13	130
1,1-Dichloroethene	75-35-4	13	120
1,2-Dichloroethene (cis)	156-59-2	14	130
1,2-Dichloroethene (trans)	156-60-5	14	130
1,2-Dichloropropane	78-87-5	11	110
1,3-Dichloropropene (cis)	10061-01-5	12	110
1,3-Dichloropropene (trans)	10061-02-6	13	130
1,2-Dichlorotetrafluoroethane	76-14-2	11	100
1,4-Dioxane	123-91-1	12	100
Ethylbenzene	100-41-4	11	110
n-Heptane	142-82-5	12	120

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: **10 PPBV LCS** **Data File:** **AA4073LCS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **9/28/2023**

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
1,3-Hexachlorobutadiene	87-68-3	9.6	84
n-Hexane	110-54-3	13	130
Methylene chloride	75-09-2	13	120
Methyl ethyl ketone	78-93-3	14	120
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	12	110
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	13	110
1,1,2,2-Tetrachloroethane	79-34-5	10	91
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	11	110
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	11	110
1,1,2-Trichloroethane	79-00-5	11	100
Trichloroethene	79-01-6	9.8	98
Trichlorofluoromethane	75-69-4	13	120
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	110
1,2,4-Trimethylbenzene	95-63-6	11	100
1,3,5-Trimethylbenzene	108-67-8	10	91
2,2,4-Trimethylpentane	540-84-1	12	120
Vinyl bromide	593-60-2	12	120
Vinyl chloride	75-01-4	14	130
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	10	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.
*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4883LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/8/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05093-01 [AA4895]	12/08/2023 19:11

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	100
Benzene	71-43-2	9.3	93
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	11	100
1,3-Butadiene	106-99-0	9.9	99
Chlorobenzene	108-90-7	9.9	99
Chloroethane	75-00-3	11	110
Chloroform	67-66-3	10.0	100
Chloromethane	74-87-3	12	100
Carbon disulfide	75-15-0	11	100
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	10	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	9.7	88
1,3-Dichlorobenzene	541-73-1	9.8	89
1,4-Dichlorobenzene	106-46-7	9.6	87
Dichlorodifluoromethane	75-71-8	11	100
1,1-Dichloroethane	75-34-3	9.4	85
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	100
1,2-Dichloroethene (cis)	156-59-2	10	91
1,2-Dichloroethene (trans)	156-60-5	11	100
1,2-Dichloropropane	78-87-5	11	110
1,3-Dichloropropene (cis)	10061-01-5	11	100
1,3-Dichloropropene (trans)	10061-02-6	12	120
1,2-Dichlorotetrafluoroethane	76-14-2	9.0	82
1,4-Dioxane	123-91-1	12	100
Ethylbenzene	100-41-4	10	100
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	10.0	88
n-Hexane	110-54-3	10.0	100
Methylene chloride	75-09-2	9.5	86
Methyl ethyl ketone	78-93-3	10	85
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	10	91

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: **10 PPBV LCS** **Data File:** **AA4883LCS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **12/8/2023**

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05093-01 [AA4895]	12/08/2023 19:11

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Styrene	100-42-5	10	91
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	10	91
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	10	88
1,1,1-Trichloroethane	71-55-6	10	100
1,1,2-Trichloroethane	79-00-5	10	91
Trichloroethene	79-01-6	9.3	93
Trichlorofluoromethane	75-69-4	11	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.2	92
1,2,4-Trimethylbenzene	95-63-6	10.0	91
1,3,5-Trimethylbenzene	108-67-8	10	91
2,2,4-Trimethylpentane	540-84-1	10	100
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	10	100
Xylenes (m&p)	179601-23-1	21	110
Xylenes (o)	95-47-6	9.9	99

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4903LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/11/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05093-01 [AA4913]	12/11/2023 16:20
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	100
Benzene	71-43-2	9.5	95
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	10	91
1,3-Butadiene	106-99-0	10	100
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	11	110
Chloroform	67-66-3	10	100
Chloromethane	74-87-3	11	96
Carbon disulfide	75-15-0	11	100
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	10	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	10	91
1,4-Dichlorobenzene	106-46-7	10	91
Dichlorodifluoromethane	75-71-8	11	100
1,1-Dichloroethane	75-34-3	9.8	89
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	100
1,2-Dichloroethene (cis)	156-59-2	10	91
1,2-Dichloroethene (trans)	156-60-5	11	100
1,2-Dichloropropane	78-87-5	10	100
1,3-Dichloropropene (cis)	10061-01-5	11	100
1,3-Dichloropropene (trans)	10061-02-6	11	110
1,2-Dichlorotetrafluoroethane	76-14-2	8.8	80
1,4-Dioxane	123-91-1	11	92
Ethylbenzene	100-41-4	11	110
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	10	88

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: **10 PPBV LCS** **Data File:** **AA4903LCS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **12/11/2023**

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05093-01 [AA4913]	12/11/2023 16:20
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
n-Hexane	110-54-3	10	100
Methylene chloride	75-09-2	9.6	87
Methyl ethyl ketone	78-93-3	11	93
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	11	100
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	11	100
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	10	100
1,1,2-Trichloroethane	79-00-5	10	91
Trichloroethene	79-01-6	9.1	91
Trichlorofluoromethane	75-69-4	11	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.4	94
1,2,4-Trimethylbenzene	95-63-6	11	100
1,3,5-Trimethylbenzene	108-67-8	11	100
2,2,4-Trimethylpentane	540-84-1	10	100
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	11	110
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	10	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.
*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**50**		**54**		4.0	**-7.69%**
Allyl Chloride	107-05-1	4.0	U	4.0	U	4.0	0.00%
Benzene	71-43-2	2.0	U	2.0	U	2.0	0.00%
Bromodichloromethane	75-27-4	4.0	U	4.0	U	4.0	0.00%
Bromoform	75-25-2	4.0	U	4.0	U	4.0	0.00%
Bromomethane	74-83-9	4.0	U	4.0	U	4.0	0.00%
1,3-Butadiene	106-99-0	4.0	U	4.0	U	4.0	0.00%
Chlorobenzene	108-90-7	4.0	U	4.0	U	4.0	0.00%
Chloroethane	75-00-3	4.0	U	4.0	U	4.0	0.00%
Chloroform	67-66-3	4.0	U	4.0	U	4.0	0.00%
Chloromethane	74-87-3	4.0	U	4.0	U	4.0	0.00%
Carbon disulfide	75-15-0	**10.0**		**11**		4.0	**-9.52%**
Carbon tetrachloride	56-23-5	2.0	U	2.0	U	2.0	0.00%
2-Chlorotoluene	95-49-8	4.0	U	4.0	U	4.0	0.00%
Cyclohexane	110-82-7	4.0	U	4.0	U	4.0	0.00%
Dibromochloromethane	124-48-1	4.0	U	4.0	U	4.0	0.00%
1,2-Dibromoethane	106-93-4	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorobenzene	95-50-1	4.0	U	4.0	U	4.0	0.00%
1,3-Dichlorobenzene	541-73-1	4.0	U	4.0	U	4.0	0.00%
1,4-Dichlorobenzene	106-46-7	4.0	U	4.0	U	4.0	0.00%
Dichlorodifluoromethane	75-71-8	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethane	75-34-3	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethane	107-06-2	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethene	75-35-4	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (cis)	156-59-2	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (trans)	156-60-5	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloropropane	78-87-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (cis)	10061-01-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (trans)	10061-02-6	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	4.0	U	4.0	U	4.0	0.00%
Ethylbenzene	100-41-4	2.0	U	2.0	U	2.0	0.00%
4-Ethyltoluene	622-96-8	4.0	U	4.0	U	4.0	0.00%
n-Heptane	142-82-5	4.0	U	4.0	U	4.0	0.00%
1,3-Hexachlorobutadiene	87-68-3	4.0	U	4.0	U	4.0	0.00%
n-Hexane	110-54-3	4.0	U	4.0	U	4.0	0.00%
Methylene chloride	75-09-2	4.0	U	4.0	U	4.0	0.00%
Methyl ethyl ketone	78-93-3	**8.1**		**10**		4.0	**-20.99%**
Methyl isobutyl ketone	108-10-1	4.0	U	4.0	U	4.0	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	4.0	U	4.0	U	4.0	0.00%
Styrene	100-42-5	4.0	U	4.0	U	4.0	0.00%
Tert-butyl alcohol	75-65-0	4.0	U	4.0	U	4.0	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	4.0	U	4.0	U	4.0	0.00%
Tetrachloroethene	127-18-4	4.0	U	4.0	U	4.0	0.00%
Toluene	108-88-3	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trichlorobenzene	120-82-1	4.0	U	4.0	U	4.0	0.00%
1,1,1-Trichloroethane	71-55-6	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloroethane	79-00-5	4.0	U	4.0	U	4.0	0.00%
Trichloroethene	79-01-6	2.0	U	2.0	U	2.0	0.00%
Trichlorofluoromethane	75-69-4	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trimethylbenzene	95-63-6	4.0	U	4.0	U	4.0	0.00%
1,3,5-Trimethylbenzene	108-67-8	4.0	U	4.0	U	4.0	0.00%
2,2,4-Trimethylpentane	540-84-1	4.0	U	4.0	U	4.0	0.00%
Vinyl bromide	593-60-2	4.0	U	4.0	U	4.0	0.00%
Vinyl chloride	75-01-4	2.0	U	2.0	U	2.0	0.00%
Xylenes (m&p)	179601-23-1	4.0	U	**4.2**		4.0	**NC**
Xylenes (o)	95-47-6	4.0	U	4.0	U	4.0	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/17/23
SDG Number:	E23-05061	Date Analyzed:	12/7/23,12/7/23
IAL Sample ID:	E23-05061-03	Lab Data File#:	AA4869,AA4870
Matrix:	Air	Dilution Factor:	1
Summa ID:	3045a	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05061-03 Concentration Reported ppbv	Q	Sample Dup E23-05061-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**11**		**11**		0.20	**0.00%**
Allyl Chloride	107-05-1	0.20	U	0.20	U	0.20	0.00%
Benzene	71-43-2	**2.6**		**2.3**		0.20	**12.24%**
Bromodichloromethane	75-27-4	0.20	U	0.20	U	0.20	0.00%
Bromoform	75-25-2	0.20	U	0.20	U	0.20	0.00%
Bromomethane	74-83-9	0.20	U	0.20	U	0.20	0.00%
1,3-Butadiene	106-99-0	0.20	U	0.20	U	0.20	0.00%
Chlorobenzene	108-90-7	0.20	U	0.20	U	0.20	0.00%
Chloroethane	75-00-3	0.20	U	0.20	U	0.20	0.00%
Chloroform	67-66-3	0.20	U	0.20	U	0.20	0.00%
Chloromethane	74-87-3	0.20	U	0.20	U	0.20	0.00%
Carbon disulfide	75-15-0	0.20	U	0.20	U	0.20	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.20	U	**0.27**		0.20	**NC**
Cyclohexane	110-82-7	**3.9**		**3.4**		0.20	**13.70%**
Dibromochloromethane	124-48-1	0.20	U	0.20	U	0.20	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	U	0.20	0.00%
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	U	0.20	0.00%
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	U	0.20	0.00%
Dichlorodifluoromethane	75-71-8	0.20	U	0.20	U	0.20	0.00%
1,1-Dichloroethane	75-34-3	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethane	107-06-2	0.20	U	0.20	U	0.20	0.00%
1,1-Dichloroethene	75-35-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	U	0.20	0.00%
1,4-Dioxane	123-91-1	0.20	U	0.20	U	0.20	0.00%
Ethanol	64-17-5	**10**		0.20	U	0.20	**NC**
Ethylbenzene	100-41-4	**1.9**		**1.6**		0.20	**17.14%**
4-Ethyltoluene	622-96-8	**1.9**	X	**1.4**	X	0.20	**30.30%**
n-Heptane	142-82-5	**3.7**		**3.4**		0.20	**8.45%**
1,3-Hexachlorobutadiene	87-68-3	0.20	U	0.20	U	0.20	0.00%
n-Hexane	110-54-3	**4.4**		**3.8**		0.20	**14.63%**
Isopropanol	67-63-0	**2.7**		0.20	U	0.20	**NC**

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/17/23
SDG Number:	E23-05061	Date Analyzed:	12/7/23,12/7/23
IAL Sample ID:	E23-05061-03	Lab Data File#:	AA4869,AA4870
Matrix:	Air	Dilution Factor:	1
Summa ID:	3045a	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05061-03 Concentration Reported ppbv	Q	Sample Dup E23-05061-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methylene chloride	75-09-2	**2.8**		0.20	U	0.20	**NC**
Methyl ethyl ketone	78-93-3	**0.85**		**0.83**		0.20	**2.38%**
Methyl isobutyl ketone	108-10-1	0.20	U	**0.24**		0.20	**NC**
Methyl methacrylate	80-62-6	0.20	U	**3.4**		0.20	**NC**
Methyl tert-butyl ether	1634-04-4	0.20	U	0.20	U	0.20	0.00%
Styrene	100-42-5	0.20	U	0.20	U	0.20	0.00%
Tert-butyl alcohol	75-65-0	0.20	U	0.20	U	0.20	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	U	0.20	0.00%
Tetrachloroethene	127-18-4	0.20	U	0.20	U	0.20	0.00%
Tetrahydrofuran	109-99-9	**0.96**		**0.90**		0.20	**6.45%**
Toluene	108-88-3	**7.1**		**7.1**		0.20	**0.00%**
1,2,4-Trichlorobenzene	120-82-1	0.20	U	0.20	U	0.20	0.00%
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	U	0.20	0.00%
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	U	0.20	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	**0.33**		**0.33**		0.20	**0.00%**
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	U	0.20	U	0.20	0.00%
1,2,4-Trimethylbenzene	95-63-6	**1.9**		**1.5**		0.20	**23.53%**
1,3,5-Trimethylbenzene	108-67-8	**0.53**		**0.45**		0.20	**16.33%**
2,2,4-Trimethylpentane	540-84-1	**6.9**		**7.0**		0.20	**-1.44%**
Vinyl bromide	593-60-2	0.20	U	0.20	U	0.20	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	**7.0**		**5.9**		0.40	**17.05%**
Xylenes (o)	95-47-6	**2.3**		**2.0**		0.20	**13.95%**

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SDG Number:	E23-05079	Date Received:	11/20/23
IAL Sample ID:	E23-05079-03	Date Analyzed:	12/12/23,12/12/23
Matrix:	Air	Lab Data File#:	AA4929,AA4930
Summa ID:	3830	Dilution Factor:	1
		Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**6.1**		**5.9**		0.40	**3.33%**
Allyl Chloride	107-05-1	0.40	U	0.40	U	0.40	0.00%
Benzene	71-43-2	**0.31**		**0.32**		0.20	**-3.17%**
Bromodichloromethane	75-27-4	0.40	U	0.40	U	0.40	0.00%
Bromoform	75-25-2	0.40	U	0.40	U	0.40	0.00%
Bromomethane	74-83-9	0.40	U	0.40	U	0.40	0.00%
1,3-Butadiene	106-99-0	0.40	U	0.40	U	0.40	0.00%
Chlorobenzene	108-90-7	0.40	U	0.40	U	0.40	0.00%
Chloroethane	75-00-3	0.40	U	0.40	U	0.40	0.00%
Chloroform	67-66-3	0.40	U	0.40	U	0.40	0.00%
Chloromethane	74-87-3	0.40	U	0.40	U	0.40	0.00%
Carbon disulfide	75-15-0	0.40	U	0.40	U	0.40	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.40	U	0.40	U	0.40	0.00%
Cyclohexane	110-82-7	0.40	U	0.40	U	0.40	0.00%
Dibromochloromethane	124-48-1	0.40	U	0.40	U	0.40	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.40	U	0.40	U	0.40	0.00%
1,3-Dichlorobenzene	541-73-1	0.40	U	0.40	U	0.40	0.00%
1,4-Dichlorobenzene	106-46-7	0.40	U	0.40	U	0.40	0.00%
Dichlorodifluoromethane	75-71-8	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethane	75-34-3	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethane	107-06-2	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethene	75-35-4	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.40	U	0.40	U	0.40	0.00%
Ethylbenzene	100-41-4	0.20	U	0.20	U	0.20	0.00%
4-Ethyltoluene	622-96-8	0.40	U	0.40	U	0.40	0.00%
n-Heptane	142-82-5	0.40	U	0.40	U	0.40	0.00%
1,3-Hexachlorobutadiene	87-68-3	0.40	U	0.40	U	0.40	0.00%
n-Hexane	110-54-3	0.40	U	0.40	U	0.40	0.00%
Methylene chloride	75-09-2	**3.5**		**3.4**		0.40	**2.90%**
Methyl ethyl ketone	78-93-3	0.40	U	0.40	U	0.40	0.00%
Methyl isobutyl ketone	108-10-1	0.40	U	0.40	U	0.40	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/20/23
SDG Number:	E23-05079	Date Analyzed:	12/12/23,12/12/23
IAL Sample ID:	E23-05079-03	Lab Data File#:	AA4929,AA4930
Matrix:	Air	Dilution Factor:	1
Summa ID:	3830	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	0.40	U	0.40	U	0.40	0.00%
Styrene	100-42-5	0.40	U	0.40	U	0.40	0.00%
Tert-butyl alcohol	75-65-0	0.40	U	0.40	U	0.40	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.40	U	0.40	U	0.40	0.00%
Tetrachloroethene	127-18-4	0.40	U	0.40	U	0.40	0.00%
Toluene	108-88-3	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trichlorobenzene	120-82-1	0.40	U	0.40	U	0.40	0.00%
1,1,1-Trichloroethane	71-55-6	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloroethane	79-00-5	0.40	U	0.40	U	0.40	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trimethylbenzene	95-63-6	0.40	U	0.40	U	0.40	0.00%
1,3,5-Trimethylbenzene	108-67-8	0.40	U	0.40	U	0.40	0.00%
2,2,4-Trimethylpentane	540-84-1	0.40	U	0.40	U	0.40	0.00%
Vinyl bromide	593-60-2	0.40	U	0.40	U	0.40	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	0.40	U	0.40	U	0.40	0.00%
Xylenes (o)	95-47-6	0.40	U	0.40	U	0.40	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

Initial Calibration Curve Internal Standard Area and Retention Time Summary

Instrument: AA **ICAL Date:** 8/15/2023

		BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
		Area #		RT		Area #		RT		Area #		RT	
AVERAGE OF CALIBRATION STANDARDS		520465		4.395		2280663		5.455		2627605		8.318	
UPPER LIMIT		728651		4.725		3192928		5.785		3678646		8.648	
LOWER LIMIT		312279		4.065		1368398		5.125		1576563		7.988	
Lab ID		Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
40 PPBV STD	AA 3406 STD01	487271	-6.38	4.406	0.01	2425798	6.36	5.457	0.00	2732166	3.98	8.319	0.00
20 PPBV STD	AA 3405 STD02	499473	-4.03	4.399	0.00	2278768	-0.08	5.457	0.00	2812211	7.03	8.319	0.00
10 PPBV STD	AA 3404 STD03	530723	1.97	4.396	0.00	2268530	-0.53	5.457	0.00	2737620	4.19	8.319	0.00
2 PPBV STD	AA 3403 STD04	541075	3.96	4.393	0.00	2325427	1.96	5.454	0.00	2787489	6.08	8.319	0.00
0.2 PPBV STD	AA 3402 STD05	543782	4.48	4.380	-0.01	2104790	-7.71	5.448	0.01	2068537	-21.28	8.316	0.00
ICVSS	AA 3407 ICVSS	614925	18.15	4.396	0.00	2660514	16.66	5.454	0.00	3151139	19.92	8.319	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.

* Values outsite QC limits.

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA4072DCVS **Date Analyzed:** 9/28/2023

Instrument: AA **ICAL Date:** 8/15/2023

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
			Area #		RT		Area #		RT		Area #		RT	
	CALIBRATION STANDARD		394533		4.399		1846241		5.457		1956014		8.319	
	UPPER LIMIT		552346		4.73		2584737		5.79		2738420		8.65	
	LOWER LIMIT		236720		4.07		1107745		5.13		1173608		7.99	
Lab ID		DF	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Method Blank	AA4074BLK	1.0	502187	27.29	4.393	-0.01	2139413	15.88	5.454	0.00	2500606	27.84	8.319	0.00
Reporting Limit Laboratory Control Standard	AA4075RLLCS	1.0	400577	1.53	4.380	-0.02	1566223	-15.17	5.447	-0.01	1477412	-24.47	8.316	0.00
2164	AA4076	1.0	481338	22.00	4.393	-0.01	2110781	14.33	5.454	0.00	2516144	28.64	8.319	0.00
4870	AA4077	1.0	360790	-8.55	4.383	-0.02	1388747	-24.78	5.447	-0.01	1279774	-34.57	8.316	0.00
2160	AA4078	1.0	361668	-8.33	4.380	-0.02	1313235	-28.87	5.448	-0.01	1248229	-36.19	8.316	0.00
Closing Calibration	AA4093CCCVS	1.0	393835	-0.18	4.399	0.00	1857833	0.63	5.457	0.00	2315299	18.37	8.319	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.
* Values outsite QC limits.

Initial Calibration Curve Internal Standard Area and Retention Time Summary

Instrument: AA **ICAL Date:** 10/10/2023

	BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
	Area #		RT		Area #		RT		Area #		RT	
AVERAGE OF CALIBRATION STANDARDS	343159		4.390		1499624		5.451		1637040		8.316	
UPPER LIMIT	480423		4.720		2099474		5.781		2291856		8.646	
LOWER LIMIT	205896		4.060		899774		5.121		982224		7.986	
Lab ID	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
40 PPBV STD AA 4136 STD01	356266	3.82	4.400	0.01	1769398	17.99	5.458	-0.01	1970985	20.40	8.319	0.00
20 PPBV STD AA 4135 STD02	363381	5.89	4.397	0.01	1661895	10.82	5.455	0.00	1933627	18.12	8.316	0.00
10 PPBV STD AA 4134 STD03	393970	14.81	4.394	0.00	1695876	13.09	5.452	0.00	1964329	19.99	8.316	0.00
2 PPBV STD AA 4133 STD04	266219	-22.42	4.378	-0.01	1004403	-33.02	5.445	0.01	1028709	-37.16	8.313	0.00
0.2 PPBV STD AA 4132 STD05	335961	-2.10	4.380	-0.01	1366548	-8.87	5.444	0.01	1287551	-21.35	8.316	0.00
ICVSS AA 4137 ICVSS	450439	31.26	4.394	0.00	1936760	29.15	5.451	0.00	2279414	39.24	8.316	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.

* Values outsite QC limits.

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA4882DCVS **Date Analyzed:** 12/8/2023

Instrument: AA **ICAL Date:** 10/10/2023

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
			Area #		RT		Area #		RT		Area #		RT	
	CALIBRATION STANDARD		497428		4.390		1995098		5.451		2342927		8.315	
	UPPER LIMIT		696399		4.72		2793137		5.78		3280098		8.65	
	LOWER LIMIT		298457		4.06		1197059		5.12		1405756		7.99	
Lab ID		DF	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Method Blank	AA4884BLK	1.0	407142	-18.15	4.377	-0.01	1506485	-24.49	5.444	-0.01	1527551	-34.80	8.316	0.00
E23-05093-01	AA4895	1.0	426865	-14.19	4.406	0.02	2034478	1.97	5.448	0.00	1838071	-21.55	8.319	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.
* Values outsite QC limits.

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA4902DCVS **Date Analyzed:** 12/11/2023

Instrument: AA **ICAL Date:** 10/10/2023

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
			Area #		RT		Area #		RT		Area #		RT	
	CALIBRATION STANDARD		596109		4.393		2484518		5.454		2791354		8.319	
	UPPER LIMIT		834553		4.72		3478325		5.78		3907896		8.65	
	LOWER LIMIT		357665		4.06		1490711		5.12		1674812		7.99	
Lab ID		DF	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Method Blank	AA4904BLK	1.0	518939	-12.95	4.377	-0.02	1920464	-22.70	5.444	-0.01	1920350	-31.20	8.315	0.00
Reporting Limit Laboratory Control Standard	AA4905RLLCS	1.0	566007	-5.05	4.380	-0.01	2290490	-7.81	5.447	-0.01	2210970	-20.79	8.315	0.00
1458	AA4906	1.0	809785	35.85	4.393	0.00	3431480	38.11	5.451	0.00	3836872	37.46	8.316	0.00
1588	AA4907	1.0	706799	18.57	4.393	0.00	3079067	23.93	5.454	0.00	3708162	32.84	8.316	0.00
3012	AA4908	1.0	589784	-1.06	4.380	-0.01	2099848	-15.48	5.444	-0.01	2006025	-28.13	8.316	0.00
E23-05093-01	AA4913	5.0	502193	-15.75	4.406	0.01	2727916	9.80	5.457	0.00	3091925	10.77	8.319	0.00
Closing Calibration	AA4931CCCVS	1.0	737975	23.80	4.393	0.00	3126526	25.84	5.454	0.00	3543265	26.94	8.316	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.
* Values outsite QC limits.

Section VI: Sample Data Summary

Certificate of Analysis

Summary of Results

Quantitation Reports, Chromatograms,
and Peak Integration Reports

CERTIFICATE OF ANALYSIS

ANALYTICAL DATA PACKAGE FOR THE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY NEW YORK 12233

Integrated Analytical Laboratories, LLC — **Randolph, NJ 07869**
Project#: HK2661.1 — **NY ELAP Certification#: 11402**
SDG #: E23-05093 — **NJDEP (Primary AB) Certification#: 14751**
Date of first sample receipt: 11/20/2023 — **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
1600 US Route 22 East
Union, NJ 07083
Attention: Attention: Chris Hirschmann

Project/Site: HK2661.1/NY

Analysis conducted at: Integrated Analytical Laboratories, LLC
273 Franklin Road
Randolph, NJ 07869
Contact: Michael H. Leftin, Ph.D.

Sample(s):
E23-05093-01

Samples for this analysis were received in good condition with a chain of custody.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Once analysis has been performed on canisters that meets regulatory criteria, samples are recycled for future use, unless other provisions have been made by the client.

Michael H. Leftin, Ph.D.
Laboratory Director

Date: December 20, 2023

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05093-01	Instrument ID:	AA
Client ID:	SV9	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/20/2023 08:30	Injection Volmue:	500ml, 100ml
Date Received:	11/20/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 19:11, 12/11/2023 16:20	% Moisture:	NA
Data File:	AA4895, AA4913	Dilution Factor:	1, 5
Summa ID:	3044A	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Acetone	67-64-1	D	66	160	1.0	2.4
Benzene	71-43-2		3.3	11	0.20	0.64
Bromodichloromethane	75-27-4		ND	ND	0.20	1.3
Bromoform	75-25-2		ND	ND	0.20	2.1
Bromomethane	74-83-9		ND	ND	0.20	0.78
1,3-Butadiene	106-99-0		ND	ND	0.20	0.44
Chlorobenzene	108-90-7		ND	ND	0.20	0.92
Chloroethane	75-00-3		ND	ND	0.20	0.53
Chloroform	67-66-3		ND	ND	0.20	0.98
Chloromethane	74-87-3		ND	ND	0.20	0.41
Carbon disulfide	75-15-0		1.5	4.6	0.20	0.62
Carbon tetrachloride	56-23-5		ND	ND	0.040	0.25
Cyclohexane	110-82-7		0.77	2.6	0.20	0.69
Dibromochloromethane	124-48-1		ND	ND	0.20	1.7
1,2-Dibromoethane	106-93-4		ND	ND	0.20	1.5
1,2-Dichlorobenzene	95-50-1		ND	ND	0.20	1.2
1,3-Dichlorobenzene	541-73-1		ND	ND	0.20	1.2
1,4-Dichlorobenzene	106-46-7		ND	ND	0.20	1.2
Dichlorodifluoromethane	75-71-8		ND	ND	0.20	0.99
1,1-Dichloroethane	75-34-3		ND	ND	0.20	0.81
1,2-Dichloroethane	107-06-2		ND	ND	0.20	0.81
1,1-Dichloroethene	75-35-4		ND	ND	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2		ND	ND	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5		ND	ND	0.20	0.79
1,2-Dichloropropane	78-87-5		ND	ND	0.20	0.92
1,3-Dichloropropene (cis)	10061-01-5		ND	ND	0.20	0.91
1,3-Dichloropropene (trans)	10061-02-6		ND	ND	0.20	0.91
1,2-Dichlorotetrafluoroethane	76-14-2		ND	ND	0.20	1.4
1,4-Dioxane	123-91-1		ND	ND	0.20	0.72
Ethylbenzene	100-41-4		0.90	3.9	0.20	0.87
n-Heptane	142-82-5		1.6	6.5	0.20	0.82
1,3-Hexachlorobutadiene	87-68-3		ND	ND	0.20	2.1
n-Hexane	110-54-3		ND	ND	0.20	0.70
Methylene chloride	75-09-2		4.2	15	0.20	0.69
Methyl ethyl ketone	78-93-3	D	76	230	1.0	2.9
Methyl isobutyl ketone	108-10-1		ND	ND	0.20	0.82
Methyl tert-butyl ether	1634-04-4		ND	ND	0.20	0.72
Styrene	100-42-5		0.33	1.4	0.20	0.85
Tert-butyl alcohol	75-65-0		5.8	18	0.20	0.61
1,1,2,2-Tetrachloroethane	79-34-5		ND	ND	0.20	1.4
Tetrachloroethene	127-18-4		6.7	46	0.20	1.4
Toluene	108-88-3		2.7	10	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1		ND	ND	0.20	1.5
1,1,1-Trichloroethane	71-55-6		ND	ND	0.20	1.1
1,1,2-Trichloroethane	79-00-5		ND	ND	0.20	1.1

Qualifiers:
D = Dilution required

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05093-01	Instrument ID:	AA
Client ID:	SV9	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/20/2023 08:30	Injection Volmue:	500ml, 100ml
Date Received:	11/20/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 19:11, 12/11/2023 16:20	% Moisture:	NA
Data File:	AA4895, AA4913	Dilution Factor:	1, 5
Summa ID:	3044A	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Trichloroethene	79-01-6		ND	ND	0.046	0.25
Trichlorofluoromethane	75-69-4		0.27	1.5	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		ND	ND	0.20	1.5
1,2,4-Trimethylbenzene	95-63-6		0.23	1.1	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8		ND	ND	0.20	0.98
2,2,4-Trimethylpentane	540-84-1		ND	ND	0.20	0.93
Vinyl bromide	593-60-2		ND	ND	0.20	0.87
Vinyl chloride	75-01-4		ND	ND	0.20	0.51
Xylenes (m&p)	179601-23-1		3.3	14	0.20	0.87
Xylenes (o)	95-47-6		1.1	5.0	0.20	0.87

Qualifiers:
D = Dilution required

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4895.D
Acq On : 8 Dec 2023 7:11 pm
Operator : jjw
Sample : E23-05093-01
Misc : 3044A, 500cc
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Dec 12 10:19:25 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.406	130	426865	10.00	ppbV		0.012
39) 1,4-Difluorobenzene (IS)	5.448	114	2034478	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1838071	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.714	95	1537117	9.59	ppbV		0.000
Target Compounds							Qvalue
12) Trichlorofluoromethane	2.313	101	31788	0.27	ppbV		92
15) Carbon disulfide	2.750	76	193889	1.49	ppbV	#	53
20) Methylene chloride	3.203	49	219011	4.17	ppbV		89
21) Acetone	3.213	43	3511749	54.54	ppbV		98
26) Tert-butyl alcohol	3.467	59	648219	5.82	ppbV		100
29) Cyclohexane	4.412	56	72323	0.77	ppbV	#	64
35) Methyl ethyl ketone	4.676	43	5752987	55.18	ppbV		98
36) n-Heptane	4.917	43	186119	1.58	ppbV		90
37) Benzene	4.927	78	563920	3.33	ppbV		98
47) Toluene	6.772	91	784673	2.74	ppbV		100
49) Tetrachloroethene	7.161	166	828009	6.72	ppbV		99
58) Ethylbenzene	8.383	91	306101	0.90	ppbV		98
59) Xylenes (m&p)	8.547	91	819389	3.26	ppbV		97
60) Xylene (o)	9.029	91	312622	1.14	ppbV		98
61) Styrene	9.084	104	62448	0.33	ppbV		98
70) 1,2,4-Trimethylbenzene	10.624	105	72604	0.23	ppbV		100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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Data File : aa4895.D
Acq On    :  8 Dec 2023   7:11 pm
Operator  : jjw
Sample    : E23-05093-01
Misc      : 3044A, 500cc
ALS Vial  : 18   Sample Multiplier: 1

Quant Time: Dec 12 10:19:25 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title  : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration
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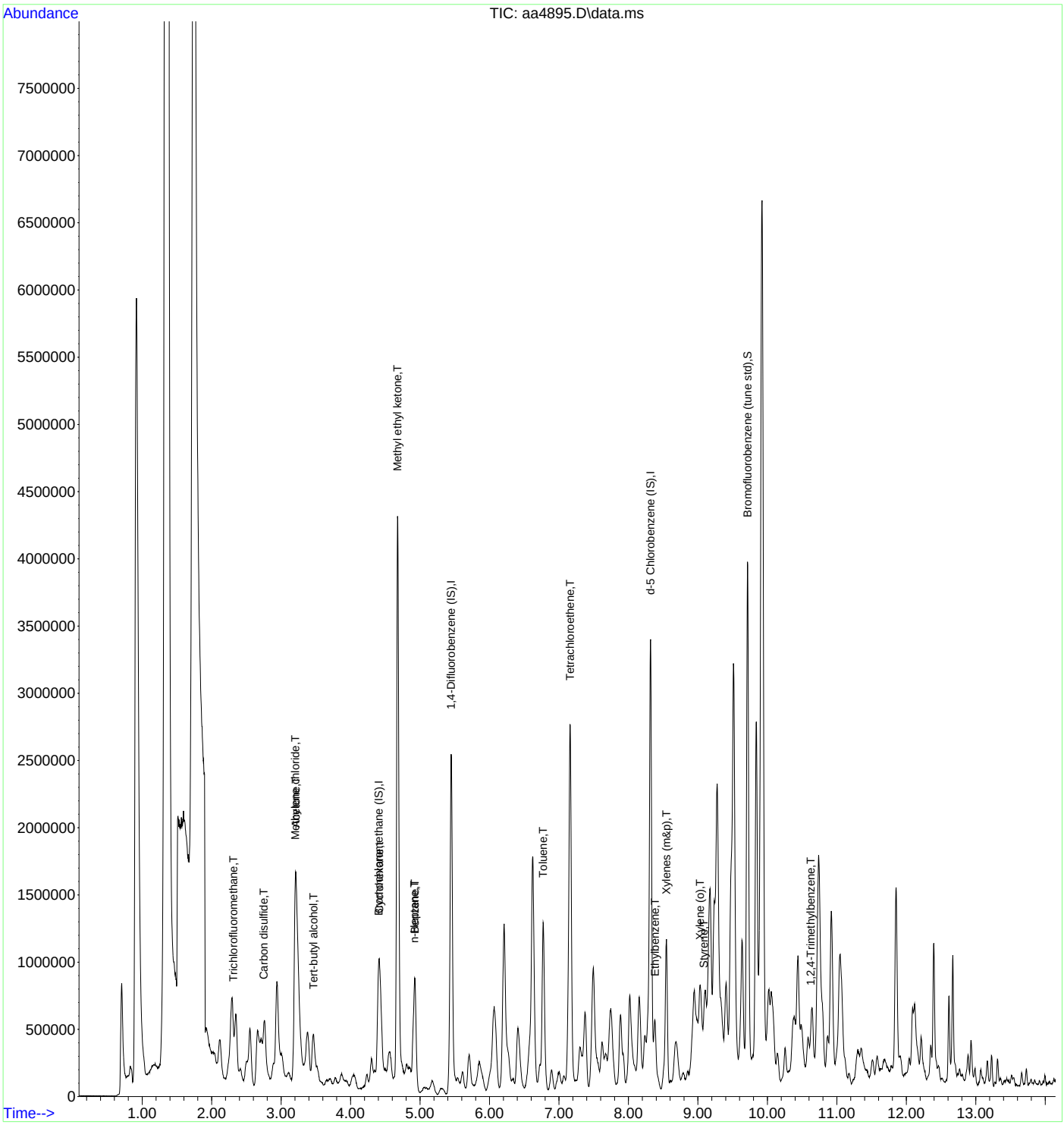
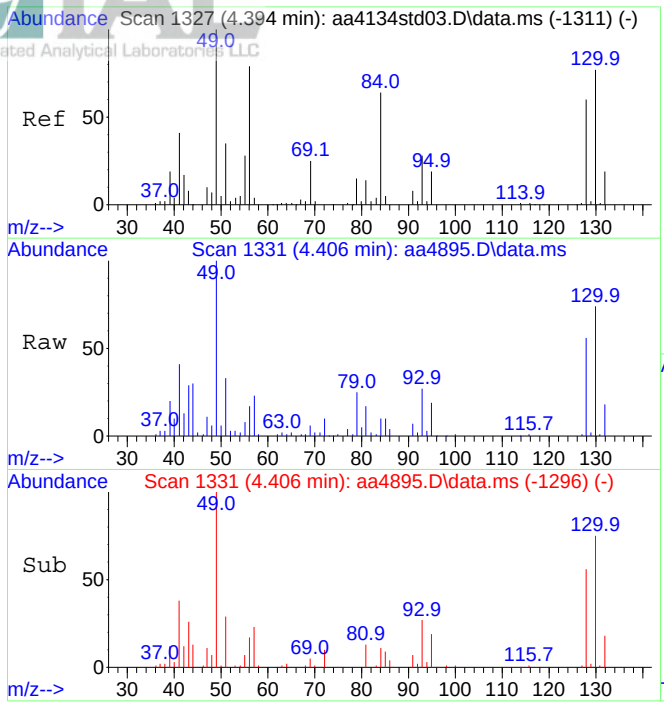
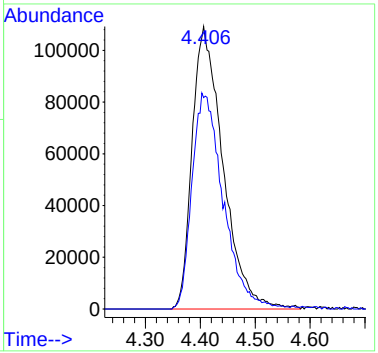


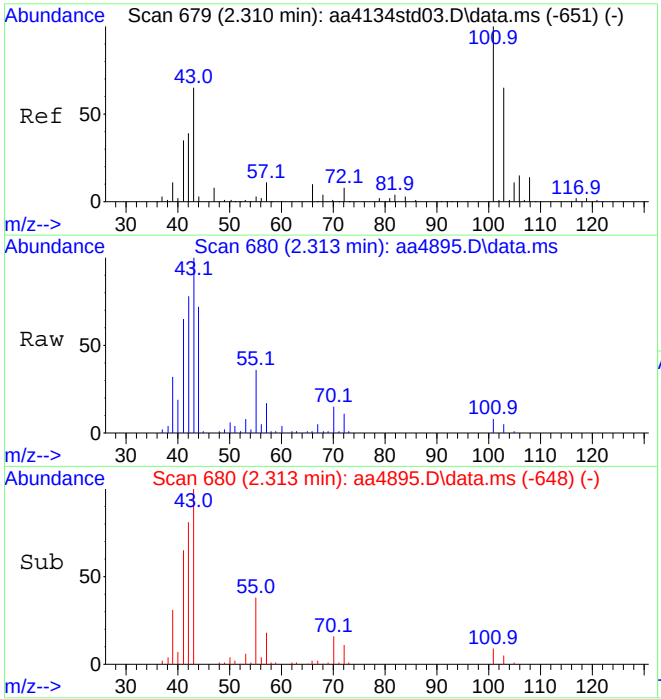


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.406 min Scan# 1331
Delta R.T. 0.012 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion:130 Resp: 426865

Ion	Ratio	Lower	Upper
130	100		
128	77.4	62.2	93.4

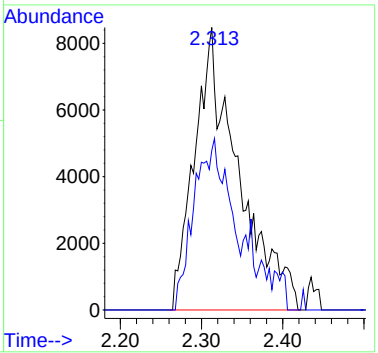


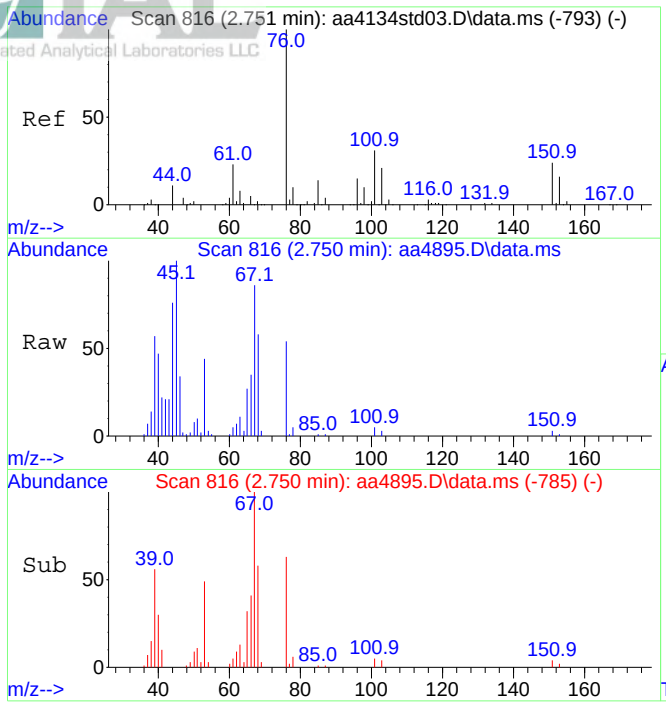


#12
Trichlorofluoromethane
Concen: 0.27 ppbV
RT: 2.313 min Scan# 680
Delta R.T. 0.002 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion:101 Resp: 31788

Ion	Ratio	Lower	Upper
101	100		
103	59.2	52.5	78.7

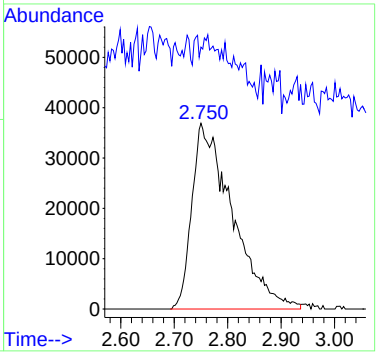


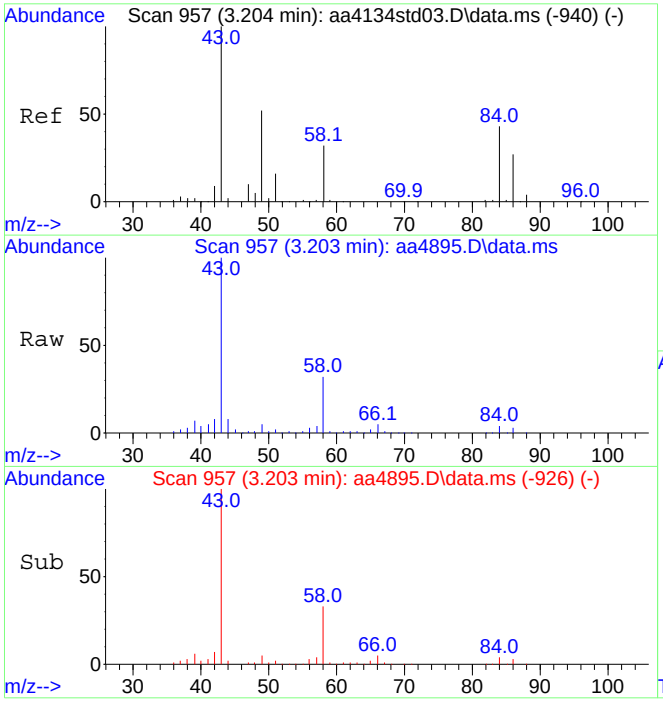


#15
Carbon disulfide
Concen: 1.49 ppbV
RT: 2.750 min Scan# 816
Delta R.T. -0.001 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion: 76 Resp: 193889

Ion	Ratio	Lower	Upper
76	100		
44	29.1	9.0	13.4#

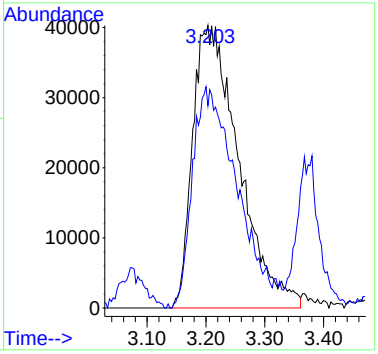


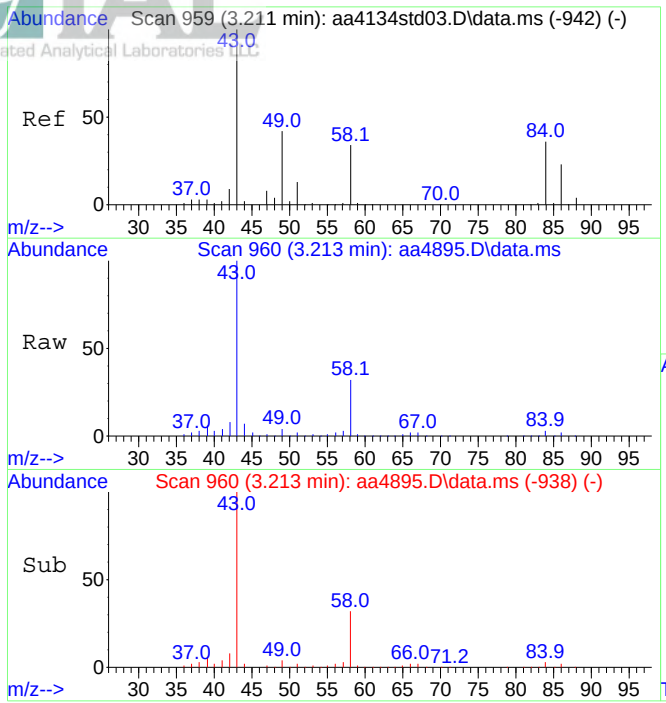


#20
Methylene chloride
Concen: 4.17 ppbV
RT: 3.203 min Scan# 957
Delta R.T. -0.001 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion: 49 Resp: 219011

Ion	Ratio	Lower	Upper
49	100		
84	74.8	64.8	104.8

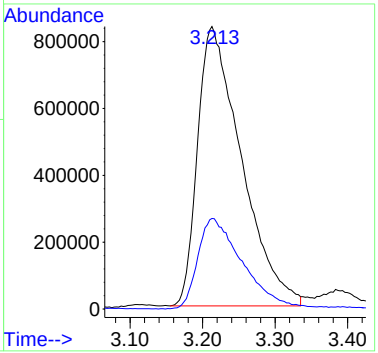


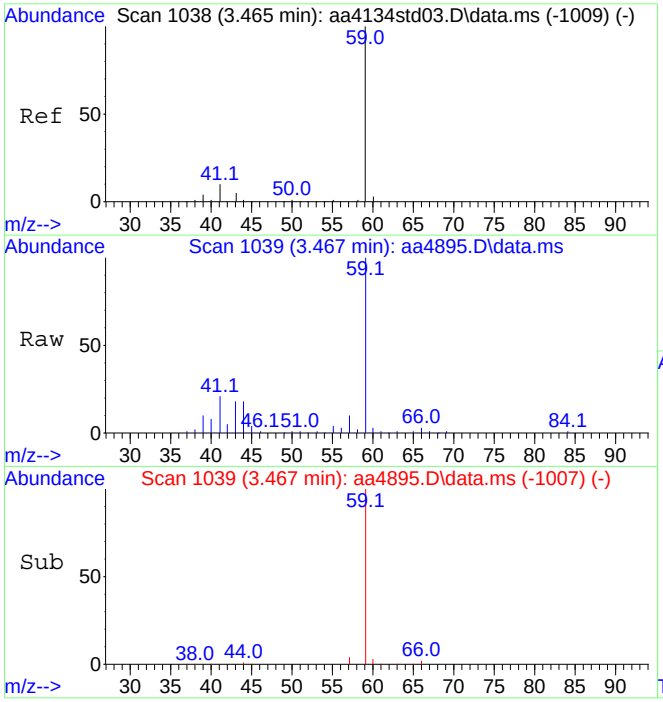


#21
Acetone
Concen: 54.54 ppbV
RT: 3.213 min Scan# 960
Delta R.T. 0.002 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion: 43 Resp: 3511749

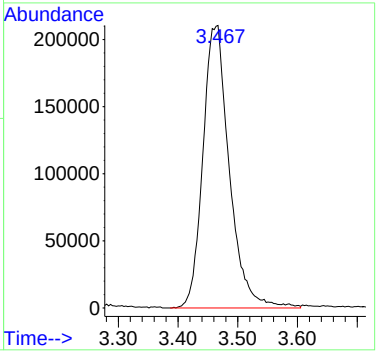
Ion	Ratio	Lower	Upper
43	100		
58	32.8	27.1	40.7

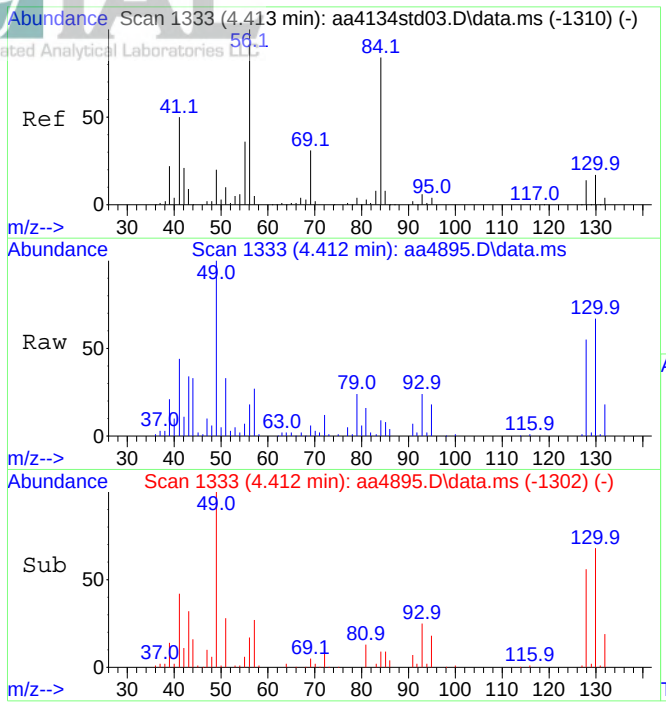




#26
Tert-butyl alcohol
Concen: 5.82 ppbV
RT: 3.467 min Scan# 1039
Delta R.T. 0.002 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion: 59 Resp: 648219

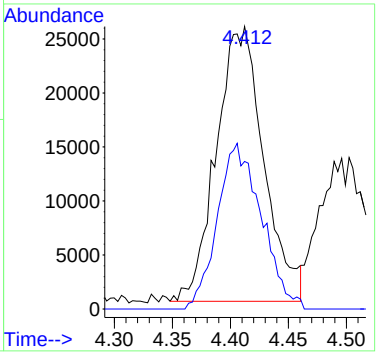


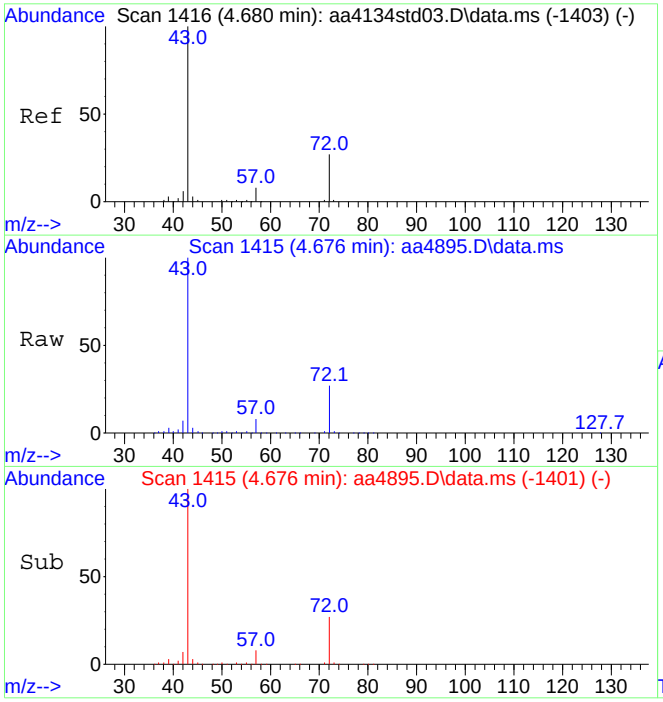


#29
Cyclohexane
Concen: 0.77 ppbV
RT: 4.412 min Scan# 1333
Delta R.T. -0.001 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion: 56 Resp: 72323

Ion	Ratio	Lower	Upper
56	100		
84	55.7	71.2	106.8#

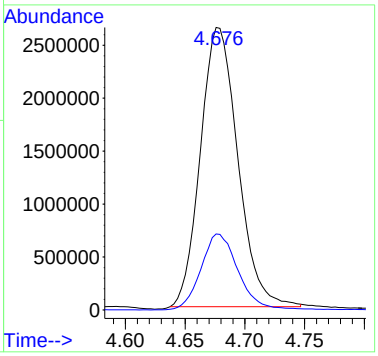


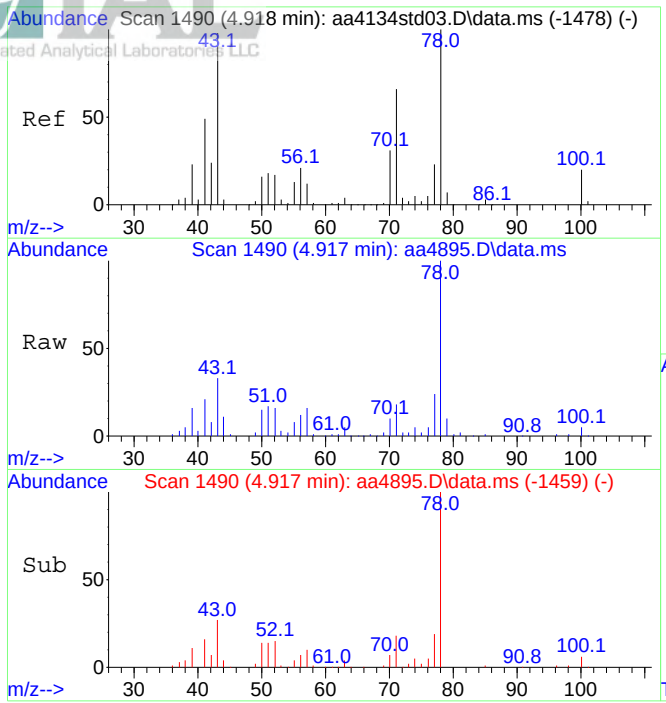


#35
Methyl ethyl ketone
Concen: 55.18 ppbV
RT: 4.676 min Scan# 1415
Delta R.T. -0.004 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion: 43 Resp: 5752987

Ion	Ratio	Lower	Upper
43	100		
72	26.1	21.6	32.4

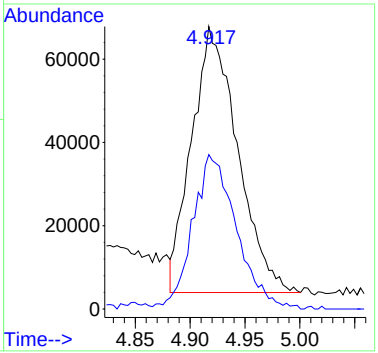


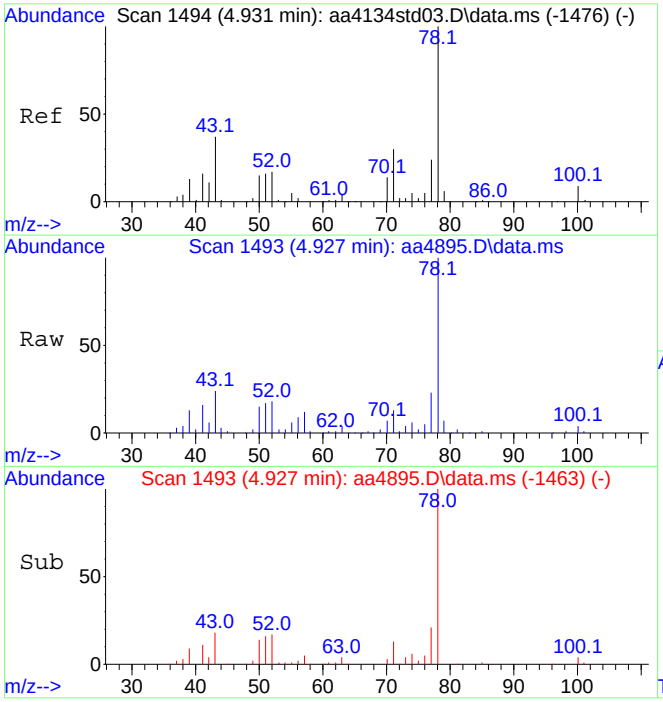


#36
n-Heptane
Concen: 1.58 ppbV
RT: 4.917 min Scan# 1490
Delta R.T. -0.001 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion: 43 Resp: 186119

Ion	Ratio	Lower	Upper
43	100		
71	55.0	50.5	75.7

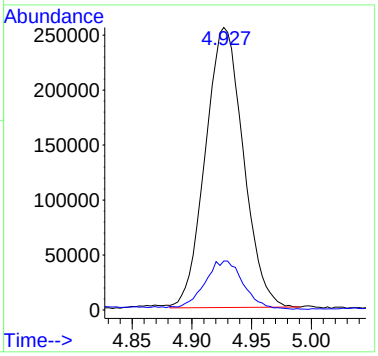


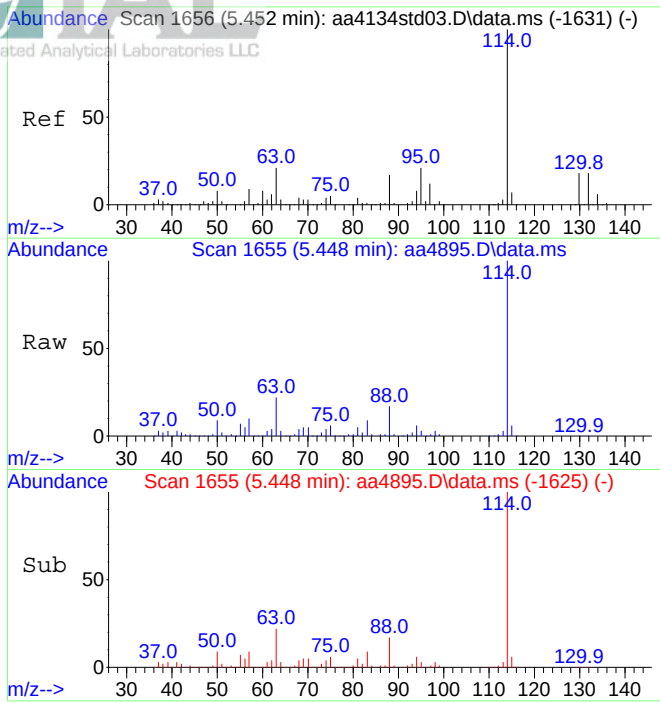


#37
Benzene
Concen: 3.33 ppbV
RT: 4.927 min Scan# 1493
Delta R.T. -0.004 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion: 78 Resp: 563920

Ion	Ratio	Lower	Upper
78	100		
51	17.7	13.4	20.0

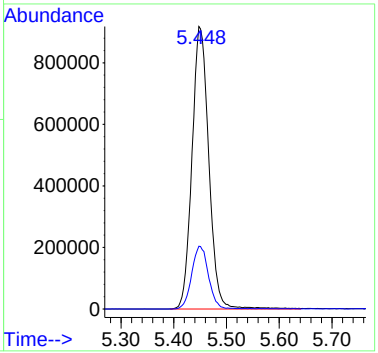


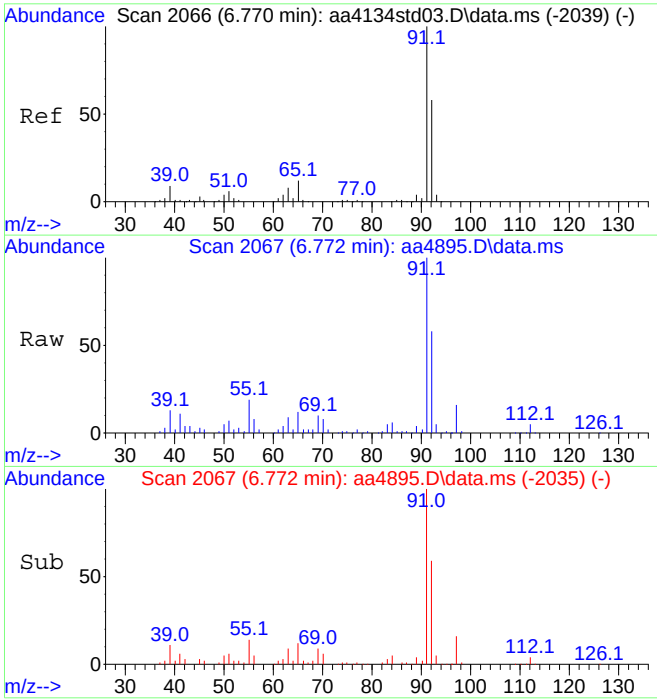


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.448 min Scan# 1655
Delta R.T. -0.004 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion:114 Resp: 2034478

Ion	Ratio	Lower	Upper
114	100		
63	22.4	17.0	25.6

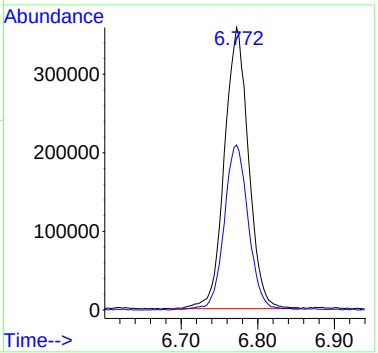


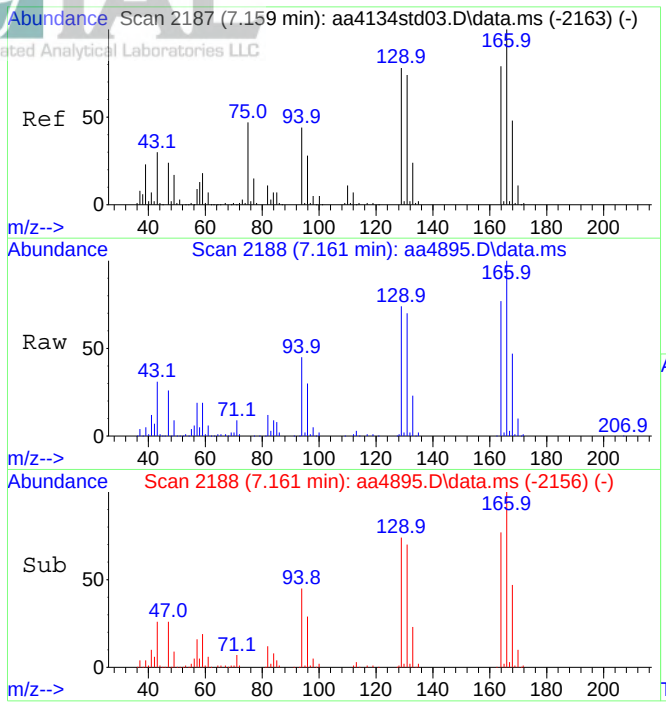


#47
Toluene
Concen: 2.74 ppbV
RT: 6.772 min Scan# 2067
Delta R.T. 0.002 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion: 91 Resp: 784673

Ion	Ratio	Lower	Upper
91	100		
92	59.2	47.3	70.9

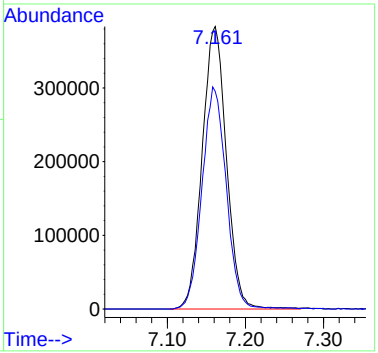


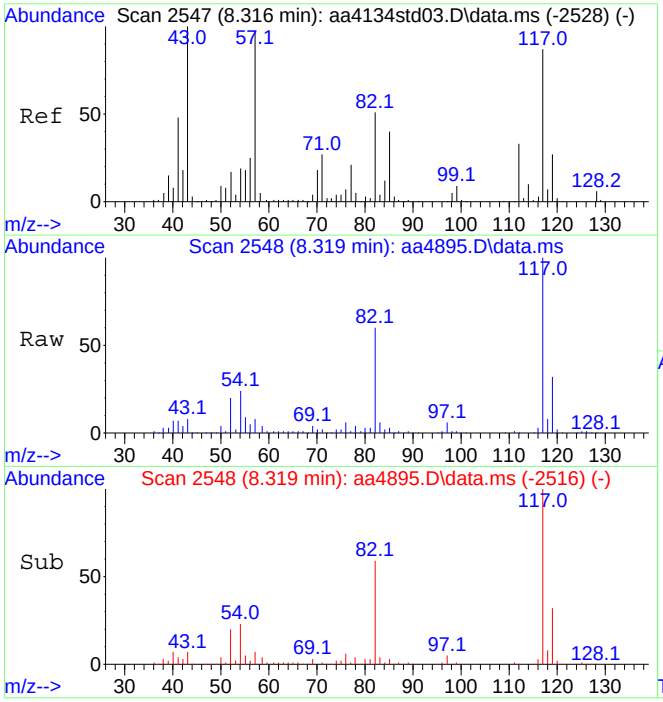


#49
Tetrachloroethene
Concen: 6.72 ppbV
RT: 7.161 min Scan# 2188
Delta R.T. 0.002 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion:166 Resp: 828009

Ion	Ratio	Lower	Upper
166	100		
164	78.5	62.3	93.5

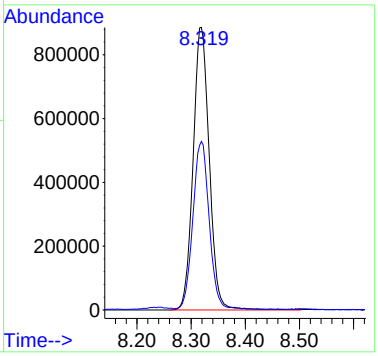


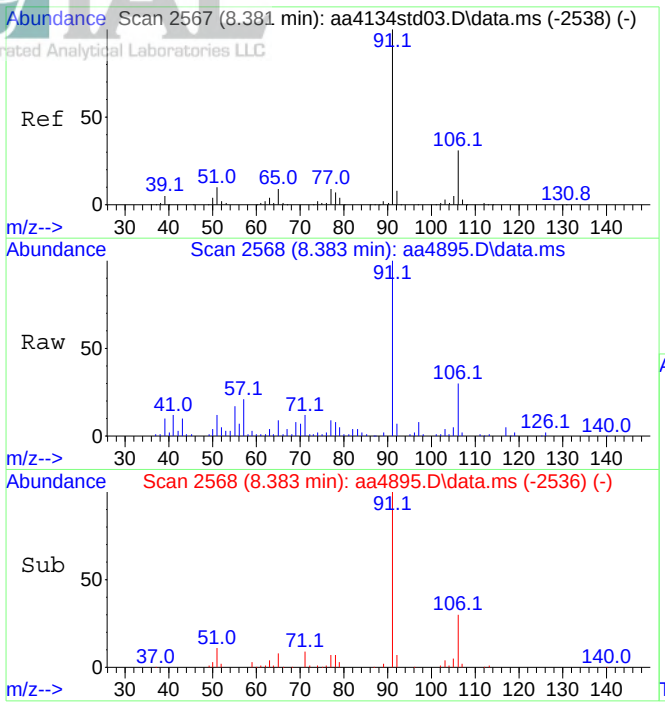


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion:117 Resp: 1838071

Ion	Ratio	Lower	Upper
117	100		
82	59.9	47.0	70.4

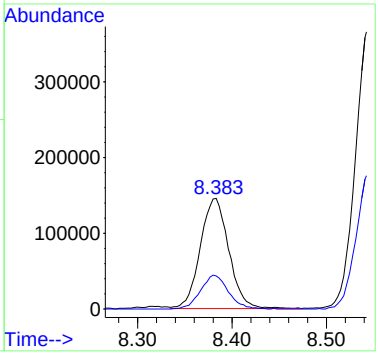


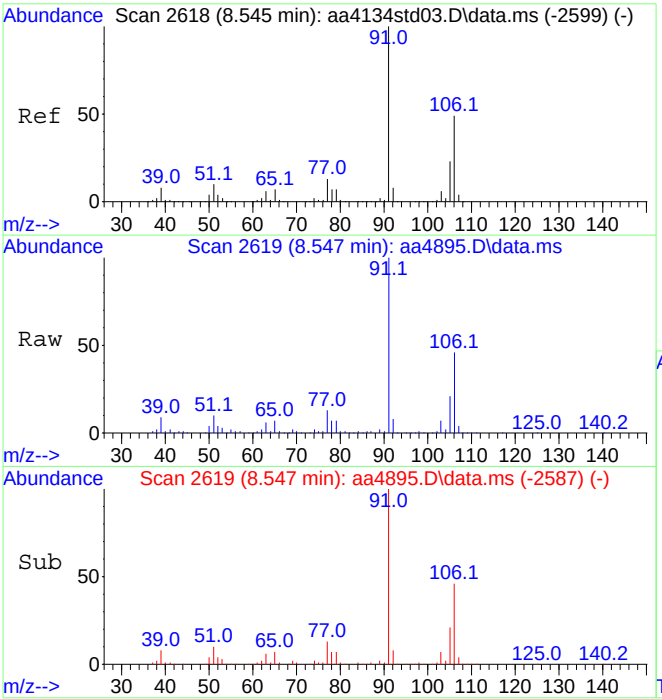


#58
Ethylbenzene
Concen: 0.90 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion: 91 Resp: 306101

Ion	Ratio	Lower	Upper
91	100		
106	29.8	24.6	36.8

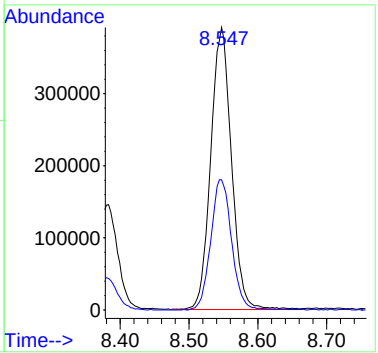


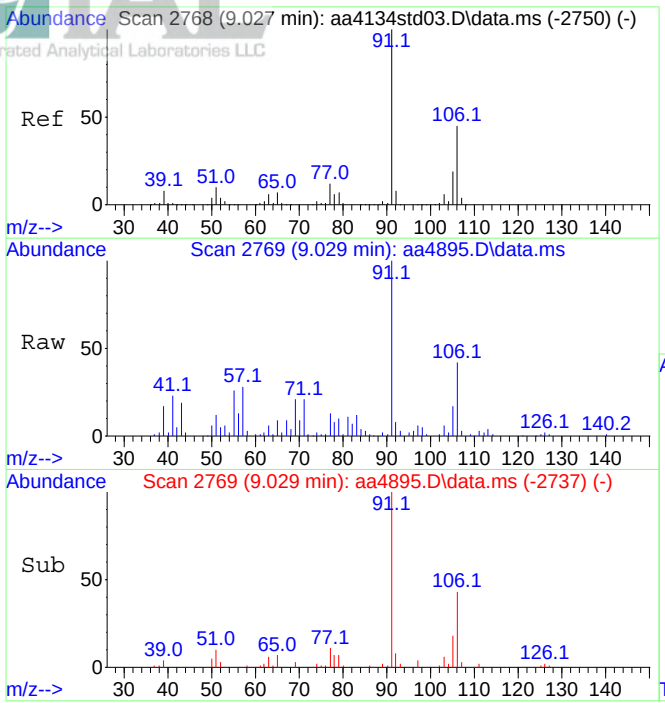


#59
Xylenes (m&p)
Concen: 3.26 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. 0.002 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion: 91 Resp: 819389

Ion	Ratio	Lower	Upper
91	100		
106	46.7	39.0	58.4

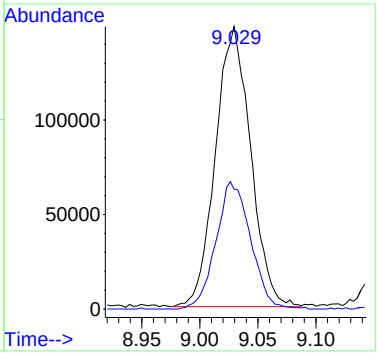


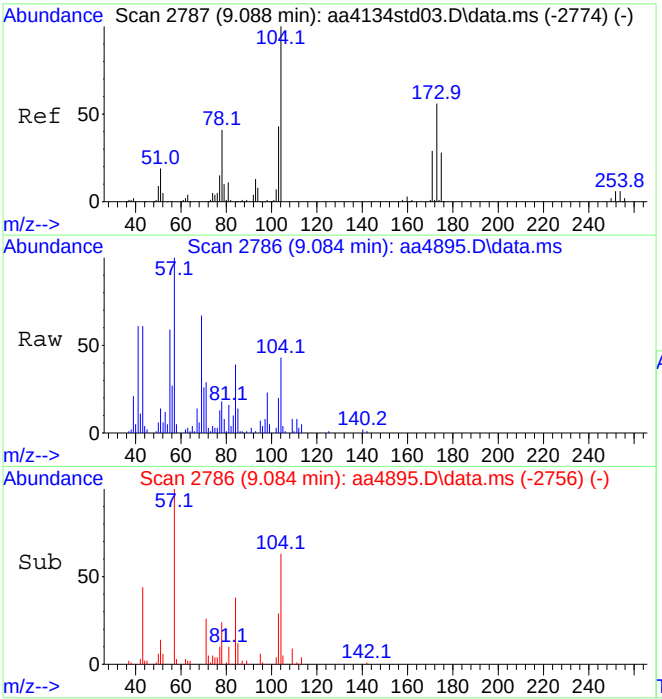


#60
Xylene (o)
Concen: 1.14 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion: 91 Resp: 312622

Ion	Ratio	Lower	Upper
91	100		
106	44.7	36.8	55.2

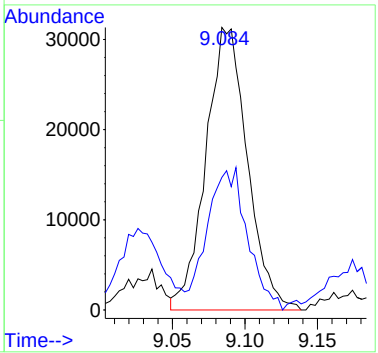


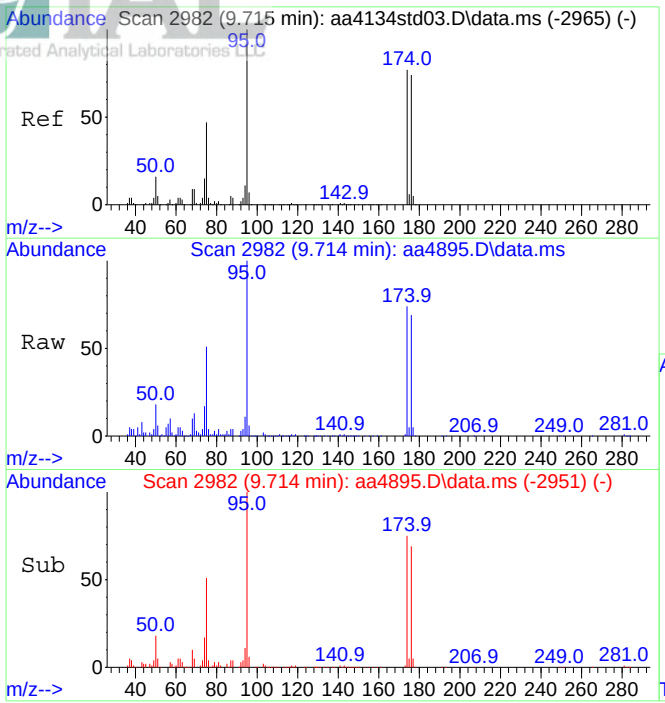


#61
Styrene
Concen: 0.33 ppbV
RT: 9.084 min Scan# 2786
Delta R.T. -0.004 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion:104 Resp: 62448

Ion	Ratio	Lower	Upper
104	100		
103	48.5	37.8	56.6

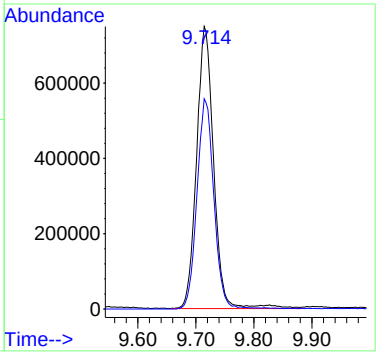


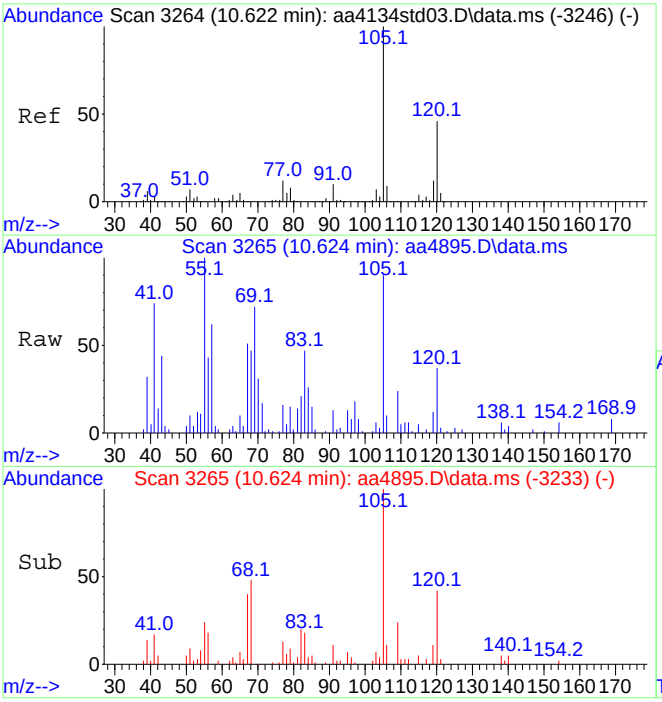


#64
Bromofluorobenzene (tune std)
Concen: 9.59 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion: 95 Resp: 1537117

Ion	Ratio	Lower	Upper
95	100		
174	73.4	61.1	91.7

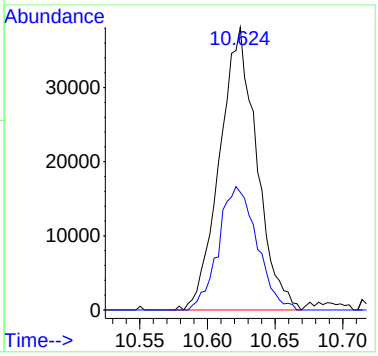




#70
1,2,4-Trimethylbenzene
Concen: 0.23 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4895.D
Acq: 8 Dec 2023 7:11 pm

Tgt Ion:105 Resp: 72604

Ion	Ratio	Lower	Upper
105	100		
120	45.2	36.3	54.5



Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4913.D
Acq On : 11 Dec 2023 4:20 pm
Operator : jjw
Sample : E23-05093-01x5 dil
Misc : 3044A, 100cc
ALS Vial : 16 Sample Multiplier: 1

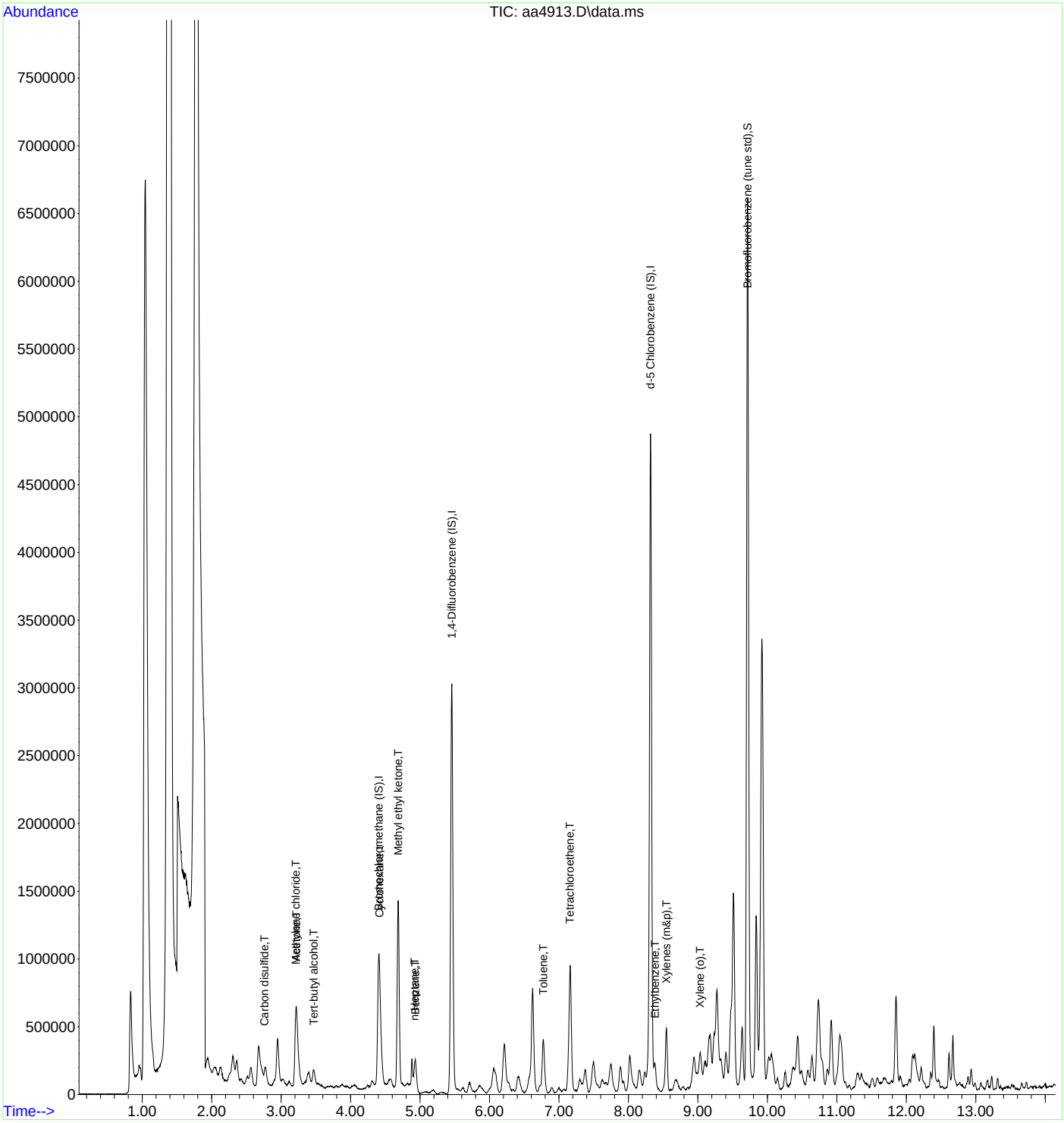
Quant Time: Dec 12 10:22:08 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

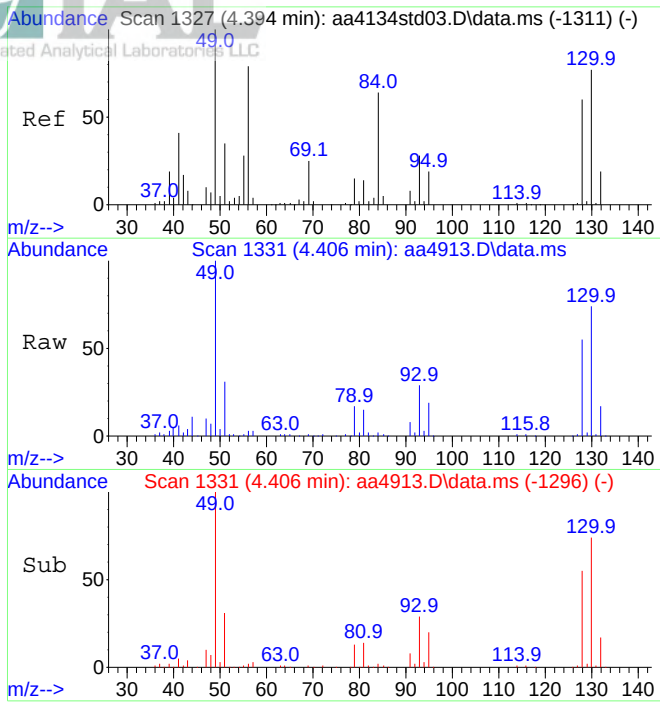
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.406	130	502193	10.00	ppbV		0.012
39) 1,4-Difluorobenzene (IS)	5.457	114	2727916	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.319	117	3091925	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.714	95	2884453	10.70	ppbV		0.000
Target Compounds							Qvalue
15) Carbon disulfide	2.759	76	51119	0.33	ppbV		99
20) Methylene chloride	3.213	49	63522	1.03	ppbV		86
21) Acetone	3.219	43	991562	13.09	ppbV		97
26) Tert-butyl alcohol	3.470	59	193206	1.48	ppbV		100
29) Cyclohexane	4.415	56	22578	0.20	ppbV	#	61
35) Methyl ethyl ketone	4.685	43	1851347	15.10	ppbV		97
36) n-Heptane	4.920	43	61652	0.44	ppbV		85
37) Benzene	4.933	78	160564	0.81	ppbV		93
47) Toluene	6.772	91	271951	0.71	ppbV		97
49) Tetrachloroethene	7.158	166	280827	1.70	ppbV		99
58) Ethylbenzene	8.383	91	126190	0.22	ppbV		97
59) Xylenes (m&p)	8.547	91	331885	0.79	ppbV		98
60) Xylene (o)	9.033	91	128513	0.28	ppbV		94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4913.D
Acq On : 11 Dec 2023 4:20 pm
Operator : jjw
Sample : E23-05093-01x5 dil
Misc : 3044A, 100cc
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Dec 12 10:22:08 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

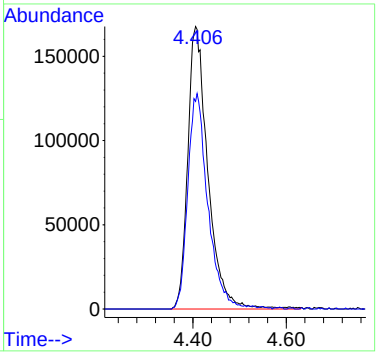


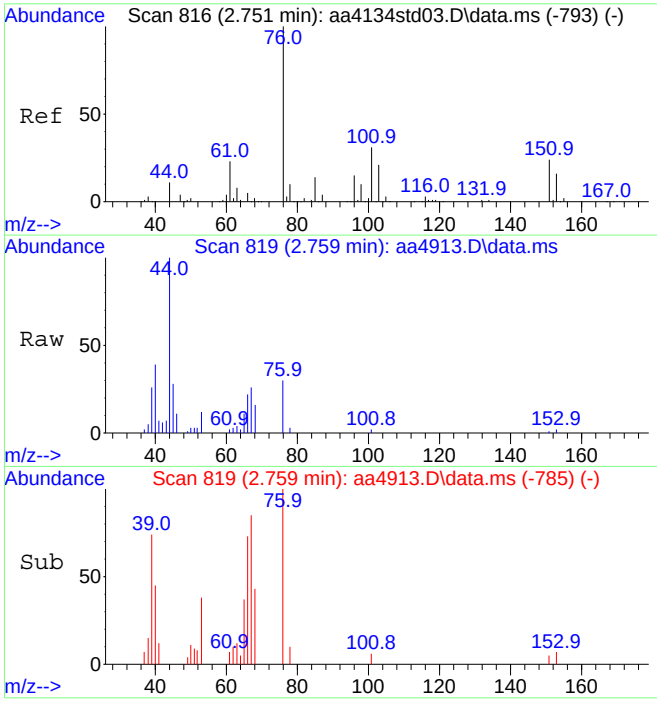


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.406 min Scan# 1331
Delta R.T. 0.012 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion:130 Resp: 502193

Ion	Ratio	Lower	Upper
130	100		
128	76.2	62.2	93.4

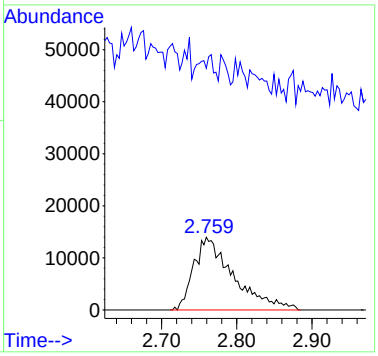


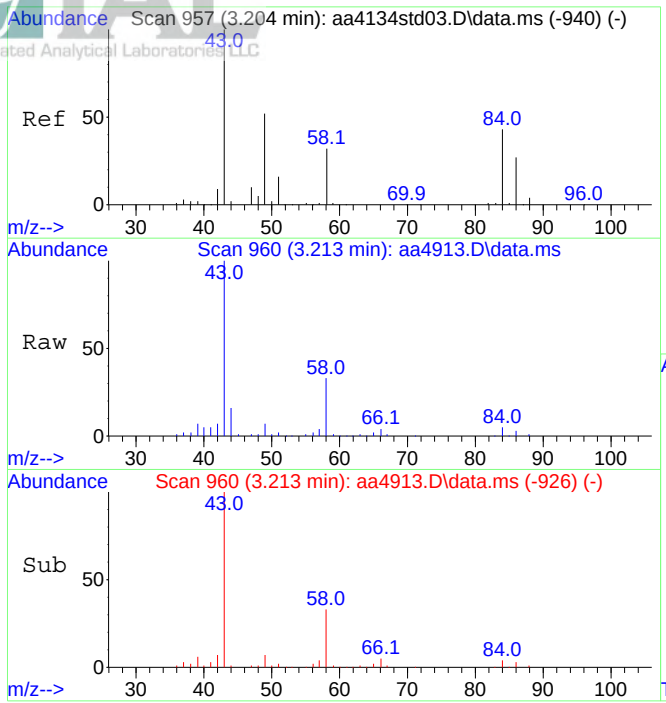


#15
Carbon disulfide
Concen: 0.33 ppbV
RT: 2.759 min Scan# 819
Delta R.T. 0.009 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion: 76 Resp: 51119

Ion	Ratio	Lower	Upper
76	100		
44	11.5	9.0	13.4

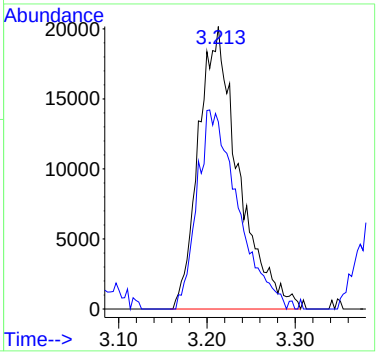


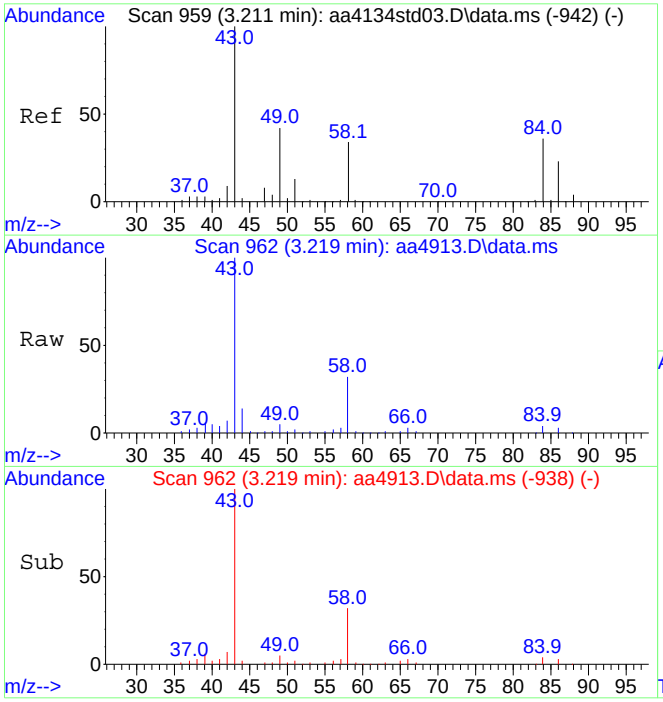


#20
Methylene chloride
Concen: 1.03 ppbV
RT: 3.213 min Scan# 960
Delta R.T. 0.009 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion: 49 Resp: 63522

Ion	Ratio	Lower	Upper
49	100		
84	71.9	64.8	104.8

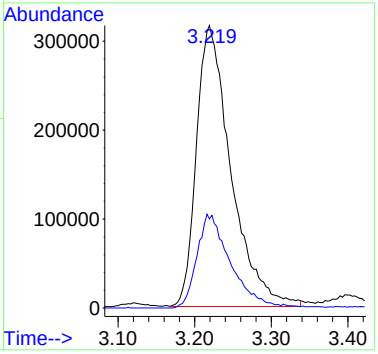


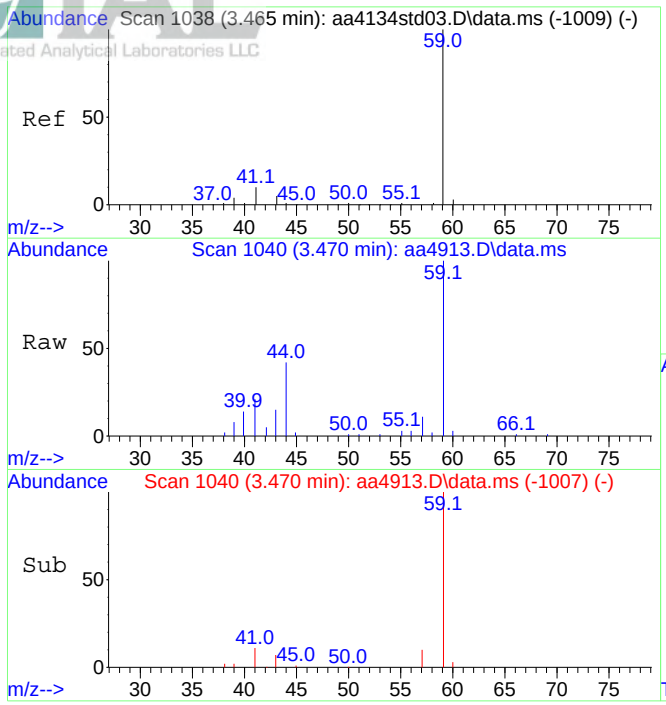


#21
Acetone
Concen: 13.09 ppbV
RT: 3.219 min Scan# 962
Delta R.T. 0.008 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion: 43 Resp: 991562

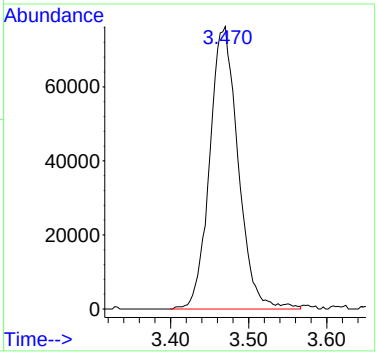
Ion	Ratio	Lower	Upper
43	100		
58	32.4	27.1	40.7

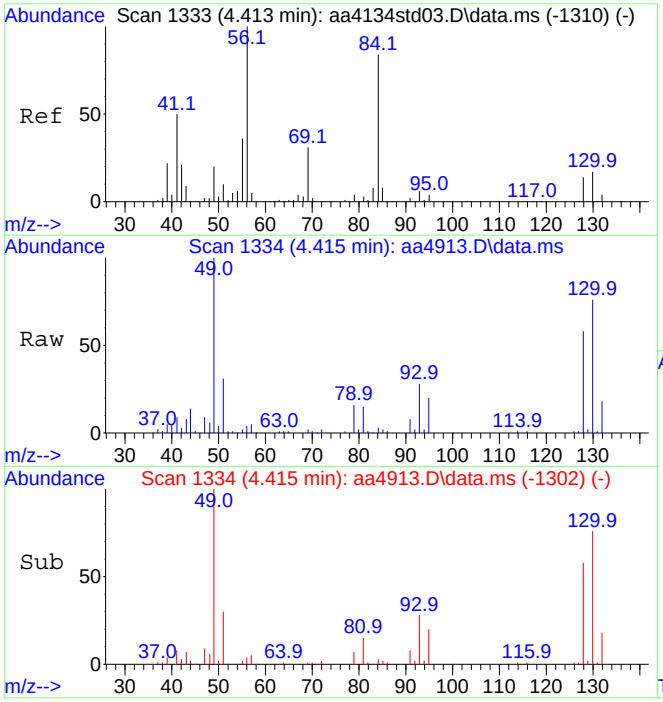




#26
Tert-butyl alcohol
Concen: 1.48 ppbV
RT: 3.470 min Scan# 1040
Delta R.T. 0.005 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion: 59 Resp: 193206

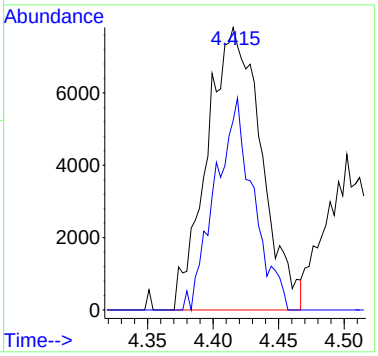


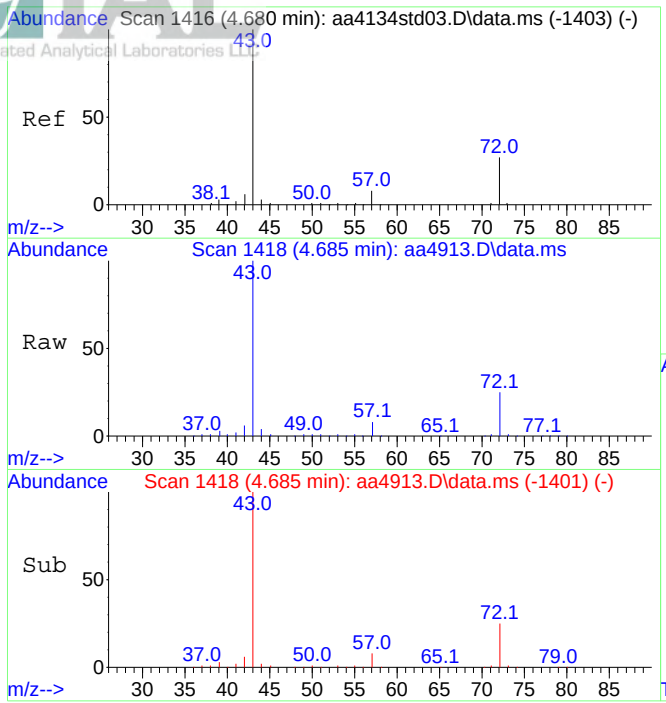


#29
Cyclohexane
Concen: 0.20 ppbV
RT: 4.415 min Scan# 1334
Delta R.T. 0.002 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion: 56 Resp: 22578

Ion	Ratio	Lower	Upper
56	100		
84	52.8	71.2	106.8#

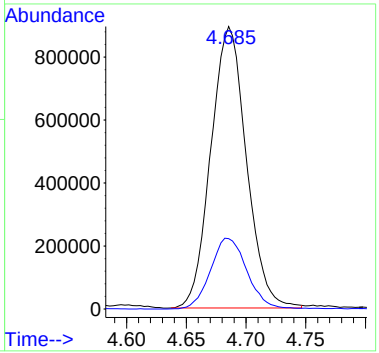


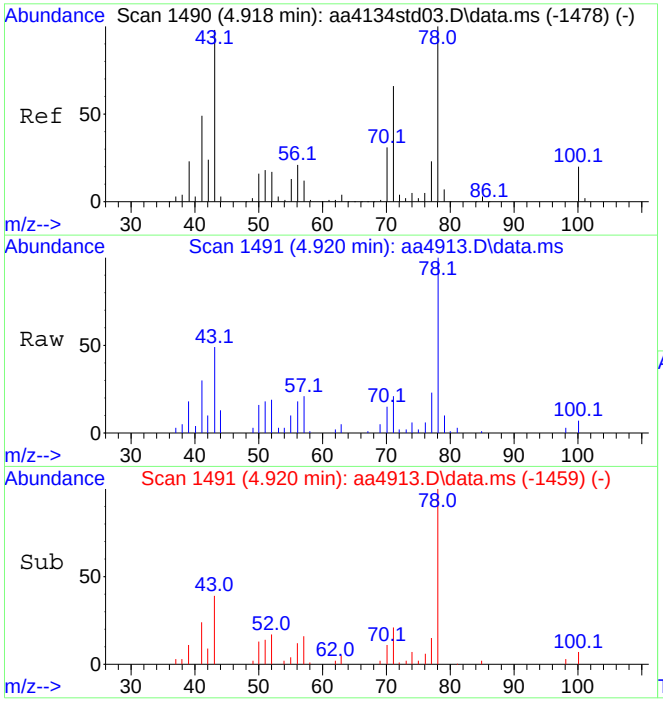


#35
Methyl ethyl ketone
Concen: 15.10 ppbV
RT: 4.685 min Scan# 1418
Delta R.T. 0.005 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion: 43 Resp: 1851347

Ion	Ratio	Lower	Upper
43	100		
72	25.6	21.6	32.4

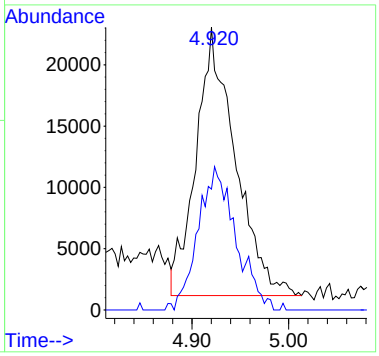


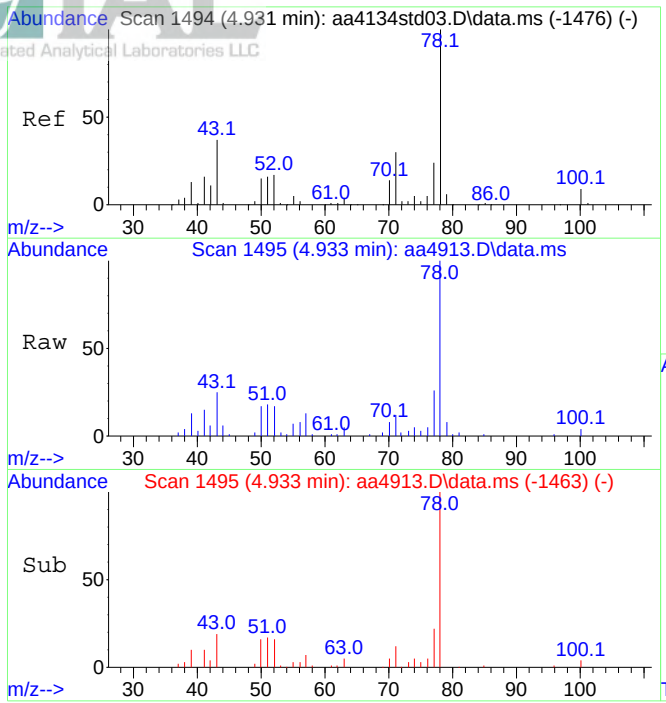


#36
n-Heptane
Concen: 0.44 ppbV
RT: 4.920 min Scan# 1491
Delta R.T. 0.002 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion: 43 Resp: 61652

Ion	Ratio	Lower	Upper
43	100		
71	51.2	50.5	75.7

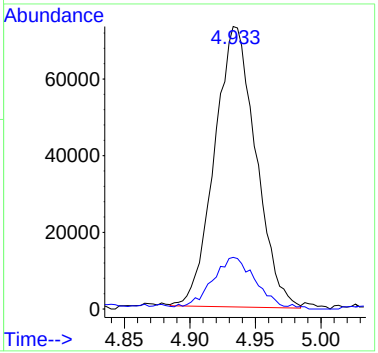


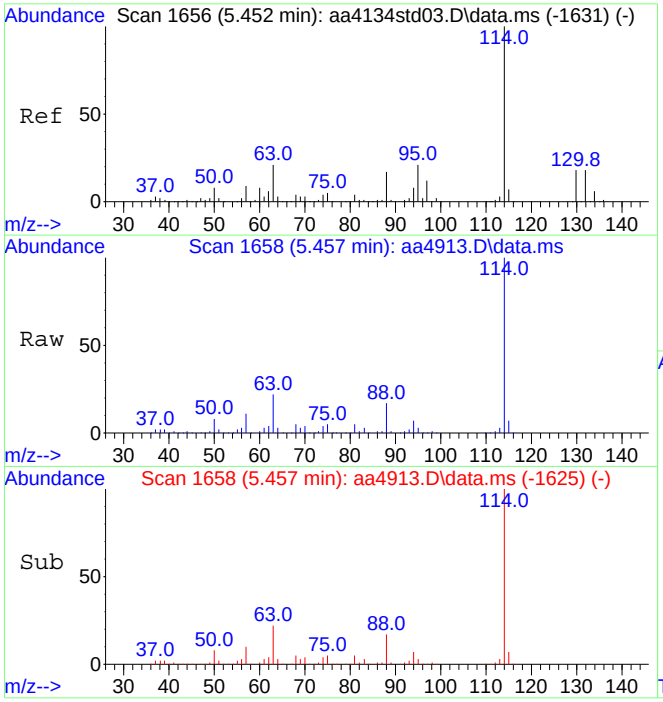


#37
Benzene
Concen: 0.81 ppbV
RT: 4.933 min Scan# 1495
Delta R.T. 0.002 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion: 78 Resp: 160564

Ion	Ratio	Lower	Upper
78	100		
51	19.8	13.4	20.0

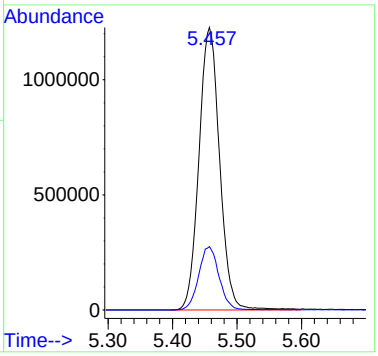


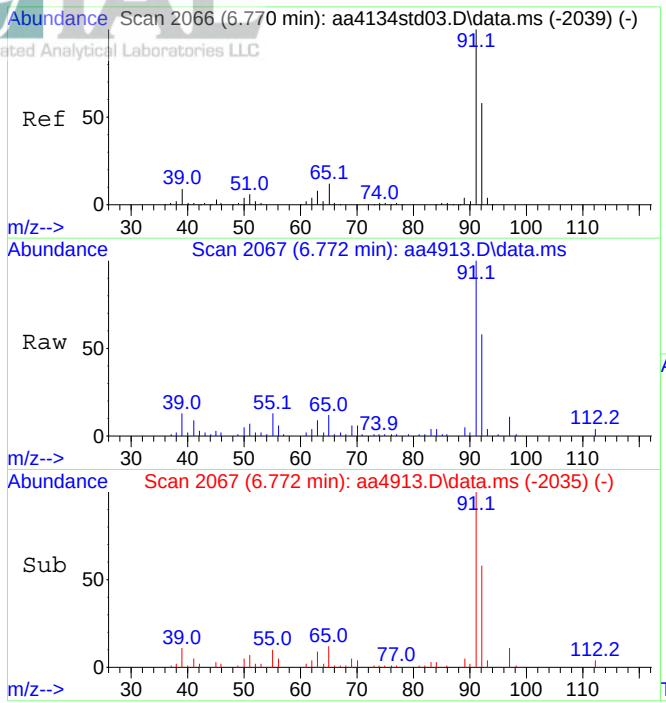


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.005 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion:114 Resp: 2727916

Ion	Ratio	Lower	Upper
114	100		
63	22.1	17.0	25.6

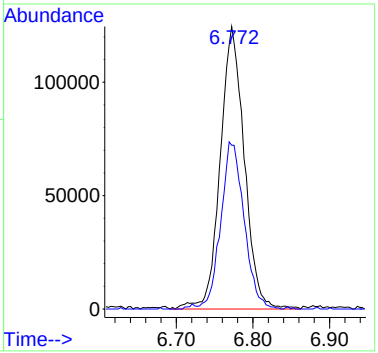


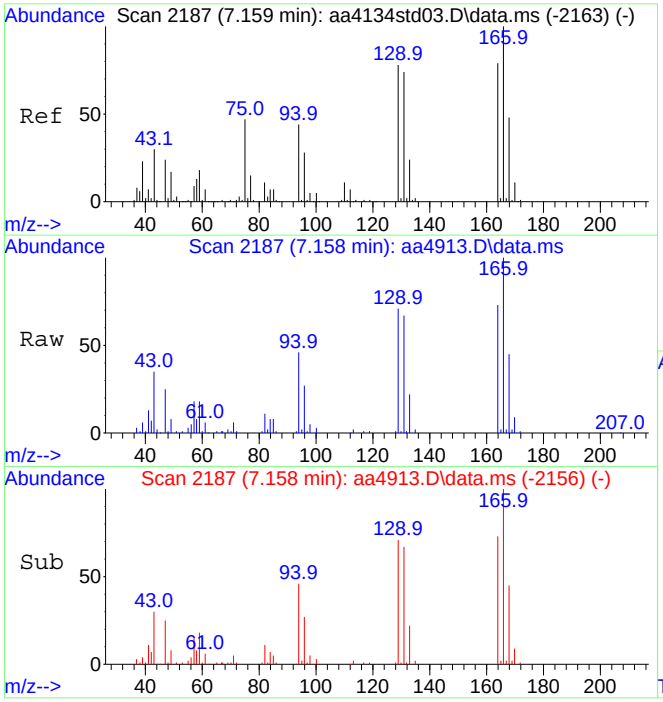


#47
Toluene
Concen: 0.71 ppbV
RT: 6.772 min Scan# 2067
Delta R.T. 0.002 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion: 91 Resp: 271951

Ion	Ratio	Lower	Upper
91	100		
92	57.1	47.3	70.9

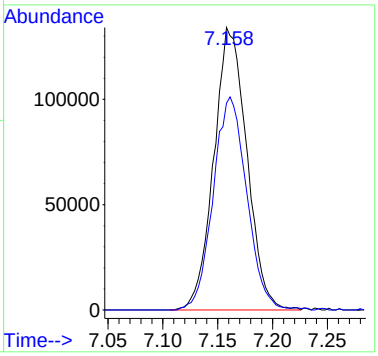


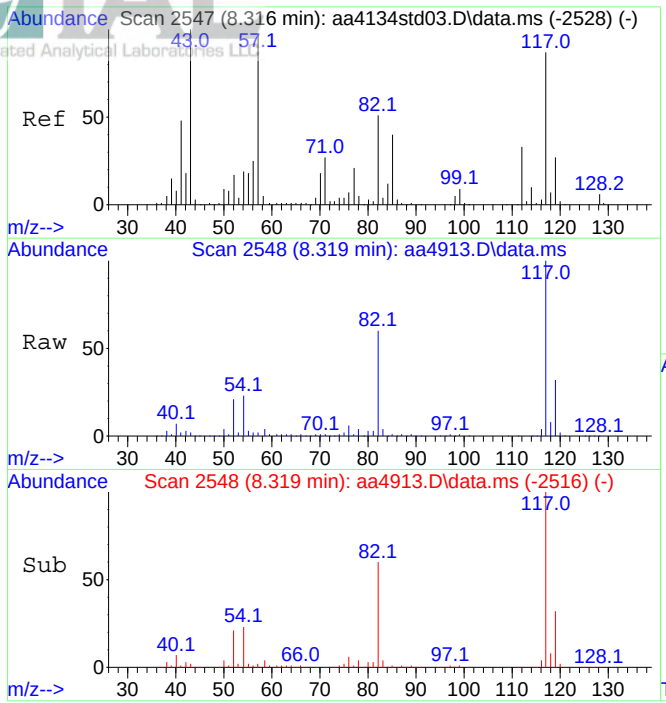


#49
Tetrachloroethene
Concen: 1.70 ppbV
RT: 7.158 min Scan# 2187
Delta R.T. -0.001 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion:166 Resp: 280827

Ion	Ratio	Lower	Upper
166	100		
164	76.7	62.3	93.5

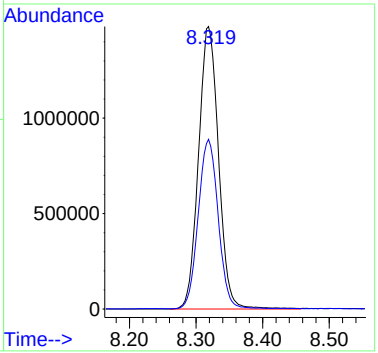


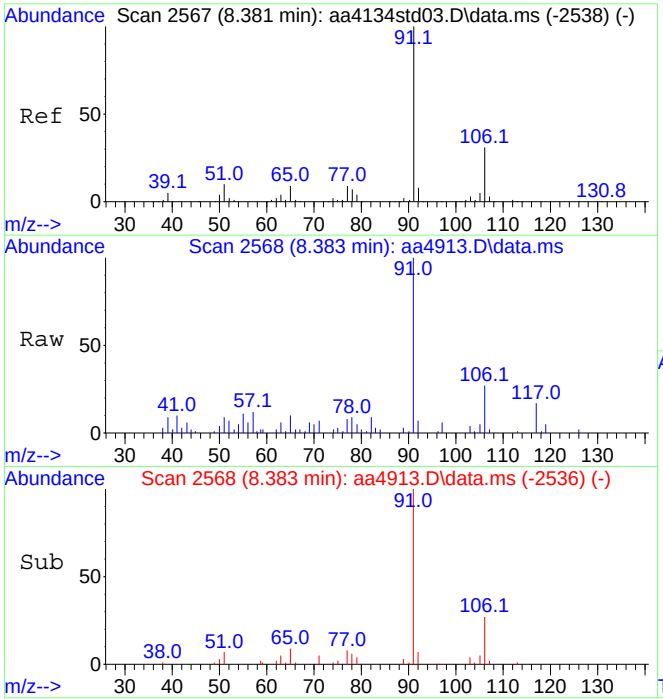


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion:117 Resp: 3091925

Ion	Ratio	Lower	Upper
117	100		
82	59.6	47.0	70.4

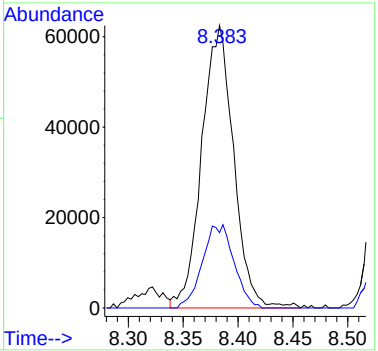


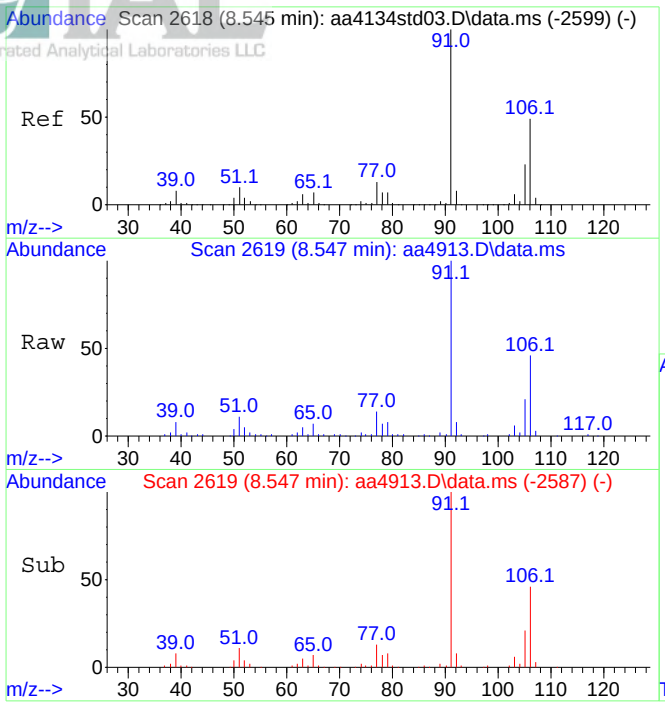


#58
Ethylbenzene
Concen: 0.22 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion: 91 Resp: 126190

Ion	Ratio	Lower	Upper
91	100		
106	29.1	24.6	36.8

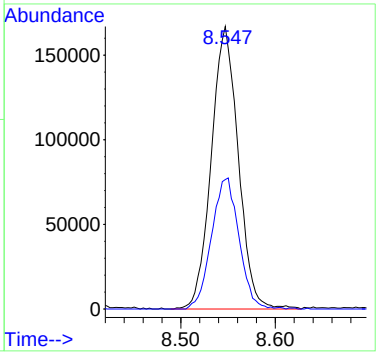


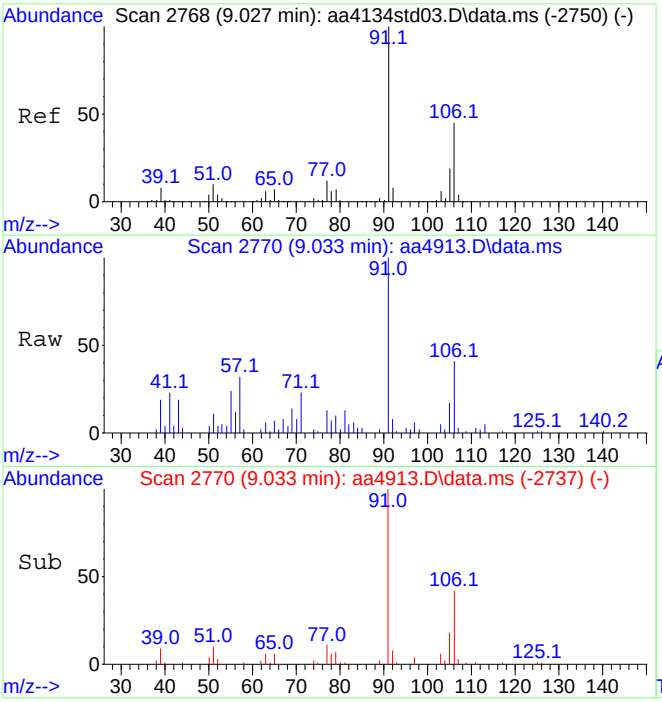


#59
Xylenes (m&p)
Concen: 0.79 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. 0.002 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion: 91 Resp: 331885

Ion	Ratio	Lower	Upper
91	100		
106	47.1	39.0	58.4

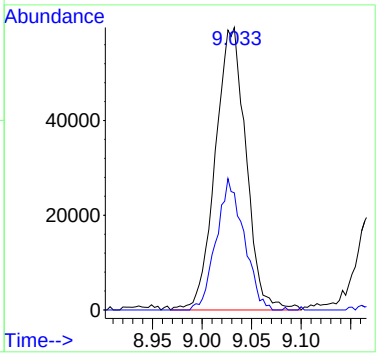


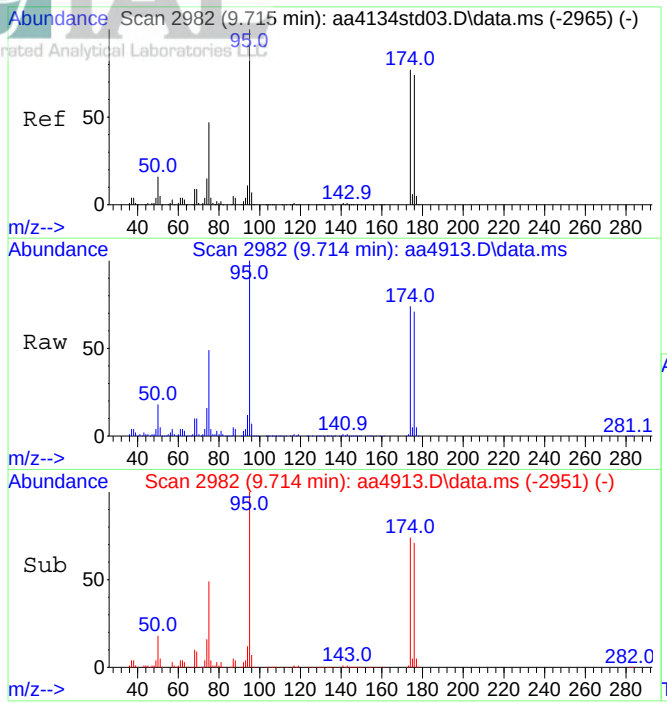


#60
Xylene (o)
Concen: 0.28 ppbV
RT: 9.033 min Scan# 2770
Delta R.T. 0.005 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion: 91 Resp: 128513

Ion	Ratio	Lower	Upper
91	100		
106	41.8	36.8	55.2

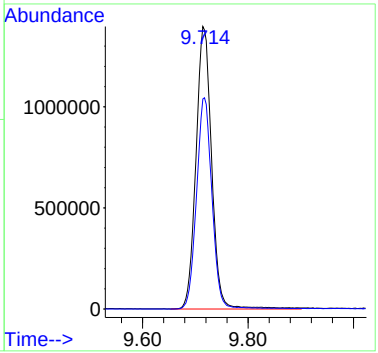




#64
Bromofluorobenzene (tune std)
Concen: 10.70 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4913.D
Acq: 11 Dec 2023 4:20 pm

Tgt Ion: 95 Resp: 2884453

Ion	Ratio	Lower	Upper
95	100		
174	74.2	61.1	91.7



Section VII: Standards Data

Initial Calibration Data

Initial Calibration Verification Data

Continuing Calibration Data

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 8/15/2023 **Method ID:** 230815.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

	Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
1)	Bromochloromethane	----------ISTD----------						
3)	Dichlorodifluoromethane	2.6	2.1	2.4	2.6	2.9	2.5	12
4)	1,2-Dichlorotetrafluoroethane	4.7	3.4	3.2	3.3	3.6	3.6	17
6)	Chloromethane	0.073	0.12	0.12	0.13	0.15	0.12	23
7)	Vinyl chloride	0.87	0.81	0.94	1.0	1.1	0.95	14
8)	1,3-Butadiene	0.94	0.96	0.93	0.99	1.0	0.97	4.6
9)	Bromomethane	0.75	0.65	0.78	0.85	0.96	0.80	14
10)	Chloroethane	0.44	0.40	0.52	0.57	0.65	0.52	19
11)	Vinyl bromide	0.89	0.81	0.99	1.1	1.2	1.0	17
12)	Trichlorofluoromethane	3.8	3.2	3.1	3.4	3.6	3.4	8.1
14)	1,1-Dichloroethene	1.8	1.7	2.1	2.3	2.5	2.1	15
15)	Carbon disulfide	3.2	2.8	3.5	3.7	3.9	3.4	12
16)	1,1,2-Trichloro-1,2,2-trifluoroethane	4.1	3.6	2.8	3.0	3.3	3.4	16
17)	Acrolein	0.45	0.34	0.43	0.45	0.49	0.43	13
18)	Allyl Chloride	0.51	0.46	0.56	0.62	0.65	0.56	14
19)	Isopropanol	2.2	2.0	2.3	2.5	2.6	2.3	10
20)	Methylene chloride	1.9	0.89	1.1	1.2	1.3	1.3	29
21)	Acetone	2.2	1.5	1.8	1.9	1.9	1.9	14
22)	1,2-Dichloroethene (trans)	1.6	1.5	1.9	2.1	2.3	1.9	17
24)	n-Hexane	3.6	3.4	3.0	3.2	3.6	3.3	7.2
25)	Methyl tert-butyl ether	4.7	5.1	4.0	4.3	4.7	4.6	9.5
26)	Tert-butyl alcohol	2.9	3.2	2.6	2.8	3.2	2.9	8.1
27)	1,1-Dichloroethane	2.9	2.3	2.4	2.7	2.9	2.6	11
28)	1,2-Dichloroethene (cis)	1.7	1.5	1.8	2.0	2.2	1.8	14
29)	Cyclohexane	2.5	2.7	2.1	2.3	2.5	2.4	9.8
30)	Chloroform	3.3	2.8	3.0	3.3	3.6	3.2	9.6
32)	Carbon tetrachloride	4.2	4.4	3.4	3.5	3.9	3.9	11
33)	Tetrahydrofuran	1.8	1.6	1.7	1.9	2.0	1.8	8.7
34)	1,1,1-Trichloroethane	3.8	4.0	3.0	3.2	3.5	3.5	12
35)	Methyl ethyl ketone	2.9	2.5	2.7	3.0	3.3	2.9	11
36)	n-Heptane	3.0	4.0	3.2	3.3	3.3	3.4	11
37)	Benzene	5.1	4.3	4.2	4.6	4.9	4.6	8.4
38)	1,2-Dichloroethane	2.0	1.8	1.9	2.2	2.4	2.1	11
39)	1,4-Difluorobenzene	----------ISTD----------						
40)	Trichloroethene	0.60	0.46	0.48	0.50	0.50	0.51	11
41)	2,2,4-Trimethylpentane	1.4	1.3	1.2	1.2	1.3	1.3	7.7
42)	1,2-Dichloropropane	0.54	0.45	0.43	0.44	0.42	0.46	11
43)	Bromodichloromethane	0.91	0.75	0.76	0.79	0.77	0.80	8.1

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 8/15/2023 **Method ID:** 230815.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

	Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
44)	Methyl methacrylate	0.53	0.60	0.60	0.62	0.59	0.59	5.4
45)	1,4-Dioxane	0.30	0.29	0.27	0.28	0.27	0.28	3.5
46)	1,3-Dichloropropene (cis)	0.76	0.67	0.69	0.72	0.69	0.71	4.8
47)	Toluene	1.6	1.8	1.6	1.6	1.4	1.6	7.6
48)	Methyl isobutyl ketone	1.0	1.4	1.2	1.2	1.1	1.2	11
49)	Tetrachloroethene	0.80	0.79	0.70	0.69	0.63	0.72	10
50)	1,3-Dichloropropene (trans)	0.59	0.70	0.73	0.76	0.71	0.70	9.3
51)	1,1,2-Trichloroethane	0.60	0.58	0.55	0.56	0.53	0.57	4.9
52)	Dibromochloromethane	0.94	0.97	0.94	0.96	0.91	0.94	2.5
53)	1,2-Dibromoethane	0.77	0.84	0.84	0.87	0.82	0.83	4.3
54)	Methyl n-butyl ketone	0.82	1.2	1.1	1.2	1.1	1.1	14
55)	d-5 Chlorbenzene	----------ISTD----------						
57)	Chlorobenzene	1.3	1.1	1.0	1.0	1.0	1.1	11
58)	Ethylbenzene	2.3	2.4	1.9	1.8	1.7	2.0	15
59)	Xylenes (m&p)	1.7	1.8	1.5	1.3	0.99	1.5	22
60)	Xylenes (o)	1.7	1.9	1.5	1.5	1.5	1.6	11
61)	Styrene	0.95	1.2	1.1	1.1	1.1	1.1	8.3
62)	Bromoform	0.90	0.87	0.81	0.79	0.79	0.83	6.3
63)	Cumene	2.2	2.6	2.0	1.9	1.8	2.1	14
66)	1,1,2,2-Tetrachloroethane	1.4	1.4	1.1	1.1	1.1	1.2	11
67)	4-Ethyltoluene	2.4	2.7	2.3	2.1	1.8	2.3	14
68)	2-Chlorotoluene	2.0	2.2	1.8	1.7	1.7	1.9	11
69)	1,3,5-Trimethylbenzene	1.8	2.2	1.8	1.7	1.6	1.8	12
70)	1,2,4-Trimethylbenzene	1.6	2.2	1.9	1.8	1.7	1.8	13
71)	1,3-Dichlorobenzene	1.5	1.2	1.1	1.1	1.2	1.2	12
72)	1,4-Dichlorobenzene	1.2	1.2	1.2	1.1	1.2	1.2	1.4
73)	Benzyl chloride	1.2	1.6	1.7	1.7	1.8	1.6	16
74)	1,2-Dichlorobenzene	1.2	1.2	1.1	1.1	1.1	1.1	4.8
75)	1,3-Hexachlorobutadiene	1.2	0.86	0.73	0.67	0.63	0.82	29
76)	1,2,4-Trichlorobenzene	1.2	0.85	0.86	0.82	0.78	0.90	18
77)	Naphthalene	2.3	1.8	1.9	1.8	1.5	1.9	16

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Response Factor Report GCMS2B

Method Path : C:\msdchem\1\METHODS\
Method File : 230815.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Wed Aug 16 10:00:51 2023
Response Via : Initial Calibration

Calibration Files
0.2 =aa3402std05.D 2 =aa3403std04.D 10 =aa3404std03.D 20 =aa3405std02.D 40 =aa3406std01.D

		Compound	0.2	2	10	20	40	Avg	%RSD
1)	I	Bromochloromethane...	----------ISTD----------						
2)	T	Propene	0.693	0.590	0.649	0.708	0.804	0.689	11.46
3)	T	Dichlorodifluoro...	2.627	2.060	2.419	2.640	2.888	2.527	12.25
4)	T	1,2-Dichlorotetr...	4.698	3.379	3.171	3.318	3.612	3.636	16.92
5)	T	n-Butane	1.529	1.686	1.607	1.650	1.703	1.635	4.27
6)	T	Chloromethane	0.073	0.121	0.116	0.128	0.147	0.117	23.33
7)	T	Vinyl chloride	0.866	0.806	0.938	1.004	1.138	0.950	13.56
8)	T	1,3-Butadiene	0.939	0.962	0.929	0.985	1.043	0.972	4.66
9)	T	Bromomethane	0.754	0.650	0.781	0.852	0.955	0.798	14.26
10)	T	Chloroethane	0.437	0.404	0.524	0.567	0.652	0.517	19.32
11)	T	Vinyl bromide	0.891	0.806	0.989	1.088	1.246	1.004	17.12
12)	T	Trichlorofluorom...	3.753	3.179	3.089	3.381	3.599	3.400	8.19
13)	T	Ethanol	0.566	0.336	0.323	0.344	0.433	0.400	25.53
14)	T	1,1-Dichloroethene	1.836	1.703	2.114	2.324	2.466	2.088	15.36
15)	T	Carbon disulfide	3.198	2.847	3.522	3.709	3.868	3.429	11.95
16)	T	1,1,2-Trichloro-...	4.138	3.589	2.807	2.990	3.274	3.360	15.67
17)	T	Acrolein	0.446	0.337	0.430	0.447	0.488	0.430	13.07
18)	T	Allyl chloride	0.510	0.458	0.563	0.616	0.651	0.559	13.89
19)	T	Isopropanol	2.218	2.002	2.266	2.475	2.597	2.312	10.02
20)	T	Methylene chloride	1.853	0.894	1.059	1.168	1.335	1.262	29.12
21)	T	Acetone	2.238	1.490	1.826	1.890	1.937	1.876	14.27
22)	T	trans-1,2-Dichlo...	1.626	1.515	1.873	2.082	2.300	1.879	17.14
23)	T	n-Pentane	2.737	2.398	2.021	2.278	2.555	2.398	11.35
24)	T	n-Hexane	3.560	3.405	3.010	3.196	3.573	3.349	7.26
25)	T	Methyl tert-buty...	4.721	5.118	3.992	4.267	4.676	4.555	9.56
26)	T	Tert-butyl alcohol	2.872	3.165	2.601	2.846	3.159	2.929	8.11
27)	T	1,1-Dichloroethane	2.886	2.279	2.406	2.680	2.935	2.637	10.96
28)	T	cis-1,2-Dichloro...	1.666	1.532	1.766	1.984	2.173	1.824	14.01
29)	t	Cyclohexane	2.480	2.742	2.109	2.281	2.488	2.420	9.87
30)	T	Chloroform	3.341	2.813	3.029	3.345	3.610	3.228	9.60
31)	T	Ethyl acetate	0.519	0.459	0.476	0.532	0.583	0.514	9.56
32)	T	Carbon tetrachlo...	4.190	4.380	3.355	3.527	3.897	3.870	11.16
33)	T	Tetrahydrofuran	1.813	1.612	1.725	1.883	2.033	1.813	8.79
34)	T	1,1,1-Trichloroe...	3.831	3.967	2.981	3.175	3.465	3.484	12.03
35)	T	Methyl ethyl ketone	2.907	2.461	2.724	3.040	3.340	2.894	11.42
36)	T	n-Heptane	3.009	3.965	3.169	3.287	3.321	3.350	10.89
37)	T	Benzene	5.118	4.274	4.213	4.582	4.885	4.614	8.43
38)	T	1,2-Dichloroethane	2.033	1.799	1.949	2.171	2.385	2.067	10.78
39)	I	1,4-Difluorobenzen...	----------ISTD----------						
40)	T	Trichloroethene	0.604	0.461	0.476	0.499	0.498	0.508	11.08
41)	T	2,2,4-Trimethylp...	1.422	1.283	1.173	1.194	1.261	1.267	7.75
42)	T	1,2-Dichloropropane	0.544	0.451	0.428	0.436	0.423	0.456	10.95
43)	T	Bromodichloromet...	0.909	0.753	0.759	0.786	0.768	0.795	8.19
44)	T	Methyl methacrylate	0.533	0.595	0.599	0.618	0.589	0.587	5.41
45)	T	1,4-Dioxane	0.295	0.288	0.274	0.280	0.270	0.281	3.52
46)	T	cis-1,3-Dichloro...	0.756	0.671	0.693	0.721	0.685	0.705	4.82
47)	T	Toluene	1.603	1.770	1.615	1.607	1.423	1.603	7.69
48)	T	Methyl isobutyl ...	1.020	1.358	1.158	1.169	1.085	1.158	10.96
49)	T	Tetrachloroethene	0.802	0.785	0.698	0.693	0.626	0.721	10.04
50)	T	trans-1,3-Dichlo...	0.586	0.696	0.728	0.757	0.709	0.695	9.37
51)	T	1,1,2-Trichloroe...	0.602	0.582	0.549	0.561	0.531	0.565	4.93
52)	T	Dibromochloromet...	0.941	0.968	0.936	0.964	0.910	0.944	2.50
53)	T	1,2-Dibromoethane	0.770	0.838	0.835	0.869	0.822	0.827	4.35
54)	T	Methyl n-butyl k...	0.821	1.172	1.136	1.176	1.120	1.085	13.80
55)	I	d-5 Chlorobenzene ...	----------ISTD----------						
56)	T	n-Nonane	1.127	1.476	1.174	1.162	1.180	1.224	11.64
57)	T	Chlorobenzene	1.289	1.143	1.029	1.009	1.005	1.095	11.15
58)	T	Ethylbenzene	2.334	2.354	1.930	1.830	1.678	2.025	15.04
59)	T	Xylenes (m&p)	1.738	1.788	1.455	1.324	0.993	1.460	22.23
60)	T	Xylene (o)	1.710	1.878	1.542	1.505	1.471	1.621	10.51

Method Path : C:\msdchem\1\METHODS\
Method File : 230815.M

61)	T	Styrene	0.947	1.200	1.093	1.071	1.068	1.076	8.35
62)	T	Bromoform	0.903	0.872	0.806	0.789	0.786	0.831	6.38
63)	T	Cumene	2.186	2.576	2.043	1.945	1.808	2.112	13.92
64)	S	Bromofluorobenze...	0.736	0.817	0.818	0.845	0.943	0.832	8.94
65)	T	n-Propyl benzene	2.996	3.397	2.766	2.573	2.034	2.753	18.37
66)	T	1,1,2,2-Tetrachl...	1.381	1.376	1.137	1.117	1.132	1.228	11.16
67)	T	4-Ethyltoluene	2.355	2.737	2.278	2.143	1.835	2.270	14.45
68)	T	2-Chlorotoluene	1.964	2.171	1.778	1.722	1.704	1.868	10.62
69)	T	1,3,5-Trimethylb...	1.800	2.225	1.792	1.719	1.648	1.837	12.28
70)	T	1,2,4-Trimethylb...	1.568	2.188	1.854	1.793	1.705	1.821	12.71
71)	T	1,3-Dichlorobenzene	1.459	1.183	1.126	1.114	1.157	1.208	11.85
72)	T	1,4-Dichlorobenzene	1.161	1.161	1.153	1.142	1.187	1.161	1.43
73)	T	Benzyl chloride	1.168	1.566	1.708	1.744	1.770	1.591	15.67
74)	T	1,2-Dichlorobenzene	1.169	1.225	1.111	1.083	1.128	1.143	4.82
75)	T	1,3-Hexachlorobu...	1.209	0.857	0.729	0.674	0.629	0.820	28.53
76)	T	1,2,4-Trichlorob...	1.191	0.845	0.860	0.816	0.781	0.899	18.48
77)	T	Naphthalene	2.270	1.826	1.920	1.809	1.459	1.857	15.61

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3402std05.D
Acq On : 15 Aug 2023 11:15 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 15 17:16:53 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:15:22 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.380	130	543782	10.00	ppbV	-0.016
39) 1,4-Difluorobenzene (IS)	5.448	114	2104790	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2068537	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1523370	8.85	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.454	41	8216	0.22	ppbV #	67
3) Dichlorodifluoromethane	1.492	85	30288	0.22	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.626	85	50076	0.25	ppbV	96
5) n-Butane	1.698	43	18121	0.20	ppbV	97
6) Chloromethane	1.763	52	890	0.14	ppbV	54
7) Vinyl chloride	1.760	62	10168	0.20	ppbV	97
8) 1,3-Butadiene	1.767	39	10931	0.21	ppbV	84
9) Bromomethane	2.049	94	8195	0.19	ppbV	87
10) Chloroethane	2.171	64	5038	0.18	ppbV #	73
11) Vinyl bromide	2.271	106	9786	0.18	ppbV	94
12) Trichlorofluoromethane	2.287	101	44897	0.24	ppbV	99
13) Ethanol	2.650	45	6400	0.29	ppbV #	53
14) 1,1-Dichloroethene	2.711	61	20761	0.18	ppbV	99
15) Carbon disulfide	2.731	76	37217	0.20	ppbV #	87
16) 1,1,2-Trichloro-1,2,2-...	2.750	101	49053	0.27	ppbV	100
17) Acrolein	2.956	56	4855	0.21	ppbV	84
18) Allyl chloride	3.091	76	5995	0.20	ppbV	100
19) Isopropanol	3.097	45	21471	0.17	ppbV #	78
20) Methylene chloride	3.184	49	21768	0.31	ppbV	94
21) Acetone	3.194	43	26290	0.26	ppbV #	87
22) trans-1,2-Dichloroethene	3.309	61	19630	0.19	ppbV	99
23) n-Pentane	3.393	43	32143	0.25	ppbV	94
24) n-Hexane	3.387	57	42982	0.24	ppbV	89
25) Methyl tert-butyl ether	3.396	73	57505	0.23	ppbV	99
26) Tert-butyl alcohol	3.454	59	35922	0.23	ppbV	100
27) 1,1-Dichloroethane	3.798	63	33581	0.23	ppbV	93
28) cis-1,2-Dichloroethene	4.223	61	19745	0.20	ppbV	100
29) Cyclohexane	4.396	56	30214	0.23	ppbV	97
30) Chloroform	4.441	83	39248	0.22	ppbV	97
31) Ethyl acetate	4.534	61	6099	0.22	ppbV	99
32) Carbon tetrachloride	4.560	117	50587	0.24	ppbV	99
33) Tetrahydrofuran	4.567	42	21884	0.22	ppbV	96
34) 1,1,1-Trichloroethane	4.608	97	45414	0.24	ppbV	97
35) Methyl ethyl ketone	4.676	43	34778	0.22	ppbV	96
36) n-Heptane	4.907	43	36329	0.20	ppbV	98
37) Benzene	4.923	78	60118	0.24	ppbV	100
38) 1,2-Dichloroethane	5.087	62	24098	0.21	ppbV	100
40) Trichloroethene	5.425	130	25424	0.24	ppbV	97
41) 2,2,4-Trimethylpentane	4.833	57	65257	0.24	ppbV	99
42) 1,2-Dichloropropane	5.875	63	25405	0.26	ppbV	97
43) Bromodichloromethane	5.943	83	44017	0.26	ppbV	100
44) Methyl methacrylate	6.081	41	24702	0.20	ppbV	95
45) 1,4-Dioxane	6.116	88	14508	0.25	ppbV	92
46) cis-1,3-Dichloropropene	6.534	75	35333	0.24	ppbV	100
47) Toluene	6.769	91	72857	0.22	ppbV	97
48) Methyl isobutyl ketone	7.132	43	46816	0.19	ppbV	96
49) Tetrachloroethene	7.161	166	37803	0.25	ppbV	99
50) trans-1,3-Dichloropropene	7.174	75	27399	0.19	ppbV	93
51) 1,1,2-Trichloroethane	7.335	97	27389	0.23	ppbV	98

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3402std05.D
Acq On : 15 Aug 2023 11:15 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

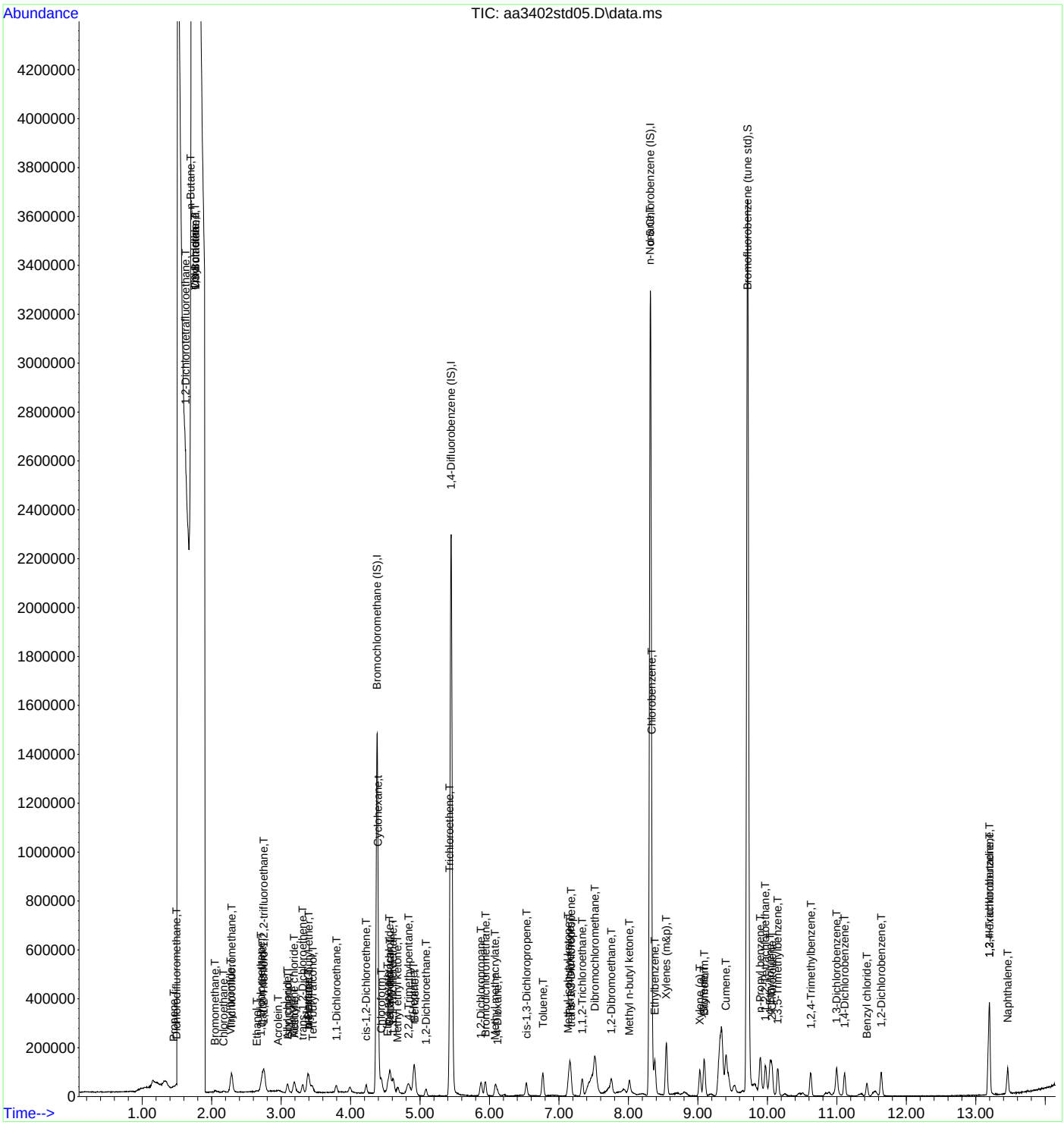
Quant Time: Aug 15 17:16:53 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:15:22 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.518	129	44365	0.22	ppbV		98
53)	1,2-Dibromoethane	7.753	107	35025	0.20	ppbV		99
54)	Methyl n-butyl ketone	8.010	43	39036	0.17	ppbV		94
56)	n-Nonane	8.312	43	51740	0.20	ppbV		94
57)	Chlorobenzene	8.335	112	59186	0.26	ppbV	#	57
58)	Ethylbenzene	8.380	91	107190	0.26	ppbV		98
59)	Xylenes (m&p)	8.544	91	160319	0.53	ppbV		96
60)	Xylene (o)	9.026	91	77796	0.23	ppbV		100
61)	Styrene	9.087	104	44277	0.20	ppbV		97
62)	Bromoform	9.094	173	42204	0.25	ppbV		99
63)	Cumene	9.402	105	96781	0.22	ppbV		99
65)	n-Propyl benzene	9.898	91	133875	0.24	ppbV		91
66)	1,1,2,2-Tetrachloroethane	9.968	83	65139	0.26	ppbV		99
67)	4-Ethyltoluene	10.039	105	105229	0.22	ppbV		94
68)	2-Chlorotoluene	10.068	91	88564	0.23	ppbV		100
69)	1,3,5-Trimethylbenzene	10.148	105	81154	0.21	ppbV		99
70)	1,2,4-Trimethylbenzene	10.627	105	70043	0.19	ppbV		100
71)	1,3-Dichlorobenzene	10.997	146	67007	0.27	ppbV		97
72)	1,4-Dichlorobenzene	11.113	146	51408	0.21	ppbV		98
73)	Benzyl chloride	11.431	91	48312	0.15	ppbV		99
74)	1,2-Dichlorobenzene	11.640	146	51755	0.22	ppbV		97
75)	1,3-Hexachlorobutadiene	13.196	225	55512	0.33	ppbV		100
76)	1,2,4-Trichlorobenzene	13.196	180	54202	0.29	ppbV		99
77)	Naphthalene	13.460	128	93896	0.24	ppbV		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3402std05.D
Acq On : 15 Aug 2023 11:15 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 15 17:16:53 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:15:22 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3403std04.D
Acq On : 15 Aug 2023 1:45 pm
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 16 09:55:55 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.393	130	541075	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2325427	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2787489	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2277207	9.82	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	69587	1.87	ppbV	98
3) Dichlorodifluoromethane	1.529	85	236252	1.73	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.650	85	358355	1.82	ppbV	100
5) n-Butane	1.729	43	199054	2.26	ppbV	98
6) Chloromethane	1.791	52	14658	2.32	ppbV	76
7) Vinyl chloride	1.780	62	94169	1.83	ppbV	96
8) 1,3-Butadiene	1.794	39	111420	2.12	ppbV	99
9) Bromomethane	2.081	94	70289	1.63	ppbV	99
10) Chloroethane	2.190	64	46371	1.66	ppbV	96
11) Vinyl bromide	2.296	106	88069	1.62	ppbV	100
12) Trichlorofluoromethane	2.313	101	378425	2.06	ppbV	100
13) Ethanol	2.676	45	37762	1.74	ppbV	98
14) 1,1-Dichloroethene	2.731	61	191611	1.70	ppbV	99
15) Carbon disulfide	2.753	76	329694	1.78	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	423345	2.33	ppbV	99
17) Acrolein	2.985	56	36438	1.57	ppbV	98
18) Allyl chloride	3.110	76	53539	1.77	ppbV	100
19) Isopropanol	3.113	45	192840	1.54	ppbV	99
20) Methylene chloride	3.203	49	104527	1.53	ppbV	97
21) Acetone	3.213	43	174115	1.72	ppbV	100
22) trans-1,2-Dichloroethene	3.325	61	182032	1.79	ppbV	100
23) n-Pentane	3.406	43	280301	2.16	ppbV	97
24) n-Hexane	3.403	57	408984	2.26	ppbV	97
25) Methyl tert-butyl ether	3.409	73	620249	2.52	ppbV	91
26) Tert-butyl alcohol	3.460	59	393824	2.49	ppbV	100
27) 1,1-Dichloroethane	3.808	63	246573	1.73	ppbV	100
28) cis-1,2-Dichloroethene	4.239	61	180663	1.83	ppbV	99
29) Cyclohexane	4.409	56	332356	2.54	ppbV	100
30) Chloroform	4.454	83	328798	1.88	ppbV	100
31) Ethyl acetate	4.544	61	53660	1.93	ppbV	98
32) Carbon tetrachloride	4.573	117	526172	2.51	ppbV	100
33) Tetrahydrofuran	4.576	42	193630	1.97	ppbV	100
34) 1,1,1-Trichloroethane	4.624	97	467891	2.48	ppbV	99
35) Methyl ethyl ketone	4.685	43	292932	1.87	ppbV	98
36) n-Heptane	4.917	43	476323	2.63	ppbV	99
37) Benzene	4.933	78	499517	2.00	ppbV	99
38) 1,2-Dichloroethane	5.094	62	212238	1.90	ppbV	100
40) Trichloroethene	5.435	130	214306	1.82	ppbV	99
41) 2,2,4-Trimethylpentane	4.837	57	650366	2.21	ppbV	100
42) 1,2-Dichloropropane	5.885	63	232645	2.19	ppbV	99
43) Bromodichloromethane	5.946	83	402522	2.18	ppbV	98
44) Methyl methacrylate	6.091	41	304586	2.23	ppbV	100
45) 1,4-Dioxane	6.113	88	156518	2.39	ppbV	99
46) cis-1,3-Dichloropropene	6.534	75	346212	2.11	ppbV	100
47) Toluene	6.772	91	889263	2.39	ppbV	98
48) Methyl isobutyl ketone	7.136	43	688572	2.56	ppbV	99
49) Tetrachloroethene	7.161	166	408926	2.44	ppbV	99
50) trans-1,3-Dichloropropene	7.177	75	359255	2.22	ppbV	99
51) 1,1,2-Trichloroethane	7.338	97	292415	2.23	ppbV	99

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3403std04.D
Acq On : 15 Aug 2023 1:45 pm
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

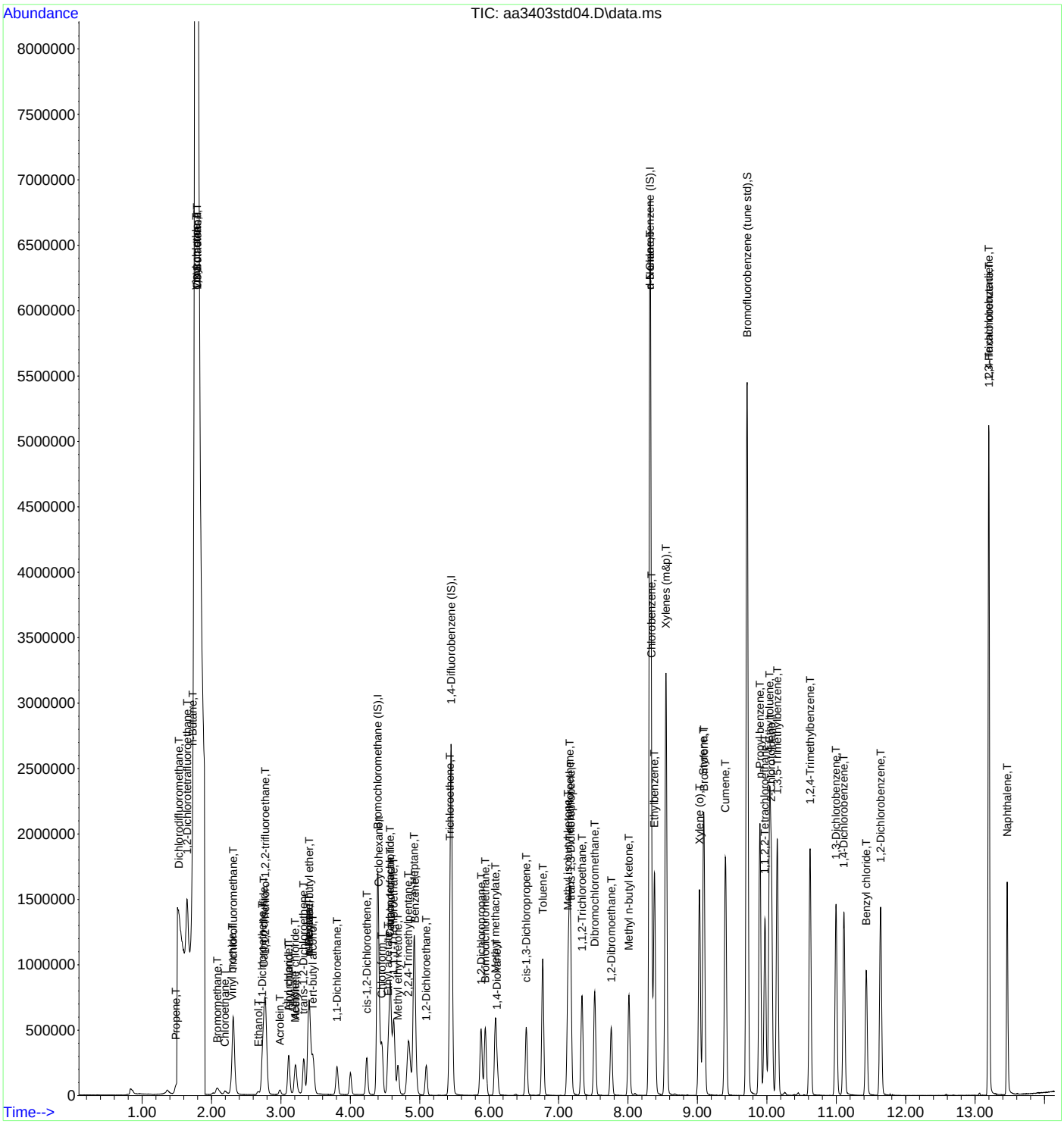
Quant Time: Aug 16 09:55:55 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	504182	2.30	ppbV	99
53)	1,2-Dibromoethane	7.759	107	421042	2.19	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	615992	2.44	ppbV	99
56)	n-Nonane	8.319	43	913232	2.68	ppbV	98
57)	Chlorobenzene	8.338	112	707397	2.32	ppbV	96
58)	Ethylbenzene	8.380	91	1456927	2.58	ppbV	100
59)	Xylenes (m&p)	8.547	91	2222904	5.46	ppbV	99
60)	Xylene (o)	9.029	91	1151590	2.55	ppbV	99
61)	Styrene	9.087	104	755721	2.52	ppbV	98
62)	Bromoform	9.097	173	549148	2.37	ppbV	100
63)	Cumene	9.402	105	1536381	2.61	ppbV	99
65)	n-Propyl benzene	9.901	91	2045481	2.67	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.971	83	874245	2.55	ppbV	100
67)	4-Ethyltoluene	10.039	105	1647910	2.60	ppbV	99
68)	2-Chlorotoluene	10.065	91	1319338	2.53	ppbV	99
69)	1,3,5-Trimethylbenzene	10.151	105	1352228	2.64	ppbV	100
70)	1,2,4-Trimethylbenzene	10.624	105	1317527	2.59	ppbV	99
71)	1,3-Dichlorobenzene	10.997	146	732133	2.17	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	692835	2.14	ppbV	99
73)	Benzyl chloride	11.431	91	873022	1.97	ppbV	99
74)	1,2-Dichlorobenzene	11.640	146	730471	2.29	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	530064	2.32	ppbV	99
76)	1,2,4-Trichlorobenzene	13.200	180	518457	2.07	ppbV	100
77)	Naphthalene	13.463	128	1018158	1.97	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3403std04.D
Acq On : 15 Aug 2023 1:45 pm
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 16 09:55:55 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3404std03.D
Acq On : 15 Aug 2023 1:09 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 16 09:54:13 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.396	130	530723	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	2268530	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2737620	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.718	95	2240242	9.84	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.492	41	375623	10.28	ppbV	100
3) Dichlorodifluoromethane	1.529	85	1361127	10.15	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.650	85	1649087	8.55	ppbV	100
5) n-Butane	1.732	43	929570	10.75	ppbV	98
6) Chloromethane	1.794	52	69017	11.11	ppbV	100
7) Vinyl chloride	1.784	62	537570	10.66	ppbV	100
8) 1,3-Butadiene	1.794	39	527528	10.23	ppbV	100
9) Bromomethane	2.084	94	414507	9.79	ppbV	100
10) Chloroethane	2.197	64	294705	10.74	ppbV	100
11) Vinyl bromide	2.297	106	529947	9.94	ppbV	100
12) Trichlorofluoromethane	2.313	101	1803210	9.99	ppbV	100
13) Ethanol	2.670	45	178190	8.39	ppbV	100
14) 1,1-Dichloroethene	2.734	61	1166579	10.54	ppbV	100
15) Carbon disulfide	2.753	76	2000133	10.99	ppbV	100
16) 1,1,2-Trichloro-1,2,2-...	2.779	101	1623708	9.11	ppbV	100
17) Acrolein	2.988	56	228259	10.01	ppbV	100
18) Allyl chloride	3.113	76	322565	10.86	ppbV	100
19) Isopropanol	3.113	45	1070426	8.72	ppbV	100
20) Methylene chloride	3.203	49	607018	9.06	ppbV	100
21) Acetone	3.213	43	1046415	10.51	ppbV	100
22) trans-1,2-Dichloroethene	3.329	61	1103133	11.06	ppbV	100
23) n-Pentane	3.409	43	1158219	9.10	ppbV	100
24) n-Hexane	3.406	57	1757143	9.89	ppbV	100
25) Methyl tert-butyl ether	3.412	73	2372793	9.82	ppbV	100
26) Tert-butyl alcohol	3.467	59	1587668	10.21	ppbV	100
27) 1,1-Dichloroethane	3.811	63	1366393	9.76	ppbV	100
28) cis-1,2-Dichloroethene	4.235	61	1021823	10.55	ppbV	100
29) Cyclohexane	4.415	56	1253558	9.76	ppbV	100
30) Chloroform	4.457	83	1736397	10.14	ppbV	100
31) Ethyl acetate	4.544	61	272622	10.00	ppbV	100
32) Carbon tetrachloride	4.579	117	1958808	9.54	ppbV	100
33) Tetrahydrofuran	4.576	42	1006885	10.46	ppbV	100
34) 1,1,1-Trichloroethane	4.628	97	1724281	9.33	ppbV	100
35) Methyl ethyl ketone	4.686	43	1590191	10.35	ppbV	100
36) n-Heptane	4.920	43	1866612	10.50	ppbV	100
37) Benzene	4.933	78	2414826	9.86	ppbV	100
38) 1,2-Dichloroethane	5.094	62	1127298	10.27	ppbV	100
40) Trichloroethene	5.435	130	1079500	9.38	ppbV	100
41) 2,2,4-Trimethylpentane	4.846	57	2899901	10.09	ppbV	100
42) 1,2-Dichloropropane	5.885	63	1067336	10.31	ppbV	100
43) Bromodichloromethane	5.946	83	1979492	10.98	ppbV	100
44) Methyl methacrylate	6.091	41	1493887	11.22	ppbV	100
45) 1,4-Dioxane	6.113	88	728333	11.41	ppbV	100
46) cis-1,3-Dichloropropene	6.534	75	1744754	10.91	ppbV	100
47) Toluene	6.772	91	3957437	10.88	ppbV	100
48) Methyl isobutyl ketone	7.136	43	2863824	10.90	ppbV	100
49) Tetrachloroethene	7.161	166	1772265	10.84	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	1834063	11.63	ppbV	100
51) 1,1,2-Trichloroethane	7.338	97	1345722	10.50	ppbV	100

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3404std03.D
Acq On : 15 Aug 2023 1:09 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 16 09:54:13 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

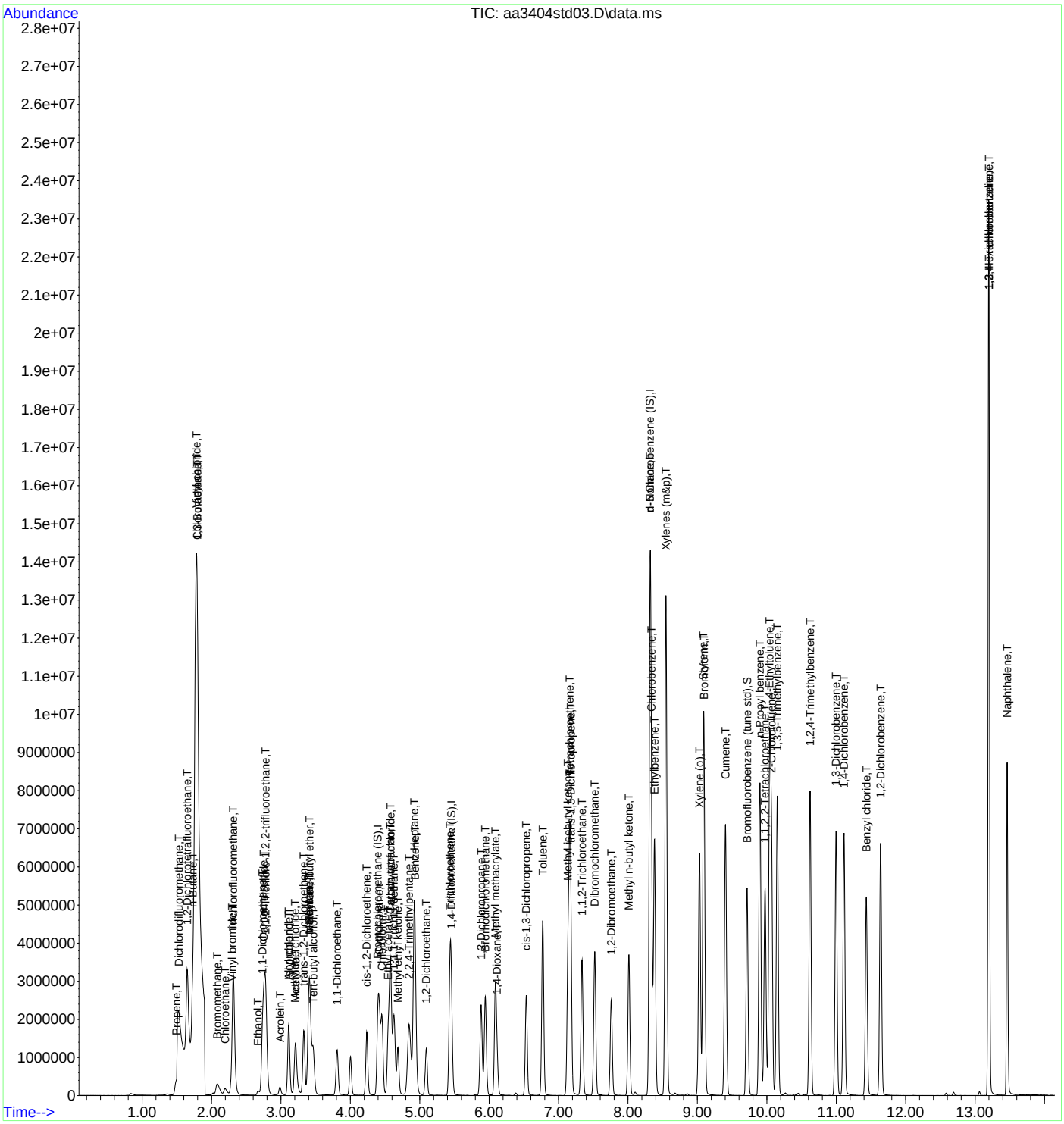
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2376959	11.11	ppbV	100
53)	1,2-Dibromoethane	7.759	107	2045235	10.91	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	2912111	11.83	ppbV	100
56)	n-Nonane	8.319	43	3534946	10.55	ppbV	100
57)	Chlorobenzene	8.338	112	3126708	10.43	ppbV	100
58)	Ethylbenzene	8.383	91	5864430	10.58	ppbV	100
59)	Xylenes (m&p)	8.547	91	8881004	22.23	ppbV	100
60)	Xylene (o)	9.029	91	4642943	10.46	ppbV	100
61)	Styrene	9.087	104	3380250	11.48	ppbV	100
62)	Bromoform	9.097	173	2491890	10.95	ppbV	100
63)	Cumene	9.406	105	5984852	10.35	ppbV	100
65)	n-Propyl benzene	9.901	91	8177614	10.85	ppbV	100
66)	1,1,2,2-Tetrachloroethane	9.975	83	3547036	10.55	ppbV	100
67)	4-Ethyltoluene	10.039	105	6733965	10.84	ppbV	100
68)	2-Chlorotoluene	10.068	91	5305123	10.37	ppbV	100
69)	1,3,5-Trimethylbenzene	10.152	105	5348299	10.64	ppbV	100
70)	1,2,4-Trimethylbenzene	10.624	105	5481212	10.99	ppbV	100
71)	1,3-Dichlorobenzene	10.997	146	3421975	10.35	ppbV	100
72)	1,4-Dichlorobenzene	11.113	146	3376978	10.63	ppbV	100
73)	Benzyl chloride	11.434	91	4675578	10.73	ppbV	100
74)	1,2-Dichlorobenzene	11.640	146	3254751	10.40	ppbV	100
75)	1,3-Hexachlorobutadiene	13.200	225	2216471	9.88	ppbV	100
76)	1,2,4-Trichlorobenzene	13.200	180	2590387	10.53	ppbV	100
77)	Naphthalene	13.463	128	5257288	10.34	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3404std03.D
Acq On : 15 Aug 2023 1:09 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 16 09:54:13 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3405std02.D
Acq On : 15 Aug 2023 3:12 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 16 09:53:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.399	130	499473	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	2278768	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2812211	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2375515	10.15	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.499	41	770871	22.41	ppbV	99
3) Dichlorodifluoromethane	1.533	85	2795748	22.15	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.657	85	3247750	17.89	ppbV	100
5) n-Butane	1.736	43	1882829	23.14	ppbV	99
6) Chloromethane	1.798	52	142733	24.42	ppbV	98
7) Vinyl chloride	1.787	62	1083251	22.82	ppbV	99
8) 1,3-Butadiene	1.801	39	1052739	21.69	ppbV	99
9) Bromomethane	2.091	94	850633	21.34	ppbV	100
10) Chloroethane	2.200	64	600686	23.27	ppbV	98
11) Vinyl bromide	2.300	106	1097918	21.89	ppbV	100
12) Trichlorofluoromethane	2.319	101	3715497	21.88	ppbV	100
13) Ethanol	2.673	45	357760	17.89	ppbV	99
14) 1,1-Dichloroethene	2.737	61	2414830	23.18	ppbV	100
15) Carbon disulfide	2.756	76	3964880	23.15	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.779	101	3255314	19.40	ppbV	100
17) Acrolein	2.991	56	446408	20.80	ppbV	98
18) Allyl chloride	3.113	76	664077	23.76	ppbV	100
19) Isopropanol	3.113	45	2200207	19.06	ppbV	99
20) Methylene chloride	3.207	49	1260244	19.99	ppbV	100
21) Acetone	3.216	43	2038682	21.76	ppbV	100
22) trans-1,2-Dichloroethene	3.332	61	2308104	24.59	ppbV	99
23) n-Pentane	3.409	43	2302426	19.23	ppbV	99
24) n-Hexane	3.412	57	3543404	21.18	ppbV	99
25) Methyl tert-butyl ether	3.412	73	4774341	20.99	ppbV	99
26) Tert-butyl alcohol	3.467	59	3269773	22.35	ppbV	100
27) 1,1-Dichloroethane	3.811	63	2864453	21.75	ppbV	100
28) cis-1,2-Dichloroethene	4.239	61	2160622	23.71	ppbV	100
29) Cyclohexane	4.419	56	2552240	21.11	ppbV	100
30) Chloroform	4.457	83	3608439	22.38	ppbV	99
31) Ethyl acetate	4.544	61	573589	22.35	ppbV	98
32) Carbon tetrachloride	4.579	117	3910518	20.23	ppbV	100
33) Tetrahydrofuran	4.576	42	2087668	23.05	ppbV	99
34) 1,1,1-Trichloroethane	4.631	97	3456960	19.87	ppbV	100
35) Methyl ethyl ketone	4.686	43	3340979	23.11	ppbV	100
36) n-Heptane	4.920	43	3644916	21.78	ppbV	99
37) Benzene	4.936	78	4942978	21.45	ppbV	99
38) 1,2-Dichloroethane	5.097	62	2363649	22.89	ppbV	99
40) Trichloroethene	5.435	130	2273330	19.66	ppbV	99
41) 2,2,4-Trimethylpentane	4.846	57	5933707	20.56	ppbV	100
42) 1,2-Dichloropropane	5.885	63	2205432	21.21	ppbV	99
43) Bromodichloromethane	5.946	83	4121290	22.75	ppbV	100
44) Methyl methacrylate	6.091	41	3097965	23.17	ppbV	99
45) 1,4-Dioxane	6.113	88	1493343	23.30	ppbV	99
46) cis-1,3-Dichloropropene	6.538	75	3649298	22.71	ppbV	100
47) Toluene	6.772	91	7908022	21.65	ppbV	99
48) Methyl isobutyl ketone	7.136	43	5805171	22.00	ppbV	99
49) Tetrachloroethene	7.161	166	3535315	21.53	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	3830549	24.18	ppbV	98
51) 1,1,2-Trichloroethane	7.338	97	2762664	21.45	ppbV	99

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3405std02.D
Acq On : 15 Aug 2023 3:12 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 7 Sample Multiplier: 1

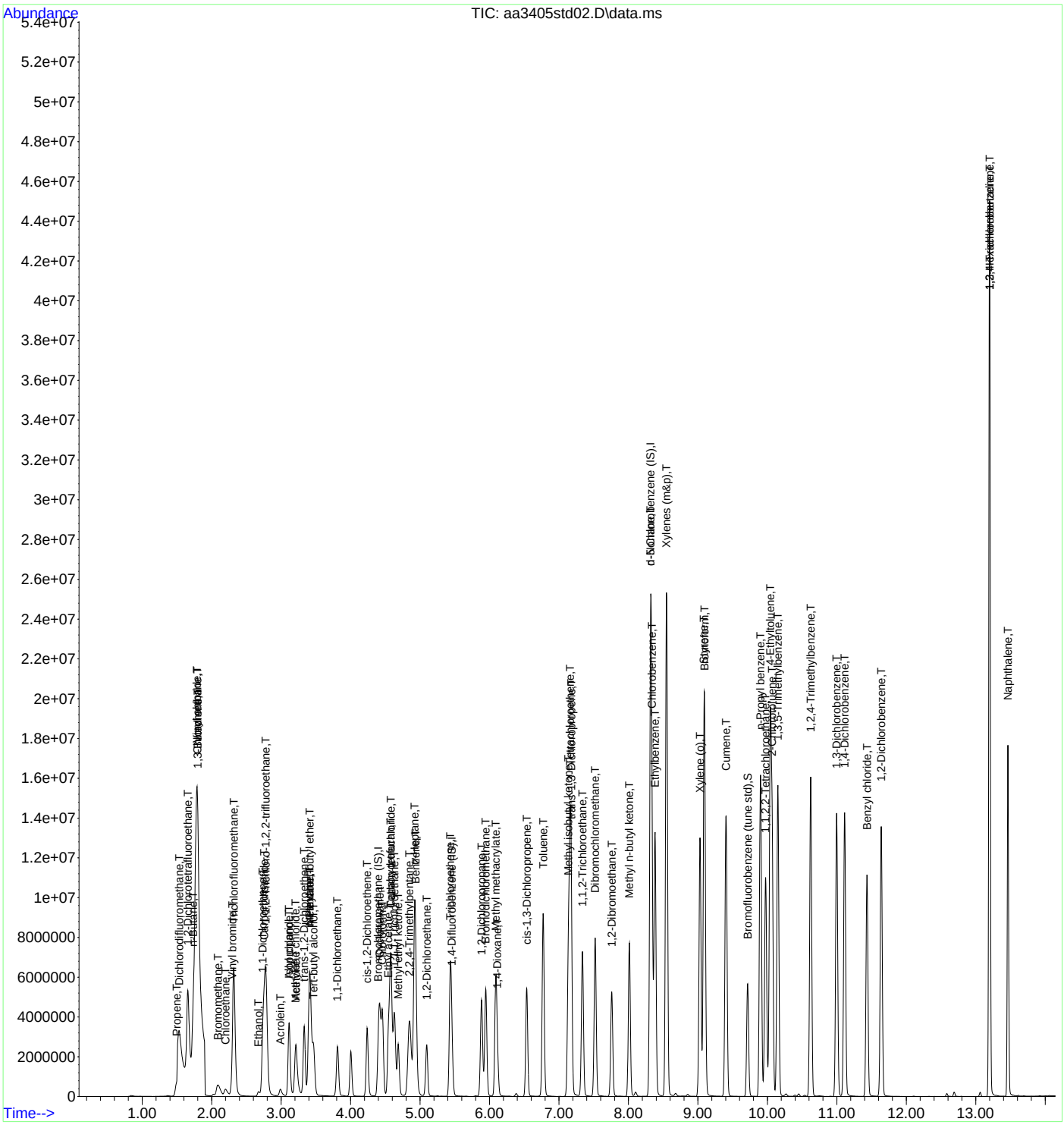
Quant Time: Aug 16 09:53:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	4920304	22.89	ppbV	99
53)	1,2-Dibromoethane	7.759	107	4277090	22.71	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	6056833	24.50	ppbV	99
56)	n-Nonane	8.319	43	7191778	20.90	ppbV	100
57)	Chlorobenzene	8.338	112	6300402	20.46	ppbV	99
58)	Ethylbenzene	8.383	91	11427551	20.06	ppbV	98
59)	Xylenes (m&p)	8.547	91	16612160	40.47	ppbV	96
60)	Xylene (o)	9.029	91	9308971	20.42	ppbV	99
61)	Styrene	9.087	104	6805349	22.50	ppbV	100
62)	Bromoform	9.097	173	5013505	21.45	ppbV	99
63)	Cumene	9.406	105	11708179	19.72	ppbV	98
65)	n-Propyl benzene	9.901	91	15630674	20.19	ppbV	97
66)	1,1,2,2-Tetrachloroethane	9.975	83	7162257	20.73	ppbV	100
67)	4-Ethyltoluene	10.042	105	13015117	20.39	ppbV	97
68)	2-Chlorotoluene	10.068	91	10557525	20.10	ppbV	99
69)	1,3,5-Trimethylbenzene	10.152	105	10540320	20.40	ppbV	98
70)	1,2,4-Trimethylbenzene	10.624	105	10891140	21.26	ppbV	98
71)	1,3-Dichlorobenzene	10.997	146	6954730	20.48	ppbV	99
72)	1,4-Dichlorobenzene	11.113	146	6870236	21.05	ppbV	99
73)	Benzyl chloride	11.434	91	9809727	21.92	ppbV	99
74)	1,2-Dichlorobenzene	11.640	146	6519746	20.28	ppbV	99
75)	1,3-Hexachlorobutadiene	13.200	225	4206699	18.25	ppbV	99
76)	1,2,4-Trichlorobenzene	13.200	180	5049468	19.98	ppbV	100
77)	Naphthalene	13.463	128	10176689	19.49	ppbV	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3405std02.D
Acq On : 15 Aug 2023 3:12 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 16 09:53:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3406std01.D
Acq On : 15 Aug 2023 4:47 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 09:52:28 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.406	130	487271	10.00	ppbV		0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	2425798	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2732166	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.717	95	2577792	11.34	ppbV		0.000
Target Compounds							Qvalue
2) Propene	1.512	41	1707516	50.87	ppbV		99
3) Dichlorodifluoromethane	1.536	85	5966633	48.46	ppbV		100
4) 1,2-Dichlorotetrafluor...	1.660	85	6899713	38.95	ppbV		99
5) n-Butane	1.739	43	3778324	47.60	ppbV		100
6) Chloromethane	1.798	52	321722	56.43	ppbV	#	1
7) Vinyl chloride	1.791	62	2395758	51.74	ppbV		99
8) 1,3-Butadiene	1.801	39	2174685	45.93	ppbV		97
9) Bromomethane	2.097	94	1861404	47.86	ppbV		100
10) Chloroethane	2.200	64	1346794	53.48	ppbV		100
11) Vinyl bromide	2.300	106	2453541	50.15	ppbV		100
12) Trichlorofluoromethane	2.319	101	7717062	46.58	ppbV		100
13) Ethanol	2.673	45	877297	44.97	ppbV	#	88
14) 1,1-Dichloroethene	2.737	61	4997972	49.17	ppbV		100
15) Carbon disulfide	2.763	76	8067769	48.28	ppbV		99
16) 1,1,2-Trichloro-1,2,2-...	2.782	101	6956660	42.50	ppbV		100
17) Acrolein	2.994	56	951140	45.44	ppbV		98
18) Allyl chloride	3.116	76	1369570	50.24	ppbV		100
19) Isopropanol	3.116	45	4505255	40.00	ppbV		98
20) Methylene chloride	3.206	49	2810050	45.70	ppbV		100
21) Acetone	3.222	43	4077485	44.60	ppbV		100
22) trans-1,2-Dichloroethene	3.332	61	4976980	54.35	ppbV		98
23) n-Pentane	3.412	43	5051897	43.24	ppbV		99
24) n-Hexane	3.412	57	7730831	47.37	ppbV		99
25) Methyl tert-butyl ether	3.412	73	10208419	46.00	ppbV		97
26) Tert-butyl alcohol	3.467	59	7080253	49.62	ppbV		100
27) 1,1-Dichloroethane	3.814	63	6120009	47.63	ppbV		99
28) cis-1,2-Dichloroethene	4.238	61	4615777	51.93	ppbV		100
29) Cyclohexane	4.419	56	5431445	46.06	ppbV		100
30) Chloroform	4.457	83	7598750	48.31	ppbV		100
31) Ethyl acetate	4.547	61	1228122	49.05	ppbV		99
32) Carbon tetrachloride	4.583	117	8430867	44.71	ppbV		100
33) Tetrahydrofuran	4.576	42	4398645	49.79	ppbV		99
34) 1,1,1-Trichloroethane	4.631	97	7362144	43.37	ppbV		100
35) Methyl ethyl ketone	4.685	43	7160721	50.77	ppbV		99
36) n-Heptane	4.920	43	7185919	44.02	ppbV		100
37) Benzene	4.936	78	10281932	45.73	ppbV		98
38) 1,2-Dichloroethane	5.097	62	5067261	50.30	ppbV		99
40) Trichloroethene	5.438	130	4836394	39.29	ppbV		100
41) 2,2,4-Trimethylpentane	4.849	57	13336894	43.41	ppbV		98
42) 1,2-Dichloropropane	5.888	63	4560844	41.21	ppbV		99
43) Bromodichloromethane	5.949	83	8574056	44.47	ppbV		99
44) Methyl methacrylate	6.090	41	6283616	44.15	ppbV		100
45) 1,4-Dioxane	6.116	88	3065935	44.93	ppbV		99
46) cis-1,3-Dichloropropene	6.537	75	7375814	43.13	ppbV		99
47) Toluene	6.772	91	14907224	38.33	ppbV		96
48) Methyl isobutyl ketone	7.135	43	11479037	40.87	ppbV		98
49) Tetrachloroethene	7.164	166	6808224	38.95	ppbV		100
50) trans-1,3-Dichloropropene	7.177	75	7633904	45.27	ppbV		99
51) 1,1,2-Trichloroethane	7.338	97	5566488	40.60	ppbV		99

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3406std01.D
Acq On : 15 Aug 2023 4:47 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 09:52:28 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

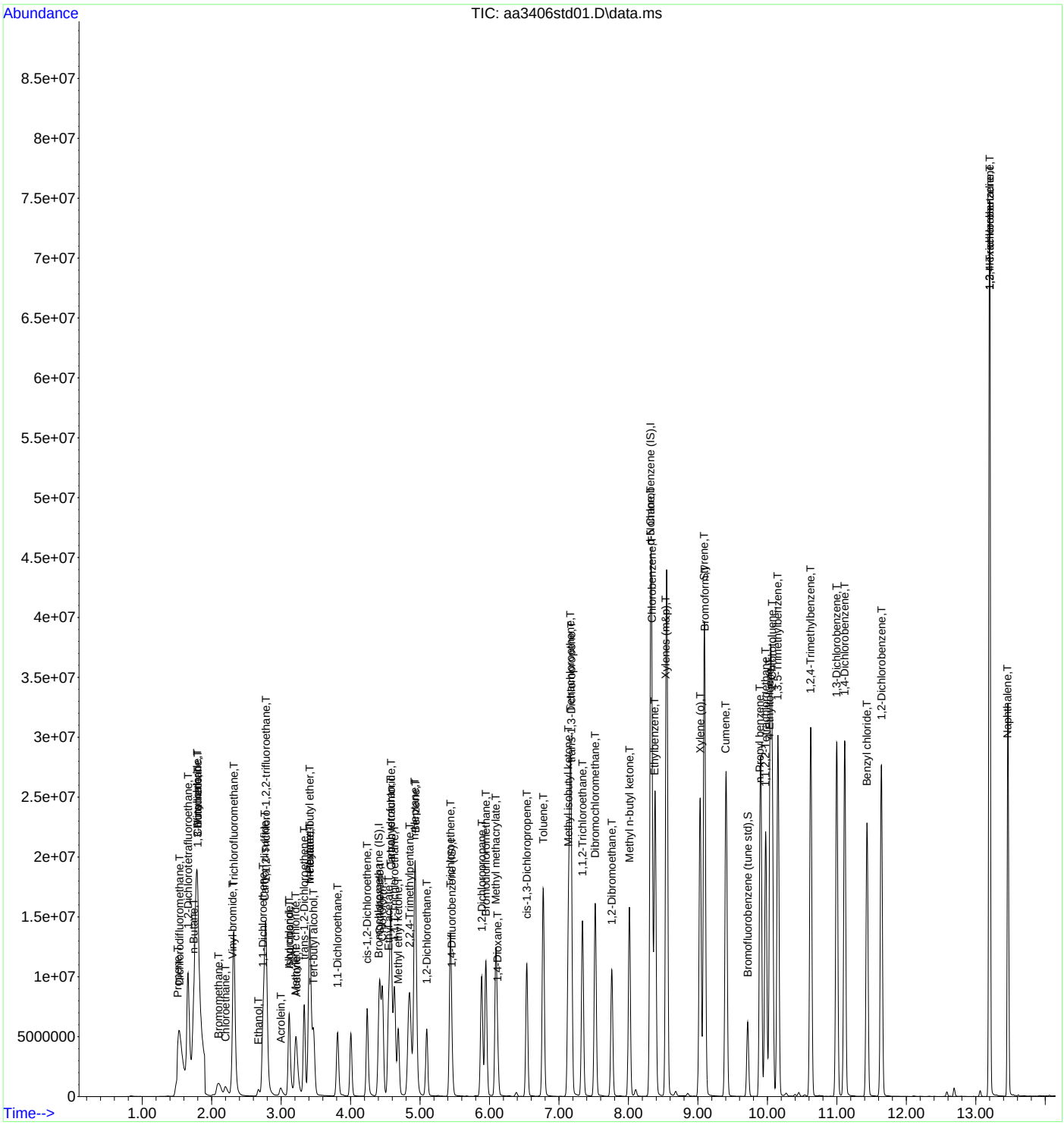
	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.521	129	9886675	43.20	ppbV		99
53)	1,2-Dibromoethane	7.759	107	8609104	42.93	ppbV		100
54)	Methyl n-butyl ketone	8.013	43	12284613	46.68	ppbV		97
56)	n-Nonane	8.319	43	14182361	42.42	ppbV		98
57)	Chlorobenzene	8.338	112	12196934	40.77	ppbV		96
58)	Ethylbenzene	8.377	91	20355846	36.79	ppbV		90
59)	Xylenes (m&p)	8.537	91	24199756	60.68	ppbV	#	74
60)	Xylene (o)	9.033	91	17688374	39.94	ppbV		95
61)	Styrene	9.090	104	13186398	44.87	ppbV		97
62)	Bromoform	9.100	173	9710978	42.77	ppbV		98
63)	Cumene	9.399	105	21140296	36.64	ppbV		91
65)	n-Propyl benzene	9.891	91	24008413	31.92	ppbV	#	80
66)	1,1,2,2-Tetrachloroethane	9.975	83	14100555	42.01	ppbV		97
67)	4-Ethyltoluene	10.032	105	21664037	34.94	ppbV	#	84
68)	2-Chlorotoluene	10.068	91	20299207	39.78	ppbV		97
69)	1,3,5-Trimethylbenzene	10.148	105	19633662	39.12	ppbV		92
70)	1,2,4-Trimethylbenzene	10.621	105	20118523	40.43	ppbV		91
71)	1,3-Dichlorobenzene	10.997	146	14030394	42.52	ppbV		97
72)	1,4-Dichlorobenzene	11.113	146	13876826	43.76	ppbV		97
73)	Benzyl chloride	11.431	91	19339251	44.49	ppbV		93
74)	1,2-Dichlorobenzene	11.643	146	13190929	42.23	ppbV		97
75)	1,3-Hexachlorobutadiene	13.200	225	7629643	34.08	ppbV		97
76)	1,2,4-Trichlorobenzene	13.200	180	9392234	38.25	ppbV		99
77)	Naphthalene	13.457	128	15939992	31.42	ppbV	#	83

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3406std01.D
Acq On : 15 Aug 2023 4:47 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 09:52:28 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 10/10/2023 **Method ID:** 231009.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48

	Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
1)	Bromochloromethane	----------ISTD----------						
3)	Dichlorodifluoromethane	1.9	2.0	2.2	2.4	2.6	2.2	13
4)	1,2-Dichlorotetrafluoroethane	3.2	3.4	2.9	3.2	3.5	3.2	6.1
6)	Chloromethane	0.085	0.098	0.11	0.12	0.14	0.11	18
7)	Vinyl chloride	0.70	0.84	0.91	0.98	1.1	0.91	17
8)	1,3-Butadiene	0.87	0.82	0.80	0.84	0.91	0.85	4.8
9)	Bromomethane	0.49	0.70	0.75	0.81	0.91	0.73	22
10)	Chloroethane	0.24	0.45	0.50	0.55	0.63	0.48	31
11)	Vinyl bromide	0.53	0.86	0.92	1.0	1.1	0.90	26
12)	Trichlorofluoromethane	2.6	2.6	2.7	2.9	3.2	2.8	8.9
14)	1,1-Dichloroethene	1.4	1.5	1.9	2.1	2.3	1.9	21
15)	Carbon disulfide	2.4	2.6	3.2	3.4	3.7	3.1	18
16)	1,1,2-Trichloro-1,2,2-trifluoroethane	2.8	3.0	2.5	2.7	3.0	2.8	7.4
17)	Acrolein	0.39	0.33	0.43	0.45	0.49	0.42	15
18)	Allyl Chloride	0.35	0.42	0.54	0.58	0.62	0.50	23
19)	Isopropanol	1.6	1.7	2.1	2.3	2.4	2.0	17
20)	Methylene chloride	1.7	0.97	1.0	1.1	1.3	1.2	25
21)	Acetone	1.5	1.2	1.5	1.6	1.7	1.5	12
22)	1,2-Dichloroethene (trans)	1.4	1.3	1.8	2.0	2.2	1.7	21
24)	n-Hexane	3.1	3.0	3.0	3.1	3.5	3.2	7.1
25)	Methyl tert-butyl ether	3.5	4.1	3.6	3.9	4.3	3.9	8.5
26)	Tert-butyl alcohol	2.3	2.5	2.5	2.7	3.0	2.6	11
27)	1,1-Dichloroethane	2.2	2.0	2.2	2.4	2.7	2.3	12
28)	1,2-Dichloroethene (cis)	1.3	1.4	1.7	1.8	2.0	1.6	18
29)	Cyclohexane	2.1	2.2	2.1	2.2	2.4	2.2	6.8
30)	Chloroform	2.2	2.3	2.6	2.9	3.2	2.7	15
32)	Carbon tetrachloride	3.0	3.1	3.0	3.2	3.5	3.2	6.9
33)	Tetrahydrofuran	1.5	1.3	1.5	1.6	1.7	1.5	9.4
34)	1,1,1-Trichloroethane	2.5	2.7	2.7	2.9	3.1	2.8	8.7
35)	Methyl ethyl ketone	2.3	2.1	2.4	2.6	2.9	2.4	13
36)	n-Heptane	2.6	2.6	2.9	2.9	2.9	2.8	6.9
37)	Benzene	3.6	3.8	3.8	4.1	4.5	4.0	9.3
38)	1,2-Dichloroethane	1.3	1.5	1.7	1.8	2.0	1.7	17
39)	1,4-Difluorobenzene	----------ISTD----------						
40)	Trichloroethene	0.38	0.47	0.44	0.45	0.47	0.44	8.1
41)	2,2,4-Trimethylpentane	1.2	1.5	1.2	1.3	1.3	1.3	9.8
42)	1,2-Dichloropropane	0.38	0.40	0.39	0.39	0.39	0.39	2.1
43)	Bromodichloromethane	0.59	0.68	0.66	0.68	0.68	0.66	6.0

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 10/10/2023 **Method ID:** 231009.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48

Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
44) Methyl methacrylate	0.42	0.46	0.50	0.50	0.48	0.47	6.8
45) 1,4-Dioxane	0.21	0.24	0.24	0.25	0.25	0.24	5.9
46) 1,3-Dichloropropene (cis)	0.55	0.59	0.63	0.63	0.62	0.60	5.6
47) Toluene	1.2	1.5	1.5	1.5	1.4	1.4	7.6
48) Methyl isobutyl ketone	0.76	0.92	0.95	0.93	0.86	0.88	8.6
49) Tetrachloroethene	0.53	0.61	0.63	0.64	0.61	0.61	7.1
50) 1,3-Dichloropropene (trans)	0.46	0.57	0.63	0.65	0.62	0.59	13
51) 1,1,2-Trichloroethane	0.40	0.48	0.49	0.51	0.50	0.48	9.3
52) Dibromochloromethane	0.64	0.78	0.83	0.86	0.85	0.79	12
53) 1,2-Dibromoethane	0.54	0.67	0.73	0.75	0.74	0.69	13
54) Methyl n-butyl ketone	0.70	0.78	0.93	0.93	0.90	0.85	12
55) d-5 Chlorbenzene	----------ISTD----------						
57) Chlorobenzene	0.97	1.1	0.99	0.99	0.99	1.00	3.0
58) Ethylbenzene	1.8	2.0	1.9	1.8	1.8	1.8	4.5
59) Xylenes (m&p)	1.3	1.5	1.4	1.4	1.2	1.4	9.3
60) Xylenes (o)	1.4	1.6	1.5	1.5	1.5	1.5	5.0
61) Styrene	0.85	1.0	1.1	1.1	1.1	1.0	9.4
62) Bromoform	0.63	0.72	0.75	0.77	0.80	0.73	8.7
63) Cumene	1.8	2.2	2.0	1.9	1.9	1.9	7.1
66) 1,1,2,2-Tetrachloroethane	0.96	1.1	1.0	1.0	1.1	1.0	5.5
67) 4-Ethyltoluene	2.1	2.2	2.2	2.2	2.1	2.2	3.8
68) 2-Chlorotoluene	1.6	1.8	1.7	1.7	1.7	1.7	4.3
69) 1,3,5-Trimethylbenzene	1.5	1.9	1.8	1.8	1.7	1.7	7.6
70) 1,2,4-Trimethylbenzene	1.4	1.9	1.8	1.8	1.8	1.7	9.6
71) 1,3-Dichlorobenzene	1.0	1.0	1.1	1.1	1.1	1.1	4.2
72) 1,4-Dichlorobenzene	0.94	1.0	1.1	1.1	1.2	1.1	8.6
73) Benzyl chloride	1.2	1.4	1.6	1.7	1.7	1.5	15
74) 1,2-Dichlorobenzene	0.90	1.1	1.0	1.1	1.1	1.0	7.4
75) 1,3-Hexachlorobutadiene	0.73	0.78	0.70	0.69	0.66	0.71	6.1
76) 1,2,4-Trichlorobenzene	0.83	0.81	0.82	0.84	0.83	0.82	1.4
77) Naphthalene	2.0	1.9	1.9	1.9	1.7	1.9	4.8

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Response Factor Report GCMS2B

Method Path : C:\msdchem\1\METHODS\
Method File : 231009.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Tue Oct 10 15:12:35 2023
Response Via : Initial Calibration

Calibration Files
0.2 =aa4132std05.D 2 =aa4133std04.D 10 =aa4134std03.D 20 =aa4135std02.D 40 =aa4136std01.D

		Compound	0.2	2	10	20	40	Avg	%RSD
1)	I	Bromochloromethane...	----------ISTD----------						
2)	T	Propene	0.779	0.688	0.601	0.651	0.751	0.694	10.44
3)	T	Dichlorodifluoro...	1.907	1.983	2.168	2.390	2.633	2.216	13.46
4)	T	1,2-Dichlorotetr...	3.185	3.352	2.944	3.158	3.458	3.219	6.12
5)	T	n-Butane	1.490	1.596	1.532	1.649	1.719	1.597	5.69
6)	T	Chloromethane	0.085	0.098	0.113	0.121	0.137	0.111	18.16
7)	T	Vinyl chloride	0.695	0.837	0.907	0.984	1.107	0.906	17.06
8)	T	1,3-Butadiene	0.868	0.820	0.800	0.839	0.905	0.846	4.88
9)	T	Bromomethane	0.486	0.695	0.751	0.814	0.911	0.731	21.71
10)	T	Chloroethane	0.242	0.451	0.502	0.547	0.634	0.475	30.85
11)	T	Vinyl bromide	0.534	0.864	0.915	1.018	1.146	0.895	25.58
12)	T	Trichlorofluorom...	2.621	2.609	2.656	2.932	3.178	2.799	8.92
13)	T	Ethanol	0.278	0.262	0.269	0.289	0.366	0.293	14.44
14)	T	1,1-Dichloroethene	1.413	1.490	1.944	2.133	2.308	1.858	21.17
15)	T	Carbon disulfide	2.407	2.574	3.227	3.426	3.653	3.058	17.73
16)	T	1,1,2-Trichloro-...	2.836	3.030	2.523	2.712	2.994	2.819	7.42
17)	T	Acrolein	0.385	0.331	0.431	0.447	0.494	0.418	14.91
18)	T	Allyl chloride	0.345	0.421	0.535	0.582	0.624	0.501	23.11
19)	T	Isopropanol	1.617	1.677	2.082	2.254	2.397	2.005	17.28
20)	T	Methylene chloride	1.726	0.973	1.020	1.121	1.307	1.229	24.89
21)	T	Acetone	1.489	1.226	1.538	1.595	1.694	1.508	11.62
22)	T	trans-1,2-Dichlo...	1.377	1.330	1.784	1.951	2.181	1.724	21.29
23)	T	n-Pentane	2.223	2.305	2.173	2.308	2.616	2.325	7.41
24)	T	n-Hexane	3.143	2.995	2.967	3.122	3.534	3.152	7.19
25)	T	Methyl tert-buty...	3.476	4.059	3.641	3.875	4.310	3.872	8.54
26)	T	Tert-butyl alcohol	2.280	2.528	2.502	2.698	3.027	2.607	10.66
27)	T	1,1-Dichloroethane	2.208	2.008	2.236	2.445	2.714	2.322	11.56
28)	T	cis-1,2-Dichloro...	1.343	1.351	1.654	1.825	2.018	1.638	18.03
29)	t	Cyclohexane	2.057	2.245	2.081	2.192	2.434	2.202	6.86
30)	T	Chloroform	2.233	2.343	2.644	2.933	3.225	2.676	15.36
31)	T	Ethyl acetate	0.310	0.390	0.450	0.493	0.533	0.435	20.09
32)	T	Carbon tetrachlo...	2.964	3.097	3.048	3.232	3.528	3.174	6.95
33)	T	Tetrahydrofuran	1.456	1.307	1.488	1.591	1.681	1.504	9.42
34)	T	1,1,1-Trichloroe...	2.481	2.746	2.667	2.869	3.137	2.780	8.79
35)	T	Methyl ethyl ketone	2.291	2.066	2.372	2.620	2.862	2.442	12.58
36)	T	n-Heptane	2.552	2.559	2.850	2.930	2.928	2.764	6.98
37)	T	Benzene	3.627	3.758	3.801	4.128	4.544	3.972	9.30
38)	T	1,2-Dichloroethane	1.312	1.486	1.666	1.833	2.016	1.663	16.69
39)	I	1,4-Difluorobenzen...	----------ISTD----------						
40)	T	Trichloroethene	0.381	0.468	0.441	0.454	0.469	0.442	8.16
41)	T	2,2,4-Trimethylp...	1.199	1.522	1.226	1.268	1.298	1.303	9.87
42)	T	1,2-Dichloropropane	0.377	0.399	0.391	0.393	0.385	0.389	2.16
43)	T	Bromodichloromet...	0.586	0.682	0.655	0.678	0.675	0.655	6.09
44)	T	Methyl methacrylate	0.419	0.464	0.497	0.498	0.481	0.472	6.88
45)	T	1,4-Dioxane	0.214	0.238	0.243	0.249	0.248	0.238	5.94
46)	T	cis-1,3-Dichloro...	0.549	0.592	0.626	0.634	0.615	0.603	5.69
47)	T	Toluene	1.225	1.453	1.484	1.478	1.387	1.405	7.68
48)	T	Methyl isobutyl ...	0.759	0.922	0.947	0.925	0.863	0.883	8.63
49)	T	Tetrachloroethene	0.531	0.613	0.633	0.639	0.613	0.606	7.17
50)	T	trans-1,3-Dichlo...	0.459	0.568	0.633	0.647	0.618	0.585	13.11
51)	T	1,1,2-Trichloroe...	0.399	0.475	0.494	0.506	0.500	0.475	9.30
52)	T	Dibromochloromet...	0.636	0.778	0.834	0.857	0.849	0.791	11.62
53)	T	1,2-Dibromoethane	0.535	0.672	0.732	0.751	0.743	0.686	13.15
54)	T	Methyl n-butyl k...	0.704	0.779	0.932	0.932	0.900	0.849	12.07
55)	I	d-5 Chlorobenzene ...	----------ISTD----------						
56)	T	n-Nonane	0.927	1.067	1.027	0.986	0.955	0.992	5.62
57)	T	Chlorobenzene	0.971	1.050	0.990	0.986	0.988	0.997	3.09
58)	T	Ethylbenzene	1.789	1.981	1.852	1.820	1.771	1.843	4.51
59)	T	Xylenes (m&p)	1.326	1.536	1.415	1.363	1.186	1.365	9.36
60)	T	Xylene (o)	1.445	1.623	1.468	1.461	1.451	1.490	5.05

Method Path : C:\msdchem\1\METHODS\
Method File : 231009.M

61)	T	Styrene	0.849	1.047	1.067	1.065	1.073	1.020	9.41
62)	T	Bromoform	0.629	0.724	0.745	0.767	0.797	0.732	8.70
63)	T	Cumene	1.783	2.168	1.955	1.932	1.897	1.947	7.18
64)	S	Bromofluorobenze...	0.801	0.842	0.870	0.891	0.954	0.872	6.54
65)	T	n-Propyl benzene	2.478	2.727	2.610	2.556	2.335	2.541	5.77
66)	T	1,1,2,2-Tetrachl...	0.959	1.120	1.040	1.040	1.055	1.043	5.50
67)	T	4-Ethyltoluene	2.059	2.245	2.204	2.174	2.073	2.151	3.80
68)	T	2-Chlorotoluene	1.626	1.829	1.701	1.690	1.690	1.707	4.35
69)	T	1,3,5-Trimethylb...	1.513	1.880	1.755	1.754	1.747	1.730	7.69
70)	T	1,2,4-Trimethylb...	1.441	1.880	1.785	1.775	1.764	1.729	9.68
71)	T	1,3-Dichlorobenzene	1.031	1.007	1.050	1.081	1.124	1.059	4.27
72)	T	1,4-Dichlorobenzene	0.943	1.005	1.082	1.123	1.174	1.065	8.65
73)	T	Benzyl chloride	1.159	1.435	1.619	1.688	1.742	1.529	15.48
74)	T	1,2-Dichlorobenzene	0.895	1.065	1.034	1.054	1.089	1.027	7.47
75)	T	1,3-Hexachlorobu...	0.731	0.778	0.703	0.687	0.664	0.713	6.17
76)	T	1,2,4-Trichlorob...	0.829	0.807	0.819	0.838	0.828	0.824	1.43
77)	T	Naphthalene	1.972	1.901	1.894	1.926	1.733	1.885	4.80

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4132std05.D
Acq On : 10 Oct 2023 10:40 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 15:08:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:03:48 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.380	130	335961	10.00	ppbV		-0.014
39) 1,4-Difluorobenzene (IS)	5.444	114	1366548	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1287551	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.714	95	1031937	9.01	ppbV		0.000
Target Compounds							Qvalue
2) Propene	1.451	41	5709	0.25	ppbV		95
3) Dichlorodifluoromethane	1.499	85	13581	0.18	ppbV	#	83
4) 1,2-Dichlorotetrafluor...	1.619	85	20971	0.19	ppbV		99
5) n-Butane	1.702	43	10916	0.20	ppbV	#	85
6) Chloromethane	1.684	52	641	0.16	ppbV		65
7) Vinyl chloride	1.753	62	5046	0.16	ppbV	#	50
8) 1,3-Butadiene	1.760	39	6239	0.22	ppbV		75
9) Bromomethane	2.059	94	3266	0.12	ppbV		66
10) Chloroethane	2.168	64	1724	0.10	ppbV		80
11) Vinyl bromide	2.261	106	3625	0.11	ppbV		95
12) Trichlorofluoromethane	2.287	101	19370	0.20	ppbV		97
13) Ethanol	2.654	45	1944	0.20	ppbV	#	47
14) 1,1-Dichloroethene	2.708	61	9877	0.15	ppbV		99
15) Carbon disulfide	2.728	76	17305	0.16	ppbV		100
16) 1,1,2-Trichloro-1,2,2-...	2.750	101	20772	0.22	ppbV		98
17) Acrolein	2.969	56	2586	0.18	ppbV	#	42
18) Allyl chloride	3.084	76	2500	0.14	ppbV		100
19) Isopropanol	3.094	45	9669	0.14	ppbV	#	84
20) Methylene chloride	3.178	49	12526	0.34	ppbV		92
21) Acetone	3.194	43	10805	0.21	ppbV	#	83
22) trans-1,2-Dichloroethene	3.306	61	10268	0.17	ppbV		100
23) n-Pentane	3.393	43	16132	0.20	ppbV		92
24) n-Hexane	3.380	57	23439	0.22	ppbV		95
25) Methyl tert-butyl ether	3.393	73	26157	0.20	ppbV		89
26) Tert-butyl alcohol	3.445	59	17620	0.20	ppbV		100
27) 1,1-Dichloroethane	3.792	63	15876	0.20	ppbV		91
28) cis-1,2-Dichloroethene	4.219	61	9833	0.17	ppbV		98
29) Cyclohexane	4.396	56	15483	0.21	ppbV		99
30) Chloroform	4.445	83	16203	0.17	ppbV		96
31) Ethyl acetate	4.535	61	2253	0.14	ppbV		88
32) Carbon tetrachloride	4.563	117	22109	0.20	ppbV		100
33) Tetrahydrofuran	4.570	42	10856	0.21	ppbV		87
34) 1,1,1-Trichloroethane	4.615	97	18169	0.19	ppbV		97
35) Methyl ethyl ketone	4.676	43	16932	0.20	ppbV		91
36) n-Heptane	4.911	43	19030	0.20	ppbV		92
37) Benzene	4.920	78	26320	0.19	ppbV		98
38) 1,2-Dichloroethane	5.078	62	9608	0.16	ppbV		97
40) Trichloroethene	5.428	130	10418	0.17	ppbV		93
41) 2,2,4-Trimethylpentane	4.827	57	35716	0.20	ppbV		97
42) 1,2-Dichloropropane	5.882	63	11430	0.21	ppbV		90
43) Bromodichloromethane	5.940	83	18430	0.20	ppbV		98
44) Methyl methacrylate	6.081	41	12606	0.19	ppbV		96
45) 1,4-Dioxane	6.116	88	6852	0.21	ppbV		97
46) cis-1,3-Dichloropropene	6.528	75	16642	0.20	ppbV		95
47) Toluene	6.766	91	36156	0.18	ppbV		100
48) Methyl isobutyl ketone	7.136	43	22603	0.18	ppbV		98
49) Tetrachloroethene	7.155	166	16259	0.19	ppbV		100
50) trans-1,3-Dichloropropene	7.174	75	13916	0.17	ppbV		98
51) 1,1,2-Trichloroethane	7.332	97	11763	0.17	ppbV		94

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4132std05.D
Acq On : 10 Oct 2023 10:40 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 15:08:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:03:48 2023
Response via : Initial Calibration

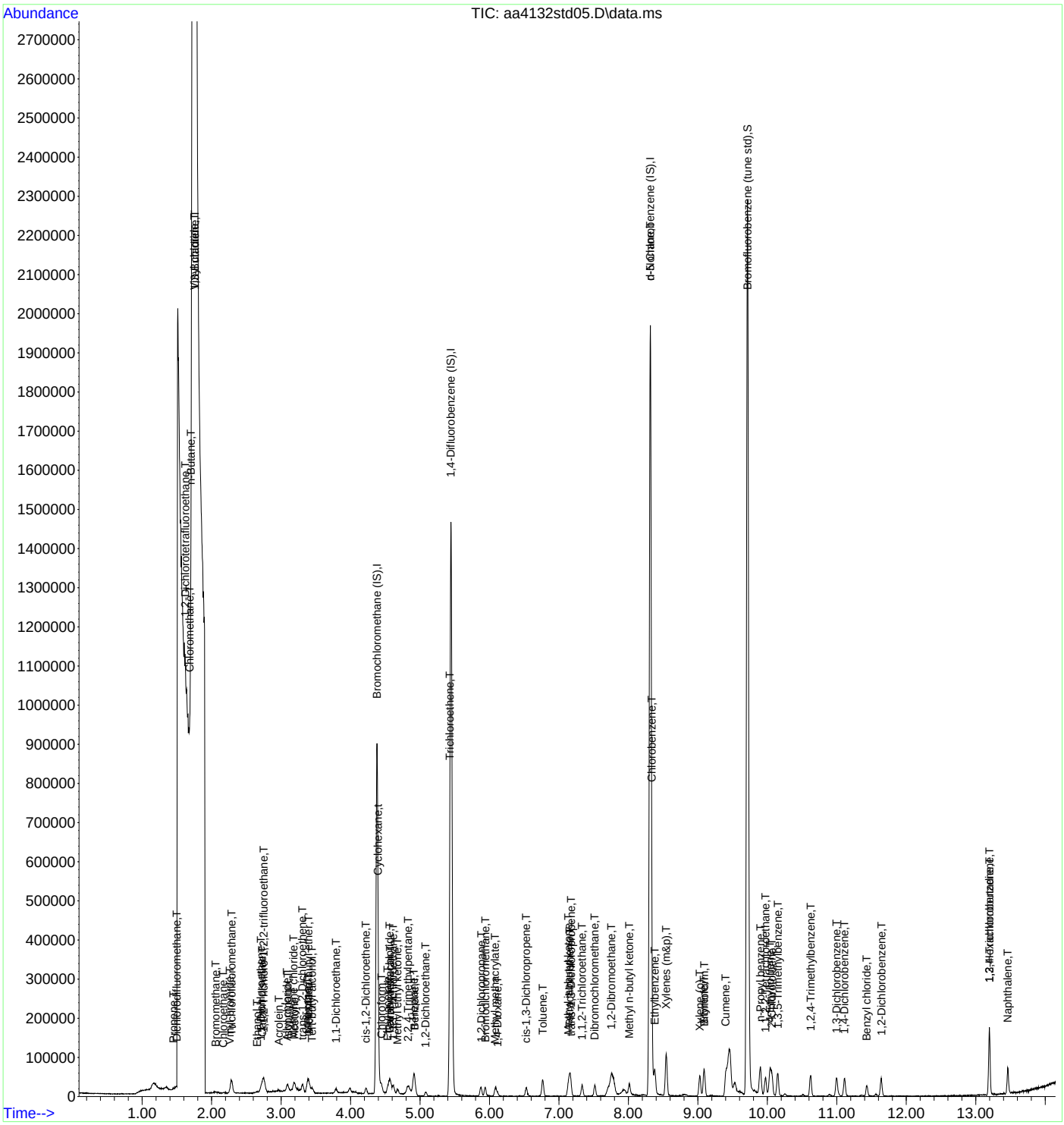
	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.515	129	19465	0.17	ppbV		100
53)	1,2-Dibromoethane	7.753	107	15790	0.16	ppbV		99
54)	Methyl n-butyl ketone	8.014	43	21755	0.18	ppbV		91
56)	n-Nonane	8.316	43	26498	0.20	ppbV		95
57)	Chlorobenzene	8.335	112	27757	0.21	ppbV	#	47
58)	Ethylbenzene	8.380	91	51133	0.21	ppbV		99
59)	Xylenes (m&p)	8.544	91	76173	0.43	ppbV		98
60)	Xylene (o)	9.026	91	40935	0.21	ppbV		95
61)	Styrene	9.087	104	24712	0.18	ppbV		97
62)	Bromoform	9.094	173	18307	0.19	ppbV		99
63)	Cumene	9.399	105	49138	0.19	ppbV		100
65)	n-Propyl benzene	9.901	91	68920	0.21	ppbV		97
66)	1,1,2,2-Tetrachloroethane	9.975	83	28157	0.21	ppbV		96
67)	4-Ethyltoluene	10.039	105	57273	0.20	ppbV		99
68)	2-Chlorotoluene	10.065	91	45637	0.21	ppbV		98
69)	1,3,5-Trimethylbenzene	10.152	105	42479	0.18	ppbV		99
70)	1,2,4-Trimethylbenzene	10.624	105	40083	0.17	ppbV		96
71)	1,3-Dichlorobenzene	10.997	146	29481	0.21	ppbV		95
72)	1,4-Dichlorobenzene	11.110	146	25984	0.18	ppbV		99
73)	Benzyl chloride	11.428	91	29858	0.14	ppbV		95
74)	1,2-Dichlorobenzene	11.644	146	24649	0.18	ppbV		99
75)	1,3-Hexachlorobutadiene	13.197	225	20901	0.23	ppbV		99
76)	1,2,4-Trichlorobenzene	13.197	180	23485	0.22	ppbV		97
77)	Naphthalene	13.460	128	50770	0.21	ppbV		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4132std05.D
Acq On : 10 Oct 2023 10:40 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 15:08:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:03:48 2023
Response via : Initial Calibration



Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4133std04.D
Acq On : 10 Oct 2023 11:46 am
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 10 15:14:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.378	130	266219	10.00	ppbV	-0.016
39) 1,4-Difluorobenzene (IS)	5.445	114	1004403	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.313	117	1028709	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	866440	9.66	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.454	41	39983	2.16	ppbV	100
3) Dichlorodifluoromethane	1.496	85	111937	1.90	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.613	85	174894	2.04	ppbV	97
5) n-Butane	1.699	43	92630	2.18	ppbV	97
6) Chloromethane	1.767	52	6226	2.11	ppbV	99
7) Vinyl chloride	1.761	62	48102	1.99	ppbV	99
8) 1,3-Butadiene	1.764	39	46700	2.07	ppbV	98
9) Bromomethane	2.046	94	37014	1.90	ppbV	98
10) Chloroethane	2.172	64	25446	2.01	ppbV	97
11) Vinyl bromide	2.262	106	46443	1.95	ppbV	99
12) Trichlorofluoromethane	2.284	101	152810	2.05	ppbV	98
13) Ethanol	2.641	45	14500	1.86	ppbV	99
14) 1,1-Dichloroethene	2.706	61	82725	1.67	ppbV	100
15) Carbon disulfide	2.728	76	146663	1.80	ppbV	96
16) 1,1,2-Trichloro-1,2,2-...	2.747	101	175871	2.34	ppbV	99
17) Acrolein	2.963	56	17616	1.58	ppbV	96
18) Allyl chloride	3.091	76	24227	1.82	ppbV	100
19) Isopropanol	3.088	45	79453	1.49	ppbV	96
20) Methylene chloride	3.178	49	55923	1.71	ppbV	98
21) Acetone	3.188	43	70498	1.76	ppbV	98
22) trans-1,2-Dichloroethene	3.307	61	78613	1.71	ppbV	100
23) n-Pentane	3.390	43	132521	2.14	ppbV	97
24) n-Hexane	3.387	57	176979	2.11	ppbV	97
25) Methyl tert-butyl ether	3.390	73	242041	2.35	ppbV	92
26) Tert-butyl alcohol	3.442	59	154807	2.23	ppbV	100
27) 1,1-Dichloroethane	3.789	63	106902	1.73	ppbV	99
28) cis-1,2-Dichloroethene	4.217	61	78716	1.80	ppbV	98
29) Cyclohexane	4.397	56	133883	2.28	ppbV	98
30) Chloroform	4.439	83	134737	1.89	ppbV	98
31) Ethyl acetate	4.532	61	22449	1.94	ppbV	99
32) Carbon tetrachloride	4.561	117	183055	2.17	ppbV	99
33) Tetrahydrofuran	4.564	42	77218	1.93	ppbV	99
34) 1,1,1-Trichloroethane	4.612	97	159351	2.15	ppbV	97
35) Methyl ethyl ketone	4.670	43	121249	1.86	ppbV	100
36) n-Heptane	4.905	43	151248	2.06	ppbV	99
37) Benzene	4.921	78	216088	2.04	ppbV	99
38) 1,2-Dichloroethane	5.079	62	86250	1.95	ppbV	100
40) Trichloroethene	5.423	130	93973	2.11	ppbV	100
41) 2,2,4-Trimethylpentane	4.828	57	337914	2.58	ppbV	98
42) 1,2-Dichloropropane	5.873	63	89006	2.28	ppbV	98
43) Bromodichloromethane	5.937	83	157497	2.39	ppbV	99
44) Methyl methacrylate	6.082	41	102545	2.16	ppbV	96
45) 1,4-Dioxane	6.107	88	55879	2.33	ppbV	99
46) cis-1,3-Dichloropropene	6.529	75	132030	2.18	ppbV	98
47) Toluene	6.767	91	315155	2.23	ppbV	100
48) Methyl isobutyl ketone	7.133	43	201872	2.28	ppbV	98
49) Tetrachloroethene	7.152	166	137965	2.27	ppbV	99
50) trans-1,3-Dichloropropene	7.175	75	126648	2.16	ppbV	100
51) 1,1,2-Trichloroethane	7.336	97	103047	2.16	ppbV	99

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4133std04.D
Acq On : 10 Oct 2023 11:46 am
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

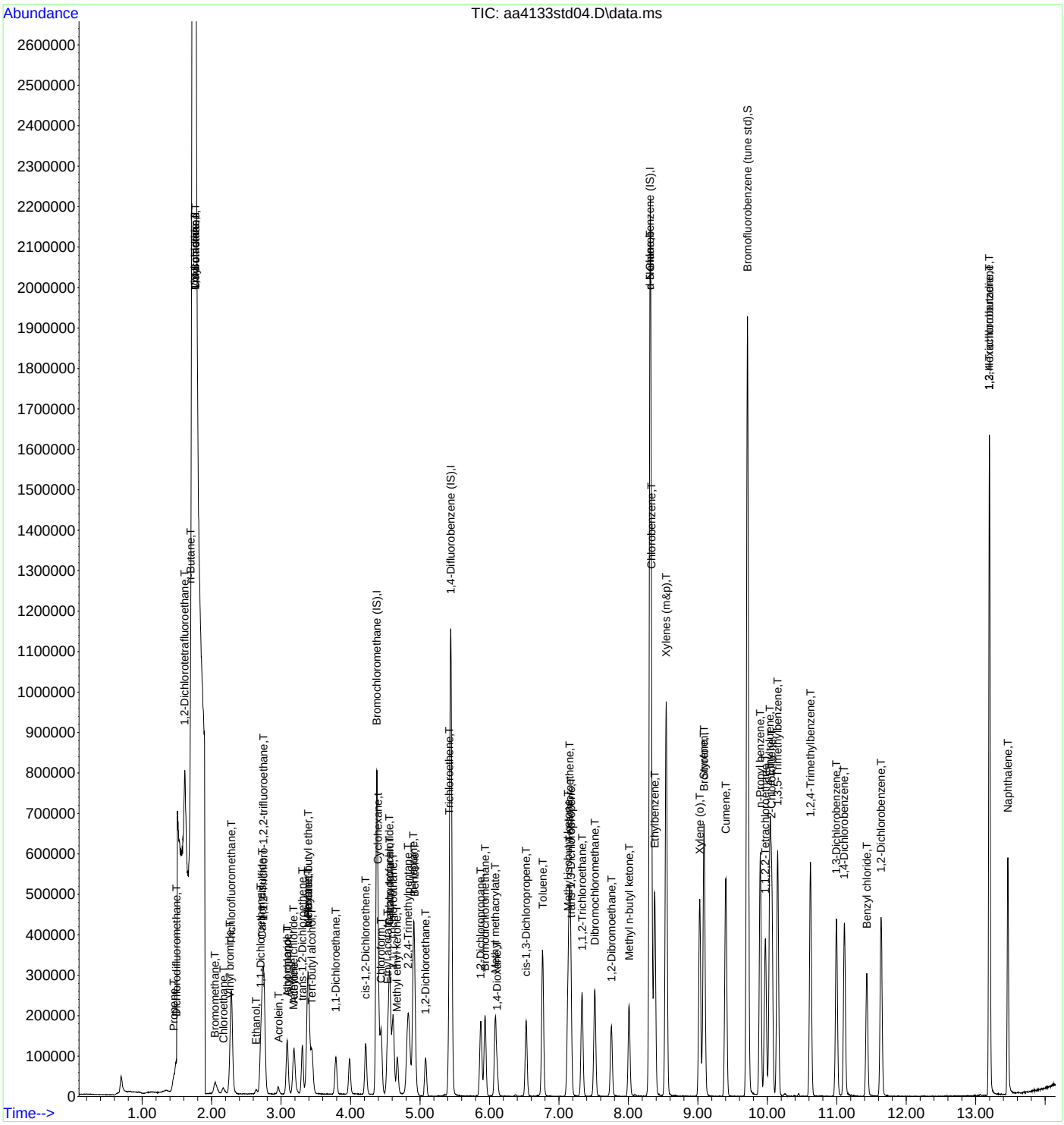
Quant Time: Oct 10 15:14:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.516	129	175087	2.20	ppbV	99
53)	1,2-Dibromoethane	7.757	107	145737	2.11	ppbV	99
54)	Methyl n-butyl ketone	8.011	43	176926	2.07	ppbV	99
56)	n-Nonane	8.313	43	243566	2.39	ppbV	99
57)	Chlorobenzene	8.332	112	239887	2.34	ppbV	96
58)	Ethylbenzene	8.381	91	452392	2.39	ppbV	99
59)	Xylenes (m&p)	8.545	91	704842	5.02	ppbV	98
60)	Xylene (o)	9.027	91	367407	2.40	ppbV	99
61)	Styrene	9.088	104	243368	2.32	ppbV	99
62)	Bromoform	9.091	173	168245	2.23	ppbV	100
63)	Cumene	9.403	105	477213	2.38	ppbV	99
65)	n-Propyl benzene	9.898	91	606010	2.32	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.972	83	262772	2.45	ppbV	100
67)	4-Ethyltoluene	10.037	105	498880	2.25	ppbV	98
68)	2-Chlorotoluene	10.062	91	410155	2.34	ppbV	99
69)	1,3,5-Trimethylbenzene	10.149	105	421510	2.37	ppbV	100
70)	1,2,4-Trimethylbenzene	10.622	105	417786	2.35	ppbV	99
71)	1,3-Dichlorobenzene	10.995	146	230016	2.11	ppbV	99
72)	1,4-Dichlorobenzene	11.107	146	221287	2.02	ppbV	99
73)	Benzyl chloride	11.432	91	295275	1.88	ppbV	98
74)	1,2-Dichlorobenzene	11.638	146	234385	2.22	ppbV	99
75)	1,3-Hexachlorobutadiene	13.197	225	177745	2.42	ppbV	99
76)	1,2,4-Trichlorobenzene	13.197	180	182140	2.15	ppbV	99
77)	Naphthalene	13.464	128	391079	2.02	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4133std04.D
Acq On : 10 Oct 2023 11:46 am
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 10 15:14:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4134std03.D
Acq On : 10 Oct 2023 12:21 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 10 15:20:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.394	130	393970	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.452	114	1695876	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1964329	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1708242	9.98	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.487	41	258254	9.44	ppbV	100
3) Dichlorodifluoromethane	1.523	85	905524	10.37	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.644	85	1136761	8.96	ppbV	100
5) n-Butane	1.730	43	657868	10.46	ppbV	100
6) Chloromethane	1.792	52	50221	11.51	ppbV	98
7) Vinyl chloride	1.781	62	385978	10.81	ppbV	100
8) 1,3-Butadiene	1.792	39	337213	10.11	ppbV	100
9) Bromomethane	2.082	94	295814	10.27	ppbV	100
10) Chloroethane	2.195	64	209472	11.19	ppbV	100
11) Vinyl bromide	2.288	106	363736	10.31	ppbV	100
12) Trichlorofluoromethane	2.310	101	1152906	10.45	ppbV	100
13) Ethanol	2.667	45	110171	9.55	ppbV	100
14) 1,1-Dichloroethene	2.728	61	796558	10.88	ppbV	100
15) Carbon disulfide	2.751	76	1360498	11.29	ppbV	100
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	1083429	9.75	ppbV	100
17) Acrolein	2.982	56	169981	10.33	ppbV	100
18) Allyl chloride	3.111	76	227552	11.52	ppbV	100
19) Isopropanol	3.108	45	729204	9.23	ppbV	100
20) Methylene chloride	3.204	49	433980	8.96	ppbV	100
21) Acetone	3.211	43	654299	11.01	ppbV	100
22) trans-1,2-Dichloroethene	3.326	61	780121	11.48	ppbV	100
23) n-Pentane	3.407	43	924569	10.09	ppbV	100
24) n-Hexane	3.403	57	1285851	10.35	ppbV	100
25) Methyl tert-butyl ether	3.410	73	1606753	10.53	ppbV	100
26) Tert-butyl alcohol	3.465	59	1133398	11.03	ppbV	100
27) 1,1-Dichloroethane	3.805	63	942517	10.30	ppbV	100
28) cis-1,2-Dichloroethene	4.230	61	719414	11.15	ppbV	99
29) Cyclohexane	4.413	56	918448	10.59	ppbV	100
30) Chloroform	4.455	83	1125163	10.67	ppbV	100
31) Ethyl acetate	4.538	61	191456	11.17	ppbV	100
32) Carbon tetrachloride	4.574	117	1320797	10.56	ppbV	100
33) Tetrahydrofuran	4.571	42	644824	10.88	ppbV	100
34) 1,1,1-Trichloroethane	4.625	97	1145085	10.46	ppbV	100
35) Methyl ethyl ketone	4.680	43	1033883	10.75	ppbV	100
36) n-Heptane	4.918	43	1246184	11.45	ppbV	100
37) Benzene	4.931	78	1617158	10.34	ppbV	100
38) 1,2-Dichloroethane	5.091	62	715639	10.92	ppbV	100
40) Trichloroethene	5.432	130	747440	9.96	ppbV	100
41) 2,2,4-Trimethylpentane	4.844	57	2224941	10.07	ppbV	100
42) 1,2-Dichloropropane	5.882	63	729348	11.06	ppbV	100
43) Bromodichloromethane	5.944	83	1277100	11.49	ppbV	100
44) Methyl methacrylate	6.088	41	926458	11.58	ppbV	100
45) 1,4-Dioxane	6.114	88	481882	11.92	ppbV	100
46) cis-1,3-Dichloropropene	6.532	75	1178257	11.52	ppbV	100
47) Toluene	6.770	91	2718261	11.40	ppbV	100
48) Methyl isobutyl ketone	7.133	43	1751107	11.69	ppbV	100
49) Tetrachloroethene	7.159	166	1202779	11.70	ppbV	100
50) trans-1,3-Dichloropropene	7.175	75	1191758	12.01	ppbV	100
51) 1,1,2-Trichloroethane	7.336	97	904123	11.23	ppbV	100

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4134std03.D
Acq On : 10 Oct 2023 12:21 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

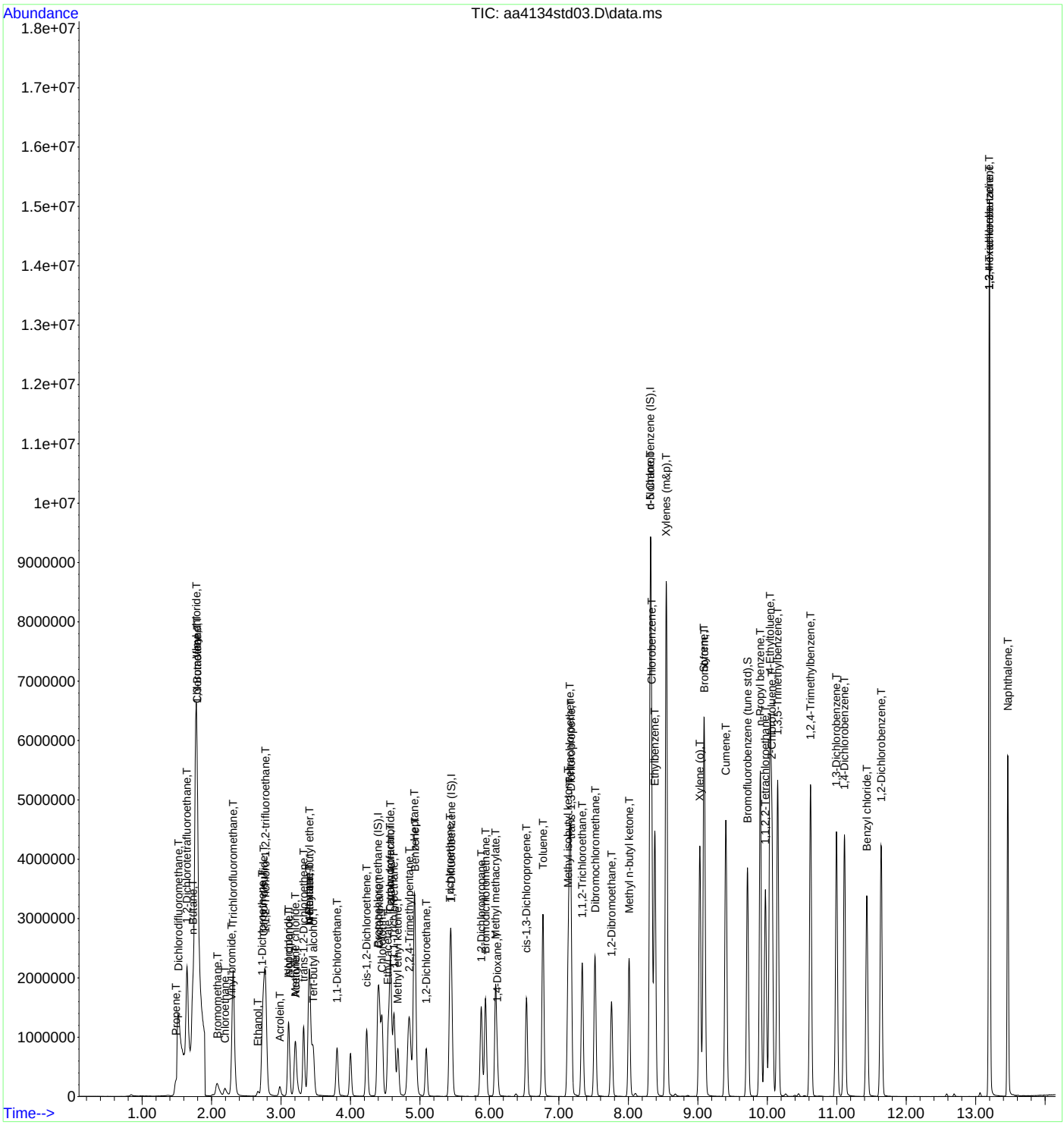
Quant Time: Oct 10 15:20:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.522	129	1584449	11.81	ppbV	100
53)	1,2-Dibromoethane	7.757	107	1340384	11.51	ppbV	100
54)	Methyl n-butyl ketone	8.011	43	1785511	12.39	ppbV	100
56)	n-Nonane	8.316	43	2220175	11.39	ppbV	100
57)	Chlorobenzene	8.336	112	2157593	11.02	ppbV	100
58)	Ethylbenzene	8.381	91	4038783	11.16	ppbV	100
59)	Xylenes (m&p)	8.545	91	6199781	23.12	ppbV	100
60)	Xylene (o)	9.027	91	3172411	10.84	ppbV	100
61)	Styrene	9.088	104	2368407	11.82	ppbV	100
62)	Bromoform	9.095	173	1652936	11.49	ppbV	100
63)	Cumene	9.403	105	4108750	10.74	ppbV	100
65)	n-Propyl benzene	9.898	91	5536013	11.09	ppbV	100
66)	1,1,2,2-Tetrachloroethane	9.972	83	2329432	11.37	ppbV	100
67)	4-Ethyltoluene	10.040	105	4675293	11.06	ppbV	100
68)	2-Chlorotoluene	10.066	91	3642460	10.86	ppbV	100
69)	1,3,5-Trimethylbenzene	10.149	105	3757367	11.06	ppbV	100
70)	1,2,4-Trimethylbenzene	10.622	105	3786813	11.15	ppbV	100
71)	1,3-Dichlorobenzene	10.995	146	2289894	11.01	ppbV	100
72)	1,4-Dichlorobenzene	11.111	146	2273891	10.87	ppbV	100
73)	Benzyl chloride	11.432	91	3179639	10.59	ppbV	100
74)	1,2-Dichlorobenzene	11.641	146	2172244	10.77	ppbV	100
75)	1,3-Hexachlorobutadiene	13.197	225	1532545	10.95	ppbV	100
76)	1,2,4-Trichlorobenzene	13.197	180	1768989	10.93	ppbV	100
77)	Naphthalene	13.464	128	3720647	10.05	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4134std03.D
Acq On : 10 Oct 2023 12:21 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 10 15:20:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4135std02.D
Acq On : 10 Oct 2023 12:55 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 10 15:20:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.397	130	363381	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.455	114	1661895	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1933627	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1722328	10.22	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.490	41	515568	20.44	ppbV	98
3) Dichlorodifluoromethane	1.530	85	1841081	22.86	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.650	85	2249237	19.23	ppbV	99
5) n-Butane	1.730	43	1305900	22.50	ppbV	99
6) Chloromethane	1.788	52	98143	24.39	ppbV	93
7) Vinyl chloride	1.781	62	772248	23.46	ppbV	100
8) 1,3-Butadiene	1.795	39	652429	21.21	ppbV	98
9) Bromomethane	2.085	94	591691	22.26	ppbV	98
10) Chloroethane	2.194	64	421571	24.42	ppbV	99
11) Vinyl bromide	2.294	106	747200	22.97	ppbV	100
12) Trichlorofluoromethane	2.313	101	2343589	23.04	ppbV	100
13) Ethanol	2.667	45	218329	20.52	ppbV	96
14) 1,1-Dichloroethene	2.735	61	1612191	23.88	ppbV	100
15) Carbon disulfide	2.754	76	2664558	23.98	ppbV	100
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	2148248	20.97	ppbV	100
17) Acrolein	2.989	56	325182	21.42	ppbV	99
18) Allyl chloride	3.111	76	456662	25.07	ppbV	100
19) Isopropanol	3.111	45	1457678	20.00	ppbV	99
20) Methylene chloride	3.204	49	879522	19.69	ppbV	98
21) Acetone	3.214	43	1252029	22.84	ppbV	99
22) trans-1,2-Dichloroethene	3.326	61	1573792	25.11	ppbV	99
23) n-Pentane	3.407	43	1811231	21.44	ppbV	99
24) n-Hexane	3.407	57	2518540	21.99	ppbV	100
25) Methyl tert-butyl ether	3.410	73	3154053	22.42	ppbV	100
26) Tert-butyl alcohol	3.464	59	2254575	23.80	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1901162	22.53	ppbV	99
28) cis-1,2-Dichloroethene	4.236	61	1445410	24.28	ppbV	99
29) Cyclohexane	4.413	56	1783891	22.29	ppbV	99
30) Chloroform	4.455	83	2301846	23.67	ppbV	99
31) Ethyl acetate	4.542	61	386835	24.46	ppbV	99
32) Carbon tetrachloride	4.577	117	2607121	22.61	ppbV	100
33) Tetrahydrofuran	4.574	42	1283380	23.48	ppbV	99
34) 1,1,1-Trichloroethane	4.625	97	2272798	22.50	ppbV	99
35) Methyl ethyl ketone	4.683	43	2094715	23.60	ppbV	100
36) n-Heptane	4.918	43	2363613	23.53	ppbV	100
37) Benzene	4.934	78	3240471	22.45	ppbV	100
38) 1,2-Dichloroethane	5.091	62	1451918	24.03	ppbV	100
40) Trichloroethene	5.432	130	1508747	20.52	ppbV	98
41) 2,2,4-Trimethylpentane	4.841	57	4438426	20.50	ppbV	100
42) 1,2-Dichloropropane	5.886	63	1448431	22.41	ppbV	99
43) Bromodichloromethane	5.943	83	2592041	23.80	ppbV	99
44) Methyl methacrylate	6.088	41	1821528	23.23	ppbV	99
45) 1,4-Dioxane	6.114	88	966504	24.40	ppbV	99
46) cis-1,3-Dichloropropene	6.535	75	2338061	23.33	ppbV	100
47) Toluene	6.773	91	5305706	22.72	ppbV	100
48) Methyl isobutyl ketone	7.133	43	3350206	22.82	ppbV	99
49) Tetrachloroethene	7.162	166	2379736	23.63	ppbV	100
50) trans-1,3-Dichloropropene	7.175	75	2387243	24.55	ppbV	98
51) 1,1,2-Trichloroethane	7.339	97	1817644	23.04	ppbV	100

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4135std02.D
Acq On : 10 Oct 2023 12:55 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 10 15:20:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

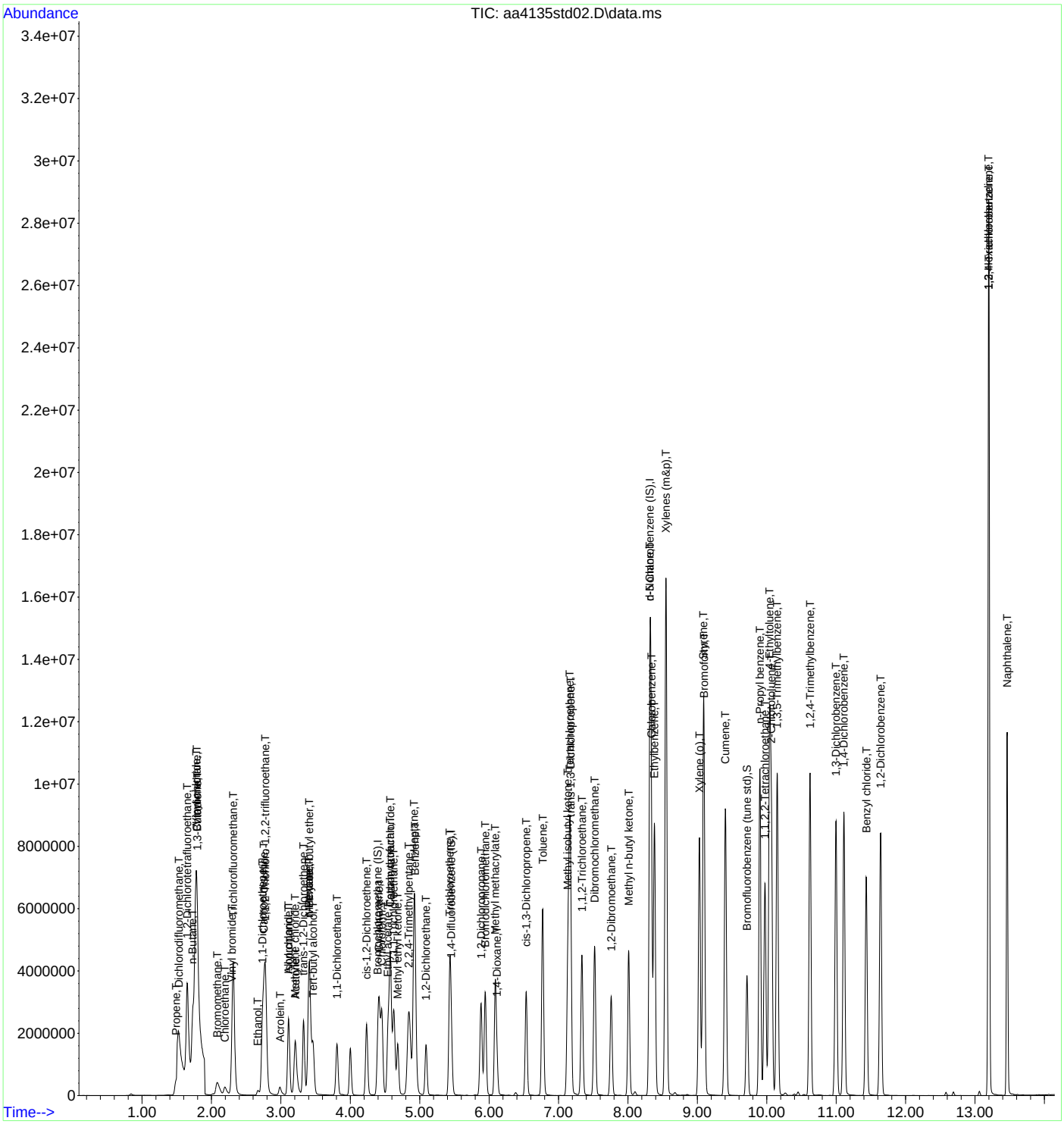
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.522	129	3189477	24.27	ppbV	99
53)	1,2-Dibromoethane	7.760	107	2695314	23.62	ppbV	100
54)	Methyl n-butyl ketone	8.011	43	3500354	24.80	ppbV	100
56)	n-Nonane	8.316	43	4196367	21.87	ppbV	99
57)	Chlorobenzene	8.339	112	4231170	21.95	ppbV	100
58)	Ethylbenzene	8.381	91	7813775	21.93	ppbV	99
59)	Xylenes (m&p)	8.548	91	11753861	44.52	ppbV	98
60)	Xylene (o)	9.030	91	6215156	21.57	ppbV	100
61)	Styrene	9.088	104	4654583	23.60	ppbV	99
62)	Bromoform	9.098	173	3352006	23.67	ppbV	99
63)	Cumene	9.403	105	7994834	21.23	ppbV	99
65)	n-Propyl benzene	9.901	91	10677156	21.73	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.975	83	4583433	22.73	ppbV	99
67)	4-Ethyltoluene	10.040	105	9079626	21.83	ppbV	99
68)	2-Chlorotoluene	10.065	91	7122967	21.58	ppbV	99
69)	1,3,5-Trimethylbenzene	10.149	105	7395052	22.11	ppbV	99
70)	1,2,4-Trimethylbenzene	10.625	105	7412335	22.17	ppbV	99
71)	1,3-Dichlorobenzene	10.998	146	4641497	22.67	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	4645158	22.55	ppbV	100
73)	Benzyl chloride	11.435	91	6527364	22.08	ppbV	99
74)	1,2-Dichlorobenzene	11.641	146	4361556	21.96	ppbV	99
75)	1,3-Hexachlorobutadiene	13.197	225	2950129	21.41	ppbV	100
76)	1,2,4-Trichlorobenzene	13.200	180	3565503	22.37	ppbV	99
77)	Naphthalene	13.464	128	7448434	20.44	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4135std02.D
Acq On : 10 Oct 2023 12:55 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 10 15:20:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4136std01.D
Acq On : 10 Oct 2023 2:05 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 10 15:21:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.400	130	356266	10.00	ppbV		0.000
39) 1,4-Difluorobenzene (IS)	5.458	114	1769398	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1970985	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.718	95	1881267	10.95	ppbV		0.000
Target Compounds							Qvalue
2) Propene	1.493	41	1166461	47.16	ppbV		99
3) Dichlorodifluoromethane	1.530	85	3976819	50.37	ppbV		100
4) 1,2-Dichlorotetrafluor...	1.654	85	4829984	42.11	ppbV		100
5) n-Butane	1.733	43	2669458	46.92	ppbV		100
6) Chloromethane	1.798	52	218685	55.44	ppbV	#	1
7) Vinyl chloride	1.788	62	1703493	52.78	ppbV		100
8) 1,3-Butadiene	1.798	39	1380202	45.78	ppbV		97
9) Bromomethane	2.088	94	1297810	49.81	ppbV		98
10) Chloroethane	2.197	64	957066	56.55	ppbV		99
11) Vinyl bromide	2.294	106	1649730	51.72	ppbV		99
12) Trichlorofluoromethane	2.316	101	4982088	49.96	ppbV		100
13) Ethanol	2.670	45	542733	52.03	ppbV		98
14) 1,1-Dichloroethene	2.734	61	3420744	51.68	ppbV		100
15) Carbon disulfide	2.757	76	5570013	51.13	ppbV		99
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	4651123	46.31	ppbV		99
17) Acrolein	2.991	56	704002	47.31	ppbV		100
18) Allyl chloride	3.114	76	960536	53.78	ppbV		100
19) Isopropanol	3.114	45	3040718	42.56	ppbV		99
20) Methylene chloride	3.204	49	2011731	45.94	ppbV		99
21) Acetone	3.217	43	2606931	48.51	ppbV		99
22) trans-1,2-Dichloroethene	3.329	61	3449388	56.15	ppbV		99
23) n-Pentane	3.409	43	4025985	48.61	ppbV		99
24) n-Hexane	3.409	57	5589811	49.78	ppbV		100
25) Methyl tert-butyl ether	3.409	73	6879864	49.87	ppbV		99
26) Tert-butyl alcohol	3.464	59	4961423	53.42	ppbV		100
27) 1,1-Dichloroethane	3.811	63	4139076	50.03	ppbV		98
28) cis-1,2-Dichloroethene	4.236	61	3134852	53.71	ppbV		99
29) Cyclohexane	4.416	56	3885234	49.53	ppbV		100
30) Chloroform	4.454	83	4963958	52.07	ppbV		99
31) Ethyl acetate	4.541	61	819660	52.86	ppbV		99
32) Carbon tetrachloride	4.580	117	5580598	49.35	ppbV		99
33) Tetrahydrofuran	4.573	42	2658620	49.61	ppbV		98
34) 1,1,1-Trichloroethane	4.628	97	4872977	49.20	ppbV		99
35) Methyl ethyl ketone	4.686	43	4486611	51.57	ppbV		99
36) n-Heptane	4.921	43	4632338	47.05	ppbV		99
37) Benzene	4.933	78	6993711	49.43	ppbV		100
38) 1,2-Dichloroethane	5.094	62	3131902	52.87	ppbV		100
40) Trichloroethene	5.435	130	3316781	42.37	ppbV		99
41) 2,2,4-Trimethylpentane	4.843	57	9712768	42.14	ppbV		98
42) 1,2-Dichloropropane	5.885	63	3027090	43.98	ppbV		99
43) Bromodichloromethane	5.946	83	5494302	47.39	ppbV		99
44) Methyl methacrylate	6.088	41	3747387	44.88	ppbV		99
45) 1,4-Dioxane	6.114	88	2055391	48.74	ppbV		98
46) cis-1,3-Dichloropropene	6.535	75	4834720	45.30	ppbV		99
47) Toluene	6.773	91	10605745	42.65	ppbV		98
48) Methyl isobutyl ketone	7.133	43	6661468	42.63	ppbV		99
49) Tetrachloroethene	7.162	166	4858576	45.31	ppbV		99
50) trans-1,3-Dichloropropene	7.178	75	4856047	46.91	ppbV		100
51) 1,1,2-Trichloroethane	7.339	97	3819106	45.48	ppbV		100

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4136std01.D
Acq On : 10 Oct 2023 2:05 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 10 15:21:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.522	129	6730612	48.10	ppbV		99
53)	1,2-Dibromoethane	7.760	107	5679586	46.76	ppbV		100
54)	Methyl n-butyl ketone	8.011	43	7194438	47.87	ppbV		98
56)	n-Nonane	8.319	43	8278410	42.32	ppbV		98
57)	Chlorobenzene	8.338	112	8642594	43.99	ppbV		100
58)	Ethylbenzene	8.384	91	15502498	42.68	ppbV		96
59)	Xylenes (m&p)	8.541	91	20852616	77.48	ppbV		89
60)	Xylene (o)	9.030	91	12586480	42.86	ppbV		98
61)	Styrene	9.088	104	9555594	47.52	ppbV		98
62)	Bromoform	9.097	173	7098495	49.18	ppbV		99
63)	Cumene	9.406	105	16006588	41.71	ppbV		96
65)	n-Propyl benzene	9.898	91	19885132	39.70	ppbV		93
66)	1,1,2,2-Tetrachloroethane	9.975	83	9484025	46.14	ppbV		99
67)	4-Ethyltoluene	10.043	105	17650930	41.63	ppbV		95
68)	2-Chlorotoluene	10.068	91	14525182	43.17	ppbV		97
69)	1,3,5-Trimethylbenzene	10.152	105	15012049	44.03	ppbV		96
70)	1,2,4-Trimethylbenzene	10.625	105	15021608	44.08	ppbV		97
71)	1,3-Dichlorobenzene	10.998	146	9832383	47.12	ppbV		99
72)	1,4-Dichlorobenzene	11.113	146	9906545	47.18	ppbV		99
73)	Benzyl chloride	11.435	91	13735706	45.59	ppbV		96
74)	1,2-Dichlorobenzene	11.641	146	9184158	45.37	ppbV		98
75)	1,3-Hexachlorobutadiene	13.200	225	5812342	41.37	ppbV		99
76)	1,2,4-Trichlorobenzene	13.200	180	7183784	44.22	ppbV		99
77)	Naphthalene	13.460	128	13659104	36.76	ppbV	#	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

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Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4136std01.D
Acq On    : 10 Oct 2023   2:05 pm
Operator  : jjw
Sample    : 40 ppbv standard
Misc      : EB0103704
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Oct 10 15:21:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title  : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration
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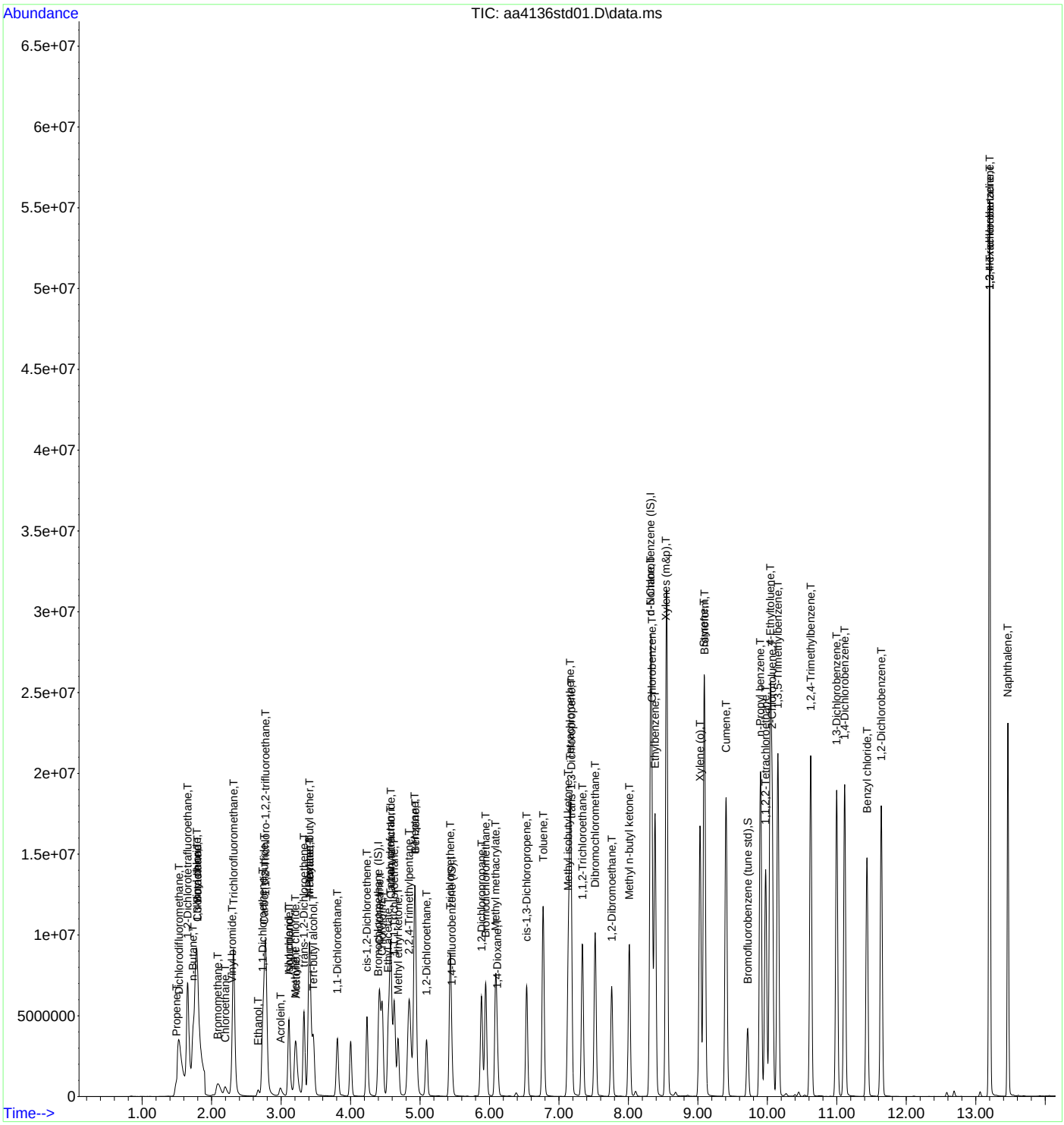


INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA3407ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 8/15/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STANDARD STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Acetone	67-64-1	11	10	95	
Acrolein	107-02-8	9.4	10.0	110	
Allyl Chloride	107-05-1	11	11	99	
Benzene	71-43-2	10	9.7	93	
Benzyl chloride	100-44-7	11	11	100	
Bromodichloromethane	75-27-4	11	11	100	
Bromoform	75-25-2	11	11	96	
Bromomethane	74-83-9	11	10	92	
1,3-Butadiene	106-99-0	11	10	92	
n-Butane	106-97-8	11	11	100	
Chlorobenzene	108-90-7	10	11	110	
Chloroethane	75-00-3	9.8	11	110	
Chloroform	67-66-3	11	10	92	
Chloromethane	74-87-3	9.9	12	120	
Carbon disulfide	75-15-0	10	11	110	
Carbon tetrachloride	56-23-5	11	9.7	91	
2-Chlorotoluene	95-49-8	11	10	91	
Cumene	98-82-8	10	10	99	
Cyclohexane	110-82-7	11	9.7	89	
Dibromochloromethane	124-48-1	11	11	100	
1,2-Dibromoethane	106-93-4	11	11	100	
1,2-Dichlorobenzene	95-50-1	10	10	97	
1,3-Dichlorobenzene	541-73-1	10	10	96	
1,4-Dichlorobenzene	106-46-7	10	11	110	
Dichlorodifluoromethane	75-71-8	11	10	92	
1,1-Dichloroethane	75-34-3	11	9.7	92	
1,2-Dichloroethane	107-06-2	11	10	95	
1,1-Dichloroethene	75-35-4	11	11	100	
1,2-Dichloroethene (cis)	156-59-2	10	11	110	
1,2-Dichloroethene (trans)	156-60-5	11	11	100	
1,2-Dichloropropane	78-87-5	11	10.0	95	
1,3-Dichloropropene (cis)	10061-01-5	9.9	11	110	
1,3-Dichloropropene (trans)	10061-02-6	11	11	100	
1,2-Dichlorotetrafluoroethane	76-14-2	11	8.6	77	
1,4-Dioxane	123-91-1	11	11	98	
Ethanol	64-17-5	9.8	8.5	87	
Ethyl acetate	141-78-6	10	9.9	96	
Ethylbenzene	100-41-4	10	11	110	
4-Ethyltoluene	622-96-8	11	11	100	
n-Heptane	142-82-5	11	10	92	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA3407ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 8/15/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STANDARD STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
1,3-Hexachlorobutadiene	87-68-3	9.8	9.8	100	
n-Hexane	110-54-3	11	9.7	90	
Isopropanol	67-63-0	8.1	8.8	110	
Methylene chloride	75-09-2	11	9.1	85	
Methyl ethyl ketone	78-93-3	11	10	92	
Methyl isobutyl ketone	108-10-1	10	11	110	
Methyl methacrylate	80-62-6	11	11	100	
Methyl n-butyl ketone	591-78-6	11	12	110	
Methyl tert-butyl ether	1634-04-4	11	9.9	91	
Naphthalene	91-20-3	11	10	93	
n-Nonane	111-84-2	11	10	89	
n-Pentane	109-66-0	11	9.1	82	
Propene	115-07-1	11	10	91	
n-Propyl benzene	103-65-1	11	11	100	
Styrene	100-42-5	11	12	110	
Tert-butyl alcohol	75-65-0	12	10	87	
1,1,2,2-Tetrachloroethane	79-34-5	10	10	97	
Tetrachloroethene	127-18-4	12	11	93	
Tetrahydrofuran	109-99-9	11	10	93	
Toluene	108-88-3	11	11	100	
1,2,4-Trichlorobenzene	120-82-1	10	10	100	
1,1,1-Trichloroethane	71-55-6	11	9.4	88	
1,1,2-Trichloroethane	79-00-5	11	10	93	
Trichloroethene	79-01-6	10	9.5	93	
Trichlorofluoromethane	75-69-4	11	10	94	
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	9.1	83	
1,2,4-Trimethylbenzene	95-63-6	10	11	100	
1,3,5-Trimethylbenzene	108-67-8	10	11	110	
2,2,4-Trimethylpentane	540-84-1	11	10	92	
Vinyl bromide	593-60-2	10	10	100	
Vinyl chloride	75-01-4	11	11	97	
Xylenes (m&p)	179601-23-1	21	22	110	
Xylenes (o)	95-47-6	10	11	110	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3407icvss.D
Acq On : 15 Aug 2023 6:09 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 10:02:33 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.396	130	614925	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2660514	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	3151139	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2639252	10.07	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	437009	10.32	ppbV	100
3) Dichlorodifluoromethane	1.526	85	1589571	10.23	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.646	85	1915451	8.57	ppbV	100
5) n-Butane	1.729	43	1085164	10.79	ppbV	99
6) Chloromethane	1.791	52	84692	11.77	ppbV	91
7) Vinyl chloride	1.780	62	624265	10.68	ppbV	99
8) 1,3-Butadiene	1.794	39	615975	10.31	ppbV	99
9) Bromomethane	2.084	94	497818	10.14	ppbV	99
10) Chloroethane	2.197	64	339826	10.69	ppbV	99
11) Vinyl bromide	2.293	106	630457	10.21	ppbV	100
12) Trichlorofluoromethane	2.312	101	2122221	10.15	ppbV	100
13) Ethanol	2.669	45	210384	8.55	ppbV	99
14) 1,1-Dichloroethene	2.734	61	1353018	10.54	ppbV	100
15) Carbon disulfide	2.753	76	2291667	10.87	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	1880237	9.10	ppbV	99
17) Acrolein	2.984	56	263590	9.98	ppbV	99
18) Allyl chloride	3.113	76	378917	11.01	ppbV	100
19) Isopropanol	3.113	45	1247145	8.77	ppbV	99
20) Methylene chloride	3.203	49	707555	9.12	ppbV	99
21) Acetone	3.213	43	1199665	10.40	ppbV	99
22) trans-1,2-Dichloroethene	3.329	61	1279551	11.07	ppbV	99
23) n-Pentane	3.409	43	1345011	9.12	ppbV	99
24) n-Hexane	3.409	57	2003979	9.73	ppbV	100
25) Methyl tert-butyl ether	3.412	73	2769119	9.89	ppbV	99
26) Tert-butyl alcohol	3.464	59	1862648	10.34	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1576537	9.72	ppbV	100
28) cis-1,2-Dichloroethene	4.235	61	1186018	10.57	ppbV	99
29) Cyclohexane	4.415	56	1446092	9.72	ppbV	99
30) Chloroform	4.454	83	2014411	10.15	ppbV	99
31) Ethyl acetate	4.541	61	312517	9.89	ppbV	100
32) Carbon tetrachloride	4.576	117	2310805	9.71	ppbV	100
33) Tetrahydrofuran	4.576	42	1135151	10.18	ppbV	99
34) 1,1,1-Trichloroethane	4.631	97	2017204	9.42	ppbV	100
35) Methyl ethyl ketone	4.685	43	1824867	10.25	ppbV	99
36) n-Heptane	4.917	43	2119295	10.29	ppbV	99
37) Benzene	4.933	78	2760579	9.73	ppbV	100
38) 1,2-Dichloroethane	5.094	62	1306989	10.28	ppbV	99
40) Trichloroethene	5.435	130	1277643	9.46	ppbV	100
41) 2,2,4-Trimethylpentane	4.846	57	3384494	10.04	ppbV	100
42) 1,2-Dichloropropane	5.881	63	1210091	9.97	ppbV	99
43) Bromodichloromethane	5.946	83	2297408	10.86	ppbV	100
44) Methyl methacrylate	6.087	41	1707517	10.94	ppbV	100
45) 1,4-Dioxane	6.113	88	839393	11.21	ppbV	99
46) cis-1,3-Dichloropropene	6.534	75	2028992	10.81	ppbV	99
47) Toluene	6.772	91	4536523	10.63	ppbV	99
48) Methyl isobutyl ketone	7.135	43	3266617	10.60	ppbV	100
49) Tetrachloroethene	7.161	166	2057579	10.73	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	2121255	11.47	ppbV	99
51) 1,1,2-Trichloroethane	7.338	97	1545574	10.28	ppbV	100

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3407icvss.D
Acq On : 15 Aug 2023 6:09 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 10 Sample Multiplier: 1

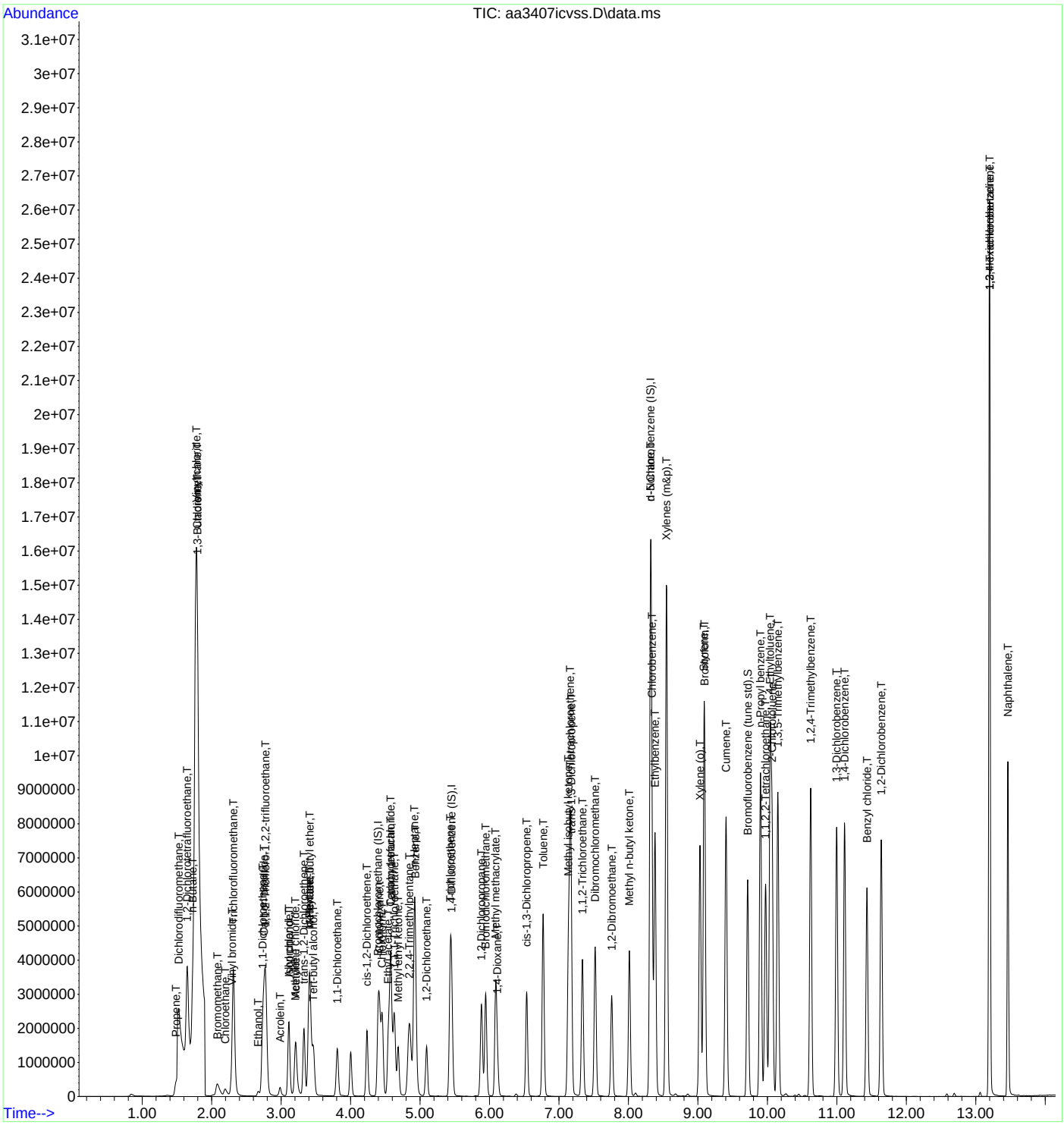
Quant Time: Aug 16 10:02:33 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2775633	11.06	ppbV	100
53)	1,2-Dibromoethane	7.759	107	2393720	10.88	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	3342265	11.58	ppbV	99
56)	n-Nonane	8.319	43	3980940	10.32	ppbV	99
57)	Chlorobenzene	8.338	112	3631305	10.52	ppbV	99
58)	Ethylbenzene	8.383	91	6749535	10.58	ppbV	99
59)	Xylenes (m&p)	8.547	91	10243811	22.27	ppbV	100
60)	Xylene (o)	9.029	91	5367160	10.51	ppbV	100
61)	Styrene	9.087	104	3897707	11.50	ppbV	99
62)	Bromoform	9.097	173	2909911	11.11	ppbV	100
63)	Cumene	9.405	105	6858593	10.31	ppbV	100
65)	n-Propyl benzene	9.901	91	9335682	10.76	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.975	83	4046668	10.45	ppbV	100
67)	4-Ethyltoluene	10.039	105	7675301	10.73	ppbV	100
68)	2-Chlorotoluene	10.068	91	6134373	10.42	ppbV	100
69)	1,3,5-Trimethylbenzene	10.151	105	6150320	10.63	ppbV	100
70)	1,2,4-Trimethylbenzene	10.624	105	6292442	10.96	ppbV	100
71)	1,3-Dichlorobenzene	10.997	146	3955353	10.39	ppbV	100
72)	1,4-Dichlorobenzene	11.113	146	3900278	10.66	ppbV	99
73)	Benzyl chloride	11.434	91	5411364	10.79	ppbV	100
74)	1,2-Dichlorobenzene	11.640	146	3729037	10.35	ppbV	100
75)	1,3-Hexachlorobutadiene	13.200	225	2519603	9.76	ppbV	99
76)	1,2,4-Trichlorobenzene	13.200	180	2920155	10.31	ppbV	100
77)	Naphthalene	13.463	128	6029829	10.31	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3407icvss.D
Acq On : 15 Aug 2023 6:09 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 10:02:33 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA4137ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 10/10/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48
10 PPBV LCS [AA4138LCS]	10/10/2023 17:39
METHOD BLANK [AA4139BLK]	10/10/2023 18:07
02 PPBV RLLCS [AA4140RLLCS]	10/10/2023 18:35
10 PPBV CCCVS [AA4154CCCVS]	10/11/2023 1:53

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Acetone	67-64-1	11	10	95	
Acrolein	107-02-8	9.4	9.5	100	
Allyl Chloride	107-05-1	11	11	99	
Benzene	71-43-2	10	9.7	93	
Benzyl chloride	100-44-7	11	10	93	
Bromodichloromethane	75-27-4	11	11	100	
Bromoform	75-25-2	11	11	96	
Bromomethane	74-83-9	11	10	92	
1,3-Butadiene	106-99-0	11	10	92	
n-Butane	106-97-8	11	10	94	
Chlorobenzene	108-90-7	10	10	96	
Chloroethane	75-00-3	9.8	11	110	
Chloroform	67-66-3	11	9.9	91	
Chloromethane	74-87-3	9.9	11	110	
Carbon disulfide	75-15-0	10	11	110	
Carbon tetrachloride	56-23-5	11	10	93	
2-Chlorotoluene	95-49-8	11	10	91	
Cumene	98-82-8	10	10	99	
Cyclohexane	110-82-7	11	10	92	
Dibromochloromethane	124-48-1	11	12	110	
1,2-Dibromoethane	106-93-4	11	11	100	
1,2-Dichlorobenzene	95-50-1	10	10.0	97	
1,3-Dichlorobenzene	541-73-1	10	10	96	
1,4-Dichlorobenzene	106-46-7	10	10.0	97	
Dichlorodifluoromethane	75-71-8	11	10	92	
1,1-Dichloroethane	75-34-3	11	9.4	90	
1,2-Dichloroethane	107-06-2	11	10	95	
1,1-Dichloroethene	75-35-4	11	10.0	93	
1,2-Dichloroethene (cis)	156-59-2	10	10	97	
1,2-Dichloroethene (trans)	156-60-5	11	11	100	
1,2-Dichloropropane	78-87-5	11	10	95	
1,3-Dichloropropene (cis)	10061-01-5	9.9	11	110	
1,3-Dichloropropene (trans)	10061-02-6	11	11	100	
1,2-Dichlorotetrafluoroethane	76-14-2	11	9.0	80	
1,4-Dioxane	123-91-1	11	11	98	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA4137ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 10/10/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48
10 PPBV LCS [AA4138LCS]	10/10/2023 17:39
METHOD BLANK [AA4139BLK]	10/10/2023 18:07
02 PPBV RLLCS [AA4140RLLCS]	10/10/2023 18:35
10 PPBV CCCVS [AA4154CCCVS]	10/11/2023 1:53

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Ethanol	64-17-5	9.8	7.0	71	
Ethyl acetate	141-78-6	10	11	110	
Ethylbenzene	100-41-4	10	10	96	
4-Ethyltoluene	622-96-8	11	11	100	
n-Heptane	142-82-5	11	11	100	
1,3-Hexachlorobutadiene	87-68-3	9.8	9.8	100	
n-Hexane	110-54-3	11	10	93	
Isopropanol	67-63-0	8.1	8.4	100	
Methylene chloride	75-09-2	11	8.1	76	
Methyl ethyl ketone	78-93-3	11	10.0	92	
Methyl isobutyl ketone	108-10-1	10	11	110	
Methyl methacrylate	80-62-6	11	11	100	
Methyl n-butyl ketone	591-78-6	11	11	99	
Methyl tert-butyl ether	1634-04-4	11	10	92	
Naphthalene	91-20-3	11	9.7	91	
n-Nonane	111-84-2	11	11	97	
n-Pentane	109-66-0	11	9.7	87	
Propene	115-07-1	11	9.2	84	
n-Propyl benzene	103-65-1	11	11	100	
Styrene	100-42-5	11	11	100	
Tert-butyl alcohol	75-65-0	12	11	96	
1,1,2,2-Tetrachloroethane	79-34-5	10	11	110	
Tetrachloroethene	127-18-4	12	11	93	
Tetrahydrofuran	109-99-9	11	10	93	
Toluene	108-88-3	11	11	100	
1,2,4-Trichlorobenzene	120-82-1	10	9.7	97	
1,1,1-Trichloroethane	71-55-6	11	10.0	93	
1,1,2-Trichloroethane	79-00-5	11	11	100	
Trichloroethene	79-01-6	10	9.2	90	
Trichlorofluoromethane	75-69-4	11	10	94	
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	9.3	85	
1,2,4-Trimethylbenzene	95-63-6	10	10	100	
1,3,5-Trimethylbenzene	108-67-8	10	10	96	
2,2,4-Trimethylpentane	540-84-1	11	9.6	88	
Vinyl bromide	593-60-2	10	10	100	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: **10 PPBV ICVSS** **Data File:** **AA4137ICVSS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **10/10/2023**

Amount of standard injected (ml): **50**

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48
10 PPBV LCS [AA4138LCS]	10/10/2023 17:39
METHOD BLANK [AA4139BLK]	10/10/2023 18:07
02 PPBV RLLCS [AA4140RLLCS]	10/10/2023 18:35
10 PPBV CCCVS [AA4154CCCVS]	10/11/2023 1:53

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Vinyl chloride	75-01-4	11	11	97	
Xylenes (m&p)	179601-23-1	21	22	110	
Xylenes (o)	95-47-6	10	10	96	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4137icvss.D
Acq On : 10 Oct 2023 4:48 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 11 12:34:17 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.394	130	450439	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	1936760	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2279414	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1999577	10.06	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.487	41	289233	9.25	ppbV	98
3) Dichlorodifluoromethane	1.527	85	1032587	10.34	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.647	85	1304952	9.00	ppbV	100
5) n-Butane	1.730	43	750417	10.43	ppbV	99
6) Chloromethane	1.792	52	54388	10.90	ppbV	98
7) Vinyl chloride	1.781	62	431150	10.57	ppbV	99
8) 1,3-Butadiene	1.795	39	382252	10.03	ppbV	97
9) Bromomethane	2.079	94	336675	10.22	ppbV	97
10) Chloroethane	2.191	64	232639	10.87	ppbV	99
11) Vinyl bromide	2.291	106	412014	10.22	ppbV	100
12) Trichlorofluoromethane	2.313	101	1310652	10.39	ppbV	99
13) Ethanol	2.664	45	92719	7.03	ppbV	99
14) 1,1-Dichloroethene	2.731	61	835358	9.98	ppbV	99
15) Carbon disulfide	2.751	76	1485573	10.79	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.773	101	1177177	9.27	ppbV	100
17) Acrolein	2.985	56	178709	9.50	ppbV	99
18) Allyl chloride	3.111	76	250470	11.09	ppbV	100
19) Isopropanol	3.111	45	759040	8.40	ppbV	100
20) Methylene chloride	3.204	49	449695	8.12	ppbV	99
21) Acetone	3.210	43	693658	10.21	ppbV	98
22) trans-1,2-Dichloroethene	3.329	61	849185	10.93	ppbV	100
23) n-Pentane	3.403	43	1018939	9.73	ppbV	98
24) n-Hexane	3.403	57	1426750	10.05	ppbV	99
25) Methyl tert-butyl ether	3.413	73	1803139	10.34	ppbV	99
26) Tert-butyl alcohol	3.464	59	1242393	10.58	ppbV	100
27) 1,1-Dichloroethane	3.808	63	977991	9.35	ppbV	99
28) cis-1,2-Dichloroethene	4.233	61	755931	10.24	ppbV	99
29) Cyclohexane	4.416	56	1026465	10.35	ppbV	99
30) Chloroform	4.455	83	1194486	9.91	ppbV	99
31) Ethyl acetate	4.545	61	208391	10.63	ppbV	99
32) Carbon tetrachloride	4.577	117	1452418	10.16	ppbV	100
33) Tetrahydrofuran	4.574	42	693411	10.23	ppbV	100
34) 1,1,1-Trichloroethane	4.625	97	1251697	10.00	ppbV	99
35) Methyl ethyl ketone	4.683	43	1099463	9.99	ppbV	100
36) n-Heptane	4.915	43	1406396	11.30	ppbV	100
37) Benzene	4.934	78	1734004	9.69	ppbV	100
38) 1,2-Dichloroethane	5.091	62	756182	10.10	ppbV	100
40) Trichloroethene	5.432	130	792615	9.25	ppbV	97
41) 2,2,4-Trimethylpentane	4.844	57	2425296	9.61	ppbV	100
42) 1,2-Dichloropropane	5.882	63	788220	10.46	ppbV	100
43) Bromodichloromethane	5.943	83	1432936	11.29	ppbV	99
44) Methyl methacrylate	6.088	41	1025399	11.22	ppbV	100
45) 1,4-Dioxane	6.111	88	520094	11.27	ppbV	99
46) cis-1,3-Dichloropropene	6.535	75	1277949	10.94	ppbV	99
47) Toluene	6.770	91	2952624	10.85	ppbV	100
48) Methyl isobutyl ketone	7.133	43	1919423	11.22	ppbV	99
49) Tetrachloroethene	7.159	166	1314607	11.20	ppbV	100
50) trans-1,3-Dichloropropene	7.178	75	1281531	11.31	ppbV	97
51) 1,1,2-Trichloroethane	7.336	97	989955	10.77	ppbV	99

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4137icvss.D
Acq On : 10 Oct 2023 4:48 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 11 12:34:17 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

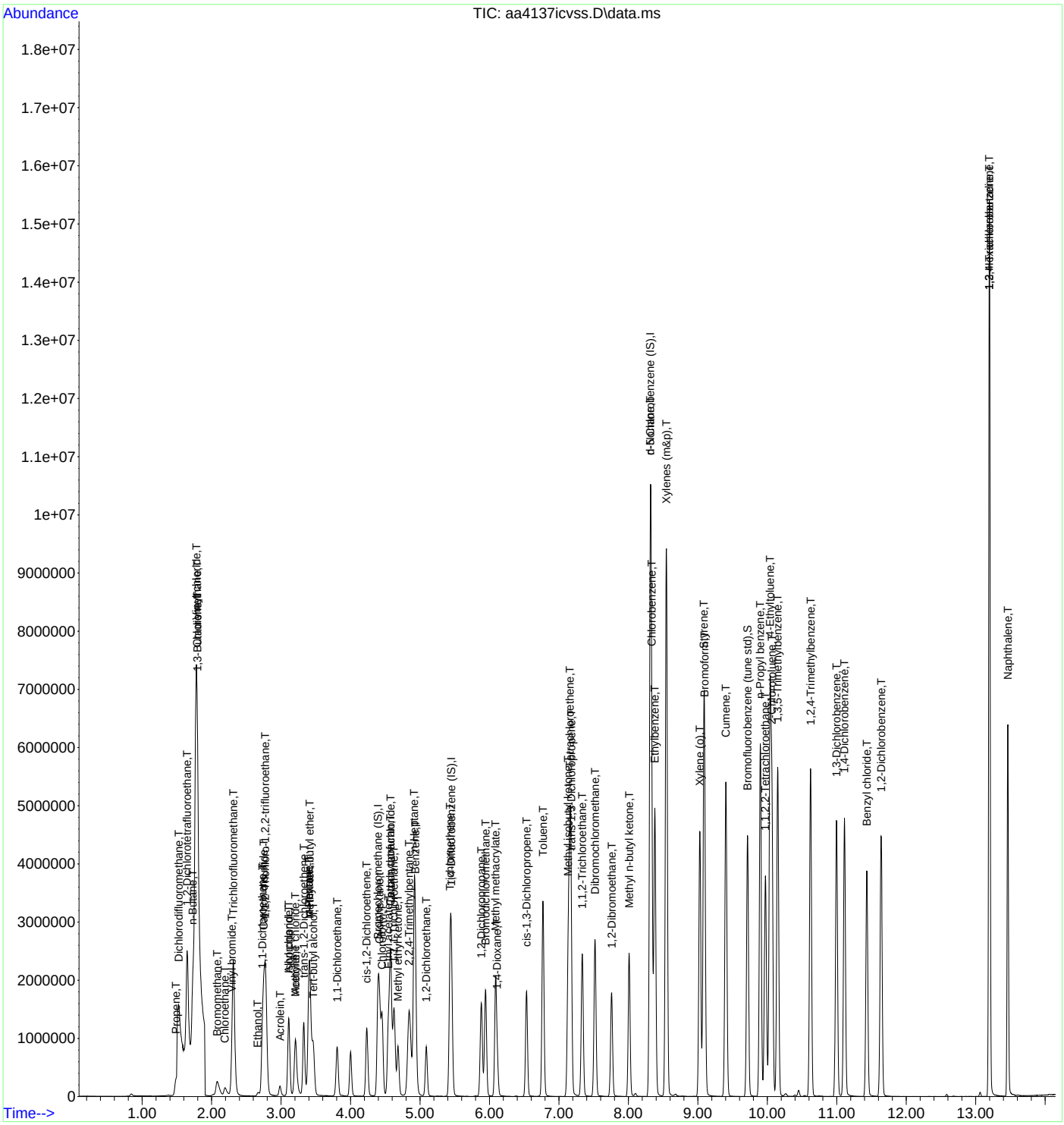
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.519	129	1775637	11.59	ppbV	100
53)	1,2-Dibromoethane	7.760	107	1480875	11.14	ppbV	100
54)	Methyl n-butyl ketone	8.011	43	1847140	11.23	ppbV	100
56)	n-Nonane	8.316	43	2482776	10.98	ppbV	100
57)	Chlorobenzene	8.336	112	2343720	10.31	ppbV	100
58)	Ethylbenzene	8.381	91	4399658	10.47	ppbV	100
59)	Xylenes (m&p)	8.548	91	6725199	21.61	ppbV	100
60)	Xylene (o)	9.027	91	3439926	10.13	ppbV	100
61)	Styrene	9.088	104	2542191	10.93	ppbV	98
62)	Bromoform	9.098	173	1858650	11.14	ppbV	100
63)	Cumene	9.403	105	4624440	10.42	ppbV	99
65)	n-Propyl benzene	9.898	91	6209527	10.72	ppbV	100
66)	1,1,2,2-Tetrachloroethane	9.972	83	2517951	10.59	ppbV	100
67)	4-Ethyltoluene	10.040	105	5225612	10.66	ppbV	100
68)	2-Chlorotoluene	10.065	91	4079374	10.48	ppbV	99
69)	1,3,5-Trimethylbenzene	10.149	105	4048872	10.27	ppbV	100
70)	1,2,4-Trimethylbenzene	10.625	105	4049729	10.28	ppbV	100
71)	1,3-Dichlorobenzene	10.998	146	2445218	10.13	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	2419709	9.96	ppbV	99
73)	Benzyl chloride	11.432	91	3624814	10.40	ppbV	100
74)	1,2-Dichlorobenzene	11.641	146	2329520	9.95	ppbV	100
75)	1,3-Hexachlorobutadiene	13.197	225	1597275	9.83	ppbV	100
76)	1,2,4-Trichlorobenzene	13.197	180	1825252	9.71	ppbV	100
77)	Naphthalene	13.464	128	4147327	9.65	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4137icvss.D
Acq On : 10 Oct 2023 4:48 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 11 12:34:17 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**8/15/2023**	**Date/Time of Calibration:**	**9/28/2023 10:31**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4072DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
CLEAN CAN CERTIFICATION, BATCH MASTER 2164 [AA4076]	09/28/2023 15:00
CLEAN CAN CERTIFICATION, BATCH MASTER 4870 [AA4077]	09/28/2023 15:30
CLEAN CAN CERTIFICATION, BATCH MASTER 2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 00:28

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Acetone	1.9	2.3	-22	PASS	
Benzene	4.6	5.3	-16	PASS	
Bromodichloromethane	0.80	0.86	-8.4	PASS	
Bromoform	0.83	0.94	-13	PASS	
Bromomethane	0.80	0.95	-19	PASS	
1,3-Butadiene	0.97	1.3	-29	PASS	
Chlorobenzene	1.1	1.2	-10	PASS	
Chloroethane	0.52	0.59	-14	PASS	
Chloroform	3.2	3.9	-22	PASS	
Chloromethane	0.12	0.13	-14	PASS	
Carbon disulfide	3.4	3.9	-14	PASS	
Carbon tetrachloride	3.9	3.9	-0.40	PASS	
Cyclohexane	2.4	2.6	-8.2	PASS	
Dibromochloromethane	0.94	0.96	-1.2	PASS	
1,2-Dibromoethane	0.83	0.86	-4.5	PASS	
1,2-Dichlorobenzene	1.1	1.3	-14	PASS	
1,3-Dichlorobenzene	1.2	1.4	-12	PASS	
1,4-Dichlorobenzene	1.2	1.4	-20	PASS	
Dichlorodifluoromethane	2.5	3.1	-22	PASS	
1,1-Dichloroethane	2.6	3.2	-23	PASS	
1,2-Dichloroethane	2.1	2.6	-24	PASS	
1,1-Dichloroethene	2.1	2.2	-6.4	PASS	
1,2-Dichloroethene (cis)	1.8	2.4	-30	PASS	
1,2-Dichloroethene (trans)	1.9	2.4	-28	PASS	
1,2-Dichloropropane	0.46	0.48	-5.7	PASS	
1,3-Dichloropropene (cis)	0.71	0.75	-6.8	PASS	
1,3-Dichloropropene (trans)	0.70	0.79	-14	PASS	
1,2-Dichlorotetrafluoroethane	3.6	4.0	-9.4	PASS	
1,4-Dioxane	0.28	0.29	-3.2	PASS	
Ethylbenzene	2.0	2.3	-13	PASS	
n-Heptane	3.4	3.7	-11	PASS	
1,3-Hexachlorobutadiene	0.82	0.86	-4.5	PASS	
n-Hexane	3.3	3.9	-15	PASS	
Methylene chloride	1.3	1.5	-21	PASS	
Methyl ethyl ketone	2.9	3.7	-29	PASS	
Methyl isobutyl ketone	1.2	1.3	-8.7	PASS	
Methyl tert-butyl ether	4.6	4.9	-8.5	PASS	
Styrene	1.1	1.3	-21	PASS	
Tert-butyl alcohol	2.9	3.3	-13	PASS	
1,1,2,2-Tetrachloroethane	1.2	1.3	-8.6	PASS	
Tetrachloroethene	0.72	0.70	3.5	PASS	

***%Difference must be within +/- 30%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**8/15/2023**	**Date/Time of Calibration:**	**9/28/2023 10:31**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4072DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
CLEAN CAN CERTIFICATION, BATCH MASTER 2164 [AA4076]	09/28/2023 15:00
CLEAN CAN CERTIFICATION, BATCH MASTER 4870 [AA4077]	09/28/2023 15:30
CLEAN CAN CERTIFICATION, BATCH MASTER 2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 00:28

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Toluene	1.6	1.7	-4.2	PASS	
1,2,4-Trichlorobenzene	0.90	1.1	-19	PASS	
1,1,1-Trichloroethane	3.5	3.6	-1.9	PASS	
1,1,2-Trichloroethane	0.57	0.57	-1.4	PASS	
Trichloroethene	0.51	0.51	-0.60	PASS	
Trichlorofluoromethane	3.4	4.0	-17	PASS	
1,1,2-Trichloro-1,2,2-trifluoroethane	3.4	3.4	-1.3	PASS	
1,2,4-Trimethylbenzene	1.8	2.2	-20	PASS	
1,3,5-Trimethylbenzene	1.8	2.1	-13	PASS	
2,2,4-Trimethylpentane	1.3	1.4	-11	PASS	
Vinyl bromide	1.0	1.3	-25	PASS	
Vinyl chloride	0.95	1.2	-29	PASS	
Xylenes (m&p)	1.5	1.7	-20	PASS	
Xylenes (o)	1.6	1.8	-11	PASS	

***%Difference must be within +/- 30%**
RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Evaluate Continuing Calibration Report

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4072dcvs.D
Acq On : 28 Sep 2023 10:31 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 05 12:20:58 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS)	1.000	1.000	0.0	74	0.00
2	T	Propene	0.689	0.782	-13.5	89	0.00
3	T	Dichlorodifluoromethane	2.527	3.082	-22.0	95	0.00
4	T	1,2-Dichlorotetrafluoroetha	3.636	3.979	-9.4	93	0.00
5	T	n-Butane	1.635	1.772	-8.4	82	0.00
6	T	Chloromethane	0.117	0.133	-13.7	85	0.00
7	T	Vinyl chloride	0.950	1.223	-28.7	97	0.00
8	T	1,3-Butadiene	0.972	1.253	-28.9	100	0.00
9	T	Bromomethane	0.798	0.946	-18.5	90	0.00
10	T	Chloroethane	0.517	0.591	-14.3	84	0.00
11	T	Vinyl bromide	1.004	1.257	-25.2	94	0.00
12	T	Trichlorofluoromethane	3.400	3.990	-17.4	96	0.00
13	T	Ethanol	0.400	0.423	-5.7	97	0.00
14	T	1,1-Dichloroethene	2.088	2.222	-6.4	78	0.00
15	T	Carbon disulfide	3.429	3.921	-14.3	83	0.00
16	T	1,1,2-Trichloro-1,2,2-trifl	3.360	3.402	-1.3	90	0.00
17	T	Acrolein	0.430	0.491	-14.2	85	0.00
18	T	Allyl chloride	0.559	0.693	-24.0	92	0.00
19	T	Isopropanol	2.312	2.922	-26.4	96	0.00
20	T	Methylene chloride	1.262	1.521	-20.5	107	0.00
21	T	Acetone	1.876	2.285	-21.8	93	0.00
22	T	trans-1,2-Dichloroethene	1.879	2.400	-27.7	95	0.00
23	T	n-Pentane	2.398	2.695	-12.4	99	0.00
24	T	n-Hexane	3.349	3.850	-15.0	95	0.00
25	T	Methyl tert-butyl ether	4.555	4.942	-8.5	92	0.00
26	T	Tert-butyl alcohol	2.929	3.318	-13.3	95	0.00
27	T	1,1-Dichloroethane	2.637	3.242	-22.9	100	0.00
28	T	cis-1,2-Dichloroethene	1.824	2.366	-29.7	100	0.00
29	t	Cyclohexane	2.420	2.619	-8.2	92	0.00
30	T	Chloroform	3.228	3.928	-21.7	96	0.00
31	T	Ethyl acetate	0.514	0.617	-20.0	96	0.00
32	T	Carbon tetrachloride	3.870	3.885	-0.4	86	0.00
33	T	Tetrahydrofuran	1.813	2.046	-12.9	88	0.00
34	T	1,1,1-Trichloroethane	3.484	3.550	-1.9	89	0.00
35	T	Methyl ethyl ketone	2.894	3.723	-28.6	102	0.00
36	T	n-Heptane	3.350	3.721	-11.1	87	0.00
37	T	Benzene	4.614	5.348	-15.9	94	0.00
38	T	1,2-Dichloroethane	2.067	2.563	-24.0	98	0.00
39	I	1,4-Difluorobenzene (IS)	1.000	1.000	0.0	81	0.00
40	T	Trichloroethene	0.508	0.511	-0.6	87	0.00
41	T	2,2,4-Trimethylpentane	1.267	1.406	-11.0	98	0.00
42	T	1,2-Dichloropropane	0.456	0.482	-5.7	92	0.00
43	T	Bromodichloromethane	0.795	0.862	-8.4	92	0.00
44	T	Methyl methacrylate	0.587	0.686	-16.9	93	0.00
45	T	1,4-Dioxane	0.281	0.290	-3.2	86	0.00
46	T	cis-1,3-Dichloropropene	0.705	0.753	-6.8	88	0.00
47	T	Toluene	1.603	1.670	-4.2	84	0.00
48	T	Methyl isobutyl ketone	1.158	1.259	-8.7	88	0.00
49	T	Tetrachloroethene	0.721	0.696	3.5	81	0.00
50	T	trans-1,3-Dichloropropene	0.695	0.791	-13.8	88	0.00
51	T	1,1,2-Trichloroethane	0.565	0.573	-1.4	85	0.00
52	T	Dibromochloromethane	0.944	0.955	-1.2	83	0.00
53	T	1,2-Dibromoethane	0.827	0.864	-4.5	84	0.00

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4072dcvs.D
Acq On : 28 Sep 2023 10:31 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 05 12:20:58 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	T	Methyl n-butyl ketone	1.085	1.314	-21.1	94	0.00
55	I	d-5 Chlorobenzene (IS)	1.000	1.000	0.0	71	0.00
56	T	n-Nonane	1.224	1.455	-18.9	89	0.00
57	T	Chlorobenzene	1.095	1.205	-10.0	84	0.00
58	T	Ethylbenzene	2.025	2.281	-12.6	84	0.00
59	T	Xylenes (m&p)	1.460	1.746	-19.6	86	0.00
60	T	Xylene (o)	1.621	1.793	-10.6	83	0.00
61	T	Styrene	1.076	1.301	-20.9	85	0.00
62	T	Bromoform	0.831	0.940	-13.1	83	0.00
63	T	Cumene	2.112	2.309	-9.3	81	0.00
64	S	Bromofluorobenzene (tune st	0.832	1.037	-24.6	91	0.00
65	T	n-Propyl benzene	2.753	3.313	-20.3	86	0.00
66	T	1,1,2,2-Tetrachloroethane	1.228	1.333	-8.6	84	0.00
67	T	4-Ethyltoluene	2.270	2.728	-20.2	86	0.00
68	T	2-Chlorotoluene	1.868	2.133	-14.2	86	0.00
69	T	1,3,5-Trimethylbenzene	1.837	2.075	-13.0	83	0.00
70	T	1,2,4-Trimethylbenzene	1.821	2.187	-20.1	84	0.00
71	T	1,3-Dichlorobenzene	1.208	1.351	-11.8	86	0.00
72	T	1,4-Dichlorobenzene	1.161	1.398	-20.4	87	0.00
73	T	Benzyl chloride	1.591	2.051	-28.9	86	0.00
74	T	1,2-Dichlorobenzene	1.143	1.308	-14.4	84	0.00
75	T	1,3-Hexachlorobutadiene	0.820	0.857	-4.5	84	0.00
76	T	1,2,4-Trichlorobenzene	0.899	1.068	-18.8	89	0.00
77	T	Naphthalene	1.857	2.352	-26.7	88	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4072dcvs.D
Acq On : 28 Sep 2023 10:31 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 05 12:20:58 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.399	130	394533	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	1846241	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1956014	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2028598	12.47	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.492	41	336126	12.37	ppbV	99
3) Dichlorodifluoromethane	1.533	85	1288817	12.93	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.650	85	1538324	10.72	ppbV	95
5) n-Butane	1.729	43	762109	11.81	ppbV	100
6) Chloromethane	1.791	52	58792	12.73	ppbV	99
7) Vinyl chloride	1.784	62	521002	13.90	ppbV	100
8) 1,3-Butadiene	1.794	39	528910	13.80	ppbV	94
9) Bromomethane	2.091	94	373349	11.86	ppbV	100
10) Chloroethane	2.200	64	247247	12.12	ppbV	97
11) Vinyl bromide	2.293	106	500772	12.64	ppbV	99
12) Trichlorofluoromethane	2.312	101	1731764	12.91	ppbV	100
13) Ethanol	2.669	45	173409	10.98	ppbV	98
14) 1,1-Dichloroethene	2.734	61	911565	11.06	ppbV	96
15) Carbon disulfide	2.756	76	1655394	12.24	ppbV	98
16) 1,1,2-Trichloro-1,2,2-...	2.775	101	1462822	11.04	ppbV	98
17) Acrolein	2.988	56	193825	11.44	ppbV	99
18) Allyl chloride	3.116	76	295490	13.39	ppbV	100
19) Isopropanol	3.113	45	1026023	11.25	ppbV	98
20) Methylene chloride	3.203	49	648001	13.02	ppbV	93
21) Acetone	3.213	43	973812	13.16	ppbV	97
22) trans-1,2-Dichloroethene	3.329	61	1051022	14.18	ppbV	94
23) n-Pentane	3.412	43	1148262	12.14	ppbV	98
24) n-Hexane	3.409	57	1670880	12.65	ppbV	94
25) Methyl tert-butyl ether	3.412	73	2183824	12.15	ppbV	96
26) Tert-butyl alcohol	3.464	59	1505615	13.03	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1368811	13.16	ppbV	100
28) cis-1,2-Dichloroethene	4.235	61	1017589	14.14	ppbV	95
29) Cyclohexane	4.415	56	1157367	12.12	ppbV	95
30) Chloroform	4.457	83	1673696	13.14	ppbV	99
31) Ethyl acetate	4.544	61	262896	12.97	ppbV	96
32) Carbon tetrachloride	4.576	117	1686035	11.04	ppbV	100
33) Tetrahydrofuran	4.576	42	888033	12.41	ppbV	98
34) 1,1,1-Trichloroethane	4.628	97	1526804	11.11	ppbV	99
35) Methyl ethyl ketone	4.685	43	1615518	14.15	ppbV	96
36) n-Heptane	4.920	43	1629713	12.33	ppbV	95
37) Benzene	4.933	78	2278943	12.52	ppbV	99
38) 1,2-Dichloroethane	5.094	62	1102144	13.51	ppbV	100
40) Trichloroethene	5.435	130	942528	10.06	ppbV	99
41) 2,2,4-Trimethylpentane	4.846	57	2829737	12.10	ppbV	100
42) 1,2-Dichloropropane	5.885	63	978690	11.62	ppbV	99
43) Bromodichloromethane	5.946	83	1830581	12.47	ppbV	98
44) Methyl methacrylate	6.090	41	1393236	12.86	ppbV	96
45) 1,4-Dioxane	6.113	88	626413	12.06	ppbV	95
46) cis-1,3-Dichloropropene	6.534	75	1542564	11.85	ppbV	100
47) Toluene	6.772	91	3329666	11.25	ppbV	100
48) Methyl isobutyl ketone	7.135	43	2533215	11.85	ppbV	97
49) Tetrachloroethene	7.161	166	1439441	10.82	ppbV	99
50) trans-1,3-Dichloropropene	7.177	75	1621869	12.63	ppbV	95
51) 1,1,2-Trichloroethane	7.335	97	1143196	10.95	ppbV	98

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4072dcvs.D
Acq On : 28 Sep 2023 10:31 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

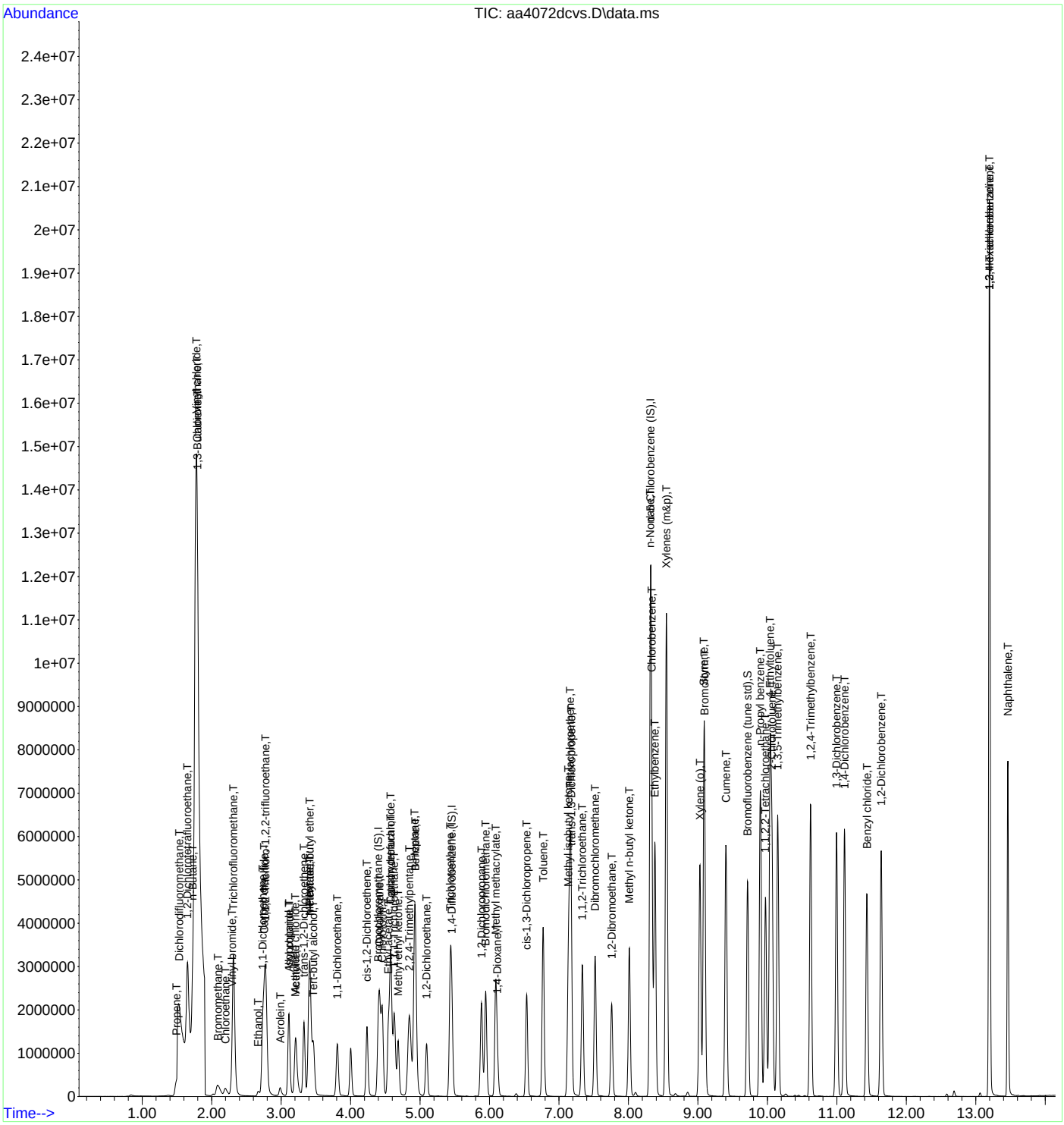
Quant Time: Oct 05 12:20:58 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	1974797	11.34	ppbV	100
53)	1,2-Dibromoethane	7.759	107	1723352	11.29	ppbV	99
54)	Methyl n-butyl ketone	8.013	43	2740906	13.68	ppbV	97
56)	n-Nonane	8.315	43	3130203	13.08	ppbV	95
57)	Chlorobenzene	8.335	112	2616855	12.22	ppbV	96
58)	Ethylbenzene	8.380	91	4951669	12.50	ppbV	99
59)	Xylenes (m&p)	8.547	91	7618001	26.68	ppbV	98
60)	Xylene (o)	9.029	91	3858864	12.17	ppbV	98
61)	Styrene	9.087	104	2876626	13.67	ppbV	100
62)	Bromoform	9.097	173	2077944	12.78	ppbV	100
63)	Cumene	9.405	105	4831919	11.70	ppbV	99
65)	n-Propyl benzene	9.897	91	6998521	12.99	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.971	83	2971483	12.37	ppbV	100
67)	4-Ethyltoluene	10.039	105	5763454	12.98	ppbV	98
68)	2-Chlorotoluene	10.065	91	4548166	12.45	ppbV	98
69)	1,3,5-Trimethylbenzene	10.148	105	4424594	12.31	ppbV	98
70)	1,2,4-Trimethylbenzene	10.624	105	4619816	12.97	ppbV	98
71)	1,3-Dichlorobenzene	10.997	146	2933863	12.42	ppbV	99
72)	1,4-Dichlorobenzene	11.113	146	2925919	12.89	ppbV	100
73)	Benzyl chloride	11.434	91	4012288	12.89	ppbV	98
74)	1,2-Dichlorobenzene	11.640	146	2736550	12.24	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	1861511	11.61	ppbV	99
76)	1,2,4-Trichlorobenzene	13.196	180	2298365	13.07	ppbV	100
77)	Naphthalene	13.463	128	4601232	12.67	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4072dcvs.D
Acq On : 28 Sep 2023 10:31 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 05 12:20:58 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**12/8/2023 10:50**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4882DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05093-01 [AA4895]	12/08/2023 19:11

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Acetone	1.5	1.5	-0.30	PASS	
Benzene	4.0	3.4	15	PASS	
Bromoform	0.73	0.73	0.70	PASS	
Bromomethane	0.73	0.78	-6.2	PASS	
1,3-Butadiene	0.85	0.76	9.7	PASS	
Chlorobenzene	1.00	0.90	10	PASS	
Chloroethane	0.48	0.50	-5.7	PASS	
Chloroform	2.7	2.4	8.5	PASS	
Chloromethane	0.11	0.11	3.6	PASS	
Carbon disulfide	3.1	3.0	1.4	PASS	
Carbon tetrachloride	3.2	2.9	7.1	PASS	
Cyclohexane	2.2	2.0	11	PASS	
1,2-Dibromoethane	0.69	0.69	-1.2	PASS	
1,2-Dichlorobenzene	1.0	0.95	7.9	PASS	
1,3-Dichlorobenzene	1.1	0.95	9.9	PASS	
1,4-Dichlorobenzene	1.1	0.99	7.1	PASS	
Dichlorodifluoromethane	2.2	2.2	1.0	PASS	
1,1-Dichloroethane	2.3	2.0	13	PASS	
1,2-Dichloroethane	1.7	1.6	2.3	PASS	
1,1-Dichloroethene	1.9	1.8	0.80	PASS	
1,2-Dichloroethene (cis)	1.6	1.5	8.3	PASS	
1,2-Dichloroethene (trans)	1.7	1.7	3.9	PASS	
1,2-Dichloropropane	0.39	0.37	3.9	PASS	
1,3-Dichloropropene (cis)	0.60	0.59	2.3	PASS	
1,3-Dichloropropene (trans)	0.59	0.61	-4.4	PASS	
1,2-Dichlorotetrafluoroethane	3.2	2.9	11	PASS	
1,4-Dioxane	0.24	0.24	-0.40	PASS	
Ethylbenzene	1.8	1.7	7.2	PASS	
n-Heptane	2.8	2.6	4.3	PASS	
1,3-Hexachlorobutadiene	0.71	0.66	8.1	PASS	
n-Hexane	3.2	2.8	12	PASS	
Methylene chloride	1.2	1.1	13	PASS	
Methyl ethyl ketone	2.4	2.2	8.0	PASS	
Methyl isobutyl ketone	0.88	0.96	-8.5	PASS	
Methyl tert-butyl ether	3.9	3.5	9.8	PASS	
Styrene	1.0	0.95	6.9	PASS	
Tert-butyl alcohol	2.6	2.3	11	PASS	
1,1,2,2-Tetrachloroethane	1.0	0.97	7.4	PASS	
Tetrachloroethene	0.61	0.59	3.1	PASS	
Toluene	1.4	1.4	2.8	PASS	
1,2,4-Trichlorobenzene	0.82	0.78	5.5	PASS	
1,1,1-Trichloroethane	2.8	2.6	7.2	PASS	
1,1,2-Trichloroethane	0.48	0.46	2.7	PASS	
Trichloroethene	0.44	0.42	6.1	PASS	
Trichlorofluoromethane	2.8	2.8	1.6	PASS	

***%Difference must be within +/- 30%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**12/8/2023 10:50**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4882DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05093-01 [AA4895]	12/08/2023 19:11

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
1,1,2-Trichloro-1,2,2-trifluoroethane	2.8	2.4	16	PASS	
1,2,4-Trimethylbenzene	1.7	1.6	5.2	PASS	
1,3,5-Trimethylbenzene	1.7	1.6	7.1	PASS	
2,2,4-Trimethylpentane	1.3	1.3	2.8	PASS	
Vinyl bromide	0.90	0.89	0.80	PASS	
Vinyl chloride	0.91	0.87	4.1	PASS	
Xylenes (m&p)	1.4	1.3	4.2	PASS	
Xylenes (o)	1.5	1.4	9.2	PASS	

***%Difference must be within +/- 30%**
RRF - Relative Response Factor

Evaluate Continuing Calibration Report

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4882dcvs.D
Acq On : 8 Dec 2023 10:50 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 12 09:41:42 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS)	1.000	1.000	0.0	126	0.00
2	T	Propene	0.694	0.600	13.5	126	0.00
3	T	Dichlorodifluoromethane	2.216	2.193	1.0	128	0.00
4	T	1,2-Dichlorotetrafluoroetha	3.219	2.869	10.9	123	0.00
5	T	n-Butane	1.597	1.500	6.1	124	0.00
6	T	Chloromethane	0.111	0.107	3.6	120	0.00
7	T	Vinyl chloride	0.906	0.869	4.1	121	0.00
8	T	1,3-Butadiene	0.846	0.764	9.7	121	0.00
9	T	Bromomethane	0.731	0.776	-6.2	130	0.00
10	T	Chloroethane	0.475	0.502	-5.7	126	0.00
11	T	Vinyl bromide	0.895	0.888	0.8	123	0.00
12	T	Trichlorofluoromethane	2.799	2.753	1.6	131	0.00
13	T	Ethanol	0.293	0.309	-5.5	145	0.00
14	T	1,1-Dichloroethene	1.858	1.844	0.8	120	0.00
15	T	Carbon disulfide	3.058	3.016	1.4	118	0.00
16	T	1,1,2-Trichloro-1,2,2-trifl	2.819	2.364	16.1	118	0.00
17	T	Acrolein	0.418	0.406	2.9	119	0.00
18	T	Allyl chloride	0.501	0.485	3.2	114	0.00
19	T	Isopropanol	2.005	1.954	2.5	118	0.00
20	T	Methylene chloride	1.229	1.073	12.7	133	0.00
21	T	Acetone	1.508	1.512	-0.3	124	0.00
22	T	trans-1,2-Dichloroethene	1.724	1.657	3.9	117	0.00
23	T	n-Pentane	2.325	2.146	7.7	125	0.00
24	T	n-Hexane	3.152	2.784	11.7	118	0.00
25	T	Methyl tert-butyl ether	3.872	3.493	9.8	121	0.00
26	T	Tert-butyl alcohol	2.607	2.316	11.2	117	0.00
27	T	1,1-Dichloroethane	2.322	2.010	13.4	114	0.00
28	T	cis-1,2-Dichloroethene	1.638	1.502	8.3	115	0.00
29	t	Cyclohexane	2.202	1.965	10.8	119	0.00
30	T	Chloroform	2.676	2.449	8.5	117	0.00
31	T	Ethyl acetate	0.435	0.410	5.7	115	0.00
32	T	Carbon tetrachloride	3.174	2.948	7.1	122	0.00
33	T	Tetrahydrofuran	1.504	1.387	7.8	118	0.00
34	T	1,1,1-Trichloroethane	2.780	2.579	7.2	122	0.00
35	T	Methyl ethyl ketone	2.442	2.246	8.0	120	0.00
36	T	n-Heptane	2.764	2.646	4.3	117	0.00
37	T	Benzene	3.972	3.382	14.9	112	0.00
38	T	1,2-Dichloroethane	1.663	1.624	2.3	123	0.00
39	I	1,4-Difluorobenzene (IS)	1.000	1.000	0.0	118	0.00
40	T	Trichloroethene	0.442	0.415	6.1	111	0.00
41	T	2,2,4-Trimethylpentane	1.303	1.266	2.8	122	0.00
42	T	1,2-Dichloropropane	0.389	0.374	3.9	113	0.00
43	T	Bromodichloromethane	0.655	0.674	-2.9	121	0.00
44	T	Methyl methacrylate	0.472	0.490	-3.8	116	0.00
45	T	1,4-Dioxane	0.238	0.239	-0.4	116	0.00
46	T	cis-1,3-Dichloropropene	0.603	0.589	2.3	111	0.00
47	T	Toluene	1.405	1.366	2.8	108	0.00
48	T	Methyl isobutyl ketone	0.883	0.958	-8.5	119	0.00
49	T	Tetrachloroethene	0.606	0.587	3.1	109	0.00
50	T	trans-1,3-Dichloropropene	0.585	0.611	-4.4	114	0.00
51	T	1,1,2-Trichloroethane	0.475	0.462	2.7	110	0.00
52	T	Dibromochloromethane	0.791	0.812	-2.7	115	0.00
53	T	1,2-Dibromoethane	0.686	0.694	-1.2	112	0.00

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4882dcvs.D
Acq On : 8 Dec 2023 10:50 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 12 09:41:42 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	T	Methyl n-butyl ketone	0.849	0.929	-9.4	117	0.00
55	I	d-5 Chlorobenzene (IS)	1.000	1.000	0.0	119	0.00
56	T	n-Nonane	0.992	1.014	-2.2	118	0.00
57	T	Chlorobenzene	0.997	0.897	10.0	108	0.00
58	T	Ethylbenzene	1.843	1.711	7.2	110	0.00
59	T	Xylenes (m&p)	1.365	1.308	4.2	110	0.00
60	T	Xylene (o)	1.490	1.353	9.2	110	0.00
61	T	Styrene	1.020	0.950	6.9	106	0.00
62	T	Bromoform	0.732	0.727	0.7	117	0.00
63	T	Cumene	1.947	1.854	4.8	113	0.00
64	S	Bromofluorobenzene (tune st	0.872	0.895	-2.6	123	0.00
65	T	n-Propyl benzene	2.541	2.507	1.3	115	0.00
66	T	1,1,2,2-Tetrachloroethane	1.043	0.966	7.4	111	0.00
67	T	4-Ethyltoluene	2.151	2.065	4.0	112	0.00
68	T	2-Chlorotoluene	1.707	1.639	4.0	115	0.00
69	T	1,3,5-Trimethylbenzene	1.730	1.608	7.1	109	0.00
70	T	1,2,4-Trimethylbenzene	1.729	1.639	5.2	109	0.00
71	T	1,3-Dichlorobenzene	1.059	0.954	9.9	108	0.00
72	T	1,4-Dichlorobenzene	1.065	0.989	7.1	109	0.00
73	T	Benzyl chloride	1.529	1.550	-1.4	114	0.00
74	T	1,2-Dichlorobenzene	1.027	0.946	7.9	109	0.00
75	T	1,3-Hexachlorobutadiene	0.713	0.655	8.1	111	0.00
76	T	1,2,4-Trichlorobenzene	0.824	0.779	5.5	113	0.00
77	T	Naphthalene	1.885	1.868	0.9	118	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4882dcvs.D
Acq On : 8 Dec 2023 10:50 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 12 09:41:42 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.390	130	497428	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	1995098	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	2342927	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2097748	10.27	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.483	41	325585	9.43	ppbV	97
3) Dichlorodifluoromethane	1.522	85	1156523	10.49	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.643	85	1398478	8.73	ppbV	97
5) n-Butane	1.725	43	813377	10.24	ppbV	99
6) Chloromethane	1.787	52	59773	10.85	ppbV	90
7) Vinyl chloride	1.777	62	466932	10.36	ppbV	100
8) 1,3-Butadiene	1.791	39	406894	9.67	ppbV	98
9) Bromomethane	2.075	94	385826	10.61	ppbV	98
10) Chloroethane	2.190	64	264511	11.19	ppbV	99
11) Vinyl bromide	2.287	106	446119	10.02	ppbV	99
12) Trichlorofluoromethane	2.306	101	1506447	10.82	ppbV	100
13) Ethanol	2.666	45	159941	10.98	ppbV	98
14) 1,1-Dichloroethene	2.727	61	954181	10.33	ppbV	96
15) Carbon disulfide	2.747	76	1604997	10.55	ppbV	96
16) 1,1,2-Trichloro-1,2,2-...	2.769	101	1281549	9.14	ppbV	99
17) Acrolein	2.981	56	201838	9.71	ppbV	99
18) Allyl chloride	3.110	76	260522	10.45	ppbV	100
19) Isopropanol	3.107	45	865101	8.67	ppbV	97
20) Methylene chloride	3.197	49	576215	9.42	ppbV	94
21) Acetone	3.210	43	812442	10.83	ppbV	98
22) trans-1,2-Dichloroethene	3.322	61	914937	10.67	ppbV	99
23) n-Pentane	3.402	43	1153103	9.97	ppbV	98
24) n-Hexane	3.402	57	1523505	9.72	ppbV	95
25) Methyl tert-butyl ether	3.406	73	1946245	10.10	ppbV	98
26) Tert-butyl alcohol	3.460	59	1324915	10.22	ppbV	100
27) 1,1-Dichloroethane	3.804	63	1070062	9.26	ppbV	99
28) cis-1,2-Dichloroethene	4.232	61	814529	10.00	ppbV	97
29) Cyclohexane	4.412	56	1094521	9.99	ppbV	99
30) Chloroform	4.451	83	1315872	9.89	ppbV	100
31) Ethyl acetate	4.544	61	220415	10.18	ppbV	96
32) Carbon tetrachloride	4.573	117	1612899	10.22	ppbV	100
33) Tetrahydrofuran	4.570	42	759074	10.14	ppbV	98
34) 1,1,1-Trichloroethane	4.624	97	1398155	10.11	ppbV	98
35) Methyl ethyl ketone	4.682	43	1229080	10.12	ppbV	97
36) n-Heptane	4.917	43	1460837	10.63	ppbV	97
37) Benzene	4.930	78	1816777	9.20	ppbV	97
38) 1,2-Dichloroethane	5.087	62	880596	10.65	ppbV	100
40) Trichloroethene	5.431	130	827314	9.37	ppbV	99
41) 2,2,4-Trimethylpentane	4.843	57	2753707	10.60	ppbV	100
42) 1,2-Dichloropropane	5.881	63	821769	10.59	ppbV	100
43) Bromodichloromethane	5.943	83	1546117	11.83	ppbV	99
44) Methyl methacrylate	6.084	41	1074952	11.42	ppbV	96
45) 1,4-Dioxane	6.113	88	556955	11.71	ppbV	100
46) cis-1,3-Dichloropropene	6.534	75	1304823	10.84	ppbV	100
47) Toluene	6.769	91	2943669	10.50	ppbV	100
48) Methyl isobutyl ketone	7.129	43	2083775	11.83	ppbV	97
49) Tetrachloroethene	7.158	166	1312474	10.86	ppbV	100
50) trans-1,3-Dichloropropene	7.174	75	1353861	11.60	ppbV	98
51) 1,1,2-Trichloroethane	7.335	97	994836	10.51	ppbV	99

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4882dcvs.D
Acq On : 8 Dec 2023 10:50 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

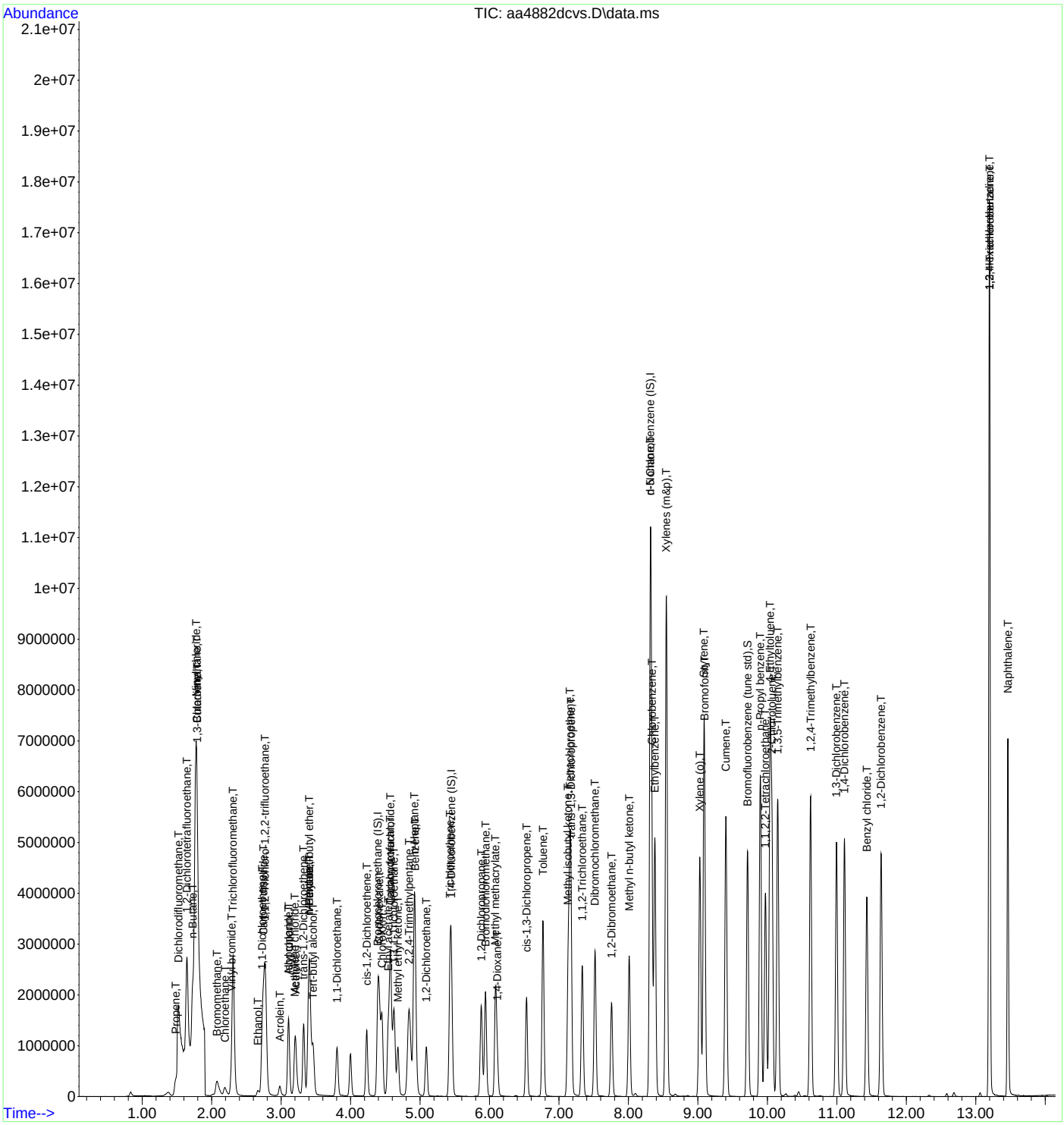
Quant Time: Dec 12 09:41:42 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.518	129	1815407	11.51	ppbV	99
53)	1,2-Dibromoethane	7.756	107	1495380	10.92	ppbV	100
54)	Methyl n-butyl ketone	8.010	43	2094056	12.36	ppbV	97
56)	n-Nonane	8.315	43	2612956	11.24	ppbV	97
57)	Chlorobenzene	8.338	112	2332552	9.99	ppbV	97
58)	Ethylbenzene	8.380	91	4450991	10.31	ppbV	98
59)	Xylenes (m&p)	8.544	91	6834641	21.36	ppbV	99
60)	Xylene (o)	9.026	91	3488106	9.99	ppbV	98
61)	Styrene	9.087	104	2516387	10.53	ppbV	98
62)	Bromoform	9.097	173	1925681	11.22	ppbV	100
63)	Cumene	9.402	105	4647970	10.19	ppbV	100
65)	n-Propyl benzene	9.897	91	6343495	10.65	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.971	83	2579002	10.55	ppbV	99
67)	4-Ethyltoluene	10.039	105	5223938	10.37	ppbV	100
68)	2-Chlorotoluene	10.065	91	4185953	10.47	ppbV	99
69)	1,3,5-Trimethylbenzene	10.148	105	4107061	10.13	ppbV	99
70)	1,2,4-Trimethylbenzene	10.624	105	4146495	10.24	ppbV	99
71)	1,3-Dichlorobenzene	10.994	146	2479981	10.00	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	2478669	9.93	ppbV	99
73)	Benzyl chloride	11.431	91	3632702	10.14	ppbV	99
74)	1,2-Dichlorobenzene	11.637	146	2370759	9.85	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	1704319	10.21	ppbV	100
76)	1,2,4-Trichlorobenzene	13.199	180	2007051	10.39	ppbV	99
77)	Naphthalene	13.463	128	4377391	9.91	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4882dcvs.D
Acq On : 8 Dec 2023 10:50 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 12 09:41:42 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**12/11/2023 10:26**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4902DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 09:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
CLEAN CAN CERTIFICATION, BATCH MASTER 1458 [AA4906]	12/11/2023 12:50
CLEAN CAN CERTIFICATION, BATCH MASTER 1588 [AA4907]	12/11/2023 13:19
CLEAN CAN CERTIFICATION, BATCH MASTER 3012 [AA4908]	12/11/2023 13:49
E23-05093-01 [AA4913]	12/11/2023 16:20
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 01:59

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Acetone	1.5	1.6	-2.9	PASS	
Benzene	4.0	3.4	14	PASS	
Bromoform	0.73	0.73	0.10	PASS	
Bromomethane	0.73	0.76	-4.4	PASS	
1,3-Butadiene	0.85	0.80	5.7	PASS	
Chlorobenzene	1.00	0.92	7.3	PASS	
Chloroethane	0.48	0.52	-9.3	PASS	
Chloroform	2.7	2.5	8.2	PASS	
Chloromethane	0.11	0.12	-5.4	PASS	
Carbon disulfide	3.1	3.1	-0.90	PASS	
Carbon tetrachloride	3.2	2.9	9.9	PASS	
Cyclohexane	2.2	2.0	7.9	PASS	
1,2-Dibromoethane	0.69	0.69	0.10	PASS	
1,2-Dichlorobenzene	1.0	0.97	5.6	PASS	
1,3-Dichlorobenzene	1.1	0.98	7.4	PASS	
1,4-Dichlorobenzene	1.1	1.0	4.5	PASS	
Dichlorodifluoromethane	2.2	2.2	1.3	PASS	
1,1-Dichloroethane	2.3	2.1	10	PASS	
1,2-Dichloroethane	1.7	1.6	3.6	PASS	
1,1-Dichloroethene	1.9	1.9	-1.0	PASS	
1,2-Dichloroethene (cis)	1.6	1.6	3.8	PASS	
1,2-Dichloroethene (trans)	1.7	1.7	0.20	PASS	
1,2-Dichloropropane	0.39	0.37	4.6	PASS	
1,3-Dichloropropene (cis)	0.60	0.59	2.7	PASS	
1,3-Dichloropropene (trans)	0.59	0.60	-2.6	PASS	
1,2-Dichlorotetrafluoroethane	3.2	2.9	11	PASS	
1,4-Dioxane	0.24	0.23	2.5	PASS	
Ethylbenzene	1.8	1.7	5.1	PASS	
n-Heptane	2.8	2.7	1.0	PASS	
1,3-Hexachlorobutadiene	0.71	0.67	6.3	PASS	
n-Hexane	3.2	2.9	7.9	PASS	
Methylene chloride	1.2	1.1	12	PASS	
Methyl ethyl ketone	2.4	2.4	3.5	PASS	
Methyl isobutyl ketone	0.88	0.96	-8.5	PASS	
Methyl tert-butyl ether	3.9	3.6	6.7	PASS	
Styrene	1.0	0.98	3.7	PASS	
Tert-butyl alcohol	2.6	2.4	6.1	PASS	
1,1,2,2-Tetrachloroethane	1.0	1.00	4.3	PASS	
Tetrachloroethene	0.61	0.57	5.4	PASS	
Toluene	1.4	1.3	4.0	PASS	

***%Difference must be within +/- 30%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**12/11/2023 10:26**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4902DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 09:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
CLEAN CAN CERTIFICATION, BATCH MASTER 1458 [AA4906]	12/11/2023 12:50
CLEAN CAN CERTIFICATION, BATCH MASTER 1588 [AA4907]	12/11/2023 13:19
CLEAN CAN CERTIFICATION, BATCH MASTER 3012 [AA4908]	12/11/2023 13:49
E23-05093-01 [AA4913]	12/11/2023 16:20
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 01:59

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
1,2,4-Trichlorobenzene	0.82	0.79	3.9	PASS	
1,1,1-Trichloroethane	2.8	2.5	8.6	PASS	
1,1,2-Trichloroethane	0.48	0.46	4.0	PASS	
Trichloroethene	0.44	0.41	8.4	PASS	
Trichlorofluoromethane	2.8	2.7	3.1	PASS	
1,1,2-Trichloro-1,2,2-trifluoroethane	2.8	2.4	15	PASS	
1,2,4-Trimethylbenzene	1.7	1.7	3.1	PASS	
1,3,5-Trimethylbenzene	1.7	1.7	4.2	PASS	
2,2,4-Trimethylpentane	1.3	1.2	4.3	PASS	
Vinyl bromide	0.90	0.91	-1.8	PASS	
Vinyl chloride	0.91	0.89	1.5	PASS	
Xylenes (m&p)	1.4	1.3	2.0	PASS	
Xylenes (o)	1.5	1.4	6.4	PASS	

***%Difference must be within +/- 30%**
RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Evaluate Continuing Calibration Report

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS)	1.000	1.000	0.0	151	0.00
2	T	Propene	0.694	0.638	8.1	161	0.00
3	T	Dichlorodifluoromethane	2.216	2.188	1.3	153	0.00
4	T	1,2-Dichlorotetrafluoroetha	3.219	2.870	10.8	147	0.00
5	T	n-Butane	1.597	1.560	2.3	154	0.00
6	T	Chloromethane	0.111	0.117	-5.4	157	0.00
7	T	Vinyl chloride	0.906	0.892	1.5	149	0.00
8	T	1,3-Butadiene	0.846	0.798	5.7	151	0.00
9	T	Bromomethane	0.731	0.763	-4.4	154	0.00
10	T	Chloroethane	0.475	0.519	-9.3	156	0.00
11	T	Vinyl bromide	0.895	0.911	-1.8	151	0.00
12	T	Trichlorofluoromethane	2.799	2.713	3.1	155	0.00
13	T	Ethanol	0.293	0.325	-10.9	183	0.00
14	T	1,1-Dichloroethene	1.858	1.877	-1.0	146	0.00
15	T	Carbon disulfide	3.058	3.087	-0.9	145	0.00
16	T	1,1,2-Trichloro-1,2,2-trifl	2.819	2.390	15.2	143	0.00
17	T	Acrolein	0.418	0.423	-1.2	149	0.00
18	T	Allyl chloride	0.501	0.513	-2.4	145	0.00
19	T	Isopropanol	2.005	2.110	-5.2	153	0.00
20	T	Methylene chloride	1.229	1.083	11.9	161	0.00
21	T	Acetone	1.508	1.551	-2.9	153	0.00
22	T	trans-1,2-Dichloroethene	1.724	1.721	0.2	146	0.00
23	T	n-Pentane	2.325	2.210	4.9	154	0.00
24	T	n-Hexane	3.152	2.903	7.9	148	0.00
25	T	Methyl tert-butyl ether	3.872	3.613	6.7	150	0.00
26	T	Tert-butyl alcohol	2.607	2.448	6.1	148	0.00
27	T	1,1-Dichloroethane	2.322	2.083	10.3	141	0.00
28	T	cis-1,2-Dichloroethene	1.638	1.576	3.8	144	0.00
29	t	Cyclohexane	2.202	2.029	7.9	148	0.00
30	T	Chloroform	2.676	2.457	8.2	141	0.00
31	T	Ethyl acetate	0.435	0.434	0.2	146	0.00
32	T	Carbon tetrachloride	3.174	2.860	9.9	142	0.00
33	T	Tetrahydrofuran	1.504	1.466	2.5	149	0.00
34	T	1,1,1-Trichloroethane	2.780	2.541	8.6	144	0.00
35	T	Methyl ethyl ketone	2.442	2.356	3.5	150	0.00
36	T	n-Heptane	2.764	2.735	1.0	145	0.00
37	T	Benzene	3.972	3.428	13.7	136	0.00
38	T	1,2-Dichloroethane	1.663	1.603	3.6	146	0.00
39	I	1,4-Difluorobenzene (IS)	1.000	1.000	0.0	147	0.00
40	T	Trichloroethene	0.442	0.405	8.4	135	0.00
41	T	2,2,4-Trimethylpentane	1.303	1.247	4.3	149	0.00
42	T	1,2-Dichloropropane	0.389	0.371	4.6	139	0.00
43	T	Bromodichloromethane	0.655	0.640	2.3	143	0.00
44	T	Methyl methacrylate	0.472	0.494	-4.7	146	0.00
45	T	1,4-Dioxane	0.238	0.232	2.5	140	0.00
46	T	cis-1,3-Dichloropropene	0.603	0.587	2.7	137	0.00
47	T	Toluene	1.405	1.349	4.0	133	0.00
48	T	Methyl isobutyl ketone	0.883	0.958	-8.5	148	0.00
49	T	Tetrachloroethene	0.606	0.573	5.4	133	0.00
50	T	trans-1,3-Dichloropropene	0.585	0.600	-2.6	139	0.00
51	T	1,1,2-Trichloroethane	0.475	0.456	4.0	135	0.00
52	T	Dibromochloromethane	0.791	0.789	0.3	139	0.00
53	T	1,2-Dibromoethane	0.686	0.685	0.1	137	0.00

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	T	Methyl n-butyl ketone	0.849	0.947	-11.5	149	0.00
55	I	d-5 Chlorobenzene (IS)	1.000	1.000	0.0	142	0.00
56	T	n-Nonane	0.992	1.053	-6.1	146	0.00
57	T	Chlorobenzene	0.997	0.924	7.3	133	0.00
58	T	Ethylbenzene	1.843	1.749	5.1	134	0.00
59	T	Xylenes (m&p)	1.365	1.338	2.0	134	0.00
60	T	Xylene (o)	1.490	1.395	6.4	135	0.00
61	T	Styrene	1.020	0.982	3.7	131	0.00
62	T	Bromoform	0.732	0.731	0.1	139	0.00
63	T	Cumene	1.947	1.907	2.1	139	0.00
64	S	Bromofluorobenzene (tune st	0.872	0.871	0.1	142	0.00
65	T	n-Propyl benzene	2.541	2.576	-1.4	140	0.00
66	T	1,1,2,2-Tetrachloroethane	1.043	0.998	4.3	136	0.00
67	T	4-Ethyltoluene	2.151	2.143	0.4	138	0.00
68	T	2-Chlorotoluene	1.707	1.675	1.9	140	0.00
69	T	1,3,5-Trimethylbenzene	1.730	1.657	4.2	134	0.00
70	T	1,2,4-Trimethylbenzene	1.729	1.675	3.1	133	0.00
71	T	1,3-Dichlorobenzene	1.059	0.981	7.4	133	0.00
72	T	1,4-Dichlorobenzene	1.065	1.017	4.5	134	0.00
73	T	Benzyl chloride	1.529	1.639	-7.2	144	0.00
74	T	1,2-Dichlorobenzene	1.027	0.970	5.6	133	0.00
75	T	1,3-Hexachlorobutadiene	0.713	0.668	6.3	135	0.00
76	T	1,2,4-Trichlorobenzene	0.824	0.792	3.9	137	0.00
77	T	Naphthalene	1.885	1.937	-2.8	145	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.393	130	596109	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2484518	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2791354	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2431677	9.99	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	414687	10.02	ppbV	98
3) Dichlorodifluoromethane	1.522	85	1382298	10.46	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.646	85	1676477	8.74	ppbV	97
5) n-Butane	1.729	43	1013335	10.64	ppbV	99
6) Chloromethane	1.791	52	78218	11.85	ppbV	100
7) Vinyl chloride	1.784	62	574429	10.64	ppbV	100
8) 1,3-Butadiene	1.794	39	509282	10.09	ppbV	97
9) Bromomethane	2.081	94	454826	10.43	ppbV	98
10) Chloroethane	2.194	64	327772	11.57	ppbV	98
11) Vinyl bromide	2.293	106	548259	10.27	ppbV	99
12) Trichlorofluoromethane	2.309	101	1779124	10.66	ppbV	99
13) Ethanol	2.666	45	201466	11.54	ppbV	97
14) 1,1-Dichloroethene	2.731	61	1163954	10.51	ppbV	96
15) Carbon disulfide	2.750	76	1969223	10.80	ppbV	97
16) 1,1,2-Trichloro-1,2,2-...	2.772	101	1553181	9.24	ppbV	99
17) Acrolein	2.985	56	252446	10.14	ppbV	100
18) Allyl chloride	3.110	76	330196	11.05	ppbV	100
19) Isopropanol	3.110	45	1119255	9.36	ppbV	100
20) Methylene chloride	3.203	49	696985	9.51	ppbV	95
21) Acetone	3.210	43	998590	11.11	ppbV	100
22) trans-1,2-Dichloroethene	3.325	61	1138568	11.08	ppbV	98
23) n-Pentane	3.409	43	1422770	10.27	ppbV	98
24) n-Hexane	3.406	57	1903376	10.13	ppbV	98
25) Methyl tert-butyl ether	3.409	73	2411960	10.45	ppbV	99
26) Tert-butyl alcohol	3.464	59	1678450	10.80	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1328374	9.60	ppbV	100
28) cis-1,2-Dichloroethene	4.232	61	1023865	10.48	ppbV	96
29) Cyclohexane	4.412	56	1354780	10.32	ppbV	97
30) Chloroform	4.454	83	1581616	9.92	ppbV	99
31) Ethyl acetate	4.541	61	279320	10.77	ppbV	96
32) Carbon tetrachloride	4.576	117	1875059	9.91	ppbV	99
33) Tetrahydrofuran	4.573	42	961491	10.72	ppbV	97
34) 1,1,1-Trichloroethane	4.628	97	1650986	9.96	ppbV	99
35) Methyl ethyl ketone	4.682	43	1545036	10.61	ppbV	98
36) n-Heptane	4.914	43	1809408	10.98	ppbV	97
37) Benzene	4.930	78	2206639	9.32	ppbV	97
38) 1,2-Dichloroethane	5.091	62	1041657	10.51	ppbV	100
40) Trichloroethene	5.431	130	1006216	9.15	ppbV	100
41) 2,2,4-Trimethylpentane	4.846	57	3376289	10.43	ppbV	100
42) 1,2-Dichloropropane	5.885	63	1014651	10.50	ppbV	99
43) Bromodichloromethane	5.943	83	1828286	11.23	ppbV	100
44) Methyl methacrylate	6.087	41	1350577	11.52	ppbV	96
45) 1,4-Dioxane	6.113	88	673669	11.38	ppbV	99
46) cis-1,3-Dichloropropene	6.534	75	1619348	10.81	ppbV	99
47) Toluene	6.772	91	3618902	10.36	ppbV	100
48) Methyl isobutyl ketone	7.135	43	2595670	11.83	ppbV	98
49) Tetrachloroethene	7.161	166	1595415	10.60	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	1655291	11.39	ppbV	98
51) 1,1,2-Trichloroethane	7.335	97	1222341	10.37	ppbV	100

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

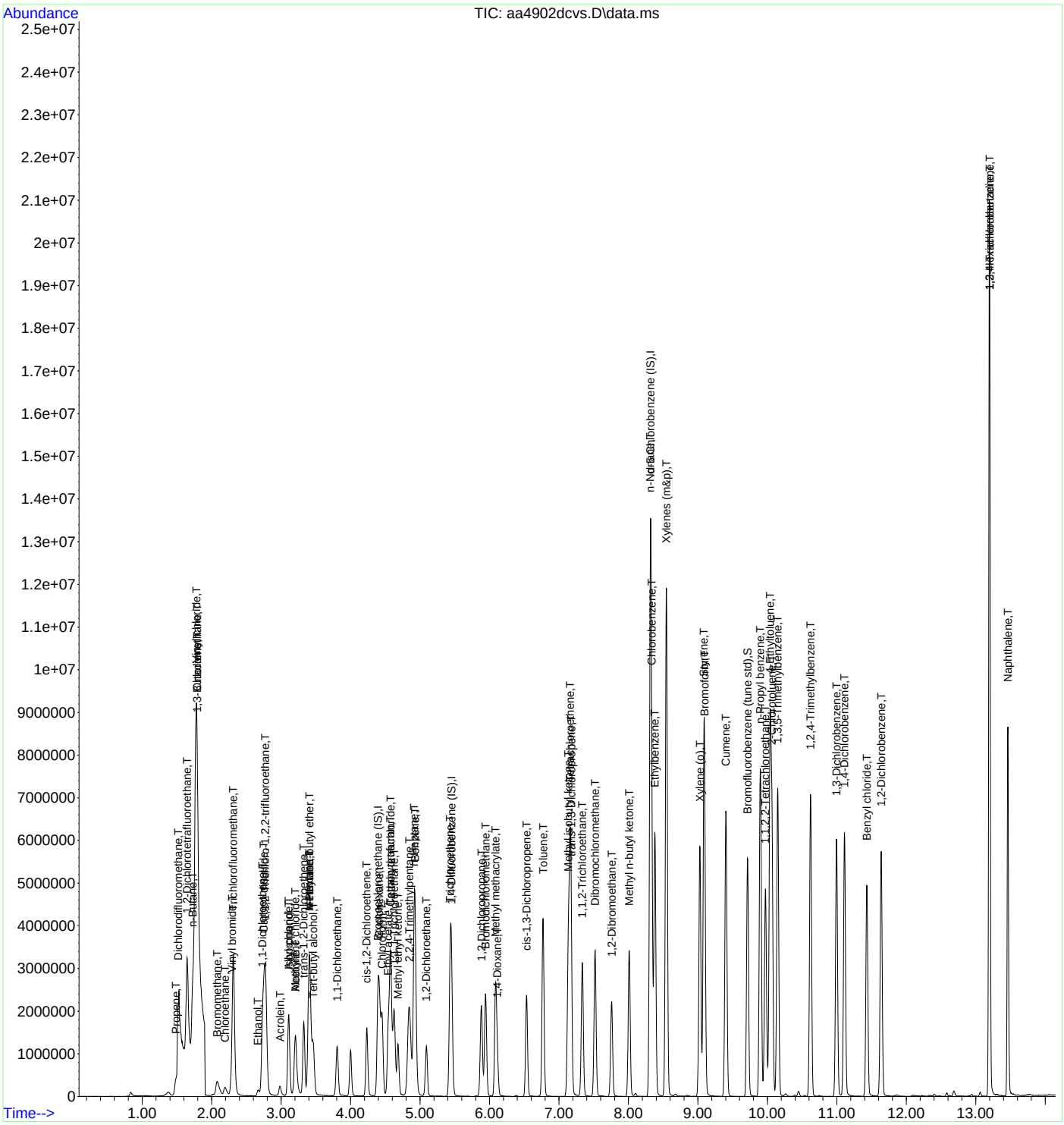
Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2194895	11.17	ppbV	99
53)	1,2-Dibromoethane	7.759	107	1838806	10.78	ppbV	100
54)	Methyl n-butyl ketone	8.010	43	2657481	12.59	ppbV	97
56)	n-Nonane	8.316	43	3233636	11.67	ppbV	98
57)	Chlorobenzene	8.335	112	2863155	10.29	ppbV	98
58)	Ethylbenzene	8.380	91	5418295	10.53	ppbV	99
59)	Xylenes (m&p)	8.547	91	8329861	21.86	ppbV	99
60)	Xylene (o)	9.029	91	4282583	10.30	ppbV	98
61)	Styrene	9.087	104	3096431	10.87	ppbV	99
62)	Bromoform	9.097	173	2305769	11.28	ppbV	100
63)	Cumene	9.402	105	5696839	10.48	ppbV	100
65)	n-Propyl benzene	9.897	91	7764284	10.95	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.971	83	3175462	10.91	ppbV	100
67)	4-Ethyltoluene	10.039	105	6460729	10.76	ppbV	99
68)	2-Chlorotoluene	10.065	91	5096400	10.69	ppbV	99
69)	1,3,5-Trimethylbenzene	10.148	105	5041969	10.44	ppbV	99
70)	1,2,4-Trimethylbenzene	10.621	105	5048160	10.46	ppbV	99
71)	1,3-Dichlorobenzene	10.997	146	3039816	10.29	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	3038927	10.22	ppbV	99
73)	Benzyl chloride	11.431	91	4575705	10.72	ppbV	99
74)	1,2-Dichlorobenzene	11.640	146	2896425	10.10	ppbV	99
75)	1,3-Hexachlorobutadiene	13.200	225	2068735	10.40	ppbV	99
76)	1,2,4-Trichlorobenzene	13.200	180	2432158	10.57	ppbV	99
77)	Naphthalene	13.463	128	5407318	10.28	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



Section VIII: Raw Quality Control Data Package

BFB Tune Spectra

Method Blank

Laboratory Control Sample

Laboratory Sample Duplicate

Instrument Run Logs

Pressure Gauge Readings (initial and final)

Example Calculations

Screening Data

Clean Canister Certification

BFB

Data Path: C:\DATA\2023\08-2023\08-15-2023\
Data File: AA3401BFB.D
Acq On: 8/15/2023 10:11:00AM
Operator: jls
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230525.M
Last Update: Tue May 30 13:24:12 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	251499	18.7
PASS	75	95	30	66	703104	52.3
PASS	95	95	100	100	1345024	100.0
PASS	96	95	5	9	89525	6.7
PASS	173	174	0.00	2	8293	0.8
PASS	174	95	50	100	1069397	79.5
PASS	175	174	4	9	78181	7.3
PASS	176	174	93	101	1035413	96.8
PASS	177	176	5	9	68613	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA3401BFB	NA	8/15/2023 10:11:00 AM
0.2 PPBV STD	AA3402STD05	NA	8/15/2023 11:15:00 AM
10 PPBV STD	AA3404STD03	NA	8/15/2023 1:09:00 PM
2 PPBV STD	AA3403STD04	NA	8/15/2023 1:45:00 PM
20 PPBV STD	AA3405STD02	NA	8/15/2023 3:12:00 PM
40 PPBV STD	AA3406STD01	NA	8/15/2023 4:47:00 PM
10 PPBV ICVSS	AA3407ICVSS	NA	8/15/2023 6:09:00 PM

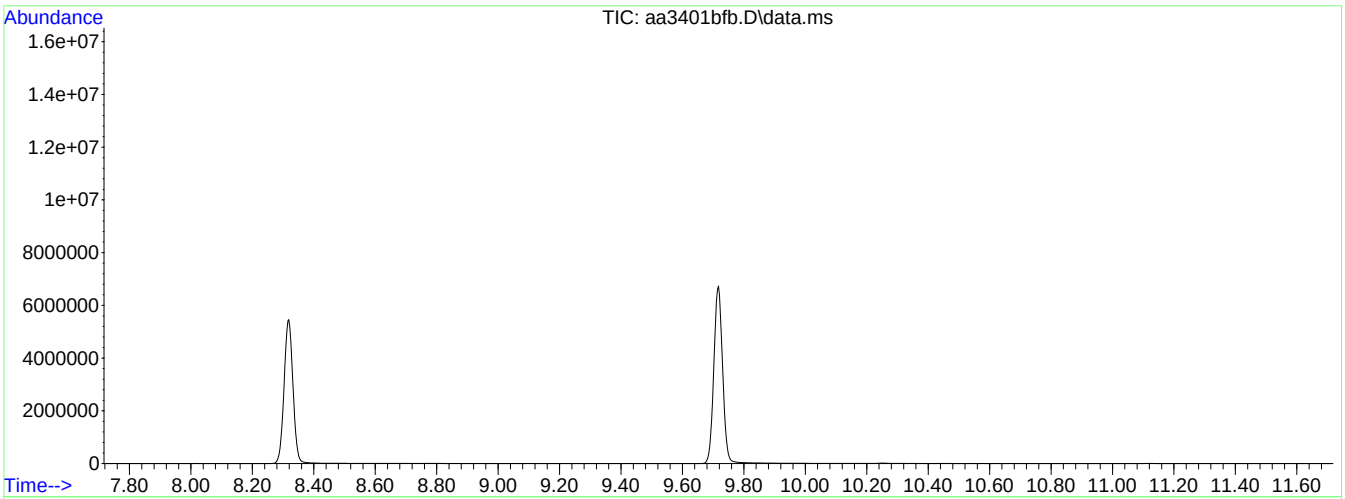
INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3401bfb.D
Acq On : 15 Aug 2023 10:11 am
Operator : jjw
Sample : BFB
Misc : ALM018474
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\230525.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Tue May 30 13:24:12 2023



AutoFind: Scans 2982, 2983, 2984; Background Corrected with Scan 2964

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.7	251499	PASS
75	95	30	66	52.3	703104	PASS
95	95	100	100	100.0	1345024	PASS
96	95	5	9	6.7	89525	PASS
173	174	0.00	2	0.8	8293	PASS
174	95	50	100	79.5	1069397	PASS
175	174	4	9	7.3	78181	PASS
176	174	93	101	96.8	1035413	PASS
177	176	5	9	6.6	68613	PASS

BFB

Data Path: C:\DATA\2023\09-2023\09-28-2023\
Data File: AA4071BFB.D
Acq On: 9/28/2023 10:01:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230815.M
Last Update: Wed Aug 16 10:00:51 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	96931	19.9
PASS	75	95	30	66	265259	54.6
PASS	95	95	100	100	485931	100.0
PASS	96	95	5	9	33264	6.8
PASS	173	174	0.00	2	3017	0.8
PASS	174	95	50	100	366187	75.4
PASS	175	174	4	9	27080	7.4
PASS	176	174	93	101	360832	98.5
PASS	177	176	5	9	23088	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4071BFB	NA	9/28/2023 10:01:00 AM
10 PPBV DCVS	AA4072DCVS	NA	9/28/2023 10:31:00 AM
10 PPBV LCS	AA4073LCS	NA	9/28/2023 11:19:00 AM
METHOD BLANK	AA4074BLK	NA	9/28/2023 11:47:00 AM
02 PPBV RLLCS	AA4075RLLCS	NA	9/28/2023 1:22:00 PM
2164	AA4076	NA	9/28/2023 3:00:00 PM
4870	AA4077	NA	9/28/2023 3:30:00 PM
2160	AA4078	NA	9/28/2023 4:00:00 PM
10 PPBV CCCVS	AA4093CCCVS	NA	9/29/2023 12:28:00 AM

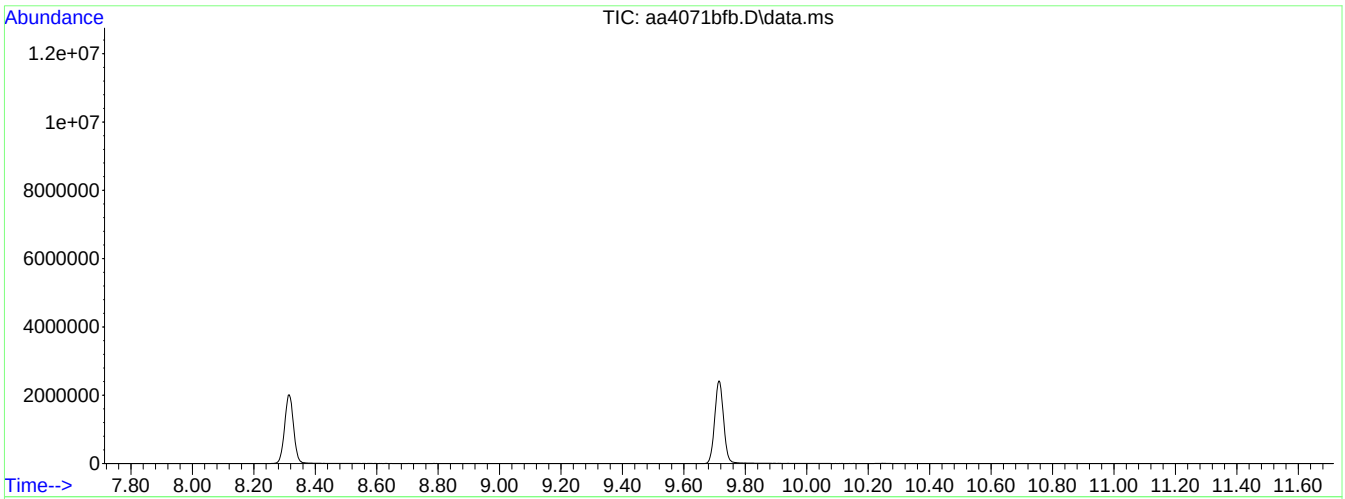
INTEGRATED ANALYTICAL LABORATORIES, LLC

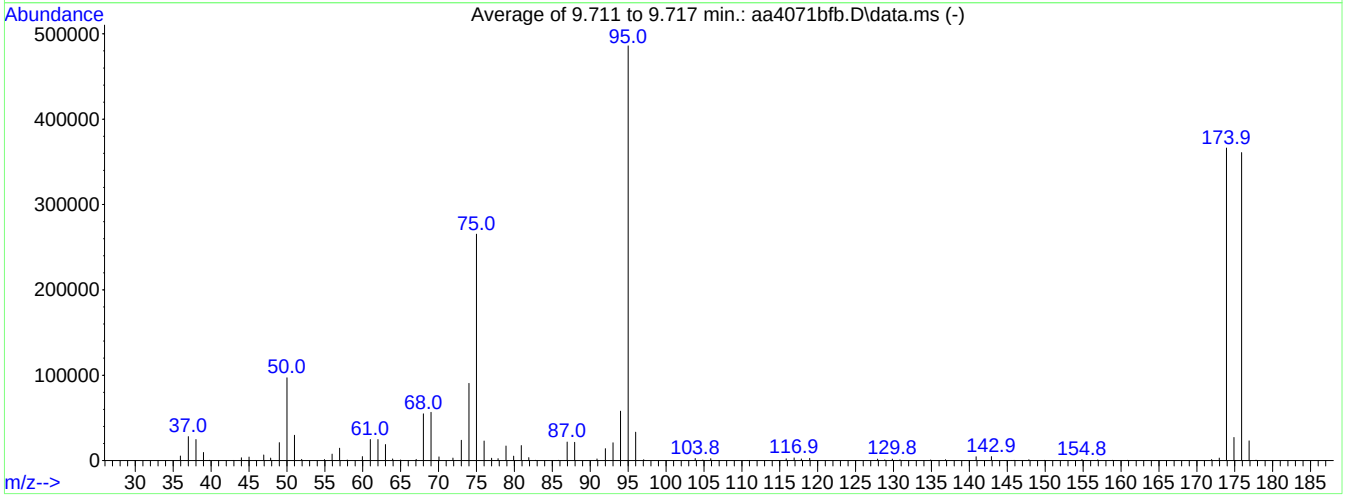
BFB

```
Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4071bfb.D
Acq On    : 28 Sep 2023  10:01 am
Operator  : jjw
Sample    : BFB
Misc      : ALM018474
ALS Vial  : 1   Sample Multiplier: 1

Integration File: rteint.p

Method    : C:\msdchem\1\METHODS\230815.M
Title     : TO-15 on the Agilent 7890A / 5975C
Last Update  : Wed Aug 16 10:00:51 2023
```





AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2965

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	19.9	96931	PASS
75	95	30	66	54.6	265259	PASS
95	95	100	100	100.0	485931	PASS
96	95	5	9	6.8	33264	PASS
173	174	0.00	2	0.8	3017	PASS
174	95	50	100	75.4	366187	PASS
175	174	4	9	7.4	27080	PASS
176	174	93	101	98.5	360832	PASS
177	176	5	9	6.4	23088	PASS

INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path: C:\DATA\2023\10-2023\10-10-2023\

Data File: AA4131BFB.D

Acq On: 10/10/2023 10:13:00AM

Operator: jls

Sample: BFB

Misc: ALM018474

ALS Vial: 1 **Multiplier:** 1

Integration File: rteint.p

Method: C:\msdchem\1\METHODS\231009.M

Last Update: Tue Oct 10 09:54:56 2023

Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	65523	16.8
PASS	75	95	30	66	182571	46.8
PASS	95	95	100	100	389867	100.0
PASS	96	95	5	9	25643	6.6
PASS	173	174	0.00	2	0	0.0
PASS	174	95	50	100	293952	75.4
PASS	175	174	4	9	22269	7.6
PASS	176	174	93	101	282667	96.2
PASS	177	176	5	9	18629	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4131BFB	NA	10/10/2023 10:13:00 AM
0.2 PPBV STD	AA4132STD05	NA	10/10/2023 10:40:00 AM
2 PPBV STD	AA4133STD04	NA	10/10/2023 11:46:00 AM
10 PPBV STANDARD STD	AA4134STD03	NA	10/10/2023 12:21:00 PM
20 PPBV STD	AA4135STD02	NA	10/10/2023 12:55:00 PM
40 PPBV STD	AA4136STD01	NA	10/10/2023 2:05:00 PM
10 PPBV ICVSS	AA4137ICVSS	NA	10/10/2023 4:48:00 PM
10 PPBV LCS	AA4138LCS	NA	10/10/2023 5:39:00 PM
METHOD BLANK	AA4139BLK	NA	10/10/2023 6:07:00 PM
02 PPBV RLLCS	AA4140RLLCS	NA	10/10/2023 6:35:00 PM
5101	AA4142	NA	10/10/2023 7:36:00 PM
4869	AA4143	NA	10/10/2023 8:06:00 PM
2157	AA4144	NA	10/10/2023 8:36:00 PM
10 PPBV CCCVS	AA4154CCCVS	NA	10/11/2023 1:53:00 AM

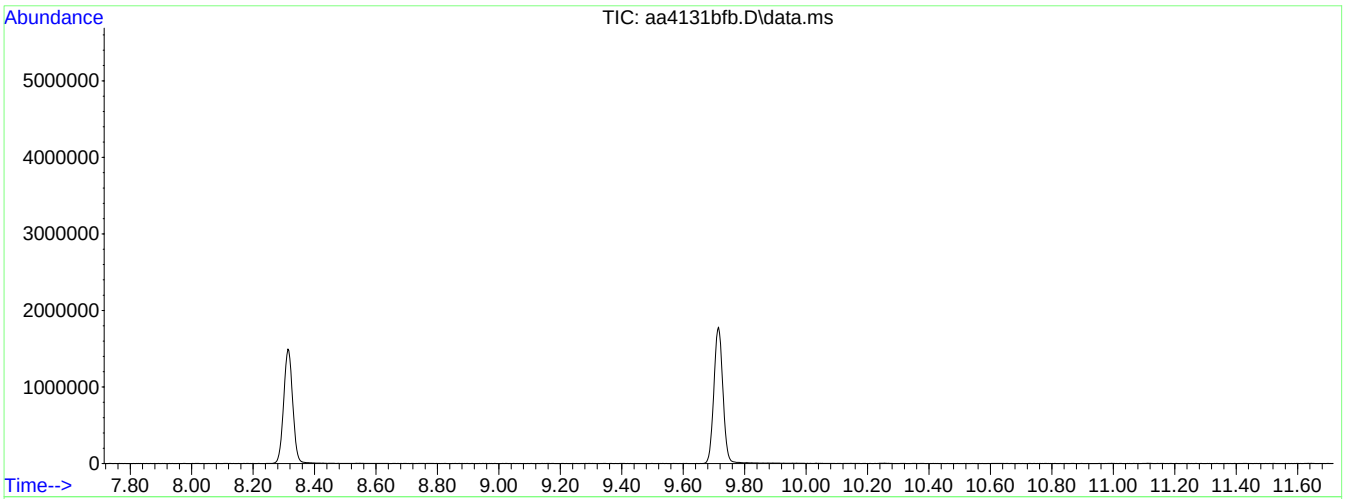
INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4131bfb.D
Acq On : 10 Oct 2023 10:13 am
Operator : jjw
Sample : BFB
Misc : ALM018474
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\231009.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Tue Oct 10 09:54:56 2023



AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2964

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	16.8	65523	PASS
75	95	30	66	46.8	182571	PASS
95	95	100	100	100.0	389867	PASS
96	95	5	9	6.6	25643	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	75.4	293952	PASS
175	174	4	9	7.6	22269	PASS
176	174	93	101	96.2	282667	PASS
177	176	5	9	6.6	18629	PASS

BFB

Data Path: C:\DATA\2023\12-2023\12-08-2023\
Data File: AA4881BFB.D
Acq On: 12/8/2023 10:21:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\231009.M
Last Update: Tue Oct 10 15:12:35 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	185045	18.5
PASS	75	95	30	66	508523	50.7
PASS	95	95	100	100	1002688	100.0
PASS	96	95	5	9	66973	6.7
PASS	173	174	0.00	2	4685	0.6
PASS	174	95	50	100	744704	74.3
PASS	175	174	4	9	56251	7.6
PASS	176	174	93	101	716907	96.3
PASS	177	176	5	9	46309	6.5

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4881BFB	NA	12/8/2023 10:21:00 AM
10 PPBV DCVS	AA4882DCVS	NA	12/8/2023 10:50:00 AM
10 PPBV LCS	AA4883LCS	NA	12/8/2023 11:21:00 AM
METHOD BLANK	AA4884BLK	NA	12/8/2023 12:26:00 PM
E23-05093-01	AA4895	SV9	12/8/2023 7:11:00 PM

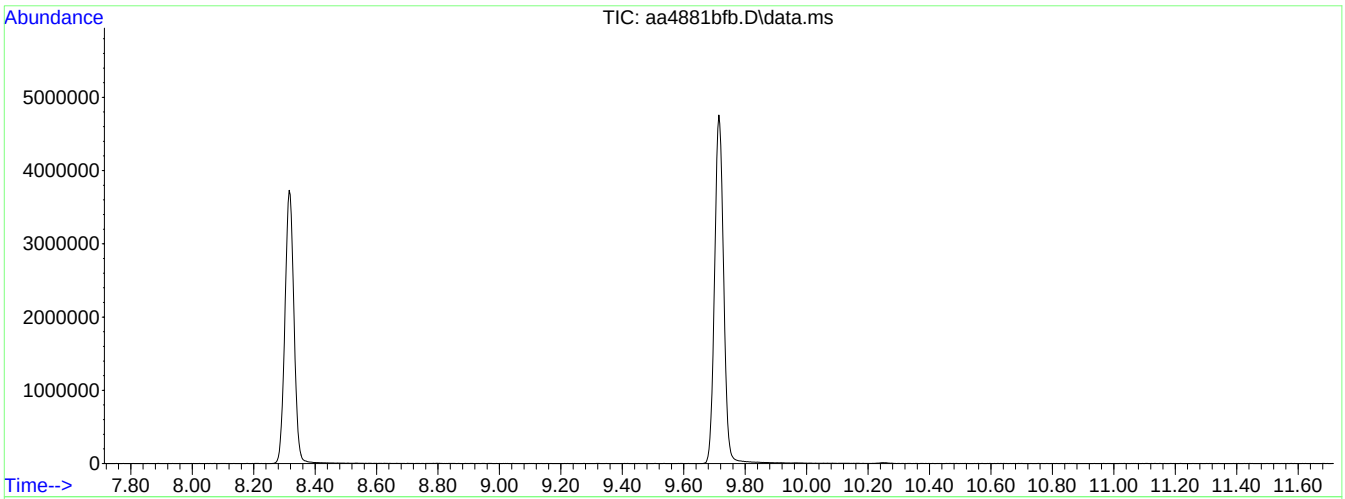
INTEGRATED ANALYTICAL LABORATORIES, LLC

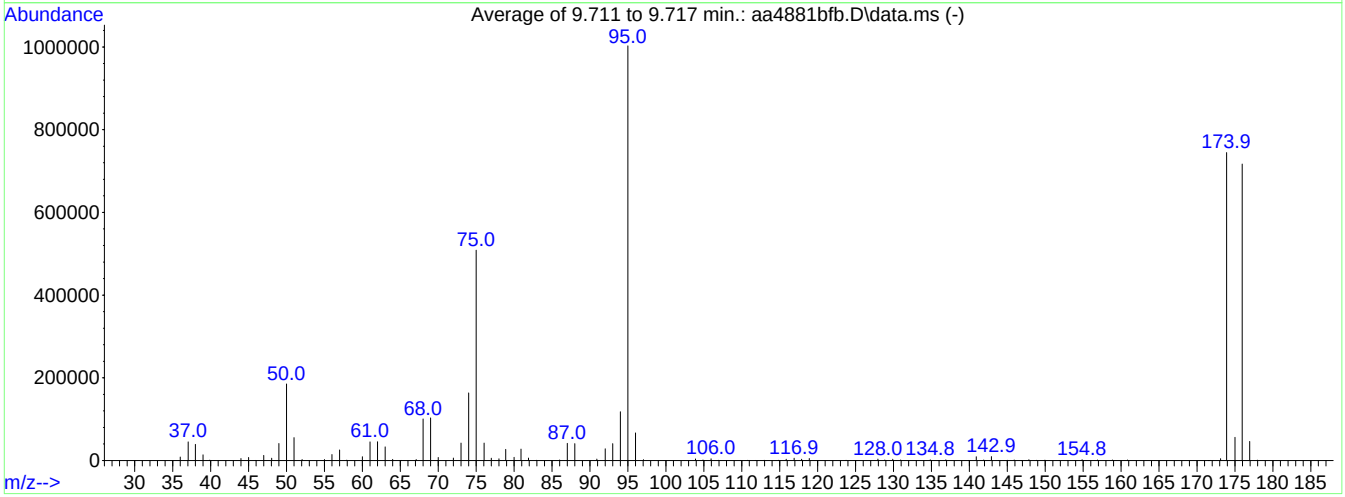
BFB

```
Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4881bfb.D
Acq On    :  8 Dec 2023  10:21 am
Operator  : jjw
Sample    : BFB
Misc      : ALM018474
ALS Vial  : 1   Sample Multiplier: 1

Integration File: rteint.p

Method    : C:\msdchem\1\METHODS\231009.M
Title     : TO-15 on the Agilent 7890A / 5975C
Last Update  : Tue Oct 10 15:12:35 2023
```





AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2964

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.5	185045	PASS
75	95	30	66	50.7	508523	PASS
95	95	100	100	100.0	1002688	PASS
96	95	5	9	6.7	66973	PASS
173	174	0.00	2	0.6	4685	PASS
174	95	50	100	74.3	744704	PASS
175	174	4	9	7.6	56251	PASS
176	174	93	101	96.3	716907	PASS
177	176	5	9	6.5	46309	PASS

BFB

Data Path: C:\DATA\2023\12-2023\12-11-2023\
Data File: AA4901BFB.D
Acq On: 12/11/2023 9:24:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\231009.M
Last Update: Tue Oct 10 15:12:35 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	267904	18.4
PASS	75	95	30	66	717035	49.1
PASS	95	95	100	100	1459371	100.0
PASS	96	95	5	9	91040	6.2
PASS	173	174	0.00	2	10848	1.0
PASS	174	95	50	100	1053269	72.2
PASS	175	174	4	9	81547	7.7
PASS	176	174	93	101	1021824	97.0
PASS	177	176	5	9	65264	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4901BFB	NA	12/11/2023 9:24:00 AM
10 PPBV DCVS	AA4902DCVS	NA	12/11/2023 10:26:00 AM
10 PPBV LCS	AA4903LCS	NA	12/11/2023 10:57:00 AM
METHOD BLANK	AA4904BLK	NA	12/11/2023 11:51:00 AM
02 PPBV RLLCS	AA4905RLLCS	NA	12/11/2023 12:18:00 PM
1458	AA4906	NA	12/11/2023 12:50:00 PM
1588	AA4907	NA	12/11/2023 1:19:00 PM
3012	AA4908	NA	12/11/2023 1:49:00 PM
E23-05093-01	AA4913	SV9	12/11/2023 4:20:00 PM
10 PPBV CCCVS	AA4931CCCVS	NA	12/12/2023 1:59:00 AM

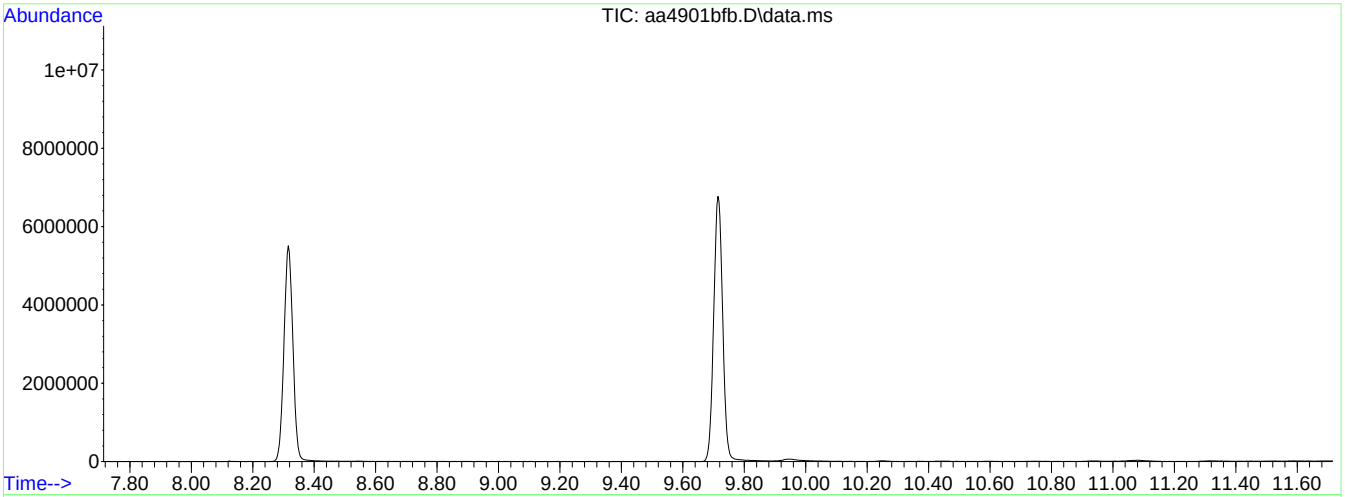
INTEGRATED ANALYTICAL LABORATORIES, LLC

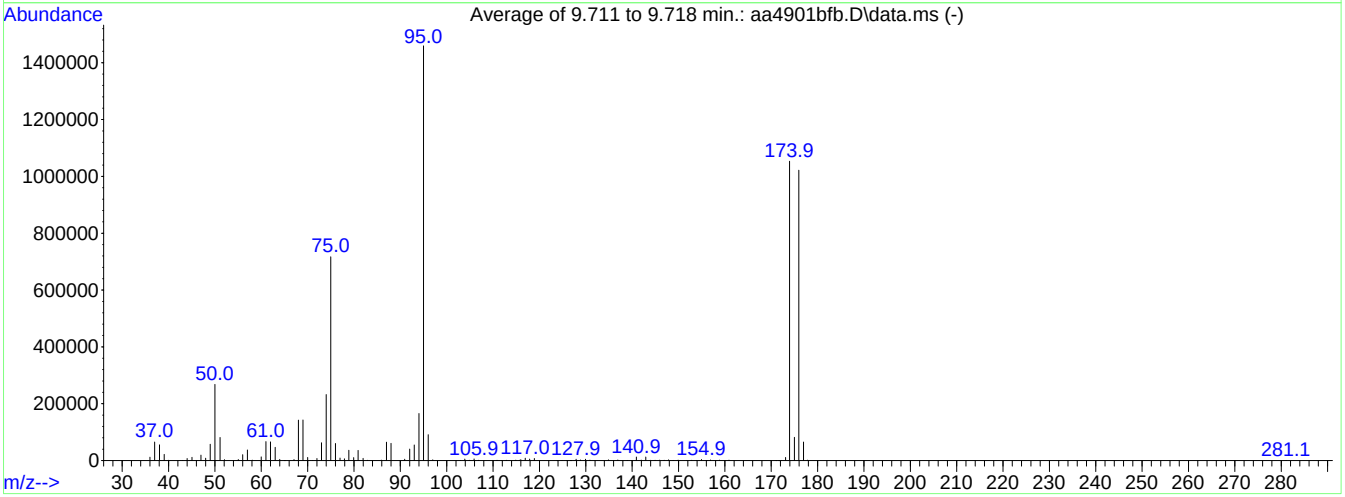
BFB

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4901bfb.D
Acq On : 11 Dec 2023 9:24 am
Operator : jjw
Sample : BFB
Misc : ALM018474
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\231009.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Tue Oct 10 15:12:35 2023





AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2963

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.4	267904	PASS
75	95	30	66	49.1	717035	PASS
95	95	100	100	100.0	1459371	PASS
96	95	5	9	6.2	91040	PASS
173	174	0.00	2	1.0	10848	PASS
174	95	50	100	72.2	1053269	PASS
175	174	4	9	7.7	81547	PASS
176	174	93	101	97.0	1021824	PASS
177	176	5	9	6.4	65264	PASS

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4074BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**9/28/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4074BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**9/28/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4074blk.D
Acq On : 28 Sep 2023 11:47 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 28 12:02:32 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

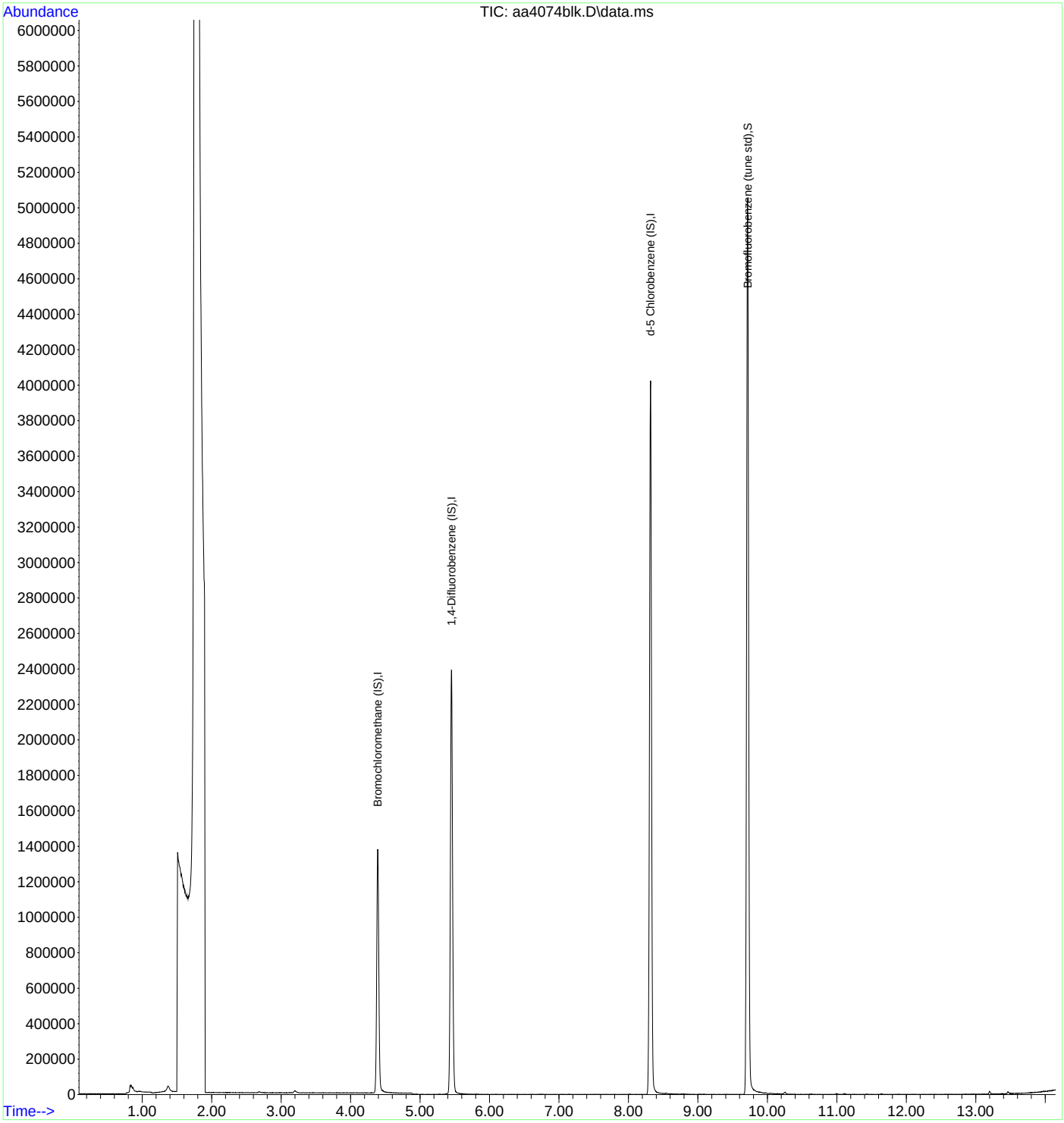
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.393	130	502187	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2139413	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2500606	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2123353	10.21	ppbV	0.000

Target Compounds	Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4074blk.D
Acq On : 28 Sep 2023 11:47 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 28 12:02:32 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4884BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/8/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05093-01 [AA4895]	12/08/2023 19:11

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4884BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/8/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05093-01 [AA4895]	12/08/2023 19:11

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4884blk.D
Acq On : 8 Dec 2023 12:26 pm
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 12 09:46:27 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

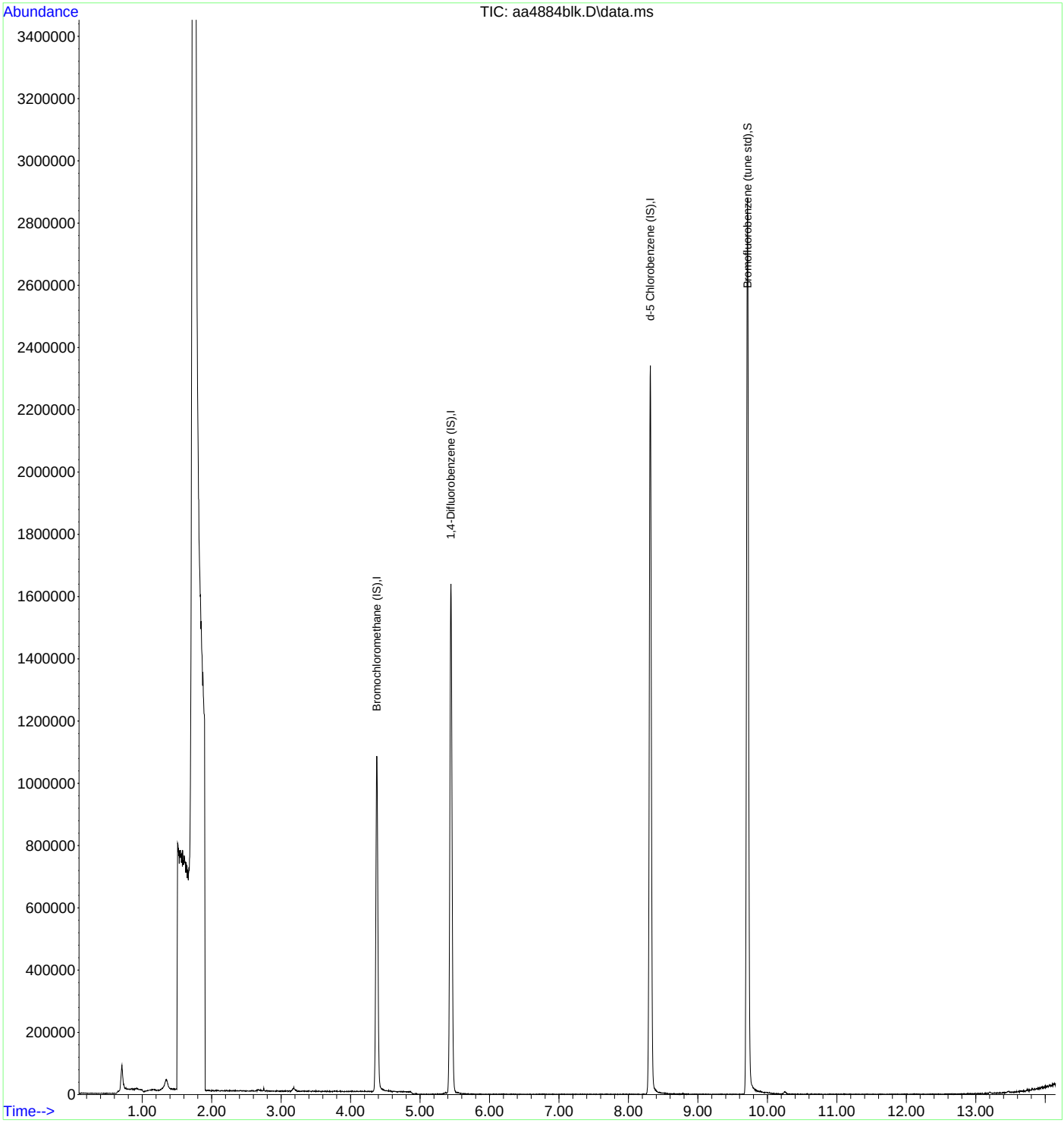
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.377	130	407142	10.00	ppbV	-0.017
39) 1,4-Difluorobenzene (IS)	5.444	114	1506485	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1527551	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1276284	9.58	ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4884blk.D
Acq On : 8 Dec 2023 12:26 pm
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 12 09:46:27 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05093-01 [AA4913]	12/11/2023 16:20
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05093-01 [AA4913]	12/11/2023 16:20
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4904blk.D
Acq On : 11 Dec 2023 11:51 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 11 12:06:14 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

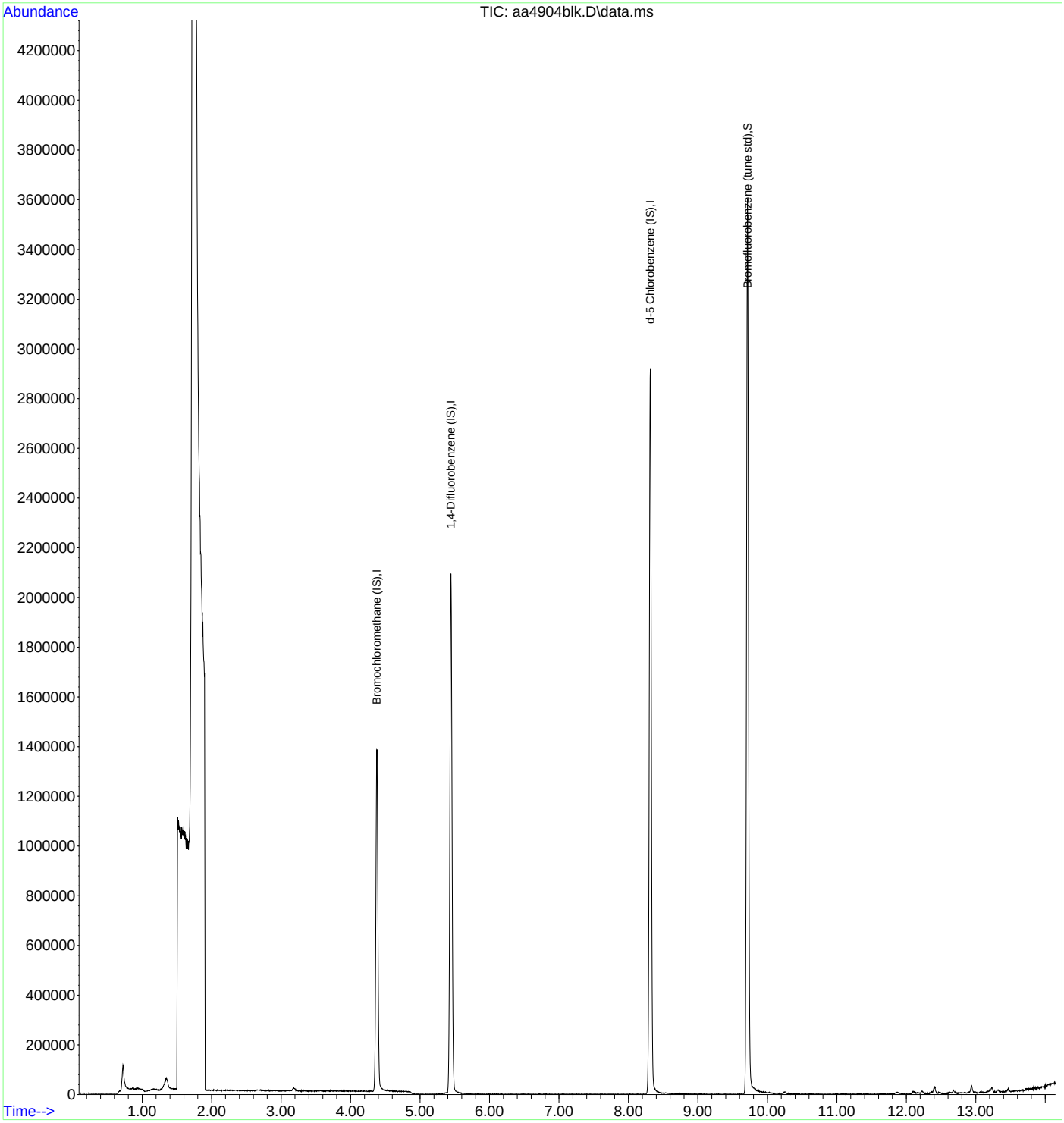
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.377	130	518939	10.00	ppbV	-0.017
39) 1,4-Difluorobenzene (IS)	5.444	114	1920464	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	1920350	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1609305	9.61	ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4904blk.D
Acq On : 11 Dec 2023 11:51 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 11 12:06:14 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4073LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 9/28/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	13	120
Benzene	71-43-2	12	120
Bromodichloromethane	75-27-4	12	110
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	12	110
1,3-Butadiene	106-99-0	14	130
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	13	130
Chloroform	67-66-3	13	130
Chloromethane	74-87-3	14	120
Carbon disulfide	75-15-0	14	130
Carbon tetrachloride	56-23-5	11	110
Cyclohexane	110-82-7	12	120
Dibromochloromethane	124-48-1	11	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	10	91
1,4-Dichlorobenzene	106-46-7	11	100
Dichlorodifluoromethane	75-71-8	13	120
1,1-Dichloroethane	75-34-3	13	120
1,2-Dichloroethane	107-06-2	13	130
1,1-Dichloroethene	75-35-4	13	120
1,2-Dichloroethene (cis)	156-59-2	14	130
1,2-Dichloroethene (trans)	156-60-5	14	130
1,2-Dichloropropane	78-87-5	11	110
1,3-Dichloropropene (cis)	10061-01-5	12	110
1,3-Dichloropropene (trans)	10061-02-6	13	130
1,2-Dichlorotetrafluoroethane	76-14-2	11	100
1,4-Dioxane	123-91-1	12	100
Ethylbenzene	100-41-4	11	110
n-Heptane	142-82-5	12	120

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4073LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 9/28/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
1,3-Hexachlorobutadiene	87-68-3	9.6	84
n-Hexane	110-54-3	13	130
Methylene chloride	75-09-2	13	120
Methyl ethyl ketone	78-93-3	14	120
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	12	110
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	13	110
1,1,2,2-Tetrachloroethane	79-34-5	10	91
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	11	110
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	11	110
1,1,2-Trichloroethane	79-00-5	11	100
Trichloroethene	79-01-6	9.8	98
Trichlorofluoromethane	75-69-4	13	120
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	110
1,2,4-Trimethylbenzene	95-63-6	11	100
1,3,5-Trimethylbenzene	108-67-8	10	91
2,2,4-Trimethylpentane	540-84-1	12	120
Vinyl bromide	593-60-2	12	120
Vinyl chloride	75-01-4	14	130
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	10	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4073lcs.D
Acq On : 28 Sep 2023 11:19 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 28 12:10:06 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.396	130	409432	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	1933513	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2364904	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2078765	10.57	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	371726	13.18	ppbV	100
3) Dichlorodifluoromethane	1.529	85	1310888	12.67	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.650	85	1582960	10.63	ppbV	94
5) n-Butane	1.729	43	904419	13.51	ppbV	100
6) Chloromethane	1.791	52	67655	14.12	ppbV	94
7) Vinyl chloride	1.780	62	531992	13.67	ppbV	100
8) 1,3-Butadiene	1.794	39	550480	13.84	ppbV	93
9) Bromomethane	2.091	94	397168	12.15	ppbV	100
10) Chloroethane	2.194	64	271717	12.84	ppbV	98
11) Vinyl bromide	2.297	106	511821	12.45	ppbV	100
12) Trichlorofluoromethane	2.313	101	1773173	12.74	ppbV	99
13) Ethanol	2.670	45	187147	11.42	ppbV	99
14) 1,1-Dichloroethene	2.734	61	1143672	13.38	ppbV	95
15) Carbon disulfide	2.753	76	1947574	13.87	ppbV	98
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	1493461	10.86	ppbV	98
17) Acrolein	2.985	56	208388	11.85	ppbV	100
18) Allyl chloride	3.110	76	311360	13.59	ppbV	100
19) Isopropanol	3.110	45	1091138	11.53	ppbV	99
20) Methylene chloride	3.200	49	664730	12.87	ppbV	93
21) Acetone	3.213	43	1016794	13.24	ppbV	97
22) trans-1,2-Dichloroethene	3.329	61	1107246	14.39	ppbV	95
23) n-Pentane	3.409	43	1192108	12.14	ppbV	99
24) n-Hexane	3.406	57	1715467	12.51	ppbV	94
25) Methyl tert-butyl ether	3.409	73	2233934	11.98	ppbV	96
26) Tert-butyl alcohol	3.464	59	1556448	12.98	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1410547	13.06	ppbV	99
28) cis-1,2-Dichloroethene	4.232	61	1043309	13.97	ppbV	94
29) Cyclohexane	4.419	56	1188304	11.99	ppbV	96
30) Chloroform	4.454	83	1720861	13.02	ppbV	98
31) Ethyl acetate	4.544	61	270686	12.87	ppbV	96
32) Carbon tetrachloride	4.579	117	1731906	10.93	ppbV	100
33) Tetrahydrofuran	4.576	42	1055646	14.22	ppbV	95
34) 1,1,1-Trichloroethane	4.628	97	1558554	10.93	ppbV	100
35) Methyl ethyl ketone	4.682	43	1682004	14.19	ppbV	97
36) n-Heptane	4.917	43	1673877	12.20	ppbV	95
37) Benzene	4.933	78	2314027	12.25	ppbV	99
38) 1,2-Dichloroethane	5.094	62	1125187	13.29	ppbV	100
40) Trichloroethene	5.435	130	960270	9.78	ppbV	99
41) 2,2,4-Trimethylpentane	4.846	57	2903918	11.86	ppbV	100
42) 1,2-Dichloropropane	5.885	63	987657	11.19	ppbV	99
43) Bromodichloromethane	5.946	83	1869255	12.16	ppbV	100
44) Methyl methacrylate	6.087	41	1444941	12.73	ppbV	95
45) 1,4-Dioxane	6.113	88	646261	11.88	ppbV	95
46) cis-1,3-Dichloropropene	6.534	75	1603607	11.76	ppbV	99
47) Toluene	6.772	91	3435166	11.08	ppbV	100
48) Methyl isobutyl ketone	7.136	43	2598152	11.60	ppbV	97
49) Tetrachloroethene	7.161	166	1477394	10.60	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	1686526	12.54	ppbV	95
51) 1,1,2-Trichloroethane	7.335	97	1173769	10.74	ppbV	97

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4073lcs.D
Acq On : 28 Sep 2023 11:19 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

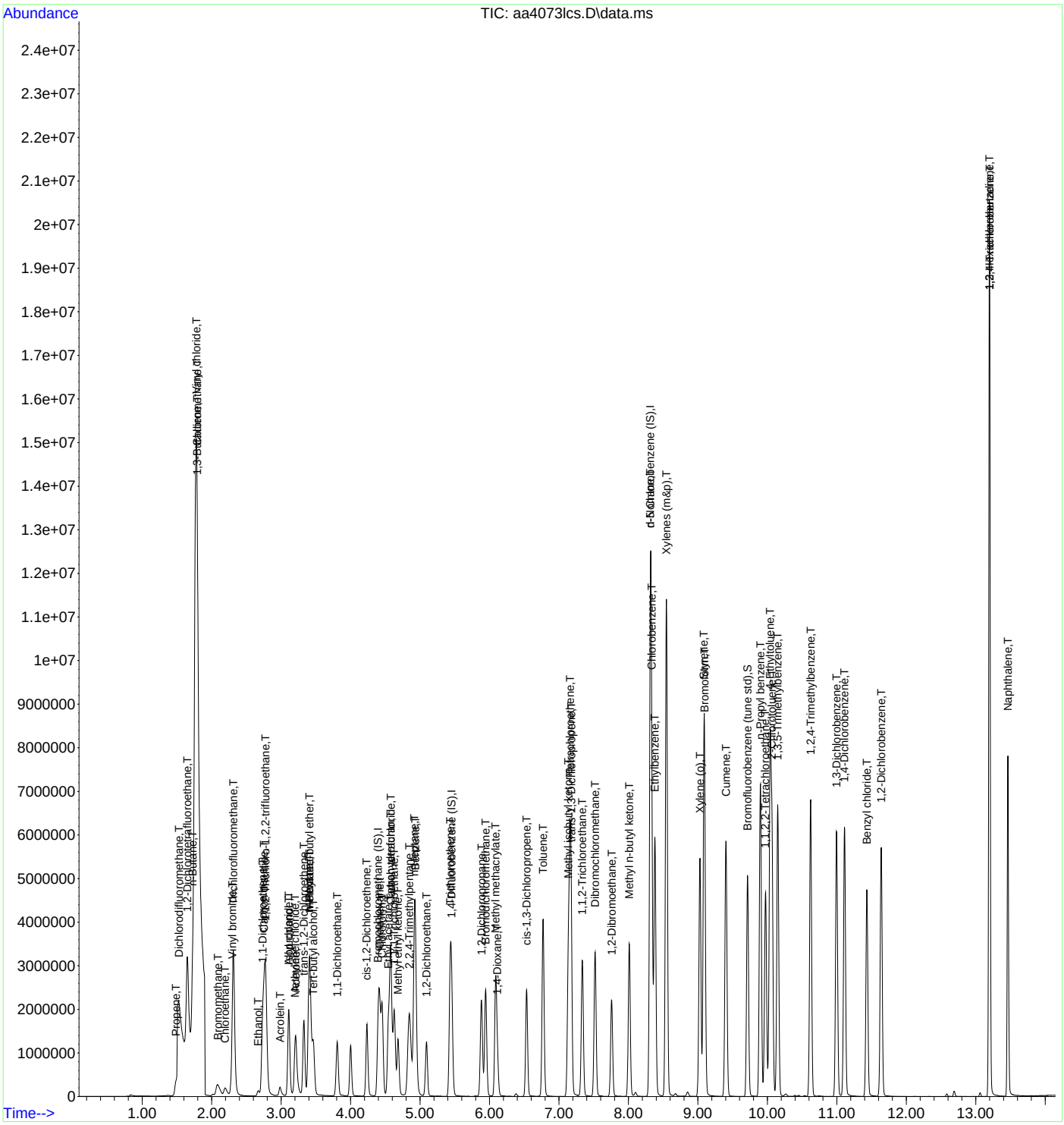
Quant Time: Sep 28 12:10:06 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2046806	11.22	ppbV	100
53)	1,2-Dibromoethane	7.759	107	1776029	11.11	ppbV	100
54)	Methyl n-butyl ketone	8.010	43	2823122	13.46	ppbV	97
56)	n-Nonane	8.316	43	3181135	10.99	ppbV	95
57)	Chlorobenzene	8.335	112	2697259	10.41	ppbV	97
58)	Ethylbenzene	8.380	91	5055299	10.55	ppbV	99
59)	Xylenes (m&p)	8.547	91	7753841	22.46	ppbV	98
60)	Xylene (o)	9.029	91	3909805	10.20	ppbV	99
61)	Styrene	9.087	104	2909338	11.44	ppbV	100
62)	Bromoform	9.097	173	2119263	10.78	ppbV	100
63)	Cumene	9.406	105	4907030	9.83	ppbV	98
65)	n-Propyl benzene	9.901	91	7047936	10.82	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.971	83	3018168	10.39	ppbV	99
67)	4-Ethyltoluene	10.039	105	5768083	10.75	ppbV	98
68)	2-Chlorotoluene	10.065	91	4590640	10.39	ppbV	98
69)	1,3,5-Trimethylbenzene	10.148	105	4460371	10.27	ppbV	98
70)	1,2,4-Trimethylbenzene	10.624	105	4654164	10.80	ppbV	97
71)	1,3-Dichlorobenzene	10.997	146	2940866	10.30	ppbV	99
72)	1,4-Dichlorobenzene	11.110	146	2934826	10.69	ppbV	100
73)	Benzyl chloride	11.431	91	4169793	11.08	ppbV	98
74)	1,2-Dichlorobenzene	11.640	146	2748354	10.17	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	1870014	9.65	ppbV	100
76)	1,2,4-Trichlorobenzene	13.200	180	2281637	10.73	ppbV	100
77)	Naphthalene	13.463	128	4616007	10.51	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4073lcs.D
Acq On : 28 Sep 2023 11:19 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 28 12:10:06 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: **10 PPBV LCS** **Data File:** **AA4883LCS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **12/8/2023**

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05093-01 [AA4895]	12/08/2023 19:11

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	100
Benzene	71-43-2	9.3	93
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	11	100
1,3-Butadiene	106-99-0	9.9	99
Chlorobenzene	108-90-7	9.9	99
Chloroethane	75-00-3	11	110
Chloroform	67-66-3	10.0	100
Chloromethane	74-87-3	12	100
Carbon disulfide	75-15-0	11	100
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	10	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	9.7	88
1,3-Dichlorobenzene	541-73-1	9.8	89
1,4-Dichlorobenzene	106-46-7	9.6	87
Dichlorodifluoromethane	75-71-8	11	100
1,1-Dichloroethane	75-34-3	9.4	85
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	100
1,2-Dichloroethene (cis)	156-59-2	10	91
1,2-Dichloroethene (trans)	156-60-5	11	100
1,2-Dichloropropane	78-87-5	11	110
1,3-Dichloropropene (cis)	10061-01-5	11	100
1,3-Dichloropropene (trans)	10061-02-6	12	120
1,2-Dichlorotetrafluoroethane	76-14-2	9.0	82
1,4-Dioxane	123-91-1	12	100
Ethylbenzene	100-41-4	10	100
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	10.0	88
n-Hexane	110-54-3	10.0	100
Methylene chloride	75-09-2	9.5	86
Methyl ethyl ketone	78-93-3	10	85
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	10	91

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: **10 PPBV LCS** **Data File:** **AA4883LCS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **12/8/2023**

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05093-01 [AA4895]	12/08/2023 19:11

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Styrene	100-42-5	10	91
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	10	91
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	10	88
1,1,1-Trichloroethane	71-55-6	10	100
1,1,2-Trichloroethane	79-00-5	10	91
Trichloroethene	79-01-6	9.3	93
Trichlorofluoromethane	75-69-4	11	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.2	92
1,2,4-Trimethylbenzene	95-63-6	10.0	91
1,3,5-Trimethylbenzene	108-67-8	10	91
2,2,4-Trimethylpentane	540-84-1	10	100
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	10	100
Xylenes (m&p)	179601-23-1	21	110
Xylenes (o)	95-47-6	9.9	99

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.
*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4883lcs.D
Acq On : 8 Dec 2023 11:21 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 08 11:44:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.390	130	505072	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	2076916	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2432062	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2156035	10.17	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.483	41	339866	9.69	ppbV	98
3) Dichlorodifluoromethane	1.522	85	1193354	10.66	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.646	85	1455605	8.95	ppbV	97
5) n-Butane	1.725	43	845634	10.48	ppbV	100
6) Chloromethane	1.791	52	65331	11.68	ppbV	99
7) Vinyl chloride	1.777	62	478632	10.46	ppbV	99
8) 1,3-Butadiene	1.791	39	422824	9.89	ppbV	100
9) Bromomethane	2.078	94	388679	10.52	ppbV	99
10) Chloroethane	2.190	64	273833	11.41	ppbV	98
11) Vinyl bromide	2.293	106	461478	10.21	ppbV	100
12) Trichlorofluoromethane	2.309	101	1567568	11.09	ppbV	99
13) Ethanol	2.663	45	169372	11.45	ppbV	98
14) 1,1-Dichloroethene	2.727	61	987655	10.53	ppbV	95
15) Carbon disulfide	2.750	76	1643881	10.64	ppbV	96
16) 1,1,2-Trichloro-1,2,2-...	2.772	101	1310794	9.21	ppbV	99
17) Acrolein	2.978	56	207019	9.81	ppbV	100
18) Allyl chloride	3.110	76	275622	10.89	ppbV	100
19) Isopropanol	3.107	45	904477	8.93	ppbV	98
20) Methylene chloride	3.197	49	591035	9.52	ppbV	94
21) Acetone	3.210	43	830614	10.90	ppbV	98
22) trans-1,2-Dichloroethene	3.325	61	938844	10.78	ppbV	99
23) n-Pentane	3.403	43	1185445	10.10	ppbV	97
24) n-Hexane	3.403	57	1587921	9.97	ppbV	96
25) Methyl tert-butyl ether	3.409	73	2034430	10.40	ppbV	97
26) Tert-butyl alcohol	3.460	59	1390520	10.56	ppbV	100
27) 1,1-Dichloroethane	3.804	63	1101260	9.39	ppbV	98
28) cis-1,2-Dichloroethene	4.232	61	832929	10.07	ppbV	98
29) Cyclohexane	4.412	56	1127775	10.14	ppbV	98
30) Chloroform	4.451	83	1346283	9.96	ppbV	99
31) Ethyl acetate	4.541	61	230413	10.48	ppbV	97
32) Carbon tetrachloride	4.576	117	1656389	10.33	ppbV	100
33) Tetrahydrofuran	4.570	42	788257	10.37	ppbV	98
34) 1,1,1-Trichloroethane	4.624	97	1432554	10.20	ppbV	99
35) Methyl ethyl ketone	4.682	43	1259095	10.21	ppbV	97
36) n-Heptane	4.917	43	1499293	10.74	ppbV	98
37) Benzene	4.930	78	1864968	9.30	ppbV	97
38) 1,2-Dichloroethane	5.091	62	898599	10.70	ppbV	99
40) Trichloroethene	5.431	130	856754	9.32	ppbV	99
41) 2,2,4-Trimethylpentane	4.840	57	2788828	10.31	ppbV	99
42) 1,2-Dichloropropane	5.882	63	862133	10.67	ppbV	97
43) Bromodichloromethane	5.943	83	1584233	11.64	ppbV	98
44) Methyl methacrylate	6.087	41	1124187	11.47	ppbV	97
45) 1,4-Dioxane	6.110	88	569216	11.50	ppbV	98
46) cis-1,3-Dichloropropene	6.534	75	1357719	10.84	ppbV	99
47) Toluene	6.769	91	3039671	10.41	ppbV	99
48) Methyl isobutyl ketone	7.132	43	2139470	11.66	ppbV	97
49) Tetrachloroethene	7.158	166	1350560	10.73	ppbV	99
50) trans-1,3-Dichloropropene	7.174	75	1400019	11.52	ppbV	98
51) 1,1,2-Trichloroethane	7.335	97	1033705	10.49	ppbV	99

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4883lcs.D
Acq On : 8 Dec 2023 11:21 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 08 11:44:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	1892252	11.52	ppbV	99
53)	1,2-Dibromoethane	7.756	107	1547631	10.85	ppbV	100
54)	Methyl n-butyl ketone	8.010	43	2159034	12.24	ppbV	97
56)	n-Nonane	8.316	43	2654309	11.00	ppbV	98
57)	Chlorobenzene	8.335	112	2403740	9.91	ppbV	97
58)	Ethylbenzene	8.380	91	4537964	10.13	ppbV	99
59)	Xylenes (m&p)	8.547	91	7032687	21.18	ppbV	98
60)	Xylene (o)	9.029	91	3571722	9.86	ppbV	99
61)	Styrene	9.087	104	2552482	10.29	ppbV	99
62)	Bromoform	9.097	173	1990020	11.17	ppbV	100
63)	Cumene	9.402	105	4737625	10.00	ppbV	100
65)	n-Propyl benzene	9.897	91	6446429	10.43	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.971	83	2658446	10.48	ppbV	100
67)	4-Ethyltoluene	10.039	105	5335012	10.20	ppbV	99
68)	2-Chlorotoluene	10.065	91	4272712	10.29	ppbV	99
69)	1,3,5-Trimethylbenzene	10.152	105	4211249	10.01	ppbV	99
70)	1,2,4-Trimethylbenzene	10.621	105	4189424	9.96	ppbV	99
71)	1,3-Dichlorobenzene	10.994	146	2515699	9.77	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	2495448	9.63	ppbV	100
73)	Benzyl chloride	11.431	91	3717594	10.00	ppbV	98
74)	1,2-Dichlorobenzene	11.640	146	2414336	9.67	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	1728324	9.97	ppbV	99
76)	1,2,4-Trichlorobenzene	13.196	180	2026696	10.11	ppbV	99
77)	Naphthalene	13.463	128	4433251	9.67	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

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Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4883lcs.D
Acq On    :  8 Dec 2023  11:21 am
Operator  : jjw
Sample    : 10 ppbv LCS
Misc      : EB0103704
ALS Vial  : 3   Sample Multiplier: 1

Quant Time: Dec 08 11:44:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title  : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration
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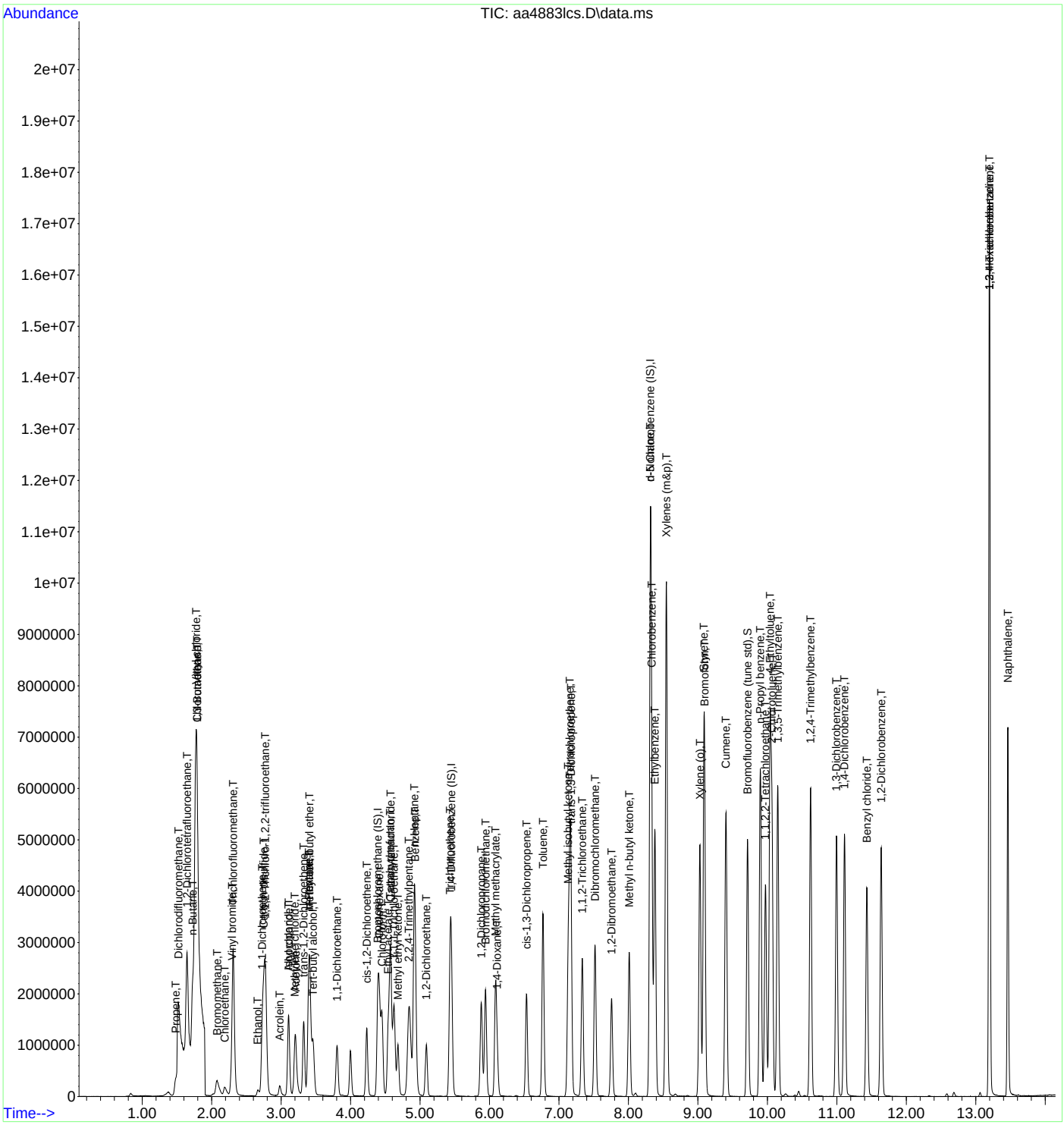


INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4903LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/11/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05093-01 [AA4913]	12/11/2023 16:20
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	100
Benzene	71-43-2	9.5	95
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	10	91
1,3-Butadiene	106-99-0	10	100
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	11	110
Chloroform	67-66-3	10	100
Chloromethane	74-87-3	11	96
Carbon disulfide	75-15-0	11	100
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	10	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	10	91
1,4-Dichlorobenzene	106-46-7	10	91
Dichlorodifluoromethane	75-71-8	11	100
1,1-Dichloroethane	75-34-3	9.8	89
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	100
1,2-Dichloroethene (cis)	156-59-2	10	91
1,2-Dichloroethene (trans)	156-60-5	11	100
1,2-Dichloropropane	78-87-5	10	100
1,3-Dichloropropene (cis)	10061-01-5	11	100
1,3-Dichloropropene (trans)	10061-02-6	11	110
1,2-Dichlorotetrafluoroethane	76-14-2	8.8	80
1,4-Dioxane	123-91-1	11	92
Ethylbenzene	100-41-4	11	110
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	10	88

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4903LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/11/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05093-01 [AA4913]	12/11/2023 16:20
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
n-Hexane	110-54-3	10	100
Methylene chloride	75-09-2	9.6	87
Methyl ethyl ketone	78-93-3	11	93
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	11	100
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	11	100
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	10	100
1,1,2-Trichloroethane	79-00-5	10	91
Trichloroethene	79-01-6	9.1	91
Trichlorofluoromethane	75-69-4	11	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.4	94
1,2,4-Trimethylbenzene	95-63-6	11	100
1,3,5-Trimethylbenzene	108-67-8	11	100
2,2,4-Trimethylpentane	540-84-1	10	100
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	11	110
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	10	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4903lcs.D
Acq On : 11 Dec 2023 10:57 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 11 11:13:35 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.390	130	647607	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2729004	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	3090532	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2704486	10.04	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	448674	9.98	ppbV	100
3) Dichlorodifluoromethane	1.522	85	1540061	10.73	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.650	85	1837270	8.81	ppbV	99
5) n-Butane	1.729	43	1071383	10.36	ppbV	100
6) Chloromethane	1.794	52	79721	11.12	ppbV	100
7) Vinyl chloride	1.784	62	624707	10.65	ppbV	99
8) 1,3-Butadiene	1.794	39	556597	10.16	ppbV	97
9) Bromomethane	2.081	94	492205	10.39	ppbV	96
10) Chloroethane	2.190	64	343138	11.15	ppbV	98
11) Vinyl bromide	2.296	106	601925	10.38	ppbV	100
12) Trichlorofluoromethane	2.309	101	1958992	10.81	ppbV	99
13) Ethanol	2.669	45	223820	11.80	ppbV	98
14) 1,1-Dichloroethene	2.730	61	1287938	10.71	ppbV	96
15) Carbon disulfide	2.753	76	2170829	10.96	ppbV	98
16) 1,1,2-Trichloro-1,2,2-...	2.775	101	1721921	9.43	ppbV	99
17) Acrolein	2.981	56	275902	10.20	ppbV	98
18) Allyl chloride	3.110	76	363800	11.21	ppbV	100
19) Isopropanol	3.107	45	1249280	9.62	ppbV	99
20) Methylene chloride	3.203	49	760938	9.56	ppbV	96
21) Acetone	3.209	43	1102830	11.29	ppbV	100
22) trans-1,2-Dichloroethene	3.325	61	1261504	11.30	ppbV	98
23) n-Pentane	3.409	43	1563342	10.38	ppbV	98
24) n-Hexane	3.409	57	2086837	10.22	ppbV	98
25) Methyl tert-butyl ether	3.409	73	2641389	10.53	ppbV	99
26) Tert-butyl alcohol	3.460	59	1870916	11.08	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1473126	9.80	ppbV	100
28) cis-1,2-Dichloroethene	4.232	61	1109173	10.46	ppbV	97
29) Cyclohexane	4.415	56	1494221	10.48	ppbV	98
30) Chloroform	4.454	83	1763283	10.18	ppbV	99
31) Ethyl acetate	4.544	61	310143	11.00	ppbV	98
32) Carbon tetrachloride	4.576	117	2075194	10.10	ppbV	99
33) Tetrahydrofuran	4.573	42	1055760	10.84	ppbV	98
34) 1,1,1-Trichloroethane	4.627	97	1829339	10.16	ppbV	98
35) Methyl ethyl ketone	4.682	43	1694596	10.71	ppbV	98
36) n-Heptane	4.917	43	1984236	11.09	ppbV	98
37) Benzene	4.933	78	2436463	9.47	ppbV	98
38) 1,2-Dichloroethane	5.090	62	1158367	10.76	ppbV	100
40) Trichloroethene	5.431	130	1104206	9.14	ppbV	98
41) 2,2,4-Trimethylpentane	4.843	57	3701197	10.41	ppbV	100
42) 1,2-Dichloropropane	5.885	63	1110425	10.46	ppbV	100
43) Bromodichloromethane	5.946	83	2026843	11.34	ppbV	100
44) Methyl methacrylate	6.087	41	1477655	11.47	ppbV	97
45) 1,4-Dioxane	6.113	88	746186	11.47	ppbV	98
46) cis-1,3-Dichloropropene	6.534	75	1788041	10.86	ppbV	99
47) Toluene	6.772	91	4000386	10.43	ppbV	100
48) Methyl isobutyl ketone	7.132	43	2867635	11.90	ppbV	98
49) Tetrachloroethene	7.161	166	1771569	10.71	ppbV	99
50) trans-1,3-Dichloropropene	7.174	75	1825213	11.43	ppbV	98
51) 1,1,2-Trichloroethane	7.335	97	1347280	10.40	ppbV	99

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4903lcs.D
Acq On : 11 Dec 2023 10:57 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

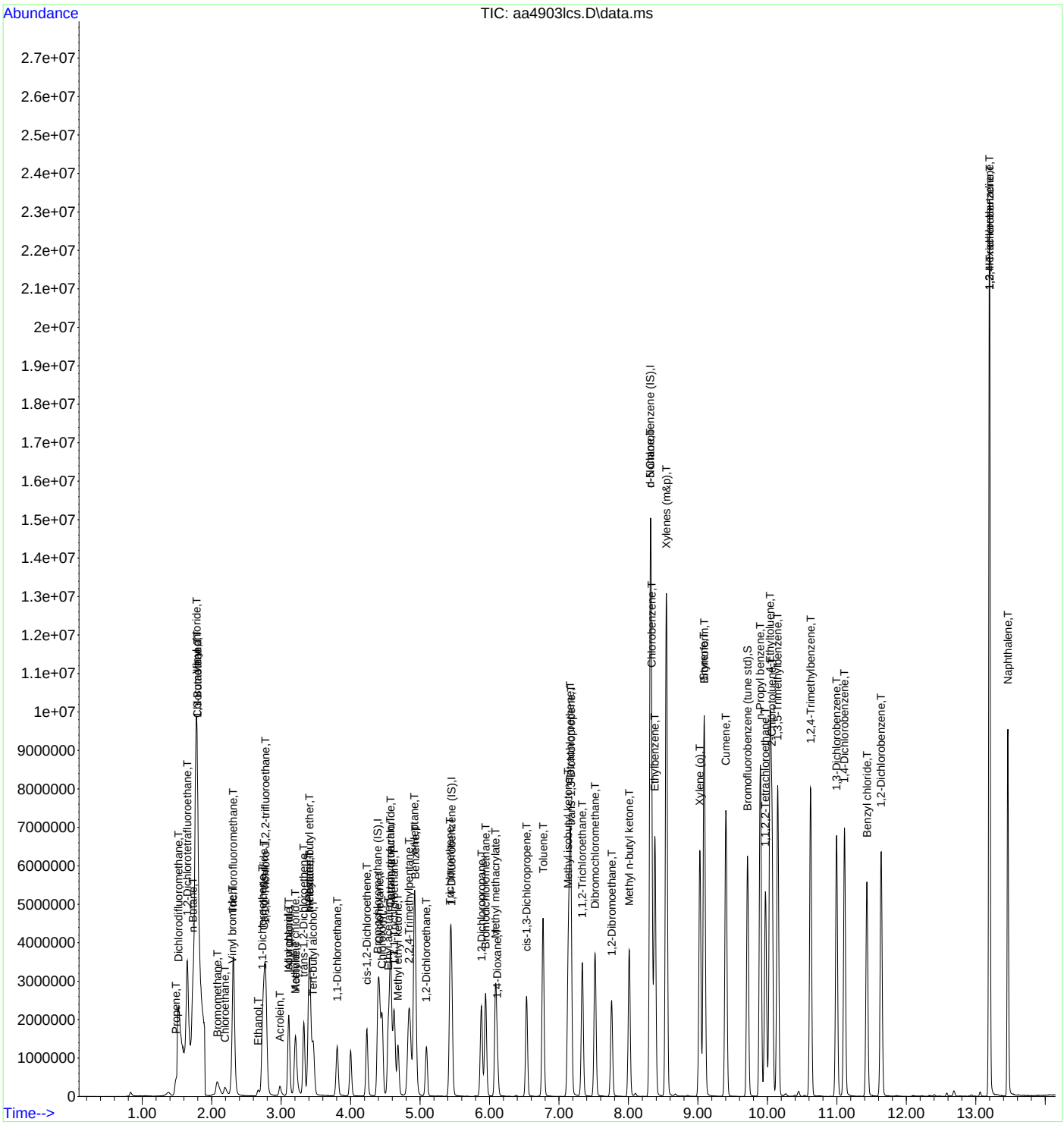
Quant Time: Dec 11 11:13:35 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2436418	11.29	ppbV	99
53)	1,2-Dibromoethane	7.759	107	2033372	10.85	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	2915562	12.58	ppbV	98
56)	n-Nonane	8.315	43	3624209	11.82	ppbV	98
57)	Chlorobenzene	8.335	112	3170809	10.29	ppbV	98
58)	Ethylbenzene	8.380	91	6016260	10.56	ppbV	99
59)	Xylenes (m&p)	8.547	91	9208112	21.82	ppbV	99
60)	Xylene (o)	9.026	91	4740095	10.29	ppbV	99
61)	Styrene	9.087	104	3439384	10.91	ppbV	100
62)	Bromoform	9.094	173	2568104	11.35	ppbV	100
63)	Cumene	9.402	105	6358038	10.57	ppbV	100
65)	n-Propyl benzene	9.897	91	8673958	11.04	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.971	83	3528435	10.95	ppbV	100
67)	4-Ethyltoluene	10.039	105	7191816	10.82	ppbV	100
68)	2-Chlorotoluene	10.065	91	5637797	10.69	ppbV	99
69)	1,3,5-Trimethylbenzene	10.148	105	5654494	10.58	ppbV	99
70)	1,2,4-Trimethylbenzene	10.624	105	5639014	10.55	ppbV	99
71)	1,3-Dichlorobenzene	10.997	146	3401177	10.39	ppbV	100
72)	1,4-Dichlorobenzene	11.109	146	3376653	10.26	ppbV	99
73)	Benzyl chloride	11.434	91	5116198	10.83	ppbV	99
74)	1,2-Dichlorobenzene	11.637	146	3236300	10.20	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	2308103	10.48	ppbV	100
76)	1,2,4-Trichlorobenzene	13.199	180	2718525	10.67	ppbV	100
77)	Naphthalene	13.463	128	6001329	10.30	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4903lcs.D
Acq On : 11 Dec 2023 10:57 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 11 11:13:35 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**50**		**54**		4.0	**-7.69%**
Allyl Chloride	107-05-1	4.0	U	4.0	U	4.0	0.00%
Benzene	71-43-2	2.0	U	2.0	U	2.0	0.00%
Bromodichloromethane	75-27-4	4.0	U	4.0	U	4.0	0.00%
Bromoform	75-25-2	4.0	U	4.0	U	4.0	0.00%
Bromomethane	74-83-9	4.0	U	4.0	U	4.0	0.00%
1,3-Butadiene	106-99-0	4.0	U	4.0	U	4.0	0.00%
Chlorobenzene	108-90-7	4.0	U	4.0	U	4.0	0.00%
Chloroethane	75-00-3	4.0	U	4.0	U	4.0	0.00%
Chloroform	67-66-3	4.0	U	4.0	U	4.0	0.00%
Chloromethane	74-87-3	4.0	U	4.0	U	4.0	0.00%
Carbon disulfide	75-15-0	**10.0**		**11**		4.0	**-9.52%**
Carbon tetrachloride	56-23-5	2.0	U	2.0	U	2.0	0.00%
2-Chlorotoluene	95-49-8	4.0	U	4.0	U	4.0	0.00%
Cyclohexane	110-82-7	4.0	U	4.0	U	4.0	0.00%
Dibromochloromethane	124-48-1	4.0	U	4.0	U	4.0	0.00%
1,2-Dibromoethane	106-93-4	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorobenzene	95-50-1	4.0	U	4.0	U	4.0	0.00%
1,3-Dichlorobenzene	541-73-1	4.0	U	4.0	U	4.0	0.00%
1,4-Dichlorobenzene	106-46-7	4.0	U	4.0	U	4.0	0.00%
Dichlorodifluoromethane	75-71-8	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethane	75-34-3	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethane	107-06-2	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethene	75-35-4	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (cis)	156-59-2	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (trans)	156-60-5	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloropropane	78-87-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (cis)	10061-01-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (trans)	10061-02-6	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	4.0	U	4.0	U	4.0	0.00%
Ethylbenzene	100-41-4	2.0	U	2.0	U	2.0	0.00%
4-Ethyltoluene	622-96-8	4.0	U	4.0	U	4.0	0.00%
n-Heptane	142-82-5	4.0	U	4.0	U	4.0	0.00%
1,3-Hexachlorobutadiene	87-68-3	4.0	U	4.0	U	4.0	0.00%
n-Hexane	110-54-3	4.0	U	4.0	U	4.0	0.00%
Methylene chloride	75-09-2	4.0	U	4.0	U	4.0	0.00%
Methyl ethyl ketone	78-93-3	**8.1**		**10**		4.0	**-20.99%**
Methyl isobutyl ketone	108-10-1	4.0	U	4.0	U	4.0	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	4.0	U	4.0	U	4.0	0.00%
Styrene	100-42-5	4.0	U	4.0	U	4.0	0.00%
Tert-butyl alcohol	75-65-0	4.0	U	4.0	U	4.0	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	4.0	U	4.0	U	4.0	0.00%
Tetrachloroethene	127-18-4	4.0	U	4.0	U	4.0	0.00%
Toluene	108-88-3	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trichlorobenzene	120-82-1	4.0	U	4.0	U	4.0	0.00%
1,1,1-Trichloroethane	71-55-6	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloroethane	79-00-5	4.0	U	4.0	U	4.0	0.00%
Trichloroethene	79-01-6	2.0	U	2.0	U	2.0	0.00%
Trichlorofluoromethane	75-69-4	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trimethylbenzene	95-63-6	4.0	U	4.0	U	4.0	0.00%
1,3,5-Trimethylbenzene	108-67-8	4.0	U	4.0	U	4.0	0.00%
2,2,4-Trimethylpentane	540-84-1	4.0	U	4.0	U	4.0	0.00%
Vinyl bromide	593-60-2	4.0	U	4.0	U	4.0	0.00%
Vinyl chloride	75-01-4	2.0	U	2.0	U	2.0	0.00%
Xylenes (m&p)	179601-23-1	4.0	U	**4.2**		4.0	**NC**
Xylenes (o)	95-47-6	4.0	U	4.0	U	4.0	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4087.D
Acq On : 28 Sep 2023 9:29 pm
Operator : jjw
Sample : E23-04122-06x10 dil
Misc : 1781, 50cc
ALS Vial : 21 Sample Multiplier: 1

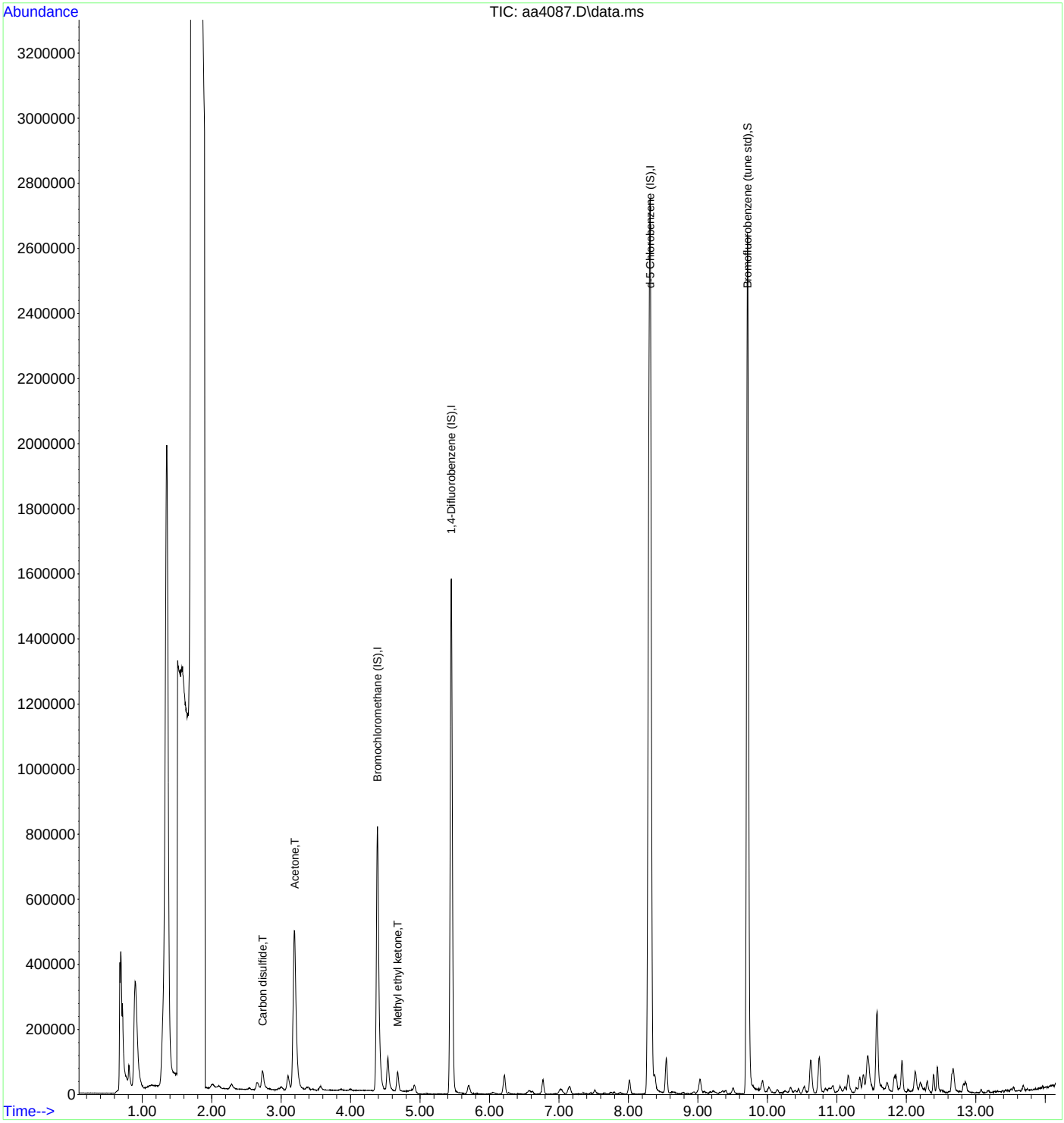
Quant Time: Oct 04 12:38:10 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

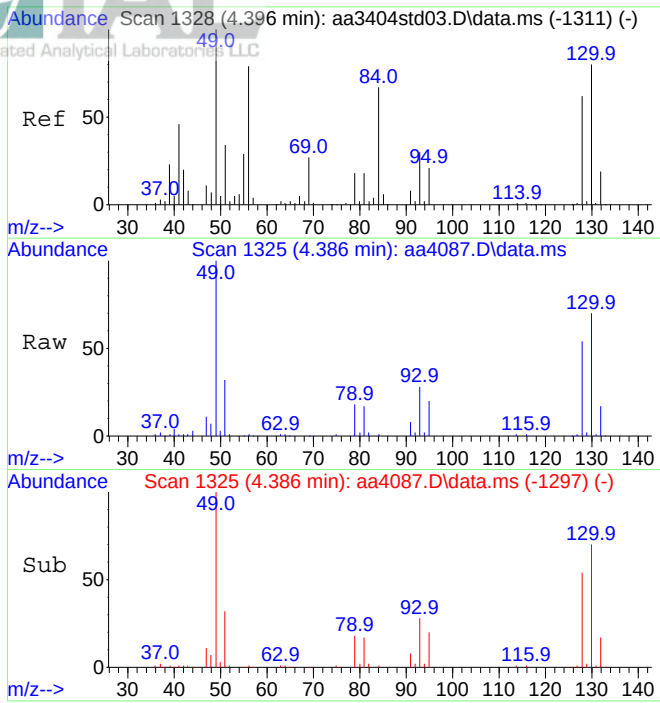
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Bromochloromethane (IS)	4.386	130	333645	10.00 ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	1400704	10.00 ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	1383190	10.00 ppbV	0.000
System Monitoring Compounds					
64) Bromofluorobenzene (tu...	9.714	95	1064307	9.25 ppbV	0.000
Target Compounds					Qvalue
15) Carbon disulfide	2.734	76	114195	1.00 ppbV	97
21) Acetone	3.197	43	311157	4.97 ppbV	99
35) Methyl ethyl ketone	4.679	43	78641	0.81 ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4087.D
Acq On : 28 Sep 2023 9:29 pm
Operator : jjw
Sample : E23-04122-06x10 dil
Misc : 1781, 50cc
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Oct 04 12:38:10 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

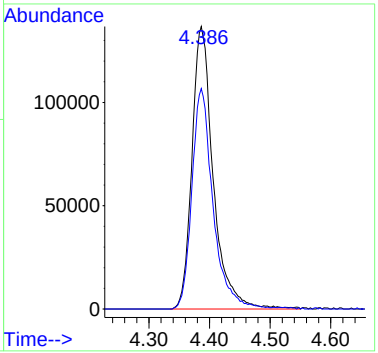


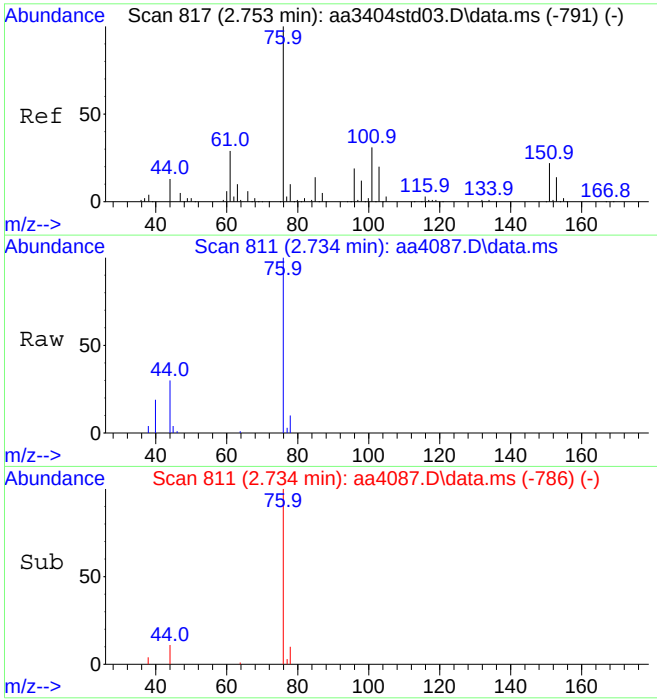


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.386 min Scan# 1325
Delta R.T. -0.010 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion:130 Resp: 333645

Ion	Ratio	Lower	Upper
130	100		
128	78.0	61.8	92.6

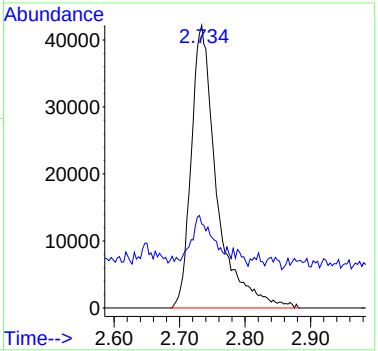


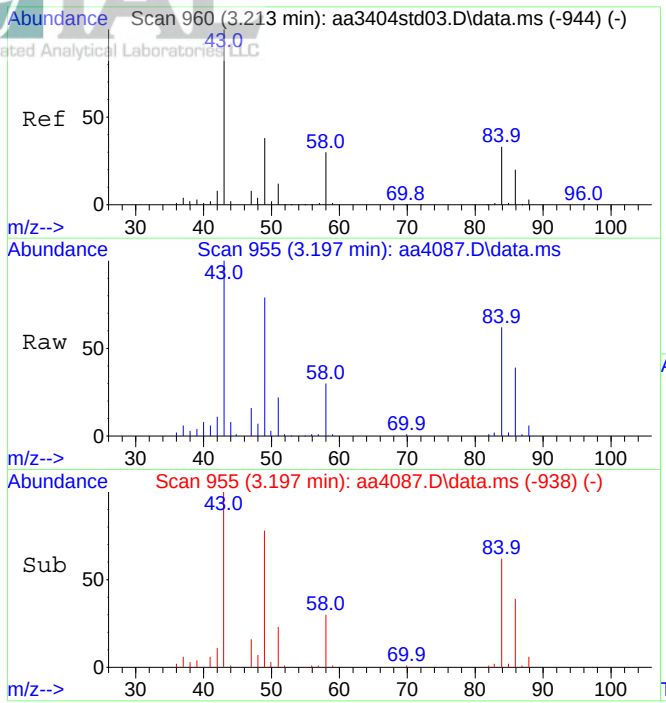


#15
Carbon disulfide
Concen: 1.00 ppbV
RT: 2.734 min Scan# 811
Delta R.T. -0.020 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 76 Resp: 114195

Ion	Ratio	Lower	Upper
76	100		
44	14.2	10.5	15.7

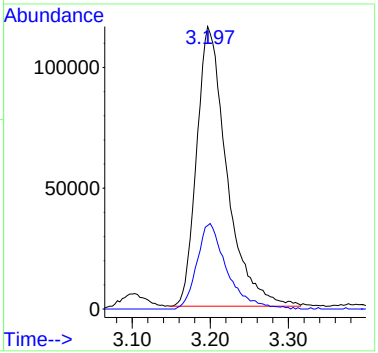


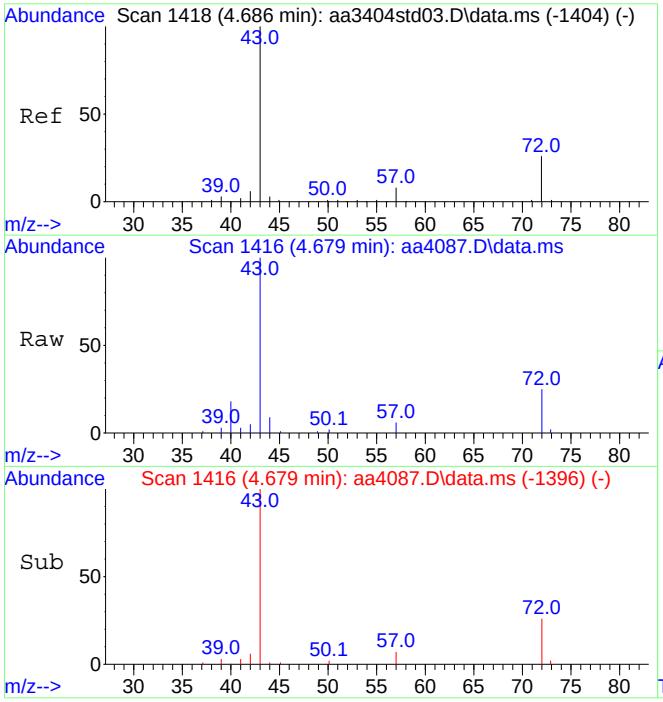


#21
Acetone
Concen: 4.97 ppbV
RT: 3.197 min Scan# 955
Delta R.T. -0.016 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 43 Resp: 311157

Ion	Ratio	Lower	Upper
43	100		
58	30.3	24.9	37.3

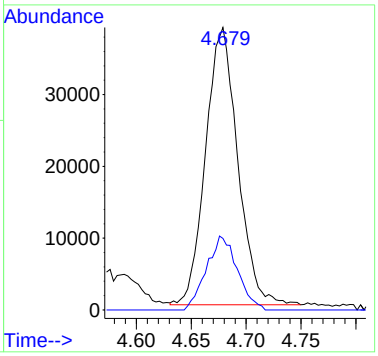


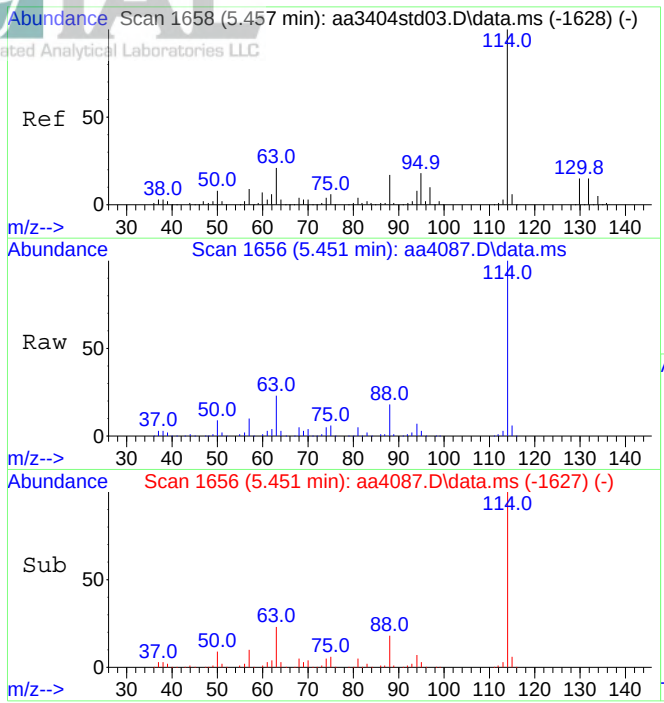


#35
Methyl ethyl ketone
Concen: 0.81 ppbV
RT: 4.679 min Scan# 1416
Delta R.T. -0.007 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 43 Resp: 78641

Ion	Ratio	Lower	Upper
43	100		
72	25.5	20.8	31.2

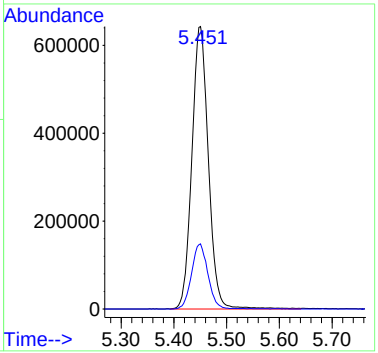


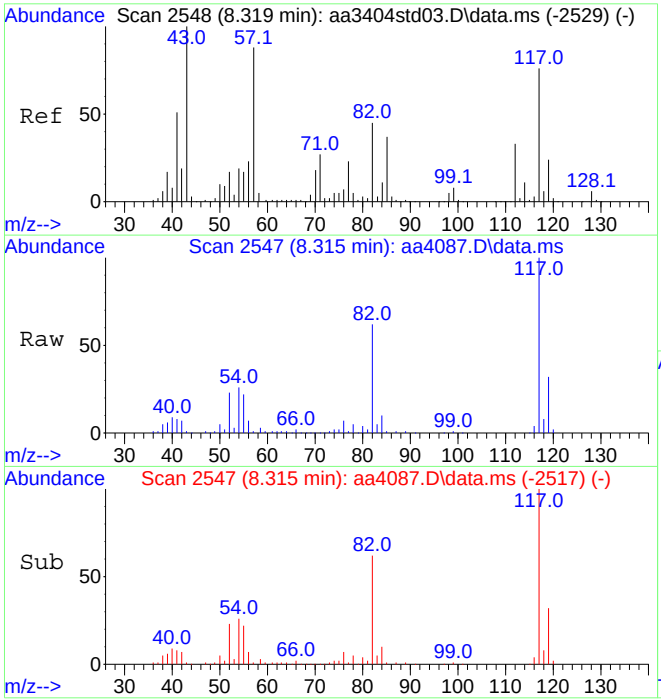


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.451 min Scan# 1656
Delta R.T. -0.006 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion:114 Resp: 1400704

Ion	Ratio	Lower	Upper
114	100		
63	23.0	17.4	26.2

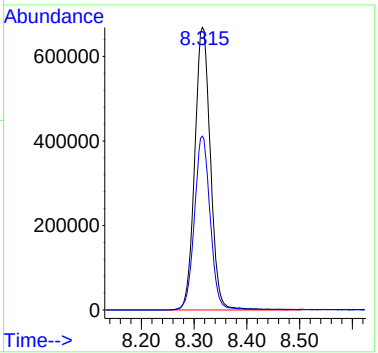


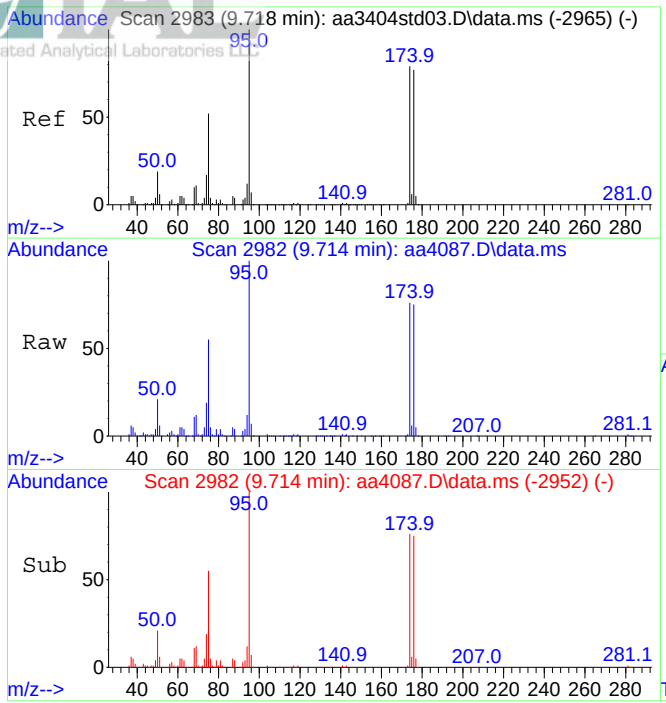


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.315 min Scan# 2547
Delta R.T. -0.004 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion:117 Resp: 1383190

Ion	Ratio	Lower	Upper
117	100		
82	62.2	47.4	71.0

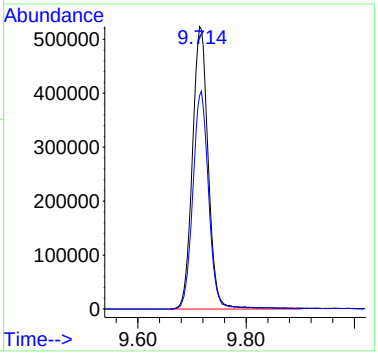




#64
Bromofluorobenzene (tune std)
Concen: 9.25 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.003 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 95 Resp: 1064307

Ion	Ratio	Lower	Upper
95	100		
174	77.0	62.9	94.3



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4088.D
Acq On : 28 Sep 2023 10:00 pm
Operator : jjw
Sample : E23-04122-26x10 dil
Misc : Dup of E23-04122-06x10 dil, Can # 1781
ALS Vial : 22 Sample Multiplier: 1

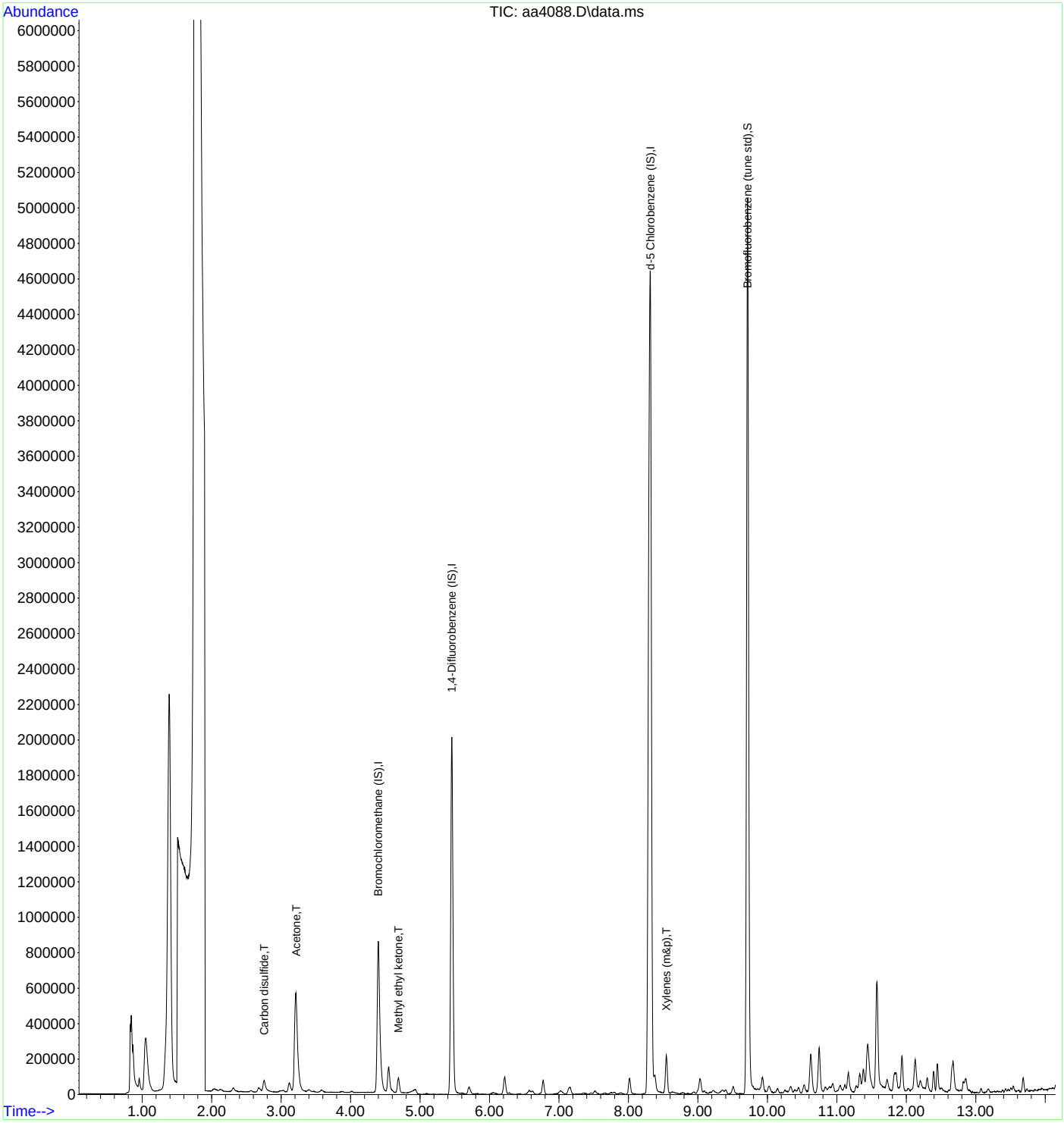
Quant Time: Oct 04 12:49:41 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

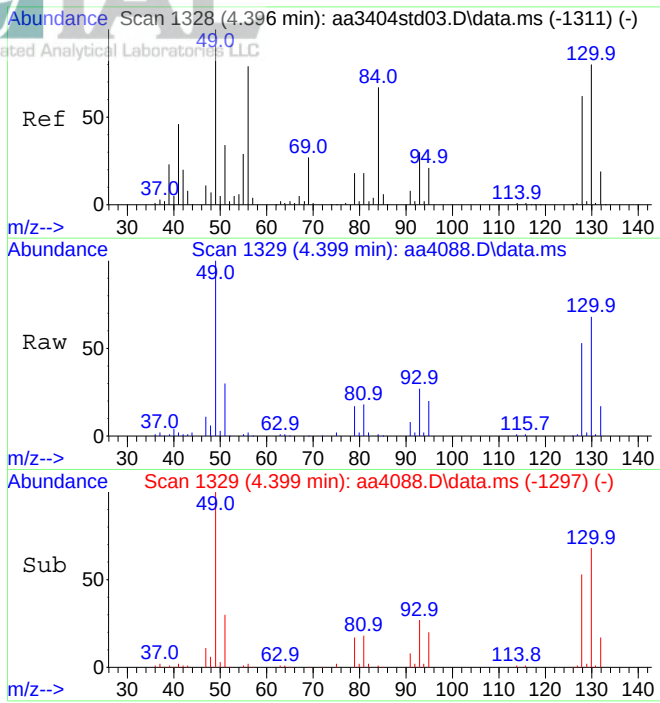
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.399	130	378421	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	1821981	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2357353	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2004719	10.22	ppbV	0.000
Target Compounds						Qvalue
15) Carbon disulfide	2.756	76	137474	1.06	ppbV	97
21) Acetone	3.219	43	384617	5.42	ppbV	98
35) Methyl ethyl ketone	4.689	43	112963	1.03	ppbV	98
59) Xylenes (m&p)	8.547	91	145250	0.42	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4088.D
Acq On : 28 Sep 2023 10:00 pm
Operator : jjw
Sample : E23-04122-26x10 dil
Misc : Dup of E23-04122-06x10 dil, Can # 1781
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Oct 04 12:49:41 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

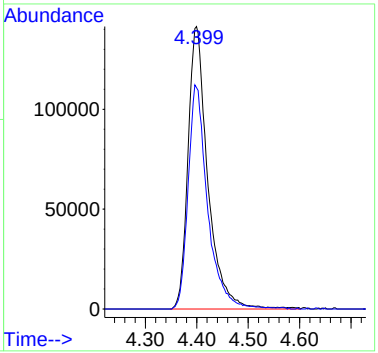


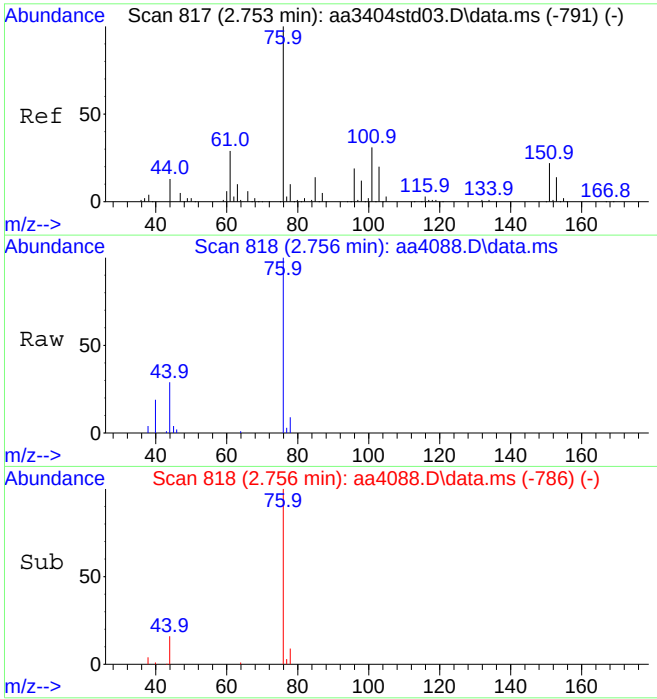


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.399 min Scan# 1329
Delta R.T. 0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion:130 Resp: 378421

Ion	Ratio	Lower	Upper
130	100		
128	78.2	61.8	92.6

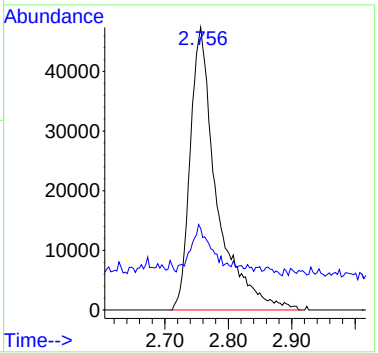


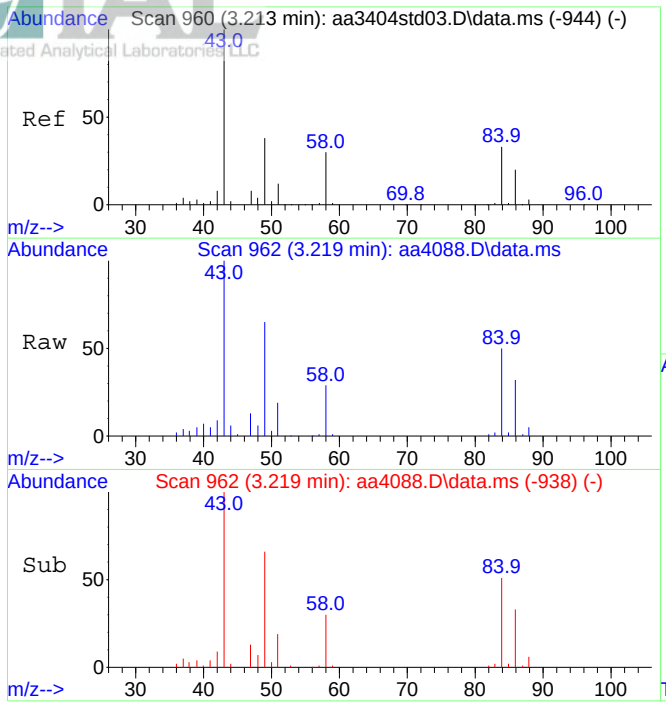


#15
Carbon disulfide
Concen: 1.06 ppbV
RT: 2.756 min Scan# 818
Delta R.T. 0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 76 Resp: 137474

Ion	Ratio	Lower	Upper
76	100		
44	14.5	10.5	15.7

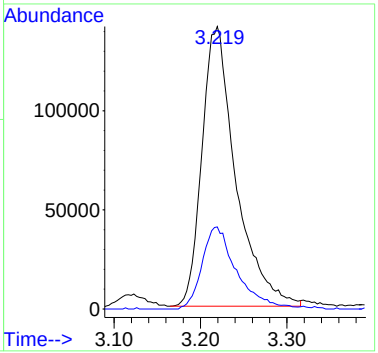


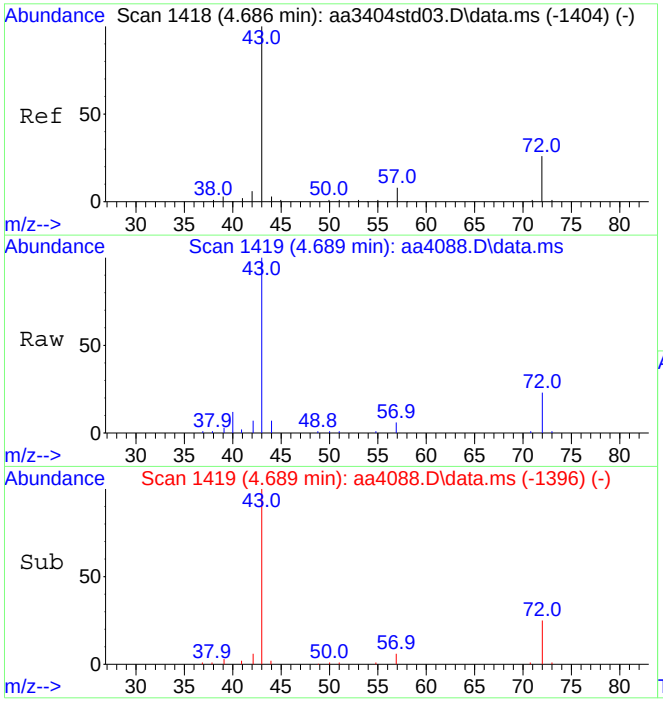


#21
Acetone
Concen: 5.42 ppbV
RT: 3.219 min Scan# 962
Delta R.T. 0.006 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 43 Resp: 384617

Ion	Ratio	Lower	Upper
43	100		
58	30.0	24.9	37.3

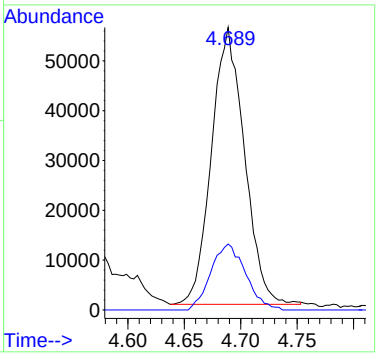


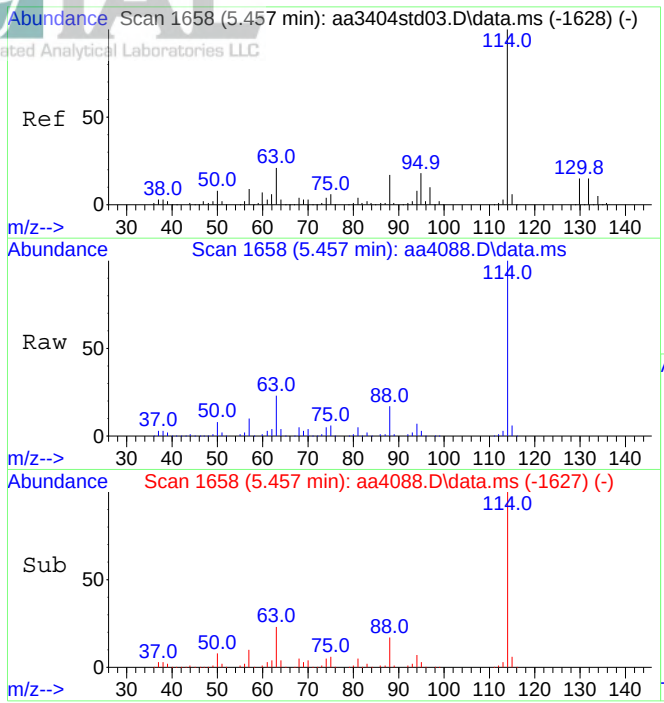


#35
Methyl ethyl ketone
Concen: 1.03 ppbV
RT: 4.689 min Scan# 1419
Delta R.T. 0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 43 Resp: 112963

Ion	Ratio	Lower	Upper
43	100		
72	25.1	20.8	31.2

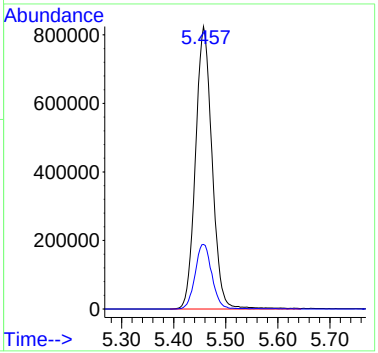


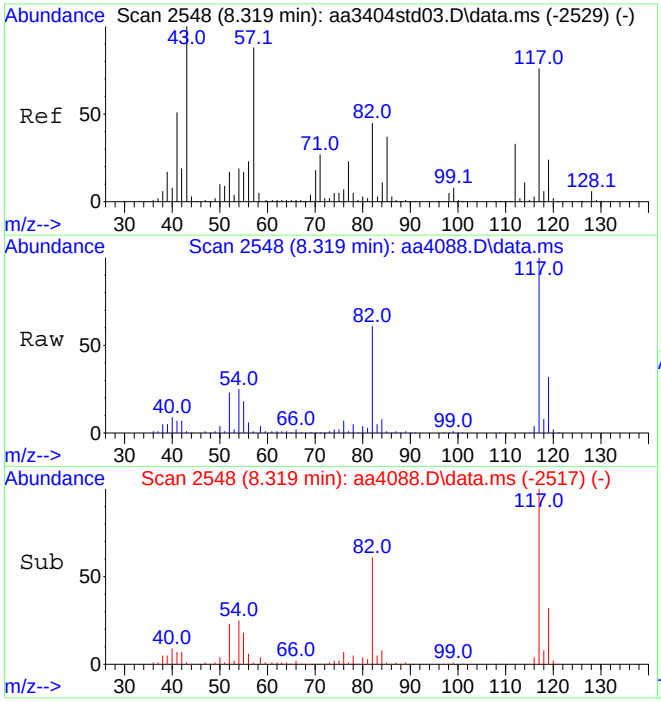


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.000 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion:114 Resp: 1821981

Ion	Ratio	Lower	Upper
114	100		
63	23.3	17.4	26.2

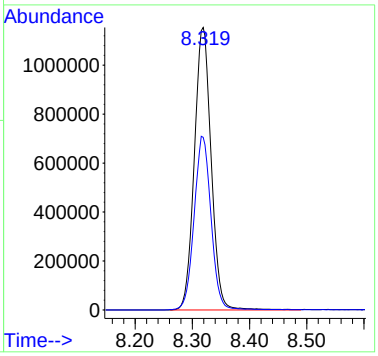


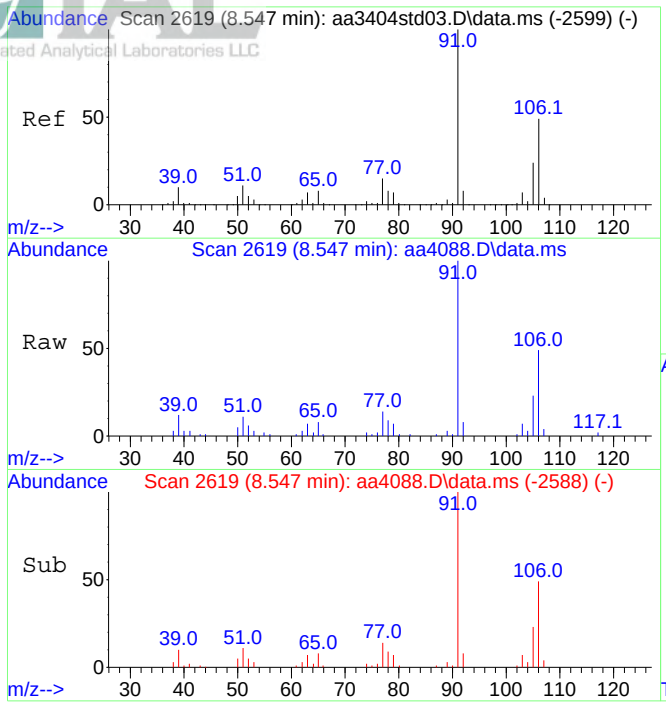


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. -0.000 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion:117 Resp: 2357353

Ion	Ratio	Lower	Upper
117	100		
82	61.9	47.4	71.0

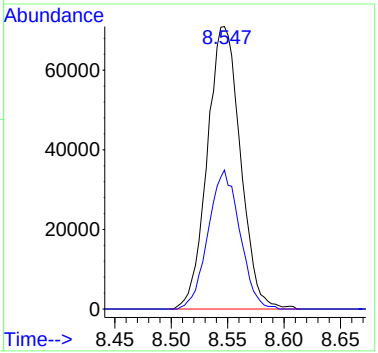


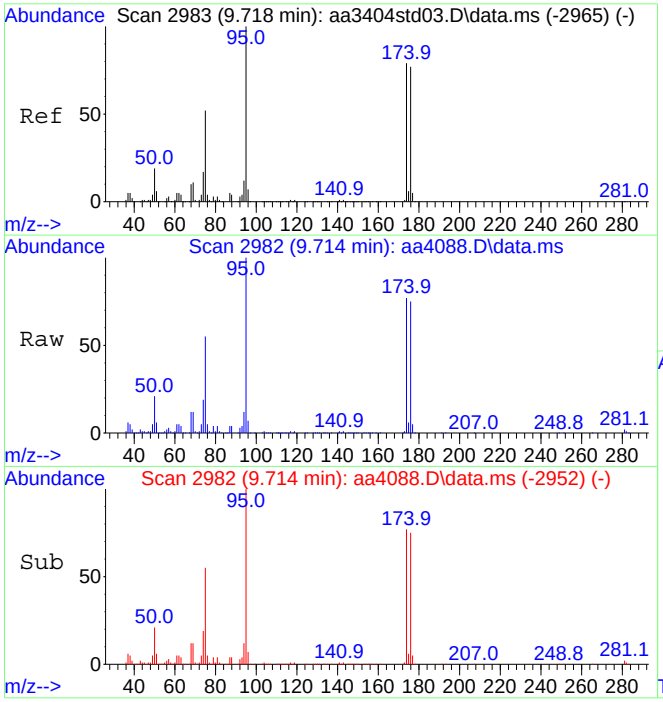


#59
Xylenes (m&p)
Concen: 0.42 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. -0.000 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 91 Resp: 145250

Ion	Ratio	Lower	Upper
91	100		
106	46.9	39.2	58.8

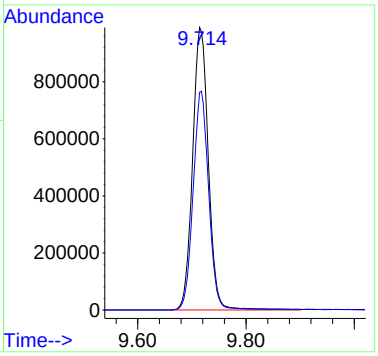




#64
Bromofluorobenzene (tune std)
Concen: 10.22 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 95 Resp: 2004719

Ion	Ratio	Lower	Upper
95	100		
174	76.8	62.9	94.3



INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/17/23
SDG Number:	E23-05061	Date Analyzed:	12/7/23,12/7/23
IAL Sample ID:	E23-05061-03	Lab Data File#:	AA4869,AA4870
Matrix:	Air	Dilution Factor:	1
Summa ID:	3045a	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05061-03 Concentration Reported ppbv	Q	Sample Dup E23-05061-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**11**		**11**		0.20	**0.00%**
Allyl Chloride	107-05-1	0.20	U	0.20	U	0.20	0.00%
Benzene	71-43-2	**2.6**		**2.3**		0.20	**12.24%**
Bromodichloromethane	75-27-4	0.20	U	0.20	U	0.20	0.00%
Bromoform	75-25-2	0.20	U	0.20	U	0.20	0.00%
Bromomethane	74-83-9	0.20	U	0.20	U	0.20	0.00%
1,3-Butadiene	106-99-0	0.20	U	0.20	U	0.20	0.00%
Chlorobenzene	108-90-7	0.20	U	0.20	U	0.20	0.00%
Chloroethane	75-00-3	0.20	U	0.20	U	0.20	0.00%
Chloroform	67-66-3	0.20	U	0.20	U	0.20	0.00%
Chloromethane	74-87-3	0.20	U	0.20	U	0.20	0.00%
Carbon disulfide	75-15-0	0.20	U	0.20	U	0.20	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.20	U	**0.27**		0.20	**NC**
Cyclohexane	110-82-7	**3.9**		**3.4**		0.20	**13.70%**
Dibromochloromethane	124-48-1	0.20	U	0.20	U	0.20	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	U	0.20	0.00%
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	U	0.20	0.00%
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	U	0.20	0.00%
Dichlorodifluoromethane	75-71-8	0.20	U	0.20	U	0.20	0.00%
1,1-Dichloroethane	75-34-3	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethane	107-06-2	0.20	U	0.20	U	0.20	0.00%
1,1-Dichloroethene	75-35-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	U	0.20	0.00%
1,4-Dioxane	123-91-1	0.20	U	0.20	U	0.20	0.00%
Ethanol	64-17-5	**10**		0.20	U	0.20	**NC**
Ethylbenzene	100-41-4	**1.9**		**1.6**		0.20	**17.14%**
4-Ethyltoluene	622-96-8	**1.9**	X	**1.4**	X	0.20	**30.30%**
n-Heptane	142-82-5	**3.7**		**3.4**		0.20	**8.45%**
1,3-Hexachlorobutadiene	87-68-3	0.20	U	0.20	U	0.20	0.00%
n-Hexane	110-54-3	**4.4**		**3.8**		0.20	**14.63%**
Isopropanol	67-63-0	**2.7**		0.20	U	0.20	**NC**

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/17/23
SDG Number:	E23-05061	Date Analyzed:	12/7/23,12/7/23
IAL Sample ID:	E23-05061-03	Lab Data File#:	AA4869,AA4870
Matrix:	Air	Dilution Factor:	1
Summa ID:	3045a	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05061-03 Concentration Reported ppbv	Q	Sample Dup E23-05061-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methylene chloride	75-09-2	**2.8**		0.20	U	0.20	**NC**
Methyl ethyl ketone	78-93-3	**0.85**		**0.83**		0.20	**2.38%**
Methyl isobutyl ketone	108-10-1	0.20	U	**0.24**		0.20	**NC**
Methyl methacrylate	80-62-6	0.20	U	**3.4**		0.20	**NC**
Methyl tert-butyl ether	1634-04-4	0.20	U	0.20	U	0.20	0.00%
Styrene	100-42-5	0.20	U	0.20	U	0.20	0.00%
Tert-butyl alcohol	75-65-0	0.20	U	0.20	U	0.20	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	U	0.20	0.00%
Tetrachloroethene	127-18-4	0.20	U	0.20	U	0.20	0.00%
Tetrahydrofuran	109-99-9	**0.96**		**0.90**		0.20	**6.45%**
Toluene	108-88-3	**7.1**		**7.1**		0.20	**0.00%**
1,2,4-Trichlorobenzene	120-82-1	0.20	U	0.20	U	0.20	0.00%
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	U	0.20	0.00%
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	U	0.20	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	**0.33**		**0.33**		0.20	**0.00%**
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	U	0.20	U	0.20	0.00%
1,2,4-Trimethylbenzene	95-63-6	**1.9**		**1.5**		0.20	**23.53%**
1,3,5-Trimethylbenzene	108-67-8	**0.53**		**0.45**		0.20	**16.33%**
2,2,4-Trimethylpentane	540-84-1	**6.9**		**7.0**		0.20	**-1.44%**
Vinyl bromide	593-60-2	0.20	U	0.20	U	0.20	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	**7.0**		**5.9**		0.40	**17.05%**
Xylenes (o)	95-47-6	**2.3**		**2.0**		0.20	**13.95%**

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-07-2023\
Data File : aa4869.D
Acq On : 7 Dec 2023 7:50 pm
Operator : jjw
Sample : E23-05061-03
Misc : 3045A, 500cc
ALS Vial : 23 Sample Multiplier: 1

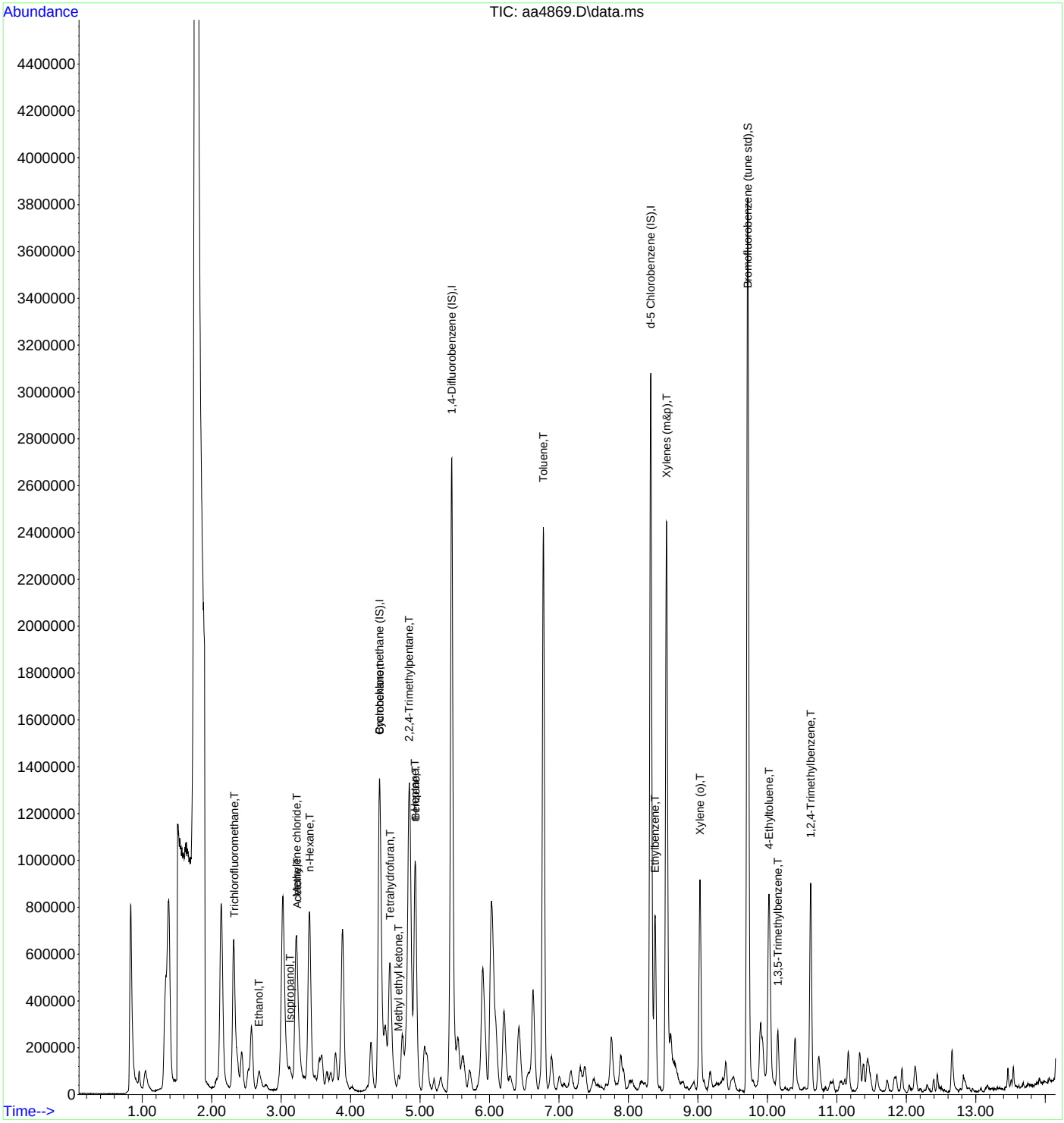
Quant Time: Dec 13 12:49:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

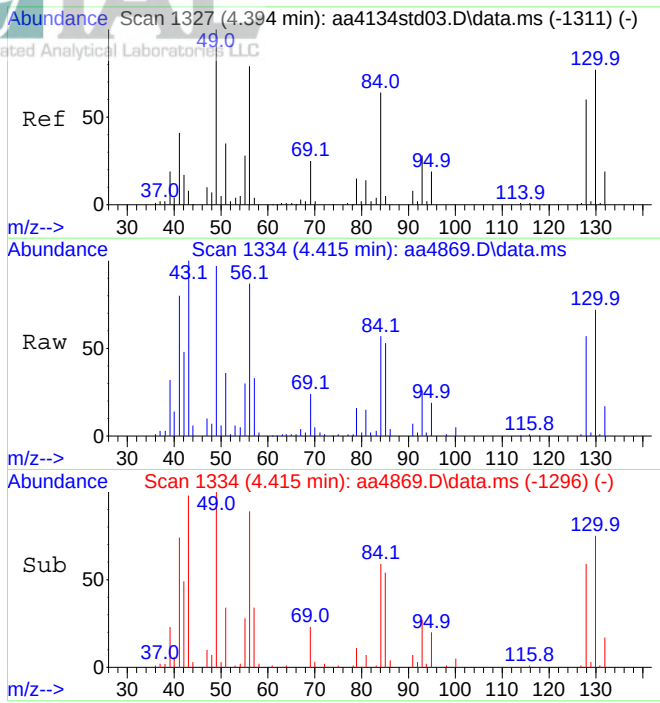
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.415	130	377969	10.00	ppbV		0.021
39) 1,4-Difluorobenzene (IS)	5.457	114	2104054	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.322	117	1855524	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.717	95	1687506	10.43	ppbV		0.000
Target Compounds							Qvalue
12) Trichlorofluoromethane	2.329	101	35340	0.33	ppbV		84
13) Ethanol	2.682	45	111256	10.05	ppbV		96
19) Isopropanol	3.129	45	208140	2.75	ppbV	#	74
20) Methylene chloride	3.226	49	129701	2.79	ppbV		90
21) Acetone	3.232	43	610229	10.70	ppbV		96
24) n-Hexane	3.412	57	520146	4.37	ppbV		97
29) Cyclohexane	4.419	56	324297	3.90	ppbV	#	74
33) Tetrahydrofuran	4.570	42	54848	0.96	ppbV	#	80
35) Methyl ethyl ketone	4.689	43	78559	0.85	ppbV		96
36) n-Heptane	4.927	43	386594	3.70	ppbV		97
37) Benzene	4.936	78	388496	2.59	ppbV		94
41) 2,2,4-Trimethylpentane	4.843	57	1877837	6.85	ppbV		96
47) Toluene	6.775	91	2112833	7.14	ppbV		100
58) Ethylbenzene	8.383	91	655687	1.92	ppbV		98
59) Xylenes (m&p)	8.550	91	1780980	7.03	ppbV		97
60) Xylene (o)	9.029	91	648554	2.35	ppbV		97
67) 4-Ethyltoluene	10.023	105	762163	1.91	ppbV		99
69) 1,3,5-Trimethylbenzene	10.151	105	170234	0.53	ppbV		99
70) 1,2,4-Trimethylbenzene	10.624	105	614979	1.92	ppbV		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-07-2023\
Data File : aa4869.D
Acq On : 7 Dec 2023 7:50 pm
Operator : jjw
Sample : E23-05061-03
Misc : 3045A, 500cc
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Dec 13 12:49:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

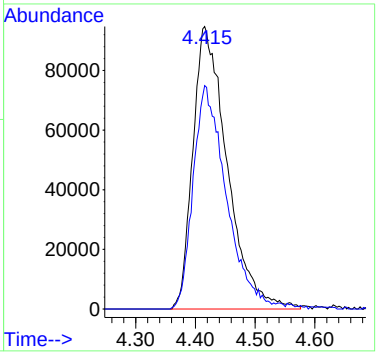


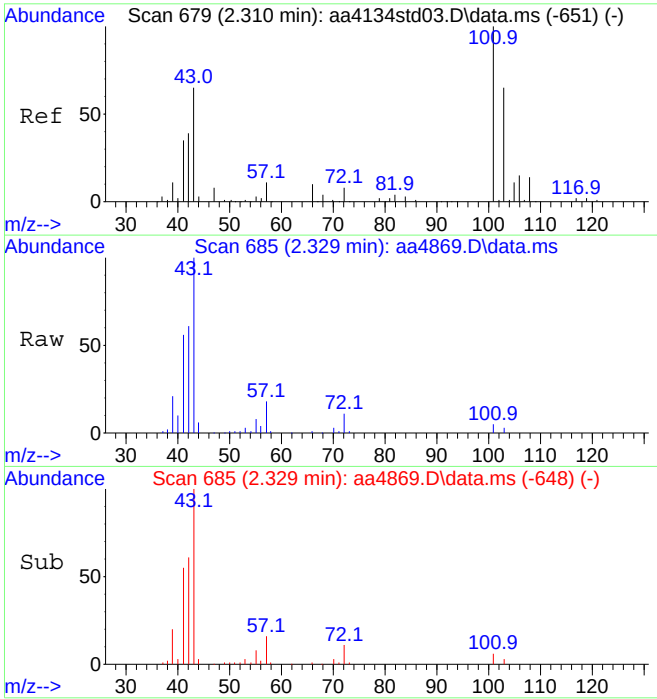


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.415 min Scan# 1334
Delta R.T. 0.021 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:130 Resp: 377969

Ion	Ratio	Lower	Upper
130	100		
128	76.5	62.2	93.4

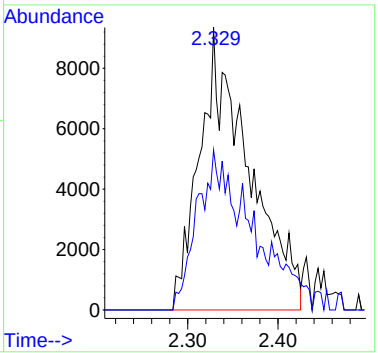


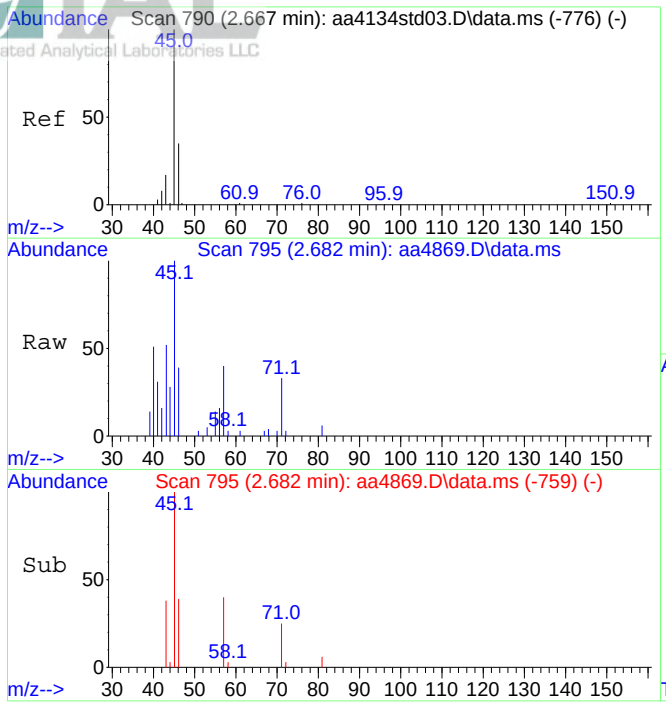


#12
Trichlorofluoromethane
Concen: 0.33 ppbV
RT: 2.329 min Scan# 685
Delta R.T. 0.018 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:101 Resp: 35340

Ion	Ratio	Lower	Upper
101	100		
103	53.1	52.5	78.7

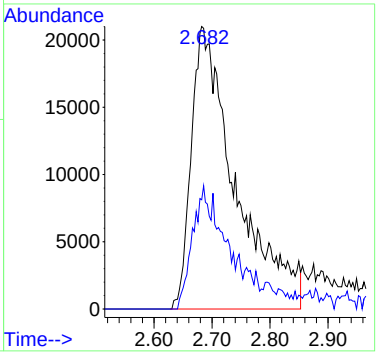


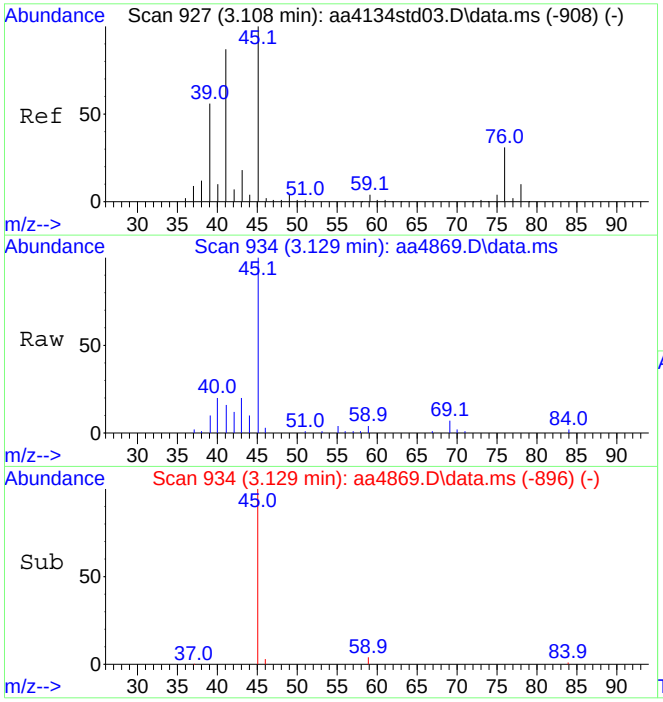


#13
Ethanol
Concen: 10.05 ppbV
RT: 2.682 min Scan# 795
Delta R.T. 0.015 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 45 Resp: 111256

Ion	Ratio	Lower	Upper
45	100		
46	35.3	30.0	45.0

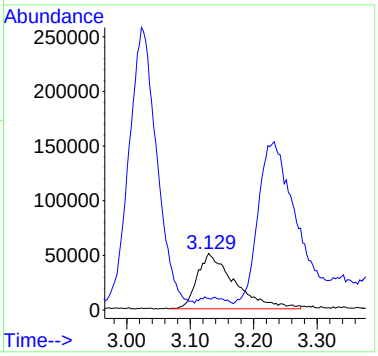


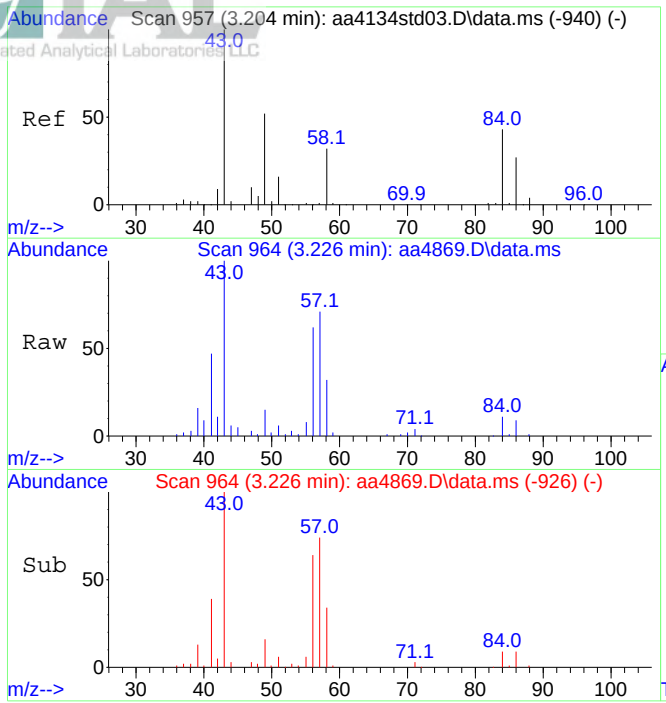


#19
Isopropanol
Concen: 2.75 ppbV
RT: 3.129 min Scan# 934
Delta R.T. 0.021 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 45 Resp: 208140

Ion	Ratio	Lower	Upper
45	100		
43	6.6	14.6	21.8#

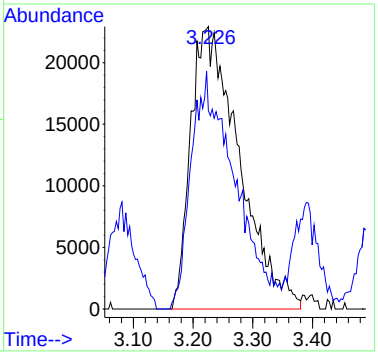


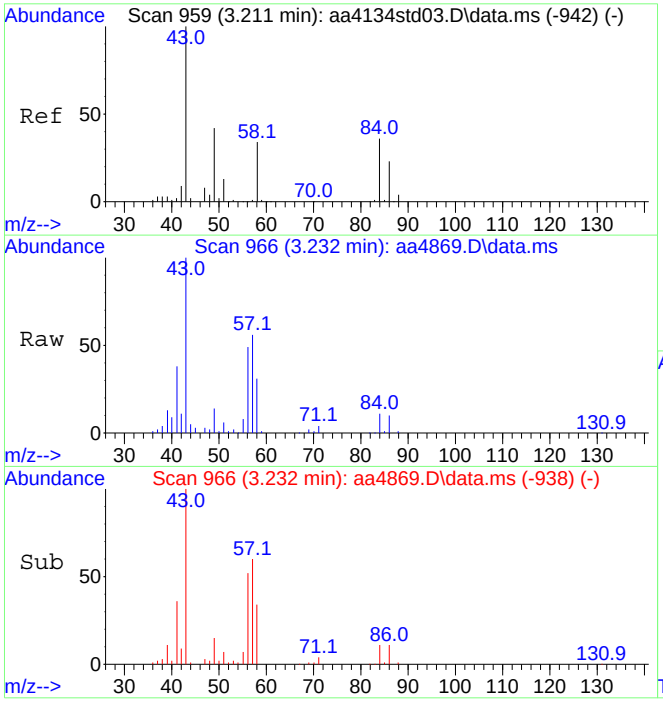


#20
Methylene chloride
Concen: 2.79 ppbV
RT: 3.226 min Scan# 964
Delta R.T. 0.022 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 49 Resp: 129701

Ion	Ratio	Lower	Upper
49	100		
84	75.6	64.8	104.8

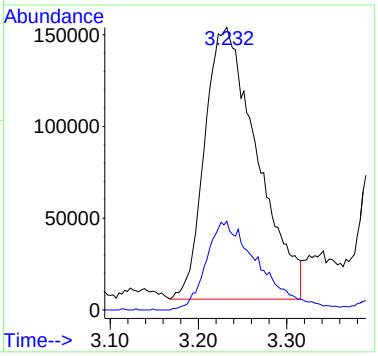


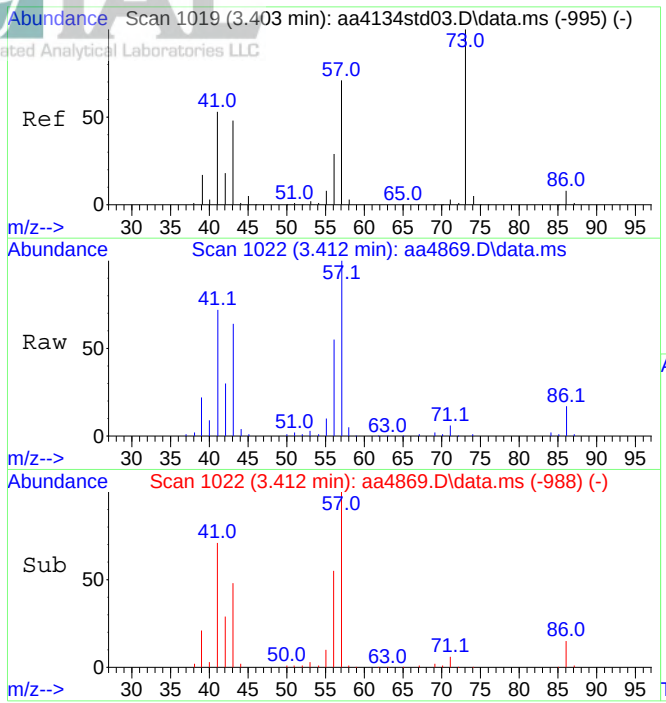


#21
Acetone
Concen: 10.70 ppbV
RT: 3.232 min Scan# 966
Delta R.T. 0.021 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 43 Resp: 610229

Ion	Ratio	Lower	Upper
43	100		
58	31.8	27.1	40.7

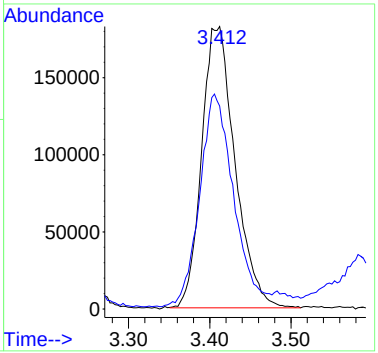


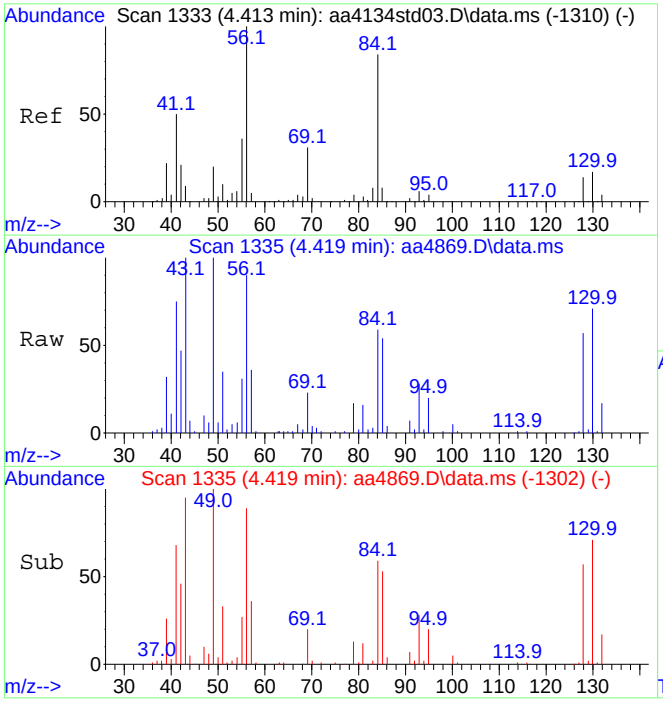


#24
n-Hexane
Concen: 4.37 ppbV
RT: 3.412 min Scan# 1022
Delta R.T. 0.009 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 57 Resp: 520146

Ion	Ratio	Lower	Upper
57	100		
41	80.4	66.4	99.6

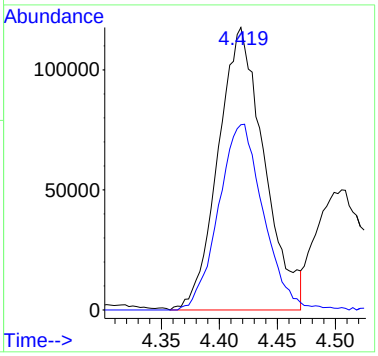


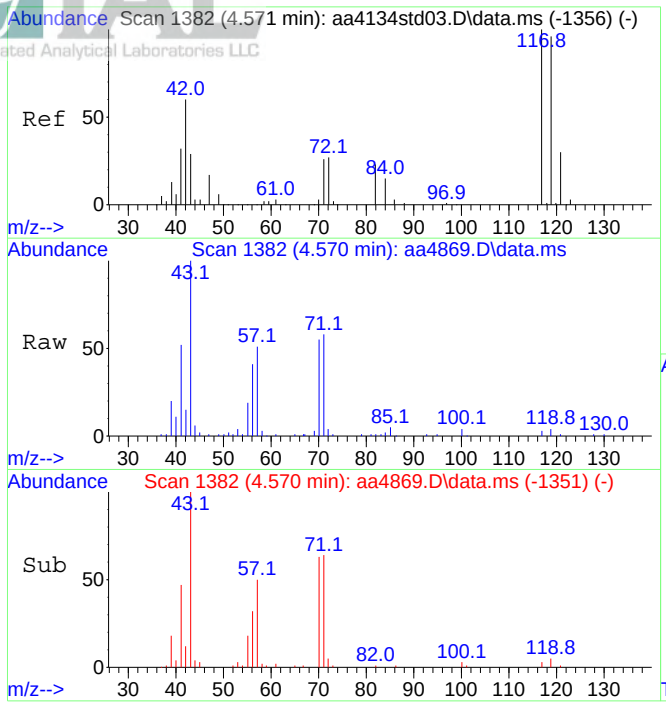


#29
Cyclohexane
Concen: 3.90 ppbV
RT: 4.419 min Scan# 1335
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 56 Resp: 324297

Ion	Ratio	Lower	Upper
56	100		
84	64.3	71.2	106.8#

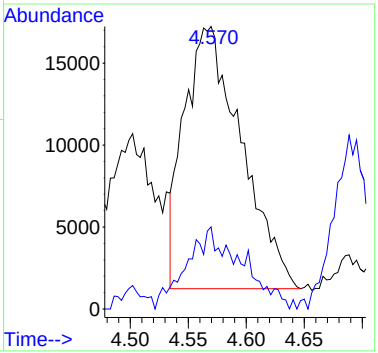


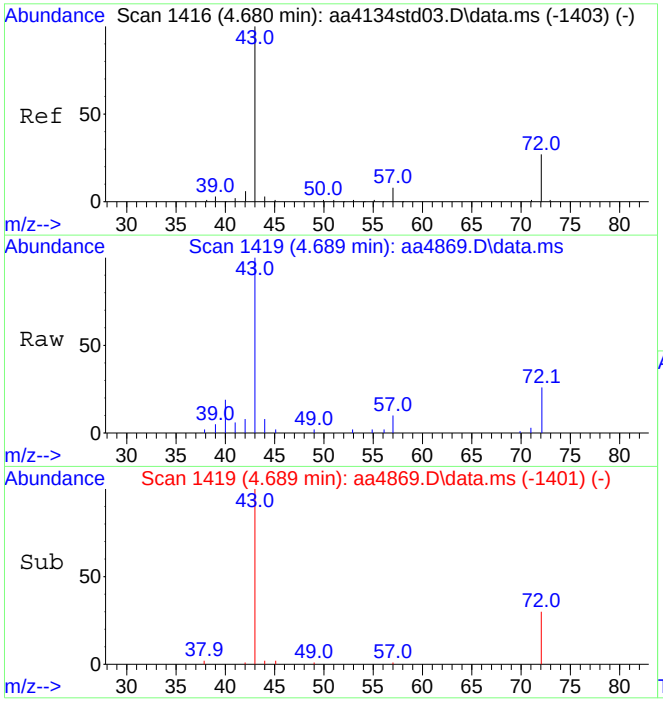


#33
Tetrahydrofuran
Concen: 0.96 ppbV
RT: 4.570 min Scan# 1382
Delta R.T. -0.001 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 42 Resp: 54848

Ion	Ratio	Lower	Upper
42	100		
72	29.9	33.8	50.8#

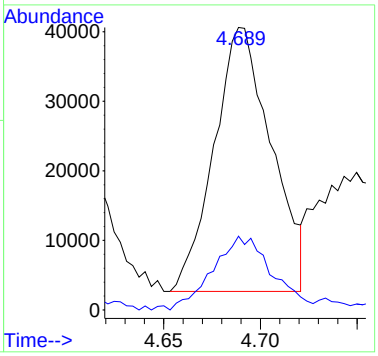


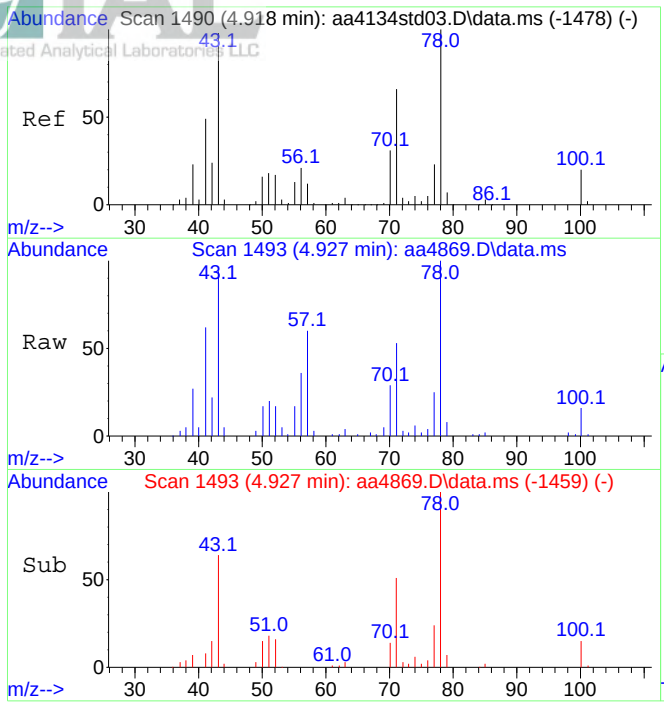


#35
Methyl ethyl ketone
Concen: 0.85 ppbV
RT: 4.689 min Scan# 1419
Delta R.T. 0.009 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 43 Resp: 78559

Ion	Ratio	Lower	Upper
43	100		
72	29.0	21.6	32.4

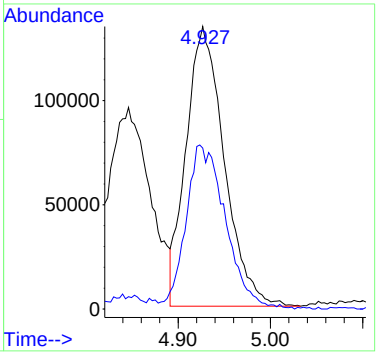


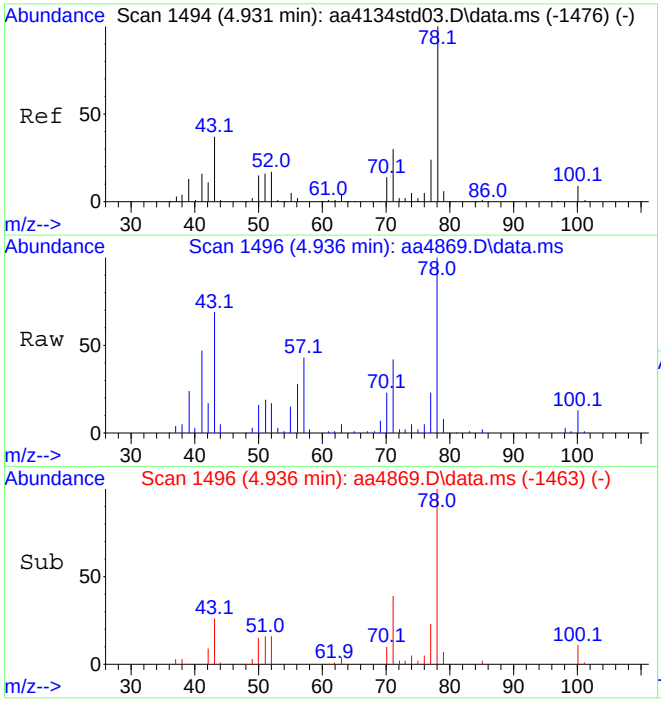


#36
n-Heptane
Concen: 3.70 ppbV
RT: 4.927 min Scan# 1493
Delta R.T. 0.009 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 43 Resp: 386594

Ion	Ratio	Lower	Upper
43	100		
71	60.7	50.5	75.7

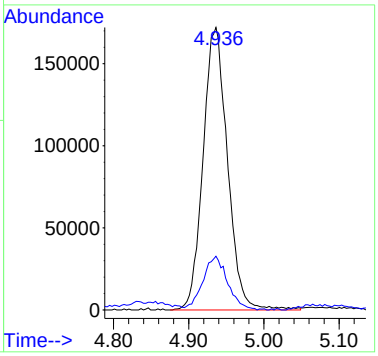


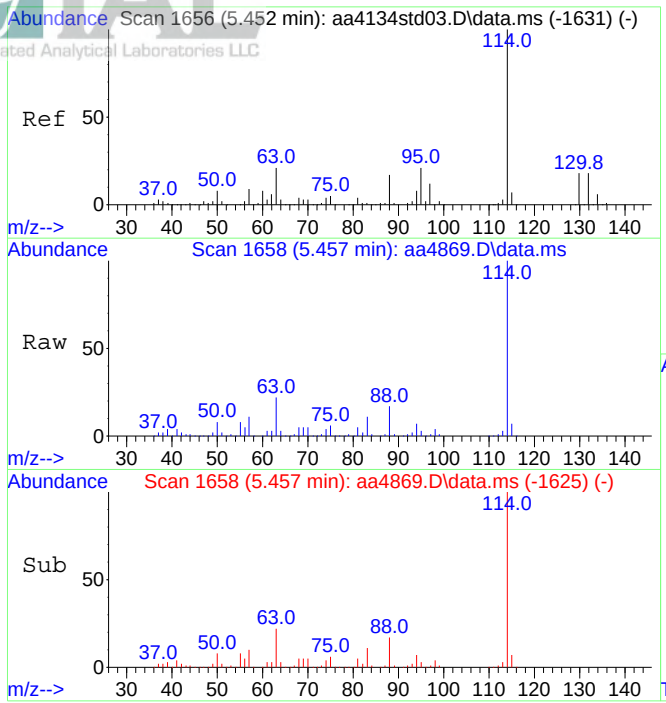


#37
Benzene
Concen: 2.59 ppbV
RT: 4.936 min Scan# 1496
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 78 Resp: 388496

Ion	Ratio	Lower	Upper
78	100		
51	19.2	13.4	20.0

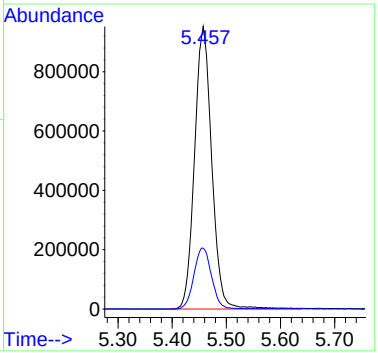


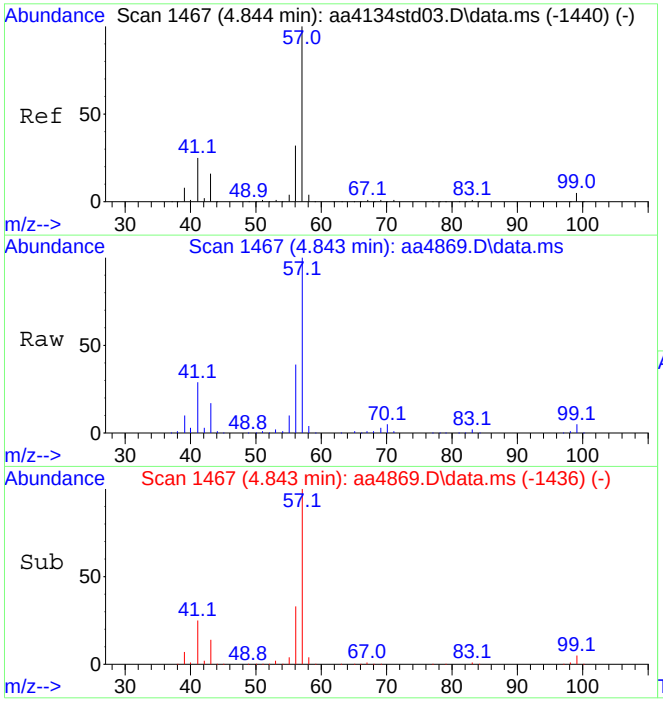


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:114 Resp: 2104054

Ion	Ratio	Lower	Upper
114	100		
63	22.1	17.0	25.6

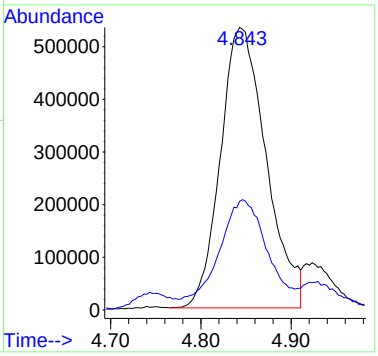


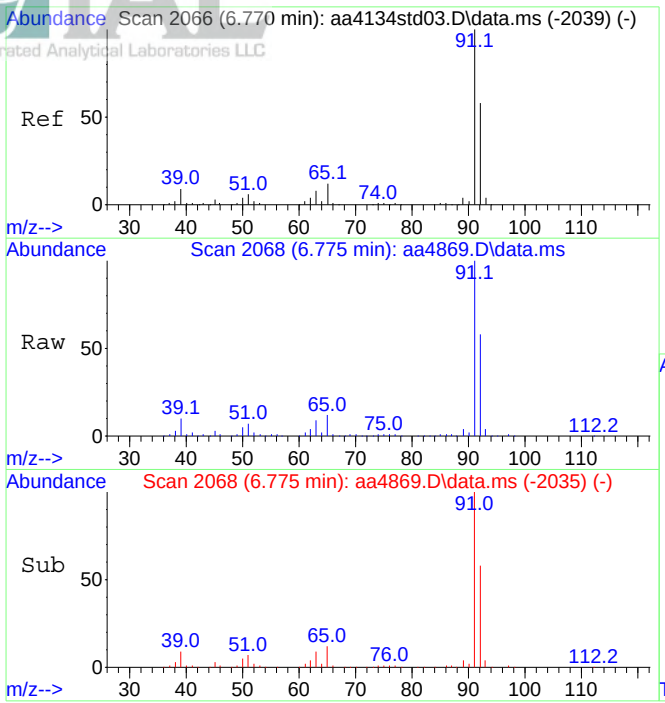


#41
2,2,4-Trimethylpentane
Concen: 6.85 ppbV
RT: 4.843 min Scan# 1467
Delta R.T. -0.001 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 57 Resp: 1877837

Ion	Ratio	Lower	Upper
57	100		
56	34.6	25.7	38.5

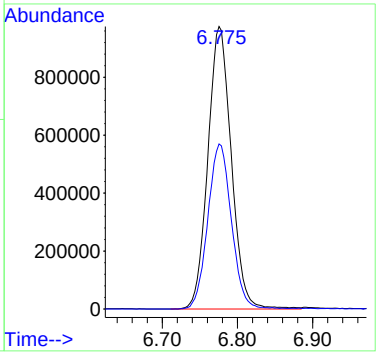


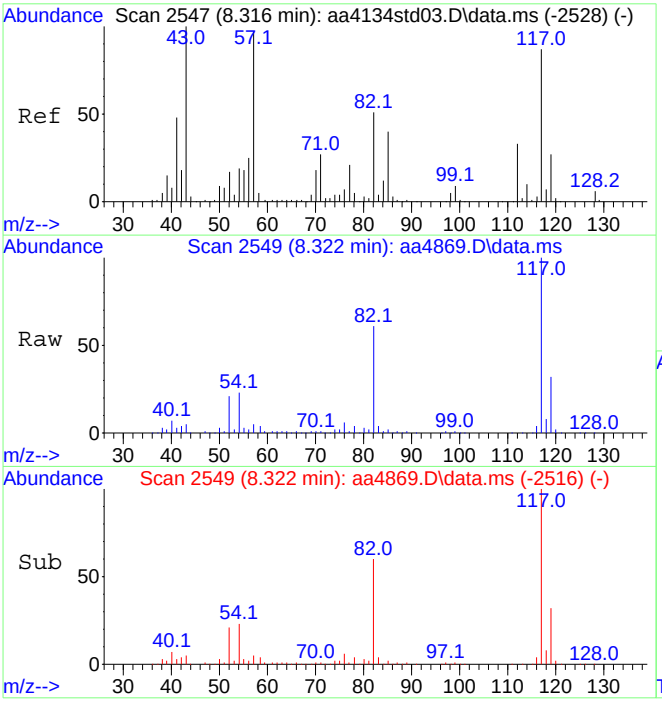


#47
Toluene
Concen: 7.14 ppbV
RT: 6.775 min Scan# 2068
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 91 Resp: 2112833

Ion	Ratio	Lower	Upper
91	100		
92	59.0	47.3	70.9

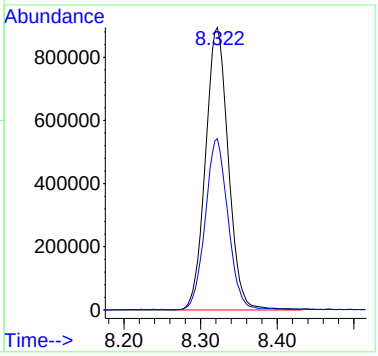


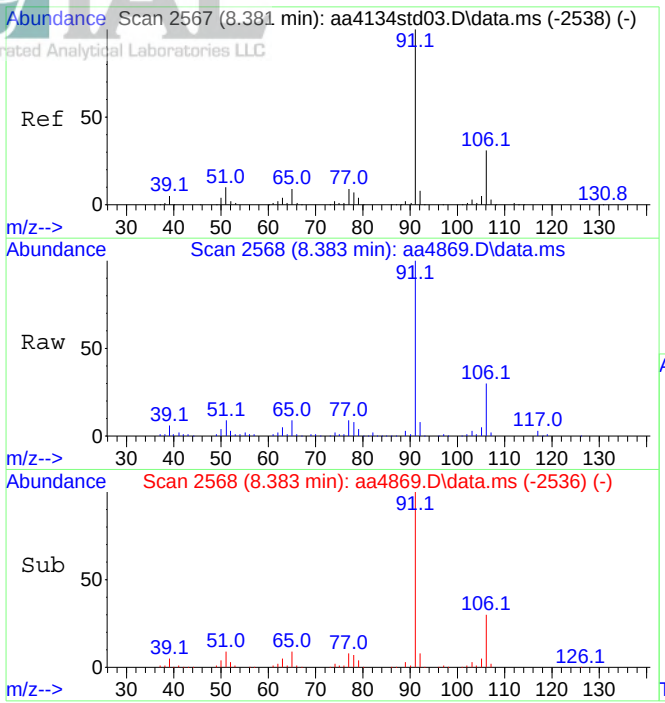


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.322 min Scan# 2549
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:117 Resp: 1855524

Ion	Ratio	Lower	Upper
117	100		
82	60.2	47.0	70.4

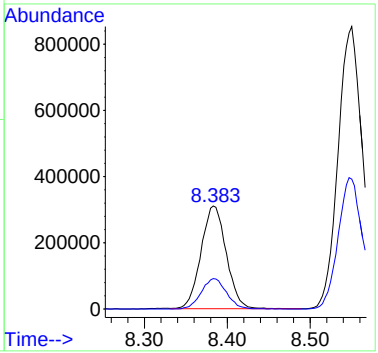


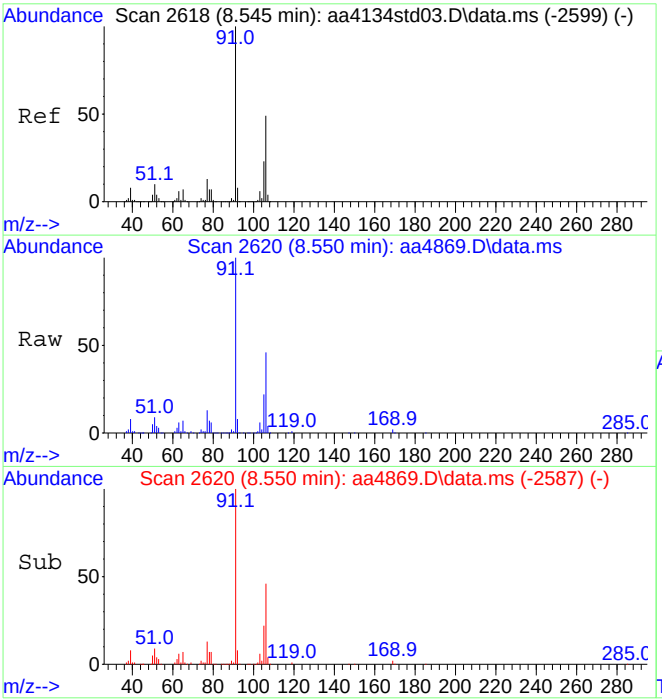


#58
Ethylbenzene
Concen: 1.92 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 91 Resp: 655687

Ion	Ratio	Lower	Upper
91	100		
106	29.4	24.6	36.8

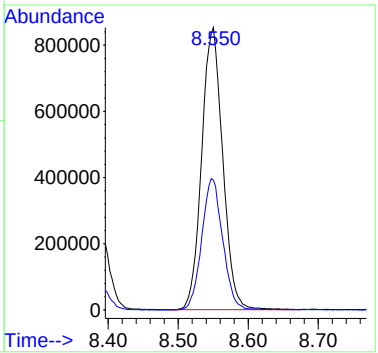


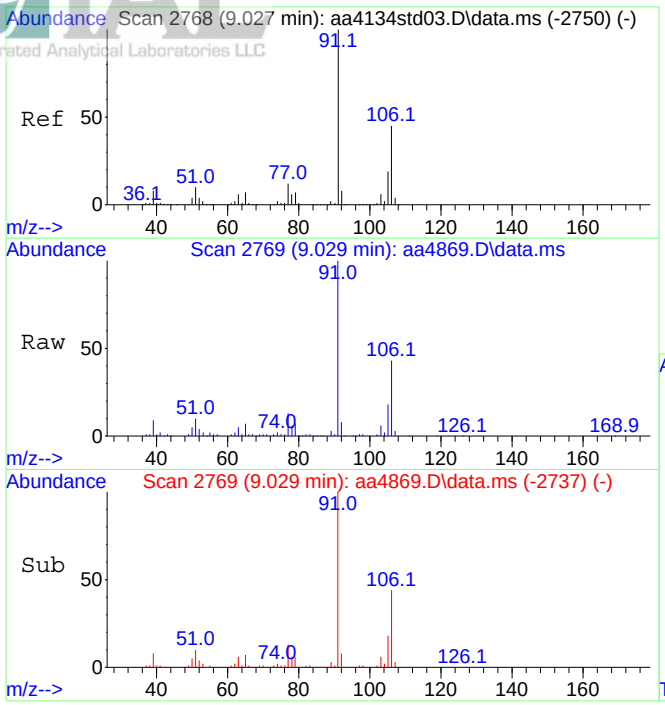


#59
Xylenes (m&p)
Concen: 7.03 ppbV
RT: 8.550 min Scan# 2620
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 91 Resp: 1780980

Ion	Ratio	Lower	Upper
91	100		
106	46.5	39.0	58.4

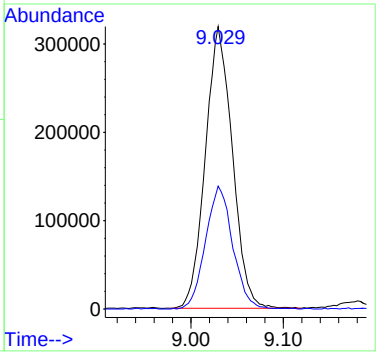


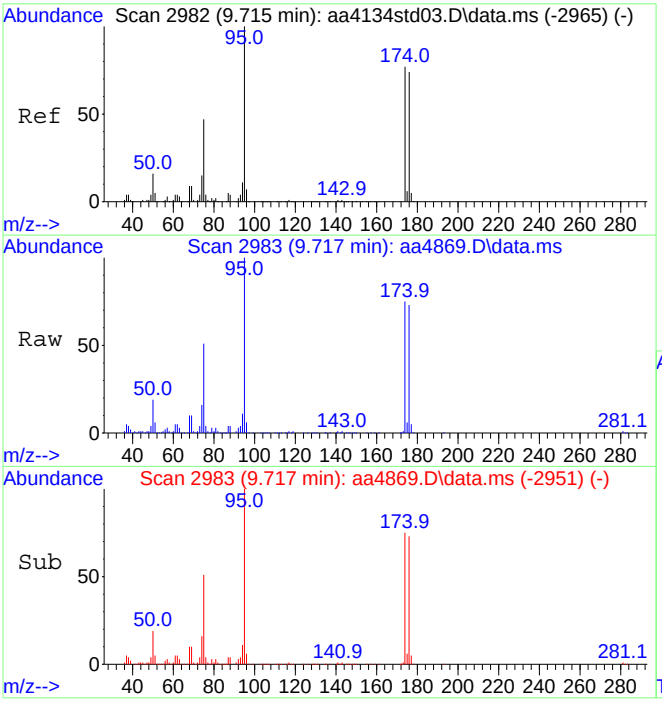


#60
Xylene (o)
Concen: 2.35 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 91 Resp: 648554

Ion	Ratio	Lower	Upper
91	100		
106	44.0	36.8	55.2

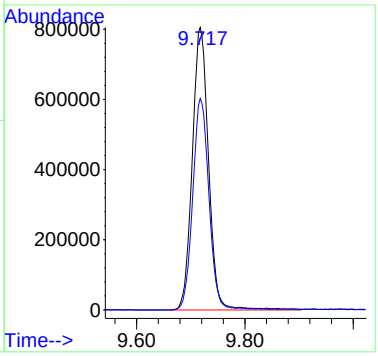


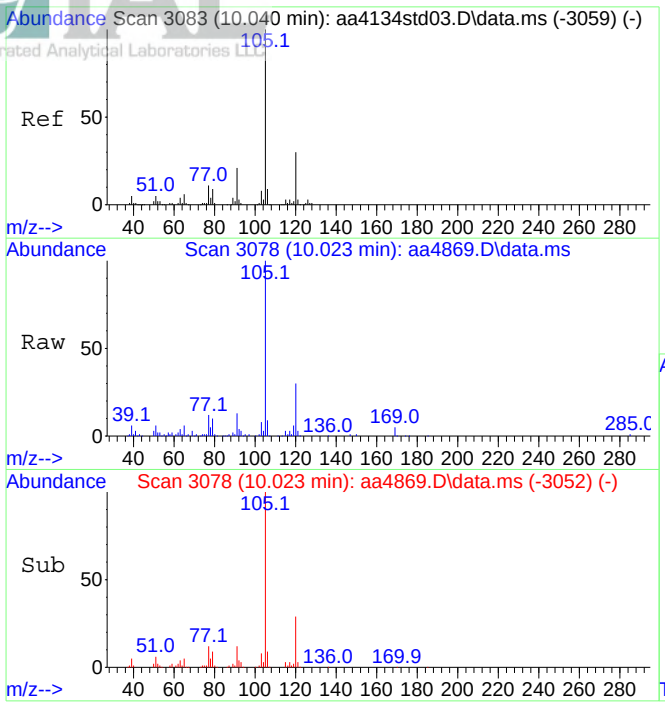


#64
Bromofluorobenzene (tune std)
Concen: 10.43 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 95 Resp: 1687506

Ion	Ratio	Lower	Upper
95	100		
174	75.1	61.1	91.7

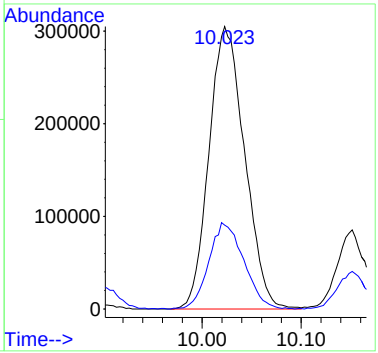


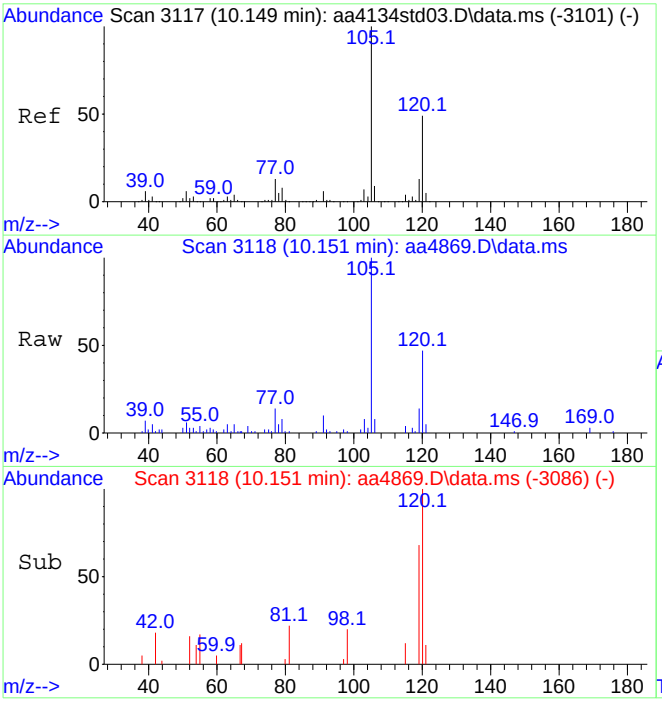


#67
4-Ethyltoluene
Concen: 1.91 ppbV
RT: 10.023 min Scan# 3078
Delta R.T. -0.017 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:105 Resp: 762163

Ion	Ratio	Lower	Upper
105	100		
120	30.0	23.4	35.2

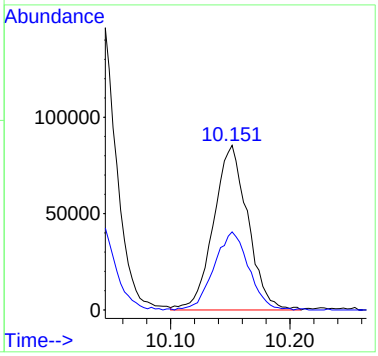


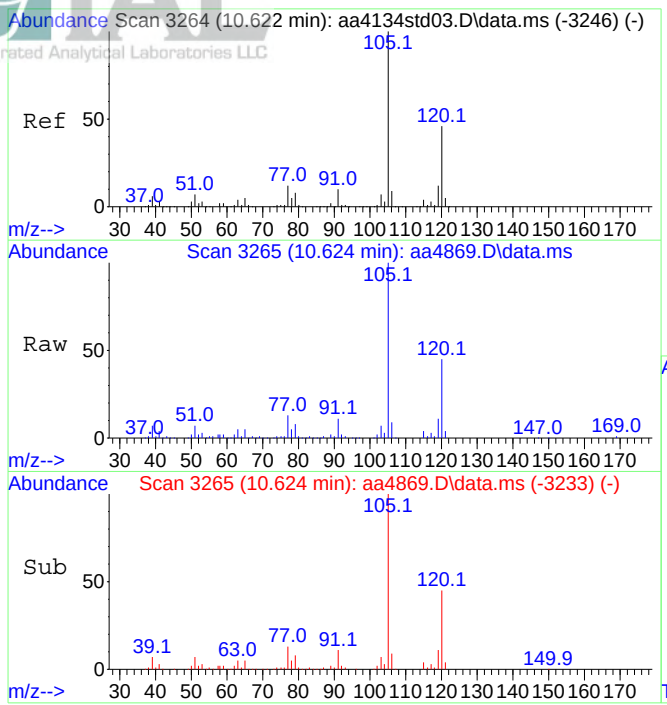


#69
1,3,5-Trimethylbenzene
Concen: 0.53 ppbV
RT: 10.151 min Scan# 3118
Delta R.T. 0.002 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:105 Resp: 170234

Ion	Ratio	Lower	Upper
105	100		
120	48.2	38.9	58.3

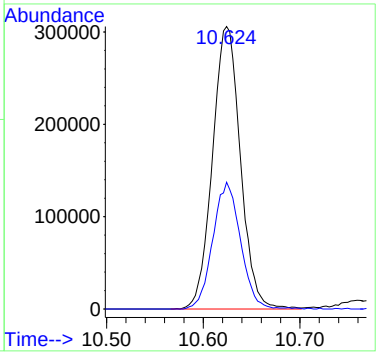




#70
1,2,4-Trimethylbenzene
Concen: 1.92 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:105 Resp: 614979

Ion	Ratio	Lower	Upper
105	100		
120	44.4	36.3	54.5



Data Path : C:\DATA\2023\12-2023\12-07-2023\
Data File : aa4870.D
Acq On : 7 Dec 2023 8:30 pm
Operator : jjw
Sample : E23-05061-23
Misc : Dup of E23-05061-03, Can # 3045A
ALS Vial : 24 Sample Multiplier: 1

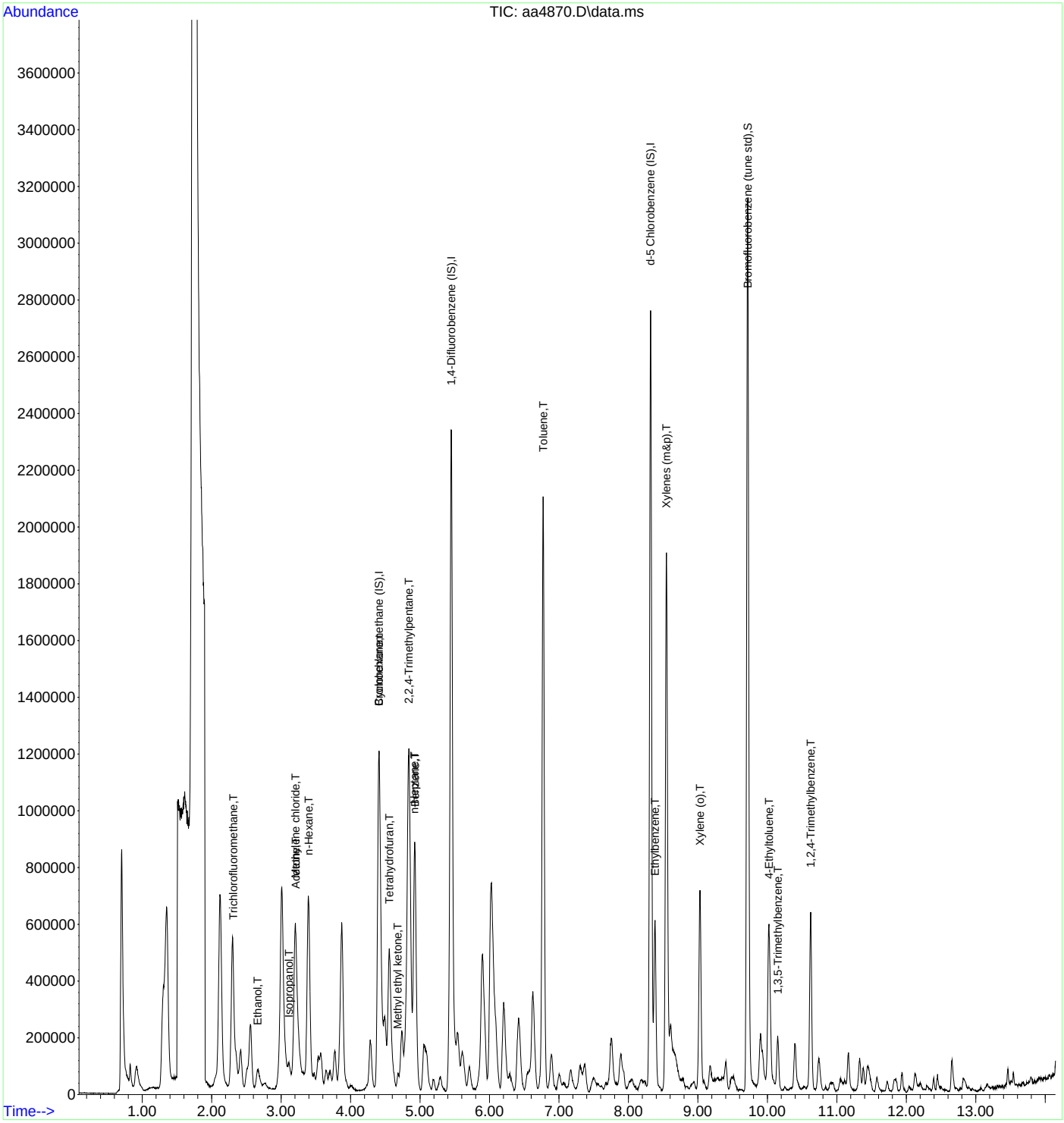
Quant Time: Dec 13 12:53:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

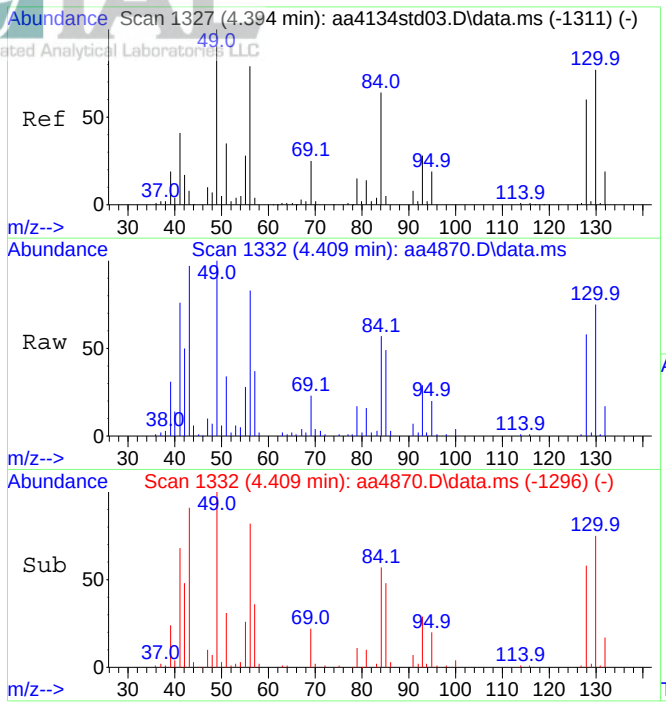
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.409	130	368396	10.00	ppbV		0.015
39) 1,4-Difluorobenzene (IS)	5.451	114	1818981	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1692684	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.717	95	1387863	9.41	ppbV		0.000
Target Compounds							Qvalue
12) Trichlorofluoromethane	2.313	101	33879	0.33	ppbV		90
13) Ethanol	2.663	45	109072	10.11	ppbV		99
19) Isopropanol	3.113	45	208075	2.82	ppbV	#	70
20) Methylene chloride	3.206	49	125882	2.78	ppbV	#	7
21) Acetone	3.213	43	562689	10.13	ppbV		99
24) n-Hexane	3.396	57	444919	3.83	ppbV		97
29) Cyclohexane	4.409	56	279096	3.44	ppbV	#	74
33) Tetrahydrofuran	4.557	42	49663	0.90	ppbV	#	75
35) Methyl ethyl ketone	4.679	43	75094	0.83	ppbV		98
36) n-Heptane	4.917	43	341229	3.35	ppbV		97
37) Benzene	4.930	78	338080	2.31	ppbV		95
41) 2,2,4-Trimethylpentane	4.840	57	1725941	7.28	ppbV		95
47) Toluene	6.772	91	1825367	7.14	ppbV		100
58) Ethylbenzene	8.383	91	499733	1.60	ppbV		99
59) Xylenes (m&p)	8.547	91	1368186	5.92	ppbV		97
60) Xylene (o)	9.029	91	512360	2.03	ppbV		97
67) 4-Ethyltoluene	10.023	105	521383	1.43	ppbV		99
69) 1,3,5-Trimethylbenzene	10.151	105	130813	0.45	ppbV		99
70) 1,2,4-Trimethylbenzene	10.624	105	434326	1.48	ppbV		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-07-2023\
Data File : aa4870.D
Acq On : 7 Dec 2023 8:30 pm
Operator : jjw
Sample : E23-05061-23
Misc : Dup of E23-05061-03, Can # 3045A
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Dec 13 12:53:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

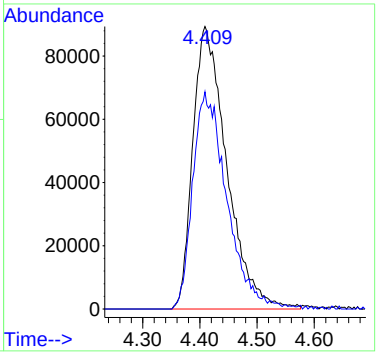


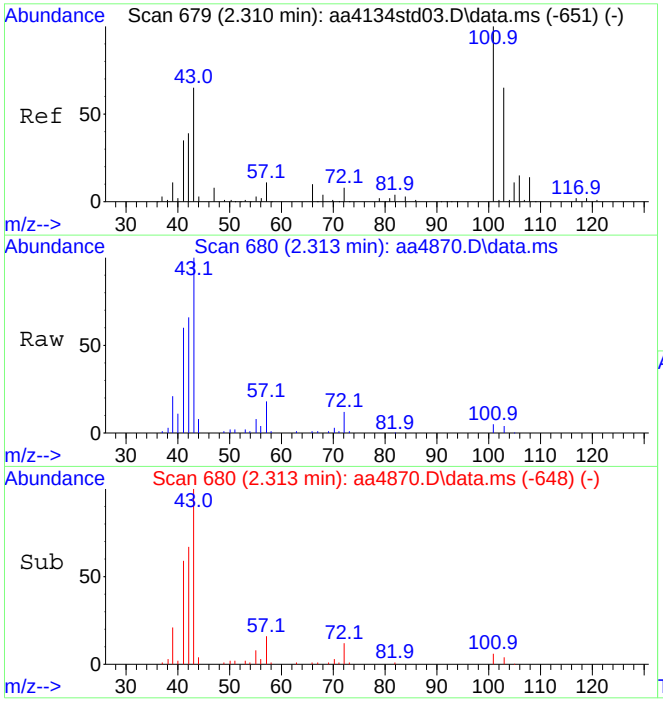


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.409 min Scan# 1332
Delta R.T. 0.015 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:130 Resp: 368396

Ion	Ratio	Lower	Upper
130	100		
128	76.6	62.2	93.4

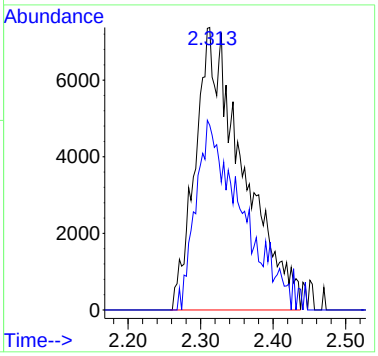


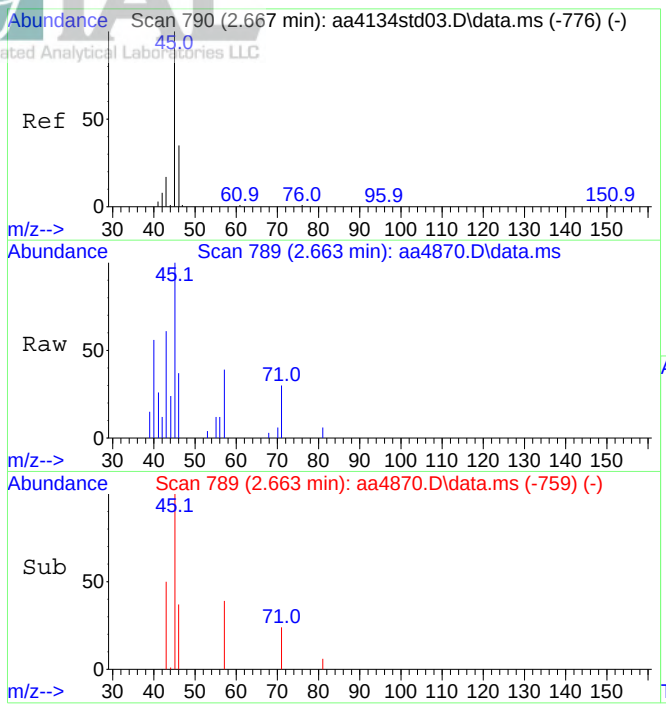


#12
Trichlorofluoromethane
Concen: 0.33 ppbV
RT: 2.313 min Scan# 680
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:101 Resp: 33879

Ion	Ratio	Lower	Upper
101	100		
103	57.5	52.5	78.7

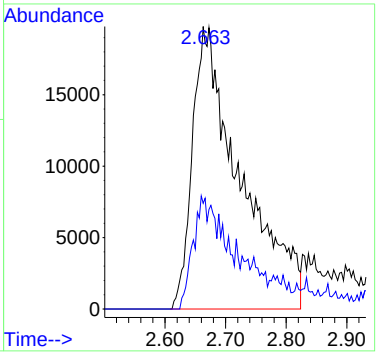


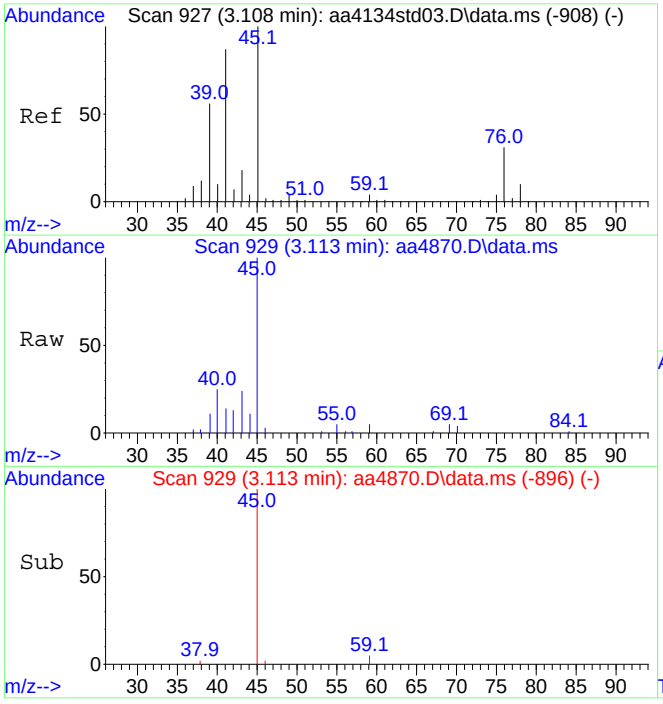


#13
Ethanol
Concen: 10.11 ppbV
RT: 2.663 min Scan# 789
Delta R.T. -0.004 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 45 Resp: 109072

Ion	Ratio	Lower	Upper
45	100		
46	37.9	30.0	45.0

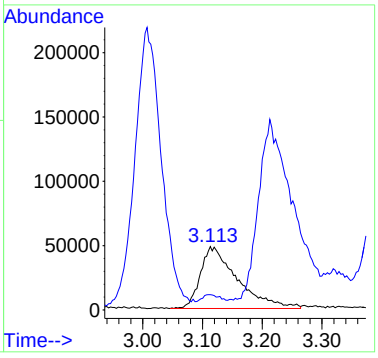


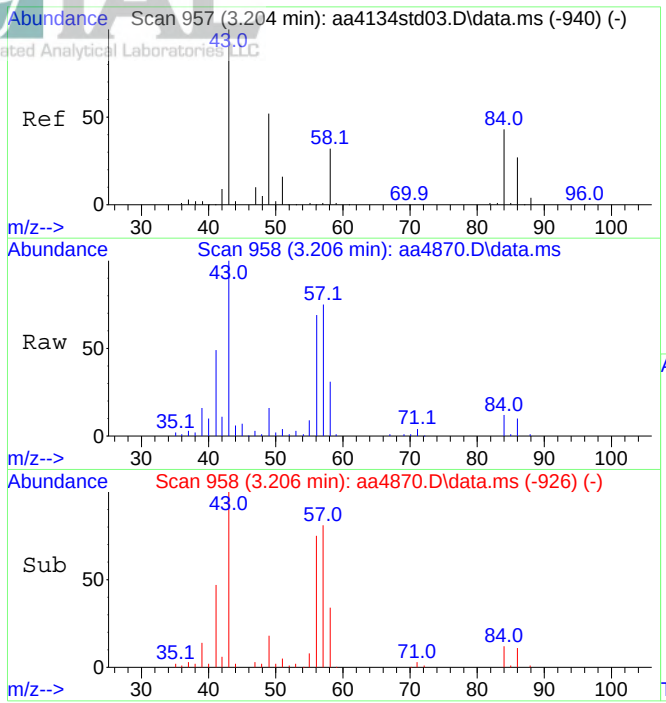


#19
Isopropanol
Concen: 2.82 ppbV
RT: 3.113 min Scan# 929
Delta R.T. 0.005 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 45 Resp: 208075

Ion	Ratio	Lower	Upper
45	100		
43	5.0	14.6	21.8#

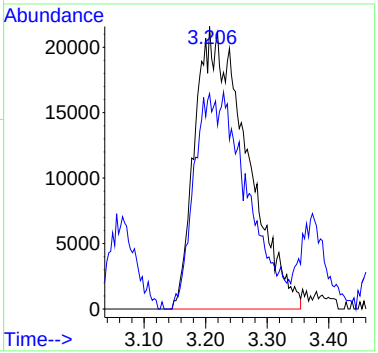


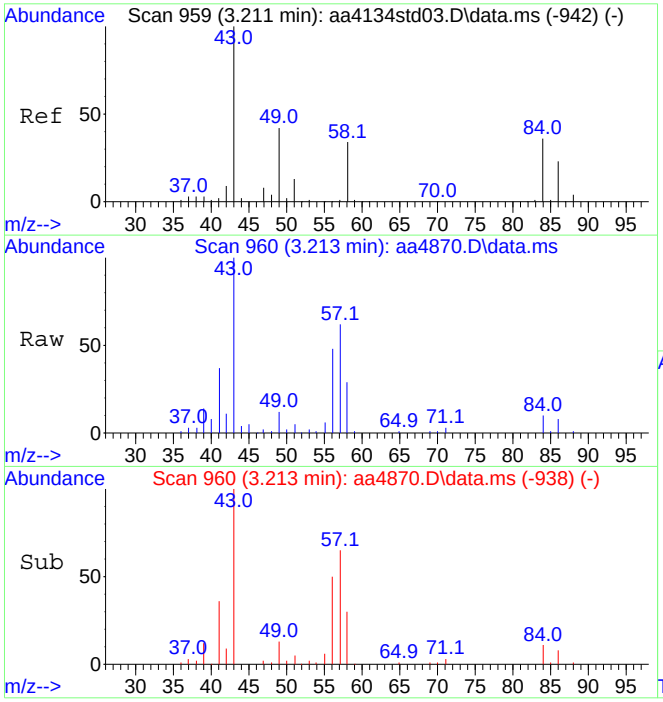


#20
Methylene chloride
Concen: 2.78 ppbV
RT: 3.206 min Scan# 958
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 49 Resp: 125882

Ion	Ratio	Lower	Upper
49	100		
84	0.0	64.8	104.8#

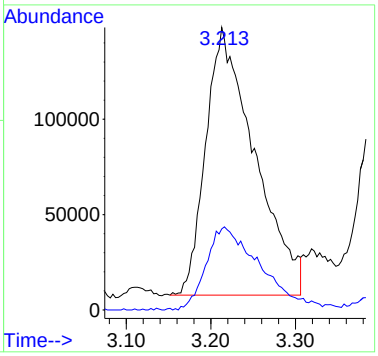


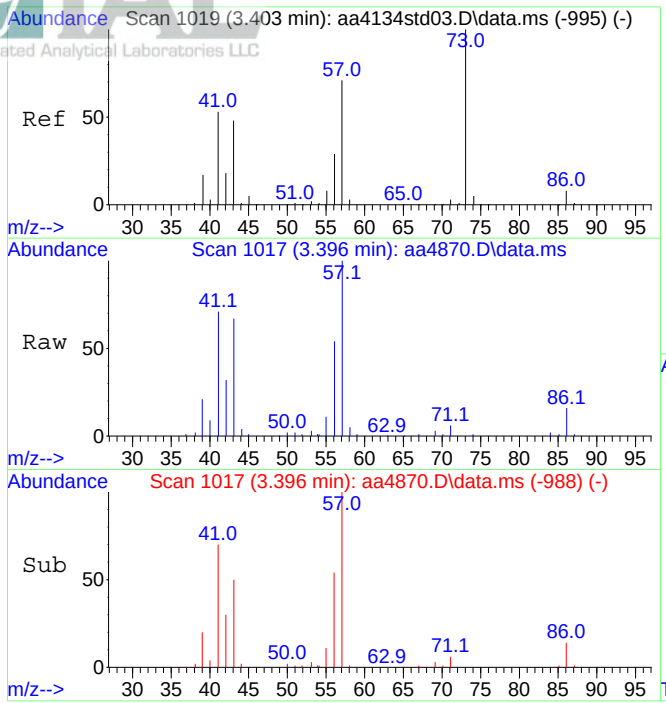


#21
Acetone
Concen: 10.13 ppbV
RT: 3.213 min Scan# 960
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 43 Resp: 562689

Ion	Ratio	Lower	Upper
43	100		
58	33.1	27.1	40.7

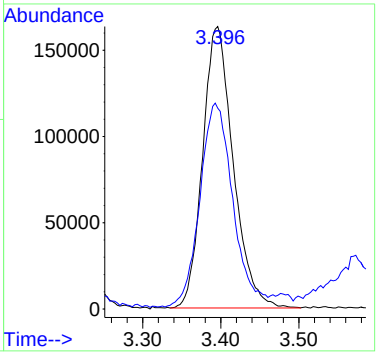


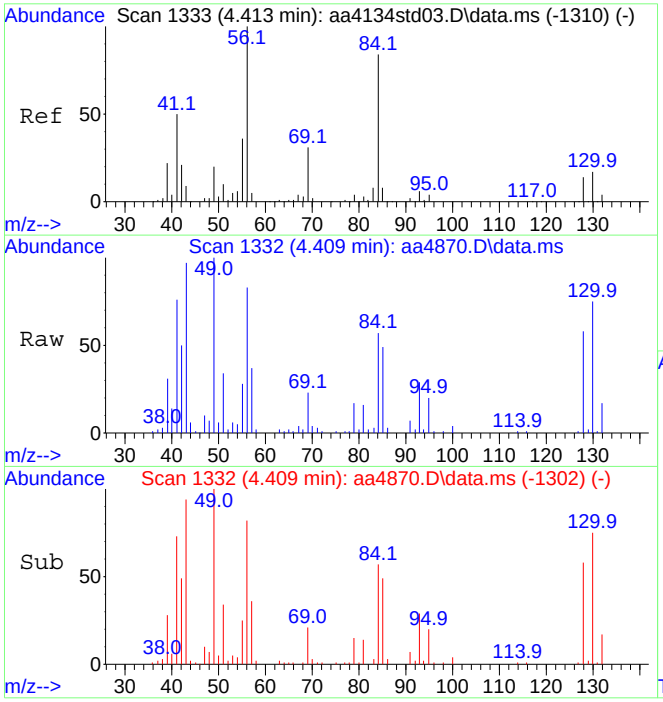


#24
n-Hexane
Concen: 3.83 ppbV
RT: 3.396 min Scan# 1017
Delta R.T. -0.007 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 57 Resp: 444919

Ion	Ratio	Lower	Upper
57	100		
41	80.6	66.4	99.6

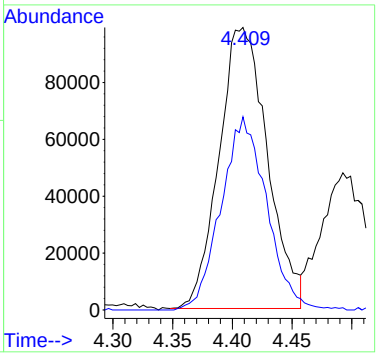


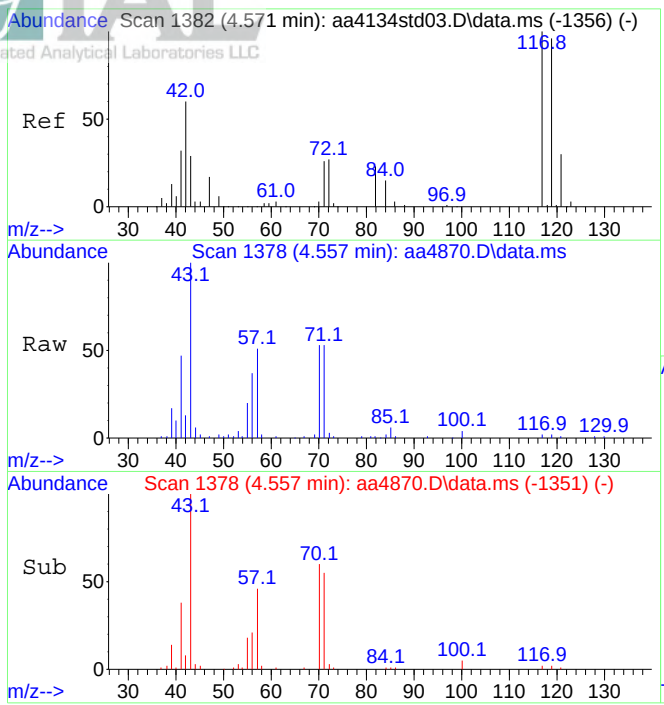


#29
Cyclohexane
Concen: 3.44 ppbV
RT: 4.409 min Scan# 1332
Delta R.T. -0.004 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 56 Resp: 279096

Ion	Ratio	Lower	Upper
56	100		
84	64.4	71.2	106.8#

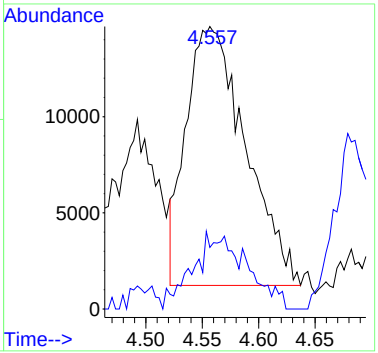


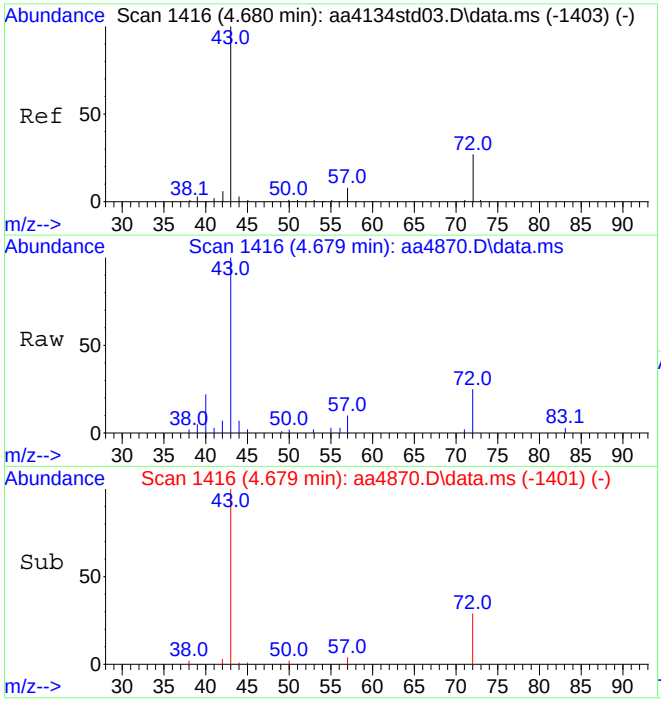


#33
Tetrahydrofuran
Concen: 0.90 ppbV
RT: 4.557 min Scan# 1378
Delta R.T. -0.014 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 42 Resp: 49663

Ion	Ratio	Lower	Upper
42	100		
72	26.4	33.8	50.8#

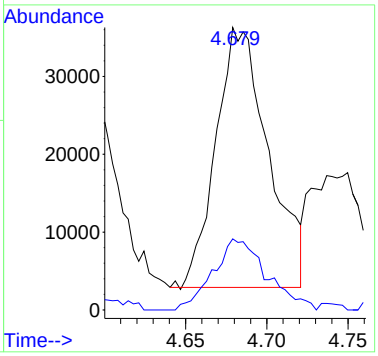


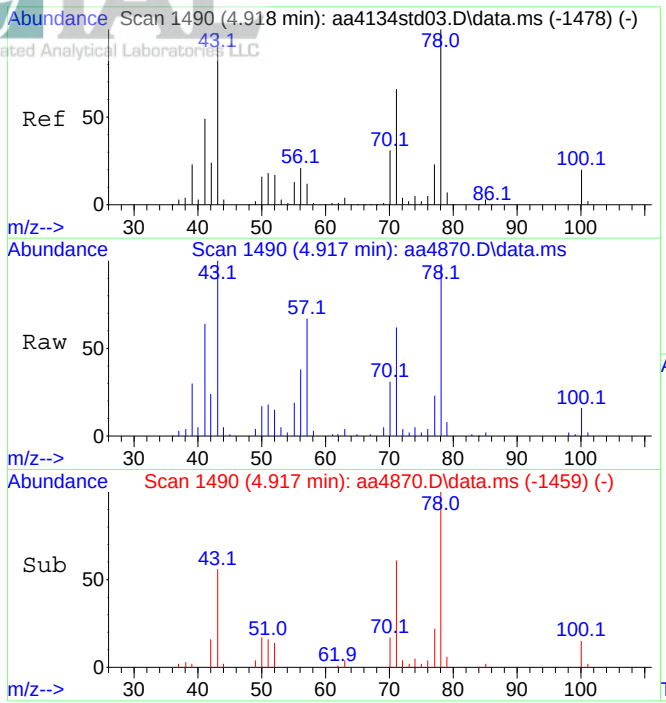


#35
Methyl ethyl ketone
Concen: 0.83 ppbV
RT: 4.679 min Scan# 1416
Delta R.T. -0.001 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 43 Resp: 75094

Ion	Ratio	Lower	Upper
43	100		
72	27.9	21.6	32.4

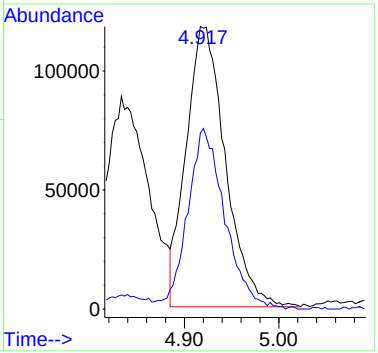


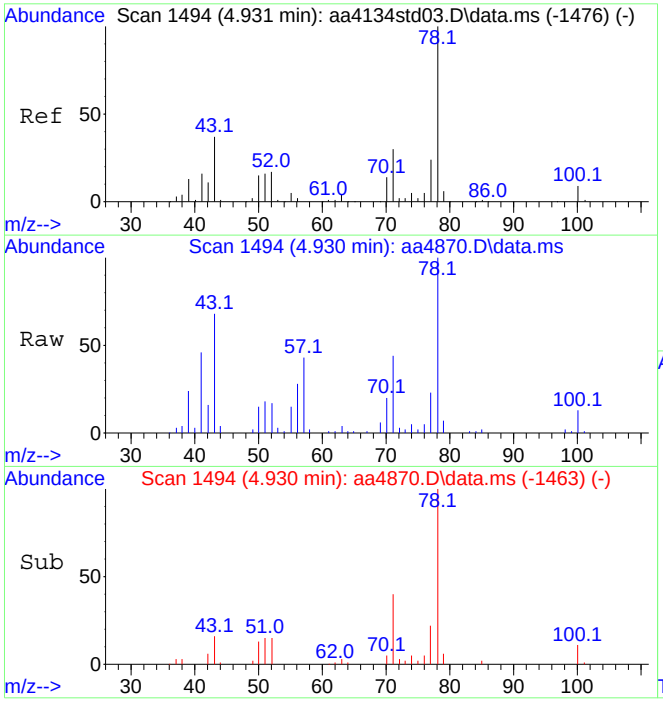


#36
n-Heptane
Concen: 3.35 ppbV
RT: 4.917 min Scan# 1490
Delta R.T. -0.001 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 43 Resp: 341229

Ion	Ratio	Lower	Upper
43	100		
71	61.1	50.5	75.7

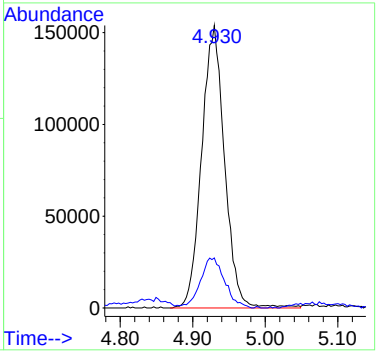


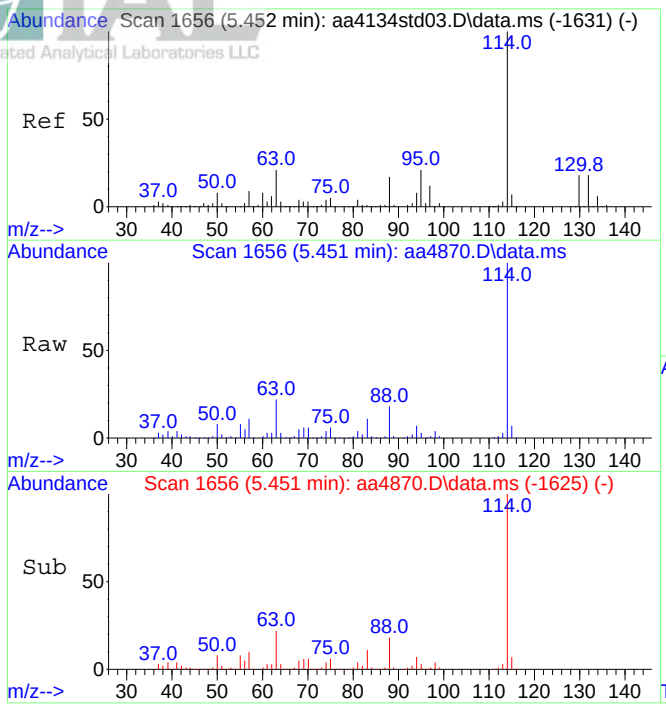


#37
Benzene
Concen: 2.31 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. -0.001 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 78 Resp: 338080

Ion	Ratio	Lower	Upper
78	100		
51	18.8	13.4	20.0

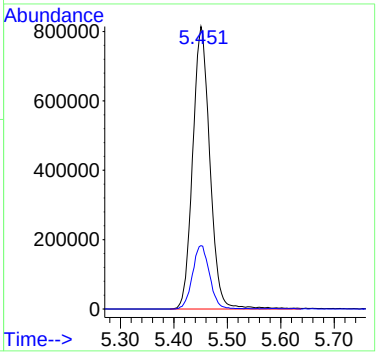


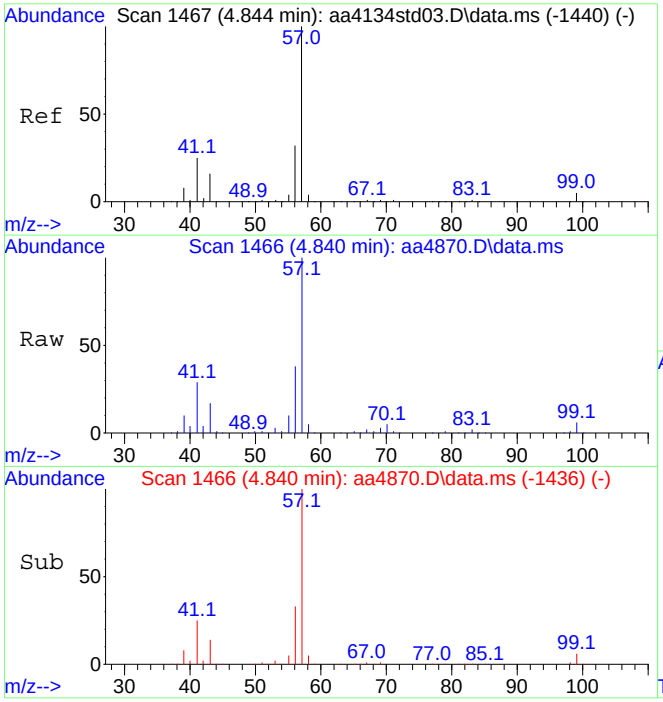


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.451 min Scan# 1656
Delta R.T. -0.001 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:114 Resp: 1818981

Ion	Ratio	Lower	Upper
114	100		
63	22.3	17.0	25.6

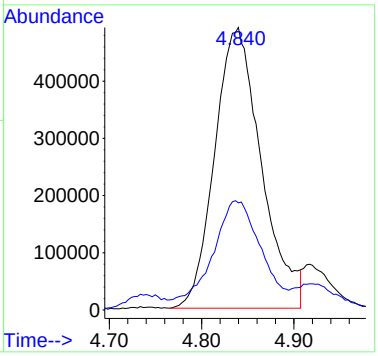


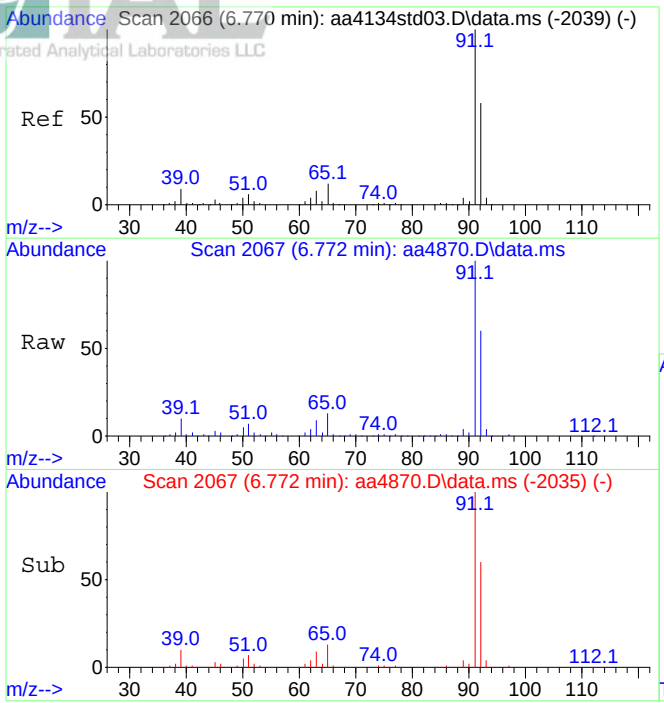


#41
2,2,4-Trimethylpentane
Concen: 7.28 ppbV
RT: 4.840 min Scan# 1466
Delta R.T. -0.004 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 57 Resp: 1725941

Ion	Ratio	Lower	Upper
57	100		
56	34.7	25.7	38.5

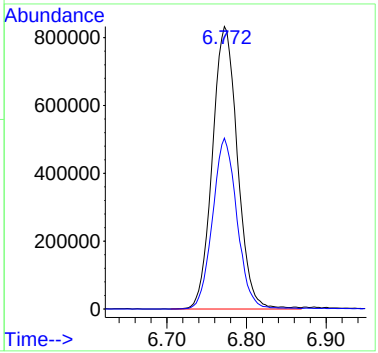


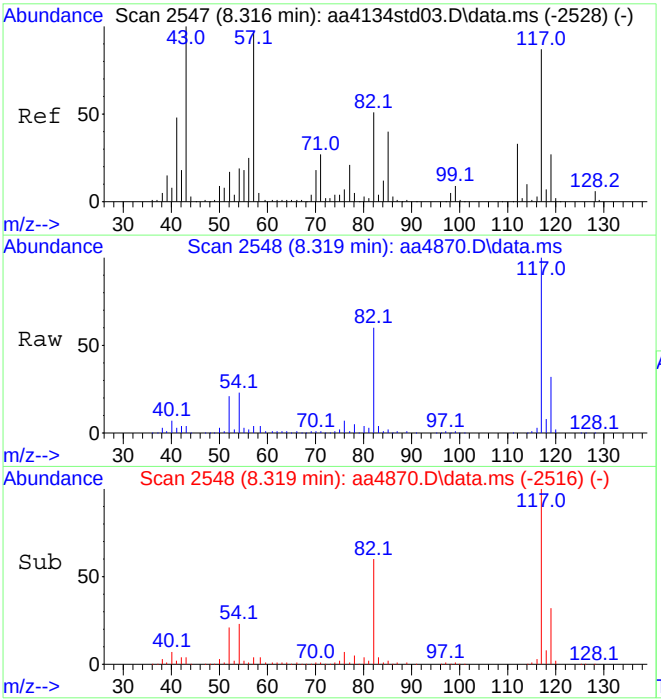


#47
Toluene
Concen: 7.14 ppbV
RT: 6.772 min Scan# 2067
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 91 Resp: 1825367

Ion	Ratio	Lower	Upper
91	100		
92	59.2	47.3	70.9

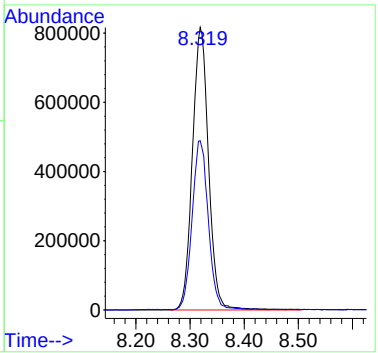


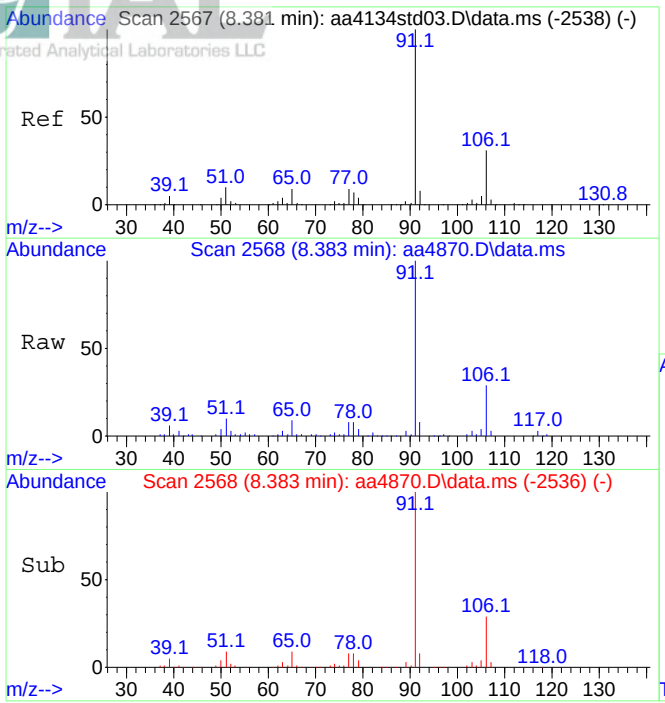


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:117 Resp: 1692684

Ion	Ratio	Lower	Upper
117	100		
82	59.7	47.0	70.4

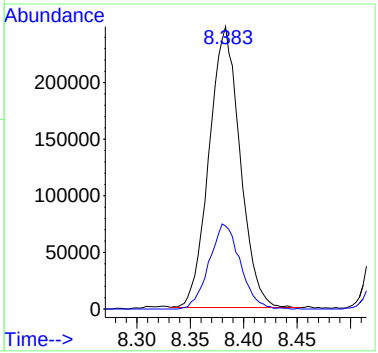


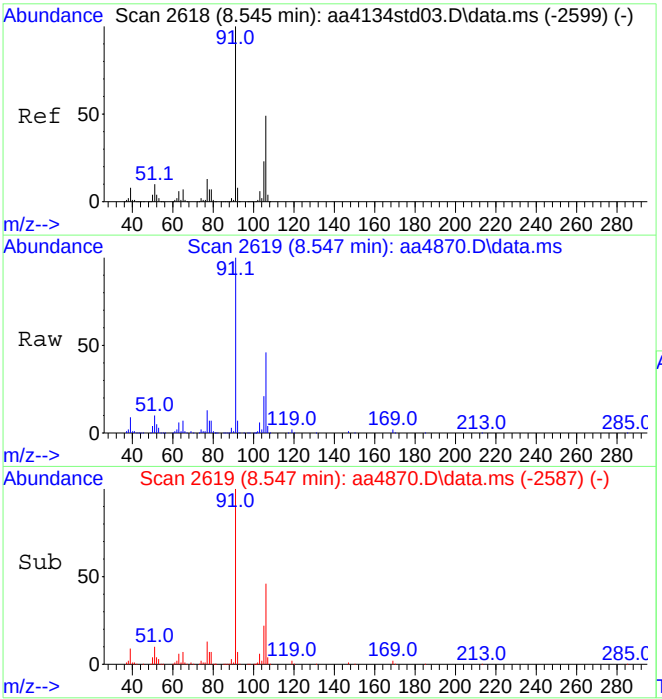


#58
Ethylbenzene
Concen: 1.60 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 91 Resp: 499733

Ion	Ratio	Lower	Upper
91	100		
106	30.4	24.6	36.8

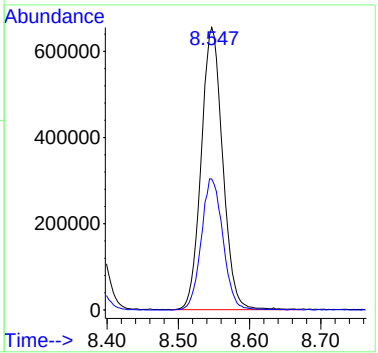


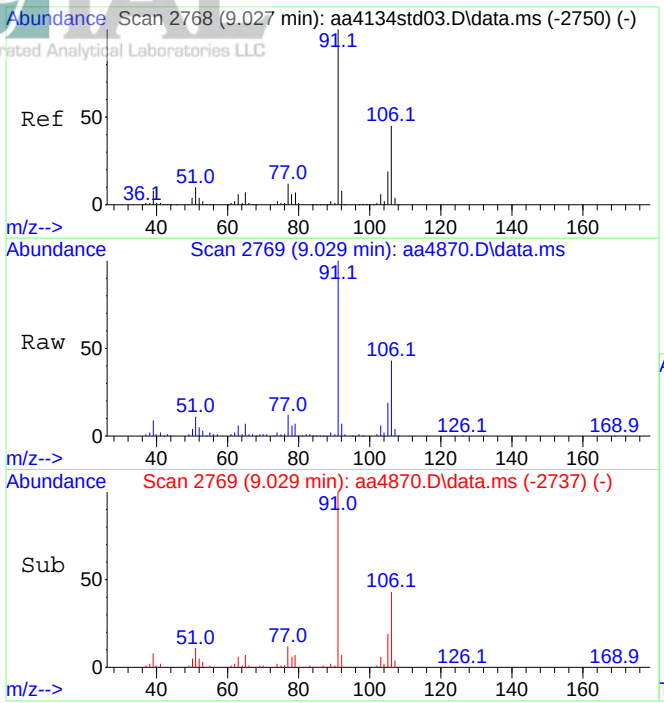


#59
Xylenes (m&p)
Concen: 5.92 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 91 Resp: 1368186

Ion	Ratio	Lower	Upper
91	100		
106	47.0	39.0	58.4

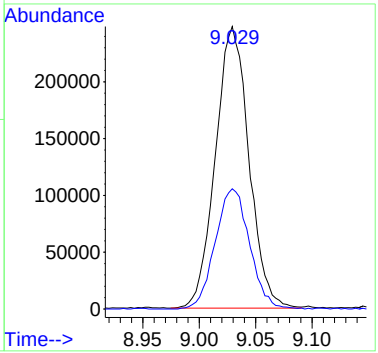


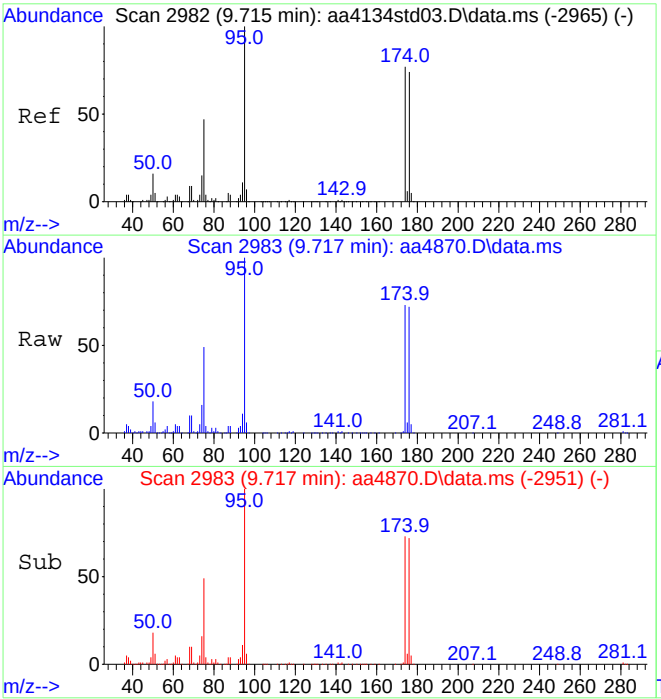


#60
Xylene (o)
Concen: 2.03 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 91 Resp: 512360

Ion	Ratio	Lower	Upper
91	100		
106	43.7	36.8	55.2

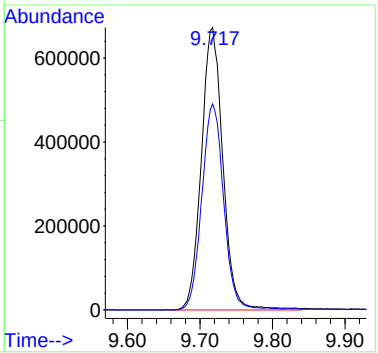


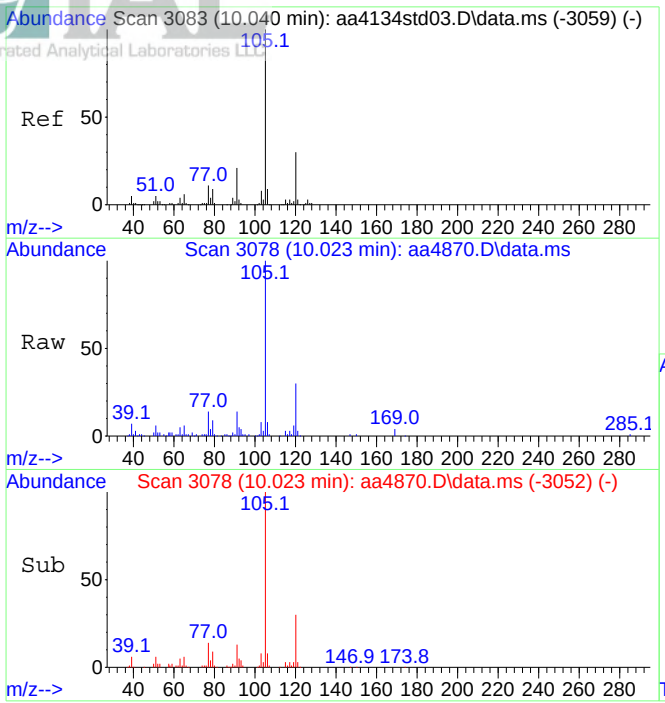


#64
Bromofluorobenzene (tune std)
Concen: 9.41 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 95 Resp: 1387863

Ion	Ratio	Lower	Upper
95	100		
174	74.3	61.1	91.7

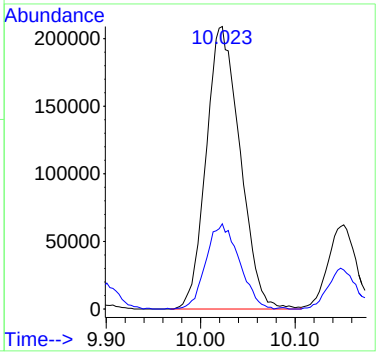


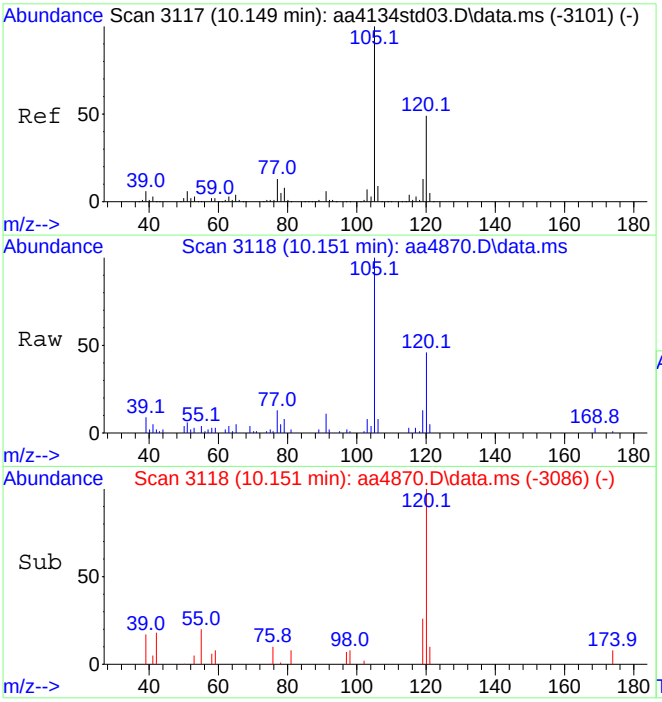


#67
4-Ethyltoluene
Concen: 1.43 ppbV
RT: 10.023 min Scan# 3078
Delta R.T. -0.017 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:105 Resp: 521383

Ion	Ratio	Lower	Upper
105	100		
120	29.6	23.4	35.2

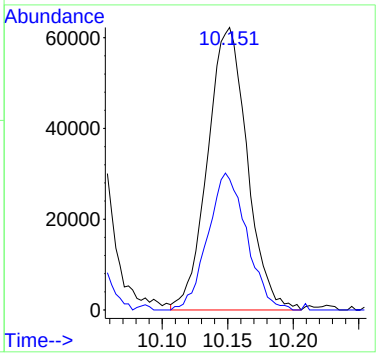


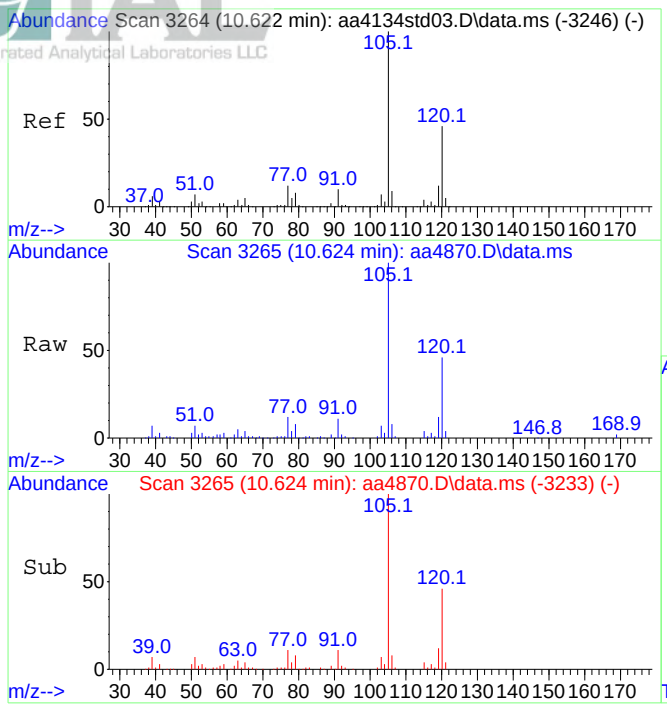


#69
1,3,5-Trimethylbenzene
Concen: 0.45 ppbV
RT: 10.151 min Scan# 3118
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:105 Resp: 130813

Ion	Ratio	Lower	Upper
105	100		
120	47.7	38.9	58.3

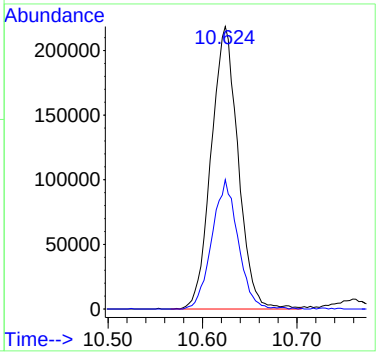




#70
1,2,4-Trimethylbenzene
Concen: 1.48 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:105 Resp: 434326

Ion	Ratio	Lower	Upper
105	100		
120	44.2	36.3	54.5



INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SDG Number:	E23-05079	Date Received:	11/20/23
IAL Sample ID:	E23-05079-03	Date Analyzed:	12/12/23,12/12/23
Matrix:	Air	Lab Data File#:	AA4929,AA4930
Summa ID:	3830	Dilution Factor:	1
		Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**6.1**		**5.9**		0.40	**3.33%**
Allyl Chloride	107-05-1	0.40	U	0.40	U	0.40	0.00%
Benzene	71-43-2	**0.31**		**0.32**		0.20	**-3.17%**
Bromodichloromethane	75-27-4	0.40	U	0.40	U	0.40	0.00%
Bromoform	75-25-2	0.40	U	0.40	U	0.40	0.00%
Bromomethane	74-83-9	0.40	U	0.40	U	0.40	0.00%
1,3-Butadiene	106-99-0	0.40	U	0.40	U	0.40	0.00%
Chlorobenzene	108-90-7	0.40	U	0.40	U	0.40	0.00%
Chloroethane	75-00-3	0.40	U	0.40	U	0.40	0.00%
Chloroform	67-66-3	0.40	U	0.40	U	0.40	0.00%
Chloromethane	74-87-3	0.40	U	0.40	U	0.40	0.00%
Carbon disulfide	75-15-0	0.40	U	0.40	U	0.40	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.40	U	0.40	U	0.40	0.00%
Cyclohexane	110-82-7	0.40	U	0.40	U	0.40	0.00%
Dibromochloromethane	124-48-1	0.40	U	0.40	U	0.40	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.40	U	0.40	U	0.40	0.00%
1,3-Dichlorobenzene	541-73-1	0.40	U	0.40	U	0.40	0.00%
1,4-Dichlorobenzene	106-46-7	0.40	U	0.40	U	0.40	0.00%
Dichlorodifluoromethane	75-71-8	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethane	75-34-3	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethane	107-06-2	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethene	75-35-4	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.40	U	0.40	U	0.40	0.00%
Ethylbenzene	100-41-4	0.20	U	0.20	U	0.20	0.00%
4-Ethyltoluene	622-96-8	0.40	U	0.40	U	0.40	0.00%
n-Heptane	142-82-5	0.40	U	0.40	U	0.40	0.00%
1,3-Hexachlorobutadiene	87-68-3	0.40	U	0.40	U	0.40	0.00%
n-Hexane	110-54-3	0.40	U	0.40	U	0.40	0.00%
Methylene chloride	75-09-2	**3.5**		**3.4**		0.40	**2.90%**
Methyl ethyl ketone	78-93-3	0.40	U	0.40	U	0.40	0.00%
Methyl isobutyl ketone	108-10-1	0.40	U	0.40	U	0.40	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/20/23
SDG Number:	E23-05079	Date Analyzed:	12/12/23,12/12/23
IAL Sample ID:	E23-05079-03	Lab Data File#:	AA4929,AA4930
Matrix:	Air	Dilution Factor:	1
Summa ID:	3830	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	0.40	U	0.40	U	0.40	0.00%
Styrene	100-42-5	0.40	U	0.40	U	0.40	0.00%
Tert-butyl alcohol	75-65-0	0.40	U	0.40	U	0.40	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.40	U	0.40	U	0.40	0.00%
Tetrachloroethene	127-18-4	0.40	U	0.40	U	0.40	0.00%
Toluene	108-88-3	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trichlorobenzene	120-82-1	0.40	U	0.40	U	0.40	0.00%
1,1,1-Trichloroethane	71-55-6	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloroethane	79-00-5	0.40	U	0.40	U	0.40	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trimethylbenzene	95-63-6	0.40	U	0.40	U	0.40	0.00%
1,3,5-Trimethylbenzene	108-67-8	0.40	U	0.40	U	0.40	0.00%
2,2,4-Trimethylpentane	540-84-1	0.40	U	0.40	U	0.40	0.00%
Vinyl bromide	593-60-2	0.40	U	0.40	U	0.40	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	0.40	U	0.40	U	0.40	0.00%
Xylenes (o)	95-47-6	0.40	U	0.40	U	0.40	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4929.D
Acq On : 12 Dec 2023 12:58 am
Operator : jjw
Sample : E23-05079-03
Misc : 3830, 500cc
ALS Vial : 32 Sample Multiplier: 1

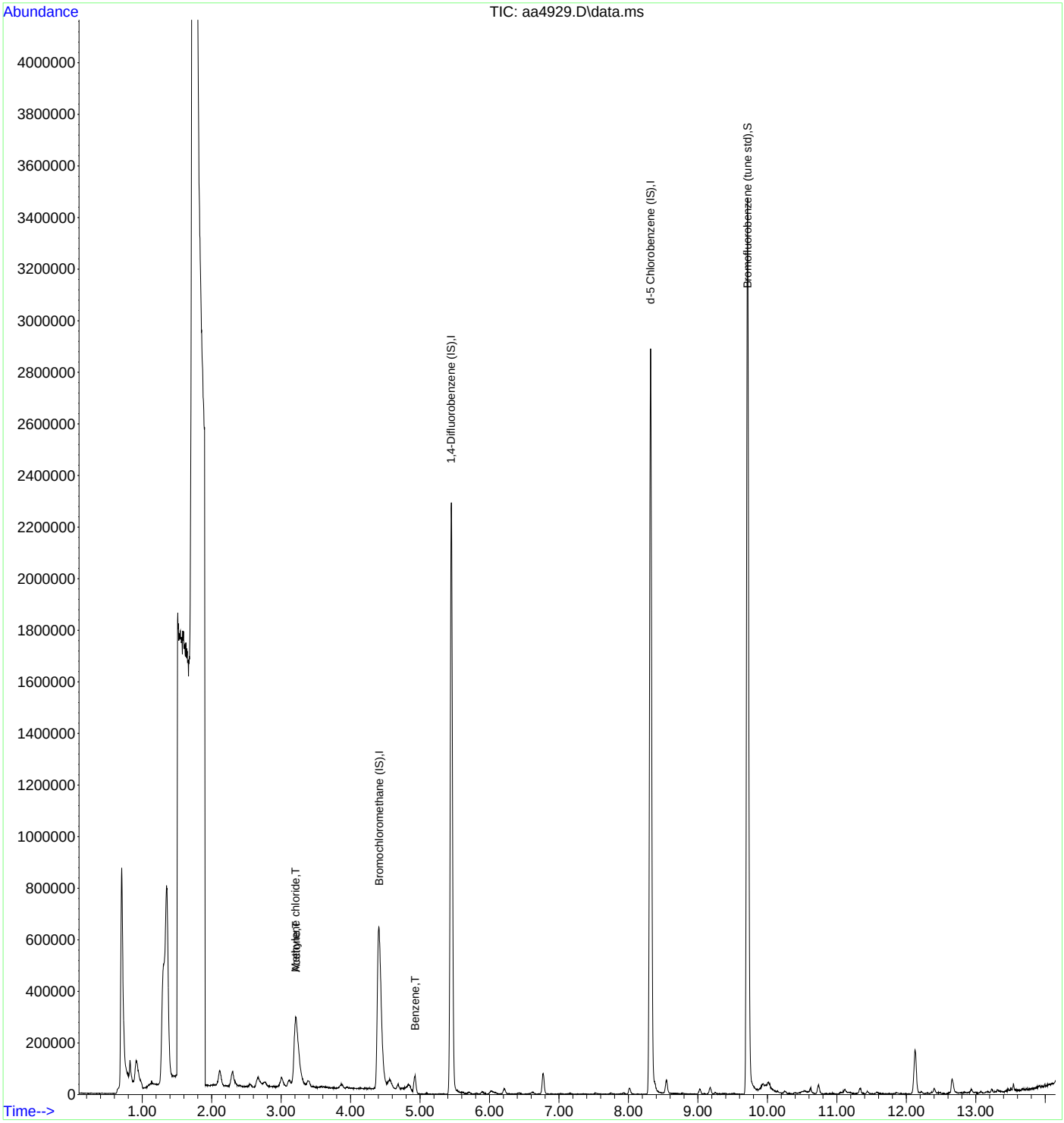
Quant Time: Dec 13 11:23:02 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

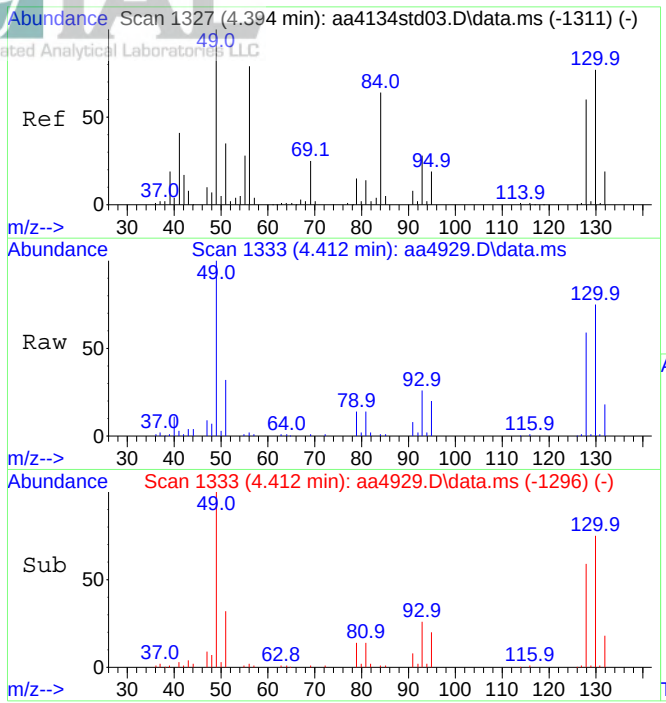
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.412	130	441232	10.00	ppbV	0.018
39) 1,4-Difluorobenzene (IS)	5.448	114	2147334	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1948898	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1597112	9.40	ppbV	0.000
Target Compounds						Qvalue
20) Methylene chloride	3.210	49	190775	3.52	ppbV	93
21) Acetone	3.216	43	404473	6.08	ppbV	99
37) Benzene	4.930	78	54291	0.31	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4929.D
Acq On : 12 Dec 2023 12:58 am
Operator : jjw
Sample : E23-05079-03
Misc : 3830, 500cc
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Dec 13 11:23:02 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

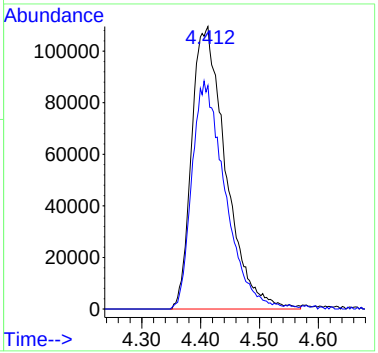


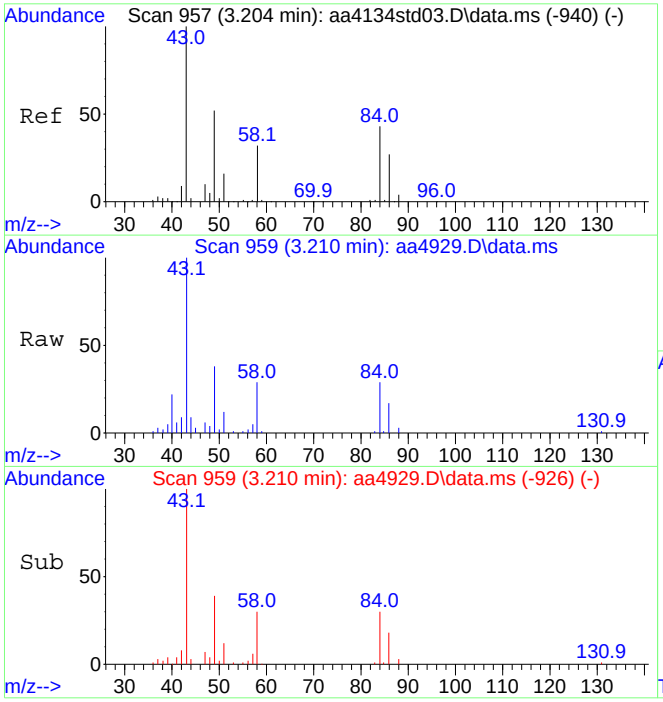


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.412 min Scan# 1333
Delta R.T. 0.018 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion:130 Resp: 441232

Ion	Ratio	Lower	Upper
130	100		
128	78.4	62.2	93.4

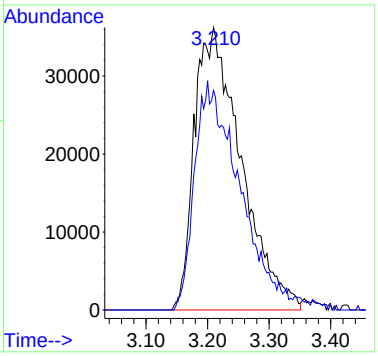


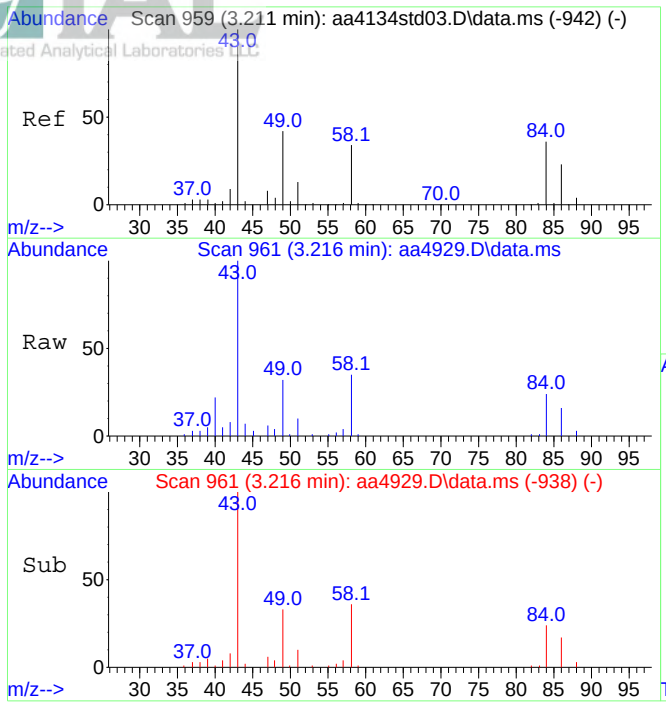


#20
Methylene chloride
Concen: 3.52 ppbV
RT: 3.210 min Scan# 959
Delta R.T. 0.006 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 49 Resp: 190775

Ion	Ratio	Lower	Upper
49	100		
84	78.6	64.8	104.8

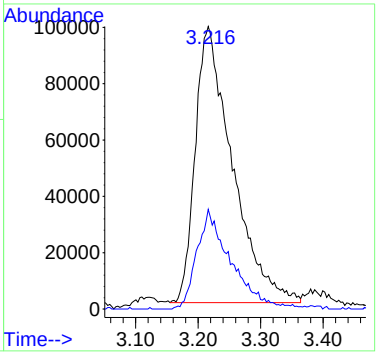


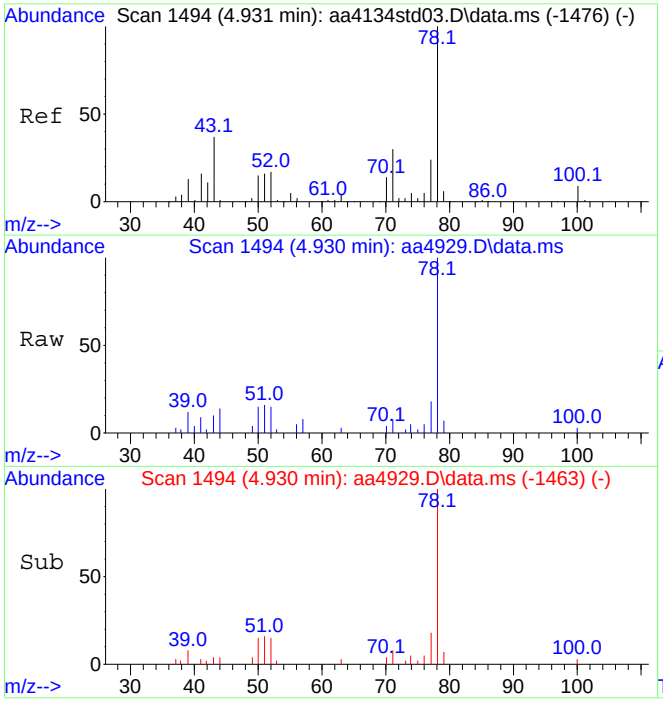


#21
Acetone
Concen: 6.08 ppbV
RT: 3.216 min Scan# 961
Delta R.T. 0.006 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 43 Resp: 404473

Ion	Ratio	Lower	Upper
43	100		
58	33.2	27.1	40.7

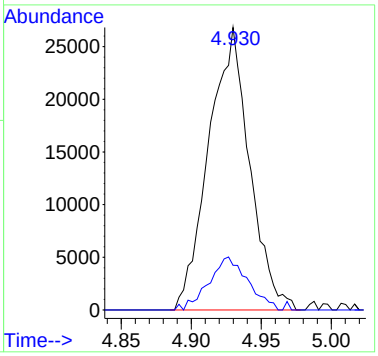


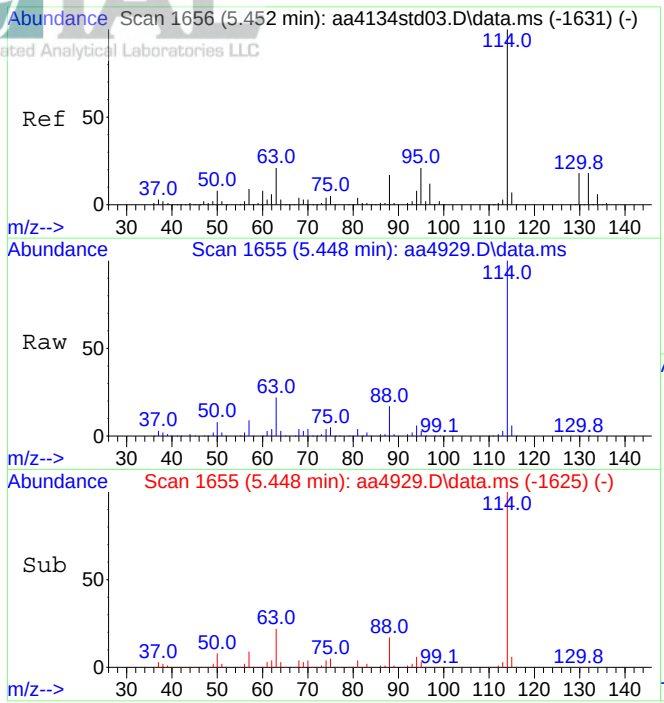


#37
Benzene
Concen: 0.31 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. -0.001 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 78 Resp: 54291

Ion	Ratio	Lower	Upper
78	100		
51	17.9	13.4	20.0

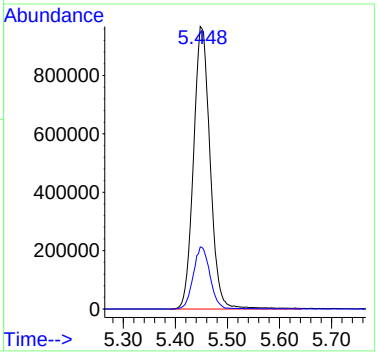


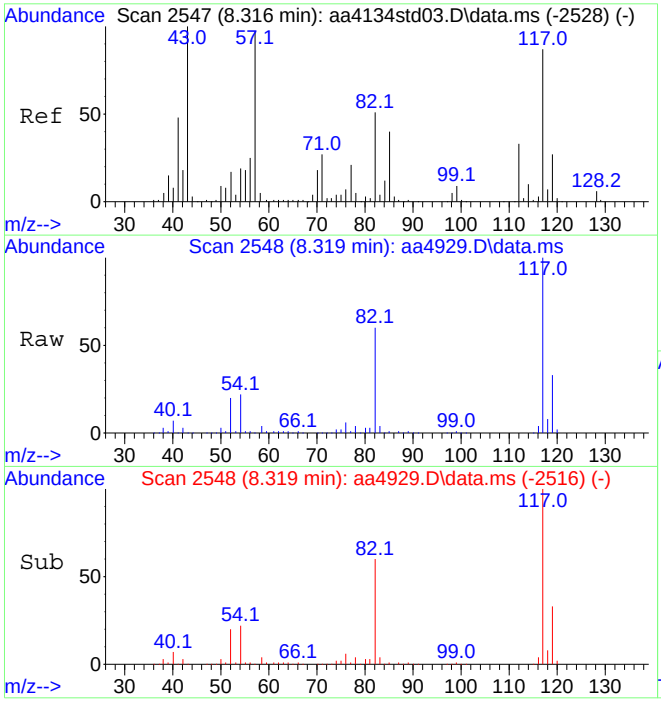


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.448 min Scan# 1655
Delta R.T. -0.004 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion:114 Resp: 2147334

Ion	Ratio	Lower	Upper
114	100		
63	22.0	17.0	25.6

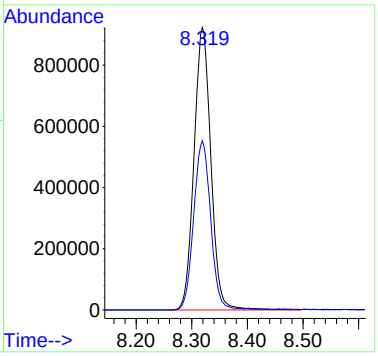


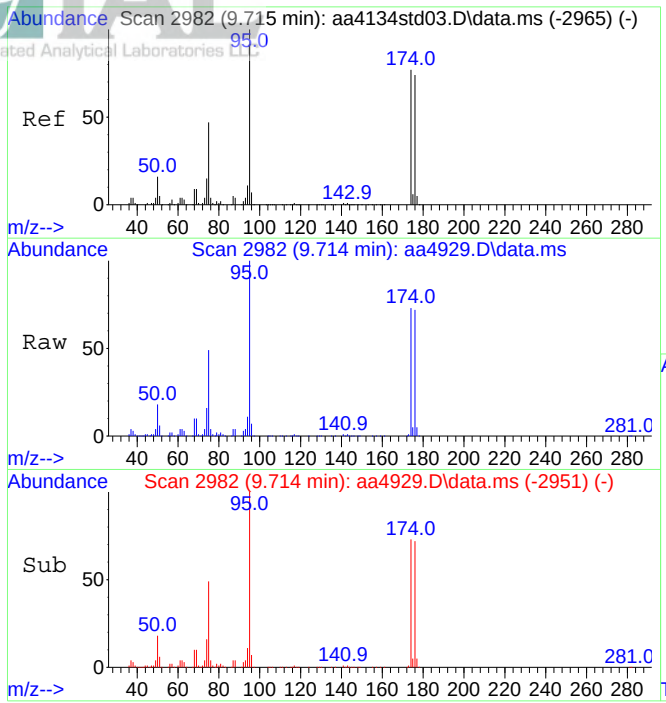


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion:117 Resp: 1948898

Ion	Ratio	Lower	Upper
117	100		
82	60.3	47.0	70.4

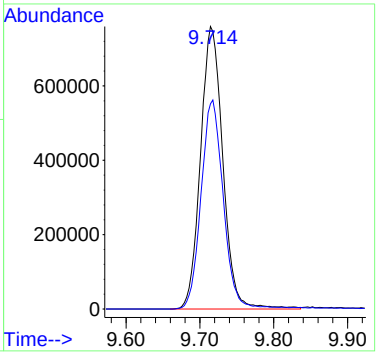




#64
Bromofluorobenzene (tune std)
Concen: 9.40 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 95 Resp: 1597112

Ion	Ratio	Lower	Upper
95	100		
174	74.1	61.1	91.7



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4930.D
Acq On : 12 Dec 2023 1:31 am
Operator : jjw
Sample : E23-05079-23
Misc : Dup of E23-05079-03, Can # 3830
ALS Vial : 33 Sample Multiplier: 1

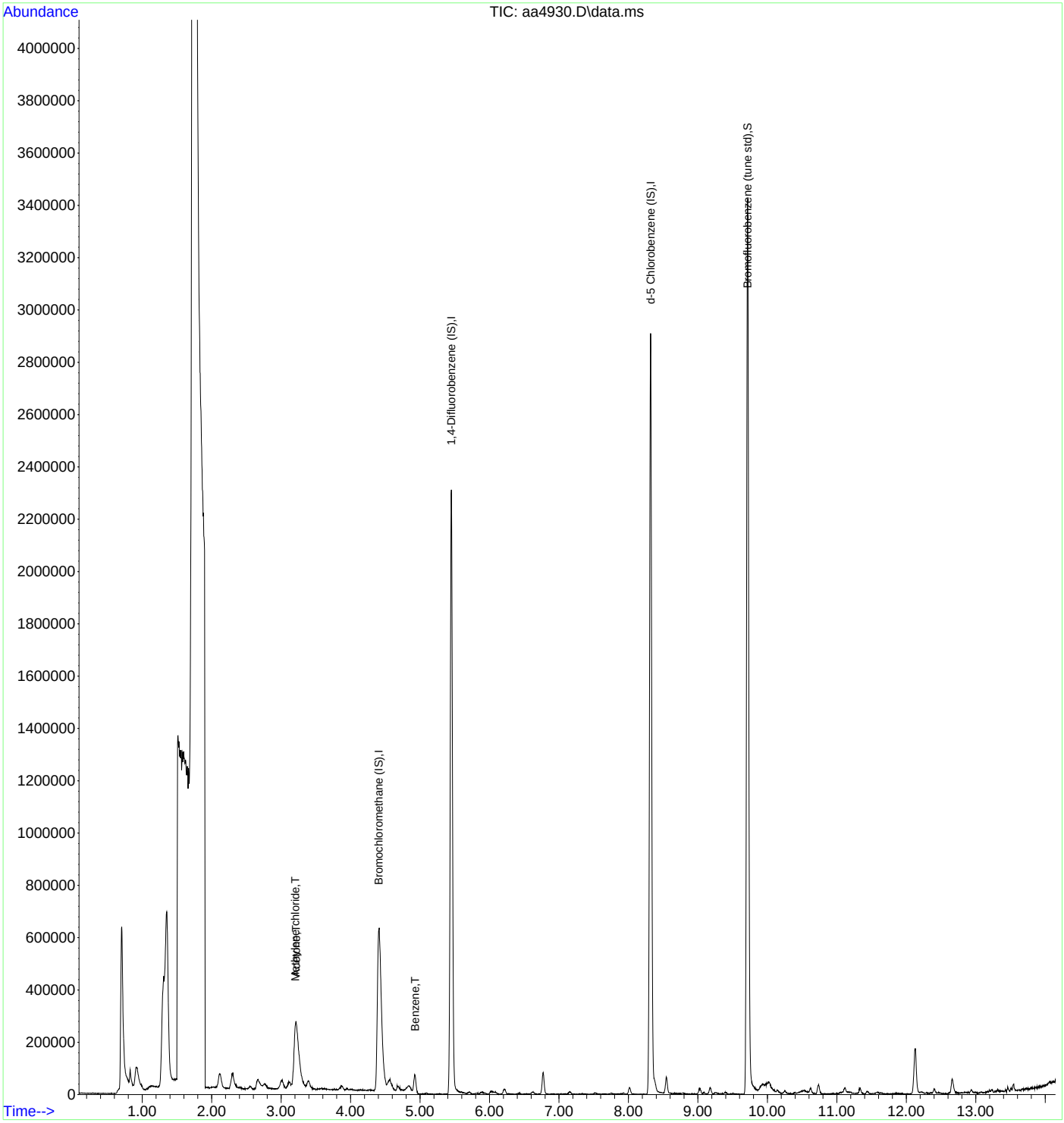
Quant Time: Dec 13 11:24:13 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

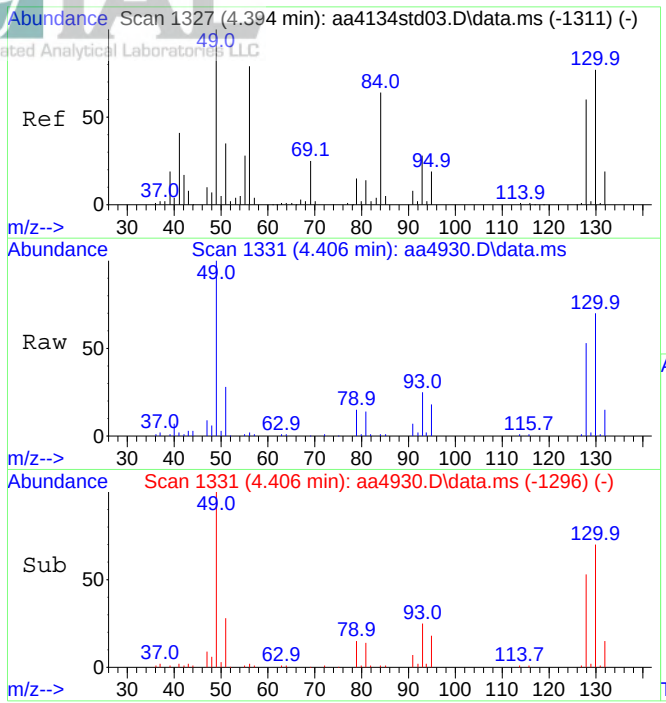
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.406	130	452291	10.00	ppbV	0.012
39) 1,4-Difluorobenzene (IS)	5.451	114	2167232	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.322	117	1931386	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1574669	9.35	ppbV	0.000
Target Compounds						Qvalue
20) Methylene chloride	3.203	49	191374	3.44	ppbV	90
21) Acetone	3.216	43	399825	5.86	ppbV	99
37) Benzene	4.930	78	56929	0.32	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4930.D
Acq On : 12 Dec 2023 1:31 am
Operator : jjw
Sample : E23-05079-23
Misc : Dup of E23-05079-03, Can # 3830
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Dec 13 11:24:13 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

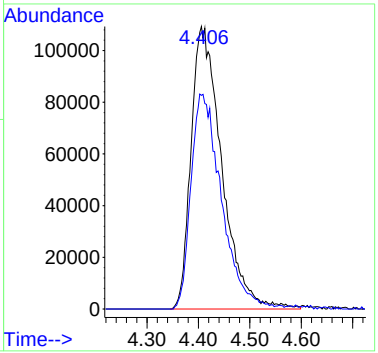


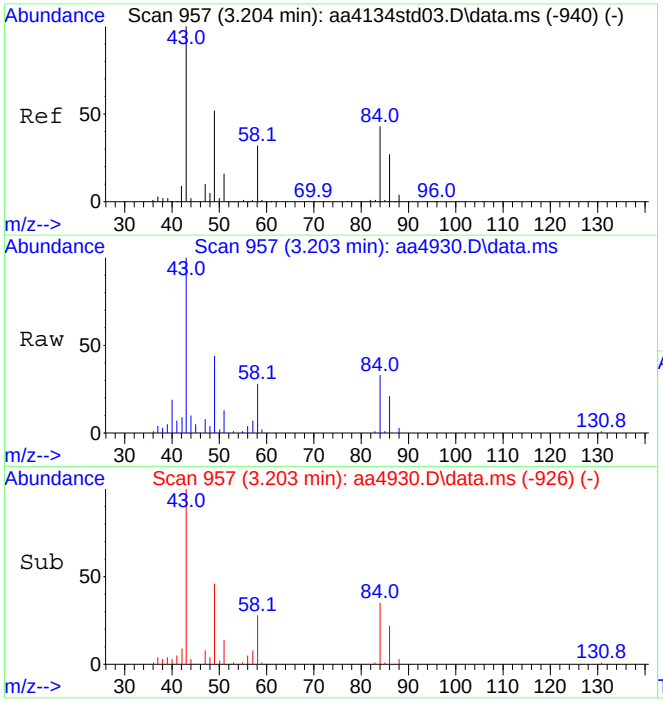


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.406 min Scan# 1331
Delta R.T. 0.012 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion:130 Resp: 452291

Ion	Ratio	Lower	Upper
130	100		
128	75.9	62.2	93.4

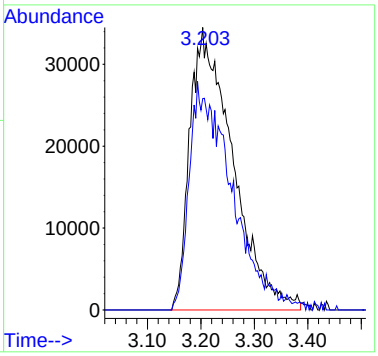


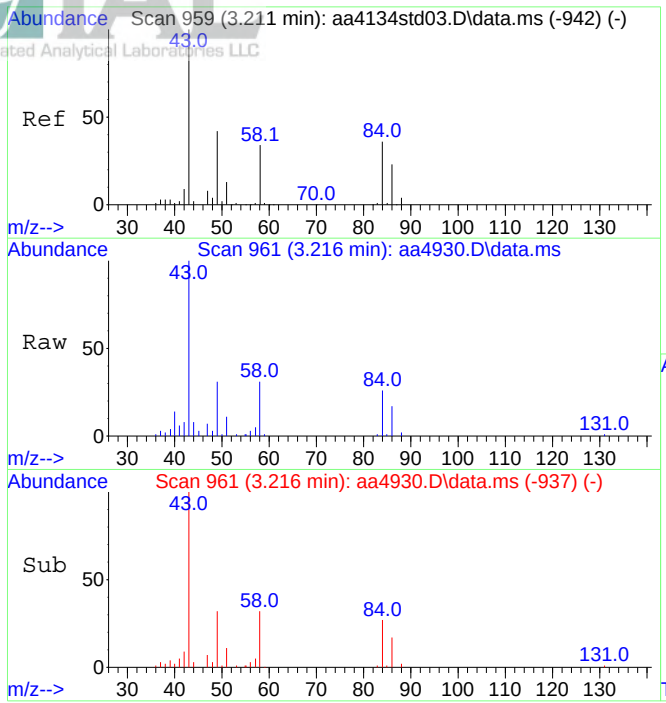


#20
Methylene chloride
Concen: 3.44 ppbV
RT: 3.203 min Scan# 957
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 49 Resp: 191374

Ion	Ratio	Lower	Upper
49	100		
84	76.0	64.8	104.8

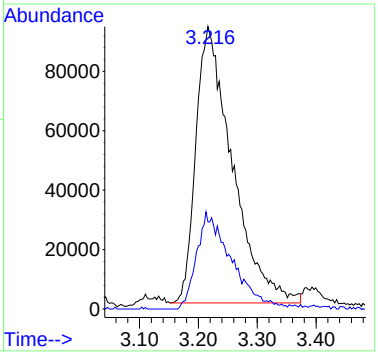


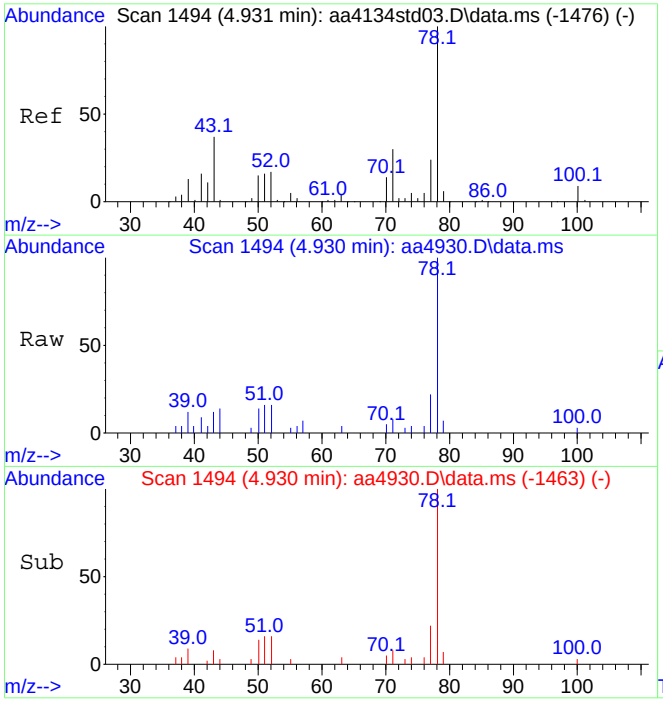


#21
Acetone
Concen: 5.86 ppbV
RT: 3.216 min Scan# 961
Delta R.T. 0.006 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 43 Resp: 399825

Ion	Ratio	Lower	Upper
43	100		
58	33.3	27.1	40.7

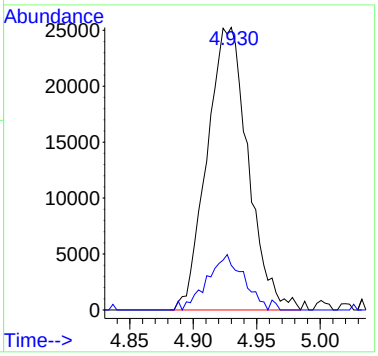


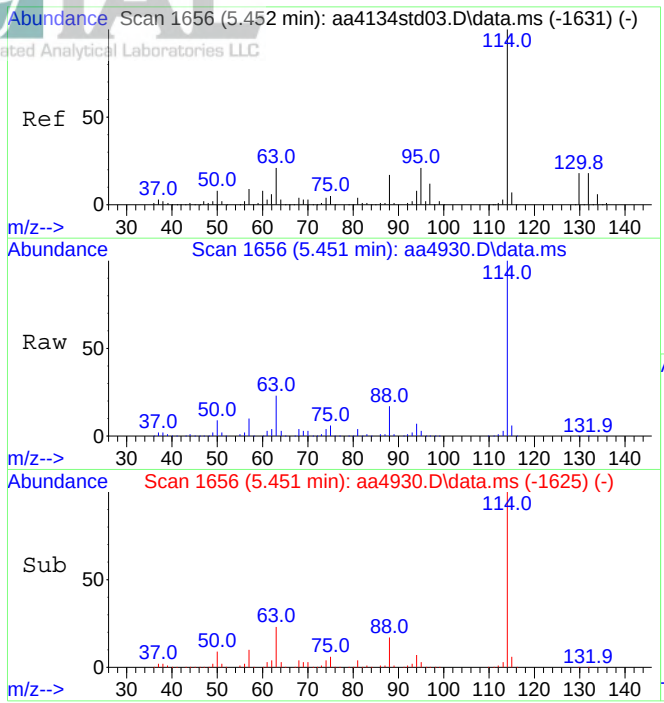


#37
Benzene
Concen: 0.32 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 78 Resp: 56929

Ion	Ratio	Lower	Upper
78	100		
51	17.1	13.4	20.0

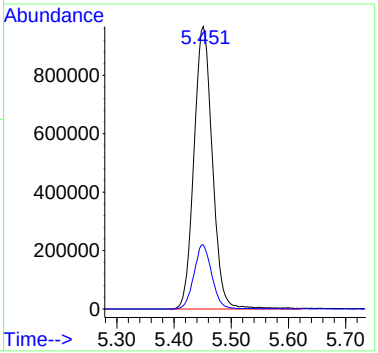


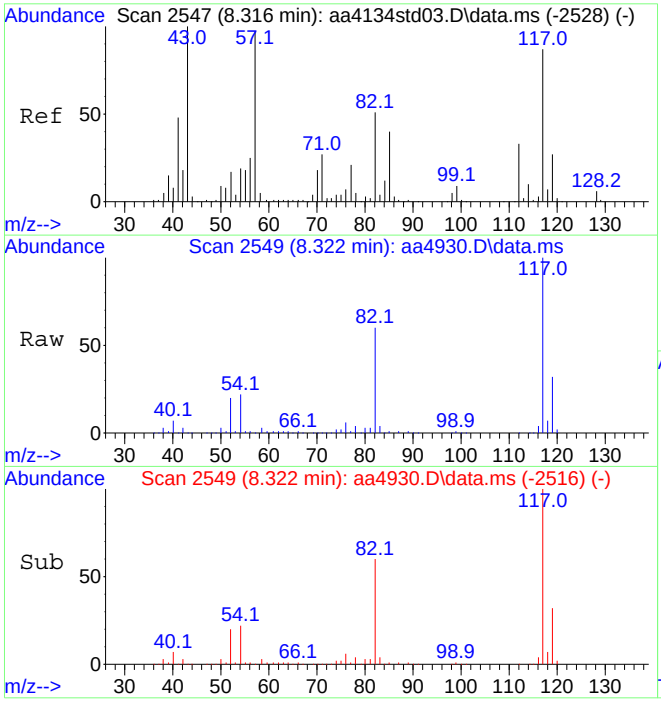


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.451 min Scan# 1656
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion:114 Resp: 2167232

Ion	Ratio	Lower	Upper
114	100		
63	22.0	17.0	25.6

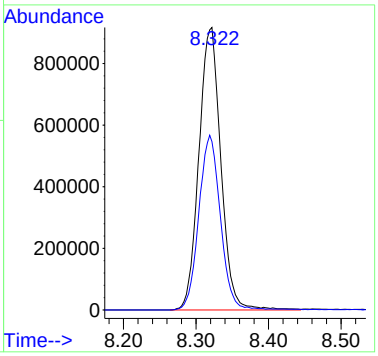


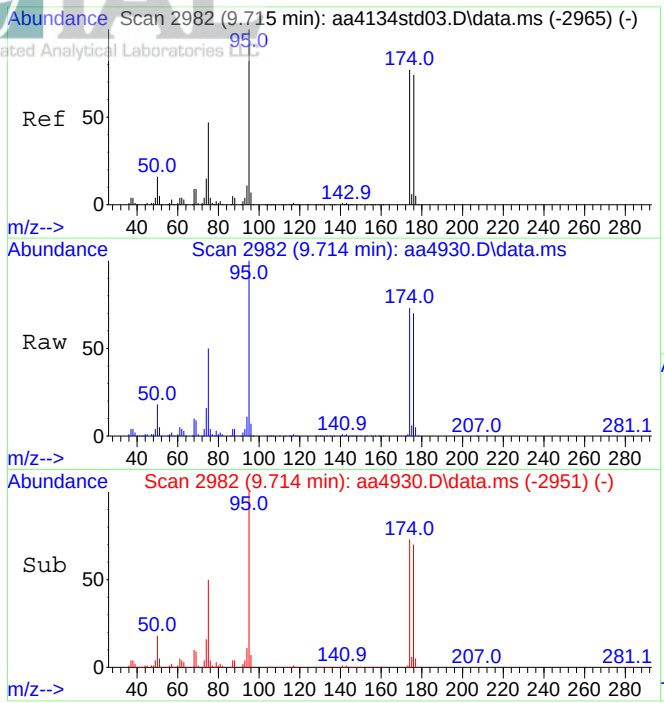


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.322 min Scan# 2549
Delta R.T. 0.006 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion:117 Resp: 1931386

Ion	Ratio	Lower	Upper
117	100		
82	61.0	47.0	70.4

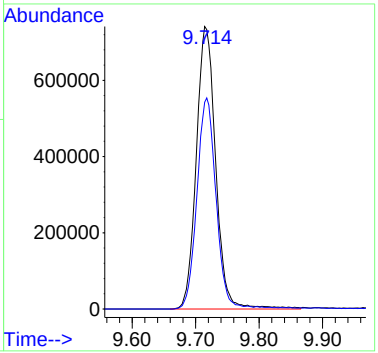




#64
Bromofluorobenzene (tune std)
Concen: 9.35 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 95 Resp: 1574669

Ion	Ratio	Lower	Upper
95	100		
174	74.6	61.1	91.7



INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories

GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05093

								Make-up Air		***Acquisition***		***Room***		***TO-15 Standard***	
File #	**Laboratory Sample ID**	**QC Check**	**Dilution Factor**	**Can #**	**Analyst**	**Injection Volume (cc)**	**Comments**	**Added to canister (cc)**	**Added for dilution**	**Date**	**Time**	**Temp**	**BP "Hg**	**Working ID**	**Vendor ID (Lot#)**
aa3401bfb	BFB	✓		ALM018474	JJW	0.5				**8/15/2023**	10:11	70	30.30		160-402352677-1
aa3402std05	0.2 ppbv Std	✓		EB0103704	JJW	1								8/15/2023	160-402619255-1
aa3403std04	2 ppbv Std	✓		EB0103704	JJW	10								8/15/2023	160-402619255-1
aa3404std03	10 ppbv Std	✓		EB0103704	JJW	50								8/15/2023	160-402619255-1
aa3405std02	20 ppbv Std	✓		EB0103704	JJW	100								8/15/2023	160-402619255-1
aa3406std01	40 ppbv Std	✓		EB0103704	JJW	200								8/15/2023	160-402619255-1
aa3407icvss	10 ppbv ICVSS	✓		EB0116272	JJW	50								8/15/2023	160-402744241-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05093

								Make-up Air		***Acquisition***		***Room***		***TO-15 Standard***	
File #	**Laboratory Sample ID**	**QC Check**	**Dilution Factor**	**Can #**	**Analyst**	**Injection Volume (cc)**	**Comments**	**Added to canister (cc)**	**Added for dilution**	**Date**	**Time**	**Temp**	**BP "Hg**	**Working ID**	**Vendor ID (Lot#)**
aa4071bfb	BFB	✓		ALM018474	JJW	0.5				**9/28/2023**	10:01	70	30.54		160-402352677-1
aa4072dcvs	10 ppbv DCVS	✓		EB0103704	JJW	50								8/15/2023	160-401980152-1
aa4073lcs	10 ppbv LCS	✓		EB0103704	JJW	50								8/15/2023	160-401980152-1
aa4074blk	Method Blank	✓		1127	JJW	500									
aa4075rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								8/15/2023	160-401980152-1
aa4076	2164	✓		8242301	JJW	500									
aa4077	4870	✓		9132301	JJW	500									
aa4078	2160	✓		9142301	JJW	500									
aa4079	E23-03970-01x5 dil	✓	5	2881	JJW	100									
aa4080	E23-03970-02x5 dil	✓	5	3025A	JJW	100									
aa4081	E23-04122-02x10 dil	✓	10	1068	JJW	50									
aa4082	blk	✓		x	JJW	500									
aa4083	E23-04122-03x10 dil	✓	10	1571	JJW	50									
aa4084	E23-04122-04x10 dil	✓	10	1366	JJW	50									
aa4085	E23-04122-05x10 dil	✓	10	1596	JJW	50									
aa4086	blk	✓		x	JJW	500									
aa4087	E23-04122-06x10 dil	✓	10	1781	JJW	50									
aa4088	E23-04122-26x10 dil	✓	10	4122-06x10 d	JJW	50									
aa4089	E23-04154-05x10 dil	✓	10	1404	JJW	50									
aa4090	E23-04154-06x10 dil	✓	10	1565	JJW	50									
aa4091	blk	✓		x	JJW	500									
aa4092	blk	✓		x	JJW	500									
aa4093cccvs	10 ppbv CCCVS	✓		EB0103704	JJW	50				9/29/2023	12:28			8/15/2023	160-402619255-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05093

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	*Make-up Air* Added to canister (cc)	*Make-up Air* Added for dilution	*Acquisition* Date	*Acquisition* Time	*Room* Temp	*Room* BP "Hg	*TO-15 Standard* Working ID	*TO-15 Standard* Vendor ID (Lot#)
aa4131bfb	BFB	✓		ALM018474	JJW	0.5				**10/10/2023**	10:13	70	30.10		160-402352677-1
aa4132std05	0.2 ppbv Std	✓		EB0103704	JJW	1								10/10/2023	160-402619255-1
aa4133std04	2 ppbv Std	✓		EB0103704	JJW	10								10/10/2023	160-402619255-1
aa4134std03	10 ppbv Std	✓		EB0103704	JJW	50								10/10/2023	160-402619255-1
aa4135std02	20 ppbv Std	✓		EB0103704	JJW	100								10/10/2023	160-402619255-1
aa4136std01	40 ppbv Std	✓		EB0103704	JJW	200								10/10/2023	160-402619255-1
aa4137icvss	10 ppbv ICVSS	✓		EB0116272	JJW	50								10/10/2023	160-402744241-1
aa4138lcs	10 ppbv LCS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4139blk	Method Blank	✓		1127	JJW	500									
aa4140rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								10/10/2023	160-401980152-1
aa4141	5078	✓		9252301	JJW	500									
aa4142	5101	✓		9262301	JJW	500									
aa4143	4869	✓		9272301	JJW	500									
aa4144	2157	✓		10022301	JJW	500									
aa4145	E23-04192-01	✓		5100	JJW	500									
aa4146	E23-04192-02	✓		2072	JJW	500									
aa4147	blank	✓		x	JJW	500									
aa4148	E23-04378-01	✓		2033	JJW	500									
aa4149	E23-04378-02	✓		5080	JJW	500									
aa4150	E23-04378-22	✓	Dup of E23-04378-02, (		JJW	500									
aa4151	E23-04513-01	✓		3814	JJW	500									
aa4152	blank	✓		x	JJW	500									
aa4153	blank	✓		x	JJW	500									
aa4154cccvs	10 ppbv CCCVS	✓		EB0103704	JJW	50				10/11/2023	1:53			10/10/2023	160-402619255-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05093

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	*Make-up Air* Added to canister (cc)	*Make-up Air* Added for dilution	*Acquisition* Date	*Acquisition* Time	*Room* Temp	*Room* BP "Hg	*TO-15 Standard* Working ID	*TO-15 Standard* Vendor ID (Lot#)
aa4881bfb	BFB	✓		ALM018474	JJW	0.5				**12/8/2023**	10:21	68	30.46		160-402352677-1
aa4882dcvs	10 ppbv DCVS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4883lcs	10 ppbv LCS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4884blk	Method Blank	✓		1127	JJW	500									
aa4885rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								10/10/2023	160-401980152-1
aa4886	E23-05047-01	✓		2902	JJW	500									
aa4887	E23-05047-02	✓		2037	JJW	500									
aa4888	E23-05047-03	✓		3811	JJW	500									
aa4889	E23-05047-04	✓		3283	JJW	500									
aa4890	E23-05047-05	✓		2749	JJW	500									
aa4891	E23-05047-06	✓		5091	JJW	500									
aa4892	blk	✓		x	JJW	500									
aa4893	E23-05080-01	✓		3006	JJW	500									
aa4894	E23-05080-02	✓		2155	JJW	500									
aa4895	E23-05093-01	✓		3044A	JJW	500									
aa4896	E23-05047-01x10 dil	✓	10	2902	JJW	50									
aa4897	E23-05047-03x10 dil	✓	10	3811	JJW	50									
aa4898	E23-05047-04x10 dil	✓	10	3283	JJW	50									

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05093

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	*Make-up Air* Added to canister (cc)	*Make-up Air* Added for dilution	*Acquisition* Date	*Acquisition* Time	*Room* Temp	*Room* BP "Hg	*TO-15 Standard* Working ID	*TO-15 Standard* Vendor ID (Lot#)
aa4901bfb	BFB	✓		ALM018474	JJW	0.5				**12/11/2023**	9:24	68	30.07		160-402352677-1
aa4902dcvs	10 ppbv DCVS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4903lcs	10 ppbv LCS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4904blk	Method Blank	✓		1127	JJW	500									
aa4905rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								10/10/2023	160-401980152-1
aa4906	1458	✓		12062301	JJW	50									
aa4907	1588	✓		12082301	JJW	50									
aa4908	3012	✓		12072301	JJW	500									
aa4909	E23-05047-03x10 dil	✓	10	3811	JJW	50									
aa4910	E23-05047-04x5 dil	✓	5	3283	JJW	100									
aa4911	E23-05080-01x10 dil	✓	10	3006	JJW	50									
aa4912	E23-05080-02x10 dil	✓	10	2155	JJW	50									
aa4913	E23-05093-01x5 dil	✓	5	3044Ac	JJW	100									
aa4914	E23-05047-06x5 dil	✓	5	5091	JJW	100									
aa4915	E23-05047-06	✓		5091	JJW	500									
aa4916	E23-05081-01x5 dil	✓	5	5073	JJW	100									
aa4917	E23-05081-01	✓		5073	JJW	500									
aa4918	E23-05081-02x5 dil	✓	5	2758	JJW	100									
aa4919	E23-05081-02	✓		2758	JJW	500									
aa4920	E23-05081-03x5 dil	✓	5	3809	JJW	100									
aa4921	E23-05081-03	✓		3809	JJW	500									
aa4922	E23-05081-04x5 dil	✓	5	2896B	JJW	100									
aa4923	E23-05081-04	✓		2896B	JJW	500									
aa4924	blk	✓		x	JJW	500									
aa4925	E23-05007-01x10 dil	✓	10	1543	JJW	50									
aa4926	E23-05007-02x10 dil	✓	10	1601	JJW	50									
aa4927	E23-05007-03x10 dil	✓	10	1773	JJW	50									
aa4928	blk	✓		x	JJW	500									
aa4929	E23-05079-03	✓		3830	JJW	500									
aa4930	E23-05079-23	✓	Dup of E23-05079-03, (		JJW	500									
aa4931cccvs	10 ppbv CCCVS	✓		EB0103704	JJW	50				12/12/2023	1:59			10/10/2023	160-401980152-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

Integrated Analytical Labs
273 Franklin Rd
Randolph, NJ 07869

External Chain of Custody Record/
Field Test Data Sheet
USEPA Method TO-15

Contact Us: 973 361-4252
fax: 973 366-5613
Web: www.ialonline.com

Carrier (check one): ____ IAL Courier ____ Client Courier ____ FedEx/UPS

pg 1 of 1

Client Contact Information	Project Information	Invoice Information
Company: HK Engineering and Geology D.P.C.	Project Name: HK2661.1	Attn:
Address: 1600 US 22 East	Project Location (State): NY	Address:
Union, NJ 07083	Project Manager: Chris Hirschmann	
Phone: 908 -688-7800	PM Signature:	PO #: HK2661.1
Fax:	PM E-Mail: chirschmann@hillmannconsulting.com	Quote #:
Report to: Chris Hirschmann	Sampler: D. Aponte	

Analysis Turnaround Time - IF NO TAT IS SPECIFIED, 2 WEEK TAT IS ASSUMED

IAL Standard: 2 weeks (10 business days)

Rush (**pre-approved by lab): 24hr** 48hr** 72hr** 96hr** 1wk**

Sample Identification	Start DATE & TIME (24hr Clock)	End DATE & TIME (24hr Clock)	Starting Vacuum ("Hg)	Ending Vacuum ("Hg)	Starting Temp (°F)	Ending Temp (°F)	Outgoing Vacuum - Lab ("Hg)	Barometric Pressure Start: Incoming Vacuum - Lab ("Hg)	Flow Regulator ID	Barometric Pressure Stop: Canister ID	Canister Size (1L or 6L)	Flow Controller Readout (cc/min)	EPA TO - 15	NJDEP LLTO-15 (includes 30 TICs)	Library Search (10, 20, or 30 TICs)	Other (Explain in Comments)	Regulatory/ NY Cat B / Full (NJ Required)	Reduced / NY Cat A Data Package	Results Only	Indoor Air	Ambient / Outdoor Air	Sub Slab / Soil Gas / Near Slab (Circle One)	Stack Emission / SVE System	High Concentrations Expected
(1) SV9	11/20/23 - 8:30	11/20/23 - 10:56	-29	-7	38	42	-24.0	-7.0	A0224857-7	3044A	6L	31.80	X											

Comments/ Special Analysis Instructions / QC Requirements:

5 Day TAT Hard Copy and Verbal.

09132301 : 1
100223aa : 3830

Note: Hold or contingent samples may be designated by writing an "H" or "C" in the appropriate analysis box.

ALL FIELDS IN RED ARE REQUIRED

Shipping Information / Canister Preparation (for laboratory use only)

Individual Preparing Canisters / Title: Desmond Flores / Air Department Sample Custodian

Lab Affixed Seal Number(s):

Date/Time Shipping Container Sealed: 1615 11/13/23

Laboratory Canister Certification

GC/MS Analyst Signature: Joseph J Walukiewicz III (IAL)

IAL 5093

External Chain of Custody

Relinquished	Received	Date / Time	Reason for Change of External Custody
[signature]	[signature]	11/20/23 1518	shipment from laboratory to client
[signature]	Joseph J Walukiewicz III (IAL)	11/20/23 1643	Received at air Lab

Name/Title Resealing Shipping Container Name:

Date/Time Sample Shipping Container Resealed:

Date/Time Sample Shipping Container Opened: 11/20/23 1643

NJDEP Affixed Seal Number:

Individual Opening Sample Shipping Container: Joseph Walukiewicz/Desmond Flores

Date/Time Internal Chain of Custody Initiated: 11/21/23 09 15

White and yellow - lab copies; Pink - client copy

e appropriate care with IAL sampling equipment when sampling and packing for shipment. The client is responsible for all damage incurred to IAL equipment. Notify IAL if equipment is damaged upon receipt. Holding time before sampling is 15 days, er sampling is 30 days; failure to follow these times may result in data rejection by regulatory agencies. The lab will contact you if your COC is not clear, incomplete, or if discrepancies exist. The use of initials is not permitted on the COC except en correcting errors.

Example Calculation (EPA TO-15)

$$\frac{\text{Area of Compound}}{\text{Area of Internal Standard}} \times \frac{\text{Concentration of Internal Standard (10 ppbv)}}{\text{Response Factor}} = \text{Concentration of Compound (ppbv)}$$

Conversion from ppbv to µg/m^3

$$\frac{\text{Concentration of Compound (ppbv)} \times \text{Molecular Weight of Compound}}{24.45} = \text{Concentration of Compound (µg/m3)}$$

INTEGRATED ANALYTICAL LABORATORIES, LLC

Clean Canister Certification Report

Lab Sample Name:	**Clean Canister, Batch Master 4870**	**Data File:**	**AA4077**
Field Sample Name:	**Canister 4870**	**Date Analyzed:**	**9/28/2023**
Sample Volume:	**500ml**	**Matrix:**	**Air**

Canisters associated with this run: 4870, 2896B, 5086, 2890, 2758, 3041A, 3044 A (used for E23-05093-01), 2902

Runs with this Clean Canister Certification:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
CLEAN CAN CERTIFICATION, BATCH MASTER 2164 [AA4076]	09/28/2023 15:00
CLEAN CAN CERTIFICATION, BATCH MASTER 4870 [AA4077]	09/28/2023 15:30
CLEAN CAN CERTIFICATION, BATCH MASTER 2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 00:28

This canister has been certified clean, all compounds are below 0.2 ppbv.

Compound	CAS #	RL (ppbv)	Calculated Amount (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.20	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.20	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.20	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND

Clean Canister Certification Report

Lab Sample Name:	**Clean Canister, Batch Master 4870**	**Data File:**	**AA4077**
Field Sample Name:	**Canister 4870**	**Date Analyzed:**	**9/28/2023**
Sample Volume:	**500ml**	**Matrix:**	**Air**

Canisters associated with this run: 4870, 2896B, 5086, 2890, 2758, 3041A, 3044 A (used for E23-05093-01), 2902

Runs with this Clean Canister Certification:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
CLEAN CAN CERTIFICATION, BATCH MASTER 2164 [AA4076]	09/28/2023 15:00
CLEAN CAN CERTIFICATION, BATCH MASTER 4870 [AA4077]	09/28/2023 15:30
CLEAN CAN CERTIFICATION, BATCH MASTER 2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 00:28

This canister has been certified clean, all compounds are below 0.2 ppbv.

Compound	CAS #	RL (ppbv)	Calculated Amount (ppbv)
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.20	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.20	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.40	ND
Xylenes (o)	95-47-6	0.20	ND

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4077.D
Acq On : 28 Sep 2023 3:30 pm
Operator : jjw
Sample : 4870
Misc : 2902, 3044A, 3041A, 2758, 2890, 2896B, 5086
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 28 16:47:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

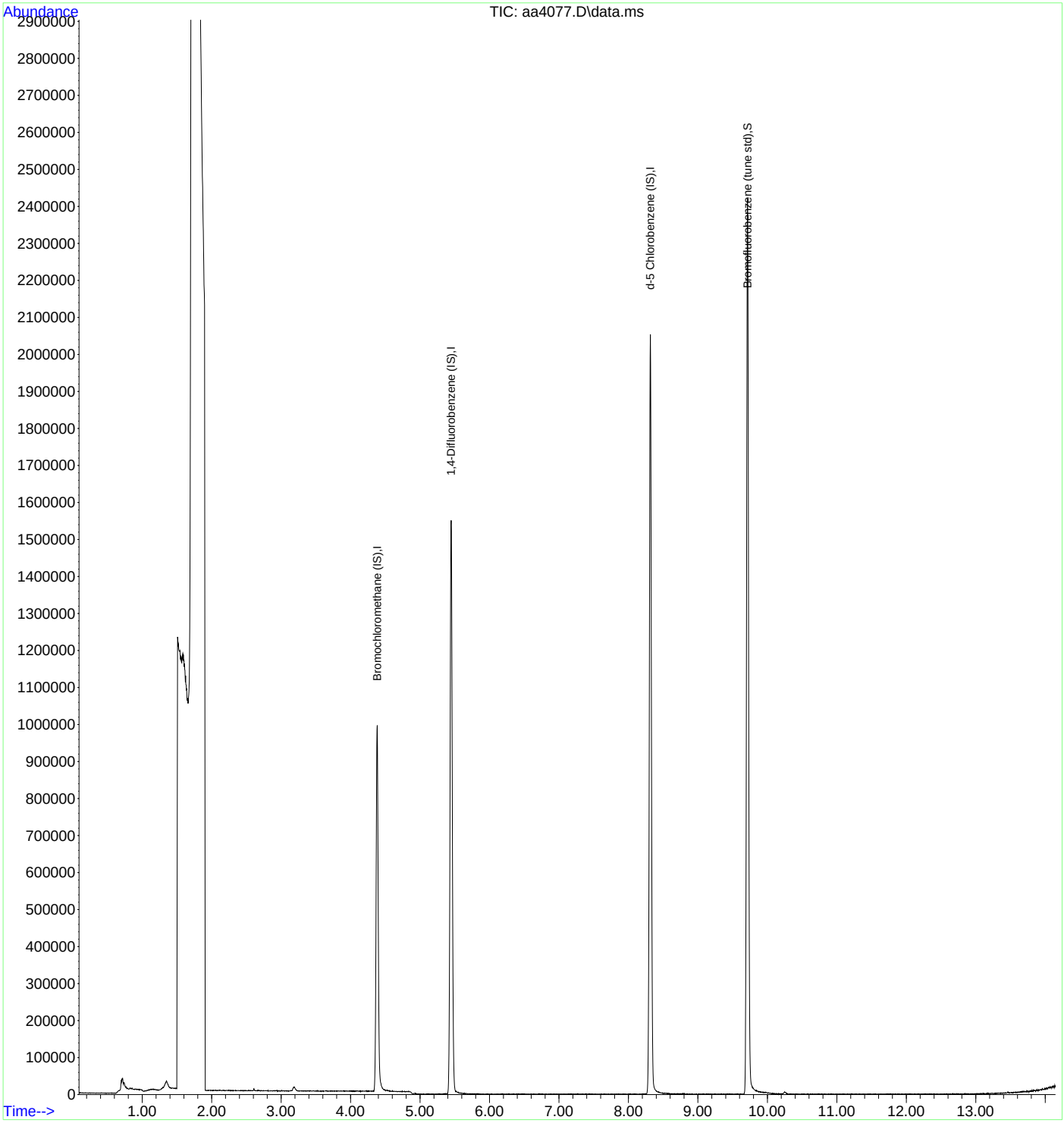
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.383	130	360790	10.00	ppbV	-0.013
39) 1,4-Difluorobenzene (IS)	5.447	114	1388747	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1279774	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1010735	9.49	ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4077.D
Acq On : 28 Sep 2023 3:30 pm
Operator : jjw
Sample : 4870
Misc : 2902, 3044A, 3041A, 2758, 2890, 2896B, 5086
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 28 16:47:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



LAST PAGE OF DOCUMENT

Appendix D

Lab Reports Chelsea Elliott

Integrated Analytical Laboratories LLC

ANALYTICAL DATA REPORT

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083

Project Name: **HK-2661.1 CHELSEA**
IAL Case Number: **E23-05046**

These data have been reviewed and accepted by:

Michael H. Leffin, Ph.D.
Laboratory Director

This report shall not be reproduced, except in its entirety, without the written consent of Integrated Analytical Laboratories, LLC. The test results included in this report relate only to the samples analyzed. The results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

273 Franklin Road
Randolph, NJ 07869
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IAL is a NELAP accredited lab (TNI01284) and maintains certification in Connecticut (PH-0699), New Jersey (14751), New York (11402) and Pennsylvania (68-00773).

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Sample Summary

IAL Case No. E23-05046

Client HK Engineering & Geology, D.P.C.

Project HK-2661.1 CHELSEA

Received On 11/16/2023@17:12

Lab ID	Client Sample ID	Depth Top/Bottom	Sampling Time	Matrix	# of Container
05046-001	SB12A	0/2	11/15/2023@08:15	Soil	5
05046-002	SB2A	0/2	11/15/2023@08:30	Soil	5
05046-003	SB2B	10/12	11/15/2023@08:35	Soil	8
05046-004	SB1A	0/2	11/15/2023@09:30	Soil	5
05046-005	SB1B	10/12	11/15/2023@09:35	Soil	2
05046-006	SB3A	0/2	11/15/2023@10:45	Soil	5
05046-007	SB3B	10/12	11/15/2023@10:50	Soil	5
05046-008	SB10A	1.5/2.5	11/15/2023@13:05	Soil	5
05046-009	SB11A	1/2	11/15/2023@13:40	Soil	5
05046-010	SB8A	0/1.5	11/15/2023@14:00	Soil	5
05046-011	TWP1	n/a	11/15/2023@12:20	Aqueous	10
05046-012	TWP2	n/a	11/15/2023@13:00	Aqueous	10
05046-013	TWP4	n/a	11/16/2023@09:10	Aqueous	10
05046-014	TWP5	n/a	11/16/2023@09:30	Aqueous	10
05046-015	SB4A	0/2	11/16/2023@08:10	Soil	5
05046-016	SB4B	10/12	11/16/2023@08:15	Soil	5
05046-017	SB5A	0/2	11/16/2023@08:20	Soil	5
05046-018	SB5B	10/12	11/16/2023@08:35	Soil	5
05046-019	TWP1 FILT	n/a	11/15/2023@12:20	Aqueous	1
05046-020	TWP2 FILT	n/a	11/15/2023@13:00	Aqueous	1
05046-021	TWP4 FILT	n/a	11/16/2023@09:10	Aqueous	1
05046-022	TWP5 FILT	n/a	11/16/2023@09:30	Aqueous	1

Integrated Analytical Labs ~ 273 Franklin Road, Randolph, NJ 07869 ~ (973) 361-4252

DATA QUALIFIERS AND FLAGS

B	Indicates the analyte found in the associated method blank and in the sample due to potential lab contamination.
C	Indicates analyte is a common laboratory contaminant.
D	Indicates analyte was reported from diluted analysis.
E	Identifies a compound concentration that exceeds the upper level of the calibration range of the instrument
J	Indicates an estimated value either when the concentration in the sample is less than the RL or for qualification of TICs
J1	Indicates an estimated value when ICC or CCV did not meet the criteria.
M	Indicates matrix interference
N	Presumptive evidence of a compound from the use of GC/MS library search.
T	Sample analyzed outside of holding time
X	Indicates samples analyzed for total and dissolved metals differ at ≤20% RPD.
Y	Indicates DO depletion in the BOD blank is >0.20ppm
Z	Indicates internal standard failure. Sample results are either biased high or biased low.
$	Value outside NJDEP DKQP Limits
*	Result outside of QC limits

PROJECT NOTES

- All results for soils, solids, and sludges are reported on a dry-weight basis except where noted
- All test results and QC are compliant with TNI or other applicable state agency requirements/guidance unless otherwise notated in the case narrative and/or project information page.
- The case narrative for this SDG should be consulted to determine any non-conformances.
- Any samples with 15-minute or "analyze immediately" holding times (e.g. pH, Dissolved Oxygen, Sulfite, etc.) which are analyzed in the laboratory are considered out of holding time.
- IAL is a NELAP/TNI certified laboratory (TNI ID# TNI01284). IAL retains certification in Connecticut (PH-0699), New Jersey (14751), New York (11402), and Pennsylvania (68-00773).
- Certification is not required to perform analyses in the following states: AL, CO, DE, GA, HI, ID, IN, KY, MD, MI, MS, MO, MT, NE, NM, SD and TN. IAL can perform all analyses, except Drinking Water, within its scope of capabilities in these states.

ACRONYMS AND ABBREVIATIONS

CFU	Colony Forming Unit	ND	Indicates analyte was analyzed for but not detected at MDL or RL (only if MDL is not used)
CCB	Continuing Calibration Blank		
CCV	Continuing Calibration Verification	NTU	Nephelometric Turbidity Units
DF	Dilution Factor	ppb	Parts per billion. Reported as µg/L or µg/kg
DL	Attached as a suffix to a diluted sample	ppm	Parts per million. Reported as mg/L, µg/mL or mg/kg
DUP	Duplicate	QC	Quality Control
ICB	Initial Calibration Blank	% Rec	Percent Recovery
ICC	Initial Calibration Curve	RL	Reporting Limit. The RL is typically determined by the concentration of the lowest standard in the calibration curve
ICV	Initial Calibration Verification		
kg	kilogram		
L	Liter	RPD	Relative Percent Difference
LCS	Laboratory Control Sample	RSD	Relative Standard Deviation
LCSD	Laboratory Control Sample Duplicate	RT	Retention Time
MDL	Method Detection Limit as determined according to 40 CFR Part 136 Appendix B	SU	Standard Units
		TIC	Tentatively Identified Compound AKA Library Search Compounds
MF	Membrane Filter		
mg	milligram (1000mg = 1g)	TNI	The NELAC (National Environmental Laboratory Accreditation Council) Institute
µg	microgram (1000µg = 1mg)		
ml	milliliter (1000ml = 1L)	TNTC	Too numerous to count
µl	microliter (1000µl = 1ml)	*	When attached to a compound name, indicates this analyte was analyzed by Method SW-846 8270 SIM
µmhos	Conductivity units - resistance expressed in ohms		
MPN	Most Probable Number	^	When attached to a compound name, indicates this analyte was analyzed by Method SW-846 8011 or EPA 504.1
MS	Matrix Spike		
MSD	Matrix Spike Duplicate		
NA	Not applicable	<	Less than; In conjunction with a numerical value, indicates a concentration less than the RL or MDL
NC	Not calculated		

SAMPLE DELIVERY GROUP CASE NARRATIVE
(Conformance / Non-Conformance Summary)

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05046

Integrated Analytical Laboratories, LLC. received twenty-two (22) samples** from HK Engineering & Geology, D.P.C. (IAL SDG# **E23-05046**, Project: HK-2661.1 CHELSEA) on November 16, 2023 for the analysis of :

(4) Low Level TCL VO for 8260+8011 + 15
(14) TCL VO + 15
(14) TCL BNA + 15
(4) TCL BNA + SIMS + 15
(18) TCL PCB
(18) TCL Pesticides
(18) Cyanide, Total
(22) TAL Metals (6020B/7471B) by SGS Dayton

**Number of samples listed above may be greater than what is listed on the chain of custody. Any samples that require in-house filtration or splitting will be counted as separate samples.

Samples were received in good condition with documentation in order.
Cooler temperature was acceptable at 4 ± 2 degree C.

Volatiles By SW 8260D | **Batch: 231120** | **Matrix: Aqueous**

QC
- Calibration curve met QC criteria.
- Internal standards recovery met QC criteria.
- Surrogate percent recovery met QC criteria.
- Method blank met QC criteria.
- LCS percent recovery met QC criteria. NJDEP DKQP criteria not met.
- MS/MSD RPD met QC criteria.
- MS/MSD percent recovery met QC criteria. NJDEP DKQP criteria not met.

E23-05046
- All samples were received within holding time.
- All samples were analyzed within holding time.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05046-011	1	NA
E23-05046-012	1	NA
E23-05046-013	1	NA
E23-05046-014	1	NA

Microextractable By SW 8011 | **Batch: 231121-01** | **Matrix: Aqueous**

QC
- Calibration curve met QC criteria.
- Method blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- MS Percent Recovery met QC criteria.
- RPD between the Sample/Duplicate met QC criteria.

E23-05046
- All samples were received within holding time.
- All samples were analyzed within holding time.
- Retention Time Shift met QC criteria.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05046-011	1	NA
E23-05046-012	1	NA
E23-05046-013	1	NA
E23-05046-014	1	NA

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05046

Semivolatiles By SW 8270E	Batch: 231120-01	Matrix: Soil

QC

- Calibration curve met QC criteria.
- Internal standard recovery met QC criteria.
- Surrogate recovery did not meet QC criteria due to matrix interference. NJDEP DKQP criteria not met.
- Method blank met QC criteria.
- LCS percent recovery did not meet QC criteria due to Benzidine, 3,3'-Dimethylbenzidine fail high, but no positive hits was/were found in the associated sample. NJDEP DKQP criteria not met.
- MS/MSD RPD did not meet QC criteria due to matrix interference. NJDEP DKQP criteria not met.
- MS/MSD percent recovery did not meet QC criteria due to matrix interference. NJDEP DKQP criteria not met.

E23-05046

- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05046-001	1	NA
E23-05046-002	1	NA
E23-05046-003	1	NA
E23-05046-004	1	NA
E23-05046-005	1	NA
E23-05046-006	2	Target compound(s).
E23-05046-007	10	Target compound(s).
E23-05046-008	1	NA
E23-05046-009	1	NA
E23-05046-010	1	NA
E23-05046-015	1	NA
E23-05046-016	1	NA
E23-05046-017	1	NA
E23-05046-018	1	NA

The result reported for 1,2-Diphenylhydrazine is also representative of Azobenzene. 1,2-Diphenylhydrazine rapidly decomposes to Azobenzene when exposed to water or heat. Analytical results from analysis of 1,2-Diphenylhydrazine will be directly compared to the applicable criteria for Azobenzene and/or 1,2-Diphenylhydrazine.

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05046

Semivolatiles By SW 8270E, SW 8270E SIM **Batch: 231120-04** **Matrix: Aqueous**

QC
- Calibration curve met QC criteria.
- Internal standard recovery met QC criteria.
- Surrogate recovery did not meet QC criteria due to matrix interference. NJDEP DKQP criteria not met.
- Method blank met QC criteria.
- LCS percent recovery met QC criteria. NJDEP DKQP criteria not met.
- MS/MSD RPD did not meet QC criteria due to RPD failing high for benzaldehyde. NJDEP DKQP criteria not met.
- MS/MSD percent recovery met QC criteria. NJDEP DKQP criteria not met.
- CCV did not pass for all compounds. A sensitivity check was ran for Benzaldehyde. Compounds that did not have a passing CCV were reported as non-detect.

E23-05046
- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.
- 05046-012: SIM not reported due to matrix interference and high target compounds.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05046-011	1	NA
E23-05046-012	1	NA
E23-05046-013	1	NA
E23-05046-014	1	NA

The result reported for 1,2-Diphenylhydrazine is also representative of Azobenzene. 1,2-Diphenylhydrazine rapidly decomposes to Azobenzene when exposed to water or heat. Analytical results from analysis of 1,2-Diphenylhydrazine will be directly compared to the applicable criteria for Azobenzene and/or 1,2-Diphenylhydrazine.

PCB By SW 8082A **Batch: 231120-01** **Matrix: Aqueous**

QC
- Calibration curve met QC criteria.
- Surrogate percent recovery met QC criteria.
- Method blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- RPD between MS/MSD met QC criteria.
- MS/MSD Percent Recovery met QC criteria.
- The following samples were cleaned up using method 3660B to remove sulfur: BLKA231120-01, LCSA231120-01, E23-05046-014MS, E23-05046-014MSD, E23-05046-011, E23-05046-012, E23-05046-013, E23-05046-014.

E23-05046
- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.
- Retention Time Shift met QC criteria.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05046-011	1	NA
E23-05046-012	1	NA
E23-05046-013	1	NA
E23-05046-014	1	NA

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05046

PCB By SW 8082A **Batch: 231120-08** **Matrix: Soil**

QC
- Calibration curve met QC criteria.
- Surrogate percent recovery met QC criteria.
- Method blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- RPD between MS/MSD met QC criteria.
- MS/MSD Percent Recovery met QC criteria.
- The following samples were cleaned up using method 3660B to remove sulfur: BLKS231120-08, LCSS231120-08, E23-05046-010MS, E23-05046-010MSD, E23-05046-001, E23-05046-002, E23-05046-003, E23-05046-004, E23-05046-005, E23-05046-006, E23-05046-007, E23-05046-008, E23-05046-009, E23-05046-010, E23-05046-015, E23-05046-016, E23-05046-017, E23-05046-018.

E23-05046
- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.
- Retention Time Shift met QC criteria.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05046-001	1	NA
E23-05046-002	1	NA
E23-05046-003	1	NA
E23-05046-004	1	NA
E23-05046-005	1	NA
E23-05046-006	1	NA
E23-05046-007	1	NA
E23-05046-008	1	NA
E23-05046-009	1	NA
E23-05046-010	1	NA
E23-05046-015	1	NA
E23-05046-016	1	NA
E23-05046-017	1	NA
E23-05046-018	1	NA

Pesticides By SW 8081B **Batch: 231120-01** **Matrix: Aqueous**

QC
- Calibration curve met QC criteria.
- Surrogate percent recovery met QC criteria.
- Method blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- RPD between MS/MSD met QC criteria.
- MS/MSD percent recovery did not meet QC criteria due to matrix interference. NJDEP DKQP criteria not met.
- The following samples were cleaned up using method 3660B to remove sulfur: BLKA231120-01, E23-05009-001MSD, LCSA231120-01, E23-05046-011, E23-05046-012, E23-05046-013, E23-05046-014.

E23-05046
- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.
- Retention Time Shift met QC criteria.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05046-011	1	NA
E23-05046-012	1	NA
E23-05046-013	1	NA
E23-05046-014	1	NA

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05046

Pesticides By SW 8081B **Batch: 231120-08** **Matrix: Soil**

QC
- Calibration curve met QC criteria.
- Surrogate percent recovery did not meet QC criteria due to matrix intreference for #006; #007; #008. NJDEP DKQP criteria not met.
- Method blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- RPD between MS/MSD met QC criteria.
- MS/MSD percent recovery did not meet QC criteria due to matrix interference. NJDEP DKQP criteria not met.
- The RPD between the primary and secondary column was >40% for the following samples: #017. Per SW-846 8000D, the lower of the two concentrations was reported.
- The following samples were cleaned up using method 3660B to remove sulfur: BLKS231120-08, LCSS231120-08, E23-05046-010MS, E23-05046-010MSD, E23-05046-001, E23-05046-002, E23-05046-003, E23-05046-004, E23-05046-005, E23-05046-006, E23-05046-007, E23-05046-008, E23-05046-009, E23-05046-010, E23-05046-015, E23-05046-016, E23-05046-017, E23-05046-018.

E23-05046
- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.
- Retention Time Shift met QC criteria.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05046-001	1	NA
E23-05046-002	1	NA
E23-05046-003	1	NA
E23-05046-004	1	NA
E23-05046-005	1	NA
E23-05046-006	1	NA
E23-05046-007	1	NA
E23-05046-008	1;2	Target compound(s).
E23-05046-009	1	NA
E23-05046-010	1	NA
E23-05046-015	1	NA
E23-05046-016	1	NA
E23-05046-017	1	NA
E23-05046-018	1	NA

Cyanide, Total By EPA 335.4 **Batch: AP013-0113** **Matrix: Aqueous**

QC
- Method blank met QC criteria.
- LCS percent recovery met QC criteria.
- MS/MSD Percent Recovery met QC criteria.
- Duplicate Recoveries met QC criteria.

E23-05046
- All samples were received within holding time.
- All samples were analyzed within holding time.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05046-011	1	NA
E23-05046-012	1	NA
E23-05046-013	1	NA
E23-05046-014	1	NA

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05046

Cyanide, Total By SW 9012B **Batch: AP013-0114** **Matrix: Soil**

QC
- Method blank met QC criteria.
- LCS percent recovery met QC criteria.
- MS/MSD Percent Recovery met QC criteria.
- Duplicate Recoveries met QC criteria.

E23-05046
- All samples were received within holding time.
- All samples were analyzed within holding time.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05046-001	1	NA
E23-05046-002	1	NA
E23-05046-003	1	NA
E23-05046-004	1	NA
E23-05046-005	1	NA
E23-05046-006	1	NA
E23-05046-007	1	NA
E23-05046-008	1	NA
E23-05046-009	1	NA
E23-05046-010	1	NA
E23-05046-015	1	NA
E23-05046-016	1	NA
E23-05046-017	1	NA
E23-05046-018	1	NA

Subcontracted to SGS Dayton, TNI certified*, #TNI01283, NJ certified

Method: 6020B/7471B **Matrix: Soil, Aqueous**

QC
- All analyses met QC criteria.

E23-05046
- Please see Case Narrative of Subcontracted Report.

Integrated Analytical Laboratories has subcontracted part or all of the results in this report. The laboratory performing the subcontracted work is listed above. These analyses were performed by a NELAP/TNI accredited laboratory, unless otherwise specified. This work was placed with a laboratory accredited for TNI standards for the tests to be performed OR with a laboratory that meets applicable statutory and regulatory requirements for performing the tests and submitting the results of tests performed. Integrated Analytical Laboratories will keep a copy of the subcontractor's report on file.
*TNI, The NELAC Institute, is a nationally recognized laboratory accreditation program. The TNI Standard is intended as an application of ISO/IEC 17025:2005(E), General Requirements for the Competence of Testing and Calibration Laboratories. While individual states and entities offer certification, TNI standards foster the generation of environmental data of known and documented quality through an open, inclusive, and transparent process that is responsive to the needs of the community.

A review of the QA/QC measures for the analysis of the sample(s) contained in this report has been performed by:

Heather Daly
Reviewed by

12/6/2023
Date

CASE NARRATIVE / CONFORMANCE SUMMARY

2

Client:	Integrated Analytical Lab	**Job No:**	JD77310
Site:	Integrated Analytical Lab, Randolph, NJ	**Report Date**	12/5/2023 4:30:37 PM

On 11/20/2023, 22 sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 1.1 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of JD77310 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals Analysis By Method SW846 6010D

Matrix: AQ **Batch ID:** MP43267

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD77310-14FMSD, JD77310-14FSDL, JD77310-14FMS, JD77310-14FMSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Sodium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Aluminum, Barium, Chromium, Copper, Magnesium, Vanadium, Zinc, Calcium are outside control limits for sample MP43267-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP43267-SD1 for Calcium: Serial dilution indicates possible matrix interference.

Matrix: AQ **Batch ID:** MP43295

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD77329-4MS, JD77329-4MSD, JD77329-4SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Antimony, Arsenic, Barium, Cadmium, Cobalt, Copper, Lead, Thallium, Vanadium, Aluminum, Chromium, Potassium, Zinc are outside control limits for sample MP43295-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP43295-SD1 for Aluminum: Serial dilution indicates possible matrix interference.

Matrix: SO **Batch ID:** MP43275

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD77308-1MSD, JD77308-1PS, JD77308-1SDL, JD77308-1MS, JD77308-1MSD were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Antimony are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The matrix spike duplicate (MSD) recovery(s) of Antimony are outside control limits. Probable cause due to matrix interference.
- The matrix spike (MS) recovery(s) of Aluminum, Iron are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Antimony, Silver, Sodium, Magnesium, Potassium are outside control limits for sample MP43275-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

2

Metals Analysis By Method SW846 6010D

Matrix: SO **Batch ID:** MP43275

- JD77310-7 for Arsenic: Elevated detection limit due to dilution required for high interfering element.
- JD77310-7 for Silver: Elevated detection limit due to dilution required for high interfering element.
- JD77310-7 for Selenium: Elevated detection limit due to dilution required for high interfering element.
- JD77310-7 for Nickel: Elevated detection limit due to dilution required for high interfering element.
- JD77310-7 for Lead: Elevated detection limit due to dilution required for high interfering element.
- JD77310-7 for Copper: Elevated detection limit due to dilution required for high interfering element.
- JD77310-7 for Chromium: Elevated detection limit due to dilution required for high interfering element.
- JD77310-7 for Beryllium: Elevated detection limit due to dilution required for high interfering element.
- JD77310-5 for Silver: Elevated detection limit due to dilution required for high interfering element.
- JD77310-7 for Thallium: Elevated detection limit due to dilution required for high interfering element.
- JD77310-7 for Antimony: Elevated detection limit due to dilution required for high interfering element.
- JD77310-6 for Thallium: Elevated detection limit due to dilution required for high interfering element.
- JD77310-5 for Thallium: Elevated detection limit due to dilution required for high interfering element.
- MP43275-SD1 for Magnesium: Serial dilution indicates possible matrix interference.
- MP43275-SD1 for Potassium: Serial dilution indicates possible matrix interference.
- JD77310-5 for Copper: Elevated detection limit due to dilution required for high interfering element.
- JD77310-5 for Selenium: Elevated detection limit due to dilution required for high interfering element.
- JD77310-7 for Cadmium: Elevated detection limit due to dilution required for high interfering element.

Metals Analysis By Method SW846 7470A

Matrix: AQ **Batch ID:** MP43369

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD77310-11FMS, JD77310-11FMSD were used as the QC samples for the metals analysis.

Metals Analysis By Method SW846 7471B

Matrix: SO **Batch ID:** MP43335

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD77310-1MSD, JD77310-1MS were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Mercury are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The RPD(s) for the MS and MSD recoveries of Mercury are outside control limits for sample MP43335-S2. High rpd due to possible sample nonhomogeneity.

General Chemistry By Method SM2540 G 18TH ED MOD

Matrix: SO **Batch ID:** GN48483

- Sample(s) JD77310-1DUP were used as the QC samples for the Solids, Percent analysis.

2

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

RESULTS SUMMARY REPORT

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK-2661.1 CHELSEA
Lab Case No.: E23-05046

Lab ID:	05046-011			05046-012			05046-013			05046-014		
Client ID:	TWP1			TWP2			TWP4			TWP5		
Matrix:	Aqueous			Aqueous			Aqueous			Aqueous		
Sampled Date	11/15/23			11/15/23			11/16/23			11/16/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles (Units)	*(ug/L)*			*(ug/L)*			*(ug/L)*			*(ug/L)*		
Chloroform	14.0		0.285	ND		0.285	ND		0.285	7.89		0.285
TOTAL VO's:	14.0			ND			ND			7.89		
TOTAL TIC's:	ND			ND			ND			ND		
TOTAL VO's & TIC's:	14.0			ND			ND			7.89		
Semivolatiles - BNA (Units)	*(ug/L)*			*(ug/L)*			*(ug/L)*			*(ug/L)*		
Phenanthrene	1.69		0.263	20.2		0.263	ND		0.263	ND		0.263
Di-n-butyl phthalate	ND		0.343	1.84		0.343	ND		0.343	ND		0.343
Fluoranthene	1.65		0.482	21.1		0.482	ND		0.482	ND		0.482
Pyrene	1.32		0.555	29.6		0.555	ND		0.555	ND		0.555
Benzo[a]anthracene	1.63		0.029	10.8		0.300	0.103		0.029	ND		0.029
Chrysene	ND		0.232	9.27		0.232	ND		0.232	ND		0.232
Benzo[b]fluoranthene	1.62		0.026	7.43		0.605	0.132		0.026	ND		0.026
Benzo[k]fluoranthene	1.10		0.035	3.28		0.403	0.123		0.035	ND		0.035
Benzo[a]pyrene	1.47		0.027	6.64		0.285	0.153		0.027	ND		0.027
Indeno[1,2,3-cd]pyrene	1.01		0.036	3.57		1.14	0.190		0.036	ND		0.036
Dibenz[a,h]anthracene	0.594		0.031	4.62		1.35	0.166		0.031	ND		0.031
Benzo[g,h,i]perylene	ND		1.04	3.84		1.04	ND		1.04	ND		1.04
TOTAL BNA'S:	12.1			122			0.867			ND		
TOTAL TIC's:	23.7	J		614	JN		22.8	J		23.1	J	
TOTAL BNA'S & TIC's:	35.8			736			23.7			23.1		
PCB's (Units)	*(ug/L)*			*(ug/L)*			*(ug/L)*			*(ug/L)*		
Aroclor-1016	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1221	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1232	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1242	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1248	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1254	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1260	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1262	ND		0.015	ND		0.015	ND		0.015	ND		0.015
Aroclor-1268	ND		0.015	ND		0.015	ND		0.015	ND		0.015
PCBs	ND		0.015	ND		0.015	ND		0.015	ND		0.015

~ = Sample not analyzed for
ND = Analyzed for but Not Detected at the MDL
J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs
D = The compound was reported from the Diluted analysis
All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK-2661.1 CHELSEA
Lab Case No.: E23-05046

Lab ID:	05046-011			05046-012			05046-013			05046-014		
Client ID:	TWP1			TWP2			TWP4			TWP5		
Matrix:	Aqueous			Aqueous			Aqueous			Aqueous		
Sampled Date	11/15/23			11/15/23			11/16/23			11/16/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Pesticides (Units)	*(ug/L)*			*(ug/L)*			*(ug/L)*			*(ug/L)*		
alpha-BHC	ND		0.00206	ND		0.00206	ND		0.00206	ND		0.00206
beta-BHC	ND		0.00303	ND		0.00303	ND		0.00303	ND		0.00303
gamma-BHC (Lindane)	ND		0.00201	ND		0.00201	ND		0.00201	ND		0.00201
delta-BHC	ND		0.00238	ND		0.00238	ND		0.00238	ND		0.00238
Heptachlor	ND		0.00235	ND		0.00235	ND		0.00235	ND		0.00235
Aldrin	ND		0.00187	ND		0.00187	ND		0.00187	ND		0.00187
Heptachlor epoxide	ND		0.00217	ND		0.00217	ND		0.00217	ND		0.00217
Endosulfan I	ND		0.00208	ND		0.00208	ND		0.00208	ND		0.00208
4,4'-DDE	ND		0.00197	ND		0.00197	ND		0.00197	ND		0.00197
Dieldrin	ND		0.00237	ND		0.00237	ND		0.00237	ND		0.00237
Endrin	ND		0.00289	ND		0.00289	ND		0.00289	ND		0.00289
Endosulfan II	ND		0.00258	ND		0.00258	ND		0.00258	ND		0.00258
4,4'-DDD	ND		0.00294	ND		0.00294	ND		0.00294	ND		0.00294
Endrin aldehyde	ND		0.0023	ND		0.0023	ND		0.0023	ND		0.0023
Endosulfan sulfate	ND		0.00314	ND		0.00314	ND		0.00314	ND		0.00314
4,4'-DDT	ND		0.00202	ND		0.00202	ND		0.00202	ND		0.00202
Endrin ketone	ND		0.00323	ND		0.00323	ND		0.00323	ND		0.00323
Methoxychlor	ND		0.00337	ND		0.00337	ND		0.00337	ND		0.00337
alpha-Chlordane	ND		0.00215	ND		0.00215	ND		0.00215	ND		0.00215
gamma-Chlordane	ND		0.00314	ND		0.00314	ND		0.00314	ND		0.00314
Toxaphene	ND		0.050	ND		0.050	ND		0.050	ND		0.050
Endosulfan (I and II)	ND		0.00208	ND		0.00208	ND		0.00208	ND		0.00208
Chlordane (alpha and gamma)	ND		0.00215	ND		0.00215	ND		0.00215	ND		0.00215
General Analytical (Units)												
Cyanide, Total(ug/L)	ND		4.00	ND		4.00	ND		4.00	ND		4.00

Lab ID:	05046-019			05046-020			05046-021			05046-022		
Client ID:	TWP1 FILT			TWP2 FILT			TWP4 FILT			TWP5 FILT		
Matrix:	Aqueous			Aqueous			Aqueous			Aqueous		
Sampled Date	11/15/23			11/15/23			11/16/23			11/16/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Semivolatiles - BNA (Units)	*(ug/L)*			*(ug/L)*			*(ug/L)*			*(ug/L)*		
	~		~	~		~	~		~	~		~

~ = Sample not analyzed for
ND = Analyzed for but Not Detected at the MDL

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK-2661.1 CHELSEA
Lab Case No.: E23-05046

Lab ID:	05046-001			05046-002			05046-003			05046-004		
Client ID:	SB12A			SB2A			SB2B			SB1A		
Depth:	0/2			0/2			10/12			0/2		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	11/15/23			11/15/23			11/15/23			11/15/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Acetone	ND		0.007	ND		0.0048	0.00904	J	0.00645	ND		0.00795
Methylene chloride	ND		0.0042	ND		0.00288	0.0046	CJ	0.00387	ND		0.00477
TOTAL VO's:	ND			ND			0.014	CJ		ND		
TOTAL TIC's:	ND			ND			0.0071	JN		ND		
TOTAL VO's & TIC's:	ND			ND			0.021	CJ		ND		
Semivolatiles - BNA (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Benzaldehyde	ND		0.029	ND		0.027	0.102		0.027	ND		0.028
Naphthalene	ND		0.00557	0.085		0.00525	ND		0.00527	0.032	J	0.00536
2-Methylnaphthalene	ND		0.013	0.065		0.013	ND		0.013	0.023	J	0.013
1,1'-Biphenyl	ND		0.00568	0.020	J	0.00535	ND		0.00537	ND		0.00546
Acenaphthylene	0.031	J	0.00836	0.074		0.00787	ND		0.0079	0.076		0.00804
Acenaphthene	ND		0.00754	0.143		0.0071	ND		0.00713	0.091		0.00725
Dibenzofuran	ND		0.005	0.102		0.0047	ND		0.00472	0.039		0.0048
Fluorene	ND		0.010	0.166		0.00968	ND		0.00972	0.068		0.00988
Phenanthrene	0.353		0.00625	2.61		0.00588	0.180		0.00591	1.18		0.00601
Anthracene	0.080		0.00389	0.626		0.00366	0.059		0.00368	0.311		0.00374
Carbazole	0.026	J	0.0089	0.163		0.00838	ND		0.00842	0.103		0.00856
Di-n-butyl phthalate	ND		0.016	ND		0.015	ND		0.015	0.029	J	0.015
Fluoranthene	0.601		0.012	3.46		0.012	0.379		0.012	2.25		0.012
Pyrene	0.608		0.00889	3.17		0.00837	0.325		0.0084	2.17		0.00854
Benzo[a]anthracene	0.313		0.014	1.80		0.013	0.190		0.013	1.28		0.013
Chrysene	0.332		0.011	1.60		0.00992	0.173		0.00997	1.10		0.010
Bis(2-ethylhexyl) phthalate	ND		0.025	ND		0.023	ND		0.023	0.280		0.024
Benzo[b]fluoranthene	0.287		0.019	1.57		0.018	0.207		0.018	1.42		0.018
Benzo[k]fluoranthene	0.264		0.026	1.08		0.025	0.138		0.025	0.858		0.025
Benzo[a]pyrene	0.299		0.019	1.44		0.017	0.177		0.018	1.29		0.018
Indeno[1,2,3-cd]pyrene	0.190		0.024	0.845		0.023	0.114		0.023	0.788		0.024
Dibenz[a,h]anthracene	0.103		0.015	0.487		0.014	0.064		0.014	0.380		0.015
Benzo[g,h,i]perylene	0.199		0.029	0.870		0.027	0.120		0.027	0.831		0.028
TOTAL BNA'S:	3.69	J		20.4	J		2.23			14.6	J	
TOTAL TIC's:	ND			0.676	JN		ND			0.191	J	
TOTAL BNA'S & TIC's:	3.69	J		21.1	J		2.23			14.8	J	

ND = Analyzed for but Not Detected at the MDL
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All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK-2661.1 CHELSEA
Lab Case No.: E23-05046

Lab ID:	05046-001			05046-002			05046-003			05046-004		
Client ID:	SB12A			SB2A			SB2B			SB1A		
Depth:	0/2			0/2			10/12			0/2		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	11/15/23			11/15/23			11/15/23			11/15/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
PCB's (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Aroclor-1016	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1221	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1232	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1242	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1248	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1254	ND		0.0011	0.080		0.0011	ND		0.0011	ND		0.0011
Aroclor-1260	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1262	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1268	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
PCBs	ND		0.00115	0.080		0.00108	ND		0.00109	ND		0.00111
Pesticides (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
alpha-BHC	ND		0.000137	ND		0.000128	ND		0.00013	ND		0.000132
beta-BHC	ND		0.000179	ND		0.000168	ND		0.00017	ND		0.000172
gamma-BHC (Lindane)	ND		0.000171	ND		0.00016	ND		0.000162	ND		0.000164
delta-BHC	ND		0.000149	ND		0.000139	ND		0.000141	ND		0.000143
Heptachlor	ND		0.000182	ND		0.00017	ND		0.000173	ND		0.000175
Aldrin	ND		0.00016	ND		0.00015	ND		0.000152	ND		0.000154
Heptachlor epoxide	ND		0.000166	ND		0.000156	ND		0.000158	ND		0.00016
Endosulfan I	ND		0.000172	ND		0.000161	ND		0.000163	ND		0.000165
4,4'-DDE	ND		0.000156	0.0034		0.000146	0.00226		0.000148	0.019		0.00015
Dieldrin	ND		0.000156	0.00127		0.000146	ND		0.000148	0.00332		0.00015
Endrin	ND		0.000193	ND		0.000181	ND		0.000183	ND		0.000186
Endosulfan II	ND		0.000176	ND		0.000165	ND		0.000167	ND		0.000169
4,4'-DDD	ND		0.000204	ND		0.000192	0.000712	J	0.000194	0.00407		0.000197
Endrin aldehyde	ND		0.00016	ND		0.00015	ND		0.000152	ND		0.000154
Endosulfan sulfate	ND		0.00019	ND		0.000178	ND		0.00018	ND		0.000183
4,4'-DDT	ND		0.000143	0.00556		0.000134	0.00384		0.000135	0.027		0.000137
Endrin ketone	ND		0.000149	ND		0.00014	ND		0.000142	ND		0.000144
Methoxychlor	ND		0.000205	ND		0.000192	ND		0.000194	ND		0.000197
alpha-Chlordane	ND		0.000169	ND		0.000159	ND		0.00016	0.00369		0.000163
gamma-Chlordane	ND		0.000151	ND		0.000141	ND		0.000143	0.00319		0.000145
Toxaphene	ND		0.00383	ND		0.00359	ND		0.00364	ND		0.00369
Endosulfan (I and II)	ND		0.000172	ND		0.000161	ND		0.000163	ND		0.000165
Chlordane (alpha and gamma)	ND		0.000151	ND		0.000141	ND		0.000143	0.00688		0.000145
General Analytical (Units)												
Cyanide, Total(mg/Kg)	0.288	J	0.231	ND		0.216	ND		0.218	0.222	J	0.222

ND = Analyzed for but Not Detected at the MDL
J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs
D = The compound was reported from the Diluted analysis
All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK-2661.1 CHELSEA
Lab Case No.: E23-05046

Lab ID:	05046-005			05046-006			05046-007			05046-008		
Client ID:	SB1B			SB3A			SB3B			SB10A		
Depth:	10/12			0/2			10/12			1.5/2.5		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	11/15/23			11/15/23			11/15/23			11/15/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Acetone	ND		0.00585	ND		0.00595	0.019		0.00595	0.0068	J	0.0055
Methylene chloride	0.00432	CJ	0.00351	ND		0.00357	ND		0.00357	ND		0.0033
TOTAL VO's:	0.00432	CJ		ND			0.019			0.0068	J	
TOTAL TIC's:	ND			ND			0.030	JN		0.041	JN	
TOTAL VO's & TIC's:	0.00432	CJ		ND			0.049			0.048	J	
Semivolatiles - BNA (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Naphthalene	0.108		0.00569	0.117	D	0.011	1.29	D	0.054	ND		0.00534
2-Methylnaphthalene	0.156		0.014	0.084	D	0.026	0.910	D	0.131	ND		0.013
1,1'-Biphenyl	ND		0.0058	ND		0.011	0.265	DJ	0.056	ND		0.00544
Acenaphthylene	0.125		0.00854	0.251	D	0.016	0.969	D	0.082	0.078		0.00801
Acenaphthene	0.335		0.0077	0.444	D	0.015	3.45	D	0.074	0.115		0.00723
Dibenzofuran	ND		0.0051	0.197	D	0.0097	1.68	D	0.049	0.048		0.00479
Fluorene	0.193		0.011	0.318	D	0.020	2.22	D	0.100	0.098		0.00985
Phenanthrene	2.95		0.00638	5.70	D	0.012	33.6	D	0.061	1.62		0.00599
Anthracene	0.524		0.00397	1.28	D	0.00755	7.19	D	0.038	0.447		0.00372
Carbazole	ND		0.00909	0.426	D	0.017	2.76	D	0.087	0.098		0.00853
Di-n-butyl phthalate	ND		0.016	0.112	D	0.030	ND		0.151	ND		0.015
Fluoranthene	3.89		0.013	9.14	D	0.024	38.7	D	0.120	3.39		0.012
Pyrene	3.32		0.00908	8.24	D	0.017	34.2	D	0.087	2.81		0.00851
Benzo[a]anthracene	1.68		0.014	4.16	D	0.027	15.3	D	0.136	1.62		0.013
Chrysene	1.52		0.011	3.86	D	0.021	14.0	D	0.103	1.39		0.010
Bis(2-ethylhexyl) phthalate	0.125		0.025	ND		0.048	ND		0.239	ND		0.024
Benzo[b]fluoranthene	1.58		0.019	3.81	D	0.037	13.6	D	0.184	1.51		0.018
Benzo[k]fluoranthene	1.10		0.027	3.22	D	0.051	10.4	D	0.258	1.17		0.025
Benzo[a]pyrene	1.46		0.019	3.97	D	0.036	13.3	D	0.181	1.48		0.018
Indeno[1,2,3-cd]pyrene	0.858		0.025	1.98	D	0.048	7.05	D	0.239	0.932		0.023
Dibenz[a,h]anthracene	0.443		0.016	1.03	D	0.030	3.51	D	0.149	0.489		0.015
Benzo[g,h,i]perylene	0.874		0.029	1.89	D	0.056	7.07	D	0.281	1.07		0.028
TOTAL BNA'S:	21.2			50.2	D		211	DJ		18.4		
TOTAL TIC's:	23.4	JN		1.53	DJ		2.42	DJN		0.168	JN	
TOTAL BNA'S & TIC's:	44.6			51.7	D		213	DJ		18.6		

ND = Analyzed for but Not Detected at the MDL
J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs
D = The compound was reported from the Diluted analysis
All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.
N = Presumptive evidence of a compound from the use of GC/MS library search.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK-2661.1 CHELSEA
Lab Case No.: E23-05046

Lab ID:	05046-005			05046-006			05046-007			05046-008		
Client ID:	SB1B			SB3A			SB3B			SB10A		
Depth:	10/12			0/2			10/12			1.5/2.5		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	11/15/23			11/15/23			11/15/23			11/15/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
PCB's (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Aroclor-1016	ND		0.0012	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1221	ND		0.0012	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1232	ND		0.0012	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1242	ND		0.0012	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1248	ND		0.0012	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1254	ND		0.0012	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1260	ND		0.0012	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1262	ND		0.0012	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1268	ND		0.0012	ND		0.0011	ND		0.0011	ND		0.0011
PCBs	ND		0.00117	ND		0.00111	ND		0.00113	ND		0.00109
Pesticides (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
alpha-BHC	ND		0.00014	ND		0.000132	ND		0.000134	ND		0.00013
beta-BHC	ND		0.000182	ND		0.000172	ND		0.000175	ND		0.00017
gamma-BHC (Lindane)	ND		0.000174	ND		0.000165	ND		0.000167	ND		0.000162
delta-BHC	ND		0.000152	ND		0.000143	ND		0.000145	ND		0.000141
Heptachlor	ND		0.000186	ND		0.000175	ND		0.000178	ND		0.000173
Aldrin	ND		0.000164	ND		0.000155	ND		0.000157	ND		0.000152
Heptachlor epoxide	ND		0.00017	ND		0.00016	ND		0.000163	ND		0.000158
Endosulfan I	ND		0.000175	ND		0.000165	ND		0.000168	ND		0.000163
4,4'-DDE	ND		0.00016	0.013		0.000151	ND		0.000153	0.095	D	0.000297
Dieldrin	ND		0.000159	ND		0.00015	ND		0.000153	ND		0.000148
Endrin	ND		0.000197	ND		0.000186	ND		0.000189	ND		0.000184
Endosulfan II	ND		0.000179	ND		0.000169	ND		0.000172	ND		0.000167
4,4'-DDD	ND		0.000209	ND		0.000197	ND		0.0002	0.014		0.000194
Endrin aldehyde	ND		0.000164	ND		0.000155	ND		0.000157	ND		0.000153
Endosulfan sulfate	ND		0.000194	ND		0.000183	ND		0.000186	ND		0.00018
4,4'-DDT	ND		0.000145	0.021		0.000137	ND		0.000139	0.096	D	0.000271
Endrin ketone	ND		0.000152	ND		0.000144	ND		0.000146	ND		0.000142
Methoxychlor	ND		0.000209	ND		0.000197	ND		0.0002	ND		0.000195
alpha-Chlordane	ND		0.000173	ND		0.000163	ND		0.000165	ND		0.000161
gamma-Chlordane	ND		0.000154	ND		0.000145	ND		0.000147	ND		0.000143
Toxaphene	ND		0.00391	ND		0.00369	ND		0.00375	ND		0.00364
Endosulfan (I and II)	ND		0.000175	ND		0.000165	ND		0.000168	ND		0.000163
Chlordane (alpha and gamma)	ND		0.000154	ND		0.000145	ND		0.000147	ND		0.000143
General Analytical (Units)												
Cyanide, Total(mg/Kg)	5.71		0.236	0.501	J	0.222	1.24		0.225	ND		0.220

ND = Analyzed for but Not Detected at the MDL
J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs
D = The compound was reported from the Diluted analysis

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK-2661.1 CHELSEA
Lab Case No.: E23-05046

Lab ID:	05046-009			05046-010			05046-015			05046-016		
Client ID:	SB11A			SB8A			SB4A			SB4B		
Depth:	1/2			0/1.5			0/2			10/12		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	11/15/23			11/15/23			11/16/23			11/16/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Acetone	ND		0.00515	0.00649	J	0.0056	ND		0.0063	ND		0.00585
TOTAL VO's:	ND			0.00649	J		ND			ND		
TOTAL TIC's:	ND			ND			ND			ND		
TOTAL VO's & TIC's:	ND			0.00649	J		ND			ND		
Semivolatiles - BNA (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Benzaldehyde	ND		0.030	ND		0.026	ND		0.029	0.173		0.031
Acenaphthylene	0.048		0.00859	ND		0.0077	0.037	J	0.00837	ND		0.00906
Acenaphthene	0.032	J	0.00775	ND		0.00694	ND		0.00755	ND		0.00818
Fluorene	0.032	J	0.011	ND		0.00947	0.020	J	0.010	ND		0.011
Phenanthrene	0.626		0.00642	ND		0.00575	0.212		0.00626	ND		0.00677
Anthracene	0.177		0.00399	ND		0.00358	0.062		0.00389	ND		0.00422
Carbazole	0.041		0.00914	ND		0.0082	0.028	J	0.00891	ND		0.00965
Fluoranthene	1.74		0.013	0.018	J	0.011	0.371		0.012	0.030	J	0.013
Pyrene	1.46		0.00913	0.019	J	0.00818	0.333		0.0089	0.025	J	0.00964
Benzo[a]anthracene	0.947		0.014	ND		0.013	0.191		0.014	0.026	J	0.015
Chrysene	0.742		0.011	ND		0.0097	0.172		0.011	0.028	J	0.011
Bis(2-ethylhexyl) phthalate	ND		0.025	0.032	J	0.023	ND		0.025	ND		0.027
Benzo[b]fluoranthene	0.856		0.019	ND		0.017	0.197		0.019	0.035	J	0.020
Benzo[k]fluoranthene	0.739		0.027	ND		0.024	0.157		0.026	0.034	J	0.029
Benzo[a]pyrene	0.865		0.019	ND		0.017	0.189		0.019	0.037	J	0.020
Indeno[1,2,3-cd]pyrene	0.511		0.025	ND		0.023	0.118		0.025	0.034	J	0.027
Dibenz[a,h]anthracene	0.277		0.016	ND		0.014	0.056		0.015	ND		0.017
Benzo[g,h,i]perylene	0.511		0.030	ND		0.027	0.121		0.029	0.042		0.031
TOTAL BNA'S:	9.60	J		0.069	J		2.26	J		0.464	J	
TOTAL TIC's:	0.180	JN		0.232	JN		ND			0.911	J	
TOTAL BNA'S & TIC's:	9.78	J		0.301	J		2.26	J		1.38	J	
PCB's (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Aroclor-1016	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.0012
Aroclor-1221	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.0012
Aroclor-1232	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.0012
Aroclor-1242	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.0012
Aroclor-1248	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.0012
Aroclor-1254	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.0012
Aroclor-1260	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.0012
Aroclor-1262	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.0012
Aroclor-1268	ND		0.0012	ND		0.0011	ND		0.0012	ND		0.0012
PCBs	ND		0.00118	ND		0.00105	ND		0.00115	ND		0.00124

ND = Analyzed for but Not Detected at the MDL
J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs
D = The compound was reported from the Diluted analysis
All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.
ND = Analyzed for but Not Detected at the MDL

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK-2661.1 CHELSEA
Lab Case No.: E23-05046

Lab ID:	05046-009			05046-010			05046-015			05046-016		
Client ID:	SB11A			SB8A			SB4A			SB4B		
Depth:	1/2			0/1.5			0/2			10/12		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	11/15/23			11/15/23			11/16/23			11/16/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Pesticides (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
alpha-BHC	ND		0.000141	ND		0.000125	ND		0.000137	ND		0.000148
beta-BHC	ND		0.000184	ND		0.000163	ND		0.000179	ND		0.000193
gamma-BHC (Lindane)	ND		0.000176	ND		0.000156	ND		0.000171	ND		0.000184
delta-BHC	ND		0.000153	ND		0.000136	ND		0.000149	ND		0.00016
Heptachlor	ND		0.000187	ND		0.000166	ND		0.000182	ND		0.000196
Aldrin	ND		0.000165	ND		0.000147	ND		0.000161	ND		0.000173
Heptachlor epoxide	ND		0.000171	ND		0.000152	ND		0.000167	ND		0.000179
Endosulfan I	ND		0.000176	ND		0.000157	ND		0.000172	ND		0.000185
4,4'-DDE	0.078		0.000161	0.012		0.000143	ND		0.000157	ND		0.000168
Dieldrin	ND		0.00016	ND		0.000143	ND		0.000156	ND		0.000168
Endrin	ND		0.000199	ND		0.000177	ND		0.000194	ND		0.000208
Endosulfan II	ND		0.00018	ND		0.00016	ND		0.000176	ND		0.000189
4,4'-DDD	0.011		0.00021	0.000357	J	0.000187	ND		0.000205	ND		0.00022
Endrin aldehyde	ND		0.000165	ND		0.000147	0.018		0.000161	ND		0.000173
Endosulfan sulfate	ND		0.000195	ND		0.000173	ND		0.00019	ND		0.000205
4,4'-DDT	0.075		0.000146	0.0021		0.00013	ND		0.000143	ND		0.000154
Endrin ketone	ND		0.000153	ND		0.000136	ND		0.000149	ND		0.000161
Methoxychlor	ND		0.00021	ND		0.000187	ND		0.000205	ND		0.000221
alpha-Chlordane	ND		0.000174	ND		0.000155	ND		0.000169	ND		0.000182
gamma-Chlordane	ND		0.000155	ND		0.000138	ND		0.000151	ND		0.000162
Toxaphene	ND		0.00394	ND		0.0035	ND		0.00384	ND		0.00413
Endosulfan (I and II)	ND		0.000176	ND		0.000157	ND		0.000172	ND		0.000185
Chlordane (alpha and gamma)	ND		0.000155	ND		0.000138	ND		0.000151	ND		0.000162
General Analytical (Units)												
Cyanide, Total(mg/Kg)	ND		0.237	ND		0.211	ND		0.231	ND		0.244

ND = Analyzed for but Not Detected at the MDL
J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs
D = The compound was reported from the Diluted analysis
All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK-2661.1 CHELSEA
Lab Case No.: E23-05046

Lab ID:	05046-017			05046-018		
Client ID:	SB5A			SB5B		
Depth:	0/2			10/12		
Matrix:	Soil			Soil		
Sampled Date	11/16/23			11/16/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL
Volatiles (Units)	*(mg/Kg)*			*(mg/Kg)*		
Acetone	0.031		0.00525	ND		0.00585
TOTAL VO's:	0.031			ND		
TOTAL TIC's:	ND			ND		
TOTAL VO's & TIC's:	0.031			ND		
Semivolatiles - BNA (Units)	*(mg/Kg)*			*(mg/Kg)*		
Phenanthrene	0.035	J	0.00599	ND		0.00637
Fluoranthene	0.057		0.012	0.023	J	0.013
Pyrene	0.054		0.00852	0.024	J	0.00906
Benzo[a]anthracene	0.035	J	0.013	ND		0.014
Chrysene	0.031	J	0.010	ND		0.011
Benzo[b]fluoranthene	0.034	J	0.018	ND		0.019
Benzo[k]fluoranthene	0.028	J	0.025	ND		0.027
Benzo[a]pyrene	0.030	J	0.018	ND		0.019
TOTAL BNA'S:	0.304	J		0.047	J	
TOTAL TIC's:	0.568	JN		0.903	JN	
TOTAL BNA'S & TIC's:	0.872	J		0.950	J	
PCB's (Units)	*(mg/Kg)*			*(mg/Kg)*		
Aroclor-1016	ND		0.0011	ND		0.0012
Aroclor-1221	ND		0.0011	ND		0.0012
Aroclor-1232	ND		0.0011	ND		0.0012
Aroclor-1242	ND		0.0011	ND		0.0012
Aroclor-1248	ND		0.0011	ND		0.0012
Aroclor-1254	ND		0.0011	ND		0.0012
Aroclor-1260	ND		0.0011	ND		0.0012
Aroclor-1262	ND		0.0011	ND		0.0012
Aroclor-1268	ND		0.0011	ND		0.0012
PCBs	ND		0.0011	ND		0.00117

ND = Analyzed for but Not Detected at the MDL

J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs

N = Presumptive evidence of a compound from the use of GC/MS library search.

All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK-2661.1 CHELSEA
Lab Case No.: E23-05046

Lab ID:	05046-017			05046-018		
Client ID:	SB5A			SB5B		
Depth:	0/2			10/12		
Matrix:	Soil			Soil		
Sampled Date	11/16/23			11/16/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL
Pesticides (Units)	*(mg/Kg)*			*(mg/Kg)*		
alpha-BHC	ND		0.00013	ND		0.000139
beta-BHC	ND		0.00017	ND		0.000181
gamma-BHC (Lindane)	ND		0.000163	ND		0.000173
delta-BHC	ND		0.000141	ND		0.000151
Heptachlor	ND		0.000173	ND		0.000185
Aldrin	ND		0.000153	ND		0.000163
Heptachlor epoxide	ND		0.000159	ND		0.000169
Endosulfan I	ND		0.000163	ND		0.000174
4,4'-DDE	0.00285		0.000149	0.00041	J	0.000159
Dieldrin	ND		0.000149	ND		0.000158
Endrin	ND		0.000184	ND		0.000196
Endosulfan II	ND		0.000167	ND		0.000178
4,4'-DDD	0.00649		0.000195	0.000444	J	0.000207
Endrin aldehyde	ND		0.000153	ND		0.000163
Endosulfan sulfate	ND		0.000181	ND		0.000193
4,4'-DDT	0.000589	J	0.000136	0.000229	J	0.000145
Endrin ketone	ND		0.000142	ND		0.000151
Methoxychlor	ND		0.000195	ND		0.000208
alpha-Chlordane	ND		0.000161	ND		0.000172
gamma-Chlordane	ND		0.000143	ND		0.000153
Toxaphene	ND		0.00365	ND		0.00389
Endosulfan (I and II)	ND		0.000163	ND		0.000174
Chlordane (alpha and gamma)	ND		0.000143	ND		0.000153
General Analytical (Units)						
Cyanide, Total(mg/Kg)	ND		0.220	ND		0.234

ND = Analyzed for but Not Detected at the MDL

J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs

+ Subcontracted data for TAL Metals (6020B/7471B) by SGS Dayton will be sent separately once available.

ANALYTICAL RESULTS

VOLATILE ORGANICS

Lab ID: E23-05046-001
Client ID: SB12A
Date Received: 11/16/2023
Date Analyzed: 11/17/2023
Data file: L7671.D 11/17/2023 22:09

GC/MS Column: DB-624
Sample wt/vol: 4.12g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.3
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.0014	0.000727
Chloromethane	ND		0.0028	0.000444
Vinyl chloride	ND		0.0014	0.000454
Bromomethane	ND		0.0028	0.00122
Chloroethane	ND		0.0014	0.000416
Trichlorofluoromethane	ND		0.0014	0.000568
1,1-Dichloroethene	ND		0.0014	0.00049
Acetone	ND		0.014	0.007
Carbon disulfide	ND		0.0014	0.00055
Methylene chloride	ND		0.007	0.0042
trans-1,2-Dichloroethene	ND		0.0028	0.000496
Methyl tert-butyl ether (MTBE)	ND		0.0014	0.000305
1,1-Dichloroethane	ND		0.0028	0.000357
cis-1,2-Dichloroethene	ND		0.0028	0.0003
2-Butanone (MEK)	ND		0.014	0.0028
Bromochloromethane	ND		0.0014	0.000356
Chloroform	ND		0.0028	0.0007
1,1,1-Trichloroethane	ND		0.0014	0.00043
Carbon tetrachloride	ND		0.0014	0.00028
1,2-Dichloroethane (EDC)	ND		0.0014	0.000323
Benzene	ND		0.0014	0.00012
Trichloroethene	ND		0.0014	0.000209
1,2-Dichloropropane	ND		0.0014	0.00014
Bromodichloromethane	ND		0.0014	0.000167
cis-1,3-Dichloropropene	ND		0.0014	0.000214
4-Methyl-2-pentanone (MIBK)	ND		0.014	0.000732

VOLATILE ORGANICS

Lab ID: E23-05046-001
Client ID: SB12A
Date Received: 11/16/2023
Date Analyzed: 11/17/2023
Data file: L7671.D 11/17/2023 22:09

GC/MS Column: DB-624
Sample wt/vol: 4.12g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.3
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.0014	0.0007
trans-1,3-Dichloropropene	ND		0.0014	0.000155
1,1,2-Trichloroethane	ND		0.0014	0.0003
Tetrachloroethene	ND		0.0014	0.000144
2-Hexanone	ND		0.014	0.00214
Dibromochloromethane	ND		0.0014	0.000232
1,2-Dibromoethane (EDB)	ND		0.0014	0.000259
Chlorobenzene	ND		0.0014	0.000242
Ethylbenzene	ND		0.0014	0.000153
Total Xylenes	ND		0.0028	0.000196
Styrene	ND		0.0014	0.000301
Bromoform	ND		0.0014	0.000435
Isopropylbenzene	ND		0.0014	0.000298
1,1,2,2-Tetrachloroethane	ND		0.0014	0.000732
1,3-Dichlorobenzene	ND		0.0014	0.000371
1,4-Dichlorobenzene	ND		0.0014	0.000434
1,2-Dichlorobenzene	ND		0.0014	0.000351
1,2-Dibromo-3-chloropropane	ND		0.0014	0.00115
1,2,4-Trichlorobenzene	ND		0.0014	0.000588
1,2,3-Trichlorobenzene	ND		0.0028	0.000445
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0028	0.000836
Methyl acetate	ND		0.0014	0.00113
Cyclohexane	ND		0.007	0.000252
Methylcyclohexane	ND		0.0028	0.000241
1,3-Dichloropropene (cis- and trans-)	ND		0.0014	0.000155

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-001
Client ID: SB12A
Date Received: 11/16/2023
Date Analyzed: 11/17/2023
Date File: L7671.D

GC/MS Column: DB-624
Sample wt/vol: 4.12g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 13.3

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.40

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-002
Client ID: SB2A
Date Received: 11/16/2023
Date Analyzed: 11/17/2023
Data file: L7673.D 11/17/2023 23:04

GC/MS Column: DB-624
Sample wt/vol: 5.61g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.3
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00096	0.000498
Chloromethane	ND		0.00192	0.000304
Vinyl chloride	ND		0.00096	0.000311
Bromomethane	ND		0.00192	0.000837
Chloroethane	ND		0.00096	0.000285
Trichlorofluoromethane	ND		0.00096	0.00039
1,1-Dichloroethene	ND		0.00096	0.000336
Acetone	ND		0.0096	0.0048
Carbon disulfide	ND		0.00096	0.000377
Methylene chloride	ND		0.0048	0.00288
trans-1,2-Dichloroethene	ND		0.00192	0.00034
Methyl tert-butyl ether (MTBE)	ND		0.00096	0.000209
1,1-Dichloroethane	ND		0.00192	0.000245
cis-1,2-Dichloroethene	ND		0.00192	0.000205
2-Butanone (MEK)	ND		0.0096	0.00192
Bromochloromethane	ND		0.00096	0.000244
Chloroform	ND		0.00192	0.00048
1,1,1-Trichloroethane	ND		0.00096	0.000295
Carbon tetrachloride	ND		0.00096	0.000192
1,2-Dichloroethane (EDC)	ND		0.00096	0.000222
Benzene	ND		0.00096	0.0000826
Trichloroethene	ND		0.00096	0.000143
1,2-Dichloropropane	ND		0.00096	0.000096
Bromodichloromethane	ND		0.00096	0.000114
cis-1,3-Dichloropropene	ND		0.00096	0.000147
4-Methyl-2-pentanone (MIBK)	ND		0.0096	0.000502

VOLATILE ORGANICS

Lab ID: E23-05046-002
Client ID: SB2A
Date Received: 11/16/2023
Date Analyzed: 11/17/2023
Data file: L7673.D 11/17/2023 23:04

GC/MS Column: DB-624
Sample wt/vol: 5.61g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.3
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00096	0.00048
trans-1,3-Dichloropropene	ND		0.00096	0.000107
1,1,2-Trichloroethane	ND		0.00096	0.000205
Tetrachloroethene	ND		0.00096	0.0000989
2-Hexanone	ND		0.0096	0.00147
Dibromochloromethane	ND		0.00096	0.000159
1,2-Dibromoethane (EDB)	ND		0.00096	0.000178
Chlorobenzene	ND		0.00096	0.000166
Ethylbenzene	ND		0.00096	0.000105
Total Xylenes	ND		0.00192	0.000134
Styrene	ND		0.00096	0.000206
Bromoform	ND		0.00096	0.000299
Isopropylbenzene	ND		0.00096	0.000204
1,1,2,2-Tetrachloroethane	ND		0.00096	0.000502
1,3-Dichlorobenzene	ND		0.00096	0.000254
1,4-Dichlorobenzene	ND		0.00096	0.000298
1,2-Dichlorobenzene	ND		0.00096	0.000241
1,2-Dibromo-3-chloropropane	ND		0.00096	0.000791
1,2,4-Trichlorobenzene	ND		0.00096	0.000403
1,2,3-Trichlorobenzene	ND		0.00192	0.000305
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00192	0.000573
Methyl acetate	ND		0.00096	0.000776
Cyclohexane	ND		0.0048	0.000173
Methylcyclohexane	ND		0.00192	0.000165
1,3-Dichloropropene (cis- and trans-)	ND		0.00096	0.000107

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-002
Client ID: SB2A
Date Received: 11/16/2023
Date Analyzed: 11/17/2023
Date File: L7673.D

GC/MS Column: DB-624
Sample wt/vol: 5.61g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 7.3

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.40

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-003
Client ID: SB2B/10-12
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Data file: L7703.D 11/20/2023 18:05

GC/MS Column: DB-624
Sample wt/vol: 4.24g
Matrix-Units: Soil-mg/Kg
% Moisture: 8.30
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00129	0.00067
Chloromethane	ND		0.00258	0.000409
Vinyl chloride	ND		0.00129	0.000418
Bromomethane	ND		0.00258	0.00112
Chloroethane	ND		0.00129	0.000383
Trichlorofluoromethane	ND		0.00129	0.000524
1,1-Dichloroethene	ND		0.00129	0.000452
Acetone	0.00904	J	0.013	0.00645
Carbon disulfide	ND		0.00129	0.000507
Methylene chloride	0.0046	CJ	0.00645	0.00387
trans-1,2-Dichloroethene	ND		0.00258	0.000457
Methyl tert-butyl ether (MTBE)	ND		0.00129	0.000281
1,1-Dichloroethane	ND		0.00258	0.000329
cis-1,2-Dichloroethene	ND		0.00258	0.000276
2-Butanone (MEK)	ND		0.013	0.00258
Bromochloromethane	ND		0.00129	0.000328
Chloroform	ND		0.00258	0.000645
1,1,1-Trichloroethane	ND		0.00129	0.000396
Carbon tetrachloride	ND		0.00129	0.000258
1,2-Dichloroethane (EDC)	ND		0.00129	0.000298
Benzene	ND		0.00129	0.000111
Trichloroethene	ND		0.00129	0.000192
1,2-Dichloropropane	ND		0.00129	0.000129
Bromodichloromethane	ND		0.00129	0.000154
cis-1,3-Dichloropropene	ND		0.00129	0.000197
4-Methyl-2-pentanone (MIBK)	ND		0.013	0.000675

VOLATILE ORGANICS

Lab ID: E23-05046-003
Client ID: SB2B/10-12
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Data file: L7703.D 11/20/2023 18:05

GC/MS Column: DB-624
Sample wt/vol: 4.24g
Matrix-Units: Soil-mg/Kg
% Moisture: 8.30
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00129	0.000645
trans-1,3-Dichloropropene	ND		0.00129	0.000143
1,1,2-Trichloroethane	ND		0.00129	0.000276
Tetrachloroethene	ND		0.00129	0.000133
2-Hexanone	ND		0.013	0.00198
Dibromochloromethane	ND		0.00129	0.000214
1,2-Dibromoethane (EDB)	ND		0.00129	0.000239
Chlorobenzene	ND		0.00129	0.000223
Ethylbenzene	ND		0.00129	0.000141
Total Xylenes	ND		0.00258	0.000181
Styrene	ND		0.00129	0.000277
Bromoform	ND		0.00129	0.000401
Isopropylbenzene	ND		0.00129	0.000275
1,1,2,2-Tetrachloroethane	ND		0.00129	0.000675
1,3-Dichlorobenzene	ND		0.00129	0.000342
1,4-Dichlorobenzene	ND		0.00129	0.0004
1,2-Dichlorobenzene	ND		0.00129	0.000324
1,2-Dibromo-3-chloropropane	ND		0.00129	0.00106
1,2,4-Trichlorobenzene	ND		0.00129	0.000542
1,2,3-Trichlorobenzene	ND		0.00258	0.00041
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00258	0.00077
Methyl acetate	ND		0.00129	0.00104
Cyclohexane	ND		0.00645	0.000232
Methylcyclohexane	ND		0.00258	0.000222
1,3-Dichloropropene (cis- and trans-)	ND		0.00129	0.000143
Total Target Compounds (51):	0.014	CJ		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-003
Client ID: SB2B/10-12
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Date File: L7703.D

GC/MS Column: DB-624
Sample wt/vol: 4.24g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 8.30

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.39
000079-92-5	Camphene	0.0071	JN	11.73

Total TICs = 0.0071 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-004
Client ID: SB1A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7677.D 11/18/2023 00:56

GC/MS Column: DB-624
Sample wt/vol: 3.49g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.8
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00159	0.000825
Chloromethane	ND		0.00318	0.000504
Vinyl chloride	ND		0.00159	0.000515
Bromomethane	ND		0.00318	0.00139
Chloroethane	ND		0.00159	0.000472
Trichlorofluoromethane	ND		0.00159	0.000646
1,1-Dichloroethene	ND		0.00159	0.000557
Acetone	ND		0.016	0.00795
Carbon disulfide	ND		0.00159	0.000625
Methylene chloride	ND		0.00795	0.00477
trans-1,2-Dichloroethene	ND		0.00318	0.000563
Methyl tert-butyl ether (MTBE)	ND		0.00159	0.000347
1,1-Dichloroethane	ND		0.00318	0.000405
cis-1,2-Dichloroethene	ND		0.00318	0.00034
2-Butanone (MEK)	ND		0.016	0.00318
Bromochloromethane	ND		0.00159	0.000404
Chloroform	ND		0.00318	0.000795
1,1,1-Trichloroethane	ND		0.00159	0.000488
Carbon tetrachloride	ND		0.00159	0.000318
1,2-Dichloroethane (EDC)	ND		0.00159	0.000367
Benzene	ND		0.00159	0.000137
Trichloroethene	ND		0.00159	0.000237
1,2-Dichloropropane	ND		0.00159	0.000159
Bromodichloromethane	ND		0.00159	0.000189
cis-1,3-Dichloropropene	ND		0.00159	0.000243
4-Methyl-2-pentanone (MIBK)	ND		0.016	0.000832

VOLATILE ORGANICS

Lab ID: E23-05046-004
Client ID: SB1A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7677.D 11/18/2023 00:56

GC/MS Column: DB-624
Sample wt/vol: 3.49g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.8
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00159	0.000795
trans-1,3-Dichloropropene	ND		0.00159	0.000176
1,1,2-Trichloroethane	ND		0.00159	0.00034
Tetrachloroethene	ND		0.00159	0.000164
2-Hexanone	ND		0.016	0.00244
Dibromochloromethane	ND		0.00159	0.000264
1,2-Dibromoethane (EDB)	ND		0.00159	0.000294
Chlorobenzene	ND		0.00159	0.000275
Ethylbenzene	ND		0.00159	0.000173
Total Xylenes	ND		0.00318	0.000223
Styrene	ND		0.00159	0.000342
Bromoform	ND		0.00159	0.000494
Isopropylbenzene	ND		0.00159	0.000339
1,1,2,2-Tetrachloroethane	ND		0.00159	0.000832
1,3-Dichlorobenzene	ND		0.00159	0.000421
1,4-Dichlorobenzene	ND		0.00159	0.000493
1,2-Dichlorobenzene	ND		0.00159	0.000399
1,2-Dibromo-3-chloropropane	ND		0.00159	0.00131
1,2,4-Trichlorobenzene	ND		0.00159	0.000668
1,2,3-Trichlorobenzene	ND		0.00318	0.000506
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00318	0.000949
Methyl acetate	ND		0.00159	0.00128
Cyclohexane	ND		0.00795	0.000286
Methylcyclohexane	ND		0.00318	0.000273
1,3-Dichloropropene (cis- and trans-)	ND		0.00159	0.000176

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-004
Client ID: SB1A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Date File: L7677.D

GC/MS Column: DB-624
Sample wt/vol: 3.49g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 9.8

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.39

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-005
Client ID: SB1B/10-12
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Data file: L7704.D 11/20/2023 18:33

GC/MS Column: DB-624
Sample wt/vol: 5.05g
Matrix-Units: Soil-mg/Kg
% Moisture: 15.1
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00117	0.000607
Chloromethane	ND		0.00234	0.000371
Vinyl chloride	ND		0.00117	0.000379
Bromomethane	ND		0.00234	0.00102
Chloroethane	ND		0.00117	0.000347
Trichlorofluoromethane	ND		0.00117	0.000475
1,1-Dichloroethene	ND		0.00117	0.00041
Acetone	ND		0.012	0.00585
Carbon disulfide	ND		0.00117	0.00046
Methylene chloride	0.00432	CJ	0.00585	0.00351
trans-1,2-Dichloroethene	ND		0.00234	0.000414
Methyl tert-butyl ether (MTBE)	ND		0.00117	0.000255
1,1-Dichloroethane	ND		0.00234	0.000298
cis-1,2-Dichloroethene	ND		0.00234	0.00025
2-Butanone (MEK)	ND		0.012	0.00234
Bromochloromethane	ND		0.00117	0.000297
Chloroform	ND		0.00234	0.000585
1,1,1-Trichloroethane	ND		0.00117	0.000359
Carbon tetrachloride	ND		0.00117	0.000234
1,2-Dichloroethane (EDC)	ND		0.00117	0.00027
Benzene	ND		0.00117	0.000101
Trichloroethene	ND		0.00117	0.000174
1,2-Dichloropropane	ND		0.00117	0.000117
Bromodichloromethane	ND		0.00117	0.000139
cis-1,3-Dichloropropene	ND		0.00117	0.000179
4-Methyl-2-pentanone (MIBK)	ND		0.012	0.000612

VOLATILE ORGANICS

Lab ID: E23-05046-005
Client ID: SB1B/10-12
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Data file: L7704.D 11/20/2023 18:33

GC/MS Column: DB-624
Sample wt/vol: 5.05g
Matrix-Units: Soil-mg/Kg
% Moisture: 15.1
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00117	0.000585
trans-1,3-Dichloropropene	ND		0.00117	0.00013
1,1,2-Trichloroethane	ND		0.00117	0.00025
Tetrachloroethene	ND		0.00117	0.000121
2-Hexanone	ND		0.012	0.00179
Dibromochloromethane	ND		0.00117	0.000194
1,2-Dibromoethane (EDB)	ND		0.00117	0.000216
Chlorobenzene	ND		0.00117	0.000202
Ethylbenzene	ND		0.00117	0.000128
Total Xylenes	ND		0.00234	0.000164
Styrene	ND		0.00117	0.000252
Bromoform	ND		0.00117	0.000364
Isopropylbenzene	ND		0.00117	0.000249
1,1,2,2-Tetrachloroethane	ND		0.00117	0.000612
1,3-Dichlorobenzene	ND		0.00117	0.00031
1,4-Dichlorobenzene	ND		0.00117	0.000363
1,2-Dichlorobenzene	ND		0.00117	0.000294
1,2-Dibromo-3-chloropropane	ND		0.00117	0.000964
1,2,4-Trichlorobenzene	ND		0.00117	0.000491
1,2,3-Trichlorobenzene	ND		0.00234	0.000372
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00234	0.000698
Methyl acetate	ND		0.00117	0.000945
Cyclohexane	ND		0.00585	0.000211
Methylcyclohexane	ND		0.00234	0.000201
1,3-Dichloropropene (cis- and trans-)	ND		0.00117	0.00013

Total Target Compounds (51): 0.00432 CJ

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-005
Client ID: SB1B/10-12
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Date File: L7704.D

GC/MS Column: DB-624
Sample wt/vol: 5.05g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 15.1

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.38

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-006
Client ID: SB3A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7678.D 11/18/2023 01:25

GC/MS Column: DB-624
Sample wt/vol: 4.66g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.1
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00119	0.000618
Chloromethane	ND		0.00238	0.000377
Vinyl chloride	ND		0.00119	0.000386
Bromomethane	ND		0.00238	0.00104
Chloroethane	ND		0.00119	0.000353
Trichlorofluoromethane	ND		0.00119	0.000483
1,1-Dichloroethene	ND		0.00119	0.000417
Acetone	ND		0.012	0.00595
Carbon disulfide	ND		0.00119	0.000468
Methylene chloride	ND		0.00595	0.00357
trans-1,2-Dichloroethene	ND		0.00238	0.000421
Methyl tert-butyl ether (MTBE)	ND		0.00119	0.000259
1,1-Dichloroethane	ND		0.00238	0.000303
cis-1,2-Dichloroethene	ND		0.00238	0.000255
2-Butanone (MEK)	ND		0.012	0.00238
Bromochloromethane	ND		0.00119	0.000302
Chloroform	ND		0.00238	0.000595
1,1,1-Trichloroethane	ND		0.00119	0.000365
Carbon tetrachloride	ND		0.00119	0.000238
1,2-Dichloroethane (EDC)	ND		0.00119	0.000275
Benzene	ND		0.00119	0.000102
Trichloroethene	ND		0.00119	0.000177
1,2-Dichloropropane	ND		0.00119	0.000119
Bromodichloromethane	ND		0.00119	0.000142
cis-1,3-Dichloropropene	ND		0.00119	0.000182
4-Methyl-2-pentanone (MIBK)	ND		0.012	0.000622

VOLATILE ORGANICS

Lab ID: E23-05046-006
Client ID: SB3A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7678.D 11/18/2023 01:25

GC/MS Column: DB-624
Sample wt/vol: 4.66g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.1
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00119	0.000595
trans-1,3-Dichloropropene	ND		0.00119	0.000132
1,1,2-Trichloroethane	ND		0.00119	0.000255
Tetrachloroethene	ND		0.00119	0.000123
2-Hexanone	ND		0.012	0.00182
Dibromochloromethane	ND		0.00119	0.000198
1,2-Dibromoethane (EDB)	ND		0.00119	0.00022
Chlorobenzene	ND		0.00119	0.000206
Ethylbenzene	ND		0.00119	0.00013
Total Xylenes	ND		0.00238	0.000167
Styrene	ND		0.00119	0.000256
Bromoform	ND		0.00119	0.00037
Isopropylbenzene	ND		0.00119	0.000253
1,1,2,2-Tetrachloroethane	ND		0.00119	0.000622
1,3-Dichlorobenzene	ND		0.00119	0.000315
1,4-Dichlorobenzene	ND		0.00119	0.000369
1,2-Dichlorobenzene	ND		0.00119	0.000299
1,2-Dibromo-3-chloropropane	ND		0.00119	0.000981
1,2,4-Trichlorobenzene	ND		0.00119	0.0005
1,2,3-Trichlorobenzene	ND		0.00238	0.000378
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00238	0.00071
Methyl acetate	ND		0.00119	0.000962
Cyclohexane	ND		0.00595	0.000214
Methylcyclohexane	ND		0.00238	0.000205
1,3-Dichloropropene (cis- and trans-)	ND		0.00119	0.000132

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-006
Client ID: SB3A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Date File: L7678.D

GC/MS Column: DB-624
Sample wt/vol: 4.66g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 10.1

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.39

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-007
Client ID: SB3B
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7679.D 11/18/2023 01:53

GC/MS Column: DB-624
Sample wt/vol: 4.74g
Matrix-Units: Soil-mg/Kg
% Moisture: 11.2
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00119	0.000618
Chloromethane	ND		0.00238	0.000377
Vinyl chloride	ND		0.00119	0.000386
Bromomethane	ND		0.00238	0.00104
Chloroethane	ND		0.00119	0.000353
Trichlorofluoromethane	ND		0.00119	0.000483
1,1-Dichloroethene	ND		0.00119	0.000417
Acetone	0.019		0.012	0.00595
Carbon disulfide	ND		0.00119	0.000468
Methylene chloride	ND		0.00595	0.00357
trans-1,2-Dichloroethene	ND		0.00238	0.000421
Methyl tert-butyl ether (MTBE)	ND		0.00119	0.000259
1,1-Dichloroethane	ND		0.00238	0.000303
cis-1,2-Dichloroethene	ND		0.00238	0.000255
2-Butanone (MEK)	ND		0.012	0.00238
Bromochloromethane	ND		0.00119	0.000302
Chloroform	ND		0.00238	0.000595
1,1,1-Trichloroethane	ND		0.00119	0.000365
Carbon tetrachloride	ND		0.00119	0.000238
1,2-Dichloroethane (EDC)	ND		0.00119	0.000275
Benzene	ND		0.00119	0.000102
Trichloroethene	ND		0.00119	0.000177
1,2-Dichloropropane	ND		0.00119	0.000119
Bromodichloromethane	ND		0.00119	0.000142
cis-1,3-Dichloropropene	ND		0.00119	0.000182
4-Methyl-2-pentanone (MIBK)	ND		0.012	0.000622

VOLATILE ORGANICS

Lab ID: E23-05046-007
Client ID: SB3B
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7679.D 11/18/2023 01:53

GC/MS Column: DB-624
Sample wt/vol: 4.74g
Matrix-Units: Soil-mg/Kg
% Moisture: 11.2
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00119	0.000595
trans-1,3-Dichloropropene	ND		0.00119	0.000132
1,1,2-Trichloroethane	ND		0.00119	0.000255
Tetrachloroethene	ND		0.00119	0.000123
2-Hexanone	ND		0.012	0.00182
Dibromochloromethane	ND		0.00119	0.000198
1,2-Dibromoethane (EDB)	ND		0.00119	0.00022
Chlorobenzene	ND		0.00119	0.000206
Ethylbenzene	ND		0.00119	0.00013
Total Xylenes	ND		0.00238	0.000167
Styrene	ND		0.00119	0.000256
Bromoform	ND		0.00119	0.00037
Isopropylbenzene	ND		0.00119	0.000253
1,1,2,2-Tetrachloroethane	ND		0.00119	0.000622
1,3-Dichlorobenzene	ND		0.00119	0.000315
1,4-Dichlorobenzene	ND		0.00119	0.000369
1,2-Dichlorobenzene	ND		0.00119	0.000299
1,2-Dibromo-3-chloropropane	ND		0.00119	0.000981
1,2,4-Trichlorobenzene	ND		0.00119	0.0005
1,2,3-Trichlorobenzene	ND		0.00238	0.000378
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00238	0.00071
Methyl acetate	ND		0.00119	0.000962
Cyclohexane	ND		0.00595	0.000214
Methylcyclohexane	ND		0.00238	0.000205
1,3-Dichloropropene (cis- and trans-)	ND		0.00119	0.000132

Total Target Compounds (51): 0.019

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-007
Client ID: SB3B
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Date File: L7679.D

GC/MS Column: DB-624
Sample wt/vol: 4.74g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 11.2

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.39
000091-20-3	Naphthalene	0.015	JN	15.64
000090-12-0	Naphthalene, 1-methyl-	0.0069	JN	16.77
000091-57-6	Naphthalene, 2-methyl-	0.0075	JN	16.97

Total TICs = 0.030 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-008
Client ID: SB10A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7680.D 11/18/2023 02:21

GC/MS Column: DB-624
Sample wt/vol: 5.00g
Matrix-Units: Soil-mg/Kg
% Moisture: 8.9
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.0011	0.000571
Chloromethane	ND		0.0022	0.000349
Vinyl chloride	ND		0.0011	0.000356
Bromomethane	ND		0.0022	0.000959
Chloroethane	ND		0.0011	0.000327
Trichlorofluoromethane	ND		0.0011	0.000447
1,1-Dichloroethene	ND		0.0011	0.000385
Acetone	0.0068	J	0.011	0.0055
Carbon disulfide	ND		0.0011	0.000432
Methylene chloride	ND		0.0055	0.0033
trans-1,2-Dichloroethene	ND		0.0022	0.000389
Methyl tert-butyl ether (MTBE)	ND		0.0011	0.00024
1,1-Dichloroethane	ND		0.0022	0.000281
cis-1,2-Dichloroethene	ND		0.0022	0.000235
2-Butanone (MEK)	ND		0.011	0.0022
Bromochloromethane	ND		0.0011	0.000279
Chloroform	ND		0.0022	0.00055
1,1,1-Trichloroethane	ND		0.0011	0.000338
Carbon tetrachloride	ND		0.0011	0.00022
1,2-Dichloroethane (EDC)	ND		0.0011	0.000254
Benzene	ND		0.0011	0.0000946
Trichloroethene	ND		0.0011	0.000164
1,2-Dichloropropane	ND		0.0011	0.00011
Bromodichloromethane	ND		0.0011	0.000131
cis-1,3-Dichloropropene	ND		0.0011	0.000168
4-Methyl-2-pentanone (MIBK)	ND		0.011	0.000575

VOLATILE ORGANICS

Lab ID: E23-05046-008
Client ID: SB10A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7680.D 11/18/2023 02:21

GC/MS Column: DB-624
Sample wt/vol: 5.00g
Matrix-Units: Soil-mg/Kg
% Moisture: 8.9
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.0011	0.00055
trans-1,3-Dichloropropene	ND		0.0011	0.000122
1,1,2-Trichloroethane	ND		0.0011	0.000235
Tetrachloroethene	ND		0.0011	0.000113
2-Hexanone	ND		0.011	0.00169
Dibromochloromethane	ND		0.0011	0.000183
1,2-Dibromoethane (EDB)	ND		0.0011	0.000204
Chlorobenzene	ND		0.0011	0.00019
Ethylbenzene	ND		0.0011	0.00012
Total Xylenes	ND		0.0022	0.000154
Styrene	ND		0.0011	0.000237
Bromoform	ND		0.0011	0.000342
Isopropylbenzene	ND		0.0011	0.000234
1,1,2,2-Tetrachloroethane	ND		0.0011	0.000575
1,3-Dichlorobenzene	ND		0.0011	0.000292
1,4-Dichlorobenzene	ND		0.0011	0.000341
1,2-Dichlorobenzene	ND		0.0011	0.000276
1,2-Dibromo-3-chloropropane	ND		0.0011	0.000906
1,2,4-Trichlorobenzene	ND		0.0011	0.000462
1,2,3-Trichlorobenzene	ND		0.0022	0.00035
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0022	0.000657
Methyl acetate	ND		0.0011	0.000889
Cyclohexane	ND		0.0055	0.000198
Methylcyclohexane	ND		0.0022	0.000189
1,3-Dichloropropene (cis- and trans-)	ND		0.0011	0.000122
Total Target Compounds (51):	0.0068	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-008
Client ID: SB10A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Date File: L7680.D

GC/MS Column: DB-624
Sample wt/vol: 5.00g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 8.9

CAS #	Compound	Estimated Concentration	Q	Retention Time
001066-40-6	Silanol, trimethyl-	0.00693	JN	5.40
	Unknown VOA	0.034	J	13.28

Total TICs = 0.041 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-009
Client ID: SB11A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7681.D 11/18/2023 02:49

GC/MS Column: DB-624
Sample wt/vol: 5.75g
Matrix-Units: Soil-mg/Kg
% Moisture: 15.6
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00103	0.000535
Chloromethane	ND		0.00206	0.000327
Vinyl chloride	ND		0.00103	0.000334
Bromomethane	ND		0.00206	0.000898
Chloroethane	ND		0.00103	0.000306
Trichlorofluoromethane	ND		0.00103	0.000418
1,1-Dichloroethene	ND		0.00103	0.000361
Acetone	ND		0.010	0.00515
Carbon disulfide	ND		0.00103	0.000405
Methylene chloride	ND		0.00515	0.00309
trans-1,2-Dichloroethene	ND		0.00206	0.000365
Methyl tert-butyl ether (MTBE)	ND		0.00103	0.000225
1,1-Dichloroethane	ND		0.00206	0.000263
cis-1,2-Dichloroethene	ND		0.00206	0.00022
2-Butanone (MEK)	ND		0.010	0.00206
Bromochloromethane	ND		0.00103	0.000262
Chloroform	ND		0.00206	0.000515
1,1,1-Trichloroethane	ND		0.00103	0.000316
Carbon tetrachloride	ND		0.00103	0.000206
1,2-Dichloroethane (EDC)	ND		0.00103	0.000238
Benzene	ND		0.00103	0.0000886
Trichloroethene	ND		0.00103	0.000153
1,2-Dichloropropane	ND		0.00103	0.000103
Bromodichloromethane	ND		0.00103	0.000123
cis-1,3-Dichloropropene	ND		0.00103	0.000158
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.000539

VOLATILE ORGANICS

Lab ID: E23-05046-009
Client ID: SB11A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7681.D 11/18/2023 02:49

GC/MS Column: DB-624
Sample wt/vol: 5.75g
Matrix-Units: Soil-mg/Kg
% Moisture: 15.6
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00103	0.000515
trans-1,3-Dichloropropene	ND		0.00103	0.000114
1,1,2-Trichloroethane	ND		0.00103	0.00022
Tetrachloroethene	ND		0.00103	0.000106
2-Hexanone	ND		0.010	0.00158
Dibromochloromethane	ND		0.00103	0.000171
1,2-Dibromoethane (EDB)	ND		0.00103	0.000191
Chlorobenzene	ND		0.00103	0.000178
Ethylbenzene	ND		0.00103	0.000112
Total Xylenes	ND		0.00206	0.000144
Styrene	ND		0.00103	0.000221
Bromoform	ND		0.00103	0.00032
Isopropylbenzene	ND		0.00103	0.000219
1,1,2,2-Tetrachloroethane	ND		0.00103	0.000539
1,3-Dichlorobenzene	ND		0.00103	0.000273
1,4-Dichlorobenzene	ND		0.00103	0.000319
1,2-Dichlorobenzene	ND		0.00103	0.000259
1,2-Dibromo-3-chloropropane	ND		0.00103	0.000849
1,2,4-Trichlorobenzene	ND		0.00103	0.000433
1,2,3-Trichlorobenzene	ND		0.00206	0.000328
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00206	0.000615
Methyl acetate	ND		0.00103	0.000832
Cyclohexane	ND		0.00515	0.000185
Methylcyclohexane	ND		0.00206	0.000177
1,3-Dichloropropene (cis- and trans-)	ND		0.00103	0.000114

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-009
Client ID: SB11A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Date File: L7681.D

GC/MS Column: DB-624
Sample wt/vol: 5.75g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 15.6

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.39

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-010
Client ID: SB8A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7682.D 11/18/2023 03:17

GC/MS Column: DB-624
Sample wt/vol: 4.70g
Matrix-Units: Soil-mg/Kg
% Moisture: 5.2
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00112	0.000581
Chloromethane	ND		0.00224	0.000355
Vinyl chloride	ND		0.00112	0.000363
Bromomethane	ND		0.00224	0.000977
Chloroethane	ND		0.00112	0.000333
Trichlorofluoromethane	ND		0.00112	0.000455
1,1-Dichloroethene	ND		0.00112	0.000392
Acetone	0.00649	J	0.011	0.0056
Carbon disulfide	ND		0.00112	0.00044
Methylene chloride	ND		0.0056	0.00336
trans-1,2-Dichloroethene	ND		0.00224	0.000396
Methyl tert-butyl ether (MTBE)	ND		0.00112	0.000244
1,1-Dichloroethane	ND		0.00224	0.000286
cis-1,2-Dichloroethene	ND		0.00224	0.00024
2-Butanone (MEK)	ND		0.011	0.00224
Bromochloromethane	ND		0.00112	0.000284
Chloroform	ND		0.00224	0.00056
1,1,1-Trichloroethane	ND		0.00112	0.000344
Carbon tetrachloride	ND		0.00112	0.000224
1,2-Dichloroethane (EDC)	ND		0.00112	0.000259
Benzene	ND		0.00112	0.0000963
Trichloroethene	ND		0.00112	0.000167
1,2-Dichloropropane	ND		0.00112	0.000112
Bromodichloromethane	ND		0.00112	0.000133
cis-1,3-Dichloropropene	ND		0.00112	0.000171
4-Methyl-2-pentanone (MIBK)	ND		0.011	0.000586

VOLATILE ORGANICS

Lab ID: E23-05046-010
Client ID: SB8A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7682.D 11/18/2023 03:17

GC/MS Column: DB-624
Sample wt/vol: 4.70g
Matrix-Units: Soil-mg/Kg
% Moisture: 5.2
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00112	0.00056
trans-1,3-Dichloropropene	ND		0.00112	0.000124
1,1,2-Trichloroethane	ND		0.00112	0.00024
Tetrachloroethene	ND		0.00112	0.000115
2-Hexanone	ND		0.011	0.00172
Dibromochloromethane	ND		0.00112	0.000186
1,2-Dibromoethane (EDB)	ND		0.00112	0.000207
Chlorobenzene	ND		0.00112	0.000194
Ethylbenzene	ND		0.00112	0.000122
Total Xylenes	ND		0.00224	0.000157
Styrene	ND		0.00112	0.000241
Bromoform	ND		0.00112	0.000348
Isopropylbenzene	ND		0.00112	0.000239
1,1,2,2-Tetrachloroethane	ND		0.00112	0.000586
1,3-Dichlorobenzene	ND		0.00112	0.000297
1,4-Dichlorobenzene	ND		0.00112	0.000347
1,2-Dichlorobenzene	ND		0.00112	0.000281
1,2-Dibromo-3-chloropropane	ND		0.00112	0.000923
1,2,4-Trichlorobenzene	ND		0.00112	0.00047
1,2,3-Trichlorobenzene	ND		0.00224	0.000356
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00224	0.000669
Methyl acetate	ND		0.00112	0.000905
Cyclohexane	ND		0.0056	0.000202
Methylcyclohexane	ND		0.00224	0.000193
1,3-Dichloropropene (cis- and trans-)	ND		0.00112	0.000124
Total Target Compounds (51):	0.00649	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-010
Client ID: SB8A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Date File: L7682.D

GC/MS Column: DB-624
Sample wt/vol: 4.70g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 5.2

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.40

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-011
Client ID: TWP1
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Data file: E5244.D 11/20/2023 15:33
Data file: P5605.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		1.00	0.552
Chloromethane	ND		0.500	0.309
Vinyl chloride	ND		0.500	0.352
Bromomethane	ND		0.500	0.386
Chloroethane	ND		0.500	0.324
Trichlorofluoromethane	ND		1.00	0.503
1,1-Dichloroethene	ND		0.500	0.363
Acetone	ND		1.00	1.00
Carbon disulfide	ND		0.500	0.403
Methylene chloride	ND		1.00	0.500
trans-1,2-Dichloroethene	ND		0.500	0.372
Methyl tert-butyl ether (MTBE)	ND		0.500	0.245
1,1-Dichloroethane	ND		0.500	0.285
cis-1,2-Dichloroethene	ND		0.500	0.277
2-Butanone (MEK)	ND		1.00	0.802
Bromochloromethane	ND		0.500	0.379
Chloroform	14.0		0.500	0.285
1,1,1-Trichloroethane	ND		0.500	0.381
Carbon tetrachloride	ND		0.500	0.349
1,2-Dichloroethane (EDC)	ND		0.500	0.273
Benzene	ND		0.500	0.270
Trichloroethene	ND		0.500	0.347
1,2-Dichloropropane	ND		0.500	0.272
Bromodichloromethane	ND		0.500	0.258
cis-1,3-Dichloropropene	ND		0.500	0.264
4-Methyl-2-pentanone (MIBK)	ND		1.00	0.611

VOLATILE ORGANICS

Lab ID: E23-05046-011
Client ID: TWP1
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Data file: E5244.D 11/20/2023 15:33
Data file: P5605.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.500	0.302
trans-1,3-Dichloropropene	ND		0.500	0.330
1,1,2-Trichloroethane	ND		0.500	0.313
Tetrachloroethene	ND		0.500	0.365
2-Hexanone	ND		1.00	0.818
Dibromochloromethane	ND		0.500	0.263
1,2-Dibromoethane (EDB)^	ND		0.00484	0.00364
Chlorobenzene	ND		0.500	0.304
Ethylbenzene	ND		0.500	0.313
Total Xylenes	ND		1.00	0.345
Styrene	ND		0.500	0.317
Bromoform	ND		0.500	0.328
Isopropylbenzene	ND		0.500	0.332
1,1,2,2-Tetrachloroethane	ND		0.500	0.284
1,3-Dichlorobenzene	ND		0.500	0.386
1,4-Dichlorobenzene	ND		0.500	0.397
1,2-Dichlorobenzene	ND		0.500	0.354
1,2-Dibromo-3-chloropropane^	ND		0.00484	0.00364
1,2,4-Trichlorobenzene	ND		0.500	0.358
1,2,3-Trichlorobenzene	ND		0.500	0.406
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	0.538
Methyl acetate	ND		0.500	0.345
Cyclohexane	ND		1.00	0.469
Methylcyclohexane	ND		0.500	0.421
1,3-Dichloropropene (cis- and trans-)	ND		0.500	0.264
Total Target Compounds (51):	14.0			

^ --- Results reported from SW-846 8011
D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-011
Client ID: TWP1
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Date File: E5244.D

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-012
Client ID: TWP2
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Data file: E5245.D 11/20/2023 16:01
Data file: P5606.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		1.00	0.552
Chloromethane	ND		0.500	0.309
Vinyl chloride	ND		0.500	0.352
Bromomethane	ND		0.500	0.386
Chloroethane	ND		0.500	0.324
Trichlorofluoromethane	ND		1.00	0.503
1,1-Dichloroethene	ND		0.500	0.363
Acetone	ND		1.00	1.00
Carbon disulfide	ND		0.500	0.403
Methylene chloride	ND		1.00	0.500
trans-1,2-Dichloroethene	ND		0.500	0.372
Methyl tert-butyl ether (MTBE)	ND		0.500	0.245
1,1-Dichloroethane	ND		0.500	0.285
cis-1,2-Dichloroethene	ND		0.500	0.277
2-Butanone (MEK)	ND		1.00	0.802
Bromochloromethane	ND		0.500	0.379
Chloroform	ND		0.500	0.285
1,1,1-Trichloroethane	ND		0.500	0.381
Carbon tetrachloride	ND		0.500	0.349
1,2-Dichloroethane (EDC)	ND		0.500	0.273
Benzene	ND		0.500	0.270
Trichloroethene	ND		0.500	0.347
1,2-Dichloropropane	ND		0.500	0.272
Bromodichloromethane	ND		0.500	0.258
cis-1,3-Dichloropropene	ND		0.500	0.264
4-Methyl-2-pentanone (MIBK)	ND		1.00	0.611

VOLATILE ORGANICS

Lab ID: E23-05046-012
Client ID: TWP2
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Data file: E5245.D 11/20/2023 16:01
Data file: P5606.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.500	0.302
trans-1,3-Dichloropropene	ND		0.500	0.330
1,1,2-Trichloroethane	ND		0.500	0.313
Tetrachloroethene	ND		0.500	0.365
2-Hexanone	ND		1.00	0.818
Dibromochloromethane	ND		0.500	0.263
1,2-Dibromoethane (EDB)^	ND		0.00483	0.00364
Chlorobenzene	ND		0.500	0.304
Ethylbenzene	ND		0.500	0.313
Total Xylenes	ND		1.00	0.345
Styrene	ND		0.500	0.317
Bromoform	ND		0.500	0.328
Isopropylbenzene	ND		0.500	0.332
1,1,2,2-Tetrachloroethane	ND		0.500	0.284
1,3-Dichlorobenzene	ND		0.500	0.386
1,4-Dichlorobenzene	ND		0.500	0.397
1,2-Dichlorobenzene	ND		0.500	0.354
1,2-Dibromo-3-chloropropane^	ND		0.00483	0.00364
1,2,4-Trichlorobenzene	ND		0.500	0.358
1,2,3-Trichlorobenzene	ND		0.500	0.406
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	0.538
Methyl acetate	ND		0.500	0.345
Cyclohexane	ND		1.00	0.469
Methylcyclohexane	ND		0.500	0.421
1,3-Dichloropropene (cis- and trans-)	ND		0.500	0.264

Total Target Compounds (51): 0

^ --- Results reported from SW-846 8011
D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-012
Client ID: TWP2
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Date File: E5245.D

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-013
Client ID: TWP4
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Data file: E5246.D 11/20/2023 16:28
Data file: P5607.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		1.00	0.552
Chloromethane	ND		0.500	0.309
Vinyl chloride	ND		0.500	0.352
Bromomethane	ND		0.500	0.386
Chloroethane	ND		0.500	0.324
Trichlorofluoromethane	ND		1.00	0.503
1,1-Dichloroethene	ND		0.500	0.363
Acetone	ND		1.00	1.00
Carbon disulfide	ND		0.500	0.403
Methylene chloride	ND		1.00	0.500
trans-1,2-Dichloroethene	ND		0.500	0.372
Methyl tert-butyl ether (MTBE)	ND		0.500	0.245
1,1-Dichloroethane	ND		0.500	0.285
cis-1,2-Dichloroethene	ND		0.500	0.277
2-Butanone (MEK)	ND		1.00	0.802
Bromochloromethane	ND		0.500	0.379
Chloroform	ND		0.500	0.285
1,1,1-Trichloroethane	ND		0.500	0.381
Carbon tetrachloride	ND		0.500	0.349
1,2-Dichloroethane (EDC)	ND		0.500	0.273
Benzene	ND		0.500	0.270
Trichloroethene	ND		0.500	0.347
1,2-Dichloropropane	ND		0.500	0.272
Bromodichloromethane	ND		0.500	0.258
cis-1,3-Dichloropropene	ND		0.500	0.264
4-Methyl-2-pentanone (MIBK)	ND		1.00	0.611

VOLATILE ORGANICS

Lab ID: E23-05046-013
Client ID: TWP4
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Data file: E5246.D 11/20/2023 16:28
Data file: P5607.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.500	0.302
trans-1,3-Dichloropropene	ND		0.500	0.330
1,1,2-Trichloroethane	ND		0.500	0.313
Tetrachloroethene	ND		0.500	0.365
2-Hexanone	ND		1.00	0.818
Dibromochloromethane	ND		0.500	0.263
1,2-Dibromoethane (EDB)^	ND		0.00487	0.00364
Chlorobenzene	ND		0.500	0.304
Ethylbenzene	ND		0.500	0.313
Total Xylenes	ND		1.00	0.345
Styrene	ND		0.500	0.317
Bromoform	ND		0.500	0.328
Isopropylbenzene	ND		0.500	0.332
1,1,2,2-Tetrachloroethane	ND		0.500	0.284
1,3-Dichlorobenzene	ND		0.500	0.386
1,4-Dichlorobenzene	ND		0.500	0.397
1,2-Dichlorobenzene	ND		0.500	0.354
1,2-Dibromo-3-chloropropane^	ND		0.00487	0.00364
1,2,4-Trichlorobenzene	ND		0.500	0.358
1,2,3-Trichlorobenzene	ND		0.500	0.406
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	0.538
Methyl acetate	ND		0.500	0.345
Cyclohexane	ND		1.00	0.469
Methylcyclohexane	ND		0.500	0.421
1,3-Dichloropropene (cis- and trans-)	ND		0.500	0.264

Total Target Compounds (51): 0

^ --- Results reported from SW-846 8011
D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-013
Client ID: TWP4
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Date File: E5246.D

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-014
Client ID: TWP5
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Data file: E5247.D 11/20/2023 16:55
Data file: P5608.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		1.00	0.552
Chloromethane	ND		0.500	0.309
Vinyl chloride	ND		0.500	0.352
Bromomethane	ND		0.500	0.386
Chloroethane	ND		0.500	0.324
Trichlorofluoromethane	ND		1.00	0.503
1,1-Dichloroethene	ND		0.500	0.363
Acetone	ND		1.00	1.00
Carbon disulfide	ND		0.500	0.403
Methylene chloride	ND		1.00	0.500
trans-1,2-Dichloroethene	ND		0.500	0.372
Methyl tert-butyl ether (MTBE)	ND		0.500	0.245
1,1-Dichloroethane	ND		0.500	0.285
cis-1,2-Dichloroethene	ND		0.500	0.277
2-Butanone (MEK)	ND		1.00	0.802
Bromochloromethane	ND		0.500	0.379
Chloroform	7.89		0.500	0.285
1,1,1-Trichloroethane	ND		0.500	0.381
Carbon tetrachloride	ND		0.500	0.349
1,2-Dichloroethane (EDC)	ND		0.500	0.273
Benzene	ND		0.500	0.270
Trichloroethene	ND		0.500	0.347
1,2-Dichloropropane	ND		0.500	0.272
Bromodichloromethane	ND		0.500	0.258
cis-1,3-Dichloropropene	ND		0.500	0.264
4-Methyl-2-pentanone (MIBK)	ND		1.00	0.611

VOLATILE ORGANICS

Lab ID: E23-05046-014
Client ID: TWP5
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Data file: E5247.D 11/20/2023 16:55
Data file: P5608.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.500	0.302
trans-1,3-Dichloropropene	ND		0.500	0.330
1,1,2-Trichloroethane	ND		0.500	0.313
Tetrachloroethene	ND		0.500	0.365
2-Hexanone	ND		1.00	0.818
Dibromochloromethane	ND		0.500	0.263
1,2-Dibromoethane (EDB)^	ND		0.00483	0.00364
Chlorobenzene	ND		0.500	0.304
Ethylbenzene	ND		0.500	0.313
Total Xylenes	ND		1.00	0.345
Styrene	ND		0.500	0.317
Bromoform	ND		0.500	0.328
Isopropylbenzene	ND		0.500	0.332
1,1,2,2-Tetrachloroethane	ND		0.500	0.284
1,3-Dichlorobenzene	ND		0.500	0.386
1,4-Dichlorobenzene	ND		0.500	0.397
1,2-Dichlorobenzene	ND		0.500	0.354
1,2-Dibromo-3-chloropropane^	ND		0.00483	0.00364
1,2,4-Trichlorobenzene	ND		0.500	0.358
1,2,3-Trichlorobenzene	ND		0.500	0.406
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	0.538
Methyl acetate	ND		0.500	0.345
Cyclohexane	ND		1.00	0.469
Methylcyclohexane	ND		0.500	0.421
1,3-Dichloropropene (cis- and trans-)	ND		0.500	0.264
Total Target Compounds (51):	7.89			

^ --- Results reported from SW-846 8011
D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-014
Client ID: TWP5
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Date File: E5247.D

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-015
Client ID: SB4A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7683.D 11/18/2023 03:46

GC/MS Column: DB-624
Sample wt/vol: 4.60g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.4
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00126	0.000654
Chloromethane	ND		0.00252	0.000399
Vinyl chloride	ND		0.00126	0.000408
Bromomethane	ND		0.00252	0.0011
Chloroethane	ND		0.00126	0.000374
Trichlorofluoromethane	ND		0.00126	0.000512
1,1-Dichloroethene	ND		0.00126	0.000441
Acetone	ND		0.013	0.0063
Carbon disulfide	ND		0.00126	0.000495
Methylene chloride	ND		0.0063	0.00378
trans-1,2-Dichloroethene	ND		0.00252	0.000446
Methyl tert-butyl ether (MTBE)	ND		0.00126	0.000275
1,1-Dichloroethane	ND		0.00252	0.000321
cis-1,2-Dichloroethene	ND		0.00252	0.00027
2-Butanone (MEK)	ND		0.013	0.00252
Bromochloromethane	ND		0.00126	0.00032
Chloroform	ND		0.00252	0.00063
1,1,1-Trichloroethane	ND		0.00126	0.000387
Carbon tetrachloride	ND		0.00126	0.000252
1,2-Dichloroethane (EDC)	ND		0.00126	0.000291
Benzene	ND		0.00126	0.000108
Trichloroethene	ND		0.00126	0.000188
1,2-Dichloropropane	ND		0.00126	0.000126
Bromodichloromethane	ND		0.00126	0.00015
cis-1,3-Dichloropropene	ND		0.00126	0.000193
4-Methyl-2-pentanone (MIBK)	ND		0.013	0.000659

VOLATILE ORGANICS

Lab ID: E23-05046-015
Client ID: SB4A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7683.D 11/18/2023 03:46

GC/MS Column: DB-624
Sample wt/vol: 4.60g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.4
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00126	0.00063
trans-1,3-Dichloropropene	ND		0.00126	0.00014
1,1,2-Trichloroethane	ND		0.00126	0.00027
Tetrachloroethene	ND		0.00126	0.00013
2-Hexanone	ND		0.013	0.00193
Dibromochloromethane	ND		0.00126	0.000209
1,2-Dibromoethane (EDB)	ND		0.00126	0.000233
Chlorobenzene	ND		0.00126	0.000218
Ethylbenzene	ND		0.00126	0.000137
Total Xylenes	ND		0.00252	0.000176
Styrene	ND		0.00126	0.000271
Bromoform	ND		0.00126	0.000392
Isopropylbenzene	ND		0.00126	0.000268
1,1,2,2-Tetrachloroethane	ND		0.00126	0.000659
1,3-Dichlorobenzene	ND		0.00126	0.000334
1,4-Dichlorobenzene	ND		0.00126	0.000391
1,2-Dichlorobenzene	ND		0.00126	0.000316
1,2-Dibromo-3-chloropropane	ND		0.00126	0.00104
1,2,4-Trichlorobenzene	ND		0.00126	0.000529
1,2,3-Trichlorobenzene	ND		0.00252	0.000401
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00252	0.000752
Methyl acetate	ND		0.00126	0.00102
Cyclohexane	ND		0.0063	0.000227
Methylcyclohexane	ND		0.00252	0.000217
1,3-Dichloropropene (cis- and trans-)	ND		0.00126	0.00014

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-015
Client ID: SB4A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Date File: L7683.D

GC/MS Column: DB-624
Sample wt/vol: 4.60g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 13.4

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-016
Client ID: SB4B
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7684.D 11/18/2023 04:14

GC/MS Column: DB-624
Sample wt/vol: 5.33g
Matrix-Units: Soil-mg/Kg
% Moisture: 19.5
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00117	0.000607
Chloromethane	ND		0.00234	0.000371
Vinyl chloride	ND		0.00117	0.000379
Bromomethane	ND		0.00234	0.00102
Chloroethane	ND		0.00117	0.000347
Trichlorofluoromethane	ND		0.00117	0.000475
1,1-Dichloroethene	ND		0.00117	0.00041
Acetone	ND		0.012	0.00585
Carbon disulfide	ND		0.00117	0.00046
Methylene chloride	ND		0.00585	0.00351
trans-1,2-Dichloroethene	ND		0.00234	0.000414
Methyl tert-butyl ether (MTBE)	ND		0.00117	0.000255
1,1-Dichloroethane	ND		0.00234	0.000298
cis-1,2-Dichloroethene	ND		0.00234	0.00025
2-Butanone (MEK)	ND		0.012	0.00234
Bromochloromethane	ND		0.00117	0.000297
Chloroform	ND		0.00234	0.000585
1,1,1-Trichloroethane	ND		0.00117	0.000359
Carbon tetrachloride	ND		0.00117	0.000234
1,2-Dichloroethane (EDC)	ND		0.00117	0.00027
Benzene	ND		0.00117	0.000101
Trichloroethene	ND		0.00117	0.000174
1,2-Dichloropropane	ND		0.00117	0.000117
Bromodichloromethane	ND		0.00117	0.000139
cis-1,3-Dichloropropene	ND		0.00117	0.000179
4-Methyl-2-pentanone (MIBK)	ND		0.012	0.000612

VOLATILE ORGANICS

Lab ID: E23-05046-016
Client ID: SB4B
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7684.D 11/18/2023 04:14

GC/MS Column: DB-624
Sample wt/vol: 5.33g
Matrix-Units: Soil-mg/Kg
% Moisture: 19.5
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00117	0.000585
trans-1,3-Dichloropropene	ND		0.00117	0.00013
1,1,2-Trichloroethane	ND		0.00117	0.00025
Tetrachloroethene	ND		0.00117	0.000121
2-Hexanone	ND		0.012	0.00179
Dibromochloromethane	ND		0.00117	0.000194
1,2-Dibromoethane (EDB)	ND		0.00117	0.000216
Chlorobenzene	ND		0.00117	0.000202
Ethylbenzene	ND		0.00117	0.000128
Total Xylenes	ND		0.00234	0.000164
Styrene	ND		0.00117	0.000252
Bromoform	ND		0.00117	0.000364
Isopropylbenzene	ND		0.00117	0.000249
1,1,2,2-Tetrachloroethane	ND		0.00117	0.000612
1,3-Dichlorobenzene	ND		0.00117	0.00031
1,4-Dichlorobenzene	ND		0.00117	0.000363
1,2-Dichlorobenzene	ND		0.00117	0.000294
1,2-Dibromo-3-chloropropane	ND		0.00117	0.000964
1,2,4-Trichlorobenzene	ND		0.00117	0.000491
1,2,3-Trichlorobenzene	ND		0.00234	0.000372
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00234	0.000698
Methyl acetate	ND		0.00117	0.000945
Cyclohexane	ND		0.00585	0.000211
Methylcyclohexane	ND		0.00234	0.000201
1,3-Dichloropropene (cis- and trans-)	ND		0.00117	0.00013

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-016
Client ID: SB4B
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Date File: L7684.D

GC/MS Column: DB-624
Sample wt/vol: 5.33g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 19.5

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.39

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-017
Client ID: SB5A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7685.D 11/18/2023 04:42

GC/MS Column: DB-624
Sample wt/vol: 5.21g
Matrix-Units: Soil-mg/Kg
% Moisture: 9
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00105	0.000545
Chloromethane	ND		0.0021	0.000333
Vinyl chloride	ND		0.00105	0.00034
Bromomethane	ND		0.0021	0.000916
Chloroethane	ND		0.00105	0.000312
Trichlorofluoromethane	ND		0.00105	0.000426
1,1-Dichloroethene	ND		0.00105	0.000368
Acetone	0.031		0.011	0.00525
Carbon disulfide	ND		0.00105	0.000413
Methylene chloride	ND		0.00525	0.00315
trans-1,2-Dichloroethene	ND		0.0021	0.000372
Methyl tert-butyl ether (MTBE)	ND		0.00105	0.000229
1,1-Dichloroethane	ND		0.0021	0.000268
cis-1,2-Dichloroethene	ND		0.0021	0.000225
2-Butanone (MEK)	ND		0.011	0.0021
Bromochloromethane	ND		0.00105	0.000267
Chloroform	ND		0.0021	0.000525
1,1,1-Trichloroethane	ND		0.00105	0.000322
Carbon tetrachloride	ND		0.00105	0.00021
1,2-Dichloroethane (EDC)	ND		0.00105	0.000243
Benzene	ND		0.00105	0.0000903
Trichloroethene	ND		0.00105	0.000156
1,2-Dichloropropane	ND		0.00105	0.000105
Bromodichloromethane	ND		0.00105	0.000125
cis-1,3-Dichloropropene	ND		0.00105	0.000161
4-Methyl-2-pentanone (MIBK)	ND		0.011	0.000549

VOLATILE ORGANICS

Lab ID: E23-05046-017
Client ID: SB5A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7685.D 11/18/2023 04:42

GC/MS Column: DB-624
Sample wt/vol: 5.21g
Matrix-Units: Soil-mg/Kg
% Moisture: 9
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00105	0.000525
trans-1,3-Dichloropropene	ND		0.00105	0.000117
1,1,2-Trichloroethane	ND		0.00105	0.000225
Tetrachloroethene	ND		0.00105	0.000108
2-Hexanone	ND		0.011	0.00161
Dibromochloromethane	ND		0.00105	0.000174
1,2-Dibromoethane (EDB)	ND		0.00105	0.000194
Chlorobenzene	ND		0.00105	0.000182
Ethylbenzene	ND		0.00105	0.000114
Total Xylenes	ND		0.0021	0.000147
Styrene	ND		0.00105	0.000226
Bromoform	ND		0.00105	0.000327
Isopropylbenzene	ND		0.00105	0.000224
1,1,2,2-Tetrachloroethane	ND		0.00105	0.000549
1,3-Dichlorobenzene	ND		0.00105	0.000278
1,4-Dichlorobenzene	ND		0.00105	0.000326
1,2-Dichlorobenzene	ND		0.00105	0.000264
1,2-Dibromo-3-chloropropane	ND		0.00105	0.000865
1,2,4-Trichlorobenzene	ND		0.00105	0.000441
1,2,3-Trichlorobenzene	ND		0.0021	0.000334
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0021	0.000627
Methyl acetate	ND		0.00105	0.000848
Cyclohexane	ND		0.00525	0.000189
Methylcyclohexane	ND		0.0021	0.000181
1,3-Dichloropropene (cis- and trans-)	ND		0.00105	0.000117

Total Target Compounds (51): 0.031

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-017
Client ID: SB5A
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Date File: L7685.D

GC/MS Column: DB-624
Sample wt/vol: 5.21g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 9

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05046-018
Client ID: SB5B
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7686.D 11/18/2023 05:11

GC/MS Column: DB-624
Sample wt/vol: 4.98g
Matrix-Units: Soil-mg/Kg
% Moisture: 14.4
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00117	0.000607
Chloromethane	ND		0.00234	0.000371
Vinyl chloride	ND		0.00117	0.000379
Bromomethane	ND		0.00234	0.00102
Chloroethane	ND		0.00117	0.000347
Trichlorofluoromethane	ND		0.00117	0.000475
1,1-Dichloroethene	ND		0.00117	0.00041
Acetone	ND		0.012	0.00585
Carbon disulfide	ND		0.00117	0.00046
Methylene chloride	ND		0.00585	0.00351
trans-1,2-Dichloroethene	ND		0.00234	0.000414
Methyl tert-butyl ether (MTBE)	ND		0.00117	0.000255
1,1-Dichloroethane	ND		0.00234	0.000298
cis-1,2-Dichloroethene	ND		0.00234	0.00025
2-Butanone (MEK)	ND		0.012	0.00234
Bromochloromethane	ND		0.00117	0.000297
Chloroform	ND		0.00234	0.000585
1,1,1-Trichloroethane	ND		0.00117	0.000359
Carbon tetrachloride	ND		0.00117	0.000234
1,2-Dichloroethane (EDC)	ND		0.00117	0.00027
Benzene	ND		0.00117	0.000101
Trichloroethene	ND		0.00117	0.000174
1,2-Dichloropropane	ND		0.00117	0.000117
Bromodichloromethane	ND		0.00117	0.000139
cis-1,3-Dichloropropene	ND		0.00117	0.000179
4-Methyl-2-pentanone (MIBK)	ND		0.012	0.000612

VOLATILE ORGANICS

Lab ID: E23-05046-018
Client ID: SB5B
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Data file: L7686.D 11/18/2023 05:11

GC/MS Column: DB-624
Sample wt/vol: 4.98g
Matrix-Units: Soil-mg/Kg
% Moisture: 14.4
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00117	0.000585
trans-1,3-Dichloropropene	ND		0.00117	0.00013
1,1,2-Trichloroethane	ND		0.00117	0.00025
Tetrachloroethene	ND		0.00117	0.000121
2-Hexanone	ND		0.012	0.00179
Dibromochloromethane	ND		0.00117	0.000194
1,2-Dibromoethane (EDB)	ND		0.00117	0.000216
Chlorobenzene	ND		0.00117	0.000202
Ethylbenzene	ND		0.00117	0.000128
Total Xylenes	ND		0.00234	0.000164
Styrene	ND		0.00117	0.000252
Bromoform	ND		0.00117	0.000364
Isopropylbenzene	ND		0.00117	0.000249
1,1,2,2-Tetrachloroethane	ND		0.00117	0.000612
1,3-Dichlorobenzene	ND		0.00117	0.00031
1,4-Dichlorobenzene	ND		0.00117	0.000363
1,2-Dichlorobenzene	ND		0.00117	0.000294
1,2-Dibromo-3-chloropropane	ND		0.00117	0.000964
1,2,4-Trichlorobenzene	ND		0.00117	0.000491
1,2,3-Trichlorobenzene	ND		0.00234	0.000372
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00234	0.000698
Methyl acetate	ND		0.00117	0.000945
Cyclohexane	ND		0.00585	0.000211
Methylcyclohexane	ND		0.00234	0.000201
1,3-Dichloropropene (cis- and trans-)	ND		0.00117	0.00013

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-018
Client ID: SB5B
Date Received: 11/16/2023
Date Analyzed: 11/18/2023
Date File: L7686.D

GC/MS Column: DB-624
Sample wt/vol: 4.98g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 14.4

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.39

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: BLKS231120-01
Client ID: BLKS231120-01
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Data file: L7692.D 11/20/2023 12:59

GC/MS Column: DB-624
Sample wt/vol: 5.00g
Matrix-Units: Soil-mg/Kg
% Moisture: NA
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.001	0.000519
Chloromethane	ND		0.002	0.000317
Vinyl chloride	ND		0.001	0.000324
Bromomethane	ND		0.002	0.000872
Chloroethane	ND		0.001	0.000297
Trichlorofluoromethane	ND		0.001	0.000406
1,1-Dichloroethene	ND		0.001	0.00035
Acetone	ND		0.010	0.005
Carbon disulfide	ND		0.001	0.000393
Methylene chloride	ND		0.005	0.003
trans-1,2-Dichloroethene	ND		0.002	0.000354
Methyl tert-butyl ether (MTBE)	ND		0.001	0.000218
1,1-Dichloroethane	ND		0.002	0.000255
cis-1,2-Dichloroethene	ND		0.002	0.000214
2-Butanone (MEK)	ND		0.010	0.002
Bromochloromethane	ND		0.001	0.000254
Chloroform	ND		0.002	0.0005
1,1,1-Trichloroethane	ND		0.001	0.000307
Carbon tetrachloride	ND		0.001	0.0002
1,2-Dichloroethane (EDC)	ND		0.001	0.000231
Benzene	ND		0.001	0.000086
Trichloroethene	ND		0.001	0.000149
1,2-Dichloropropane	ND		0.001	0.0001
Bromodichloromethane	ND		0.001	0.000119
cis-1,3-Dichloropropene	ND		0.001	0.000153
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.000523

VOLATILE ORGANICS

Lab ID: BLKS231120-01
Client ID: BLKS231120-01
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Data file: L7692.D 11/20/2023 12:59

GC/MS Column: DB-624
Sample wt/vol: 5.00g
Matrix-Units: Soil-mg/Kg
% Moisture: NA
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.001	0.0005
trans-1,3-Dichloropropene	ND		0.001	0.000111
1,1,2-Trichloroethane	ND		0.001	0.000214
Tetrachloroethene	ND		0.001	0.000103
2-Hexanone	ND		0.010	0.00153
Dibromochloromethane	ND		0.001	0.000166
1,2-Dibromoethane (EDB)	ND		0.001	0.000185
Chlorobenzene	ND		0.001	0.000173
Ethylbenzene	ND		0.001	0.000109
Total Xylenes	ND		0.002	0.00014
Styrene	ND		0.001	0.000215
Bromoform	ND		0.001	0.000311
Isopropylbenzene	ND		0.001	0.000213
1,1,2,2-Tetrachloroethane	ND		0.001	0.000523
1,3-Dichlorobenzene	ND		0.001	0.000265
1,4-Dichlorobenzene	ND		0.001	0.00031
1,2-Dichlorobenzene	ND		0.001	0.000251
1,2-Dibromo-3-chloropropane	ND		0.001	0.000824
1,2,4-Trichlorobenzene	ND		0.001	0.00042
1,2,3-Trichlorobenzene	ND		0.002	0.000318
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.002	0.000597
Methyl acetate	ND		0.001	0.000808
Cyclohexane	ND		0.005	0.00018
Methylcyclohexane	ND		0.002	0.000172
1,3-Dichloropropene (cis- and trans-)	ND		0.001	0.000111

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: BLKS231120-01
Client ID: BLKS231120-01
Date Received: 11/16/2023
Date Analyzed: 11/20/2023
Date File: L7692.D

GC/MS Column: DB-624
Sample wt/vol: 5.00g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: NA

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

Volatiles (8011)

Lab ID: BLKA231121-01
Client ID: 8011
Date Received: NA
Date Extracted: 11/21/2023
Date Analyzed: 11/21/2023
Data file: P5601.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 35.0ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

Compound	Concentration	Q	RL	MDL
1,2-Dibromoethane (EDB)	ND		0.00486	0.00364
1,2-Dibromo-3-chloropropane	ND		0.00486	0.00364
1,2,3-Trichloropropane	ND		0.00971	0.00729

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-001
Client ID: SB12A/0-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3835.D 11/21/2023 17:12

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.3
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.076	0.029
Phenol	ND		0.038	0.00864
Bis(2-chloroethyl) ether	ND		0.038	0.013
2-Chlorophenol	ND		0.038	0.012
2-Methylphenol	ND		0.038	0.017
2,2'-Oxybis(1-Chloropropane)	ND		0.038	0.00952
4-Methylphenol **	ND		0.038	0.017
N-Nitrosodi-n-propylamine	ND		0.038	0.024
Acetophenone	ND		0.038	0.023
1,4-Dioxane	ND		0.038	0.025
Hexachloroethane	ND		0.038	0.016
Nitrobenzene	ND		0.038	0.00927
Isophorone	ND		0.038	0.016
2-Nitrophenol	ND		0.076	0.023
2,4-Dimethylphenol	ND		0.038	0.011
Bis(2-chloroethoxy) methane	ND		0.038	0.00851
2,4-Dichlorophenol	ND		0.038	0.010
Naphthalene	ND		0.038	0.00557
4-Chloroaniline	ND		0.038	0.015
Hexachlorobutadiene	ND		0.038	0.011
Caprolactam	ND		0.076	0.028
4-Chloro-3-methylphenol	ND		0.038	0.015
2-Methylnaphthalene	ND		0.038	0.013
Hexachlorocyclopentadiene	ND		0.076	0.066
2,4,6-Trichlorophenol	ND		0.038	0.011
2,4,5-Trichlorophenol	ND		0.038	0.029
1,1'-Biphenyl	ND		0.038	0.00568
2-Chloronaphthalene	ND		0.038	0.00882
2-Nitroaniline	ND		0.038	0.020
Dimethyl phthalate	ND		0.038	0.00876

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-001
Client ID: SB12A/0-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3835.D 11/21/2023 17:12

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.3
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.076	0.044
Acenaphthylene	0.031	J	0.038	0.00836
3-Nitroaniline	ND		0.038	0.024
Acenaphthene	ND		0.038	0.00754
2,4-Dinitrophenol	ND		0.076	0.016
4-Nitrophenol	ND		0.076	0.039
2,4-Dinitrotoluene	ND		0.076	0.043
Dibenzofuran	ND		0.038	0.005
Diethyl phthalate	ND		0.038	0.012
Fluorene	ND		0.038	0.010
4-Chlorophenyl phenyl ether	ND		0.038	0.00839
4-Nitroaniline	ND		0.038	0.023
1,2,4,5-Tetrachlorobenzene	ND		0.038	0.013
2,3,4,6-Tetrachlorophenol	ND		0.038	0.013
4,6-Dinitro-2-methylphenol	ND		0.076	0.016
N-Nitrosodiphenylamine	ND		0.038	0.00784
4-Bromophenyl phenyl ether	ND		0.038	0.011
Hexachlorobenzene	ND		0.038	0.012
Atrazine	ND		0.038	0.023
Pentachlorophenol	ND		0.038	0.017
Phenanthrene	0.353		0.038	0.00625
Anthracene	0.080		0.038	0.00389
Carbazole	0.026	J	0.038	0.0089
Di-n-butyl phthalate	ND		0.038	0.016
Fluoranthene	0.601		0.038	0.012
Pyrene	0.608		0.038	0.00889
Butyl benzyl phthalate	ND		0.038	0.017
3,3'-Dichlorobenzidine	ND		0.038	0.027
Benzo[a]anthracene	0.313		0.038	0.014
Chrysene	0.332		0.038	0.011
Bis(2-ethylhexyl) phthalate	ND		0.038	0.025
Di-n-octyl phthalate	ND		0.038	0.028
Benzo[b]fluoranthene	0.287		0.038	0.019
Benzo[k]fluoranthene	0.264		0.038	0.026
Benzo[a]pyrene	0.299		0.038	0.019
Indeno[1,2,3-cd]pyrene	0.190		0.038	0.024
Dibenz[a,h]anthracene	0.103		0.038	0.015
Benzo[g,h,i]perylene	0.199		0.038	0.029
Dinitrotoluene (2,4- and 2,6-)	ND		0.076	0.043
Total Target Compounds (69):	3.69	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-001
Client ID: SB12A/0-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Date File: A3835.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 13.3

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-002
Client ID: SB2A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3836.D 11/21/2023 17:28

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.30
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.072	0.027
Phenol	ND		0.036	0.00813
Bis(2-chloroethyl) ether	ND		0.036	0.013
2-Chlorophenol	ND		0.036	0.012
2-Methylphenol	ND		0.036	0.016
2,2'-Oxybis(1-Chloropropane)	ND		0.036	0.00897
4-Methylphenol **	ND		0.036	0.016
N-Nitrosodi-n-propylamine	ND		0.036	0.022
Acetophenone	ND		0.036	0.022
1,4-Dioxane	ND		0.036	0.023
Hexachloroethane	ND		0.036	0.015
Nitrobenzene	ND		0.036	0.00873
Isophorone	ND		0.036	0.015
2-Nitrophenol	ND		0.072	0.021
2,4-Dimethylphenol	ND		0.036	0.011
Bis(2-chloroethoxy) methane	ND		0.036	0.00802
2,4-Dichlorophenol	ND		0.036	0.00956
Naphthalene	0.085		0.036	0.00525
4-Chloroaniline	ND		0.036	0.014
Hexachlorobutadiene	ND		0.036	0.00998
Caprolactam	ND		0.072	0.027
4-Chloro-3-methylphenol	ND		0.036	0.014
2-Methylnaphthalene	0.065		0.036	0.013
Hexachlorocyclopentadiene	ND		0.072	0.062
2,4,6-Trichlorophenol	ND		0.036	0.00989
2,4,5-Trichlorophenol	ND		0.036	0.027
1,1'-Biphenyl	0.020	J	0.036	0.00535
2-Chloronaphthalene	ND		0.036	0.00831
2-Nitroaniline	ND		0.036	0.019
Dimethyl phthalate	ND		0.036	0.00825

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-002
Client ID: SB2A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3836.D 11/21/2023 17:28

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.30
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.072	0.041
Acenaphthylene	0.074		0.036	0.00787
3-Nitroaniline	ND		0.036	0.023
Acenaphthene	0.143		0.036	0.0071
2,4-Dinitrophenol	ND		0.072	0.015
4-Nitrophenol	ND		0.072	0.036
2,4-Dinitrotoluene	ND		0.072	0.041
Dibenzofuran	0.102		0.036	0.0047
Diethyl phthalate	ND		0.036	0.011
Fluorene	0.166		0.036	0.00968
4-Chlorophenyl phenyl ether	ND		0.036	0.0079
4-Nitroaniline	ND		0.036	0.021
1,2,4,5-Tetrachlorobenzene	ND		0.036	0.012
2,3,4,6-Tetrachlorophenol	ND		0.036	0.012
4,6-Dinitro-2-methylphenol	ND		0.072	0.015
N-Nitrosodiphenylamine	ND		0.036	0.00738
4-Bromophenyl phenyl ether	ND		0.036	0.00996
Hexachlorobenzene	ND		0.036	0.011
Atrazine	ND		0.036	0.022
Pentachlorophenol	ND		0.036	0.016
Phenanthrene	2.61		0.036	0.00588
Anthracene	0.626		0.036	0.00366
Carbazole	0.163		0.036	0.00838
Di-n-butyl phthalate	ND		0.036	0.015
Fluoranthene	3.46		0.036	0.012
Pyrene	3.17		0.036	0.00837
Butyl benzyl phthalate	ND		0.036	0.016
3,3'-Dichlorobenzidine	ND		0.036	0.025
Benzo[a]anthracene	1.80		0.036	0.013
Chrysene	1.60		0.036	0.00992
Bis(2-ethylhexyl) phthalate	ND		0.036	0.023
Di-n-octyl phthalate	ND		0.036	0.026
Benzo[b]fluoranthene	1.57		0.036	0.018
Benzo[k]fluoranthene	1.08		0.036	0.025
Benzo[a]pyrene	1.44		0.036	0.017
Indeno[1,2,3-cd]pyrene	0.845		0.036	0.023
Dibenz[a,h]anthracene	0.487		0.036	0.014
Benzo[g,h,i]perylene	0.870		0.036	0.027
Dinitrotoluene (2,4- and 2,6-)	ND		0.072	0.041
Total Target Compounds (69):	20.4	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-002
Client ID: SB2A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Date File: A3836.D

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 7.30

CAS #	Compound	Estimated Concentration	Q	Retention Time
000949-41-7	1H-Cyclopropa[l]phenanthrene,1a,9b	0.342	JN	6.19
002381-21-7	Pyrene, 1-methyl-	0.147	JN	6.87
	Unknown SV	0.187	J	7.24

Total TICs = 0.676 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-003
Client ID: SB2B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3837.D 11/21/2023 17:44

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 8.30
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	0.102		0.072	0.027
Phenol	ND		0.036	0.00817
Bis(2-chloroethyl) ether	ND		0.036	0.013
2-Chlorophenol	ND		0.036	0.012
2-Methylphenol	ND		0.036	0.016
2,2'-Oxybis(1-Chloropropane)	ND		0.036	0.00901
4-Methylphenol **	ND		0.036	0.016
N-Nitrosodi-n-propylamine	ND		0.036	0.022
Acetophenone	ND		0.036	0.022
1,4-Dioxane	ND		0.036	0.023
Hexachloroethane	ND		0.036	0.015
Nitrobenzene	ND		0.036	0.00877
Isophorone	ND		0.036	0.015
2-Nitrophenol	ND		0.072	0.022
2,4-Dimethylphenol	ND		0.036	0.011
Bis(2-chloroethoxy) methane	ND		0.036	0.00805
2,4-Dichlorophenol	ND		0.036	0.0096
Naphthalene	ND		0.036	0.00527
4-Chloroaniline	ND		0.036	0.014
Hexachlorobutadiene	ND		0.036	0.010
Caprolactam	ND		0.072	0.027
4-Chloro-3-methylphenol	ND		0.036	0.014
2-Methylnaphthalene	ND		0.036	0.013
Hexachlorocyclopentadiene	ND		0.072	0.063
2,4,6-Trichlorophenol	ND		0.036	0.00993
2,4,5-Trichlorophenol	ND		0.036	0.027
1,1'-Biphenyl	ND		0.036	0.00537
2-Chloronaphthalene	ND		0.036	0.00834
2-Nitroaniline	ND		0.036	0.019
Dimethyl phthalate	ND		0.036	0.00829

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-003
Client ID: SB2B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3837.D 11/21/2023 17:44

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 8.30
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.072	0.042
Acenaphthylene	ND		0.036	0.0079
3-Nitroaniline	ND		0.036	0.023
Acenaphthene	ND		0.036	0.00713
2,4-Dinitrophenol	ND		0.072	0.015
4-Nitrophenol	ND		0.072	0.037
2,4-Dinitrotoluene	ND		0.072	0.041
Dibenzofuran	ND		0.036	0.00472
Diethyl phthalate	ND		0.036	0.011
Fluorene	ND		0.036	0.00972
4-Chlorophenyl phenyl ether	ND		0.036	0.00794
4-Nitroaniline	ND		0.036	0.021
1,2,4,5-Tetrachlorobenzene	ND		0.036	0.012
2,3,4,6-Tetrachlorophenol	ND		0.036	0.012
4,6-Dinitro-2-methylphenol	ND		0.072	0.015
N-Nitrosodiphenylamine	ND		0.036	0.00741
4-Bromophenyl phenyl ether	ND		0.036	0.010
Hexachlorobenzene	ND		0.036	0.011
Atrazine	ND		0.036	0.022
Pentachlorophenol	ND		0.036	0.016
Phenanthrene	0.180		0.036	0.00591
Anthracene	0.059		0.036	0.00368
Carbazole	ND		0.036	0.00842
Di-n-butyl phthalate	ND		0.036	0.015
Fluoranthene	0.379		0.036	0.012
Pyrene	0.325		0.036	0.0084
Butyl benzyl phthalate	ND		0.036	0.016
3,3'-Dichlorobenzidine	ND		0.036	0.026
Benzo[a]anthracene	0.190		0.036	0.013
Chrysene	0.173		0.036	0.00997
Bis(2-ethylhexyl) phthalate	ND		0.036	0.023
Di-n-octyl phthalate	ND		0.036	0.026
Benzo[b]fluoranthene	0.207		0.036	0.018
Benzo[k]fluoranthene	0.138		0.036	0.025
Benzo[a]pyrene	0.177		0.036	0.018
Indeno[1,2,3-cd]pyrene	0.114		0.036	0.023
Dibenz[a,h]anthracene	0.064		0.036	0.014
Benzo[g,h,i]perylene	0.120		0.036	0.027
Dinitrotoluene (2,4- and 2,6-)	ND		0.072	0.041

Total Target Compounds (69): 2.23

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-003
Client ID: SB2B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Date File: A3837.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 8.30

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-004
Client ID: SB1A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3838.D 11/21/2023 18:00

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.80
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.073	0.028
Phenol	ND		0.037	0.0083
Bis(2-chloroethyl) ether	ND		0.037	0.013
2-Chlorophenol	ND		0.037	0.012
2-Methylphenol	ND		0.037	0.017
2,2'-Oxybis(1-Chloropropane)	ND		0.037	0.00916
4-Methylphenol **	ND		0.037	0.017
N-Nitrosodi-n-propylamine	ND		0.037	0.023
Acetophenone	ND		0.037	0.022
1,4-Dioxane	ND		0.037	0.024
Hexachloroethane	ND		0.037	0.015
Nitrobenzene	ND		0.037	0.00891
Isophorone	ND		0.037	0.016
2-Nitrophenol	ND		0.073	0.022
2,4-Dimethylphenol	ND		0.037	0.011
Bis(2-chloroethoxy) methane	ND		0.037	0.00818
2,4-Dichlorophenol	ND		0.037	0.00976
Naphthalene	0.032	J	0.037	0.00536
4-Chloroaniline	ND		0.037	0.014
Hexachlorobutadiene	ND		0.037	0.010
Caprolactam	ND		0.073	0.027
4-Chloro-3-methylphenol	ND		0.037	0.014
2-Methylnaphthalene	0.023	J	0.037	0.013
Hexachlorocyclopentadiene	ND		0.073	0.064
2,4,6-Trichlorophenol	ND		0.037	0.010
2,4,5-Trichlorophenol	ND		0.037	0.028
1,1'-Biphenyl	ND		0.037	0.00546
2-Chloronaphthalene	ND		0.037	0.00848
2-Nitroaniline	ND		0.037	0.020
Dimethyl phthalate	ND		0.037	0.00842

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-004
Client ID: SB1A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3838.D 11/21/2023 18:00

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.80
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.073	0.042
Acenaphthylene	0.076		0.037	0.00804
3-Nitroaniline	ND		0.037	0.023
Acenaphthene	0.091		0.037	0.00725
2,4-Dinitrophenol	ND		0.073	0.015
4-Nitrophenol	ND		0.073	0.037
2,4-Dinitrotoluene	ND		0.073	0.042
Dibenzofuran	0.039		0.037	0.0048
Diethyl phthalate	ND		0.037	0.011
Fluorene	0.068		0.037	0.00988
4-Chlorophenyl phenyl ether	ND		0.037	0.00807
4-Nitroaniline	ND		0.037	0.022
1,2,4,5-Tetrachlorobenzene	ND		0.037	0.012
2,3,4,6-Tetrachlorophenol	ND		0.037	0.013
4,6-Dinitro-2-methylphenol	ND		0.073	0.016
N-Nitrosodiphenylamine	ND		0.037	0.00753
4-Bromophenyl phenyl ether	ND		0.037	0.010
Hexachlorobenzene	ND		0.037	0.011
Atrazine	ND		0.037	0.022
Pentachlorophenol	ND		0.037	0.016
Phenanthrene	1.18		0.037	0.00601
Anthracene	0.311		0.037	0.00374
Carbazole	0.103		0.037	0.00856
Di-n-butyl phthalate	0.029	J	0.037	0.015
Fluoranthene	2.25		0.037	0.012
Pyrene	2.17		0.037	0.00854
Butyl benzyl phthalate	ND		0.037	0.016
3,3'-Dichlorobenzidine	ND		0.037	0.026
Benzo[a]anthracene	1.28		0.037	0.013
Chrysene	1.10		0.037	0.010
Bis(2-ethylhexyl) phthalate	0.280		0.037	0.024
Di-n-octyl phthalate	ND		0.037	0.027
Benzo[b]fluoranthene	1.42		0.037	0.018
Benzo[k]fluoranthene	0.858		0.037	0.025
Benzo[a]pyrene	1.29		0.037	0.018
Indeno[1,2,3-cd]pyrene	0.788		0.037	0.024
Dibenz[a,h]anthracene	0.380		0.037	0.015
Benzo[g,h,i]perylene	0.831		0.037	0.028
Dinitrotoluene (2,4- and 2,6-)	ND		0.073	0.042
Total Target Compounds (69):	14.6	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-004
Client ID: SB1A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Date File: A3838.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 9.80

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Unknown SV	0.191	J	7.24

Total TICs = 0.191 J

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-005
Client ID: SB1B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3839.D 11/21/2023 18:16

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 15.1
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.078	0.029
Phenol	ND		0.039	0.00882
Bis(2-chloroethyl) ether	ND		0.039	0.014
2-Chlorophenol	ND		0.039	0.013
2-Methylphenol	ND		0.039	0.018
2,2'-Oxybis(1-Chloropropane)	ND		0.039	0.00973
4-Methylphenol **	ND		0.039	0.018
N-Nitrosodi-n-propylamine	ND		0.039	0.024
Acetophenone	ND		0.039	0.024
1,4-Dioxane	ND		0.039	0.025
Hexachloroethane	ND		0.039	0.016
Nitrobenzene	ND		0.039	0.00947
Isophorone	ND		0.039	0.016
2-Nitrophenol	ND		0.078	0.023
2,4-Dimethylphenol	ND		0.039	0.012
Bis(2-chloroethoxy) methane	ND		0.039	0.00869
2,4-Dichlorophenol	ND		0.039	0.010
Naphthalene	0.108		0.039	0.00569
4-Chloroaniline	ND		0.039	0.015
Hexachlorobutadiene	ND		0.039	0.011
Caprolactam	ND		0.078	0.029
4-Chloro-3-methylphenol	ND		0.039	0.015
2-Methylnaphthalene	0.156		0.039	0.014
Hexachlorocyclopentadiene	ND		0.078	0.068
2,4,6-Trichlorophenol	ND		0.039	0.011
2,4,5-Trichlorophenol	ND		0.039	0.030
1,1'-Biphenyl	ND		0.039	0.0058
2-Chloronaphthalene	ND		0.039	0.00901
2-Nitroaniline	ND		0.039	0.021
Dimethyl phthalate	ND		0.039	0.00895

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-005
Client ID: SB1B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3839.D 11/21/2023 18:16

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 15.1
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.078	0.045
Acenaphthylene	0.125		0.039	0.00854
3-Nitroaniline	ND		0.039	0.025
Acenaphthene	0.335		0.039	0.0077
2,4-Dinitrophenol	ND		0.078	0.016
4-Nitrophenol	ND		0.078	0.039
2,4-Dinitrotoluene	ND		0.078	0.044
Dibenzofuran	ND		0.039	0.0051
Diethyl phthalate	ND		0.039	0.012
Fluorene	0.193		0.039	0.011
4-Chlorophenyl phenyl ether	ND		0.039	0.00857
4-Nitroaniline	ND		0.039	0.023
1,2,4,5-Tetrachlorobenzene	ND		0.039	0.013
2,3,4,6-Tetrachlorophenol	ND		0.039	0.013
4,6-Dinitro-2-methylphenol	ND		0.078	0.017
N-Nitrosodiphenylamine	ND		0.039	0.008
4-Bromophenyl phenyl ether	ND		0.039	0.011
Hexachlorobenzene	ND		0.039	0.012
Atrazine	ND		0.039	0.023
Pentachlorophenol	ND		0.039	0.017
Phenanthrene	2.95		0.039	0.00638
Anthracene	0.524		0.039	0.00397
Carbazole	ND		0.039	0.00909
Di-n-butyl phthalate	ND		0.039	0.016
Fluoranthene	3.89		0.039	0.013
Pyrene	3.32		0.039	0.00908
Butyl benzyl phthalate	ND		0.039	0.017
3,3'-Dichlorobenzidine	ND		0.039	0.028
Benzo[a]anthracene	1.68		0.039	0.014
Chrysene	1.52		0.039	0.011
Bis(2-ethylhexyl) phthalate	0.125		0.039	0.025
Di-n-octyl phthalate	ND		0.039	0.029
Benzo[b]fluoranthene	1.58		0.039	0.019
Benzo[k]fluoranthene	1.10		0.039	0.027
Benzo[a]pyrene	1.46		0.039	0.019
Indeno[1,2,3-cd]pyrene	0.858		0.039	0.025
Dibenz[a,h]anthracene	0.443		0.039	0.016
Benzo[g,h,i]perylene	0.874		0.039	0.029
Dinitrotoluene (2,4- and 2,6-)	ND		0.078	0.044

Total Target Compounds (69): 21.2

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-005
Client ID: SB1B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Date File: A3839.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 15.1

CAS #	Compound	Estimated Concentration	Q	Retention Time
000629-50-5	Tridecane	3.83	JN	4.31
017312-62-8	Decane, 5-propyl-	0.347	JN	4.78
	Unknown SV	0.577	J	4.82
001560-97-0	Dodecane, 2-methyl-	0.616	JN	5.11
000544-76-3	Hexadecane	1.64	JN	5.22
055045-07-3	Dodecane, 2-methyl-8-propyl-	1.04	JN	5.59
000629-62-9	Pentadecane	3.43	JN	5.73
000638-36-8	Hexadecane, 2,6,10,14-tetramethyl-	0.858	JN	5.76
000629-92-5	Nonadecane	3.31	JN	5.98
	Unknown SV	0.710	J	6.07
	Unknown SV	2.42	J	6.20
000629-94-7	Heneicosane	1.81	JN	6.42
000638-67-5	Tricosane	1.58	JN	6.84
000646-31-1	Tetracosane	1.24	JN	7.04

Total TICs = 23.4 JN

J --- Estimated concentration for TICs

D --- Dilution Performed

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-006
Client ID: SB3A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3840.D 11/21/2023 18:32

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.1
Dilution Factor: 2

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.148	0.056
Phenol	ND		0.074	0.017
Bis(2-chloroethyl) ether	ND		0.074	0.026
2-Chlorophenol	ND		0.074	0.024
2-Methylphenol	ND		0.074	0.033
2,2'-Oxybis(1-Chloropropane)	ND		0.074	0.019
4-Methylphenol **	ND		0.074	0.034
N-Nitrosodi-n-propylamine	ND		0.074	0.046
Acetophenone	ND		0.074	0.045
1,4-Dioxane	ND		0.074	0.048
Hexachloroethane	ND		0.074	0.031
Nitrobenzene	ND		0.074	0.018
Isophorone	ND		0.074	0.031
2-Nitrophenol	ND		0.148	0.044
2,4-Dimethylphenol	ND		0.074	0.022
Bis(2-chloroethoxy) methane	ND		0.074	0.017
2,4-Dichlorophenol	ND		0.074	0.020
Naphthalene	0.117	D	0.074	0.011
4-Chloroaniline	ND		0.074	0.029
Hexachlorobutadiene	ND		0.074	0.021
Caprolactam	ND		0.148	0.055
4-Chloro-3-methylphenol	ND		0.074	0.029
2-Methylnaphthalene	0.084	D	0.074	0.026
Hexachlorocyclopentadiene	ND		0.148	0.129
2,4,6-Trichlorophenol	ND		0.074	0.020
2,4,5-Trichlorophenol	ND		0.074	0.056
1,1'-Biphenyl	ND		0.074	0.011
2-Chloronaphthalene	ND		0.074	0.017
2-Nitroaniline	ND		0.074	0.039
Dimethyl phthalate	ND		0.074	0.017

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-006
Client ID: SB3A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3840.D 11/21/2023 18:32

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.1
Dilution Factor: 2

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.148	0.085
Acenaphthylene	0.251	D	0.074	0.016
3-Nitroaniline	ND		0.074	0.047
Acenaphthene	0.444	D	0.074	0.015
2,4-Dinitrophenol	ND		0.148	0.031
4-Nitrophenol	ND		0.148	0.075
2,4-Dinitrotoluene	ND		0.148	0.084
Dibenzofuran	0.197	D	0.074	0.0097
Diethyl phthalate	ND		0.074	0.023
Fluorene	0.318	D	0.074	0.020
4-Chlorophenyl phenyl ether	ND		0.074	0.016
4-Nitroaniline	ND		0.074	0.044
1,2,4,5-Tetrachlorobenzene	ND		0.074	0.025
2,3,4,6-Tetrachlorophenol	ND		0.074	0.025
4,6-Dinitro-2-methylphenol	ND		0.148	0.031
N-Nitrosodiphenylamine	ND		0.074	0.015
4-Bromophenyl phenyl ether	ND		0.074	0.021
Hexachlorobenzene	ND		0.074	0.023
Atrazine	ND		0.074	0.044
Pentachlorophenol	ND		0.074	0.033
Phenanthrene	5.70	D	0.074	0.012
Anthracene	1.28	D	0.074	0.00755
Carbazole	0.426	D	0.074	0.017
Di-n-butyl phthalate	0.112	D	0.074	0.030
Fluoranthene	9.14	D	0.074	0.024
Pyrene	8.24	D	0.074	0.017
Butyl benzyl phthalate	ND		0.074	0.033
3,3'-Dichlorobenzidine	ND		0.074	0.052
Benzo[a]anthracene	4.16	D	0.074	0.027
Chrysene	3.86	D	0.074	0.021
Bis(2-ethylhexyl) phthalate	ND		0.074	0.048
Di-n-octyl phthalate	ND		0.074	0.054
Benzo[b]fluoranthene	3.81	D	0.074	0.037
Benzo[k]fluoranthene	3.22	D	0.074	0.051
Benzo[a]pyrene	3.97	D	0.074	0.036
Indeno[1,2,3-cd]pyrene	1.98	D	0.074	0.048
Dibenz[a,h]anthracene	1.03	D	0.074	0.030
Benzo[g,h,i]perylene	1.89	D	0.074	0.056
Dinitrotoluene (2,4- and 2,6-)	ND		0.148	0.084
Total Target Compounds (69):	50.2	D		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-006
Client ID: SB3A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Date File: A3840.D

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 2
% Moisture: 10.1

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Unknown SV	0.334	DJ	7.28
	Unknown SV	1.20	DJ	8.46

Total TICs = 1.53 DJ

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-007
Client ID: SB3B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3841.D 11/21/2023 18:48

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 11.2
Dilution Factor: 10

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.746	0.280
Phenol	ND		0.373	0.084
Bis(2-chloroethyl) ether	ND		0.373	0.131
2-Chlorophenol	ND		0.373	0.121
2-Methylphenol	ND		0.373	0.168
2,2'-Oxybis(1-Chloropropane)	ND		0.373	0.093
4-Methylphenol **	ND		0.373	0.170
N-Nitrosodi-n-propylamine	ND		0.373	0.231
Acetophenone	ND		0.373	0.227
1,4-Dioxane	ND		0.373	0.241
Hexachloroethane	ND		0.373	0.155
Nitrobenzene	ND		0.373	0.091
Isophorone	ND		0.373	0.157
2-Nitrophenol	ND		0.746	0.222
2,4-Dimethylphenol	ND		0.373	0.110
Bis(2-chloroethoxy) methane	ND		0.373	0.083
2,4-Dichlorophenol	ND		0.373	0.099
Naphthalene	1.29	D	0.373	0.054
4-Chloroaniline	ND		0.373	0.143
Hexachlorobutadiene	ND		0.373	0.103
Caprolactam	ND		0.746	0.275
4-Chloro-3-methylphenol	ND		0.373	0.144
2-Methylnaphthalene	0.910	D	0.373	0.131
Hexachlorocyclopentadiene	ND		0.746	0.648
2,4,6-Trichlorophenol	ND		0.373	0.103
2,4,5-Trichlorophenol	ND		0.373	0.283
1,1'-Biphenyl	0.265	DJ	0.373	0.056
2-Chloronaphthalene	ND		0.373	0.086
2-Nitroaniline	ND		0.373	0.198
Dimethyl phthalate	ND		0.373	0.086

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-007
Client ID: SB3B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3841.D 11/21/2023 18:48

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 11.2
Dilution Factor: 10

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.746	0.428
Acenaphthylene	0.969	D	0.373	0.082
3-Nitroaniline	ND		0.373	0.236
Acenaphthene	3.45	D	0.373	0.074
2,4-Dinitrophenol	ND		0.746	0.153
4-Nitrophenol	ND		0.746	0.376
2,4-Dinitrotoluene	ND		0.746	0.422
Dibenzofuran	1.68	D	0.373	0.049
Diethyl phthalate	ND		0.373	0.116
Fluorene	2.22	D	0.373	0.100
4-Chlorophenyl phenyl ether	ND		0.373	0.082
4-Nitroaniline	ND		0.373	0.221
1,2,4,5-Tetrachlorobenzene	ND		0.373	0.125
2,3,4,6-Tetrachlorophenol	ND		0.373	0.128
4,6-Dinitro-2-methylphenol	ND		0.746	0.158
N-Nitrosodiphenylamine	ND		0.373	0.077
4-Bromophenyl phenyl ether	ND		0.373	0.103
Hexachlorobenzene	ND		0.373	0.116
Atrazine	ND		0.373	0.222
Pentachlorophenol	ND		0.373	0.165
Phenanthrene	33.6	D	0.373	0.061
Anthracene	7.19	D	0.373	0.038
Carbazole	2.76	D	0.373	0.087
Di-n-butyl phthalate	ND		0.373	0.151
Fluoranthene	38.7	D	0.373	0.120
Pyrene	34.2	D	0.373	0.087
Butyl benzyl phthalate	ND		0.373	0.166
3,3'-Dichlorobenzidine	ND		0.373	0.264
Benzo[a]anthracene	15.3	D	0.373	0.136
Chrysene	14.0	D	0.373	0.103
Bis(2-ethylhexyl) phthalate	ND		0.373	0.239
Di-n-octyl phthalate	ND		0.373	0.273
Benzo[b]fluoranthene	13.6	D	0.373	0.184
Benzo[k]fluoranthene	10.4	D	0.373	0.258
Benzo[a]pyrene	13.3	D	0.373	0.181
Indeno[1,2,3-cd]pyrene	7.05	D	0.373	0.239
Dibenz[a,h]anthracene	3.51	D	0.373	0.149
Benzo[g,h,i]perylene	7.07	D	0.373	0.281
Dinitrotoluene (2,4- and 2,6-)	ND		0.746	0.422
Total Target Compounds (69):	211	DJ		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-007
Client ID: SB3B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Date File: A3841.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 10
% Moisture: 11.2

CAS #	Compound	Estimated Concentration	Q	Retention Time
000203-64-5	4H-Cyclopenta[def]phenanthrene	2.42	DJN	6.20

Total TICs = 2.42 DJN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-008
Client ID: SB10A/1.
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3842.D 11/21/2023 19:04

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 8.90
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.073	0.028
Phenol	ND		0.037	0.00828
Bis(2-chloroethyl) ether	ND		0.037	0.013
2-Chlorophenol	ND		0.037	0.012
2-Methylphenol	ND		0.037	0.016
2,2'-Oxybis(1-Chloropropane)	ND		0.037	0.00913
4-Methylphenol **	ND		0.037	0.017
N-Nitrosodi-n-propylamine	ND		0.037	0.023
Acetophenone	ND		0.037	0.022
1,4-Dioxane	ND		0.037	0.024
Hexachloroethane	ND		0.037	0.015
Nitrobenzene	ND		0.037	0.00888
Isophorone	ND		0.037	0.015
2-Nitrophenol	ND		0.073	0.022
2,4-Dimethylphenol	ND		0.037	0.011
Bis(2-chloroethoxy) methane	ND		0.037	0.00816
2,4-Dichlorophenol	ND		0.037	0.00973
Naphthalene	ND		0.037	0.00534
4-Chloroaniline	ND		0.037	0.014
Hexachlorobutadiene	ND		0.037	0.010
Caprolactam	ND		0.073	0.027
4-Chloro-3-methylphenol	ND		0.037	0.014
2-Methylnaphthalene	ND		0.037	0.013
Hexachlorocyclopentadiene	ND		0.073	0.064
2,4,6-Trichlorophenol	ND		0.037	0.010
2,4,5-Trichlorophenol	ND		0.037	0.028
1,1'-Biphenyl	ND		0.037	0.00544
2-Chloronaphthalene	ND		0.037	0.00845
2-Nitroaniline	ND		0.037	0.019
Dimethyl phthalate	ND		0.037	0.0084

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-008
Client ID: SB10A/1.
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3842.D 11/21/2023 19:04

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 8.90
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.073	0.042
Acenaphthylene	0.078		0.037	0.00801
3-Nitroaniline	ND		0.037	0.023
Acenaphthene	0.115		0.037	0.00723
2,4-Dinitrophenol	ND		0.073	0.015
4-Nitrophenol	ND		0.073	0.037
2,4-Dinitrotoluene	ND		0.073	0.041
Dibenzofuran	0.048		0.037	0.00479
Diethyl phthalate	ND		0.037	0.011
Fluorene	0.098		0.037	0.00985
4-Chlorophenyl phenyl ether	ND		0.037	0.00804
4-Nitroaniline	ND		0.037	0.022
1,2,4,5-Tetrachlorobenzene	ND		0.037	0.012
2,3,4,6-Tetrachlorophenol	ND		0.037	0.013
4,6-Dinitro-2-methylphenol	ND		0.073	0.016
N-Nitrosodiphenylamine	ND		0.037	0.00751
4-Bromophenyl phenyl ether	ND		0.037	0.010
Hexachlorobenzene	ND		0.037	0.011
Atrazine	ND		0.037	0.022
Pentachlorophenol	ND		0.037	0.016
Phenanthrene	1.62		0.037	0.00599
Anthracene	0.447		0.037	0.00372
Carbazole	0.098		0.037	0.00853
Di-n-butyl phthalate	ND		0.037	0.015
Fluoranthene	3.39		0.037	0.012
Pyrene	2.81		0.037	0.00851
Butyl benzyl phthalate	ND		0.037	0.016
3,3'-Dichlorobenzidine	ND		0.037	0.026
Benzo[a]anthracene	1.62		0.037	0.013
Chrysene	1.39		0.037	0.010
Bis(2-ethylhexyl) phthalate	ND		0.037	0.024
Di-n-octyl phthalate	ND		0.037	0.027
Benzo[b]fluoranthene	1.51		0.037	0.018
Benzo[k]fluoranthene	1.17		0.037	0.025
Benzo[a]pyrene	1.48		0.037	0.018
Indeno[1,2,3-cd]pyrene	0.932		0.037	0.023
Dibenz[a,h]anthracene	0.489		0.037	0.015
Benzo[g,h,i]perylene	1.07		0.037	0.028
Dinitrotoluene (2,4- and 2,6-)	ND		0.073	0.041

Total Target Compounds (69): 18.4

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-008
Client ID: SB10A/1.
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Date File: A3842.D

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 8.90

CAS #	Compound	Estimated Concentration	Q	Retention Time
000239-35-0	Benzo[b]naphtho[2,1-d]thiophene	0.168	JN	7.24

Total TICs = 0.168 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-009
Client ID: SB11A/1-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3843.D 11/21/2023 19:20

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 15.6
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.079	0.030
Phenol	ND		0.039	0.00887
Bis(2-chloroethyl) ether	ND		0.039	0.014
2-Chlorophenol	ND		0.039	0.013
2-Methylphenol	ND		0.039	0.018
2,2'-Oxybis(1-Chloropropane)	ND		0.039	0.00978
4-Methylphenol **	ND		0.039	0.018
N-Nitrosodi-n-propylamine	ND		0.039	0.024
Acetophenone	ND		0.039	0.024
1,4-Dioxane	ND		0.039	0.025
Hexachloroethane	ND		0.039	0.016
Nitrobenzene	ND		0.039	0.00953
Isophorone	ND		0.039	0.017
2-Nitrophenol	ND		0.079	0.023
2,4-Dimethylphenol	ND		0.039	0.012
Bis(2-chloroethoxy) methane	ND		0.039	0.00874
2,4-Dichlorophenol	ND		0.039	0.010
Naphthalene	ND		0.039	0.00572
4-Chloroaniline	ND		0.039	0.015
Hexachlorobutadiene	ND		0.039	0.011
Caprolactam	ND		0.079	0.029
4-Chloro-3-methylphenol	ND		0.039	0.015
2-Methylnaphthalene	ND		0.039	0.014
Hexachlorocyclopentadiene	ND		0.079	0.068
2,4,6-Trichlorophenol	ND		0.039	0.011
2,4,5-Trichlorophenol	ND		0.039	0.030
1,1'-Biphenyl	ND		0.039	0.00584
2-Chloronaphthalene	ND		0.039	0.00906
2-Nitroaniline	ND		0.039	0.021
Dimethyl phthalate	ND		0.039	0.009

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-009
Client ID: SB11A/1-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3843.D 11/21/2023 19:20

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 15.6
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.079	0.045
Acenaphthylene	0.048		0.039	0.00859
3-Nitroaniline	ND		0.039	0.025
Acenaphthene	0.032	J	0.039	0.00775
2,4-Dinitrophenol	ND		0.079	0.016
4-Nitrophenol	ND		0.079	0.040
2,4-Dinitrotoluene	ND		0.079	0.044
Dibenzofuran	ND		0.039	0.00513
Diethyl phthalate	ND		0.039	0.012
Fluorene	0.032	J	0.039	0.011
4-Chlorophenyl phenyl ether	ND		0.039	0.00862
4-Nitroaniline	ND		0.039	0.023
1,2,4,5-Tetrachlorobenzene	ND		0.039	0.013
2,3,4,6-Tetrachlorophenol	ND		0.039	0.013
4,6-Dinitro-2-methylphenol	ND		0.079	0.017
N-Nitrosodiphenylamine	ND		0.039	0.00805
4-Bromophenyl phenyl ether	ND		0.039	0.011
Hexachlorobenzene	ND		0.039	0.012
Atrazine	ND		0.039	0.023
Pentachlorophenol	ND		0.039	0.017
Phenanthrene	0.626		0.039	0.00642
Anthracene	0.177		0.039	0.00399
Carbazole	0.041		0.039	0.00914
Di-n-butyl phthalate	ND		0.039	0.016
Fluoranthene	1.74		0.039	0.013
Pyrene	1.46		0.039	0.00913
Butyl benzyl phthalate	ND		0.039	0.017
3,3'-Dichlorobenzidine	ND		0.039	0.028
Benzo[a]anthracene	0.947		0.039	0.014
Chrysene	0.742		0.039	0.011
Bis(2-ethylhexyl) phthalate	ND		0.039	0.025
Di-n-octyl phthalate	ND		0.039	0.029
Benzo[b]fluoranthene	0.856		0.039	0.019
Benzo[k]fluoranthene	0.739		0.039	0.027
Benzo[a]pyrene	0.865		0.039	0.019
Indeno[1,2,3-cd]pyrene	0.511		0.039	0.025
Dibenz[a,h]anthracene	0.277		0.039	0.016
Benzo[g,h,i]perylene	0.511		0.039	0.030
Dinitrotoluene (2,4- and 2,6-)	ND		0.079	0.044
Total Target Compounds (69):	9.60	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-009
Client ID: SB11A/1-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Date File: A3843.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 15.6

CAS #	Compound	Estimated Concentration	Q	Retention Time
000239-35-0	Benzo[b]naphtho[2,1-d]thiophene	0.180	JN	7.24

Total TICs = 0.180 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-010
Client ID: SB8A/0-1
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3844.D 11/21/2023 19:36

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 5.20
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.070	0.026
Phenol	ND		0.035	0.00795
Bis(2-chloroethyl) ether	ND		0.035	0.012
2-Chlorophenol	ND		0.035	0.011
2-Methylphenol	ND		0.035	0.016
2,2'-Oxybis(1-Chloropropane)	ND		0.035	0.00877
4-Methylphenol **	ND		0.035	0.016
N-Nitrosodi-n-propylamine	ND		0.035	0.022
Acetophenone	ND		0.035	0.021
1,4-Dioxane	ND		0.035	0.023
Hexachloroethane	ND		0.035	0.015
Nitrobenzene	ND		0.035	0.00854
Isophorone	ND		0.035	0.015
2-Nitrophenol	ND		0.070	0.021
2,4-Dimethylphenol	ND		0.035	0.010
Bis(2-chloroethoxy) methane	ND		0.035	0.00784
2,4-Dichlorophenol	ND		0.035	0.00935
Naphthalene	ND		0.035	0.00513
4-Chloroaniline	ND		0.035	0.014
Hexachlorobutadiene	ND		0.035	0.00976
Caprolactam	ND		0.070	0.026
4-Chloro-3-methylphenol	ND		0.035	0.014
2-Methylnaphthalene	ND		0.035	0.012
Hexachlorocyclopentadiene	ND		0.070	0.061
2,4,6-Trichlorophenol	ND		0.035	0.00967
2,4,5-Trichlorophenol	ND		0.035	0.027
1,1'-Biphenyl	ND		0.035	0.00523
2-Chloronaphthalene	ND		0.035	0.00812
2-Nitroaniline	ND		0.035	0.019
Dimethyl phthalate	ND		0.035	0.00807

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-010
Client ID: SB8A/0-1
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3844.D 11/21/2023 19:36

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 5.20
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.070	0.040
Acenaphthylene	ND		0.035	0.0077
3-Nitroaniline	ND		0.035	0.022
Acenaphthene	ND		0.035	0.00694
2,4-Dinitrophenol	ND		0.070	0.015
4-Nitrophenol	ND		0.070	0.036
2,4-Dinitrotoluene	ND		0.070	0.040
Dibenzofuran	ND		0.035	0.0046
Diethyl phthalate	ND		0.035	0.011
Fluorene	ND		0.035	0.00947
4-Chlorophenyl phenyl ether	ND		0.035	0.00773
4-Nitroaniline	ND		0.035	0.021
1,2,4,5-Tetrachlorobenzene	ND		0.035	0.012
2,3,4,6-Tetrachlorophenol	ND		0.035	0.012
4,6-Dinitro-2-methylphenol	ND		0.070	0.015
N-Nitrosodiphenylamine	ND		0.035	0.00721
4-Bromophenyl phenyl ether	ND		0.035	0.00974
Hexachlorobenzene	ND		0.035	0.011
Atrazine	ND		0.035	0.021
Pentachlorophenol	ND		0.035	0.016
Phenanthrene	ND		0.035	0.00575
Anthracene	ND		0.035	0.00358
Carbazole	ND		0.035	0.0082
Di-n-butyl phthalate	ND		0.035	0.014
Fluoranthene	0.018	J	0.035	0.011
Pyrene	0.019	J	0.035	0.00818
Butyl benzyl phthalate	ND		0.035	0.016
3,3'-Dichlorobenzidine	ND		0.035	0.025
Benzo[a]anthracene	ND		0.035	0.013
Chrysene	ND		0.035	0.0097
Bis(2-ethylhexyl) phthalate	0.032	J	0.035	0.023
Di-n-octyl phthalate	ND		0.035	0.026
Benzo[b]fluoranthene	ND		0.035	0.017
Benzo[k]fluoranthene	ND		0.035	0.024
Benzo[a]pyrene	ND		0.035	0.017
Indeno[1,2,3-cd]pyrene	ND		0.035	0.023
Dibenz[a,h]anthracene	ND		0.035	0.014
Benzo[g,h,i]perylene	ND		0.035	0.027
Dinitrotoluene (2,4- and 2,6-)	ND		0.070	0.040
Total Target Compounds (69):	0.069	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-010
Client ID: SB8A/0-1
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Date File: A3844.D

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 5.20

CAS #	Compound	Estimated Concentration	Q	Retention Time
007206-21-5	5-Octadecene, (E)-	0.232	JN	6.38

Total TICs = 0.232 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-011
Client ID: TWP1
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Data file: B6009.D 11/29/2023 20:58
SIM Data file: B5989.D 11/29/2023 15:16

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		2.00	0.492
Phenol	ND		1.00	0.276
Bis(2-chloroethyl) ether	ND		1.00	0.459
2-Chlorophenol	ND		1.00	0.257
2-Methylphenol	ND		1.00	0.267
2,2'-Oxybis(1-Chloropropane)	ND		1.00	0.682
4-Methylphenol **	ND		1.00	0.337
N-Nitrosodi-n-propylamine	ND		1.00	0.391
Acetophenone	ND		1.00	0.241
Hexachloroethane	ND		1.00	0.470
Nitrobenzene	ND		1.00	0.442
Isophorone	ND		1.00	0.232
2-Nitrophenol	ND		2.00	0.581
2,4-Dimethylphenol	ND		2.00	1.06
Bis(2-chloroethoxy) methane	ND		1.00	0.344
2,4-Dichlorophenol	ND		1.00	0.383
Naphthalene	ND		1.00	0.183
4-Chloroaniline	ND		1.00	0.612
Hexachlorobutadiene	ND		1.00	0.561
Caprolactam	ND		3.00	1.15
4-Chloro-3-methylphenol	ND		1.00	0.336
2-Methylnaphthalene	ND		1.00	0.200
Hexachlorocyclopentadiene	ND		2.00	1.89
2,4,6-Trichlorophenol	ND		1.00	0.497
2,4,5-Trichlorophenol	ND		2.00	0.505
1,1'-Biphenyl	ND		1.00	0.212
2-Chloronaphthalene	ND		1.00	0.234
2-Nitroaniline	ND		2.00	0.702
Dimethyl phthalate	ND		1.00	0.197

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-011
Client ID: TWP1
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Data file: B6009.D 11/29/2023 20:58
SIM Data file: B5989.D 11/29/2023 15:16

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		1.00	0.996
Acenaphthylene	ND		1.00	0.268
3-Nitroaniline	ND		3.00	0.436
Acenaphthene	ND		1.00	0.281
2,4-Dinitrophenol	ND		3.00	2.35
4-Nitrophenol	ND		3.00	2.41
2,4-Dinitrotoluene	ND		1.00	0.886
Dibenzofuran	ND		1.00	0.199
Diethyl phthalate	ND		1.00	0.239
Fluorene	ND		1.00	0.367
4-Chlorophenyl phenyl ether	ND		1.00	0.396
4-Nitroaniline	ND		2.00	0.692
1,2,4,5-Tetrachlorobenzene	ND		1.00	0.326
2,3,4,6-Tetrachlorophenol	ND		1.00	0.872
4,6-Dinitro-2-methylphenol *	ND		0.100	0.033
N-Nitrosodiphenylamine	ND		1.00	0.196
4-Bromophenyl phenyl ether	ND		1.00	0.940
Hexachlorobenzene *	ND		0.020	0.016
Atrazine	ND		1.00	0.468
Pentachlorophenol *	ND		0.100	0.052
Phenanthrene	1.69		1.00	0.263
Anthracene	ND		1.00	0.560
Carbazole	ND		1.00	0.594
Di-n-butyl phthalate	ND		1.00	0.343
Fluoranthene	1.65		1.00	0.482
Pyrene	1.32		1.00	0.555
Butyl benzyl phthalate	ND		1.00	0.642
3,3'-Dichlorobenzidine	ND		1.00	0.524
Benzo[a]anthracene *	1.63		0.100	0.029
Chrysene	ND		1.00	0.232
Bis(2-ethylhexyl) phthalate	ND		2.00	1.38
Di-n-octyl phthalate	ND		2.00	1.09
Benzo[b]fluoranthene *	1.62		0.100	0.026
Benzo[k]fluoranthene *	1.10		0.100	0.035
Benzo[a]pyrene *	1.47		0.100	0.027
Indeno[1,2,3-cd]pyrene *	1.01		0.100	0.036
Dibenz[a,h]anthracene *	0.594		0.100	0.031
Benzo[g,h,i]perylene	ND		2.00	1.04
1,4-Dioxane	ND		0.400	0.329
Dinitrotoluene (2,4- and 2,6-)	ND		1.00	0.886

Total Target Compounds (69): 12.1

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

* - RL & MDL from SIM run
** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-011
Client ID: TWP1
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Date File: B6009.D

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Unknown SV	13.1	J	2.05
	Unknown SV	5.00	J	2.10
	Unknown SV	5.60	J	2.14

Total TICs = 23.7 J

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-012
Client ID: TWP2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Data file: B6030.D 11/30/2023 15:07

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		2.00	0.492
Phenol	ND		1.00	0.276
Bis(2-chloroethyl) ether	ND		1.00	0.459
2-Chlorophenol	ND		1.00	0.257
2-Methylphenol	ND		1.00	0.267
2,2'-Oxybis(1-Chloropropane)	ND		1.00	0.682
4-Methylphenol **	ND		1.00	0.337
N-Nitrosodi-n-propylamine	ND		1.00	0.391
Acetophenone	ND		1.00	0.241
Hexachloroethane	ND		1.00	0.470
Nitrobenzene	ND		1.00	0.442
Isophorone	ND		1.00	0.232
2-Nitrophenol	ND		2.00	0.581
2,4-Dimethylphenol	ND		2.00	1.06
Bis(2-chloroethoxy) methane	ND		1.00	0.344
2,4-Dichlorophenol	ND		1.00	0.383
Naphthalene	ND		1.00	0.183
4-Chloroaniline	ND		1.00	0.612
Hexachlorobutadiene	ND		1.00	0.561
Caprolactam	ND		3.00	1.15
4-Chloro-3-methylphenol	ND		1.00	0.336
2-Methylnaphthalene	ND		1.00	0.200
Hexachlorocyclopentadiene	ND		2.00	1.89
2,4,6-Trichlorophenol	ND		1.00	0.497
2,4,5-Trichlorophenol	ND		2.00	0.505
1,1'-Biphenyl	ND		1.00	0.212
2-Chloronaphthalene	ND		1.00	0.234
2-Nitroaniline	ND		2.00	0.702
Dimethyl phthalate	ND		1.00	0.197

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-012
Client ID: TWP2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Data file: B6030.D 11/30/2023 15:07

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		1.00	0.996
Acenaphthylene	ND		1.00	0.268
3-Nitroaniline	ND		3.00	0.436
Acenaphthene	ND		1.00	0.281
2,4-Dinitrophenol	ND		3.00	2.35
4-Nitrophenol	ND		3.00	2.41
2,4-Dinitrotoluene	ND		1.00	0.886
Dibenzofuran	ND		1.00	0.199
Diethyl phthalate	ND		1.00	0.239
Fluorene	ND		1.00	0.367
4-Chlorophenyl phenyl ether	ND		1.00	0.396
4-Nitroaniline	ND		2.00	0.692
1,2,4,5-Tetrachlorobenzene	ND		1.00	0.326
2,3,4,6-Tetrachlorophenol	ND		1.00	0.872
4,6-Dinitro-2-methylphenol	ND		2.00	1.99
N-Nitrosodiphenylamine	ND		1.00	0.196
4-Bromophenyl phenyl ether	ND		1.00	0.940
Hexachlorobenzene	ND		1.00	0.584
Atrazine	ND		1.00	0.468
Pentachlorophenol	ND		3.00	2.34
Phenanthrene	20.2		1.00	0.263
Anthracene	ND		1.00	0.560
Carbazole	ND		1.00	0.594
Di-n-butyl phthalate	1.84		1.00	0.343
Fluoranthene	21.1		1.00	0.482
Pyrene	29.6		1.00	0.555
Butyl benzyl phthalate	ND		1.00	0.642
3,3'-Dichlorobenzidine	ND		1.00	0.524
Benzo[a]anthracene	10.8		1.00	0.300
Chrysene	9.27		1.00	0.232
Bis(2-ethylhexyl) phthalate	ND		2.00	1.38
Di-n-octyl phthalate	ND		2.00	1.09
Benzo[b]fluoranthene	7.43		1.00	0.605
Benzo[k]fluoranthene	3.28		2.00	0.403
Benzo[a]pyrene	6.64		1.00	0.285
Indeno[1,2,3-cd]pyrene	3.57		2.00	1.14
Dibenz[a,h]anthracene	4.62		2.00	1.35
Benzo[g,h,i]perylene	3.84		2.00	1.04
1,4-Dioxane	ND		0.400	0.329
Dinitrotoluene (2,4- and 2,6-)	ND		1.00	0.886

Total Target Compounds (69): 122

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-012
Client ID: TWP2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Date File: B6030.D

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Unknown SV	14.4	J	2.54
	Unknown SV	17.0	J	2.56
054676-39-0	Cyclohexane, 2-butyl-1,1,3-trimeth	20.4	JN	3.02
026730-14-3	Tridecane, 7-methyl-	42.3	JN	3.08
	Unknown SV	23.2	J	3.17
	Unknown SV	26.6	J	3.20
	Unknown SV	29.8	J	3.45
	Unknown SV	28.3	J	3.55
000544-76-3	Hexadecane	113	JN	3.57
	Unknown SV	20.2	J	3.62
062376-17-4	Cyclohexane, 1,2-dimethyl-3-pentyl	14.9	JN	3.66
014905-56-7	Tetradecane, 2,6,10-trimethyl-	21.0	JN	3.80
055045-11-9	Tridecane, 5-propyl-	149	JN	4.03
001921-70-6	Pentadecane, 2,6,10,14-tetramethyl	54.1	JN	4.17
000638-36-8	Hexadecane, 2,6,10,14-tetramethyl-	40.0	JN	4.42

Total TICs = 614 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-013
Client ID: TWP4
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Data file: B6010.D 11/29/2023 21:14
SIM Data file: B5990.D 11/29/2023 15:33

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		2.00	0.492
Phenol	ND		1.00	0.276
Bis(2-chloroethyl) ether	ND		1.00	0.459
2-Chlorophenol	ND		1.00	0.257
2-Methylphenol	ND		1.00	0.267
2,2'-Oxybis(1-Chloropropane)	ND		1.00	0.682
4-Methylphenol **	ND		1.00	0.337
N-Nitrosodi-n-propylamine	ND		1.00	0.391
Acetophenone	ND		1.00	0.241
Hexachloroethane	ND		1.00	0.470
Nitrobenzene	ND		1.00	0.442
Isophorone	ND		1.00	0.232
2-Nitrophenol	ND		2.00	0.581
2,4-Dimethylphenol	ND		2.00	1.06
Bis(2-chloroethoxy) methane	ND		1.00	0.344
2,4-Dichlorophenol	ND		1.00	0.383
Naphthalene	ND		1.00	0.183
4-Chloroaniline	ND		1.00	0.612
Hexachlorobutadiene	ND		1.00	0.561
Caprolactam	ND		3.00	1.15
4-Chloro-3-methylphenol	ND		1.00	0.336
2-Methylnaphthalene	ND		1.00	0.200
Hexachlorocyclopentadiene	ND		2.00	1.89
2,4,6-Trichlorophenol	ND		1.00	0.497
2,4,5-Trichlorophenol	ND		2.00	0.505
1,1'-Biphenyl	ND		1.00	0.212
2-Chloronaphthalene	ND		1.00	0.234
2-Nitroaniline	ND		2.00	0.702
Dimethyl phthalate	ND		1.00	0.197

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-013
Client ID: TWP4
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Data file: B6010.D 11/29/2023 21:14
SIM Data file: B5990.D 11/29/2023 15:33

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		1.00	0.996
Acenaphthylene	ND		1.00	0.268
3-Nitroaniline	ND		3.00	0.436
Acenaphthene	ND		1.00	0.281
2,4-Dinitrophenol	ND		3.00	2.35
4-Nitrophenol	ND		3.00	2.41
2,4-Dinitrotoluene	ND		1.00	0.886
Dibenzofuran	ND		1.00	0.199
Diethyl phthalate	ND		1.00	0.239
Fluorene	ND		1.00	0.367
4-Chlorophenyl phenyl ether	ND		1.00	0.396
4-Nitroaniline	ND		2.00	0.692
1,2,4,5-Tetrachlorobenzene	ND		1.00	0.326
2,3,4,6-Tetrachlorophenol	ND		1.00	0.872
4,6-Dinitro-2-methylphenol *	ND		0.100	0.033
N-Nitrosodiphenylamine	ND		1.00	0.196
4-Bromophenyl phenyl ether	ND		1.00	0.940
Hexachlorobenzene *	ND		0.020	0.016
Atrazine	ND		1.00	0.468
Pentachlorophenol *	ND		0.100	0.052
Phenanthrene	ND		1.00	0.263
Anthracene	ND		1.00	0.560
Carbazole	ND		1.00	0.594
Di-n-butyl phthalate	ND		1.00	0.343
Fluoranthene	ND		1.00	0.482
Pyrene	ND		1.00	0.555
Butyl benzyl phthalate	ND		1.00	0.642
3,3'-Dichlorobenzidine	ND		1.00	0.524
Benzo[a]anthracene *	0.103		0.100	0.029
Chrysene	ND		1.00	0.232
Bis(2-ethylhexyl) phthalate	ND		2.00	1.38
Di-n-octyl phthalate	ND		2.00	1.09
Benzo[b]fluoranthene *	0.132		0.100	0.026
Benzo[k]fluoranthene *	0.123		0.100	0.035
Benzo[a]pyrene *	0.153		0.100	0.027
Indeno[1,2,3-cd]pyrene *	0.190		0.100	0.036
Dibenz[a,h]anthracene *	0.166		0.100	0.031
Benzo[g,h,i]perylene	ND		2.00	1.04
1,4-Dioxane	ND		0.400	0.329
Dinitrotoluene (2,4- and 2,6-)	ND		1.00	0.886

Total Target Compounds (69): 0.867

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

* - RL & MDL from SIM run
** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-013
Client ID: TWP4
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Date File: B6010.D

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Unknown SV	13.1	J	2.05
	Unknown SV	4.70	J	2.10
	Unknown SV	5.00	J	2.14

Total TICs = 22.8 J

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-014
Client ID: TWP5
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Data file: B6011.D 11/29/2023 21:30
SIM Data file: B5991.D 11/29/2023 15:49

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		2.00	0.492
Phenol	ND		1.00	0.276
Bis(2-chloroethyl) ether	ND		1.00	0.459
2-Chlorophenol	ND		1.00	0.257
2-Methylphenol	ND		1.00	0.267
2,2'-Oxybis(1-Chloropropane)	ND		1.00	0.682
4-Methylphenol **	ND		1.00	0.337
N-Nitrosodi-n-propylamine	ND		1.00	0.391
Acetophenone	ND		1.00	0.241
Hexachloroethane	ND		1.00	0.470
Nitrobenzene	ND		1.00	0.442
Isophorone	ND		1.00	0.232
2-Nitrophenol	ND		2.00	0.581
2,4-Dimethylphenol	ND		2.00	1.06
Bis(2-chloroethoxy) methane	ND		1.00	0.344
2,4-Dichlorophenol	ND		1.00	0.383
Naphthalene	ND		1.00	0.183
4-Chloroaniline	ND		1.00	0.612
Hexachlorobutadiene	ND		1.00	0.561
Caprolactam	ND		3.00	1.15
4-Chloro-3-methylphenol	ND		1.00	0.336
2-Methylnaphthalene	ND		1.00	0.200
Hexachlorocyclopentadiene	ND		2.00	1.89
2,4,6-Trichlorophenol	ND		1.00	0.497
2,4,5-Trichlorophenol	ND		2.00	0.505
1,1'-Biphenyl	ND		1.00	0.212
2-Chloronaphthalene	ND		1.00	0.234
2-Nitroaniline	ND		2.00	0.702
Dimethyl phthalate	ND		1.00	0.197

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-014
Client ID: TWP5
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Data file: B6011.D 11/29/2023 21:30
SIM Data file: B5991.D 11/29/2023 15:49

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		1.00	0.996
Acenaphthylene	ND		1.00	0.268
3-Nitroaniline	ND		3.00	0.436
Acenaphthene	ND		1.00	0.281
2,4-Dinitrophenol	ND		3.00	2.35
4-Nitrophenol	ND		3.00	2.41
2,4-Dinitrotoluene	ND		1.00	0.886
Dibenzofuran	ND		1.00	0.199
Diethyl phthalate	ND		1.00	0.239
Fluorene	ND		1.00	0.367
4-Chlorophenyl phenyl ether	ND		1.00	0.396
4-Nitroaniline	ND		2.00	0.692
1,2,4,5-Tetrachlorobenzene	ND		1.00	0.326
2,3,4,6-Tetrachlorophenol	ND		1.00	0.872
4,6-Dinitro-2-methylphenol *	ND		0.100	0.033
N-Nitrosodiphenylamine	ND		1.00	0.196
4-Bromophenyl phenyl ether	ND		1.00	0.940
Hexachlorobenzene *	ND		0.020	0.016
Atrazine	ND		1.00	0.468
Pentachlorophenol *	ND		0.100	0.052
Phenanthrene	ND		1.00	0.263
Anthracene	ND		1.00	0.560
Carbazole	ND		1.00	0.594
Di-n-butyl phthalate	ND		1.00	0.343
Fluoranthene	ND		1.00	0.482
Pyrene	ND		1.00	0.555
Butyl benzyl phthalate	ND		1.00	0.642
3,3'-Dichlorobenzidine	ND		1.00	0.524
Benzo[a]anthracene *	ND		0.100	0.029
Chrysene	ND		1.00	0.232
Bis(2-ethylhexyl) phthalate	ND		2.00	1.38
Di-n-octyl phthalate	ND		2.00	1.09
Benzo[b]fluoranthene *	ND		0.100	0.026
Benzo[k]fluoranthene *	ND		0.100	0.035
Benzo[a]pyrene *	ND		0.100	0.027
Indeno[1,2,3-cd]pyrene *	ND		0.100	0.036
Dibenz[a,h]anthracene *	ND		0.100	0.031
Benzo[g,h,i]perylene	ND		2.00	1.04
1,4-Dioxane	ND		0.400	0.329
Dinitrotoluene (2,4- and 2,6-)	ND		1.00	0.886

Total Target Compounds (69): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

* - RL & MDL from SIM run
** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-014
Client ID: TWP5
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Date File: B6011.D

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Unknown SV	12.9	J	2.05
	Unknown SV	4.70	J	2.10
	Unknown SV	5.50	J	2.14

Total TICs = 23.1 J

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-015
Client ID: SB4A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3845.D 11/21/2023 19:53

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.4
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.077	0.029
Phenol	ND		0.038	0.00865
Bis(2-chloroethyl) ether	ND		0.038	0.013
2-Chlorophenol	ND		0.038	0.012
2-Methylphenol	ND		0.038	0.017
2,2'-Oxybis(1-Chloropropane)	ND		0.038	0.00954
4-Methylphenol **	ND		0.038	0.017
N-Nitrosodi-n-propylamine	ND		0.038	0.024
Acetophenone	ND		0.038	0.023
1,4-Dioxane	ND		0.038	0.025
Hexachloroethane	ND		0.038	0.016
Nitrobenzene	ND		0.038	0.00928
Isophorone	ND		0.038	0.016
2-Nitrophenol	ND		0.077	0.023
2,4-Dimethylphenol	ND		0.038	0.011
Bis(2-chloroethoxy) methane	ND		0.038	0.00852
2,4-Dichlorophenol	ND		0.038	0.010
Naphthalene	ND		0.038	0.00558
4-Chloroaniline	ND		0.038	0.015
Hexachlorobutadiene	ND		0.038	0.011
Caprolactam	ND		0.077	0.028
4-Chloro-3-methylphenol	ND		0.038	0.015
2-Methylnaphthalene	ND		0.038	0.014
Hexachlorocyclopentadiene	ND		0.077	0.066
2,4,6-Trichlorophenol	ND		0.038	0.011
2,4,5-Trichlorophenol	ND		0.038	0.029
1,1'-Biphenyl	ND		0.038	0.00569
2-Chloronaphthalene	ND		0.038	0.00883
2-Nitroaniline	ND		0.038	0.020
Dimethyl phthalate	ND		0.038	0.00878

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-015
Client ID: SB4A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3845.D 11/21/2023 19:53

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.4
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.077	0.044
Acenaphthylene	0.037	J	0.038	0.00837
3-Nitroaniline	ND		0.038	0.024
Acenaphthene	ND		0.038	0.00755
2,4-Dinitrophenol	ND		0.077	0.016
4-Nitrophenol	ND		0.077	0.039
2,4-Dinitrotoluene	ND		0.077	0.043
Dibenzofuran	ND		0.038	0.005
Diethyl phthalate	ND		0.038	0.012
Fluorene	0.020	J	0.038	0.010
4-Chlorophenyl phenyl ether	ND		0.038	0.00841
4-Nitroaniline	ND		0.038	0.023
1,2,4,5-Tetrachlorobenzene	ND		0.038	0.013
2,3,4,6-Tetrachlorophenol	ND		0.038	0.013
4,6-Dinitro-2-methylphenol	ND		0.077	0.016
N-Nitrosodiphenylamine	ND		0.038	0.00785
4-Bromophenyl phenyl ether	ND		0.038	0.011
Hexachlorobenzene	ND		0.038	0.012
Atrazine	ND		0.038	0.023
Pentachlorophenol	ND		0.038	0.017
Phenanthrene	0.212		0.038	0.00626
Anthracene	0.062		0.038	0.00389
Carbazole	0.028	J	0.038	0.00891
Di-n-butyl phthalate	ND		0.038	0.016
Fluoranthene	0.371		0.038	0.012
Pyrene	0.333		0.038	0.0089
Butyl benzyl phthalate	ND		0.038	0.017
3,3'-Dichlorobenzidine	ND		0.038	0.027
Benzo[a]anthracene	0.191		0.038	0.014
Chrysene	0.172		0.038	0.011
Bis(2-ethylhexyl) phthalate	ND		0.038	0.025
Di-n-octyl phthalate	ND		0.038	0.028
Benzo[b]fluoranthene	0.197		0.038	0.019
Benzo[k]fluoranthene	0.157		0.038	0.026
Benzo[a]pyrene	0.189		0.038	0.019
Indeno[1,2,3-cd]pyrene	0.118		0.038	0.025
Dibenz[a,h]anthracene	0.056		0.038	0.015
Benzo[g,h,i]perylene	0.121		0.038	0.029
Dinitrotoluene (2,4- and 2,6-)	ND		0.077	0.043
Total Target Compounds (69):	2.26	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-015
Client ID: SB4A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Date File: A3845.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 13.4

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-016
Client ID: SB4B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3846.D 11/21/2023 20:09

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 19.5
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	0.173		0.083	0.031
Phenol	ND		0.041	0.00937
Bis(2-chloroethyl) ether	ND		0.041	0.015
2-Chlorophenol	ND		0.041	0.014
2-Methylphenol	ND		0.041	0.019
2,2'-Oxybis(1-Chloropropane)	ND		0.041	0.010
4-Methylphenol **	ND		0.041	0.019
N-Nitrosodi-n-propylamine	ND		0.041	0.026
Acetophenone	ND		0.041	0.025
1,4-Dioxane	ND		0.041	0.027
Hexachloroethane	ND		0.041	0.017
Nitrobenzene	ND		0.041	0.010
Isophorone	ND		0.041	0.017
2-Nitrophenol	ND		0.083	0.025
2,4-Dimethylphenol	ND		0.041	0.012
Bis(2-chloroethoxy) methane	ND		0.041	0.00923
2,4-Dichlorophenol	ND		0.041	0.011
Naphthalene	ND		0.041	0.00604
4-Chloroaniline	ND		0.041	0.016
Hexachlorobutadiene	ND		0.041	0.012
Caprolactam	ND		0.083	0.031
4-Chloro-3-methylphenol	ND		0.041	0.016
2-Methylnaphthalene	ND		0.041	0.015
Hexachlorocyclopentadiene	ND		0.083	0.072
2,4,6-Trichlorophenol	ND		0.041	0.011
2,4,5-Trichlorophenol	ND		0.041	0.032
1,1'-Biphenyl	ND		0.041	0.00616
2-Chloronaphthalene	ND		0.041	0.00957
2-Nitroaniline	ND		0.041	0.022
Dimethyl phthalate	ND		0.041	0.0095

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-016
Client ID: SB4B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3846.D 11/21/2023 20:09

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 19.5
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.083	0.048
Acenaphthylene	ND		0.041	0.00906
3-Nitroaniline	ND		0.041	0.026
Acenaphthene	ND		0.041	0.00818
2,4-Dinitrophenol	ND		0.083	0.017
4-Nitrophenol	ND		0.083	0.042
2,4-Dinitrotoluene	ND		0.083	0.047
Dibenzofuran	ND		0.041	0.00542
Diethyl phthalate	ND		0.041	0.013
Fluorene	ND		0.041	0.011
4-Chlorophenyl phenyl ether	ND		0.041	0.0091
4-Nitroaniline	ND		0.041	0.025
1,2,4,5-Tetrachlorobenzene	ND		0.041	0.014
2,3,4,6-Tetrachlorophenol	ND		0.041	0.014
4,6-Dinitro-2-methylphenol	ND		0.083	0.018
N-Nitrosodiphenylamine	ND		0.041	0.0085
4-Bromophenyl phenyl ether	ND		0.041	0.012
Hexachlorobenzene	ND		0.041	0.013
Atrazine	ND		0.041	0.025
Pentachlorophenol	ND		0.041	0.018
Phenanthrene	ND		0.041	0.00677
Anthracene	ND		0.041	0.00422
Carbazole	ND		0.041	0.00965
Di-n-butyl phthalate	ND		0.041	0.017
Fluoranthene	0.030	J	0.041	0.013
Pyrene	0.025	J	0.041	0.00964
Butyl benzyl phthalate	ND		0.041	0.018
3,3'-Dichlorobenzidine	ND		0.041	0.029
Benzo[a]anthracene	0.026	J	0.041	0.015
Chrysene	0.028	J	0.041	0.011
Bis(2-ethylhexyl) phthalate	ND		0.041	0.027
Di-n-octyl phthalate	ND		0.041	0.030
Benzo[b]fluoranthene	0.035	J	0.041	0.020
Benzo[k]fluoranthene	0.034	J	0.041	0.029
Benzo[a]pyrene	0.037	J	0.041	0.020
Indeno[1,2,3-cd]pyrene	0.034	J	0.041	0.027
Dibenz[a,h]anthracene	ND		0.041	0.017
Benzo[g,h,i]perylene	0.042		0.041	0.031
Dinitrotoluene (2,4- and 2,6-)	ND		0.083	0.047
Total Target Compounds (69):	0.464	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-016
Client ID: SB4B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Date File: A3846.D

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 19.5

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Unknown SV	0.513	J	9.05
	Unknown SV	0.398	J	9.42

Total TICs = 0.911 J

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-017
Client ID: SB5A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3847.D 11/21/2023 20:25

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.00
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.073	0.028
Phenol	ND		0.037	0.00829
Bis(2-chloroethyl) ether	ND		0.037	0.013
2-Chlorophenol	ND		0.037	0.012
2-Methylphenol	ND		0.037	0.017
2,2'-Oxybis(1-Chloropropane)	ND		0.037	0.00914
4-Methylphenol **	ND		0.037	0.017
N-Nitrosodi-n-propylamine	ND		0.037	0.023
Acetophenone	ND		0.037	0.022
1,4-Dioxane	ND		0.037	0.024
Hexachloroethane	ND		0.037	0.015
Nitrobenzene	ND		0.037	0.00889
Isophorone	ND		0.037	0.015
2-Nitrophenol	ND		0.073	0.022
2,4-Dimethylphenol	ND		0.037	0.011
Bis(2-chloroethoxy) methane	ND		0.037	0.00816
2,4-Dichlorophenol	ND		0.037	0.00974
Naphthalene	ND		0.037	0.00534
4-Chloroaniline	ND		0.037	0.014
Hexachlorobutadiene	ND		0.037	0.010
Caprolactam	ND		0.073	0.027
4-Chloro-3-methylphenol	ND		0.037	0.014
2-Methylnaphthalene	ND		0.037	0.013
Hexachlorocyclopentadiene	ND		0.073	0.064
2,4,6-Trichlorophenol	ND		0.037	0.010
2,4,5-Trichlorophenol	ND		0.037	0.028
1,1'-Biphenyl	ND		0.037	0.00545
2-Chloronaphthalene	ND		0.037	0.00846
2-Nitroaniline	ND		0.037	0.020
Dimethyl phthalate	ND		0.037	0.00841

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-017
Client ID: SB5A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3847.D 11/21/2023 20:25

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.00
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.073	0.042
Acenaphthylene	ND		0.037	0.00802
3-Nitroaniline	ND		0.037	0.023
Acenaphthene	ND		0.037	0.00723
2,4-Dinitrophenol	ND		0.073	0.015
4-Nitrophenol	ND		0.073	0.037
2,4-Dinitrotoluene	ND		0.073	0.042
Dibenzofuran	ND		0.037	0.00479
Diethyl phthalate	ND		0.037	0.011
Fluorene	ND		0.037	0.00986
4-Chlorophenyl phenyl ether	ND		0.037	0.00805
4-Nitroaniline	ND		0.037	0.022
1,2,4,5-Tetrachlorobenzene	ND		0.037	0.012
2,3,4,6-Tetrachlorophenol	ND		0.037	0.013
4,6-Dinitro-2-methylphenol	ND		0.073	0.016
N-Nitrosodiphenylamine	ND		0.037	0.00752
4-Bromophenyl phenyl ether	ND		0.037	0.010
Hexachlorobenzene	ND		0.037	0.011
Atrazine	ND		0.037	0.022
Pentachlorophenol	ND		0.037	0.016
Phenanthrene	0.035	J	0.037	0.00599
Anthracene	ND		0.037	0.00373
Carbazole	ND		0.037	0.00854
Di-n-butyl phthalate	ND		0.037	0.015
Fluoranthene	0.057		0.037	0.012
Pyrene	0.054		0.037	0.00852
Butyl benzyl phthalate	ND		0.037	0.016
3,3'-Dichlorobenzidine	ND		0.037	0.026
Benzo[a]anthracene	0.035	J	0.037	0.013
Chrysene	0.031	J	0.037	0.010
Bis(2-ethylhexyl) phthalate	ND		0.037	0.024
Di-n-octyl phthalate	ND		0.037	0.027
Benzo[b]fluoranthene	0.034	J	0.037	0.018
Benzo[k]fluoranthene	0.028	J	0.037	0.025
Benzo[a]pyrene	0.030	J	0.037	0.018
Indeno[1,2,3-cd]pyrene	ND		0.037	0.023
Dibenz[a,h]anthracene	ND		0.037	0.015
Benzo[g,h,i]perylene	ND		0.037	0.028
Dinitrotoluene (2,4- and 2,6-)	ND		0.073	0.042
Total Target Compounds (69):	0.304	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-017
Client ID: SB5A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Date File: A3847.D

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 9.00

CAS #	Compound	Estimated Concentration	Q	Retention Time
1000130-97-9	E-15-Heptadecenal	0.568	JN	6.38

Total TICs = 0.568 JN

J --- Estimated concentration for TICs

D --- Dilution Performed

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-018
Client ID: SB5B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3848.D 11/21/2023 20:41

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 14.4
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.078	0.029
Phenol	ND		0.039	0.00881
Bis(2-chloroethyl) ether	ND		0.039	0.014
2-Chlorophenol	ND		0.039	0.013
2-Methylphenol	ND		0.039	0.018
2,2'-Oxybis(1-Chloropropane)	ND		0.039	0.00971
4-Methylphenol **	ND		0.039	0.018
N-Nitrosodi-n-propylamine	ND		0.039	0.024
Acetophenone	ND		0.039	0.024
1,4-Dioxane	ND		0.039	0.025
Hexachloroethane	ND		0.039	0.016
Nitrobenzene	ND		0.039	0.00945
Isophorone	ND		0.039	0.016
2-Nitrophenol	ND		0.078	0.023
2,4-Dimethylphenol	ND		0.039	0.012
Bis(2-chloroethoxy) methane	ND		0.039	0.00868
2,4-Dichlorophenol	ND		0.039	0.010
Naphthalene	ND		0.039	0.00568
4-Chloroaniline	ND		0.039	0.015
Hexachlorobutadiene	ND		0.039	0.011
Caprolactam	ND		0.078	0.029
4-Chloro-3-methylphenol	ND		0.039	0.015
2-Methylnaphthalene	ND		0.039	0.014
Hexachlorocyclopentadiene	ND		0.078	0.068
2,4,6-Trichlorophenol	ND		0.039	0.011
2,4,5-Trichlorophenol	ND		0.039	0.030
1,1'-Biphenyl	ND		0.039	0.00579
2-Chloronaphthalene	ND		0.039	0.009
2-Nitroaniline	ND		0.039	0.021
Dimethyl phthalate	ND		0.039	0.00894

SEMIVOLATILE ORGANICS

Lab ID: E23-05046-018
Client ID: SB5B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3848.D 11/21/2023 20:41

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 14.4
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.078	0.045
Acenaphthylene	ND		0.039	0.00852
3-Nitroaniline	ND		0.039	0.025
Acenaphthene	ND		0.039	0.00769
2,4-Dinitrophenol	ND		0.078	0.016
4-Nitrophenol	ND		0.078	0.039
2,4-Dinitrotoluene	ND		0.078	0.044
Dibenzofuran	ND		0.039	0.00509
Diethyl phthalate	ND		0.039	0.012
Fluorene	ND		0.039	0.011
4-Chlorophenyl phenyl ether	ND		0.039	0.00856
4-Nitroaniline	ND		0.039	0.023
1,2,4,5-Tetrachlorobenzene	ND		0.039	0.013
2,3,4,6-Tetrachlorophenol	ND		0.039	0.013
4,6-Dinitro-2-methylphenol	ND		0.078	0.017
N-Nitrosodiphenylamine	ND		0.039	0.00799
4-Bromophenyl phenyl ether	ND		0.039	0.011
Hexachlorobenzene	ND		0.039	0.012
Atrazine	ND		0.039	0.023
Pentachlorophenol	ND		0.039	0.017
Phenanthrene	ND		0.039	0.00637
Anthracene	ND		0.039	0.00396
Carbazole	ND		0.039	0.00908
Di-n-butyl phthalate	ND		0.039	0.016
Fluoranthene	0.023	J	0.039	0.013
Pyrene	0.024	J	0.039	0.00906
Butyl benzyl phthalate	ND		0.039	0.017
3,3'-Dichlorobenzidine	ND		0.039	0.028
Benzo[a]anthracene	ND		0.039	0.014
Chrysene	ND		0.039	0.011
Bis(2-ethylhexyl) phthalate	ND		0.039	0.025
Di-n-octyl phthalate	ND		0.039	0.029
Benzo[b]fluoranthene	ND		0.039	0.019
Benzo[k]fluoranthene	ND		0.039	0.027
Benzo[a]pyrene	ND		0.039	0.019
Indeno[1,2,3-cd]pyrene	ND		0.039	0.025
Dibenz[a,h]anthracene	ND		0.039	0.016
Benzo[g,h,i]perylene	ND		0.039	0.029
Dinitrotoluene (2,4- and 2,6-)	ND		0.078	0.044
Total Target Compounds (69):	0.047	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05046-018
Client ID: SB5B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Date File: A3848.D

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 14.4

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Unknown SV	0.257	J	10.13
001615-91-4	A'-Neogammacer-22(29)-ene	0.646	JN	10.32

Total TICs = 0.903 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: BLKS231120-01
Client ID: .
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3826.D 11/21/2023 14:46

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: NA
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.067	0.025
Phenol	ND		0.033	0.00754
Bis(2-chloroethyl) ether	ND		0.033	0.012
2-Chlorophenol	ND		0.033	0.011
2-Methylphenol	ND		0.033	0.015
2,2'-Oxybis(1-Chloropropane)	ND		0.033	0.00831
4-Methylphenol **	ND		0.033	0.015
N-Nitrosodi-n-propylamine	ND		0.033	0.021
Acetophenone	ND		0.033	0.020
1,4-Dioxane	ND		0.033	0.022
Hexachloroethane	ND		0.033	0.014
Nitrobenzene	ND		0.033	0.00809
Isophorone	ND		0.033	0.014
2-Nitrophenol	ND		0.067	0.020
2,4-Dimethylphenol	ND		0.033	0.00981
Bis(2-chloroethoxy) methane	ND		0.033	0.00743
2,4-Dichlorophenol	ND		0.033	0.00886
Naphthalene	ND		0.033	0.00486
4-Chloroaniline	ND		0.033	0.013
Hexachlorobutadiene	ND		0.033	0.00925
Caprolactam	ND		0.067	0.025
4-Chloro-3-methylphenol	ND		0.033	0.013
2-Methylnaphthalene	ND		0.033	0.012
Hexachlorocyclopentadiene	ND		0.067	0.058
2,4,6-Trichlorophenol	ND		0.033	0.00916
2,4,5-Trichlorophenol	ND		0.033	0.025
1,1'-Biphenyl	ND		0.033	0.00496
2-Chloronaphthalene	ND		0.033	0.0077
2-Nitroaniline	ND		0.033	0.018
Dimethyl phthalate	ND		0.033	0.00765

SEMIVOLATILE ORGANICS

Lab ID: BLKS231120-01
Client ID: .
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3826.D 11/21/2023 14:46

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: NA
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.067	0.038
Acenaphthylene	ND		0.033	0.0073
3-Nitroaniline	ND		0.033	0.021
Acenaphthene	ND		0.033	0.00658
2,4-Dinitrophenol	ND		0.067	0.014
4-Nitrophenol	ND		0.067	0.034
2,4-Dinitrotoluene	ND		0.067	0.038
Dibenzofuran	ND		0.033	0.00436
Diethyl phthalate	ND		0.033	0.010
Fluorene	ND		0.033	0.00897
4-Chlorophenyl phenyl ether	ND		0.033	0.00733
4-Nitroaniline	ND		0.033	0.020
1,2,4,5-Tetrachlorobenzene	ND		0.033	0.011
2,3,4,6-Tetrachlorophenol	ND		0.033	0.011
4,6-Dinitro-2-methylphenol	ND		0.067	0.014
N-Nitrosodiphenylamine	ND		0.033	0.00684
4-Bromophenyl phenyl ether	ND		0.033	0.00924
Hexachlorobenzene	ND		0.033	0.010
Atrazine	ND		0.033	0.020
Pentachlorophenol	ND		0.033	0.015
Phenanthrene	ND		0.033	0.00545
Anthracene	ND		0.033	0.00339
Carbazole	ND		0.033	0.00777
Di-n-butyl phthalate	ND		0.033	0.014
Fluoranthene	ND		0.033	0.011
Pyrene	ND		0.033	0.00776
Butyl benzyl phthalate	ND		0.033	0.015
3,3'-Dichlorobenzidine	ND		0.033	0.024
Benzo[a]anthracene	ND		0.033	0.012
Chrysene	ND		0.033	0.0092
Bis(2-ethylhexyl) phthalate	ND		0.033	0.021
Di-n-octyl phthalate	ND		0.033	0.024
Benzo[b]fluoranthene	ND		0.033	0.016
Benzo[k]fluoranthene	ND		0.033	0.023
Benzo[a]pyrene	ND		0.033	0.016
Indeno[1,2,3-cd]pyrene	ND		0.033	0.021
Dibenz[a,h]anthracene	ND		0.033	0.013
Benzo[g,h,i]perylene	ND		0.033	0.025
Dinitrotoluene (2,4- and 2,6-)	ND		0.067	0.038

Total Target Compounds (69): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: BLKS231120-01
Client ID:
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: A3826.D 11/21/2023 14:46

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: NA

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

SEMIVOLATILE ORGANICS

Lab ID: BLKA231120-04
Client ID: .
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Data file: B6026.D 11/30/2023 11:58
SIM Data file: B5984.D 11/29/2023 13:10

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		2.00	0.492
Phenol	ND		1.00	0.276
Bis(2-chloroethyl) ether	ND		1.00	0.459
2-Chlorophenol	ND		1.00	0.257
2-Methylphenol	ND		1.00	0.267
2,2'-Oxybis(1-Chloropropane)	ND		1.00	0.682
4-Methylphenol **	ND		1.00	0.337
N-Nitrosodi-n-propylamine	ND		1.00	0.391
Acetophenone	ND		1.00	0.241
Hexachloroethane	ND		1.00	0.470
Nitrobenzene	ND		1.00	0.442
Isophorone	ND		1.00	0.232
2-Nitrophenol	ND		2.00	0.581
2,4-Dimethylphenol	ND		2.00	1.06
Bis(2-chloroethoxy) methane	ND		1.00	0.344
2,4-Dichlorophenol	ND		1.00	0.383
Naphthalene	ND		1.00	0.183
4-Chloroaniline	ND		1.00	0.612
Hexachlorobutadiene	ND		1.00	0.561
Caprolactam	ND		3.00	1.15
4-Chloro-3-methylphenol	ND		1.00	0.336
2-Methylnaphthalene	ND		1.00	0.200
Hexachlorocyclopentadiene	ND		2.00	1.89
2,4,6-Trichlorophenol	ND		1.00	0.497
2,4,5-Trichlorophenol	ND		2.00	0.505
1,1'-Biphenyl	ND		1.00	0.212
2-Chloronaphthalene	ND		1.00	0.234
2-Nitroaniline	ND		2.00	0.702
Dimethyl phthalate	ND		1.00	0.197

SEMIVOLATILE ORGANICS

Lab ID: BLKA231120-04
Client ID: .
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Data file: B6026.D 11/30/2023 11:58
SIM Data file: B5984.D 11/29/2023 13:10

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		1.00	0.996
Acenaphthylene	ND		1.00	0.268
3-Nitroaniline	ND		3.00	0.436
Acenaphthene	ND		1.00	0.281
2,4-Dinitrophenol	ND		3.00	2.35
4-Nitrophenol	ND		3.00	2.41
2,4-Dinitrotoluene	ND		1.00	0.886
Dibenzofuran	ND		1.00	0.199
Diethyl phthalate	ND		1.00	0.239
Fluorene	ND		1.00	0.367
4-Chlorophenyl phenyl ether	ND		1.00	0.396
4-Nitroaniline	ND		2.00	0.692
1,2,4,5-Tetrachlorobenzene	ND		1.00	0.326
2,3,4,6-Tetrachlorophenol	ND		1.00	0.872
4,6-Dinitro-2-methylphenol *	ND		0.100	0.033
N-Nitrosodiphenylamine	ND		1.00	0.196
4-Bromophenyl phenyl ether	ND		1.00	0.940
Hexachlorobenzene *	ND		0.020	0.016
Atrazine	ND		1.00	0.468
Pentachlorophenol *	ND		0.100	0.052
Phenanthrene	ND		1.00	0.263
Anthracene	ND		1.00	0.560
Carbazole	ND		1.00	0.594
Di-n-butyl phthalate	ND		1.00	0.343
Fluoranthene	ND		1.00	0.482
Pyrene	ND		1.00	0.555
Butyl benzyl phthalate	ND		1.00	0.642
3,3'-Dichlorobenzidine	ND		1.00	0.524
Benzo[a]anthracene *	ND		0.100	0.029
Chrysene	ND		1.00	0.232
Bis(2-ethylhexyl) phthalate	ND		2.00	1.38
Di-n-octyl phthalate	ND		2.00	1.09
Benzo[b]fluoranthene *	ND		0.100	0.026
Benzo[k]fluoranthene *	ND		0.100	0.035
Benzo[a]pyrene *	ND		0.100	0.027
Indeno[1,2,3-cd]pyrene *	ND		0.100	0.036
Dibenz[a,h]anthracene *	ND		0.100	0.031
Benzo[g,h,i]perylene	ND		2.00	1.04
1,4-Dioxane	ND		0.400	0.329
Dinitrotoluene (2,4- and 2,6-)	ND		1.00	0.886

Total Target Compounds (69): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

* - RL & MDL from SIM run
** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: BLKA231120-04
Client ID: .
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Date File: B6026.D

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Unknown SV	12.0	J	2.05
	Unknown SV	4.10	J	2.10
	Unknown SV	4.60	J	2.14

Total TICs = 20.7 J

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

PCB's

Lab ID: E23-05046-001
Client ID: SB12A/0-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: R5437.D 11/21/2023 12:45

GC Column: DB-5/DB1701P
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.3
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00383	0.0011
Aroclor-1221	ND		0.00383	0.0011
Aroclor-1232	ND		0.00383	0.0011
Aroclor-1242	ND		0.00383	0.0011
Aroclor-1248	ND		0.00383	0.0011
Aroclor-1254	ND		0.00383	0.0011
Aroclor-1260	ND		0.00383	0.0011
Aroclor-1262	ND		0.00383	0.0011
Aroclor-1268	ND		0.00383	0.0011
PCBs	ND		0.00383	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-002
Client ID: SB2A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: R5438.D 11/21/2023 13:02

GC Column: DB-5/DB1701P
Sample wt/vol: 15.02g
Matrix-Units: Soil-mg/Kg
% Moisture: 7.30
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00359	0.0011
Aroclor-1221	ND		0.00359	0.0011
Aroclor-1232	ND		0.00359	0.0011
Aroclor-1242	ND		0.00359	0.0011
Aroclor-1248	ND		0.00359	0.0011
Aroclor-1254	0.080		0.00359	0.0011
Aroclor-1260	ND		0.00359	0.0011
Aroclor-1262	ND		0.00359	0.0011
Aroclor-1268	ND		0.00359	0.0011
PCBs	0.080		0.00359	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-003
Client ID: SB2B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: R5439.D 11/21/2023 13:19

GC Column: DB-5/DB1701P
Sample wt/vol: 15.00g
Matrix-Units: Soil-mg/Kg
% Moisture: 8.30
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00364	0.0011
Aroclor-1221	ND		0.00364	0.0011
Aroclor-1232	ND		0.00364	0.0011
Aroclor-1242	ND		0.00364	0.0011
Aroclor-1248	ND		0.00364	0.0011
Aroclor-1254	ND		0.00364	0.0011
Aroclor-1260	ND		0.00364	0.0011
Aroclor-1262	ND		0.00364	0.0011
Aroclor-1268	ND		0.00364	0.0011
PCBs	ND		0.00364	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-004
Client ID: SB1A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: R5440.D 11/21/2023 13:36

GC Column: DB-5/DB1701P
Sample wt/vol: 15.03g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.80
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00369	0.0011
Aroclor-1221	ND		0.00369	0.0011
Aroclor-1232	ND		0.00369	0.0011
Aroclor-1242	ND		0.00369	0.0011
Aroclor-1248	ND		0.00369	0.0011
Aroclor-1254	ND		0.00369	0.0011
Aroclor-1260	ND		0.00369	0.0011
Aroclor-1262	ND		0.00369	0.0011
Aroclor-1268	ND		0.00369	0.0011
PCBs	ND		0.00369	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-005
Client ID: SB1B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: R5441.D 11/21/2023 13:53

GC Column: DB-5/DB1701P
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
% Moisture: 15.1
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00391	0.0012
Aroclor-1221	ND		0.00391	0.0012
Aroclor-1232	ND		0.00391	0.0012
Aroclor-1242	ND		0.00391	0.0012
Aroclor-1248	ND		0.00391	0.0012
Aroclor-1254	ND		0.00391	0.0012
Aroclor-1260	ND		0.00391	0.0012
Aroclor-1262	ND		0.00391	0.0012
Aroclor-1268	ND		0.00391	0.0012
PCBs	ND		0.00391	0.0012

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-006
Client ID: SB3A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: R5442.D 11/21/2023 14:11

GC Column: DB-5/DB1701P
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
% Moisture: 10.1
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00369	0.0011
Aroclor-1221	ND		0.00369	0.0011
Aroclor-1232	ND		0.00369	0.0011
Aroclor-1242	ND		0.00369	0.0011
Aroclor-1248	ND		0.00369	0.0011
Aroclor-1254	ND		0.00369	0.0011
Aroclor-1260	ND		0.00369	0.0011
Aroclor-1262	ND		0.00369	0.0011
Aroclor-1268	ND		0.00369	0.0011
PCBs	ND		0.00369	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-007
Client ID: SB3B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: R5443.D 11/21/2023 14:28

GC Column: DB-5/DB1701P
Sample wt/vol: 15.03g
Matrix-Units: Soil-mg/Kg
% Moisture: 11.2
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00375	0.0011
Aroclor-1221	ND		0.00375	0.0011
Aroclor-1232	ND		0.00375	0.0011
Aroclor-1242	ND		0.00375	0.0011
Aroclor-1248	ND		0.00375	0.0011
Aroclor-1254	ND		0.00375	0.0011
Aroclor-1260	ND		0.00375	0.0011
Aroclor-1262	ND		0.00375	0.0011
Aroclor-1268	ND		0.00375	0.0011
PCBs	ND		0.00375	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-008
Client ID: SB10A/1.
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: R5444.D 11/21/2023 14:45

GC Column: DB-5/DB1701P
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
% Moisture: 8.90
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00364	0.0011
Aroclor-1221	ND		0.00364	0.0011
Aroclor-1232	ND		0.00364	0.0011
Aroclor-1242	ND		0.00364	0.0011
Aroclor-1248	ND		0.00364	0.0011
Aroclor-1254	ND		0.00364	0.0011
Aroclor-1260	ND		0.00364	0.0011
Aroclor-1262	ND		0.00364	0.0011
Aroclor-1268	ND		0.00364	0.0011
PCBs	ND		0.00364	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-009
Client ID: SB11A/1-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: R5445.D 11/21/2023 15:02

GC Column: DB-5/DB1701P
Sample wt/vol: 15.05g
Matrix-Units: Soil-mg/Kg
% Moisture: 15.6
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00394	0.0012
Aroclor-1221	ND		0.00394	0.0012
Aroclor-1232	ND		0.00394	0.0012
Aroclor-1242	ND		0.00394	0.0012
Aroclor-1248	ND		0.00394	0.0012
Aroclor-1254	ND		0.00394	0.0012
Aroclor-1260	ND		0.00394	0.0012
Aroclor-1262	ND		0.00394	0.0012
Aroclor-1268	ND		0.00394	0.0012
PCBs	ND		0.00394	0.0012

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-010
Client ID: SB8A/0-1
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: R5446.D 11/21/2023 15:19

GC Column: DB-5/DB1701P
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
% Moisture: 5.20
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.0035	0.0011
Aroclor-1221	ND		0.0035	0.0011
Aroclor-1232	ND		0.0035	0.0011
Aroclor-1242	ND		0.0035	0.0011
Aroclor-1248	ND		0.0035	0.0011
Aroclor-1254	ND		0.0035	0.0011
Aroclor-1260	ND		0.0035	0.0011
Aroclor-1262	ND		0.0035	0.0011
Aroclor-1268	ND		0.0035	0.0011
PCBs	ND		0.0035	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-011
Client ID: TWP1
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: R5486.D 11/27/2023 18:34

GC Column: DB-5/DB1701P
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.050	0.015
Aroclor-1221	ND		0.050	0.015
Aroclor-1232	ND		0.050	0.015
Aroclor-1242	ND		0.050	0.015
Aroclor-1248	ND		0.050	0.015
Aroclor-1254	ND		0.050	0.015
Aroclor-1260	ND		0.050	0.015
Aroclor-1262	ND		0.050	0.015
Aroclor-1268	ND		0.050	0.015
PCBs	ND		0.050	0.015

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-012
Client ID: TWP2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: R5487.D 11/27/2023 18:51

GC Column: DB-5/DB1701P
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.050	0.015
Aroclor-1221	ND		0.050	0.015
Aroclor-1232	ND		0.050	0.015
Aroclor-1242	ND		0.050	0.015
Aroclor-1248	ND		0.050	0.015
Aroclor-1254	ND		0.050	0.015
Aroclor-1260	ND		0.050	0.015
Aroclor-1262	ND		0.050	0.015
Aroclor-1268	ND		0.050	0.015
PCBs	ND		0.050	0.015

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-013
Client ID: TWP4
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: R5488.D 11/27/2023 19:08

GC Column: DB-5/DB1701P
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.050	0.015
Aroclor-1221	ND		0.050	0.015
Aroclor-1232	ND		0.050	0.015
Aroclor-1242	ND		0.050	0.015
Aroclor-1248	ND		0.050	0.015
Aroclor-1254	ND		0.050	0.015
Aroclor-1260	ND		0.050	0.015
Aroclor-1262	ND		0.050	0.015
Aroclor-1268	ND		0.050	0.015
PCBs	ND		0.050	0.015

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-014
Client ID: TWP5
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: R5489.D 11/27/2023 19:26

GC Column: DB-5/DB1701P
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.050	0.015
Aroclor-1221	ND		0.050	0.015
Aroclor-1232	ND		0.050	0.015
Aroclor-1242	ND		0.050	0.015
Aroclor-1248	ND		0.050	0.015
Aroclor-1254	ND		0.050	0.015
Aroclor-1260	ND		0.050	0.015
Aroclor-1262	ND		0.050	0.015
Aroclor-1268	ND		0.050	0.015
PCBs	ND		0.050	0.015

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-015
Client ID: SB4A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: R5447.D 11/21/2023 15:36

GC Column: DB-5/DB1701P
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
% Moisture: 13.4
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00384	0.0012
Aroclor-1221	ND		0.00384	0.0012
Aroclor-1232	ND		0.00384	0.0012
Aroclor-1242	ND		0.00384	0.0012
Aroclor-1248	ND		0.00384	0.0012
Aroclor-1254	ND		0.00384	0.0012
Aroclor-1260	ND		0.00384	0.0012
Aroclor-1262	ND		0.00384	0.0012
Aroclor-1268	ND		0.00384	0.0012
PCBs	ND		0.00384	0.0012

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-016
Client ID: SB4B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: R5448.D 11/21/2023 15:54

GC Column: DB-5/DB1701P
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
% Moisture: 19.5
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00413	0.0012
Aroclor-1221	ND		0.00413	0.0012
Aroclor-1232	ND		0.00413	0.0012
Aroclor-1242	ND		0.00413	0.0012
Aroclor-1248	ND		0.00413	0.0012
Aroclor-1254	ND		0.00413	0.0012
Aroclor-1260	ND		0.00413	0.0012
Aroclor-1262	ND		0.00413	0.0012
Aroclor-1268	ND		0.00413	0.0012
PCBs	ND		0.00413	0.0012

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-017
Client ID: SB5A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: R5449.D 11/21/2023 16:11

GC Column: DB-5/DB1701P
Sample wt/vol: 15.05g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.00
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00365	0.0011
Aroclor-1221	ND		0.00365	0.0011
Aroclor-1232	ND		0.00365	0.0011
Aroclor-1242	ND		0.00365	0.0011
Aroclor-1248	ND		0.00365	0.0011
Aroclor-1254	ND		0.00365	0.0011
Aroclor-1260	ND		0.00365	0.0011
Aroclor-1262	ND		0.00365	0.0011
Aroclor-1268	ND		0.00365	0.0011
PCBs	ND		0.00365	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05046-018
Client ID: SB5B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: R5451.D 11/21/2023 17:02

GC Column: DB-5/DB1701P
Sample wt/vol: 15.02g
Matrix-Units: Soil-mg/Kg
% Moisture: 14.4
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00389	0.0012
Aroclor-1221	ND		0.00389	0.0012
Aroclor-1232	ND		0.00389	0.0012
Aroclor-1242	ND		0.00389	0.0012
Aroclor-1248	ND		0.00389	0.0012
Aroclor-1254	ND		0.00389	0.0012
Aroclor-1260	ND		0.00389	0.0012
Aroclor-1262	ND		0.00389	0.0012
Aroclor-1268	ND		0.00389	0.0012
PCBs	ND		0.00389	0.0012

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: BLKS231120-08
Client ID: PCB
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: R5433.D 11/21/2023 11:36

GC Column: DB-5/DB1701P
Sample wt/vol: 15.00g
Matrix-Units: Soil-mg/Kg
% Moisture: NA
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00333	0.001
Aroclor-1221	ND		0.00333	0.001
Aroclor-1232	ND		0.00333	0.001
Aroclor-1242	ND		0.00333	0.001
Aroclor-1248	ND		0.00333	0.001
Aroclor-1254	ND		0.00333	0.001
Aroclor-1260	ND		0.00333	0.001
Aroclor-1262	ND		0.00333	0.001
Aroclor-1268	ND		0.00333	0.001
PCBs	ND		0.00333	0.001

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve
B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: BLKA231120-01
Client ID: PCB
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: R5482.D 11/27/2023 17:25

GC Column: DB-5/DB1701P
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.050	0.015
Aroclor-1221	ND		0.050	0.015
Aroclor-1232	ND		0.050	0.015
Aroclor-1242	ND		0.050	0.015
Aroclor-1248	ND		0.050	0.015
Aroclor-1254	ND		0.050	0.015
Aroclor-1260	ND		0.050	0.015
Aroclor-1262	ND		0.050	0.015
Aroclor-1268	ND		0.050	0.015
PCBs	ND		0.050	0.015

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve
B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-001
Client ID: SB12A/0-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: V1605.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 13.3

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000766	0.000137
beta-BHC	ND		0.000766	0.000179
gamma-BHC (Lindane)	ND		0.000766	0.000171
delta-BHC	ND		0.000766	0.000149
Heptachlor	ND		0.000766	0.000182
Aldrin	ND		0.000766	0.00016
Heptachlor epoxide	ND		0.000766	0.000166
Endosulfan I	ND		0.000766	0.000172
4,4'-DDE	ND		0.000766	0.000156
Dieldrin	ND		0.000766	0.000156
Endrin	ND		0.000766	0.000193
Endosulfan II	ND		0.000766	0.000176
4,4'-DDD	ND		0.000766	0.000204
Endrin aldehyde	ND		0.000766	0.00016
Endosulfan sulfate	ND		0.000766	0.00019
4,4'-DDT	ND		0.000766	0.000143
Endrin ketone	ND		0.000766	0.000149
Methoxychlor	ND		0.000766	0.000205
alpha-Chlordane	ND		0.000766	0.000169
gamma-Chlordane	ND		0.000766	0.000151
Toxaphene	ND		0.00958	0.00383
Endosulfan (I and II)	ND		0.000766	0.000172
Chlordane (alpha and gamma)	ND		0.000766	0.000151

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-002
Client ID: SB2A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: V1606.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.02g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 7.30

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000718	0.000128
beta-BHC	ND		0.000718	0.000168
gamma-BHC (Lindane)	ND		0.000718	0.00016
delta-BHC	ND		0.000718	0.000139
Heptachlor	ND		0.000718	0.00017
Aldrin	ND		0.000718	0.00015
Heptachlor epoxide	ND		0.000718	0.000156
Endosulfan I	ND		0.000718	0.000161
4,4'-DDE	0.0034		0.000718	0.000146
Dieldrin	0.00127		0.000718	0.000146
Endrin	ND		0.000718	0.000181
Endosulfan II	ND		0.000718	0.000165
4,4'-DDD	ND		0.000718	0.000192
Endrin aldehyde	ND		0.000718	0.00015
Endosulfan sulfate	ND		0.000718	0.000178
4,4'-DDT	0.00556		0.000718	0.000134
Endrin ketone	ND		0.000718	0.00014
Methoxychlor	ND		0.000718	0.000192
alpha-Chlordane	ND		0.000718	0.000159
gamma-Chlordane	ND		0.000718	0.000141
Toxaphene	ND		0.00898	0.00359
Endosulfan (I and II)	ND		0.000718	0.000161
Chlordane (alpha and gamma)	ND		0.000718	0.000141

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-003
Client ID: SB2B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: V1607.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.00g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 8.30

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000728	0.00013
beta-BHC	ND		0.000728	0.00017
gamma-BHC (Lindane)	ND		0.000728	0.000162
delta-BHC	ND		0.000728	0.000141
Heptachlor	ND		0.000728	0.000173
Aldrin	ND		0.000728	0.000152
Heptachlor epoxide	ND		0.000728	0.000158
Endosulfan I	ND		0.000728	0.000163
4,4'-DDE	0.00226		0.000728	0.000148
Dieldrin	ND		0.000728	0.000148
Endrin	ND		0.000728	0.000183
Endosulfan II	ND		0.000728	0.000167
4,4'-DDD	0.000712	J	0.000728	0.000194
Endrin aldehyde	ND		0.000728	0.000152
Endosulfan sulfate	ND		0.000728	0.00018
4,4'-DDT	0.00384		0.000728	0.000135
Endrin ketone	ND		0.000728	0.000142
Methoxychlor	ND		0.000728	0.000194
alpha-Chlordane	ND		0.000728	0.00016
gamma-Chlordane	ND		0.000728	0.000143
Toxaphene	ND		0.0091	0.00364
Endosulfan (I and II)	ND		0.000728	0.000163
Chlordane (alpha and gamma)	ND		0.000728	0.000143

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-004
Client ID: SB1A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: V1608.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.03g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 9.80

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000738	0.000132
beta-BHC	ND		0.000738	0.000172
gamma-BHC (Lindane)	ND		0.000738	0.000164
delta-BHC	ND		0.000738	0.000143
Heptachlor	ND		0.000738	0.000175
Aldrin	ND		0.000738	0.000154
Heptachlor epoxide	ND		0.000738	0.00016
Endosulfan I	ND		0.000738	0.000165
4,4'-DDE	0.019		0.000738	0.00015
Dieldrin	0.00332		0.000738	0.00015
Endrin	ND		0.000738	0.000186
Endosulfan II	ND		0.000738	0.000169
4,4'-DDD	0.00407		0.000738	0.000197
Endrin aldehyde	ND		0.000738	0.000154
Endosulfan sulfate	ND		0.000738	0.000183
4,4'-DDT	0.027		0.000738	0.000137
Endrin ketone	ND		0.000738	0.000144
Methoxychlor	ND		0.000738	0.000197
alpha-Chlordane	0.00369		0.000738	0.000163
gamma-Chlordane	0.00319		0.000738	0.000145
Toxaphene	ND		0.00923	0.00369
Endosulfan (I and II)	ND		0.000738	0.000165
Chlordane (alpha and gamma)	0.00688		0.000738	0.000145

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-005
Client ID: SB1B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: V1609.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 15.1

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000782	0.00014
beta-BHC	ND		0.000782	0.000182
gamma-BHC (Lindane)	ND		0.000782	0.000174
delta-BHC	ND		0.000782	0.000152
Heptachlor	ND		0.000782	0.000186
Aldrin	ND		0.000782	0.000164
Heptachlor epoxide	ND		0.000782	0.00017
Endosulfan I	ND		0.000782	0.000175
4,4'-DDE	ND		0.000782	0.00016
Dieldrin	ND		0.000782	0.000159
Endrin	ND		0.000782	0.000197
Endosulfan II	ND		0.000782	0.000179
4,4'-DDD	ND		0.000782	0.000209
Endrin aldehyde	ND		0.000782	0.000164
Endosulfan sulfate	ND		0.000782	0.000194
4,4'-DDT	ND		0.000782	0.000145
Endrin ketone	ND		0.000782	0.000152
Methoxychlor	ND		0.000782	0.000209
alpha-Chlordane	ND		0.000782	0.000173
gamma-Chlordane	ND		0.000782	0.000154
Toxaphene	ND		0.00978	0.00391
Endosulfan (I and II)	ND		0.000782	0.000175
Chlordane (alpha and gamma)	ND		0.000782	0.000154

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-006
Client ID: SB3A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: V1610.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 10.1

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000738	0.000132
beta-BHC	ND		0.000738	0.000172
gamma-BHC (Lindane)	ND		0.000738	0.000165
delta-BHC	ND		0.000738	0.000143
Heptachlor	ND		0.000738	0.000175
Aldrin	ND		0.000738	0.000155
Heptachlor epoxide	ND		0.000738	0.00016
Endosulfan I	ND		0.000738	0.000165
4,4'-DDE	0.013		0.000738	0.000151
Dieldrin	ND		0.000738	0.00015
Endrin	ND		0.000738	0.000186
Endosulfan II	ND		0.000738	0.000169
4,4'-DDD	ND		0.000738	0.000197
Endrin aldehyde	ND		0.000738	0.000155
Endosulfan sulfate	ND		0.000738	0.000183
4,4'-DDT	0.021		0.000738	0.000137
Endrin ketone	ND		0.000738	0.000144
Methoxychlor	ND		0.000738	0.000197
alpha-Chlordane	ND		0.000738	0.000163
gamma-Chlordane	ND		0.000738	0.000145
Toxaphene	ND		0.00923	0.00369
Endosulfan (I and II)	ND		0.000738	0.000165
Chlordane (alpha and gamma)	ND		0.000738	0.000145

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-007
Client ID: SB3B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: V1611.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.03g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 11.2

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.00075	0.000134
beta-BHC	ND		0.00075	0.000175
gamma-BHC (Lindane)	ND		0.00075	0.000167
delta-BHC	ND		0.00075	0.000145
Heptachlor	ND		0.00075	0.000178
Aldrin	ND		0.00075	0.000157
Heptachlor epoxide	ND		0.00075	0.000163
Endosulfan I	ND		0.00075	0.000168
4,4'-DDE	ND		0.00075	0.000153
Dieldrin	ND		0.00075	0.000153
Endrin	ND		0.00075	0.000189
Endosulfan II	ND		0.00075	0.000172
4,4'-DDD	ND		0.00075	0.0002
Endrin aldehyde	ND		0.00075	0.000157
Endosulfan sulfate	ND		0.00075	0.000186
4,4'-DDT	ND		0.00075	0.000139
Endrin ketone	ND		0.00075	0.000146
Methoxychlor	ND		0.00075	0.0002
alpha-Chlordane	ND		0.00075	0.000165
gamma-Chlordane	ND		0.00075	0.000147
Toxaphene	ND		0.00938	0.00375
Endosulfan (I and II)	ND		0.00075	0.000168
Chlordane (alpha and gamma)	ND		0.00075	0.000147

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-008
Client ID: SB10A/1.
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: V1612.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 8.90

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000728	0.00013
beta-BHC	ND		0.000728	0.00017
gamma-BHC (Lindane)	ND		0.000728	0.000162
delta-BHC	ND		0.000728	0.000141
Heptachlor	ND		0.000728	0.000173
Aldrin	ND		0.000728	0.000152
Heptachlor epoxide	ND		0.000728	0.000158
Endosulfan I	ND		0.000728	0.000163
4,4'-DDE	0.114	E	0.000728	0.000149
Dieldrin	ND		0.000728	0.000148
Endrin	ND		0.000728	0.000184
Endosulfan II	ND		0.000728	0.000167
4,4'-DDD	0.014		0.000728	0.000194
Endrin aldehyde	ND		0.000728	0.000153
Endosulfan sulfate	ND		0.000728	0.00018
4,4'-DDT	0.122	E	0.000728	0.000136
Endrin ketone	ND		0.000728	0.000142
Methoxychlor	ND		0.000728	0.000195
alpha-Chlordane	ND		0.000728	0.000161
gamma-Chlordane	ND		0.000728	0.000143
Toxaphene	ND		0.0091	0.00364
Endosulfan (I and II)	ND		0.000728	0.000163
Chlordane (alpha and gamma)	ND		0.000728	0.000143

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-008DL
Client ID: SB10A/1.
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: V1638.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 2
% Moisture: 8.90

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.00146	0.00026
beta-BHC	ND		0.00146	0.00034
gamma-BHC (Lindane)	ND		0.00146	0.000325
delta-BHC	ND		0.00146	0.000282
Heptachlor	ND		0.00146	0.000346
Aldrin	ND		0.00146	0.000305
Heptachlor epoxide	ND		0.00146	0.000316
Endosulfan I	ND		0.00146	0.000326
4,4'-DDE	0.095	D	0.00146	0.000297
Dieldrin	ND		0.00146	0.000297
Endrin	ND		0.00146	0.000368
Endosulfan II	ND		0.00146	0.000334
4,4'-DDD	0.013	D	0.00146	0.000389
Endrin aldehyde	ND		0.00146	0.000305
Endosulfan sulfate	ND		0.00146	0.000361
4,4'-DDT	0.096	D	0.00146	0.000271
Endrin ketone	ND		0.00146	0.000284
Methoxychlor	ND		0.00146	0.00039
alpha-Chlordane	ND		0.00146	0.000322
gamma-Chlordane	ND		0.00146	0.000286
Toxaphene	ND		0.018	0.00729
Endosulfan (I and II)	ND		0.00146	0.000326
Chlordane (alpha and gamma)	ND		0.00146	0.000286

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-009
Client ID: SB11A/1-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: V1613.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.05g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 15.6

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000788	0.000141
beta-BHC	ND		0.000788	0.000184
gamma-BHC (Lindane)	ND		0.000788	0.000176
delta-BHC	ND		0.000788	0.000153
Heptachlor	ND		0.000788	0.000187
Aldrin	ND		0.000788	0.000165
Heptachlor epoxide	ND		0.000788	0.000171
Endosulfan I	ND		0.000788	0.000176
4,4'-DDE	0.078		0.000788	0.000161
Dieldrin	ND		0.000788	0.00016
Endrin	ND		0.000788	0.000199
Endosulfan II	ND		0.000788	0.00018
4,4'-DDD	0.011		0.000788	0.00021
Endrin aldehyde	ND		0.000788	0.000165
Endosulfan sulfate	ND		0.000788	0.000195
4,4'-DDT	0.075		0.000788	0.000146
Endrin ketone	ND		0.000788	0.000153
Methoxychlor	ND		0.000788	0.00021
alpha-Chlordane	ND		0.000788	0.000174
gamma-Chlordane	ND		0.000788	0.000155
Toxaphene	ND		0.00985	0.00394
Endosulfan (I and II)	ND		0.000788	0.000176
Chlordane (alpha and gamma)	ND		0.000788	0.000155

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-010
Client ID: SB8A/0-1
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: V1630.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 5.20

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.0007	0.000125
beta-BHC	ND		0.0007	0.000163
gamma-BHC (Lindane)	ND		0.0007	0.000156
delta-BHC	ND		0.0007	0.000136
Heptachlor	ND		0.0007	0.000166
Aldrin	ND		0.0007	0.000147
Heptachlor epoxide	ND		0.0007	0.000152
Endosulfan I	ND		0.0007	0.000157
4,4'-DDE	0.012		0.0007	0.000143
Dieldrin	ND		0.0007	0.000143
Endrin	ND		0.0007	0.000177
Endosulfan II	ND		0.0007	0.00016
4,4'-DDD	0.000357	J	0.0007	0.000187
Endrin aldehyde	ND		0.0007	0.000147
Endosulfan sulfate	ND		0.0007	0.000173
4,4'-DDT	0.0021		0.0007	0.00013
Endrin ketone	ND		0.0007	0.000136
Methoxychlor	ND		0.0007	0.000187
alpha-Chlordane	ND		0.0007	0.000155
gamma-Chlordane	ND		0.0007	0.000138
Toxaphene	ND		0.00875	0.0035
Endosulfan (I and II)	ND		0.0007	0.000157
Chlordane (alpha and gamma)	ND		0.0007	0.000138

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-011
Client ID: TWP1
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: O8761.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.010	0.00206
beta-BHC	ND		0.010	0.00303
gamma-BHC (Lindane)	ND		0.010	0.00201
delta-BHC	ND		0.010	0.00238
Heptachlor	ND		0.010	0.00235
Aldrin	ND		0.010	0.00187
Heptachlor epoxide	ND		0.010	0.00217
Endosulfan I	ND		0.010	0.00208
4,4'-DDE	ND		0.010	0.00197
Dieldrin	ND		0.010	0.00237
Endrin	ND		0.010	0.00289
Endosulfan II	ND		0.010	0.00258
4,4'-DDD	ND		0.010	0.00294
Endrin aldehyde	ND		0.010	0.0023
Endosulfan sulfate	ND		0.010	0.00314
4,4'-DDT	ND		0.010	0.00202
Endrin ketone	ND		0.010	0.00323
Methoxychlor	ND		0.010	0.00337
alpha-Chlordane	ND		0.010	0.00215
gamma-Chlordane	ND		0.010	0.00314
Toxaphene	ND		0.125	0.050
Endosulfan (I and II)	ND		0.010	0.00208
Chlordane (alpha and gamma)	ND		0.010	0.00215

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-012
Client ID: TWP2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: O8762.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.010	0.00206
beta-BHC	ND		0.010	0.00303
gamma-BHC (Lindane)	ND		0.010	0.00201
delta-BHC	ND		0.010	0.00238
Heptachlor	ND		0.010	0.00235
Aldrin	ND		0.010	0.00187
Heptachlor epoxide	ND		0.010	0.00217
Endosulfan I	ND		0.010	0.00208
4,4'-DDE	ND		0.010	0.00197
Dieldrin	ND		0.010	0.00237
Endrin	ND		0.010	0.00289
Endosulfan II	ND		0.010	0.00258
4,4'-DDD	ND		0.010	0.00294
Endrin aldehyde	ND		0.010	0.0023
Endosulfan sulfate	ND		0.010	0.00314
4,4'-DDT	ND		0.010	0.00202
Endrin ketone	ND		0.010	0.00323
Methoxychlor	ND		0.010	0.00337
alpha-Chlordane	ND		0.010	0.00215
gamma-Chlordane	ND		0.010	0.00314
Toxaphene	ND		0.125	0.050
Endosulfan (I and II)	ND		0.010	0.00208
Chlordane (alpha and gamma)	ND		0.010	0.00215

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-013
Client ID: TWP4
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: O8763.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.010	0.00206
beta-BHC	ND		0.010	0.00303
gamma-BHC (Lindane)	ND		0.010	0.00201
delta-BHC	ND		0.010	0.00238
Heptachlor	ND		0.010	0.00235
Aldrin	ND		0.010	0.00187
Heptachlor epoxide	ND		0.010	0.00217
Endosulfan I	ND		0.010	0.00208
4,4'-DDE	ND		0.010	0.00197
Dieldrin	ND		0.010	0.00237
Endrin	ND		0.010	0.00289
Endosulfan II	ND		0.010	0.00258
4,4'-DDD	ND		0.010	0.00294
Endrin aldehyde	ND		0.010	0.0023
Endosulfan sulfate	ND		0.010	0.00314
4,4'-DDT	ND		0.010	0.00202
Endrin ketone	ND		0.010	0.00323
Methoxychlor	ND		0.010	0.00337
alpha-Chlordane	ND		0.010	0.00215
gamma-Chlordane	ND		0.010	0.00314
Toxaphene	ND		0.125	0.050
Endosulfan (I and II)	ND		0.010	0.00208
Chlordane (alpha and gamma)	ND		0.010	0.00215

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-014
Client ID: TWP5
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: O8764.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.010	0.00206
beta-BHC	ND		0.010	0.00303
gamma-BHC (Lindane)	ND		0.010	0.00201
delta-BHC	ND		0.010	0.00238
Heptachlor	ND		0.010	0.00235
Aldrin	ND		0.010	0.00187
Heptachlor epoxide	ND		0.010	0.00217
Endosulfan I	ND		0.010	0.00208
4,4'-DDE	ND		0.010	0.00197
Dieldrin	ND		0.010	0.00237
Endrin	ND		0.010	0.00289
Endosulfan II	ND		0.010	0.00258
4,4'-DDD	ND		0.010	0.00294
Endrin aldehyde	ND		0.010	0.0023
Endosulfan sulfate	ND		0.010	0.00314
4,4'-DDT	ND		0.010	0.00202
Endrin ketone	ND		0.010	0.00323
Methoxychlor	ND		0.010	0.00337
alpha-Chlordane	ND		0.010	0.00215
gamma-Chlordane	ND		0.010	0.00314
Toxaphene	ND		0.125	0.050
Endosulfan (I and II)	ND		0.010	0.00208
Chlordane (alpha and gamma)	ND		0.010	0.00215

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-015
Client ID: SB4A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: V1631.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 13.4

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000768	0.000137
beta-BHC	ND		0.000768	0.000179
gamma-BHC (Lindane)	ND		0.000768	0.000171
delta-BHC	ND		0.000768	0.000149
Heptachlor	ND		0.000768	0.000182
Aldrin	ND		0.000768	0.000161
Heptachlor epoxide	ND		0.000768	0.000167
Endosulfan I	ND		0.000768	0.000172
4,4'-DDE	ND		0.000768	0.000157
Dieldrin	ND		0.000768	0.000156
Endrin	ND		0.000768	0.000194
Endosulfan II	ND		0.000768	0.000176
4,4'-DDD	ND		0.000768	0.000205
Endrin aldehyde	0.018		0.000768	0.000161
Endosulfan sulfate	ND		0.000768	0.00019
4,4'-DDT	ND		0.000768	0.000143
Endrin ketone	ND		0.000768	0.000149
Methoxychlor	ND		0.000768	0.000205
alpha-Chlordane	ND		0.000768	0.000169
gamma-Chlordane	ND		0.000768	0.000151
Toxaphene	ND		0.0096	0.00384
Endosulfan (I and II)	ND		0.000768	0.000172
Chlordane (alpha and gamma)	ND		0.000768	0.000151

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-016
Client ID: SB4B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: V1632.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 19.5

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000826	0.000148
beta-BHC	ND		0.000826	0.000193
gamma-BHC (Lindane)	ND		0.000826	0.000184
delta-BHC	ND		0.000826	0.00016
Heptachlor	ND		0.000826	0.000196
Aldrin	ND		0.000826	0.000173
Heptachlor epoxide	ND		0.000826	0.000179
Endosulfan I	ND		0.000826	0.000185
4,4'-DDE	ND		0.000826	0.000168
Dieldrin	ND		0.000826	0.000168
Endrin	ND		0.000826	0.000208
Endosulfan II	ND		0.000826	0.000189
4,4'-DDD	ND		0.000826	0.00022
Endrin aldehyde	ND		0.000826	0.000173
Endosulfan sulfate	ND		0.000826	0.000205
4,4'-DDT	ND		0.000826	0.000154
Endrin ketone	ND		0.000826	0.000161
Methoxychlor	ND		0.000826	0.000221
alpha-Chlordane	ND		0.000826	0.000182
gamma-Chlordane	ND		0.000826	0.000162
Toxaphene	ND		0.010	0.00413
Endosulfan (I and II)	ND		0.000826	0.000185
Chlordane (alpha and gamma)	ND		0.000826	0.000162

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-017
Client ID: SB5A/0-2
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: V1633.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.05g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 9.00

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.00073	0.00013
beta-BHC	ND		0.00073	0.00017
gamma-BHC (Lindane)	ND		0.00073	0.000163
delta-BHC	ND		0.00073	0.000141
Heptachlor	ND		0.00073	0.000173
Aldrin	ND		0.00073	0.000153
Heptachlor epoxide	ND		0.00073	0.000159
Endosulfan I	ND		0.00073	0.000163
4,4'-DDE	0.00285		0.00073	0.000149
Dieldrin	ND		0.00073	0.000149
Endrin	ND		0.00073	0.000184
Endosulfan II	ND		0.00073	0.000167
4,4'-DDD	0.00649		0.00073	0.000195
Endrin aldehyde	ND		0.00073	0.000153
Endosulfan sulfate	ND		0.00073	0.000181
4,4'-DDT	0.000589	J	0.00073	0.000136
Endrin ketone	ND		0.00073	0.000142
Methoxychlor	ND		0.00073	0.000195
alpha-Chlordane	ND		0.00073	0.000161
gamma-Chlordane	ND		0.00073	0.000143
Toxaphene	ND		0.00913	0.00365
Endosulfan (I and II)	ND		0.00073	0.000163
Chlordane (alpha and gamma)	ND		0.00073	0.000143

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05046-018
Client ID: SB5B/10-
Date Received: 11/16/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/27/2023
Data file: V1634.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.02g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 14.4

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000778	0.000139
beta-BHC	ND		0.000778	0.000181
gamma-BHC (Lindane)	ND		0.000778	0.000173
delta-BHC	ND		0.000778	0.000151
Heptachlor	ND		0.000778	0.000185
Aldrin	ND		0.000778	0.000163
Heptachlor epoxide	ND		0.000778	0.000169
Endosulfan I	ND		0.000778	0.000174
4,4'-DDE	0.00041	J	0.000778	0.000159
Dieldrin	ND		0.000778	0.000158
Endrin	ND		0.000778	0.000196
Endosulfan II	ND		0.000778	0.000178
4,4'-DDD	0.000444	J	0.000778	0.000207
Endrin aldehyde	ND		0.000778	0.000163
Endosulfan sulfate	ND		0.000778	0.000193
4,4'-DDT	0.000229	J	0.000778	0.000145
Endrin ketone	ND		0.000778	0.000151
Methoxychlor	ND		0.000778	0.000208
alpha-Chlordane	ND		0.000778	0.000172
gamma-Chlordane	ND		0.000778	0.000153
Toxaphene	ND		0.00973	0.00389
Endosulfan (I and II)	ND		0.000778	0.000174
Chlordane (alpha and gamma)	ND		0.000778	0.000153

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: BLKS231120-08
Client ID: Pest
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: V1601.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.00g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: NA

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000666	0.000119
beta-BHC	ND		0.000666	0.000156
gamma-BHC (Lindane)	ND		0.000666	0.000149
delta-BHC	ND		0.000666	0.000129
Heptachlor	ND		0.000666	0.000158
Aldrin	ND		0.000666	0.000139
Heptachlor epoxide	ND		0.000666	0.000145
Endosulfan I	ND		0.000666	0.000149
4,4'-DDE	ND		0.000666	0.000136
Dieldrin	ND		0.000666	0.000136
Endrin	ND		0.000666	0.000168
Endosulfan II	ND		0.000666	0.000153
4,4'-DDD	ND		0.000666	0.000178
Endrin aldehyde	ND		0.000666	0.00014
Endosulfan sulfate	ND		0.000666	0.000165
4,4'-DDT	ND		0.000666	0.000124
Endrin ketone	ND		0.000666	0.00013
Methoxychlor	ND		0.000666	0.000178
alpha-Chlordane	ND		0.000666	0.000147
gamma-Chlordane	ND		0.000666	0.000131
Toxaphene	ND		0.00833	0.00333
Endosulfan (I and II)	ND		0.000666	0.000149
Chlordane (alpha and gamma)	ND		0.000666	0.000131

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: BLKA231120-01
Client ID: Pest
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/21/2023
Data file: O8757.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.010	0.00206
beta-BHC	ND		0.010	0.00303
gamma-BHC (Lindane)	ND		0.010	0.00201
delta-BHC	ND		0.010	0.00238
Heptachlor	ND		0.010	0.00235
Aldrin	ND		0.010	0.00187
Heptachlor epoxide	ND		0.010	0.00217
Endosulfan I	ND		0.010	0.00208
4,4'-DDE	ND		0.010	0.00197
Dieldrin	ND		0.010	0.00237
Endrin	ND		0.010	0.00289
Endosulfan II	ND		0.010	0.00258
4,4'-DDD	ND		0.010	0.00294
Endrin aldehyde	ND		0.010	0.0023
Endosulfan sulfate	ND		0.010	0.00314
4,4'-DDT	ND		0.010	0.00202
Endrin ketone	ND		0.010	0.00323
Methoxychlor	ND		0.010	0.00337
alpha-Chlordane	ND		0.010	0.00215
gamma-Chlordane	ND		0.010	0.00314
Toxaphene	ND		0.125	0.050
Endosulfan (I and II)	ND		0.010	0.00208
Chlordane (alpha and gamma)	ND		0.010	0.00215

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

Cyanide, Total

Client/Project: HK Engineering/HK-2661.1 CHELSEA

Date Received: 11/16/23 17:12
Method: SW 9012B

Analyst: B. Pillsbury

Lab ID	Client ID	Result	Q	DF	Matrix-Unit	MDL	RL	% Solid	Date Collected	Date Analyzed
E23-05046-001	SB12A	0.288	J	1	Soil-mg/Kg	0.231	1.15	86.7	11/15/23 08:15	11/20/23 12:44
E23-05046-002	SB2A	ND		1	Soil-mg/Kg	0.216	1.08	92.7	11/15/23 08:30	11/20/23 12:44
E23-05046-003	SB2B	ND		1	Soil-mg/Kg	0.218	1.09	91.7	11/15/23 08:35	11/20/23 12:44
E23-05046-004	SB1A	0.222	J	1	Soil-mg/Kg	0.222	1.11	90.2	11/15/23 09:30	11/20/23 12:44
E23-05046-005	SB1B	5.71		1	Soil-mg/Kg	0.236	1.18	84.9	11/15/23 09:35	11/20/23 12:44
E23-05046-006	SB3A	0.501	J	1	Soil-mg/Kg	0.222	1.11	89.9	11/15/23 10:45	11/20/23 12:44
E23-05046-007	SB3B	1.24		1	Soil-mg/Kg	0.225	1.13	88.8	11/15/23 10:50	11/20/23 12:44
E23-05046-008	SB10A	ND		1	Soil-mg/Kg	0.220	1.10	91.1	11/15/23 13:05	11/20/23 12:44
E23-05046-009	SB11A	ND		1	Soil-mg/Kg	0.237	1.18	84.4	11/15/23 13:40	11/20/23 12:44
E23-05046-010	SB8A	ND		1	Soil-mg/Kg	0.211	1.05	94.8	11/15/23 14:00	11/20/23 12:44
E23-05046-015	SB4A	ND		1	Soil-mg/Kg	0.231	1.15	86.6	11/16/23 08:10	11/20/23 12:44
E23-05046-016	SB4B	ND		1	Soil-mg/Kg	0.244	1.22	80.5	11/16/23 08:15	11/20/23 12:44
E23-05046-017	SB5A	ND		1	Soil-mg/Kg	0.220	1.10	91.0	11/16/23 08:20	11/20/23 12:44
E23-05046-018	SB5B	ND		1	Soil-mg/Kg	0.234	1.17	85.6	11/16/23 08:35	11/20/23 12:44

J = The concentration was detected at a value below the RL and aboved the MDL.

Cyanide, Total

Client/Project: HK Engineering/HK-2661.1 CHELSEA

Date Received: 11/16/23 17:12
Method: EPA 335.4

Analyst: B. Pillsbury

Lab ID	Client ID	Result	Q	DF	Matrix-Unit	MDL	RL	% Solid	Date Collected	Date Analyzed
E23-05046-011	TWP1	ND		1	Aqueous-ug/L	4.00	20.0	0	11/15/23 12:20	11/22/23 11:29
E23-05046-012	TWP2	ND		1	Aqueous-ug/L	4.00	20.0	0	11/15/23 13:00	11/22/23 11:29
E23-05046-013	TWP4	ND		1	Aqueous-ug/L	4.00	20.0	0	11/16/23 09:10	11/22/23 11:29
E23-05046-014	TWP5	ND		1	Aqueous-ug/L	4.00	20.0	0	11/16/23 09:30	11/22/23 11:29

Certified for NJDEP, NY(DOH)
NJ ID# 14751
NY ID# 11402

General Chemistry Quality Control

Cyanide, Total

Matrix: Soil
Unit: mg/Kg

Batch: AP013-0114
Method: SW 9012B

Date: 11/20/2023

	Sample ID	Result	TrueValue / SpikeAdded	RPD	RPD Limit	% Recovery	%Recovery Limit
BLK	BLKS231120	< 0.200	NA	NA	NA	NA	NA
LCS (ppm)	ICV231120.007_07	12.7	12.5	NA	NA	102	85-115
SAMPLE	E23-05046-002	< 0.216	NA	NA	NA	NA	NA
DUP	E23-05046-002DUP	< 0.216	NA	NC	20	NA	NA
MS	E23-05046-002MS	13.8	13.5	NA	NA	102	90-110
MSD	E23-05046-002MSD	13.6	13.5	1	20	101	90-110

The above blank result applies to the follow samples:

E23-05046-002
E23-05046-001
E23-05046-003
E23-05046-004
E23-05046-005
E23-05046-006
E23-05046-007
E23-05046-008
E23-05046-009
E23-05046-010
E23-05046-015
E23-05046-016
E23-05046-017
E23-05046-018
E23-05028-001
E23-05028-002
E23-05022-009

See "Initial & Continuing Calibration Verification" page for ICV results. The ICV (Initial Calibration Verification) sample doubles as the LCS.

NA - Not Applicable
ND - Not Detected
NC - Non calculable RPD due to value less than the detection limit

Certified for NJDEP, NY(DOH)
NJ ID# 14751
NY ID# 11402

General Chemistry Quality Control

Cyanide, Total

Matrix: Aqueous
Unit: ug/L

Batch: AP013-0113
Method: EPA 335.4

Date: 11/22/2023

	Sample ID	Result	TrueValue / SpikeAdded	RPD	RPD Limit	% Recovery	%Recovery Limit
BLK	BLKA231122	< 4.00	NA	NA	NA	NA	NA
LCS	ICV231122.007_07	251	250	NA	NA	100	90-110
SAMPLE	E23-05046-011	< 4.00	NA	NA	NA	NA	NA
DUP	E23-05046-011DUP	< 4.00	NA	NC	20	NA	NA
MS	E23-05046-011MS	252	250	NA	NA	101	90-110
MSD	E23-05046-011MSD	253	250	0	20	101	90-110

The above blank result applies to the follow samples:

E23-05046-011
E23-04990-001
E23-05046-012
E23-05046-013
E23-05046-014
E23-05066-016
E23-05066-017
E23-05066-018
E23-05066-019

See "Initial & Continuing Calibration Verification" page for ICV results. The ICV (Initial Calibration Verification) sample doubles as the LCS.

NA - Not Applicable
ND - Not Detected
NC - Non calculable RPD due to value less than the detection limit

SGS North America Inc.

Report of Analysis

3.1

3

Client Sample ID:	E23-05046-001_SB12A		
Lab Sample ID:	JD77310-1	Date Sampled:	11/15/23
Matrix:	SO - Soil	Date Received:	11/20/23
		Percent Solids:	87.1
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4950	57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.3	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	8.7	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	173	23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.39	0.23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	12.8	0.57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	50200	2900	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	17.6	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	6.0	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	42.9	2.9	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	19700	57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	773	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	2110	570	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	351	1.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	5.2	0.35	mg/kg	10	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	17.3	4.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.3	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	1.1	0.57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	20.7	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	2050	29	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.2

Client Sample ID:	E23-05046-002_SB2A		
Lab Sample ID:	JD77310-2	Date Sampled:	11/15/23
Matrix:	SO - Soil	Date Received:	11/20/23
		Percent Solids:	93.8
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6300	53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	2.9	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	48.5	21	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.41	0.21	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.53	0.53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	17800	530	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	20.7	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	6.5	5.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	21.5	2.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	12200	53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	39.0	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	6090	530	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	263	1.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.037	0.033	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	42.8	4.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1780	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.78	0.53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	22.7	5.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	60.2	5.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.3

Client Sample ID:	E23-05046-003_SB2B		
Lab Sample ID:	JD77310-3	Date Sampled:	11/15/23
Matrix:	SO - Soil	Date Received:	11/20/23
		Percent Solids:	92.1
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5040	55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	<2.2	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	3.8	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	163	22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.76	0.22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	<0.55	0.55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	10500	550	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	15.9	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	7.7	5.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	31.8	2.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	13100	55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	235	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	6400	550	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	292	1.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.56	0.030	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	56.8	4.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1270	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	<2.2	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.78	0.55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	<1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	<1.1	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	20.2	5.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	176	5.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.4

Client Sample ID:	E23-05046-004_SB1A		
Lab Sample ID:	JD77310-4	Date Sampled:	11/15/23
Matrix:	SO - Soil	Date Received:	11/20/23
		Percent Solids:	91.2
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	7910	55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.2	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	7.5	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	298	22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.46	0.22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	0.63	0.55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	14000	550	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	20.8	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	< 5.5	5.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	47.9	2.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	12500	55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	436	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	2880	550	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	241	1.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.61	0.034	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	15.5	4.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.2	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.86	0.55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	24.9	5.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	276	5.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.5

Client Sample ID:	E23-05046-005_SB1B		
Lab Sample ID:	JD77310-5	Date Sampled:	11/15/23
Matrix:	SO - Soil	Date Received:	11/20/23
		Percent Solids:	86.2
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	10700	56	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.2	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	7.6	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	463	22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.64	0.22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	1.9	0.56	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	77400	2800	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	28.8	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	5.8	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper [a]	128	14	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	32600	280	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	1260	11	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	12800	560	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	704	1.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	1.1	0.066	mg/kg	2	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	22.8	4.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1670	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium [a]	< 11	11	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver [a]	< 2.8	2.8	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium [a]	< 5.6	5.6	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	29.8	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	477	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.6

Client Sample ID:	E23-05046-006_SB3A		
Lab Sample ID:	JD77310-6	Date Sampled:	11/15/23
Matrix:	SO - Soil	Date Received:	11/20/23
		Percent Solids:	90.6
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6400	57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	8.0	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	8.9	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	309	23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.43	0.23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	1.4	0.57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	34300	1100	mg/kg	2	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	16.8	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	< 5.7	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	195	2.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	13400	57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	774	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	2920	570	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	1210	3.4	mg/kg	2	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.68	0.035	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	32.2	4.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.3	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	1.2	0.57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium [a]	< 2.3	2.3	mg/kg	2	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	25.8	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	483	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.7 3

Client Sample ID:	E23-05046-007_SB3B		
Lab Sample ID:	JD77310-7	Date Sampled:	11/15/23
Matrix:	SO - Soil	Date Received:	11/20/23
		Percent Solids:	88.9
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5390	56	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony [a]	< 45	45	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic [a]	< 45	45	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	288	22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium [a]	< 4.5	4.5	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium [a]	< 11	11	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	49000	11000	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium [a]	70.1	22	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	39.9	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper [a]	503	56	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	254000	1100	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead [a]	888	45	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	3500	560	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	2890	33	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.65	0.036	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel [a]	98.3	89	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium [a]	< 45	45	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver [a]	< 11	11	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium [a]	< 22	22	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	94.8	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	688	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.8

3

Client Sample ID:	E23-05046-008_SB10A		
Lab Sample ID:	JD77310-8	Date Sampled:	11/15/23
Matrix:	SO - Soil	Date Received:	11/20/23
		Percent Solids:	91.1
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	7400	56	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.2	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	3.6	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	90.2	22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.46	0.22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.56	0.56	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	31300	1100	mg/kg	2	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	22.0	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	6.1	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	26.4	2.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	13700	56	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	159	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	3600	560	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	386	1.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.27	0.034	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	18.6	4.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1520	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.2	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.58	0.56	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	21.6	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	54.9	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.9

Client Sample ID:	E23-05046-009_SB11A		
Lab Sample ID:	JD77310-9	Date Sampled:	11/15/23
Matrix:	SO - Soil	Date Received:	11/20/23
		Percent Solids:	83.5
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	7780	58	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.3	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	3.9	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	98.7	23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.44	0.23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.58	0.58	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	5130	580	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	16.9	1.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	6.4	5.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	17.1	2.9	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	16100	58	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	56.1	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	3220	580	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	442	1.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.23	0.036	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	19.4	4.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1200	1200	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.3	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	< 0.58	0.58	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1200	1200	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.2	1.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	17.7	5.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	80.8	5.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.10 3

Client Sample ID:	E23-05046-010_SB8A		
Lab Sample ID:	JD77310-10	Date Sampled:	11/15/23
Matrix:	SO - Soil	Date Received:	11/20/23
		Percent Solids:	95.4
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6710	52	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	2.5	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	45.1	21	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.39	0.21	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.52	0.52	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	15800	520	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	17.0	1.0	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	< 5.2	5.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	17.3	2.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	10900	52	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	12.0	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	2740	520	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	321	1.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.052	0.032	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	16.5	4.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1000	1000	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	< 0.52	0.52	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1000	1000	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.0	1.0	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	17.3	5.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	26.6	5.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05046-011_TWP1		
Lab Sample ID:	JD77310-11	Date Sampled:	11/15/23
Matrix:	AQ - Water	Date Received:	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6990	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	5.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	229	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	1.3	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	118000	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	29.5	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	60.5	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	10400	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	68.9	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	14700	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	1100	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	24.7	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	10400	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	64300	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	64.0	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55130
(2) Instrument QC Batch: MA55145
(3) Prep QC Batch: MP43295
(4) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.12 3

Client Sample ID:	E23-05046-019_TWP1 FILT		
Lab Sample ID:	JD77310-11F	Date Sampled:	11/15/23
Matrix:	AQ - Water Filtered	Date Received:	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	850	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	128000	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	1090	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	8.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	13700	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	145	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	10600	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	73000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	< 20	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55130
(2) Instrument QC Batch: MA55145
(3) Prep QC Batch: MP43295
(4) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05046-012_TWP2		
Lab Sample ID:	JD77310-12	Date Sampled:	11/15/23
Matrix:	AQ - Water	Date Received:	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	3300	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	7.7	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	75100	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	10.9	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	56.9	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	10400	100	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	43.9	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	< 5000	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	182	15	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	0.63	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	11.2	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	11200	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	106000	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	49.2	20	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55145
(3) Prep QC Batch: MP43267
(4) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.14 3

Client Sample ID:	E23-05046-020_TWP2 FILT		
Lab Sample ID:	JD77310-12F	Date Sampled:	11/15/23
Matrix:	AQ - Water Filtered	Date Received:	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	579	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	7.1	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	60900	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	784	100	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	4.7	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	< 5000	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	20.3	15	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	11700	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	121000	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	< 20	20	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55145
(3) Prep QC Batch: MP43267
(4) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.15 3

Client Sample ID:	E23-05046-013_TWP4		
Lab Sample ID:	JD77310-13	Date Sampled:	11/16/23
Matrix:	AQ - Water	Date Received:	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6580	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	5.2	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	487	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	1.1	1.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	169000	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	11.0	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	27.1	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	9230	100	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	122	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	24400	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	2110	15	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	24.0	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	15200	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	190000	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	107	20	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55145
(3) Prep QC Batch: MP43267
(4) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.16 3

Client Sample ID:	E23-05046-021_TWP4 FILT		
Lab Sample ID:	JD77310-13F	Date Sampled:	11/16/23
Matrix:	AQ - Water Filtered	Date Received:	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Antimony	< 6.0	6.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Arsenic	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Barium	236	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Beryllium	< 1.0	1.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cadmium	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Calcium	170000	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Chromium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cobalt	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Copper	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Iron	110	100	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Lead	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Magnesium	23300	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Manganese	1020	15	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Mercury	< 0.20	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [3]	SW846 7470A [5]
Nickel	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Potassium	15600	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Selenium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Silver	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Sodium	209000	20000	ug/l	2	11/21/23	11/28/23	ND	SW846 6010D [2]	SW846 3010A [4]
Thallium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Vanadium	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Zinc	< 20	20	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55138
(3) Instrument QC Batch: MA55145
(4) Prep QC Batch: MP43267
(5) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.17 3

Client Sample ID:	E23-05046-014_TWP5		
Lab Sample ID:	JD77310-14	Date Sampled:	11/16/23
Matrix:	AQ - Water	Date Received:	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4230	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Antimony	< 6.0	6.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Arsenic	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Barium	< 200	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Beryllium	< 1.0	1.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cadmium	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Calcium	33100	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Chromium	15.2	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cobalt	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Copper	13.3	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Iron	8200	100	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Lead	8.7	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Magnesium	< 5000	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Manganese	140	15	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Mercury	< 0.20	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [3]	SW846 7470A [5]
Nickel	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Potassium	< 10000	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Selenium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Silver	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Sodium	274000	20000	ug/l	2	11/21/23	11/28/23	ND	SW846 6010D [2]	SW846 3010A [4]
Thallium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Vanadium	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Zinc	26.9	20	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55138
(3) Instrument QC Batch: MA55145
(4) Prep QC Batch: MP43267
(5) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.18 3

Client Sample ID:	E23-05046-022_TWP5 FILT		
Lab Sample ID:	JD77310-14F	Date Sampled:	11/16/23
Matrix:	AQ - Water Filtered	Date Received:	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Antimony	< 6.0	6.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Arsenic	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Barium	< 200	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Beryllium	< 1.0	1.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cadmium	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Calcium	31300	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Chromium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cobalt	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Copper	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Iron	294	100	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Lead	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Magnesium	< 5000	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Manganese	89.2	15	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Mercury	< 0.20	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [3]	SW846 7470A [5]
Nickel	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Potassium	< 10000	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Selenium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Silver	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Sodium	264000	50000	ug/l	5	11/21/23	11/27/23	ND	SW846 6010D [2]	SW846 3010A [4]
Thallium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Vanadium	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Zinc	< 20	20	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55130
(3) Instrument QC Batch: MA55145
(4) Prep QC Batch: MP43267
(5) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.19 3

Client Sample ID:	E23-05046-015_SB4A		
Lab Sample ID:	JD77310-15	Date Sampled:	11/15/23
Matrix:	SO - Soil	Date Received:	11/20/23
		Percent Solids:	87.1
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	11900	60	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.4	2.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	6.4	2.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	298	24	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.60	0.24	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.60	0.60	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	8670	600	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	19.9	1.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	< 6.0	6.0	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	25.2	3.0	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	16200	60	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	203	2.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	2690	600	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	461	1.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.23	0.036	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	14.9	4.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1200	1200	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.4	2.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.85	0.60	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1200	1200	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.2	1.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	27.4	6.0	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	196	6.0	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.20 3

Client Sample ID:	E23-05046-016_SB4B		
Lab Sample ID:	JD77310-16	Date Sampled:	11/15/23
Matrix:	SO - Soil	Date Received:	11/20/23
		Percent Solids:	83.0
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	8270	61	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.4	2.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	9.2	2.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	2180	120	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.56	0.24	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	1.0	0.61	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	67200	3000	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	24.9	1.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	6.5	6.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	35.7	3.0	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	18900	61	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	2680	12	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	4210	610	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	604	1.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.57	0.036	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	21.7	4.9	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1560	1200	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.4	2.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	1.1	0.61	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1200	1200	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.2	1.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	23.0	6.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	2550	30	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05046-017_SB5A		
Lab Sample ID:	JD77310-17	Date Sampled:	11/15/23
Matrix:	SO - Soil	Date Received:	11/20/23
		Percent Solids:	91.0
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	10700	53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	3.1	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	59.6	21	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.61	0.21	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.53	0.53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	2980	530	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	23.6	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	7.4	5.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	20.0	2.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	15600	53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	29.9	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	3310	530	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	443	1.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.21	0.035	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	21.9	4.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1390	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.70	0.53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	26.8	5.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	51.6	5.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

3.22 3

Client Sample ID:	E23-05046-018_SB5B		
Lab Sample ID:	JD77310-18	Date Sampled:	11/15/23
Matrix:	SO - Soil	Date Received:	11/20/23
		Percent Solids:	90.2
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	7620	57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.3	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	2.5	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	43.4	23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.47	0.23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.57	0.57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	2090	570	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	17.0	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	< 5.7	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	16.2	2.9	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	11300	57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	27.7	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	2480	570	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	307	1.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.11	0.035	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	14.0	4.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1390	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.3	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	< 0.57	0.57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	19.5	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	30.1	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD77310
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43267
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 11/21/23

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	17	150	-11	<200
Antimony	6.0	1.7	4.7	-0.10	<6.0
Arsenic	3.0	2.1	2.8	-0.10	<3.0
Barium	200	.8	13	-0.20	<200
Beryllium	1.0	.3	.5	0.0	<1.0
Bismuth	20	2.3	8.6		
Boron	100	2.3	10		
Cadmium	3.0	.3	1	0.0	<3.0
Calcium	5000	6.6	99	29.3	<5000
Cerium	100				
Chromium	10	.3	2	0.0	<10
Cobalt	50	.4	2.6	-0.20	<50
Copper	10	.8	5.9	0.0	<10
Iron	100	5.3	32	9.3	<100
Lead	3.0	1.1	1.8	0.10	<3.0
Lithium	50	4.8	7.3		
Magnesium	5000	32	140	12.0	<5000
Manganese	15	.1	1.4	0.20	<15
Molybdenum	20	.6	3.6		
Nickel	10	.4	1.7	-0.20	<10
Phosphorus	50	1.2	18		
Potassium	10000	77	200	28.5	<10000
Selenium	10	3.2	4.9	0.90	<10
Silicon	200	1.7	32		
Silver	10	1	6.1	-0.10	<10
Sodium	10000	34	570	338	<10000
Strontium	10	.3	2.7		
Sulfur	50	3	45		
Thallium	10	1.8	1.8	-0.10	<10
Tin	10	.8	3.7		
Titanium	10	.5	2.5		
Tungsten	50	2.6	40		
Vanadium	50	.6	1.8	0.10	<50

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD77310
Account: IALNJR - Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ

QC Batch ID: MP43267
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 11/21/23

Metal	RL	IDL	MDL	MB raw	final
Zinc	20	.1	6.9	0.20	<20
Zirconium	10	.3	4.1		

Associated samples MP43267: JD77310-12, JD77310-13, JD77310-14, JD77310-12F, JD77310-13F, JD77310-14F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

6.1.1

6

SAMPLE TRACKING

IAL Integrated Analytical Laboratories LLC

Integrated Analytical Labs
273 Franklin Road
Randolph, NJ 07869

Chain of Custody Record

Contact Us: 973-361-4252
Web: www.ialonline.com

Customer Information

Company: HK Eng+Geo
Address: 1600 Rt. 22 East
Union, NJ 07083
Telephone #: 908 688-7800
Project Manager: R. Powell
Email Address(es):
Project Name: HK-2661.1 Chelsea
Project Location (State): NY
Bottle Order #: B02222
☒ "Report to"/"Invoice To" same as above
Sampled by:

COMPLETED BY IAL:
____ Field Sampling ____ Equipment Rental

Reporting Information

☒ Check here if same as "Customer Information"
REPORT TO:
Address:
Attn:
INVOICE TO:
Address:
Attn:
PO # HK2661
Quote #

Sample Matrix

DW - Drinking Water; WW - Waste Water; GW - Groundwater; SW - Surface Water; LIQ - Liquid (specify); M - Multiphasic; OI - Oil; S - Soil; SED - Sediment; SOL - Solid (specify); SL - Sludge; W - Wipe

Rush TAT Charge

24 hr - 100%....
48 hr - 75%....
72 hr - 50%....
96 hr - 35%....
5 day - 25%....
6-9 day - 10%

Deliverables *Surchage may apply for regulatory

NJ, CT, PA
☐ Results Only (Level I)
☐ Reduced (Level II/III)
☐ Regulatory/ Full* (Level IV)

NY
☒ ASP Category A
☐ ASP Category B*

EDDs

☐ NJ SRP
☐ NYSDEC EQuIS
☐ lab approved custom EDD
☐ NO EDD REQ'D

Concentrations Expected: Low Med High

Known Hazard: ☐ YES ☐ NO
Describe:

Turn-Around Time (TAT)

Standard (10 business days) Verbal
Rush/date needed (only if pre-approved)** 5 Day
Hard Copy: Standard 3 week Other - call for price

Petroleum Hydrocarbons - Selection is REQUIRED

☐ NJ EPH-DRO - Category 1
☐ NJ EPH-C40 - Category 2
☐ NJ EPH-Fractionated - Cat 2
TAT for PHC, if other than 2 weeks:
☐ CT ETPH
☐ DRO-8015

Regulatory Requirement

New Jersey
☐ GWQS
☐ IGW
☐ SRS
☐ Ecological
☐ DW
☐ SPLP

New York
☒ AWQS (TOGS Table 1)
☐ GWEL (TOGS Table 5)
☒ Part 375-6.8(a) - Unrestricted
☒ Part 375-6.8(b) - Restricted
☐ CP-51 Table 2 or 3 (selection required)

Other States / Criteria
☐ Pennsylvania Act 2
☐ CT RCSA 22a-133k1-k3
☐ TSCA PCBs
OTHER Regulatory Requirements - specify in comments

SAMPLE INFORMATION

Client ID	Depth (ft only)	Sampling Date	Sampling Time	Matrix	# containers	IAL #	TAL/TCL +30								Sample Specific Notes:
SB12A	0-2	11-15-23	0815	S	5	1	X								
SB2A	0-2	11-15-23	0830			2	X								
SB2B	10-12	11-15-23	0835			3	X								
SB1A	0-2	11-15-23	0930			4	X								
SB1B	10-12	11-15-23	0935			5	X								
SB3A	0-2		1045			6	X								
SB3B	10-12		1050			7	X								
SB10A	1.5-2.5		1305			8	X								

Samples previously analyzed by IAL? YES / NO

Preservative Code: 1 = None, 2 = HCl, 3 = HNO3, 4 = MeOH, 5 = NaOH, 6 = H2SO4, 7 = Other

Container Code: A = Amber Glass, B = Plastic, C = Vial, D = Glass, E = EnCore, T = Terracore

Preservative (use code)
Container Type (use code)

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time (TAT) will not start until any ambiguities have been resolved. TAT starts the following day if samples rec'd at lab ≥ 5PM. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY IAL'S TERMS & CONDITIONS (found on rear of pink copy).

Carrier (check one):
☐ IAL Courier
☐ Client Courier
☐ FedEx/UPS***
***Tracking #:

Special Instructions/QC Requirements & Comments:

Relinquished by (Signature and Company)	Date	Time	Received by (Signature and Company)	Date	Time
R. Powell			[signature]	11-16-23	1402
Dale Martin	11-16-23	1712	[signature]	11/16/23	17:12

FOR LAB USE ONLY
SDG #: J046
Cooler Temp: 5 °C

IAL Rev 11/2019

LAB COPIES - WHITE & YELLOW; CLIENT COPY - PINK

Certification IDs: TNI (TNI01284); CT (PH-0699); NJ (14751); NY (11402); PA (68-00773).

PAGE: 1 of 3

IAL Integrated Analytical Laboratories LLC
Integrated Analytical Labs
273 Franklin Road
Randolph, NJ 07869

Chain of Custody Record

Contact Us: 973-361-4252
Web: www.ialonline.com

Customer Information

Company: HK Eng + Geo
Address:
Telephone #:
Project Manager:
Email Address(es):
Project Name: HK2661.1 Chelsea
Project Location (State): NY
Bottle Order #: B02222
☒ "Report to"/"Invoice To" same as above
Sampled by:

Reporting Information

☒ Check here if same as "Customer Information"
REPORT TO:
Address:
Attn:
INVOICE TO:
Address:
Attn:
PO # HK2661
Quote #

****Rush TAT Charge**

24 hr - 100%...
48 hr - 75%....
72 hr - 50%....
96 hr - 35%....
5 day - 25%....
6-9 day - 10%

Deliverables *Surchage may apply for regulatory

NJ, CT, PA: ☐ Results Only (Level I) ☐ Reduced (Level II/III) ☐ Regulatory/ Full* (Level IV)
NY: ☒ ASP Category A ☐ ASP Category B*

EDDs

☐ NJ SRP
☐ NYSDEC EQuIS
☐ lab approved custom EDD
☐ NO EDD REQ'D

Concentrations Expected: Low Med High

Known Hazard: ☐ YES ☐ NO
Describe:

Turn-Around Time (TAT)

Standard (10 business days) Verbal
Rush/date needed (only if pre-approved)** 5 Day
Hard Copy: Standard 3 week / Other - call for price

Petroleum Hydrocarbons - Selection is REQUIRED

☐ NJ EPH-DRO - Category 1
☐ NJ EPH-C40 - Category 2
☐ NJ EPH-Fractionated - Cat 2
TAT for PHC, if other than 2 weeks:
☐ CT ETPH
☐ DRO-8015

Regulatory Requirement

New Jersey: ☐ GWQS ☐ IGW ☐ SRS ☐ Ecological ☐ DW ☐ SPLP

New York: ☒ AWQS (TOGS Table 1) ☐ GWEL (TOGS Table 5) ☒ Part 375-6.8(a) - Unrestricted ☒ Part 375-6.8(b) - Restricted ☐ CP-51 Table 2 or 3 (selection required)

Other States / Criteria: ☐ Pennsylvania Act 2 ☐ CT RCSA 22a-133k1-k3 ☐ TSCA PCBs

OTHER Regulatory Requirements - specify in comments

Sample Matrix

DW - Drinking Water
WW - Waste Water
GW - Groundwater
SW - Surface Water
LIQ - Liquid (specify)
M - Multiphasic
OI - Oil
S - Soil
SED - Sediment
SOL - Solid (specify)
SL - Sludge
W - Wipe

COMPLETED BY IAL:
_____ Field Sampling _____ Equipment Rental

SAMPLE INFORMATION

ANALYTICAL PARAMETERS (please note if contingent)

Client ID	Depth (ft only)	Sampling Date	Sampling Time	Matrix	# containers	IAL #	TAL ITL +30	Dissolved Metals								Sample Specific Notes:
SB11A	1-2	11-15-23	1340	S	5	9	X									
SB 8A	0-1.5	↓	1400	S	5	10	X									
TWP1	–		1220	GW	11	11	X	X	19							
TWP2	–	↓	1300	GW	11	12	X	X	20							
~~TWP~~ TWP4	–	11-16-23	0910	GW	11	13	X	X	21							
TWP5	–	↓	0930	GW	11	14	X	X	22							
SB4A	0-2		0810	S	5	15	X									
SB4B	10-12	↓	0815	S	5	16	X									

Samples previously analyzed by IAL? YES / NO

Preservative Code: 1 = None, 2 = HCl, 3 = HNO3, 4 = MeOH, 5 = NaOH, 6 = H2SO4, 7 = Other

Container Code: A = Amber Glass, B = Plastic, C = Vial, D = Glass, E = EnCore, T = Terracore

Preservative (use code)
Container Type (use code)

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time (TAT) will not start until any ambiguities have been resolved. TAT starts the following day if samples rec'd at lab ≥ 5PM. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY IAL'S TERMS & CONDITIONS (found on rear of pink copy).

IAL Rev 11/2019

Carrier (check one): ☐ IAL Courier ☐ Client Courier ☐ FedEx/UPS***
***Tracking #:

Special Instructions/QC Requirements & Comments:
Dissolved Metal Bottles were field filtered w/ lab supplied bottles

Relinquished by (Signature and Company)	Date	Time	Received by (Signature and Company)	Date	Time
[signature]			[signature]	11-16-23	1402
[signature]	11-16-23	1712	[signature]	11/16/23	17:18

FOR LAB USE ONLY
SDG #: J046
Cooler Temp: 15 °C

LAB COPIES - WHITE & YELLOW; CLIENT COPY - PINK

Certification IDs: TNI (TNI01284); CT (PH-0699); NJ (14751); NY (11402); PA (68-00773)

PAGE: 2 of 2

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Labs
273 Franklin Road
Randolph, NJ 07869

Chain of Custody Record

Contact Us: 973-361-4252
Web: www.ialonline.com

Customer Information

Company: HK Eng + Geo
Address:
Telephone #:
Project Manager:
Email Address(es):
Project Name: HK2661.1
Project Location (State): NY
Bottle Order #: B022221
☒ "Report to"/"Invoice To" same as above
Sampled by:

Reporting Information

☒ Check here if same as "Customer Information"
REPORT TO:
Address:
Attn:
INVOICE TO:
Address:
Attn:
PO # HK2661
Quote #

Rush TAT Charge

24 hr - 100%...
48 hr - 75%....
72 hr - 50%....
96 hr - 35%....
5 day - 25%....
6-9 day - 10%

Deliverables *Surcharge may apply for regulatory

NJ, CT, PA: ☐ Results Only (Level I) ☐ Reduced (Level II/III) ☐ Regulatory/ Full* (Level IV)
NY: ☐ ASP Category A ☐ ASP Category B*

EDDs

☐ NJ SRP
☐ NYSDEC EQuIS
☐ lab approved custom EDD
☐ NO EDD REQ'D

Concentrations Expected: Low Med High

Known Hazard: ☐ YES ☐ NO
Describe:

Turn-Around Time (TAT)

Standard (10 business days) Verbal
Rush/date needed (only if pre-approved)**
Hard Copy: Standard 3 week — Other - call for price

Petroleum Hydrocarbons - Selection is REQUIRED

☐ NJ EPH-DRO - Category 1
☐ NJ EPH-C40 - Category 2
☐ NJ EPH-Fractionated - Cat 2
☐ CT ETPH
☐ DRO-8015

TAT for PHC, if other than 2 weeks:

Regulatory Requirement

New Jersey: ☐ GWQS ☐ IGW ☐ SRS ☐ Ecological ☐ DW ☐ SPLP

New York: ☐ AWQS (TOGS Table 1) ☐ GWEL (TOGS Table 5) ☐ Part 375-6.8(a) - Unrestricted ☐ Part 375-6.8(b) - Restricted ☐ CP-51 Table 2 or 3 (selection required)

Other States / Criteria: ☐ Pennsylvania Act 2 ☐ CT RCSA 22a-133k1-k3 ☐ TSCA PCBs

OTHER Regulatory Requirements - specify in comments

Sample Matrix

DW - Drinking Water
WW - Waste Water
GW - Groundwater
SW - Surface Water
LIQ - Liquid (specify)
M - Multiphasic
OI - Oil
S - Soil
SED - Sediment
SOL - Solid (specify)
SL - Sludge
W - Wipe

COMPLETED BY IAL:
_____ Field Sampling _____ Equipment Rental

SAMPLE INFORMATION

ANALYTICAL PARAMETERS (please note if contingent)

Client ID	Depth (ft only)	Sampling Date	Sampling Time	Matrix	# containers	IAL #	TAL/TCL +30								Sample Specific Notes:
SB5A	0-2	11-16-23	0820	S	5	17	X								
SB5B	10-12	↓	0835	S	5	18	X								

Samples previously analyzed by IAL? YES / NO

Preservative Code: 1 = None, 2 = HCl, 3 = HNO3, 4 = MeOH, 5 = NaOH, 6 = H2SO4, 7 = Other

Container Code: A = Amber Glass, B = Plastic, C = Vial, D = Glass, E = EnCore, T = Terracore

Preservative (use code)
Container Type (use code)

Special Instructions/QC Requirements & Comments:

Carrier (check one): ☐ IAL Courier ☐ Client Courier ☐ FedEx/UPS***
***Tracking #:

Relinquished by (Signature and Company)	Date	Time	Received by (Signature and Company)	Date	Time
[signature]	11-16-23	1772	[signature]	11-16-23	1402
			[signature]	11/16/23	17:12

FOR LAB USE ONLY
SDG #: J046
Cooler Temp: 5 °C

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time (TAT) will not start until any ambiguities have been resolved. TAT starts the following day if samples rec'd at lab ≥ 5PM. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY IAL'S TERMS & CONDITIONS (found on rear of pink copy).

IAL Rev 11/2019

LAB COPIES - WHITE & YELLOW; CLIENT COPY - PINK

Certification IDs: TNI (TNI01284); CT (PH-0699); NJ (14751); NY (11402); PA (68-00773).

PAGE: 3 of 3

INTEGRATED ANALYTICAL LABORATORIES, LLC

Nov 21, 2023 @ 09:14

RUSH

PROJECT INFORMATION

E23-05046: HK-2661.1 CHELSEA

To: Ryan Powell
HK Engineering & Geology, D.P.C.
Fax:
EMail: rpowell@hillmanngroup.com;chirschmann@hillmanngroup.com

Report To

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083
Attn: Ryan Powell

Bill To

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083
Attn: Chris Hirschmann

Report Format	P.O. #	Received At Lab	PHC Due	Verbal Due	Hardcopy Due
Category A	HK2661	Nov 16, 2023 @ 17:12	NA	Nov 27, 2023	Nov 28, 2023 *

* Any ***Conditional or Hold*** status will delay final hardcopy report sent date.

Diskette Req. Not Required

Criteria Requirement: NY TOGS Tbl1 (AWQS)

Lab ID	Client Sample ID	Depth	Sampling Time	Matrix	Unit	Field pH/Temp
05046-001	SB12A	0/2	11/15/23@08:15	Soil	mg/Kg (ppm)	
05046-002	SB2A	0/2	11/15/23@08:30	Soil	mg/Kg (ppm)	
05046-003	SB2B	10/12	11/15/23@08:35	Soil	mg/Kg (ppm)	
05046-004	SB1A	0/2	11/15/23@09:30	Soil	mg/Kg (ppm)	
05046-005	SB1B	10/12	11/15/23@09:35	Soil	mg/Kg (ppm)	
05046-006	SB3A	0/2	11/15/23@10:45	Soil	mg/Kg (ppm)	
05046-007	SB3B	10/12	11/15/23@10:50	Soil	mg/Kg (ppm)	
05046-008	SB10A	1.5/2.5	11/15/23@13:05	Soil	mg/Kg (ppm)	
05046-009	SB11A	1/2	11/15/23@13:40	Soil	mg/Kg (ppm)	
05046-010	SB8A	0/1.5	11/15/23@14:00	Soil	mg/Kg (ppm)	
05046-011	TWP1	NA	11/15/23@12:20	Aqueous	ug/L (ppb)	
05046-012	TWP2	NA	11/15/23@13:00	Aqueous	ug/L (ppb)	
05046-013	TWP4	NA	11/16/23@09:10	Aqueous	ug/L (ppb)	
05046-014	TWP5	NA	11/16/23@09:30	Aqueous	ug/L (ppb)	
05046-015	SB4A	0/2	11/16/23@08:10	Soil	mg/Kg (ppm)	
05046-016	SB4B	10/12	11/16/23@08:15	Soil	mg/Kg (ppm)	
05046-017	SB5A	0/2	11/16/23@08:20	Soil	mg/Kg (ppm)	
05046-018	SB5B	10/12	11/16/23@08:35	Soil	mg/Kg (ppm)	
05046-019	TWP1 FILT	NA	11/15/23@12:20	Aqueous	ug/L (ppb)	
05046-020	TWP2 FILT	NA	11/15/23@13:00	Aqueous	ug/L (ppb)	
05046-021	TWP4 FILT	NA	11/16/23@09:10	Aqueous	ug/L (ppb)	
05046-022	TWP5 FILT	NA	11/16/23@09:30	Aqueous	ug/L (ppb)	

* No Cert = IAL does not hold certification for this test/method

Sample #	Test	Status	Analytical Method	TAT	Holding Time Expires
001	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/29/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/29/2023

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Nov 21, 2023 @ 09:14

PROJECT INFORMATION

RUSH

E23-05046: HK-2661.1 CHELSEA

Sample #	Test	Status	Analytical Method	TAT	Holding Time Expires
001	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/29/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/14/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/29/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/15/2023
002	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/29/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/29/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/29/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/14/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/29/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/15/2023
003	TCL VO + 15	Analyze	8260D	STD/2 WKS	11/29/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/29/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/14/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/29/2023
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/29/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/15/2023
004	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/29/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/29/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/29/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/14/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/29/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/15/2023
005	TCL VO + 15	Analyze	8260D	STD/2 WKS	11/29/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/29/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/29/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/14/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/29/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/15/2023
006	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/29/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/29/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/29/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/14/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/29/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/15/2023
007	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/29/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/29/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/29/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/14/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/29/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/15/2023

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Nov 21, 2023 @ 09:14

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Integrated Analytical Laboratories LLC

PROJECT INFORMATION

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E23-05046: HK-2661.1 CHELSEA

Sample #	Test	Status	Analytical Method	TAT	Holding Time Expires
008	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/29/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/29/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/29/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/14/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/29/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/15/2023
009	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/29/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/29/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/29/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/14/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/29/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/15/2023
010	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/29/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/29/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/14/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/29/2023
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/29/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/15/2023
011	Low Level TCL VO for 8260+8011 + 15	Analyze	8260D/8011	RUSH 1 WK	11/29/2023
	TCL BNA + SIMS + 15	Analyze	8270E SIM	RUSH 1 WK	11/22/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/22/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/14/2024
	Cyanide, Total	Analyze	335.4	RUSH 1 WK	11/29/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/15/2023
012	Low Level TCL VO for 8260+8011 + 15	Analyze	8260D/8011	RUSH 1 WK	11/29/2023
	TCL BNA + SIMS + 15	Analyze	8270E SIM	RUSH 1 WK	11/22/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/14/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/22/2023
	Cyanide, Total	Analyze	335.4	RUSH 1 WK	11/29/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/15/2023
013	Low Level TCL VO for 8260+8011 + 15	Analyze	8260D/8011	RUSH 1 WK	11/30/2023
	TCL BNA + SIMS + 15	Analyze	8270E SIM	RUSH 1 WK	11/23/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/23/2023
	Cyanide, Total	Analyze	335.4	RUSH 1 WK	11/30/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
014	Low Level TCL VO for 8260+8011 + 15	Analyze	8260D/8011	RUSH 1 WK	11/30/2023
	TCL BNA + SIMS + 15	Analyze	8270E SIM	RUSH 1 WK	11/23/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/23/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	Cyanide, Total	Analyze	335.4	RUSH 1 WK	11/30/2023

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PROJECT INFORMATION

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E23-05046: HK-2661.1 CHELSEA

Sample #	Test	Status	Analytical Method	TAT	Holding Time Expires
014	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
015	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/30/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/30/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/30/2023
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/30/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
016	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/30/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/30/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/30/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/30/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
017	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/30/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/30/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/30/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/30/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
018	TCL VO + 15	Analyze	8260D	RUSH 1 WK	11/30/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	11/30/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/15/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/30/2023
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	11/30/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
019	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/15/2023
020	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/15/2023
021	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023
022	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/16/2023

Project Notes:

NOTE 1 taken by kfalconer on 11/17/2023 12:11

WE RECEIVED TWO SETS OF ENCORES LABELED SB2B, WE DID NOT RECEIVE ENCORES LABELED SB1B. PER RYAN POWELL, ENCORE BAGS LABELED WITH DEPTH ARE FOR SB1B. ENCORES WITHOUT DEPTH ON BAG ARE FOR SB2B.

COMPARE SOIL RESULTS TO NY Part 375-6.8(UUSCO+RUSCO).

COMPARE GW RESULTS TO NY TOGS Tbl1 (AWQS).

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Nov 21, 2023 @ 09:14

PROJECT INFORMATION

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E23-05046: HK-2661.1 CHELSEA

NOTE 3 taken by kfalconer on 11/17/2023 03:49

CLIENT WAS NOTIFIED VIA E-MAIL THAT ALL METALS ANALYSES WILL BE SUBCONTRACTED TO SGS DAYTON.

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SAMPLE RECEIPT VERIFICATION

CASE NO: **E 23** **05046** CLIENT: HKEng & Co.

COOLER TEMPERATURE: 2° - 6°C: ✓ (See Chain of Custody)

Comments

COC: (COMPLETE) / INCOMPLETE

KEY

✓ = YES/NA
✗ = NO

VOA received: (check one) ☒ Encore ☐ Terra Core ☐ IGW - Methanol ☐ No Preservative

✓ Bottles Intact
✓ no-Missing Bottles
✓ no-Extra Bottles

✓ Sufficient Sample Volume
✓ no-headspace/bubbles in VOs
✓ Labels intact/correct
✗ pH Check[1] (refer to Receipt pH Log)
✓ Correct bottles/preservative
✓ Sufficient Holding/Prep Time[1]
☐ Multiphasic Sample
☐ Sample to be Subcontracted
✓ **Chain of Custody is Clear**

[1] All samples with "Analyze Immediately" holding times will be analyzed by this laboratory past the holding time. This includes but is not limited to the following tests: pH, Temperature, Free Residual Chlorine, Total Residual Chlorine, Dissolved Oxygen, Sulfite.

ADDITIONAL COMMENTS: Encore samples 2 sets of SB2B (0) no sets of SB1B - How to proceed?

SAMPLE(S) VERIFIED BY: INITIAL [illegible] DATE 11/14/23

CORRECTIVE ACTION REQUIRED: **YES** ☒ (SEE BELOW) **NO** ☐

If COC is **NOT** clear, ***STOP*** until you get client to authorize/clarify work.

CLIENT NOTIFIED: YES ☐ Date/ Time: _____ NO ☐
PROJECT CONTACT:
SUBCONTRACTED LAB:
DATE SHIPPED:

ADDITIONAL COMMENTS:

VERIFIED/TAKEN BY: INITIAL KJ DATE 11/20/23

Rev 2 2/11/2021

Laboratory Custody Chronicle

IAL Case No. E23-05046

Client HK Engineering & Geology, D.P.C.

Project HK-2661.1 CHELSEA

Received On 11/16/2023@17:12

Department: Volatiles			Prep. Date	Analyst	Analysis Date	Analyst
Low Level TCL VO for 8260+8011 + 15	05046-011	Aqueous	n/a	n/a	11/20/23	Sylvia
"	-012	"	n/a	n/a	11/20/23	Sylvia
"	-013	"	n/a	n/a	11/20/23	Sylvia
"	-014	"	n/a	n/a	11/20/23	Sylvia
TCL VO + 15	-001	Soil	n/a	n/a	11/28/23	Thien
"	-002	"	n/a	n/a	11/28/23	Thien
"	-003	"	n/a	n/a	11/28/23	Thien
"	-004	"	n/a	n/a	11/28/23	Thien
"	-005	"	n/a	n/a	11/28/23	Thien
"	-006	"	n/a	n/a	11/28/23	Thien
"	-007	"	n/a	n/a	11/28/23	Thien
"	-008	"	n/a	n/a	11/28/23	Thien
"	-009	"	n/a	n/a	11/28/23	Thien
"	-010	"	n/a	n/a	11/28/23	Thien
"	-015	"	n/a	n/a	11/28/23	Thien
"	-016	"	n/a	n/a	11/28/23	Thien
"	-017	"	n/a	n/a	11/28/23	Thien
"	-018	"	n/a	n/a	11/28/23	Thien

Department: Semivolatiles			Prep. Date	Analyst	Analysis Date	Analyst
TCL BNA + 15	-001	Soil	11/20/23	Frank L.	11/28/23	Thien
"	-002	"	11/20/23	Frank L.	11/28/23	Thien
"	-003	"	11/20/23	Frank L.	11/28/23	Thien
"	-004	"	11/20/23	Frank L.	11/28/23	Thien
"	-005	"	11/20/23	Frank L.	11/28/23	Thien
"	-006	"	11/20/23	Frank L.	11/28/23	Thien
"	-007	"	11/20/23	Frank L.	11/28/23	Thien
"	-008	"	11/20/23	Frank L.	11/28/23	Thien
"	-009	"	11/20/23	Frank L.	11/28/23	Thien
"	-010	"	11/20/23	Frank L.	11/28/23	Thien
"	-015	"	11/20/23	Frank L.	11/28/23	Thien
"	-016	"	11/20/23	Frank L.	11/28/23	Thien
"	-017	"	11/20/23	Frank L.	11/28/23	Thien
"	-018	"	11/20/23	Frank L.	11/28/23	Thien
TCL BNA + SIMS + 15	-011	Aqueous	11/20/23	Frank L.	11/29/23	Dana Tryon
"	-012	"	11/20/23	Frank L.	11/29/23	Dana Tryon
"	-013	"	11/20/23	Frank L.	11/29/23	Dana Tryon
"	-014	"	11/20/23	Frank L.	11/29/23	Dana Tryon

Department: GC			Prep. Date	Analyst	Analysis Date	Analyst
TCL PCB	-001	Soil	11/20/23	Archimede	11/27/23	Iwona
"	-002	"	11/20/23	Archimede	11/27/23	Iwona
"	-003	"	11/20/23	Archimede	11/27/23	Iwona

NOTE: All soil, sediment, sludge, and solid samples are reported on a dry-weight basis.

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Laboratory Custody Chronicle

IAL Case No. E23-05046

Client HK Engineering & Geology, D.P.C.

Project HK-2661.1 CHELSEA

Received On 11/16/2023@17:12

"	-004	"	11/20/23	Archimede	11/27/23	Iwona
"	-005	"	11/20/23	Archimede	11/27/23	Iwona
"	-006	"	11/20/23	Archimede	11/27/23	Iwona
"	-007	"	11/20/23	Archimede	11/27/23	Iwona
"	-008	"	11/20/23	Archimede	11/27/23	Iwona
"	-009	"	11/20/23	Archimede	11/27/23	Iwona
"	-010	"	11/20/23	Archimede	11/27/23	Iwona
"	-011	Aqueous	11/20/23	Archimede	11/28/23	Iwona
"	-012	"	11/20/23	Archimede	11/28/23	Iwona
"	-013	"	11/20/23	Archimede	11/28/23	Iwona
"	-014	"	11/20/23	Archimede	11/28/23	Iwona
"	-015	Soil	11/20/23	Archimede	11/27/23	Iwona
"	-016	"	11/20/23	Archimede	11/27/23	Iwona
"	-017	"	11/20/23	Archimede	11/27/23	Iwona
"	-018	"	11/20/23	Archimede	11/27/23	Iwona
TCL Pesticides	-001	Soil	11/20/23	Archimede	11/27/23	Iwona
"	-002	"	11/20/23	Archimede	11/27/23	Iwona
"	-003	"	11/20/23	Archimede	11/27/23	Iwona
"	-004	"	11/20/23	Archimede	11/27/23	Iwona
"	-005	"	11/20/23	Archimede	11/27/23	Iwona
"	-006	"	11/20/23	Archimede	11/27/23	Iwona
"	-007	"	11/20/23	Archimede	11/27/23	Iwona
"	-008	"	11/20/23	Archimede	11/27/23	Iwona
"	-009	"	11/20/23	Archimede	11/27/23	Iwona
"	-010	"	11/20/23	Archimede	11/27/23	Iwona
"	-011	Aqueous	11/20/23	Archimede	11/27/23	Iwona
"	-012	"	11/20/23	Archimede	11/27/23	Iwona
"	-013	"	11/20/23	Archimede	11/27/23	Iwona
"	-014	"	11/20/23	Archimede	11/27/23	Iwona
"	-015	Soil	11/20/23	Archimede	11/27/23	Iwona
"	-016	"	11/20/23	Archimede	11/27/23	Iwona
"	-017	"	11/20/23	Archimede	11/27/23	Iwona
"	-018	"	11/20/23	Archimede	11/27/23	Iwona

Department: Wet Chemistry			***Prep. Date***	***Analyst***	***Analysis Date***	***Analyst***
Cyanide, Total	-001	Soil	n/a	n/a	11/20/23	Brianna P
"	-002	"	n/a	n/a	11/20/23	Brianna P
"	-003	"	n/a	n/a	11/20/23	Brianna P
"	-004	"	n/a	n/a	11/20/23	Brianna P
"	-005	"	n/a	n/a	11/20/23	Brianna P
"	-006	"	n/a	n/a	11/20/23	Brianna P
"	-007	"	n/a	n/a	11/20/23	Brianna P
"	-008	"	n/a	n/a	11/20/23	Brianna P
"	-009	"	n/a	n/a	11/20/23	Brianna P
"	-010	"	n/a	n/a	11/20/23	Brianna P

NOTE: All soil, sediment, sludge, and solid samples are reported on a dry-weight basis.

Integrated Analytical Labs ~ 273 Franklin Road, Randolph, NJ 07869 ~ (973) 361-4252

Laboratory Custody Chronicle

IAL Case No. **E23-05046**

Client HK Engineering & Geology, D.P.C.

Project HK-2661.1 CHELSEA

Received On 11/16/2023@17:12

"	-011	Aqueous	n/a	n/a	11/22/23	Brianna P
"	-012	"	n/a	n/a	11/22/23	Brianna P
"	-013	"	n/a	n/a	11/22/23	Brianna P
"	-014	"	n/a	n/a	11/22/23	Brianna P
"	-015	Soil	n/a	n/a	11/20/23	Brianna P
"	-016	"	n/a	n/a	11/20/23	Brianna P
"	-017	"	n/a	n/a	11/20/23	Brianna P
"	-018	"	n/a	n/a	11/20/23	Brianna P

Department: Others			*Prep. Date*	*Analyst*	*Analysis Date*	*Analyst*
TAL Metals (6020B/7471B) by SGS Dayton	-001	Soil	11/17/23	Rob	n/a	n/a
"	-002	"	11/17/23	Rob	n/a	n/a
"	-003	"	11/17/23	Rob	n/a	n/a
"	-004	"	11/17/23	Rob	n/a	n/a
"	-005	"	11/17/23	Rob	n/a	n/a
"	-006	"	11/17/23	Rob	n/a	n/a
"	-007	"	11/17/23	Rob	n/a	n/a
"	-008	"	11/17/23	Rob	n/a	n/a
"	-009	"	11/17/23	Rob	n/a	n/a
"	-010	"	11/17/23	Rob	n/a	n/a
"	-011	Aqueous	11/17/23	Rob	n/a	n/a
"	-012	"	11/17/23	Rob	n/a	n/a
"	-013	"	11/17/23	Rob	n/a	n/a
"	-014	"	11/17/23	Rob	n/a	n/a
"	-015	Soil	11/17/23	Rob	n/a	n/a
"	-016	"	11/17/23	Rob	n/a	n/a
"	-017	"	11/17/23	Rob	n/a	n/a
"	-018	"	11/17/23	Rob	n/a	n/a
"	-019	Aqueous	11/17/23	Rob	n/a	n/a
"	-020	"	11/17/23	Rob	n/a	n/a
"	-021	"	11/17/23	Rob	n/a	n/a
"	-022	"	11/17/23	Rob	n/a	n/a

NOTE: All soil, sediment, sludge, and solid samples are reported on a dry-weight basis.

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LAST PAGE OF DOCUMENT

Integrated Analytical Laboratories LLC

ANALYTICAL DATA REPORT

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083

Project Name: **HK2661.1**
IAL Case Number: **E23-05091**

These data have been reviewed and accepted by:

Michael H. Leffin, Ph.D.
Laboratory Director

This report shall not be reproduced, except in its entirety, without the written consent of Integrated Analytical Laboratories, LLC. The test results included in this report relate only to the samples analyzed. The results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

273 Franklin Road
Randolph, NJ 07869
Phone: 973 361 4252

IAL is a NELAP accredited lab (TNI01284) and maintains certification in Connecticut (PH-0699), New Jersey (14751), New York (11402) and Pennsylvania (68-00773).

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Sample Summary

IAL Case No.
E23-05091

Client HK Engineering & Geology, D.P.C.

Project HK2661.1

Received On 11/20/2023@16:48

Lab ID	Client Sample ID	Depth Top/Bottom	Sampling Time	Matrix	# of Container
05091-001	SB9A	0/2	11/20/2023@08:15	Soil	5
05091-002	SB9B	10/12	11/20/2023@08:25	Soil	5
05091-003	SB6A	0/2	11/20/2023@09:45	Soil	5
05091-004	SB6B	10/12	11/20/2023@09:55	Soil	5
05091-005	TWP6	n/a	11/20/2023@10:15	Aqueous	10
05091-006	TWP6 FILT	n/a	11/20/2023@10:15	Aqueous	1

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DATA QUALIFIERS AND FLAGS

B	Indicates the analyte found in the associated method blank and in the sample due to potential lab contamination.
C	Indicates analyte is a common laboratory contaminant.
D	Indicates analyte was reported from diluted analysis.
E	Identifies a compound concentration that exceeds the upper level of the calibration range of the instrument
J	Indicates an estimated value either when the concentration in the sample is less than the RL or for qualification of TICs
J1	Indicates an estimated value when ICC or CCV did not meet the criteria.
M	Indicates matrix interference
N	Presumptive evidence of a compound from the use of GC/MS library search.
T	Sample analyzed outside of holding time
X	Indicates samples analyzed for total and dissolved metals differ at ≤20% RPD.
Y	Indicates DO depletion in the BOD blank is >0.20ppm
Z	Indicates internal standard failure. Sample results are either biased high or biased low.
$	Value outside NJDEP DKQP Limits
*	Result outside of QC limits

PROJECT NOTES

- All results for soils, solids, and sludges are reported on a dry-weight basis except where noted
- All test results and QC are compliant with TNI or other applicable state agency requirements/guidance unless otherwise notated in the case narrative and/or project information page.
- The case narrative for this SDG should be consulted to determine any non-conformances.
- Any samples with 15-minute or "analyze immediately" holding times (e.g. pH, Dissolved Oxygen, Sulfite, etc.) which are analyzed in the laboratory are considered out of holding time.
- IAL is a NELAP/TNI certified laboratory (TNI ID# TNI01284). IAL retains certification in Connecticut (PH-0699), New Jersey (14751), New York (11402), and Pennsylvania (68-00773).
- Certification is not required to perform analyses in the following states: AL, CO, DE, GA, HI, ID, IN, KY, MD, MI, MS, MO, MT, NE, NM, SD and TN. IAL can perform all analyses, except Drinking Water, within its scope of capabilities in these states.

ACRONYMS AND ABBREVIATIONS

CFU	Colony Forming Unit	ND	Indicates analyte was analyzed for but not detected at MDL or RL (only if MDL is not used)
CCB	Continuing Calibration Blank		
CCV	Continuing Calibration Verification	NTU	Nephelometric Turbidity Units
DF	Dilution Factor	ppb	Parts per billion. Reported as µg/L or µg/kg
DL	Attached as a suffix to a diluted sample	ppm	Parts per million. Reported as mg/L, µg/mL or mg/kg
DUP	Duplicate	QC	Quality Control
ICB	Initial Calibration Blank	% Rec	Percent Recovery
ICC	Initial Calibration Curve	RL	Reporting Limit. The RL is typically determined by the concentration of the lowest standard in the calibration curve
ICV	Initial Calibration Verification		
kg	kilogram		
L	Liter	RPD	Relative Percent Difference
LCS	Laboratory Control Sample	RSD	Relative Standard Deviation
LCSD	Laboratory Control Sample Duplicate	RT	Retention Time
MDL	Method Detection Limit as determined according to 40 CFR Part 136 Appendix B	SU	Standard Units
MF	Membrane Filter	TIC	Tentatively Identified Compound AKA Library Search Compounds
mg	milligram (1000mg = 1g)	TNI	The NELAC (National Environmental Laboratory Accreditation Council) Institute
µg	microgram (1000µg = 1mg)		
ml	milliliter (1000ml = 1L)	TNTC	Too numerous to count
µl	microliter (1000µl = 1ml)	*	When attached to a compound name, indicates this analyte was analyzed by Method SW-846 8270 SIM
µmhos	Conductivity units - resistance expressed in ohms		
MPN	Most Probable Number	^	When attached to a compound name, indicates this analyte was analyzed by Method SW-846 8011 or EPA 504.1
MS	Matrix Spike		
MSD	Matrix Spike Duplicate		
NA	Not applicable	<	Less than; In conjunction with a numerical value, indicates a concentration less than the RL or MDL
NC	Not calculated		

SAMPLE DELIVERY GROUP CASE NARRATIVE
(Conformance / Non-Conformance Summary)

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05091

Integrated Analytical Laboratories, LLC. received six (6) samples** from HK Engineering & Geology, D.P.C. (IAL SDG# **E23-05091**, Project: HK2661.1) on November 20, 2023 for the analysis of :

(1) Low Level TCL VO for 8260+8011 + 15
(4) TCL VO + 15
(4) TCL BNA + 15
(1) TCL BNA + SIMS + 15
(5) TCL PCB
(5) TCL Pesticides
(5) Cyanide, Total
(6) TAL Metals (6020B/7471B) by SGS Dayton

**Number of samples listed above may be greater than what is listed on the chain of custody. Any samples that require in-house filtration or splitting will be counted as separate samples.

Samples were received in good condition with documentation in order.
Cooler temperature was acceptable at 4 ± 2 degree C.

Volatiles By SW 8260D | **Batch: 231122-01** | **Matrix: Aqueous**

QC
- Calibration curve met QC criteria.
- Internal standards recovery met QC criteria.
- Surrogate percent recovery met QC criteria.
- Method blank met QC criteria.
- LCS percent recovery met QC criteria. NJDEP DKQP criteria not met.
- MS/MSD RPD met QC criteria.
- MS/MSD percent recovery met QC criteria. NJDEP DKQP criteria not met.

E23-05091
- All samples were received within holding time.
- All samples were analyzed within holding time.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05091-005	1	NA

Volatiles By SW 8260D | **Batch: L231121-02** | **Matrix: Soil**

QC
- Calibration curve met QC criteria.
- Internal standards recovery met QC criteria.
- Surrogate percent recovery met QC criteria.
- Method blank met QC criteria.
- LCS percent recovery met QC criteria.
- MS/MSD RPD met QC criteria.
- MS/MSD percent recovery met QC criteria. NJDEP DKQP criteria not met.

E23-05091
- All samples were received within holding time.
- All samples were analyzed within holding time.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05091-001	1	NA
E23-05091-002	1	NA
E23-05091-003	1	NA
E23-05091-004	1	NA

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05091

Microextractable By SW 8011 **Batch: 231129-01** **Matrix: Aqueous**

QC
- Calibration curve met QC criteria.
- Method blank met QC criteria.
- RPD between LCS/LCSD met QC criteria.
- LCS/LCSD Percent Recovery met QC criteria.
- MS/MSD were not analyzed because of Limited Volume. LCS/LCSD were analyzed in their absence.

E23-05091
- All samples were received within holding time.
- All samples were analyzed within holding time.
- Retention Time Shift met QC criteria.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05091-005	1	NA

Semivolatiles By SW 8270E, SW 8270E SIM **Batch: 231120-04** **Matrix: Aqueous**

QC
- Calibration curve met QC criteria.
- Internal standard recovery met QC criteria.
- Surrogate recovery met QC criteria.
- Method blank met QC criteria.
- LCS percent recovery met QC criteria. NJDEP DKQP criteria not met.
- MS/MSD RPD did not meet QC criteria due to RPD failing high for benzaldehyde. NJDEP DKQP criteria not met.
- MS/MSD percent recovery met QC criteria. NJDEP DKQP criteria not met.
- CCV did not pass for all compounds. A sensitivity check was ran for Benzaldehyde. Compounds that did not have a passing CCV were reported as non-detect.

E23-05091
- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05091-005	1	NA

The result reported for 1,2-Diphenylhydrazine is also representative of Azobenzene. 1,2-Diphenylhydrazine rapidly decomposes to Azobenzene when exposed to water or heat. Analytical results from analysis of 1,2-Diphenylhydrazine will be directly compared to the applicable criteria for Azobenzene and/or 1,2-Diphenylhydrazine.

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05091

Semivolatiles By SW 8270E	Batch: 231121-01	Matrix: Soil

QC
- Calibration curve met QC criteria.
- Internal standard recovery met QC criteria.
- Surrogate recovery did not meet QC criteria due to matrix interferenc. NJDEP DKQP criteria not met.
- Method blank met QC criteria.
- LCS percent recovery met QC criteria. NJDEP DKQP criteria not met.
- MS/MSD RPD did not meet QC criteria due to matrix interference. NJDEP DKQP criteria not met.
- MS/MSD percent recovery did not meet QC criteria due to matrix interference. NJDEP DKQP criteria not met.

E23-05091
- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05091-001	1	NA
E23-05091-002	1;10	Target compound(s).
E23-05091-003	1	NA
E23-05091-004	1	NA

The result reported for 1,2-Diphenylhydrazine is also representative of Azobenzene. 1,2-Diphenylhydrazine rapidly decomposes to Azobenzene when exposed to water or heat. Analytical results from analysis of 1,2-Diphenylhydrazine will be directly compared to the applicable criteria for Azobenzene and/or 1,2-Diphenylhydrazine.

PCB By SW 8082A	Batch: 231121-02	Matrix: Soil

QC
- Calibration curve met QC criteria.
- Surrogate percent recovery met QC criteria.
- Method blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- RPD between MS/MSD met QC criteria.
- MS/MSD Percent Recovery met QC criteria.
- The following samples were cleaned up using method 3660B to remove sulfur: BLKS231121-02, LCSS231121-02, E23-05066-002MS, E23-05066-002MSD, E23-05091-001, E23-05091-002, E23-05091-003, E23-05091-004.

E23-05091
- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.
- Retention Time Shift met QC criteria.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05091-001	1	NA
E23-05091-002	1	NA
E23-05091-003	1	NA
E23-05091-004	1	NA

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05091

PCB By SW 8082A	Batch: 231127-04	Matrix: Aqueous

QC
- Calibration curve met QC criteria.
- Surrogate percent recovery did not meet QC criteria due to matrix interference for MS; MSD. NJDEP DKQP criteria not met.
- Method blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- RPD between MS/MSD met QC criteria.
- MS/MSD percent recovery did not meet QC criteria due to matrix interference. NJDEP DKQP criteria not met.

E23-05091
- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.
- Retention Time Shift met QC criteria.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05091-005	1	NA

Pesticides By SW 8081B	Batch: 231121-02	Matrix: Soil

QC
- Calibration curve met QC criteria.
- Surrogate percent recovery did not meet QC criteria due to matrix interference for #002. NJDEP DKQP criteria not met.
- Method blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- RPD between MS/MSD met QC criteria.
- MS/MSD Percent Recovery met QC criteria.
- The RPD between the primary and secondary column was >40% for the following samples: #002; #003. Per SW-846 8000D, the lower of the two concentrations was reported.
- The following samples were cleaned up using method 3660B to remove sulfur: BLKS231121-02, LCSS231121-02, E23-05066-002MS, E23-05066-002MSD, E23-05091-001, E23-05091-002, E23-05091-003, E23-05091-004.

E23-05091
- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.
- Retention Time Shift met QC criteria.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05091-001	1	NA
E23-05091-002	1	NA
E23-05091-003	1	NA
E23-05091-004	1	NA

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05091

Pesticides By SW 8081B | **Batch: 231127-04** | **Matrix: Aqueous**

QC
- Calibration curve met QC criteria.
- Surrogate percent recovery met QC criteria.
- Method blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- RPD between MS/MSD met QC criteria.
- MS/MSD percent recovery did not meet QC criteria due to matrix interference. NJDEP DKQP criteria not met.

E23-05091
- All samples were received within holding time.
- All samples were extracted within holding time.
- All samples were analyzed within holding time.
- Retention Time Shift met QC criteria.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05091-005	1	NA

Cyanide, Total By EPA 335.4 | **Batch: AP013-0117** | **Matrix: Aqueous**

QC
- Method blank met QC criteria.
- LCS percent recovery met QC criteria.
- MS/MSD Percent Recovery met QC criteria.
- Duplicate Recoveries met QC criteria.

E23-05091
- All samples were received within holding time.
- All samples were analyzed within holding time.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05091-005	1	NA

Cyanide, Total By SW 9012B | **Batch: AP013-0116** | **Matrix: Soil**

QC
- Method blank met QC criteria.
- LCS percent recovery met QC criteria.
- MS/MSD Percent Recovery met QC criteria.
- Duplicate Recoveries met QC criteria.

E23-05091
- All samples were received within holding time.
- All samples were analyzed within holding time.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E23-05091-001	1	NA
E23-05091-002	1	NA
E23-05091-003	1	NA
E23-05091-004	1	NA

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E23-05091

Subcontracted to SGS Dayton, TNI certified*, #TNI01283, NJ certified

Method: 6020B/7471B **Matrix: Soil, Aqueous**

QC - No QCs were provided.

Integrated Analytical Laboratories has subcontracted part or all of the results in this report. The laboratory performing the subcontracted work is listed above. These analyses were performed by a NELAP/TNI accredited laboratory, unless otherwise specified. This work was placed with a laboratory accredited for TNI standards for the tests to be performed OR with a laboratory that meets applicable statutory and regulatory requirements for performing the tests and submitting the results of tests performed. Integrated Analytical Laboratories will keep a copy of the subcontractor's report on file.
*TNI, The NELAC Institute, is a nationally recognized laboratory accreditation program. The TNI Standard is intended as an application of ISO/IEC 17025:2005(E), General Requirements for the Competence of Testing and Calibration Laboratories. While individual states and entities offer certification, TNI standards foster the generation of environmental data of known and documented quality through an open, inclusive, and transparent process that is responsive to the needs of the community.

A review of the QA/QC measures for the analysis of the sample(s) contained in this report has been performed by:

ADenno
Reviewed by

12/4/2023
Date

RESULTS SUMMARY REPORT

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK2661.1
Lab Case No.: E23-05091

Lab ID:	05091-005			05091-006		
Client ID:	TWP6			TWP6 FILT		
Matrix:	Aqueous			Aqueous		
Sampled Date	11/20/23			11/20/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL
Volatiles (Units)		*(ug/L)*			*(ug/L)*	
cis-1,2-Dichloroethene	0.442	J	0.277	~		~
Trichloroethene	0.776		0.347	~		~
TOTAL VO's:	1.22	J		~		~
TOTAL TIC's:	ND			~		~
TOTAL VO's & TIC's:	1.22	J		~		~
Semivolatiles - BNA (Units)		*(ug/L)*			*(ug/L)*	
TOTAL BNA'S:	ND			~		~
TOTAL TIC's:	45.7	JN		~		~
TOTAL BNA'S & TIC's:	45.7	JN		~		~
PCB's (Units)		*(ug/L)*			*(ug/L)*	
Aroclor-1016	ND		0.015	~		~
Aroclor-1221	ND		0.015	~		~
Aroclor-1232	ND		0.015	~		~
Aroclor-1242	ND		0.015	~		~
Aroclor-1248	ND		0.015	~		~
Aroclor-1254	ND		0.015	~		~
Aroclor-1260	ND		0.015	~		~
Aroclor-1262	ND		0.015	~		~
Aroclor-1268	ND		0.015	~		~
PCBs	ND		0.015	~		~
Pesticides (Units)		*(mg/L)*			*(ug/L)*	
alpha-BHC	ND		0.00000206	~		~
beta-BHC	ND		0.00000303	~		~
gamma-BHC (Lindane)	ND		0.00000201	~		~
delta-BHC	ND		0.00000238	~		~
Heptachlor	ND		0.00000235	~		~
Aldrin	ND		0.00000188	~		~
Heptachlor epoxide	ND		0.00000217	~		~
Endosulfan I	ND		0.00000208	~		~
4,4'-DDE	ND		0.00000197	~		~
Dieldrin	ND		0.00000237	~		~
Endrin	ND		0.00000289	~		~
Endosulfan II	ND		0.00000258	~		~
4,4'-DDD	ND		0.00000294	~		~
Endrin aldehyde	ND		0.0000023	~		~
Endosulfan sulfate	ND		0.00000314	~		~
4,4'-DDT	ND		0.00000202	~		~
Endrin ketone	ND		0.00000323	~		~
Methoxychlor	ND		0.00000337	~		~
alpha-Chlordane	ND		0.00000215	~		~
gamma-Chlordane	ND		0.00000314	~		~
Toxaphene	ND		0.00005	~		~
Endosulfan (I and II)	ND		0.00000208	~		~
Chlordane (alpha and gamma)	ND		0.00000215	~		~

ND = Analyzed for but Not Detected at the MDL

J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs

N = Presumptive evidence of a compound from the use of GC/MS library search.

All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK2661.1
Lab Case No.: E23-05091

Lab ID:	05091-005			05091-006		
Client ID:	TWP6			TWP6 FILT		
Matrix:	Aqueous			Aqueous		
Sampled Date	11/20/23			11/20/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL
General Analytical (Units)						
Cyanide, Total(ug/L)	ND		4.00	~		~

Lab ID:	05091-001			05091-002			05091-003			05091-004		
Client ID:	SB9A			SB9B			SB6A			SB6B		
Depth:	0/2			10/12			0/2			10/12		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	11/20/23			11/20/23			11/20/23			11/20/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
Volatiles (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Acetone	ND		0.0058	ND		0.00595	ND		0.0057	0.00529	J	0.0051
TOTAL VO's:	ND			ND			ND			0.00529	J	
TOTAL TIC's:	ND			ND			ND			ND		
TOTAL VO's & TIC's:	ND			ND			ND			0.00529	J	
Semivolatiles - BNA (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Naphthalene	ND		0.00521	0.029	J	0.00518	ND		0.00518	ND		0.00532
2-Methylnaphthalene	ND		0.013	0.031	J	0.013	ND		0.013	ND		0.013
Acenaphthylene	ND		0.00782	ND		0.00777	0.027	J	0.00777	ND		0.00797
Acenaphthene	ND		0.00706	0.209		0.00701	0.021	J	0.00701	ND		0.00719
Dibenzofuran	ND		0.00467	0.063		0.00464	ND		0.00464	ND		0.00477
Fluorene	ND		0.00962	0.154		0.00955	0.020	J	0.00955	ND		0.00981
Phenanthrene	0.113		0.00585	2.56		0.00581	0.237		0.00581	0.150		0.00596
Anthracene	0.031	J	0.00364	0.707		0.00361	0.075		0.00361	0.051		0.00371
Carbazole	0.018	J	0.00833	0.432		0.00827	0.030	J	0.00827	ND		0.00849
Fluoranthene	0.213		0.012	10.6	D	0.137	0.549		0.011	0.451		0.012
Pyrene	0.174		0.00831	8.03	D	0.099	0.500		0.00826	0.386		0.00848
Benzo[a]anthracene	0.106		0.013	3.62		0.013	0.304		0.013	0.225		0.013
Chrysene	0.097		0.00986	3.48		0.0098	0.271		0.0098	0.190		0.010
Bis(2-ethylhexyl) phthalate	ND		0.023	0.109		0.023	0.035	J	0.023	ND		0.023
Benzo[b]fluoranthene	0.150		0.018	4.33		0.018	0.347		0.018	0.246		0.018
Benzo[k]fluoranthene	0.072		0.025	2.66		0.025	0.242		0.025	0.142		0.025
Benzo[a]pyrene	0.103		0.017	3.61		0.017	0.314		0.017	0.215		0.018
Indeno[1,2,3-cd]pyrene	0.254		0.023	1.93		0.023	0.242		0.023	0.128		0.023
Dibenz[a,h]anthracene	0.119		0.014	0.942		0.014	0.112		0.014	0.055		0.015
Benzo[g,h,i]perylene	0.453		0.027	1.89		0.027	0.308		0.027	0.125		0.028
TOTAL BNA'S:	1.90	J		45.4	JD		3.63	J		2.36		
TOTAL TIC's:	ND			1.76	JN		0.479	JN		0.215	JN	
TOTAL BNA'S & TIC's:	1.90	J		47.2	JDN		4.11	JN		2.57	JN	

ND = Analyzed for but Not Detected at the MDL

J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs
N = Presumptive evidence of a compound from the use of GC/MS library search.
All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.
D = The compound was reported from the Diluted analysis

SUMMARY REPORT
Client: HK Engineering & Geology, D.P.C.
Project: HK2661.1
Lab Case No.: E23-05091

Lab ID:	05091-001			05091-002			05091-003			05091-004		
Client ID:	SB9A			SB9B			SB6A			SB6B		
Depth:	0/2			10/12			0/2			10/12		
Matrix:	Soil			Soil			Soil			Soil		
Sampled Date	11/20/23			11/20/23			11/20/23			11/20/23		
PARAMETER(Units)	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL	Conc	Q	MDL
PCB's (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
Aroclor-1016	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1221	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1232	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1242	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1248	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1254	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1260	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1262	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
Aroclor-1268	ND		0.0011	ND		0.0011	ND		0.0011	ND		0.0011
PCBs	ND		0.00107	ND		0.00107	ND		0.00107	ND		0.0011
Pesticides (Units)	*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*			*(mg/Kg)*		
alpha-BHC	ND		0.000127	ND		0.000127	ND		0.000127	ND		0.000131
beta-BHC	ND		0.000166	ND		0.000166	ND		0.000166	ND		0.000171
gamma-BHC (Lindane)	ND		0.000159	ND		0.000159	ND		0.000159	ND		0.000163
delta-BHC	ND		0.000138	ND		0.000138	ND		0.000138	ND		0.000142
Heptachlor	ND		0.000169	ND		0.000169	ND		0.000169	ND		0.000174
Aldrin	ND		0.000149	ND		0.000149	ND		0.000149	ND		0.000153
Heptachlor epoxide	ND		0.000155	ND		0.000155	ND		0.000155	ND		0.000159
Endosulfan I	ND		0.000159	ND		0.000159	ND		0.000159	ND		0.000164
4,4'-DDE	0.011		0.000145	0.017		0.000145	0.023		0.000145	0.000726	J	0.000149
Dieldrin	ND		0.000145	ND		0.000145	ND		0.000145	ND		0.000149
Endrin	ND		0.00018	ND		0.00018	ND		0.00018	ND		0.000184
Endosulfan II	ND		0.000163	ND		0.000163	ND		0.000163	ND		0.000168
4,4'-DDD	0.00103		0.00019	ND		0.00019	0.00236		0.00019	ND		0.000195
Endrin aldehyde	ND		0.000149	ND		0.000149	ND		0.000149	ND		0.000153
Endosulfan sulfate	ND		0.000176	ND		0.000176	ND		0.000176	ND		0.000181
4,4'-DDT	0.00808		0.000133	0.023		0.000132	0.038		0.000133	0.00113		0.000136
Endrin ketone	ND		0.000139	ND		0.000139	ND		0.000139	ND		0.000142
Methoxychlor	ND		0.00019	ND		0.00019	ND		0.00019	ND		0.000196
alpha-Chlordane	0.00913		0.000157	0.00246		0.000157	0.00126		0.000157	ND		0.000161
gamma-Chlordane	0.00769		0.00014	0.00274		0.00014	0.00125		0.00014	ND		0.000144
Toxaphene	ND		0.00356	ND		0.00356	ND		0.00356	ND		0.00366
Endosulfan (I and II)	ND		0.000159	ND		0.000159	ND		0.000159	ND		0.000164
Chlordane (alpha and gamma)	0.017		0.00014	0.0052		0.00014	0.00251		0.00014	ND		0.000144
General Analytical (Units)												
Cyanide, Total(mg/Kg)	ND		0.214	ND		0.214	ND		0.214	ND		0.220

ND = Analyzed for but Not Detected at the MDL
J = Indicates an estimated value either when the concentration in the sample is greater than MDL and less than RL, or for qualification of TICs
N = Presumptive evidence of a compound from the use of GC/MS library search.
+ Subcontracted data for TAL Metals (6020B/7471B) by SGS Dayton will be sent separately once available.

ANALYTICAL RESULTS

VOLATILE ORGANICS

Lab ID: E23-05091-001
Client ID: SB9A/0-2
Date Received: 11/20/2023
Date Analyzed: 11/22/2023
Data file: L7738.D 11/22/2023 02:52

GC/MS Column: DB-624
Sample wt/vol: 4.62g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.7
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00116	0.000602
Chloromethane	ND		0.00232	0.000368
Vinyl chloride	ND		0.00116	0.000376
Bromomethane	ND		0.00232	0.00101
Chloroethane	ND		0.00116	0.000345
Trichlorofluoromethane	ND		0.00116	0.000471
1,1-Dichloroethene	ND		0.00116	0.000406
Acetone	ND		0.012	0.0058
Carbon disulfide	ND		0.00116	0.000456
Methylene chloride	ND		0.0058	0.00348
trans-1,2-Dichloroethene	ND		0.00232	0.000411
Methyl tert-butyl ether (MTBE)	ND		0.00116	0.000253
1,1-Dichloroethane	ND		0.00232	0.000296
cis-1,2-Dichloroethene	ND		0.00232	0.000248
2-Butanone (MEK)	ND		0.012	0.00232
Bromochloromethane	ND		0.00116	0.000295
Chloroform	ND		0.00232	0.00058
1,1,1-Trichloroethane	ND		0.00116	0.000356
Carbon tetrachloride	ND		0.00116	0.000232
1,2-Dichloroethane (EDC)	ND		0.00116	0.000268
Benzene	ND		0.00116	0.0000998
Trichloroethene	ND		0.00116	0.000173
1,2-Dichloropropane	ND		0.00116	0.000116
Bromodichloromethane	ND		0.00116	0.000138
cis-1,3-Dichloropropene	ND		0.00116	0.000177
4-Methyl-2-pentanone (MIBK)	ND		0.012	0.000607

VOLATILE ORGANICS

Lab ID: E23-05091-001
Client ID: SB9A/0-2
Date Received: 11/20/2023
Date Analyzed: 11/22/2023
Data file: L7738.D 11/22/2023 02:52

GC/MS Column: DB-624
Sample wt/vol: 4.62g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.7
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00116	0.00058
trans-1,3-Dichloropropene	ND		0.00116	0.000129
1,1,2-Trichloroethane	ND		0.00116	0.000248
Tetrachloroethene	ND		0.00116	0.000119
2-Hexanone	ND		0.012	0.00178
Dibromochloromethane	ND		0.00116	0.000193
1,2-Dibromoethane (EDB)	ND		0.00116	0.000215
Chlorobenzene	ND		0.00116	0.000201
Ethylbenzene	ND		0.00116	0.000126
Total Xylenes	ND		0.00232	0.000162
Styrene	ND		0.00116	0.000249
Bromoform	ND		0.00116	0.000361
Isopropylbenzene	ND		0.00116	0.000247
1,1,2,2-Tetrachloroethane	ND		0.00116	0.000607
1,3-Dichlorobenzene	ND		0.00116	0.000307
1,4-Dichlorobenzene	ND		0.00116	0.00036
1,2-Dichlorobenzene	ND		0.00116	0.000291
1,2-Dibromo-3-chloropropane	ND		0.00116	0.000956
1,2,4-Trichlorobenzene	ND		0.00116	0.000487
1,2,3-Trichlorobenzene	ND		0.00232	0.000369
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00232	0.000693
Methyl acetate	ND		0.00116	0.000937
Cyclohexane	ND		0.0058	0.000209
Methylcyclohexane	ND		0.00232	0.0002
1,3-Dichloropropene (cis- and trans-)	ND		0.00116	0.000129

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05091-001
Client ID: SB9A/0-2
Date Received: 11/20/2023
Date Analyzed: 11/22/2023
Date File: L7738.D

GC/MS Column: DB-624
Sample wt/vol: 4.62g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 6.7

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.39

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05091-002
Client ID: SB9B/10-12
Date Received: 11/20/2023
Date Analyzed: 11/22/2023
Data file: L7739.D 11/22/2023 03:20

GC/MS Column: DB-624
Sample wt/vol: 4.51g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.7
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00119	0.000618
Chloromethane	ND		0.00238	0.000377
Vinyl chloride	ND		0.00119	0.000386
Bromomethane	ND		0.00238	0.00104
Chloroethane	ND		0.00119	0.000353
Trichlorofluoromethane	ND		0.00119	0.000483
1,1-Dichloroethene	ND		0.00119	0.000417
Acetone	ND		0.012	0.00595
Carbon disulfide	ND		0.00119	0.000468
Methylene chloride	ND		0.00595	0.00357
trans-1,2-Dichloroethene	ND		0.00238	0.000421
Methyl tert-butyl ether (MTBE)	ND		0.00119	0.000259
1,1-Dichloroethane	ND		0.00238	0.000303
cis-1,2-Dichloroethene	ND		0.00238	0.000255
2-Butanone (MEK)	ND		0.012	0.00238
Bromochloromethane	ND		0.00119	0.000302
Chloroform	ND		0.00238	0.000595
1,1,1-Trichloroethane	ND		0.00119	0.000365
Carbon tetrachloride	ND		0.00119	0.000238
1,2-Dichloroethane (EDC)	ND		0.00119	0.000275
Benzene	ND		0.00119	0.000102
Trichloroethene	ND		0.00119	0.000177
1,2-Dichloropropane	ND		0.00119	0.000119
Bromodichloromethane	ND		0.00119	0.000142
cis-1,3-Dichloropropene	ND		0.00119	0.000182
4-Methyl-2-pentanone (MIBK)	ND		0.012	0.000622

VOLATILE ORGANICS

Lab ID: E23-05091-002
Client ID: SB9B/10-12
Date Received: 11/20/2023
Date Analyzed: 11/22/2023
Data file: L7739.D 11/22/2023 03:20

GC/MS Column: DB-624
Sample wt/vol: 4.51g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.7
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00119	0.000595
trans-1,3-Dichloropropene	ND		0.00119	0.000132
1,1,2-Trichloroethane	ND		0.00119	0.000255
Tetrachloroethene	ND		0.00119	0.000123
2-Hexanone	ND		0.012	0.00182
Dibromochloromethane	ND		0.00119	0.000198
1,2-Dibromoethane (EDB)	ND		0.00119	0.00022
Chlorobenzene	ND		0.00119	0.000206
Ethylbenzene	ND		0.00119	0.00013
Total Xylenes	ND		0.00238	0.000167
Styrene	ND		0.00119	0.000256
Bromoform	ND		0.00119	0.00037
Isopropylbenzene	ND		0.00119	0.000253
1,1,2,2-Tetrachloroethane	ND		0.00119	0.000622
1,3-Dichlorobenzene	ND		0.00119	0.000315
1,4-Dichlorobenzene	ND		0.00119	0.000369
1,2-Dichlorobenzene	ND		0.00119	0.000299
1,2-Dibromo-3-chloropropane	ND		0.00119	0.000981
1,2,4-Trichlorobenzene	ND		0.00119	0.0005
1,2,3-Trichlorobenzene	ND		0.00238	0.000378
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00238	0.00071
Methyl acetate	ND		0.00119	0.000962
Cyclohexane	ND		0.00595	0.000214
Methylcyclohexane	ND		0.00238	0.000205
1,3-Dichloropropene (cis- and trans-)	ND		0.00119	0.000132

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05091-002
Client ID: SB9B/10-12
Date Received: 11/20/2023
Date Analyzed: 11/22/2023
Date File: L7739.D

GC/MS Column: DB-624
Sample wt/vol: 4.51g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 6.7

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05091-003
Client ID: SB6A/0-2
Date Received: 11/20/2023
Date Analyzed: 11/22/2023
Data file: L7740.D 11/22/2023 03:48

GC/MS Column: DB-624
Sample wt/vol: 4.71g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.7
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00114	0.000592
Chloromethane	ND		0.00228	0.000361
Vinyl chloride	ND		0.00114	0.000369
Bromomethane	ND		0.00228	0.000994
Chloroethane	ND		0.00114	0.000339
Trichlorofluoromethane	ND		0.00114	0.000463
1,1-Dichloroethene	ND		0.00114	0.000399
Acetone	ND		0.011	0.0057
Carbon disulfide	ND		0.00114	0.000448
Methylene chloride	ND		0.0057	0.00342
trans-1,2-Dichloroethene	ND		0.00228	0.000404
Methyl tert-butyl ether (MTBE)	ND		0.00114	0.000249
1,1-Dichloroethane	ND		0.00228	0.000291
cis-1,2-Dichloroethene	ND		0.00228	0.000244
2-Butanone (MEK)	ND		0.011	0.00228
Bromochloromethane	ND		0.00114	0.00029
Chloroform	ND		0.00228	0.00057
1,1,1-Trichloroethane	ND		0.00114	0.00035
Carbon tetrachloride	ND		0.00114	0.000228
1,2-Dichloroethane (EDC)	ND		0.00114	0.000263
Benzene	ND		0.00114	0.000098
Trichloroethene	ND		0.00114	0.00017
1,2-Dichloropropane	ND		0.00114	0.000114
Bromodichloromethane	ND		0.00114	0.000136
cis-1,3-Dichloropropene	ND		0.00114	0.000174
4-Methyl-2-pentanone (MIBK)	ND		0.011	0.000596

VOLATILE ORGANICS

Lab ID: E23-05091-003
Client ID: SB6A/0-2
Date Received: 11/20/2023
Date Analyzed: 11/22/2023
Data file: L7740.D 11/22/2023 03:48

GC/MS Column: DB-624
Sample wt/vol: 4.71g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.7
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00114	0.00057
trans-1,3-Dichloropropene	ND		0.00114	0.000127
1,1,2-Trichloroethane	ND		0.00114	0.000244
Tetrachloroethene	ND		0.00114	0.000117
2-Hexanone	ND		0.011	0.00175
Dibromochloromethane	ND		0.00114	0.000189
1,2-Dibromoethane (EDB)	ND		0.00114	0.000211
Chlorobenzene	ND		0.00114	0.000197
Ethylbenzene	ND		0.00114	0.000124
Total Xylenes	ND		0.00228	0.00016
Styrene	ND		0.00114	0.000245
Bromoform	ND		0.00114	0.000355
Isopropylbenzene	ND		0.00114	0.000243
1,1,2,2-Tetrachloroethane	ND		0.00114	0.000596
1,3-Dichlorobenzene	ND		0.00114	0.000302
1,4-Dichlorobenzene	ND		0.00114	0.000353
1,2-Dichlorobenzene	ND		0.00114	0.000286
1,2-Dibromo-3-chloropropane	ND		0.00114	0.000939
1,2,4-Trichlorobenzene	ND		0.00114	0.000479
1,2,3-Trichlorobenzene	ND		0.00228	0.000363
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00228	0.000681
Methyl acetate	ND		0.00114	0.000921
Cyclohexane	ND		0.0057	0.000205
Methylcyclohexane	ND		0.00228	0.000196
1,3-Dichloropropene (cis- and trans-)	ND		0.00114	0.000127

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05091-003
Client ID: SB6A/0-2
Date Received: 11/20/2023
Date Analyzed: 11/22/2023
Date File: L7740.D

GC/MS Column: DB-624
Sample wt/vol: 4.71g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 6.7

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.39

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05091-004
Client ID: SB6B/10-12
Date Received: 11/20/2023
Date Analyzed: 11/22/2023
Data file: L7741.D 11/22/2023 04:16

GC/MS Column: DB-624
Sample wt/vol: 5.38g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.1
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.00102	0.000529
Chloromethane	ND		0.00204	0.000323
Vinyl chloride	ND		0.00102	0.00033
Bromomethane	ND		0.00204	0.000889
Chloroethane	ND		0.00102	0.000303
Trichlorofluoromethane	ND		0.00102	0.000414
1,1-Dichloroethene	ND		0.00102	0.000357
Acetone	0.00529	J	0.010	0.0051
Carbon disulfide	ND		0.00102	0.000401
Methylene chloride	ND		0.0051	0.00306
trans-1,2-Dichloroethene	ND		0.00204	0.000361
Methyl tert-butyl ether (MTBE)	ND		0.00102	0.000222
1,1-Dichloroethane	ND		0.00204	0.00026
cis-1,2-Dichloroethene	ND		0.00204	0.000218
2-Butanone (MEK)	ND		0.010	0.00204
Bromochloromethane	ND		0.00102	0.000259
Chloroform	ND		0.00204	0.00051
1,1,1-Trichloroethane	ND		0.00102	0.000313
Carbon tetrachloride	ND		0.00102	0.000204
1,2-Dichloroethane (EDC)	ND		0.00102	0.000236
Benzene	ND		0.00102	0.0000877
Trichloroethene	ND		0.00102	0.000152
1,2-Dichloropropane	ND		0.00102	0.000102
Bromodichloromethane	ND		0.00102	0.000121
cis-1,3-Dichloropropene	ND		0.00102	0.000156
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.000533

VOLATILE ORGANICS

Lab ID: E23-05091-004
Client ID: SB6B/10-12
Date Received: 11/20/2023
Date Analyzed: 11/22/2023
Data file: L7741.D 11/22/2023 04:16

GC/MS Column: DB-624
Sample wt/vol: 5.38g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.1
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.00102	0.00051
trans-1,3-Dichloropropene	ND		0.00102	0.000113
1,1,2-Trichloroethane	ND		0.00102	0.000218
Tetrachloroethene	ND		0.00102	0.000105
2-Hexanone	ND		0.010	0.00156
Dibromochloromethane	ND		0.00102	0.000169
1,2-Dibromoethane (EDB)	ND		0.00102	0.000189
Chlorobenzene	ND		0.00102	0.000176
Ethylbenzene	ND		0.00102	0.000111
Total Xylenes	ND		0.00204	0.000143
Styrene	ND		0.00102	0.000219
Bromoform	ND		0.00102	0.000317
Isopropylbenzene	ND		0.00102	0.000217
1,1,2,2-Tetrachloroethane	ND		0.00102	0.000533
1,3-Dichlorobenzene	ND		0.00102	0.00027
1,4-Dichlorobenzene	ND		0.00102	0.000316
1,2-Dichlorobenzene	ND		0.00102	0.000256
1,2-Dibromo-3-chloropropane	ND		0.00102	0.00084
1,2,4-Trichlorobenzene	ND		0.00102	0.000428
1,2,3-Trichlorobenzene	ND		0.00204	0.000324
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.00204	0.000609
Methyl acetate	ND		0.00102	0.000824
Cyclohexane	ND		0.0051	0.000184
Methylcyclohexane	ND		0.00204	0.000175
1,3-Dichloropropene (cis- and trans-)	ND		0.00102	0.000113

Total Target Compounds (51): 0.00529 J

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05091-004
Client ID: SB6B/10-12
Date Received: 11/20/2023
Date Analyzed: 11/22/2023
Date File: L7741.D

GC/MS Column: DB-624
Sample wt/vol: 5.38g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 9.1

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	J	5.39

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: BLKS231121-02
Client ID: BLKS231121-02
Date Received: 11/17/2023
Date Analyzed: 11/22/2023
Data file: L7732.D 11/22/2023 00:04

GC/MS Column: DB-624
Sample wt/vol: 5.00g
Matrix-Units: Soil-mg/Kg
% Moisture: NA
Dilution Factor: 2

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		0.001	0.000519
Chloromethane	ND		0.002	0.000317
Vinyl chloride	ND		0.001	0.000324
Bromomethane	ND		0.002	0.000872
Chloroethane	ND		0.001	0.000297
Trichlorofluoromethane	ND		0.001	0.000406
1,1-Dichloroethene	ND		0.001	0.00035
Acetone	ND		0.010	0.005
Carbon disulfide	ND		0.001	0.000393
Methylene chloride	ND		0.005	0.003
trans-1,2-Dichloroethene	ND		0.002	0.000354
Methyl tert-butyl ether (MTBE)	ND		0.001	0.000218
1,1-Dichloroethane	ND		0.002	0.000255
cis-1,2-Dichloroethene	ND		0.002	0.000214
2-Butanone (MEK)	ND		0.010	0.002
Bromochloromethane	ND		0.001	0.000254
Chloroform	ND		0.002	0.0005
1,1,1-Trichloroethane	ND		0.001	0.000307
Carbon tetrachloride	ND		0.001	0.0002
1,2-Dichloroethane (EDC)	ND		0.001	0.000231
Benzene	ND		0.001	0.000086
Trichloroethene	ND		0.001	0.000149
1,2-Dichloropropane	ND		0.001	0.0001
Bromodichloromethane	ND		0.001	0.000119
cis-1,3-Dichloropropene	ND		0.001	0.000153
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.000523

VOLATILE ORGANICS

Lab ID: BLKS231121-02
Client ID: BLKS231121-02
Date Received: 11/17/2023
Date Analyzed: 11/22/2023
Data file: L7732.D 11/22/2023 00:04

GC/MS Column: DB-624
Sample wt/vol: 5.00g
Matrix-Units: Soil-mg/Kg
% Moisture: NA
Dilution Factor: 2

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.001	0.0005
trans-1,3-Dichloropropene	ND		0.001	0.000111
1,1,2-Trichloroethane	ND		0.001	0.000214
Tetrachloroethene	ND		0.001	0.000103
2-Hexanone	ND		0.010	0.00153
Dibromochloromethane	ND		0.001	0.000166
1,2-Dibromoethane (EDB)	ND		0.001	0.000185
Chlorobenzene	ND		0.001	0.000173
Ethylbenzene	ND		0.001	0.000109
Total Xylenes	ND		0.002	0.00014
Styrene	ND		0.001	0.000215
Bromoform	ND		0.001	0.000311
Isopropylbenzene	ND		0.001	0.000213
1,1,2,2-Tetrachloroethane	ND		0.001	0.000523
1,3-Dichlorobenzene	ND		0.001	0.000265
1,4-Dichlorobenzene	ND		0.001	0.00031
1,2-Dichlorobenzene	ND		0.001	0.000251
1,2-Dibromo-3-chloropropane	ND		0.001	0.000824
1,2,4-Trichlorobenzene	ND		0.001	0.00042
1,2,3-Trichlorobenzene	ND		0.002	0.000318
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.002	0.000597
Methyl acetate	ND		0.001	0.000808
Cyclohexane	ND		0.005	0.00018
Methylcyclohexane	ND		0.002	0.000172
1,3-Dichloropropene (cis- and trans-)	ND		0.001	0.000111

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: BLKS231121-02
Client ID: BLKS231121-02
Date Received: 11/17/2023
Date Analyzed: 11/22/2023
Date File: L7732.D

GC/MS Column: DB-624
Sample wt/vol: 5.00g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 2
% Moisture: NA

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Column/Septa bleed	0	DJ	9.08

Total TICs = 0

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: E23-05091-005
Client ID: TWP6
Date Received: 11/20/2023
Date Analyzed: 11/22/2023
Data file: E5315.D 11/22/2023 17:10
Data file: P5618.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		1.00	0.552
Chloromethane	ND		0.500	0.309
Vinyl chloride	ND		0.500	0.352
Bromomethane	ND		0.500	0.386
Chloroethane	ND		0.500	0.324
Trichlorofluoromethane	ND		1.00	0.503
1,1-Dichloroethene	ND		0.500	0.363
Acetone	ND		1.00	1.00
Carbon disulfide	ND		0.500	0.403
Methylene chloride	ND		1.00	0.500
trans-1,2-Dichloroethene	ND		0.500	0.372
Methyl tert-butyl ether (MTBE)	ND		0.500	0.245
1,1-Dichloroethane	ND		0.500	0.285
cis-1,2-Dichloroethene	0.442	J	0.500	0.277
2-Butanone (MEK)	ND		1.00	0.802
Bromochloromethane	ND		0.500	0.379
Chloroform	ND		0.500	0.285
1,1,1-Trichloroethane	ND		0.500	0.381
Carbon tetrachloride	ND		0.500	0.349
1,2-Dichloroethane (EDC)	ND		0.500	0.273
Benzene	ND		0.500	0.270
Trichloroethene	0.776		0.500	0.347
1,2-Dichloropropane	ND		0.500	0.272
Bromodichloromethane	ND		0.500	0.258
cis-1,3-Dichloropropene	ND		0.500	0.264
4-Methyl-2-pentanone (MIBK)	ND		1.00	0.611

VOLATILE ORGANICS

Lab ID: E23-05091-005
Client ID: TWP6
Date Received: 11/20/2023
Date Analyzed: 11/22/2023
Data file: E5315.D 11/22/2023 17:10
Data file: P5618.D^

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.500	0.302
trans-1,3-Dichloropropene	ND		0.500	0.330
1,1,2-Trichloroethane	ND		0.500	0.313
Tetrachloroethene	ND		0.500	0.365
2-Hexanone	ND		1.00	0.818
Dibromochloromethane	ND		0.500	0.263
1,2-Dibromoethane (EDB)^	ND		0.00482	0.00364
Chlorobenzene	ND		0.500	0.304
Ethylbenzene	ND		0.500	0.313
Total Xylenes	ND		1.00	0.345
Styrene	ND		0.500	0.317
Bromoform	ND		0.500	0.328
Isopropylbenzene	ND		0.500	0.332
1,1,2,2-Tetrachloroethane	ND		0.500	0.284
1,3-Dichlorobenzene	ND		0.500	0.386
1,4-Dichlorobenzene	ND		0.500	0.397
1,2-Dichlorobenzene	ND		0.500	0.354
1,2-Dibromo-3-chloropropane^	ND		0.00482	0.00364
1,2,4-Trichlorobenzene	ND		0.500	0.358
1,2,3-Trichlorobenzene	ND		0.500	0.406
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	0.538
Methyl acetate	ND		0.500	0.345
Cyclohexane	ND		1.00	0.469
Methylcyclohexane	ND		0.500	0.421
1,3-Dichloropropene (cis- and trans-)	ND		0.500	0.264
Total Target Compounds (51):	1.22	J		

^ --- Results reported from SW-846 8011
D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05091-005
Client ID: TWP6
Date Received: 11/20/2023
Date Analyzed: 11/22/2023
Date File: E5315.D

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

VOLATILE ORGANICS

Lab ID: BLKA231122-01
Client ID: BLKA231122-01
Date Received: NA
Date Analyzed: 11/22/2023
Data file: E5297.D 11/22/2023 08:58

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Dichlorodifluoromethane	ND		1.00	0.552
Chloromethane	ND		0.500	0.309
Vinyl chloride	ND		0.500	0.352
Bromomethane	ND		0.500	0.386
Chloroethane	ND		0.500	0.324
Trichlorofluoromethane	ND		1.00	0.503
1,1-Dichloroethene	ND		0.500	0.363
Acetone	ND		1.00	1.00
Carbon disulfide	ND		0.500	0.403
Methylene chloride	ND		1.00	0.500
trans-1,2-Dichloroethene	ND		0.500	0.372
Methyl tert-butyl ether (MTBE)	ND		0.500	0.245
1,1-Dichloroethane	ND		0.500	0.285
cis-1,2-Dichloroethene	ND		0.500	0.277
2-Butanone (MEK)	ND		1.00	0.802
Bromochloromethane	ND		0.500	0.379
Chloroform	ND		0.500	0.285
1,1,1-Trichloroethane	ND		0.500	0.381
Carbon tetrachloride	ND		0.500	0.349
1,2-Dichloroethane (EDC)	ND		0.500	0.273
Benzene	ND		0.500	0.270
Trichloroethene	ND		0.500	0.347
1,2-Dichloropropane	ND		0.500	0.272
Bromodichloromethane	ND		0.500	0.258
cis-1,3-Dichloropropene	ND		0.500	0.264
4-Methyl-2-pentanone (MIBK)	ND		1.00	0.611

VOLATILE ORGANICS

Lab ID: BLKA231122-01
Client ID: BLKA231122-01
Date Received: NA
Date Analyzed: 11/22/2023
Data file: E5297.D 11/22/2023 08:58

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Toluene	ND		0.500	0.302
trans-1,3-Dichloropropene	ND		0.500	0.330
1,1,2-Trichloroethane	ND		0.500	0.313
Tetrachloroethene	ND		0.500	0.365
2-Hexanone	ND		1.00	0.818
Dibromochloromethane	ND		0.500	0.263
1,2-Dibromoethane (EDB)	ND		0.500	0.289
Chlorobenzene	ND		0.500	0.304
Ethylbenzene	ND		0.500	0.313
Total Xylenes	ND		1.00	0.345
Styrene	ND		0.500	0.317
Bromoform	ND		0.500	0.328
Isopropylbenzene	ND		0.500	0.332
1,1,2,2-Tetrachloroethane	ND		0.500	0.284
1,3-Dichlorobenzene	ND		0.500	0.386
1,4-Dichlorobenzene	ND		0.500	0.397
1,2-Dichlorobenzene	ND		0.500	0.354
1,2-Dibromo-3-chloropropane	ND		0.500	0.410
1,2,4-Trichlorobenzene	ND		0.500	0.358
1,2,3-Trichlorobenzene	ND		0.500	0.406
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.00	0.538
Methyl acetate	ND		0.500	0.345
Cyclohexane	ND		1.00	0.469
Methylcyclohexane	ND		0.500	0.421
1,3-Dichloropropene (cis- and trans-)	ND		0.500	0.264

Total Target Compounds (51): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

VOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: BLKA231122-01
Client ID: BLKA231122-01
Date Received: NA
Date Analyzed: 11/22/2023
Data file: E5297.D 11/22/2023 08:58

GC/MS Column: DB-624
Sample wt/vol: 5mL
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

Volatiles (8011)

Lab ID: BLKA231129-01
Client ID: 8011
Date Received: NA
Date Extracted: 11/29/2023
Date Analyzed: 11/29/2023
Data file: P5615.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 35.0ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

Compound	Concentration	Q	RL	MDL
1,2-Dibromoethane (EDB)	ND		0.00486	0.00364
1,2-Dibromo-3-chloropropane	ND		0.00486	0.00364
1,2,3-Trichloropropane	ND		0.00971	0.00729

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS

Lab ID: E23-05091-001
Client ID: SB9A/0-2
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: A3906.D 11/28/2023 15:31

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.072	0.027
Phenol	ND		0.036	0.00808
Bis(2-chloroethyl) ether	ND		0.036	0.013
2-Chlorophenol	ND		0.036	0.012
2-Methylphenol	ND		0.036	0.016
2,2'-Oxybis(1-Chloropropane)	ND		0.036	0.00891
4-Methylphenol **	ND		0.036	0.016
N-Nitrosodi-n-propylamine	ND		0.036	0.022
Acetophenone	ND		0.036	0.022
1,4-Dioxane	ND		0.036	0.023
Hexachloroethane	ND		0.036	0.015
Nitrobenzene	ND		0.036	0.00868
Isophorone	ND		0.036	0.015
2-Nitrophenol	ND		0.072	0.021
2,4-Dimethylphenol	ND		0.036	0.011
Bis(2-chloroethoxy) methane	ND		0.036	0.00796
2,4-Dichlorophenol	ND		0.036	0.0095
Naphthalene	ND		0.036	0.00521
4-Chloroaniline	ND		0.036	0.014
Hexachlorobutadiene	ND		0.036	0.00992
Caprolactam	ND		0.072	0.026
4-Chloro-3-methylphenol	ND		0.036	0.014
2-Methylnaphthalene	ND		0.036	0.013
Hexachlorocyclopentadiene	ND		0.072	0.062
2,4,6-Trichlorophenol	ND		0.036	0.00982
2,4,5-Trichlorophenol	ND		0.036	0.027
1,1'-Biphenyl	ND		0.036	0.00532
2-Chloronaphthalene	ND		0.036	0.00825
2-Nitroaniline	ND		0.036	0.019
Dimethyl phthalate	ND		0.036	0.0082

SEMIVOLATILE ORGANICS

Lab ID: E23-05091-001
Client ID: SB9A/0-2
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: A3906.D 11/28/2023 15:31

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.072	0.041
Acenaphthylene	ND		0.036	0.00782
3-Nitroaniline	ND		0.036	0.023
Acenaphthene	ND		0.036	0.00706
2,4-Dinitrophenol	ND		0.072	0.015
4-Nitrophenol	ND		0.072	0.036
2,4-Dinitrotoluene	ND		0.072	0.041
Dibenzofuran	ND		0.036	0.00467
Diethyl phthalate	ND		0.036	0.011
Fluorene	ND		0.036	0.00962
4-Chlorophenyl phenyl ether	ND		0.036	0.00785
4-Nitroaniline	ND		0.036	0.021
1,2,4,5-Tetrachlorobenzene	ND		0.036	0.012
2,3,4,6-Tetrachlorophenol	ND		0.036	0.012
4,6-Dinitro-2-methylphenol	ND		0.072	0.015
N-Nitrosodiphenylamine	ND		0.036	0.00733
4-Bromophenyl phenyl ether	ND		0.036	0.0099
Hexachlorobenzene	ND		0.036	0.011
Atrazine	ND		0.036	0.021
Pentachlorophenol	ND		0.036	0.016
Phenanthrene	0.113		0.036	0.00585
Anthracene	0.031	J	0.036	0.00364
Carbazole	0.018	J	0.036	0.00833
Di-n-butyl phthalate	ND		0.036	0.015
Fluoranthene	0.213		0.036	0.012
Pyrene	0.174		0.036	0.00831
Butyl benzyl phthalate	ND		0.036	0.016
3,3'-Dichlorobenzidine	ND		0.036	0.025
Benzo[a]anthracene	0.106		0.036	0.013
Chrysene	0.097		0.036	0.00986
Bis(2-ethylhexyl) phthalate	ND		0.036	0.023
Di-n-octyl phthalate	ND		0.036	0.026
Benzo[b]fluoranthene	0.150		0.036	0.018
Benzo[k]fluoranthene	0.072		0.036	0.025
Benzo[a]pyrene	0.103		0.036	0.017
Indeno[1,2,3-cd]pyrene	0.254		0.036	0.023
Dibenz[a,h]anthracene	0.119		0.036	0.014
Benzo[g,h,i]perylene	0.453		0.036	0.027
Dinitrotoluene (2,4- and 2,6-)	ND		0.072	0.041
Total Target Compounds (69):	1.90	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05091-001
Client ID: SB9A/0-2
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Date File: A3906.D

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 6.70

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

D --- Dilution Performed

J --- Estimated concentration for TICs

N --- Presumptive evidence of a compound from the use of GC/MS NIST library search

B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05091-002
Client ID: SB9B/10-
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: A3907.D 11/28/2023 15:47

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.071	0.027
Phenol	ND		0.036	0.00803
Bis(2-chloroethyl) ether	ND		0.036	0.013
2-Chlorophenol	ND		0.036	0.012
2-Methylphenol	ND		0.036	0.016
2,2'-Oxybis(1-Chloropropane)	ND		0.036	0.00885
4-Methylphenol **	ND		0.036	0.016
N-Nitrosodi-n-propylamine	ND		0.036	0.022
Acetophenone	ND		0.036	0.022
1,4-Dioxane	ND		0.036	0.023
Hexachloroethane	ND		0.036	0.015
Nitrobenzene	ND		0.036	0.00862
Isophorone	ND		0.036	0.015
2-Nitrophenol	ND		0.071	0.021
2,4-Dimethylphenol	ND		0.036	0.010
Bis(2-chloroethoxy) methane	ND		0.036	0.00791
2,4-Dichlorophenol	ND		0.036	0.00944
Naphthalene	0.029	J	0.036	0.00518
4-Chloroaniline	ND		0.036	0.014
Hexachlorobutadiene	ND		0.036	0.00985
Caprolactam	ND		0.071	0.026
4-Chloro-3-methylphenol	ND		0.036	0.014
2-Methylnaphthalene	0.031	J	0.036	0.013
Hexachlorocyclopentadiene	ND		0.071	0.062
2,4,6-Trichlorophenol	ND		0.036	0.00976
2,4,5-Trichlorophenol	ND		0.036	0.027
1,1'-Biphenyl	ND		0.036	0.00528
2-Chloronaphthalene	ND		0.036	0.0082
2-Nitroaniline	ND		0.036	0.019
Dimethyl phthalate	ND		0.036	0.00814

SEMIVOLATILE ORGANICS

Lab ID: E23-05091-002
Client ID: SB9B/10-
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: A3907.D 11/28/2023 15:47

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.071	0.041
Acenaphthylene	ND		0.036	0.00777
3-Nitroaniline	ND		0.036	0.023
Acenaphthene	0.209		0.036	0.00701
2,4-Dinitrophenol	ND		0.071	0.015
4-Nitrophenol	ND		0.071	0.036
2,4-Dinitrotoluene	ND		0.071	0.040
Dibenzofuran	0.063		0.036	0.00464
Diethyl phthalate	ND		0.036	0.011
Fluorene	0.154		0.036	0.00955
4-Chlorophenyl phenyl ether	ND		0.036	0.0078
4-Nitroaniline	ND		0.036	0.021
1,2,4,5-Tetrachlorobenzene	ND		0.036	0.012
2,3,4,6-Tetrachlorophenol	ND		0.036	0.012
4,6-Dinitro-2-methylphenol	ND		0.071	0.015
N-Nitrosodiphenylamine	ND		0.036	0.00728
4-Bromophenyl phenyl ether	ND		0.036	0.00983
Hexachlorobenzene	ND		0.036	0.011
Atrazine	ND		0.036	0.021
Pentachlorophenol	ND		0.036	0.016
Phenanthrene	2.56		0.036	0.00581
Anthracene	0.707		0.036	0.00361
Carbazole	0.432		0.036	0.00827
Di-n-butyl phthalate	ND		0.036	0.014
Fluoranthene	7.58	E	0.036	0.011
Pyrene	6.65	E	0.036	0.00826
Butyl benzyl phthalate	ND		0.036	0.016
3,3'-Dichlorobenzidine	ND		0.036	0.025
Benzo[a]anthracene	3.62		0.036	0.013
Chrysene	3.48		0.036	0.0098
Bis(2-ethylhexyl) phthalate	0.109		0.036	0.023
Di-n-octyl phthalate	ND		0.036	0.026
Benzo[b]fluoranthene	4.33		0.036	0.018
Benzo[k]fluoranthene	2.66		0.036	0.025
Benzo[a]pyrene	3.61		0.036	0.017
Indeno[1,2,3-cd]pyrene	1.93		0.036	0.023
Dibenz[a,h]anthracene	0.942		0.036	0.014
Benzo[g,h,i]perylene	1.89		0.036	0.027
Dinitrotoluene (2,4- and 2,6-)	ND		0.071	0.040
Total Target Compounds (69):	41.0	EJ		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05091-002
Client ID: SB9B/10-
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Date File: A3907.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 6.70

CAS #	Compound	Estimated Concentration	Q	Retention Time
000243-17-4	11H-Benzo[b]fluorene	0.429	JN	6.85
002381-21-7	Pyrene, 1-methyl-	0.366	JN	6.92
000239-35-0	Benzo[b]naphtho[2,1-d]thiophene	0.586	JN	7.23
025732-74-5	Cyclopenta(cd)pyrene, 3,4-dihydro-	0.376	JN	7.46

Total TICs = 1.76 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05091-002DL
Client ID: SB9B/10-
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/30/2023
Data file: A3939.D 11/30/2023 10:16

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.70
Dilution Factor: 10

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.852	0.320
Phenol	ND		0.426	0.096
Bis(2-chloroethyl) ether	ND		0.426	0.150
2-Chlorophenol	ND		0.426	0.138
2-Methylphenol	ND		0.426	0.191
2,2'-Oxybis(1-Chloropropane)	ND		0.426	0.106
4-Methylphenol **	ND		0.426	0.194
N-Nitrosodi-n-propylamine	ND		0.426	0.264
Acetophenone	ND		0.426	0.260
1,4-Dioxane	ND		0.426	0.276
Hexachloroethane	ND		0.426	0.177
Nitrobenzene	ND		0.426	0.103
Isophorone	2.03	D	0.426	0.179
2-Nitrophenol	ND		0.852	0.254
2,4-Dimethylphenol	ND		0.426	0.125
Bis(2-chloroethoxy) methane	ND		0.426	0.095
2,4-Dichlorophenol	ND		0.426	0.113
Naphthalene	ND		0.426	0.062
4-Chloroaniline	ND		0.426	0.164
Hexachlorobutadiene	ND		0.426	0.118
Caprolactam	ND		0.852	0.314
4-Chloro-3-methylphenol	ND		0.426	0.165
2-Methylnaphthalene	ND		0.426	0.150
Hexachlorocyclopentadiene	ND		0.852	0.740
2,4,6-Trichlorophenol	ND		0.426	0.117
2,4,5-Trichlorophenol	ND		0.426	0.324
1,1'-Biphenyl	ND		0.426	0.063
2-Chloronaphthalene	ND		0.426	0.098
2-Nitroaniline	ND		0.426	0.226
Dimethyl phthalate	ND		0.426	0.098

SEMIVOLATILE ORGANICS

Lab ID: E23-05091-002DL
Client ID: SB9B/10-
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/30/2023
Data file: A3939.D 11/30/2023 10:16

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.70
Dilution Factor: 10

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.852	0.489
Acenaphthylene	ND		0.426	0.093
3-Nitroaniline	ND		0.426	0.269
Acenaphthene	0.259	DJ	0.426	0.084
2,4-Dinitrophenol	ND		0.852	0.175
4-Nitrophenol	ND		0.852	0.430
2,4-Dinitrotoluene	ND		0.852	0.482
Dibenzofuran	ND		0.426	0.056
Diethyl phthalate	ND		0.426	0.133
Fluorene	ND		0.426	0.115
4-Chlorophenyl phenyl ether	ND		0.426	0.094
4-Nitroaniline	ND		0.426	0.253
1,2,4,5-Tetrachlorobenzene	ND		0.426	0.142
2,3,4,6-Tetrachlorophenol	ND		0.426	0.146
4,6-Dinitro-2-methylphenol	ND		0.852	0.180
N-Nitrosodiphenylamine	ND		0.426	0.087
4-Bromophenyl phenyl ether	ND		0.426	0.118
Hexachlorobenzene	ND		0.426	0.132
Atrazine	ND		0.426	0.254
Pentachlorophenol	ND		0.426	0.188
Phenanthrene	3.00	D	0.426	0.070
Anthracene	1.07	D	0.426	0.043
Carbazole	0.534	D	0.426	0.099
Di-n-butyl phthalate	ND		0.426	0.173
Fluoranthene	10.6	D	0.426	0.137
Pyrene	8.03	D	0.426	0.099
Butyl benzyl phthalate	ND		0.426	0.189
3,3'-Dichlorobenzidine	ND		0.426	0.301
Benzo[a]anthracene	4.02	D	0.426	0.155
Chrysene	4.70	D	0.426	0.118
Bis(2-ethylhexyl) phthalate	ND		0.426	0.273
Di-n-octyl phthalate	ND		0.426	0.312
Benzo[b]fluoranthene	4.99	D	0.426	0.210
Benzo[k]fluoranthene	3.03	D	0.426	0.294
Benzo[a]pyrene	4.35	D	0.426	0.206
Indeno[1,2,3-cd]pyrene	2.30	D	0.426	0.273
Dibenz[a,h]anthracene	1.11	D	0.426	0.170
Benzo[g,h,i]perylene	2.61	D	0.426	0.321
Dinitrotoluene (2,4- and 2,6-)	ND		0.852	0.482
Total Target Compounds (69):	52.6	DJ		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS

Lab ID: E23-05091-003
Client ID: SB6A/0-2
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: A3908.D 11/28/2023 16:03

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.071	0.027
Phenol	ND		0.036	0.00803
Bis(2-chloroethyl) ether	ND		0.036	0.013
2-Chlorophenol	ND		0.036	0.012
2-Methylphenol	ND		0.036	0.016
2,2'-Oxybis(1-Chloropropane)	ND		0.036	0.00885
4-Methylphenol **	ND		0.036	0.016
N-Nitrosodi-n-propylamine	ND		0.036	0.022
Acetophenone	ND		0.036	0.022
1,4-Dioxane	ND		0.036	0.023
Hexachloroethane	ND		0.036	0.015
Nitrobenzene	ND		0.036	0.00862
Isophorone	ND		0.036	0.015
2-Nitrophenol	ND		0.071	0.021
2,4-Dimethylphenol	ND		0.036	0.010
Bis(2-chloroethoxy) methane	ND		0.036	0.00791
2,4-Dichlorophenol	ND		0.036	0.00944
Naphthalene	ND		0.036	0.00518
4-Chloroaniline	ND		0.036	0.014
Hexachlorobutadiene	ND		0.036	0.00985
Caprolactam	ND		0.071	0.026
4-Chloro-3-methylphenol	ND		0.036	0.014
2-Methylnaphthalene	ND		0.036	0.013
Hexachlorocyclopentadiene	ND		0.071	0.062
2,4,6-Trichlorophenol	ND		0.036	0.00976
2,4,5-Trichlorophenol	ND		0.036	0.027
1,1'-Biphenyl	ND		0.036	0.00528
2-Chloronaphthalene	ND		0.036	0.0082
2-Nitroaniline	ND		0.036	0.019
Dimethyl phthalate	ND		0.036	0.00814

SEMIVOLATILE ORGANICS

Lab ID: E23-05091-003
Client ID: SB6A/0-2
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: A3908.D 11/28/2023 16:03

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.071	0.041
Acenaphthylene	0.027	J	0.036	0.00777
3-Nitroaniline	ND		0.036	0.023
Acenaphthene	0.021	J	0.036	0.00701
2,4-Dinitrophenol	ND		0.071	0.015
4-Nitrophenol	ND		0.071	0.036
2,4-Dinitrotoluene	ND		0.071	0.040
Dibenzofuran	ND		0.036	0.00464
Diethyl phthalate	ND		0.036	0.011
Fluorene	0.020	J	0.036	0.00955
4-Chlorophenyl phenyl ether	ND		0.036	0.0078
4-Nitroaniline	ND		0.036	0.021
1,2,4,5-Tetrachlorobenzene	ND		0.036	0.012
2,3,4,6-Tetrachlorophenol	ND		0.036	0.012
4,6-Dinitro-2-methylphenol	ND		0.071	0.015
N-Nitrosodiphenylamine	ND		0.036	0.00728
4-Bromophenyl phenyl ether	ND		0.036	0.00983
Hexachlorobenzene	ND		0.036	0.011
Atrazine	ND		0.036	0.021
Pentachlorophenol	ND		0.036	0.016
Phenanthrene	0.237		0.036	0.00581
Anthracene	0.075		0.036	0.00361
Carbazole	0.030	J	0.036	0.00827
Di-n-butyl phthalate	ND		0.036	0.014
Fluoranthene	0.549		0.036	0.011
Pyrene	0.500		0.036	0.00826
Butyl benzyl phthalate	ND		0.036	0.016
3,3'-Dichlorobenzidine	ND		0.036	0.025
Benzo[a]anthracene	0.304		0.036	0.013
Chrysene	0.271		0.036	0.0098
Bis(2-ethylhexyl) phthalate	0.035	J	0.036	0.023
Di-n-octyl phthalate	ND		0.036	0.026
Benzo[b]fluoranthene	0.347		0.036	0.018
Benzo[k]fluoranthene	0.242		0.036	0.025
Benzo[a]pyrene	0.314		0.036	0.017
Indeno[1,2,3-cd]pyrene	0.242		0.036	0.023
Dibenz[a,h]anthracene	0.112		0.036	0.014
Benzo[g,h,i]perylene	0.308		0.036	0.027
Dinitrotoluene (2,4- and 2,6-)	ND		0.071	0.040
Total Target Compounds (69):	3.63	J		

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05091-003
Client ID: SB6A/0-2
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Date File: A3908.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 6.70

CAS #	Compound	Estimated Concentration	Q	Retention Time
007206-21-5	5-Octadecene, (E)-	0.277	JN	6.36
027519-02-4	9-Tricosene, (Z)-	0.202	JN	7.22

Total TICs = 0.479 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: E23-05091-004
Client ID: SB6B/10-
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: A3909.D 11/28/2023 16:19

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.10
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		0.073	0.027
Phenol	ND		0.036	0.00824
Bis(2-chloroethyl) ether	ND		0.036	0.013
2-Chlorophenol	ND		0.036	0.012
2-Methylphenol	ND		0.036	0.016
2,2'-Oxybis(1-Chloropropane)	ND		0.036	0.00909
4-Methylphenol **	ND		0.036	0.017
N-Nitrosodi-n-propylamine	ND		0.036	0.023
Acetophenone	ND		0.036	0.022
1,4-Dioxane	ND		0.036	0.024
Hexachloroethane	ND		0.036	0.015
Nitrobenzene	ND		0.036	0.00885
Isophorone	ND		0.036	0.015
2-Nitrophenol	ND		0.073	0.022
2,4-Dimethylphenol	ND		0.036	0.011
Bis(2-chloroethoxy) methane	ND		0.036	0.00812
2,4-Dichlorophenol	ND		0.036	0.00969
Naphthalene	ND		0.036	0.00532
4-Chloroaniline	ND		0.036	0.014
Hexachlorobutadiene	ND		0.036	0.010
Caprolactam	ND		0.073	0.027
4-Chloro-3-methylphenol	ND		0.036	0.014
2-Methylnaphthalene	ND		0.036	0.013
Hexachlorocyclopentadiene	ND		0.073	0.063
2,4,6-Trichlorophenol	ND		0.036	0.010
2,4,5-Trichlorophenol	ND		0.036	0.028
1,1'-Biphenyl	ND		0.036	0.00542
2-Chloronaphthalene	ND		0.036	0.00842
2-Nitroaniline	ND		0.036	0.019
Dimethyl phthalate	ND		0.036	0.00836

SEMIVOLATILE ORGANICS

Lab ID: E23-05091-004
Client ID: SB6B/10-
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: A3909.D 11/28/2023 16:19

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.10
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.073	0.042
Acenaphthylene	ND		0.036	0.00797
3-Nitroaniline	ND		0.036	0.023
Acenaphthene	ND		0.036	0.00719
2,4-Dinitrophenol	ND		0.073	0.015
4-Nitrophenol	ND		0.073	0.037
2,4-Dinitrotoluene	ND		0.073	0.041
Dibenzofuran	ND		0.036	0.00477
Diethyl phthalate	ND		0.036	0.011
Fluorene	ND		0.036	0.00981
4-Chlorophenyl phenyl ether	ND		0.036	0.00801
4-Nitroaniline	ND		0.036	0.022
1,2,4,5-Tetrachlorobenzene	ND		0.036	0.012
2,3,4,6-Tetrachlorophenol	ND		0.036	0.013
4,6-Dinitro-2-methylphenol	ND		0.073	0.015
N-Nitrosodiphenylamine	ND		0.036	0.00748
4-Bromophenyl phenyl ether	ND		0.036	0.010
Hexachlorobenzene	ND		0.036	0.011
Atrazine	ND		0.036	0.022
Pentachlorophenol	ND		0.036	0.016
Phenanthrene	0.150		0.036	0.00596
Anthracene	0.051		0.036	0.00371
Carbazole	ND		0.036	0.00849
Di-n-butyl phthalate	ND		0.036	0.015
Fluoranthene	0.451		0.036	0.012
Pyrene	0.386		0.036	0.00848
Butyl benzyl phthalate	ND		0.036	0.016
3,3'-Dichlorobenzidine	ND		0.036	0.026
Benzo[a]anthracene	0.225		0.036	0.013
Chrysene	0.190		0.036	0.010
Bis(2-ethylhexyl) phthalate	ND		0.036	0.023
Di-n-octyl phthalate	ND		0.036	0.027
Benzo[b]fluoranthene	0.246		0.036	0.018
Benzo[k]fluoranthene	0.142		0.036	0.025
Benzo[a]pyrene	0.215		0.036	0.018
Indeno[1,2,3-cd]pyrene	0.128		0.036	0.023
Dibenz[a,h]anthracene	0.055		0.036	0.015
Benzo[g,h,i]perylene	0.125		0.036	0.028
Dinitrotoluene (2,4- and 2,6-)	ND		0.073	0.041

Total Target Compounds (69): 2.36

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05091-004
Client ID: SB6B/10-
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Date File: A3909.D

GC/MS Column: DB-5
Sample wt/vol: 15.1g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 9.10

CAS #	Compound	Estimated Concentration	Q	Retention Time
000112-88-9	1-Octadecene	0.215	JN	6.36

Total TICs = 0.215 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: BLKS231121-01
Client ID: .
Date Received: NA
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: A3902.D 11/28/2023 14:27

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: NA
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
N-Nitrosodimethylamine	ND		0.033	0.00969
Benzaldehyde	ND		0.067	0.025
Phenol	ND		0.033	0.00754
Bis(2-chloroethyl) ether	ND		0.033	0.012
2-Chlorophenol	ND		0.033	0.011
2-Methylphenol	ND		0.033	0.015
2,2'-Oxybis(1-Chloropropane)	ND		0.033	0.00831
4-Methylphenol **	ND		0.033	0.015
N-Nitrosodi-n-propylamine	ND		0.033	0.021
Acetophenone	ND		0.033	0.020
1,4-Dioxane	ND		0.033	0.022
Hexachloroethane	ND		0.033	0.014
Nitrobenzene	ND		0.033	0.00809
Isophorone	ND		0.033	0.014
2-Nitrophenol	ND		0.067	0.020
2,4-Dimethylphenol	ND		0.033	0.00981
Bis(2-chloroethoxy) methane	ND		0.033	0.00743
2,4-Dichlorophenol	ND		0.033	0.00886
Naphthalene	ND		0.033	0.00486
4-Chloroaniline	ND		0.033	0.013
Hexachlorobutadiene	ND		0.033	0.00925
Caprolactam	ND		0.067	0.025
4-Chloro-3-methylphenol	ND		0.033	0.013
2-Methylnaphthalene	ND		0.033	0.012
Hexachlorocyclopentadiene	ND		0.067	0.058
2,4,6-Trichlorophenol	ND		0.033	0.00916
2,4,5-Trichlorophenol	ND		0.033	0.025
1,1'-Biphenyl	ND		0.033	0.00496
2-Chloronaphthalene	ND		0.033	0.0077
2-Nitroaniline	ND		0.033	0.018
Dimethyl phthalate	ND		0.033	0.00765

SEMIVOLATILE ORGANICS

Lab ID: BLKS231121-01
Client ID: .
Date Received: NA
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: A3902.D 11/28/2023 14:27

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
% Moisture: NA
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		0.067	0.038
Acenaphthylene	ND		0.033	0.0073
3-Nitroaniline	ND		0.033	0.021
Acenaphthene	ND		0.033	0.00658
2,4-Dinitrophenol	ND		0.067	0.014
4-Nitrophenol	ND		0.067	0.034
2,4-Dinitrotoluene	ND		0.067	0.038
Dibenzofuran	ND		0.033	0.00436
Diethyl phthalate	ND		0.033	0.010
Fluorene	ND		0.033	0.00897
4-Chlorophenyl phenyl ether	ND		0.033	0.00733
4-Nitroaniline	ND		0.033	0.020
1,2,4,5-Tetrachlorobenzene	ND		0.033	0.011
2,3,4,6-Tetrachlorophenol	ND		0.033	0.011
4,6-Dinitro-2-methylphenol	ND		0.067	0.014
N-Nitrosodiphenylamine	ND		0.033	0.00684
1,2-Diphenylhydrazine	ND		0.033	0.0074
4-Bromophenyl phenyl ether	ND		0.033	0.00924
Hexachlorobenzene	ND		0.033	0.010
Atrazine	ND		0.033	0.020
Pentachlorophenol	ND		0.033	0.015
Phenanthrene	ND		0.033	0.00545
Anthracene	ND		0.033	0.00339
Carbazole	ND		0.033	0.00777
Di-n-butyl phthalate	ND		0.033	0.014
Fluoranthene	ND		0.033	0.011
Benzidine	ND		0.100	0.087
Pyrene	ND		0.033	0.00776
Butyl benzyl phthalate	ND		0.033	0.015
3,3'-Dichlorobenzidine	ND		0.033	0.024
Benzo[a]anthracene	ND		0.033	0.012
Chrysene	ND		0.033	0.0092
Bis(2-ethylhexyl) phthalate	ND		0.033	0.021
Di-n-octyl phthalate	ND		0.033	0.024
Benzo[b]fluoranthene	ND		0.033	0.016
Benzo[k]fluoranthene	ND		0.033	0.023
Benzo[a]pyrene	ND		0.033	0.016
Indeno[1,2,3-cd]pyrene	ND		0.033	0.021
Dibenz[a,h]anthracene	ND		0.033	0.013
Benzo[g,h,i]perylene	ND		0.033	0.025
Dinitrotoluene (2,4- and 2,6-)	ND		0.067	0.038

Total Target Compounds (72): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
Q --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: BLKS231121-01
Client ID: .
Date Received: NA
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: A3902.D 11/28/2023 14:27

GC/MS Column: DB-5
Sample wt/vol: 15.0g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: NA

CAS #	Compound	Estimated Concentration	Q	Retention Time
	No peaks detected			

Total TICs = 0

SEMIVOLATILE ORGANICS

Lab ID: E23-05091-005
Client ID: TWP6
Date Received: 11/20/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Data file: B6015.D 11/29/2023 22:34
SIM Data file: B5995.D 11/29/2023 17:13

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		2.00	0.492
Phenol	ND		1.00	0.276
Bis(2-chloroethyl) ether	ND		1.00	0.459
2-Chlorophenol	ND		1.00	0.257
2-Methylphenol	ND		1.00	0.267
2,2'-Oxybis(1-Chloropropane)	ND		1.00	0.682
4-Methylphenol **	ND		1.00	0.337
N-Nitrosodi-n-propylamine	ND		1.00	0.391
Acetophenone	ND		1.00	0.241
Hexachloroethane	ND		1.00	0.470
Nitrobenzene	ND		1.00	0.442
Isophorone	ND		1.00	0.232
2-Nitrophenol	ND		2.00	0.581
2,4-Dimethylphenol	ND		2.00	1.06
Bis(2-chloroethoxy) methane	ND		1.00	0.344
2,4-Dichlorophenol	ND		1.00	0.383
Naphthalene	ND		1.00	0.183
4-Chloroaniline	ND		1.00	0.612
Hexachlorobutadiene	ND		1.00	0.561
Caprolactam	ND		3.00	1.15
4-Chloro-3-methylphenol	ND		1.00	0.336
2-Methylnaphthalene	ND		1.00	0.200
Hexachlorocyclopentadiene	ND		2.00	1.89
2,4,6-Trichlorophenol	ND		1.00	0.497
2,4,5-Trichlorophenol	ND		2.00	0.505
1,1'-Biphenyl	ND		1.00	0.212
2-Chloronaphthalene	ND		1.00	0.234
2-Nitroaniline	ND		2.00	0.702
Dimethyl phthalate	ND		1.00	0.197

SEMIVOLATILE ORGANICS

Lab ID: E23-05091-005
Client ID: TWP6
Date Received: 11/20/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Data file: B6015.D 11/29/2023 22:34
SIM Data file: B5995.D 11/29/2023 17:13

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		1.00	0.996
Acenaphthylene	ND		1.00	0.268
3-Nitroaniline	ND		3.00	0.436
Acenaphthene	ND		1.00	0.281
2,4-Dinitrophenol	ND		3.00	2.35
4-Nitrophenol	ND		3.00	2.41
2,4-Dinitrotoluene	ND		1.00	0.886
Dibenzofuran	ND		1.00	0.199
Diethyl phthalate	ND		1.00	0.239
Fluorene	ND		1.00	0.367
4-Chlorophenyl phenyl ether	ND		1.00	0.396
4-Nitroaniline	ND		2.00	0.692
1,2,4,5-Tetrachlorobenzene	ND		1.00	0.326
2,3,4,6-Tetrachlorophenol	ND		1.00	0.872
4,6-Dinitro-2-methylphenol *	ND		0.100	0.033
N-Nitrosodiphenylamine	ND		1.00	0.196
4-Bromophenyl phenyl ether	ND		1.00	0.940
Hexachlorobenzene *	ND		0.020	0.016
Atrazine	ND		1.00	0.468
Pentachlorophenol *	ND		0.100	0.052
Phenanthrene	ND		1.00	0.263
Anthracene	ND		1.00	0.560
Carbazole	ND		1.00	0.594
Di-n-butyl phthalate	ND		1.00	0.343
Fluoranthene	ND		1.00	0.482
Pyrene	ND		1.00	0.555
Butyl benzyl phthalate	ND		1.00	0.642
3,3'-Dichlorobenzidine	ND		1.00	0.524
Benzo[a]anthracene *	ND		0.100	0.029
Chrysene	ND		1.00	0.232
Bis(2-ethylhexyl) phthalate	ND		2.00	1.38
Di-n-octyl phthalate	ND		2.00	1.09
Benzo[b]fluoranthene *	ND		0.100	0.026
Benzo[k]fluoranthene *	ND		0.100	0.035
Benzo[a]pyrene *	ND		0.100	0.027
Indeno[1,2,3-cd]pyrene *	ND		0.100	0.036
Dibenz[a,h]anthracene *	ND		0.100	0.031
Benzo[g,h,i]perylene	ND		2.00	1.04
1,4-Dioxane	ND		0.400	0.329
Dinitrotoluene (2,4- and 2,6-)	ND		1.00	0.886

Total Target Compounds (69): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

* - RL & MDL from SIM run
** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

SEMIVOLATILE ORGANICS
Tentatively Identified Compounds

Lab ID: E23-05091-005
Client ID: TWP6
Date Received: 11/20/2023
Date Extracted: 11/20/2023
Date Analyzed: 11/29/2023
Date File: B6015.D

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

CAS #	Compound	Estimated Concentration	Q	Retention Time
	Unknown SV	20.0	J	2.05
	Unknown SV	3.50	J	2.06
	Unknown SV	7.00	J	2.10
	Unknown SV	11.1	J	2.14
000057-10-3	n-Hexadecanoic acid	4.10	JN	4.67

Total TICs = 45.7 JN

D --- Dilution Performed
J --- Estimated concentration for TICs
N --- Presumptive evidence of a compound from the use of GC/MS NIST library search
B --- Compound detected in Blank

SEMIVOLATILE ORGANICS

Lab ID: BLKA231120-04
Client ID: .
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Data file: B6026.D 11/30/2023 11:58
SIM Data file: B5984.D 11/29/2023 13:10

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Benzaldehyde	ND		2.00	0.492
Phenol	ND		1.00	0.276
Bis(2-chloroethyl) ether	ND		1.00	0.459
2-Chlorophenol	ND		1.00	0.257
2-Methylphenol	ND		1.00	0.267
2,2'-Oxybis(1-Chloropropane)	ND		1.00	0.682
4-Methylphenol **	ND		1.00	0.337
N-Nitrosodi-n-propylamine	ND		1.00	0.391
Acetophenone	ND		1.00	0.241
Hexachloroethane	ND		1.00	0.470
Nitrobenzene	ND		1.00	0.442
Isophorone	ND		1.00	0.232
2-Nitrophenol	ND		2.00	0.581
2,4-Dimethylphenol	ND		2.00	1.06
Bis(2-chloroethoxy) methane	ND		1.00	0.344
2,4-Dichlorophenol	ND		1.00	0.383
Naphthalene	ND		1.00	0.183
4-Chloroaniline	ND		1.00	0.612
Hexachlorobutadiene	ND		1.00	0.561
Caprolactam	ND		3.00	1.15
4-Chloro-3-methylphenol	ND		1.00	0.336
2-Methylnaphthalene	ND		1.00	0.200
Hexachlorocyclopentadiene	ND		2.00	1.89
2,4,6-Trichlorophenol	ND		1.00	0.497
2,4,5-Trichlorophenol	ND		2.00	0.505
1,1'-Biphenyl	ND		1.00	0.212
2-Chloronaphthalene	ND		1.00	0.234
2-Nitroaniline	ND		2.00	0.702
Dimethyl phthalate	ND		1.00	0.197

SEMIVOLATILE ORGANICS

Lab ID: BLKA231120-04
Client ID: .
Date Received: NA
Date Extracted: 11/20/2023
Date Analyzed: 11/30/2023
Data file: B6026.D 11/30/2023 11:58
SIM Data file: B5984.D 11/29/2023 13:10

GC/MS Column: DB-5
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
2,6-Dinitrotoluene	ND		1.00	0.996
Acenaphthylene	ND		1.00	0.268
3-Nitroaniline	ND		3.00	0.436
Acenaphthene	ND		1.00	0.281
2,4-Dinitrophenol	ND		3.00	2.35
4-Nitrophenol	ND		3.00	2.41
2,4-Dinitrotoluene	ND		1.00	0.886
Dibenzofuran	ND		1.00	0.199
Diethyl phthalate	ND		1.00	0.239
Fluorene	ND		1.00	0.367
4-Chlorophenyl phenyl ether	ND		1.00	0.396
4-Nitroaniline	ND		2.00	0.692
1,2,4,5-Tetrachlorobenzene	ND		1.00	0.326
2,3,4,6-Tetrachlorophenol	ND		1.00	0.872
4,6-Dinitro-2-methylphenol *	ND		0.100	0.033
N-Nitrosodiphenylamine	ND		1.00	0.196
4-Bromophenyl phenyl ether	ND		1.00	0.940
Hexachlorobenzene *	ND		0.020	0.016
Atrazine	ND		1.00	0.468
Pentachlorophenol *	ND		0.100	0.052
Phenanthrene	ND		1.00	0.263
Anthracene	ND		1.00	0.560
Carbazole	ND		1.00	0.594
Di-n-butyl phthalate	ND		1.00	0.343
Fluoranthene	ND		1.00	0.482
Pyrene	ND		1.00	0.555
Butyl benzyl phthalate	ND		1.00	0.642
3,3'-Dichlorobenzidine	ND		1.00	0.524
Benzo[a]anthracene *	ND		0.100	0.029
Chrysene	ND		1.00	0.232
Bis(2-ethylhexyl) phthalate	ND		2.00	1.38
Di-n-octyl phthalate	ND		2.00	1.09
Benzo[b]fluoranthene *	ND		0.100	0.026
Benzo[k]fluoranthene *	ND		0.100	0.035
Benzo[a]pyrene *	ND		0.100	0.027
Indeno[1,2,3-cd]pyrene *	ND		0.100	0.036
Dibenz[a,h]anthracene *	ND		0.100	0.031
Benzo[g,h,i]perylene	ND		2.00	1.04
1,4-Dioxane	ND		0.400	0.329
Dinitrotoluene (2,4- and 2,6-)	ND		1.00	0.886

Total Target Compounds (69): 0

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

* - RL & MDL from SIM run
** - represents the total of 3+4-Methylphenol
B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05091-001
Client ID: SB9A/0-2
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5477.D 11/27/2023 15:42

GC Column: DB-5/DB1701P
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00356	0.0011
Aroclor-1221	ND		0.00356	0.0011
Aroclor-1232	ND		0.00356	0.0011
Aroclor-1242	ND		0.00356	0.0011
Aroclor-1248	ND		0.00356	0.0011
Aroclor-1254	ND		0.00356	0.0011
Aroclor-1260	ND		0.00356	0.0011
Aroclor-1262	ND		0.00356	0.0011
Aroclor-1268	ND		0.00356	0.0011
PCBs	ND		0.00356	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05091-002
Client ID: SB9B/10-
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5478.D 11/27/2023 15:59

GC Column: DB-5/DB1701P
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00356	0.0011
Aroclor-1221	ND		0.00356	0.0011
Aroclor-1232	ND		0.00356	0.0011
Aroclor-1242	ND		0.00356	0.0011
Aroclor-1248	ND		0.00356	0.0011
Aroclor-1254	ND		0.00356	0.0011
Aroclor-1260	ND		0.00356	0.0011
Aroclor-1262	ND		0.00356	0.0011
Aroclor-1268	ND		0.00356	0.0011
PCBs	ND		0.00356	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05091-003
Client ID: SB6A/0-2
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5479.D 11/27/2023 16:16

GC Column: DB-5/DB1701P
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
% Moisture: 6.70
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00356	0.0011
Aroclor-1221	ND		0.00356	0.0011
Aroclor-1232	ND		0.00356	0.0011
Aroclor-1242	ND		0.00356	0.0011
Aroclor-1248	ND		0.00356	0.0011
Aroclor-1254	ND		0.00356	0.0011
Aroclor-1260	ND		0.00356	0.0011
Aroclor-1262	ND		0.00356	0.0011
Aroclor-1268	ND		0.00356	0.0011
PCBs	ND		0.00356	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: E23-05091-004
Client ID: SB6B/10-
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5480.D 11/27/2023 16:34

GC Column: DB-5/DB1701P
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
% Moisture: 9.10
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00366	0.0011
Aroclor-1221	ND		0.00366	0.0011
Aroclor-1232	ND		0.00366	0.0011
Aroclor-1242	ND		0.00366	0.0011
Aroclor-1248	ND		0.00366	0.0011
Aroclor-1254	ND		0.00366	0.0011
Aroclor-1260	ND		0.00366	0.0011
Aroclor-1262	ND		0.00366	0.0011
Aroclor-1268	ND		0.00366	0.0011
PCBs	ND		0.00366	0.0011

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: BLKS231121-02
Client ID: PCB
Date Received: NA
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: R5457.D 11/27/2023 09:38

GC Column: DB-5/DB1701P
Sample wt/vol: 15.00g
Matrix-Units: Soil-mg/Kg
% Moisture: NA
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.00333	0.001
Aroclor-1221	ND		0.00333	0.001
Aroclor-1232	ND		0.00333	0.001
Aroclor-1242	ND		0.00333	0.001
Aroclor-1248	ND		0.00333	0.001
Aroclor-1254	ND		0.00333	0.001
Aroclor-1260	ND		0.00333	0.001
Aroclor-1262	ND		0.00333	0.001
Aroclor-1268	ND		0.00333	0.001
PCBs	ND		0.00333	0.001

D --- Dilution Performed
J — Value Less than RL & greater than MDL
E — Exceeds upper level of Calibration curve
B — Compound detected in Blank
C — Common laboratory contamination

PCB's

Lab ID: E23-05091-005
Client ID: TWP6
Date Received: 11/20/2023
Date Extracted: 11/27/2023
Date Analyzed: 11/28/2023
Data file: R5507.D 11/28/2023 12:15

GC Column: DB-5/DB1701P
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.050	0.015
Aroclor-1221	ND		0.050	0.015
Aroclor-1232	ND		0.050	0.015
Aroclor-1242	ND		0.050	0.015
Aroclor-1248	ND		0.050	0.015
Aroclor-1254	ND		0.050	0.015
Aroclor-1260	ND		0.050	0.015
Aroclor-1262	ND		0.050	0.015
Aroclor-1268	ND		0.050	0.015
PCBs	ND		0.050	0.015

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PCB's

Lab ID: BLKA231127-04
Client ID: PCB
Date Received: NA
Date Extracted: 11/27/2023
Date Analyzed: 11/28/2023
Data file: R5503.D 11/28/2023 09:13

GC Column: DB-5/DB1701P
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
% Moisture: 100
Dilution Factor: 1

Compound	Concentration	Q	RL	MDL
Aroclor-1016	ND		0.050	0.015
Aroclor-1221	ND		0.050	0.015
Aroclor-1232	ND		0.050	0.015
Aroclor-1242	ND		0.050	0.015
Aroclor-1248	ND		0.050	0.015
Aroclor-1254	ND		0.050	0.015
Aroclor-1260	ND		0.050	0.015
Aroclor-1262	ND		0.050	0.015
Aroclor-1268	ND		0.050	0.015
PCBs	ND		0.050	0.015

D — Dilution Performed
J — Value Less than RL & greater than MDL
E — Exceeds upper level of Calibration curve

B — Compound detected in Blank
C — Common laboratory contamination

PESTICIDES

Lab ID: E23-05091-001
Client ID: SB9A/0-2
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1688.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 6.70

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000712	0.000127
beta-BHC	ND		0.000712	0.000166
gamma-BHC (Lindane)	ND		0.000712	0.000159
delta-BHC	ND		0.000712	0.000138
Heptachlor	ND		0.000712	0.000169
Aldrin	ND		0.000712	0.000149
Heptachlor epoxide	ND		0.000712	0.000155
Endosulfan I	ND		0.000712	0.000159
4,4'-DDE	0.011		0.000712	0.000145
Dieldrin	ND		0.000712	0.000145
Endrin	ND		0.000712	0.00018
Endosulfan II	ND		0.000712	0.000163
4,4'-DDD	0.00103		0.000712	0.00019
Endrin aldehyde	ND		0.000712	0.000149
Endosulfan sulfate	ND		0.000712	0.000176
4,4'-DDT	0.00808		0.000712	0.000133
Endrin ketone	ND		0.000712	0.000139
Methoxychlor	ND		0.000712	0.00019
alpha-Chlordane	0.00913		0.000712	0.000157
gamma-Chlordane	0.00769		0.000712	0.00014
Toxaphene	ND		0.0089	0.00356
Endosulfan (I and II)	ND		0.000712	0.000159
Chlordane (alpha and gamma)	0.017		0.000712	0.00014

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05091-002
Client ID: SB9B/10-
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1689.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.06g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 6.70

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000712	0.000127
beta-BHC	ND		0.000712	0.000166
gamma-BHC (Lindane)	ND		0.000712	0.000159
delta-BHC	ND		0.000712	0.000138
Heptachlor	ND		0.000712	0.000169
Aldrin	ND		0.000712	0.000149
Heptachlor epoxide	ND		0.000712	0.000155
Endosulfan I	ND		0.000712	0.000159
4,4'-DDE	0.017		0.000712	0.000145
Dieldrin	ND		0.000712	0.000145
Endrin	ND		0.000712	0.00018
Endosulfan II	ND		0.000712	0.000163
4,4'-DDD	ND		0.000712	0.00019
Endrin aldehyde	ND		0.000712	0.000149
Endosulfan sulfate	ND		0.000712	0.000176
4,4'-DDT	0.023		0.000712	0.000132
Endrin ketone	ND		0.000712	0.000139
Methoxychlor	ND		0.000712	0.00019
alpha-Chlordane	0.00246		0.000712	0.000157
gamma-Chlordane	0.00274		0.000712	0.00014
Toxaphene	ND		0.0089	0.00356
Endosulfan (I and II)	ND		0.000712	0.000159
Chlordane (alpha and gamma)	0.0052		0.000712	0.00014

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05091-003
Client ID: SB6A/0-2
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1690.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 6.70

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000712	0.000127
beta-BHC	ND		0.000712	0.000166
gamma-BHC (Lindane)	ND		0.000712	0.000159
delta-BHC	ND		0.000712	0.000138
Heptachlor	ND		0.000712	0.000169
Aldrin	ND		0.000712	0.000149
Heptachlor epoxide	ND		0.000712	0.000155
Endosulfan I	ND		0.000712	0.000159
4,4'-DDE	0.023		0.000712	0.000145
Dieldrin	ND		0.000712	0.000145
Endrin	ND		0.000712	0.00018
Endosulfan II	ND		0.000712	0.000163
4,4'-DDD	0.00236		0.000712	0.00019
Endrin aldehyde	ND		0.000712	0.000149
Endosulfan sulfate	ND		0.000712	0.000176
4,4'-DDT	0.038		0.000712	0.000133
Endrin ketone	ND		0.000712	0.000139
Methoxychlor	ND		0.000712	0.00019
alpha-Chlordane	0.00126		0.000712	0.000157
gamma-Chlordane	0.00125		0.000712	0.00014
Toxaphene	ND		0.0089	0.00356
Endosulfan (I and II)	ND		0.000712	0.000159
Chlordane (alpha and gamma)	0.00251		0.000712	0.00014

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05091-004
Client ID: SB6B/10-
Date Received: 11/20/2023
Date Extracted: 11/21/2023
Date Analyzed: 11/28/2023
Data file: V1691.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.04g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: 9.10

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000732	0.000131
beta-BHC	ND		0.000732	0.000171
gamma-BHC (Lindane)	ND		0.000732	0.000163
delta-BHC	ND		0.000732	0.000142
Heptachlor	ND		0.000732	0.000174
Aldrin	ND		0.000732	0.000153
Heptachlor epoxide	ND		0.000732	0.000159
Endosulfan I	ND		0.000732	0.000164
4,4'-DDE	0.000726	J	0.000732	0.000149
Dieldrin	ND		0.000732	0.000149
Endrin	ND		0.000732	0.000184
Endosulfan II	ND		0.000732	0.000168
4,4'-DDD	ND		0.000732	0.000195
Endrin aldehyde	ND		0.000732	0.000153
Endosulfan sulfate	ND		0.000732	0.000181
4,4'-DDT	0.00113		0.000732	0.000136
Endrin ketone	ND		0.000732	0.000142
Methoxychlor	ND		0.000732	0.000196
alpha-Chlordane	ND		0.000732	0.000161
gamma-Chlordane	ND		0.000732	0.000144
Toxaphene	ND		0.00915	0.00366
Endosulfan (I and II)	ND		0.000732	0.000164
Chlordane (alpha and gamma)	ND		0.000732	0.000144

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: BLKS231121-02
Client ID: Pest
Date Received: NA
Date Extracted: 11/21/2023
Date Analyzed: 11/27/2023
Data file: V1645.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 15.00g
Matrix-Units: Soil-mg/Kg
Dilution Factor: 1
% Moisture: NA

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.000666	0.000119
beta-BHC	ND		0.000666	0.000156
gamma-BHC (Lindane)	ND		0.000666	0.000149
delta-BHC	ND		0.000666	0.000129
Heptachlor	ND		0.000666	0.000158
Aldrin	ND		0.000666	0.000139
Heptachlor epoxide	ND		0.000666	0.000145
Endosulfan I	ND		0.000666	0.000149
4,4'-DDE	ND		0.000666	0.000136
Dieldrin	ND		0.000666	0.000136
Endrin	ND		0.000666	0.000168
Endosulfan II	ND		0.000666	0.000153
4,4'-DDD	ND		0.000666	0.000178
Endrin aldehyde	ND		0.000666	0.00014
Endosulfan sulfate	ND		0.000666	0.000165
4,4'-DDT	ND		0.000666	0.000124
Endrin ketone	ND		0.000666	0.00013
Methoxychlor	ND		0.000666	0.000178
alpha-Chlordane	ND		0.000666	0.000147
gamma-Chlordane	ND		0.000666	0.000131
Toxaphene	ND		0.00833	0.00333
Endosulfan (I and II)	ND		0.000666	0.000149
Chlordane (alpha and gamma)	ND		0.000666	0.000131

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: E23-05091-005
Client ID: TWP6
Date Received: 11/20/2023
Date Extracted: 11/27/2023
Date Analyzed: 11/28/2023
Data file: O8829.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 500ml
Matrix-Units: Aqueous-mg/L
Dilution Factor: 1
% Moisture: 100

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.00001	0.00000206
beta-BHC	ND		0.00001	0.00000303
gamma-BHC (Lindane)	ND		0.00001	0.00000201
delta-BHC	ND		0.00001	0.00000238
Heptachlor	ND		0.00001	0.00000235
Aldrin	ND		0.00001	0.00000188
Heptachlor epoxide	ND		0.00001	0.00000217
Endosulfan I	ND		0.00001	0.00000208
4,4'-DDE	ND		0.00001	0.00000197
Dieldrin	ND		0.00001	0.00000237
Endrin	ND		0.00001	0.00000289
Endosulfan II	ND		0.00001	0.00000258
4,4'-DDD	ND		0.00001	0.00000294
Endrin aldehyde	ND		0.00001	0.00000230
Endosulfan sulfate	ND		0.00001	0.00000314
4,4'-DDT	ND		0.00001	0.00000202
Endrin ketone	ND		0.00001	0.00000323
Methoxychlor	ND		0.00001	0.00000337
alpha-Chlordane	ND		0.00001	0.00000215
gamma-Chlordane	ND		0.00001	0.00000314
Toxaphene	ND		0.000125	0.00005
Endosulfan (I and II)	ND		0.00001	0.00000208
Chlordane (alpha and gamma)	ND		0.00001	0.00000215

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

PESTICIDES

Lab ID: BLKA231127-04
Client ID: Pest
Date Received: NA
Date Extracted: 11/27/2023
Date Analyzed: 11/28/2023
Data file: O8825.D

GC Column: RTX-CLP1/CLP2
Sample wt/vol: 500ml
Matrix-Units: Aqueous-µg/L
Dilution Factor: 1
% Moisture: 100

Compound	Concentration	Q	RL	MDL
alpha-BHC	ND		0.010	0.00206
beta-BHC	ND		0.010	0.00303
gamma-BHC (Lindane)	ND		0.010	0.00201
delta-BHC	ND		0.010	0.00238
Heptachlor	ND		0.010	0.00235
Aldrin	ND		0.010	0.00187
Heptachlor epoxide	ND		0.010	0.00217
Endosulfan I	ND		0.010	0.00208
4,4'-DDE	ND		0.010	0.00197
Dieldrin	ND		0.010	0.00237
Endrin	ND		0.010	0.00289
Endosulfan II	ND		0.010	0.00258
4,4'-DDD	ND		0.010	0.00294
Endrin aldehyde	ND		0.010	0.0023
Endosulfan sulfate	ND		0.010	0.00314
4,4'-DDT	ND		0.010	0.00202
Endrin ketone	ND		0.010	0.00323
Methoxychlor	ND		0.010	0.00337
alpha-Chlordane	ND		0.010	0.00215
gamma-Chlordane	ND		0.010	0.00314
Toxaphene	ND		0.125	0.050
Endosulfan (I and II)	ND		0.010	0.00208
Chlordane (alpha and gamma)	ND		0.010	0.00215

D --- Dilution Performed
J --- Value Less than RL & greater than MDL
E --- Exceeds upper level of Calibration curve

B --- Compound detected in Blank
C --- Common laboratory contamination

Cyanide, Total

Client/Project: HK Engineering/HK2661.1

Date Received: 11/20/23 16:48
Method: SW 9012B

Analyst: B. Pillsbury

Lab ID	Client ID	Result	Q	DF	Matrix-Unit	MDL	RL	% Solid	Date Collected	Date Analyzed
E23-05091-001	SB9A	ND		1	Soil-mg/Kg	0.214	1.07	93.3	11/20/23 08:15	11/28/23 14:45
E23-05091-002	SB9B	ND		1	Soil-mg/Kg	0.214	1.07	93.3	11/20/23 08:25	11/28/23 14:45
E23-05091-003	SB6A	ND		1	Soil-mg/Kg	0.214	1.07	93.3	11/20/23 09:45	11/28/23 14:45
E23-05091-004	SB6B	ND		1	Soil-mg/Kg	0.220	1.10	90.9	11/20/23 09:55	11/28/23 14:45

Certified for NJDEP, NY(DOH)
NJ ID# 14751
NY ID# 11402

General Chemistry Quality Control

Cyanide, Total

Matrix: Soil
Unit: mg/Kg

Batch: AP013-0116
Method: SW 9012B

Date: 11/28/2023

	Sample ID	Result	TrueValue / SpikeAdded	RPD	RPD Limit	% Recovery	%Recovery Limit
BLK	BLKS231128	< 0.200	NA	NA	NA	NA	NA
LCS (ppm)	ICV231128.007_07	12.3	12.5	NA	NA	98.4	85-115
SAMPLE	E23-05091-001	< 0.214	NA	NA	NA	NA	NA
DUP	E23-05091-001DUP	< 0.214	NA	NC	20	NA	NA
MS	E23-05091-001MS	12.8	13.4	NA	NA	95.5	90-110
MSD	E23-05091-001MSD	13.3	13.4	4	20	99.3	90-110

The above blank result applies to the follow samples:

E23-05091-001
E23-05091-002
E23-05091-003
E23-05091-004
E23-05058-002
E23-05084-006

See "Initial & Continuing Calibration Verification" page for ICV results. The ICV (Initial Calibration Verification) sample doubles as the LCS.

NA - Not Applicable
ND - Not Detected
NC - Non calculable RPD due to value less than the detection limit

INITIAL & CONTINUING CALIBRATION VERIFICATION

Cyanide, Total

Batch: AP013-0116	Date & Time: 11/28/2023 14:45
Method: SW 9012B	Analyst: Brianna Pillsbury

	True Value	Result	% REC	Unit
BLKS231128		< 0.200		mg/Kg
ICV231128	12.5	12.3	98.4	mg/Kg
CCV231128.009_09	0.250	0.258	103	mg/L
CCV231128.021_21	0.250	0.257	103	mg/L
CCV231128.025_25	0.250	0.259	104	mg/L

The ICV (Initial Calibration Verification) sample doubles as the LCS.

NJDEP FORM M-9A (12/94)

Cyanide, Total

Client/Project: HK Engineering/HK2661.1

Date Received: 11/20/23 16:48
Method: EPA 335.4

Analyst: B. Pillsbury

Lab ID	Client ID	Result	Q	DF	Matrix-Unit	MDL	RL	% Solid	Date Collected	Date Analyzed
E23-05091-005	TWP6	ND		1	Aqueous-ug/L	4.00	20.0	0	11/20/23 10:15	11/28/23 15:25

Certified for NJDEP, NY(DOH)
NJ ID# 14751
NY ID# 11402

General Chemistry Quality Control

Cyanide, Total

Matrix: Aqueous
Unit: ug/L

Batch: AP013-0117
Method: EPA 335.4

Date: 11/28/2023

	Sample ID	Result	TrueValue / SpikeAdded	RPD	RPD Limit	% Recovery	%Recovery Limit
BLK	BLKA231128	< 4.00	NA	NA	NA	NA	NA
LCS	ICV231128.007_07	238	250	NA	NA	95.2	90-110
SAMPLE	E23-05091-005	< 4.00	NA	NA	NA	NA	NA
DUP	E23-05091-005DUP	< 4.00	NA	NC	20	NA	NA
MS	E23-05091-005MS	250	250	NA	NA	100	90-110
MSD	E23-05091-005MSD	246	250	2	20	98.4	90-110

The above blank result applies to the follow samples:

E23-05091-005

See "Initial & Continuing Calibration Verification" page for ICV results. The ICV (Initial Calibration Verification) sample doubles as the LCS.

NA - Not Applicable
ND - Not Detected
NC - Non calculable RPD due to value less than the detection limit

INITIAL & CONTINUING CALIBRATION VERIFICATION

Cyanide, Total

Batch: AP013-0117	Date & Time: 11/28/2023 15:25
Method: EPA 335.4	Analyst: Brianna Pillsbury

	True Value	Result	% REC	Unit
BLKA231128		< 4.00		ug/L
ICV231128	250	238	95.2	ug/L
CCV231128.009_09	250	259	104	ug/L
CCV231128.017_17	250	258	103	ug/L

The ICV (Initial Calibration Verification) sample doubles as the LCS.

NJDEP FORM M-9A (12/94)

SGS LabLink@20:27 30-Nov-2023

Report of Analysis

Client Sample ID:	E23-05091-001_SB9A		
Lab Sample ID:	JD77487-1	Date Sampled:	11/20/23
Matrix:	SO - Soil	Date Received:	11/22/23
		Percent Solids:	93.6
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6140	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	3.5	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	46.7	21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.37	0.21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.53	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	9440	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	14.2	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	6.6	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	16.0	2.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	11700	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	21.5	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	4360	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	335	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.044	0.031	mg/kg	1	11/29/23	11/30/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	24.5	4.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.86	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	19.1	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	39.9	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55138
(2) Instrument QC Batch: MA55149
(3) Prep QC Batch: MP43344
(4) Prep QC Batch: MP43430

RL = Reporting Limit

SGS LabLink@20:27 30-Nov-2023

Report of Analysis

Client Sample ID:	E23-05091-002_SB9B		
Lab Sample ID:	JD77487-2	Date Sampled:	11/20/23
Matrix:	SO - Soil	Date Received:	11/22/23
		Percent Solids:	88.5
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	11900	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	4.4	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	157	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.71	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.55	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	8260	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	29.4	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	8.2	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	25.0	2.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	18400	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	64.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	6700	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	562	1.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.060	0.032	mg/kg	1	11/29/23	11/30/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	31.3	4.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	2200	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	1.4	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	31.7	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	100	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55138
(2) Instrument QC Batch: MA55149
(3) Prep QC Batch: MP43344
(4) Prep QC Batch: MP43430

RL = Reporting Limit

SGS LabLink@20:27 30-Nov-2023

Report of Analysis

Client Sample ID:	E23-05091-003_SB6A		
Lab Sample ID:	JD77487-3	Date Sampled:	11/20/23
Matrix:	SO - Soil	Date Received:	11/22/23
		Percent Solids:	92.8
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5550	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	4.5	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	224	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.31	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.55	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Calcium	30600	1100	mg/kg	2	11/27/23	11/29/23	ND	SW846 6010D [2]	SW846 3050B [4]
Chromium	14.4	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.5	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	20.0	2.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	11000	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	143	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	14100	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	275	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.15	0.033	mg/kg	1	11/29/23	11/30/23	LM	SW846 7471B [3]	SW846 7471B [5]
Nickel	20.2	4.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.77	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	21.5	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	148	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55138
(2) Instrument QC Batch: MA55148
(3) Instrument QC Batch: MA55149
(4) Prep QC Batch: MP43344
(5) Prep QC Batch: MP43430

RL = Reporting Limit

SGS LabLink@20:27 30-Nov-2023

Report of Analysis

Client Sample ID:	E23-05091-004_SB6B		
Lab Sample ID:	JD77487-4	Date Sampled:	11/20/23
Matrix:	SO - Soil	Date Received:	11/22/23
		Percent Solids:	92.6
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6100	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	3.8	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	38.0	21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.28	0.21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.53	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	17300	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	13.5	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	< 5.3	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	15.6	2.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	9790	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	48.9	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	6650	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	201	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.054	0.034	mg/kg	1	11/29/23	11/30/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	18.1	4.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.78	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	20.0	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	66.2	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55138
(2) Instrument QC Batch: MA55149
(3) Prep QC Batch: MP43344
(4) Prep QC Batch: MP43430

RL = Reporting Limit

SGS LabLink@20:27 30-Nov-2023

Report of Analysis

Client Sample ID:	E23-05091-005_TWP6		
Lab Sample ID:	JD77487-5	Date Sampled:	11/20/23
Matrix:	AQ - Water	Date Received:	11/22/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5960	200	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Antimony	< 6.0	6.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Arsenic	< 3.0	3.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Barium	440	200	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Beryllium	1.2	1.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cadmium	< 3.0	3.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Calcium	74300	5000	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Chromium	18.1	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cobalt	< 50	50	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Copper	44.5	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Iron	8980	100	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Lead	20.9	3.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Magnesium	22200	5000	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Manganese	3260	15	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Mercury	< 0.20	0.20	ug/l	1	11/30/23	11/30/23	LM	SW846 7470A [2]	SW846 7470A [5]
Nickel	26.1	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Potassium	16300	10000	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Selenium	10.5	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Silver	< 10	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Sodium	193000	20000	ug/l	2	11/28/23	11/30/23	ND	SW846 6010D [3]	SW846 3010A [4]
Thallium	< 10	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Vanadium	< 50	50	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Zinc	57.4	20	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]

(1) Instrument QC Batch: MA55148
(2) Instrument QC Batch: MA55150
(3) Instrument QC Batch: MA55156
(4) Prep QC Batch: MP43371
(5) Prep QC Batch: MP43435

RL = Reporting Limit

SGS LabLink@20:27 30-Nov-2023

Report of Analysis

Client Sample ID:	E23-05091-006_TWP6 FILT		
Lab Sample ID:	JD77487-6F	Date Sampled:	11/20/23
Matrix:	AQ - Water Filtered	Date Received:	11/22/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6990	200	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Antimony	< 6.0	6.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Arsenic	< 3.0	3.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Barium	328	200	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Beryllium	< 1.0	1.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cadmium	< 3.0	3.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Calcium	70000	5000	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Chromium	13.2	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cobalt	< 50	50	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Copper	35.7	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Iron	9040	100	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Lead	9.6	3.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Magnesium	20000	5000	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Manganese	2730	15	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Mercury	< 0.20	0.20	ug/l	1	11/30/23	11/30/23	LM	SW846 7470A [2]	SW846 7470A [5]
Nickel	19.6	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Potassium	16600	10000	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Selenium	10.7	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Silver	< 10	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Sodium	192000	20000	ug/l	2	11/28/23	11/30/23	ND	SW846 6010D [3]	SW846 3010A [4]
Thallium	< 10	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Vanadium	< 50	50	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Zinc	32.7	20	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]

(1) Instrument QC Batch: MA55148
(2) Instrument QC Batch: MA55150
(3) Instrument QC Batch: MA55156
(4) Prep QC Batch: MP43371
(5) Prep QC Batch: MP43435

RL = Reporting Limit

SAMPLE TRACKING

IAL

Integrated Analytical Labs
273 Franklin Rd
Randolph, NJ 07869

Chain of Custody Record

Contact Us: 973 361-4252
Web: www.ialonline.com

Customer Information

Company: HK Engineering and Geology D.P.C.
Address: 1600 US 22 East
Union, NJ 07083
Telephone #: 908-688-7800
Project Manager: Chris Hirschmann
Email Address(es): chirschmann@hillmannconsulting.com
Project Name: HK2661.1
Project Location (State): NY
Bottle Order #:
☒ "Report to"/"Invoice To" same as above
Sampled by: D. Aponte

COMPLETED BY IAL:
____ Field Sampling ____ Equipment Rental

Reporting Information

☒ Check here if same as "Customer Information"
REPORT TO:
Address:
Attn:
INVOICE TO:
Address:
Attn:
PO # HK2661.1
Quote #

Sample Matrix

DW - Drinking Water
WW - Waste Water
GW - Groundwater
SW - Surface Water
LIQ - Liquid (specify)
M - Multiphasic
OI - Oil
S - Soil
SED - Sediment
SOL - Solid (specify)
SL - Sludge
W - Wipe

Rush TAT Charge

24 hr - 100%...
48 hr - 75%....
72 hr - 50%....
96 hr - 35%....
5 day - 25%....
6-9 day - 10%

Deliverables *Surchage may apply for regulatory

NJ, CT, PA	NY
☐ Results Only (Level I)	☒ ASP Category A
☐ Reduced (Level II/III)	
☐ Regulatory/ Full* (Level IV)	☐ ASP Category B*

EDDs

☐ NJ SRP
☐ NYSDEC EQuIS
☐ lab approved custom EDD
☒ NO EDD REQ'D

Concentrations Expected: Low Med High

Known Hazard: ☐ YES ☐ NO
Describe:

Turn-Around Time (TAT)

5 Day TAT Hard Copy and Verbal

Hard Copy: Standard 3 week Other - call for price

Petroleum Hydrocarbons - Selection is REQUIRED

☐ NJ EPH-DRO - Category 1
☐ NJ EPH-C40 - Category 2
☐ NJ EPH-Fractionated - Cat 2
☐ CT ETPH
☐ DRO-8015

TAT for PHC, if other than 2 weeks:

Regulatory Requirement

New Jersey	New York
☐ GWQS	☒ AWQS (TOGS Table 1)
☐ 2017 SRS/IGW	☐ GWEL (TOGS Table 5)
☐ 2021 SRS/MGW	☒ Part 375-6.8(a) - Unrestricted
☐ Ecological	☒ Part 375-6.8(b) - Restricted
☐ DW	☐ CP-51 Table 2 or 3 (selection required)
☐ SPLP	

Other States / Criteria

☐ Pennsylvania Act 2
☐ CT RCSA 22a-133k1-k3
☐ TSCA PCBs

OTHER Regulatory Requirements - specify in comments

SAMPLE INFORMATION

ANALYTICAL PARAMETERS (please note if contingent)

Client ID	Depth (ft only)	Sampling Date	Sampling Time	Matrix	# containers	IAL #	TAL/TCL + 30								Sample Specific Notes:
SB9A	0-2	11/20/2023	8:15	S	5	1	X								
SB9B	10-12'	11/20/2023	8:25	S	5	2	X								
SB6A	0-2	11/20/2023	9:45	S	5	3	X								
SB6B	10-12'	11/20/2023	9:55	S	5	4	X								
TWP6		11/20/2023	10:15	GW	11	5	X	6 diss							

Samples previously analyzed by IAL? YES / NO

Preservative Code: 1 = None, 2 = HCl, 3 = HNO3, 4 = MeOH, 5 = NaOH, 6 = H2SO4, 7 = Other

Container Code: A = Amber Glass, B = Plastic, C = Vial, D = Glass, E = EnCore, T = Terracore

Preservative (use code)
Container Type (use code)

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time (TAT) will not start until any ambiguities have been resolved. TAT starts the following day if samples rec'd at lab ≥ 5PM. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY IAL'S TERMS & CONDITIONS (found on rear of pink copy).

IAL Rev 06/2021

Carrier (check one):
☐ IAL Courier
☐ Client Courier
☐ FedEx/UPS***
***Tracking #:

Special Instructions/QC Requirements & Comments:

5 Day TAT Hard Copy and Verbal.

FOR LAB USE ONLY
SDG #: 5091
Cooler Temp: 6 °C

Relinquished by (Signature and Company)	Date	Time	Received by (Signature and Company)	Date	Time
[signature] HK	11/20/23		[signature]	11/20/23	1520
[signature]	11/20/23	1648	[signature]	11/20/23	16:48

LAB COPIES - WHITE & YELLOW; CLIENT COPY - PINK

Certification IDs: TNI (TNI01284); CT (PH-0699); NJ (14751); NY (11402); PA (68-00773).

PAGE: 1 of 1

Nov 22, 2023 @ 09:35

PROJECT INFORMATION

RUSH

E23-05091: HK2661.1

To: Chris Hirschmann
HK Engineering & Geology, D.P.C.
Fax: 908-377-8909 cell
EMail: chirschmann@hillmannconsulting.com;rpowell@hillmanngroup.com

Report To

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083
Attn: Chris Hirschmann

Bill To

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083
Attn: Chris Hirschmann

Report Format	P.O. #	Received At Lab	PHC Due	Verbal Due	Hardcopy Due
Category A	HK2661.1	Nov 20, 2023 @ 16:48	NA	Nov 29, 2023	Nov 29, 2023 *

* Any ***Conditional or Hold*** status will delay final hardcopy report sent date.

Diskette Req. Not Required

Criteria Requirement: NY Part 375-6.8(UUSCO+RUSCO)

Lab ID	Client Sample ID	Depth	Sampling Time	Matrix	Unit	Field pH/Temp
05091-001	SB9A	0/2	11/20/23@08:15	Soil	mg/Kg (ppm)	
05091-002	SB9B	10/12	11/20/23@08:25	Soil	mg/Kg (ppm)	
05091-003	SB6A	0/2	11/20/23@09:45	Soil	mg/Kg (ppm)	
05091-004	SB6B	10/12	11/20/23@09:55	Soil	mg/Kg (ppm)	
05091-005	TWP6	NA	11/20/23@10:15	Aqueous	ug/L (ppb)	
05091-006	TWP6 FILT	NA	11/20/23@10:15	Aqueous	ug/L (ppb)	

* No Cert = IAL does not hold certification for this test/method

Sample #	Test	Status	Analytical Method	TAT	Holding Time Expires
001	TCL VO + 15	Analyze	8260D	RUSH 1 WK	12/4/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	12/4/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	12/4/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/19/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	12/4/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/20/2023
002	TCL VO + 15	Analyze	8260D	RUSH 1 WK	12/4/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	12/4/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/19/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	12/4/2023
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	12/4/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/20/2023
003	TCL VO + 15	Analyze	8260D	RUSH 1 WK	12/4/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	12/4/2023
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	12/4/2023

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Randolph, NJ 07869
Phone: 973 361 4252
www.ialonline.com

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Nov 22, 2023 @ 09:35

PROJECT INFORMATION

RUSH

E23-05091: HK2661.1

Sample #	Test	Status	Analytical Method	TAT	Holding Time Expires
003	TCL PCB	Analyze	8082A	RUSH 1 WK	11/19/2024
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	12/4/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/20/2023
004	TCL VO + 15	Analyze	8260D	RUSH 1 WK	12/4/2023
	TCL BNA + 15	Analyze	8270E	RUSH 1 WK	12/4/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/19/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	12/4/2023
	Cyanide, Total	Analyze	9012B	RUSH 1 WK	12/4/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/20/2023
005	Low Level TCL VO for 8260+8011 + 15	Analyze	8260D/8011	RUSH 1 WK	12/4/2023
	TCL BNA + SIMS + 15	Analyze	8270E SIM	RUSH 1 WK	11/27/2023
	TCL PCB	Analyze	8082A	RUSH 1 WK	11/19/2024
	TCL Pesticides	Analyze	8081B	RUSH 1 WK	11/27/2023
	Cyanide, Total	Analyze	335.4	RUSH 1 WK	12/4/2023
	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/20/2023
006	TAL Metals (6020B/7471B) by SGS Dayton, TNI certified	Analyze		RUSH 1 WK	11/20/2023

Project Notes:

NOTE 1 taken by kfalconer on 11/21/2023 09:06
CLIENT WAS NOTIFIED VIA E-MAIL THAT METALS ANALYSES WILL BE SUBCONTRACTED TO SGS DAYTON.

NOTE 4 taken by kfalconer on 11/21/2023 09:08
3 ENCORS RECEIVED - 1 INTO MEOH/2 INTO H2O

NOTE 5 taken by kfalconer on 11/21/2023 09:08
COMPARE SOIL RESULTS TO NY Part 375-6.8(UUSCO+RUSCO).

COMPARE GW RESULTS TO NY TOGS Tbl1 (AWQS).

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SAMPLE RECEIPT VERIFICATION

CASE NO: **E 23** **05091** CLIENT: HK Eng

COOLER TEMPERATURE: 2° - 6°C: ✓ (See Chain of Custody)

Comments

COC: (COMPLETE) / INCOMPLETE

KEY

✓ = YES/NA
✗ = NO

VOA received: (check one) ☒ Encore ☐ Terra Core ☐ IGW - Methanol ☐ No Preservative

✓ Bottles Intact
✓ no-Missing Bottles
✓ no-Extra Bottles

✓ Sufficient Sample Volume
✓ no-headspace/bubbles in VOs
✓ Labels intact/correct
✗ pH Check[1] (refer to Receipt pH Log)
✓ Correct bottles/preservative
✓ Sufficient Holding/Prep Time[1]
☐ Multiphasic Sample
☐ Sample to be Subcontracted
✓ **Chain of Custody is Clear**

[1] All samples with "Analyze Immediately" holding times will be analyzed by this laboratory past the holding time. This includes but is not limited to the following tests: pH, Temperature, Free Residual Chlorine, Total Residual Chlorine, Dissolved Oxygen, Sulfite.

ADDITIONAL COMMENTS:

SAMPLE(S) VERIFIED BY: INITIAL [illegible] DATE 12/11/2023

CORRECTIVE ACTION REQUIRED: **YES** ☐ (SEE BELOW) **NO** ☒

If COC is **NOT** clear, ***STOP*** until you get client to authorize/clarify work.

CLIENT NOTIFIED: YES ☐ Date/ Time: _____ NO ☐
PROJECT CONTACT:
SUBCONTRACTED LAB:
DATE SHIPPED:

ADDITIONAL COMMENTS:

VERIFIED/TAKEN BY: INITIAL [illegible] DATE 1/2/23

Rev 2 2/11/2021

Laboratory Custody Chronicle

IAL Case No.

E23-05091

Client HK Engineering & Geology, D.P.C.

Project HK2661.1

Received On 11/20/2023@16:48

Department: Volatiles			***Prep. Date***	***Analyst***	***Analysis Date***	***Analyst***
Low Level TCL VO for 8260+8011 + 15	05091-005	Aqueous	n/a	n/a	11/22/23	Sylvia
TCL VO + 15	-001	Soil	n/a	n/a	11/22/23	Mei
"	-002	"	n/a	n/a	11/22/23	Mei
"	-003	"	n/a	n/a	11/22/23	Mei
"	-004	"	n/a	n/a	11/22/23	Mei

Department: Semivolatiles			***Prep. Date***	***Analyst***	***Analysis Date***	***Analyst***
TCL BNA + 15	-001	Soil	11/21/23	Frank L.	11/30/23	Thien
"	-002	"	11/21/23	Frank L.	11/30/23	Thien
"	-003	"	11/21/23	Frank L.	11/30/23	Thien
"	-004	"	11/21/23	Frank L.	11/30/23	Thien
TCL BNA + SIMS + 15	-005	Aqueous	11/20/23	Frank L.	11/29/23	Dana Tryon

Department: GC			***Prep. Date***	***Analyst***	***Analysis Date***	***Analyst***
TCL PCB	-001	Soil	11/21/23	Archimede	11/28/23	Iwona
"	-002	"	11/21/23	Archimede	11/28/23	Iwona
"	-003	"	11/21/23	Archimede	11/28/23	Iwona
"	-004	"	11/21/23	Archimede	11/28/23	Iwona
"	-005	Aqueous	11/27/23	Archimede	11/29/23	Iwona
TCL Pesticides	-001	Soil	11/21/23	Archimede	11/29/23	Iwona
"	-002	"	11/21/23	Archimede	11/29/23	Iwona
"	-003	"	11/21/23	Archimede	11/29/23	Iwona
"	-004	"	11/21/23	Archimede	11/29/23	Iwona
"	-005	Aqueous	11/27/23	Archimede	11/29/23	Iwona

Department: Wet Chemistry			***Prep. Date***	***Analyst***	***Analysis Date***	***Analyst***
Cyanide, Total	-001	Soil	n/a	n/a	11/28/23	Brianna P
"	-002	"	n/a	n/a	11/28/23	Brianna P
"	-003	"	n/a	n/a	11/28/23	Brianna P
"	-004	"	n/a	n/a	11/28/23	Brianna P
"	-005	Aqueous	n/a	n/a	11/28/23	Brianna P

Department: Others			***Prep. Date***	***Analyst***	***Analysis Date***	***Analyst***
TAL Metals (6020B/7471B) by SGS Dayton	-001	Soil	11/21/23	Rob	n/a	n/a
"	-002	"	11/21/23	Rob	n/a	n/a
"	-003	"	11/21/23	Rob	n/a	n/a
"	-004	"	11/21/23	Rob	n/a	n/a
"	-005	Aqueous	11/21/23	Rob	n/a	n/a
"	-006	"	11/21/23	Rob	n/a	n/a

Dec 01, 2023 @ 03:00

NOTE: All soil, sediment, sludge, and solid samples are reported on a dry-weight basis.

Integrated Analytical Labs ~ 273 Franklin Road, Randolph, NJ 07869 ~ (973) 361-4252

Report Out Form

IAL SDG No.

E23-05091

E 2 3 - 0 5 0 9 1

Client HK Engineering & Geology, D.P.C.

Project HK2661.1

State NY

Diskette Requirements

Spreadsheet: RCS_____

Report Requirements

WEB

Sent on _____

By
(please circle one) **Web** **US Mail** **Other** _____

Dec 01, 2023 @ 03:00

Integrated Analytical Labs ~ 273 Franklin Road, Randolph, NJ 07869 ~ (973) 361-4252

LAST PAGE OF DOCUMENT

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Integrated Analytical Lab

Integrated Analytical Lab, Randolph, NJ

E23-05046

SGS Job Number: JD77310

Sampling Dates: 11/15/23 - 11/16/23

Report to:

Integrated Analytical Lab
273 Franklin Road
Randolph, NJ 07869
msimmons@ialonline.com

ATTN: Melissa Simmons

Total number of pages in report: **41**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

David Chastain
General Manager

Client Service contact: Victoria Pushkova 732-329-0200
Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA(68-00408), RI, SC, TX, UT, VA, WV

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Test results relate only to samples analyzed.

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Please share your ideas about
how we can serve you better at:
EHS.US.CustomerCare@sgs.com

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SGS North America Inc.

Sample Summary

Integrated Analytical Lab

Job No: JD77310

Integrated Analytical Lab, Randolph, NJ
Project No: E23-05046

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD77310-1	11/15/23	08:15		11/20/23	SO	Soil	E23-05046-001_SB12A
JD77310-2	11/15/23	08:30		11/20/23	SO	Soil	E23-05046-002_SB2A
JD77310-3	11/15/23	08:35		11/20/23	SO	Soil	E23-05046-003_SB2B
JD77310-4	11/15/23	09:30		11/20/23	SO	Soil	E23-05046-004_SB1A
JD77310-5	11/15/23	09:35		11/20/23	SO	Soil	E23-05046-005_SB1B
JD77310-6	11/15/23	10:45		11/20/23	SO	Soil	E23-05046-006_SB3A
JD77310-7	11/15/23	10:50		11/20/23	SO	Soil	E23-05046-007_SB3B
JD77310-8	11/15/23	13:05		11/20/23	SO	Soil	E23-05046-008_SB10A
JD77310-9	11/15/23	13:40		11/20/23	SO	Soil	E23-05046-009_SB11A
JD77310-10	11/15/23	14:00		11/20/23	SO	Soil	E23-05046-010_SB8A
JD77310-11	11/15/23	12:20		11/20/23	AQ	Water	E23-05046-011_TWP1
JD77310-11F	11/15/23	12:20		11/20/23	AQ	Water Filtered	E23-05046-019_TWP1 FILT
JD77310-12	11/15/23	13:00		11/20/23	AQ	Water	E23-05046-012_TWP2

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SGS North America Inc.

Sample Summary
(continued)

Integrated Analytical Lab

Job No: JD77310

Integrated Analytical Lab, Randolph, NJ
Project No: E23-05046

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD77310-12F	11/15/23	13:00		11/20/23	AQ	Water Filtered	E23-05046-020_TWP2 FILT
JD77310-13	11/16/23	09:10		11/20/23	AQ	Water	E23-05046-013_TWP4
JD77310-13F	11/16/23	09:10		11/20/23	AQ	Water Filtered	E23-05046-021_TWP4 FILT
JD77310-14	11/16/23	09:30		11/20/23	AQ	Water	E23-05046-014_TWP5
JD77310-14F	11/16/23	09:30		11/20/23	AQ	Water Filtered	E23-05046-022_TWP5 FILT
JD77310-15	11/15/23	08:10		11/20/23	SO	Soil	E23-05046-015_SB4A
JD77310-16	11/15/23	08:15		11/20/23	SO	Soil	E23-05046-016_SB4B
JD77310-17	11/15/23	08:20		11/20/23	SO	Soil	E23-05046-017_SB5A
JD77310-18	11/15/23	08:35		11/20/23	SO	Soil	E23-05046-018_SB5B

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Summary of Hits

Job Number: JD77310
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/15/23 thru 11/16/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD77310-1	**E23-05046-001_SB12A**					
Aluminum		4950	57		mg/kg	SW846 6010D
Arsenic		8.7	2.3		mg/kg	SW846 6010D
Barium		173	23		mg/kg	SW846 6010D
Beryllium		0.39	0.23		mg/kg	SW846 6010D
Cadmium		12.8	0.57		mg/kg	SW846 6010D
Calcium		50200	2900		mg/kg	SW846 6010D
Chromium		17.6	1.1		mg/kg	SW846 6010D
Cobalt		6.0	5.7		mg/kg	SW846 6010D
Copper		42.9	2.9		mg/kg	SW846 6010D
Iron		19700	57		mg/kg	SW846 6010D
Lead		773	2.3		mg/kg	SW846 6010D
Magnesium		2110	570		mg/kg	SW846 6010D
Manganese		351	1.7		mg/kg	SW846 6010D
Mercury		5.2	0.35		mg/kg	SW846 7471B
Nickel		17.3	4.6		mg/kg	SW846 6010D
Silver		1.1	0.57		mg/kg	SW846 6010D
Vanadium		20.7	5.7		mg/kg	SW846 6010D
Zinc		2050	29		mg/kg	SW846 6010D
JD77310-2	**E23-05046-002_SB2A**					
Aluminum		6300	53		mg/kg	SW846 6010D
Arsenic		2.9	2.1		mg/kg	SW846 6010D
Barium		48.5	21		mg/kg	SW846 6010D
Beryllium		0.41	0.21		mg/kg	SW846 6010D
Calcium		17800	530		mg/kg	SW846 6010D
Chromium		20.7	1.1		mg/kg	SW846 6010D
Cobalt		6.5	5.3		mg/kg	SW846 6010D
Copper		21.5	2.6		mg/kg	SW846 6010D
Iron		12200	53		mg/kg	SW846 6010D
Lead		39.0	2.1		mg/kg	SW846 6010D
Magnesium		6090	530		mg/kg	SW846 6010D
Manganese		263	1.6		mg/kg	SW846 6010D
Mercury		0.037	0.033		mg/kg	SW846 7471B
Nickel		42.8	4.2		mg/kg	SW846 6010D
Potassium		1780	1100		mg/kg	SW846 6010D
Silver		0.78	0.53		mg/kg	SW846 6010D
Vanadium		22.7	5.3		mg/kg	SW846 6010D
Zinc		60.2	5.3		mg/kg	SW846 6010D
JD77310-3	**E23-05046-003_SB2B**					
Aluminum		5040	55		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77310
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/15/23 thru 11/16/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Arsenic		3.8	2.2		mg/kg	SW846 6010D
Barium		163	22		mg/kg	SW846 6010D
Beryllium		0.76	0.22		mg/kg	SW846 6010D
Calcium		10500	550		mg/kg	SW846 6010D
Chromium		15.9	1.1		mg/kg	SW846 6010D
Cobalt		7.7	5.5		mg/kg	SW846 6010D
Copper		31.8	2.8		mg/kg	SW846 6010D
Iron		13100	55		mg/kg	SW846 6010D
Lead		235	2.2		mg/kg	SW846 6010D
Magnesium		6400	550		mg/kg	SW846 6010D
Manganese		292	1.7		mg/kg	SW846 6010D
Mercury		0.56	0.030		mg/kg	SW846 7471B
Nickel		56.8	4.4		mg/kg	SW846 6010D
Potassium		1270	1100		mg/kg	SW846 6010D
Silver		0.78	0.55		mg/kg	SW846 6010D
Vanadium		20.2	5.5		mg/kg	SW846 6010D
Zinc		176	5.5		mg/kg	SW846 6010D
JD77310-4	**E23-05046-004_SB1A**					
Aluminum		7910	55		mg/kg	SW846 6010D
Arsenic		7.5	2.2		mg/kg	SW846 6010D
Barium		298	22		mg/kg	SW846 6010D
Beryllium		0.46	0.22		mg/kg	SW846 6010D
Cadmium		0.63	0.55		mg/kg	SW846 6010D
Calcium		14000	550		mg/kg	SW846 6010D
Chromium		20.8	1.1		mg/kg	SW846 6010D
Copper		47.9	2.7		mg/kg	SW846 6010D
Iron		12500	55		mg/kg	SW846 6010D
Lead		436	2.2		mg/kg	SW846 6010D
Magnesium		2880	550		mg/kg	SW846 6010D
Manganese		241	1.6		mg/kg	SW846 6010D
Mercury		0.61	0.034		mg/kg	SW846 7471B
Nickel		15.5	4.4		mg/kg	SW846 6010D
Silver		0.86	0.55		mg/kg	SW846 6010D
Vanadium		24.9	5.5		mg/kg	SW846 6010D
Zinc		276	5.5		mg/kg	SW846 6010D
JD77310-5	**E23-05046-005_SB1B**					
Aluminum		10700	56		mg/kg	SW846 6010D
Arsenic		7.6	2.2		mg/kg	SW846 6010D
Barium		463	22		mg/kg	SW846 6010D
Beryllium		0.64	0.22		mg/kg	SW846 6010D
Cadmium		1.9	0.56		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77310
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/15/23 thru 11/16/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Calcium		77400	2800		mg/kg	SW846 6010D
Chromium		28.8	1.1		mg/kg	SW846 6010D
Cobalt		5.8	5.6		mg/kg	SW846 6010D
Copper [a]		128	14		mg/kg	SW846 6010D
Iron		32600	280		mg/kg	SW846 6010D
Lead		1260	11		mg/kg	SW846 6010D
Magnesium		12800	560		mg/kg	SW846 6010D
Manganese		704	1.7		mg/kg	SW846 6010D
Mercury		1.1	0.066		mg/kg	SW846 7471B
Nickel		22.8	4.5		mg/kg	SW846 6010D
Potassium		1670	1100		mg/kg	SW846 6010D
Vanadium		29.8	5.6		mg/kg	SW846 6010D
Zinc		477	5.6		mg/kg	SW846 6010D
JD77310-6	**E23-05046-006_SB3A**					
Aluminum		6400	57		mg/kg	SW846 6010D
Antimony		8.0	2.3		mg/kg	SW846 6010D
Arsenic		8.9	2.3		mg/kg	SW846 6010D
Barium		309	23		mg/kg	SW846 6010D
Beryllium		0.43	0.23		mg/kg	SW846 6010D
Cadmium		1.4	0.57		mg/kg	SW846 6010D
Calcium		34300	1100		mg/kg	SW846 6010D
Chromium		16.8	1.1		mg/kg	SW846 6010D
Copper		195	2.8		mg/kg	SW846 6010D
Iron		13400	57		mg/kg	SW846 6010D
Lead		774	2.3		mg/kg	SW846 6010D
Magnesium		2920	570		mg/kg	SW846 6010D
Manganese		1210	3.4		mg/kg	SW846 6010D
Mercury		0.68	0.035		mg/kg	SW846 7471B
Nickel		32.2	4.6		mg/kg	SW846 6010D
Silver		1.2	0.57		mg/kg	SW846 6010D
Vanadium		25.8	5.7		mg/kg	SW846 6010D
Zinc		483	5.7		mg/kg	SW846 6010D
JD77310-7	**E23-05046-007_SB3B**					
Aluminum		5390	56		mg/kg	SW846 6010D
Barium		288	22		mg/kg	SW846 6010D
Calcium		49000	11000		mg/kg	SW846 6010D
Chromium [a]		70.1	22		mg/kg	SW846 6010D
Cobalt		39.9	5.6		mg/kg	SW846 6010D
Copper [a]		503	56		mg/kg	SW846 6010D
Iron		254000	1100		mg/kg	SW846 6010D
Lead [a]		888	45		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77310
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/15/23 thru 11/16/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Magnesium		3500	560		mg/kg	SW846 6010D
Manganese		2890	33		mg/kg	SW846 6010D
Mercury		0.65	0.036		mg/kg	SW846 7471B
Nickel [a]		98.3	89		mg/kg	SW846 6010D
Vanadium		94.8	5.6		mg/kg	SW846 6010D
Zinc		688	5.6		mg/kg	SW846 6010D
JD77310-8	**E23-05046-008_SB10A**					
Aluminum		7400	56		mg/kg	SW846 6010D
Arsenic		3.6	2.2		mg/kg	SW846 6010D
Barium		90.2	22		mg/kg	SW846 6010D
Beryllium		0.46	0.22		mg/kg	SW846 6010D
Calcium		31300	1100		mg/kg	SW846 6010D
Chromium		22.0	1.1		mg/kg	SW846 6010D
Cobalt		6.1	5.6		mg/kg	SW846 6010D
Copper		26.4	2.8		mg/kg	SW846 6010D
Iron		13700	56		mg/kg	SW846 6010D
Lead		159	2.2		mg/kg	SW846 6010D
Magnesium		3600	560		mg/kg	SW846 6010D
Manganese		386	1.7		mg/kg	SW846 6010D
Mercury		0.27	0.034		mg/kg	SW846 7471B
Nickel		18.6	4.5		mg/kg	SW846 6010D
Potassium		1520	1100		mg/kg	SW846 6010D
Silver		0.58	0.56		mg/kg	SW846 6010D
Vanadium		21.6	5.6		mg/kg	SW846 6010D
Zinc		54.9	5.6		mg/kg	SW846 6010D
JD77310-9	**E23-05046-009_SB11A**					
Aluminum		7780	58		mg/kg	SW846 6010D
Arsenic		3.9	2.3		mg/kg	SW846 6010D
Barium		98.7	23		mg/kg	SW846 6010D
Beryllium		0.44	0.23		mg/kg	SW846 6010D
Calcium		5130	580		mg/kg	SW846 6010D
Chromium		16.9	1.2		mg/kg	SW846 6010D
Cobalt		6.4	5.8		mg/kg	SW846 6010D
Copper		17.1	2.9		mg/kg	SW846 6010D
Iron		16100	58		mg/kg	SW846 6010D
Lead		56.1	2.3		mg/kg	SW846 6010D
Magnesium		3220	580		mg/kg	SW846 6010D
Manganese		442	1.7		mg/kg	SW846 6010D
Mercury		0.23	0.036		mg/kg	SW846 7471B
Nickel		19.4	4.7		mg/kg	SW846 6010D
Vanadium		17.7	5.8		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77310
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/15/23 thru 11/16/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Zinc		80.8	5.8		mg/kg	SW846 6010D
JD77310-10	**E23-05046-010_SB8A**					
Aluminum		6710	52		mg/kg	SW846 6010D
Arsenic		2.5	2.1		mg/kg	SW846 6010D
Barium		45.1	21		mg/kg	SW846 6010D
Beryllium		0.39	0.21		mg/kg	SW846 6010D
Calcium		15800	520		mg/kg	SW846 6010D
Chromium		17.0	1.0		mg/kg	SW846 6010D
Copper		17.3	2.6		mg/kg	SW846 6010D
Iron		10900	52		mg/kg	SW846 6010D
Lead		12.0	2.1		mg/kg	SW846 6010D
Magnesium		2740	520		mg/kg	SW846 6010D
Manganese		321	1.6		mg/kg	SW846 6010D
Mercury		0.052	0.032		mg/kg	SW846 7471B
Nickel		16.5	4.2		mg/kg	SW846 6010D
Vanadium		17.3	5.2		mg/kg	SW846 6010D
Zinc		26.6	5.2		mg/kg	SW846 6010D
JD77310-11	**E23-05046-011_TWP1**					
Aluminum		6990	200		ug/l	SW846 6010D
Arsenic		5.0	3.0		ug/l	SW846 6010D
Barium		229	200		ug/l	SW846 6010D
Beryllium		1.3	1.0		ug/l	SW846 6010D
Calcium		118000	5000		ug/l	SW846 6010D
Chromium		29.5	10		ug/l	SW846 6010D
Copper		60.5	10		ug/l	SW846 6010D
Iron		10400	100		ug/l	SW846 6010D
Lead		68.9	3.0		ug/l	SW846 6010D
Magnesium		14700	5000		ug/l	SW846 6010D
Manganese		1100	15		ug/l	SW846 6010D
Nickel		24.7	10		ug/l	SW846 6010D
Potassium		10400	10000		ug/l	SW846 6010D
Sodium		64300	10000		ug/l	SW846 6010D
Zinc		64.0	20		ug/l	SW846 6010D
JD77310-11F	**E23-05046-019_TWP1 FILT**					
Aluminum		850	200		ug/l	SW846 6010D
Calcium		128000	5000		ug/l	SW846 6010D
Iron		1090	100		ug/l	SW846 6010D
Lead		8.0	3.0		ug/l	SW846 6010D
Magnesium		13700	5000		ug/l	SW846 6010D

Summary of Hits

Job Number: JD77310
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/15/23 thru 11/16/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Manganese		145	15		ug/l	SW846 6010D
Potassium		10600	10000		ug/l	SW846 6010D
Sodium		73000	10000		ug/l	SW846 6010D
JD77310-12	**E23-05046-012_TWP2**					
Aluminum		3300	200		ug/l	SW846 6010D
Arsenic		7.7	3.0		ug/l	SW846 6010D
Calcium		75100	5000		ug/l	SW846 6010D
Chromium		10.9	10		ug/l	SW846 6010D
Copper		56.9	10		ug/l	SW846 6010D
Iron		10400	100		ug/l	SW846 6010D
Lead		43.9	3.0		ug/l	SW846 6010D
Manganese		182	15		ug/l	SW846 6010D
Mercury		0.63	0.20		ug/l	SW846 7470A
Nickel		11.2	10		ug/l	SW846 6010D
Potassium		11200	10000		ug/l	SW846 6010D
Sodium		106000	10000		ug/l	SW846 6010D
Zinc		49.2	20		ug/l	SW846 6010D
JD77310-12F	**E23-05046-020_TWP2 FILT**					
Aluminum		579	200		ug/l	SW846 6010D
Arsenic		7.1	3.0		ug/l	SW846 6010D
Calcium		60900	5000		ug/l	SW846 6010D
Iron		784	100		ug/l	SW846 6010D
Lead		4.7	3.0		ug/l	SW846 6010D
Manganese		20.3	15		ug/l	SW846 6010D
Potassium		11700	10000		ug/l	SW846 6010D
Sodium		121000	10000		ug/l	SW846 6010D
JD77310-13	**E23-05046-013_TWP4**					
Aluminum		6580	200		ug/l	SW846 6010D
Arsenic		5.2	3.0		ug/l	SW846 6010D
Barium		487	200		ug/l	SW846 6010D
Beryllium		1.1	1.0		ug/l	SW846 6010D
Calcium		169000	5000		ug/l	SW846 6010D
Chromium		11.0	10		ug/l	SW846 6010D
Copper		27.1	10		ug/l	SW846 6010D
Iron		9230	100		ug/l	SW846 6010D
Lead		122	3.0		ug/l	SW846 6010D
Magnesium		24400	5000		ug/l	SW846 6010D
Manganese		2110	15		ug/l	SW846 6010D
Nickel		24.0	10		ug/l	SW846 6010D

Summary of Hits

Job Number: JD77310
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/15/23 thru 11/16/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Potassium		15200	10000		ug/l	SW846 6010D
Sodium		190000	10000		ug/l	SW846 6010D
Zinc		107	20		ug/l	SW846 6010D
JD77310-13F	**E23-05046-021_TWP4 FILT**					
Barium		236	200		ug/l	SW846 6010D
Calcium		170000	5000		ug/l	SW846 6010D
Iron		110	100		ug/l	SW846 6010D
Magnesium		23300	5000		ug/l	SW846 6010D
Manganese		1020	15		ug/l	SW846 6010D
Potassium		15600	10000		ug/l	SW846 6010D
Sodium		209000	20000		ug/l	SW846 6010D
JD77310-14	**E23-05046-014_TWP5**					
Aluminum		4230	200		ug/l	SW846 6010D
Calcium		33100	5000		ug/l	SW846 6010D
Chromium		15.2	10		ug/l	SW846 6010D
Copper		13.3	10		ug/l	SW846 6010D
Iron		8200	100		ug/l	SW846 6010D
Lead		8.7	3.0		ug/l	SW846 6010D
Manganese		140	15		ug/l	SW846 6010D
Sodium		274000	20000		ug/l	SW846 6010D
Zinc		26.9	20		ug/l	SW846 6010D
JD77310-14F	**E23-05046-022_TWP5 FILT**					
Calcium		31300	5000		ug/l	SW846 6010D
Iron		294	100		ug/l	SW846 6010D
Manganese		89.2	15		ug/l	SW846 6010D
Sodium		264000	50000		ug/l	SW846 6010D
JD77310-15	**E23-05046-015_SB4A**					
Aluminum		11900	60		mg/kg	SW846 6010D
Arsenic		6.4	2.4		mg/kg	SW846 6010D
Barium		298	24		mg/kg	SW846 6010D
Beryllium		0.60	0.24		mg/kg	SW846 6010D
Calcium		8670	600		mg/kg	SW846 6010D
Chromium		19.9	1.2		mg/kg	SW846 6010D
Copper		25.2	3.0		mg/kg	SW846 6010D
Iron		16200	60		mg/kg	SW846 6010D
Lead		203	2.4		mg/kg	SW846 6010D
Magnesium		2690	600		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77310
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/15/23 thru 11/16/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Manganese		461	1.8		mg/kg	SW846 6010D
Mercury		0.23	0.036		mg/kg	SW846 7471B
Nickel		14.9	4.8		mg/kg	SW846 6010D
Silver		0.85	0.60		mg/kg	SW846 6010D
Vanadium		27.4	6.0		mg/kg	SW846 6010D
Zinc		196	6.0		mg/kg	SW846 6010D
JD77310-16	**E23-05046-016_SB4B**					
Aluminum		8270	61		mg/kg	SW846 6010D
Arsenic		9.2	2.4		mg/kg	SW846 6010D
Barium		2180	120		mg/kg	SW846 6010D
Beryllium		0.56	0.24		mg/kg	SW846 6010D
Cadmium		1.0	0.61		mg/kg	SW846 6010D
Calcium		67200	3000		mg/kg	SW846 6010D
Chromium		24.9	1.2		mg/kg	SW846 6010D
Cobalt		6.5	6.1		mg/kg	SW846 6010D
Copper		35.7	3.0		mg/kg	SW846 6010D
Iron		18900	61		mg/kg	SW846 6010D
Lead		2680	12		mg/kg	SW846 6010D
Magnesium		4210	610		mg/kg	SW846 6010D
Manganese		604	1.8		mg/kg	SW846 6010D
Mercury		0.57	0.036		mg/kg	SW846 7471B
Nickel		21.7	4.9		mg/kg	SW846 6010D
Potassium		1560	1200		mg/kg	SW846 6010D
Silver		1.1	0.61		mg/kg	SW846 6010D
Vanadium		23.0	6.1		mg/kg	SW846 6010D
Zinc		2550	30		mg/kg	SW846 6010D
JD77310-17	**E23-05046-017_SB5A**					
Aluminum		10700	53		mg/kg	SW846 6010D
Arsenic		3.1	2.1		mg/kg	SW846 6010D
Barium		59.6	21		mg/kg	SW846 6010D
Beryllium		0.61	0.21		mg/kg	SW846 6010D
Calcium		2980	530		mg/kg	SW846 6010D
Chromium		23.6	1.1		mg/kg	SW846 6010D
Cobalt		7.4	5.3		mg/kg	SW846 6010D
Copper		20.0	2.7		mg/kg	SW846 6010D
Iron		15600	53		mg/kg	SW846 6010D
Lead		29.9	2.1		mg/kg	SW846 6010D
Magnesium		3310	530		mg/kg	SW846 6010D
Manganese		443	1.6		mg/kg	SW846 6010D
Mercury		0.21	0.035		mg/kg	SW846 7471B
Nickel		21.9	4.3		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77310
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/15/23 thru 11/16/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Potassium		1390	1100		mg/kg	SW846 6010D
Silver		0.70	0.53		mg/kg	SW846 6010D
Vanadium		26.8	5.3		mg/kg	SW846 6010D
Zinc		51.6	5.3		mg/kg	SW846 6010D
JD77310-18	**E23-05046-018_SB5B**					
Aluminum		7620	57		mg/kg	SW846 6010D
Arsenic		2.5	2.3		mg/kg	SW846 6010D
Barium		43.4	23		mg/kg	SW846 6010D
Beryllium		0.47	0.23		mg/kg	SW846 6010D
Calcium		2090	570		mg/kg	SW846 6010D
Chromium		17.0	1.1		mg/kg	SW846 6010D
Copper		16.2	2.9		mg/kg	SW846 6010D
Iron		11300	57		mg/kg	SW846 6010D
Lead		27.7	2.3		mg/kg	SW846 6010D
Magnesium		2480	570		mg/kg	SW846 6010D
Manganese		307	1.7		mg/kg	SW846 6010D
Mercury		0.11	0.035		mg/kg	SW846 7471B
Nickel		14.0	4.6		mg/kg	SW846 6010D
Potassium		1390	1100		mg/kg	SW846 6010D
Vanadium		19.5	5.7		mg/kg	SW846 6010D
Zinc		30.1	5.7		mg/kg	SW846 6010D

(a) Elevated detection limit due to dilution required for high interfering element.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	E23-05046-001_SB12A		
Lab Sample ID:	JD77310-1	**Date Sampled:**	11/15/23
Matrix:	SO - Soil	**Date Received:**	11/20/23
		Percent Solids:	87.1
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4950	57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.3	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	8.7	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	173	23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.39	0.23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	12.8	0.57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	50200	2900	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	17.6	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	6.0	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	42.9	2.9	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	19700	57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	773	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	2110	570	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	351	1.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	5.2	0.35	mg/kg	10	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	17.3	4.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.3	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	1.1	0.57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	20.7	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	2050	29	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05046-002_SB2A		
Lab Sample ID:	JD77310-2	**Date Sampled:**	11/15/23
Matrix:	SO - Soil	**Date Received:**	11/20/23
		Percent Solids:	93.8
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6300	53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	2.9	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	48.5	21	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.41	0.21	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.53	0.53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	17800	530	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	20.7	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	6.5	5.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	21.5	2.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	12200	53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	39.0	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	6090	530	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	263	1.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.037	0.033	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	42.8	4.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1780	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.78	0.53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	22.7	5.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	60.2	5.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05046-003_SB2B		
Lab Sample ID:	JD77310-3	**Date Sampled:**	11/15/23
Matrix:	SO - Soil	**Date Received:**	11/20/23
		Percent Solids:	92.1
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5040	55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.2	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	3.8	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	163	22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.76	0.22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.55	0.55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	10500	550	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	15.9	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	7.7	5.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	31.8	2.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	13100	55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	235	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	6400	550	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	292	1.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.56	0.030	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	56.8	4.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1270	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.2	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.78	0.55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	20.2	5.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	176	5.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05046-004_SB1A		
Lab Sample ID:	JD77310-4	**Date Sampled:**	11/15/23
Matrix:	SO - Soil	**Date Received:**	11/20/23
		Percent Solids:	91.2
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	7910	55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.2	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	7.5	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	298	22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.46	0.22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	0.63	0.55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	14000	550	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	20.8	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	< 5.5	5.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	47.9	2.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	12500	55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	436	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	2880	550	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	241	1.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.61	0.034	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	15.5	4.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.2	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.86	0.55	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	24.9	5.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	276	5.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05046-005_SB1B		
Lab Sample ID:	JD77310-5	**Date Sampled:**	11/15/23
Matrix:	SO - Soil	**Date Received:**	11/20/23
		Percent Solids:	86.2
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	10700	56	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.2	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	7.6	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	463	22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.64	0.22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	1.9	0.56	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	77400	2800	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	28.8	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	5.8	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper [a]	128	14	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	32600	280	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	1260	11	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	12800	560	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	704	1.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	1.1	0.066	mg/kg	2	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	22.8	4.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1670	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium [a]	< 11	11	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver [a]	< 2.8	2.8	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium [a]	< 5.6	5.6	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	29.8	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	477	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05046-006_SB3A		
Lab Sample ID:	JD77310-6	**Date Sampled:**	11/15/23
Matrix:	SO - Soil	**Date Received:**	11/20/23
		Percent Solids:	90.6
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6400	57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	8.0	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	8.9	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	309	23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.43	0.23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	1.4	0.57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	34300	1100	mg/kg	2	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	16.8	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	< 5.7	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	195	2.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	13400	57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	774	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	2920	570	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	1210	3.4	mg/kg	2	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.68	0.035	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	32.2	4.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.3	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	1.2	0.57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium [a]	< 2.3	2.3	mg/kg	2	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	25.8	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	483	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05046-007_SB3B		
Lab Sample ID:	JD77310-7	**Date Sampled:**	11/15/23
Matrix:	SO - Soil	**Date Received:**	11/20/23
		Percent Solids:	88.9
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5390	56	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony [a]	< 45	45	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic [a]	< 45	45	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	288	22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium [a]	< 4.5	4.5	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium [a]	< 11	11	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	49000	11000	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium [a]	70.1	22	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	39.9	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper [a]	503	56	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	254000	1100	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead [a]	888	45	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	3500	560	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	2890	33	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.65	0.036	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel [a]	98.3	89	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium [a]	< 45	45	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver [a]	< 11	11	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium [a]	< 22	22	mg/kg	20	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	94.8	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	688	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05046-008_SB10A		
Lab Sample ID:	JD77310-8	**Date Sampled:**	11/15/23
Matrix:	SO - Soil	**Date Received:**	11/20/23
		Percent Solids:	91.1
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	7400	56	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.2	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	3.6	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	90.2	22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.46	0.22	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.56	0.56	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	31300	1100	mg/kg	2	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	22.0	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	6.1	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	26.4	2.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	13700	56	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	159	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	3600	560	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	386	1.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.27	0.034	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	18.6	4.5	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1520	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.2	2.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.58	0.56	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	21.6	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	54.9	5.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05046-009_SB11A		
Lab Sample ID:	JD77310-9	**Date Sampled:**	11/15/23
Matrix:	SO - Soil	**Date Received:**	11/20/23
		Percent Solids:	83.5
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	7780	58	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.3	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	3.9	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	98.7	23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.44	0.23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.58	0.58	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	5130	580	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	16.9	1.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	6.4	5.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	17.1	2.9	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	16100	58	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	56.1	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	3220	580	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	442	1.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.23	0.036	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	19.4	4.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1200	1200	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.3	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	< 0.58	0.58	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1200	1200	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.2	1.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	17.7	5.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	80.8	5.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05046-010_SB8A		
Lab Sample ID:	JD77310-10	**Date Sampled:**	11/15/23
Matrix:	SO - Soil	**Date Received:**	11/20/23
		Percent Solids:	95.4
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6710	52	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	2.5	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	45.1	21	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.39	0.21	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.52	0.52	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	15800	520	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	17.0	1.0	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	< 5.2	5.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	17.3	2.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	10900	52	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	12.0	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	2740	520	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	321	1.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.052	0.032	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	16.5	4.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1000	1000	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	< 0.52	0.52	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1000	1000	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.0	1.0	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	17.3	5.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	26.6	5.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05046-011_TWP1		
Lab Sample ID:	JD77310-11	**Date Sampled:**	11/15/23
Matrix:	AQ - Water	**Date Received:**	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6990	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	5.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	229	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	1.3	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	118000	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	29.5	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	60.5	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	10400	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	68.9	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	14700	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	1100	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	24.7	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	10400	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	64300	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	64.0	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55130
(2) Instrument QC Batch: MA55145
(3) Prep QC Batch: MP43295
(4) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05046-019_TWP1 FILT		
Lab Sample ID:	JD77310-11F	**Date Sampled:**	11/15/23
Matrix:	AQ - Water Filtered	**Date Received:**	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	850	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	128000	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	1090	100	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	8.0	3.0	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	13700	5000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	145	15	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	10600	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	73000	10000	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	< 20	20	ug/l	1	11/22/23	11/27/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55130
(2) Instrument QC Batch: MA55145
(3) Prep QC Batch: MP43295
(4) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05046-012_TWP2		
Lab Sample ID:	JD77310-12	**Date Sampled:**	11/15/23
Matrix:	AQ - Water	**Date Received:**	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	3300	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	7.7	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	75100	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	10.9	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	56.9	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	10400	100	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	43.9	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	< 5000	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	182	15	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	0.63	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	11.2	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	11200	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	106000	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	49.2	20	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55145
(3) Prep QC Batch: MP43267
(4) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05046-020_TWP2 FILT		
Lab Sample ID:	JD77310-12F	**Date Sampled:**	11/15/23
Matrix:	AQ - Water Filtered	**Date Received:**	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	579	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	7.1	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	< 200	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	< 1.0	1.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	60900	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	784	100	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	4.7	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	< 5000	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	20.3	15	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	11700	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	121000	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	< 20	20	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55145
(3) Prep QC Batch: MP43267
(4) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05046-013_TWP4		
Lab Sample ID:	JD77310-13	**Date Sampled:**	11/16/23
Matrix:	AQ - Water	**Date Received:**	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6580	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Antimony	< 6.0	6.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Arsenic	5.2	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Barium	487	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Beryllium	1.1	1.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cadmium	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Calcium	169000	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Chromium	11.0	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Cobalt	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Copper	27.1	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Iron	9230	100	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Lead	122	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Magnesium	24400	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Manganese	2110	15	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Mercury	< 0.20	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [2]	SW846 7470A [4]
Nickel	24.0	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Potassium	15200	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Selenium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Silver	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Sodium	190000	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Thallium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Vanadium	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]
Zinc	107	20	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55145
(3) Prep QC Batch: MP43267
(4) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05046-021_TWP4 FILT		
Lab Sample ID:	JD77310-13F	**Date Sampled:**	11/16/23
Matrix:	AQ - Water Filtered	**Date Received:**	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Antimony	< 6.0	6.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Arsenic	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Barium	236	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Beryllium	< 1.0	1.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cadmium	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Calcium	170000	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Chromium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cobalt	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Copper	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Iron	110	100	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Lead	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Magnesium	23300	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Manganese	1020	15	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Mercury	< 0.20	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [3]	SW846 7470A [5]
Nickel	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Potassium	15600	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Selenium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Silver	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Sodium	209000	20000	ug/l	2	11/21/23	11/28/23	ND	SW846 6010D [2]	SW846 3010A [4]
Thallium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Vanadium	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Zinc	< 20	20	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55138
(3) Instrument QC Batch: MA55145
(4) Prep QC Batch: MP43267
(5) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05046-014_TWP5		
Lab Sample ID:	JD77310-14	**Date Sampled:**	11/16/23
Matrix:	AQ - Water	**Date Received:**	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	4230	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Antimony	< 6.0	6.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Arsenic	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Barium	< 200	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Beryllium	< 1.0	1.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cadmium	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Calcium	33100	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Chromium	15.2	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cobalt	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Copper	13.3	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Iron	8200	100	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Lead	8.7	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Magnesium	< 5000	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Manganese	140	15	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Mercury	< 0.20	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [3]	SW846 7470A [5]
Nickel	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Potassium	< 10000	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Selenium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Silver	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Sodium	274000	20000	ug/l	2	11/21/23	11/28/23	ND	SW846 6010D [2]	SW846 3010A [4]
Thallium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Vanadium	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Zinc	26.9	20	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55138
(3) Instrument QC Batch: MA55145
(4) Prep QC Batch: MP43267
(5) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05046-022_TWP5 FILT		
Lab Sample ID:	JD77310-14F	**Date Sampled:**	11/16/23
Matrix:	AQ - Water Filtered	**Date Received:**	11/20/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Antimony	< 6.0	6.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Arsenic	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Barium	< 200	200	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Beryllium	< 1.0	1.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cadmium	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Calcium	31300	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Chromium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cobalt	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Copper	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Iron	294	100	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Lead	< 3.0	3.0	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Magnesium	< 5000	5000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Manganese	89.2	15	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Mercury	< 0.20	0.20	ug/l	1	11/28/23	11/28/23	LM	SW846 7470A [3]	SW846 7470A [5]
Nickel	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Potassium	< 10000	10000	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Selenium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Silver	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Sodium	264000	50000	ug/l	5	11/21/23	11/27/23	ND	SW846 6010D [2]	SW846 3010A [4]
Thallium	< 10	10	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Vanadium	< 50	50	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]
Zinc	< 20	20	ug/l	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3010A [4]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55130
(3) Instrument QC Batch: MA55145
(4) Prep QC Batch: MP43267
(5) Prep QC Batch: MP43369

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05046-015_SB4A		
Lab Sample ID:	JD77310-15	**Date Sampled:**	11/15/23
Matrix:	SO - Soil	**Date Received:**	11/20/23
		Percent Solids:	87.1
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	11900	60	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.4	2.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	6.4	2.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	298	24	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.60	0.24	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.60	0.60	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	8670	600	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	19.9	1.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	< 6.0	6.0	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	25.2	3.0	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	16200	60	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	203	2.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	2690	600	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	461	1.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.23	0.036	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	14.9	4.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1200	1200	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.4	2.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.85	0.60	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1200	1200	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.2	1.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	27.4	6.0	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	196	6.0	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05046-016_SB4B		
Lab Sample ID:	JD77310-16	**Date Sampled:**	11/15/23
Matrix:	SO - Soil	**Date Received:**	11/20/23
		Percent Solids:	83.0
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	8270	61	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.4	2.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	9.2	2.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	2180	120	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.56	0.24	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	1.0	0.61	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	67200	3000	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	24.9	1.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	6.5	6.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	35.7	3.0	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	18900	61	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	2680	12	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	4210	610	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	604	1.8	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.57	0.036	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	21.7	4.9	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1560	1200	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.4	2.4	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	1.1	0.61	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1200	1200	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.2	1.2	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	23.0	6.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	2550	30	mg/kg	5	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05046-017_SB5A		
Lab Sample ID:	JD77310-17	**Date Sampled:**	11/15/23
Matrix:	SO - Soil	**Date Received:**	11/20/23
		Percent Solids:	91.0
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	10700	53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	3.1	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	59.6	21	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.61	0.21	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.53	0.53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	2980	530	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	23.6	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	7.4	5.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	20.0	2.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	15600	53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	29.9	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	3310	530	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	443	1.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.21	0.035	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	21.9	4.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1390	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.70	0.53	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	26.8	5.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	51.6	5.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	E23-05046-018_SB5B		
Lab Sample ID:	JD77310-18	**Date Sampled:**	11/15/23
Matrix:	SO - Soil	**Date Received:**	11/20/23
		Percent Solids:	90.2
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	7620	57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.3	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	2.5	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	43.4	23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.47	0.23	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.57	0.57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	2090	570	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	17.0	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	< 5.7	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	16.2	2.9	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	11300	57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	27.7	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	2480	570	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	307	1.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.11	0.035	mg/kg	1	11/22/23	11/27/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	14.0	4.6	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	1390	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.3	2.3	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	< 0.57	0.57	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	19.5	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	30.1	5.7	mg/kg	1	11/21/23	11/22/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55123
(2) Instrument QC Batch: MA55124
(3) Prep QC Batch: MP43275
(4) Prep QC Batch: MP43335

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS Dayton
Fresh Ponds Corporate Village, Building B 2235 Route 130, Dayton, NJ 08810

D/O4927

JD77310

CLIENT & PROJECT	REPORTING & BILLING
Name: Integrated Analytical Laboratories LLC	Contact: Kim James
	Fax #:
Address:	EMail to: msimmons@ialonline.com
273 Franklin Road	Report to: Melissa Simmons
Randolph, NJ 07869	Address:
Telephone #: 973-361-4252	
Project Name: E23-05046	Invoice to: Brenda Barone
Project Location (State): NY	Address:
Project Manager:	
Reference ID#: PO#	

Turnaround Time		Report Format
Verbal/Fax		Category A
24 hr* 48 hr* 72 hr* 1 wk* 2 wk Other:	1 WEEK	
Hard Copy		Special Requirements
72 hr* 1 wk* 2 wk* 3 wk Other:		
*Prior to sample arrival, Lab notification is required.		

Preservative
1 = HCL; 2 = NaOH; 3 = HNO_3
4 = H_2SO_4; 5= MeOH; 6 = Other

ANALYTICAL PARAMETERS / PRESERVATIVES

SAMPLE INFORMATION

	Sample ID	Sample Depth (in Feet)	Sampling Date	Sampling Time	Matrix	# of Containers	TAL Metals (6020B/7471B)													
							1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
1	E23-05046-001_SB12A		11/15/23	08:15	Soil	1	Run													A13
2	E23-05046-002_SB2A		11/15/23	08:20	Soil	1	Run													D49 T1
3	E23-05046-003_SB2B		11/15/23	08:35	Soil	1	Run													
4	E23-05046-004_SB1A		11/15/23	09:30	Soil	1	Run													
5	E23-05046-005_SB1B		11/15/23	09:35	Soil	1	Run													
6	E23-05046-006_SB3A		11/15/23	10:45	Soil	1	Run													
7	E23-05046-007_SB3B		11/15/23	10:50	Soil	1	Run													
8	E23-05046-008_SB10A		11/15/23	13:05	Soil	1	Run													
9	E23-05046-009_SB11A		11/15/23	13:40	Soil	1	Run													
10	E23-05046-010_SB8A		11/15/23	14:00	Soil	1	Run													

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time will not start until any ambiguities have been resolved.

COOLER TEMP. 1.1 °C IR40 | Concentrations Expected LOW MED HIGH | Known Hazard: yes no Describe:

EMAIL CONFIRMATION REQUIRED

Note: SAMPLES 019 THROUGH 022 ARE FIELD FILTERED VOLUME OF SAMPLES 11 THROUGH 14.

1 WEEK RUSH.

CUSTODY LOG

Signature/Company	Date	Time	Signature/Company
Relinquished by: [signature]	11/20/23	5:00PM	Received by: [signature] 11/20/23 6:30
Relinquished by: [signature]	11/20/23	10:05	Received by: [signature] 10:11 11/20/23
Relinquished by:			Received by: [signature]

Lab Case #

Initial Assessment 2B1HR
Label Verification

PAGE: 1 OF 3

1.1 IR40

COC (001-010) REV Feb 2013

JD77310: Chain of Custody
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SGS Dayton
Fresh Ponds Corporate Village, Building B 2235 Route 130, Dayton, NJ 08810

D/O4927
JD77310

CLIENT & PROJECT		REPORTING & BILLING	
Name: Integrated Analytical Laboratories LLC		Contact:	Kim James
		Fax #:	
Address:		EMail to:	msimmons@iaionline.com
273 Franklin Road		Report to:	Melissa Simmons
Randolph, NJ 07869		Address:	
Telephone #:	973-361-4252		
Project Name:	E23-05046	Invoice to:	Brenda Barone
Project Location (State):	NY	Address:	
Project Manager:			
Reference ID#:	PO#		

Turnaround Time		Report Format
Verbal/Fax		Category A
24 hr* 48 hr* 72 hr* 1 wk* 2 wk Other:	1 WEEK	
Hard Copy		Special Requirements
72 hr* 1 wk* 2 wk* 3 wk Other:		
*Prior to sample arrival, Lab notification is required.		

Preservative
1 = HCL; 2 = NaOH; 3 = HNO_3
4 = H_2SO_4; 5= MeOH; 6 = Other

ANALYTICAL PARAMETERS / PRESERVATIVES

SAMPLE INFORMATION

	Sample ID	Sample Depth (in Feet)	Sampling Date	Sampling Time	Matrix	# of Containers	TAL Metals (6020B/7471B)	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
11	E23-05046-011_TWP1		11/15/23	12:20	Aqueous	1	Run													
12	E23-05046-012_TWP2		11/15/23	13:00	Aqueous	1	Run													
13	E23-05046-013_TWP4		11/16/23	09:10	Aqueous	1	Run													
14	E23-05046-014_TWP5		11/16/23	09:30	Aqueous	1	Run													
15	E23-05046-015_SB4A		11/16/23	08:10	Soil	1	Run													
16	E23-05046-016_SB4B		11/16/23	08:15	Soil	1	Run													
17	E23-05046-017_SB5A		11/16/23	08:20	Soil	1	Run													
8	E23-05046-018_SB5B		11/16/23	08:35	Soil	1	Run													
11	E23-05046-019_TWP1 FILT		11/15/23	12:20	Aqueous	1	Run													
12	E23-05046-020_TWP2 FILT		11/15/23	13:00	Aqueous	1	Run													

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time will not start until any ambiguities have been resolved.

COOLER TEMP. 1.1 °C
Concentrations Expected LOW MED HIGH
Known Hazard: yes no
Describe:

EMAIL CONFIRMATION REQUIRED

Note: SAMPLES 019 THROUGH 022 ARE FIELD FILTERED VOLUME OF SAMPLES 11 THROUGH 14.

1 WEEK RUSH.

CUSTODY LOG

Signature/Company	Date	Time	Signature/Company
Relinquished by: Kim James	11/20/23	8:00 AM	Received by: [signature] 11/20/23 6:30
Relinquished by: [signature]	11/20/23	10:05	Received by: Edward Carpenter 11/20/23 10:11
Relinquished by:			Received by:

Lab Case #

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COC (011-020)

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4.1
4

JD77310: Chain of Custody
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SGS Dayton
Fresh Ponds Corporate Village, Building B 2235 Route 130, Dayton, NJ 08810

D/O4927

JD77310

CLIENT & PROJECT		REPORTING & BILLING	
Name: Integrated Analytical Laboratories LLC		Contact:	Kim James
		Fax #:	
Address:		EMail to:	msimmons@ialonline.com
273 Franklin Road		Report to:	Melissa Simmons
Randolph, NJ 07869		Address:	
Telephone #:	973-361-4252		
Project Name:	E23-05046	Invoice to:	Brenda Barone
Project Location (State):	NY	Address:	
Project Manager:			
Reference ID#:	PO#		

Turnaround Time		Report Format
Verbal/Fax		Category A
24 hr* 48 hr* 72 hr* 1 wk* 2 wk Other:	1 WEEK	
Hard Copy		Special Requirements
72 hr* 1 wk* 2 wk* 3 wk Other:		
*Prior to sample arrival, Lab notification is required.		

Preservative
1 = HCL; 2 = NaOH; 3 = HNO_3
4 = H_2SO_4; 5= MeOH; 6 = Other

ANALYTICAL PARAMETERS / PRESERVATIVES

SAMPLE INFORMATION

	Sample ID	Sample Depth (in Feet)	Sampling Date	Sampling Time	Matrix	# of Containers	TAL Metals (6020B/7471B)	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
13	E23-05046-021_TWP4 FILT		11/16/23	09:10	Aqueous	1	Run													
14	E23-05046-022_TWP5 FILT		11/16/23	09:30	Aqueous	1	Run													

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time will not start until any ambiguities have been resolved.

COOLER TEMP. 1.1 °C 1240

Concentrations Expected LOW MED HIGH

Known Hazard: yes no
Describe:

EMAIL CONFIRMATION REQUIRED

Note: SAMPLES 019 THROUGH 022 ARE FIELD FILTERED VOLUME OF SAMPLES 11 THROUGH 14.

1 WEEK RUSH.

CUSTODY LOG

Signature/Company	Date	Time	Signature/Company
Relinquished by: Kim James	11/20/23	9:20 AM	Received by: [signature] 11/20/23 6:30
Relinquished by: [signature]	11/20/23	10:05	Received by: Edward Carpater/SGS 10:11 11/20/23
Relinquished by:			Received by:

Lab Case #

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COC (021-022)

1.1 TC40

REV Feb 2013

4.1

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JD77310: Chain of Custody
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SGS Sample Receipt Summary

Job Number: JD77310 **Client:** INTEGRATED ANALYTICAL LABORATOR **Project:** E23-05046

Date / Time Received: 11/20/2023 10:11:00 AM **Delivery Method:** CLIENT **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (1.1);

Cooler Temps (Corrected) °C: Cooler 1: (1.1);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:			
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservatio	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☑	☐
2. Trip Blank listed on COC:	☐		☑	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Test Strip Lot #s: pH 1-12: 231619 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

JD77310: Chain of Custody
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The results set forth herein are provided by SGS North America Inc.

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Automated Report

Technical Report for

Integrated Analytical Lab

Integrated Analytical Lab, Randolph, NJ

E23-05091

SGS Job Number: JD77487

Sampling Date: 11/20/23

Report to:

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Total number of pages in report: 16

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

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General Manager

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SGS North America Inc.

Sample Summary

Integrated Analytical Lab

Job No: JD77487

Integrated Analytical Lab, Randolph, NJ
Project No: E23-05091

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD77487-1	11/20/23	08:15		11/22/23	SO	Soil	E23-05091-001_SB9A
JD77487-2	11/20/23	08:25		11/22/23	SO	Soil	E23-05091-002_SB9B
JD77487-3	11/20/23	09:45		11/22/23	SO	Soil	E23-05091-003_SB6A
JD77487-4	11/20/23	09:55		11/22/23	SO	Soil	E23-05091-004_SB6B
JD77487-5	11/20/23	10:15		11/22/23	AQ	Water	E23-05091-005_TWP6
JD77487-6F	11/20/23	10:15		11/22/23	AQ	Water Filtered	E23-05091-006_TWP6 FILT

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Summary of Hits

Job Number: JD77487
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/20/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD77487-1	**E23-05091-001_SB9A**					
Aluminum		6140	53		mg/kg	SW846 6010D
Arsenic		3.5	2.1		mg/kg	SW846 6010D
Barium		46.7	21		mg/kg	SW846 6010D
Beryllium		0.37	0.21		mg/kg	SW846 6010D
Calcium		9440	530		mg/kg	SW846 6010D
Chromium		14.2	1.1		mg/kg	SW846 6010D
Cobalt		6.6	5.3		mg/kg	SW846 6010D
Copper		16.0	2.6		mg/kg	SW846 6010D
Iron		11700	53		mg/kg	SW846 6010D
Lead		21.5	2.1		mg/kg	SW846 6010D
Magnesium		4360	530		mg/kg	SW846 6010D
Manganese		335	1.6		mg/kg	SW846 6010D
Mercury		0.044	0.031		mg/kg	SW846 7471B
Nickel		24.5	4.2		mg/kg	SW846 6010D
Silver		0.86	0.53		mg/kg	SW846 6010D
Vanadium		19.1	5.3		mg/kg	SW846 6010D
Zinc		39.9	5.3		mg/kg	SW846 6010D
JD77487-2	**E23-05091-002_SB9B**					
Aluminum		11900	55		mg/kg	SW846 6010D
Arsenic		4.4	2.2		mg/kg	SW846 6010D
Barium		157	22		mg/kg	SW846 6010D
Beryllium		0.71	0.22		mg/kg	SW846 6010D
Calcium		8260	550		mg/kg	SW846 6010D
Chromium		29.4	1.1		mg/kg	SW846 6010D
Cobalt		8.2	5.5		mg/kg	SW846 6010D
Copper		25.0	2.8		mg/kg	SW846 6010D
Iron		18400	55		mg/kg	SW846 6010D
Lead		64.2	2.2		mg/kg	SW846 6010D
Magnesium		6700	550		mg/kg	SW846 6010D
Manganese		562	1.7		mg/kg	SW846 6010D
Mercury		0.060	0.032		mg/kg	SW846 7471B
Nickel		31.3	4.4		mg/kg	SW846 6010D
Potassium		2200	1100		mg/kg	SW846 6010D
Silver		1.4	0.55		mg/kg	SW846 6010D
Vanadium		31.7	5.5		mg/kg	SW846 6010D
Zinc		100	5.5		mg/kg	SW846 6010D
JD77487-3	**E23-05091-003_SB6A**					
Aluminum		5550	55		mg/kg	SW846 6010D
Arsenic		4.5	2.2		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD77487
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/20/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Barium		224	22		mg/kg	SW846 6010D
Beryllium		0.31	0.22		mg/kg	SW846 6010D
Calcium		30600	1100		mg/kg	SW846 6010D
Chromium		14.4	1.1		mg/kg	SW846 6010D
Copper		20.0	2.7		mg/kg	SW846 6010D
Iron		11000	55		mg/kg	SW846 6010D
Lead		143	2.2		mg/kg	SW846 6010D
Magnesium		14100	550		mg/kg	SW846 6010D
Manganese		275	1.6		mg/kg	SW846 6010D
Mercury		0.15	0.033		mg/kg	SW846 7471B
Nickel		20.2	4.4		mg/kg	SW846 6010D
Silver		0.77	0.55		mg/kg	SW846 6010D
Vanadium		21.5	5.5		mg/kg	SW846 6010D
Zinc		148	5.5		mg/kg	SW846 6010D
JD77487-4	**E23-05091-004_SB6B**					
Aluminum		6100	53		mg/kg	SW846 6010D
Arsenic		3.8	2.1		mg/kg	SW846 6010D
Barium		38.0	21		mg/kg	SW846 6010D
Beryllium		0.28	0.21		mg/kg	SW846 6010D
Calcium		17300	530		mg/kg	SW846 6010D
Chromium		13.5	1.1		mg/kg	SW846 6010D
Copper		15.6	2.7		mg/kg	SW846 6010D
Iron		9790	53		mg/kg	SW846 6010D
Lead		48.9	2.1		mg/kg	SW846 6010D
Magnesium		6650	530		mg/kg	SW846 6010D
Manganese		201	1.6		mg/kg	SW846 6010D
Mercury		0.054	0.034		mg/kg	SW846 7471B
Nickel		18.1	4.3		mg/kg	SW846 6010D
Silver		0.78	0.53		mg/kg	SW846 6010D
Vanadium		20.0	5.3		mg/kg	SW846 6010D
Zinc		66.2	5.3		mg/kg	SW846 6010D
JD77487-5	**E23-05091-005_TWP6**					
Aluminum		5960	200		ug/l	SW846 6010D
Barium		440	200		ug/l	SW846 6010D
Beryllium		1.2	1.0		ug/l	SW846 6010D
Calcium		74300	5000		ug/l	SW846 6010D
Chromium		18.1	10		ug/l	SW846 6010D
Copper		44.5	10		ug/l	SW846 6010D
Iron		8980	100		ug/l	SW846 6010D
Lead		20.9	3.0		ug/l	SW846 6010D
Magnesium		22200	5000		ug/l	SW846 6010D

Summary of Hits

Job Number: JD77487
Account: Integrated Analytical Lab
Project: Integrated Analytical Lab, Randolph, NJ
Collected: 11/20/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Manganese		3260	15		ug/l	SW846 6010D
Nickel		26.1	10		ug/l	SW846 6010D
Potassium		16300	10000		ug/l	SW846 6010D
Selenium		10.5	10		ug/l	SW846 6010D
Sodium		193000	20000		ug/l	SW846 6010D
Zinc		57.4	20		ug/l	SW846 6010D
JD77487-6F	**E23-05091-006_TWP6 FILT**					
Aluminum		6990	200		ug/l	SW846 6010D
Barium		328	200		ug/l	SW846 6010D
Calcium		70000	5000		ug/l	SW846 6010D
Chromium		13.2	10		ug/l	SW846 6010D
Copper		35.7	10		ug/l	SW846 6010D
Iron		9040	100		ug/l	SW846 6010D
Lead		9.6	3.0		ug/l	SW846 6010D
Magnesium		20000	5000		ug/l	SW846 6010D
Manganese		2730	15		ug/l	SW846 6010D
Nickel		19.6	10		ug/l	SW846 6010D
Potassium		16600	10000		ug/l	SW846 6010D
Selenium		10.7	10		ug/l	SW846 6010D
Sodium		192000	20000		ug/l	SW846 6010D
Zinc		32.7	20		ug/l	SW846 6010D

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	E23-05091-001_SB9A		
Lab Sample ID:	JD77487-1	**Date Sampled:**	11/20/23
Matrix:	SO - Soil	**Date Received:**	11/22/23
		Percent Solids:	93.6
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6140	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	3.5	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	46.7	21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.37	0.21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.53	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	9440	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	14.2	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	6.6	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	16.0	2.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	11700	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	21.5	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	4360	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	335	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.044	0.031	mg/kg	1	11/29/23	11/30/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	24.5	4.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.86	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	19.1	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	39.9	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55138
(2) Instrument QC Batch: MA55149
(3) Prep QC Batch: MP43344
(4) Prep QC Batch: MP43430

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05091-002_SB9B		
Lab Sample ID:	JD77487-2	**Date Sampled:**	11/20/23
Matrix:	SO - Soil	**Date Received:**	11/22/23
		Percent Solids:	88.5
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	11900	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	4.4	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	157	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.71	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.55	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	8260	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	29.4	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	8.2	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	25.0	2.8	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	18400	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	64.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	6700	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	562	1.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.060	0.032	mg/kg	1	11/29/23	11/30/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	31.3	4.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	2200	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	1.4	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	31.7	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	100	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55138
(2) Instrument QC Batch: MA55149
(3) Prep QC Batch: MP43344
(4) Prep QC Batch: MP43430

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05091-003_SB6A		
Lab Sample ID:	JD77487-3	**Date Sampled:**	11/20/23
Matrix:	SO - Soil	**Date Received:**	11/22/23
		Percent Solids:	92.8
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5550	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Antimony	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Arsenic	4.5	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Barium	224	22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Beryllium	0.31	0.22	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cadmium	< 0.55	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Calcium	30600	1100	mg/kg	2	11/27/23	11/29/23	ND	SW846 6010D [2]	SW846 3050B [4]
Chromium	14.4	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Cobalt	< 5.5	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Copper	20.0	2.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Iron	11000	55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Lead	143	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Magnesium	14100	550	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Manganese	275	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Mercury	0.15	0.033	mg/kg	1	11/29/23	11/30/23	LM	SW846 7471B [3]	SW846 7471B [5]
Nickel	20.2	4.4	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Selenium	< 2.2	2.2	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Silver	0.77	0.55	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Vanadium	21.5	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]
Zinc	148	5.5	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [4]

(1) Instrument QC Batch: MA55138
(2) Instrument QC Batch: MA55148
(3) Instrument QC Batch: MA55149
(4) Prep QC Batch: MP43344
(5) Prep QC Batch: MP43430

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05091-004_SB6B		
Lab Sample ID:	JD77487-4	**Date Sampled:**	11/20/23
Matrix:	SO - Soil	**Date Received:**	11/22/23
		Percent Solids:	92.6
Project:	Integrated Analytical Lab, Randolph, NJ		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6100	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Antimony	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Arsenic	3.8	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Barium	38.0	21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Beryllium	0.28	0.21	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cadmium	< 0.53	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Calcium	17300	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Chromium	13.5	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Cobalt	< 5.3	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Copper	15.6	2.7	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Iron	9790	53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Lead	48.9	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Magnesium	6650	530	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Manganese	201	1.6	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Mercury	0.054	0.034	mg/kg	1	11/29/23	11/30/23	LM	SW846 7471B [2]	SW846 7471B [4]
Nickel	18.1	4.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Potassium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Selenium	< 2.1	2.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Silver	0.78	0.53	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Sodium	< 1100	1100	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Thallium	< 1.1	1.1	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Vanadium	20.0	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]
Zinc	66.2	5.3	mg/kg	1	11/27/23	11/28/23	ND	SW846 6010D [1]	SW846 3050B [3]

(1) Instrument QC Batch: MA55138
(2) Instrument QC Batch: MA55149
(3) Prep QC Batch: MP43344
(4) Prep QC Batch: MP43430

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05091-005_TWP6		
Lab Sample ID:	JD77487-5	**Date Sampled:**	11/20/23
Matrix:	AQ - Water	**Date Received:**	11/22/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	5960	200	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Antimony	< 6.0	6.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Arsenic	< 3.0	3.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Barium	440	200	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Beryllium	1.2	1.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cadmium	< 3.0	3.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Calcium	74300	5000	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Chromium	18.1	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cobalt	< 50	50	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Copper	44.5	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Iron	8980	100	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Lead	20.9	3.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Magnesium	22200	5000	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Manganese	3260	15	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Mercury	< 0.20	0.20	ug/l	1	11/30/23	11/30/23	LM	SW846 7470A [2]	SW846 7470A [5]
Nickel	26.1	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Potassium	16300	10000	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Selenium	10.5	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Silver	< 10	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Sodium	193000	20000	ug/l	2	11/28/23	11/30/23	ND	SW846 6010D [3]	SW846 3010A [4]
Thallium	< 10	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Vanadium	< 50	50	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Zinc	57.4	20	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]

(1) Instrument QC Batch: MA55148
(2) Instrument QC Batch: MA55150
(3) Instrument QC Batch: MA55156
(4) Prep QC Batch: MP43371
(5) Prep QC Batch: MP43435

RL = Reporting Limit

Report of Analysis

Client Sample ID:	E23-05091-006_TWP6 FILT		
Lab Sample ID:	JD77487-6F	**Date Sampled:**	11/20/23
Matrix:	AQ - Water Filtered	**Date Received:**	11/22/23
		Percent Solids:	n/a
Project:	Integrated Analytical Lab, Randolph, NJ		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Aluminum	6990	200	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Antimony	< 6.0	6.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Arsenic	< 3.0	3.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Barium	328	200	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Beryllium	< 1.0	1.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cadmium	< 3.0	3.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Calcium	70000	5000	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Chromium	13.2	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Cobalt	< 50	50	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Copper	35.7	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Iron	9040	100	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Lead	9.6	3.0	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Magnesium	20000	5000	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Manganese	2730	15	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Mercury	< 0.20	0.20	ug/l	1	11/30/23	11/30/23	LM	SW846 7470A [2]	SW846 7470A [5]
Nickel	19.6	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Potassium	16600	10000	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Selenium	10.7	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Silver	< 10	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Sodium	192000	20000	ug/l	2	11/28/23	11/30/23	ND	SW846 6010D [3]	SW846 3010A [4]
Thallium	< 10	10	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Vanadium	< 50	50	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]
Zinc	32.7	20	ug/l	1	11/28/23	11/29/23	ND	SW846 6010D [1]	SW846 3010A [4]

(1) Instrument QC Batch: MA55148
(2) Instrument QC Batch: MA55150
(3) Instrument QC Batch: MA55156
(4) Prep QC Batch: MP43371
(5) Prep QC Batch: MP43435

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SO
WW

SGS Dayton
Fresh Ponds Corporate Village, Building B 2235 Route 130, Dayton, NJ 08810

D/O4962

JD77487

CLIENT & PROJECT

Name: Integrated Analytical Laboratories LLC	
Address:	
273 Franklin Road	
Randolph, NJ 07869	
Telephone #: 973-361-4252	
Project Name: E23-05091	
Project Location (State): NY	
Project Manager:	
Reference ID#: PO#	

REPORTING & BILLING

Contact:	Kim James
Fax #:	
EMail to:	msimmons@ialonline.com
Report to:	Melissa Simmons
Address:	
Invoice to:	Brenda Barone
Address:	

Turnaround Time		Report Format
Verbal/Fax		Category A
24 hr* 48 hr* 72 hr* 1 wk* 2 wk Other:	1 WEEK	
Hard Copy		**Special Requirements**
72 hr* 1 wk* 2 wk* 3 wk Other:		
*Prior to sample arrival, Lab notification is required.		

Preservative
1 = HCL; 2 = NaOH; 3 = HNO_3
4 = H_2SO_4; 5= MeOH; 6 = Other

ANALYTICAL PARAMETERS / PRESERVATIVES

SAMPLE INFORMATION

Sample ID	Sample Depth (in Feet)	Sampling Date	Sampling Time	Matrix	# of Containers	TAL Metals (6020B/7471B)													
E23-05091-001_SB9A		11/20/23	08:15	Soil	1	Run												1	807
E23-05091-002_SB9B		11/20/23	08:25	Soil	1	Run												2	A18
E23-05091-003_SB6A		11/20/23	09:45	Soil	1	Run												3	
E23-05091-004_SB6B		11/20/23	09:55	Soil	1	Run												4	
E23-05091-005_TWP6		11/20/23	10:15	Aqueous	1	Run												5	
E23-05091-006_TWP6 FILT		11/20/23	10:15	Aqueous	1	Run												6	

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time will not start until any ambiguities have been resolved.

COOLER TEMP. 0.2 °C

Concentrations Expected LOW MED HIGH

Known Hazard: yes no

Describe:

EMAIL CONFIRMATION REQUIRED

Note: 1 WEEK TAT

SAMPLE 006 IS FIELD FILTERED. VOLUME OF SAMPLE 005

COMPARE SOIL RESULTS TO NY Part 375-6.8(UUSCO+RUSCO).

COMPARE GW RESULTS TO NY TOGS Tbl1 (AWQS).

Initial Assessment ZBHK

Label Verification

CUSTODY LOG

	Signature/Company	Date	Time		Signature/Company
Relinquished by:	Kim James	11/22/23	5:00PM	Received by:	[illegible] 11/22/23
Relinquished by:	[illegible]	11/22/23	12:21	Received by:	[illegible] 12:30
Relinquished by:				Received by:	

Lab Case #

PAGE: OF

COC (001-006)

REV Feb 2013

JD77487: Chain of Custody
Page 1 of 2

SGS Sample Receipt Summary

Job Number: JD77487 **Client:** INTEGRATED ANALYTICAL LAB **Project:** E23-05091

Date / Time Received: 11/22/2023 12:30:00 PM **Delivery Method:** CLIENT **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (0.2);

Cooler Temps (Corrected) °C: Cooler 1: (0.2);

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:		
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☑	☐
2. Trip Blank listed on COC:	☐	☑	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Test Strip Lot #s: pH 1-12: 231619 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

JD77487: Chain of Custody
Page 2 of 2

EPA TO-15 DATA PACKAGE

ANALYTICAL DATA PACKAGE FOR THE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY NEW YORK 12233

Integrated Analytical Laboratories, LLC — **Randolph, NJ 07869**
Project#: HK2661.2 — **NY ELAP Certification#: 11402**
SDG #: E23-05080 — **NJDEP (Primary AB) Certification#: 14751**
Date of first sample receipt: 11/20/2023 — **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.

Project/Site: HK2661.2/NY

Client Sample Number	Laboratory Sample	Sample Location	Date/Time of Collection
SV2	E23-05080-01	NA	11/16/2023 12:10
SV3	E23-05080-02	NA	11/16/2023 12:30

This report shall not be reproduced, except in its entirety, without the written consent of Integrated Analytical Laboratories, LLC. The test results included in this report relate only to the samples analyzed. The results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of data contained in this hardcopy data package and in the computer-readable data submitted on CD/diskette and by electronic mail has been authorized by the laboratory manager or his designee, as verified by the following signature.

Michael H. Leftin, Ph.D.
Laboratory Director

Date: December 20, 2023

Ming-Hwa Reitan
QA/QC Manager

Date: December 20, 2023

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Laboratory Acronyms

The following is a list of laboratory acronyms commonly used in EPA Method TO-15 testing:

Acronym	Definition
BLK	Blank/Method Blank
BFB	4-Bromofluorobenzene (Tuning Standard)
CAS Number	Chemical Abstract Service Registry Number
cc	cubic centimeters
CCCVS	Closing Calibration Check Verification Standard
COC	Chain of Custody
DCVS	Daily Calibration Verification Standard
DF	Dilution Factor
EPA	U. S. Environmental Protection Agency (aka USEPA)
"Hg	Inches of Mercury
IA	Indoor Air
IASL	Indoor Air Screening Level
ICAL	Initial Calibration
ICVSS	Initial Calibration Verification Standard
ISTD	Internal Standard
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LCS	Laboratory Control Sample/Spike
LLTO-15	Low Level TO-15
MDL	Method Detection Limit
MDLV	Method Detection Limit Verification
ml	milliliters
ND	Not Detected (at or above RL)
NJDEP	New Jersey Department of Environmental Protection
PM	Project Manager
ppbv	parts per billion, volume-to-volume ratio
PQL	Practical Quantitation Limit - MDLx3
QA	Quality Assurance
QC	Quality Control
RAL	Rapid Action Limit
RL	Reporting Limit
RLLCS	Reporting Limit Laboratory Control Sample
RPD	Relative Percent Difference
RRF	Relative Response Factor
RSD	Relative Standard Deviation
SDG	Sample Delivery Group
SGSL	Soil Gas Screening Levels
SS	Sub Slab
TAT	Turnaround Time
TIC	Tentatively Identified Compound
µg/m3	micrograms per cubic meter

Section I: Chain of Custody

Integrated Analytical Labs
273 Franklin Rd
Randolph, NJ 07869

External Chain of Custody Record/
Field Test Data Sheet
USEPA Method TO-15

Contact Us: 973 361-4252
fax: 973 366-5613
Web: www.ialonline.com

Carrier (check one): ____ IAL Courier ____ Client Courier ____ FedEx/UPS

pg 1 of 1

Client Contact Information	Project Information	Invoice Information
Company: HK Engineering and Geology D.P.C.	Project Name: HK2661.2	Attn:
Address: 1600 US 22 East	Project Location (State): NY	Address:
Union, NJ 07083	Project Manager: Chris Hirschmann	
Phone: 908 -688-7800	PM Signature: Chris Hirschmann	PO #: HK2661.2
Fax:	PM E-Mail: chirschmann@hillmannconsulting.com	Quote #:
Report to: Chris Hirschmann	Sampler: D. Aponte	

Analysis Turnaround Time - IF NO TAT IS SPECIFIED, 2 WEEK TAT IS ASSUMED

IAL Standard: 2 weeks (10 business days)

Rush (**pre-approved by lab): 24hr** 48hr** 72hr** 96hr** 1wk**

Barometric Pressure: Start ____ Stop ____

Sample Identification	Start DATE & TIME (24hr Clock)	End DATE & TIME (24hr Clock)	Starting Vacuum ("Hg)	Ending Vacuum ("Hg)	Starting Temp. (°F)	Ending Temp. (°F)	Outgoing Vacuum - Lab ("Hg)	Incoming Vacuum - Lab ("Hg)	Flow Regulator ID	Canister ID	Canister Size (1L or 6L)	Flow Controller Readout (cc/min)	EPA TO - 15	NJDEP LLTO-15 (includes 30 TICs)	Library Search (10, 20, or 30 TICs)	Other (Explain in Comments)	Regulatory/ NY Cat B / Full (NJ Required)	Reduced / NY Cat A Data Package	Results Only	Indoor Air	Ambient / Outdoor Air	Sub Slab / Soil Gas / Near Slab (Circle One)	Stack Emission / SVE System	High Concentrations Expected
SV2	11/16/23 - 12:10	11/16/23 - 14:35	-30	-7	50	64	-29.0	-6.5	A0070621-6	3006	6L	33.80	X											
SV3	11/16/23 - 12:30	11/16/23 - 15:15	-30	-7	52	65	-29.0	-6.5	7337462	2155	6L	33.30	X											

Comments/ Special Analysis Instructions / QC Requirements:

5 Day TAT Hard Copy and Verbal.

0914 2301 : 1, 2
0928 23aa : 2160

Note: Hold or contingent samples may be designated by writing an "H" or "C" in the appropriate analysis box.

ALL FIELDS IN RED ARE REQUIRED

Shipping Information / Canister Preparation (for laboratory use only)

Individual Preparing Canisters / Title: Desmond Flores / Air Department Sample Custodian

Lab Affixed Seal Number(s): ____

Date/Time Shipping Container Sealed: 1615 11/13/23

Laboratory Canister Certification

GC/MS Analyst Signature: Joseph J Walukiewicz III (IAL)

IAL 05080

External Chain of Custody

Relinquished	Received	Date / Time	Reason for Change of External Custody
DW HK	Dale Martin	11/17/23 1500	shipment from laboratory to client
Dale Martin	Desmond Flores	11-17-23 1634	received at lab
	Joseph J Walukiewicz III (IAL)	11/20/23 0920	sample pressure check & storage

Name/Title Resealing Shipping Container Name: ____

Date/Time Sample Shipping Container Resealed: ____

Date/Time Sample Shipping Container Opened: 11/17/23 1634

NJDEP Affixed Seal Number: ____

Individual Opening Sample Shipping Container: Joseph Walukiewicz/Desmond Flores

Date/Time Internal Chain of Custody Initiated: 11/20/23 0920

White and yellow - lab copies; Pink - client copy

Use appropriate care with IAL sampling equipment when sampling and packing for shipment. The client is responsible for all damage incurred to IAL equipment. Notify IAL if equipment is damaged upon receipt. Holding time before sampling is 15 days, after sampling is 30 days; failure to follow these times may result in data rejection by regulatory agencies. The lab will contact you if your COC is not clear, incomplete, or if discrepancies exist. The use of initials is not permitted on the COC except when correcting errors.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Dec 20, 2023 @ 07:40

PROJECT INFORMATION

RUSH

E23-05080: HK2661.2

To: Chris Hirschmann
HK Engineering & Geology, D.P.C.
Fax: 908-377-8909 cell
EMail: chirschmann@hillmannconsulting.com;rpowell@hillmanngroup.com

Report To

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083
Attn: Chris Hirschmann

Bill To

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083
Attn: Chris Hirschmann

Report Format	P.O. #	Received At Lab	PHC Due	Verbal Due	Hardcopy Due	
Air Regulatory	HK2661.2	Nov 17, 2023 @ 16:34	NA	Nov 28, 2023	Nov 29, 2023	*

* Any ***Conditional or Hold*** status will delay final hardcopy report sent date.

Diskette Req. Not Required

Lab ID	Client Sample ID	Depth	Sampling Time	Matrix	Unit	Field pH/Temp
05080-001	SV2	NA	11/16/23@14:35	Air-Indoor	ppbV	
05080-002	SV3	NA	11/16/23@15:15	Air-Indoor	ppbV	

* No Cert = IAL does not hold certification for this test/method

Sample #	Test	Status	Analytical Method	TAT	Holding Time Expires
001	EPA TO-15	Analyze	TO-15	RUSH 1 WK	12/16/2023
002	EPA TO-15	Analyze	TO-15	RUSH 1 WK	12/16/2023

Project Notes:

NOTE 2 taken by kfalconer on 11/20/2023 12:59
CLIENT DID NOT RECORD BAROMETRIC PRESSURE.

273 Franklin Road
Randolph, NJ 07869
Phone: 973 361 4252
www.ialonline.com

IAL is a NELAP accredited lab (TNI01284) and maintains certification in Connecticut (PH-0699), New Jersey (14751), New York (11402), and Pennsylvania (68-00773).

Internal Chain of Custody

Instructions: Use 1 form for each 20 samples of aliquot.

Laboratory Person Accepting Responsibility for Sample(s)

Laboratory: Integrated Analytical Laboratories
Name: Joseph Walukiewicz
Case No.: E23-05080

Location: 273 Franklin Rd Randolph, NJ 07869
Title: Air Department Receiving
Analytical Parameter/Fraction: (check one) ____ NJDEP LLTO-15 __x__ EPA TO-15

Sample No.	Aliquot/Extract No.
2V2	E23-05080-01
" 3	E23- " -02
	E23-
	E23-
	E23-
	E23
	E23-
	E23-
	E23-
	E23-

Sample No.	Aliquot/Extract No.
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-

Date	Time	Relinquished By	Received By	Purpose of Change of Custody
11 20 23	09 20	SIGNATURE PRINTED NAME	SIGNATURE Joseph Walukiewicz PRINTED NAME JOSEPH WALUKIEWICZ	1. Sample log-in 2. Pressure Check 3. Pre-analysis storage
11 20 23	09 25	SIGNATURE Joseph Walukiewicz PRINTED NAME JOSEPH WALUKIEWICZ	SIGNATURE PRINTED NAME	Placement in TO-15 sample storage area until ready for analysis
12 12 23	1 00 00	SIGNATURE PRINTED NAME	SIGNATURE Joseph Walukiewicz PRINTED NAME JOSEPH WALUKIEWICZ	TO-15 analysis on: 05080-01, -02
		SIGNATURE PRINTED NAME	SIGNATURE Joseph Walukiewicz PRINTED NAME JOSEPH WALUKIEWICZ	TO-15 analysis on:
		SIGNATURE PRINTED NAME	SIGNATURE PRINTED NAME	
		SIGNATURE PRINTED NAME	SIGNATURE PRINTED NAME	
		SIGNATURE PRINTED NAME	SIGNATURE PRINTED NAME	
		SIGNATURE PRINTED NAME	SIGNATURE PRINTED NAME	

Rev. 12/16

Section II: Methodology Review

Methodology Summary for Air Collected from Hazardous Waste Site Contract

Laboratory:	**Integrated Analytical Lab, LLC**	**Project No:**	**HK2661.2**
Location:	**Randolph, NJ**	**SDG No:**	**E23-05080**

Name	Required Methodology	Indicate Method
Volatile Organics	US EPA TO-15	US EPA Method TO-15

Section III: Case Narrative

CASE NARRATIVE

Integrated Analytical Laboratories, LLC — **Randolph, NJ 07869**
Project #: HK2661.2 — **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05080 — **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 — **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 — **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.2 / NY

Client ID	Lab ID	Receipt Date	Analysis Date	DF	Diluted For
SV2	E23-05080-01	11/20/2023	12/11/2023	10.0	Xylenes (m&p)
SV2	E23-05080-01	11/20/2023	12/08/2023	1.0	NA
SV3	E23-05080-02	11/20/2023	12/11/2023	10.0	Xylenes (m&p)
SV3	E23-05080-02	11/20/2023	12/08/2023	1.0	NA

IAL Sample ID	Canister ID	Outgoing Pressure ("Hg)	Incoming Pressure ("Hg)	Flow Controller ID	Outgoing Flow Rate (cc/min)	Incoming Flow Rate (cc/min)	Flow Rate RPD*
E23-05080-01	3006	-29	-6.5	A0070621-6	33.80	33.50	0.89
E23-05080-02	2155	-29	-6.5	7337462	33.30	32.70	1.82

*Pre-sampling and Post-sampling Flow Controller calibration check RPD ≤ 20%

Flow Controller Note: none

Sample Receipt: Samples were received in good condition. Documentation was in order.
Samples were received at IAL by: Joseph Walukiewicz

Sample Preparation: None required.

Sample Analysis:

Hold Time: All within recommended hold times.

Instrument Calibration: Meets method criteria.

Analysis performed by: jjw

SDG Non-Conformances: none

Tentatively Identified Compounds: Tentatively Identified Compounds (TICs) are determined using a NIST library search. TICs are reported at 10% of the applicable internal standard. Dilution factors are calculated into the final reported result. Since the compounds found are tentatively identified, the conversion from ppbv to ug/m3 may not be made.

Canister-to-Canister dilutions: none

Dilutions: Dilutions, if necessary, will be conducted directly on the instrument up to a 500x dilution. When dilutions of 1000x or higher are necessary, the laboratory must inject a volume of sample into another certified clean canister and add humidified Z-1 zero air to the remainder of the canister volume. Tedlar bags are not used for dilutions.

If a sample is received with historically high levels of analytes, a 100x can-to-can dilution my be used from the start. A 100x canister-to-canister dilution may be also be used at the analyst's discretion.

CASE NARRATIVE

Integrated Analytical Laboratories, LLC | **Randolph, NJ 07869**
Project #: HK2661.2 | **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05080 | **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 | **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 | **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.2 / NY

On-instrument dilutions are conducted as follows:

Dilution Factor	Sample Volume Injected (cc)
1	500
2.5	200
5	100
10	50
20	25
25	20
50	10
100	5
200	2.5
250	2
500	1

Canister-to-canister dilutions are conducted as follows:

A certified clean canister is obtained and evacuated to approximately -30"Hg. Both the clean/dilution canister and sample canister are fitted with a ¼" Swagelok® nut fitting equipped with septa. Depending on dilution factor necessary, a sample aliquot is removed from the canister and injected into the clean canister using 30cc Multifit gas-tight syringe. Once the correct sample aliquot has been transferred, the dilution canister should be connected to the humidified Z-1 zero air supply and filled to ambient pressure (0"Hg).

Dilution Factor	Sample Aliquot	Z-1 Make-up Added
100	60ml	5940ml
1000	6ml	5994ml

If further dilutions need to be made from the dilution canister, they may be made on-instrument. Using a 100x dilution canister, the following on-instrument dilutions can be produced:

Dilution Factor	Sample Volume Injected
100	500ml
250	200ml
500	100ml
1000	50ml
2000	25ml
2500	20ml
5000	10ml

CASE NARRATIVE

Integrated Analytical Laboratories, LLC | **Randolph, NJ 07869**
Project #: HK2661.2 | **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05080 | **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 | **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 | **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.2 / NY

Using a 1000x dilution canister, the following on-instrument dilutions can be produced:

Dilution Factor	Sample Volume Injected
1000	500ml
2500	200ml
5000	100ml
10,000	50ml
20,000	25ml
25,000	20ml
50,000	10ml

If further dilutions need to be made from the dilution canister, beyond 50,000x, a subsequent canister-to-canister dilution must be made using the above prescribed protocol.

GC Column and ID: RTX-1 SN 1119138, RTX-VMS SN 1586881, or equivalent

Calibration Standards: Only gas phase standards were used. Primary and second-source standards provided by Scott Specialty Gases or Airgas Specialty Gases/ Air Liquide

Working Standards: Primary source standards* are created from:
- Airgas Specialty Gases #EB0103704, valid 1/18/2021 through 12/30/2024, @ approximately 100ppb per compound, with exception of m&p-xylenes @ 200ppb. Standard is directly introduced into the instrument for all calibration standard concentrations. Dilutions are made accordingly, on instrument. The 10ppbv standard is also used for the Daily Calibration Verification Standard (DCVS), the Laboratory Control Sample (LCS) and Closing Calibration Verification Standard (CCCVS).

The second source standard*, used as the Initial Calibration Verification Standard (ICVSS), is introduced into the instrument in the same manner as the primary source standard, using:
- Airgas Specialty Gases Cylinder #EB0116272, valid 7/28/2021 through 5/12/2025, @ approximately 100ppb per compound, with exception of m&p-xylenes @ 200ppb.

Internal standards* are created from:
- Airgas Specialty Gases Cylinder #ALM018474, valid 2/24/2022 through 2/24/2025. @ 5ppm per compound. Standard is directly introduced into the instrument to reach the 10ppbv concentrations. 1cc of internal standard is added to every standard, method blank, instrument blank, and sample run.

*Standard may be used past its expiration date provided that concentrations are verified by a current/unexpired second source standard.

08/15/2023

CASE NARRATIVE

Integrated Analytical Laboratories, LLC | **Randolph, NJ 07869**
Project #: HK2661.2 | **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05080 | **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 | **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 | **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.2 / NY

08/15/2023
100 ppbv internal standard mix (AA3401BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (aa3406std01) - prepared in cylinder #EB0103704
40 ppbv standard - 200 ml injected
20 ppbv standard - 100 ml injected
10 ppbv standard* - 50 ml injected
*Standard also used for CCCVS
2 ppbv standard - 10 ml injected
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS

09/28/2023
100 ppbv internal standard mix (AA4071BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (AA4072DCVS) - prepared in cylinder #EB0103704
10 ppbv standard* - 50 ml injected
*Standard also used for DCVS & CCCVS
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
Method Blank (AA4074BLK) - prepared in canister #1127
500 ml injected

10/10/2023
100 ppbv internal standard mix (AA4131BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (aa4136std01) - prepared in cylinder #EB0103704
40 ppbv standard - 200 ml injected
20 ppbv standard - 100 ml injected
10 ppbv standard* - 50 ml injected
*Standard also used for CCCVS
2 ppbv standard - 10 ml injected
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
Method Blank (AA4139BLK) - prepared in canister #1127
500 ml injected

12/08/2023
100 ppbv internal standard mix (AA4881BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (AA4882DCVS) - prepared in cylinder #EB0103704
10 ppbv standard* - 50 ml injected
*Standard also used for DCVS & CCCVS
Method Blank (AA4884BLK) - prepared in canister #1127

CASE NARRATIVE

Integrated Analytical Laboratories, LLC — **Randolph, NJ 07869**
Project #: HK2661.2 — **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05080 — **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 — **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 — **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.2 / NY

12/08/2023

500 ml injected
Sample E23-05080-01 (AA4893) - sample taken in canister #3006
500 ml sample volume injected, 1x dilution
Sample E23-05080-02 (AA4894) - sample taken in canister #2155
500 ml sample volume injected, 1x dilution

12/11/2023

100 ppbv internal standard mix (AA4901BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (AA4902DCVS) - prepared in cylinder #EB0103704
10 ppbv standard* - 50 ml injected
*Standard also used for DCVS & CCCVS
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
Method Blank (AA4904BLK) - prepared in canister #1127
500 ml injected
Sample E23-05080-01 (AA4911) - sample taken in canister #3006
50 ml sample volume injected, 10x dilution
Sample E23-05080-02 (AA4912) - sample taken in canister #2155
50 ml sample volume injected, 10x dilution

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. All conversions are based upon a room temperature of 77°F(25°C) and room pressure of 101.325 kPa (1atm).

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of data contained in this hardcopy data package and in the computer-readable data submitted on CD/diskette and by electronic mail has been authorized by the laboratory manager or his designee, as verified by the following signature.

Michael H. Leftin, Ph.D.
Laboratory Director

December 20, 2023
Date

Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

R 362

Received 01/06/2023

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED HYDROCARBON

Customer:	INTEGRATED ANALYTICAL LABS		
Part Number:	X76NI99C15AC001	Reference Number:	160-402619255-1
Cylinder Number:	EB0103704	Cylinder Volume:	101.0 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	1400 PSIG
Analysis Date:	Dec 30, 2022	Valve Outlet:	350SS
Lot Number:	160-402619255-1	Expiration Date:	Dec 30, 2024

Traceability Statement: Hydrocarbon Process standards are NIST traceable either directly by weight or by comparison to Airgas laboratory standards that are directly NIST traceable by weight.

CERTIFIED CONCENTRATIONS

Component	Requested Concentration	Reported Mole %	Accuracy
1,1 DICHLOROETHANE	100.000 PPB	107.000 PPB	+/- 10%
1,1 DICHLOROETHYLENE	100.000 PPB	104.000 PPB	+/- 10%
1,1,1 TRICHLOROETHANE	100.000 PPB	109.000 PPB	+/- 10%
1,1,2 TRICHLORO ETHANE	100.000 PPB	108.000 PPB	+/- 10%
1,1,2,2 TETRACHLOROETHANE	100.000 PPB	114.000 PPB	+/- 10%
1,2 DIBROMO ETHANE	100.000 PPB	108.000 PPB	+/- 10%
1,2 DICHLORO PROPANE	100.000 PPB	110.000 PPB	+/- 10%
1,2 DICHLOROBENZENE	100.000 PPB	107.000 PPB	+/- 10%
1,2 DICHLOROETHANE	100.000 PPB	109.000 PPB	+/- 10%
1,2,4 TRICHLOROBENZENE	100.000 PPB	110.000 PPB	+/- 10%
1,2,4 TRIMETHYLBENZENE	100.000 PPB	108.000 PPB	+/- 10%
1,3 BUTADIENE	100.000 PPB	107.000 PPB	+/- 10%
1,3 DICHLORO BENZENE	100.000 PPB	111.000 PPB	+/- 10%
1,3,5 TRIMETHYL BENZENE	100.000 PPB	109.000 PPB	+/- 10%
1,4 DICHLOROBENZENE	100.000 PPB	107.000 PPB	+/- 10%
1,4 DIOXANE	100.000 PPB	117.000 PPB	+/- 10%
2 CHLOROTOLUENE	100.000 PPB	109.000 PPB	+/- 10%
3 CHLOROPROPYLENE	100.000 PPB	108.000 PPB	+/- 10%
4 ETHYL TOLUENE	100.000 PPB	108.000 PPB	+/- 10%
ACETONE	100.000 PPB	108.000 PPB	+/- 10%
ACROLEIN	100.000 PPB	100.000 PPB	+/- 10%
BENZENE	100.000 PPB	108.000 PPB	+/- 10%
BENZYL CHLORIDE	100.000 PPB	100.000 PPB	+/- 10%
BROMO DICHLORO METHANE	100.000 PPB	115.000 PPB	+/- 10%
BROMOFORM	100.000 PPB	113.000 PPB	+/- 10%
CARBON DISULFIDE	100.000 PPB	107.000 PPB	+/- 10%
CARBON TETRACHLORIDE	100.000 PPB	110.000 PPB	+/- 10%
CHLORO DIBROMO METHANE	100.000 PPB	112.000 PPB	+/- 10%
CHLOROBENZENE	100.000 PPB	111.000 PPB	+/- 10%
CHLOROFORM	100.000 PPB	108.000 PPB	+/- 10%
CIS 1,2 DICHLOROETHYLENE	100.000 PPB	109.000 PPB	+/- 10%
CIS 1,3 DICHLOROPROPENE	100.000 PPB	111.000 PPB	+/- 10%
CUMENE	100.000 PPB	107.000 PPB	+/- 10%
CYCLOHEXANE	100.000 PPB	112.000 PPB	+/- 10%
ETHANOL	100.000 PPB	104.000 PPB	+/- 10%
ETHYL ACETATE	100.000 PPB	108.000 PPB	+/- 10%
ETHYL BENZENE	100.000 PPB	111.000 PPB	+/- 10%
ETHYL CHLORIDE	100.000 PPB	106.000 PPB	+/- 10%
HEXACHLORO 1,3 BUTADIENE	100.000 PPB	111.000 PPB	+/- 10%

Approved for Release

Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

HEXANE	100.000 PPB	111.000 PPB	+/- 10%
ISOOCTANE	100.000 PPB	109.000 PPB	+/- 10%
ISOPROPYL ALCOHOL	100.000 PPB	89.000 PPB	+/- 10%
M XYLENE	100.000 PPB	112.000 PPB	+/- 10%
METHYL BROMIDE	100.000 PPB	100.000 PPB	+/- 10%
METHYL BUTYL KETONE	100.000 PPB	113.000 PPB	+/- 10%
METHYL CHLORIDE	100.000 PPB	112.000 PPB	+/- 10%
METHYL ETHYL KETONE	100.000 PPB	110.000 PPB	+/- 10%
METHYL ISOBUTYL KETONE	100.000 PPB	109.000 PPB	+/- 10%
METHYL METHACRYLATE	100.000 PPB	110.000 PPB	+/- 10%
METHYL TERT BUTYL ETHER	100.000 PPB	112.000 PPB	+/- 10%
METHYLENE CHLORIDE	100.000 PPB	108.000 PPB	+/- 10%
N BUTANE	100.000 PPB	109.000 PPB	+/- 10%
N HEPTANE	100.000 PPB	111.000 PPB	+/- 10%
N NONANE	100.000 PPB	110.000 PPB	+/- 10%
N PENTANE	100.000 PPB	108.000 PPB	+/- 10%
N PROPYL BENZENE	100.000 PPB	108.000 PPB	+/- 10%
NAPHTHALENE	100.000 PPB	100.000 PPB	+/- 10%
O XYLENE	100.000 PPB	110.000 PPB	+/- 10%
P XYLENE	100.000 PPB	111.000 PPB	+/- 10%
PERCHLOROETHYLENE	100.000 PPB	112.000 PPB	+/- 10%
PROPYLENE	100.000 PPB	109.000 PPB	+/- 10%
R11 TRICHLOROFLUOROMETHANE	100.000 PPB	110.000 PPB	+/- 10%
R113 TRICHLOROTRIFLUOROETHANE	100.000 PPB	109.000 PPB	+/- 10%
R114 DICHLOROTETRAFLUOROETHANE	100.000 PPB	98.000 PPB	+/- 10%
R12 DICHLORODIFLUOROMETHANE	100.000 PPB	106.000 PPB	+/- 10%
STYRENE	100.000 PPB	113.000 PPB	+/- 10%
TERT BUTANOL	100.000 PPB	115.000 PPB	+/- 10%
TETRAHYDROFURAN	100.000 PPB	110.000 PPB	+/- 10%
TOLUENE	100.000 PPB	108.000 PPB	+/- 10%
TRANS 1,2 DICHLOROETHYLENE	100.000 PPB	111.000 PPB	+/- 10%
TRANS 1,3 DICHLOROPROPENE	100.000 PPB	111.000 PPB	+/- 10%
TRICHLOROETHYLENE	100.000 PPB	100.000 PPB	+/- 10%
VINYL ACETATE	100.000 PPB	110.000 PPB	+/- 10%
VINYL BROMIDE	100.000 PPB	101.000 PPB	+/- 10%
VINYL CHLORIDE	100.000 PPB	108.000 PPB	+/- 10%
NITROGEN	99.99925 %	99.999187 %	+/- 10%

Permanent Notes:CUSTOM TO MIX - TO-15/17 MODIFIED NJ STD + NAPHTHALENE

Notes:PO number: 22578

Approved for Release

Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

R 366

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED HYDROCARBON

Customer:	INTEGRATED ANALYTICAL LABS		
Part Number:	X76NI99C15AC001	Reference Number:	160-402744241-1
Cylinder Number:	EB0116272	Cylinder Volume:	146.0 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	2050 PSIG
Analysis Date:	May 12, 2023	Valve Outlet:	350SS
Lot Number:	160-402744241-1	Expiration Date:	May 12, 2025

Traceability Statement: Hydrocarbon Process standards are NIST traceable either directly by weight or by comparison to Airgas laboratory standards that are directly NIST traceable by weight.

CERTIFIED CONCENTRATIONS

Component	Requested Concentration	Reported Mole %	Accuracy
1,1 DICHLOROETHANE	100.000 PPB	100.000 PPB	+/- 10%
1,1 DICHLOROETHYLENE	100.000 PPB	100.000 PPB	+/- 10%
1,1,1 TRICHLOROETHANE	100.000 PPB	104.000 PPB	+/- 10%
1,1,2 TRICHLORO ETHANE	100.000 PPB	101.000 PPB	+/- 10%
1,1,2,2 TETRACHLOROETHANE	100.000 PPB	104.000 PPB	+/- 10%
1,2 DIBROMO ETHANE	100.000 PPB	103.000 PPB	+/- 10%
1,2 DICHLORO PROPANE	100.000 PPB	103.000 PPB	+/- 10%
1,2 DICHLOROBENZENE	100.000 PPB	101.000 PPB	+/- 10%
1,2 DICHLOROETHANE	100.000 PPB	102.000 PPB	+/- 10%
1,2,4 TRICHLOROBENZENE	100.000 PPB	100.000 PPB	+/- 10%
1,2,4 TRIMETHYLBENZENE	100.000 PPB	102.000 PPB	+/- 10%
1,3 BUTADIENE	100.000 PPB	106.000 PPB	+/- 10%
1,3 DICHLORO BENZENE	100.000 PPB	105.000 PPB	+/- 10%
1,3,5 TRIMETHYL BENZENE	100.000 PPB	103.000 PPB	+/- 10%
1,4 DICHLOROBENZENE	100.000 PPB	100.000 PPB	+/- 10%
1,4 DIOXANE	100.000 PPB	113.000 PPB	+/- 10%
2 CHLOROTOLUENE	100.000 PPB	107.000 PPB	+/- 10%
3 CHLOROPROPYLENE	100.000 PPB	106.000 PPB	+/- 10%
4 ETHYL TOLUENE	100.000 PPB	106.000 PPB	+/- 10%
ACETONE	100.000 PPB	108.000 PPB	+/- 10%
ACROLEIN	100.000 PPB	105.000 PPB	+/- 10%
BENZENE	100.000 PPB	103.000 PPB	+/- 10%
BENZYL CHLORIDE	100.000 PPB	102.000 PPB	+/- 10%
BROMO DICHLORO METHANE	100.000 PPB	112.000 PPB	+/- 10%
BROMOFORM	100.000 PPB	113.000 PPB	+/- 10%
CARBON DISULFIDE	100.000 PPB	95.000 PPB	+/- 10%
CARBON TETRACHLORIDE	100.000 PPB	107.000 PPB	+/- 10%
CHLORO DIBROMO METHANE	100.000 PPB	110.000 PPB	+/- 10%
CHLOROBENZENE	100.000 PPB	104.000 PPB	+/- 10%
CHLOROFORM	100.000 PPB	106.000 PPB	+/- 10%
CIS 1,2 DICHLOROETHYLENE	100.000 PPB	102.000 PPB	+/- 10%
CIS 1,3 DICHLOROPROPENE	100.000 PPB	94.000 PPB	+/- 10%
CUMENE	100.000 PPB	106.000 PPB	+/- 10%
CYCLOHEXANE	100.000 PPB	109.000 PPB	+/- 10%
ETHANOL	100.000 PPB	98.000 PPB	+/- 10%
ETHYL ACETATE	100.000 PPB	104.000 PPB	+/- 10%
ETHYL BENZENE	100.000 PPB	105.000 PPB	+/- 10%
ETHYL CHLORIDE	100.000 PPB	104.000 PPB	+/- 10%
HEXACHLORO 1,3 BUTADIENE	100.000 PPB	101.000 PPB	+/- 10%

Approved for Release

Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

HEXANE	100.000 PPB	107.000 PPB	+/- 10%
ISOOCTANE	100.000 PPB	106.000 PPB	+/- 10%
ISOPROPYL ALCOHOL	100.000 PPB	95.000 PPB	+/- 10%
M XYLENE	100.000 PPB	106.000 PPB	+/- 10%
METHYL BROMIDE	100.000 PPB	103.000 PPB	+/- 10%
METHYL BUTYL KETONE	100.000 PPB	109.000 PPB	+/- 10%
METHYL CHLORIDE	100.000 PPB	108.000 PPB	+/- 10%
METHYL ETHYL KETONE	100.000 PPB	105.000 PPB	+/- 10%
METHYL ISOBUTYL KETONE	100.000 PPB	105.000 PPB	+/- 10%
METHYL METHACRYLATE	100.000 PPB	106.000 PPB	+/- 10%
METHYL TERT BUTYL ETHER	100.000 PPB	107.000 PPB	+/- 10%
METHYLENE CHLORIDE	100.000 PPB	101.000 PPB	+/- 10%
N BUTANE	100.000 PPB	107.000 PPB	+/- 10%
N HEPTANE	100.000 PPB	107.000 PPB	+/- 10%
N NONANE	100.000 PPB	108.000 PPB	+/- 10%
N PENTANE	100.000 PPB	105.000 PPB	+/- 10%
N PROPYL BENZENE	100.000 PPB	112.000 PPB	+/- 10%
NAPHTHALENE	100.000 PPB	101.000 PPB	+/- 10%
O XYLENE	100.000 PPB	102.000 PPB	+/- 10%
P XYLENE	100.000 PPB	106.000 PPB	+/- 10%
PERCHLOROETHYLENE	100.000 PPB	104.000 PPB	+/- 10%
PROPYLENE	100.000 PPB	108.000 PPB	+/- 10%
R11 TRICHLOROFLUOROMETHANE	100.000 PPB	106.000 PPB	+/- 10%
R113 TRICHLOROTRIFLUOROETHANE	100.000 PPB	102.000 PPB	+/- 10%
R114 DICHLOROTETRAFLUOROETHANE	100.000 PPB	99.000 PPB	+/- 10%
R12 DICHLORODIFLUOROMETHANE	100.000 PPB	109.000 PPB	+/- 10%
STYRENE	100.000 PPB	106.000 PPB	+/- 10%
TERT BUTANOL	100.000 PPB	111.000 PPB	+/- 10%
TETRAHYDROFURAN	100.000 PPB	106.000 PPB	+/- 10%
TOLUENE	100.000 PPB	101.000 PPB	+/- 10%
TRANS 1,2 DICHLOROETHYLENE	100.000 PPB	108.000 PPB	+/- 10%
TRANS 1,3 DICHLOROPROPENE	100.000 PPB	106.000 PPB	+/- 10%
TRICHLOROETHYLENE	100.000 PPB	102.000 PPB	+/- 10%
VINYL ACETATE	100.000 PPB	105.000 PPB	+/- 10%
VINYL BROMIDE	100.000 PPB	100.000 PPB	+/- 10%
VINYL CHLORIDE	100.000 PPB	107.000 PPB	+/- 10%
NITROGEN	99.99925 %	99.999216 %	

Permanent Notes:CUSTOM TO MIX - TO-15/17 MODIFIED NJ STD + NAPHTHALENE

Notes:PO Number: 22896

Approved for Release

Section IV: Method Detection Limit Summary

INTEGRATED ANALYTICAL LABORATORIES, LLC
REPORTING METHOD DETECTION LIMIT (MDL) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Matrix: Air
Column ID: Restek RtX-VMS, 30 meter, 0.32mm ID, 1.8 um DF
Instrument ID: GC - Agilent 7890A / MS - Agilent 5975C (IAL ID: *Instrument AA*)
Report Prepared by: Joe Waluliewicz

MDL Effective Date: 8/16/2023
Analyst: Joe Waluliewicz

Compound Name	CAS #	Molecular Weight	MDL ppbv	MDL µg/m^3	PQL ppbv	RL ppbv	RL µg/m^3	True value/ MDL
Propene	115-07-1	42.08	0.18	0.31	0.54	0.20	0.34	1
Dichlorodifluoromethane	75-71-8	120.9	0.081	0.40	0.24	0.20	0.99	3
1,2-Dichlorotetrafluoroethane	76-14-2	170.9	0.071	0.50	0.21	0.20	1.4	3
n-Butane	106-97-8	58	0.13	0.32	0.40	0.20	0.47	2
Chloromethane	74-87-3	50.49	0.15	0.30	0.44	0.20	0.41	1
Vinyl chloride	75-01-4	62.5	0.11	0.29	0.34	0.20	0.51	2
1,3-Butadiene	106-99-0	54.09	0.12	0.27	0.37	0.20	0.44	2
Bromomethane	74-83-9	94.94	0.12	0.46	0.36	0.20	0.78	2
Chloroethane	75-00-3	64.52	0.12	0.32	0.36	0.20	0.53	2
Vinyl bromide	593-60-2	106.9	0.080	0.35	0.24	0.20	0.87	3
Trichlorofluoromethane	75-69-4	137.4	0.068	0.38	0.20	0.20	1.1	3
Ethanol	64-17-5	46.07	0.17	0.32	0.51	0.20	0.38	1
1,1-Dichloroethene	75-35-4	96.94	0.086	0.34	0.26	0.20	0.79	3
Carbon disulfide	75-15-0	76.14	0.076	0.24	0.23	0.20	0.62	3
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	187.40	0.087	0.66	0.26	0.20	1.5	3
Acrolein	107-02-8	56.06	0.15	0.34	0.44	0.20	0.46	2
Allyl Chloride	107-05-1	76.53	0.088	0.27	0.26	0.20	0.63	3
Isopropanol	67-63-0	60.1	0.10	0.25	0.30	0.20	0.49	2
Methylene chloride	75-09-2	84.94	0.10	0.36	0.31	0.20	0.69	2
Acetone	67-64-1	58.08	0.12	0.28	0.36	0.20	0.48	2
1,2-Dichloroethene (trans)	156-60-5	96.94	0.080	0.32	0.24	0.20	0.79	3
n-Pentane	109-66-0	72.15	0.16	0.48	0.49	0.20	0.59	1
n-Hexane	110-54-3	86.17	0.087	0.31	0.26	0.20	0.70	3
Methyl tert-butyl ether	1634-04-4	88.15	0.080	0.29	0.24	0.20	0.72	3
Tert-butyl alcohol	75-65-0	74.12	0.14	0.44	0.43	0.20	0.61	2
1,1-Dichloroethane	75-34-3	98.96	0.079	0.32	0.24	0.20	0.81	3
1,2-Dichloroethene (cis)	156-59-2	96.94	0.083	0.33	0.25	0.20	0.79	3
Cyclohexane	110-82-7	84.16	0.078	0.27	0.23	0.20	0.69	3
Chloroform	67-66-3	119.4	0.077	0.38	0.23	0.20	0.98	3
Ethyl acetate	141-78-6	88.11	0.11	0.40	0.33	0.20	0.72	2
Carbon tetrachloride	56-23-5	153.8	0.080	0.50	0.24	0.20	1.3	3
Tetrahydrofuran	109-99-9	72.11	0.11	0.31	0.32	0.20	0.59	2
1,1,1-Trichloroethane	71-55-6	133.4	0.071	0.39	0.21	0.20	1.1	3
Methyl ethyl ketone	78-93-3	72.11	0.11	0.31	0.32	0.20	0.59	2
n-Heptane	142-82-5	100.2	0.090	0.37	0.27	0.20	0.82	2
Benzene	71-43-2	78.11	0.076	0.24	0.23	0.20	0.64	3
1,2-Dichloroethane	107-06-2	98.96	0.079	0.32	0.24	0.20	0.81	3
Trichloroethene	79-01-6	131.4	0.064	0.34	0.19	0.20	1.1	3
2,2,4-Trimethylpentane	540-84-1	114.2	0.085	0.40	0.26	0.20	0.93	3
1,2-Dichloropropane	78-87-5	113	0.085	0.39	0.25	0.20	0.92	3
Bromodichloromethane	75-27-4	163.8	0.066	0.44	0.20	0.20	1.3	3
Methyl methacrylate	80-62-6	100.12	0.079	0.32	0.24	0.20	0.82	3
1,4-Dioxane	123-91-1	88.12	0.092	0.33	0.28	0.20	0.72	2
1,3-Dichloropropene (cis)	10061-01-5	111.0	0.070	0.32	0.21	0.20	0.91	3
Toluene	108-88-3	92.14	0.064	0.24	0.19	0.20	0.75	3
Methyl isobutyl ketone	108-10-1	100.2	0.11	0.43	0.32	0.20	0.82	2
Tetrachloroethene	127-18-4	165.8	0.063	0.43	0.19	0.20	1.4	3
1,3-Dichloropropene (trans)	10061-02-6	111	0.077	0.35	0.23	0.20	0.91	3
1,1,2-Trichloroethane	79-00-5	133.4	0.075	0.41	0.22	0.20	1.1	3
Dibromochloromethane	124-48-1	208.3	0.073	0.62	0.22	0.20	1.7	3
1,2-Dibromoethane	106-93-4	187.9	0.067	0.52	0.20	0.20	1.5	3
Methyl n-butyl ketone	591-78-6	100.16	0.13	0.54	0.40	0.20	0.82	2
n-Nonane	111-84-2	128.2	0.10	0.52	0.30	0.20	1.0	2
Chlorobenzene	108-90-7	112.6	0.073	0.34	0.22	0.20	0.92	3
Ethylbenzene	100-41-4	106.2	0.067	0.29	0.20	0.20	0.9	3
Xylenes (m&p)	179601-23-1	106.2	0.15	0.64	0.44	0.40	1.74	3
Xylene (o)	79-34-5	167.9	0.073	0.50	0.22	0.20	1.4	3
Styrene	100-42-5	104.1	0.072	0.31	0.22	0.20	0.85	3
Bromoform	75-25-2	252.8	0.075	0.77	0.22	0.20	2.1	3
Cumene (Isopropylbenzene)	98-82-8	120.2	0.069	0.34	0.21	0.20	0.98	3
n-Propyl benzene	103-65-1	120.19	0.085	0.42	0.25	0.20	0.98	3
1,1,2,2-Tetrachloroethane	95-47-6	106.2	0.069	0.30	0.21	0.20	0.87	3
4-Ethyltoluene	622-96-8	120.2	0.090	0.44	0.27	0.20	0.98	2
2-Chlorotoluene	95-49-8	126.6	0.077	0.40	0.23	0.20	1.0	3
1,3,5-Trimethylbenzene	108-67-8	120.2	0.076	0.37	0.23	0.20	0.98	3
1,2,4-Trimethylbenzene	95-63-6	120.2	0.080	0.39	0.24	0.20	0.98	3

INTEGRATED ANALYTICAL LABORATORIES, LLC
REPORTING METHOD DETECTION LIMIT (MDL) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Matrix: Air
Column ID: Restek RtX-VMS, 30 meter, 0.32mm ID, 1.8 um DF
Instrument ID: GC - Agilent 7890A / MS - Agilent 5975C (IAL ID: *Instrument AA*)
Report Prepared by: Joe Waluliewicz

MDL Effective Date: 8/16/2023
Analyst: Joe Waluliewicz

Compound Name	CAS #	Molecular Weight	MDL ppbv	MDL µg/m^3	PQL ppbv	RL ppbv	RL µg/m^3	True value/ MDL
1,3-Dichlorobenzene	541-73-1	147	0.086	0.52	0.26	0.20	1.2	3
1,4-Dichlorobenzene	106-46-7	147.0	0.089	0.54	0.27	0.20	1.2	2
Benzyl chloride	100-44-7	126.6	0.064	0.33	0.19	0.20	1.0	3
1,2-Dichlorobenzene	95-50-1	147.0	0.083	0.50	0.25	0.20	1.2	3
1,3-Hexachlorobutadiene	87-68-3	260.8	0.096	1.03	0.29	0.20	2.1	2
1,2,4-Trichlorobenzene	120-82-1	181.5	0.12	0.89	0.36	0.20	1.5	2
Naphthalene	91-20-3	128	0.15	0.79	0.45	0.20	1.0	2

Where:
MDL is defined as the higher of the MDL Spike and MDL Blank
PQL is MDLx3
RL is defined as the lowest point of the calibration curve
ppbv is parts per billion by volume and is how results come off the instrument
µg/m^3 = ppbv x molecular weight / 24.45

Location of this file: P:\PAL Reports\LLTO-15 and TO-15 Common Files\Agilent MDL

Instrument used for Clean Canister Certification Analysis? YES

Michael Leftin, Ph.D.
Laboratory Director

Date: August 16, 2023

INTEGRATED ANALYTICAL LABORATORIES, LLC
METHOD DETECTION LIMIT VERIFICATION (MDLV) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Analysis Level:	0.20 ppbv, 0.40 for m&p-xylenes
Matrix:	Air
Column ID:	RTX-VMS, 30-meter, 0.32 mm ID, 1.8 µm d_f
Instrument Identification:	AA
Date of Verification Study:	8/16/2023
Study Identification File #:	aa3415rllcs
Analyst:	Joe Walukiewicz
Analysis/Processing Method:	C:\MSDCHEM\1\METHODS\230815.M
Cylinder ID:	EB0103704

Michael Leftin, Ph.D.
Laboratory Director

Date: August 16, 2023

Compound Name	CAS #	MDLV (ppbv)	RL (ppbv)	RL/MDLV Ratio
Propene	115-07-1	0.23	0.20	1
Dichlorodifluoromethane	124-48-1	0.24	0.20	1
1,2-Dichlorotetrafluoroethane	76-14-2	0.26	0.20	1
n-Butane	106-97-8	0.23	0.20	1
Chloromethane	74-87-3	0.24	0.20	1
Vinyl chloride	75-01-4	0.26	0.20	1
1,3-Butadiene	106-99-0	0.23	0.20	1
Bromomethane	74-83-9	0.23	0.20	1
Chloroethane	75-00-3	0.22	0.20	1
Vinyl bromide	593-60-2	0.23	0.20	1
Trichlorofluoromethane	75-69-4	0.26	0.20	1
Ethanol	64-17-5	0.30	0.20	2
1,1-Dichloroethene	75-35-4	0.22	0.20	1
Carbon disulfide	75-15-0	0.22	0.20	1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.27	0.20	1
Acrolein	107-02-8	0.24	0.20	1
Allyl Chloride	107-05-1	0.22	0.20	1
Isopropanol	67-63-0	0.20	0.20	1
Methylene chloride	75-09-2	0.35	0.20	2
Acetone	67-64-1	0.27	0.20	1
1,2-Dichloroethene (trans)	156-60-5	0.22	0.20	1
n-Pentane	109-66-0	0.25	0.20	1
n-Hexane	110-54-3	0.26	0.20	1
Methyl tert-butyl ether	1634-04-4	0.25	0.20	1
Tert-butyl alcohol	75-65-0	0.24	0.20	1
1,1-Dichloroethane	75-34-3	0.24	0.20	1
1,2-Dichloroethene (cis)	156-59-2	0.21	0.20	1
Cyclohexane	110-82-7	0.24	0.20	1
Chloroform	67-66-3	0.23	0.20	1
Ethyl acetate	141-78-6	0.23	0.20	1
Carbon tetrachloride	56-23-5	0.26	0.20	1
Tetrahydrofuran	109-99-9	0.23	0.20	1
1,1,1-Trichloroethane	71-55-6	0.24	0.20	1
Methyl ethyl ketone	78-93-3	0.24	0.20	1
n-Heptane	142-82-5	0.23	0.20	1
Benzene	71-43-2	0.24	0.20	1
1,2-Dichloroethane	106-93-4	0.23	0.20	1
Trichloroethene	79-01-6	0.25	0.20	1
2,2,4-Trimethylpentane	540-84-1	0.29	0.20	1
1,2-Dichloropropane	78-87-5	0.26	0.20	1
Bromodichloromethane	75-27-4	0.28	0.20	1
Methyl methacrylate	80-62-6	0.22	0.20	1
1,4-Dioxane	123-91-1	0.28	0.20	1
1,3-Dichloropropene (cis)	10061-01-5	0.25	0.20	1
Toluene	108-88-3	0.24	0.20	1
Methyl isobutyl ketone	108-10-1	0.22	0.20	1
Tetrachloroethene	127-18-4	0.26	0.20	1
1,3-Dichloropropene (trans)	10061-02-6	0.24	0.20	1
1,1,2-Trichloroethane	79-00-5	0.23	0.20	1
Dibromochloromethane	75-71-8	0.24	0.20	1
1,2-Dibromoethane	107-06-2	0.22	0.20	1
Methyl n-butyl ketone	591-78-6	0.21	0.20	1

INTEGRATED ANALYTICAL LABORATORIES, LLC
METHOD DETECTION LIMIT VERIFICATION (MDLV) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Analysis Level:	0.20 ppbv, 0.40 for m&p-xylenes
Matrix:	Air
Column ID:	RTX-VMS, 30-meter, 0.32 mm ID, 1.8 µm d_f
Instrument Identification:	AA
Date of Verification Study:	8/16/2023
Study Identification File #:	aa3415rllcs
Analyst:	Joe Walukiewicz
Analysis/Processing Method:	C:\MSDCHEM\1\METHODS\230815.M
Cylinder ID:	EB0103704

Michael Leftin, Ph.D.
Laboratory Director

Date: August 16, 2023

Compound Name	CAS #	MDLV (ppbv)	RL (ppbv)	RL/MDLV Ratio
n-Nonane	111-84-2	0.21	0.20	1
Chlorobenzene	108-90-7	0.28	0.20	1
Ethylbenzene	100-41-4	0.26	0.20	1
Xylenes (m&p)	179601-23-1	0.54	0.40	1
Xylene (o)	95-47-6	0.26	0.20	1
Styrene	100-42-5	0.23	0.20	1
Bromoform	75-25-2	0.26	0.20	1
Cumene	98-82-8	0.24	0.20	1
n-Propyl benzene	103-65-1	0.25	0.20	1
1,1,2,2-Tetrachloroethane	79-34-5	0.25	0.20	1
4-Ethyltoluene	622-96-8	0.24	0.20	1
2-Chlorotoluene	95-49-8	0.25	0.20	1
1,3,5-Trimethylbenzene	108-67-8	0.24	0.20	1
1,2,4-Trimethylbenzene	95-63-6	0.22	0.20	1
1,3-Dichlorobenzene	541-73-1	0.27	0.20	1
1,4-Dichlorobenzene	106-46-7	0.24	0.20	1
Benzyl chloride	100-44-7	0.17	0.20	1
1,2-Dichlorobenzene	95-50-1	0.25	0.20	1
1,3-Hexachlorobutadiene	87-68-3	0.31	0.20	2
1,2,4-Trichlorobenzene	120-82-1	0.25	0.20	1
Naphthalene	91-20-3	0.28	0.20	1

Section V: Quality Control Data Summary

BFB Tune Summary

Method Blank

Laboratory Control Sample

Laboratory Sample Duplicate

Internal Standard Area Summary

BFB

Data Path: C:\DATA\2023\08-2023\08-15-2023\
Data File: AA3401BFB.D
Acq On: 8/15/2023 10:11:00AM
Operator: jls
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230525.M
Last Update: Tue May 30 13:24:12 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	251499	18.7
PASS	75	95	30	66	703104	52.3
PASS	95	95	100	100	1345024	100.0
PASS	96	95	5	9	89525	6.7
PASS	173	174	0.00	2	8293	0.8
PASS	174	95	50	100	1069397	79.5
PASS	175	174	4	9	78181	7.3
PASS	176	174	93	101	1035413	96.8
PASS	177	176	5	9	68613	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA3401BFB	NA	8/15/2023 10:11:00 AM
0.2 PPBV STD	AA3402STD05	NA	8/15/2023 11:15:00 AM
10 PPBV STD	AA3404STD03	NA	8/15/2023 1:09:00 PM
2 PPBV STD	AA3403STD04	NA	8/15/2023 1:45:00 PM
20 PPBV STD	AA3405STD02	NA	8/15/2023 3:12:00 PM
40 PPBV STD	AA3406STD01	NA	8/15/2023 4:47:00 PM
10 PPBV ICVSS	AA3407ICVSS	NA	8/15/2023 6:09:00 PM

BFB

Data Path: C:\DATA\2023\09-2023\09-28-2023\
Data File: AA4071BFB.D
Acq On: 9/28/2023 10:01:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230815.M
Last Update: Wed Aug 16 10:00:51 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	96931	19.9
PASS	75	95	30	66	265259	54.6
PASS	95	95	100	100	485931	100.0
PASS	96	95	5	9	33264	6.8
PASS	173	174	0.00	2	3017	0.8
PASS	174	95	50	100	366187	75.4
PASS	175	174	4	9	27080	7.4
PASS	176	174	93	101	360832	98.5
PASS	177	176	5	9	23088	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4071BFB	NA	9/28/2023 10:01:00 AM
10 PPBV DCVS	AA4072DCVS	NA	9/28/2023 10:31:00 AM
10 PPBV LCS	AA4073LCS	NA	9/28/2023 11:19:00 AM
METHOD BLANK	AA4074BLK	NA	9/28/2023 11:47:00 AM
02 PPBV RLLCS	AA4075RLLCS	NA	9/28/2023 1:22:00 PM
2164	AA4076	NA	9/28/2023 3:00:00 PM
4870	AA4077	NA	9/28/2023 3:30:00 PM
2160	AA4078	NA	9/28/2023 4:00:00 PM
10 PPBV CCCVS	AA4093CCCVS	NA	9/29/2023 12:28:00 AM

INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path: C:\DATA\2023\10-2023\10-10-2023\

Data File: AA4131BFB.D

Acq On: 10/10/2023 10:13:00AM

Operator: jls

Sample: BFB

Misc: ALM018474

ALS Vial: 1 **Multiplier:** 1

Integration File: rteint.p

Method: C:\msdchem\1\METHODS\231009.M

Last Update: Tue Oct 10 09:54:56 2023

Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	65523	16.8
PASS	75	95	30	66	182571	46.8
PASS	95	95	100	100	389867	100.0
PASS	96	95	5	9	25643	6.6
PASS	173	174	0.00	2	0	0.0
PASS	174	95	50	100	293952	75.4
PASS	175	174	4	9	22269	7.6
PASS	176	174	93	101	282667	96.2
PASS	177	176	5	9	18629	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4131BFB	NA	10/10/2023 10:13:00 AM
0.2 PPBV STD	AA4132STD05	NA	10/10/2023 10:40:00 AM
2 PPBV STD	AA4133STD04	NA	10/10/2023 11:46:00 AM
10 PPBV STANDARD STD	AA4134STD03	NA	10/10/2023 12:21:00 PM
20 PPBV STD	AA4135STD02	NA	10/10/2023 12:55:00 PM
40 PPBV STD	AA4136STD01	NA	10/10/2023 2:05:00 PM
10 PPBV ICVSS	AA4137ICVSS	NA	10/10/2023 4:48:00 PM
10 PPBV LCS	AA4138LCS	NA	10/10/2023 5:39:00 PM
METHOD BLANK	AA4139BLK	NA	10/10/2023 6:07:00 PM
02 PPBV RLLCS	AA4140RLLCS	NA	10/10/2023 6:35:00 PM
5101	AA4142	NA	10/10/2023 7:36:00 PM
4869	AA4143	NA	10/10/2023 8:06:00 PM
2157	AA4144	NA	10/10/2023 8:36:00 PM
10 PPBV CCCVS	AA4154CCCVS	NA	10/11/2023 1:53:00 AM

BFB

Data Path: C:\DATA\2023\12-2023\12-08-2023\
Data File: AA4881BFB.D
Acq On: 12/8/2023 10:21:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\231009.M
Last Update: Tue Oct 10 15:12:35 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	185045	18.5
PASS	75	95	30	66	508523	50.7
PASS	95	95	100	100	1002688	100.0
PASS	96	95	5	9	66973	6.7
PASS	173	174	0.00	2	4685	0.6
PASS	174	95	50	100	744704	74.3
PASS	175	174	4	9	56251	7.6
PASS	176	174	93	101	716907	96.3
PASS	177	176	5	9	46309	6.5

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4881BFB	NA	12/8/2023 10:21:00 AM
10 PPBV DCVS	AA4882DCVS	NA	12/8/2023 10:50:00 AM
10 PPBV LCS	AA4883LCS	NA	12/8/2023 11:21:00 AM
METHOD BLANK	AA4884BLK	NA	12/8/2023 12:26:00 PM
E23-05080-01	AA4893	SV2	12/8/2023 6:08:00 PM
E23-05080-02	AA4894	SV3	12/8/2023 6:39:00 PM

BFB

Data Path: C:\DATA\2023\12-2023\12-11-2023\
Data File: AA4901BFB.D
Acq On: 12/11/2023 9:24:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\231009.M
Last Update: Tue Oct 10 15:12:35 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	267904	18.4
PASS	75	95	30	66	717035	49.1
PASS	95	95	100	100	1459371	100.0
PASS	96	95	5	9	91040	6.2
PASS	173	174	0.00	2	10848	1.0
PASS	174	95	50	100	1053269	72.2
PASS	175	174	4	9	81547	7.7
PASS	176	174	93	101	1021824	97.0
PASS	177	176	5	9	65264	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4901BFB	NA	12/11/2023 9:24:00 AM
10 PPBV DCVS	AA4902DCVS	NA	12/11/2023 10:26:00 AM
10 PPBV LCS	AA4903LCS	NA	12/11/2023 10:57:00 AM
METHOD BLANK	AA4904BLK	NA	12/11/2023 11:51:00 AM
02 PPBV RLLCS	AA4905RLLCS	NA	12/11/2023 12:18:00 PM
1458	AA4906	NA	12/11/2023 12:50:00 PM
1588	AA4907	NA	12/11/2023 1:19:00 PM
3012	AA4908	NA	12/11/2023 1:49:00 PM
E23-05080-01	AA4911	SV2	12/11/2023 3:19:00 PM
E23-05080-02	AA4912	SV3	12/11/2023 3:48:00 PM
10 PPBV CCCVS	AA4931CCCVS	NA	12/12/2023 1:59:00 AM

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4074BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**9/28/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4074BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**9/28/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4884BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/8/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05080-01 [AA4893]	12/08/2023 18:08
E23-05080-02 [AA4894]	12/08/2023 18:39

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4884BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/8/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05080-01 [AA4893]	12/08/2023 18:08
E23-05080-02 [AA4894]	12/08/2023 18:39

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05080-01 [AA4911]	12/11/2023 15:19
E23-05080-02 [AA4912]	12/11/2023 15:48
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05080-01 [AA4911]	12/11/2023 15:19
E23-05080-02 [AA4912]	12/11/2023 15:48
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4073LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 9/28/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	13	120
Benzene	71-43-2	12	120
Bromodichloromethane	75-27-4	12	110
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	12	110
1,3-Butadiene	106-99-0	14	130
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	13	130
Chloroform	67-66-3	13	130
Chloromethane	74-87-3	14	120
Carbon disulfide	75-15-0	14	130
Carbon tetrachloride	56-23-5	11	110
Cyclohexane	110-82-7	12	120
Dibromochloromethane	124-48-1	11	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	10	91
1,4-Dichlorobenzene	106-46-7	11	100
Dichlorodifluoromethane	75-71-8	13	120
1,1-Dichloroethane	75-34-3	13	120
1,2-Dichloroethane	107-06-2	13	130
1,1-Dichloroethene	75-35-4	13	120
1,2-Dichloroethene (cis)	156-59-2	14	130
1,2-Dichloroethene (trans)	156-60-5	14	130
1,2-Dichloropropane	78-87-5	11	110
1,3-Dichloropropene (cis)	10061-01-5	12	110
1,3-Dichloropropene (trans)	10061-02-6	13	130
1,2-Dichlorotetrafluoroethane	76-14-2	11	100
1,4-Dioxane	123-91-1	12	100
Ethylbenzene	100-41-4	11	110
n-Heptane	142-82-5	12	120

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4073LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 9/28/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
1,3-Hexachlorobutadiene	87-68-3	9.6	84
n-Hexane	110-54-3	13	130
Methylene chloride	75-09-2	13	120
Methyl ethyl ketone	78-93-3	14	120
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	12	110
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	13	110
1,1,2,2-Tetrachloroethane	79-34-5	10	91
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	11	110
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	11	110
1,1,2-Trichloroethane	79-00-5	11	100
Trichloroethene	79-01-6	9.8	98
Trichlorofluoromethane	75-69-4	13	120
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	110
1,2,4-Trimethylbenzene	95-63-6	11	100
1,3,5-Trimethylbenzene	108-67-8	10	91
2,2,4-Trimethylpentane	540-84-1	12	120
Vinyl bromide	593-60-2	12	120
Vinyl chloride	75-01-4	14	130
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	10	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4883LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/8/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05080-01 [AA4893]	12/08/2023 18:08
E23-05080-02 [AA4894]	12/08/2023 18:39

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	100
Benzene	71-43-2	9.3	93
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	11	100
1,3-Butadiene	106-99-0	9.9	99
Chlorobenzene	108-90-7	9.9	99
Chloroethane	75-00-3	11	110
Chloroform	67-66-3	10.0	100
Chloromethane	74-87-3	12	100
Carbon disulfide	75-15-0	11	100
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	10	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	9.7	88
1,3-Dichlorobenzene	541-73-1	9.8	89
1,4-Dichlorobenzene	106-46-7	9.6	87
Dichlorodifluoromethane	75-71-8	11	100
1,1-Dichloroethane	75-34-3	9.4	85
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	100
1,2-Dichloroethene (cis)	156-59-2	10	91
1,2-Dichloroethene (trans)	156-60-5	11	100
1,2-Dichloropropane	78-87-5	11	110
1,3-Dichloropropene (cis)	10061-01-5	11	100
1,3-Dichloropropene (trans)	10061-02-6	12	120
1,2-Dichlorotetrafluoroethane	76-14-2	9.0	82
1,4-Dioxane	123-91-1	12	100
Ethylbenzene	100-41-4	10	100
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	10.0	88
n-Hexane	110-54-3	10.0	100
Methylene chloride	75-09-2	9.5	86
Methyl ethyl ketone	78-93-3	10	85
Methyl isobutyl ketone	108-10-1	12	110

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: **10 PPBV LCS** **Data File:** **AA4883LCS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **12/8/2023**

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05080-01 [AA4893]	12/08/2023 18:08
E23-05080-02 [AA4894]	12/08/2023 18:39

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Methyl tert-butyl ether	1634-04-4	10	91
Styrene	100-42-5	10	91
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	10	91
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	10	88
1,1,1-Trichloroethane	71-55-6	10	100
1,1,2-Trichloroethane	79-00-5	10	91
Trichloroethene	79-01-6	9.3	93
Trichlorofluoromethane	75-69-4	11	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.2	92
1,2,4-Trimethylbenzene	95-63-6	10.0	91
1,3,5-Trimethylbenzene	108-67-8	10	91
2,2,4-Trimethylpentane	540-84-1	10	100
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	10	100
Xylenes (m&p)	179601-23-1	21	110
Xylenes (o)	95-47-6	9.9	99

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4903LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/11/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05080-01 [AA4911]	12/11/2023 15:19
E23-05080-02 [AA4912]	12/11/2023 15:48
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	100
Benzene	71-43-2	9.5	95
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	10	91
1,3-Butadiene	106-99-0	10	100
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	11	110
Chloroform	67-66-3	10	100
Chloromethane	74-87-3	11	96
Carbon disulfide	75-15-0	11	100
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	10	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	10	91
1,4-Dichlorobenzene	106-46-7	10	91
Dichlorodifluoromethane	75-71-8	11	100
1,1-Dichloroethane	75-34-3	9.8	89
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	100
1,2-Dichloroethene (cis)	156-59-2	10	91
1,2-Dichloroethene (trans)	156-60-5	11	100
1,2-Dichloropropane	78-87-5	10	100
1,3-Dichloropropene (cis)	10061-01-5	11	100
1,3-Dichloropropene (trans)	10061-02-6	11	110
1,2-Dichlorotetrafluoroethane	76-14-2	8.8	80
1,4-Dioxane	123-91-1	11	92
Ethylbenzene	100-41-4	11	110
n-Heptane	142-82-5	11	110

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4903LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/11/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05080-01 [AA4911]	12/11/2023 15:19
E23-05080-02 [AA4912]	12/11/2023 15:48
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
1,3-Hexachlorobutadiene	87-68-3	10	88
n-Hexane	110-54-3	10	100
Methylene chloride	75-09-2	9.6	87
Methyl ethyl ketone	78-93-3	11	93
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	11	100
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	11	100
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	10	100
1,1,2-Trichloroethane	79-00-5	10	91
Trichloroethene	79-01-6	9.1	91
Trichlorofluoromethane	75-69-4	11	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.4	94
1,2,4-Trimethylbenzene	95-63-6	11	100
1,3,5-Trimethylbenzene	108-67-8	11	100
2,2,4-Trimethylpentane	540-84-1	10	100
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	11	110
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	10	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**50**		**54**		4.0	**-7.69%**
Allyl Chloride	107-05-1	4.0	U	4.0	U	4.0	0.00%
Benzene	71-43-2	2.0	U	2.0	U	2.0	0.00%
Bromodichloromethane	75-27-4	4.0	U	4.0	U	4.0	0.00%
Bromoform	75-25-2	4.0	U	4.0	U	4.0	0.00%
Bromomethane	74-83-9	4.0	U	4.0	U	4.0	0.00%
1,3-Butadiene	106-99-0	4.0	U	4.0	U	4.0	0.00%
Chlorobenzene	108-90-7	4.0	U	4.0	U	4.0	0.00%
Chloroethane	75-00-3	4.0	U	4.0	U	4.0	0.00%
Chloroform	67-66-3	4.0	U	4.0	U	4.0	0.00%
Chloromethane	74-87-3	4.0	U	4.0	U	4.0	0.00%
Carbon disulfide	75-15-0	**10.0**		**11**		4.0	**-9.52%**
Carbon tetrachloride	56-23-5	2.0	U	2.0	U	2.0	0.00%
2-Chlorotoluene	95-49-8	4.0	U	4.0	U	4.0	0.00%
Cyclohexane	110-82-7	4.0	U	4.0	U	4.0	0.00%
Dibromochloromethane	124-48-1	4.0	U	4.0	U	4.0	0.00%
1,2-Dibromoethane	106-93-4	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorobenzene	95-50-1	4.0	U	4.0	U	4.0	0.00%
1,3-Dichlorobenzene	541-73-1	4.0	U	4.0	U	4.0	0.00%
1,4-Dichlorobenzene	106-46-7	4.0	U	4.0	U	4.0	0.00%
Dichlorodifluoromethane	75-71-8	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethane	75-34-3	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethane	107-06-2	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethene	75-35-4	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (cis)	156-59-2	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (trans)	156-60-5	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloropropane	78-87-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (cis)	10061-01-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (trans)	10061-02-6	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	4.0	U	4.0	U	4.0	0.00%
Ethylbenzene	100-41-4	2.0	U	2.0	U	2.0	0.00%
4-Ethyltoluene	622-96-8	4.0	U	4.0	U	4.0	0.00%
n-Heptane	142-82-5	4.0	U	4.0	U	4.0	0.00%
1,3-Hexachlorobutadiene	87-68-3	4.0	U	4.0	U	4.0	0.00%
n-Hexane	110-54-3	4.0	U	4.0	U	4.0	0.00%
Methylene chloride	75-09-2	4.0	U	4.0	U	4.0	0.00%
Methyl ethyl ketone	78-93-3	**8.1**		**10**		4.0	**-20.99%**
Methyl isobutyl ketone	108-10-1	4.0	U	4.0	U	4.0	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	4.0	U	4.0	U	4.0	0.00%
Styrene	100-42-5	4.0	U	4.0	U	4.0	0.00%
Tert-butyl alcohol	75-65-0	4.0	U	4.0	U	4.0	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	4.0	U	4.0	U	4.0	0.00%
Tetrachloroethene	127-18-4	4.0	U	4.0	U	4.0	0.00%
Toluene	108-88-3	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trichlorobenzene	120-82-1	4.0	U	4.0	U	4.0	0.00%
1,1,1-Trichloroethane	71-55-6	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloroethane	79-00-5	4.0	U	4.0	U	4.0	0.00%
Trichloroethene	79-01-6	2.0	U	2.0	U	2.0	0.00%
Trichlorofluoromethane	75-69-4	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trimethylbenzene	95-63-6	4.0	U	4.0	U	4.0	0.00%
1,3,5-Trimethylbenzene	108-67-8	4.0	U	4.0	U	4.0	0.00%
2,2,4-Trimethylpentane	540-84-1	4.0	U	4.0	U	4.0	0.00%
Vinyl bromide	593-60-2	4.0	U	4.0	U	4.0	0.00%
Vinyl chloride	75-01-4	2.0	U	2.0	U	2.0	0.00%
Xylenes (m&p)	179601-23-1	4.0	U	**4.2**		4.0	**NC**
Xylenes (o)	95-47-6	4.0	U	4.0	U	4.0	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/17/23
SDG Number:	E23-05061	Date Analyzed:	12/7/23,12/7/23
IAL Sample ID:	E23-05061-03	Lab Data File#:	AA4869,AA4870
Matrix:	Air	Dilution Factor:	1
Summa ID:	3045a	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05061-03 Concentration Reported ppbv	Q	Sample Dup E23-05061-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**11**		**11**		0.20	**0.00%**
Allyl Chloride	107-05-1	0.20	U	0.20	U	0.20	0.00%
Benzene	71-43-2	**2.6**		**2.3**		0.20	**12.24%**
Bromodichloromethane	75-27-4	0.20	U	0.20	U	0.20	0.00%
Bromoform	75-25-2	0.20	U	0.20	U	0.20	0.00%
Bromomethane	74-83-9	0.20	U	0.20	U	0.20	0.00%
1,3-Butadiene	106-99-0	0.20	U	0.20	U	0.20	0.00%
Chlorobenzene	108-90-7	0.20	U	0.20	U	0.20	0.00%
Chloroethane	75-00-3	0.20	U	0.20	U	0.20	0.00%
Chloroform	67-66-3	0.20	U	0.20	U	0.20	0.00%
Chloromethane	74-87-3	0.20	U	0.20	U	0.20	0.00%
Carbon disulfide	75-15-0	0.20	U	0.20	U	0.20	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.20	U	**0.27**		0.20	**NC**
Cyclohexane	110-82-7	**3.9**		**3.4**		0.20	**13.70%**
Dibromochloromethane	124-48-1	0.20	U	0.20	U	0.20	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	U	0.20	0.00%
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	U	0.20	0.00%
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	U	0.20	0.00%
Dichlorodifluoromethane	75-71-8	0.20	U	0.20	U	0.20	0.00%
1,1-Dichloroethane	75-34-3	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethane	107-06-2	0.20	U	0.20	U	0.20	0.00%
1,1-Dichloroethene	75-35-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	U	0.20	0.00%
1,4-Dioxane	123-91-1	0.20	U	0.20	U	0.20	0.00%
Ethanol	64-17-5	**10**		0.20	U	0.20	**NC**
Ethylbenzene	100-41-4	**1.9**		**1.6**		0.20	**17.14%**
4-Ethyltoluene	622-96-8	**1.9**	X	**1.4**	X	0.20	**30.30%**
n-Heptane	142-82-5	**3.7**		**3.4**		0.20	**8.45%**
1,3-Hexachlorobutadiene	87-68-3	0.20	U	0.20	U	0.20	0.00%
n-Hexane	110-54-3	**4.4**		**3.8**		0.20	**14.63%**
Isopropanol	67-63-0	**2.7**		0.20	U	0.20	**NC**

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/17/23
SDG Number:	E23-05061	Date Analyzed:	12/7/23,12/7/23
IAL Sample ID:	E23-05061-03	Lab Data File#:	AA4869,AA4870
Matrix:	Air	Dilution Factor:	1
Summa ID:	3045a	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05061-03 Concentration Reported ppbv	Q	Sample Dup E23-05061-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methylene chloride	75-09-2	**2.8**		0.20	U	0.20	**NC**
Methyl ethyl ketone	78-93-3	**0.85**		**0.83**		0.20	**2.38%**
Methyl isobutyl ketone	108-10-1	0.20	U	**0.24**		0.20	**NC**
Methyl methacrylate	80-62-6	0.20	U	**3.4**		0.20	**NC**
Methyl tert-butyl ether	1634-04-4	0.20	U	0.20	U	0.20	0.00%
Styrene	100-42-5	0.20	U	0.20	U	0.20	0.00%
Tert-butyl alcohol	75-65-0	0.20	U	0.20	U	0.20	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	U	0.20	0.00%
Tetrachloroethene	127-18-4	0.20	U	0.20	U	0.20	0.00%
Tetrahydrofuran	109-99-9	**0.96**		**0.90**		0.20	**6.45%**
Toluene	108-88-3	**7.1**		**7.1**		0.20	**0.00%**
1,2,4-Trichlorobenzene	120-82-1	0.20	U	0.20	U	0.20	0.00%
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	U	0.20	0.00%
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	U	0.20	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	**0.33**		**0.33**		0.20	**0.00%**
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	U	0.20	U	0.20	0.00%
1,2,4-Trimethylbenzene	95-63-6	**1.9**		**1.5**		0.20	**23.53%**
1,3,5-Trimethylbenzene	108-67-8	**0.53**		**0.45**		0.20	**16.33%**
2,2,4-Trimethylpentane	540-84-1	**6.9**		**7.0**		0.20	**-1.44%**
Vinyl bromide	593-60-2	0.20	U	0.20	U	0.20	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	**7.0**		**5.9**		0.40	**17.05%**
Xylenes (o)	95-47-6	**2.3**		**2.0**		0.20	**13.95%**

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SDG Number:	E23-05079	Date Received:	11/20/23
IAL Sample ID:	E23-05079-03	Date Analyzed:	12/12/23,12/12/23
Matrix:	Air	Lab Data File#:	AA4929,AA4930
Summa ID:	3830	Dilution Factor:	1
		Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**6.1**		**5.9**		0.40	**3.33%**
Allyl Chloride	107-05-1	0.40	U	0.40	U	0.40	0.00%
Benzene	71-43-2	**0.31**		**0.32**		0.20	**-3.17%**
Bromodichloromethane	75-27-4	0.40	U	0.40	U	0.40	0.00%
Bromoform	75-25-2	0.40	U	0.40	U	0.40	0.00%
Bromomethane	74-83-9	0.40	U	0.40	U	0.40	0.00%
1,3-Butadiene	106-99-0	0.40	U	0.40	U	0.40	0.00%
Chlorobenzene	108-90-7	0.40	U	0.40	U	0.40	0.00%
Chloroethane	75-00-3	0.40	U	0.40	U	0.40	0.00%
Chloroform	67-66-3	0.40	U	0.40	U	0.40	0.00%
Chloromethane	74-87-3	0.40	U	0.40	U	0.40	0.00%
Carbon disulfide	75-15-0	0.40	U	0.40	U	0.40	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.40	U	0.40	U	0.40	0.00%
Cyclohexane	110-82-7	0.40	U	0.40	U	0.40	0.00%
Dibromochloromethane	124-48-1	0.40	U	0.40	U	0.40	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.40	U	0.40	U	0.40	0.00%
1,3-Dichlorobenzene	541-73-1	0.40	U	0.40	U	0.40	0.00%
1,4-Dichlorobenzene	106-46-7	0.40	U	0.40	U	0.40	0.00%
Dichlorodifluoromethane	75-71-8	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethane	75-34-3	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethane	107-06-2	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethene	75-35-4	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.40	U	0.40	U	0.40	0.00%
Ethylbenzene	100-41-4	0.20	U	0.20	U	0.20	0.00%
4-Ethyltoluene	622-96-8	0.40	U	0.40	U	0.40	0.00%
n-Heptane	142-82-5	0.40	U	0.40	U	0.40	0.00%
1,3-Hexachlorobutadiene	87-68-3	0.40	U	0.40	U	0.40	0.00%
n-Hexane	110-54-3	0.40	U	0.40	U	0.40	0.00%
Methylene chloride	75-09-2	**3.5**		**3.4**		0.40	**2.90%**
Methyl ethyl ketone	78-93-3	0.40	U	0.40	U	0.40	0.00%
Methyl isobutyl ketone	108-10-1	0.40	U	0.40	U	0.40	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/20/23
SDG Number:	E23-05079	Date Analyzed:	12/12/23,12/12/23
IAL Sample ID:	E23-05079-03	Lab Data File#:	AA4929,AA4930
Matrix:	Air	Dilution Factor:	1
Summa ID:	3830	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	0.40	U	0.40	U	0.40	0.00%
Styrene	100-42-5	0.40	U	0.40	U	0.40	0.00%
Tert-butyl alcohol	75-65-0	0.40	U	0.40	U	0.40	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.40	U	0.40	U	0.40	0.00%
Tetrachloroethene	127-18-4	0.40	U	0.40	U	0.40	0.00%
Toluene	108-88-3	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trichlorobenzene	120-82-1	0.40	U	0.40	U	0.40	0.00%
1,1,1-Trichloroethane	71-55-6	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloroethane	79-00-5	0.40	U	0.40	U	0.40	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trimethylbenzene	95-63-6	0.40	U	0.40	U	0.40	0.00%
1,3,5-Trimethylbenzene	108-67-8	0.40	U	0.40	U	0.40	0.00%
2,2,4-Trimethylpentane	540-84-1	0.40	U	0.40	U	0.40	0.00%
Vinyl bromide	593-60-2	0.40	U	0.40	U	0.40	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	0.40	U	0.40	U	0.40	0.00%
Xylenes (o)	95-47-6	0.40	U	0.40	U	0.40	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

Initial Calibration Curve Internal Standard Area and Retention Time Summary

Instrument: AA **ICAL Date:** 8/15/2023

		BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
		Area #		RT		Area #		RT		Area #		RT	
AVERAGE OF CALIBRATION STANDARDS		520465		4.395		2280663		5.455		2627605		8.318	
UPPER LIMIT		728651		4.725		3192928		5.785		3678646		8.648	
LOWER LIMIT		312279		4.065		1368398		5.125		1576563		7.988	
Lab ID		Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
40 PPBV STD	AA 3406 STD01	487271	-6.38	4.406	0.01	2425798	6.36	5.457	0.00	2732166	3.98	8.319	0.00
20 PPBV STD	AA 3405 STD02	499473	-4.03	4.399	0.00	2278768	-0.08	5.457	0.00	2812211	7.03	8.319	0.00
10 PPBV STD	AA 3404 STD03	530723	1.97	4.396	0.00	2268530	-0.53	5.457	0.00	2737620	4.19	8.319	0.00
2 PPBV STD	AA 3403 STD04	541075	3.96	4.393	0.00	2325427	1.96	5.454	0.00	2787489	6.08	8.319	0.00
0.2 PPBV STD	AA 3402 STD05	543782	4.48	4.380	-0.01	2104790	-7.71	5.448	0.01	2068537	-21.28	8.316	0.00
ICVSS	AA 3407 ICVSS	614925	18.15	4.396	0.00	2660514	16.66	5.454	0.00	3151139	19.92	8.319	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.

* Values outsite QC limits.

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA4072DCVS **Date Analyzed:** 9/28/2023

Instrument: AA **ICAL Date:** 8/15/2023

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
			Area #		RT		Area #		RT		Area #		RT	
	CALIBRATION STANDARD		394533		4.399		1846241		5.457		1956014		8.319	
	UPPER LIMIT		552346		4.73		2584737		5.79		2738420		8.65	
	LOWER LIMIT		236720		4.07		1107745		5.13		1173608		7.99	
Lab ID		DF	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Method Blank	AA4074BLK	1.0	502187	27.29	4.393	-0.01	2139413	15.88	5.454	0.00	2500606	27.84	8.319	0.00
Reporting Limit Laboratory Control Standard	AA4075RLLCS	1.0	400577	1.53	4.380	-0.02	1566223	-15.17	5.447	-0.01	1477412	-24.47	8.316	0.00
2164	AA4076	1.0	481338	22.00	4.393	-0.01	2110781	14.33	5.454	0.00	2516144	28.64	8.319	0.00
4870	AA4077	1.0	360790	-8.55	4.383	-0.02	1388747	-24.78	5.447	-0.01	1279774	-34.57	8.316	0.00
2160	AA4078	1.0	361668	-8.33	4.380	-0.02	1313235	-28.87	5.448	-0.01	1248229	-36.19	8.316	0.00
Closing Calibration	AA4093CCCVS	1.0	393835	-0.18	4.399	0.00	1857833	0.63	5.457	0.00	2315299	18.37	8.319	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.
* Values outsite QC limits.

Initial Calibration Curve Internal Standard Area and Retention Time Summary

Instrument: AA **ICAL Date:** 10/10/2023

	BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
	Area #		RT		Area #		RT		Area #		RT	
AVERAGE OF CALIBRATION STANDARDS	343159		4.390		1499624		5.451		1637040		8.316	
UPPER LIMIT	480423		4.720		2099474		5.781		2291856		8.646	
LOWER LIMIT	205896		4.060		899774		5.121		982224		7.986	
Lab ID	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
40 PPBV STD AA 4136 STD01	356266	3.82	4.400	0.01	1769398	17.99	5.458	-0.01	1970985	20.40	8.319	0.00
20 PPBV STD AA 4135 STD02	363381	5.89	4.397	0.01	1661895	10.82	5.455	0.00	1933627	18.12	8.316	0.00
10 PPBV STD AA 4134 STD03	393970	14.81	4.394	0.00	1695876	13.09	5.452	0.00	1964329	19.99	8.316	0.00
2 PPBV STD AA 4133 STD04	266219	-22.42	4.378	-0.01	1004403	-33.02	5.445	0.01	1028709	-37.16	8.313	0.00
0.2 PPBV STD AA 4132 STD05	335961	-2.10	4.380	-0.01	1366548	-8.87	5.444	0.01	1287551	-21.35	8.316	0.00
ICVSS AA 4137 ICVSS	450439	31.26	4.394	0.00	1936760	29.15	5.451	0.00	2279414	39.24	8.316	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.

* Values outsite QC limits.

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA4882DCVS **Date Analyzed:** 12/8/2023

Instrument: AA **ICAL Date:** 10/10/2023

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
			Area #		RT		Area #		RT		Area #		RT	
	CALIBRATION STANDARD		497428		4.390		1995098		5.451		2342927		8.315	
	UPPER LIMIT		696399		4.72		2793137		5.78		3280098		8.65	
	LOWER LIMIT		298457		4.06		1197059		5.12		1405756		7.99	
Lab ID		DF	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Method Blank	AA4884BLK	1.0	407142	-18.15	4.377	-0.01	1506485	-24.49	5.444	-0.01	1527551	-34.80	8.316	0.00
E23-05080-01	AA4893	1.0	384045	-22.79	4.418	0.03	1903821	-4.58	5.454	0.00	1757041	-25.01	8.319	0.00
E23-05080-02	AA4894	1.0	439724	-11.60	4.402	0.01	1996144	0.05	5.451	0.00	1814252	-22.56	8.319	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.
* Values outsite QC limits.

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA4902DCVS **Date Analyzed:** 12/11/2023

Instrument: AA **ICAL Date:** 10/10/2023

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
			Area #		RT		Area #		RT		Area #		RT	
	CALIBRATION STANDARD		596109		4.393		2484518		5.454		2791354		8.319	
	UPPER LIMIT		834553		4.72		3478325		5.78		3907896		8.65	
	LOWER LIMIT		357665		4.06		1490711		5.12		1674812		7.99	
Lab ID		DF	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Method Blank	AA4904BLK	1.0	518939	-12.95	4.377	-0.02	1920464	-22.70	5.444	-0.01	1920350	-31.20	8.315	0.00
Reporting Limit Laboratory Control Standard	AA4905RLLCS	1.0	566007	-5.05	4.380	-0.01	2290490	-7.81	5.447	-0.01	2210970	-20.79	8.315	0.00
1458	AA4906	1.0	809785	35.85	4.393	0.00	3431480	38.11	5.451	0.00	3836872	37.46	8.316	0.00
1588	AA4907	1.0	706799	18.57	4.393	0.00	3079067	23.93	5.454	0.00	3708162	32.84	8.316	0.00
3012	AA4908	1.0	589784	-1.06	4.380	-0.01	2099848	-15.48	5.444	-0.01	2006025	-28.13	8.316	0.00
E23-05080-01	AA4911	10.0	486842	-18.33	4.403	0.01	2600713	4.68	5.457	0.00	3169675	13.55	8.319	0.00
E23-05080-02	AA4912	10.0	599033	0.49	4.396	0.00	2878783	15.87	5.454	0.00	3437579	23.15	8.319	0.00
Closing Calibration	AA4931CCCVS	1.0	737975	23.80	4.393	0.00	3126526	25.84	5.454	0.00	3543265	26.94	8.316	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.
* Values outsite QC limits.

Section VI: Sample Data Summary

Certificate of Analysis

Summary of Results

Quantitation Reports, Chromatograms,
and Peak Integration Reports

CERTIFICATE OF ANALYSIS

ANALYTICAL DATA PACKAGE FOR THE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY NEW YORK 12233

Integrated Analytical Laboratories, LLC — **Randolph, NJ 07869**
Project#: HK2661.2 — **NY ELAP Certification#: 11402**
SDG #: E23-05080 — **NJDEP (Primary AB) Certification#: 14751**
Date of first sample receipt: 11/20/2023 — **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
1600 US Route 22 East
Union, NJ 07083
Attention: Attention: Chris Hirschmann

Project/Site: HK2661.2/NY

Analysis conducted at: Integrated Analytical Laboratories, LLC
273 Franklin Road
Randolph, NJ 07869
Contact: Michael H. Leftin, Ph.D.

Sample(s):
E23-05080-01
E23-05080-02

Samples for this analysis were received in good condition with a chain of custody.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Once analysis has been performed on canisters that meets regulatory criteria, samples are recycled for future use, unless other provisions have been made by the client.

Michael H. Leftin, Ph.D.
Laboratory Director

Date: December 20, 2023

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05080-01	Instrument ID:	AA
Client ID:	SV2	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/16/2023 12:10	Injection Volmue:	500ml, 50ml
Date Received:	11/20/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 18:08, 12/11/2023 15:19	% Moisture:	NA
Data File:	AA4893, AA4911	Dilution Factor:	1, 10
Summa ID:	3006	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Acetone	67-64-1		17	41	0.20	0.48
Benzene	71-43-2		3.1	10	0.20	0.64
Bromodichloromethane	75-27-4		ND	ND	0.20	1.3
Bromoform	75-25-2		ND	ND	0.20	2.1
Bromomethane	74-83-9		ND	ND	0.20	0.78
1,3-Butadiene	106-99-0		ND	ND	0.20	0.44
Chlorobenzene	108-90-7		ND	ND	0.20	0.92
Chloroethane	75-00-3		ND	ND	0.20	0.53
Chloroform	67-66-3		4.0	19	0.20	0.98
Chloromethane	74-87-3		ND	ND	0.20	0.41
Carbon disulfide	75-15-0		2.4	7.6	0.20	0.62
Carbon tetrachloride	56-23-5		ND	ND	0.040	0.25
Cyclohexane	110-82-7		1.5	5.2	0.20	0.69
Dibromochloromethane	124-48-1		ND	ND	0.20	1.7
1,2-Dibromoethane	106-93-4		ND	ND	0.20	1.5
1,2-Dichlorobenzene	95-50-1		ND	ND	0.20	1.2
1,3-Dichlorobenzene	541-73-1		ND	ND	0.20	1.2
1,4-Dichlorobenzene	106-46-7		ND	ND	0.20	1.2
Dichlorodifluoromethane	75-71-8		ND	ND	0.20	0.99
1,1-Dichloroethane	75-34-3		ND	ND	0.20	0.81
1,2-Dichloroethane	107-06-2		ND	ND	0.20	0.81
1,1-Dichloroethene	75-35-4		ND	ND	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2		ND	ND	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5		ND	ND	0.20	0.79
1,2-Dichloropropane	78-87-5		ND	ND	0.20	0.92
1,3-Dichloropropene (cis)	10061-01-5		ND	ND	0.20	0.91
1,3-Dichloropropene (trans)	10061-02-6		ND	ND	0.20	0.91
1,2-Dichlorotetrafluoroethane	76-14-2		ND	ND	0.20	1.4
1,4-Dioxane	123-91-1		ND	ND	0.20	0.72
Ethylbenzene	100-41-4		28	120	0.20	0.87
n-Heptane	142-82-5		2.2	8.8	0.20	0.82
1,3-Hexachlorobutadiene	87-68-3		ND	ND	0.20	2.1
n-Hexane	110-54-3		ND	ND	0.20	0.70
Methylene chloride	75-09-2		1.7	6.0	0.20	0.69
Methyl ethyl ketone	78-93-3		1.6	4.6	0.20	0.59
Methyl isobutyl ketone	108-10-1		ND	ND	0.20	0.82
Methyl tert-butyl ether	1634-04-4		ND	ND	0.20	0.72
Styrene	100-42-5		0.44	1.9	0.20	0.85
Tert-butyl alcohol	75-65-0		3.7	11	0.20	0.61
1,1,2,2-Tetrachloroethane	79-34-5		ND	ND	0.20	1.4
Tetrachloroethene	127-18-4		15	100	0.20	1.4
Toluene	108-88-3		3.2	12	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1		ND	ND	0.20	1.5
1,1,1-Trichloroethane	71-55-6		ND	ND	0.20	1.1
1,1,2-Trichloroethane	79-00-5		ND	ND	0.20	1.1

Qualifiers:
D = Dilution required

INTEGRATED ANALYTICAL LABORATORIES, LLC
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Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05080-01	Instrument ID:	AA
Client ID:	SV2	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/16/2023 12:10	Injection Volmue:	500ml, 50ml
Date Received:	11/20/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 18:08, 12/11/2023 15:19	% Moisture:	NA
Data File:	AA4893, AA4911	Dilution Factor:	1, 10
Summa ID:	3006	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Trichloroethene	79-01-6		ND	ND	0.046	0.25
Trichlorofluoromethane	75-69-4		0.32	1.8	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		ND	ND	0.20	1.5
1,2,4-Trimethylbenzene	95-63-6		1.6	7.9	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8		0.53	2.6	0.20	0.98
2,2,4-Trimethylpentane	540-84-1		ND	ND	0.20	0.93
Vinyl bromide	593-60-2		ND	ND	0.20	0.87
Vinyl chloride	75-01-4		ND	ND	0.20	0.51
Xylenes (m&p)	179601-23-1	D	150	630	2.0	8.7
Xylenes (o)	95-47-6		21	93	0.20	0.87

Qualifiers:
D = Dilution required

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4893.D
Acq On : 8 Dec 2023 6:08 pm
Operator : jjw
Sample : E23-05080-01
Misc : 3006, 500cc
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Dec 12 10:11:00 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.418	130	384045	10.00	ppbV	0.024
39) 1,4-Difluorobenzene (IS)	5.454	114	1903821	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1757041	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	1475771	9.64	ppbV	0.000
Target Compounds						Qvalue
12) Trichlorofluoromethane	2.316	101	34390	0.32	ppbV	92
15) Carbon disulfide	2.759	76	287100	2.44	ppbV	96
20) Methylene chloride	3.206	49	80864	1.71	ppbV	87
21) Acetone	3.226	43	995736	17.19	ppbV	98
26) Tert-butyl alcohol	3.467	59	373685	3.73	ppbV	100
29) Cyclohexane	4.406	56	127202	1.50	ppbV	83
30) Chloroform	4.457	83	408328	3.97	ppbV	99
35) Methyl ethyl ketone	4.685	43	146302	1.56	ppbV	100
36) n-Heptane	4.917	43	228215	2.15	ppbV	94
37) Benzene	4.930	78	477972	3.13	ppbV	98
47) Toluene	6.775	91	862462	3.22	ppbV	99
49) Tetrachloroethene	7.161	166	1721824	14.93	ppbV	100
58) Ethylbenzene	8.383	91	9105156	28.12	ppbV	99
59) Xylenes (m&p)	8.537	91	23373830	97.43	ppbV #	85
60) Xylene (o)	9.029	91	5623370	21.48	ppbV	98
61) Styrene	9.090	104	78016	0.44	ppbV	92
69) 1,3,5-Trimethylbenzene	10.148	105	160166	0.53	ppbV	100
70) 1,2,4-Trimethylbenzene	10.624	105	488434	1.61	ppbV	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-08-2023\
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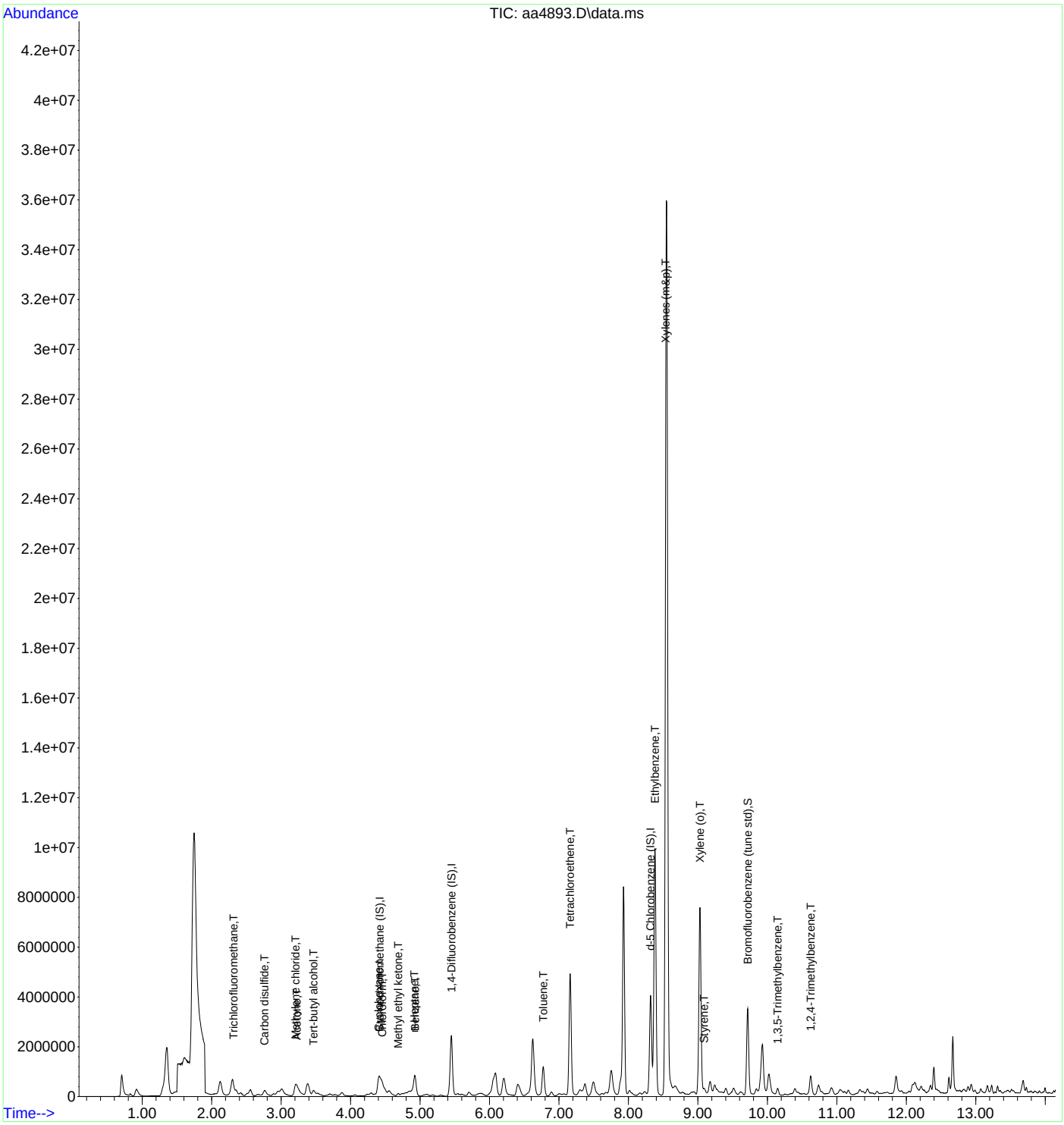
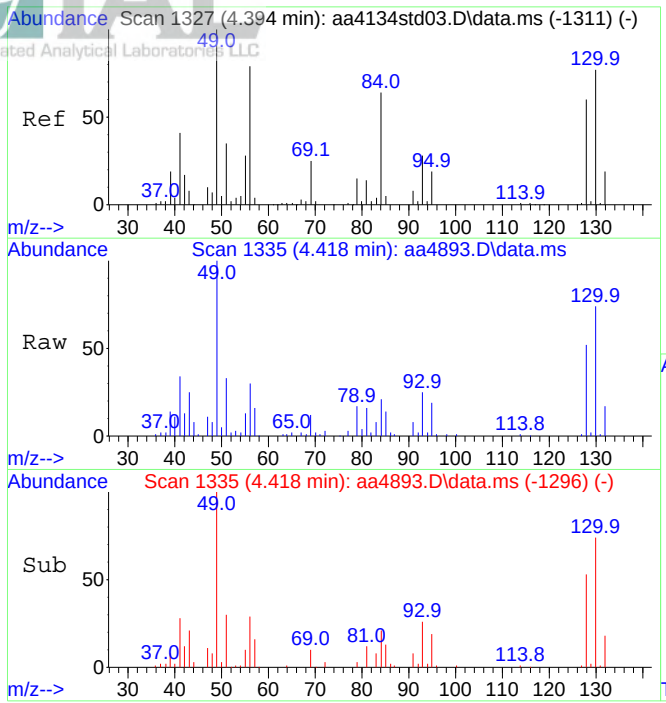
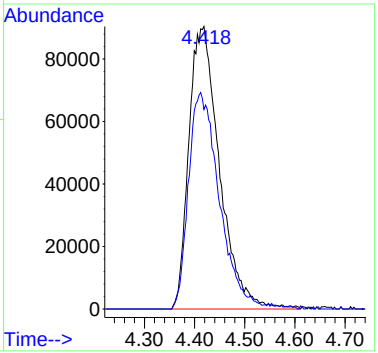


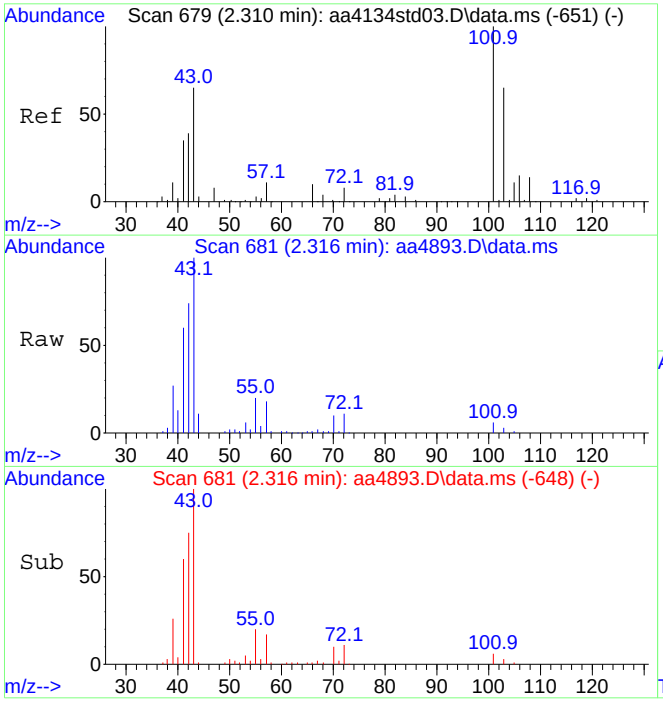


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.418 min Scan# 1335
Delta R.T. 0.024 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion:130 Resp: 384045

Ion	Ratio	Lower	Upper
130	100		
128	76.7	62.2	93.4

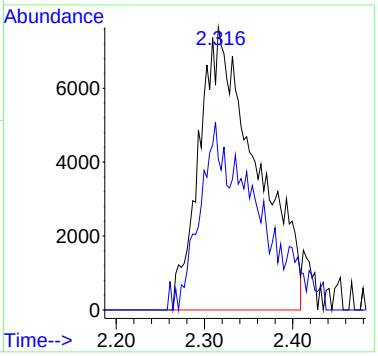


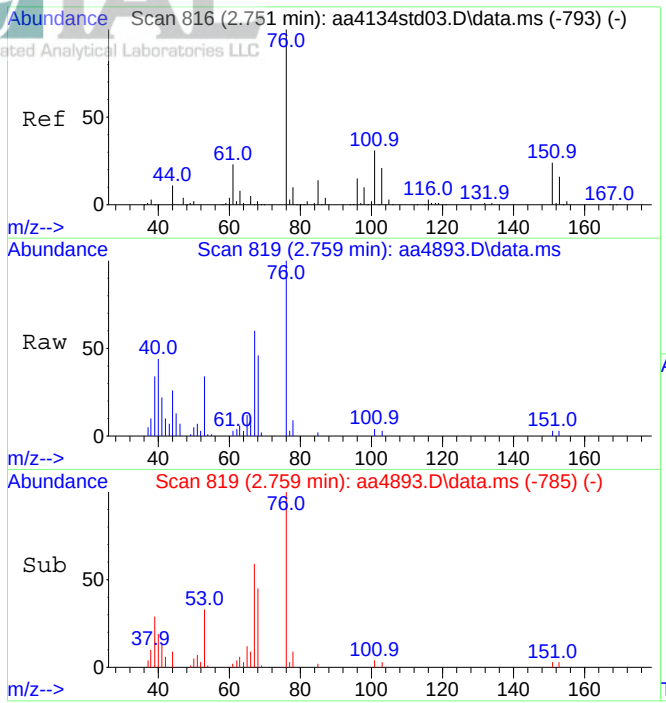


#12
Trichlorofluoromethane
Concen: 0.32 ppbV
RT: 2.316 min Scan# 681
Delta R.T. 0.005 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion:101 Resp: 34390

Ion	Ratio	Lower	Upper
101	100		
103	59.4	52.5	78.7

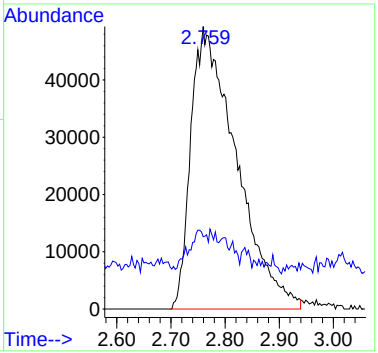


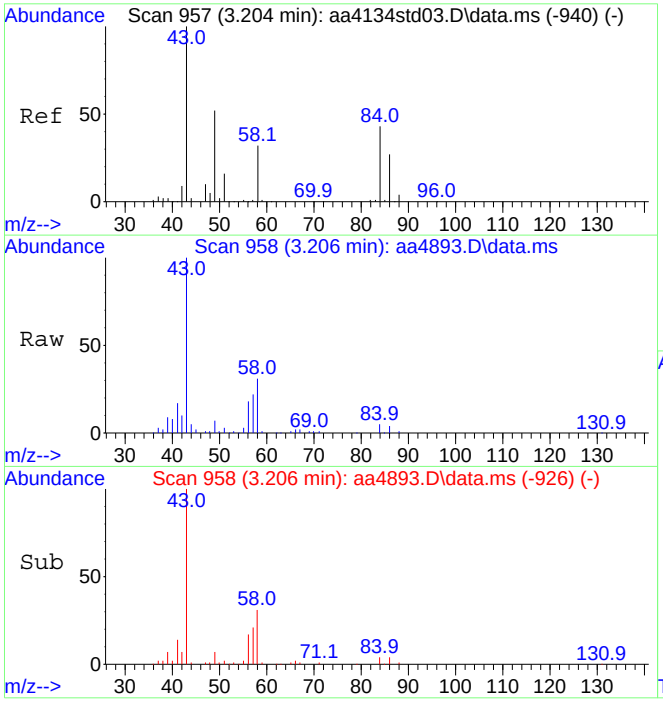


#15
Carbon disulfide
Concen: 2.44 ppbV
RT: 2.759 min Scan# 819
Delta R.T. 0.009 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion: 76 Resp: 287100

Ion	Ratio	Lower	Upper
76	100		
44	9.6	9.0	13.4

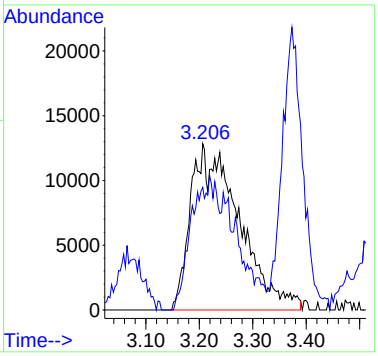


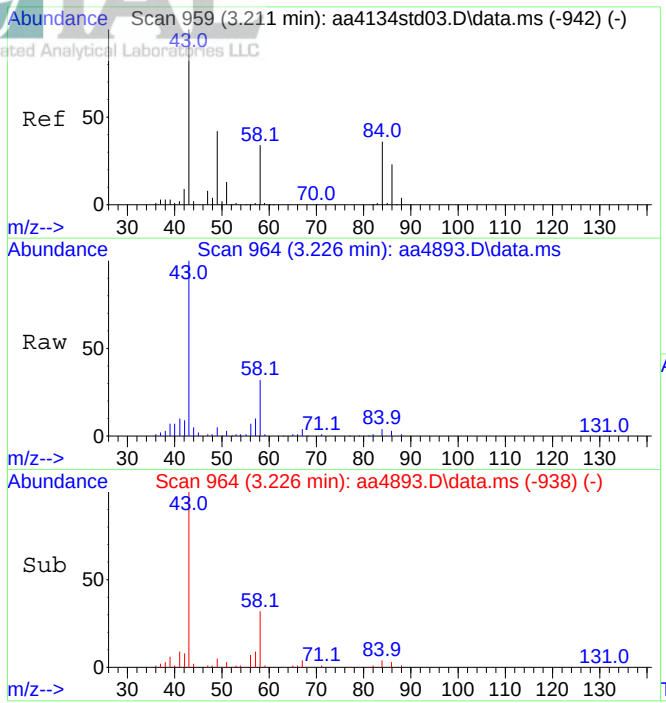


#20
Methylene chloride
Concen: 1.71 ppbV
RT: 3.206 min Scan# 958
Delta R.T. 0.002 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion: 49 Resp: 80864

Ion	Ratio	Lower	Upper
49	100		
84	73.3	64.8	104.8

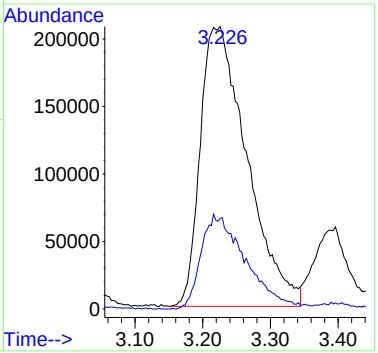


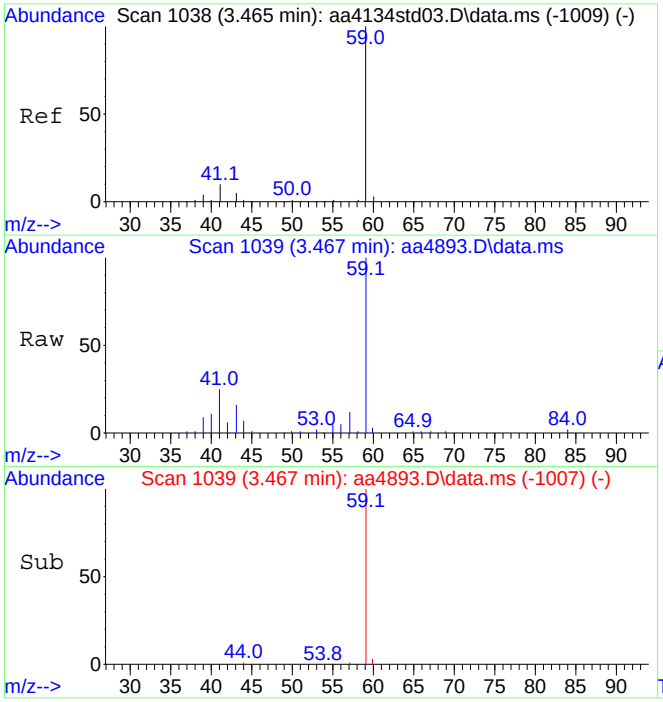


#21
Acetone
Concen: 17.19 ppbV
RT: 3.226 min Scan# 964
Delta R.T. 0.015 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion: 43 Resp: 995736

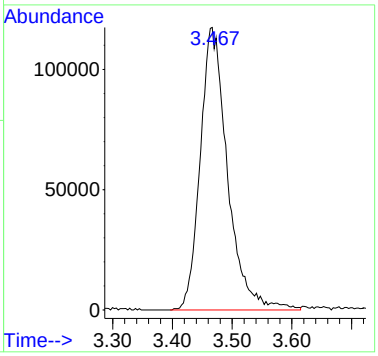
Ion	Ratio	Lower	Upper
43	100		
58	32.5	27.1	40.7

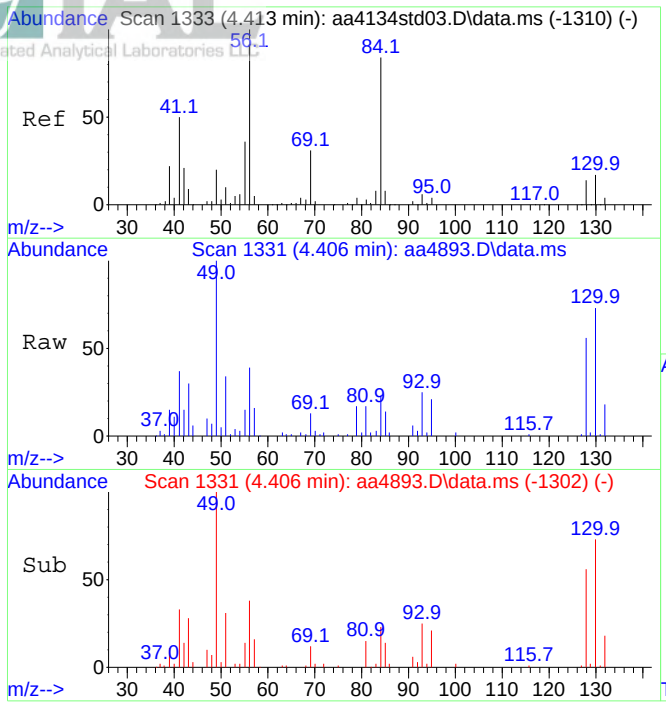




#26
Tert-butyl alcohol
Concen: 3.73 ppbV
RT: 3.467 min Scan# 1039
Delta R.T. 0.002 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion: 59 Resp: 373685

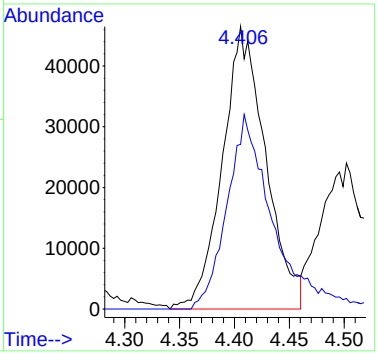


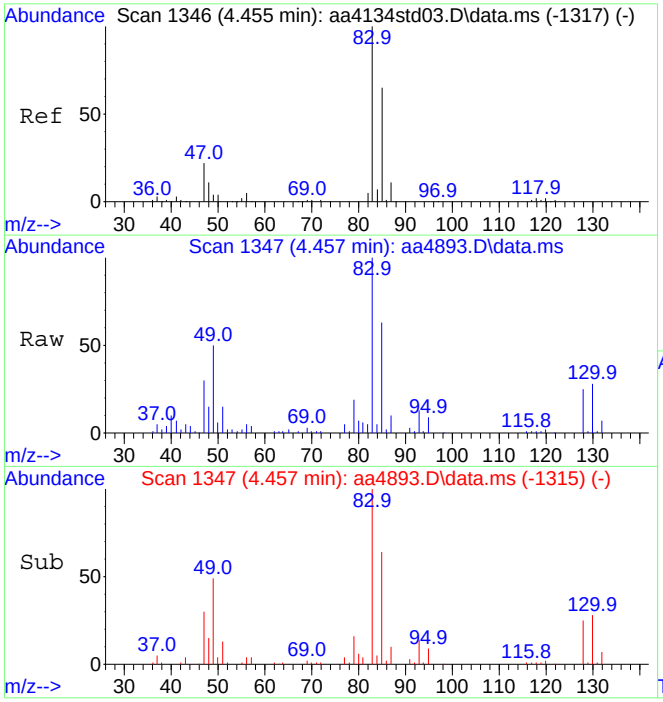


#29
Cyclohexane
Concen: 1.50 ppbV
RT: 4.406 min Scan# 1331
Delta R.T. -0.007 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion: 56 Resp: 127202

Ion	Ratio	Lower	Upper
56	100		
84	72.7	71.2	106.8

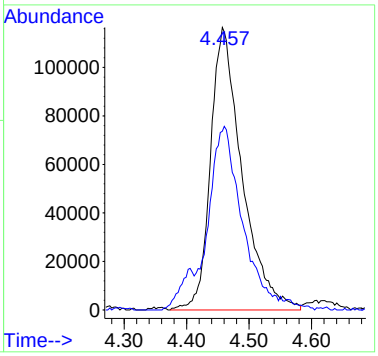


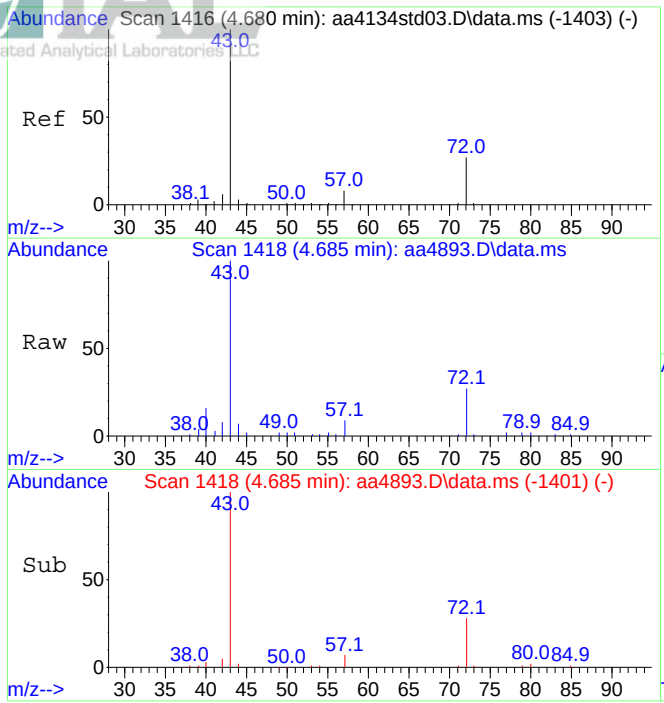


#30
Chloroform
Concen: 3.97 ppbV
RT: 4.457 min Scan# 1347
Delta R.T. 0.002 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion: 83 Resp: 408328

Ion	Ratio	Lower	Upper
83	100		
85	66.6	53.9	80.9

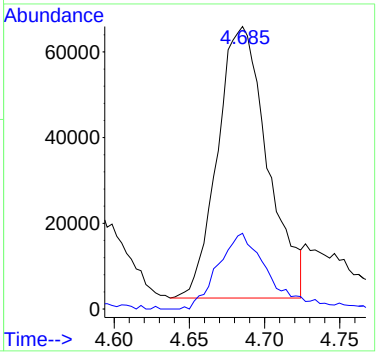


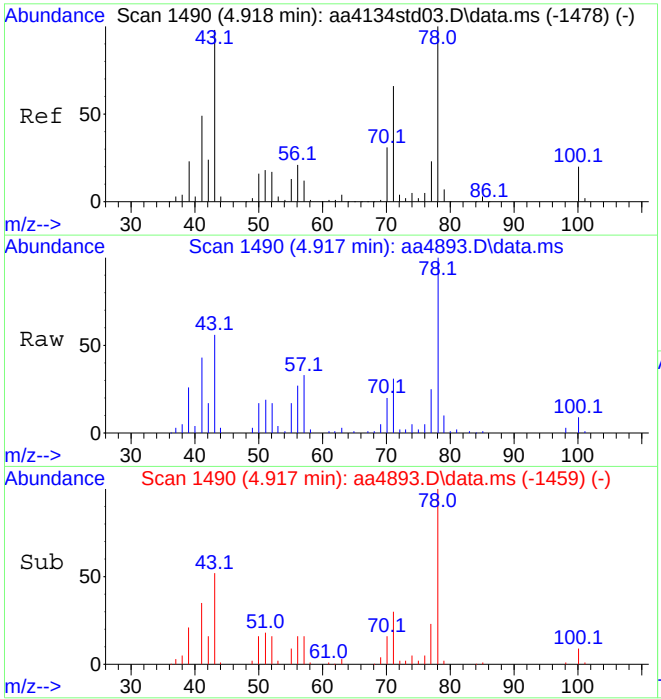


#35
Methyl ethyl ketone
Concen: 1.56 ppbV
RT: 4.685 min Scan# 1418
Delta R.T. 0.005 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion: 43 Resp: 146302

Ion	Ratio	Lower	Upper
43	100		
72	26.9	21.6	32.4

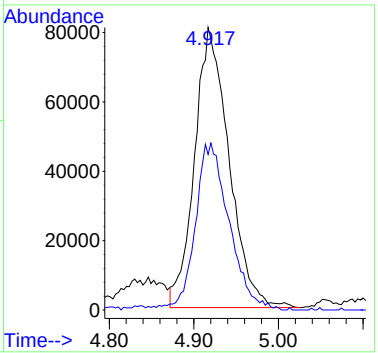


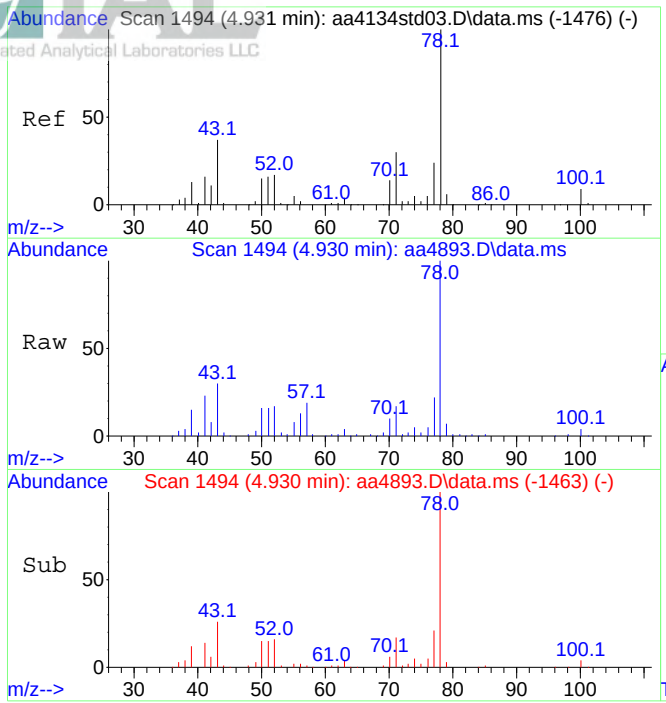


#36
n-Heptane
Concen: 2.15 ppbV
RT: 4.917 min Scan# 1490
Delta R.T. -0.001 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion: 43 Resp: 228215

Ion	Ratio	Lower	Upper
43	100		
71	58.3	50.5	75.7

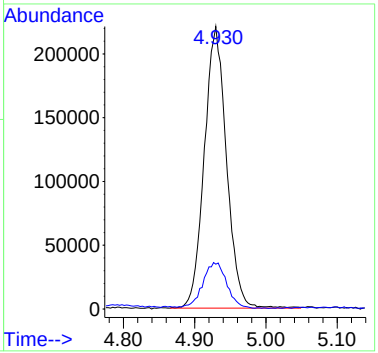


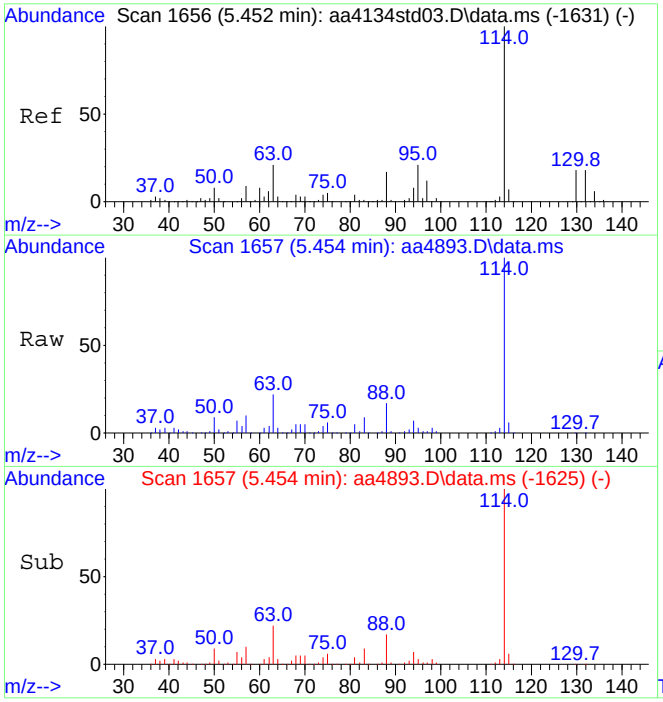


#37
Benzene
Concen: 3.13 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. -0.001 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion: 78 Resp: 477972

Ion	Ratio	Lower	Upper
78	100		
51	17.6	13.4	20.0

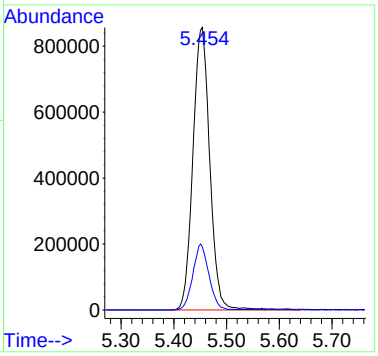


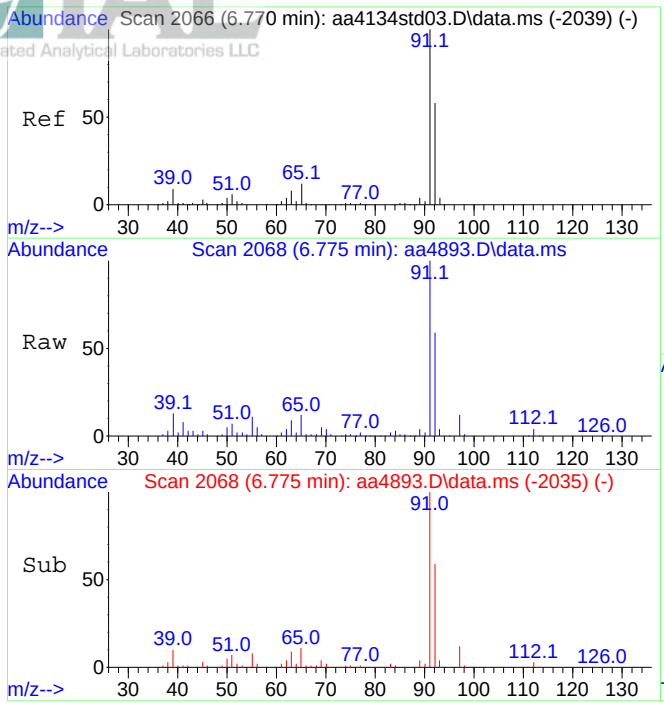


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.454 min Scan# 1657
Delta R.T. 0.002 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion:114 Resp: 1903821

Ion	Ratio	Lower	Upper
114	100		
63	22.4	17.0	25.6

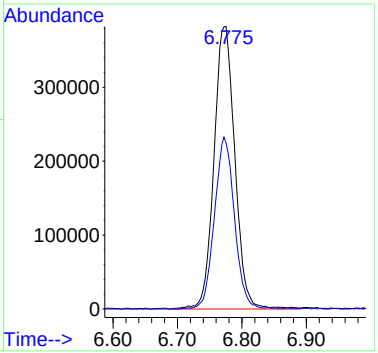


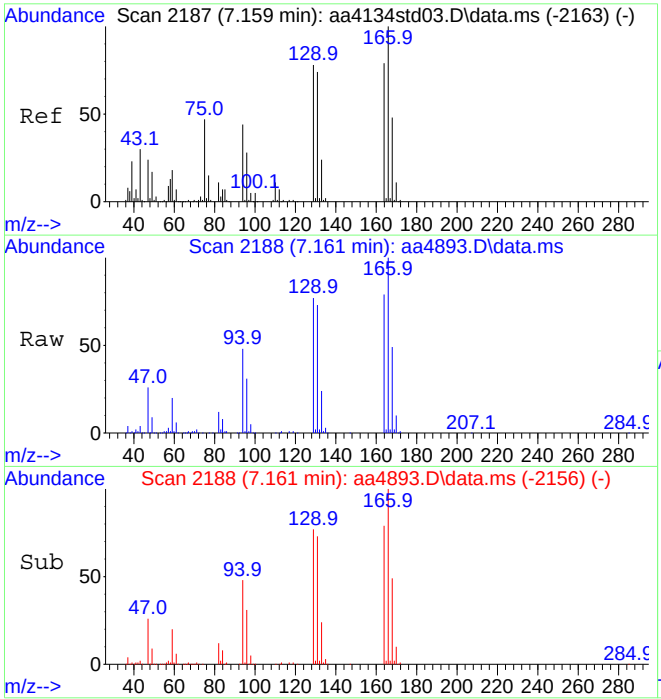


#47
Toluene
Concen: 3.22 ppbV
RT: 6.775 min Scan# 2068
Delta R.T. 0.005 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion: 91 Resp: 862462

Ion	Ratio	Lower	Upper
91	100		
92	58.0	47.3	70.9

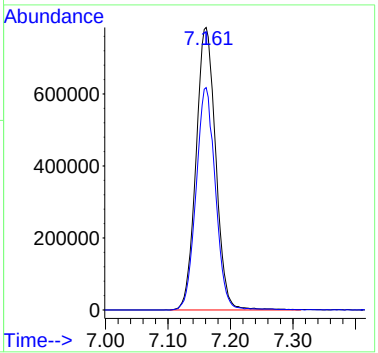


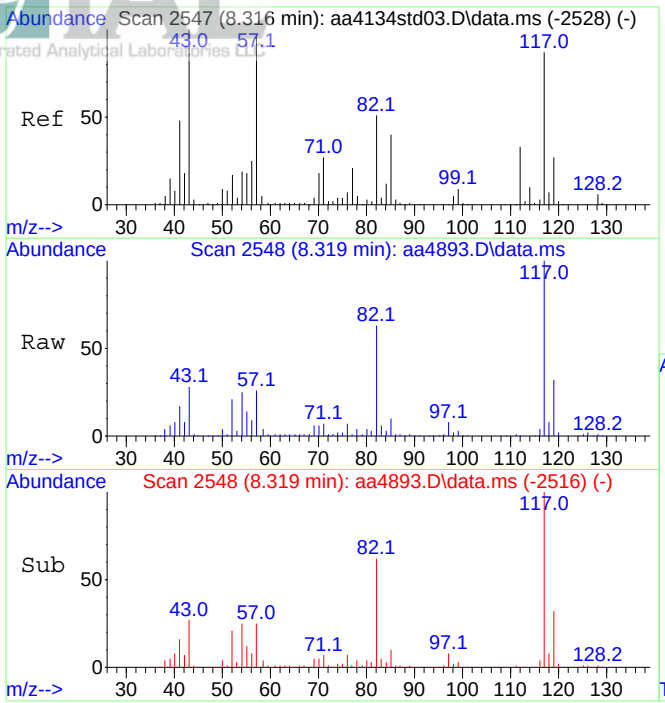


#49
Tetrachloroethene
Concen: 14.93 ppbV
RT: 7.161 min Scan# 2188
Delta R.T. 0.002 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion:166 Resp: 1721824

Ion	Ratio	Lower	Upper
166	100		
164	77.5	62.3	93.5

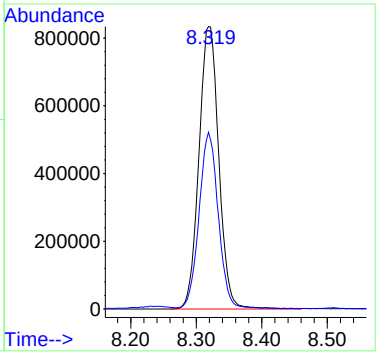


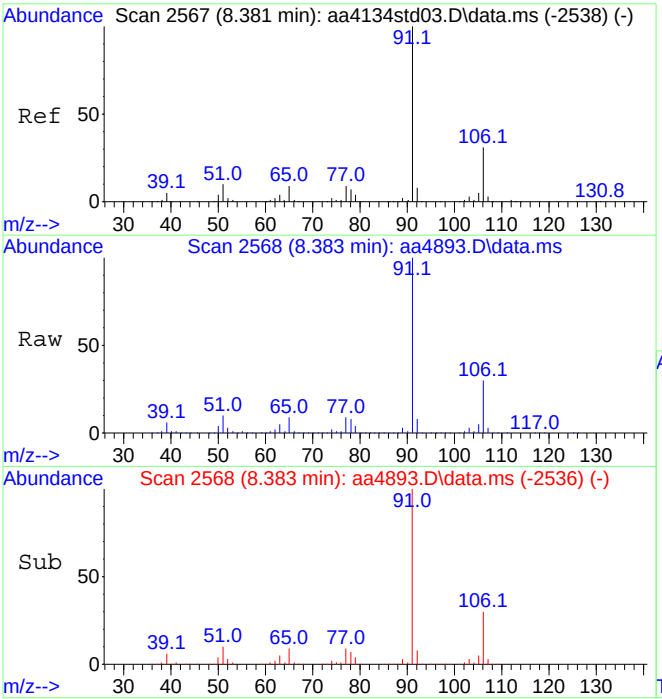


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion:117 Resp: 1757041

Ion	Ratio	Lower	Upper
117	100		
82	60.1	47.0	70.4

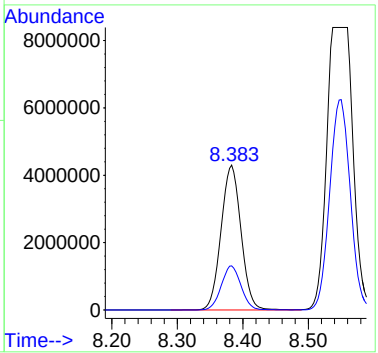


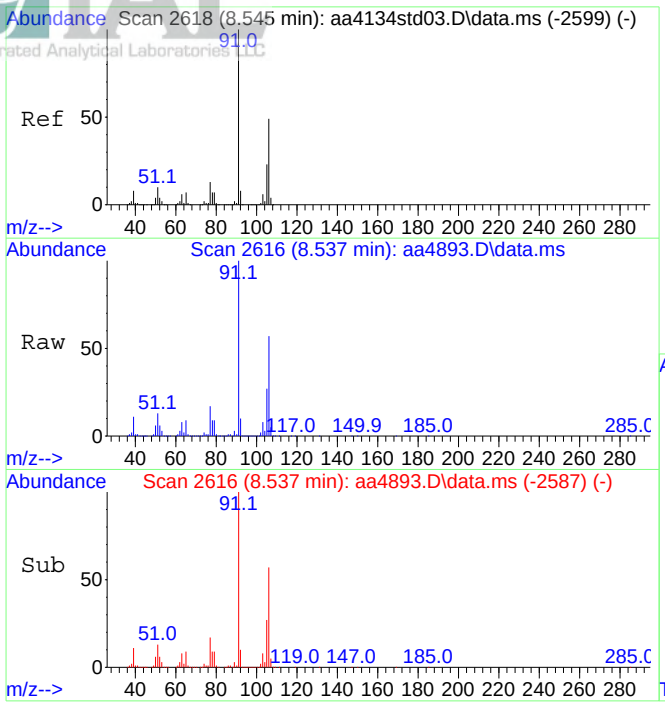


#58
Ethylbenzene
Concen: 28.12 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion: 91 Resp: 9105156

Ion	Ratio	Lower	Upper
91	100		
106	30.2	24.6	36.8

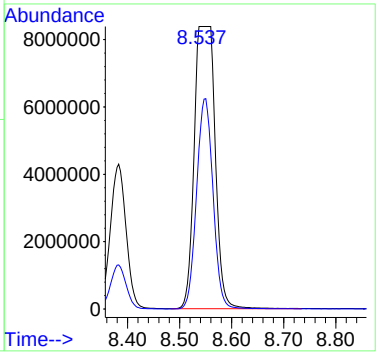


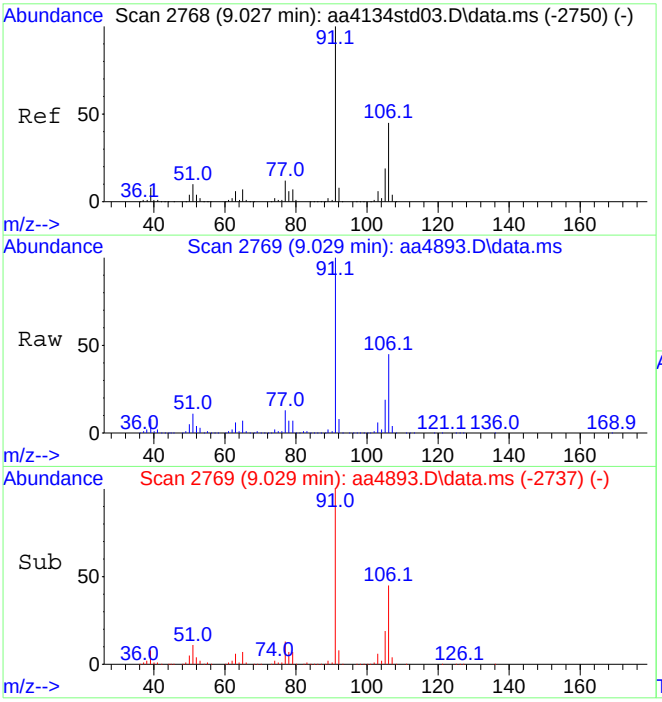


#59
Xylenes (m&p)
Concen: 97.43 ppbV
RT: 8.537 min Scan# 2616
Delta R.T. -0.007 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion: 91 Resp:23373830

Ion	Ratio	Lower	Upper
91	100		
106	58.7	39.0	58.4#

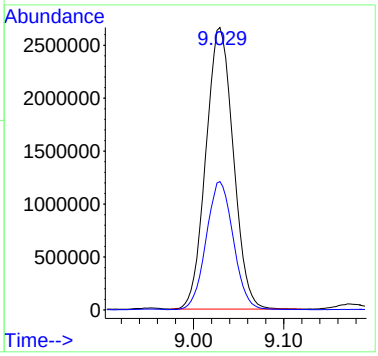


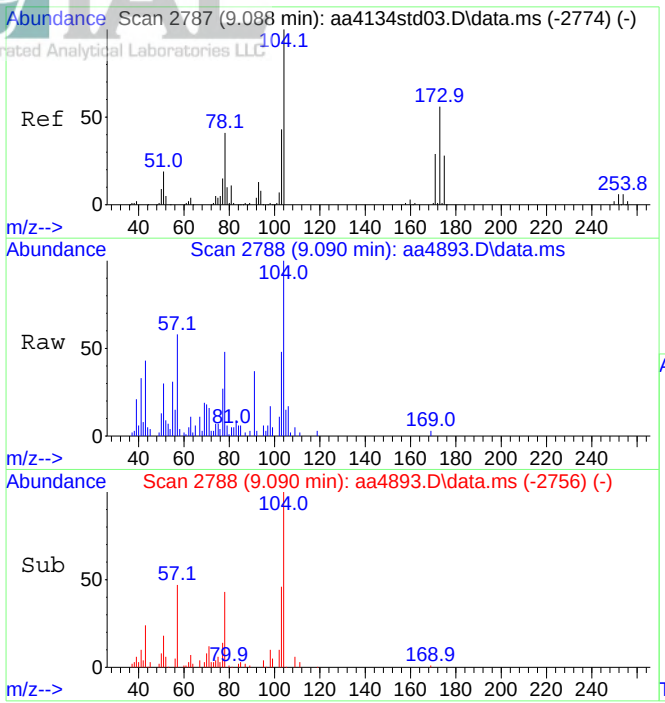


#60
Xylene (o)
Concen: 21.48 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion: 91 Resp: 5623370

Ion	Ratio	Lower	Upper
91	100		
106	45.0	36.8	55.2

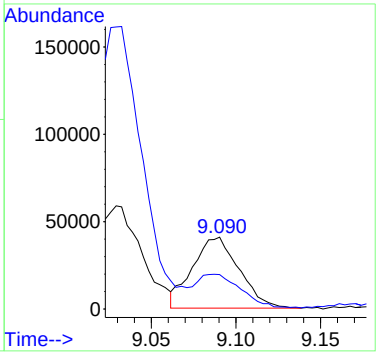


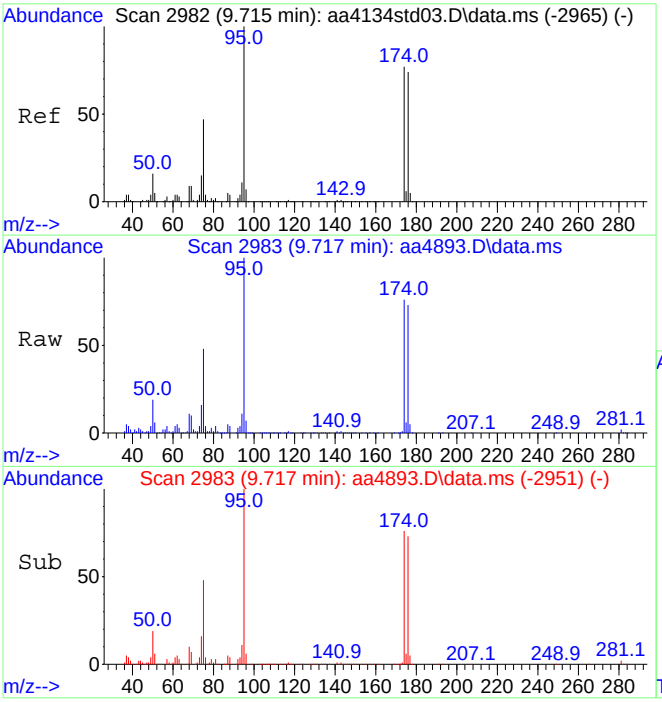


#61
Styrene
Concen: 0.44 ppbV
RT: 9.090 min Scan# 2788
Delta R.T. 0.002 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion:104 Resp: 78016

Ion	Ratio	Lower	Upper
104	100		
103	42.1	37.8	56.6

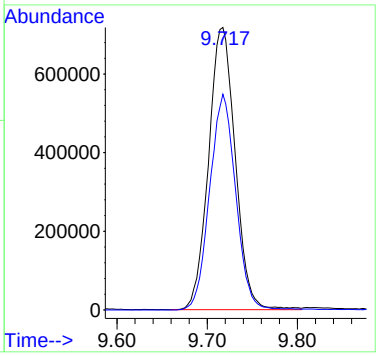


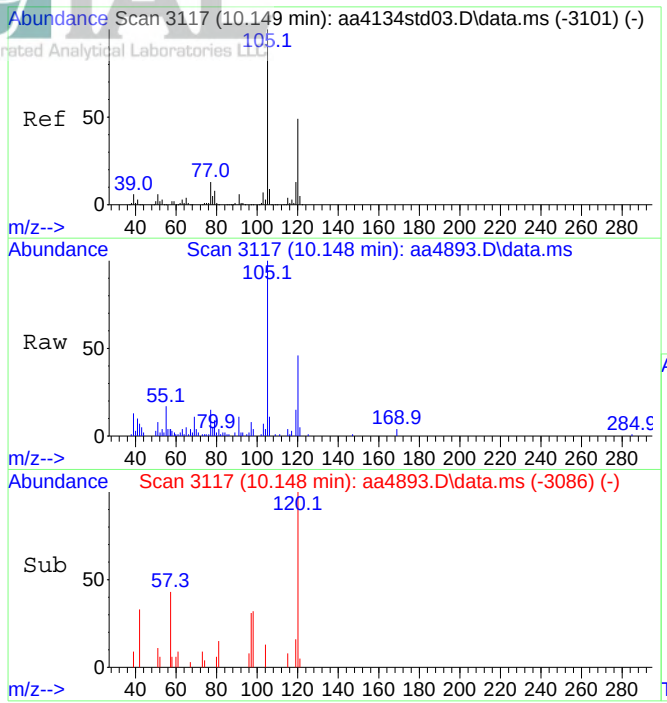


#64
Bromofluorobenzene (tune std)
Concen: 9.64 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion: 95 Resp: 1475771

Ion	Ratio	Lower	Upper
95	100		
174	74.9	61.1	91.7

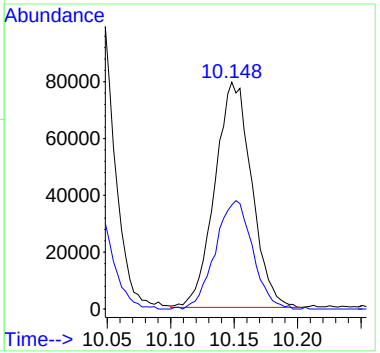


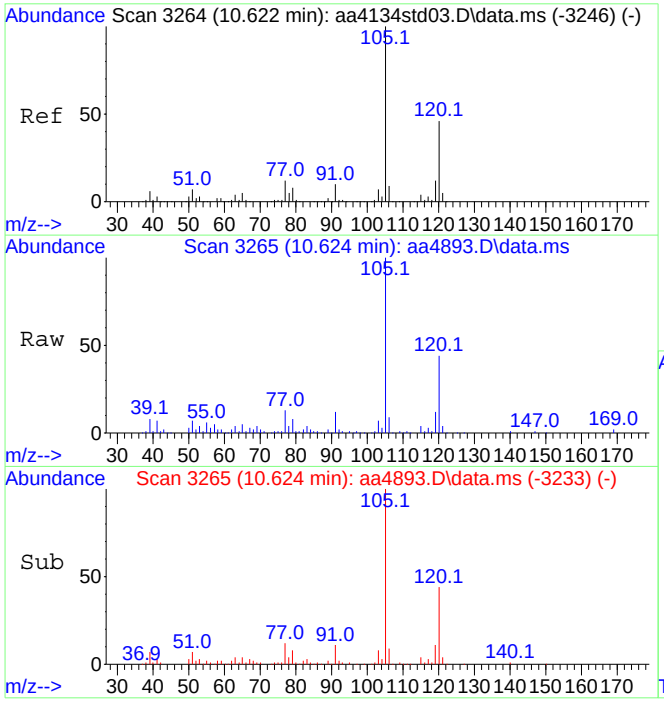


#69
1,3,5-Trimethylbenzene
Concen: 0.53 ppbV
RT: 10.148 min Scan# 3117
Delta R.T. -0.001 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion:105 Resp: 160166

Ion	Ratio	Lower	Upper
105	100		
120	48.6	38.9	58.3

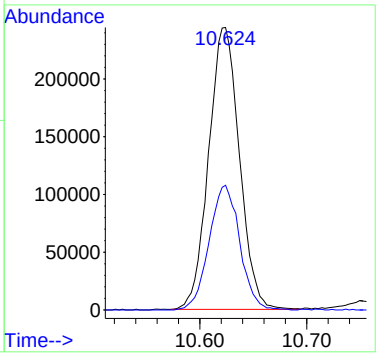




#70
1,2,4-Trimethylbenzene
Concen: 1.61 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4893.D
Acq: 8 Dec 2023 6:08 pm

Tgt Ion:105 Resp: 488434

Ion	Ratio	Lower	Upper
105	100		
120	44.0	36.3	54.5



Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4911.D
Acq On : 11 Dec 2023 3:19 pm
Operator : jjw
Sample : E23-05080-01x10 dil
Misc : 3006, 50cc
ALS Vial : 14 Sample Multiplier: 1

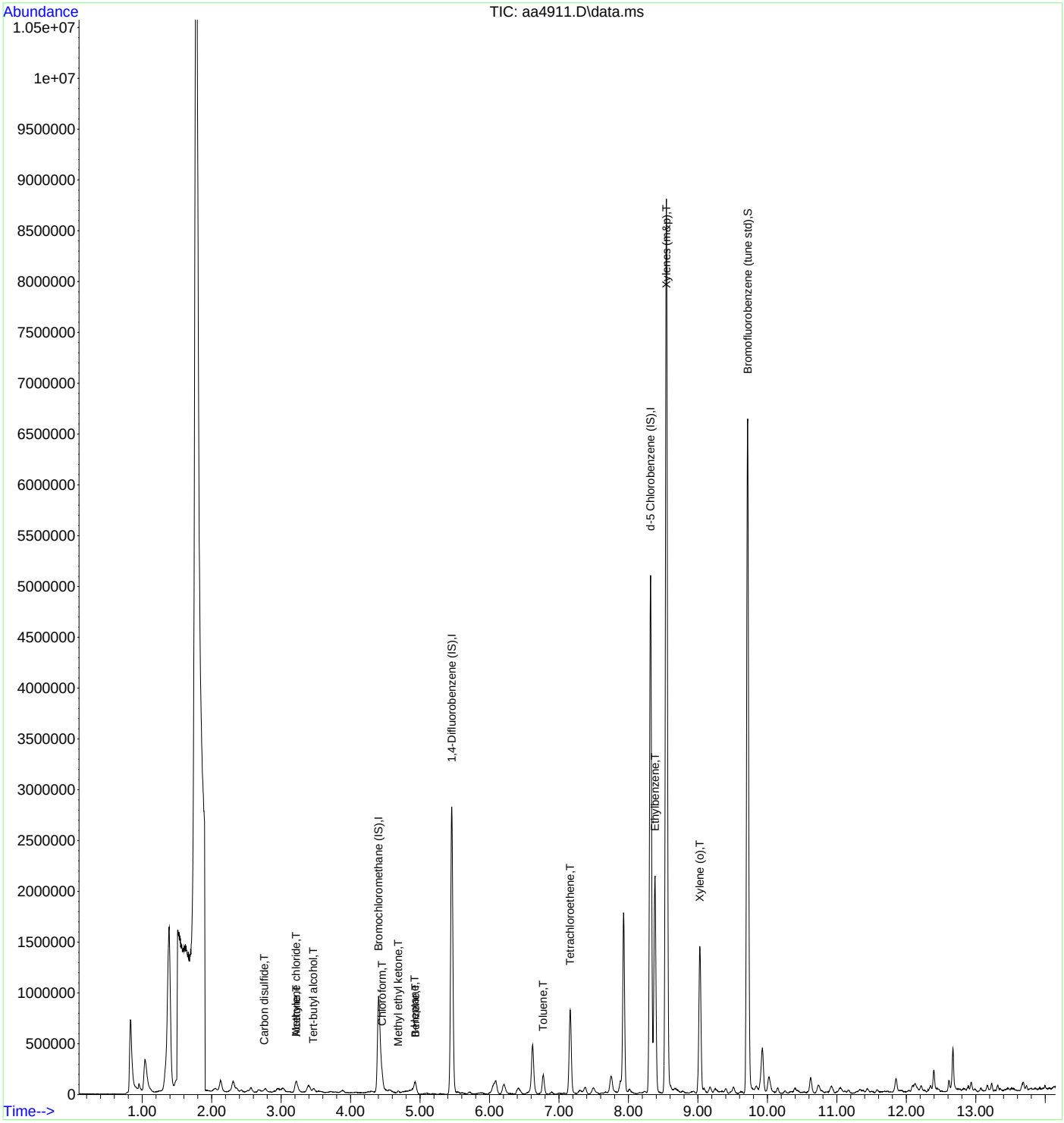
Quant Time: Dec 12 10:25:59 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

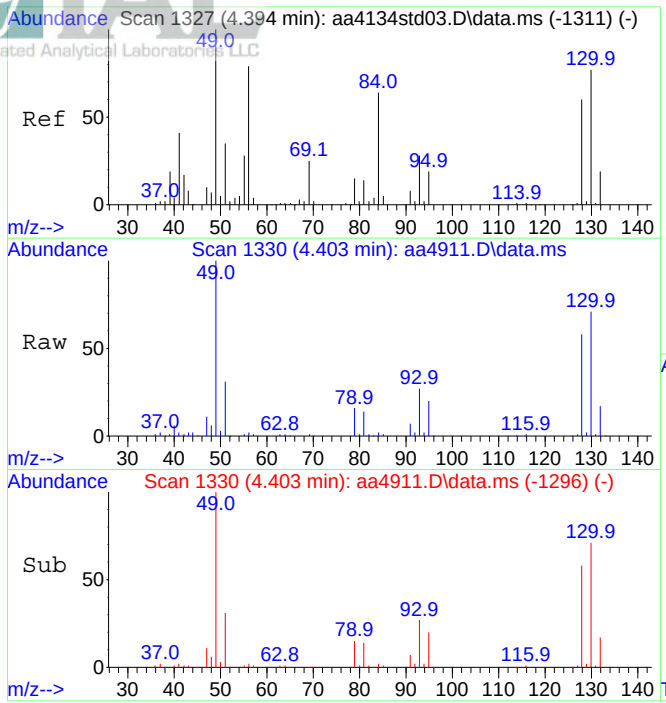
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.403	130	486842	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	2600713	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	3169675	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2897244	10.49	ppbV	0.000
Target Compounds						Qvalue
15) Carbon disulfide	2.756	76	38469	0.26	ppbV	95
20) Methylene chloride	3.216	49	22901	0.38	ppbV	97
21) Acetone	3.219	43	148140	2.02	ppbV	93
26) Tert-butyl alcohol	3.464	59	55019	0.43	ppbV	100
30) Chloroform	4.454	83	63251	0.49	ppbV	93
35) Methyl ethyl ketone	4.685	43	28317	0.24	ppbV	94
36) n-Heptane	4.923	43	35701	0.27	ppbV	89
37) Benzene	4.933	78	68079	0.35	ppbV	95
47) Toluene	6.769	91	142316	0.39	ppbV	97
49) Tetrachloroethene	7.161	166	288346	1.83	ppbV	99
58) Ethylbenzene	8.383	91	1873959	3.21	ppbV	99
59) Xylenes (m&p)	8.547	91	6295935	14.55	ppbV	98
60) Xylene (o)	9.026	91	1069376	2.26	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4911.D
Acq On : 11 Dec 2023 3:19 pm
Operator : jjw
Sample : E23-05080-01x10 dil
Misc : 3006, 50cc
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Dec 12 10:25:59 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

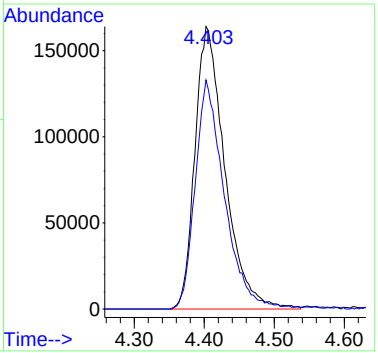


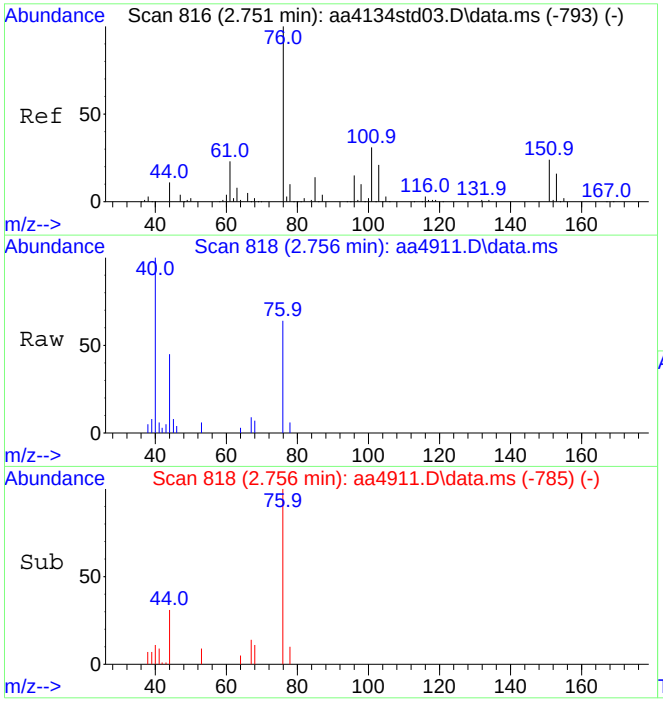


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.403 min Scan# 1330
Delta R.T. 0.009 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion:130 Resp: 486842

Ion	Ratio	Lower	Upper
130	100		
128	79.0	62.2	93.4

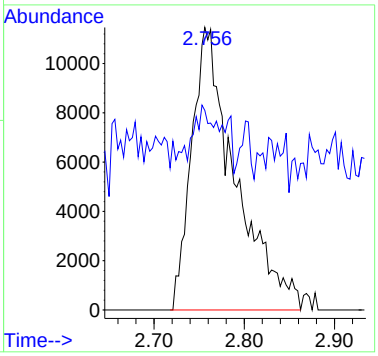


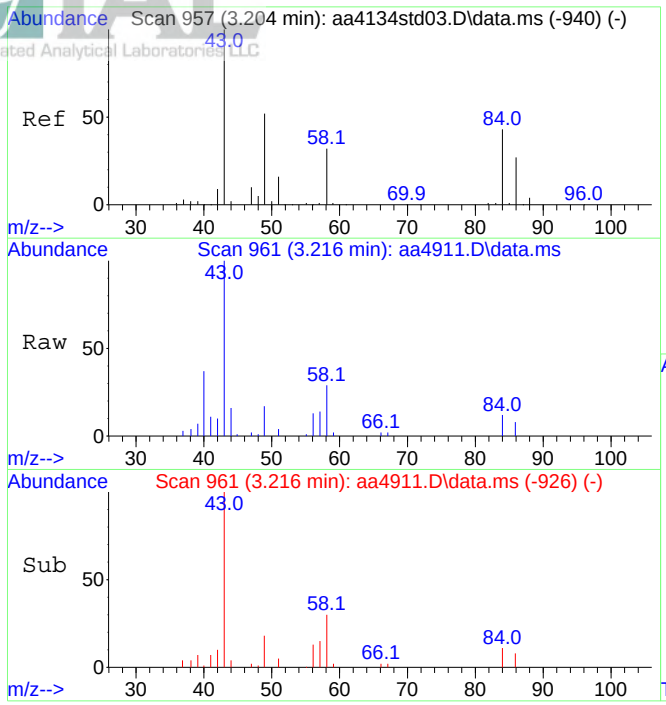


#15
Carbon disulfide
Concen: 0.26 ppbV
RT: 2.756 min Scan# 818
Delta R.T. 0.006 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion: 76 Resp: 38469

Ion	Ratio	Lower	Upper
76	100		
44	13.1	9.0	13.4

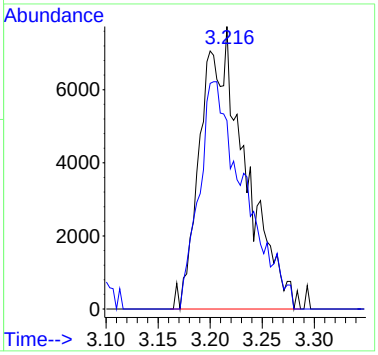


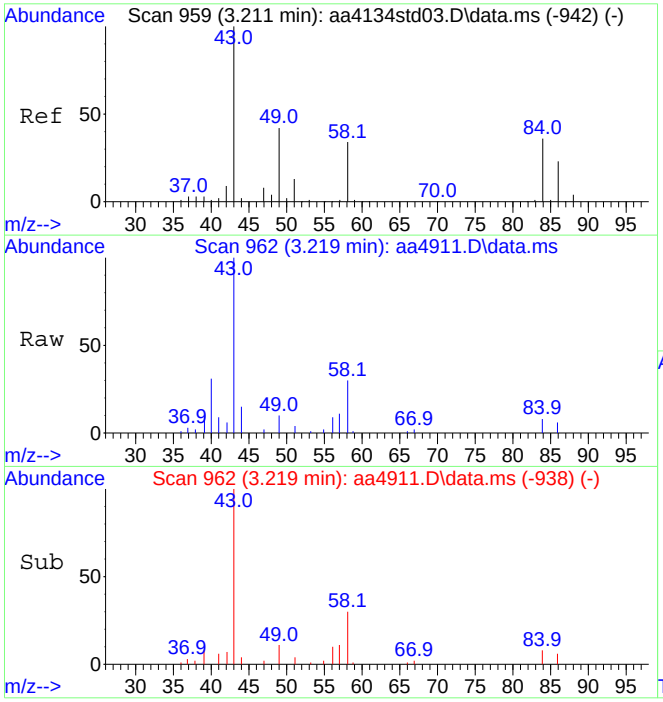


#20
Methylene chloride
Concen: 0.38 ppbV
RT: 3.216 min Scan# 961
Delta R.T. 0.012 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion: 49 Resp: 22901

Ion	Ratio	Lower	Upper
49	100		
84	82.4	64.8	104.8

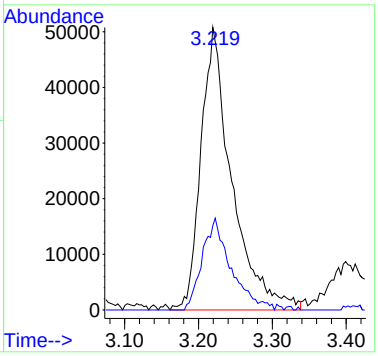


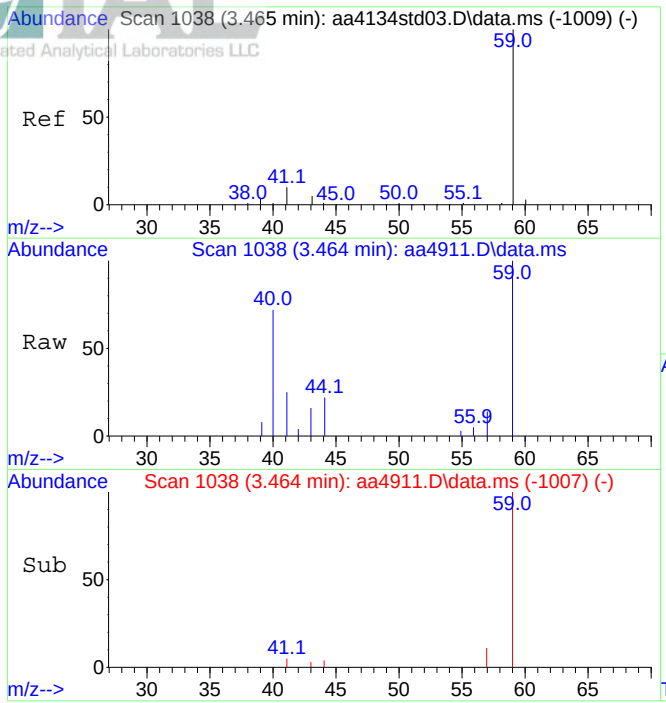


#21
Acetone
Concen: 2.02 ppbV
RT: 3.219 min Scan# 962
Delta R.T. 0.008 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion: 43 Resp: 148140

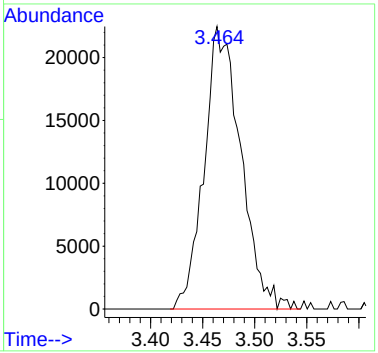
Ion	Ratio	Lower	Upper
43	100		
58	30.1	27.1	40.7

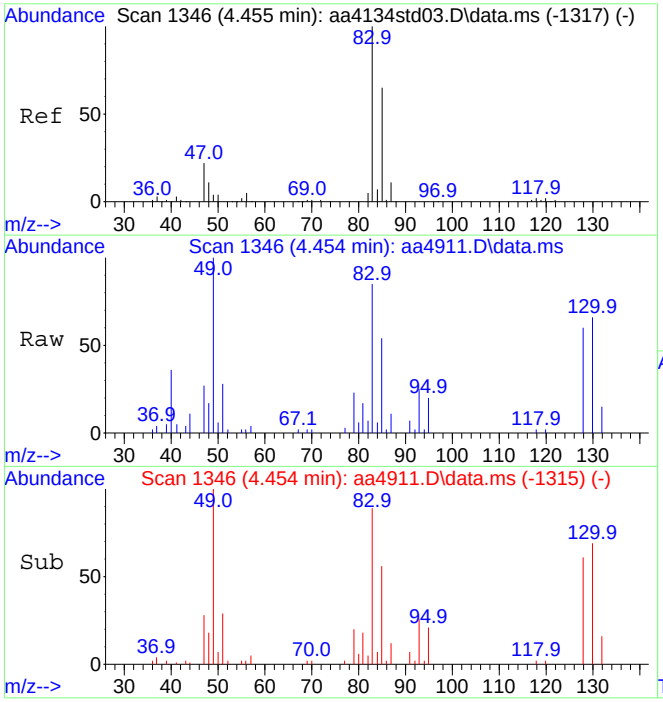




#26
Tert-butyl alcohol
Concen: 0.43 ppbV
RT: 3.464 min Scan# 1038
Delta R.T. -0.001 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion: 59 Resp: 55019

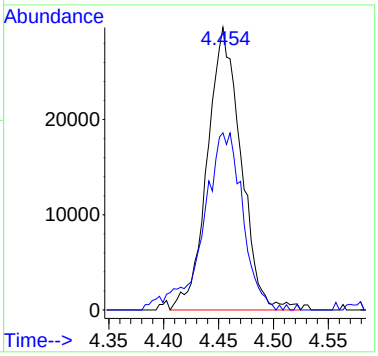


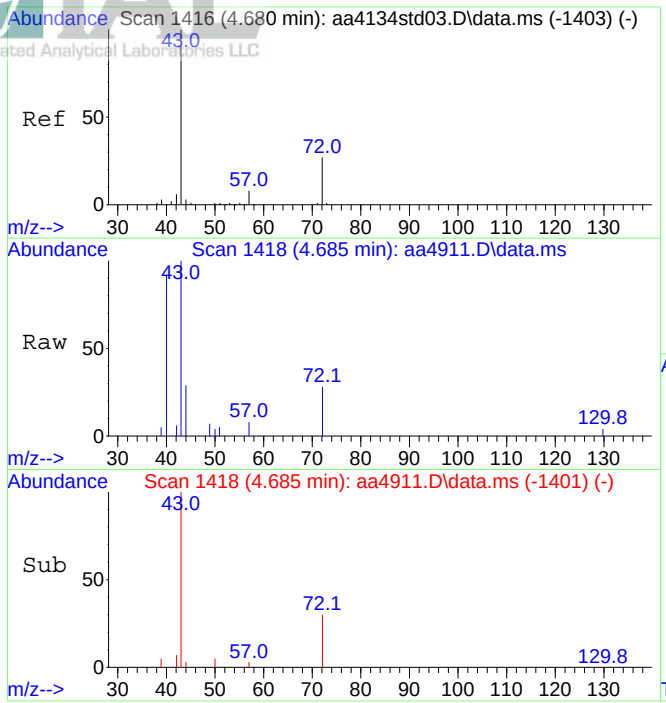


#30
Chloroform
Concen: 0.49 ppbV
RT: 4.454 min Scan# 1346
Delta R.T. -0.001 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion: 83 Resp: 63251

Ion	Ratio	Lower	Upper
83	100		
85	73.3	53.9	80.9

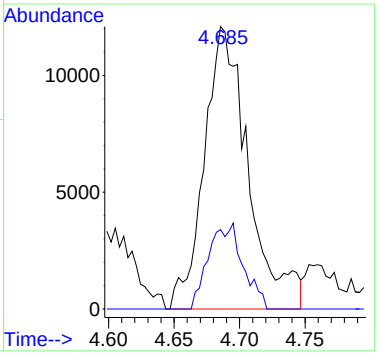


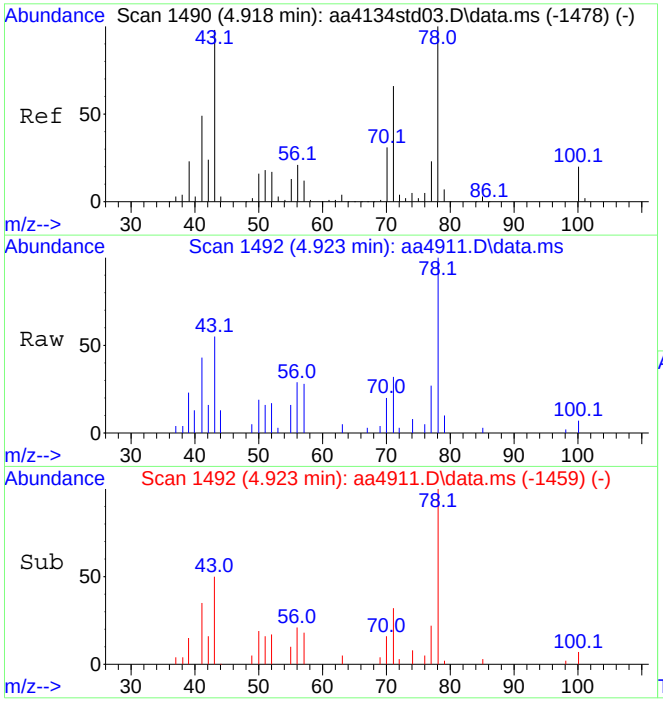


#35
Methyl ethyl ketone
Concen: 0.24 ppbV
RT: 4.685 min Scan# 1418
Delta R.T. 0.006 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion: 43 Resp: 28317

Ion	Ratio	Lower	Upper
43	100		
72	23.7	21.6	32.4

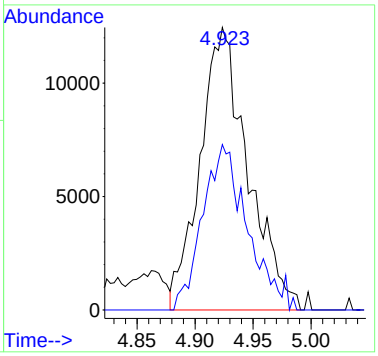


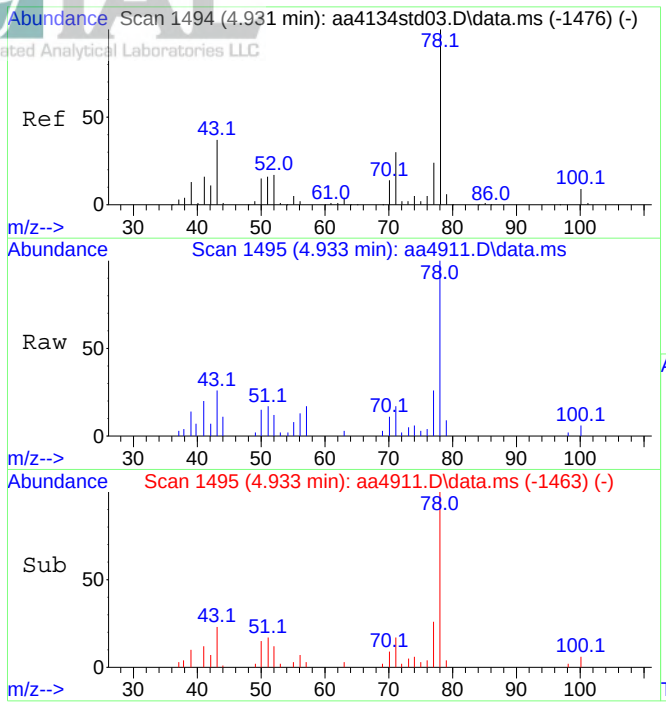


#36
n-Heptane
Concen: 0.27 ppbV
RT: 4.923 min Scan# 1492
Delta R.T. 0.006 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion: 43 Resp: 35701

Ion	Ratio	Lower	Upper
43	100		
71	54.7	50.5	75.7

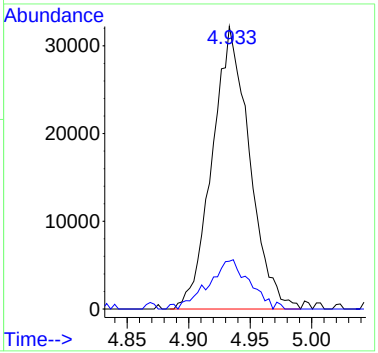


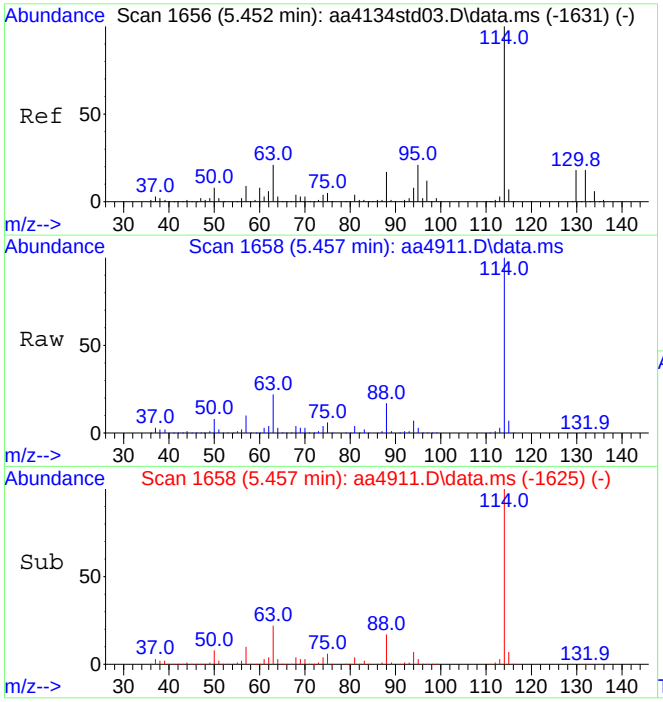


#37
Benzene
Concen: 0.35 ppbV
RT: 4.933 min Scan# 1495
Delta R.T. 0.002 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion: 78 Resp: 68079

Ion	Ratio	Lower	Upper
78	100		
51	19.0	13.4	20.0

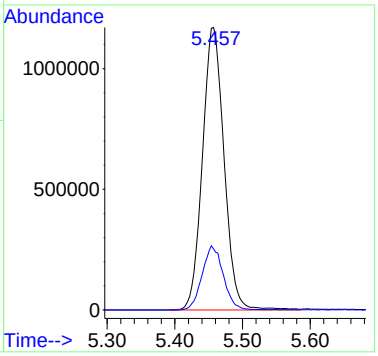


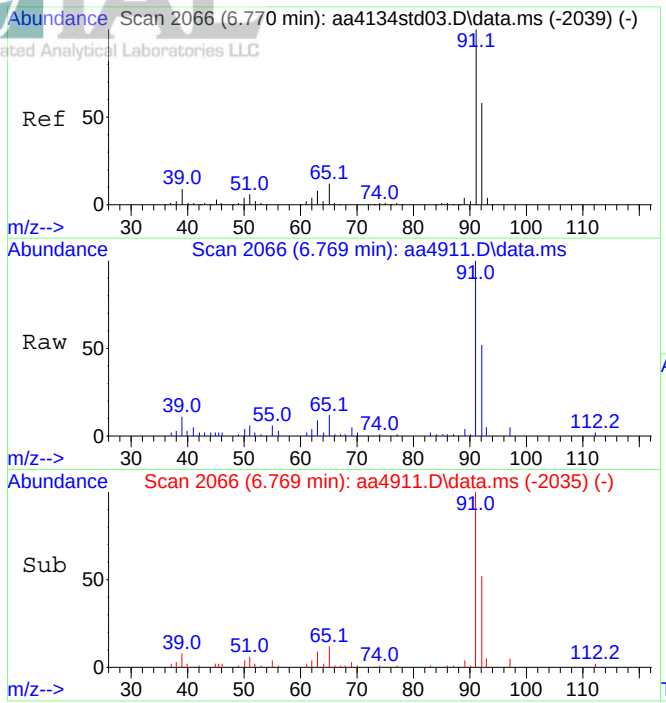


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.005 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion:114 Resp: 2600713

Ion	Ratio	Lower	Upper
114	100		
63	22.3	17.0	25.6

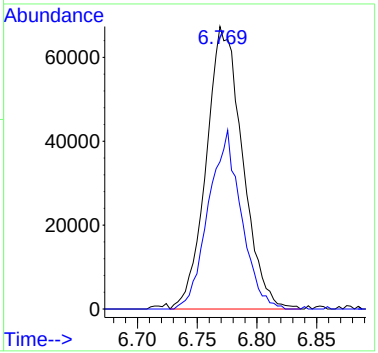


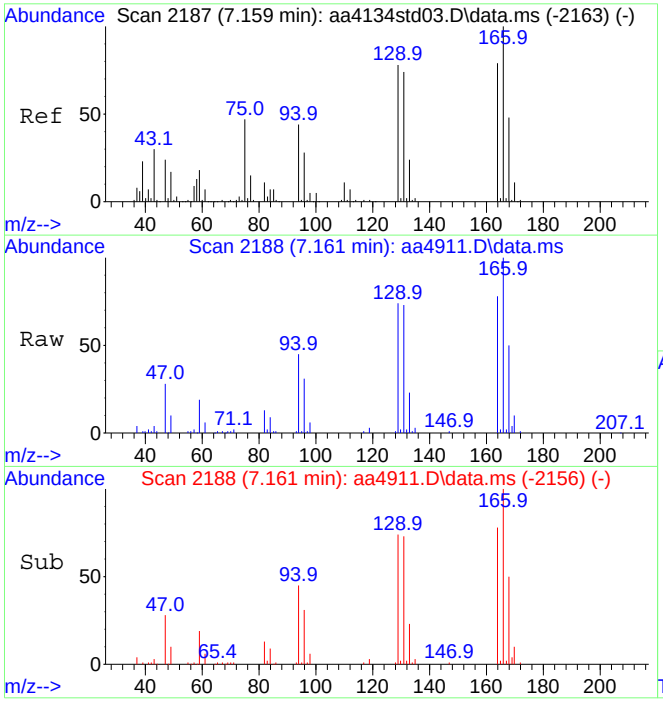


#47
Toluene
Concen: 0.39 ppbV
RT: 6.769 min Scan# 2066
Delta R.T. -0.001 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion: 91 Resp: 142316

Ion	Ratio	Lower	Upper
91	100		
92	57.2	47.3	70.9

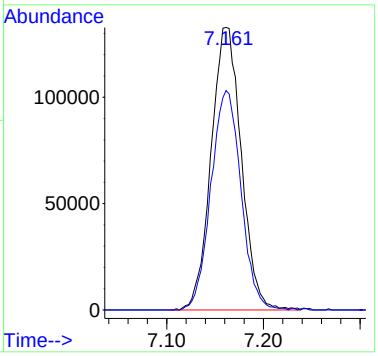


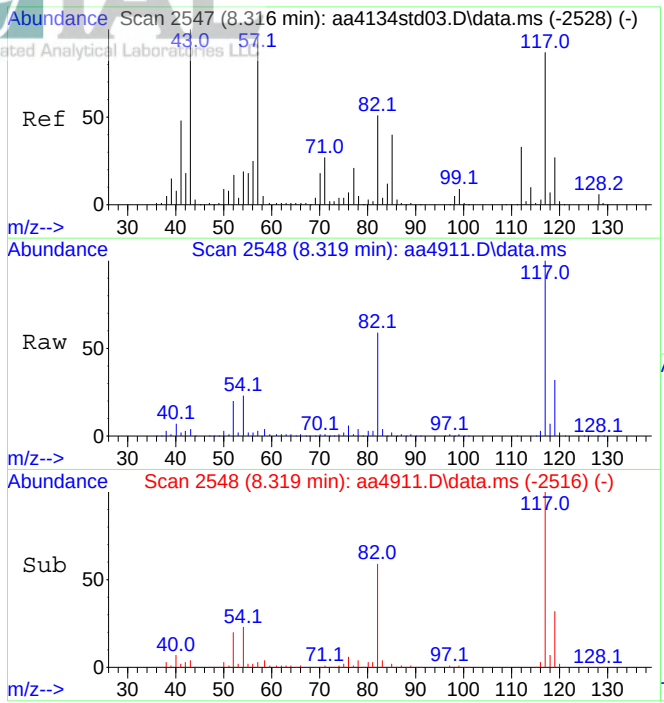


#49
Tetrachloroethene
Concen: 1.83 ppbV
RT: 7.161 min Scan# 2188
Delta R.T. 0.002 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion:166 Resp: 288346

Ion	Ratio	Lower	Upper
166	100		
164	77.1	62.3	93.5

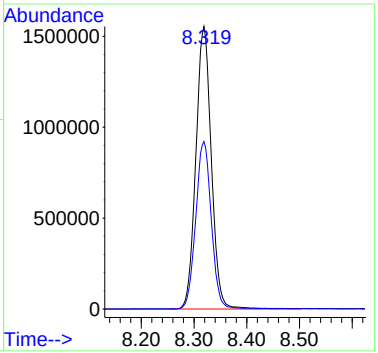


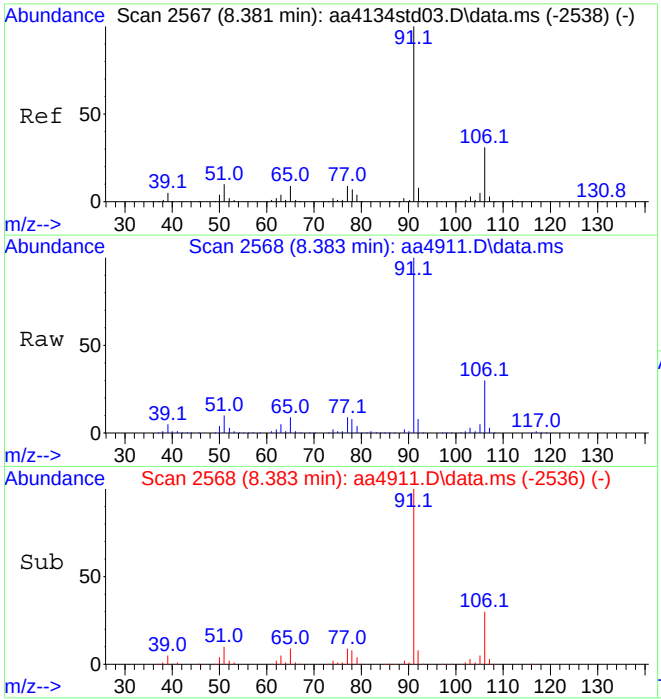


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion:117 Resp: 3169675

Ion	Ratio	Lower	Upper
117	100		
82	59.5	47.0	70.4

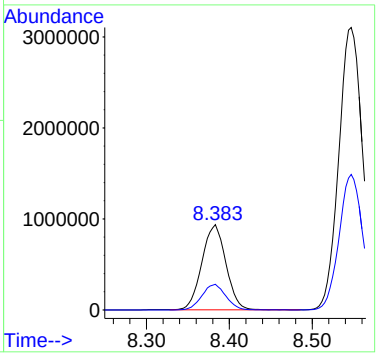


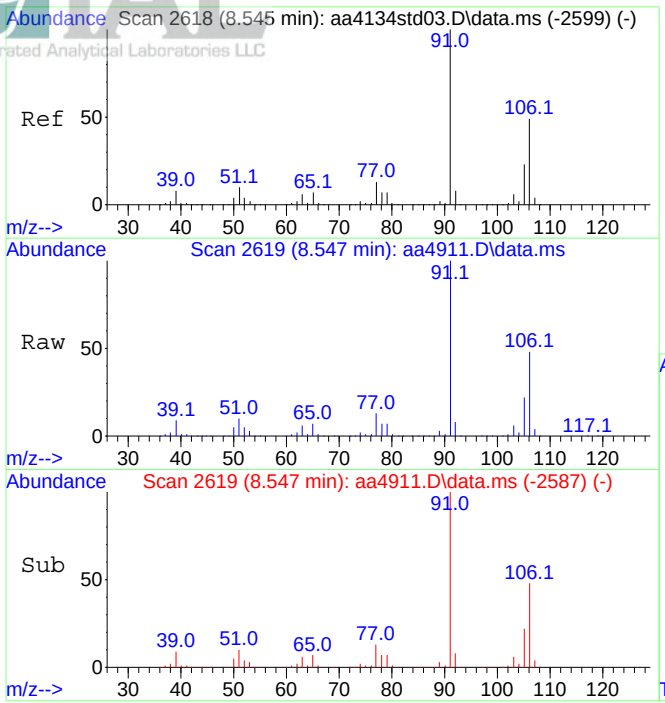


#58
Ethylbenzene
Concen: 3.21 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion: 91 Resp: 1873959

Ion	Ratio	Lower	Upper
91	100		
106	30.0	24.6	36.8

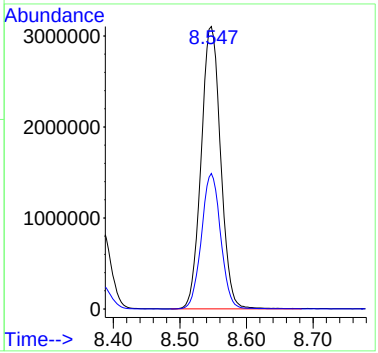


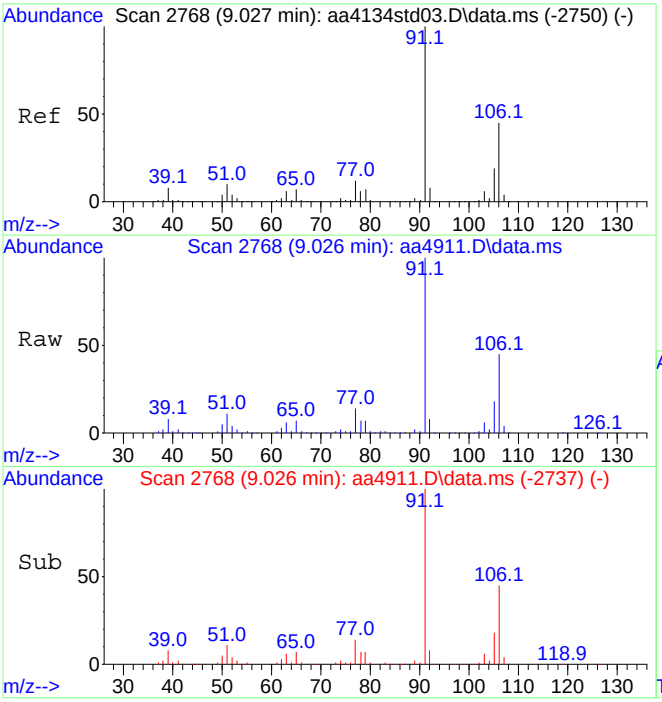


#59
Xylenes (m&p)
Concen: 14.55 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. 0.002 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion: 91 Resp: 6295935

Ion	Ratio	Lower	Upper
91	100		
106	47.6	39.0	58.4

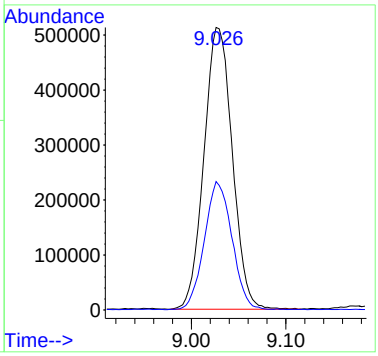


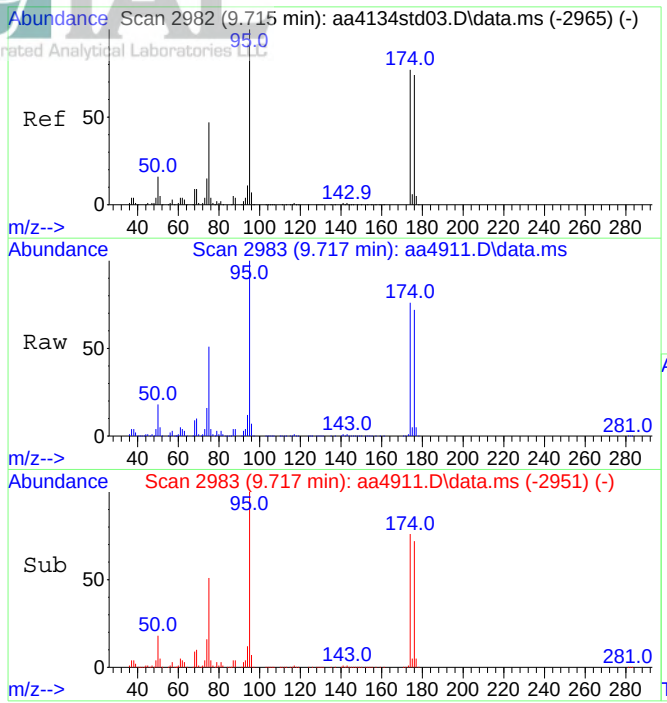


#60
Xylene (o)
Concen: 2.26 ppbV
RT: 9.026 min Scan# 2768
Delta R.T. -0.001 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion: 91 Resp: 1069376

Ion	Ratio	Lower	Upper
91	100		
106	44.2	36.8	55.2

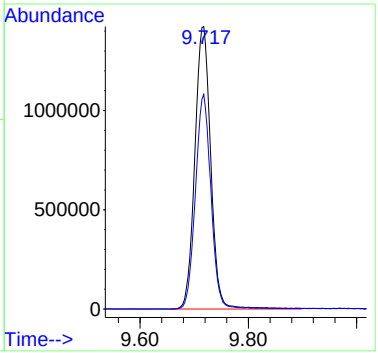




#64
Bromofluorobenzene (tune std)
Concen: 10.49 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4911.D
Acq: 11 Dec 2023 3:19 pm

Tgt Ion: 95 Resp: 2897244

Ion	Ratio	Lower	Upper
95	100		
174	74.7	61.1	91.7



INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05080-02	Instrument ID:	AA
Client ID:	SV3	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/16/2023 12:30	Injection Volmue:	500ml, 50ml
Date Received:	11/20/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 18:39, 12/11/2023 15:48	% Moisture:	NA
Data File:	AA4894, AA4912	Dilution Factor:	1, 10
Summa ID:	2155	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Acetone	67-64-1		14	33	0.20	0.48
Benzene	71-43-2		3.9	12	0.20	0.64
Bromodichloromethane	75-27-4		ND	ND	0.20	1.3
Bromoform	75-25-2		ND	ND	0.20	2.1
Bromomethane	74-83-9		ND	ND	0.20	0.78
1,3-Butadiene	106-99-0		ND	ND	0.20	0.44
Chlorobenzene	108-90-7		ND	ND	0.20	0.92
Chloroethane	75-00-3		ND	ND	0.20	0.53
Chloroform	67-66-3		ND	ND	0.20	0.98
Chloromethane	74-87-3		ND	ND	0.20	0.41
Carbon disulfide	75-15-0		3.1	9.5	0.20	0.62
Carbon tetrachloride	56-23-5		ND	ND	0.040	0.25
Cyclohexane	110-82-7		2.5	8.5	0.20	0.69
Dibromochloromethane	124-48-1		ND	ND	0.20	1.7
1,2-Dibromoethane	106-93-4		ND	ND	0.20	1.5
1,2-Dichlorobenzene	95-50-1		ND	ND	0.20	1.2
1,3-Dichlorobenzene	541-73-1		ND	ND	0.20	1.2
1,4-Dichlorobenzene	106-46-7		ND	ND	0.20	1.2
Dichlorodifluoromethane	75-71-8		ND	ND	0.20	0.99
1,1-Dichloroethane	75-34-3		ND	ND	0.20	0.81
1,2-Dichloroethane	107-06-2		ND	ND	0.20	0.81
1,1-Dichloroethene	75-35-4		ND	ND	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2		ND	ND	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5		ND	ND	0.20	0.79
1,2-Dichloropropane	78-87-5		ND	ND	0.20	0.92
1,3-Dichloropropene (cis)	10061-01-5		ND	ND	0.20	0.91
1,3-Dichloropropene (trans)	10061-02-6		ND	ND	0.20	0.91
1,2-Dichlorotetrafluoroethane	76-14-2		ND	ND	0.20	1.4
1,4-Dioxane	123-91-1		ND	ND	0.20	0.72
Ethylbenzene	100-41-4		26	110	0.20	0.87
n-Heptane	142-82-5		5.0	20	0.20	0.82
1,3-Hexachlorobutadiene	87-68-3		ND	ND	0.20	2.1
n-Hexane	110-54-3		8.3	29	0.20	0.70
Methylene chloride	75-09-2		ND	ND	0.20	0.69
Methyl ethyl ketone	78-93-3		1.1	3.2	0.20	0.59
Methyl isobutyl ketone	108-10-1		ND	ND	0.20	0.82
Methyl tert-butyl ether	1634-04-4		ND	ND	0.20	0.72
Styrene	100-42-5		0.28	1.2	0.20	0.85
Tert-butyl alcohol	75-65-0		3.5	11	0.20	0.61
1,1,2,2-Tetrachloroethane	79-34-5		ND	ND	0.20	1.4
Tetrachloroethene	127-18-4		3.6	24	0.20	1.4
Toluene	108-88-3		2.1	8.1	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1		ND	ND	0.20	1.5
1,1,1-Trichloroethane	71-55-6		ND	ND	0.20	1.1
1,1,2-Trichloroethane	79-00-5		ND	ND	0.20	1.1

Qualifiers:
D = Dilution required

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05080-02	Instrument ID:	AA
Client ID:	SV3	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/16/2023 12:30	Injection Volmue:	500ml, 50ml
Date Received:	11/20/2023	Matrix:	Air-Other
Date Analyzed:	12/08/2023 18:39, 12/11/2023 15:48	% Moisture:	NA
Data File:	AA4894, AA4912	Dilution Factor:	1, 10
Summa ID:	2155	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Trichloroethene	79-01-6		ND	ND	0.046	0.25
Trichlorofluoromethane	75-69-4		0.31	1.7	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		ND	ND	0.20	1.5
1,2,4-Trimethylbenzene	95-63-6		0.78	3.8	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8		0.26	1.3	0.20	0.98
2,2,4-Trimethylpentane	540-84-1		ND	ND	0.20	0.93
Vinyl bromide	593-60-2		ND	ND	0.20	0.87
Vinyl chloride	75-01-4		ND	ND	0.20	0.51
Xylenes (m&p)	179601-23-1	D	180	780	2.0	8.7
Xylenes (o)	95-47-6		22	94	0.20	0.87

Qualifiers:
D = Dilution required

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4894.D
Acq On : 8 Dec 2023 6:39 pm
Operator : jjw
Sample : E23-05080-02
Misc : 2155, 500cc
ALS Vial : 17 Sample Multiplier: 1

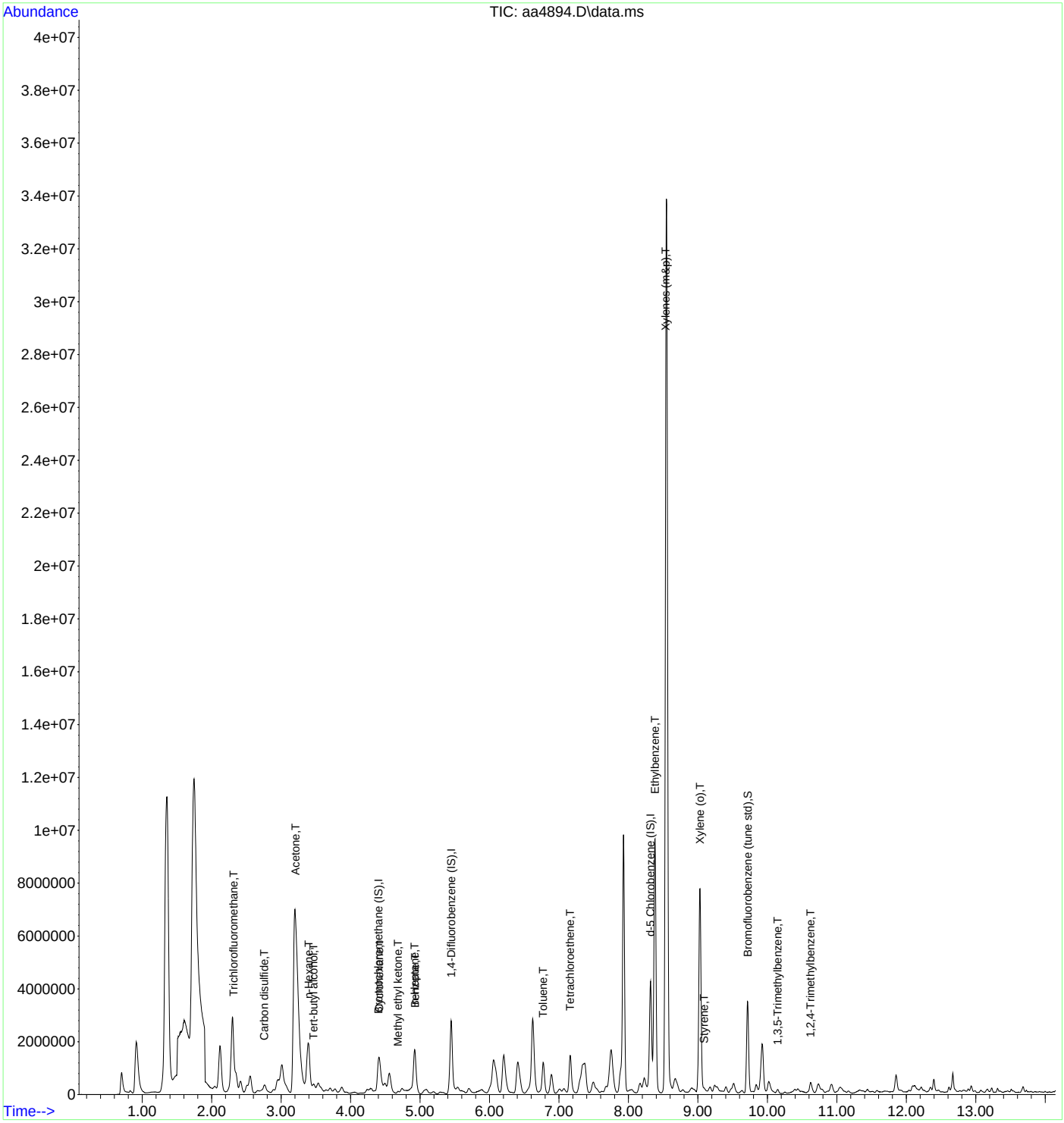
Quant Time: Dec 12 10:13:56 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

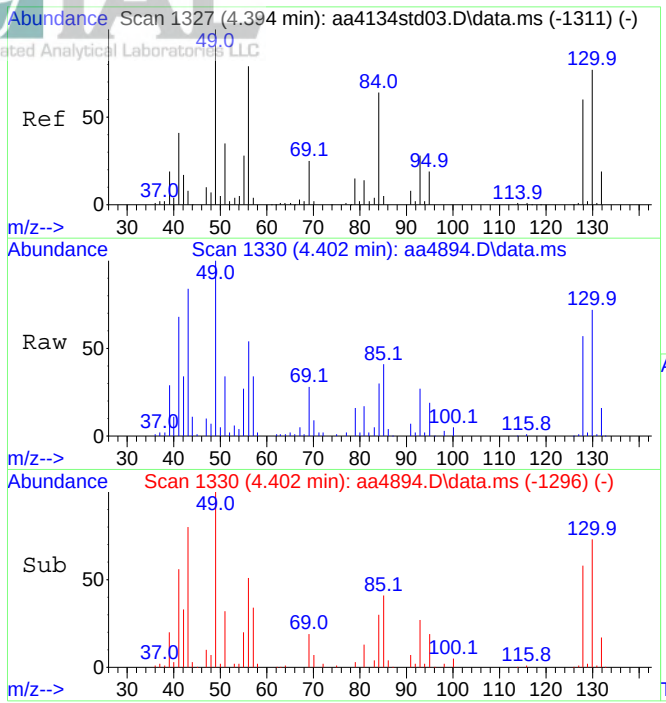
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.402	130	439724	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	1996144	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1814252	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	1523959	9.64	ppbV	0.000
Target Compounds						Qvalue
12) Trichlorofluoromethane	2.316	101	38198	0.31	ppbV	98
15) Carbon disulfide	2.756	76	412083	3.06	ppbV	98
21) Acetone	3.210	43	908148	13.69	ppbV	94
24) n-Hexane	3.396	57	1149766	8.30	ppbV	87
26) Tert-butyl alcohol	3.467	59	399179	3.48	ppbV	100
29) Cyclohexane	4.412	56	239157	2.47	ppbV #	62
35) Methyl ethyl ketone	4.682	43	114980	1.07	ppbV	99
36) n-Heptane	4.923	43	602987	4.96	ppbV	97
37) Benzene	4.930	78	676181	3.87	ppbV	95
47) Toluene	6.772	91	601562	2.14	ppbV	100
49) Tetrachloroethene	7.161	166	436914	3.61	ppbV	100
58) Ethylbenzene	8.383	91	8840105	26.44	ppbV	99
59) Xylenes (m&p)	8.537	91	22652476	91.44	ppbV	88
60) Xylene (o)	9.029	91	5824717	21.55	ppbV	99
61) Styrene	9.090	104	52460	0.28	ppbV #	29
69) 1,3,5-Trimethylbenzene	10.148	105	82770	0.26	ppbV	95
70) 1,2,4-Trimethylbenzene	10.621	105	243895	0.78	ppbV	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4894.D
Acq On : 8 Dec 2023 6:39 pm
Operator : jjw
Sample : E23-05080-02
Misc : 2155, 500cc
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Dec 12 10:13:56 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

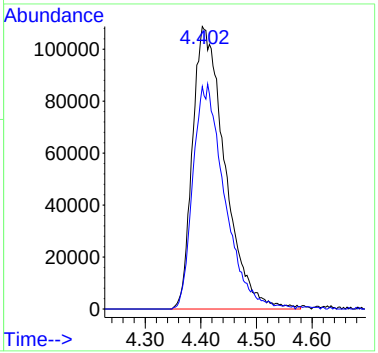


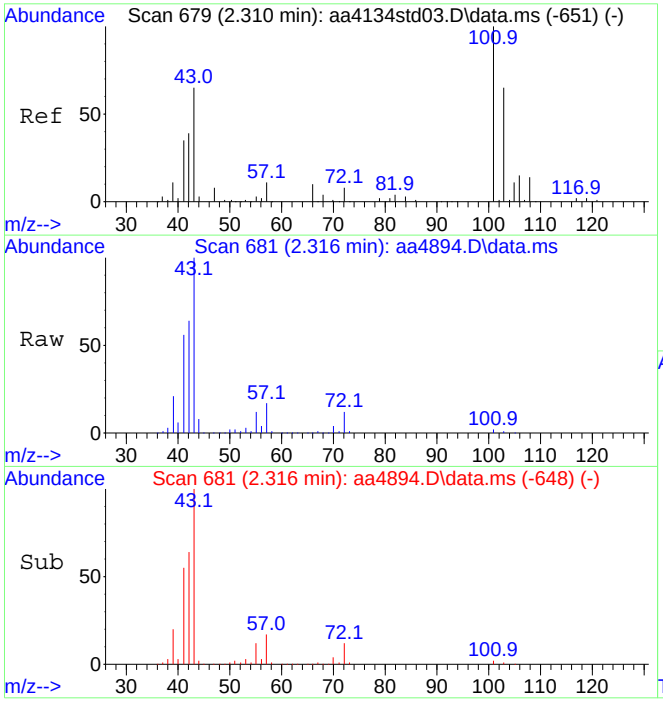


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.402 min Scan# 1330
Delta R.T. 0.008 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion:130 Resp: 439724

Ion	Ratio	Lower	Upper
130	100		
128	77.9	62.2	93.4

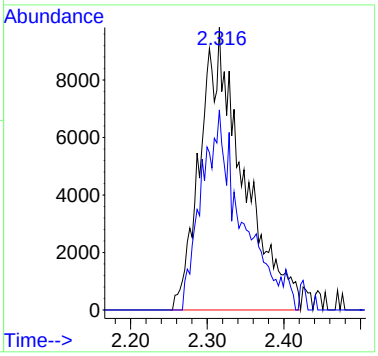


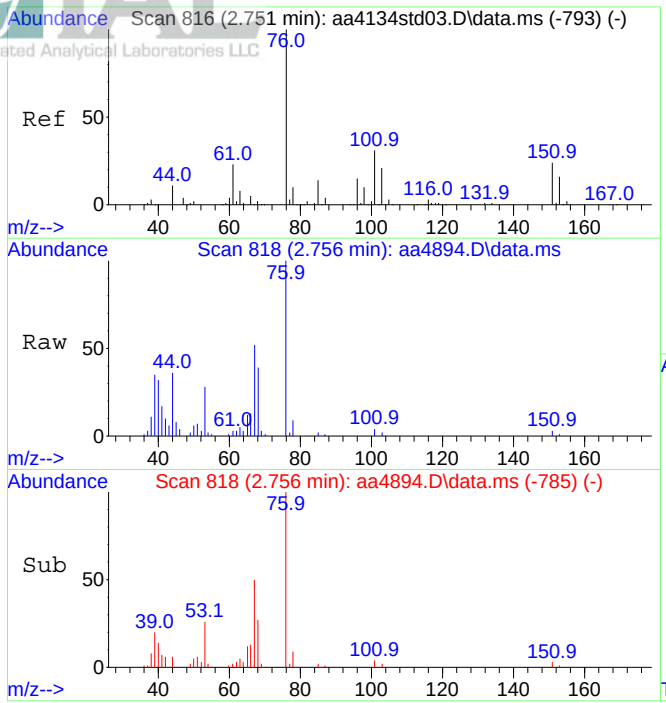


#12
Trichlorofluoromethane
Concen: 0.31 ppbV
RT: 2.316 min Scan# 681
Delta R.T. 0.005 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion:101 Resp: 38198

Ion	Ratio	Lower	Upper
101	100		
103	67.2	52.5	78.7

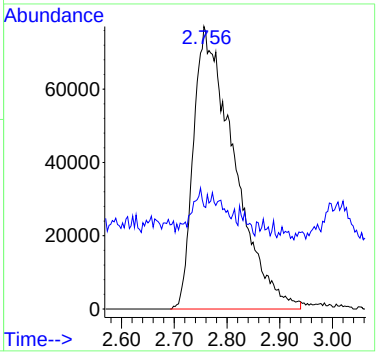


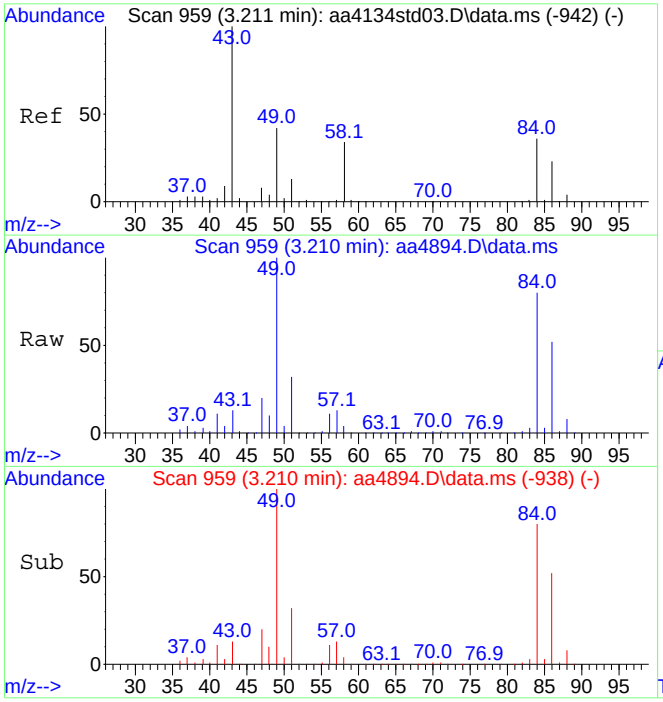


#15
Carbon disulfide
Concen: 3.06 ppbV
RT: 2.756 min Scan# 818
Delta R.T. 0.005 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion: 76 Resp: 412083

Ion	Ratio	Lower	Upper
76	100		
44	10.5	9.0	13.4

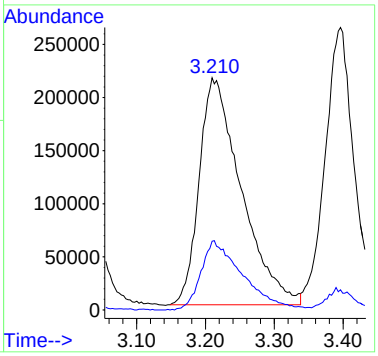


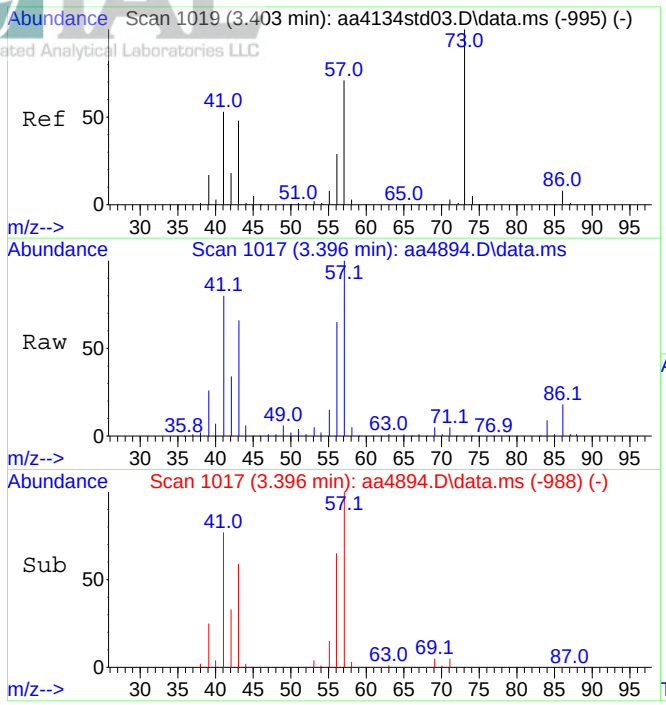


#21
Acetone
Concen: 13.69 ppbV
RT: 3.210 min Scan# 959
Delta R.T. -0.001 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion: 43 Resp: 908148

Ion	Ratio	Lower	Upper
43	100		
58	30.3	27.1	40.7

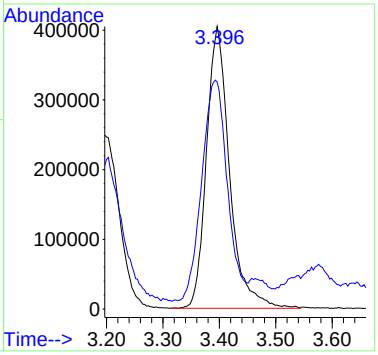


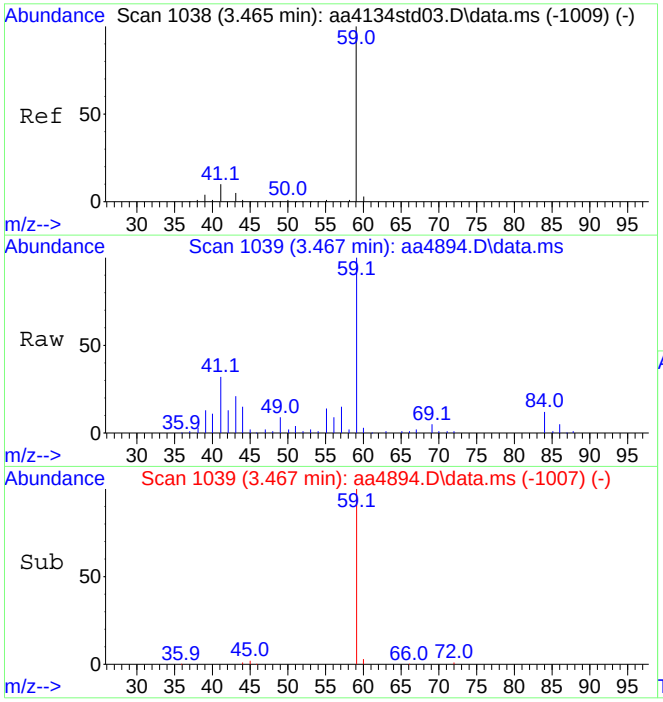


#24
n-Hexane
Concen: 8.30 ppbV
RT: 3.396 min Scan# 1017
Delta R.T. -0.007 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion: 57 Resp: 1149766

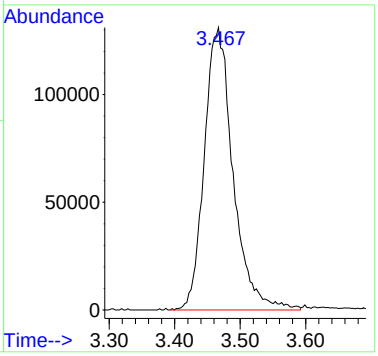
Ion	Ratio	Lower	Upper
57	100		
41	94.9	66.4	99.6

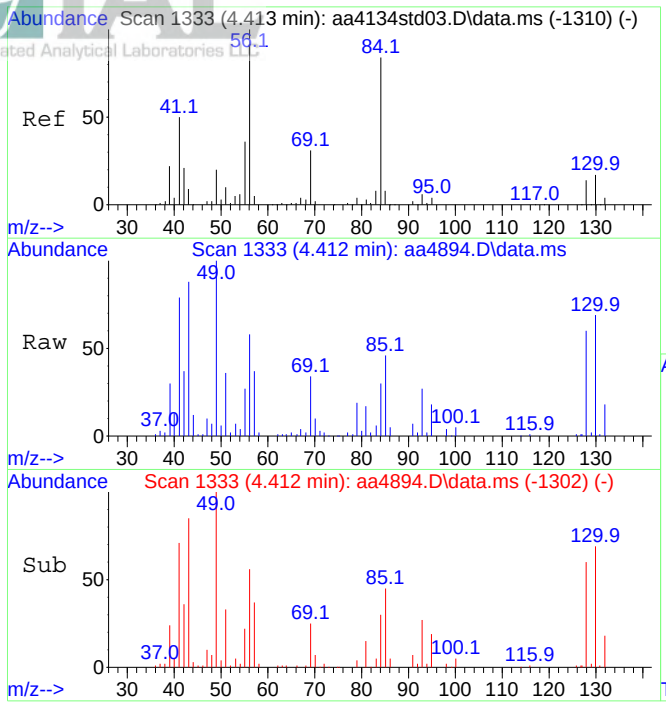




#26
Tert-butyl alcohol
Concen: 3.48 ppbV
RT: 3.467 min Scan# 1039
Delta R.T. 0.002 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion: 59 Resp: 399179

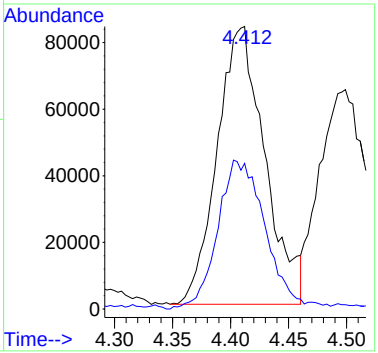


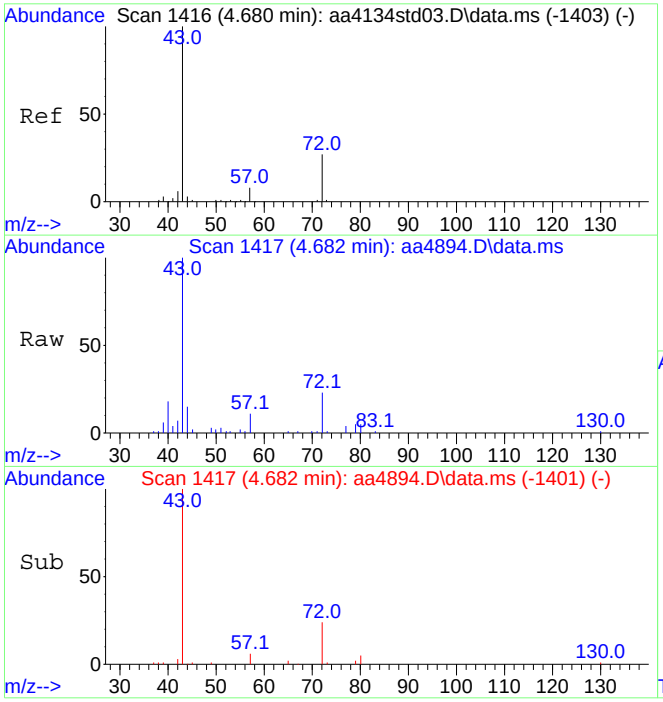


#29
Cyclohexane
Concen: 2.47 ppbV
RT: 4.412 min Scan# 1333
Delta R.T. -0.001 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion: 56 Resp: 239157

Ion	Ratio	Lower	Upper
56	100		
84	53.4	71.2	106.8#

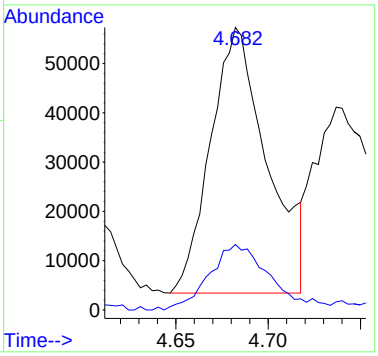


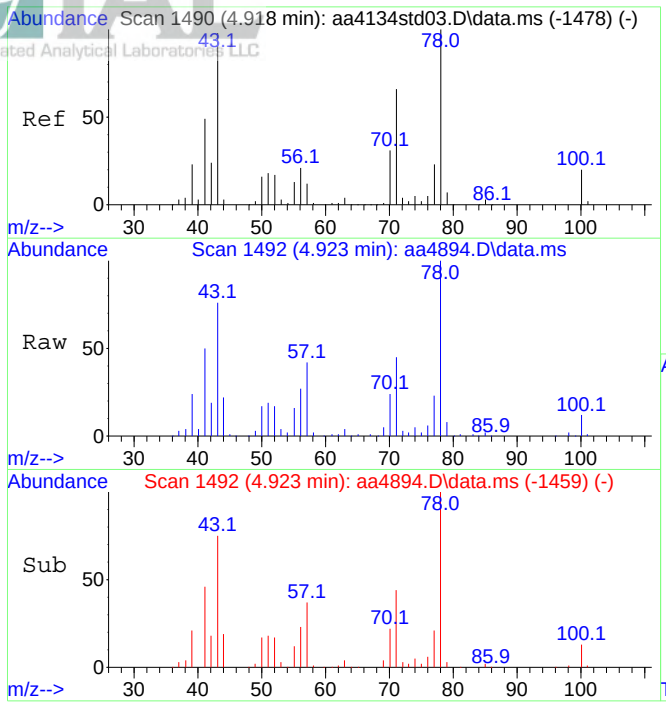


#35
Methyl ethyl ketone
Concen: 1.07 ppbV
RT: 4.682 min Scan# 1417
Delta R.T. 0.002 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion: 43 Resp: 114980

Ion	Ratio	Lower	Upper
43	100		
72	26.5	21.6	32.4

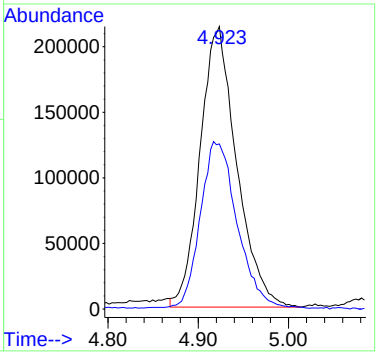


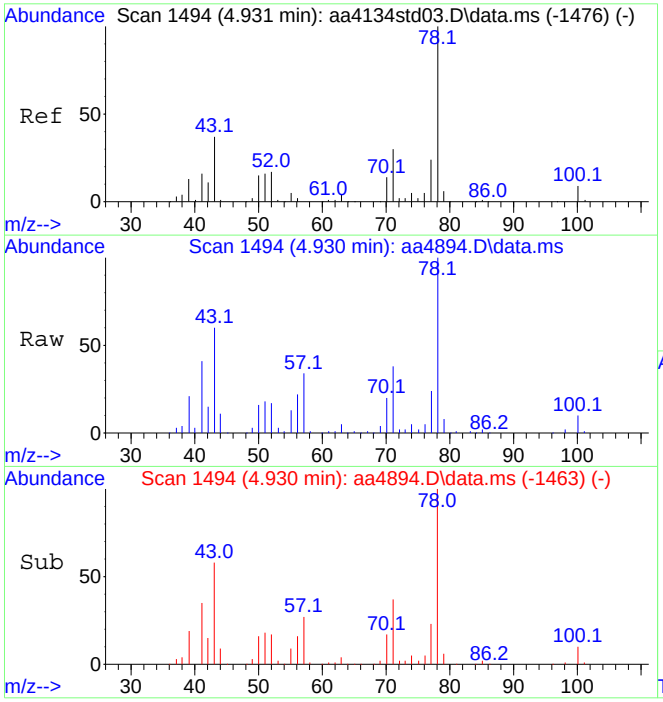


#36
n-Heptane
Concen: 4.96 ppbV
RT: 4.923 min Scan# 1492
Delta R.T. 0.005 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion: 43 Resp: 602987

Ion	Ratio	Lower	Upper
43	100		
71	60.8	50.5	75.7

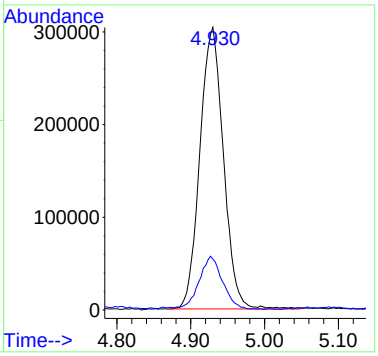


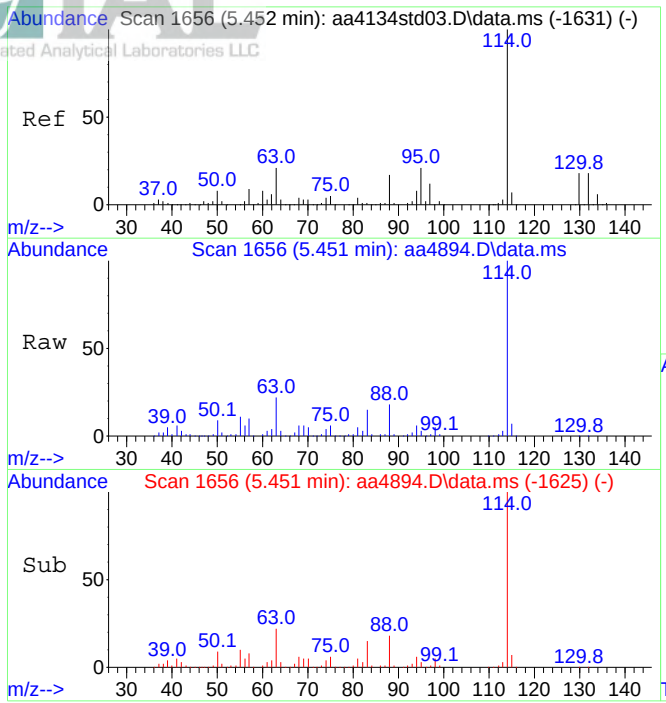


#37
Benzene
Concen: 3.87 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. -0.001 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion: 78 Resp: 676181

Ion	Ratio	Lower	Upper
78	100		
51	18.7	13.4	20.0

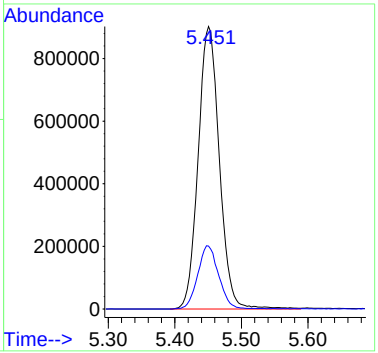


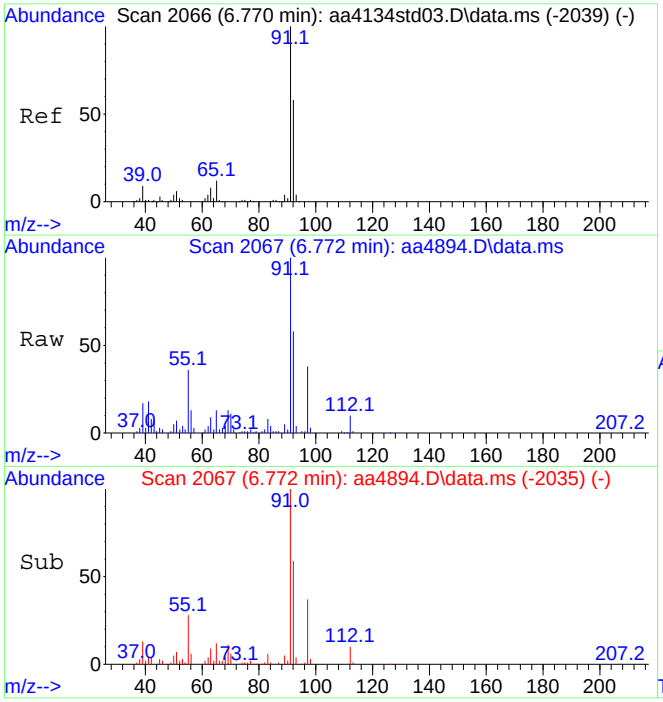


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.451 min Scan# 1656
Delta R.T. -0.001 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion:114 Resp: 1996144

Ion	Ratio	Lower	Upper
114	100		
63	22.2	17.0	25.6

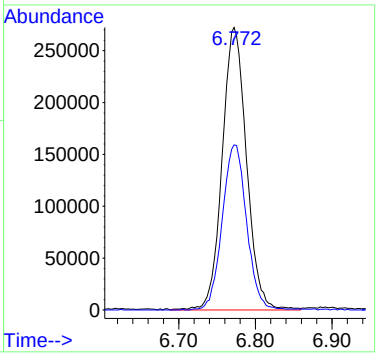


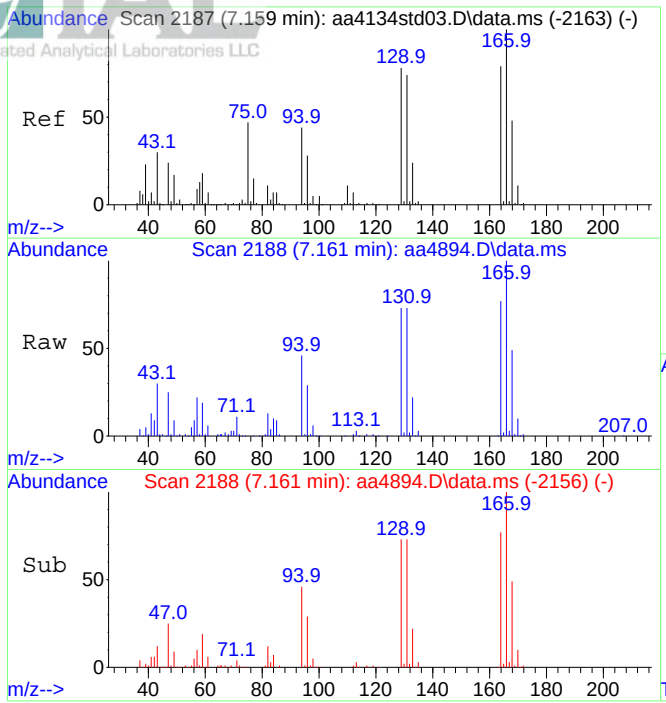


#47
Toluene
Concen: 2.14 ppbV
RT: 6.772 min Scan# 2067
Delta R.T. 0.002 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion: 91 Resp: 601562

Ion	Ratio	Lower	Upper
91	100		
92	58.7	47.3	70.9

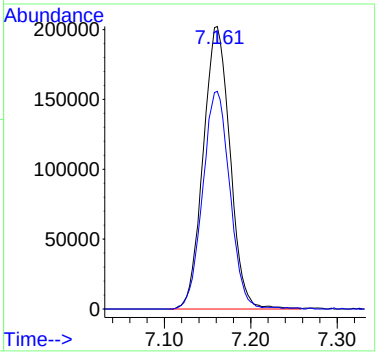


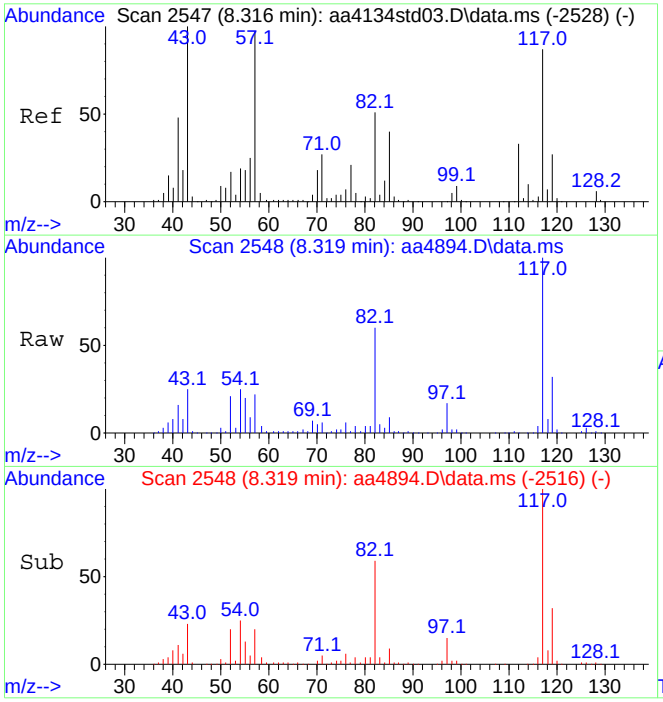


#49
Tetrachloroethene
Concen: 3.61 ppbV
RT: 7.161 min Scan# 2188
Delta R.T. 0.002 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion:166 Resp: 436914

Ion	Ratio	Lower	Upper
166	100		
164	78.0	62.3	93.5

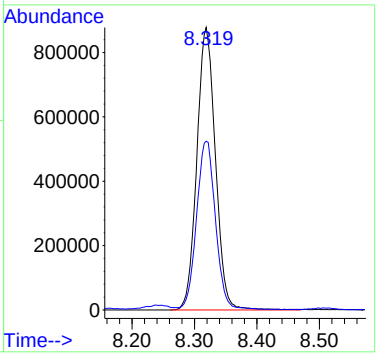


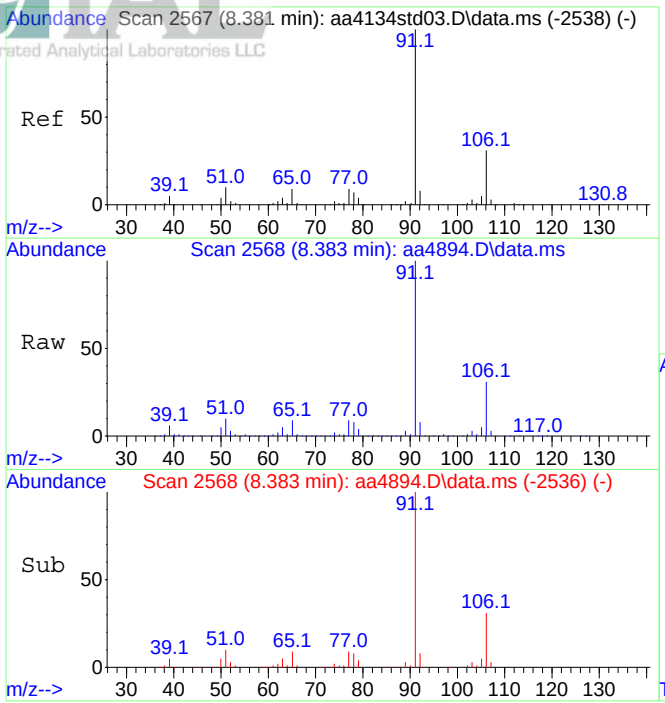


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion:117 Resp: 1814252

Ion	Ratio	Lower	Upper
117	100		
82	60.6	47.0	70.4

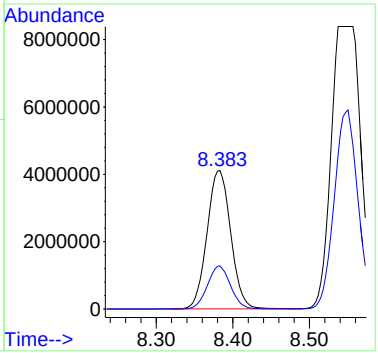


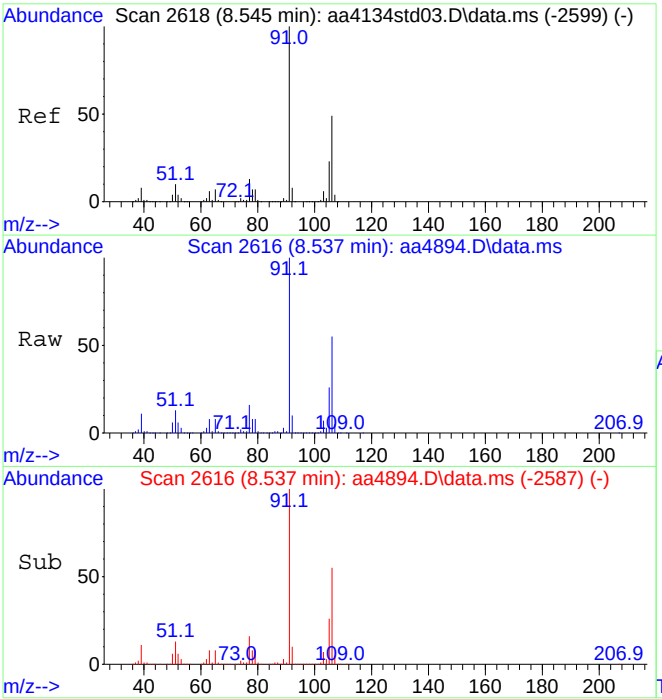


#58
Ethylbenzene
Concen: 26.44 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion: 91 Resp: 8840105

Ion	Ratio	Lower	Upper
91	100		
106	30.3	24.6	36.8

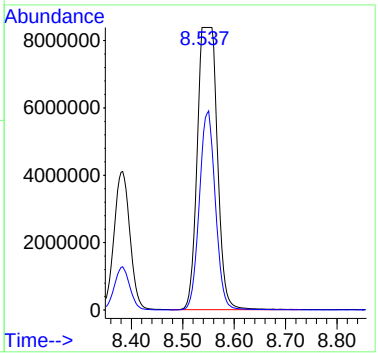


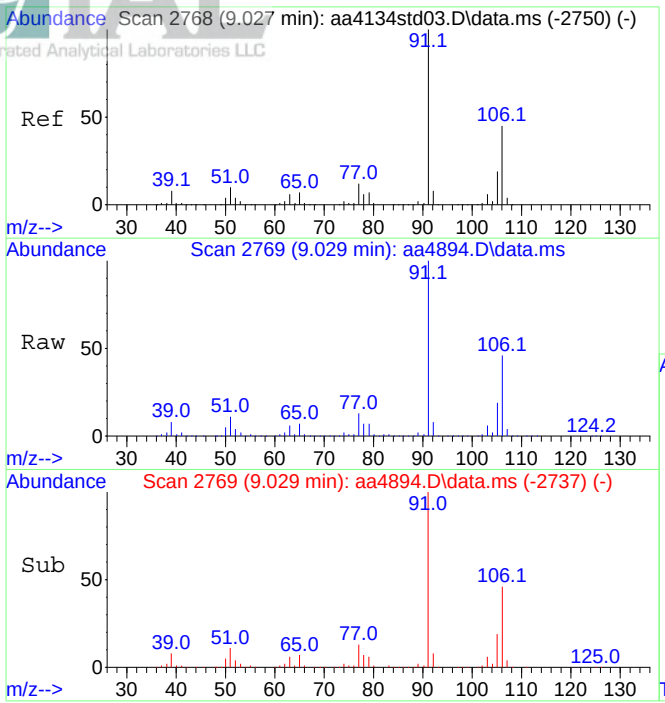


#59
Xylenes (m&p)
Concen: 91.44 ppbV
RT: 8.537 min Scan# 2616
Delta R.T. -0.007 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion: 91 Resp:22652476

Ion	Ratio	Lower	Upper
91	100		
106	56.6	39.0	58.4

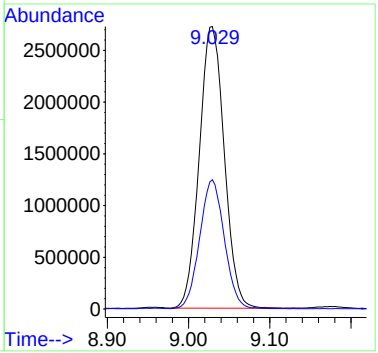


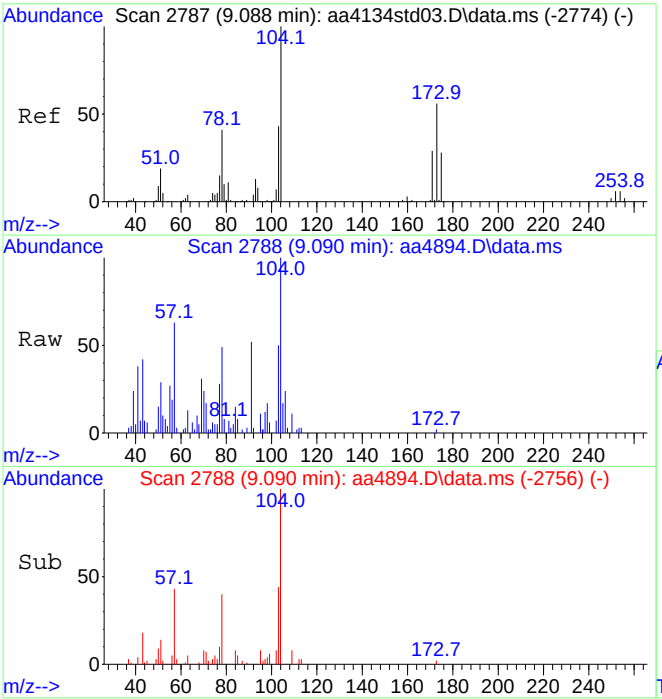


#60
Xylene (o)
Concen: 21.55 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion: 91 Resp: 5824717

Ion	Ratio	Lower	Upper
91	100		
106	45.1	36.8	55.2

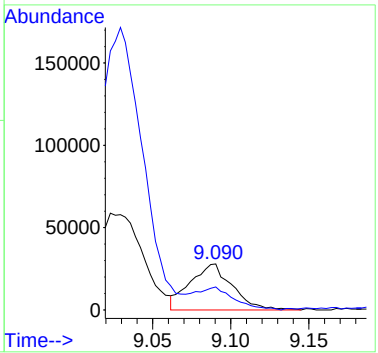


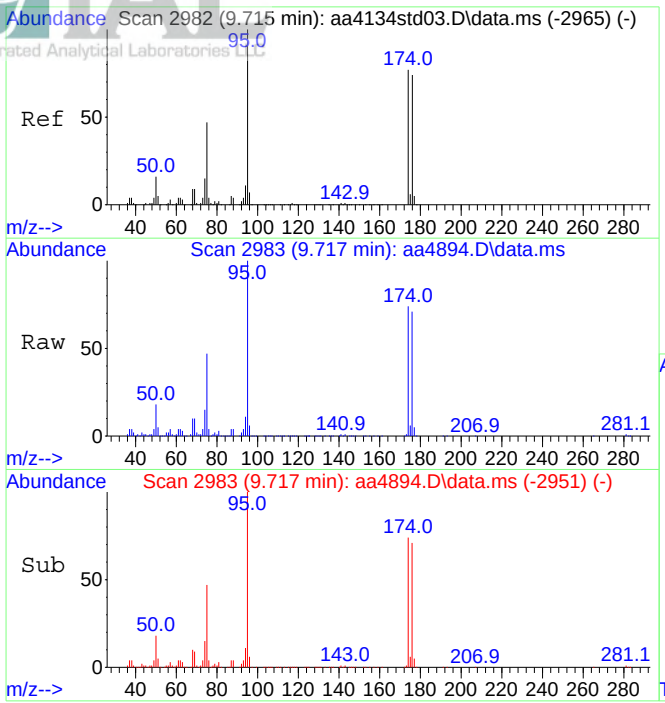


#61
Styrene
Concen: 0.28 ppbV
RT: 9.090 min Scan# 2788
Delta R.T. 0.002 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion:104 Resp: 52460

Ion	Ratio	Lower	Upper
104	100		
103	0.0	37.8	56.6#

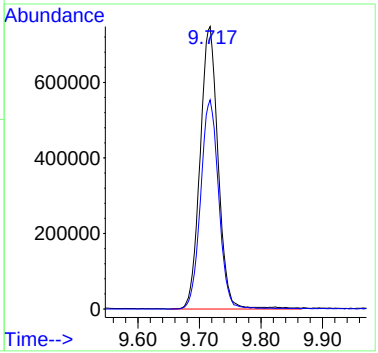


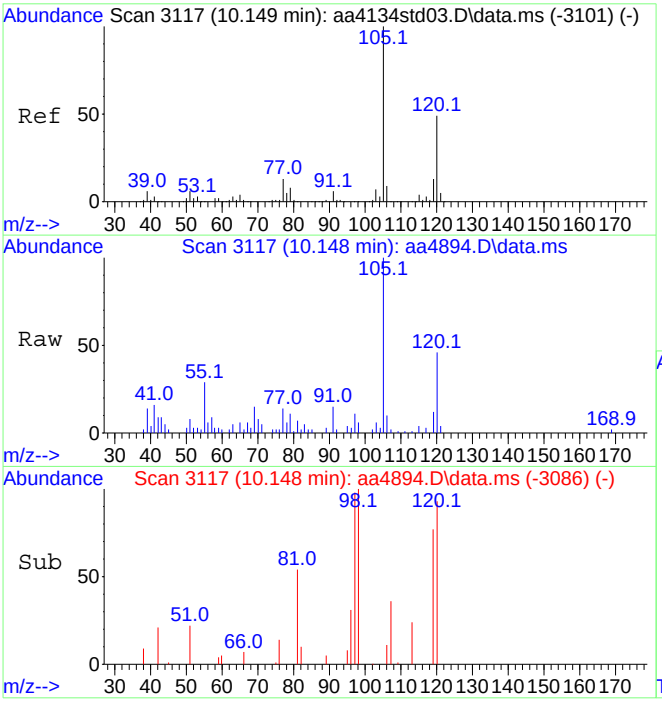


#64
Bromofluorobenzene (tune std)
Concen: 9.64 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion: 95 Resp: 1523959

Ion	Ratio	Lower	Upper
95	100		
174	74.2	61.1	91.7

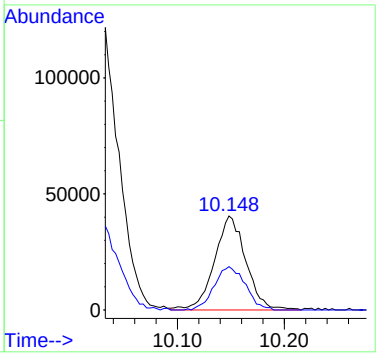


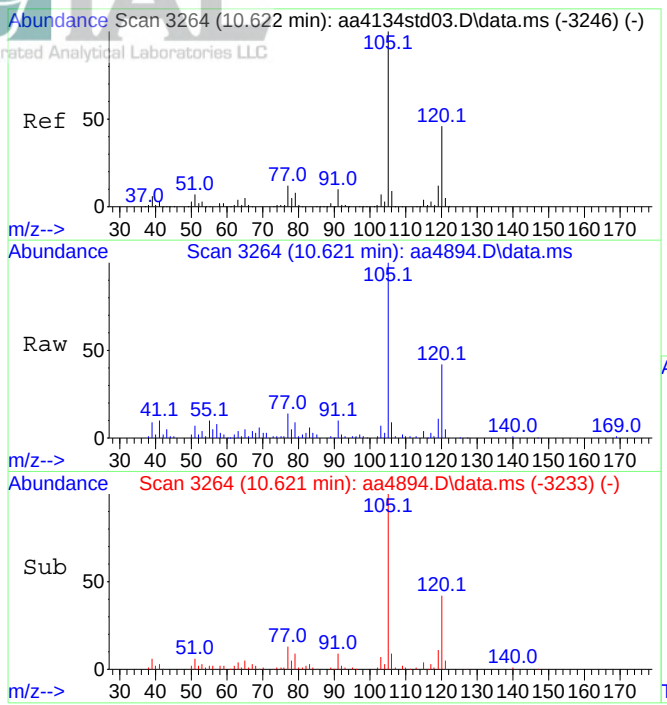


#69
1,3,5-Trimethylbenzene
Concen: 0.26 ppbV
RT: 10.148 min Scan# 3117
Delta R.T. -0.001 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion:105 Resp: 82770

Ion	Ratio	Lower	Upper
105	100		
120	45.5	38.9	58.3

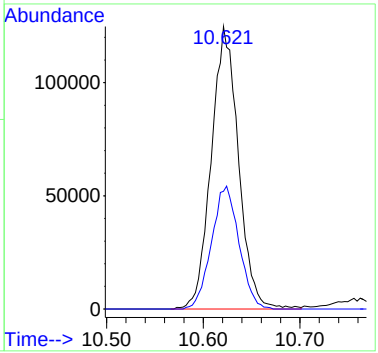




#70
1,2,4-Trimethylbenzene
Concen: 0.78 ppbV
RT: 10.621 min Scan# 3264
Delta R.T. -0.001 min
Lab File: aa4894.D
Acq: 8 Dec 2023 6:39 pm

Tgt Ion:105 Resp: 243895

Ion	Ratio	Lower	Upper
105	100		
120	43.9	36.3	54.5



Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4912.D
Acq On : 11 Dec 2023 3:48 pm
Operator : jjw
Sample : E23-05080-02x10 dil
Misc : 2155, 50cc
ALS Vial : 15 Sample Multiplier: 1

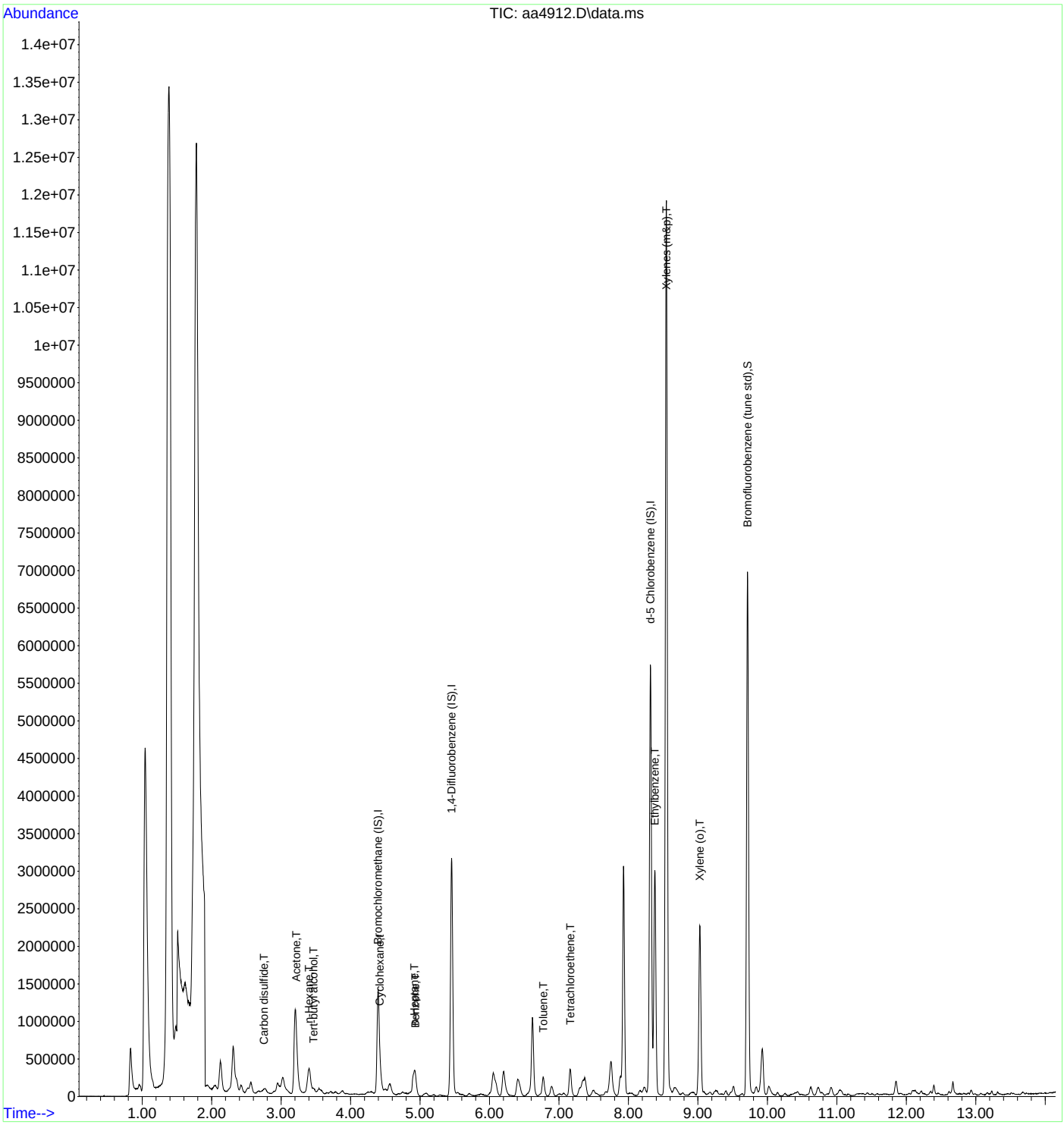
Quant Time: Dec 12 10:28:15 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

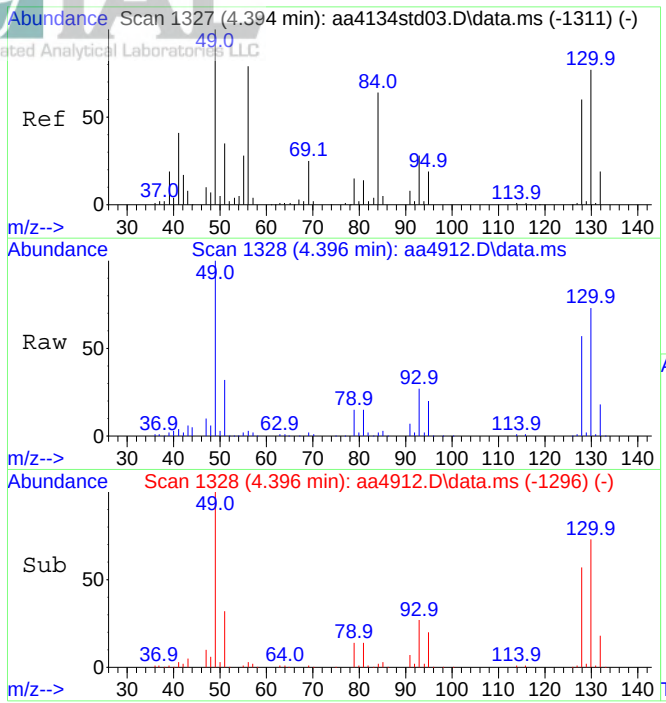
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.396	130	599033	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2878783	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	3437579	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	3038022	10.14	ppbV	0.000
Target Compounds						Qvalue
15) Carbon disulfide	2.753	76	82416	0.45	ppbV #	76
21) Acetone	3.219	43	174617	1.93	ppbV	93
24) n-Hexane	3.403	57	218103	1.16	ppbV	83
26) Tert-butyl alcohol	3.467	59	81087	0.52	ppbV	100
29) Cyclohexane	4.422	56	48398	0.37	ppbV #	60
36) n-Heptane	4.917	43	142027	0.86	ppbV	95
37) Benzene	4.933	78	131541	0.55	ppbV	93
47) Toluene	6.772	91	136327	0.34	ppbV	100
49) Tetrachloroethene	7.164	166	108175	0.62	ppbV	99
58) Ethylbenzene	8.380	91	2641624	4.17	ppbV	99
59) Xylenes (m&p)	8.547	91	8388578	17.87	ppbV	98
60) Xylene (o)	9.026	91	1646259	3.21	ppbV	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4912.D
Acq On : 11 Dec 2023 3:48 pm
Operator : jjw
Sample : E23-05080-02x10 dil
Misc : 2155, 50cc
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Dec 12 10:28:15 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

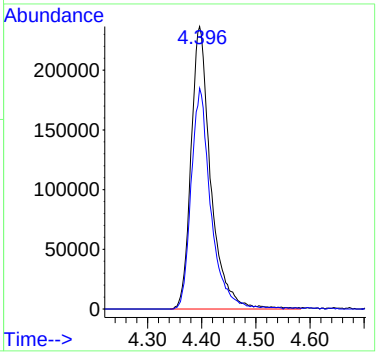


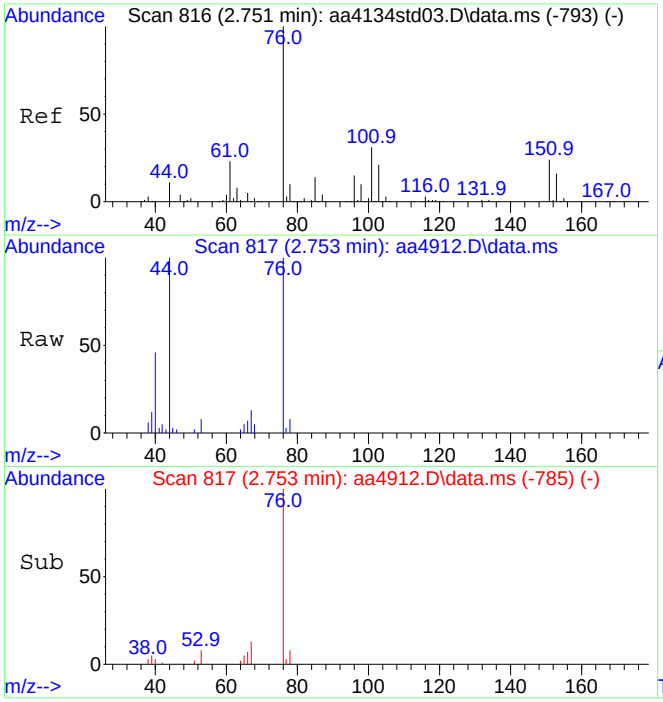


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.396 min Scan# 1328
Delta R.T. 0.002 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion:130 Resp: 599033

Ion	Ratio	Lower	Upper
130	100		
128	77.6	62.2	93.4

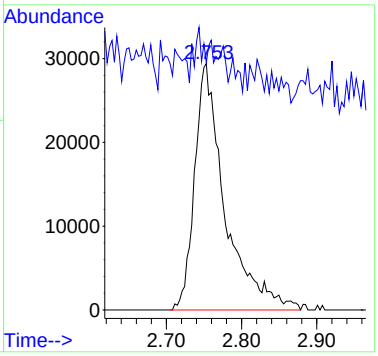


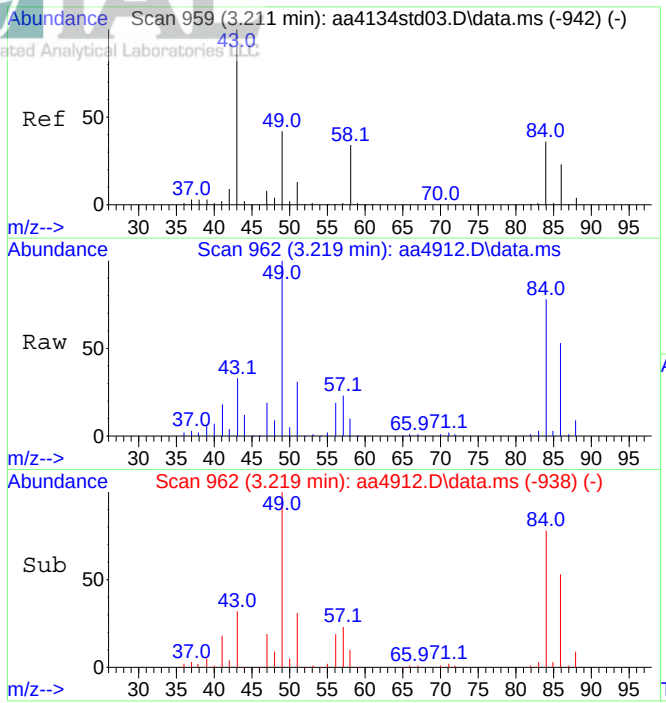


#15
Carbon disulfide
Concen: 0.45 ppbV
RT: 2.753 min Scan# 817
Delta R.T. 0.002 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion: 76 Resp: 82416

Ion	Ratio	Lower	Upper
76	100		
44	20.4	9.0	13.4#

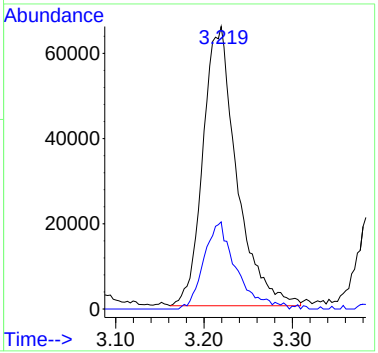


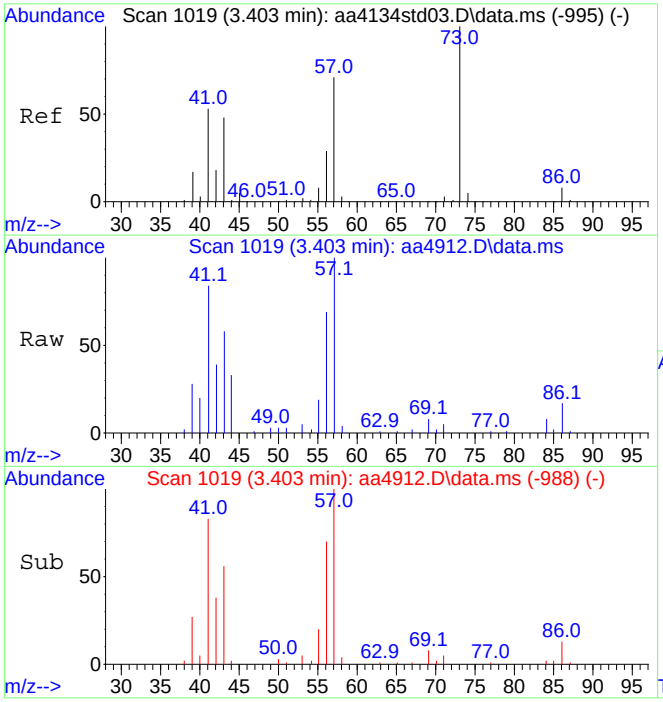


#21
Acetone
Concen: 1.93 ppbV
RT: 3.219 min Scan# 962
Delta R.T. 0.008 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion: 43 Resp: 174617

Ion	Ratio	Lower	Upper
43	100		
58	29.9	27.1	40.7

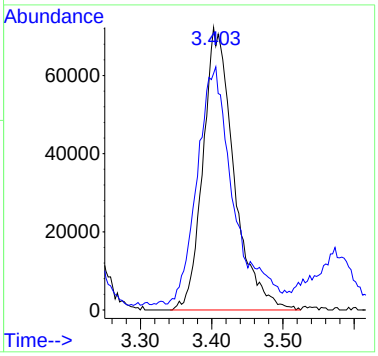


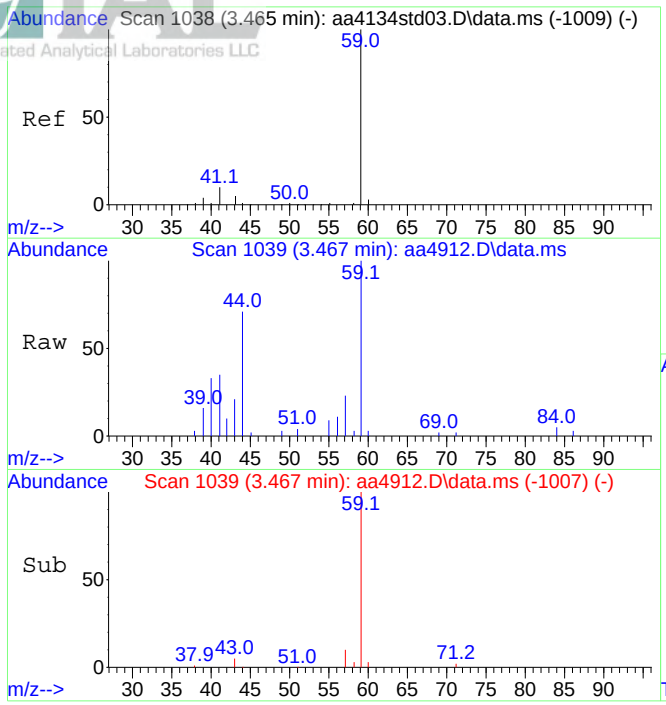


#24
n-Hexane
Concen: 1.16 ppbV
RT: 3.403 min Scan# 1019
Delta R.T. -0.001 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion: 57 Resp: 218103

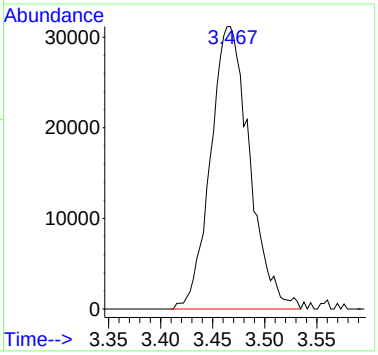
Ion	Ratio	Lower	Upper
57	100		
41	98.5	66.4	99.6

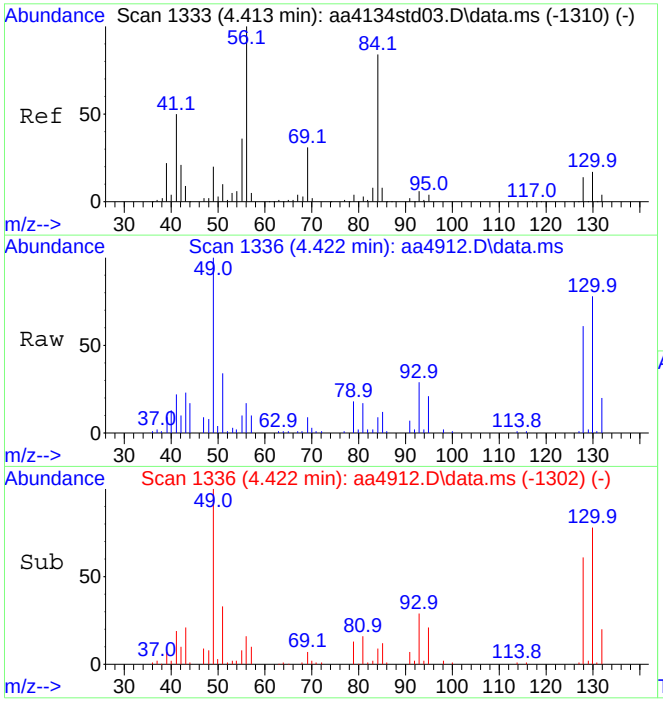




#26
Tert-butyl alcohol
Concen: 0.52 ppbV
RT: 3.467 min Scan# 1039
Delta R.T. 0.002 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion: 59 Resp: 81087

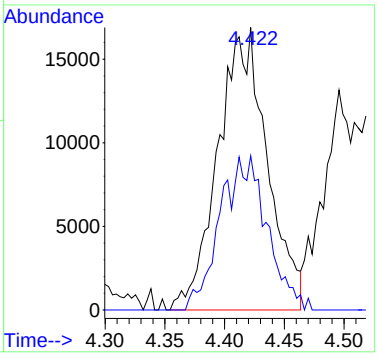


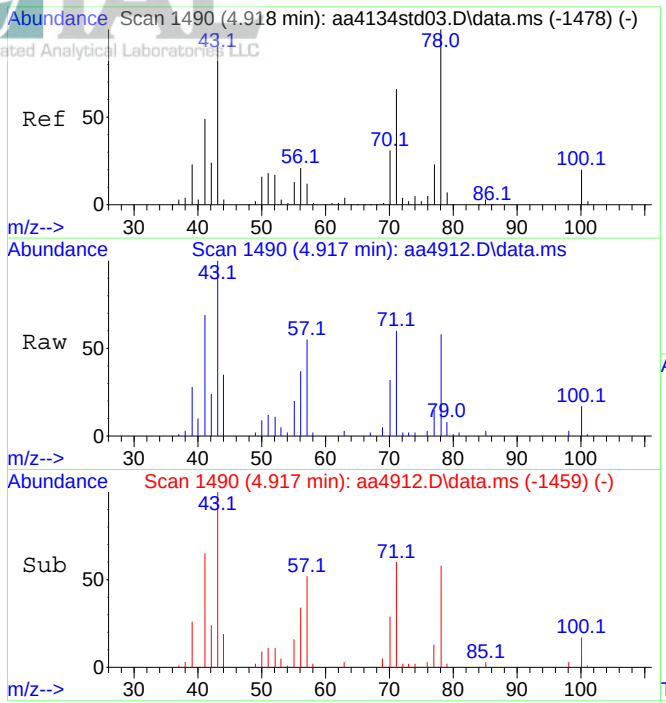


#29
Cyclohexane
Concen: 0.37 ppbV
RT: 4.422 min Scan# 1336
Delta R.T. 0.009 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion: 56 Resp: 48398

Ion	Ratio	Lower	Upper
56	100		
84	52.0	71.2	106.8#

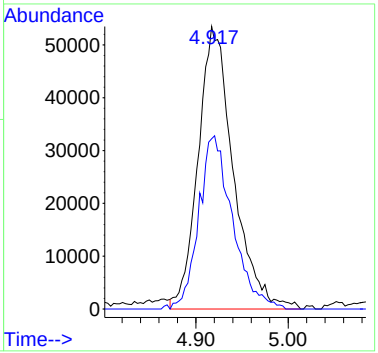


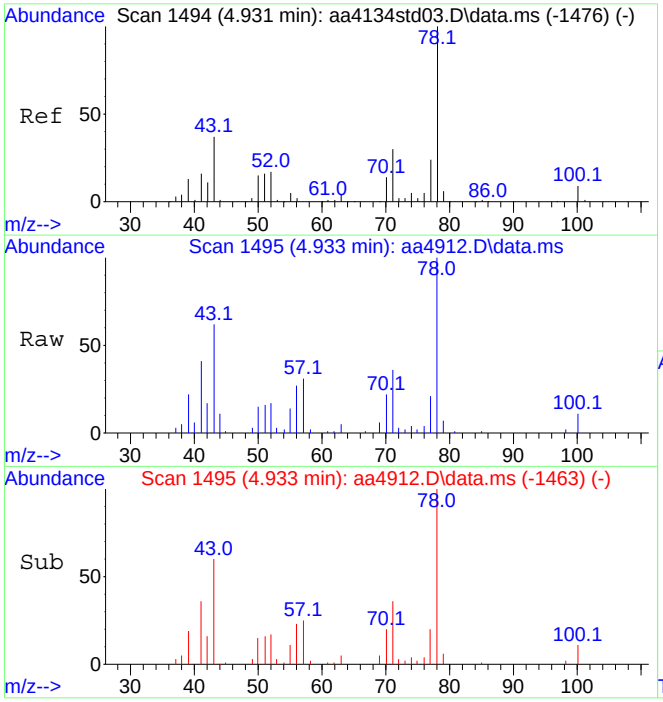


#36
n-Heptane
Concen: 0.86 ppbV
RT: 4.917 min Scan# 1490
Delta R.T. -0.001 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion: 43 Resp: 142027

Ion	Ratio	Lower	Upper
43	100		
71	58.9	50.5	75.7

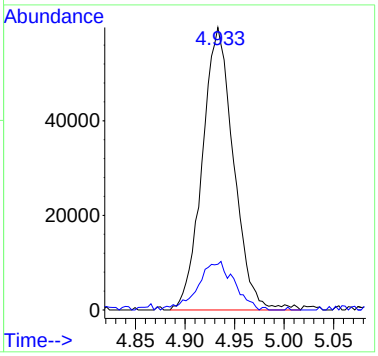


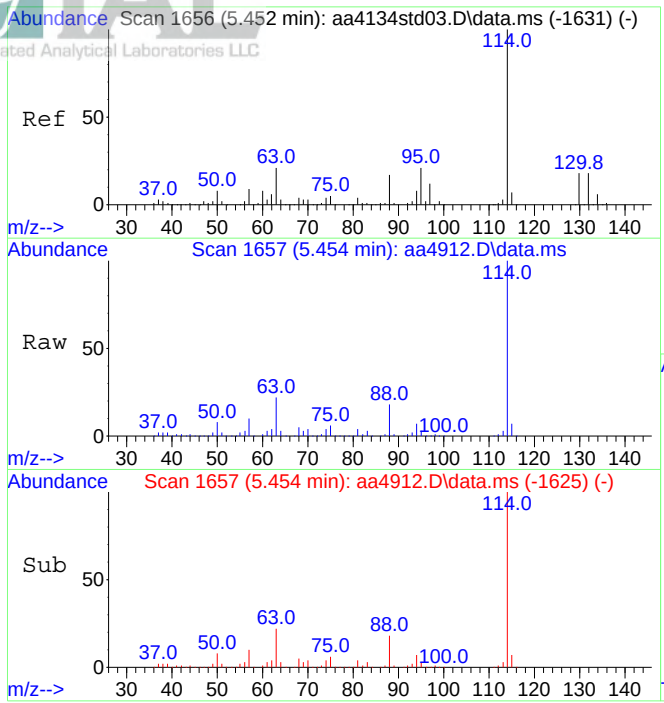


#37
Benzene
Concen: 0.55 ppbV
RT: 4.933 min Scan# 1495
Delta R.T. 0.002 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion: 78 Resp: 131541

Ion	Ratio	Lower	Upper
78	100		
51	19.6	13.4	20.0

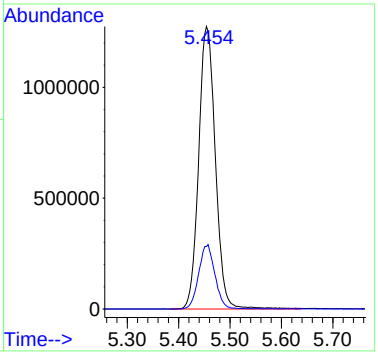


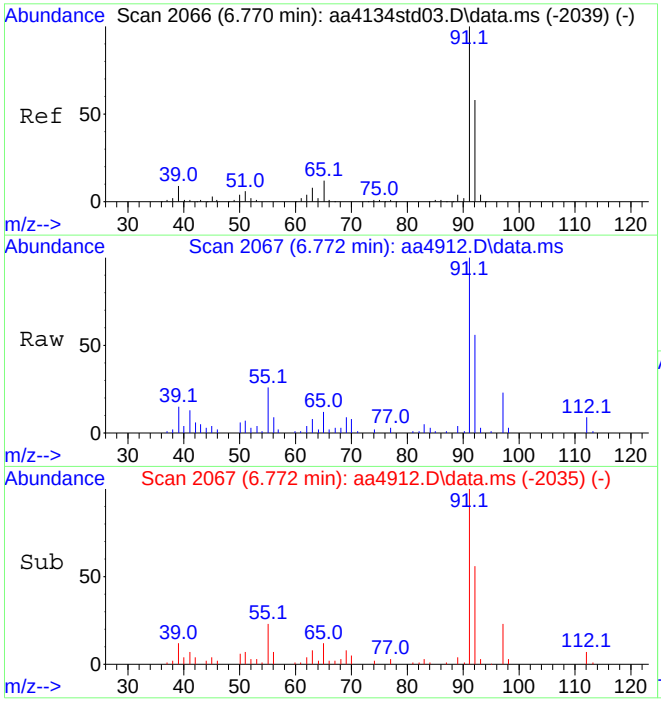


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.454 min Scan# 1657
Delta R.T. 0.002 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion:114 Resp: 2878783

Ion	Ratio	Lower	Upper
114	100		
63	22.1	17.0	25.6

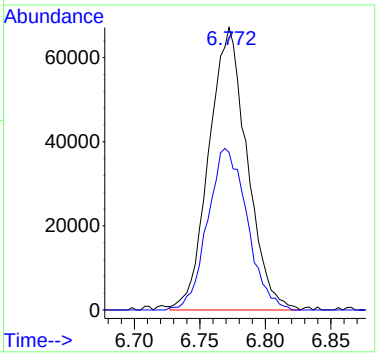


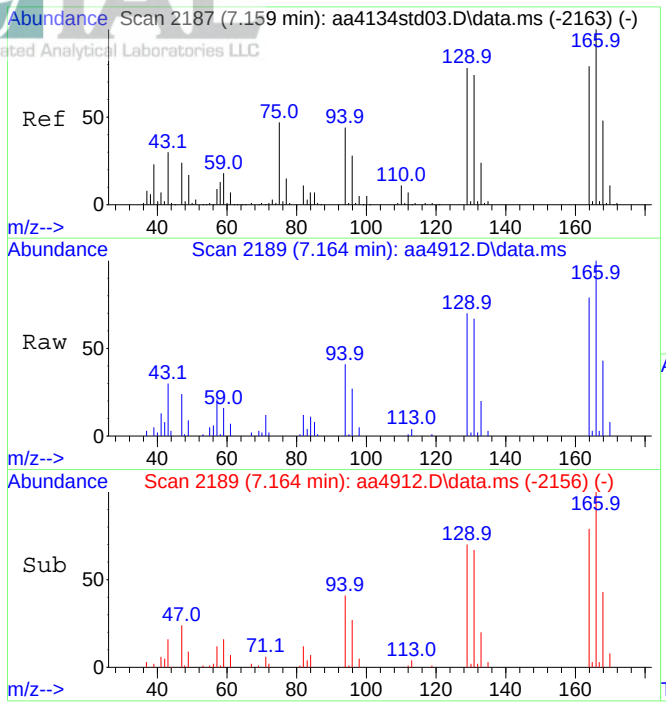


#47
Toluene
Concen: 0.34 ppbV
RT: 6.772 min Scan# 2067
Delta R.T. 0.002 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion: 91 Resp: 136327

Ion	Ratio	Lower	Upper
91	100		
92	59.1	47.3	70.9

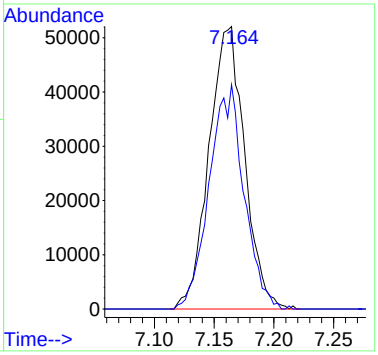


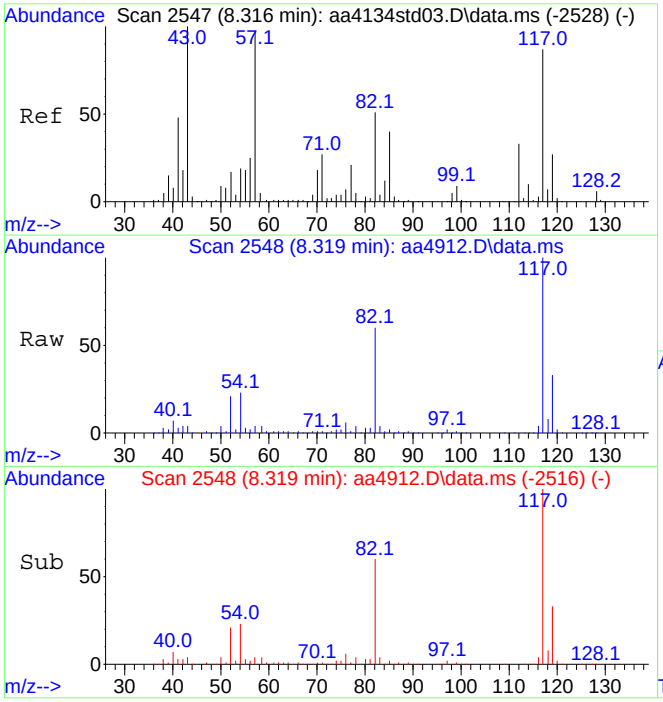


#49
Tetrachloroethene
Concen: 0.62 ppbV
RT: 7.164 min Scan# 2189
Delta R.T. 0.006 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion:166 Resp: 108175

Ion	Ratio	Lower	Upper
166	100		
164	77.1	62.3	93.5

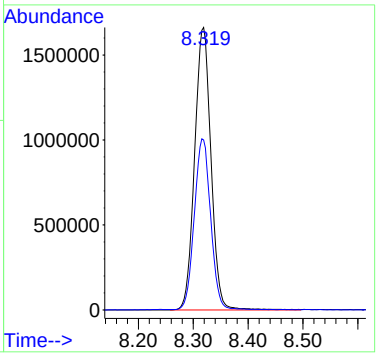


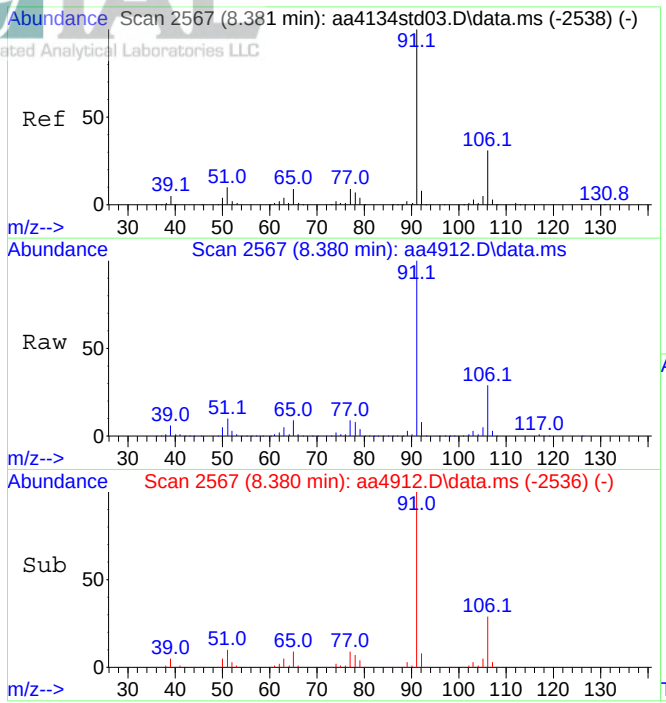


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion:117 Resp: 3437579

Ion	Ratio	Lower	Upper
117	100		
82	60.3	47.0	70.4

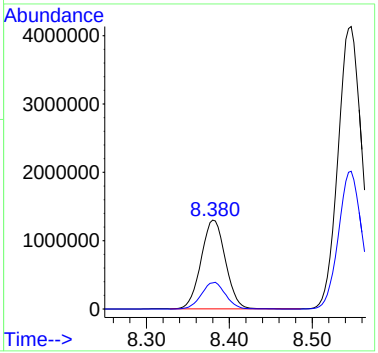


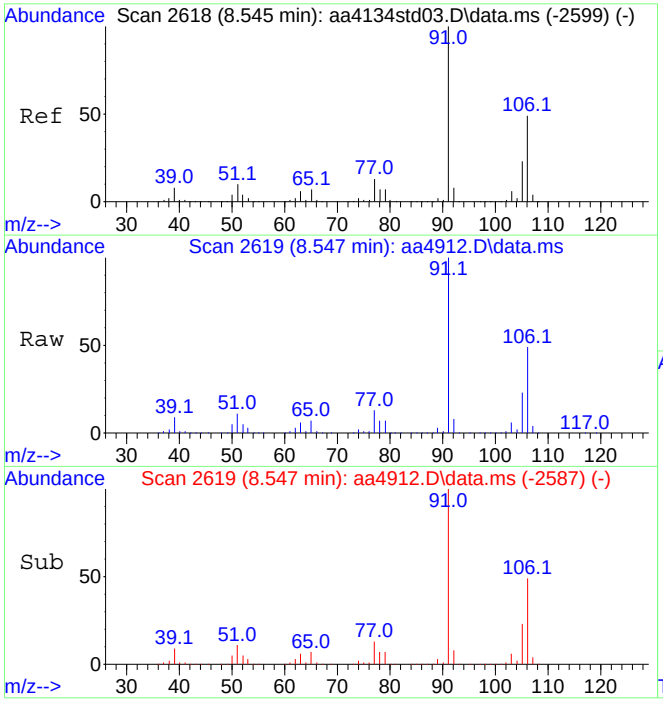


#58
Ethylbenzene
Concen: 4.17 ppbV
RT: 8.380 min Scan# 2567
Delta R.T. -0.001 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion: 91 Resp: 2641624

Ion	Ratio	Lower	Upper
91	100		
106	29.9	24.6	36.8

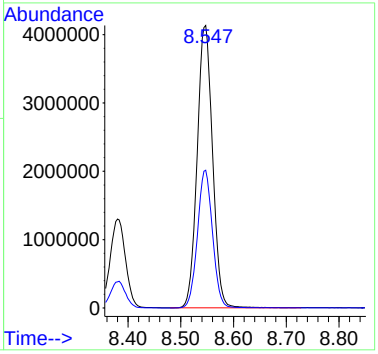


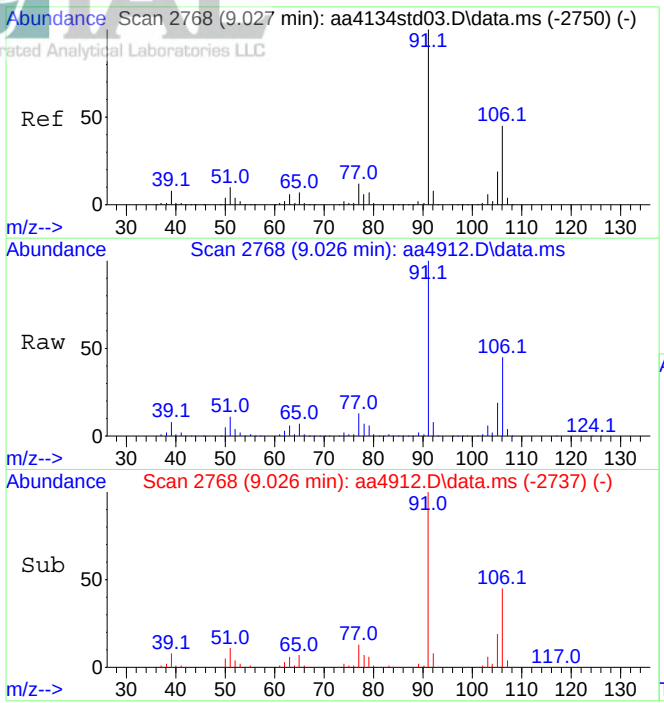


#59
Xylenes (m&p)
Concen: 17.87 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. 0.002 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion: 91 Resp: 8388578

Ion	Ratio	Lower	Upper
91	100		
106	47.7	39.0	58.4

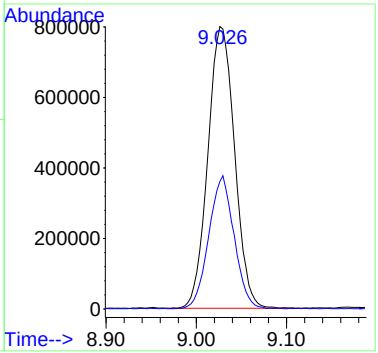


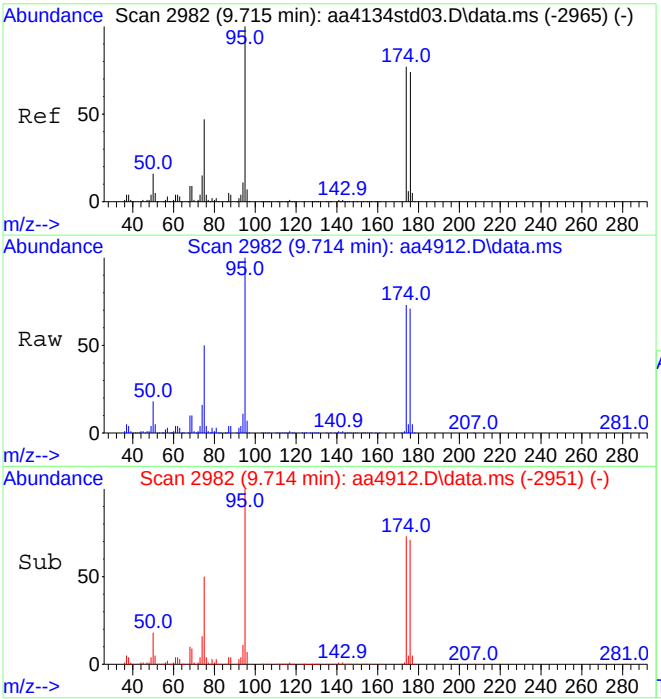


#60
Xylene (o)
Concen: 3.21 ppbV
RT: 9.026 min Scan# 2768
Delta R.T. -0.001 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion: 91 Resp: 1646259

Ion	Ratio	Lower	Upper
91	100		
106	44.6	36.8	55.2

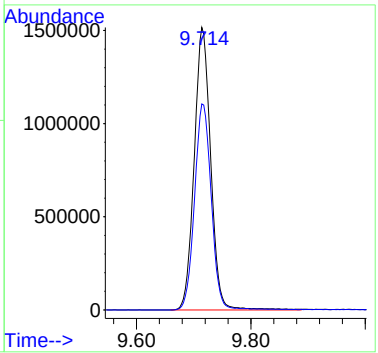




#64
Bromofluorobenzene (tune std)
Concen: 10.14 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4912.D
Acq: 11 Dec 2023 3:48 pm

Tgt Ion: 95 Resp: 3038022

Ion	Ratio	Lower	Upper
95	100		
174	74.3	61.1	91.7



Section VII: Standards Data

Initial Calibration Data

Initial Calibration Verification Data

Continuing Calibration Data

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 8/15/2023 **Method ID:** 230815.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

	Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
1)	Bromochloromethane	----------ISTD----------						
3)	Dichlorodifluoromethane	2.6	2.1	2.4	2.6	2.9	2.5	12
4)	1,2-Dichlorotetrafluoroethane	4.7	3.4	3.2	3.3	3.6	3.6	17
6)	Chloromethane	0.073	0.12	0.12	0.13	0.15	0.12	23
7)	Vinyl chloride	0.87	0.81	0.94	1.0	1.1	0.95	14
8)	1,3-Butadiene	0.94	0.96	0.93	0.99	1.0	0.97	4.6
9)	Bromomethane	0.75	0.65	0.78	0.85	0.96	0.80	14
10)	Chloroethane	0.44	0.40	0.52	0.57	0.65	0.52	19
11)	Vinyl bromide	0.89	0.81	0.99	1.1	1.2	1.0	17
12)	Trichlorofluoromethane	3.8	3.2	3.1	3.4	3.6	3.4	8.1
14)	1,1-Dichloroethene	1.8	1.7	2.1	2.3	2.5	2.1	15
15)	Carbon disulfide	3.2	2.8	3.5	3.7	3.9	3.4	12
16)	1,1,2-Trichloro-1,2,2-trifluoroethane	4.1	3.6	2.8	3.0	3.3	3.4	16
17)	Acrolein	0.45	0.34	0.43	0.45	0.49	0.43	13
18)	Allyl Chloride	0.51	0.46	0.56	0.62	0.65	0.56	14
19)	Isopropanol	2.2	2.0	2.3	2.5	2.6	2.3	10
20)	Methylene chloride	1.9	0.89	1.1	1.2	1.3	1.3	29
21)	Acetone	2.2	1.5	1.8	1.9	1.9	1.9	14
22)	1,2-Dichloroethene (trans)	1.6	1.5	1.9	2.1	2.3	1.9	17
24)	n-Hexane	3.6	3.4	3.0	3.2	3.6	3.3	7.2
25)	Methyl tert-butyl ether	4.7	5.1	4.0	4.3	4.7	4.6	9.5
26)	Tert-butyl alcohol	2.9	3.2	2.6	2.8	3.2	2.9	8.1
27)	1,1-Dichloroethane	2.9	2.3	2.4	2.7	2.9	2.6	11
28)	1,2-Dichloroethene (cis)	1.7	1.5	1.8	2.0	2.2	1.8	14
29)	Cyclohexane	2.5	2.7	2.1	2.3	2.5	2.4	9.8
30)	Chloroform	3.3	2.8	3.0	3.3	3.6	3.2	9.6
32)	Carbon tetrachloride	4.2	4.4	3.4	3.5	3.9	3.9	11
33)	Tetrahydrofuran	1.8	1.6	1.7	1.9	2.0	1.8	8.7
34)	1,1,1-Trichloroethane	3.8	4.0	3.0	3.2	3.5	3.5	12
35)	Methyl ethyl ketone	2.9	2.5	2.7	3.0	3.3	2.9	11
36)	n-Heptane	3.0	4.0	3.2	3.3	3.3	3.4	11
37)	Benzene	5.1	4.3	4.2	4.6	4.9	4.6	8.4
38)	1,2-Dichloroethane	2.0	1.8	1.9	2.2	2.4	2.1	11
39)	1,4-Difluorobenzene	----------ISTD----------						
40)	Trichloroethene	0.60	0.46	0.48	0.50	0.50	0.51	11
41)	2,2,4-Trimethylpentane	1.4	1.3	1.2	1.2	1.3	1.3	7.7
42)	1,2-Dichloropropane	0.54	0.45	0.43	0.44	0.42	0.46	11
43)	Bromodichloromethane	0.91	0.75	0.76	0.79	0.77	0.80	8.1

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 8/15/2023 **Method ID:** 230815.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

	Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
44)	Methyl methacrylate	0.53	0.60	0.60	0.62	0.59	0.59	5.4
45)	1,4-Dioxane	0.30	0.29	0.27	0.28	0.27	0.28	3.5
46)	1,3-Dichloropropene (cis)	0.76	0.67	0.69	0.72	0.69	0.71	4.8
47)	Toluene	1.6	1.8	1.6	1.6	1.4	1.6	7.6
48)	Methyl isobutyl ketone	1.0	1.4	1.2	1.2	1.1	1.2	11
49)	Tetrachloroethene	0.80	0.79	0.70	0.69	0.63	0.72	10
50)	1,3-Dichloropropene (trans)	0.59	0.70	0.73	0.76	0.71	0.70	9.3
51)	1,1,2-Trichloroethane	0.60	0.58	0.55	0.56	0.53	0.57	4.9
52)	Dibromochloromethane	0.94	0.97	0.94	0.96	0.91	0.94	2.5
53)	1,2-Dibromoethane	0.77	0.84	0.84	0.87	0.82	0.83	4.3
54)	Methyl n-butyl ketone	0.82	1.2	1.1	1.2	1.1	1.1	14
55)	d-5 Chlorbenzene	----------ISTD----------						
57)	Chlorobenzene	1.3	1.1	1.0	1.0	1.0	1.1	11
58)	Ethylbenzene	2.3	2.4	1.9	1.8	1.7	2.0	15
59)	Xylenes (m&p)	1.7	1.8	1.5	1.3	0.99	1.5	22
60)	Xylenes (o)	1.7	1.9	1.5	1.5	1.5	1.6	11
61)	Styrene	0.95	1.2	1.1	1.1	1.1	1.1	8.3
62)	Bromoform	0.90	0.87	0.81	0.79	0.79	0.83	6.3
63)	Cumene	2.2	2.6	2.0	1.9	1.8	2.1	14
66)	1,1,2,2-Tetrachloroethane	1.4	1.4	1.1	1.1	1.1	1.2	11
67)	4-Ethyltoluene	2.4	2.7	2.3	2.1	1.8	2.3	14
68)	2-Chlorotoluene	2.0	2.2	1.8	1.7	1.7	1.9	11
69)	1,3,5-Trimethylbenzene	1.8	2.2	1.8	1.7	1.6	1.8	12
70)	1,2,4-Trimethylbenzene	1.6	2.2	1.9	1.8	1.7	1.8	13
71)	1,3-Dichlorobenzene	1.5	1.2	1.1	1.1	1.2	1.2	12
72)	1,4-Dichlorobenzene	1.2	1.2	1.2	1.1	1.2	1.2	1.4
73)	Benzyl chloride	1.2	1.6	1.7	1.7	1.8	1.6	16
74)	1,2-Dichlorobenzene	1.2	1.2	1.1	1.1	1.1	1.1	4.8
75)	1,3-Hexachlorobutadiene	1.2	0.86	0.73	0.67	0.63	0.82	29
76)	1,2,4-Trichlorobenzene	1.2	0.85	0.86	0.82	0.78	0.90	18
77)	Naphthalene	2.3	1.8	1.9	1.8	1.5	1.9	16

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Response Factor Report GCMS2B

Method Path : C:\msdchem\1\METHODS\
Method File : 230815.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Wed Aug 16 10:00:51 2023
Response Via : Initial Calibration

Calibration Files
0.2 =aa3402std05.D 2 =aa3403std04.D 10 =aa3404std03.D 20 =aa3405std02.D 40 =aa3406std01.D

		Compound	0.2	2	10	20	40	Avg	%RSD
1)	I	Bromochloromethane...	----------ISTD----------						
2)	T	Propene	0.693	0.590	0.649	0.708	0.804	0.689	11.46
3)	T	Dichlorodifluoro...	2.627	2.060	2.419	2.640	2.888	2.527	12.25
4)	T	1,2-Dichlorotetr...	4.698	3.379	3.171	3.318	3.612	3.636	16.92
5)	T	n-Butane	1.529	1.686	1.607	1.650	1.703	1.635	4.27
6)	T	Chloromethane	0.073	0.121	0.116	0.128	0.147	0.117	23.33
7)	T	Vinyl chloride	0.866	0.806	0.938	1.004	1.138	0.950	13.56
8)	T	1,3-Butadiene	0.939	0.962	0.929	0.985	1.043	0.972	4.66
9)	T	Bromomethane	0.754	0.650	0.781	0.852	0.955	0.798	14.26
10)	T	Chloroethane	0.437	0.404	0.524	0.567	0.652	0.517	19.32
11)	T	Vinyl bromide	0.891	0.806	0.989	1.088	1.246	1.004	17.12
12)	T	Trichlorofluorom...	3.753	3.179	3.089	3.381	3.599	3.400	8.19
13)	T	Ethanol	0.566	0.336	0.323	0.344	0.433	0.400	25.53
14)	T	1,1-Dichloroethene	1.836	1.703	2.114	2.324	2.466	2.088	15.36
15)	T	Carbon disulfide	3.198	2.847	3.522	3.709	3.868	3.429	11.95
16)	T	1,1,2-Trichloro-...	4.138	3.589	2.807	2.990	3.274	3.360	15.67
17)	T	Acrolein	0.446	0.337	0.430	0.447	0.488	0.430	13.07
18)	T	Allyl chloride	0.510	0.458	0.563	0.616	0.651	0.559	13.89
19)	T	Isopropanol	2.218	2.002	2.266	2.475	2.597	2.312	10.02
20)	T	Methylene chloride	1.853	0.894	1.059	1.168	1.335	1.262	29.12
21)	T	Acetone	2.238	1.490	1.826	1.890	1.937	1.876	14.27
22)	T	trans-1,2-Dichlo...	1.626	1.515	1.873	2.082	2.300	1.879	17.14
23)	T	n-Pentane	2.737	2.398	2.021	2.278	2.555	2.398	11.35
24)	T	n-Hexane	3.560	3.405	3.010	3.196	3.573	3.349	7.26
25)	T	Methyl tert-buty...	4.721	5.118	3.992	4.267	4.676	4.555	9.56
26)	T	Tert-butyl alcohol	2.872	3.165	2.601	2.846	3.159	2.929	8.11
27)	T	1,1-Dichloroethane	2.886	2.279	2.406	2.680	2.935	2.637	10.96
28)	T	cis-1,2-Dichloro...	1.666	1.532	1.766	1.984	2.173	1.824	14.01
29)	t	Cyclohexane	2.480	2.742	2.109	2.281	2.488	2.420	9.87
30)	T	Chloroform	3.341	2.813	3.029	3.345	3.610	3.228	9.60
31)	T	Ethyl acetate	0.519	0.459	0.476	0.532	0.583	0.514	9.56
32)	T	Carbon tetrachlo...	4.190	4.380	3.355	3.527	3.897	3.870	11.16
33)	T	Tetrahydrofuran	1.813	1.612	1.725	1.883	2.033	1.813	8.79
34)	T	1,1,1-Trichloroe...	3.831	3.967	2.981	3.175	3.465	3.484	12.03
35)	T	Methyl ethyl ketone	2.907	2.461	2.724	3.040	3.340	2.894	11.42
36)	T	n-Heptane	3.009	3.965	3.169	3.287	3.321	3.350	10.89
37)	T	Benzene	5.118	4.274	4.213	4.582	4.885	4.614	8.43
38)	T	1,2-Dichloroethane	2.033	1.799	1.949	2.171	2.385	2.067	10.78
39)	I	1,4-Difluorobenzen...	----------ISTD----------						
40)	T	Trichloroethene	0.604	0.461	0.476	0.499	0.498	0.508	11.08
41)	T	2,2,4-Trimethylp...	1.422	1.283	1.173	1.194	1.261	1.267	7.75
42)	T	1,2-Dichloropropane	0.544	0.451	0.428	0.436	0.423	0.456	10.95
43)	T	Bromodichloromet...	0.909	0.753	0.759	0.786	0.768	0.795	8.19
44)	T	Methyl methacrylate	0.533	0.595	0.599	0.618	0.589	0.587	5.41
45)	T	1,4-Dioxane	0.295	0.288	0.274	0.280	0.270	0.281	3.52
46)	T	cis-1,3-Dichloro...	0.756	0.671	0.693	0.721	0.685	0.705	4.82
47)	T	Toluene	1.603	1.770	1.615	1.607	1.423	1.603	7.69
48)	T	Methyl isobutyl ...	1.020	1.358	1.158	1.169	1.085	1.158	10.96
49)	T	Tetrachloroethene	0.802	0.785	0.698	0.693	0.626	0.721	10.04
50)	T	trans-1,3-Dichlo...	0.586	0.696	0.728	0.757	0.709	0.695	9.37
51)	T	1,1,2-Trichloroe...	0.602	0.582	0.549	0.561	0.531	0.565	4.93
52)	T	Dibromochloromet...	0.941	0.968	0.936	0.964	0.910	0.944	2.50
53)	T	1,2-Dibromoethane	0.770	0.838	0.835	0.869	0.822	0.827	4.35
54)	T	Methyl n-butyl k...	0.821	1.172	1.136	1.176	1.120	1.085	13.80
55)	I	d-5 Chlorobenzene ...	----------ISTD----------						
56)	T	n-Nonane	1.127	1.476	1.174	1.162	1.180	1.224	11.64
57)	T	Chlorobenzene	1.289	1.143	1.029	1.009	1.005	1.095	11.15
58)	T	Ethylbenzene	2.334	2.354	1.930	1.830	1.678	2.025	15.04
59)	T	Xylenes (m&p)	1.738	1.788	1.455	1.324	0.993	1.460	22.23
60)	T	Xylene (o)	1.710	1.878	1.542	1.505	1.471	1.621	10.51

Method Path : C:\msdchem\1\METHODS\
Method File : 230815.M

61)	T	Styrene	0.947	1.200	1.093	1.071	1.068	1.076	8.35
62)	T	Bromoform	0.903	0.872	0.806	0.789	0.786	0.831	6.38
63)	T	Cumene	2.186	2.576	2.043	1.945	1.808	2.112	13.92
64)	S	Bromofluorobenze...	0.736	0.817	0.818	0.845	0.943	0.832	8.94
65)	T	n-Propyl benzene	2.996	3.397	2.766	2.573	2.034	2.753	18.37
66)	T	1,1,2,2-Tetrachl...	1.381	1.376	1.137	1.117	1.132	1.228	11.16
67)	T	4-Ethyltoluene	2.355	2.737	2.278	2.143	1.835	2.270	14.45
68)	T	2-Chlorotoluene	1.964	2.171	1.778	1.722	1.704	1.868	10.62
69)	T	1,3,5-Trimethylb...	1.800	2.225	1.792	1.719	1.648	1.837	12.28
70)	T	1,2,4-Trimethylb...	1.568	2.188	1.854	1.793	1.705	1.821	12.71
71)	T	1,3-Dichlorobenzene	1.459	1.183	1.126	1.114	1.157	1.208	11.85
72)	T	1,4-Dichlorobenzene	1.161	1.161	1.153	1.142	1.187	1.161	1.43
73)	T	Benzyl chloride	1.168	1.566	1.708	1.744	1.770	1.591	15.67
74)	T	1,2-Dichlorobenzene	1.169	1.225	1.111	1.083	1.128	1.143	4.82
75)	T	1,3-Hexachlorobu...	1.209	0.857	0.729	0.674	0.629	0.820	28.53
76)	T	1,2,4-Trichlorob...	1.191	0.845	0.860	0.816	0.781	0.899	18.48
77)	T	Naphthalene	2.270	1.826	1.920	1.809	1.459	1.857	15.61

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3402std05.D
Acq On : 15 Aug 2023 11:15 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 15 17:16:53 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:15:22 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.380	130	543782	10.00	ppbV	-0.016
39) 1,4-Difluorobenzene (IS)	5.448	114	2104790	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2068537	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1523370	8.85	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.454	41	8216	0.22	ppbV #	67
3) Dichlorodifluoromethane	1.492	85	30288	0.22	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.626	85	50076	0.25	ppbV	96
5) n-Butane	1.698	43	18121	0.20	ppbV	97
6) Chloromethane	1.763	52	890	0.14	ppbV	54
7) Vinyl chloride	1.760	62	10168	0.20	ppbV	97
8) 1,3-Butadiene	1.767	39	10931	0.21	ppbV	84
9) Bromomethane	2.049	94	8195	0.19	ppbV	87
10) Chloroethane	2.171	64	5038	0.18	ppbV #	73
11) Vinyl bromide	2.271	106	9786	0.18	ppbV	94
12) Trichlorofluoromethane	2.287	101	44897	0.24	ppbV	99
13) Ethanol	2.650	45	6400	0.29	ppbV #	53
14) 1,1-Dichloroethene	2.711	61	20761	0.18	ppbV	99
15) Carbon disulfide	2.731	76	37217	0.20	ppbV #	87
16) 1,1,2-Trichloro-1,2,2-...	2.750	101	49053	0.27	ppbV	100
17) Acrolein	2.956	56	4855	0.21	ppbV	84
18) Allyl chloride	3.091	76	5995	0.20	ppbV	100
19) Isopropanol	3.097	45	21471	0.17	ppbV #	78
20) Methylene chloride	3.184	49	21768	0.31	ppbV	94
21) Acetone	3.194	43	26290	0.26	ppbV #	87
22) trans-1,2-Dichloroethene	3.309	61	19630	0.19	ppbV	99
23) n-Pentane	3.393	43	32143	0.25	ppbV	94
24) n-Hexane	3.387	57	42982	0.24	ppbV	89
25) Methyl tert-butyl ether	3.396	73	57505	0.23	ppbV	99
26) Tert-butyl alcohol	3.454	59	35922	0.23	ppbV	100
27) 1,1-Dichloroethane	3.798	63	33581	0.23	ppbV	93
28) cis-1,2-Dichloroethene	4.223	61	19745	0.20	ppbV	100
29) Cyclohexane	4.396	56	30214	0.23	ppbV	97
30) Chloroform	4.441	83	39248	0.22	ppbV	97
31) Ethyl acetate	4.534	61	6099	0.22	ppbV	99
32) Carbon tetrachloride	4.560	117	50587	0.24	ppbV	99
33) Tetrahydrofuran	4.567	42	21884	0.22	ppbV	96
34) 1,1,1-Trichloroethane	4.608	97	45414	0.24	ppbV	97
35) Methyl ethyl ketone	4.676	43	34778	0.22	ppbV	96
36) n-Heptane	4.907	43	36329	0.20	ppbV	98
37) Benzene	4.923	78	60118	0.24	ppbV	100
38) 1,2-Dichloroethane	5.087	62	24098	0.21	ppbV	100
40) Trichloroethene	5.425	130	25424	0.24	ppbV	97
41) 2,2,4-Trimethylpentane	4.833	57	65257	0.24	ppbV	99
42) 1,2-Dichloropropane	5.875	63	25405	0.26	ppbV	97
43) Bromodichloromethane	5.943	83	44017	0.26	ppbV	100
44) Methyl methacrylate	6.081	41	24702	0.20	ppbV	95
45) 1,4-Dioxane	6.116	88	14508	0.25	ppbV	92
46) cis-1,3-Dichloropropene	6.534	75	35333	0.24	ppbV	100
47) Toluene	6.769	91	72857	0.22	ppbV	97
48) Methyl isobutyl ketone	7.132	43	46816	0.19	ppbV	96
49) Tetrachloroethene	7.161	166	37803	0.25	ppbV	99
50) trans-1,3-Dichloropropene	7.174	75	27399	0.19	ppbV	93
51) 1,1,2-Trichloroethane	7.335	97	27389	0.23	ppbV	98

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3402std05.D
Acq On : 15 Aug 2023 11:15 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

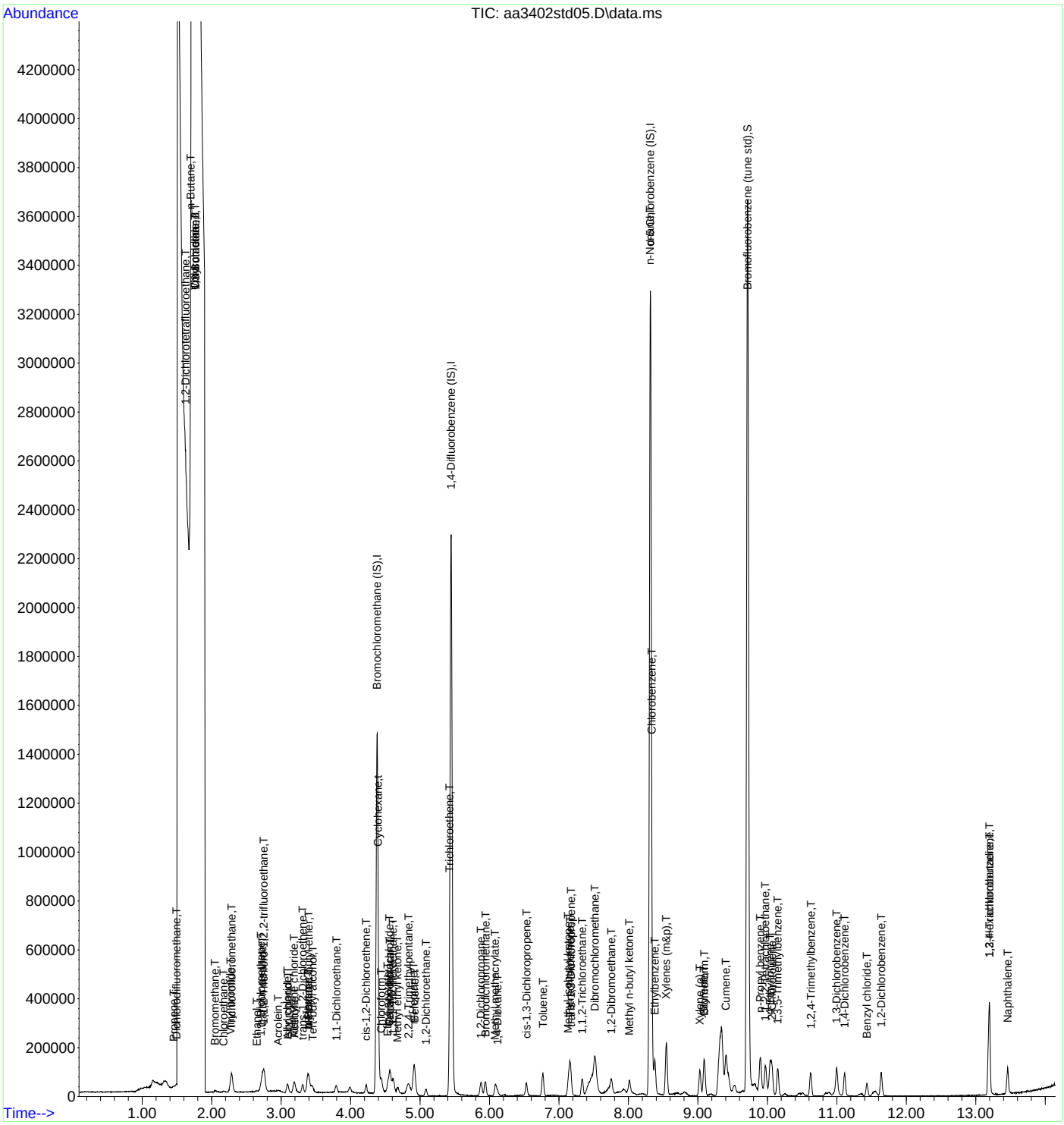
Quant Time: Aug 15 17:16:53 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:15:22 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.518	129	44365	0.22	ppbV		98
53)	1,2-Dibromoethane	7.753	107	35025	0.20	ppbV		99
54)	Methyl n-butyl ketone	8.010	43	39036	0.17	ppbV		94
56)	n-Nonane	8.312	43	51740	0.20	ppbV		94
57)	Chlorobenzene	8.335	112	59186	0.26	ppbV	#	57
58)	Ethylbenzene	8.380	91	107190	0.26	ppbV		98
59)	Xylenes (m&p)	8.544	91	160319	0.53	ppbV		96
60)	Xylene (o)	9.026	91	77796	0.23	ppbV		100
61)	Styrene	9.087	104	44277	0.20	ppbV		97
62)	Bromoform	9.094	173	42204	0.25	ppbV		99
63)	Cumene	9.402	105	96781	0.22	ppbV		99
65)	n-Propyl benzene	9.898	91	133875	0.24	ppbV		91
66)	1,1,2,2-Tetrachloroethane	9.968	83	65139	0.26	ppbV		99
67)	4-Ethyltoluene	10.039	105	105229	0.22	ppbV		94
68)	2-Chlorotoluene	10.068	91	88564	0.23	ppbV		100
69)	1,3,5-Trimethylbenzene	10.148	105	81154	0.21	ppbV		99
70)	1,2,4-Trimethylbenzene	10.627	105	70043	0.19	ppbV		100
71)	1,3-Dichlorobenzene	10.997	146	67007	0.27	ppbV		97
72)	1,4-Dichlorobenzene	11.113	146	51408	0.21	ppbV		98
73)	Benzyl chloride	11.431	91	48312	0.15	ppbV		99
74)	1,2-Dichlorobenzene	11.640	146	51755	0.22	ppbV		97
75)	1,3-Hexachlorobutadiene	13.196	225	55512	0.33	ppbV		100
76)	1,2,4-Trichlorobenzene	13.196	180	54202	0.29	ppbV		99
77)	Naphthalene	13.460	128	93896	0.24	ppbV		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3402std05.D
Acq On : 15 Aug 2023 11:15 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 15 17:16:53 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:15:22 2023
Response via : Initial Calibration



Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3403std04.D
Acq On : 15 Aug 2023 1:45 pm
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 16 09:55:55 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.393	130	541075	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2325427	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2787489	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2277207	9.82	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	69587	1.87	ppbV	98
3) Dichlorodifluoromethane	1.529	85	236252	1.73	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.650	85	358355	1.82	ppbV	100
5) n-Butane	1.729	43	199054	2.26	ppbV	98
6) Chloromethane	1.791	52	14658	2.32	ppbV	76
7) Vinyl chloride	1.780	62	94169	1.83	ppbV	96
8) 1,3-Butadiene	1.794	39	111420	2.12	ppbV	99
9) Bromomethane	2.081	94	70289	1.63	ppbV	99
10) Chloroethane	2.190	64	46371	1.66	ppbV	96
11) Vinyl bromide	2.296	106	88069	1.62	ppbV	100
12) Trichlorofluoromethane	2.313	101	378425	2.06	ppbV	100
13) Ethanol	2.676	45	37762	1.74	ppbV	98
14) 1,1-Dichloroethene	2.731	61	191611	1.70	ppbV	99
15) Carbon disulfide	2.753	76	329694	1.78	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	423345	2.33	ppbV	99
17) Acrolein	2.985	56	36438	1.57	ppbV	98
18) Allyl chloride	3.110	76	53539	1.77	ppbV	100
19) Isopropanol	3.113	45	192840	1.54	ppbV	99
20) Methylene chloride	3.203	49	104527	1.53	ppbV	97
21) Acetone	3.213	43	174115	1.72	ppbV	100
22) trans-1,2-Dichloroethene	3.325	61	182032	1.79	ppbV	100
23) n-Pentane	3.406	43	280301	2.16	ppbV	97
24) n-Hexane	3.403	57	408984	2.26	ppbV	97
25) Methyl tert-butyl ether	3.409	73	620249	2.52	ppbV	91
26) Tert-butyl alcohol	3.460	59	393824	2.49	ppbV	100
27) 1,1-Dichloroethane	3.808	63	246573	1.73	ppbV	100
28) cis-1,2-Dichloroethene	4.239	61	180663	1.83	ppbV	99
29) Cyclohexane	4.409	56	332356	2.54	ppbV	100
30) Chloroform	4.454	83	328798	1.88	ppbV	100
31) Ethyl acetate	4.544	61	53660	1.93	ppbV	98
32) Carbon tetrachloride	4.573	117	526172	2.51	ppbV	100
33) Tetrahydrofuran	4.576	42	193630	1.97	ppbV	100
34) 1,1,1-Trichloroethane	4.624	97	467891	2.48	ppbV	99
35) Methyl ethyl ketone	4.685	43	292932	1.87	ppbV	98
36) n-Heptane	4.917	43	476323	2.63	ppbV	99
37) Benzene	4.933	78	499517	2.00	ppbV	99
38) 1,2-Dichloroethane	5.094	62	212238	1.90	ppbV	100
40) Trichloroethene	5.435	130	214306	1.82	ppbV	99
41) 2,2,4-Trimethylpentane	4.837	57	650366	2.21	ppbV	100
42) 1,2-Dichloropropane	5.885	63	232645	2.19	ppbV	99
43) Bromodichloromethane	5.946	83	402522	2.18	ppbV	98
44) Methyl methacrylate	6.091	41	304586	2.23	ppbV	100
45) 1,4-Dioxane	6.113	88	156518	2.39	ppbV	99
46) cis-1,3-Dichloropropene	6.534	75	346212	2.11	ppbV	100
47) Toluene	6.772	91	889263	2.39	ppbV	98
48) Methyl isobutyl ketone	7.136	43	688572	2.56	ppbV	99
49) Tetrachloroethene	7.161	166	408926	2.44	ppbV	99
50) trans-1,3-Dichloropropene	7.177	75	359255	2.22	ppbV	99
51) 1,1,2-Trichloroethane	7.338	97	292415	2.23	ppbV	99

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3403std04.D
Acq On : 15 Aug 2023 1:45 pm
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

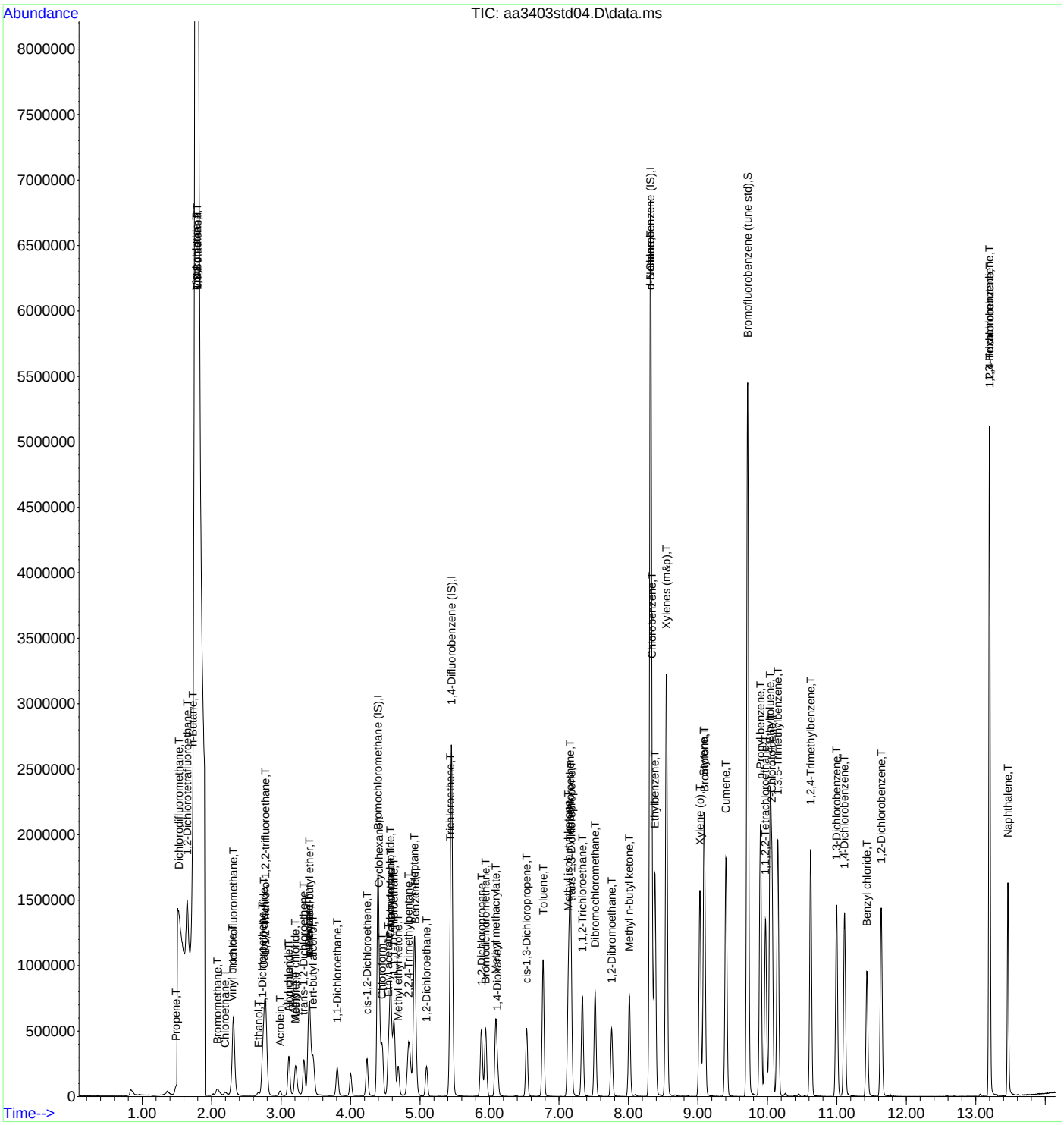
Quant Time: Aug 16 09:55:55 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	504182	2.30	ppbV	99
53)	1,2-Dibromoethane	7.759	107	421042	2.19	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	615992	2.44	ppbV	99
56)	n-Nonane	8.319	43	913232	2.68	ppbV	98
57)	Chlorobenzene	8.338	112	707397	2.32	ppbV	96
58)	Ethylbenzene	8.380	91	1456927	2.58	ppbV	100
59)	Xylenes (m&p)	8.547	91	2222904	5.46	ppbV	99
60)	Xylene (o)	9.029	91	1151590	2.55	ppbV	99
61)	Styrene	9.087	104	755721	2.52	ppbV	98
62)	Bromoform	9.097	173	549148	2.37	ppbV	100
63)	Cumene	9.402	105	1536381	2.61	ppbV	99
65)	n-Propyl benzene	9.901	91	2045481	2.67	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.971	83	874245	2.55	ppbV	100
67)	4-Ethyltoluene	10.039	105	1647910	2.60	ppbV	99
68)	2-Chlorotoluene	10.065	91	1319338	2.53	ppbV	99
69)	1,3,5-Trimethylbenzene	10.151	105	1352228	2.64	ppbV	100
70)	1,2,4-Trimethylbenzene	10.624	105	1317527	2.59	ppbV	99
71)	1,3-Dichlorobenzene	10.997	146	732133	2.17	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	692835	2.14	ppbV	99
73)	Benzyl chloride	11.431	91	873022	1.97	ppbV	99
74)	1,2-Dichlorobenzene	11.640	146	730471	2.29	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	530064	2.32	ppbV	99
76)	1,2,4-Trichlorobenzene	13.200	180	518457	2.07	ppbV	100
77)	Naphthalene	13.463	128	1018158	1.97	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3403std04.D
Acq On : 15 Aug 2023 1:45 pm
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 16 09:55:55 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3404std03.D
Acq On : 15 Aug 2023 1:09 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 16 09:54:13 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.396	130	530723	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	2268530	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2737620	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.718	95	2240242	9.84	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.492	41	375623	10.28	ppbV	100
3) Dichlorodifluoromethane	1.529	85	1361127	10.15	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.650	85	1649087	8.55	ppbV	100
5) n-Butane	1.732	43	929570	10.75	ppbV	98
6) Chloromethane	1.794	52	69017	11.11	ppbV	100
7) Vinyl chloride	1.784	62	537570	10.66	ppbV	100
8) 1,3-Butadiene	1.794	39	527528	10.23	ppbV	100
9) Bromomethane	2.084	94	414507	9.79	ppbV	100
10) Chloroethane	2.197	64	294705	10.74	ppbV	100
11) Vinyl bromide	2.297	106	529947	9.94	ppbV	100
12) Trichlorofluoromethane	2.313	101	1803210	9.99	ppbV	100
13) Ethanol	2.670	45	178190	8.39	ppbV	100
14) 1,1-Dichloroethene	2.734	61	1166579	10.54	ppbV	100
15) Carbon disulfide	2.753	76	2000133	10.99	ppbV	100
16) 1,1,2-Trichloro-1,2,2-...	2.779	101	1623708	9.11	ppbV	100
17) Acrolein	2.988	56	228259	10.01	ppbV	100
18) Allyl chloride	3.113	76	322565	10.86	ppbV	100
19) Isopropanol	3.113	45	1070426	8.72	ppbV	100
20) Methylene chloride	3.203	49	607018	9.06	ppbV	100
21) Acetone	3.213	43	1046415	10.51	ppbV	100
22) trans-1,2-Dichloroethene	3.329	61	1103133	11.06	ppbV	100
23) n-Pentane	3.409	43	1158219	9.10	ppbV	100
24) n-Hexane	3.406	57	1757143	9.89	ppbV	100
25) Methyl tert-butyl ether	3.412	73	2372793	9.82	ppbV	100
26) Tert-butyl alcohol	3.467	59	1587668	10.21	ppbV	100
27) 1,1-Dichloroethane	3.811	63	1366393	9.76	ppbV	100
28) cis-1,2-Dichloroethene	4.235	61	1021823	10.55	ppbV	100
29) Cyclohexane	4.415	56	1253558	9.76	ppbV	100
30) Chloroform	4.457	83	1736397	10.14	ppbV	100
31) Ethyl acetate	4.544	61	272622	10.00	ppbV	100
32) Carbon tetrachloride	4.579	117	1958808	9.54	ppbV	100
33) Tetrahydrofuran	4.576	42	1006885	10.46	ppbV	100
34) 1,1,1-Trichloroethane	4.628	97	1724281	9.33	ppbV	100
35) Methyl ethyl ketone	4.686	43	1590191	10.35	ppbV	100
36) n-Heptane	4.920	43	1866612	10.50	ppbV	100
37) Benzene	4.933	78	2414826	9.86	ppbV	100
38) 1,2-Dichloroethane	5.094	62	1127298	10.27	ppbV	100
40) Trichloroethene	5.435	130	1079500	9.38	ppbV	100
41) 2,2,4-Trimethylpentane	4.846	57	2899901	10.09	ppbV	100
42) 1,2-Dichloropropane	5.885	63	1067336	10.31	ppbV	100
43) Bromodichloromethane	5.946	83	1979492	10.98	ppbV	100
44) Methyl methacrylate	6.091	41	1493887	11.22	ppbV	100
45) 1,4-Dioxane	6.113	88	728333	11.41	ppbV	100
46) cis-1,3-Dichloropropene	6.534	75	1744754	10.91	ppbV	100
47) Toluene	6.772	91	3957437	10.88	ppbV	100
48) Methyl isobutyl ketone	7.136	43	2863824	10.90	ppbV	100
49) Tetrachloroethene	7.161	166	1772265	10.84	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	1834063	11.63	ppbV	100
51) 1,1,2-Trichloroethane	7.338	97	1345722	10.50	ppbV	100

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3404std03.D
Acq On : 15 Aug 2023 1:09 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 16 09:54:13 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

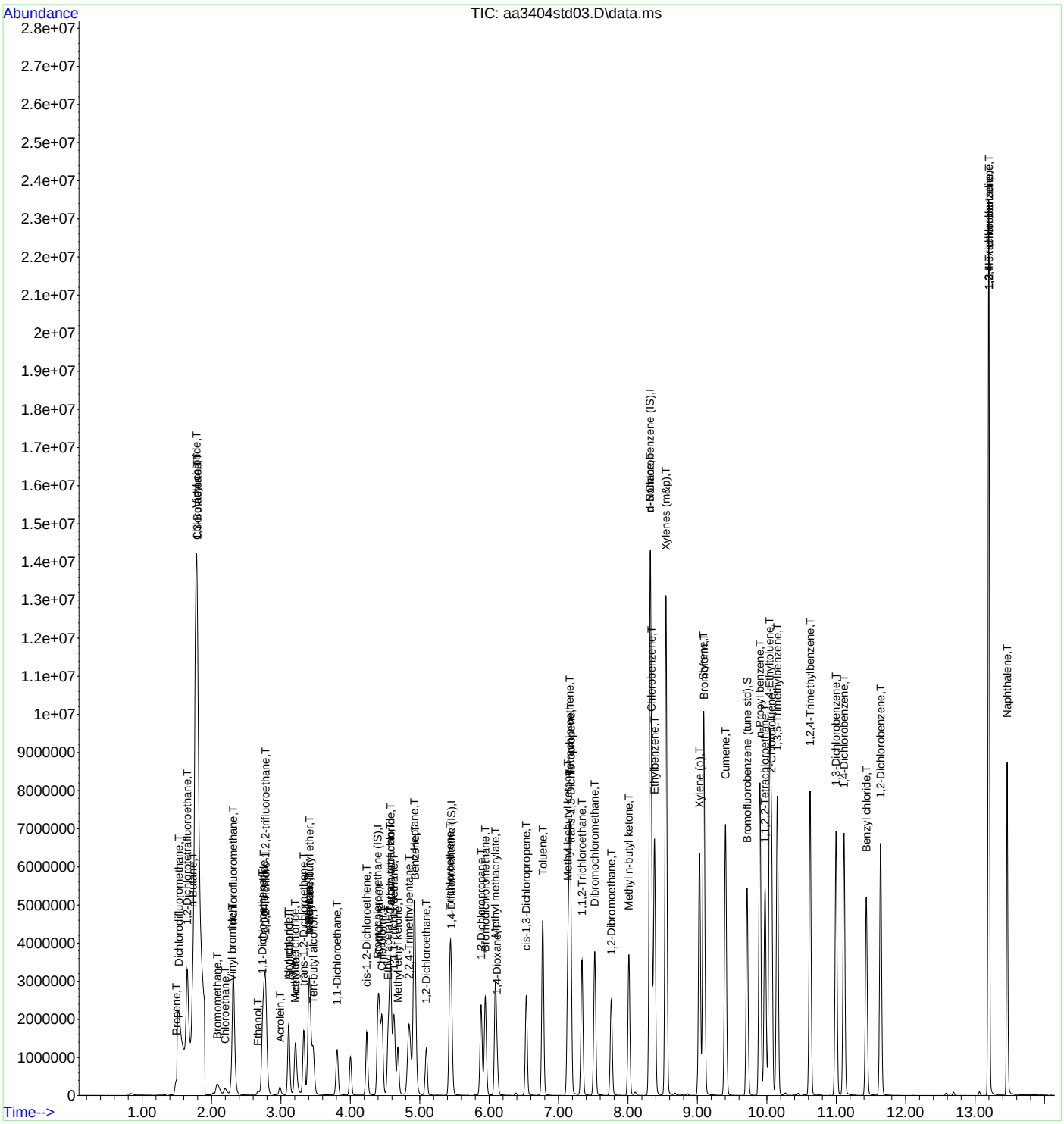
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2376959	11.11	ppbV	100
53)	1,2-Dibromoethane	7.759	107	2045235	10.91	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	2912111	11.83	ppbV	100
56)	n-Nonane	8.319	43	3534946	10.55	ppbV	100
57)	Chlorobenzene	8.338	112	3126708	10.43	ppbV	100
58)	Ethylbenzene	8.383	91	5864430	10.58	ppbV	100
59)	Xylenes (m&p)	8.547	91	8881004	22.23	ppbV	100
60)	Xylene (o)	9.029	91	4642943	10.46	ppbV	100
61)	Styrene	9.087	104	3380250	11.48	ppbV	100
62)	Bromoform	9.097	173	2491890	10.95	ppbV	100
63)	Cumene	9.406	105	5984852	10.35	ppbV	100
65)	n-Propyl benzene	9.901	91	8177614	10.85	ppbV	100
66)	1,1,2,2-Tetrachloroethane	9.975	83	3547036	10.55	ppbV	100
67)	4-Ethyltoluene	10.039	105	6733965	10.84	ppbV	100
68)	2-Chlorotoluene	10.068	91	5305123	10.37	ppbV	100
69)	1,3,5-Trimethylbenzene	10.152	105	5348299	10.64	ppbV	100
70)	1,2,4-Trimethylbenzene	10.624	105	5481212	10.99	ppbV	100
71)	1,3-Dichlorobenzene	10.997	146	3421975	10.35	ppbV	100
72)	1,4-Dichlorobenzene	11.113	146	3376978	10.63	ppbV	100
73)	Benzyl chloride	11.434	91	4675578	10.73	ppbV	100
74)	1,2-Dichlorobenzene	11.640	146	3254751	10.40	ppbV	100
75)	1,3-Hexachlorobutadiene	13.200	225	2216471	9.88	ppbV	100
76)	1,2,4-Trichlorobenzene	13.200	180	2590387	10.53	ppbV	100
77)	Naphthalene	13.463	128	5257288	10.34	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3404std03.D
Acq On : 15 Aug 2023 1:09 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 16 09:54:13 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3405std02.D
Acq On : 15 Aug 2023 3:12 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 16 09:53:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.399	130	499473	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	2278768	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2812211	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2375515	10.15	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.499	41	770871	22.41	ppbV	99
3) Dichlorodifluoromethane	1.533	85	2795748	22.15	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.657	85	3247750	17.89	ppbV	100
5) n-Butane	1.736	43	1882829	23.14	ppbV	99
6) Chloromethane	1.798	52	142733	24.42	ppbV	98
7) Vinyl chloride	1.787	62	1083251	22.82	ppbV	99
8) 1,3-Butadiene	1.801	39	1052739	21.69	ppbV	99
9) Bromomethane	2.091	94	850633	21.34	ppbV	100
10) Chloroethane	2.200	64	600686	23.27	ppbV	98
11) Vinyl bromide	2.300	106	1097918	21.89	ppbV	100
12) Trichlorofluoromethane	2.319	101	3715497	21.88	ppbV	100
13) Ethanol	2.673	45	357760	17.89	ppbV	99
14) 1,1-Dichloroethene	2.737	61	2414830	23.18	ppbV	100
15) Carbon disulfide	2.756	76	3964880	23.15	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.779	101	3255314	19.40	ppbV	100
17) Acrolein	2.991	56	446408	20.80	ppbV	98
18) Allyl chloride	3.113	76	664077	23.76	ppbV	100
19) Isopropanol	3.113	45	2200207	19.06	ppbV	99
20) Methylene chloride	3.207	49	1260244	19.99	ppbV	100
21) Acetone	3.216	43	2038682	21.76	ppbV	100
22) trans-1,2-Dichloroethene	3.332	61	2308104	24.59	ppbV	99
23) n-Pentane	3.409	43	2302426	19.23	ppbV	99
24) n-Hexane	3.412	57	3543404	21.18	ppbV	99
25) Methyl tert-butyl ether	3.412	73	4774341	20.99	ppbV	99
26) Tert-butyl alcohol	3.467	59	3269773	22.35	ppbV	100
27) 1,1-Dichloroethane	3.811	63	2864453	21.75	ppbV	100
28) cis-1,2-Dichloroethene	4.239	61	2160622	23.71	ppbV	100
29) Cyclohexane	4.419	56	2552240	21.11	ppbV	100
30) Chloroform	4.457	83	3608439	22.38	ppbV	99
31) Ethyl acetate	4.544	61	573589	22.35	ppbV	98
32) Carbon tetrachloride	4.579	117	3910518	20.23	ppbV	100
33) Tetrahydrofuran	4.576	42	2087668	23.05	ppbV	99
34) 1,1,1-Trichloroethane	4.631	97	3456960	19.87	ppbV	100
35) Methyl ethyl ketone	4.686	43	3340979	23.11	ppbV	100
36) n-Heptane	4.920	43	3644916	21.78	ppbV	99
37) Benzene	4.936	78	4942978	21.45	ppbV	99
38) 1,2-Dichloroethane	5.097	62	2363649	22.89	ppbV	99
40) Trichloroethene	5.435	130	2273330	19.66	ppbV	99
41) 2,2,4-Trimethylpentane	4.846	57	5933707	20.56	ppbV	100
42) 1,2-Dichloropropane	5.885	63	2205432	21.21	ppbV	99
43) Bromodichloromethane	5.946	83	4121290	22.75	ppbV	100
44) Methyl methacrylate	6.091	41	3097965	23.17	ppbV	99
45) 1,4-Dioxane	6.113	88	1493343	23.30	ppbV	99
46) cis-1,3-Dichloropropene	6.538	75	3649298	22.71	ppbV	100
47) Toluene	6.772	91	7908022	21.65	ppbV	99
48) Methyl isobutyl ketone	7.136	43	5805171	22.00	ppbV	99
49) Tetrachloroethene	7.161	166	3535315	21.53	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	3830549	24.18	ppbV	98
51) 1,1,2-Trichloroethane	7.338	97	2762664	21.45	ppbV	99

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3405std02.D
Acq On : 15 Aug 2023 3:12 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 7 Sample Multiplier: 1

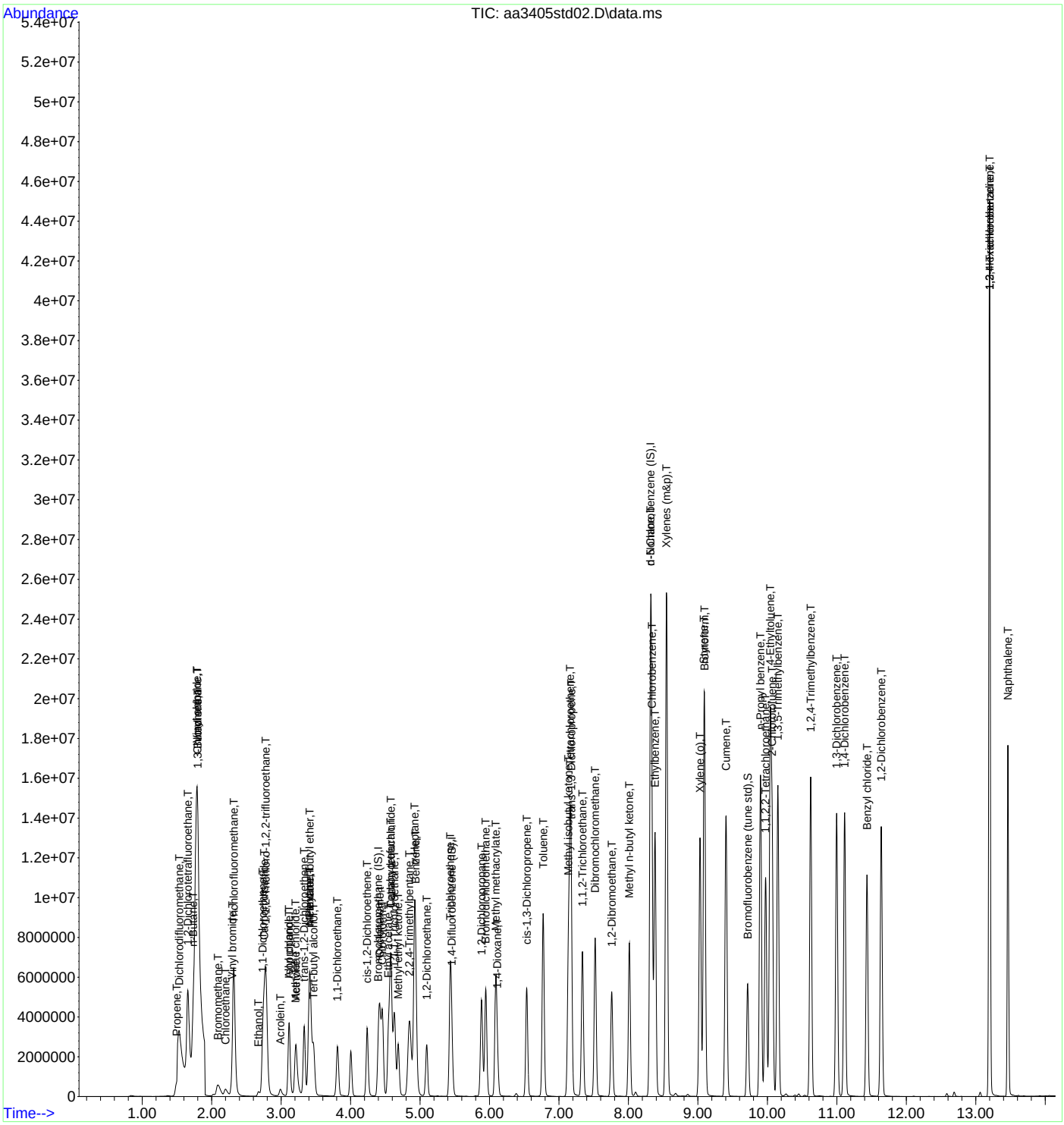
Quant Time: Aug 16 09:53:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	4920304	22.89	ppbV	99
53)	1,2-Dibromoethane	7.759	107	4277090	22.71	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	6056833	24.50	ppbV	99
56)	n-Nonane	8.319	43	7191778	20.90	ppbV	100
57)	Chlorobenzene	8.338	112	6300402	20.46	ppbV	99
58)	Ethylbenzene	8.383	91	11427551	20.06	ppbV	98
59)	Xylenes (m&p)	8.547	91	16612160	40.47	ppbV	96
60)	Xylene (o)	9.029	91	9308971	20.42	ppbV	99
61)	Styrene	9.087	104	6805349	22.50	ppbV	100
62)	Bromoform	9.097	173	5013505	21.45	ppbV	99
63)	Cumene	9.406	105	11708179	19.72	ppbV	98
65)	n-Propyl benzene	9.901	91	15630674	20.19	ppbV	97
66)	1,1,2,2-Tetrachloroethane	9.975	83	7162257	20.73	ppbV	100
67)	4-Ethyltoluene	10.042	105	13015117	20.39	ppbV	97
68)	2-Chlorotoluene	10.068	91	10557525	20.10	ppbV	99
69)	1,3,5-Trimethylbenzene	10.152	105	10540320	20.40	ppbV	98
70)	1,2,4-Trimethylbenzene	10.624	105	10891140	21.26	ppbV	98
71)	1,3-Dichlorobenzene	10.997	146	6954730	20.48	ppbV	99
72)	1,4-Dichlorobenzene	11.113	146	6870236	21.05	ppbV	99
73)	Benzyl chloride	11.434	91	9809727	21.92	ppbV	99
74)	1,2-Dichlorobenzene	11.640	146	6519746	20.28	ppbV	99
75)	1,3-Hexachlorobutadiene	13.200	225	4206699	18.25	ppbV	99
76)	1,2,4-Trichlorobenzene	13.200	180	5049468	19.98	ppbV	100
77)	Naphthalene	13.463	128	10176689	19.49	ppbV	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3405std02.D
Acq On : 15 Aug 2023 3:12 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 16 09:53:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3406std01.D
Acq On : 15 Aug 2023 4:47 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 09:52:28 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.406	130	487271	10.00	ppbV		0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	2425798	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2732166	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.717	95	2577792	11.34	ppbV		0.000
Target Compounds							Qvalue
2) Propene	1.512	41	1707516	50.87	ppbV		99
3) Dichlorodifluoromethane	1.536	85	5966633	48.46	ppbV		100
4) 1,2-Dichlorotetrafluor...	1.660	85	6899713	38.95	ppbV		99
5) n-Butane	1.739	43	3778324	47.60	ppbV		100
6) Chloromethane	1.798	52	321722	56.43	ppbV	#	1
7) Vinyl chloride	1.791	62	2395758	51.74	ppbV		99
8) 1,3-Butadiene	1.801	39	2174685	45.93	ppbV		97
9) Bromomethane	2.097	94	1861404	47.86	ppbV		100
10) Chloroethane	2.200	64	1346794	53.48	ppbV		100
11) Vinyl bromide	2.300	106	2453541	50.15	ppbV		100
12) Trichlorofluoromethane	2.319	101	7717062	46.58	ppbV		100
13) Ethanol	2.673	45	877297	44.97	ppbV	#	88
14) 1,1-Dichloroethene	2.737	61	4997972	49.17	ppbV		100
15) Carbon disulfide	2.763	76	8067769	48.28	ppbV		99
16) 1,1,2-Trichloro-1,2,2-...	2.782	101	6956660	42.50	ppbV		100
17) Acrolein	2.994	56	951140	45.44	ppbV		98
18) Allyl chloride	3.116	76	1369570	50.24	ppbV		100
19) Isopropanol	3.116	45	4505255	40.00	ppbV		98
20) Methylene chloride	3.206	49	2810050	45.70	ppbV		100
21) Acetone	3.222	43	4077485	44.60	ppbV		100
22) trans-1,2-Dichloroethene	3.332	61	4976980	54.35	ppbV		98
23) n-Pentane	3.412	43	5051897	43.24	ppbV		99
24) n-Hexane	3.412	57	7730831	47.37	ppbV		99
25) Methyl tert-butyl ether	3.412	73	10208419	46.00	ppbV		97
26) Tert-butyl alcohol	3.467	59	7080253	49.62	ppbV		100
27) 1,1-Dichloroethane	3.814	63	6120009	47.63	ppbV		99
28) cis-1,2-Dichloroethene	4.238	61	4615777	51.93	ppbV		100
29) Cyclohexane	4.419	56	5431445	46.06	ppbV		100
30) Chloroform	4.457	83	7598750	48.31	ppbV		100
31) Ethyl acetate	4.547	61	1228122	49.05	ppbV		99
32) Carbon tetrachloride	4.583	117	8430867	44.71	ppbV		100
33) Tetrahydrofuran	4.576	42	4398645	49.79	ppbV		99
34) 1,1,1-Trichloroethane	4.631	97	7362144	43.37	ppbV		100
35) Methyl ethyl ketone	4.685	43	7160721	50.77	ppbV		99
36) n-Heptane	4.920	43	7185919	44.02	ppbV		100
37) Benzene	4.936	78	10281932	45.73	ppbV		98
38) 1,2-Dichloroethane	5.097	62	5067261	50.30	ppbV		99
40) Trichloroethene	5.438	130	4836394	39.29	ppbV		100
41) 2,2,4-Trimethylpentane	4.849	57	13336894	43.41	ppbV		98
42) 1,2-Dichloropropane	5.888	63	4560844	41.21	ppbV		99
43) Bromodichloromethane	5.949	83	8574056	44.47	ppbV		99
44) Methyl methacrylate	6.090	41	6283616	44.15	ppbV		100
45) 1,4-Dioxane	6.116	88	3065935	44.93	ppbV		99
46) cis-1,3-Dichloropropene	6.537	75	7375814	43.13	ppbV		99
47) Toluene	6.772	91	14907224	38.33	ppbV		96
48) Methyl isobutyl ketone	7.135	43	11479037	40.87	ppbV		98
49) Tetrachloroethene	7.164	166	6808224	38.95	ppbV		100
50) trans-1,3-Dichloropropene	7.177	75	7633904	45.27	ppbV		99
51) 1,1,2-Trichloroethane	7.338	97	5566488	40.60	ppbV		99

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3406std01.D
Acq On : 15 Aug 2023 4:47 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 8 Sample Multiplier: 1

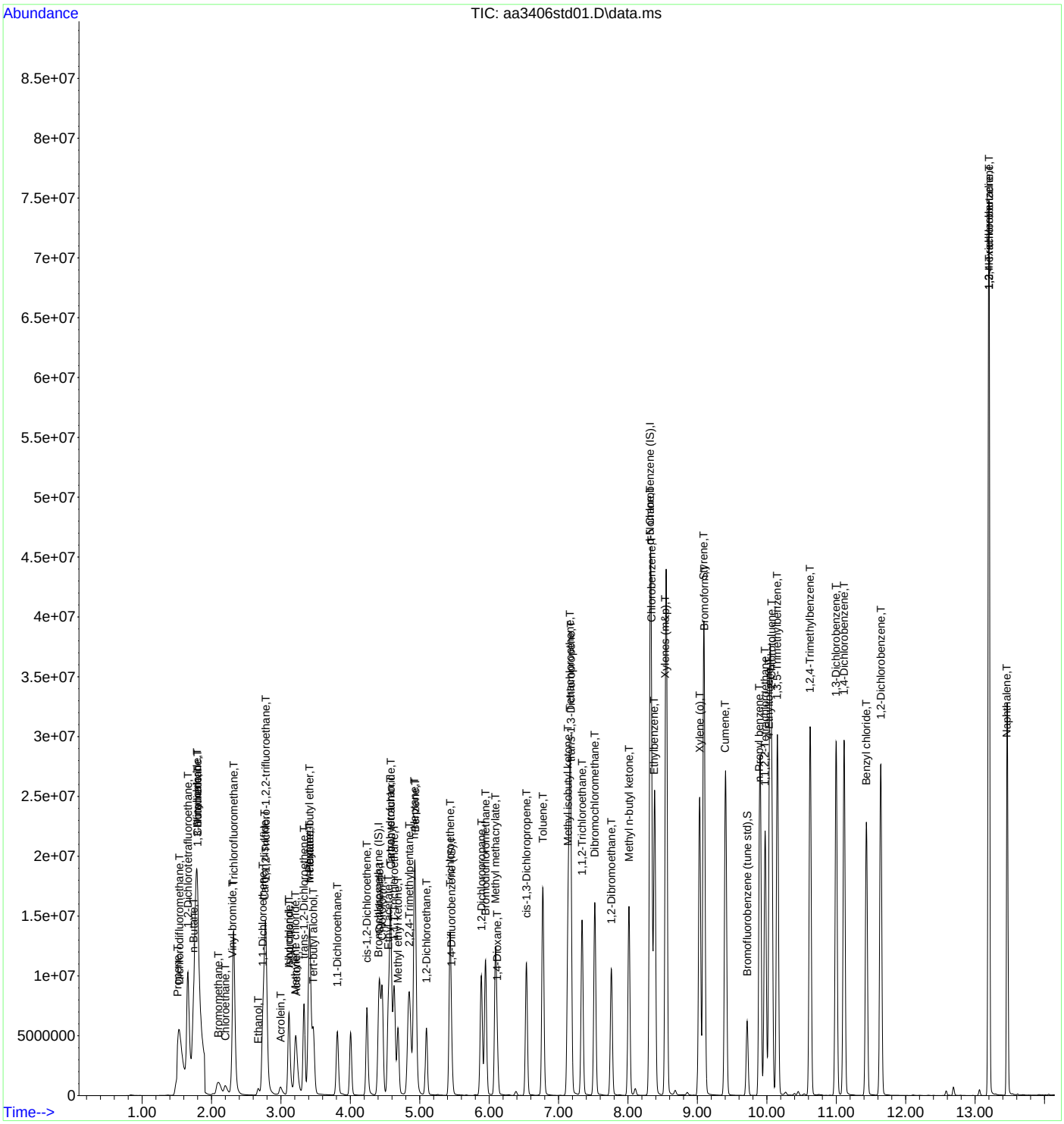
Quant Time: Aug 16 09:52:28 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.521	129	9886675	43.20	ppbV		99
53)	1,2-Dibromoethane	7.759	107	8609104	42.93	ppbV		100
54)	Methyl n-butyl ketone	8.013	43	12284613	46.68	ppbV		97
56)	n-Nonane	8.319	43	14182361	42.42	ppbV		98
57)	Chlorobenzene	8.338	112	12196934	40.77	ppbV		96
58)	Ethylbenzene	8.377	91	20355846	36.79	ppbV		90
59)	Xylenes (m&p)	8.537	91	24199756	60.68	ppbV	#	74
60)	Xylene (o)	9.033	91	17688374	39.94	ppbV		95
61)	Styrene	9.090	104	13186398	44.87	ppbV		97
62)	Bromoform	9.100	173	9710978	42.77	ppbV		98
63)	Cumene	9.399	105	21140296	36.64	ppbV		91
65)	n-Propyl benzene	9.891	91	24008413	31.92	ppbV	#	80
66)	1,1,2,2-Tetrachloroethane	9.975	83	14100555	42.01	ppbV		97
67)	4-Ethyltoluene	10.032	105	21664037	34.94	ppbV	#	84
68)	2-Chlorotoluene	10.068	91	20299207	39.78	ppbV		97
69)	1,3,5-Trimethylbenzene	10.148	105	19633662	39.12	ppbV		92
70)	1,2,4-Trimethylbenzene	10.621	105	20118523	40.43	ppbV		91
71)	1,3-Dichlorobenzene	10.997	146	14030394	42.52	ppbV		97
72)	1,4-Dichlorobenzene	11.113	146	13876826	43.76	ppbV		97
73)	Benzyl chloride	11.431	91	19339251	44.49	ppbV		93
74)	1,2-Dichlorobenzene	11.643	146	13190929	42.23	ppbV		97
75)	1,3-Hexachlorobutadiene	13.200	225	7629643	34.08	ppbV		97
76)	1,2,4-Trichlorobenzene	13.200	180	9392234	38.25	ppbV		99
77)	Naphthalene	13.457	128	15939992	31.42	ppbV	#	83

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3406std01.D
Acq On : 15 Aug 2023 4:47 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 09:52:28 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 10/10/2023 **Method ID:** 231009.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48

	Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
1)	Bromochloromethane	----------ISTD----------						
3)	Dichlorodifluoromethane	1.9	2.0	2.2	2.4	2.6	2.2	13
4)	1,2-Dichlorotetrafluoroethane	3.2	3.4	2.9	3.2	3.5	3.2	6.1
6)	Chloromethane	0.085	0.098	0.11	0.12	0.14	0.11	18
7)	Vinyl chloride	0.70	0.84	0.91	0.98	1.1	0.91	17
8)	1,3-Butadiene	0.87	0.82	0.80	0.84	0.91	0.85	4.8
9)	Bromomethane	0.49	0.70	0.75	0.81	0.91	0.73	22
10)	Chloroethane	0.24	0.45	0.50	0.55	0.63	0.48	31
11)	Vinyl bromide	0.53	0.86	0.92	1.0	1.1	0.90	26
12)	Trichlorofluoromethane	2.6	2.6	2.7	2.9	3.2	2.8	8.9
14)	1,1-Dichloroethene	1.4	1.5	1.9	2.1	2.3	1.9	21
15)	Carbon disulfide	2.4	2.6	3.2	3.4	3.7	3.1	18
16)	1,1,2-Trichloro-1,2,2-trifluoroethane	2.8	3.0	2.5	2.7	3.0	2.8	7.4
17)	Acrolein	0.39	0.33	0.43	0.45	0.49	0.42	15
18)	Allyl Chloride	0.35	0.42	0.54	0.58	0.62	0.50	23
19)	Isopropanol	1.6	1.7	2.1	2.3	2.4	2.0	17
20)	Methylene chloride	1.7	0.97	1.0	1.1	1.3	1.2	25
21)	Acetone	1.5	1.2	1.5	1.6	1.7	1.5	12
22)	1,2-Dichloroethene (trans)	1.4	1.3	1.8	2.0	2.2	1.7	21
24)	n-Hexane	3.1	3.0	3.0	3.1	3.5	3.2	7.1
25)	Methyl tert-butyl ether	3.5	4.1	3.6	3.9	4.3	3.9	8.5
26)	Tert-butyl alcohol	2.3	2.5	2.5	2.7	3.0	2.6	11
27)	1,1-Dichloroethane	2.2	2.0	2.2	2.4	2.7	2.3	12
28)	1,2-Dichloroethene (cis)	1.3	1.4	1.7	1.8	2.0	1.6	18
29)	Cyclohexane	2.1	2.2	2.1	2.2	2.4	2.2	6.8
30)	Chloroform	2.2	2.3	2.6	2.9	3.2	2.7	15
32)	Carbon tetrachloride	3.0	3.1	3.0	3.2	3.5	3.2	6.9
33)	Tetrahydrofuran	1.5	1.3	1.5	1.6	1.7	1.5	9.4
34)	1,1,1-Trichloroethane	2.5	2.7	2.7	2.9	3.1	2.8	8.7
35)	Methyl ethyl ketone	2.3	2.1	2.4	2.6	2.9	2.4	13
36)	n-Heptane	2.6	2.6	2.9	2.9	2.9	2.8	6.9
37)	Benzene	3.6	3.8	3.8	4.1	4.5	4.0	9.3
38)	1,2-Dichloroethane	1.3	1.5	1.7	1.8	2.0	1.7	17
39)	1,4-Difluorobenzene	----------ISTD----------						
40)	Trichloroethene	0.38	0.47	0.44	0.45	0.47	0.44	8.1
41)	2,2,4-Trimethylpentane	1.2	1.5	1.2	1.3	1.3	1.3	9.8
42)	1,2-Dichloropropane	0.38	0.40	0.39	0.39	0.39	0.39	2.1
43)	Bromodichloromethane	0.59	0.68	0.66	0.68	0.68	0.66	6.0

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 10/10/2023 **Method ID:** 231009.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48

	Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
44)	Methyl methacrylate	0.42	0.46	0.50	0.50	0.48	0.47	6.8
45)	1,4-Dioxane	0.21	0.24	0.24	0.25	0.25	0.24	5.9
46)	1,3-Dichloropropene (cis)	0.55	0.59	0.63	0.63	0.62	0.60	5.6
47)	Toluene	1.2	1.5	1.5	1.5	1.4	1.4	7.6
48)	Methyl isobutyl ketone	0.76	0.92	0.95	0.93	0.86	0.88	8.6
49)	Tetrachloroethene	0.53	0.61	0.63	0.64	0.61	0.61	7.1
50)	1,3-Dichloropropene (trans)	0.46	0.57	0.63	0.65	0.62	0.59	13
51)	1,1,2-Trichloroethane	0.40	0.48	0.49	0.51	0.50	0.48	9.3
52)	Dibromochloromethane	0.64	0.78	0.83	0.86	0.85	0.79	12
53)	1,2-Dibromoethane	0.54	0.67	0.73	0.75	0.74	0.69	13
54)	Methyl n-butyl ketone	0.70	0.78	0.93	0.93	0.90	0.85	12
55)	d-5 Chlorbenzene	----------ISTD----------						
57)	Chlorobenzene	0.97	1.1	0.99	0.99	0.99	1.00	3.0
58)	Ethylbenzene	1.8	2.0	1.9	1.8	1.8	1.8	4.5
59)	Xylenes (m&p)	1.3	1.5	1.4	1.4	1.2	1.4	9.3
60)	Xylenes (o)	1.4	1.6	1.5	1.5	1.5	1.5	5.0
61)	Styrene	0.85	1.0	1.1	1.1	1.1	1.0	9.4
62)	Bromoform	0.63	0.72	0.75	0.77	0.80	0.73	8.7
63)	Cumene	1.8	2.2	2.0	1.9	1.9	1.9	7.1
66)	1,1,2,2-Tetrachloroethane	0.96	1.1	1.0	1.0	1.1	1.0	5.5
67)	4-Ethyltoluene	2.1	2.2	2.2	2.2	2.1	2.2	3.8
68)	2-Chlorotoluene	1.6	1.8	1.7	1.7	1.7	1.7	4.3
69)	1,3,5-Trimethylbenzene	1.5	1.9	1.8	1.8	1.7	1.7	7.6
70)	1,2,4-Trimethylbenzene	1.4	1.9	1.8	1.8	1.8	1.7	9.6
71)	1,3-Dichlorobenzene	1.0	1.0	1.1	1.1	1.1	1.1	4.2
72)	1,4-Dichlorobenzene	0.94	1.0	1.1	1.1	1.2	1.1	8.6
73)	Benzyl chloride	1.2	1.4	1.6	1.7	1.7	1.5	15
74)	1,2-Dichlorobenzene	0.90	1.1	1.0	1.1	1.1	1.0	7.4
75)	1,3-Hexachlorobutadiene	0.73	0.78	0.70	0.69	0.66	0.71	6.1
76)	1,2,4-Trichlorobenzene	0.83	0.81	0.82	0.84	0.83	0.82	1.4
77)	Naphthalene	2.0	1.9	1.9	1.9	1.7	1.9	4.8

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Response Factor Report GCMS2B

Method Path : C:\msdchem\1\METHODS\
Method File : 231009.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Tue Oct 10 15:12:35 2023
Response Via : Initial Calibration

Calibration Files
0.2 =aa4132std05.D 2 =aa4133std04.D 10 =aa4134std03.D 20 =aa4135std02.D 40 =aa4136std01.D

		Compound	0.2	2	10	20	40	Avg	%RSD
1)	I	Bromochloromethane...	----------ISTD----------						
2)	T	Propene	0.779	0.688	0.601	0.651	0.751	0.694	10.44
3)	T	Dichlorodifluoro...	1.907	1.983	2.168	2.390	2.633	2.216	13.46
4)	T	1,2-Dichlorotetr...	3.185	3.352	2.944	3.158	3.458	3.219	6.12
5)	T	n-Butane	1.490	1.596	1.532	1.649	1.719	1.597	5.69
6)	T	Chloromethane	0.085	0.098	0.113	0.121	0.137	0.111	18.16
7)	T	Vinyl chloride	0.695	0.837	0.907	0.984	1.107	0.906	17.06
8)	T	1,3-Butadiene	0.868	0.820	0.800	0.839	0.905	0.846	4.88
9)	T	Bromomethane	0.486	0.695	0.751	0.814	0.911	0.731	21.71
10)	T	Chloroethane	0.242	0.451	0.502	0.547	0.634	0.475	30.85
11)	T	Vinyl bromide	0.534	0.864	0.915	1.018	1.146	0.895	25.58
12)	T	Trichlorofluorom...	2.621	2.609	2.656	2.932	3.178	2.799	8.92
13)	T	Ethanol	0.278	0.262	0.269	0.289	0.366	0.293	14.44
14)	T	1,1-Dichloroethene	1.413	1.490	1.944	2.133	2.308	1.858	21.17
15)	T	Carbon disulfide	2.407	2.574	3.227	3.426	3.653	3.058	17.73
16)	T	1,1,2-Trichloro-...	2.836	3.030	2.523	2.712	2.994	2.819	7.42
17)	T	Acrolein	0.385	0.331	0.431	0.447	0.494	0.418	14.91
18)	T	Allyl chloride	0.345	0.421	0.535	0.582	0.624	0.501	23.11
19)	T	Isopropanol	1.617	1.677	2.082	2.254	2.397	2.005	17.28
20)	T	Methylene chloride	1.726	0.973	1.020	1.121	1.307	1.229	24.89
21)	T	Acetone	1.489	1.226	1.538	1.595	1.694	1.508	11.62
22)	T	trans-1,2-Dichlo...	1.377	1.330	1.784	1.951	2.181	1.724	21.29
23)	T	n-Pentane	2.223	2.305	2.173	2.308	2.616	2.325	7.41
24)	T	n-Hexane	3.143	2.995	2.967	3.122	3.534	3.152	7.19
25)	T	Methyl tert-buty...	3.476	4.059	3.641	3.875	4.310	3.872	8.54
26)	T	Tert-butyl alcohol	2.280	2.528	2.502	2.698	3.027	2.607	10.66
27)	T	1,1-Dichloroethane	2.208	2.008	2.236	2.445	2.714	2.322	11.56
28)	T	cis-1,2-Dichloro...	1.343	1.351	1.654	1.825	2.018	1.638	18.03
29)	t	Cyclohexane	2.057	2.245	2.081	2.192	2.434	2.202	6.86
30)	T	Chloroform	2.233	2.343	2.644	2.933	3.225	2.676	15.36
31)	T	Ethyl acetate	0.310	0.390	0.450	0.493	0.533	0.435	20.09
32)	T	Carbon tetrachlo...	2.964	3.097	3.048	3.232	3.528	3.174	6.95
33)	T	Tetrahydrofuran	1.456	1.307	1.488	1.591	1.681	1.504	9.42
34)	T	1,1,1-Trichloroe...	2.481	2.746	2.667	2.869	3.137	2.780	8.79
35)	T	Methyl ethyl ketone	2.291	2.066	2.372	2.620	2.862	2.442	12.58
36)	T	n-Heptane	2.552	2.559	2.850	2.930	2.928	2.764	6.98
37)	T	Benzene	3.627	3.758	3.801	4.128	4.544	3.972	9.30
38)	T	1,2-Dichloroethane	1.312	1.486	1.666	1.833	2.016	1.663	16.69
39)	I	1,4-Difluorobenzen...	----------ISTD----------						
40)	T	Trichloroethene	0.381	0.468	0.441	0.454	0.469	0.442	8.16
41)	T	2,2,4-Trimethylp...	1.199	1.522	1.226	1.268	1.298	1.303	9.87
42)	T	1,2-Dichloropropane	0.377	0.399	0.391	0.393	0.385	0.389	2.16
43)	T	Bromodichloromet...	0.586	0.682	0.655	0.678	0.675	0.655	6.09
44)	T	Methyl methacrylate	0.419	0.464	0.497	0.498	0.481	0.472	6.88
45)	T	1,4-Dioxane	0.214	0.238	0.243	0.249	0.248	0.238	5.94
46)	T	cis-1,3-Dichloro...	0.549	0.592	0.626	0.634	0.615	0.603	5.69
47)	T	Toluene	1.225	1.453	1.484	1.478	1.387	1.405	7.68
48)	T	Methyl isobutyl ...	0.759	0.922	0.947	0.925	0.863	0.883	8.63
49)	T	Tetrachloroethene	0.531	0.613	0.633	0.639	0.613	0.606	7.17
50)	T	trans-1,3-Dichlo...	0.459	0.568	0.633	0.647	0.618	0.585	13.11
51)	T	1,1,2-Trichloroe...	0.399	0.475	0.494	0.506	0.500	0.475	9.30
52)	T	Dibromochloromet...	0.636	0.778	0.834	0.857	0.849	0.791	11.62
53)	T	1,2-Dibromoethane	0.535	0.672	0.732	0.751	0.743	0.686	13.15
54)	T	Methyl n-butyl k...	0.704	0.779	0.932	0.932	0.900	0.849	12.07
55)	I	d-5 Chlorobenzene ...	----------ISTD----------						
56)	T	n-Nonane	0.927	1.067	1.027	0.986	0.955	0.992	5.62
57)	T	Chlorobenzene	0.971	1.050	0.990	0.986	0.988	0.997	3.09
58)	T	Ethylbenzene	1.789	1.981	1.852	1.820	1.771	1.843	4.51
59)	T	Xylenes (m&p)	1.326	1.536	1.415	1.363	1.186	1.365	9.36
60)	T	Xylene (o)	1.445	1.623	1.468	1.461	1.451	1.490	5.05

Method Path : C:\msdchem\1\METHODS\
Method File : 231009.M

61)	T	Styrene	0.849	1.047	1.067	1.065	1.073	1.020	9.41
62)	T	Bromoform	0.629	0.724	0.745	0.767	0.797	0.732	8.70
63)	T	Cumene	1.783	2.168	1.955	1.932	1.897	1.947	7.18
64)	S	Bromofluorobenze...	0.801	0.842	0.870	0.891	0.954	0.872	6.54
65)	T	n-Propyl benzene	2.478	2.727	2.610	2.556	2.335	2.541	5.77
66)	T	1,1,2,2-Tetrachl...	0.959	1.120	1.040	1.040	1.055	1.043	5.50
67)	T	4-Ethyltoluene	2.059	2.245	2.204	2.174	2.073	2.151	3.80
68)	T	2-Chlorotoluene	1.626	1.829	1.701	1.690	1.690	1.707	4.35
69)	T	1,3,5-Trimethylb...	1.513	1.880	1.755	1.754	1.747	1.730	7.69
70)	T	1,2,4-Trimethylb...	1.441	1.880	1.785	1.775	1.764	1.729	9.68
71)	T	1,3-Dichlorobenzene	1.031	1.007	1.050	1.081	1.124	1.059	4.27
72)	T	1,4-Dichlorobenzene	0.943	1.005	1.082	1.123	1.174	1.065	8.65
73)	T	Benzyl chloride	1.159	1.435	1.619	1.688	1.742	1.529	15.48
74)	T	1,2-Dichlorobenzene	0.895	1.065	1.034	1.054	1.089	1.027	7.47
75)	T	1,3-Hexachlorobu...	0.731	0.778	0.703	0.687	0.664	0.713	6.17
76)	T	1,2,4-Trichlorob...	0.829	0.807	0.819	0.838	0.828	0.824	1.43
77)	T	Naphthalene	1.972	1.901	1.894	1.926	1.733	1.885	4.80

(#) = Out of Range

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4132std05.D
Acq On : 10 Oct 2023 10:40 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 15:08:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:03:48 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.380	130	335961	10.00	ppbV	-0.014
39) 1,4-Difluorobenzene (IS)	5.444	114	1366548	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1287551	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1031937	9.01	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.451	41	5709	0.25	ppbV	95
3) Dichlorodifluoromethane	1.499	85	13581	0.18	ppbV #	83
4) 1,2-Dichlorotetrafluor...	1.619	85	20971	0.19	ppbV	99
5) n-Butane	1.702	43	10916	0.20	ppbV #	85
6) Chloromethane	1.684	52	641	0.16	ppbV	65
7) Vinyl chloride	1.753	62	5046	0.16	ppbV #	50
8) 1,3-Butadiene	1.760	39	6239	0.22	ppbV	75
9) Bromomethane	2.059	94	3266	0.12	ppbV	66
10) Chloroethane	2.168	64	1724	0.10	ppbV	80
11) Vinyl bromide	2.261	106	3625	0.11	ppbV	95
12) Trichlorofluoromethane	2.287	101	19370	0.20	ppbV	97
13) Ethanol	2.654	45	1944	0.20	ppbV #	47
14) 1,1-Dichloroethene	2.708	61	9877	0.15	ppbV	99
15) Carbon disulfide	2.728	76	17305	0.16	ppbV	100
16) 1,1,2-Trichloro-1,2,2-...	2.750	101	20772	0.22	ppbV	98
17) Acrolein	2.969	56	2586	0.18	ppbV #	42
18) Allyl chloride	3.084	76	2500	0.14	ppbV	100
19) Isopropanol	3.094	45	9669	0.14	ppbV #	84
20) Methylene chloride	3.178	49	12526	0.34	ppbV	92
21) Acetone	3.194	43	10805	0.21	ppbV #	83
22) trans-1,2-Dichloroethene	3.306	61	10268	0.17	ppbV	100
23) n-Pentane	3.393	43	16132	0.20	ppbV	92
24) n-Hexane	3.380	57	23439	0.22	ppbV	95
25) Methyl tert-butyl ether	3.393	73	26157	0.20	ppbV	89
26) Tert-butyl alcohol	3.445	59	17620	0.20	ppbV	100
27) 1,1-Dichloroethane	3.792	63	15876	0.20	ppbV	91
28) cis-1,2-Dichloroethene	4.219	61	9833	0.17	ppbV	98
29) Cyclohexane	4.396	56	15483	0.21	ppbV	99
30) Chloroform	4.445	83	16203	0.17	ppbV	96
31) Ethyl acetate	4.535	61	2253	0.14	ppbV	88
32) Carbon tetrachloride	4.563	117	22109	0.20	ppbV	100
33) Tetrahydrofuran	4.570	42	10856	0.21	ppbV	87
34) 1,1,1-Trichloroethane	4.615	97	18169	0.19	ppbV	97
35) Methyl ethyl ketone	4.676	43	16932	0.20	ppbV	91
36) n-Heptane	4.911	43	19030	0.20	ppbV	92
37) Benzene	4.920	78	26320	0.19	ppbV	98
38) 1,2-Dichloroethane	5.078	62	9608	0.16	ppbV	97
40) Trichloroethene	5.428	130	10418	0.17	ppbV	93
41) 2,2,4-Trimethylpentane	4.827	57	35716	0.20	ppbV	97
42) 1,2-Dichloropropane	5.882	63	11430	0.21	ppbV	90
43) Bromodichloromethane	5.940	83	18430	0.20	ppbV	98
44) Methyl methacrylate	6.081	41	12606	0.19	ppbV	96
45) 1,4-Dioxane	6.116	88	6852	0.21	ppbV	97
46) cis-1,3-Dichloropropene	6.528	75	16642	0.20	ppbV	95
47) Toluene	6.766	91	36156	0.18	ppbV	100
48) Methyl isobutyl ketone	7.136	43	22603	0.18	ppbV	98
49) Tetrachloroethene	7.155	166	16259	0.19	ppbV	100
50) trans-1,3-Dichloropropene	7.174	75	13916	0.17	ppbV	98
51) 1,1,2-Trichloroethane	7.332	97	11763	0.17	ppbV	94

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4132std05.D
Acq On : 10 Oct 2023 10:40 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

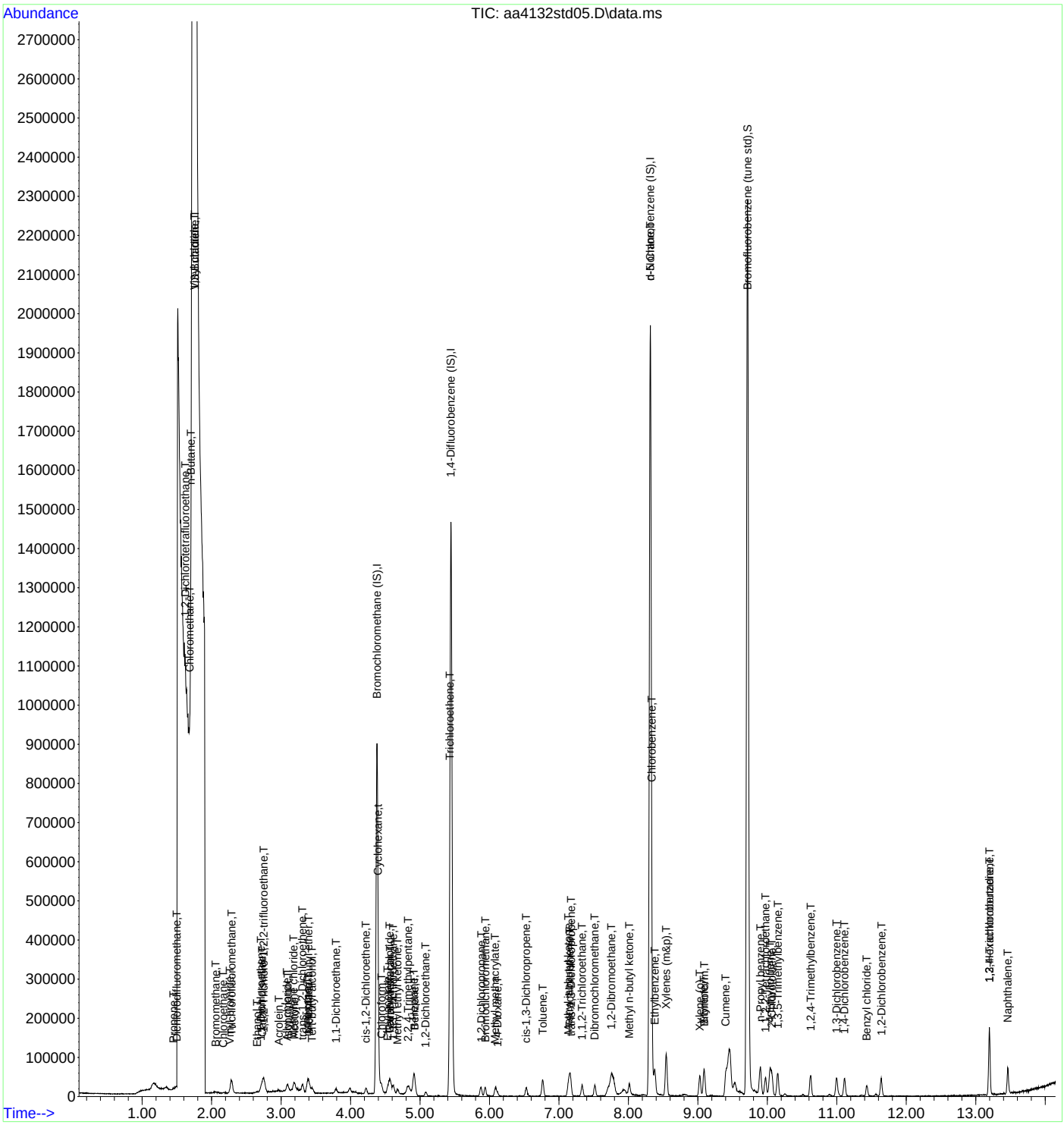
Quant Time: Oct 10 15:08:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:03:48 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.515	129	19465	0.17	ppbV		100
53)	1,2-Dibromoethane	7.753	107	15790	0.16	ppbV		99
54)	Methyl n-butyl ketone	8.014	43	21755	0.18	ppbV		91
56)	n-Nonane	8.316	43	26498	0.20	ppbV		95
57)	Chlorobenzene	8.335	112	27757	0.21	ppbV	#	47
58)	Ethylbenzene	8.380	91	51133	0.21	ppbV		99
59)	Xylenes (m&p)	8.544	91	76173	0.43	ppbV		98
60)	Xylene (o)	9.026	91	40935	0.21	ppbV		95
61)	Styrene	9.087	104	24712	0.18	ppbV		97
62)	Bromoform	9.094	173	18307	0.19	ppbV		99
63)	Cumene	9.399	105	49138	0.19	ppbV		100
65)	n-Propyl benzene	9.901	91	68920	0.21	ppbV		97
66)	1,1,2,2-Tetrachloroethane	9.975	83	28157	0.21	ppbV		96
67)	4-Ethyltoluene	10.039	105	57273	0.20	ppbV		99
68)	2-Chlorotoluene	10.065	91	45637	0.21	ppbV		98
69)	1,3,5-Trimethylbenzene	10.152	105	42479	0.18	ppbV		99
70)	1,2,4-Trimethylbenzene	10.624	105	40083	0.17	ppbV		96
71)	1,3-Dichlorobenzene	10.997	146	29481	0.21	ppbV		95
72)	1,4-Dichlorobenzene	11.110	146	25984	0.18	ppbV		99
73)	Benzyl chloride	11.428	91	29858	0.14	ppbV		95
74)	1,2-Dichlorobenzene	11.644	146	24649	0.18	ppbV		99
75)	1,3-Hexachlorobutadiene	13.197	225	20901	0.23	ppbV		99
76)	1,2,4-Trichlorobenzene	13.197	180	23485	0.22	ppbV		97
77)	Naphthalene	13.460	128	50770	0.21	ppbV		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4132std05.D
Acq On : 10 Oct 2023 10:40 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 15:08:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:03:48 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4133std04.D
Acq On : 10 Oct 2023 11:46 am
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 10 15:14:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.378	130	266219	10.00	ppbV	-0.016
39) 1,4-Difluorobenzene (IS)	5.445	114	1004403	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.313	117	1028709	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	866440	9.66	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.454	41	39983	2.16	ppbV	100
3) Dichlorodifluoromethane	1.496	85	111937	1.90	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.613	85	174894	2.04	ppbV	97
5) n-Butane	1.699	43	92630	2.18	ppbV	97
6) Chloromethane	1.767	52	6226	2.11	ppbV	99
7) Vinyl chloride	1.761	62	48102	1.99	ppbV	99
8) 1,3-Butadiene	1.764	39	46700	2.07	ppbV	98
9) Bromomethane	2.046	94	37014	1.90	ppbV	98
10) Chloroethane	2.172	64	25446	2.01	ppbV	97
11) Vinyl bromide	2.262	106	46443	1.95	ppbV	99
12) Trichlorofluoromethane	2.284	101	152810	2.05	ppbV	98
13) Ethanol	2.641	45	14500	1.86	ppbV	99
14) 1,1-Dichloroethene	2.706	61	82725	1.67	ppbV	100
15) Carbon disulfide	2.728	76	146663	1.80	ppbV	96
16) 1,1,2-Trichloro-1,2,2-...	2.747	101	175871	2.34	ppbV	99
17) Acrolein	2.963	56	17616	1.58	ppbV	96
18) Allyl chloride	3.091	76	24227	1.82	ppbV	100
19) Isopropanol	3.088	45	79453	1.49	ppbV	96
20) Methylene chloride	3.178	49	55923	1.71	ppbV	98
21) Acetone	3.188	43	70498	1.76	ppbV	98
22) trans-1,2-Dichloroethene	3.307	61	78613	1.71	ppbV	100
23) n-Pentane	3.390	43	132521	2.14	ppbV	97
24) n-Hexane	3.387	57	176979	2.11	ppbV	97
25) Methyl tert-butyl ether	3.390	73	242041	2.35	ppbV	92
26) Tert-butyl alcohol	3.442	59	154807	2.23	ppbV	100
27) 1,1-Dichloroethane	3.789	63	106902	1.73	ppbV	99
28) cis-1,2-Dichloroethene	4.217	61	78716	1.80	ppbV	98
29) Cyclohexane	4.397	56	133883	2.28	ppbV	98
30) Chloroform	4.439	83	134737	1.89	ppbV	98
31) Ethyl acetate	4.532	61	22449	1.94	ppbV	99
32) Carbon tetrachloride	4.561	117	183055	2.17	ppbV	99
33) Tetrahydrofuran	4.564	42	77218	1.93	ppbV	99
34) 1,1,1-Trichloroethane	4.612	97	159351	2.15	ppbV	97
35) Methyl ethyl ketone	4.670	43	121249	1.86	ppbV	100
36) n-Heptane	4.905	43	151248	2.06	ppbV	99
37) Benzene	4.921	78	216088	2.04	ppbV	99
38) 1,2-Dichloroethane	5.079	62	86250	1.95	ppbV	100
40) Trichloroethene	5.423	130	93973	2.11	ppbV	100
41) 2,2,4-Trimethylpentane	4.828	57	337914	2.58	ppbV	98
42) 1,2-Dichloropropane	5.873	63	89006	2.28	ppbV	98
43) Bromodichloromethane	5.937	83	157497	2.39	ppbV	99
44) Methyl methacrylate	6.082	41	102545	2.16	ppbV	96
45) 1,4-Dioxane	6.107	88	55879	2.33	ppbV	99
46) cis-1,3-Dichloropropene	6.529	75	132030	2.18	ppbV	98
47) Toluene	6.767	91	315155	2.23	ppbV	100
48) Methyl isobutyl ketone	7.133	43	201872	2.28	ppbV	98
49) Tetrachloroethene	7.152	166	137965	2.27	ppbV	99
50) trans-1,3-Dichloropropene	7.175	75	126648	2.16	ppbV	100
51) 1,1,2-Trichloroethane	7.336	97	103047	2.16	ppbV	99

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4133std04.D
Acq On : 10 Oct 2023 11:46 am
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

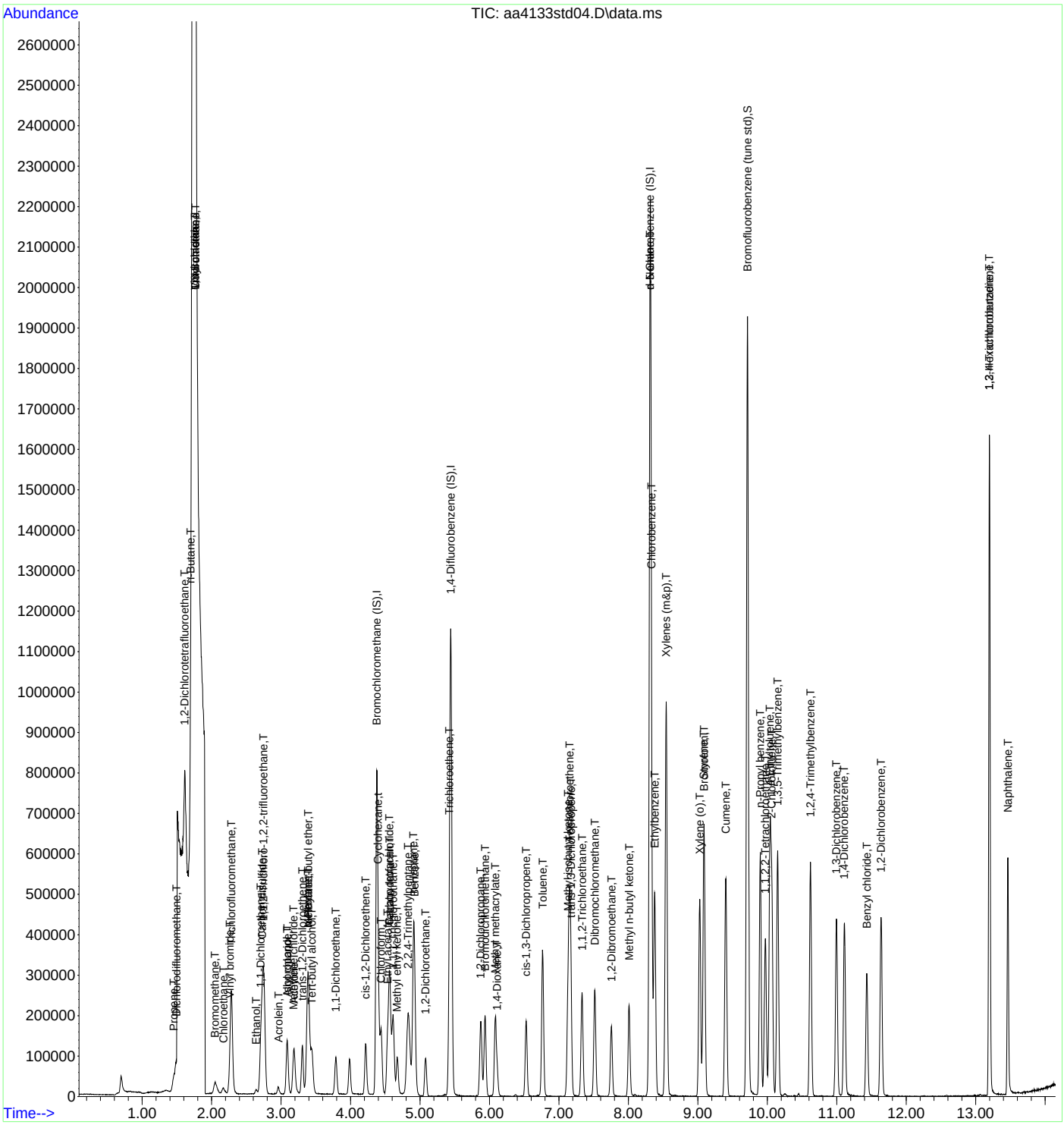
Quant Time: Oct 10 15:14:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.516	129	175087	2.20	ppbV	99
53)	1,2-Dibromoethane	7.757	107	145737	2.11	ppbV	99
54)	Methyl n-butyl ketone	8.011	43	176926	2.07	ppbV	99
56)	n-Nonane	8.313	43	243566	2.39	ppbV	99
57)	Chlorobenzene	8.332	112	239887	2.34	ppbV	96
58)	Ethylbenzene	8.381	91	452392	2.39	ppbV	99
59)	Xylenes (m&p)	8.545	91	704842	5.02	ppbV	98
60)	Xylene (o)	9.027	91	367407	2.40	ppbV	99
61)	Styrene	9.088	104	243368	2.32	ppbV	99
62)	Bromoform	9.091	173	168245	2.23	ppbV	100
63)	Cumene	9.403	105	477213	2.38	ppbV	99
65)	n-Propyl benzene	9.898	91	606010	2.32	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.972	83	262772	2.45	ppbV	100
67)	4-Ethyltoluene	10.037	105	498880	2.25	ppbV	98
68)	2-Chlorotoluene	10.062	91	410155	2.34	ppbV	99
69)	1,3,5-Trimethylbenzene	10.149	105	421510	2.37	ppbV	100
70)	1,2,4-Trimethylbenzene	10.622	105	417786	2.35	ppbV	99
71)	1,3-Dichlorobenzene	10.995	146	230016	2.11	ppbV	99
72)	1,4-Dichlorobenzene	11.107	146	221287	2.02	ppbV	99
73)	Benzyl chloride	11.432	91	295275	1.88	ppbV	98
74)	1,2-Dichlorobenzene	11.638	146	234385	2.22	ppbV	99
75)	1,3-Hexachlorobutadiene	13.197	225	177745	2.42	ppbV	99
76)	1,2,4-Trichlorobenzene	13.197	180	182140	2.15	ppbV	99
77)	Naphthalene	13.464	128	391079	2.02	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4133std04.D
Acq On : 10 Oct 2023 11:46 am
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 10 15:14:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4134std03.D
Acq On : 10 Oct 2023 12:21 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 10 15:20:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.394	130	393970	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.452	114	1695876	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1964329	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1708242	9.98	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.487	41	258254	9.44	ppbV	100
3) Dichlorodifluoromethane	1.523	85	905524	10.37	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.644	85	1136761	8.96	ppbV	100
5) n-Butane	1.730	43	657868	10.46	ppbV	100
6) Chloromethane	1.792	52	50221	11.51	ppbV	98
7) Vinyl chloride	1.781	62	385978	10.81	ppbV	100
8) 1,3-Butadiene	1.792	39	337213	10.11	ppbV	100
9) Bromomethane	2.082	94	295814	10.27	ppbV	100
10) Chloroethane	2.195	64	209472	11.19	ppbV	100
11) Vinyl bromide	2.288	106	363736	10.31	ppbV	100
12) Trichlorofluoromethane	2.310	101	1152906	10.45	ppbV	100
13) Ethanol	2.667	45	110171	9.55	ppbV	100
14) 1,1-Dichloroethene	2.728	61	796558	10.88	ppbV	100
15) Carbon disulfide	2.751	76	1360498	11.29	ppbV	100
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	1083429	9.75	ppbV	100
17) Acrolein	2.982	56	169981	10.33	ppbV	100
18) Allyl chloride	3.111	76	227552	11.52	ppbV	100
19) Isopropanol	3.108	45	729204	9.23	ppbV	100
20) Methylene chloride	3.204	49	433980	8.96	ppbV	100
21) Acetone	3.211	43	654299	11.01	ppbV	100
22) trans-1,2-Dichloroethene	3.326	61	780121	11.48	ppbV	100
23) n-Pentane	3.407	43	924569	10.09	ppbV	100
24) n-Hexane	3.403	57	1285851	10.35	ppbV	100
25) Methyl tert-butyl ether	3.410	73	1606753	10.53	ppbV	100
26) Tert-butyl alcohol	3.465	59	1133398	11.03	ppbV	100
27) 1,1-Dichloroethane	3.805	63	942517	10.30	ppbV	100
28) cis-1,2-Dichloroethene	4.230	61	719414	11.15	ppbV	99
29) Cyclohexane	4.413	56	918448	10.59	ppbV	100
30) Chloroform	4.455	83	1125163	10.67	ppbV	100
31) Ethyl acetate	4.538	61	191456	11.17	ppbV	100
32) Carbon tetrachloride	4.574	117	1320797	10.56	ppbV	100
33) Tetrahydrofuran	4.571	42	644824	10.88	ppbV	100
34) 1,1,1-Trichloroethane	4.625	97	1145085	10.46	ppbV	100
35) Methyl ethyl ketone	4.680	43	1033883	10.75	ppbV	100
36) n-Heptane	4.918	43	1246184	11.45	ppbV	100
37) Benzene	4.931	78	1617158	10.34	ppbV	100
38) 1,2-Dichloroethane	5.091	62	715639	10.92	ppbV	100
40) Trichloroethene	5.432	130	747440	9.96	ppbV	100
41) 2,2,4-Trimethylpentane	4.844	57	2224941	10.07	ppbV	100
42) 1,2-Dichloropropane	5.882	63	729348	11.06	ppbV	100
43) Bromodichloromethane	5.944	83	1277100	11.49	ppbV	100
44) Methyl methacrylate	6.088	41	926458	11.58	ppbV	100
45) 1,4-Dioxane	6.114	88	481882	11.92	ppbV	100
46) cis-1,3-Dichloropropene	6.532	75	1178257	11.52	ppbV	100
47) Toluene	6.770	91	2718261	11.40	ppbV	100
48) Methyl isobutyl ketone	7.133	43	1751107	11.69	ppbV	100
49) Tetrachloroethene	7.159	166	1202779	11.70	ppbV	100
50) trans-1,3-Dichloropropene	7.175	75	1191758	12.01	ppbV	100
51) 1,1,2-Trichloroethane	7.336	97	904123	11.23	ppbV	100

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4134std03.D
Acq On : 10 Oct 2023 12:21 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 10 15:20:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

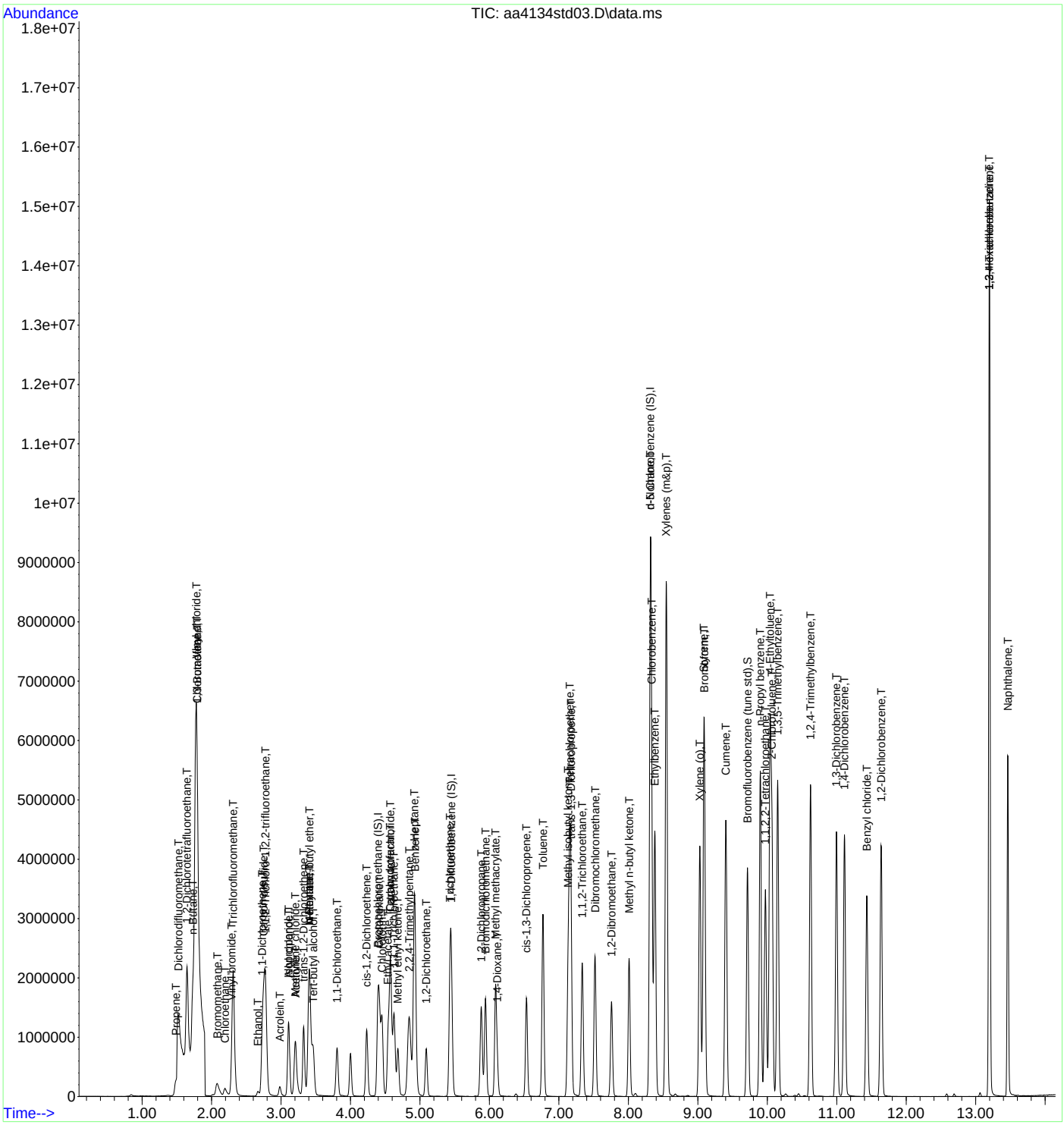
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.522	129	1584449	11.81	ppbV	100
53)	1,2-Dibromoethane	7.757	107	1340384	11.51	ppbV	100
54)	Methyl n-butyl ketone	8.011	43	1785511	12.39	ppbV	100
56)	n-Nonane	8.316	43	2220175	11.39	ppbV	100
57)	Chlorobenzene	8.336	112	2157593	11.02	ppbV	100
58)	Ethylbenzene	8.381	91	4038783	11.16	ppbV	100
59)	Xylenes (m&p)	8.545	91	6199781	23.12	ppbV	100
60)	Xylene (o)	9.027	91	3172411	10.84	ppbV	100
61)	Styrene	9.088	104	2368407	11.82	ppbV	100
62)	Bromoform	9.095	173	1652936	11.49	ppbV	100
63)	Cumene	9.403	105	4108750	10.74	ppbV	100
65)	n-Propyl benzene	9.898	91	5536013	11.09	ppbV	100
66)	1,1,2,2-Tetrachloroethane	9.972	83	2329432	11.37	ppbV	100
67)	4-Ethyltoluene	10.040	105	4675293	11.06	ppbV	100
68)	2-Chlorotoluene	10.066	91	3642460	10.86	ppbV	100
69)	1,3,5-Trimethylbenzene	10.149	105	3757367	11.06	ppbV	100
70)	1,2,4-Trimethylbenzene	10.622	105	3786813	11.15	ppbV	100
71)	1,3-Dichlorobenzene	10.995	146	2289894	11.01	ppbV	100
72)	1,4-Dichlorobenzene	11.111	146	2273891	10.87	ppbV	100
73)	Benzyl chloride	11.432	91	3179639	10.59	ppbV	100
74)	1,2-Dichlorobenzene	11.641	146	2172244	10.77	ppbV	100
75)	1,3-Hexachlorobutadiene	13.197	225	1532545	10.95	ppbV	100
76)	1,2,4-Trichlorobenzene	13.197	180	1768989	10.93	ppbV	100
77)	Naphthalene	13.464	128	3720647	10.05	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4134std03.D
Acq On : 10 Oct 2023 12:21 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 10 15:20:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4135std02.D
Acq On : 10 Oct 2023 12:55 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 10 15:20:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.397	130	363381	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.455	114	1661895	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1933627	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1722328	10.22	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.490	41	515568	20.44	ppbV	98
3) Dichlorodifluoromethane	1.530	85	1841081	22.86	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.650	85	2249237	19.23	ppbV	99
5) n-Butane	1.730	43	1305900	22.50	ppbV	99
6) Chloromethane	1.788	52	98143	24.39	ppbV	93
7) Vinyl chloride	1.781	62	772248	23.46	ppbV	100
8) 1,3-Butadiene	1.795	39	652429	21.21	ppbV	98
9) Bromomethane	2.085	94	591691	22.26	ppbV	98
10) Chloroethane	2.194	64	421571	24.42	ppbV	99
11) Vinyl bromide	2.294	106	747200	22.97	ppbV	100
12) Trichlorofluoromethane	2.313	101	2343589	23.04	ppbV	100
13) Ethanol	2.667	45	218329	20.52	ppbV	96
14) 1,1-Dichloroethene	2.735	61	1612191	23.88	ppbV	100
15) Carbon disulfide	2.754	76	2664558	23.98	ppbV	100
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	2148248	20.97	ppbV	100
17) Acrolein	2.989	56	325182	21.42	ppbV	99
18) Allyl chloride	3.111	76	456662	25.07	ppbV	100
19) Isopropanol	3.111	45	1457678	20.00	ppbV	99
20) Methylene chloride	3.204	49	879522	19.69	ppbV	98
21) Acetone	3.214	43	1252029	22.84	ppbV	99
22) trans-1,2-Dichloroethene	3.326	61	1573792	25.11	ppbV	99
23) n-Pentane	3.407	43	1811231	21.44	ppbV	99
24) n-Hexane	3.407	57	2518540	21.99	ppbV	100
25) Methyl tert-butyl ether	3.410	73	3154053	22.42	ppbV	100
26) Tert-butyl alcohol	3.464	59	2254575	23.80	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1901162	22.53	ppbV	99
28) cis-1,2-Dichloroethene	4.236	61	1445410	24.28	ppbV	99
29) Cyclohexane	4.413	56	1783891	22.29	ppbV	99
30) Chloroform	4.455	83	2301846	23.67	ppbV	99
31) Ethyl acetate	4.542	61	386835	24.46	ppbV	99
32) Carbon tetrachloride	4.577	117	2607121	22.61	ppbV	100
33) Tetrahydrofuran	4.574	42	1283380	23.48	ppbV	99
34) 1,1,1-Trichloroethane	4.625	97	2272798	22.50	ppbV	99
35) Methyl ethyl ketone	4.683	43	2094715	23.60	ppbV	100
36) n-Heptane	4.918	43	2363613	23.53	ppbV	100
37) Benzene	4.934	78	3240471	22.45	ppbV	100
38) 1,2-Dichloroethane	5.091	62	1451918	24.03	ppbV	100
40) Trichloroethene	5.432	130	1508747	20.52	ppbV	98
41) 2,2,4-Trimethylpentane	4.841	57	4438426	20.50	ppbV	100
42) 1,2-Dichloropropane	5.886	63	1448431	22.41	ppbV	99
43) Bromodichloromethane	5.943	83	2592041	23.80	ppbV	99
44) Methyl methacrylate	6.088	41	1821528	23.23	ppbV	99
45) 1,4-Dioxane	6.114	88	966504	24.40	ppbV	99
46) cis-1,3-Dichloropropene	6.535	75	2338061	23.33	ppbV	100
47) Toluene	6.773	91	5305706	22.72	ppbV	100
48) Methyl isobutyl ketone	7.133	43	3350206	22.82	ppbV	99
49) Tetrachloroethene	7.162	166	2379736	23.63	ppbV	100
50) trans-1,3-Dichloropropene	7.175	75	2387243	24.55	ppbV	98
51) 1,1,2-Trichloroethane	7.339	97	1817644	23.04	ppbV	100

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4135std02.D
Acq On : 10 Oct 2023 12:55 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 5 Sample Multiplier: 1

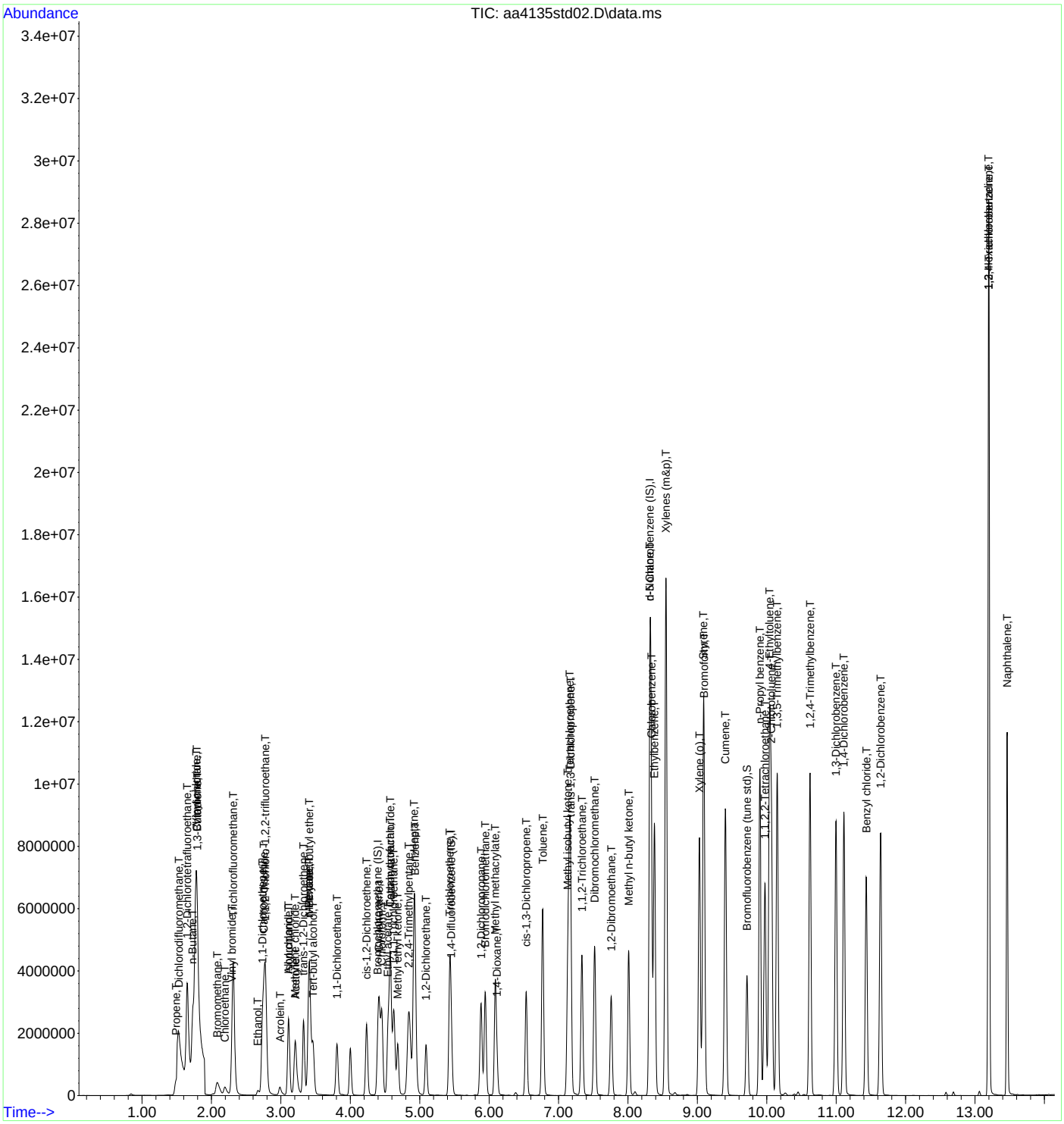
Quant Time: Oct 10 15:20:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.522	129	3189477	24.27	ppbV	99
53)	1,2-Dibromoethane	7.760	107	2695314	23.62	ppbV	100
54)	Methyl n-butyl ketone	8.011	43	3500354	24.80	ppbV	100
56)	n-Nonane	8.316	43	4196367	21.87	ppbV	99
57)	Chlorobenzene	8.339	112	4231170	21.95	ppbV	100
58)	Ethylbenzene	8.381	91	7813775	21.93	ppbV	99
59)	Xylenes (m&p)	8.548	91	11753861	44.52	ppbV	98
60)	Xylene (o)	9.030	91	6215156	21.57	ppbV	100
61)	Styrene	9.088	104	4654583	23.60	ppbV	99
62)	Bromoform	9.098	173	3352006	23.67	ppbV	99
63)	Cumene	9.403	105	7994834	21.23	ppbV	99
65)	n-Propyl benzene	9.901	91	10677156	21.73	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.975	83	4583433	22.73	ppbV	99
67)	4-Ethyltoluene	10.040	105	9079626	21.83	ppbV	99
68)	2-Chlorotoluene	10.065	91	7122967	21.58	ppbV	99
69)	1,3,5-Trimethylbenzene	10.149	105	7395052	22.11	ppbV	99
70)	1,2,4-Trimethylbenzene	10.625	105	7412335	22.17	ppbV	99
71)	1,3-Dichlorobenzene	10.998	146	4641497	22.67	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	4645158	22.55	ppbV	100
73)	Benzyl chloride	11.435	91	6527364	22.08	ppbV	99
74)	1,2-Dichlorobenzene	11.641	146	4361556	21.96	ppbV	99
75)	1,3-Hexachlorobutadiene	13.197	225	2950129	21.41	ppbV	100
76)	1,2,4-Trichlorobenzene	13.200	180	3565503	22.37	ppbV	99
77)	Naphthalene	13.464	128	7448434	20.44	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4135std02.D
Acq On : 10 Oct 2023 12:55 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 10 15:20:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4136std01.D
Acq On : 10 Oct 2023 2:05 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 10 15:21:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.400	130	356266	10.00	ppbV		0.000
39) 1,4-Difluorobenzene (IS)	5.458	114	1769398	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1970985	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.718	95	1881267	10.95	ppbV		0.000
Target Compounds							Qvalue
2) Propene	1.493	41	1166461	47.16	ppbV		99
3) Dichlorodifluoromethane	1.530	85	3976819	50.37	ppbV		100
4) 1,2-Dichlorotetrafluor...	1.654	85	4829984	42.11	ppbV		100
5) n-Butane	1.733	43	2669458	46.92	ppbV		100
6) Chloromethane	1.798	52	218685	55.44	ppbV	#	1
7) Vinyl chloride	1.788	62	1703493	52.78	ppbV		100
8) 1,3-Butadiene	1.798	39	1380202	45.78	ppbV		97
9) Bromomethane	2.088	94	1297810	49.81	ppbV		98
10) Chloroethane	2.197	64	957066	56.55	ppbV		99
11) Vinyl bromide	2.294	106	1649730	51.72	ppbV		99
12) Trichlorofluoromethane	2.316	101	4982088	49.96	ppbV		100
13) Ethanol	2.670	45	542733	52.03	ppbV		98
14) 1,1-Dichloroethene	2.734	61	3420744	51.68	ppbV		100
15) Carbon disulfide	2.757	76	5570013	51.13	ppbV		99
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	4651123	46.31	ppbV		99
17) Acrolein	2.991	56	704002	47.31	ppbV		100
18) Allyl chloride	3.114	76	960536	53.78	ppbV		100
19) Isopropanol	3.114	45	3040718	42.56	ppbV		99
20) Methylene chloride	3.204	49	2011731	45.94	ppbV		99
21) Acetone	3.217	43	2606931	48.51	ppbV		99
22) trans-1,2-Dichloroethene	3.329	61	3449388	56.15	ppbV		99
23) n-Pentane	3.409	43	4025985	48.61	ppbV		99
24) n-Hexane	3.409	57	5589811	49.78	ppbV		100
25) Methyl tert-butyl ether	3.409	73	6879864	49.87	ppbV		99
26) Tert-butyl alcohol	3.464	59	4961423	53.42	ppbV		100
27) 1,1-Dichloroethane	3.811	63	4139076	50.03	ppbV		98
28) cis-1,2-Dichloroethene	4.236	61	3134852	53.71	ppbV		99
29) Cyclohexane	4.416	56	3885234	49.53	ppbV		100
30) Chloroform	4.454	83	4963958	52.07	ppbV		99
31) Ethyl acetate	4.541	61	819660	52.86	ppbV		99
32) Carbon tetrachloride	4.580	117	5580598	49.35	ppbV		99
33) Tetrahydrofuran	4.573	42	2658620	49.61	ppbV		98
34) 1,1,1-Trichloroethane	4.628	97	4872977	49.20	ppbV		99
35) Methyl ethyl ketone	4.686	43	4486611	51.57	ppbV		99
36) n-Heptane	4.921	43	4632338	47.05	ppbV		99
37) Benzene	4.933	78	6993711	49.43	ppbV		100
38) 1,2-Dichloroethane	5.094	62	3131902	52.87	ppbV		100
40) Trichloroethene	5.435	130	3316781	42.37	ppbV		99
41) 2,2,4-Trimethylpentane	4.843	57	9712768	42.14	ppbV		98
42) 1,2-Dichloropropane	5.885	63	3027090	43.98	ppbV		99
43) Bromodichloromethane	5.946	83	5494302	47.39	ppbV		99
44) Methyl methacrylate	6.088	41	3747387	44.88	ppbV		99
45) 1,4-Dioxane	6.114	88	2055391	48.74	ppbV		98
46) cis-1,3-Dichloropropene	6.535	75	4834720	45.30	ppbV		99
47) Toluene	6.773	91	10605745	42.65	ppbV		98
48) Methyl isobutyl ketone	7.133	43	6661468	42.63	ppbV		99
49) Tetrachloroethene	7.162	166	4858576	45.31	ppbV		99
50) trans-1,3-Dichloropropene	7.178	75	4856047	46.91	ppbV		100
51) 1,1,2-Trichloroethane	7.339	97	3819106	45.48	ppbV		100

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4136std01.D
Acq On : 10 Oct 2023 2:05 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 6 Sample Multiplier: 1

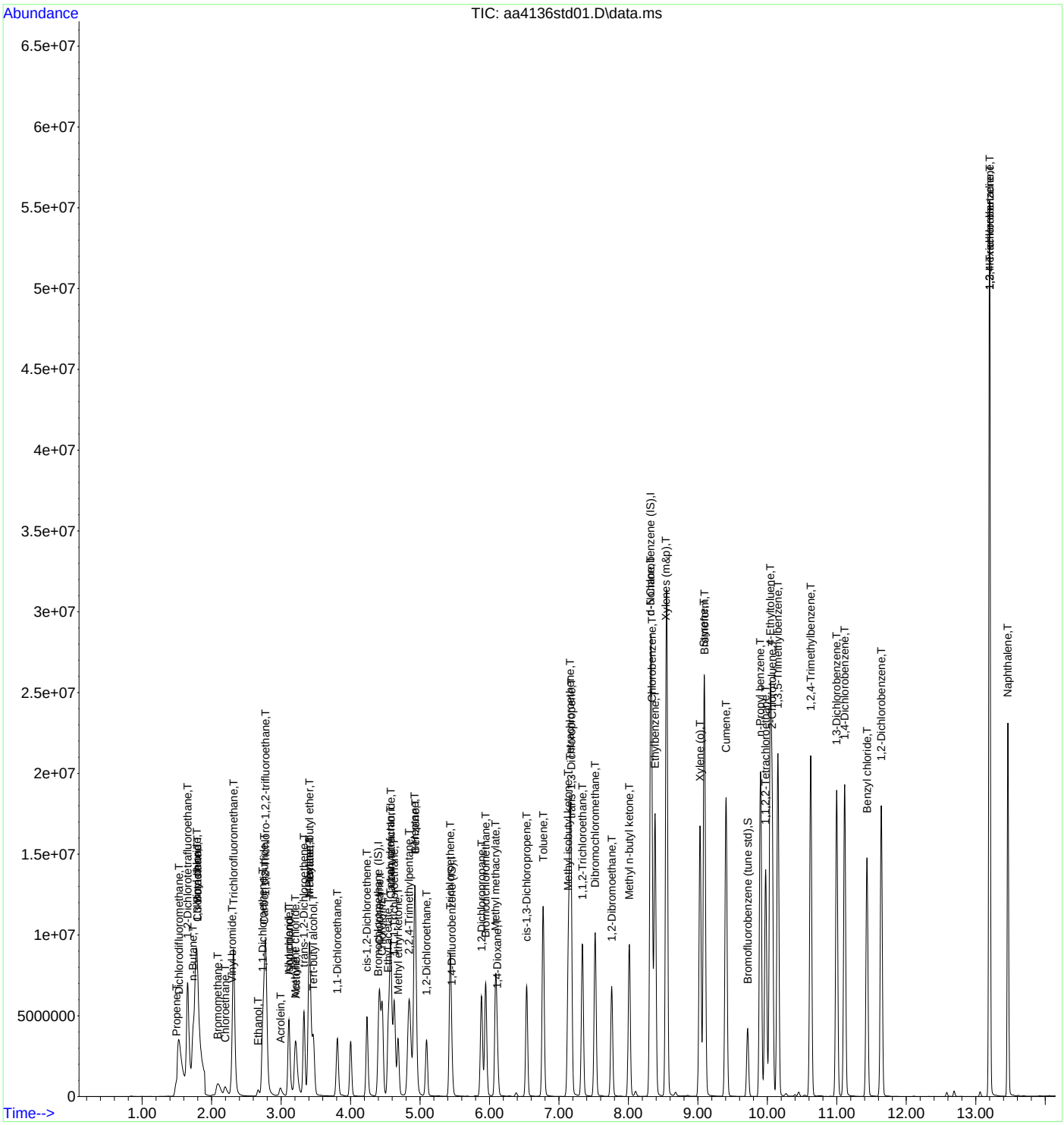
Quant Time: Oct 10 15:21:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.522	129	6730612	48.10	ppbV		99
53)	1,2-Dibromoethane	7.760	107	5679586	46.76	ppbV		100
54)	Methyl n-butyl ketone	8.011	43	7194438	47.87	ppbV		98
56)	n-Nonane	8.319	43	8278410	42.32	ppbV		98
57)	Chlorobenzene	8.338	112	8642594	43.99	ppbV		100
58)	Ethylbenzene	8.384	91	15502498	42.68	ppbV		96
59)	Xylenes (m&p)	8.541	91	20852616	77.48	ppbV		89
60)	Xylene (o)	9.030	91	12586480	42.86	ppbV		98
61)	Styrene	9.088	104	9555594	47.52	ppbV		98
62)	Bromoform	9.097	173	7098495	49.18	ppbV		99
63)	Cumene	9.406	105	16006588	41.71	ppbV		96
65)	n-Propyl benzene	9.898	91	19885132	39.70	ppbV		93
66)	1,1,2,2-Tetrachloroethane	9.975	83	9484025	46.14	ppbV		99
67)	4-Ethyltoluene	10.043	105	17650930	41.63	ppbV		95
68)	2-Chlorotoluene	10.068	91	14525182	43.17	ppbV		97
69)	1,3,5-Trimethylbenzene	10.152	105	15012049	44.03	ppbV		96
70)	1,2,4-Trimethylbenzene	10.625	105	15021608	44.08	ppbV		97
71)	1,3-Dichlorobenzene	10.998	146	9832383	47.12	ppbV		99
72)	1,4-Dichlorobenzene	11.113	146	9906545	47.18	ppbV		99
73)	Benzyl chloride	11.435	91	13735706	45.59	ppbV		96
74)	1,2-Dichlorobenzene	11.641	146	9184158	45.37	ppbV		98
75)	1,3-Hexachlorobutadiene	13.200	225	5812342	41.37	ppbV		99
76)	1,2,4-Trichlorobenzene	13.200	180	7183784	44.22	ppbV		99
77)	Naphthalene	13.460	128	13659104	36.76	ppbV	#	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4136std01.D
Acq On : 10 Oct 2023 2:05 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 10 15:21:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA3407ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 8/15/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STANDARD STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Acetone	67-64-1	11	10	95	
Acrolein	107-02-8	9.4	10.0	110	
Allyl Chloride	107-05-1	11	11	99	
Benzene	71-43-2	10	9.7	93	
Benzyl chloride	100-44-7	11	11	100	
Bromodichloromethane	75-27-4	11	11	100	
Bromoform	75-25-2	11	11	96	
Bromomethane	74-83-9	11	10	92	
1,3-Butadiene	106-99-0	11	10	92	
n-Butane	106-97-8	11	11	100	
Chlorobenzene	108-90-7	10	11	110	
Chloroethane	75-00-3	9.8	11	110	
Chloroform	67-66-3	11	10	92	
Chloromethane	74-87-3	9.9	12	120	
Carbon disulfide	75-15-0	10	11	110	
Carbon tetrachloride	56-23-5	11	9.7	91	
2-Chlorotoluene	95-49-8	11	10	91	
Cumene	98-82-8	10	10	99	
Cyclohexane	110-82-7	11	9.7	89	
Dibromochloromethane	124-48-1	11	11	100	
1,2-Dibromoethane	106-93-4	11	11	100	
1,2-Dichlorobenzene	95-50-1	10	10	97	
1,3-Dichlorobenzene	541-73-1	10	10	96	
1,4-Dichlorobenzene	106-46-7	10	11	110	
Dichlorodifluoromethane	75-71-8	11	10	92	
1,1-Dichloroethane	75-34-3	11	9.7	92	
1,2-Dichloroethane	107-06-2	11	10	95	
1,1-Dichloroethene	75-35-4	11	11	100	
1,2-Dichloroethene (cis)	156-59-2	10	11	110	
1,2-Dichloroethene (trans)	156-60-5	11	11	100	
1,2-Dichloropropane	78-87-5	11	10.0	95	
1,3-Dichloropropene (cis)	10061-01-5	9.9	11	110	
1,3-Dichloropropene (trans)	10061-02-6	11	11	100	
1,2-Dichlorotetrafluoroethane	76-14-2	11	8.6	77	
1,4-Dioxane	123-91-1	11	11	98	
Ethanol	64-17-5	9.8	8.5	87	
Ethyl acetate	141-78-6	10	9.9	96	
Ethylbenzene	100-41-4	10	11	110	
4-Ethyltoluene	622-96-8	11	11	100	
n-Heptane	142-82-5	11	10	92	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA3407ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 8/15/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STANDARD STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
1,3-Hexachlorobutadiene	87-68-3	9.8	9.8	100	
n-Hexane	110-54-3	11	9.7	90	
Isopropanol	67-63-0	8.1	8.8	110	
Methylene chloride	75-09-2	11	9.1	85	
Methyl ethyl ketone	78-93-3	11	10	92	
Methyl isobutyl ketone	108-10-1	10	11	110	
Methyl methacrylate	80-62-6	11	11	100	
Methyl n-butyl ketone	591-78-6	11	12	110	
Methyl tert-butyl ether	1634-04-4	11	9.9	91	
Naphthalene	91-20-3	11	10	93	
n-Nonane	111-84-2	11	10	89	
n-Pentane	109-66-0	11	9.1	82	
Propene	115-07-1	11	10	91	
n-Propyl benzene	103-65-1	11	11	100	
Styrene	100-42-5	11	12	110	
Tert-butyl alcohol	75-65-0	12	10	87	
1,1,2,2-Tetrachloroethane	79-34-5	10	10	97	
Tetrachloroethene	127-18-4	12	11	93	
Tetrahydrofuran	109-99-9	11	10	93	
Toluene	108-88-3	11	11	100	
1,2,4-Trichlorobenzene	120-82-1	10	10	100	
1,1,1-Trichloroethane	71-55-6	11	9.4	88	
1,1,2-Trichloroethane	79-00-5	11	10	93	
Trichloroethene	79-01-6	10	9.5	93	
Trichlorofluoromethane	75-69-4	11	10	94	
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	9.1	83	
1,2,4-Trimethylbenzene	95-63-6	10	11	100	
1,3,5-Trimethylbenzene	108-67-8	10	11	110	
2,2,4-Trimethylpentane	540-84-1	11	10	92	
Vinyl bromide	593-60-2	10	10	100	
Vinyl chloride	75-01-4	11	11	97	
Xylenes (m&p)	179601-23-1	21	22	110	
Xylenes (o)	95-47-6	10	11	110	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3407icvss.D
Acq On : 15 Aug 2023 6:09 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 10:02:33 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.396	130	614925	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2660514	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	3151139	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2639252	10.07	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	437009	10.32	ppbV	100
3) Dichlorodifluoromethane	1.526	85	1589571	10.23	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.646	85	1915451	8.57	ppbV	100
5) n-Butane	1.729	43	1085164	10.79	ppbV	99
6) Chloromethane	1.791	52	84692	11.77	ppbV	91
7) Vinyl chloride	1.780	62	624265	10.68	ppbV	99
8) 1,3-Butadiene	1.794	39	615975	10.31	ppbV	99
9) Bromomethane	2.084	94	497818	10.14	ppbV	99
10) Chloroethane	2.197	64	339826	10.69	ppbV	99
11) Vinyl bromide	2.293	106	630457	10.21	ppbV	100
12) Trichlorofluoromethane	2.312	101	2122221	10.15	ppbV	100
13) Ethanol	2.669	45	210384	8.55	ppbV	99
14) 1,1-Dichloroethene	2.734	61	1353018	10.54	ppbV	100
15) Carbon disulfide	2.753	76	2291667	10.87	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	1880237	9.10	ppbV	99
17) Acrolein	2.984	56	263590	9.98	ppbV	99
18) Allyl chloride	3.113	76	378917	11.01	ppbV	100
19) Isopropanol	3.113	45	1247145	8.77	ppbV	99
20) Methylene chloride	3.203	49	707555	9.12	ppbV	99
21) Acetone	3.213	43	1199665	10.40	ppbV	99
22) trans-1,2-Dichloroethene	3.329	61	1279551	11.07	ppbV	99
23) n-Pentane	3.409	43	1345011	9.12	ppbV	99
24) n-Hexane	3.409	57	2003979	9.73	ppbV	100
25) Methyl tert-butyl ether	3.412	73	2769119	9.89	ppbV	99
26) Tert-butyl alcohol	3.464	59	1862648	10.34	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1576537	9.72	ppbV	100
28) cis-1,2-Dichloroethene	4.235	61	1186018	10.57	ppbV	99
29) Cyclohexane	4.415	56	1446092	9.72	ppbV	99
30) Chloroform	4.454	83	2014411	10.15	ppbV	99
31) Ethyl acetate	4.541	61	312517	9.89	ppbV	100
32) Carbon tetrachloride	4.576	117	2310805	9.71	ppbV	100
33) Tetrahydrofuran	4.576	42	1135151	10.18	ppbV	99
34) 1,1,1-Trichloroethane	4.631	97	2017204	9.42	ppbV	100
35) Methyl ethyl ketone	4.685	43	1824867	10.25	ppbV	99
36) n-Heptane	4.917	43	2119295	10.29	ppbV	99
37) Benzene	4.933	78	2760579	9.73	ppbV	100
38) 1,2-Dichloroethane	5.094	62	1306989	10.28	ppbV	99
40) Trichloroethene	5.435	130	1277643	9.46	ppbV	100
41) 2,2,4-Trimethylpentane	4.846	57	3384494	10.04	ppbV	100
42) 1,2-Dichloropropane	5.881	63	1210091	9.97	ppbV	99
43) Bromodichloromethane	5.946	83	2297408	10.86	ppbV	100
44) Methyl methacrylate	6.087	41	1707517	10.94	ppbV	100
45) 1,4-Dioxane	6.113	88	839393	11.21	ppbV	99
46) cis-1,3-Dichloropropene	6.534	75	2028992	10.81	ppbV	99
47) Toluene	6.772	91	4536523	10.63	ppbV	99
48) Methyl isobutyl ketone	7.135	43	3266617	10.60	ppbV	100
49) Tetrachloroethene	7.161	166	2057579	10.73	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	2121255	11.47	ppbV	99
51) 1,1,2-Trichloroethane	7.338	97	1545574	10.28	ppbV	100

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3407icvss.D
Acq On : 15 Aug 2023 6:09 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 10:02:33 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

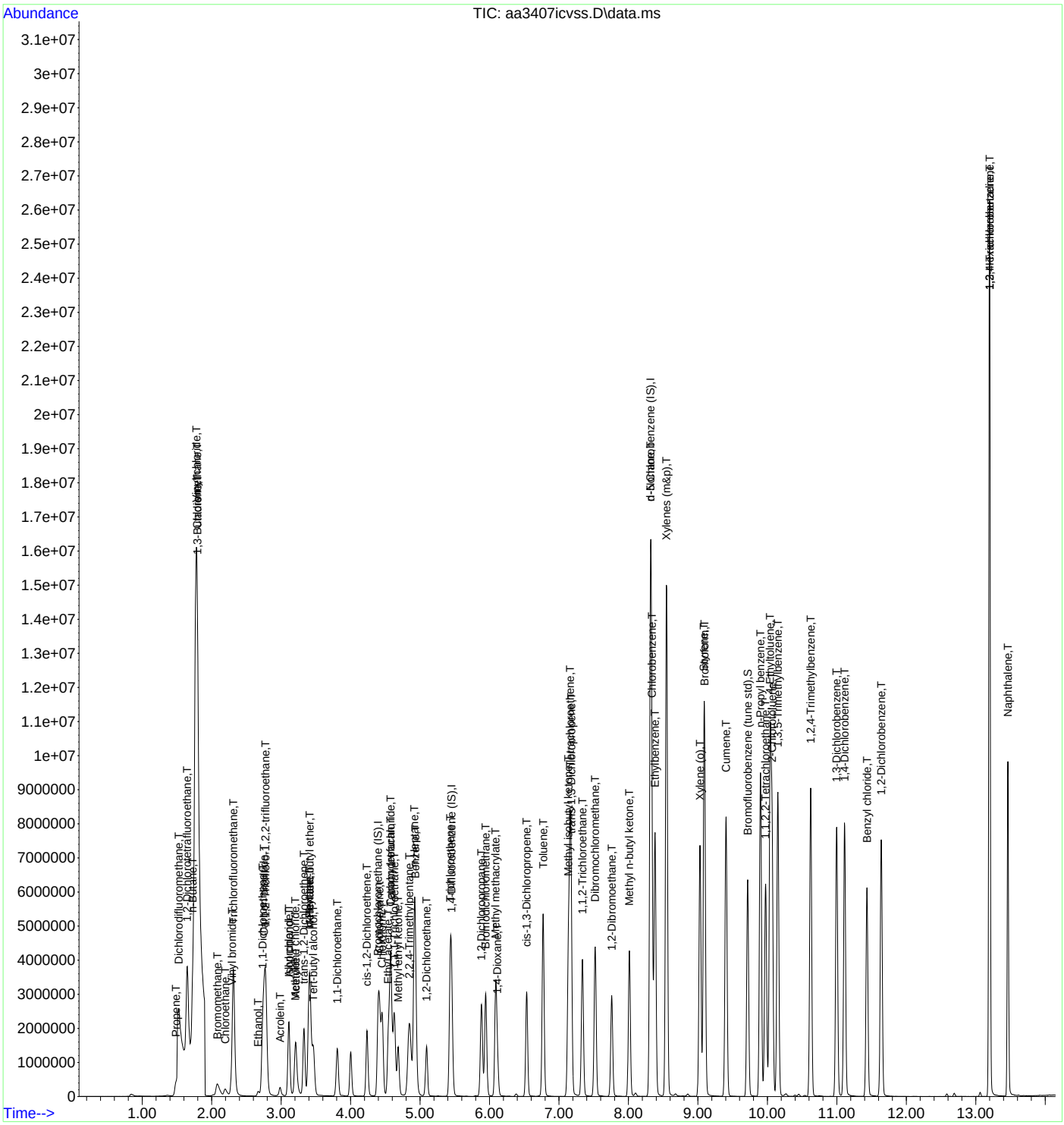
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2775633	11.06	ppbV	100
53)	1,2-Dibromoethane	7.759	107	2393720	10.88	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	3342265	11.58	ppbV	99
56)	n-Nonane	8.319	43	3980940	10.32	ppbV	99
57)	Chlorobenzene	8.338	112	3631305	10.52	ppbV	99
58)	Ethylbenzene	8.383	91	6749535	10.58	ppbV	99
59)	Xylenes (m&p)	8.547	91	10243811	22.27	ppbV	100
60)	Xylene (o)	9.029	91	5367160	10.51	ppbV	100
61)	Styrene	9.087	104	3897707	11.50	ppbV	99
62)	Bromoform	9.097	173	2909911	11.11	ppbV	100
63)	Cumene	9.405	105	6858593	10.31	ppbV	100
65)	n-Propyl benzene	9.901	91	9335682	10.76	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.975	83	4046668	10.45	ppbV	100
67)	4-Ethyltoluene	10.039	105	7675301	10.73	ppbV	100
68)	2-Chlorotoluene	10.068	91	6134373	10.42	ppbV	100
69)	1,3,5-Trimethylbenzene	10.151	105	6150320	10.63	ppbV	100
70)	1,2,4-Trimethylbenzene	10.624	105	6292442	10.96	ppbV	100
71)	1,3-Dichlorobenzene	10.997	146	3955353	10.39	ppbV	100
72)	1,4-Dichlorobenzene	11.113	146	3900278	10.66	ppbV	99
73)	Benzyl chloride	11.434	91	5411364	10.79	ppbV	100
74)	1,2-Dichlorobenzene	11.640	146	3729037	10.35	ppbV	100
75)	1,3-Hexachlorobutadiene	13.200	225	2519603	9.76	ppbV	99
76)	1,2,4-Trichlorobenzene	13.200	180	2920155	10.31	ppbV	100
77)	Naphthalene	13.463	128	6029829	10.31	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3407icvss.D
Acq On : 15 Aug 2023 6:09 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 10:02:33 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA4137ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 10/10/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48
10 PPBV LCS [AA4138LCS]	10/10/2023 17:39
METHOD BLANK [AA4139BLK]	10/10/2023 18:07
02 PPBV RLLCS [AA4140RLLCS]	10/10/2023 18:35
10 PPBV CCCVS [AA4154CCCVS]	10/11/2023 1:53

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Acetone	67-64-1	11	10	95	
Acrolein	107-02-8	9.4	9.5	100	
Allyl Chloride	107-05-1	11	11	99	
Benzene	71-43-2	10	9.7	93	
Benzyl chloride	100-44-7	11	10	93	
Bromodichloromethane	75-27-4	11	11	100	
Bromoform	75-25-2	11	11	96	
Bromomethane	74-83-9	11	10	92	
1,3-Butadiene	106-99-0	11	10	92	
n-Butane	106-97-8	11	10	94	
Chlorobenzene	108-90-7	10	10	96	
Chloroethane	75-00-3	9.8	11	110	
Chloroform	67-66-3	11	9.9	91	
Chloromethane	74-87-3	9.9	11	110	
Carbon disulfide	75-15-0	10	11	110	
Carbon tetrachloride	56-23-5	11	10	93	
2-Chlorotoluene	95-49-8	11	10	91	
Cumene	98-82-8	10	10	99	
Cyclohexane	110-82-7	11	10	92	
Dibromochloromethane	124-48-1	11	12	110	
1,2-Dibromoethane	106-93-4	11	11	100	
1,2-Dichlorobenzene	95-50-1	10	10.0	97	
1,3-Dichlorobenzene	541-73-1	10	10	96	
1,4-Dichlorobenzene	106-46-7	10	10.0	97	
Dichlorodifluoromethane	75-71-8	11	10	92	
1,1-Dichloroethane	75-34-3	11	9.4	90	
1,2-Dichloroethane	107-06-2	11	10	95	
1,1-Dichloroethene	75-35-4	11	10.0	93	
1,2-Dichloroethene (cis)	156-59-2	10	10	97	
1,2-Dichloroethene (trans)	156-60-5	11	11	100	
1,2-Dichloropropane	78-87-5	11	10	95	
1,3-Dichloropropene (cis)	10061-01-5	9.9	11	110	
1,3-Dichloropropene (trans)	10061-02-6	11	11	100	
1,2-Dichlorotetrafluoroethane	76-14-2	11	9.0	80	
1,4-Dioxane	123-91-1	11	11	98	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA4137ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 10/10/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48
10 PPBV LCS [AA4138LCS]	10/10/2023 17:39
METHOD BLANK [AA4139BLK]	10/10/2023 18:07
02 PPBV RLLCS [AA4140RLLCS]	10/10/2023 18:35
10 PPBV CCCVS [AA4154CCCVS]	10/11/2023 1:53

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Ethanol	64-17-5	9.8	7.0	71	
Ethyl acetate	141-78-6	10	11	110	
Ethylbenzene	100-41-4	10	10	96	
4-Ethyltoluene	622-96-8	11	11	100	
n-Heptane	142-82-5	11	11	100	
1,3-Hexachlorobutadiene	87-68-3	9.8	9.8	100	
n-Hexane	110-54-3	11	10	93	
Isopropanol	67-63-0	8.1	8.4	100	
Methylene chloride	75-09-2	11	8.1	76	
Methyl ethyl ketone	78-93-3	11	10.0	92	
Methyl isobutyl ketone	108-10-1	10	11	110	
Methyl methacrylate	80-62-6	11	11	100	
Methyl n-butyl ketone	591-78-6	11	11	99	
Methyl tert-butyl ether	1634-04-4	11	10	92	
Naphthalene	91-20-3	11	9.7	91	
n-Nonane	111-84-2	11	11	97	
n-Pentane	109-66-0	11	9.7	87	
Propene	115-07-1	11	9.2	84	
n-Propyl benzene	103-65-1	11	11	100	
Styrene	100-42-5	11	11	100	
Tert-butyl alcohol	75-65-0	12	11	96	
1,1,2,2-Tetrachloroethane	79-34-5	10	11	110	
Tetrachloroethene	127-18-4	12	11	93	
Tetrahydrofuran	109-99-9	11	10	93	
Toluene	108-88-3	11	11	100	
1,2,4-Trichlorobenzene	120-82-1	10	9.7	97	
1,1,1-Trichloroethane	71-55-6	11	10.0	93	
1,1,2-Trichloroethane	79-00-5	11	11	100	
Trichloroethene	79-01-6	10	9.2	90	
Trichlorofluoromethane	75-69-4	11	10	94	
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	9.3	85	
1,2,4-Trimethylbenzene	95-63-6	10	10	100	
1,3,5-Trimethylbenzene	108-67-8	10	10	96	
2,2,4-Trimethylpentane	540-84-1	11	9.6	88	
Vinyl bromide	593-60-2	10	10	100	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: **10 PPBV ICVSS** **Data File:** **AA4137ICVSS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **10/10/2023**

Amount of standard injected (ml): **50**

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48
10 PPBV LCS [AA4138LCS]	10/10/2023 17:39
METHOD BLANK [AA4139BLK]	10/10/2023 18:07
02 PPBV RLLCS [AA4140RLLCS]	10/10/2023 18:35
10 PPBV CCCVS [AA4154CCCVS]	10/11/2023 1:53

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Vinyl chloride	75-01-4	11	11	97	
Xylenes (m&p)	179601-23-1	21	22	110	
Xylenes (o)	95-47-6	10	10	96	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4137icvss.D
Acq On : 10 Oct 2023 4:48 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 11 12:34:17 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.394	130	450439	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	1936760	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2279414	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1999577	10.06	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.487	41	289233	9.25	ppbV	98
3) Dichlorodifluoromethane	1.527	85	1032587	10.34	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.647	85	1304952	9.00	ppbV	100
5) n-Butane	1.730	43	750417	10.43	ppbV	99
6) Chloromethane	1.792	52	54388	10.90	ppbV	98
7) Vinyl chloride	1.781	62	431150	10.57	ppbV	99
8) 1,3-Butadiene	1.795	39	382252	10.03	ppbV	97
9) Bromomethane	2.079	94	336675	10.22	ppbV	97
10) Chloroethane	2.191	64	232639	10.87	ppbV	99
11) Vinyl bromide	2.291	106	412014	10.22	ppbV	100
12) Trichlorofluoromethane	2.313	101	1310652	10.39	ppbV	99
13) Ethanol	2.664	45	92719	7.03	ppbV	99
14) 1,1-Dichloroethene	2.731	61	835358	9.98	ppbV	99
15) Carbon disulfide	2.751	76	1485573	10.79	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.773	101	1177177	9.27	ppbV	100
17) Acrolein	2.985	56	178709	9.50	ppbV	99
18) Allyl chloride	3.111	76	250470	11.09	ppbV	100
19) Isopropanol	3.111	45	759040	8.40	ppbV	100
20) Methylene chloride	3.204	49	449695	8.12	ppbV	99
21) Acetone	3.210	43	693658	10.21	ppbV	98
22) trans-1,2-Dichloroethene	3.329	61	849185	10.93	ppbV	100
23) n-Pentane	3.403	43	1018939	9.73	ppbV	98
24) n-Hexane	3.403	57	1426750	10.05	ppbV	99
25) Methyl tert-butyl ether	3.413	73	1803139	10.34	ppbV	99
26) Tert-butyl alcohol	3.464	59	1242393	10.58	ppbV	100
27) 1,1-Dichloroethane	3.808	63	977991	9.35	ppbV	99
28) cis-1,2-Dichloroethene	4.233	61	755931	10.24	ppbV	99
29) Cyclohexane	4.416	56	1026465	10.35	ppbV	99
30) Chloroform	4.455	83	1194486	9.91	ppbV	99
31) Ethyl acetate	4.545	61	208391	10.63	ppbV	99
32) Carbon tetrachloride	4.577	117	1452418	10.16	ppbV	100
33) Tetrahydrofuran	4.574	42	693411	10.23	ppbV	100
34) 1,1,1-Trichloroethane	4.625	97	1251697	10.00	ppbV	99
35) Methyl ethyl ketone	4.683	43	1099463	9.99	ppbV	100
36) n-Heptane	4.915	43	1406396	11.30	ppbV	100
37) Benzene	4.934	78	1734004	9.69	ppbV	100
38) 1,2-Dichloroethane	5.091	62	756182	10.10	ppbV	100
40) Trichloroethene	5.432	130	792615	9.25	ppbV	97
41) 2,2,4-Trimethylpentane	4.844	57	2425296	9.61	ppbV	100
42) 1,2-Dichloropropane	5.882	63	788220	10.46	ppbV	100
43) Bromodichloromethane	5.943	83	1432936	11.29	ppbV	99
44) Methyl methacrylate	6.088	41	1025399	11.22	ppbV	100
45) 1,4-Dioxane	6.111	88	520094	11.27	ppbV	99
46) cis-1,3-Dichloropropene	6.535	75	1277949	10.94	ppbV	99
47) Toluene	6.770	91	2952624	10.85	ppbV	100
48) Methyl isobutyl ketone	7.133	43	1919423	11.22	ppbV	99
49) Tetrachloroethene	7.159	166	1314607	11.20	ppbV	100
50) trans-1,3-Dichloropropene	7.178	75	1281531	11.31	ppbV	97
51) 1,1,2-Trichloroethane	7.336	97	989955	10.77	ppbV	99

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4137icvss.D
Acq On : 10 Oct 2023 4:48 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 11 12:34:17 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

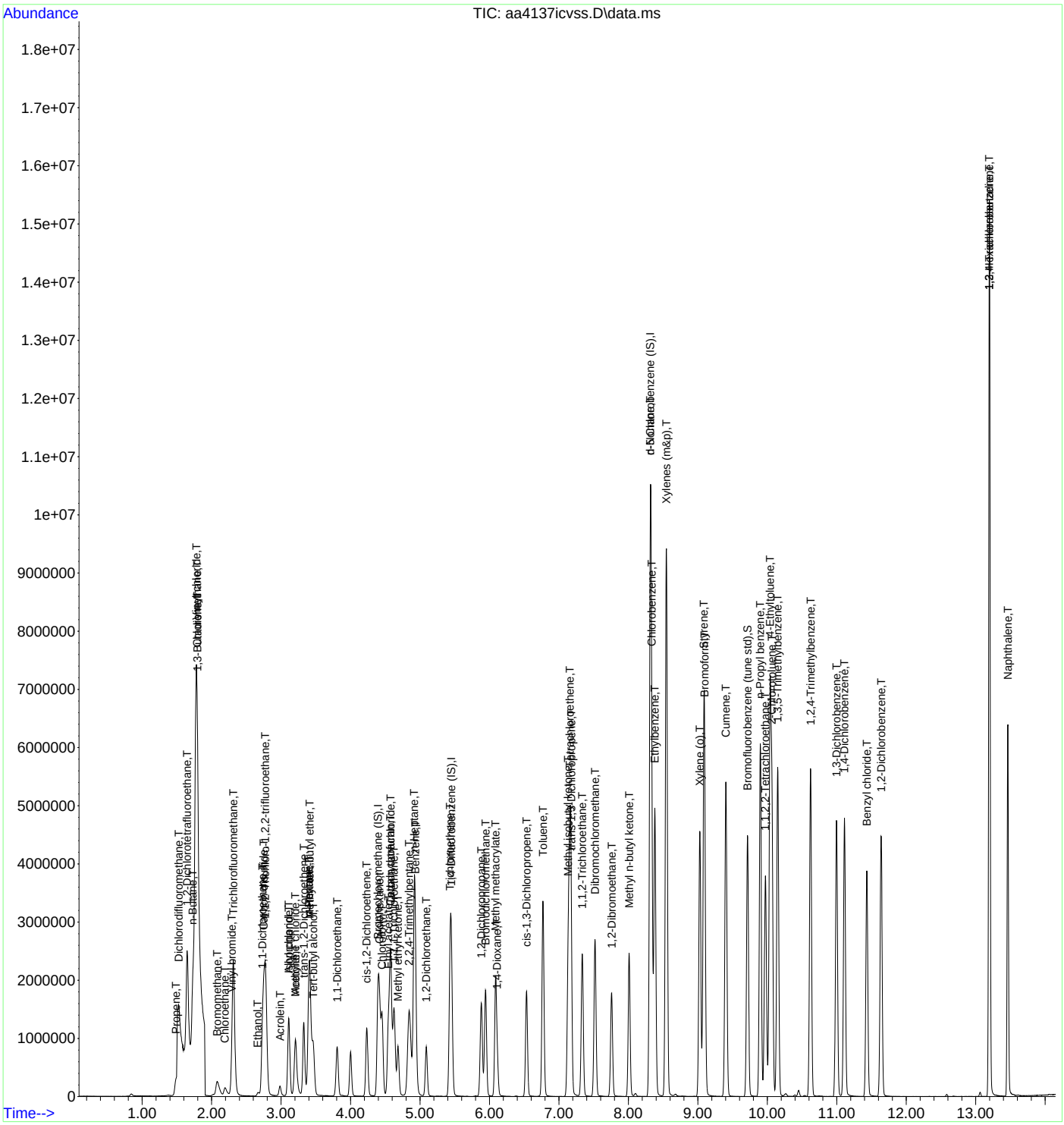
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.519	129	1775637	11.59	ppbV	100
53)	1,2-Dibromoethane	7.760	107	1480875	11.14	ppbV	100
54)	Methyl n-butyl ketone	8.011	43	1847140	11.23	ppbV	100
56)	n-Nonane	8.316	43	2482776	10.98	ppbV	100
57)	Chlorobenzene	8.336	112	2343720	10.31	ppbV	100
58)	Ethylbenzene	8.381	91	4399658	10.47	ppbV	100
59)	Xylenes (m&p)	8.548	91	6725199	21.61	ppbV	100
60)	Xylene (o)	9.027	91	3439926	10.13	ppbV	100
61)	Styrene	9.088	104	2542191	10.93	ppbV	98
62)	Bromoform	9.098	173	1858650	11.14	ppbV	100
63)	Cumene	9.403	105	4624440	10.42	ppbV	99
65)	n-Propyl benzene	9.898	91	6209527	10.72	ppbV	100
66)	1,1,2,2-Tetrachloroethane	9.972	83	2517951	10.59	ppbV	100
67)	4-Ethyltoluene	10.040	105	5225612	10.66	ppbV	100
68)	2-Chlorotoluene	10.065	91	4079374	10.48	ppbV	99
69)	1,3,5-Trimethylbenzene	10.149	105	4048872	10.27	ppbV	100
70)	1,2,4-Trimethylbenzene	10.625	105	4049729	10.28	ppbV	100
71)	1,3-Dichlorobenzene	10.998	146	2445218	10.13	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	2419709	9.96	ppbV	99
73)	Benzyl chloride	11.432	91	3624814	10.40	ppbV	100
74)	1,2-Dichlorobenzene	11.641	146	2329520	9.95	ppbV	100
75)	1,3-Hexachlorobutadiene	13.197	225	1597275	9.83	ppbV	100
76)	1,2,4-Trichlorobenzene	13.197	180	1825252	9.71	ppbV	100
77)	Naphthalene	13.464	128	4147327	9.65	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4137icvss.D
Acq On : 10 Oct 2023 4:48 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 11 12:34:17 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**8/15/2023**	**Date/Time of Calibration:**	**9/28/2023 10:31**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4072DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
CLEAN CAN CERTIFICATION, BATCH MASTER 2164 [AA4076]	09/28/2023 15:00
CLEAN CAN CERTIFICATION, BATCH MASTER 4870 [AA4077]	09/28/2023 15:30
CLEAN CAN CERTIFICATION, BATCH MASTER 2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 00:28

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Acetone	1.9	2.3	-22	PASS	
Benzene	4.6	5.3	-16	PASS	
Bromodichloromethane	0.80	0.86	-8.4	PASS	
Bromoform	0.83	0.94	-13	PASS	
Bromomethane	0.80	0.95	-19	PASS	
1,3-Butadiene	0.97	1.3	-29	PASS	
Chlorobenzene	1.1	1.2	-10	PASS	
Chloroethane	0.52	0.59	-14	PASS	
Chloroform	3.2	3.9	-22	PASS	
Chloromethane	0.12	0.13	-14	PASS	
Carbon disulfide	3.4	3.9	-14	PASS	
Carbon tetrachloride	3.9	3.9	-0.40	PASS	
Cyclohexane	2.4	2.6	-8.2	PASS	
Dibromochloromethane	0.94	0.96	-1.2	PASS	
1,2-Dibromoethane	0.83	0.86	-4.5	PASS	
1,2-Dichlorobenzene	1.1	1.3	-14	PASS	
1,3-Dichlorobenzene	1.2	1.4	-12	PASS	
1,4-Dichlorobenzene	1.2	1.4	-20	PASS	
Dichlorodifluoromethane	2.5	3.1	-22	PASS	
1,1-Dichloroethane	2.6	3.2	-23	PASS	
1,2-Dichloroethane	2.1	2.6	-24	PASS	
1,1-Dichloroethene	2.1	2.2	-6.4	PASS	
1,2-Dichloroethene (cis)	1.8	2.4	-30	PASS	
1,2-Dichloroethene (trans)	1.9	2.4	-28	PASS	
1,2-Dichloropropane	0.46	0.48	-5.7	PASS	
1,3-Dichloropropene (cis)	0.71	0.75	-6.8	PASS	
1,3-Dichloropropene (trans)	0.70	0.79	-14	PASS	
1,2-Dichlorotetrafluoroethane	3.6	4.0	-9.4	PASS	
1,4-Dioxane	0.28	0.29	-3.2	PASS	
Ethylbenzene	2.0	2.3	-13	PASS	
n-Heptane	3.4	3.7	-11	PASS	
1,3-Hexachlorobutadiene	0.82	0.86	-4.5	PASS	
n-Hexane	3.3	3.9	-15	PASS	
Methylene chloride	1.3	1.5	-21	PASS	
Methyl ethyl ketone	2.9	3.7	-29	PASS	
Methyl isobutyl ketone	1.2	1.3	-8.7	PASS	
Methyl tert-butyl ether	4.6	4.9	-8.5	PASS	
Styrene	1.1	1.3	-21	PASS	
Tert-butyl alcohol	2.9	3.3	-13	PASS	
1,1,2,2-Tetrachloroethane	1.2	1.3	-8.6	PASS	
Tetrachloroethene	0.72	0.70	3.5	PASS	

***%Difference must be within +/- 30%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**8/15/2023**	**Date/Time of Calibration:**	**9/28/2023 10:31**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4072DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
CLEAN CAN CERTIFICATION, BATCH MASTER 2164 [AA4076]	09/28/2023 15:00
CLEAN CAN CERTIFICATION, BATCH MASTER 4870 [AA4077]	09/28/2023 15:30
CLEAN CAN CERTIFICATION, BATCH MASTER 2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 00:28

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Toluene	1.6	1.7	-4.2	PASS	
1,2,4-Trichlorobenzene	0.90	1.1	-19	PASS	
1,1,1-Trichloroethane	3.5	3.6	-1.9	PASS	
1,1,2-Trichloroethane	0.57	0.57	-1.4	PASS	
Trichloroethene	0.51	0.51	-0.60	PASS	
Trichlorofluoromethane	3.4	4.0	-17	PASS	
1,1,2-Trichloro-1,2,2-trifluoroethane	3.4	3.4	-1.3	PASS	
1,2,4-Trimethylbenzene	1.8	2.2	-20	PASS	
1,3,5-Trimethylbenzene	1.8	2.1	-13	PASS	
2,2,4-Trimethylpentane	1.3	1.4	-11	PASS	
Vinyl bromide	1.0	1.3	-25	PASS	
Vinyl chloride	0.95	1.2	-29	PASS	
Xylenes (m&p)	1.5	1.7	-20	PASS	
Xylenes (o)	1.6	1.8	-11	PASS	

***%Difference must be within +/- 30%**
RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Evaluate Continuing Calibration Report

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4072dcvs.D
Acq On : 28 Sep 2023 10:31 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 05 12:20:58 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS)	1.000	1.000	0.0	74	0.00
2	T	Propene	0.689	0.782	-13.5	89	0.00
3	T	Dichlorodifluoromethane	2.527	3.082	-22.0	95	0.00
4	T	1,2-Dichlorotetrafluoroetha	3.636	3.979	-9.4	93	0.00
5	T	n-Butane	1.635	1.772	-8.4	82	0.00
6	T	Chloromethane	0.117	0.133	-13.7	85	0.00
7	T	Vinyl chloride	0.950	1.223	-28.7	97	0.00
8	T	1,3-Butadiene	0.972	1.253	-28.9	100	0.00
9	T	Bromomethane	0.798	0.946	-18.5	90	0.00
10	T	Chloroethane	0.517	0.591	-14.3	84	0.00
11	T	Vinyl bromide	1.004	1.257	-25.2	94	0.00
12	T	Trichlorofluoromethane	3.400	3.990	-17.4	96	0.00
13	T	Ethanol	0.400	0.423	-5.7	97	0.00
14	T	1,1-Dichloroethene	2.088	2.222	-6.4	78	0.00
15	T	Carbon disulfide	3.429	3.921	-14.3	83	0.00
16	T	1,1,2-Trichloro-1,2,2-trifl	3.360	3.402	-1.3	90	0.00
17	T	Acrolein	0.430	0.491	-14.2	85	0.00
18	T	Allyl chloride	0.559	0.693	-24.0	92	0.00
19	T	Isopropanol	2.312	2.922	-26.4	96	0.00
20	T	Methylene chloride	1.262	1.521	-20.5	107	0.00
21	T	Acetone	1.876	2.285	-21.8	93	0.00
22	T	trans-1,2-Dichloroethene	1.879	2.400	-27.7	95	0.00
23	T	n-Pentane	2.398	2.695	-12.4	99	0.00
24	T	n-Hexane	3.349	3.850	-15.0	95	0.00
25	T	Methyl tert-butyl ether	4.555	4.942	-8.5	92	0.00
26	T	Tert-butyl alcohol	2.929	3.318	-13.3	95	0.00
27	T	1,1-Dichloroethane	2.637	3.242	-22.9	100	0.00
28	T	cis-1,2-Dichloroethene	1.824	2.366	-29.7	100	0.00
29	t	Cyclohexane	2.420	2.619	-8.2	92	0.00
30	T	Chloroform	3.228	3.928	-21.7	96	0.00
31	T	Ethyl acetate	0.514	0.617	-20.0	96	0.00
32	T	Carbon tetrachloride	3.870	3.885	-0.4	86	0.00
33	T	Tetrahydrofuran	1.813	2.046	-12.9	88	0.00
34	T	1,1,1-Trichloroethane	3.484	3.550	-1.9	89	0.00
35	T	Methyl ethyl ketone	2.894	3.723	-28.6	102	0.00
36	T	n-Heptane	3.350	3.721	-11.1	87	0.00
37	T	Benzene	4.614	5.348	-15.9	94	0.00
38	T	1,2-Dichloroethane	2.067	2.563	-24.0	98	0.00
39	I	1,4-Difluorobenzene (IS)	1.000	1.000	0.0	81	0.00
40	T	Trichloroethene	0.508	0.511	-0.6	87	0.00
41	T	2,2,4-Trimethylpentane	1.267	1.406	-11.0	98	0.00
42	T	1,2-Dichloropropane	0.456	0.482	-5.7	92	0.00
43	T	Bromodichloromethane	0.795	0.862	-8.4	92	0.00
44	T	Methyl methacrylate	0.587	0.686	-16.9	93	0.00
45	T	1,4-Dioxane	0.281	0.290	-3.2	86	0.00
46	T	cis-1,3-Dichloropropene	0.705	0.753	-6.8	88	0.00
47	T	Toluene	1.603	1.670	-4.2	84	0.00
48	T	Methyl isobutyl ketone	1.158	1.259	-8.7	88	0.00
49	T	Tetrachloroethene	0.721	0.696	3.5	81	0.00
50	T	trans-1,3-Dichloropropene	0.695	0.791	-13.8	88	0.00
51	T	1,1,2-Trichloroethane	0.565	0.573	-1.4	85	0.00
52	T	Dibromochloromethane	0.944	0.955	-1.2	83	0.00
53	T	1,2-Dibromoethane	0.827	0.864	-4.5	84	0.00

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4072dcvs.D
Acq On : 28 Sep 2023 10:31 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 05 12:20:58 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	T	Methyl n-butyl ketone	1.085	1.314	-21.1	94	0.00
55	I	d-5 Chlorobenzene (IS)	1.000	1.000	0.0	71	0.00
56	T	n-Nonane	1.224	1.455	-18.9	89	0.00
57	T	Chlorobenzene	1.095	1.205	-10.0	84	0.00
58	T	Ethylbenzene	2.025	2.281	-12.6	84	0.00
59	T	Xylenes (m&p)	1.460	1.746	-19.6	86	0.00
60	T	Xylene (o)	1.621	1.793	-10.6	83	0.00
61	T	Styrene	1.076	1.301	-20.9	85	0.00
62	T	Bromoform	0.831	0.940	-13.1	83	0.00
63	T	Cumene	2.112	2.309	-9.3	81	0.00
64	S	Bromofluorobenzene (tune st	0.832	1.037	-24.6	91	0.00
65	T	n-Propyl benzene	2.753	3.313	-20.3	86	0.00
66	T	1,1,2,2-Tetrachloroethane	1.228	1.333	-8.6	84	0.00
67	T	4-Ethyltoluene	2.270	2.728	-20.2	86	0.00
68	T	2-Chlorotoluene	1.868	2.133	-14.2	86	0.00
69	T	1,3,5-Trimethylbenzene	1.837	2.075	-13.0	83	0.00
70	T	1,2,4-Trimethylbenzene	1.821	2.187	-20.1	84	0.00
71	T	1,3-Dichlorobenzene	1.208	1.351	-11.8	86	0.00
72	T	1,4-Dichlorobenzene	1.161	1.398	-20.4	87	0.00
73	T	Benzyl chloride	1.591	2.051	-28.9	86	0.00
74	T	1,2-Dichlorobenzene	1.143	1.308	-14.4	84	0.00
75	T	1,3-Hexachlorobutadiene	0.820	0.857	-4.5	84	0.00
76	T	1,2,4-Trichlorobenzene	0.899	1.068	-18.8	89	0.00
77	T	Naphthalene	1.857	2.352	-26.7	88	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4072dcvs.D
Acq On : 28 Sep 2023 10:31 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 05 12:20:58 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.399	130	394533	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	1846241	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1956014	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2028598	12.47	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.492	41	336126	12.37	ppbV	99
3) Dichlorodifluoromethane	1.533	85	1288817	12.93	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.650	85	1538324	10.72	ppbV	95
5) n-Butane	1.729	43	762109	11.81	ppbV	100
6) Chloromethane	1.791	52	58792	12.73	ppbV	99
7) Vinyl chloride	1.784	62	521002	13.90	ppbV	100
8) 1,3-Butadiene	1.794	39	528910	13.80	ppbV	94
9) Bromomethane	2.091	94	373349	11.86	ppbV	100
10) Chloroethane	2.200	64	247247	12.12	ppbV	97
11) Vinyl bromide	2.293	106	500772	12.64	ppbV	99
12) Trichlorofluoromethane	2.312	101	1731764	12.91	ppbV	100
13) Ethanol	2.669	45	173409	10.98	ppbV	98
14) 1,1-Dichloroethene	2.734	61	911565	11.06	ppbV	96
15) Carbon disulfide	2.756	76	1655394	12.24	ppbV	98
16) 1,1,2-Trichloro-1,2,2-...	2.775	101	1462822	11.04	ppbV	98
17) Acrolein	2.988	56	193825	11.44	ppbV	99
18) Allyl chloride	3.116	76	295490	13.39	ppbV	100
19) Isopropanol	3.113	45	1026023	11.25	ppbV	98
20) Methylene chloride	3.203	49	648001	13.02	ppbV	93
21) Acetone	3.213	43	973812	13.16	ppbV	97
22) trans-1,2-Dichloroethene	3.329	61	1051022	14.18	ppbV	94
23) n-Pentane	3.412	43	1148262	12.14	ppbV	98
24) n-Hexane	3.409	57	1670880	12.65	ppbV	94
25) Methyl tert-butyl ether	3.412	73	2183824	12.15	ppbV	96
26) Tert-butyl alcohol	3.464	59	1505615	13.03	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1368811	13.16	ppbV	100
28) cis-1,2-Dichloroethene	4.235	61	1017589	14.14	ppbV	95
29) Cyclohexane	4.415	56	1157367	12.12	ppbV	95
30) Chloroform	4.457	83	1673696	13.14	ppbV	99
31) Ethyl acetate	4.544	61	262896	12.97	ppbV	96
32) Carbon tetrachloride	4.576	117	1686035	11.04	ppbV	100
33) Tetrahydrofuran	4.576	42	888033	12.41	ppbV	98
34) 1,1,1-Trichloroethane	4.628	97	1526804	11.11	ppbV	99
35) Methyl ethyl ketone	4.685	43	1615518	14.15	ppbV	96
36) n-Heptane	4.920	43	1629713	12.33	ppbV	95
37) Benzene	4.933	78	2278943	12.52	ppbV	99
38) 1,2-Dichloroethane	5.094	62	1102144	13.51	ppbV	100
40) Trichloroethene	5.435	130	942528	10.06	ppbV	99
41) 2,2,4-Trimethylpentane	4.846	57	2829737	12.10	ppbV	100
42) 1,2-Dichloropropane	5.885	63	978690	11.62	ppbV	99
43) Bromodichloromethane	5.946	83	1830581	12.47	ppbV	98
44) Methyl methacrylate	6.090	41	1393236	12.86	ppbV	96
45) 1,4-Dioxane	6.113	88	626413	12.06	ppbV	95
46) cis-1,3-Dichloropropene	6.534	75	1542564	11.85	ppbV	100
47) Toluene	6.772	91	3329666	11.25	ppbV	100
48) Methyl isobutyl ketone	7.135	43	2533215	11.85	ppbV	97
49) Tetrachloroethene	7.161	166	1439441	10.82	ppbV	99
50) trans-1,3-Dichloropropene	7.177	75	1621869	12.63	ppbV	95
51) 1,1,2-Trichloroethane	7.335	97	1143196	10.95	ppbV	98

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4072dcvs.D
Acq On : 28 Sep 2023 10:31 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

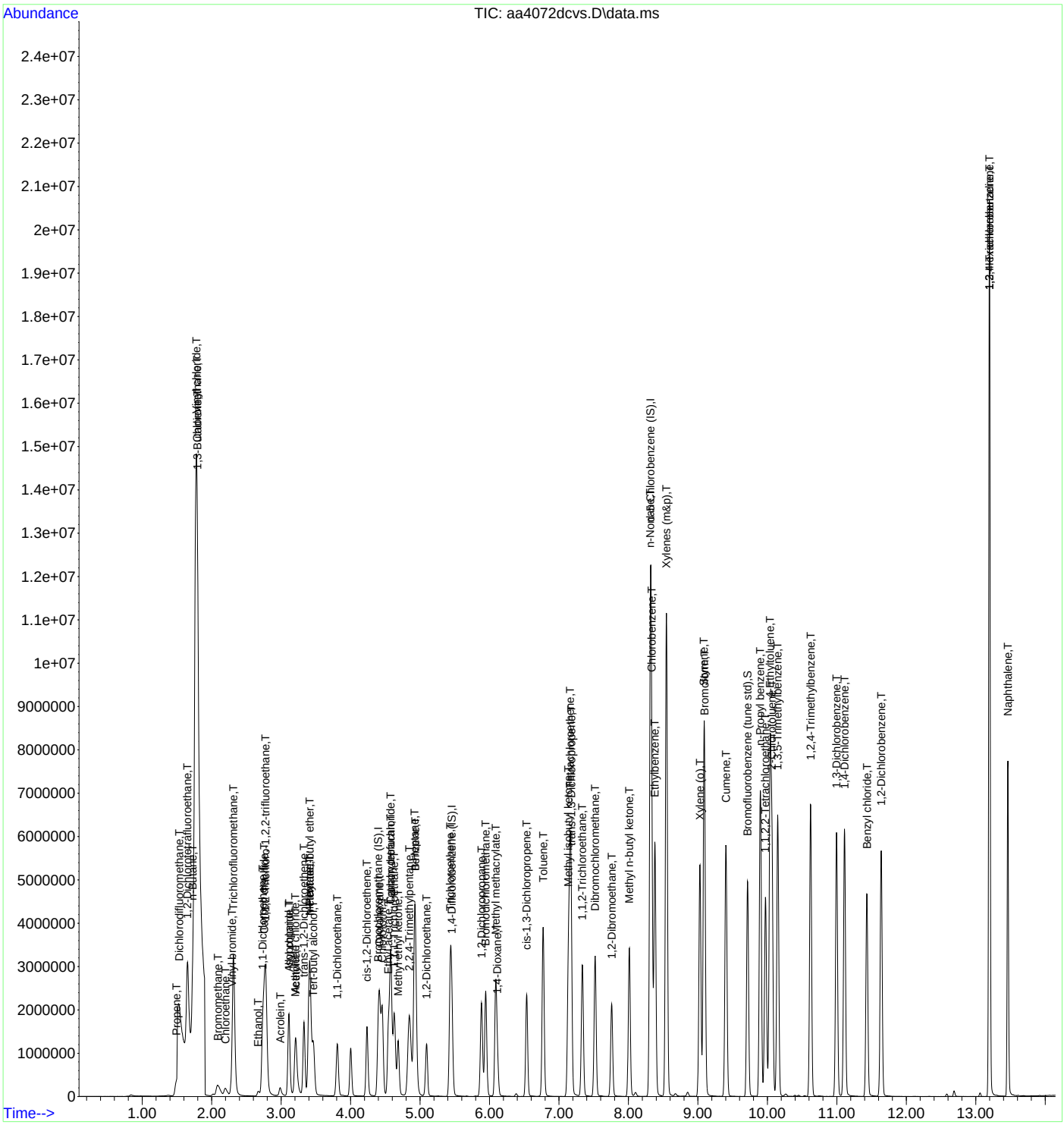
Quant Time: Oct 05 12:20:58 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	7.521	129	1974797	11.34	ppbV	100
53) 1,2-Dibromoethane	7.759	107	1723352	11.29	ppbV	99
54) Methyl n-butyl ketone	8.013	43	2740906	13.68	ppbV	97
56) n-Nonane	8.315	43	3130203	13.08	ppbV	95
57) Chlorobenzene	8.335	112	2616855	12.22	ppbV	96
58) Ethylbenzene	8.380	91	4951669	12.50	ppbV	99
59) Xylenes (m&p)	8.547	91	7618001	26.68	ppbV	98
60) Xylene (o)	9.029	91	3858864	12.17	ppbV	98
61) Styrene	9.087	104	2876626	13.67	ppbV	100
62) Bromoform	9.097	173	2077944	12.78	ppbV	100
63) Cumene	9.405	105	4831919	11.70	ppbV	99
65) n-Propyl benzene	9.897	91	6998521	12.99	ppbV	98
66) 1,1,2,2-Tetrachloroethane	9.971	83	2971483	12.37	ppbV	100
67) 4-Ethyltoluene	10.039	105	5763454	12.98	ppbV	98
68) 2-Chlorotoluene	10.065	91	4548166	12.45	ppbV	98
69) 1,3,5-Trimethylbenzene	10.148	105	4424594	12.31	ppbV	98
70) 1,2,4-Trimethylbenzene	10.624	105	4619816	12.97	ppbV	98
71) 1,3-Dichlorobenzene	10.997	146	2933863	12.42	ppbV	99
72) 1,4-Dichlorobenzene	11.113	146	2925919	12.89	ppbV	100
73) Benzyl chloride	11.434	91	4012288	12.89	ppbV	98
74) 1,2-Dichlorobenzene	11.640	146	2736550	12.24	ppbV	100
75) 1,3-Hexachlorobutadiene	13.196	225	1861511	11.61	ppbV	99
76) 1,2,4-Trichlorobenzene	13.196	180	2298365	13.07	ppbV	100
77) Naphthalene	13.463	128	4601232	12.67	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4072dcvs.D
Acq On : 28 Sep 2023 10:31 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 05 12:20:58 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**12/8/2023 10:50**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4882DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05080-01 [AA4893]	12/08/2023 18:08
E23-05080-02 [AA4894]	12/08/2023 18:39

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Acetone	1.5	1.5	-0.30	PASS	
Benzene	4.0	3.4	15	PASS	
Bromoform	0.73	0.73	0.70	PASS	
Bromomethane	0.73	0.78	-6.2	PASS	
1,3-Butadiene	0.85	0.76	9.7	PASS	
Chlorobenzene	1.00	0.90	10	PASS	
Chloroethane	0.48	0.50	-5.7	PASS	
Chloroform	2.7	2.4	8.5	PASS	
Chloromethane	0.11	0.11	3.6	PASS	
Carbon disulfide	3.1	3.0	1.4	PASS	
Carbon tetrachloride	3.2	2.9	7.1	PASS	
Cyclohexane	2.2	2.0	11	PASS	
1,2-Dibromoethane	0.69	0.69	-1.2	PASS	
1,2-Dichlorobenzene	1.0	0.95	7.9	PASS	
1,3-Dichlorobenzene	1.1	0.95	9.9	PASS	
1,4-Dichlorobenzene	1.1	0.99	7.1	PASS	
Dichlorodifluoromethane	2.2	2.2	1.0	PASS	
1,1-Dichloroethane	2.3	2.0	13	PASS	
1,2-Dichloroethane	1.7	1.6	2.3	PASS	
1,1-Dichloroethene	1.9	1.8	0.80	PASS	
1,2-Dichloroethene (cis)	1.6	1.5	8.3	PASS	
1,2-Dichloroethene (trans)	1.7	1.7	3.9	PASS	
1,2-Dichloropropane	0.39	0.37	3.9	PASS	
1,3-Dichloropropene (cis)	0.60	0.59	2.3	PASS	
1,3-Dichloropropene (trans)	0.59	0.61	-4.4	PASS	
1,2-Dichlorotetrafluoroethane	3.2	2.9	11	PASS	
1,4-Dioxane	0.24	0.24	-0.40	PASS	
Ethylbenzene	1.8	1.7	7.2	PASS	
n-Heptane	2.8	2.6	4.3	PASS	
1,3-Hexachlorobutadiene	0.71	0.66	8.1	PASS	
n-Hexane	3.2	2.8	12	PASS	
Methylene chloride	1.2	1.1	13	PASS	
Methyl ethyl ketone	2.4	2.2	8.0	PASS	
Methyl isobutyl ketone	0.88	0.96	-8.5	PASS	
Methyl tert-butyl ether	3.9	3.5	9.8	PASS	
Styrene	1.0	0.95	6.9	PASS	
Tert-butyl alcohol	2.6	2.3	11	PASS	
1,1,2,2-Tetrachloroethane	1.0	0.97	7.4	PASS	
Tetrachloroethene	0.61	0.59	3.1	PASS	
Toluene	1.4	1.4	2.8	PASS	
1,2,4-Trichlorobenzene	0.82	0.78	5.5	PASS	
1,1,1-Trichloroethane	2.8	2.6	7.2	PASS	
1,1,2-Trichloroethane	0.48	0.46	2.7	PASS	
Trichloroethene	0.44	0.42	6.1	PASS	

***%Difference must be within +/- 30%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**12/8/2023 10:50**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4882DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05080-01 [AA4893]	12/08/2023 18:08
E23-05080-02 [AA4894]	12/08/2023 18:39

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Trichlorofluoromethane	2.8	2.8	1.6	PASS	
1,1,2-Trichloro-1,2,2-trifluoroethane	2.8	2.4	16	PASS	
1,2,4-Trimethylbenzene	1.7	1.6	5.2	PASS	
1,3,5-Trimethylbenzene	1.7	1.6	7.1	PASS	
2,2,4-Trimethylpentane	1.3	1.3	2.8	PASS	
Vinyl bromide	0.90	0.89	0.80	PASS	
Vinyl chloride	0.91	0.87	4.1	PASS	
Xylenes (m&p)	1.4	1.3	4.2	PASS	
Xylenes (o)	1.5	1.4	9.2	PASS	

***%Difference must be within +/- 30%**
RRF - Relative Response Factor

Evaluate Continuing Calibration Report

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4882dcvs.D
Acq On : 8 Dec 2023 10:50 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 12 09:41:42 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS)	1.000	1.000	0.0	126	0.00
2	T	Propene	0.694	0.600	13.5	126	0.00
3	T	Dichlorodifluoromethane	2.216	2.193	1.0	128	0.00
4	T	1,2-Dichlorotetrafluoroetha	3.219	2.869	10.9	123	0.00
5	T	n-Butane	1.597	1.500	6.1	124	0.00
6	T	Chloromethane	0.111	0.107	3.6	120	0.00
7	T	Vinyl chloride	0.906	0.869	4.1	121	0.00
8	T	1,3-Butadiene	0.846	0.764	9.7	121	0.00
9	T	Bromomethane	0.731	0.776	-6.2	130	0.00
10	T	Chloroethane	0.475	0.502	-5.7	126	0.00
11	T	Vinyl bromide	0.895	0.888	0.8	123	0.00
12	T	Trichlorofluoromethane	2.799	2.753	1.6	131	0.00
13	T	Ethanol	0.293	0.309	-5.5	145	0.00
14	T	1,1-Dichloroethene	1.858	1.844	0.8	120	0.00
15	T	Carbon disulfide	3.058	3.016	1.4	118	0.00
16	T	1,1,2-Trichloro-1,2,2-trifl	2.819	2.364	16.1	118	0.00
17	T	Acrolein	0.418	0.406	2.9	119	0.00
18	T	Allyl chloride	0.501	0.485	3.2	114	0.00
19	T	Isopropanol	2.005	1.954	2.5	118	0.00
20	T	Methylene chloride	1.229	1.073	12.7	133	0.00
21	T	Acetone	1.508	1.512	-0.3	124	0.00
22	T	trans-1,2-Dichloroethene	1.724	1.657	3.9	117	0.00
23	T	n-Pentane	2.325	2.146	7.7	125	0.00
24	T	n-Hexane	3.152	2.784	11.7	118	0.00
25	T	Methyl tert-butyl ether	3.872	3.493	9.8	121	0.00
26	T	Tert-butyl alcohol	2.607	2.316	11.2	117	0.00
27	T	1,1-Dichloroethane	2.322	2.010	13.4	114	0.00
28	T	cis-1,2-Dichloroethene	1.638	1.502	8.3	115	0.00
29	t	Cyclohexane	2.202	1.965	10.8	119	0.00
30	T	Chloroform	2.676	2.449	8.5	117	0.00
31	T	Ethyl acetate	0.435	0.410	5.7	115	0.00
32	T	Carbon tetrachloride	3.174	2.948	7.1	122	0.00
33	T	Tetrahydrofuran	1.504	1.387	7.8	118	0.00
34	T	1,1,1-Trichloroethane	2.780	2.579	7.2	122	0.00
35	T	Methyl ethyl ketone	2.442	2.246	8.0	120	0.00
36	T	n-Heptane	2.764	2.646	4.3	117	0.00
37	T	Benzene	3.972	3.382	14.9	112	0.00
38	T	1,2-Dichloroethane	1.663	1.624	2.3	123	0.00
39	I	1,4-Difluorobenzene (IS)	1.000	1.000	0.0	118	0.00
40	T	Trichloroethene	0.442	0.415	6.1	111	0.00
41	T	2,2,4-Trimethylpentane	1.303	1.266	2.8	122	0.00
42	T	1,2-Dichloropropane	0.389	0.374	3.9	113	0.00
43	T	Bromodichloromethane	0.655	0.674	-2.9	121	0.00
44	T	Methyl methacrylate	0.472	0.490	-3.8	116	0.00
45	T	1,4-Dioxane	0.238	0.239	-0.4	116	0.00
46	T	cis-1,3-Dichloropropene	0.603	0.589	2.3	111	0.00
47	T	Toluene	1.405	1.366	2.8	108	0.00
48	T	Methyl isobutyl ketone	0.883	0.958	-8.5	119	0.00
49	T	Tetrachloroethene	0.606	0.587	3.1	109	0.00
50	T	trans-1,3-Dichloropropene	0.585	0.611	-4.4	114	0.00
51	T	1,1,2-Trichloroethane	0.475	0.462	2.7	110	0.00
52	T	Dibromochloromethane	0.791	0.812	-2.7	115	0.00
53	T	1,2-Dibromoethane	0.686	0.694	-1.2	112	0.00

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4882dcvs.D
Acq On : 8 Dec 2023 10:50 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 12 09:41:42 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	T	Methyl n-butyl ketone	0.849	0.929	-9.4	117	0.00
55	I	d-5 Chlorobenzene (IS)	1.000	1.000	0.0	119	0.00
56	T	n-Nonane	0.992	1.014	-2.2	118	0.00
57	T	Chlorobenzene	0.997	0.897	10.0	108	0.00
58	T	Ethylbenzene	1.843	1.711	7.2	110	0.00
59	T	Xylenes (m&p)	1.365	1.308	4.2	110	0.00
60	T	Xylene (o)	1.490	1.353	9.2	110	0.00
61	T	Styrene	1.020	0.950	6.9	106	0.00
62	T	Bromoform	0.732	0.727	0.7	117	0.00
63	T	Cumene	1.947	1.854	4.8	113	0.00
64	S	Bromofluorobenzene (tune st	0.872	0.895	-2.6	123	0.00
65	T	n-Propyl benzene	2.541	2.507	1.3	115	0.00
66	T	1,1,2,2-Tetrachloroethane	1.043	0.966	7.4	111	0.00
67	T	4-Ethyltoluene	2.151	2.065	4.0	112	0.00
68	T	2-Chlorotoluene	1.707	1.639	4.0	115	0.00
69	T	1,3,5-Trimethylbenzene	1.730	1.608	7.1	109	0.00
70	T	1,2,4-Trimethylbenzene	1.729	1.639	5.2	109	0.00
71	T	1,3-Dichlorobenzene	1.059	0.954	9.9	108	0.00
72	T	1,4-Dichlorobenzene	1.065	0.989	7.1	109	0.00
73	T	Benzyl chloride	1.529	1.550	-1.4	114	0.00
74	T	1,2-Dichlorobenzene	1.027	0.946	7.9	109	0.00
75	T	1,3-Hexachlorobutadiene	0.713	0.655	8.1	111	0.00
76	T	1,2,4-Trichlorobenzene	0.824	0.779	5.5	113	0.00
77	T	Naphthalene	1.885	1.868	0.9	118	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4882dcvs.D
Acq On : 8 Dec 2023 10:50 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 12 09:41:42 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.390	130	497428	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	1995098	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	2342927	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2097748	10.27	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.483	41	325585	9.43	ppbV	97
3) Dichlorodifluoromethane	1.522	85	1156523	10.49	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.643	85	1398478	8.73	ppbV	97
5) n-Butane	1.725	43	813377	10.24	ppbV	99
6) Chloromethane	1.787	52	59773	10.85	ppbV	90
7) Vinyl chloride	1.777	62	466932	10.36	ppbV	100
8) 1,3-Butadiene	1.791	39	406894	9.67	ppbV	98
9) Bromomethane	2.075	94	385826	10.61	ppbV	98
10) Chloroethane	2.190	64	264511	11.19	ppbV	99
11) Vinyl bromide	2.287	106	446119	10.02	ppbV	99
12) Trichlorofluoromethane	2.306	101	1506447	10.82	ppbV	100
13) Ethanol	2.666	45	159941	10.98	ppbV	98
14) 1,1-Dichloroethene	2.727	61	954181	10.33	ppbV	96
15) Carbon disulfide	2.747	76	1604997	10.55	ppbV	96
16) 1,1,2-Trichloro-1,2,2-...	2.769	101	1281549	9.14	ppbV	99
17) Acrolein	2.981	56	201838	9.71	ppbV	99
18) Allyl chloride	3.110	76	260522	10.45	ppbV	100
19) Isopropanol	3.107	45	865101	8.67	ppbV	97
20) Methylene chloride	3.197	49	576215	9.42	ppbV	94
21) Acetone	3.210	43	812442	10.83	ppbV	98
22) trans-1,2-Dichloroethene	3.322	61	914937	10.67	ppbV	99
23) n-Pentane	3.402	43	1153103	9.97	ppbV	98
24) n-Hexane	3.402	57	1523505	9.72	ppbV	95
25) Methyl tert-butyl ether	3.406	73	1946245	10.10	ppbV	98
26) Tert-butyl alcohol	3.460	59	1324915	10.22	ppbV	100
27) 1,1-Dichloroethane	3.804	63	1070062	9.26	ppbV	99
28) cis-1,2-Dichloroethene	4.232	61	814529	10.00	ppbV	97
29) Cyclohexane	4.412	56	1094521	9.99	ppbV	99
30) Chloroform	4.451	83	1315872	9.89	ppbV	100
31) Ethyl acetate	4.544	61	220415	10.18	ppbV	96
32) Carbon tetrachloride	4.573	117	1612899	10.22	ppbV	100
33) Tetrahydrofuran	4.570	42	759074	10.14	ppbV	98
34) 1,1,1-Trichloroethane	4.624	97	1398155	10.11	ppbV	98
35) Methyl ethyl ketone	4.682	43	1229080	10.12	ppbV	97
36) n-Heptane	4.917	43	1460837	10.63	ppbV	97
37) Benzene	4.930	78	1816777	9.20	ppbV	97
38) 1,2-Dichloroethane	5.087	62	880596	10.65	ppbV	100
40) Trichloroethene	5.431	130	827314	9.37	ppbV	99
41) 2,2,4-Trimethylpentane	4.843	57	2753707	10.60	ppbV	100
42) 1,2-Dichloropropane	5.881	63	821769	10.59	ppbV	100
43) Bromodichloromethane	5.943	83	1546117	11.83	ppbV	99
44) Methyl methacrylate	6.084	41	1074952	11.42	ppbV	96
45) 1,4-Dioxane	6.113	88	556955	11.71	ppbV	100
46) cis-1,3-Dichloropropene	6.534	75	1304823	10.84	ppbV	100
47) Toluene	6.769	91	2943669	10.50	ppbV	100
48) Methyl isobutyl ketone	7.129	43	2083775	11.83	ppbV	97
49) Tetrachloroethene	7.158	166	1312474	10.86	ppbV	100
50) trans-1,3-Dichloropropene	7.174	75	1353861	11.60	ppbV	98
51) 1,1,2-Trichloroethane	7.335	97	994836	10.51	ppbV	99

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4882dcvs.D
Acq On : 8 Dec 2023 10:50 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

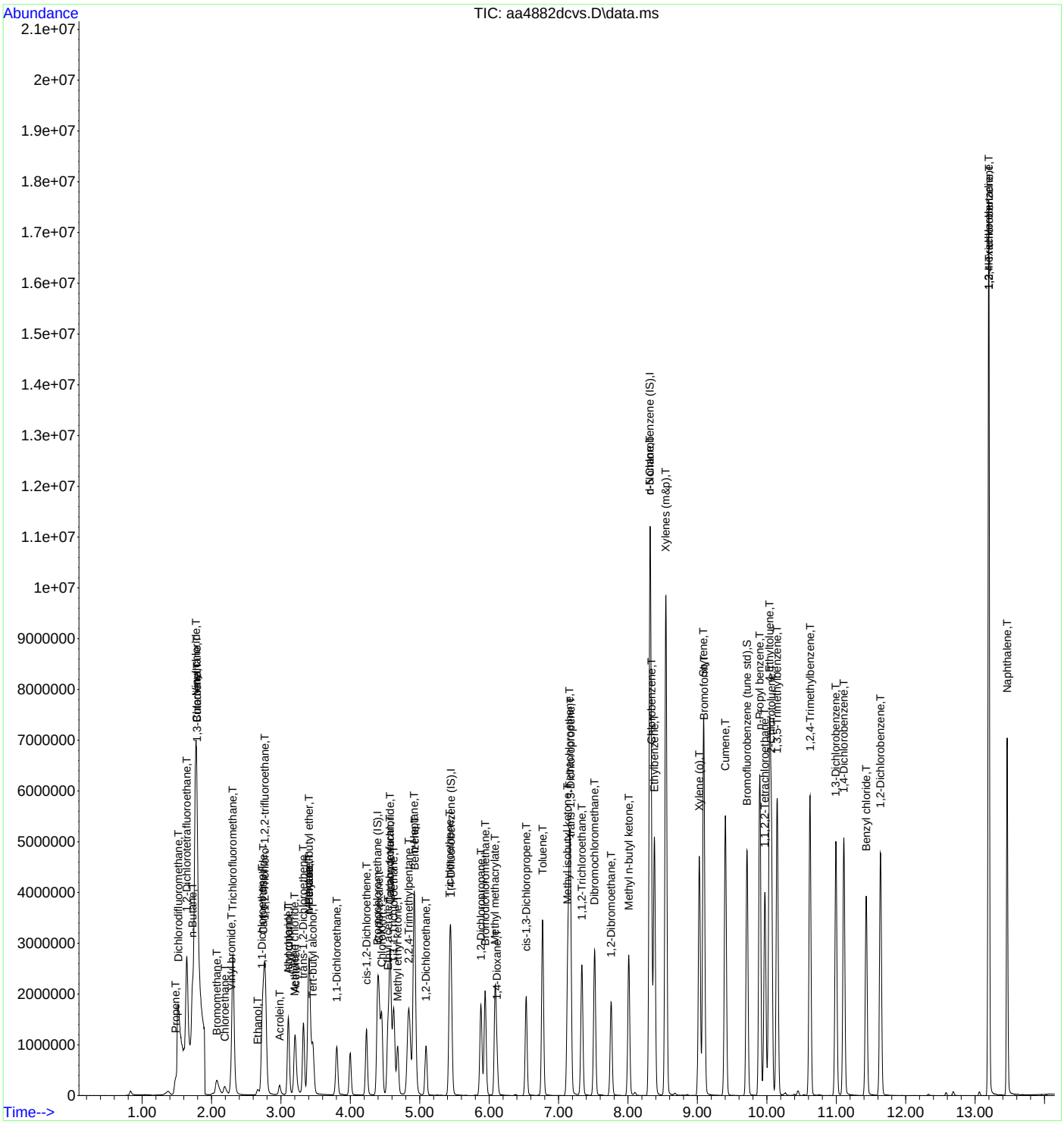
Quant Time: Dec 12 09:41:42 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.518	129	1815407	11.51	ppbV	99
53)	1,2-Dibromoethane	7.756	107	1495380	10.92	ppbV	100
54)	Methyl n-butyl ketone	8.010	43	2094056	12.36	ppbV	97
56)	n-Nonane	8.315	43	2612956	11.24	ppbV	97
57)	Chlorobenzene	8.338	112	2332552	9.99	ppbV	97
58)	Ethylbenzene	8.380	91	4450991	10.31	ppbV	98
59)	Xylenes (m&p)	8.544	91	6834641	21.36	ppbV	99
60)	Xylene (o)	9.026	91	3488106	9.99	ppbV	98
61)	Styrene	9.087	104	2516387	10.53	ppbV	98
62)	Bromoform	9.097	173	1925681	11.22	ppbV	100
63)	Cumene	9.402	105	4647970	10.19	ppbV	100
65)	n-Propyl benzene	9.897	91	6343495	10.65	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.971	83	2579002	10.55	ppbV	99
67)	4-Ethyltoluene	10.039	105	5223938	10.37	ppbV	100
68)	2-Chlorotoluene	10.065	91	4185953	10.47	ppbV	99
69)	1,3,5-Trimethylbenzene	10.148	105	4107061	10.13	ppbV	99
70)	1,2,4-Trimethylbenzene	10.624	105	4146495	10.24	ppbV	99
71)	1,3-Dichlorobenzene	10.994	146	2479981	10.00	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	2478669	9.93	ppbV	99
73)	Benzyl chloride	11.431	91	3632702	10.14	ppbV	99
74)	1,2-Dichlorobenzene	11.637	146	2370759	9.85	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	1704319	10.21	ppbV	100
76)	1,2,4-Trichlorobenzene	13.199	180	2007051	10.39	ppbV	99
77)	Naphthalene	13.463	128	4377391	9.91	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4882dcvs.D
Acq On : 8 Dec 2023 10:50 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 12 09:41:42 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**12/11/2023 10:26**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4902DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 09:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
CLEAN CAN CERTIFICATION, BATCH MASTER 1458 [AA4906]	12/11/2023 12:50
CLEAN CAN CERTIFICATION, BATCH MASTER 1588 [AA4907]	12/11/2023 13:19
CLEAN CAN CERTIFICATION, BATCH MASTER 3012 [AA4908]	12/11/2023 13:49
E23-05080-01 [AA4911]	12/11/2023 15:19
E23-05080-02 [AA4912]	12/11/2023 15:48
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 01:59

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Acetone	1.5	1.6	-2.9	PASS	
Benzene	4.0	3.4	14	PASS	
Bromoform	0.73	0.73	0.10	PASS	
Bromomethane	0.73	0.76	-4.4	PASS	
1,3-Butadiene	0.85	0.80	5.7	PASS	
Chlorobenzene	1.00	0.92	7.3	PASS	
Chloroethane	0.48	0.52	-9.3	PASS	
Chloroform	2.7	2.5	8.2	PASS	
Chloromethane	0.11	0.12	-5.4	PASS	
Carbon disulfide	3.1	3.1	-0.90	PASS	
Carbon tetrachloride	3.2	2.9	9.9	PASS	
Cyclohexane	2.2	2.0	7.9	PASS	
1,2-Dibromoethane	0.69	0.69	0.10	PASS	
1,2-Dichlorobenzene	1.0	0.97	5.6	PASS	
1,3-Dichlorobenzene	1.1	0.98	7.4	PASS	
1,4-Dichlorobenzene	1.1	1.0	4.5	PASS	
Dichlorodifluoromethane	2.2	2.2	1.3	PASS	
1,1-Dichloroethane	2.3	2.1	10	PASS	
1,2-Dichloroethane	1.7	1.6	3.6	PASS	
1,1-Dichloroethene	1.9	1.9	-1.0	PASS	
1,2-Dichloroethene (cis)	1.6	1.6	3.8	PASS	
1,2-Dichloroethene (trans)	1.7	1.7	0.20	PASS	
1,2-Dichloropropane	0.39	0.37	4.6	PASS	
1,3-Dichloropropene (cis)	0.60	0.59	2.7	PASS	
1,3-Dichloropropene (trans)	0.59	0.60	-2.6	PASS	
1,2-Dichlorotetrafluoroethane	3.2	2.9	11	PASS	
1,4-Dioxane	0.24	0.23	2.5	PASS	
Ethylbenzene	1.8	1.7	5.1	PASS	
n-Heptane	2.8	2.7	1.0	PASS	
1,3-Hexachlorobutadiene	0.71	0.67	6.3	PASS	
n-Hexane	3.2	2.9	7.9	PASS	
Methylene chloride	1.2	1.1	12	PASS	
Methyl ethyl ketone	2.4	2.4	3.5	PASS	
Methyl isobutyl ketone	0.88	0.96	-8.5	PASS	
Methyl tert-butyl ether	3.9	3.6	6.7	PASS	
Styrene	1.0	0.98	3.7	PASS	
Tert-butyl alcohol	2.6	2.4	6.1	PASS	
1,1,2,2-Tetrachloroethane	1.0	1.00	4.3	PASS	
Tetrachloroethene	0.61	0.57	5.4	PASS	

***%Difference must be within +/- 30%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**12/11/2023 10:26**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4902DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 09:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
CLEAN CAN CERTIFICATION, BATCH MASTER 1458 [AA4906]	12/11/2023 12:50
CLEAN CAN CERTIFICATION, BATCH MASTER 1588 [AA4907]	12/11/2023 13:19
CLEAN CAN CERTIFICATION, BATCH MASTER 3012 [AA4908]	12/11/2023 13:49
E23-05080-01 [AA4911]	12/11/2023 15:19
E23-05080-02 [AA4912]	12/11/2023 15:48
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 01:59

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Toluene	1.4	1.3	4.0	PASS	
1,2,4-Trichlorobenzene	0.82	0.79	3.9	PASS	
1,1,1-Trichloroethane	2.8	2.5	8.6	PASS	
1,1,2-Trichloroethane	0.48	0.46	4.0	PASS	
Trichloroethene	0.44	0.41	8.4	PASS	
Trichlorofluoromethane	2.8	2.7	3.1	PASS	
1,1,2-Trichloro-1,2,2-trifluoroethane	2.8	2.4	15	PASS	
1,2,4-Trimethylbenzene	1.7	1.7	3.1	PASS	
1,3,5-Trimethylbenzene	1.7	1.7	4.2	PASS	
2,2,4-Trimethylpentane	1.3	1.2	4.3	PASS	
Vinyl bromide	0.90	0.91	-1.8	PASS	
Vinyl chloride	0.91	0.89	1.5	PASS	
Xylenes (m&p)	1.4	1.3	2.0	PASS	
Xylenes (o)	1.5	1.4	6.4	PASS	

***%Difference must be within +/- 30%**
RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Evaluate Continuing Calibration Report

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS)	1.000	1.000	0.0	151	0.00
2	T	Propene	0.694	0.638	8.1	161	0.00
3	T	Dichlorodifluoromethane	2.216	2.188	1.3	153	0.00
4	T	1,2-Dichlorotetrafluoroetha	3.219	2.870	10.8	147	0.00
5	T	n-Butane	1.597	1.560	2.3	154	0.00
6	T	Chloromethane	0.111	0.117	-5.4	157	0.00
7	T	Vinyl chloride	0.906	0.892	1.5	149	0.00
8	T	1,3-Butadiene	0.846	0.798	5.7	151	0.00
9	T	Bromomethane	0.731	0.763	-4.4	154	0.00
10	T	Chloroethane	0.475	0.519	-9.3	156	0.00
11	T	Vinyl bromide	0.895	0.911	-1.8	151	0.00
12	T	Trichlorofluoromethane	2.799	2.713	3.1	155	0.00
13	T	Ethanol	0.293	0.325	-10.9	183	0.00
14	T	1,1-Dichloroethene	1.858	1.877	-1.0	146	0.00
15	T	Carbon disulfide	3.058	3.087	-0.9	145	0.00
16	T	1,1,2-Trichloro-1,2,2-trifl	2.819	2.390	15.2	143	0.00
17	T	Acrolein	0.418	0.423	-1.2	149	0.00
18	T	Allyl chloride	0.501	0.513	-2.4	145	0.00
19	T	Isopropanol	2.005	2.110	-5.2	153	0.00
20	T	Methylene chloride	1.229	1.083	11.9	161	0.00
21	T	Acetone	1.508	1.551	-2.9	153	0.00
22	T	trans-1,2-Dichloroethene	1.724	1.721	0.2	146	0.00
23	T	n-Pentane	2.325	2.210	4.9	154	0.00
24	T	n-Hexane	3.152	2.903	7.9	148	0.00
25	T	Methyl tert-butyl ether	3.872	3.613	6.7	150	0.00
26	T	Tert-butyl alcohol	2.607	2.448	6.1	148	0.00
27	T	1,1-Dichloroethane	2.322	2.083	10.3	141	0.00
28	T	cis-1,2-Dichloroethene	1.638	1.576	3.8	144	0.00
29	t	Cyclohexane	2.202	2.029	7.9	148	0.00
30	T	Chloroform	2.676	2.457	8.2	141	0.00
31	T	Ethyl acetate	0.435	0.434	0.2	146	0.00
32	T	Carbon tetrachloride	3.174	2.860	9.9	142	0.00
33	T	Tetrahydrofuran	1.504	1.466	2.5	149	0.00
34	T	1,1,1-Trichloroethane	2.780	2.541	8.6	144	0.00
35	T	Methyl ethyl ketone	2.442	2.356	3.5	150	0.00
36	T	n-Heptane	2.764	2.735	1.0	145	0.00
37	T	Benzene	3.972	3.428	13.7	136	0.00
38	T	1,2-Dichloroethane	1.663	1.603	3.6	146	0.00
39	I	1,4-Difluorobenzene (IS)	1.000	1.000	0.0	147	0.00
40	T	Trichloroethene	0.442	0.405	8.4	135	0.00
41	T	2,2,4-Trimethylpentane	1.303	1.247	4.3	149	0.00
42	T	1,2-Dichloropropane	0.389	0.371	4.6	139	0.00
43	T	Bromodichloromethane	0.655	0.640	2.3	143	0.00
44	T	Methyl methacrylate	0.472	0.494	-4.7	146	0.00
45	T	1,4-Dioxane	0.238	0.232	2.5	140	0.00
46	T	cis-1,3-Dichloropropene	0.603	0.587	2.7	137	0.00
47	T	Toluene	1.405	1.349	4.0	133	0.00
48	T	Methyl isobutyl ketone	0.883	0.958	-8.5	148	0.00
49	T	Tetrachloroethene	0.606	0.573	5.4	133	0.00
50	T	trans-1,3-Dichloropropene	0.585	0.600	-2.6	139	0.00
51	T	1,1,2-Trichloroethane	0.475	0.456	4.0	135	0.00
52	T	Dibromochloromethane	0.791	0.789	0.3	139	0.00
53	T	1,2-Dibromoethane	0.686	0.685	0.1	137	0.00

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	T	Methyl n-butyl ketone	0.849	0.947	-11.5	149	0.00
55	I	d-5 Chlorobenzene (IS)	1.000	1.000	0.0	142	0.00
56	T	n-Nonane	0.992	1.053	-6.1	146	0.00
57	T	Chlorobenzene	0.997	0.924	7.3	133	0.00
58	T	Ethylbenzene	1.843	1.749	5.1	134	0.00
59	T	Xylenes (m&p)	1.365	1.338	2.0	134	0.00
60	T	Xylene (o)	1.490	1.395	6.4	135	0.00
61	T	Styrene	1.020	0.982	3.7	131	0.00
62	T	Bromoform	0.732	0.731	0.1	139	0.00
63	T	Cumene	1.947	1.907	2.1	139	0.00
64	S	Bromofluorobenzene (tune st	0.872	0.871	0.1	142	0.00
65	T	n-Propyl benzene	2.541	2.576	-1.4	140	0.00
66	T	1,1,2,2-Tetrachloroethane	1.043	0.998	4.3	136	0.00
67	T	4-Ethyltoluene	2.151	2.143	0.4	138	0.00
68	T	2-Chlorotoluene	1.707	1.675	1.9	140	0.00
69	T	1,3,5-Trimethylbenzene	1.730	1.657	4.2	134	0.00
70	T	1,2,4-Trimethylbenzene	1.729	1.675	3.1	133	0.00
71	T	1,3-Dichlorobenzene	1.059	0.981	7.4	133	0.00
72	T	1,4-Dichlorobenzene	1.065	1.017	4.5	134	0.00
73	T	Benzyl chloride	1.529	1.639	-7.2	144	0.00
74	T	1,2-Dichlorobenzene	1.027	0.970	5.6	133	0.00
75	T	1,3-Hexachlorobutadiene	0.713	0.668	6.3	135	0.00
76	T	1,2,4-Trichlorobenzene	0.824	0.792	3.9	137	0.00
77	T	Naphthalene	1.885	1.937	-2.8	145	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.393	130	596109	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2484518	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2791354	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2431677	9.99	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	414687	10.02	ppbV	98
3) Dichlorodifluoromethane	1.522	85	1382298	10.46	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.646	85	1676477	8.74	ppbV	97
5) n-Butane	1.729	43	1013335	10.64	ppbV	99
6) Chloromethane	1.791	52	78218	11.85	ppbV	100
7) Vinyl chloride	1.784	62	574429	10.64	ppbV	100
8) 1,3-Butadiene	1.794	39	509282	10.09	ppbV	97
9) Bromomethane	2.081	94	454826	10.43	ppbV	98
10) Chloroethane	2.194	64	327772	11.57	ppbV	98
11) Vinyl bromide	2.293	106	548259	10.27	ppbV	99
12) Trichlorofluoromethane	2.309	101	1779124	10.66	ppbV	99
13) Ethanol	2.666	45	201466	11.54	ppbV	97
14) 1,1-Dichloroethene	2.731	61	1163954	10.51	ppbV	96
15) Carbon disulfide	2.750	76	1969223	10.80	ppbV	97
16) 1,1,2-Trichloro-1,2,2-...	2.772	101	1553181	9.24	ppbV	99
17) Acrolein	2.985	56	252446	10.14	ppbV	100
18) Allyl chloride	3.110	76	330196	11.05	ppbV	100
19) Isopropanol	3.110	45	1119255	9.36	ppbV	100
20) Methylene chloride	3.203	49	696985	9.51	ppbV	95
21) Acetone	3.210	43	998590	11.11	ppbV	100
22) trans-1,2-Dichloroethene	3.325	61	1138568	11.08	ppbV	98
23) n-Pentane	3.409	43	1422770	10.27	ppbV	98
24) n-Hexane	3.406	57	1903376	10.13	ppbV	98
25) Methyl tert-butyl ether	3.409	73	2411960	10.45	ppbV	99
26) Tert-butyl alcohol	3.464	59	1678450	10.80	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1328374	9.60	ppbV	100
28) cis-1,2-Dichloroethene	4.232	61	1023865	10.48	ppbV	96
29) Cyclohexane	4.412	56	1354780	10.32	ppbV	97
30) Chloroform	4.454	83	1581616	9.92	ppbV	99
31) Ethyl acetate	4.541	61	279320	10.77	ppbV	96
32) Carbon tetrachloride	4.576	117	1875059	9.91	ppbV	99
33) Tetrahydrofuran	4.573	42	961491	10.72	ppbV	97
34) 1,1,1-Trichloroethane	4.628	97	1650986	9.96	ppbV	99
35) Methyl ethyl ketone	4.682	43	1545036	10.61	ppbV	98
36) n-Heptane	4.914	43	1809408	10.98	ppbV	97
37) Benzene	4.930	78	2206639	9.32	ppbV	97
38) 1,2-Dichloroethane	5.091	62	1041657	10.51	ppbV	100
40) Trichloroethene	5.431	130	1006216	9.15	ppbV	100
41) 2,2,4-Trimethylpentane	4.846	57	3376289	10.43	ppbV	100
42) 1,2-Dichloropropane	5.885	63	1014651	10.50	ppbV	99
43) Bromodichloromethane	5.943	83	1828286	11.23	ppbV	100
44) Methyl methacrylate	6.087	41	1350577	11.52	ppbV	96
45) 1,4-Dioxane	6.113	88	673669	11.38	ppbV	99
46) cis-1,3-Dichloropropene	6.534	75	1619348	10.81	ppbV	99
47) Toluene	6.772	91	3618902	10.36	ppbV	100
48) Methyl isobutyl ketone	7.135	43	2595670	11.83	ppbV	98
49) Tetrachloroethene	7.161	166	1595415	10.60	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	1655291	11.39	ppbV	98
51) 1,1,2-Trichloroethane	7.335	97	1222341	10.37	ppbV	100

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2194895	11.17	ppbV	99
53)	1,2-Dibromoethane	7.759	107	1838806	10.78	ppbV	100
54)	Methyl n-butyl ketone	8.010	43	2657481	12.59	ppbV	97
56)	n-Nonane	8.316	43	3233636	11.67	ppbV	98
57)	Chlorobenzene	8.335	112	2863155	10.29	ppbV	98
58)	Ethylbenzene	8.380	91	5418295	10.53	ppbV	99
59)	Xylenes (m&p)	8.547	91	8329861	21.86	ppbV	99
60)	Xylene (o)	9.029	91	4282583	10.30	ppbV	98
61)	Styrene	9.087	104	3096431	10.87	ppbV	99
62)	Bromoform	9.097	173	2305769	11.28	ppbV	100
63)	Cumene	9.402	105	5696839	10.48	ppbV	100
65)	n-Propyl benzene	9.897	91	7764284	10.95	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.971	83	3175462	10.91	ppbV	100
67)	4-Ethyltoluene	10.039	105	6460729	10.76	ppbV	99
68)	2-Chlorotoluene	10.065	91	5096400	10.69	ppbV	99
69)	1,3,5-Trimethylbenzene	10.148	105	5041969	10.44	ppbV	99
70)	1,2,4-Trimethylbenzene	10.621	105	5048160	10.46	ppbV	99
71)	1,3-Dichlorobenzene	10.997	146	3039816	10.29	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	3038927	10.22	ppbV	99
73)	Benzyl chloride	11.431	91	4575705	10.72	ppbV	99
74)	1,2-Dichlorobenzene	11.640	146	2896425	10.10	ppbV	99
75)	1,3-Hexachlorobutadiene	13.200	225	2068735	10.40	ppbV	99
76)	1,2,4-Trichlorobenzene	13.200	180	2432158	10.57	ppbV	99
77)	Naphthalene	13.463	128	5407318	10.28	ppbV	100

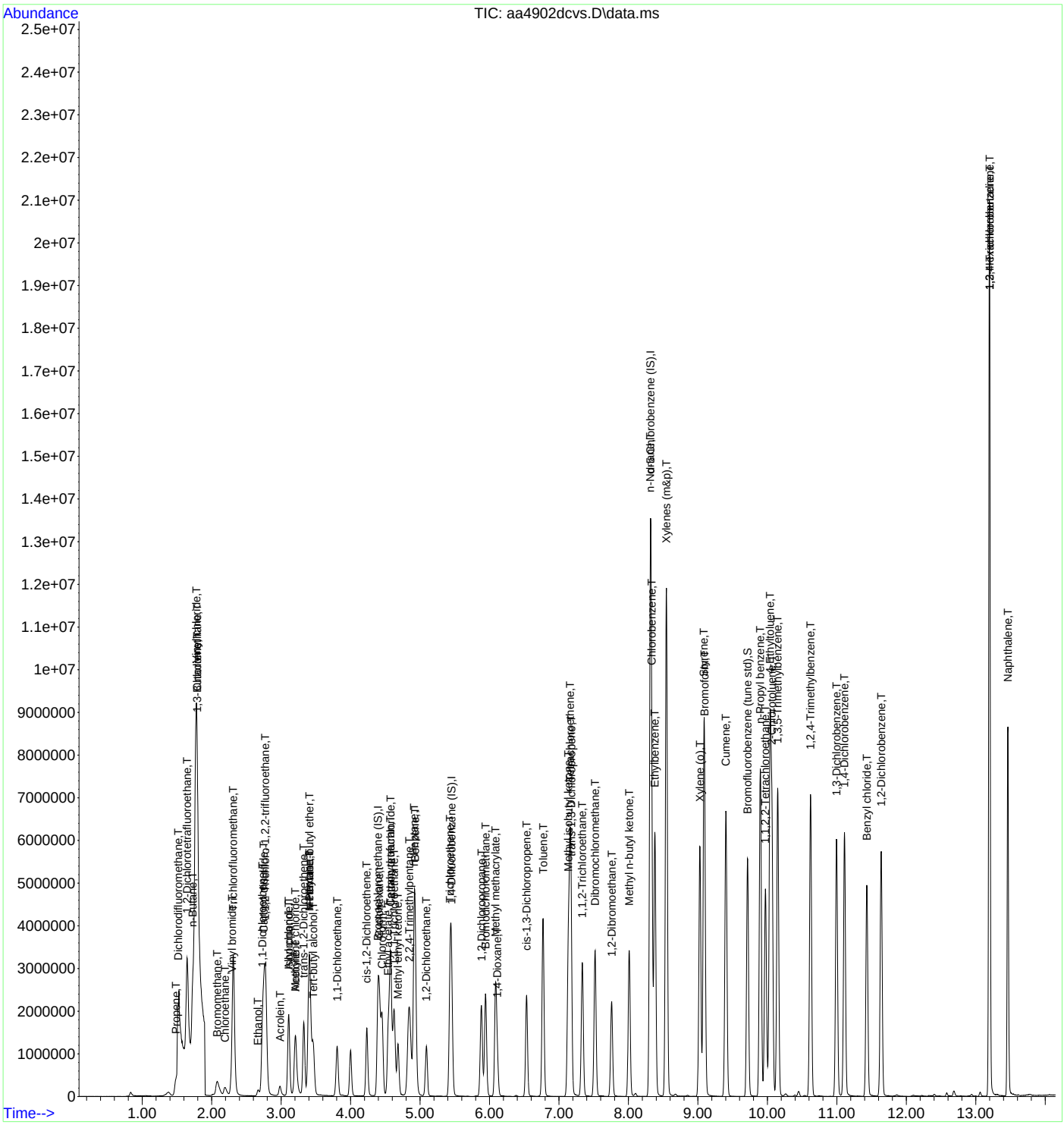
(#) = qualifier out of range (m) = manual integration (+) = signals summed

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



Section VIII: Raw Quality Control Data Package

BFB Tune Spectra

Method Blank

Laboratory Control Sample

Laboratory Sample Duplicate

Instrument Run Logs

Pressure Gauge Readings (initial and final)

Example Calculations

Screening Data

Clean Canister Certification

BFB

Data Path: C:\DATA\2023\08-2023\08-15-2023\
Data File: AA3401BFB.D
Acq On: 8/15/2023 10:11:00AM
Operator: jls
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230525.M
Last Update: Tue May 30 13:24:12 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	251499	18.7
PASS	75	95	30	66	703104	52.3
PASS	95	95	100	100	1345024	100.0
PASS	96	95	5	9	89525	6.7
PASS	173	174	0.00	2	8293	0.8
PASS	174	95	50	100	1069397	79.5
PASS	175	174	4	9	78181	7.3
PASS	176	174	93	101	1035413	96.8
PASS	177	176	5	9	68613	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA3401BFB	NA	8/15/2023 10:11:00 AM
0.2 PPBV STD	AA3402STD05	NA	8/15/2023 11:15:00 AM
10 PPBV STD	AA3404STD03	NA	8/15/2023 1:09:00 PM
2 PPBV STD	AA3403STD04	NA	8/15/2023 1:45:00 PM
20 PPBV STD	AA3405STD02	NA	8/15/2023 3:12:00 PM
40 PPBV STD	AA3406STD01	NA	8/15/2023 4:47:00 PM
10 PPBV ICVSS	AA3407ICVSS	NA	8/15/2023 6:09:00 PM

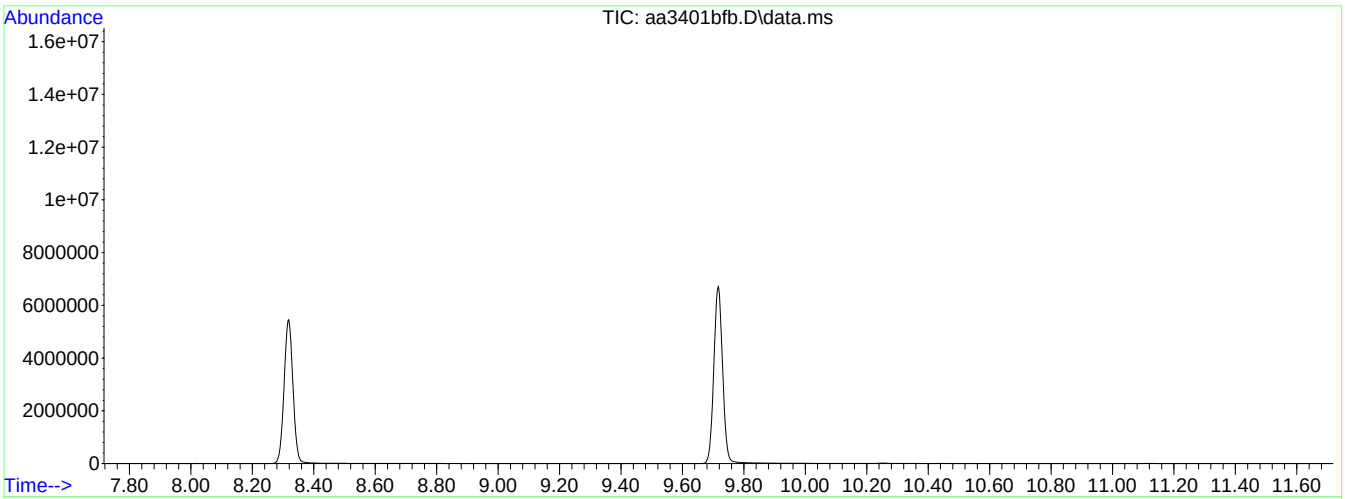
INTEGRATED ANALYTICAL LABORATORIES, LLC

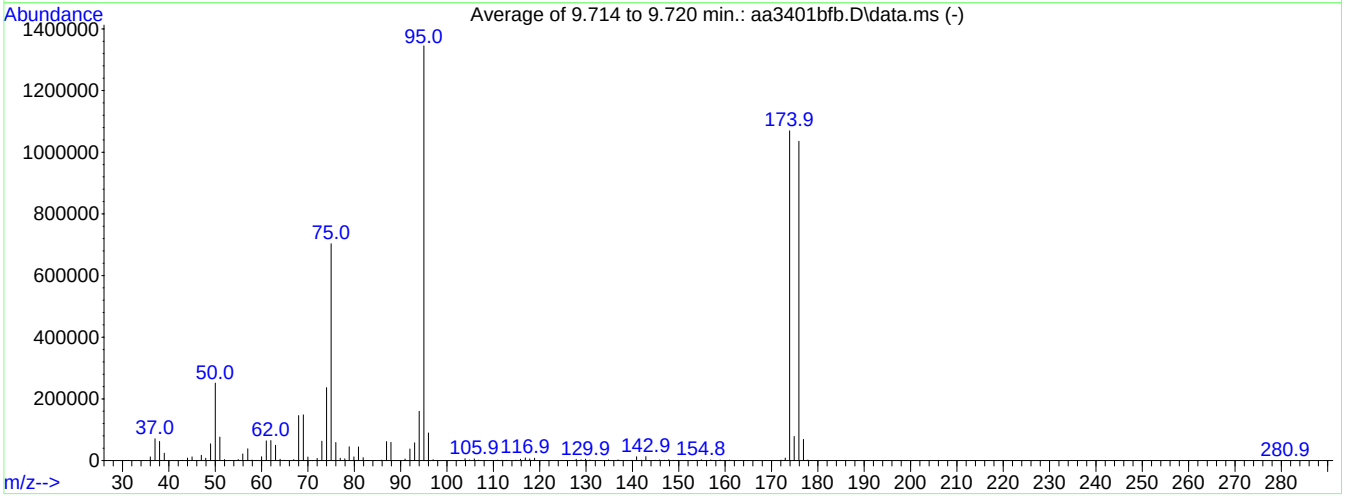
BFB

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3401bfb.D
Acq On : 15 Aug 2023 10:11 am
Operator : jjw
Sample : BFB
Misc : ALM018474
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\230525.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Tue May 30 13:24:12 2023





AutoFind: Scans 2982, 2983, 2984; Background Corrected with Scan 2964

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.7	251499	PASS
75	95	30	66	52.3	703104	PASS
95	95	100	100	100.0	1345024	PASS
96	95	5	9	6.7	89525	PASS
173	174	0.00	2	0.8	8293	PASS
174	95	50	100	79.5	1069397	PASS
175	174	4	9	7.3	78181	PASS
176	174	93	101	96.8	1035413	PASS
177	176	5	9	6.6	68613	PASS

BFB

Data Path: C:\DATA\2023\09-2023\09-28-2023\
Data File: AA4071BFB.D
Acq On: 9/28/2023 10:01:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230815.M
Last Update: Wed Aug 16 10:00:51 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	96931	19.9
PASS	75	95	30	66	265259	54.6
PASS	95	95	100	100	485931	100.0
PASS	96	95	5	9	33264	6.8
PASS	173	174	0.00	2	3017	0.8
PASS	174	95	50	100	366187	75.4
PASS	175	174	4	9	27080	7.4
PASS	176	174	93	101	360832	98.5
PASS	177	176	5	9	23088	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4071BFB	NA	9/28/2023 10:01:00 AM
10 PPBV DCVS	AA4072DCVS	NA	9/28/2023 10:31:00 AM
10 PPBV LCS	AA4073LCS	NA	9/28/2023 11:19:00 AM
METHOD BLANK	AA4074BLK	NA	9/28/2023 11:47:00 AM
02 PPBV RLLCS	AA4075RLLCS	NA	9/28/2023 1:22:00 PM
2164	AA4076	NA	9/28/2023 3:00:00 PM
4870	AA4077	NA	9/28/2023 3:30:00 PM
2160	AA4078	NA	9/28/2023 4:00:00 PM
10 PPBV CCCVS	AA4093CCCVS	NA	9/29/2023 12:28:00 AM

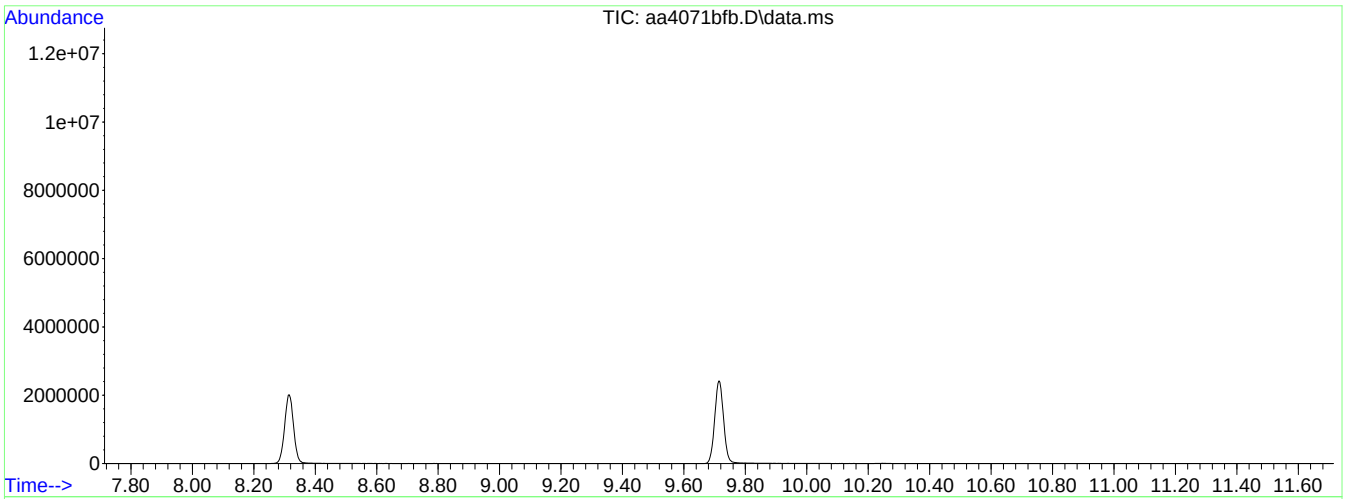
INTEGRATED ANALYTICAL LABORATORIES, LLC

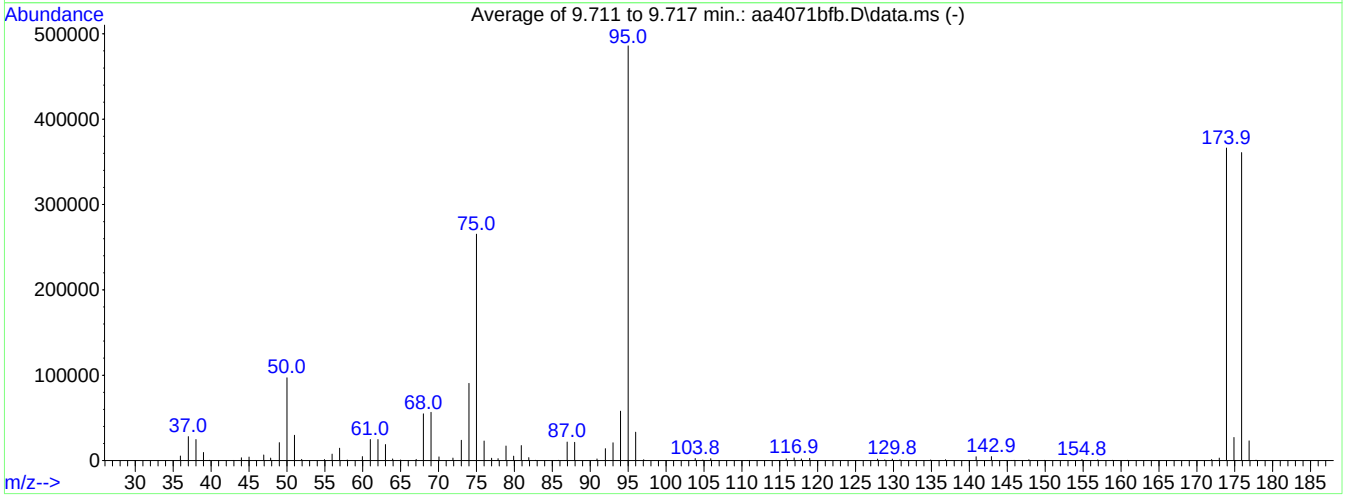
BFB

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4071bfb.D
Acq On : 28 Sep 2023 10:01 am
Operator : jjw
Sample : BFB
Misc : ALM018474
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\230815.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Wed Aug 16 10:00:51 2023





AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2965

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	19.9	96931	PASS
75	95	30	66	54.6	265259	PASS
95	95	100	100	100.0	485931	PASS
96	95	5	9	6.8	33264	PASS
173	174	0.00	2	0.8	3017	PASS
174	95	50	100	75.4	366187	PASS
175	174	4	9	7.4	27080	PASS
176	174	93	101	98.5	360832	PASS
177	176	5	9	6.4	23088	PASS

INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path: C:\DATA\2023\10-2023\10-10-2023\

Data File: AA4131BFB.D

Acq On: 10/10/2023 10:13:00AM

Operator: jls

Sample: BFB

Misc: ALM018474

ALS Vial: 1 **Multiplier:** 1

Integration File: rteint.p

Method: C:\msdchem\1\METHODS\231009.M

Last Update: Tue Oct 10 09:54:56 2023

Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	65523	16.8
PASS	75	95	30	66	182571	46.8
PASS	95	95	100	100	389867	100.0
PASS	96	95	5	9	25643	6.6
PASS	173	174	0.00	2	0	0.0
PASS	174	95	50	100	293952	75.4
PASS	175	174	4	9	22269	7.6
PASS	176	174	93	101	282667	96.2
PASS	177	176	5	9	18629	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4131BFB	NA	10/10/2023 10:13:00 AM
0.2 PPBV STD	AA4132STD05	NA	10/10/2023 10:40:00 AM
2 PPBV STD	AA4133STD04	NA	10/10/2023 11:46:00 AM
10 PPBV STANDARD STD	AA4134STD03	NA	10/10/2023 12:21:00 PM
20 PPBV STD	AA4135STD02	NA	10/10/2023 12:55:00 PM
40 PPBV STD	AA4136STD01	NA	10/10/2023 2:05:00 PM
10 PPBV ICVSS	AA4137ICVSS	NA	10/10/2023 4:48:00 PM
10 PPBV LCS	AA4138LCS	NA	10/10/2023 5:39:00 PM
METHOD BLANK	AA4139BLK	NA	10/10/2023 6:07:00 PM
02 PPBV RLLCS	AA4140RLLCS	NA	10/10/2023 6:35:00 PM
5101	AA4142	NA	10/10/2023 7:36:00 PM
4869	AA4143	NA	10/10/2023 8:06:00 PM
2157	AA4144	NA	10/10/2023 8:36:00 PM
10 PPBV CCCVS	AA4154CCCVS	NA	10/11/2023 1:53:00 AM

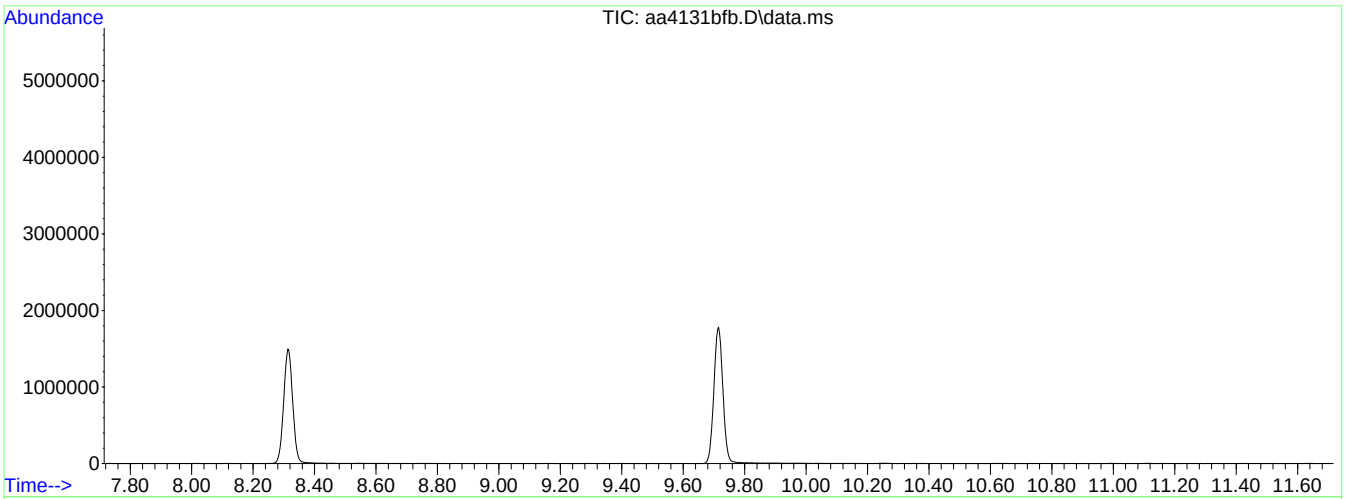
INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4131bfb.D
Acq On : 10 Oct 2023 10:13 am
Operator : jjw
Sample : BFB
Misc : ALM018474
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\231009.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Tue Oct 10 09:54:56 2023



AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2964

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	16.8	65523	PASS
75	95	30	66	46.8	182571	PASS
95	95	100	100	100.0	389867	PASS
96	95	5	9	6.6	25643	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	75.4	293952	PASS
175	174	4	9	7.6	22269	PASS
176	174	93	101	96.2	282667	PASS
177	176	5	9	6.6	18629	PASS

BFB

Data Path: C:\DATA\2023\12-2023\12-08-2023\
Data File: AA4881BFB.D
Acq On: 12/8/2023 10:21:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\231009.M
Last Update: Tue Oct 10 15:12:35 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	185045	18.5
PASS	75	95	30	66	508523	50.7
PASS	95	95	100	100	1002688	100.0
PASS	96	95	5	9	66973	6.7
PASS	173	174	0.00	2	4685	0.6
PASS	174	95	50	100	744704	74.3
PASS	175	174	4	9	56251	7.6
PASS	176	174	93	101	716907	96.3
PASS	177	176	5	9	46309	6.5

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4881BFB	NA	12/8/2023 10:21:00 AM
10 PPBV DCVS	AA4882DCVS	NA	12/8/2023 10:50:00 AM
10 PPBV LCS	AA4883LCS	NA	12/8/2023 11:21:00 AM
METHOD BLANK	AA4884BLK	NA	12/8/2023 12:26:00 PM
E23-05080-01	AA4893	SV2	12/8/2023 6:08:00 PM
E23-05080-02	AA4894	SV3	12/8/2023 6:39:00 PM

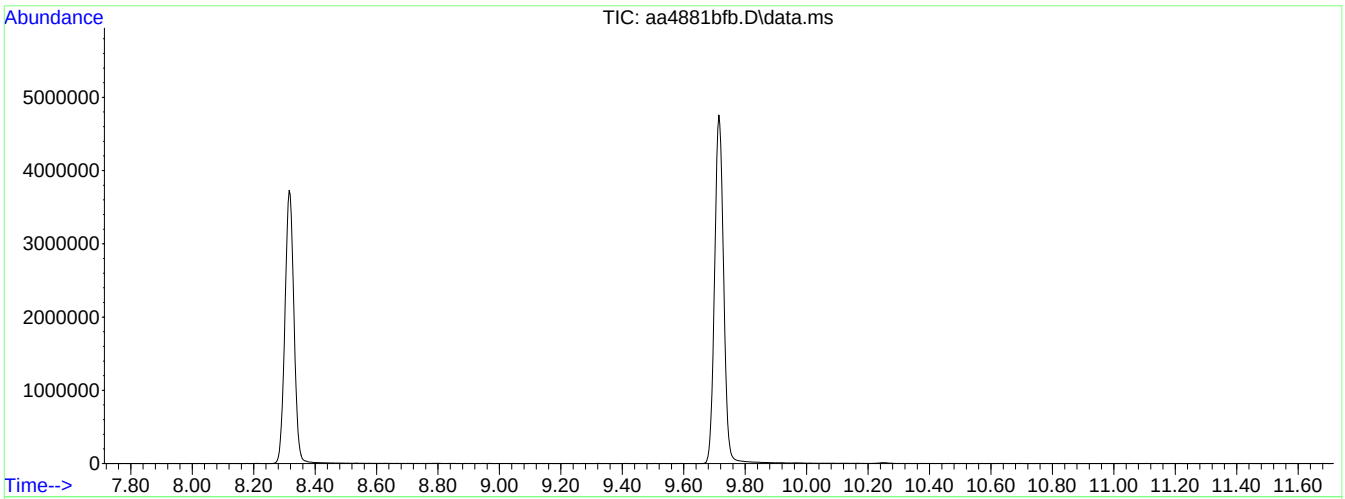
INTEGRATED ANALYTICAL LABORATORIES, LLC

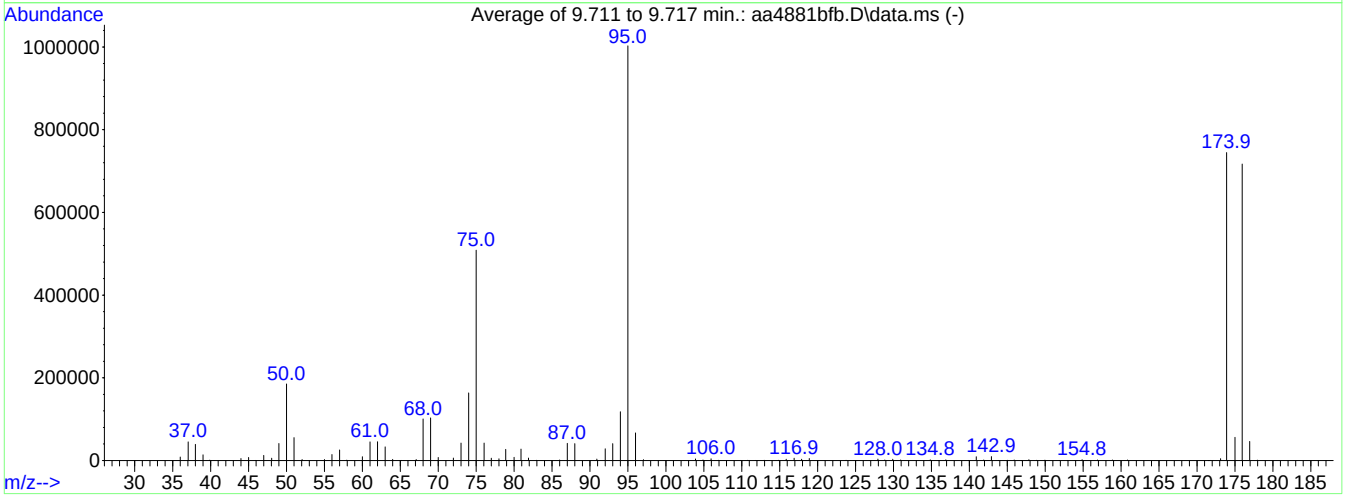
BFB

```
Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4881bfb.D
Acq On    :  8 Dec 2023  10:21 am
Operator  : jjw
Sample    : BFB
Misc      : ALM018474
ALS Vial  : 1   Sample Multiplier: 1

Integration File: rteint.p

Method    : C:\msdchem\1\METHODS\231009.M
Title     : TO-15 on the Agilent 7890A / 5975C
Last Update  : Tue Oct 10 15:12:35 2023
```





AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2964

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.5	185045	PASS
75	95	30	66	50.7	508523	PASS
95	95	100	100	100.0	1002688	PASS
96	95	5	9	6.7	66973	PASS
173	174	0.00	2	0.6	4685	PASS
174	95	50	100	74.3	744704	PASS
175	174	4	9	7.6	56251	PASS
176	174	93	101	96.3	716907	PASS
177	176	5	9	6.5	46309	PASS

BFB

Data Path: C:\DATA\2023\12-2023\12-11-2023\
Data File: AA4901BFB.D
Acq On: 12/11/2023 9:24:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\231009.M
Last Update: Tue Oct 10 15:12:35 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	267904	18.4
PASS	75	95	30	66	717035	49.1
PASS	95	95	100	100	1459371	100.0
PASS	96	95	5	9	91040	6.2
PASS	173	174	0.00	2	10848	1.0
PASS	174	95	50	100	1053269	72.2
PASS	175	174	4	9	81547	7.7
PASS	176	174	93	101	1021824	97.0
PASS	177	176	5	9	65264	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4901BFB	NA	12/11/2023 9:24:00 AM
10 PPBV DCVS	AA4902DCVS	NA	12/11/2023 10:26:00 AM
10 PPBV LCS	AA4903LCS	NA	12/11/2023 10:57:00 AM
METHOD BLANK	AA4904BLK	NA	12/11/2023 11:51:00 AM
02 PPBV RLLCS	AA4905RLLCS	NA	12/11/2023 12:18:00 PM
1458	AA4906	NA	12/11/2023 12:50:00 PM
1588	AA4907	NA	12/11/2023 1:19:00 PM
3012	AA4908	NA	12/11/2023 1:49:00 PM
E23-05080-01	AA4911	SV2	12/11/2023 3:19:00 PM
E23-05080-02	AA4912	SV3	12/11/2023 3:48:00 PM
10 PPBV CCCVS	AA4931CCCVS	NA	12/12/2023 1:59:00 AM

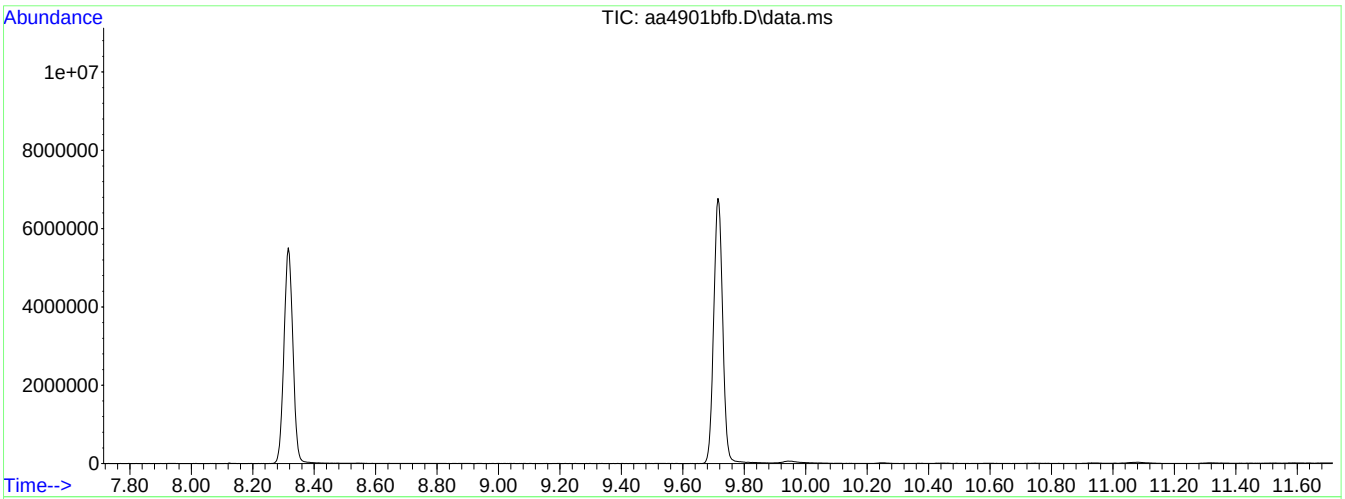
INTEGRATED ANALYTICAL LABORATORIES, LLC

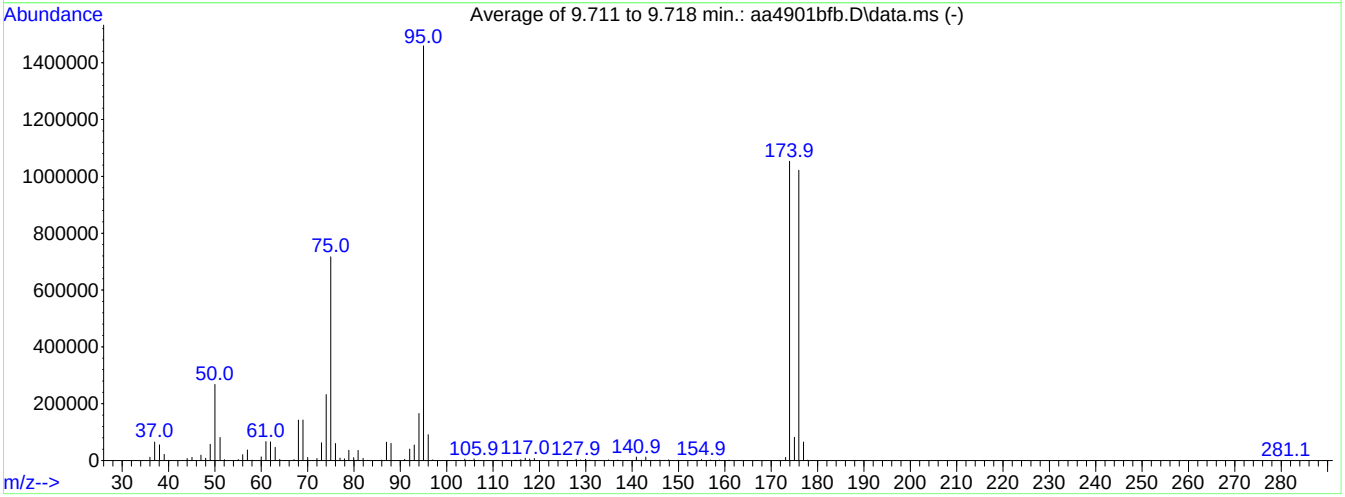
BFB

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4901bfb.D
Acq On : 11 Dec 2023 9:24 am
Operator : jjw
Sample : BFB
Misc : ALM018474
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\231009.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Tue Oct 10 15:12:35 2023





AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2963

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.4	267904	PASS
75	95	30	66	49.1	717035	PASS
95	95	100	100	100.0	1459371	PASS
96	95	5	9	6.2	91040	PASS
173	174	0.00	2	1.0	10848	PASS
174	95	50	100	72.2	1053269	PASS
175	174	4	9	7.7	81547	PASS
176	174	93	101	97.0	1021824	PASS
177	176	5	9	6.4	65264	PASS

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4074BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**9/28/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4074BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**9/28/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4074blk.D
Acq On : 28 Sep 2023 11:47 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 28 12:02:32 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

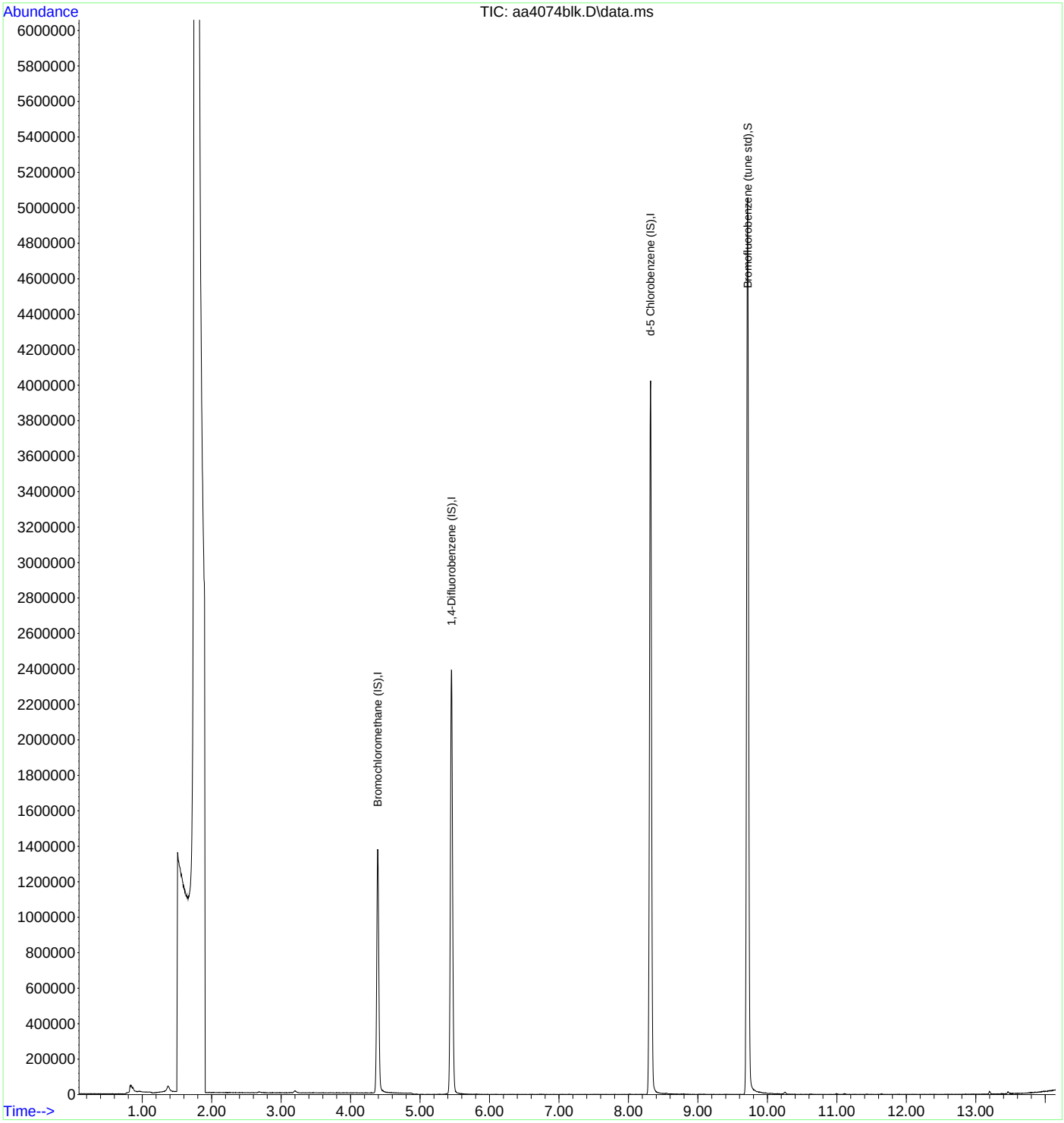
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Bromochloromethane (IS)	4.393	130	502187	10.00 ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2139413	10.00 ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2500606	10.00 ppbV	0.000
System Monitoring Compounds					
64) Bromofluorobenzene (tu...	9.717	95	2123353	10.21 ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4074blk.D
Acq On : 28 Sep 2023 11:47 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 28 12:02:32 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4884BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/8/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05080-01 [AA4893]	12/08/2023 18:08
E23-05080-02 [AA4894]	12/08/2023 18:39

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4884BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/8/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05080-01 [AA4893]	12/08/2023 18:08
E23-05080-02 [AA4894]	12/08/2023 18:39

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4884blk.D
Acq On : 8 Dec 2023 12:26 pm
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 12 09:46:27 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

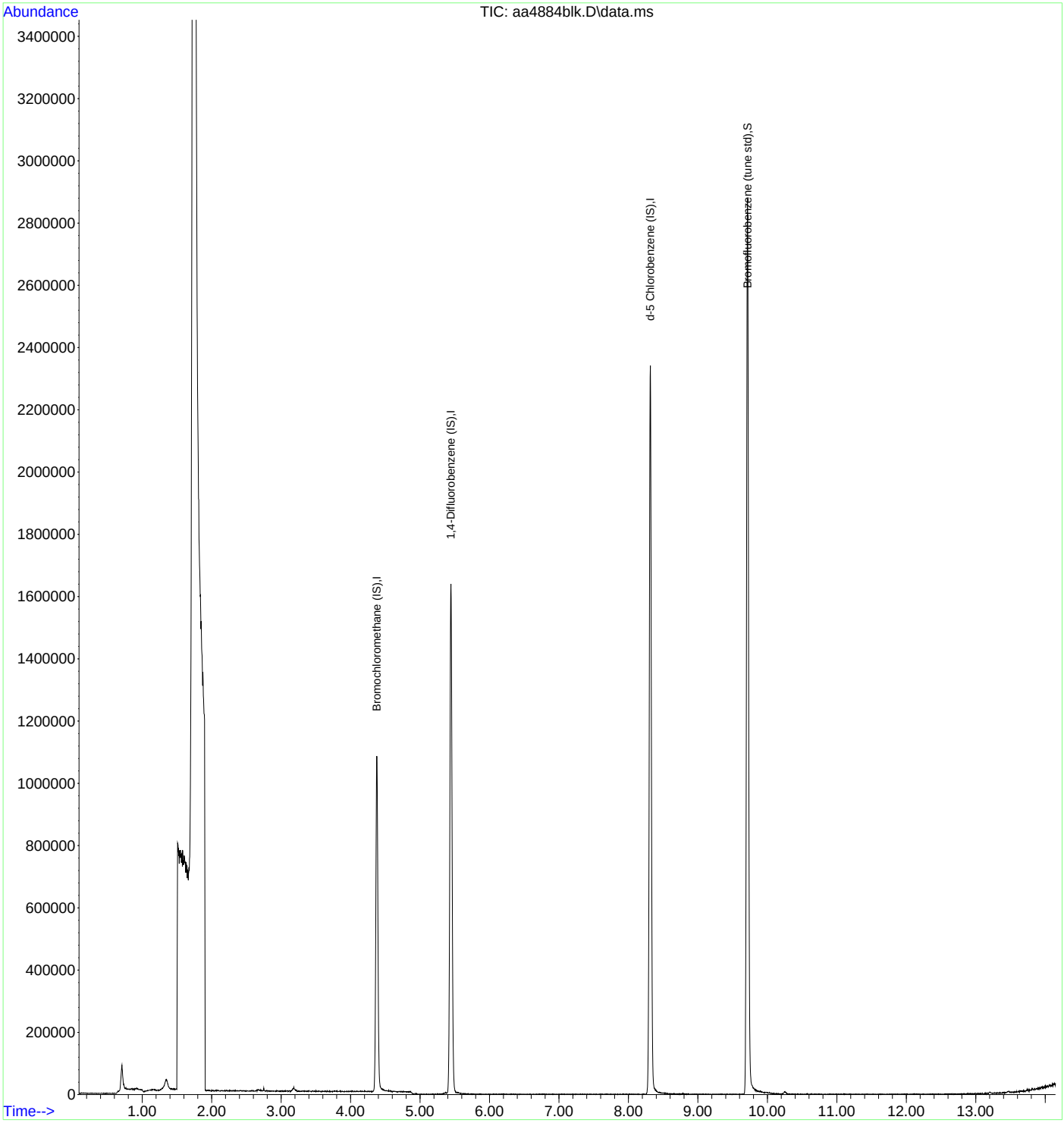
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.377	130	407142	10.00	ppbV	-0.017
39) 1,4-Difluorobenzene (IS)	5.444	114	1506485	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1527551	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1276284	9.58	ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4884blk.D
Acq On : 8 Dec 2023 12:26 pm
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 12 09:46:27 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05080-01 [AA4911]	12/11/2023 15:19
E23-05080-02 [AA4912]	12/11/2023 15:48
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05080-01 [AA4911]	12/11/2023 15:19
E23-05080-02 [AA4912]	12/11/2023 15:48
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4904blk.D
Acq On : 11 Dec 2023 11:51 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 11 12:06:14 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

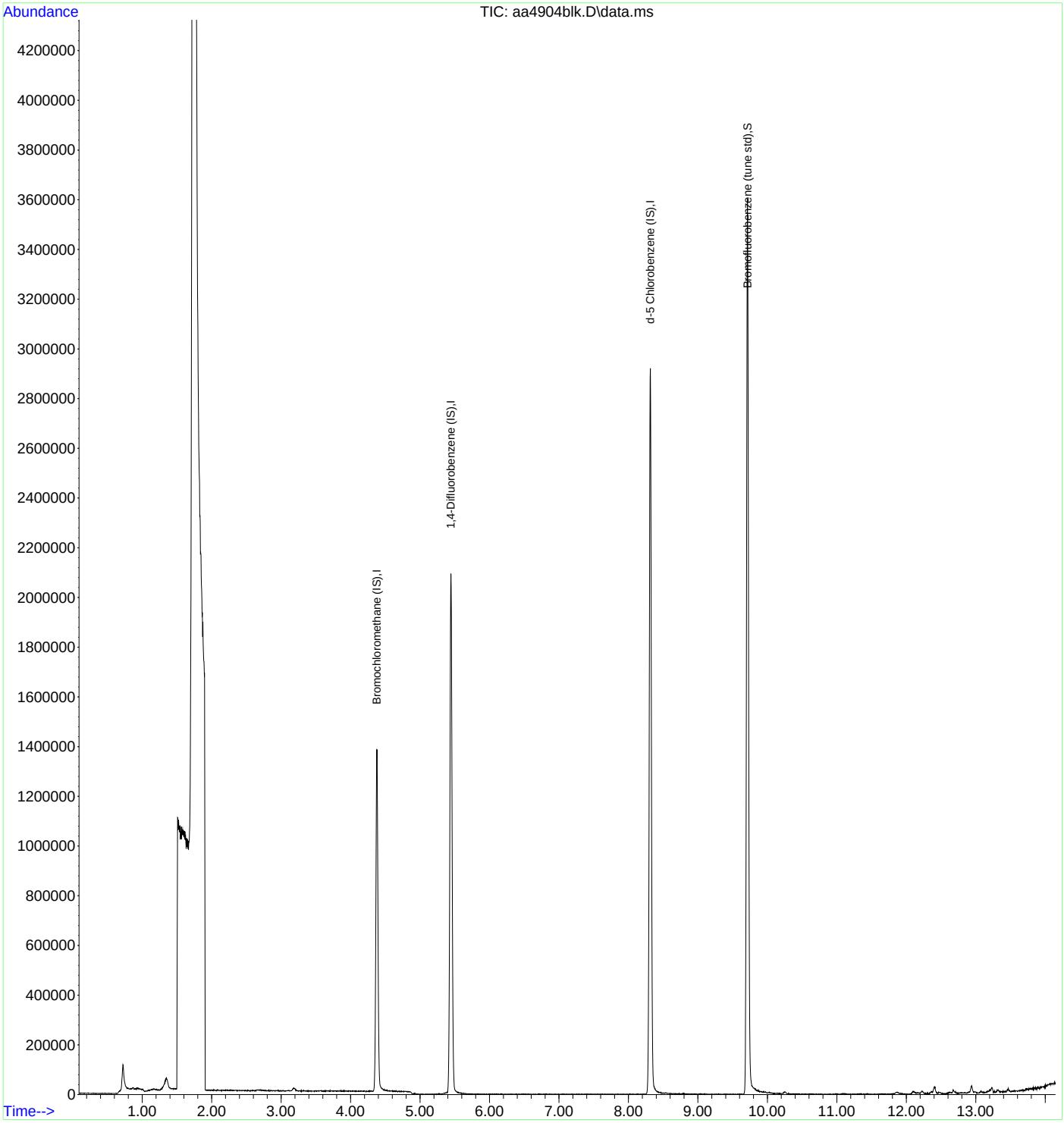
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Bromochloromethane (IS)	4.377	130	518939	10.00 ppbV	-0.017
39) 1,4-Difluorobenzene (IS)	5.444	114	1920464	10.00 ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	1920350	10.00 ppbV	0.000
System Monitoring Compounds					
64) Bromofluorobenzene (tu...	9.714	95	1609305	9.61 ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4904blk.D
Acq On : 11 Dec 2023 11:51 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 11 12:06:14 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4073LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 9/28/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	13	120
Benzene	71-43-2	12	120
Bromodichloromethane	75-27-4	12	110
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	12	110
1,3-Butadiene	106-99-0	14	130
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	13	130
Chloroform	67-66-3	13	130
Chloromethane	74-87-3	14	120
Carbon disulfide	75-15-0	14	130
Carbon tetrachloride	56-23-5	11	110
Cyclohexane	110-82-7	12	120
Dibromochloromethane	124-48-1	11	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	10	91
1,4-Dichlorobenzene	106-46-7	11	100
Dichlorodifluoromethane	75-71-8	13	120
1,1-Dichloroethane	75-34-3	13	120
1,2-Dichloroethane	107-06-2	13	130
1,1-Dichloroethene	75-35-4	13	120
1,2-Dichloroethene (cis)	156-59-2	14	130
1,2-Dichloroethene (trans)	156-60-5	14	130
1,2-Dichloropropane	78-87-5	11	110
1,3-Dichloropropene (cis)	10061-01-5	12	110
1,3-Dichloropropene (trans)	10061-02-6	13	130
1,2-Dichlorotetrafluoroethane	76-14-2	11	100
1,4-Dioxane	123-91-1	12	100
Ethylbenzene	100-41-4	11	110
n-Heptane	142-82-5	12	120

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: **10 PPBV LCS** **Data File:** **AA4073LCS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **9/28/2023**

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
1,3-Hexachlorobutadiene	87-68-3	9.6	84
n-Hexane	110-54-3	13	130
Methylene chloride	75-09-2	13	120
Methyl ethyl ketone	78-93-3	14	120
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	12	110
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	13	110
1,1,2,2-Tetrachloroethane	79-34-5	10	91
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	11	110
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	11	110
1,1,2-Trichloroethane	79-00-5	11	100
Trichloroethene	79-01-6	9.8	98
Trichlorofluoromethane	75-69-4	13	120
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	110
1,2,4-Trimethylbenzene	95-63-6	11	100
1,3,5-Trimethylbenzene	108-67-8	10	91
2,2,4-Trimethylpentane	540-84-1	12	120
Vinyl bromide	593-60-2	12	120
Vinyl chloride	75-01-4	14	130
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	10	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.
*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4073lcs.D
Acq On : 28 Sep 2023 11:19 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 28 12:10:06 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.396	130	409432	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	1933513	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2364904	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2078765	10.57	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	371726	13.18	ppbV	100
3) Dichlorodifluoromethane	1.529	85	1310888	12.67	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.650	85	1582960	10.63	ppbV	94
5) n-Butane	1.729	43	904419	13.51	ppbV	100
6) Chloromethane	1.791	52	67655	14.12	ppbV	94
7) Vinyl chloride	1.780	62	531992	13.67	ppbV	100
8) 1,3-Butadiene	1.794	39	550480	13.84	ppbV	93
9) Bromomethane	2.091	94	397168	12.15	ppbV	100
10) Chloroethane	2.194	64	271717	12.84	ppbV	98
11) Vinyl bromide	2.297	106	511821	12.45	ppbV	100
12) Trichlorofluoromethane	2.313	101	1773173	12.74	ppbV	99
13) Ethanol	2.670	45	187147	11.42	ppbV	99
14) 1,1-Dichloroethene	2.734	61	1143672	13.38	ppbV	95
15) Carbon disulfide	2.753	76	1947574	13.87	ppbV	98
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	1493461	10.86	ppbV	98
17) Acrolein	2.985	56	208388	11.85	ppbV	100
18) Allyl chloride	3.110	76	311360	13.59	ppbV	100
19) Isopropanol	3.110	45	1091138	11.53	ppbV	99
20) Methylene chloride	3.200	49	664730	12.87	ppbV	93
21) Acetone	3.213	43	1016794	13.24	ppbV	97
22) trans-1,2-Dichloroethene	3.329	61	1107246	14.39	ppbV	95
23) n-Pentane	3.409	43	1192108	12.14	ppbV	99
24) n-Hexane	3.406	57	1715467	12.51	ppbV	94
25) Methyl tert-butyl ether	3.409	73	2233934	11.98	ppbV	96
26) Tert-butyl alcohol	3.464	59	1556448	12.98	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1410547	13.06	ppbV	99
28) cis-1,2-Dichloroethene	4.232	61	1043309	13.97	ppbV	94
29) Cyclohexane	4.419	56	1188304	11.99	ppbV	96
30) Chloroform	4.454	83	1720861	13.02	ppbV	98
31) Ethyl acetate	4.544	61	270686	12.87	ppbV	96
32) Carbon tetrachloride	4.579	117	1731906	10.93	ppbV	100
33) Tetrahydrofuran	4.576	42	1055646	14.22	ppbV	95
34) 1,1,1-Trichloroethane	4.628	97	1558554	10.93	ppbV	100
35) Methyl ethyl ketone	4.682	43	1682004	14.19	ppbV	97
36) n-Heptane	4.917	43	1673877	12.20	ppbV	95
37) Benzene	4.933	78	2314027	12.25	ppbV	99
38) 1,2-Dichloroethane	5.094	62	1125187	13.29	ppbV	100
40) Trichloroethene	5.435	130	960270	9.78	ppbV	99
41) 2,2,4-Trimethylpentane	4.846	57	2903918	11.86	ppbV	100
42) 1,2-Dichloropropane	5.885	63	987657	11.19	ppbV	99
43) Bromodichloromethane	5.946	83	1869255	12.16	ppbV	100
44) Methyl methacrylate	6.087	41	1444941	12.73	ppbV	95
45) 1,4-Dioxane	6.113	88	646261	11.88	ppbV	95
46) cis-1,3-Dichloropropene	6.534	75	1603607	11.76	ppbV	99
47) Toluene	6.772	91	3435166	11.08	ppbV	100
48) Methyl isobutyl ketone	7.136	43	2598152	11.60	ppbV	97
49) Tetrachloroethene	7.161	166	1477394	10.60	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	1686526	12.54	ppbV	95
51) 1,1,2-Trichloroethane	7.335	97	1173769	10.74	ppbV	97

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4073lcs.D
Acq On : 28 Sep 2023 11:19 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 28 12:10:06 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2046806	11.22	ppbV	100
53)	1,2-Dibromoethane	7.759	107	1776029	11.11	ppbV	100
54)	Methyl n-butyl ketone	8.010	43	2823122	13.46	ppbV	97
56)	n-Nonane	8.316	43	3181135	10.99	ppbV	95
57)	Chlorobenzene	8.335	112	2697259	10.41	ppbV	97
58)	Ethylbenzene	8.380	91	5055299	10.55	ppbV	99
59)	Xylenes (m&p)	8.547	91	7753841	22.46	ppbV	98
60)	Xylene (o)	9.029	91	3909805	10.20	ppbV	99
61)	Styrene	9.087	104	2909338	11.44	ppbV	100
62)	Bromoform	9.097	173	2119263	10.78	ppbV	100
63)	Cumene	9.406	105	4907030	9.83	ppbV	98
65)	n-Propyl benzene	9.901	91	7047936	10.82	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.971	83	3018168	10.39	ppbV	99
67)	4-Ethyltoluene	10.039	105	5768083	10.75	ppbV	98
68)	2-Chlorotoluene	10.065	91	4590640	10.39	ppbV	98
69)	1,3,5-Trimethylbenzene	10.148	105	4460371	10.27	ppbV	98
70)	1,2,4-Trimethylbenzene	10.624	105	4654164	10.80	ppbV	97
71)	1,3-Dichlorobenzene	10.997	146	2940866	10.30	ppbV	99
72)	1,4-Dichlorobenzene	11.110	146	2934826	10.69	ppbV	100
73)	Benzyl chloride	11.431	91	4169793	11.08	ppbV	98
74)	1,2-Dichlorobenzene	11.640	146	2748354	10.17	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	1870014	9.65	ppbV	100
76)	1,2,4-Trichlorobenzene	13.200	180	2281637	10.73	ppbV	100
77)	Naphthalene	13.463	128	4616007	10.51	ppbV	100

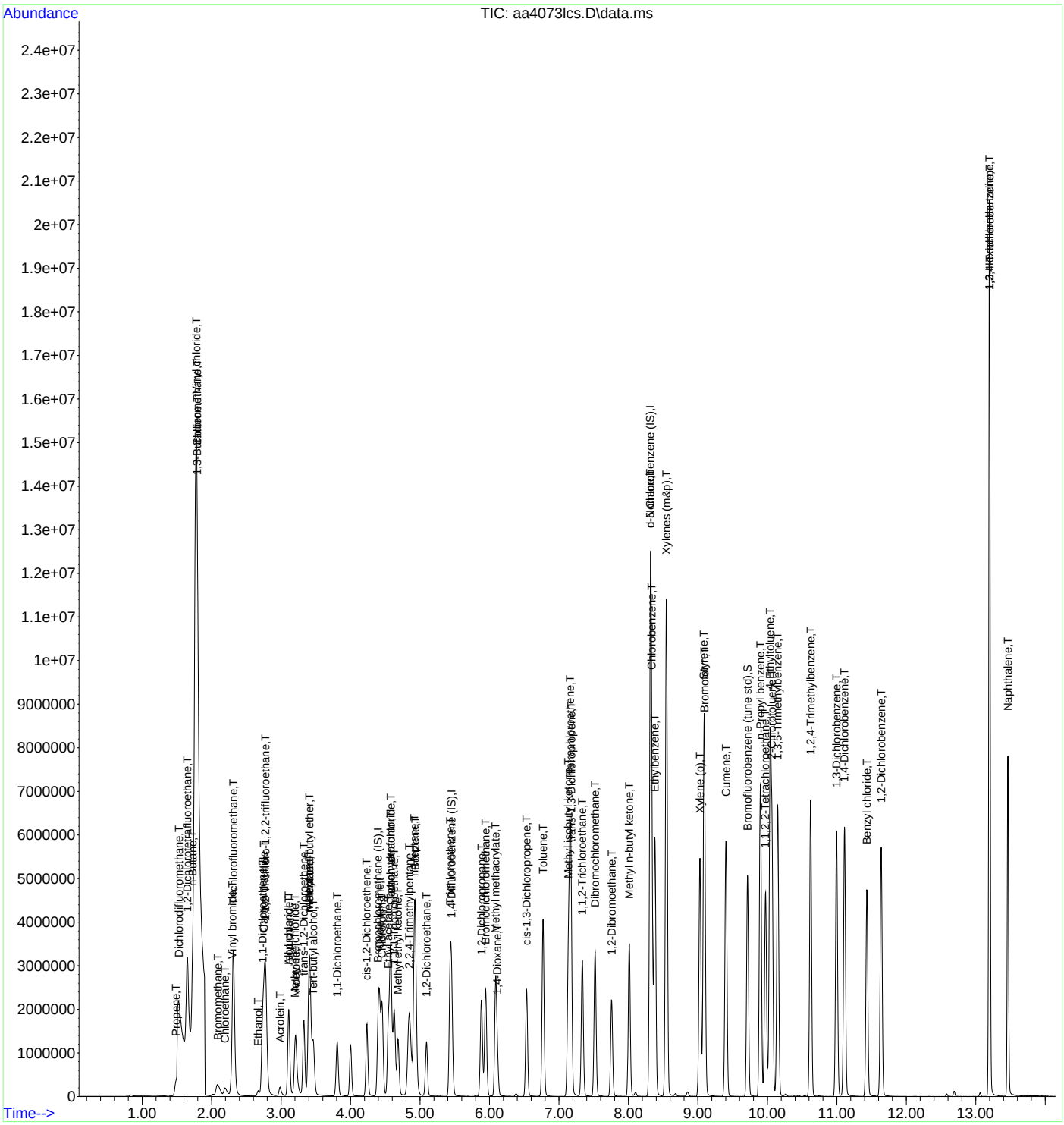
(#) = qualifier out of range (m) = manual integration (+) = signals summed

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4073lcs.D
Acq On : 28 Sep 2023 11:19 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 28 12:10:06 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4883LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/8/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05080-01 [AA4893]	12/08/2023 18:08
E23-05080-02 [AA4894]	12/08/2023 18:39

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	100
Benzene	71-43-2	9.3	93
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	11	100
1,3-Butadiene	106-99-0	9.9	99
Chlorobenzene	108-90-7	9.9	99
Chloroethane	75-00-3	11	110
Chloroform	67-66-3	10.0	100
Chloromethane	74-87-3	12	100
Carbon disulfide	75-15-0	11	100
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	10	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	9.7	88
1,3-Dichlorobenzene	541-73-1	9.8	89
1,4-Dichlorobenzene	106-46-7	9.6	87
Dichlorodifluoromethane	75-71-8	11	100
1,1-Dichloroethane	75-34-3	9.4	85
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	100
1,2-Dichloroethene (cis)	156-59-2	10	91
1,2-Dichloroethene (trans)	156-60-5	11	100
1,2-Dichloropropane	78-87-5	11	110
1,3-Dichloropropene (cis)	10061-01-5	11	100
1,3-Dichloropropene (trans)	10061-02-6	12	120
1,2-Dichlorotetrafluoroethane	76-14-2	9.0	82
1,4-Dioxane	123-91-1	12	100
Ethylbenzene	100-41-4	10	100
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	10.0	88
n-Hexane	110-54-3	10.0	100
Methylene chloride	75-09-2	9.5	86
Methyl ethyl ketone	78-93-3	10	85
Methyl isobutyl ketone	108-10-1	12	110

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: **10 PPBV LCS** **Data File:** **AA4883LCS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **12/8/2023**

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4881BFB]	12/08/2023 10:21
10 PPBV DCVS [AA4882DCVS]	12/08/2023 10:50
10 PPBV LCS [AA4883LCS]	12/08/2023 11:21
METHOD BLANK [AA4884BLK]	12/08/2023 12:26
E23-05080-01 [AA4893]	12/08/2023 18:08
E23-05080-02 [AA4894]	12/08/2023 18:39

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Methyl tert-butyl ether	1634-04-4	10	91
Styrene	100-42-5	10	91
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	10	91
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	10	88
1,1,1-Trichloroethane	71-55-6	10	100
1,1,2-Trichloroethane	79-00-5	10	91
Trichloroethene	79-01-6	9.3	93
Trichlorofluoromethane	75-69-4	11	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.2	92
1,2,4-Trimethylbenzene	95-63-6	10.0	91
1,3,5-Trimethylbenzene	108-67-8	10	91
2,2,4-Trimethylpentane	540-84-1	10	100
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	10	100
Xylenes (m&p)	179601-23-1	21	110
Xylenes (o)	95-47-6	9.9	99

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.
*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4883lcs.D
Acq On : 8 Dec 2023 11:21 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 08 11:44:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.390	130	505072	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	2076916	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2432062	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2156035	10.17	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.483	41	339866	9.69	ppbV	98
3) Dichlorodifluoromethane	1.522	85	1193354	10.66	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.646	85	1455605	8.95	ppbV	97
5) n-Butane	1.725	43	845634	10.48	ppbV	100
6) Chloromethane	1.791	52	65331	11.68	ppbV	99
7) Vinyl chloride	1.777	62	478632	10.46	ppbV	99
8) 1,3-Butadiene	1.791	39	422824	9.89	ppbV	100
9) Bromomethane	2.078	94	388679	10.52	ppbV	99
10) Chloroethane	2.190	64	273833	11.41	ppbV	98
11) Vinyl bromide	2.293	106	461478	10.21	ppbV	100
12) Trichlorofluoromethane	2.309	101	1567568	11.09	ppbV	99
13) Ethanol	2.663	45	169372	11.45	ppbV	98
14) 1,1-Dichloroethene	2.727	61	987655	10.53	ppbV	95
15) Carbon disulfide	2.750	76	1643881	10.64	ppbV	96
16) 1,1,2-Trichloro-1,2,2-...	2.772	101	1310794	9.21	ppbV	99
17) Acrolein	2.978	56	207019	9.81	ppbV	100
18) Allyl chloride	3.110	76	275622	10.89	ppbV	100
19) Isopropanol	3.107	45	904477	8.93	ppbV	98
20) Methylene chloride	3.197	49	591035	9.52	ppbV	94
21) Acetone	3.210	43	830614	10.90	ppbV	98
22) trans-1,2-Dichloroethene	3.325	61	938844	10.78	ppbV	99
23) n-Pentane	3.403	43	1185445	10.10	ppbV	97
24) n-Hexane	3.403	57	1587921	9.97	ppbV	96
25) Methyl tert-butyl ether	3.409	73	2034430	10.40	ppbV	97
26) Tert-butyl alcohol	3.460	59	1390520	10.56	ppbV	100
27) 1,1-Dichloroethane	3.804	63	1101260	9.39	ppbV	98
28) cis-1,2-Dichloroethene	4.232	61	832929	10.07	ppbV	98
29) Cyclohexane	4.412	56	1127775	10.14	ppbV	98
30) Chloroform	4.451	83	1346283	9.96	ppbV	99
31) Ethyl acetate	4.541	61	230413	10.48	ppbV	97
32) Carbon tetrachloride	4.576	117	1656389	10.33	ppbV	100
33) Tetrahydrofuran	4.570	42	788257	10.37	ppbV	98
34) 1,1,1-Trichloroethane	4.624	97	1432554	10.20	ppbV	99
35) Methyl ethyl ketone	4.682	43	1259095	10.21	ppbV	97
36) n-Heptane	4.917	43	1499293	10.74	ppbV	98
37) Benzene	4.930	78	1864968	9.30	ppbV	97
38) 1,2-Dichloroethane	5.091	62	898599	10.70	ppbV	99
40) Trichloroethene	5.431	130	856754	9.32	ppbV	99
41) 2,2,4-Trimethylpentane	4.840	57	2788828	10.31	ppbV	99
42) 1,2-Dichloropropane	5.882	63	862133	10.67	ppbV	97
43) Bromodichloromethane	5.943	83	1584233	11.64	ppbV	98
44) Methyl methacrylate	6.087	41	1124187	11.47	ppbV	97
45) 1,4-Dioxane	6.110	88	569216	11.50	ppbV	98
46) cis-1,3-Dichloropropene	6.534	75	1357719	10.84	ppbV	99
47) Toluene	6.769	91	3039671	10.41	ppbV	99
48) Methyl isobutyl ketone	7.132	43	2139470	11.66	ppbV	97
49) Tetrachloroethene	7.158	166	1350560	10.73	ppbV	99
50) trans-1,3-Dichloropropene	7.174	75	1400019	11.52	ppbV	98
51) 1,1,2-Trichloroethane	7.335	97	1033705	10.49	ppbV	99

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4883lcs.D
Acq On : 8 Dec 2023 11:21 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 08 11:44:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	1892252	11.52	ppbV	99
53)	1,2-Dibromoethane	7.756	107	1547631	10.85	ppbV	100
54)	Methyl n-butyl ketone	8.010	43	2159034	12.24	ppbV	97
56)	n-Nonane	8.316	43	2654309	11.00	ppbV	98
57)	Chlorobenzene	8.335	112	2403740	9.91	ppbV	97
58)	Ethylbenzene	8.380	91	4537964	10.13	ppbV	99
59)	Xylenes (m&p)	8.547	91	7032687	21.18	ppbV	98
60)	Xylene (o)	9.029	91	3571722	9.86	ppbV	99
61)	Styrene	9.087	104	2552482	10.29	ppbV	99
62)	Bromoform	9.097	173	1990020	11.17	ppbV	100
63)	Cumene	9.402	105	4737625	10.00	ppbV	100
65)	n-Propyl benzene	9.897	91	6446429	10.43	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.971	83	2658446	10.48	ppbV	100
67)	4-Ethyltoluene	10.039	105	5335012	10.20	ppbV	99
68)	2-Chlorotoluene	10.065	91	4272712	10.29	ppbV	99
69)	1,3,5-Trimethylbenzene	10.152	105	4211249	10.01	ppbV	99
70)	1,2,4-Trimethylbenzene	10.621	105	4189424	9.96	ppbV	99
71)	1,3-Dichlorobenzene	10.994	146	2515699	9.77	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	2495448	9.63	ppbV	100
73)	Benzyl chloride	11.431	91	3717594	10.00	ppbV	98
74)	1,2-Dichlorobenzene	11.640	146	2414336	9.67	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	1728324	9.97	ppbV	99
76)	1,2,4-Trichlorobenzene	13.196	180	2026696	10.11	ppbV	99
77)	Naphthalene	13.463	128	4433251	9.67	ppbV	100

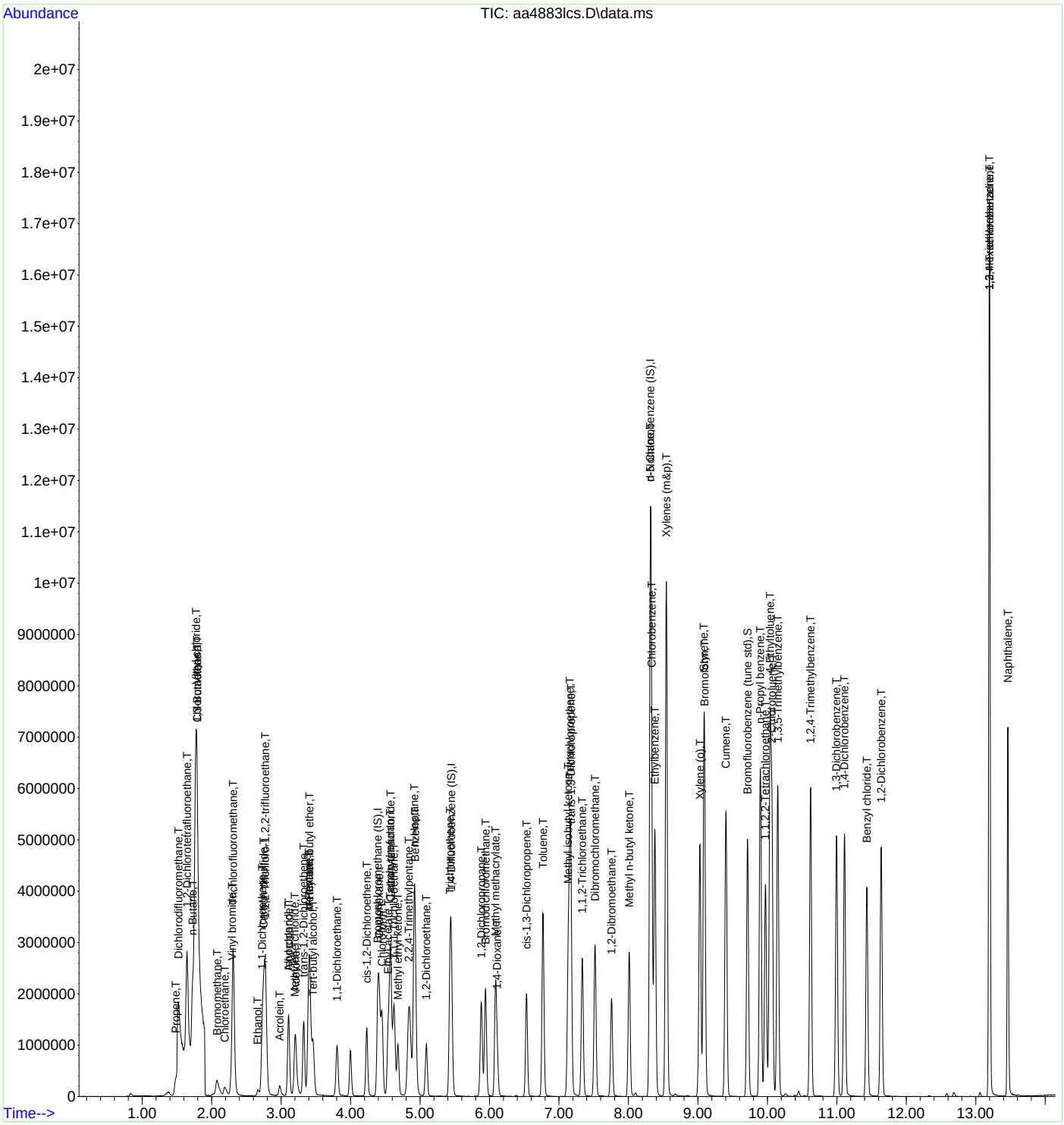
(#) = qualifier out of range (m) = manual integration (+) = signals summed

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-08-2023\
Data File : aa4883lcs.D
Acq On : 8 Dec 2023 11:21 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 08 11:44:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4903LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/11/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05080-01 [AA4911]	12/11/2023 15:19
E23-05080-02 [AA4912]	12/11/2023 15:48
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	100
Benzene	71-43-2	9.5	95
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	10	91
1,3-Butadiene	106-99-0	10	100
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	11	110
Chloroform	67-66-3	10	100
Chloromethane	74-87-3	11	96
Carbon disulfide	75-15-0	11	100
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	10	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	10	91
1,4-Dichlorobenzene	106-46-7	10	91
Dichlorodifluoromethane	75-71-8	11	100
1,1-Dichloroethane	75-34-3	9.8	89
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	100
1,2-Dichloroethene (cis)	156-59-2	10	91
1,2-Dichloroethene (trans)	156-60-5	11	100
1,2-Dichloropropane	78-87-5	10	100
1,3-Dichloropropene (cis)	10061-01-5	11	100
1,3-Dichloropropene (trans)	10061-02-6	11	110
1,2-Dichlorotetrafluoroethane	76-14-2	8.8	80
1,4-Dioxane	123-91-1	11	92
Ethylbenzene	100-41-4	11	110
n-Heptane	142-82-5	11	110

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4903LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/11/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05080-01 [AA4911]	12/11/2023 15:19
E23-05080-02 [AA4912]	12/11/2023 15:48
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
1,3-Hexachlorobutadiene	87-68-3	10	88
n-Hexane	110-54-3	10	100
Methylene chloride	75-09-2	9.6	87
Methyl ethyl ketone	78-93-3	11	93
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	11	100
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	11	100
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	10	100
1,1,2-Trichloroethane	79-00-5	10	91
Trichloroethene	79-01-6	9.1	91
Trichlorofluoromethane	75-69-4	11	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.4	94
1,2,4-Trimethylbenzene	95-63-6	11	100
1,3,5-Trimethylbenzene	108-67-8	11	100
2,2,4-Trimethylpentane	540-84-1	10	100
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	11	110
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	10	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4903lcs.D
Acq On : 11 Dec 2023 10:57 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 11 11:13:35 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.390	130	647607	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2729004	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	3090532	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2704486	10.04	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	448674	9.98	ppbV	100
3) Dichlorodifluoromethane	1.522	85	1540061	10.73	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.650	85	1837270	8.81	ppbV	99
5) n-Butane	1.729	43	1071383	10.36	ppbV	100
6) Chloromethane	1.794	52	79721	11.12	ppbV	100
7) Vinyl chloride	1.784	62	624707	10.65	ppbV	99
8) 1,3-Butadiene	1.794	39	556597	10.16	ppbV	97
9) Bromomethane	2.081	94	492205	10.39	ppbV	96
10) Chloroethane	2.190	64	343138	11.15	ppbV	98
11) Vinyl bromide	2.296	106	601925	10.38	ppbV	100
12) Trichlorofluoromethane	2.309	101	1958992	10.81	ppbV	99
13) Ethanol	2.669	45	223820	11.80	ppbV	98
14) 1,1-Dichloroethene	2.730	61	1287938	10.71	ppbV	96
15) Carbon disulfide	2.753	76	2170829	10.96	ppbV	98
16) 1,1,2-Trichloro-1,2,2-...	2.775	101	1721921	9.43	ppbV	99
17) Acrolein	2.981	56	275902	10.20	ppbV	98
18) Allyl chloride	3.110	76	363800	11.21	ppbV	100
19) Isopropanol	3.107	45	1249280	9.62	ppbV	99
20) Methylene chloride	3.203	49	760938	9.56	ppbV	96
21) Acetone	3.209	43	1102830	11.29	ppbV	100
22) trans-1,2-Dichloroethene	3.325	61	1261504	11.30	ppbV	98
23) n-Pentane	3.409	43	1563342	10.38	ppbV	98
24) n-Hexane	3.409	57	2086837	10.22	ppbV	98
25) Methyl tert-butyl ether	3.409	73	2641389	10.53	ppbV	99
26) Tert-butyl alcohol	3.460	59	1870916	11.08	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1473126	9.80	ppbV	100
28) cis-1,2-Dichloroethene	4.232	61	1109173	10.46	ppbV	97
29) Cyclohexane	4.415	56	1494221	10.48	ppbV	98
30) Chloroform	4.454	83	1763283	10.18	ppbV	99
31) Ethyl acetate	4.544	61	310143	11.00	ppbV	98
32) Carbon tetrachloride	4.576	117	2075194	10.10	ppbV	99
33) Tetrahydrofuran	4.573	42	1055760	10.84	ppbV	98
34) 1,1,1-Trichloroethane	4.627	97	1829339	10.16	ppbV	98
35) Methyl ethyl ketone	4.682	43	1694596	10.71	ppbV	98
36) n-Heptane	4.917	43	1984236	11.09	ppbV	98
37) Benzene	4.933	78	2436463	9.47	ppbV	98
38) 1,2-Dichloroethane	5.090	62	1158367	10.76	ppbV	100
40) Trichloroethene	5.431	130	1104206	9.14	ppbV	98
41) 2,2,4-Trimethylpentane	4.843	57	3701197	10.41	ppbV	100
42) 1,2-Dichloropropane	5.885	63	1110425	10.46	ppbV	100
43) Bromodichloromethane	5.946	83	2026843	11.34	ppbV	100
44) Methyl methacrylate	6.087	41	1477655	11.47	ppbV	97
45) 1,4-Dioxane	6.113	88	746186	11.47	ppbV	98
46) cis-1,3-Dichloropropene	6.534	75	1788041	10.86	ppbV	99
47) Toluene	6.772	91	4000386	10.43	ppbV	100
48) Methyl isobutyl ketone	7.132	43	2867635	11.90	ppbV	98
49) Tetrachloroethene	7.161	166	1771569	10.71	ppbV	99
50) trans-1,3-Dichloropropene	7.174	75	1825213	11.43	ppbV	98
51) 1,1,2-Trichloroethane	7.335	97	1347280	10.40	ppbV	99

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4903lcs.D
Acq On : 11 Dec 2023 10:57 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

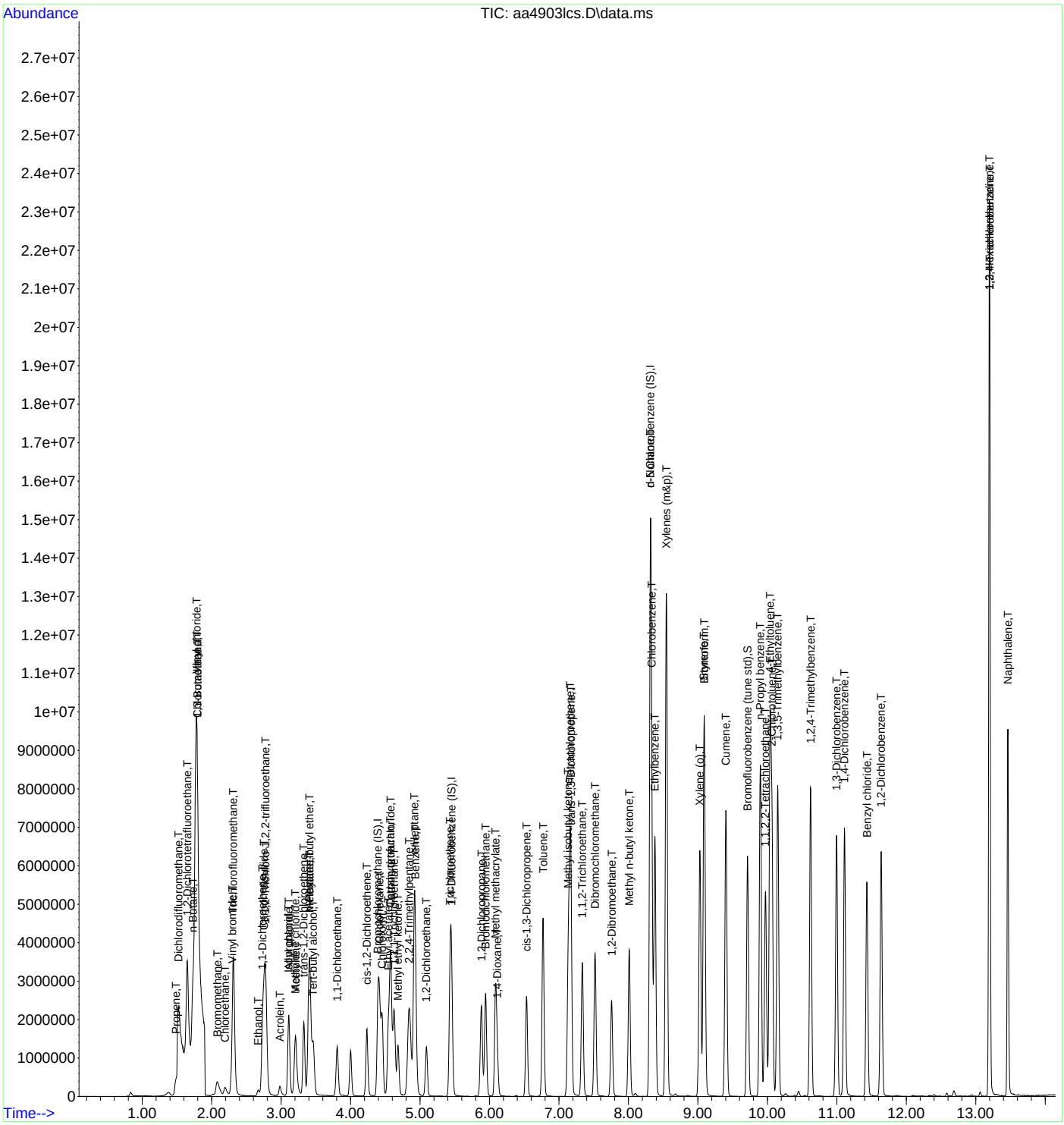
Quant Time: Dec 11 11:13:35 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2436418	11.29	ppbV	99
53)	1,2-Dibromoethane	7.759	107	2033372	10.85	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	2915562	12.58	ppbV	98
56)	n-Nonane	8.315	43	3624209	11.82	ppbV	98
57)	Chlorobenzene	8.335	112	3170809	10.29	ppbV	98
58)	Ethylbenzene	8.380	91	6016260	10.56	ppbV	99
59)	Xylenes (m&p)	8.547	91	9208112	21.82	ppbV	99
60)	Xylene (o)	9.026	91	4740095	10.29	ppbV	99
61)	Styrene	9.087	104	3439384	10.91	ppbV	100
62)	Bromoform	9.094	173	2568104	11.35	ppbV	100
63)	Cumene	9.402	105	6358038	10.57	ppbV	100
65)	n-Propyl benzene	9.897	91	8673958	11.04	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.971	83	3528435	10.95	ppbV	100
67)	4-Ethyltoluene	10.039	105	7191816	10.82	ppbV	100
68)	2-Chlorotoluene	10.065	91	5637797	10.69	ppbV	99
69)	1,3,5-Trimethylbenzene	10.148	105	5654494	10.58	ppbV	99
70)	1,2,4-Trimethylbenzene	10.624	105	5639014	10.55	ppbV	99
71)	1,3-Dichlorobenzene	10.997	146	3401177	10.39	ppbV	100
72)	1,4-Dichlorobenzene	11.109	146	3376653	10.26	ppbV	99
73)	Benzyl chloride	11.434	91	5116198	10.83	ppbV	99
74)	1,2-Dichlorobenzene	11.637	146	3236300	10.20	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	2308103	10.48	ppbV	100
76)	1,2,4-Trichlorobenzene	13.199	180	2718525	10.67	ppbV	100
77)	Naphthalene	13.463	128	6001329	10.30	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4903lcs.D
Acq On : 11 Dec 2023 10:57 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 11 11:13:35 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**50**		**54**		4.0	**-7.69%**
Allyl Chloride	107-05-1	4.0	U	4.0	U	4.0	0.00%
Benzene	71-43-2	2.0	U	2.0	U	2.0	0.00%
Bromodichloromethane	75-27-4	4.0	U	4.0	U	4.0	0.00%
Bromoform	75-25-2	4.0	U	4.0	U	4.0	0.00%
Bromomethane	74-83-9	4.0	U	4.0	U	4.0	0.00%
1,3-Butadiene	106-99-0	4.0	U	4.0	U	4.0	0.00%
Chlorobenzene	108-90-7	4.0	U	4.0	U	4.0	0.00%
Chloroethane	75-00-3	4.0	U	4.0	U	4.0	0.00%
Chloroform	67-66-3	4.0	U	4.0	U	4.0	0.00%
Chloromethane	74-87-3	4.0	U	4.0	U	4.0	0.00%
Carbon disulfide	75-15-0	**10.0**		**11**		4.0	**-9.52%**
Carbon tetrachloride	56-23-5	2.0	U	2.0	U	2.0	0.00%
2-Chlorotoluene	95-49-8	4.0	U	4.0	U	4.0	0.00%
Cyclohexane	110-82-7	4.0	U	4.0	U	4.0	0.00%
Dibromochloromethane	124-48-1	4.0	U	4.0	U	4.0	0.00%
1,2-Dibromoethane	106-93-4	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorobenzene	95-50-1	4.0	U	4.0	U	4.0	0.00%
1,3-Dichlorobenzene	541-73-1	4.0	U	4.0	U	4.0	0.00%
1,4-Dichlorobenzene	106-46-7	4.0	U	4.0	U	4.0	0.00%
Dichlorodifluoromethane	75-71-8	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethane	75-34-3	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethane	107-06-2	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethene	75-35-4	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (cis)	156-59-2	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (trans)	156-60-5	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloropropane	78-87-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (cis)	10061-01-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (trans)	10061-02-6	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	4.0	U	4.0	U	4.0	0.00%
Ethylbenzene	100-41-4	2.0	U	2.0	U	2.0	0.00%
4-Ethyltoluene	622-96-8	4.0	U	4.0	U	4.0	0.00%
n-Heptane	142-82-5	4.0	U	4.0	U	4.0	0.00%
1,3-Hexachlorobutadiene	87-68-3	4.0	U	4.0	U	4.0	0.00%
n-Hexane	110-54-3	4.0	U	4.0	U	4.0	0.00%
Methylene chloride	75-09-2	4.0	U	4.0	U	4.0	0.00%
Methyl ethyl ketone	78-93-3	**8.1**		**10**		4.0	**-20.99%**
Methyl isobutyl ketone	108-10-1	4.0	U	4.0	U	4.0	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	4.0	U	4.0	U	4.0	0.00%
Styrene	100-42-5	4.0	U	4.0	U	4.0	0.00%
Tert-butyl alcohol	75-65-0	4.0	U	4.0	U	4.0	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	4.0	U	4.0	U	4.0	0.00%
Tetrachloroethene	127-18-4	4.0	U	4.0	U	4.0	0.00%
Toluene	108-88-3	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trichlorobenzene	120-82-1	4.0	U	4.0	U	4.0	0.00%
1,1,1-Trichloroethane	71-55-6	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloroethane	79-00-5	4.0	U	4.0	U	4.0	0.00%
Trichloroethene	79-01-6	2.0	U	2.0	U	2.0	0.00%
Trichlorofluoromethane	75-69-4	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trimethylbenzene	95-63-6	4.0	U	4.0	U	4.0	0.00%
1,3,5-Trimethylbenzene	108-67-8	4.0	U	4.0	U	4.0	0.00%
2,2,4-Trimethylpentane	540-84-1	4.0	U	4.0	U	4.0	0.00%
Vinyl bromide	593-60-2	4.0	U	4.0	U	4.0	0.00%
Vinyl chloride	75-01-4	2.0	U	2.0	U	2.0	0.00%
Xylenes (m&p)	179601-23-1	4.0	U	**4.2**		4.0	**NC**
Xylenes (o)	95-47-6	4.0	U	4.0	U	4.0	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4087.D
Acq On : 28 Sep 2023 9:29 pm
Operator : jjw
Sample : E23-04122-06x10 dil
Misc : 1781, 50cc
ALS Vial : 21 Sample Multiplier: 1

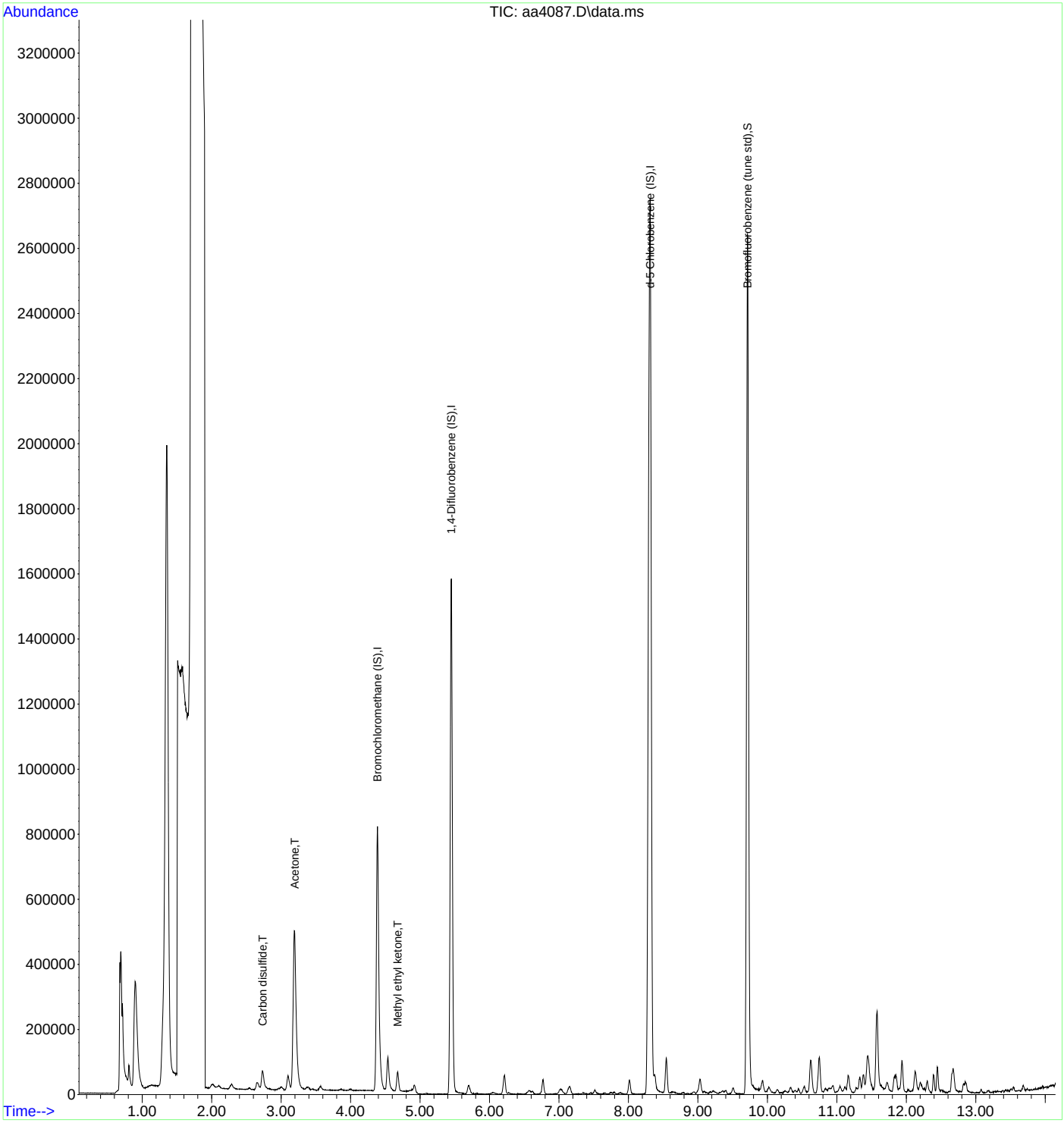
Quant Time: Oct 04 12:38:10 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

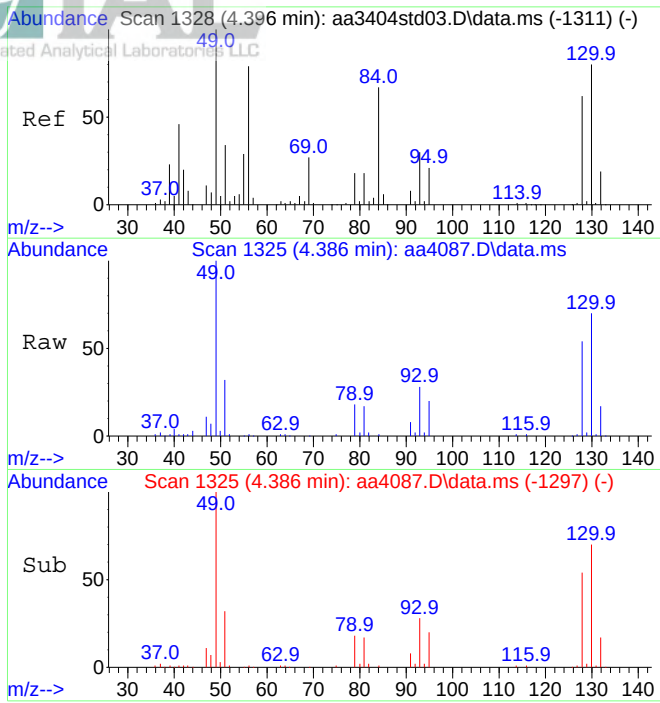
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.386	130	333645	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	1400704	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	1383190	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1064307	9.25	ppbV	0.000
Target Compounds						Qvalue
15) Carbon disulfide	2.734	76	114195	1.00	ppbV	97
21) Acetone	3.197	43	311157	4.97	ppbV	99
35) Methyl ethyl ketone	4.679	43	78641	0.81	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4087.D
Acq On : 28 Sep 2023 9:29 pm
Operator : jjw
Sample : E23-04122-06x10 dil
Misc : 1781, 50cc
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Oct 04 12:38:10 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

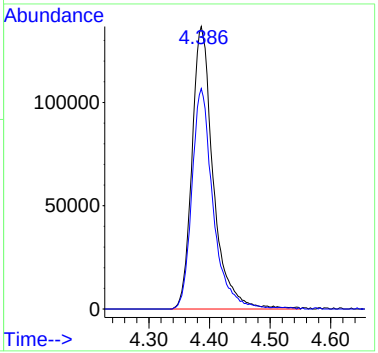


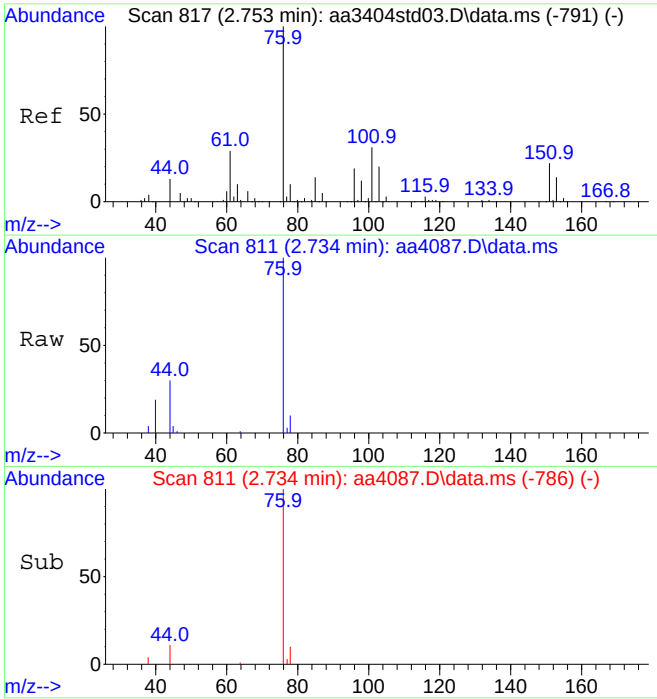


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.386 min Scan# 1325
Delta R.T. -0.010 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion:130 Resp: 333645

Ion	Ratio	Lower	Upper
130	100		
128	78.0	61.8	92.6

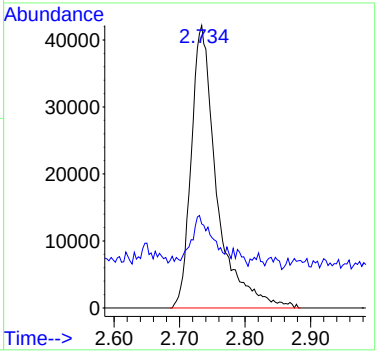


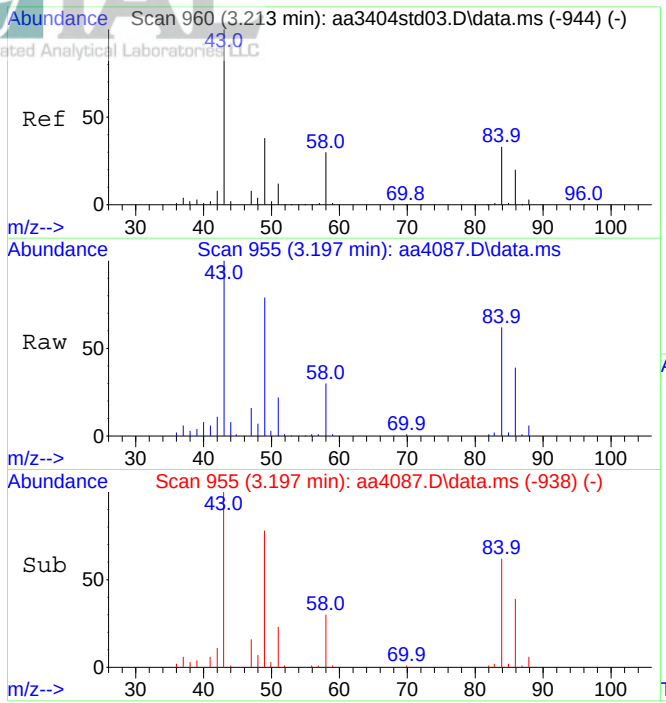


#15
Carbon disulfide
Concen: 1.00 ppbV
RT: 2.734 min Scan# 811
Delta R.T. -0.020 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 76 Resp: 114195

Ion	Ratio	Lower	Upper
76	100		
44	14.2	10.5	15.7

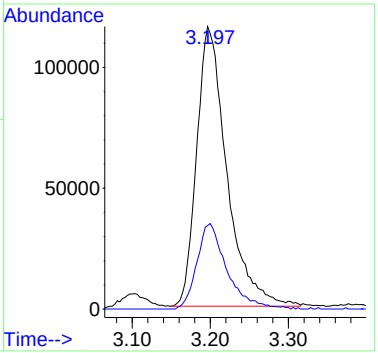


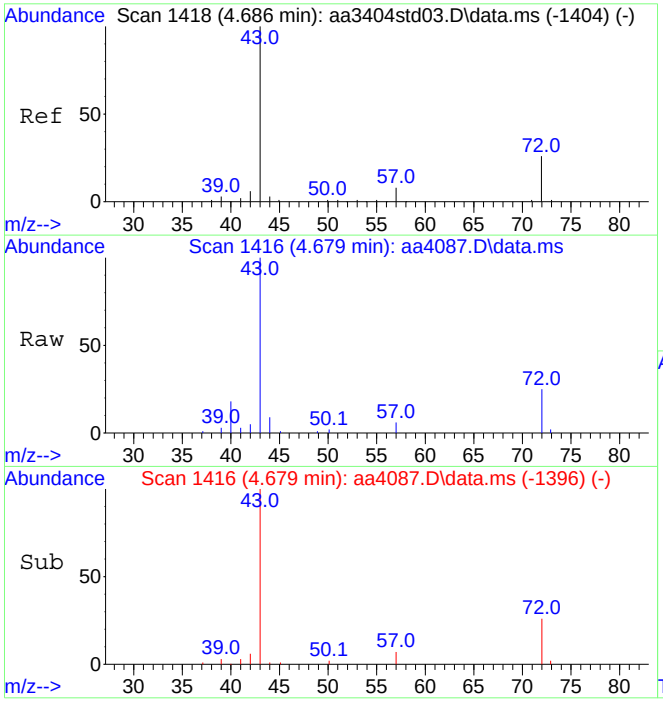


#21
Acetone
Concen: 4.97 ppbV
RT: 3.197 min Scan# 955
Delta R.T. -0.016 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 43 Resp: 311157

Ion	Ratio	Lower	Upper
43	100		
58	30.3	24.9	37.3

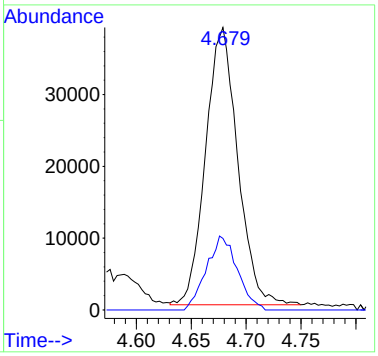


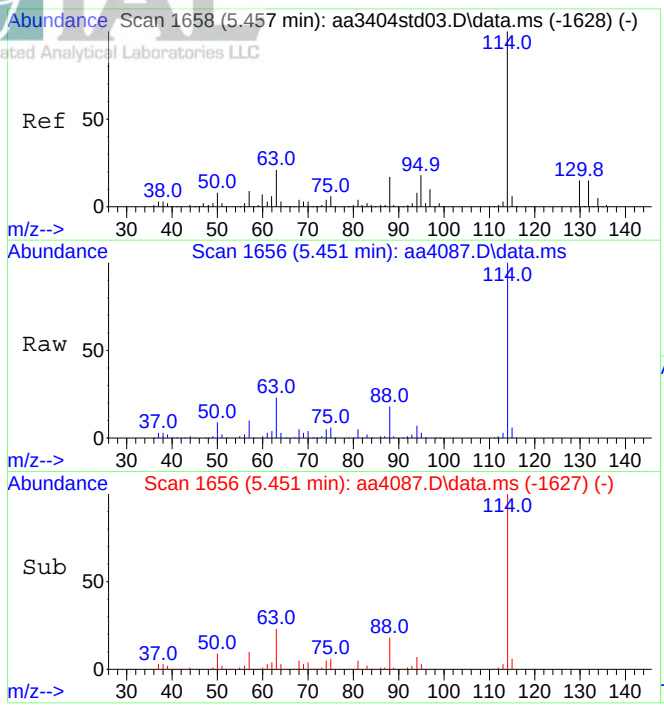


#35
Methyl ethyl ketone
Concen: 0.81 ppbV
RT: 4.679 min Scan# 1416
Delta R.T. -0.007 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 43 Resp: 78641

Ion	Ratio	Lower	Upper
43	100		
72	25.5	20.8	31.2

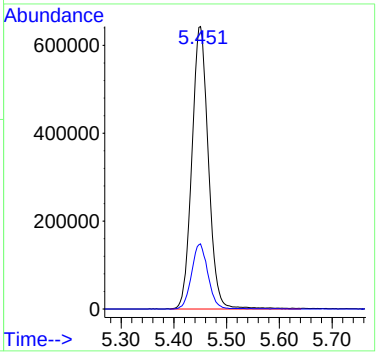


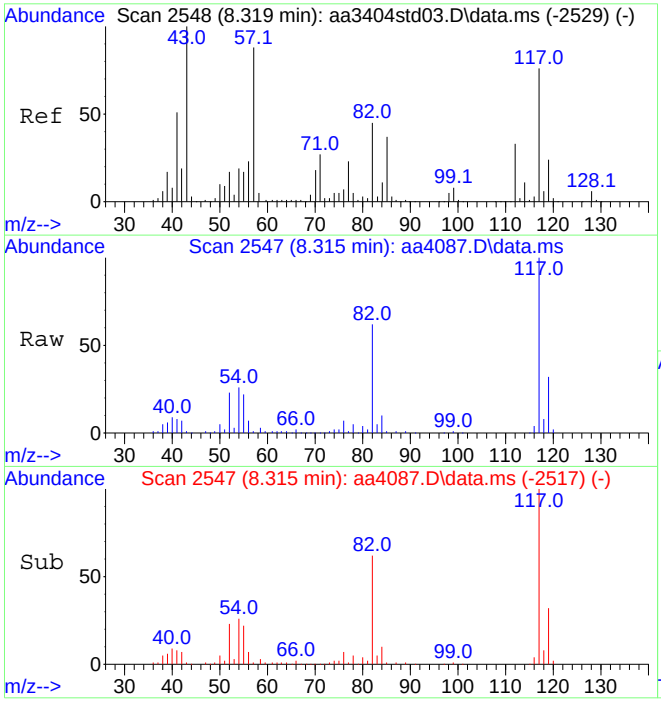


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.451 min Scan# 1656
Delta R.T. -0.006 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion:114 Resp: 1400704

Ion	Ratio	Lower	Upper
114	100		
63	23.0	17.4	26.2

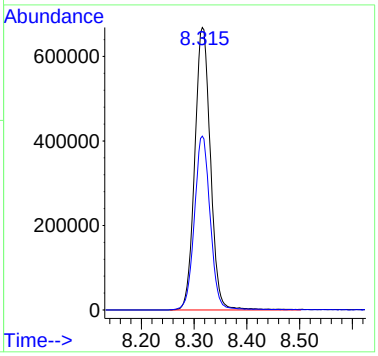


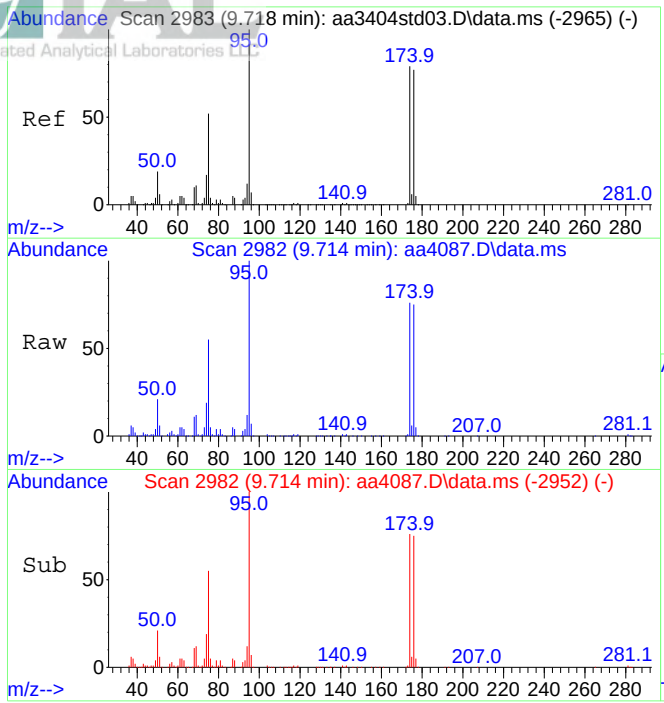


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.315 min Scan# 2547
Delta R.T. -0.004 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion:117 Resp: 1383190

Ion	Ratio	Lower	Upper
117	100		
82	62.2	47.4	71.0

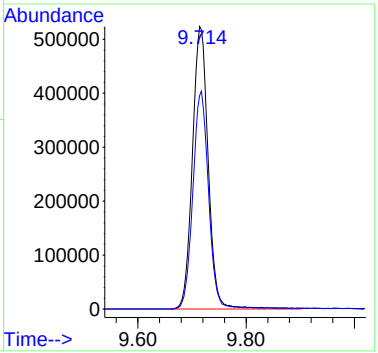




#64
Bromofluorobenzene (tune std)
Concen: 9.25 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.003 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 95 Resp: 1064307

Ion	Ratio	Lower	Upper
95	100		
174	77.0	62.9	94.3



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4088.D
Acq On : 28 Sep 2023 10:00 pm
Operator : jjw
Sample : E23-04122-26x10 dil
Misc : Dup of E23-04122-06x10 dil, Can # 1781
ALS Vial : 22 Sample Multiplier: 1

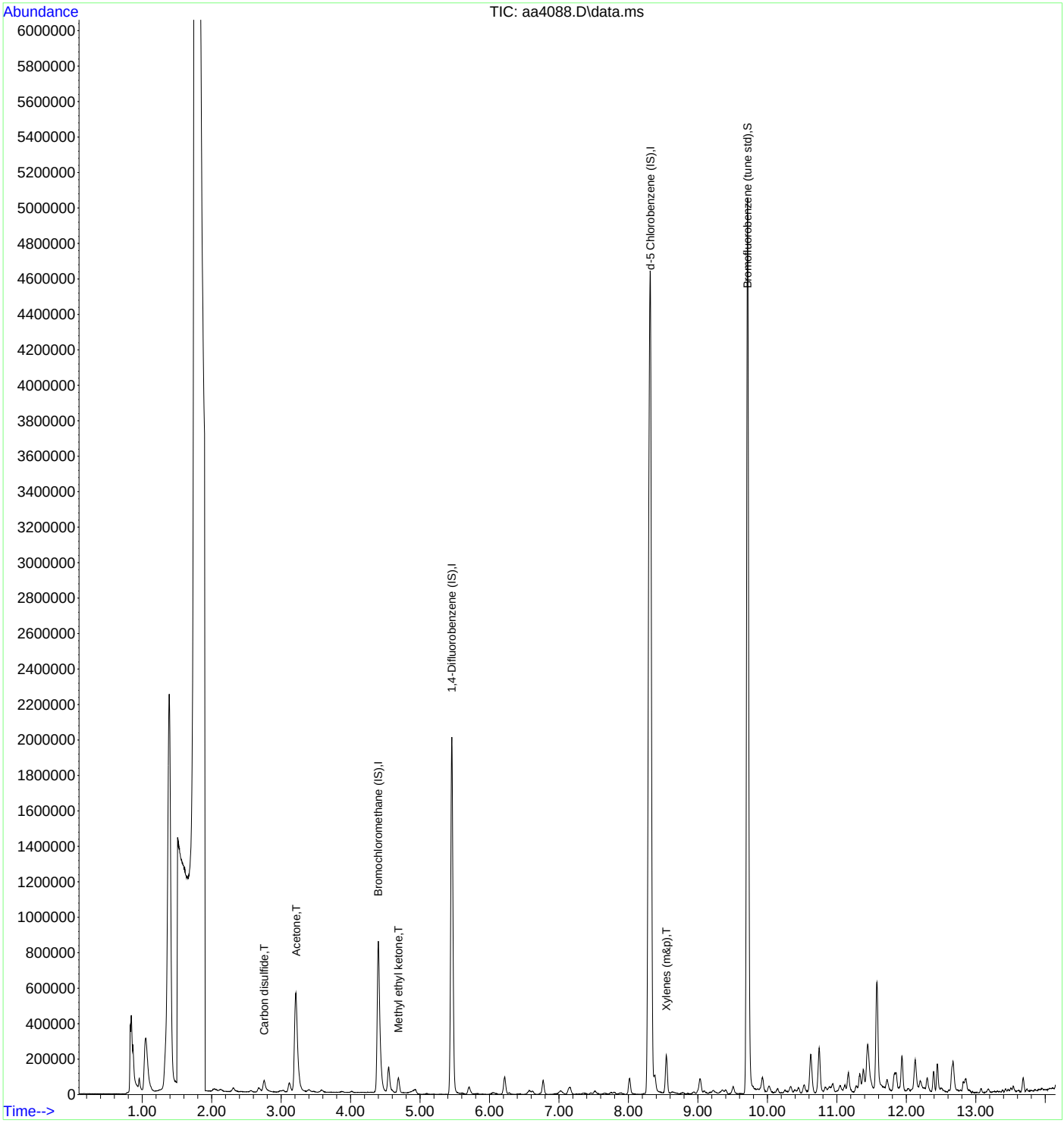
Quant Time: Oct 04 12:49:41 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

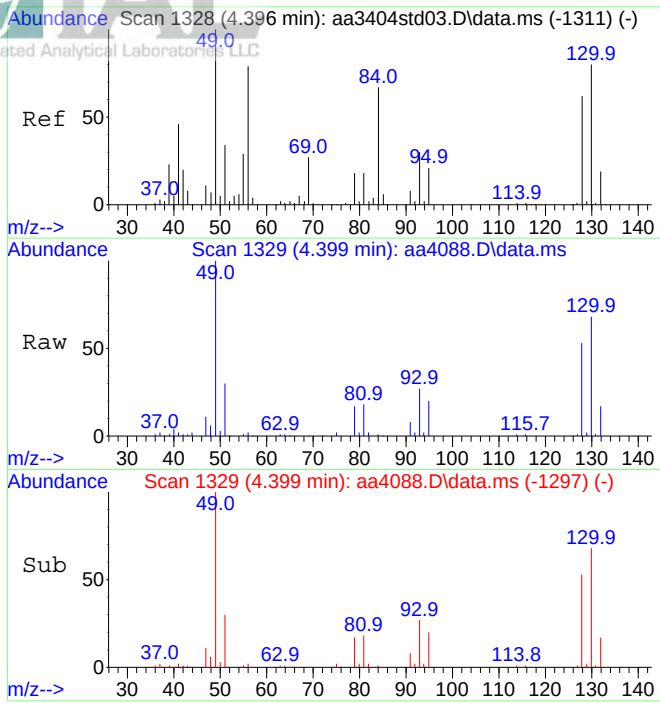
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.399	130	378421	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	1821981	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2357353	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2004719	10.22	ppbV	0.000
Target Compounds						Qvalue
15) Carbon disulfide	2.756	76	137474	1.06	ppbV	97
21) Acetone	3.219	43	384617	5.42	ppbV	98
35) Methyl ethyl ketone	4.689	43	112963	1.03	ppbV	98
59) Xylenes (m&p)	8.547	91	145250	0.42	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4088.D
Acq On : 28 Sep 2023 10:00 pm
Operator : jjw
Sample : E23-04122-26x10 dil
Misc : Dup of E23-04122-06x10 dil, Can # 1781
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Oct 04 12:49:41 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

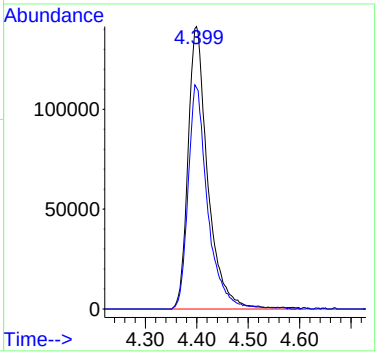


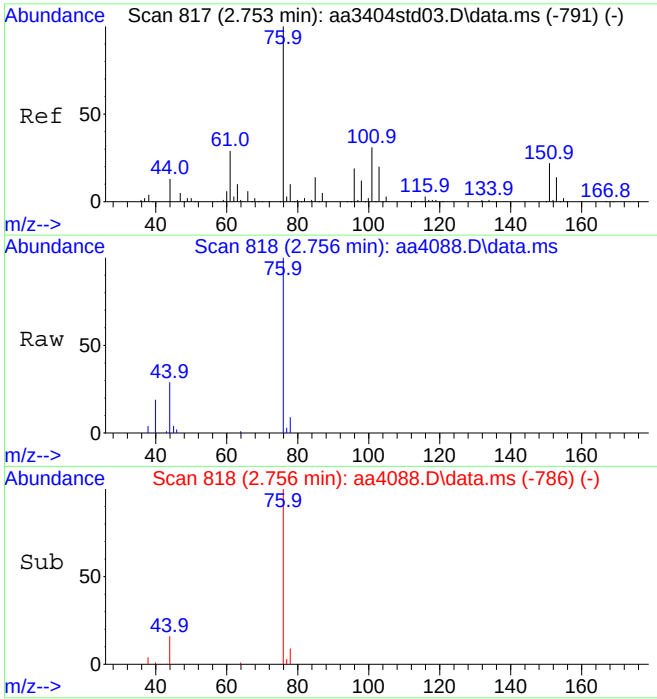


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.399 min Scan# 1329
Delta R.T. 0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion:130 Resp: 378421

Ion	Ratio	Lower	Upper
130	100		
128	78.2	61.8	92.6

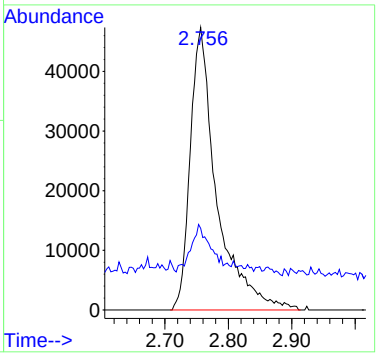


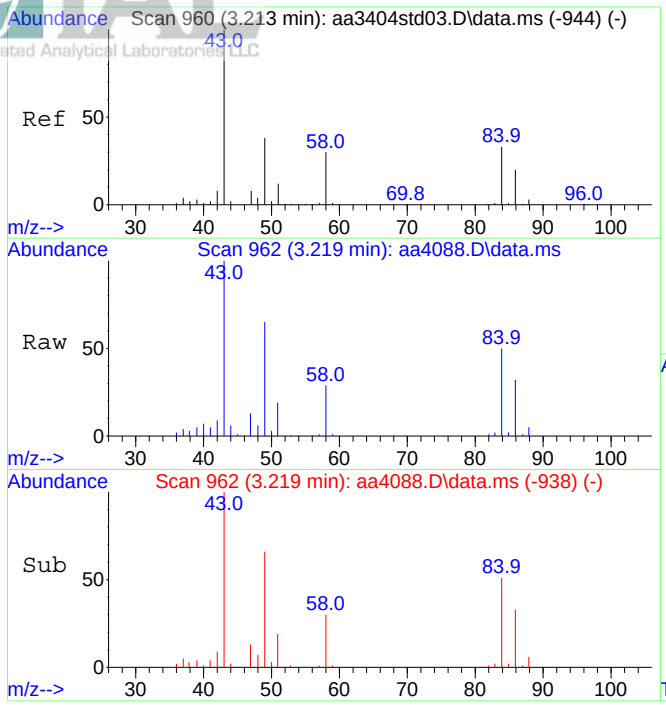


#15
Carbon disulfide
Concen: 1.06 ppbV
RT: 2.756 min Scan# 818
Delta R.T. 0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 76 Resp: 137474

Ion	Ratio	Lower	Upper
76	100		
44	14.5	10.5	15.7

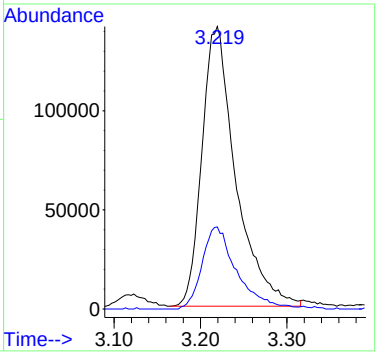


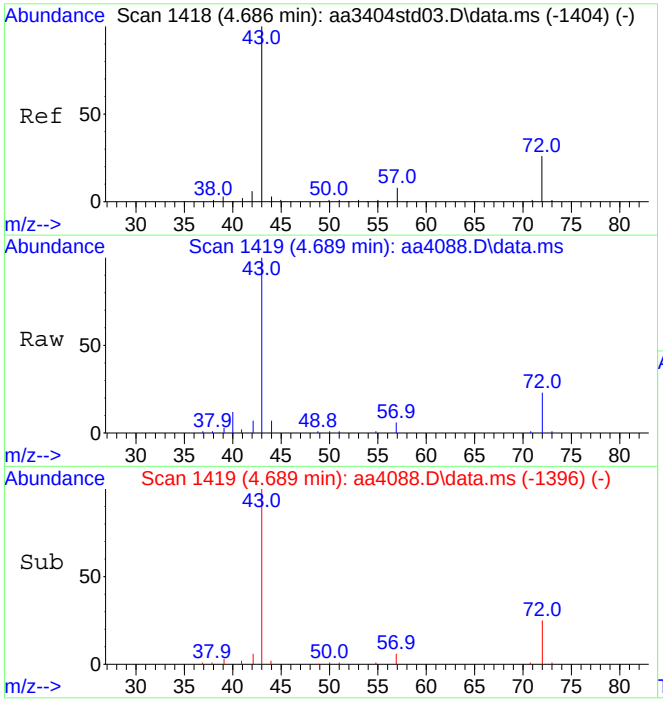


#21
Acetone
Concen: 5.42 ppbV
RT: 3.219 min Scan# 962
Delta R.T. 0.006 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 43 Resp: 384617

Ion	Ratio	Lower	Upper
43	100		
58	30.0	24.9	37.3

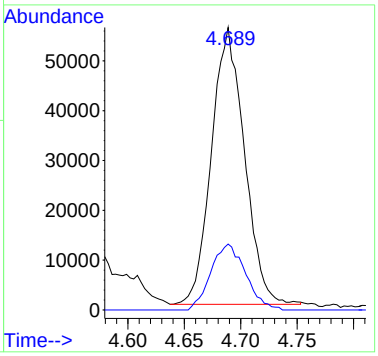


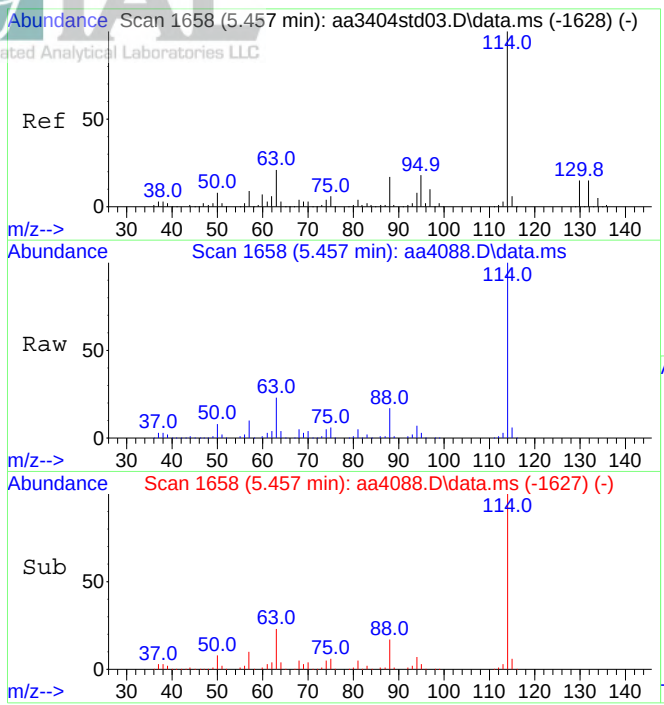


#35
Methyl ethyl ketone
Concen: 1.03 ppbV
RT: 4.689 min Scan# 1419
Delta R.T. 0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 43 Resp: 112963

Ion	Ratio	Lower	Upper
43	100		
72	25.1	20.8	31.2

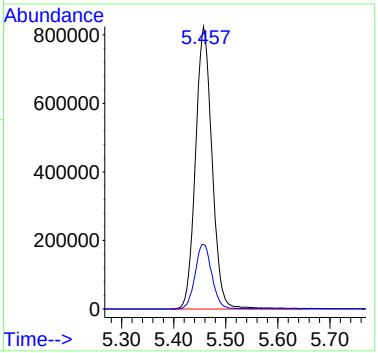


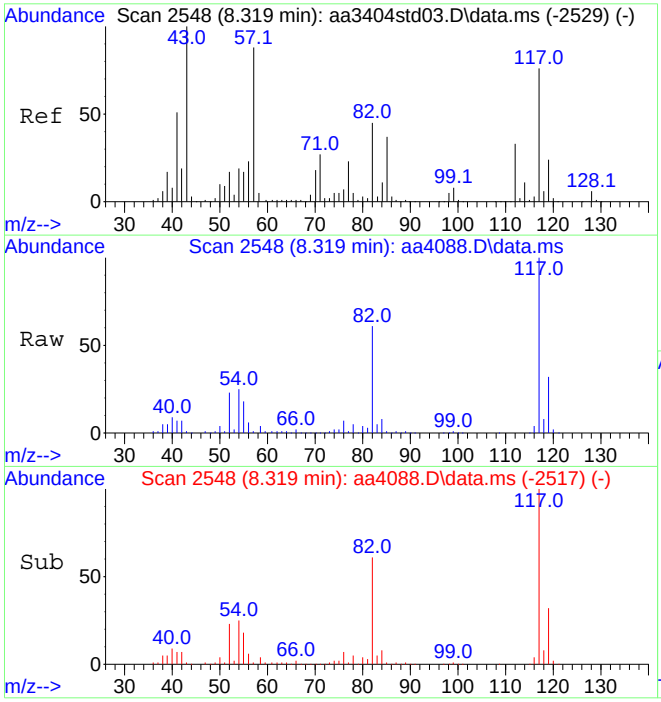


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.000 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion:114 Resp: 1821981

Ion	Ratio	Lower	Upper
114	100		
63	23.3	17.4	26.2

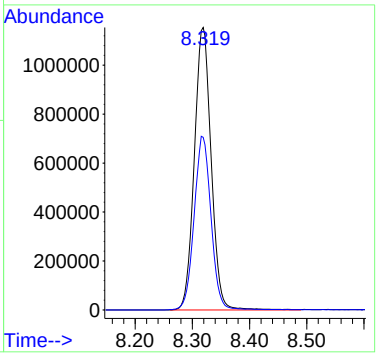


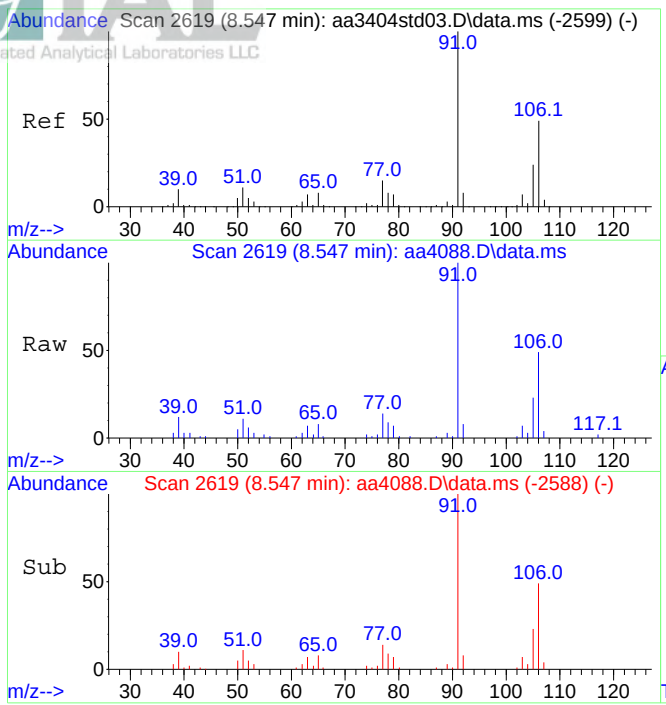


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. -0.000 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion:117 Resp: 2357353

Ion	Ratio	Lower	Upper
117	100		
82	61.9	47.4	71.0

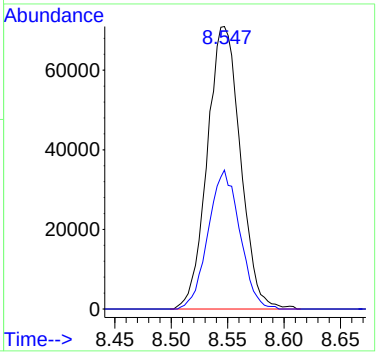


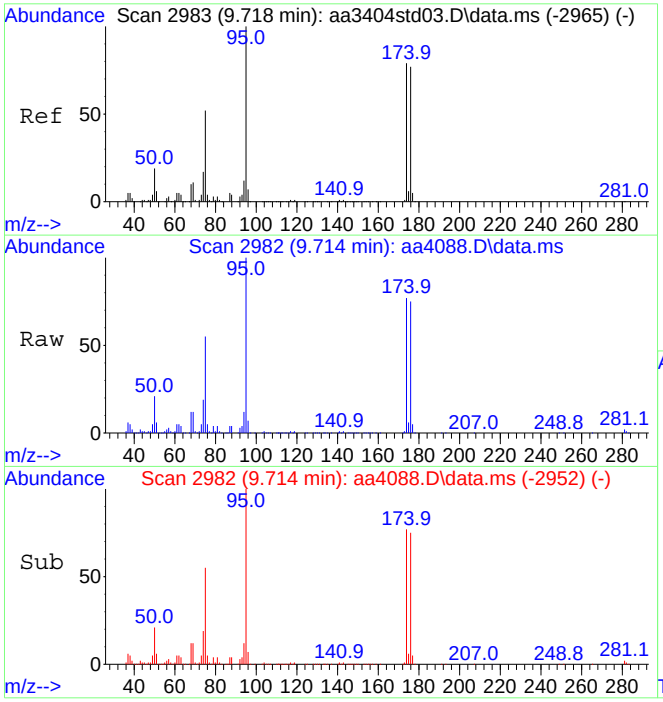


#59
Xylenes (m&p)
Concen: 0.42 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. -0.000 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 91 Resp: 145250

Ion	Ratio	Lower	Upper
91	100		
106	46.9	39.2	58.8

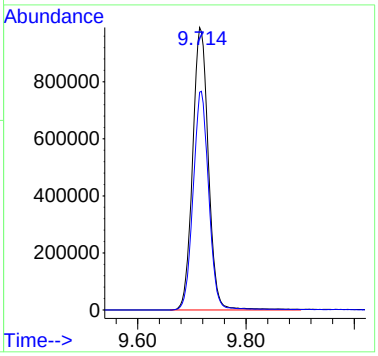




#64
Bromofluorobenzene (tune std)
Concen: 10.22 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 95 Resp: 2004719

Ion	Ratio	Lower	Upper
95	100		
174	76.8	62.9	94.3



INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/17/23
SDG Number:	E23-05061	Date Analyzed:	12/7/23,12/7/23
IAL Sample ID:	E23-05061-03	Lab Data File#:	AA4869,AA4870
Matrix:	Air	Dilution Factor:	1
Summa ID:	3045a	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05061-03 Concentration Reported ppbv	Q	Sample Dup E23-05061-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**11**		**11**		0.20	**0.00%**
Allyl Chloride	107-05-1	0.20	U	0.20	U	0.20	0.00%
Benzene	71-43-2	**2.6**		**2.3**		0.20	**12.24%**
Bromodichloromethane	75-27-4	0.20	U	0.20	U	0.20	0.00%
Bromoform	75-25-2	0.20	U	0.20	U	0.20	0.00%
Bromomethane	74-83-9	0.20	U	0.20	U	0.20	0.00%
1,3-Butadiene	106-99-0	0.20	U	0.20	U	0.20	0.00%
Chlorobenzene	108-90-7	0.20	U	0.20	U	0.20	0.00%
Chloroethane	75-00-3	0.20	U	0.20	U	0.20	0.00%
Chloroform	67-66-3	0.20	U	0.20	U	0.20	0.00%
Chloromethane	74-87-3	0.20	U	0.20	U	0.20	0.00%
Carbon disulfide	75-15-0	0.20	U	0.20	U	0.20	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.20	U	**0.27**		0.20	**NC**
Cyclohexane	110-82-7	**3.9**		**3.4**		0.20	**13.70%**
Dibromochloromethane	124-48-1	0.20	U	0.20	U	0.20	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	U	0.20	0.00%
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	U	0.20	0.00%
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	U	0.20	0.00%
Dichlorodifluoromethane	75-71-8	0.20	U	0.20	U	0.20	0.00%
1,1-Dichloroethane	75-34-3	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethane	107-06-2	0.20	U	0.20	U	0.20	0.00%
1,1-Dichloroethene	75-35-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.20	U	0.20	U	0.20	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	U	0.20	0.00%
1,4-Dioxane	123-91-1	0.20	U	0.20	U	0.20	0.00%
Ethanol	64-17-5	**10**		0.20	U	0.20	**NC**
Ethylbenzene	100-41-4	**1.9**		**1.6**		0.20	**17.14%**
4-Ethyltoluene	622-96-8	**1.9**	X	**1.4**	X	0.20	**30.30%**
n-Heptane	142-82-5	**3.7**		**3.4**		0.20	**8.45%**
1,3-Hexachlorobutadiene	87-68-3	0.20	U	0.20	U	0.20	0.00%
n-Hexane	110-54-3	**4.4**		**3.8**		0.20	**14.63%**
Isopropanol	67-63-0	**2.7**		0.20	U	0.20	**NC**

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/17/23
SDG Number:	E23-05061	Date Analyzed:	12/7/23,12/7/23
IAL Sample ID:	E23-05061-03	Lab Data File#:	AA4869,AA4870
Matrix:	Air	Dilution Factor:	1
Summa ID:	3045a	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05061-03 Concentration Reported ppbv	Q	Sample Dup E23-05061-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methylene chloride	75-09-2	**2.8**		0.20	U	0.20	**NC**
Methyl ethyl ketone	78-93-3	**0.85**		**0.83**		0.20	**2.38%**
Methyl isobutyl ketone	108-10-1	0.20	U	**0.24**		0.20	**NC**
Methyl methacrylate	80-62-6	0.20	U	**3.4**		0.20	**NC**
Methyl tert-butyl ether	1634-04-4	0.20	U	0.20	U	0.20	0.00%
Styrene	100-42-5	0.20	U	0.20	U	0.20	0.00%
Tert-butyl alcohol	75-65-0	0.20	U	0.20	U	0.20	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	U	0.20	0.00%
Tetrachloroethene	127-18-4	0.20	U	0.20	U	0.20	0.00%
Tetrahydrofuran	109-99-9	**0.96**		**0.90**		0.20	**6.45%**
Toluene	108-88-3	**7.1**		**7.1**		0.20	**0.00%**
1,2,4-Trichlorobenzene	120-82-1	0.20	U	0.20	U	0.20	0.00%
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	U	0.20	0.00%
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	U	0.20	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	**0.33**		**0.33**		0.20	**0.00%**
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	U	0.20	U	0.20	0.00%
1,2,4-Trimethylbenzene	95-63-6	**1.9**		**1.5**		0.20	**23.53%**
1,3,5-Trimethylbenzene	108-67-8	**0.53**		**0.45**		0.20	**16.33%**
2,2,4-Trimethylpentane	540-84-1	**6.9**		**7.0**		0.20	**-1.44%**
Vinyl bromide	593-60-2	0.20	U	0.20	U	0.20	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	**7.0**		**5.9**		0.40	**17.05%**
Xylenes (o)	95-47-6	**2.3**		**2.0**		0.20	**13.95%**

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-07-2023\
Data File : aa4869.D
Acq On : 7 Dec 2023 7:50 pm
Operator : jjw
Sample : E23-05061-03
Misc : 3045A, 500cc
ALS Vial : 23 Sample Multiplier: 1

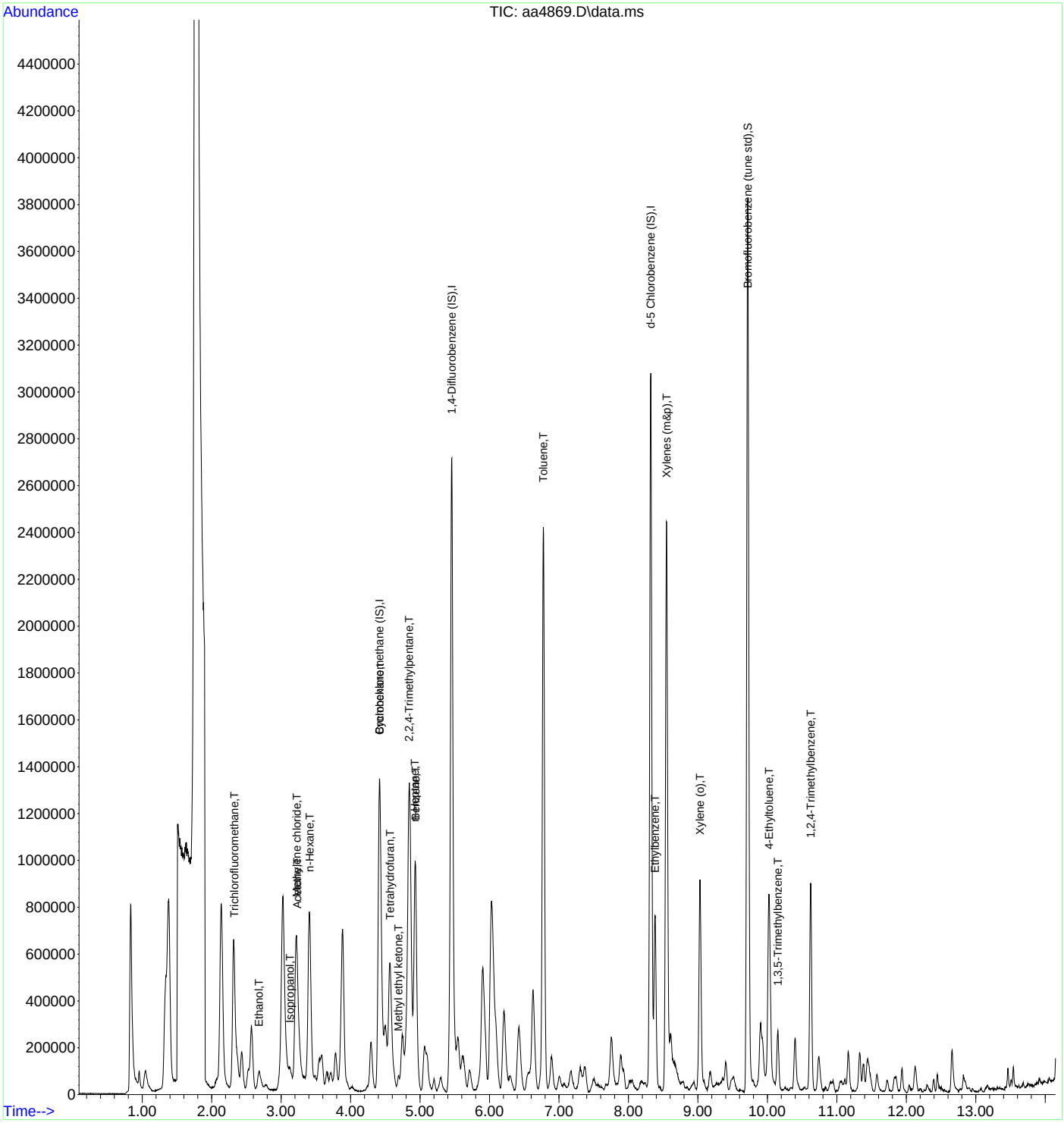
Quant Time: Dec 13 12:49:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

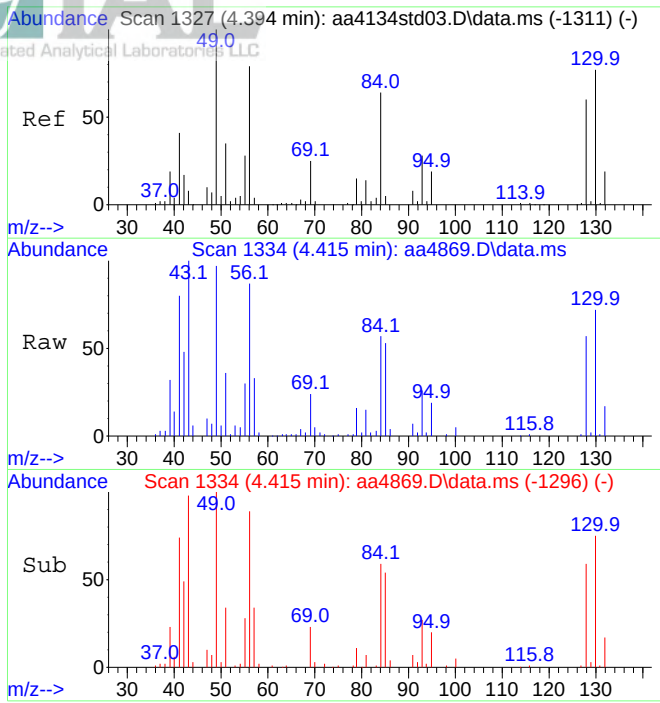
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.415	130	377969	10.00	ppbV		0.021
39) 1,4-Difluorobenzene (IS)	5.457	114	2104054	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.322	117	1855524	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.717	95	1687506	10.43	ppbV		0.000
Target Compounds							Qvalue
12) Trichlorofluoromethane	2.329	101	35340	0.33	ppbV		84
13) Ethanol	2.682	45	111256	10.05	ppbV		96
19) Isopropanol	3.129	45	208140	2.75	ppbV	#	74
20) Methylene chloride	3.226	49	129701	2.79	ppbV		90
21) Acetone	3.232	43	610229	10.70	ppbV		96
24) n-Hexane	3.412	57	520146	4.37	ppbV		97
29) Cyclohexane	4.419	56	324297	3.90	ppbV	#	74
33) Tetrahydrofuran	4.570	42	54848	0.96	ppbV	#	80
35) Methyl ethyl ketone	4.689	43	78559	0.85	ppbV		96
36) n-Heptane	4.927	43	386594	3.70	ppbV		97
37) Benzene	4.936	78	388496	2.59	ppbV		94
41) 2,2,4-Trimethylpentane	4.843	57	1877837	6.85	ppbV		96
47) Toluene	6.775	91	2112833	7.14	ppbV		100
58) Ethylbenzene	8.383	91	655687	1.92	ppbV		98
59) Xylenes (m&p)	8.550	91	1780980	7.03	ppbV		97
60) Xylene (o)	9.029	91	648554	2.35	ppbV		97
67) 4-Ethyltoluene	10.023	105	762163	1.91	ppbV		99
69) 1,3,5-Trimethylbenzene	10.151	105	170234	0.53	ppbV		99
70) 1,2,4-Trimethylbenzene	10.624	105	614979	1.92	ppbV		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-07-2023\
Data File : aa4869.D
Acq On : 7 Dec 2023 7:50 pm
Operator : jjw
Sample : E23-05061-03
Misc : 3045A, 500cc
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Dec 13 12:49:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

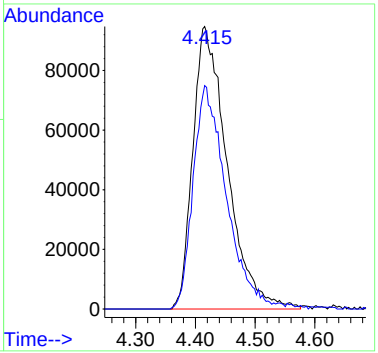


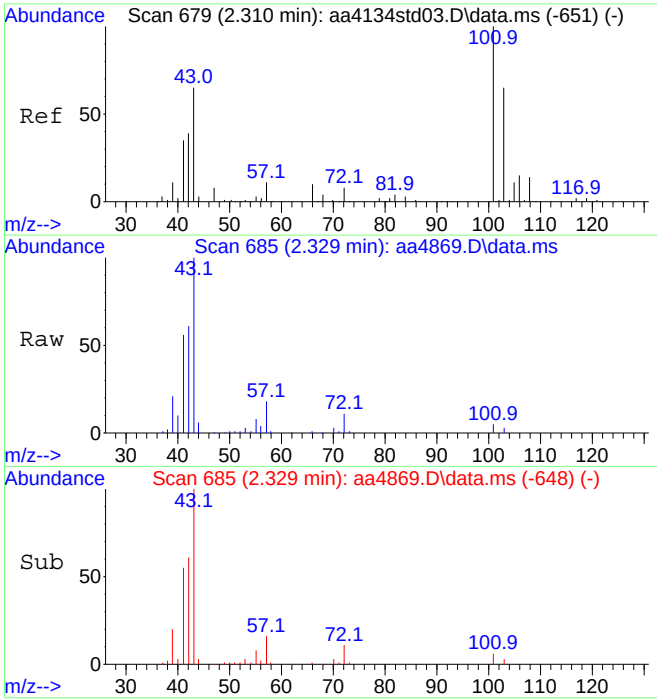


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.415 min Scan# 1334
Delta R.T. 0.021 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:130 Resp: 377969

Ion	Ratio	Lower	Upper
130	100		
128	76.5	62.2	93.4

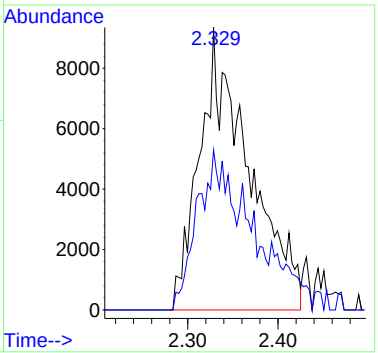


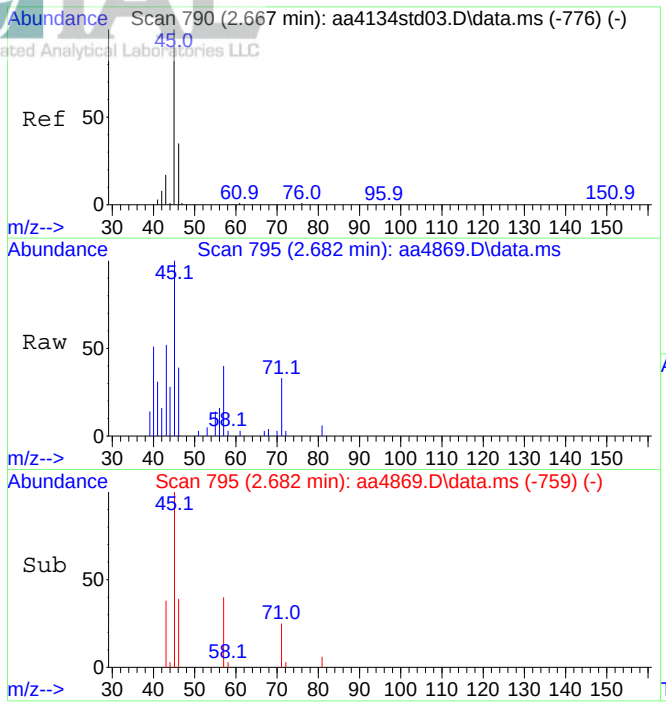


#12
Trichlorofluoromethane
Concen: 0.33 ppbV
RT: 2.329 min Scan# 685
Delta R.T. 0.018 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:101 Resp: 35340

Ion	Ratio	Lower	Upper
101	100		
103	53.1	52.5	78.7

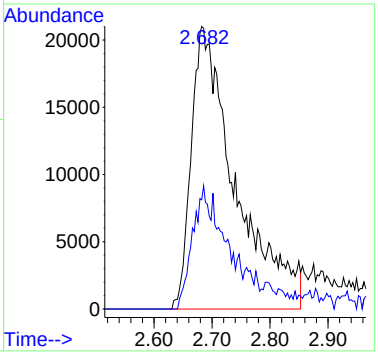


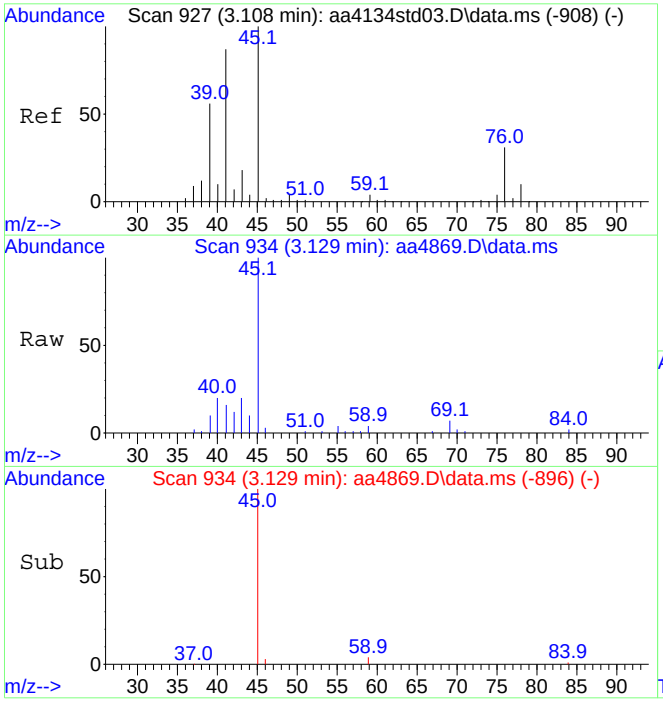


#13
Ethanol
Concen: 10.05 ppbV
RT: 2.682 min Scan# 795
Delta R.T. 0.015 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 45 Resp: 111256

Ion	Ratio	Lower	Upper
45	100		
46	35.3	30.0	45.0

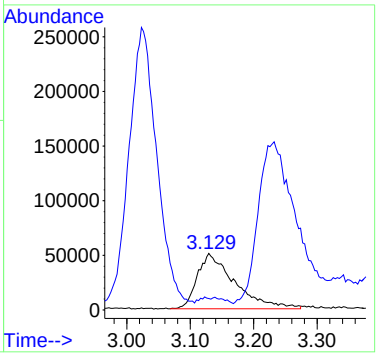


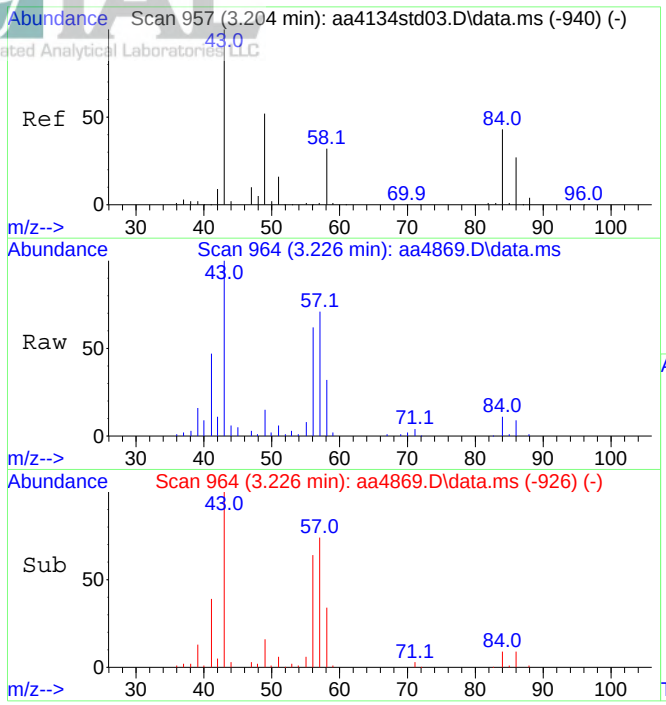


#19
Isopropanol
Concen: 2.75 ppbV
RT: 3.129 min Scan# 934
Delta R.T. 0.021 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 45 Resp: 208140

Ion	Ratio	Lower	Upper
45	100		
43	6.6	14.6	21.8#

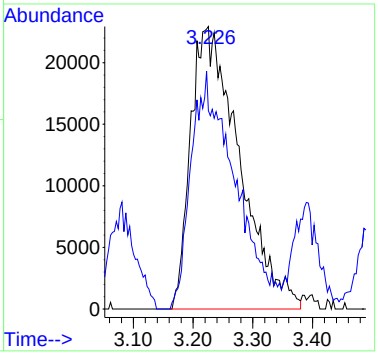


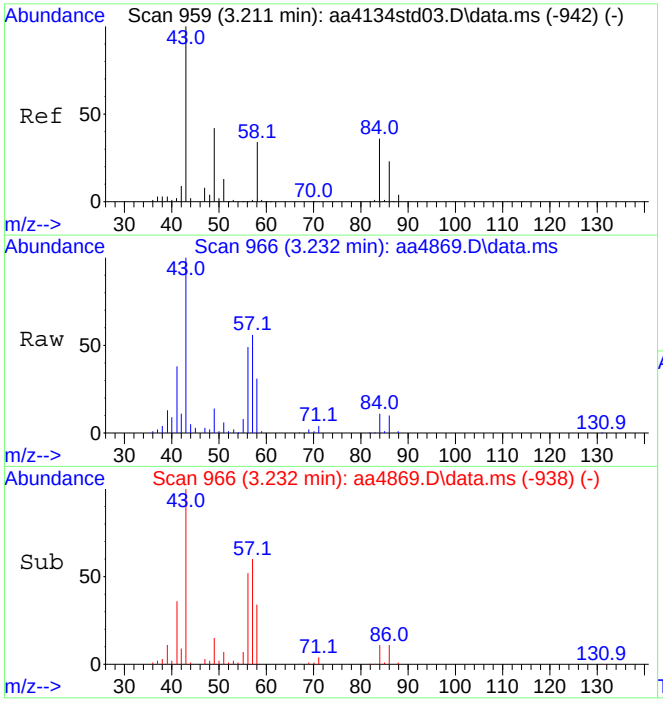


#20
Methylene chloride
Concen: 2.79 ppbV
RT: 3.226 min Scan# 964
Delta R.T. 0.022 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 49 Resp: 129701

Ion	Ratio	Lower	Upper
49	100		
84	75.6	64.8	104.8

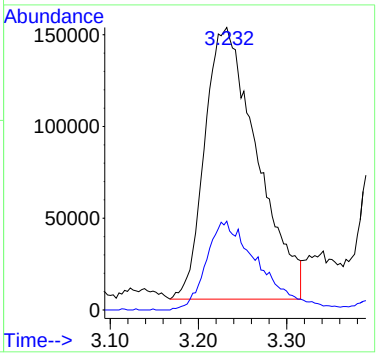


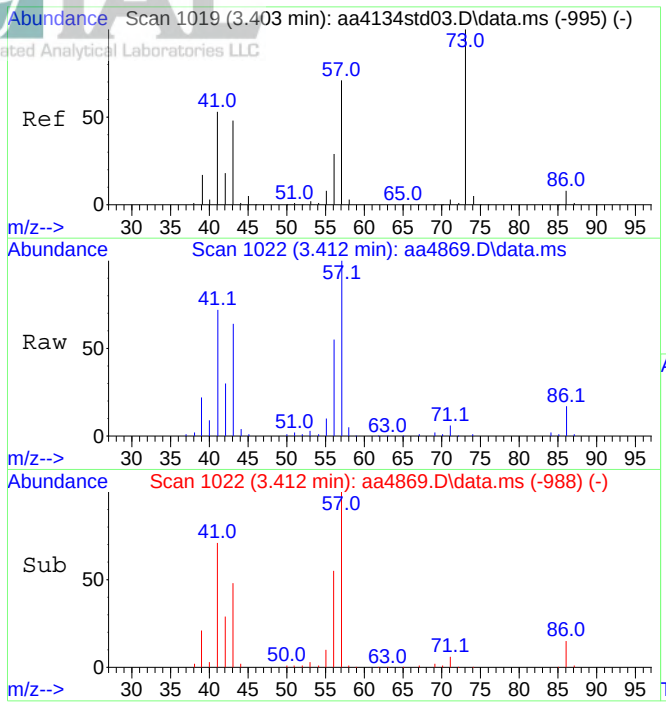


#21
Acetone
Concen: 10.70 ppbV
RT: 3.232 min Scan# 966
Delta R.T. 0.021 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 43 Resp: 610229

Ion	Ratio	Lower	Upper
43	100		
58	31.8	27.1	40.7

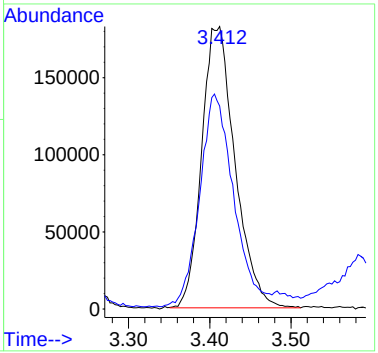


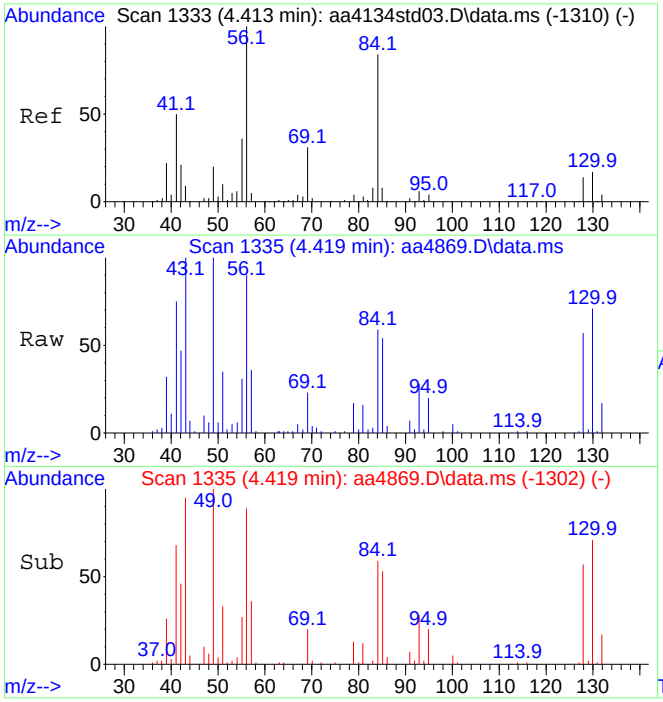


#24
n-Hexane
Concen: 4.37 ppbV
RT: 3.412 min Scan# 1022
Delta R.T. 0.009 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 57 Resp: 520146

Ion	Ratio	Lower	Upper
57	100		
41	80.4	66.4	99.6

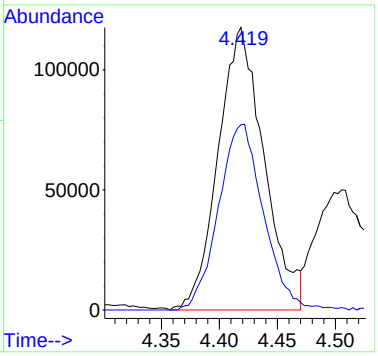


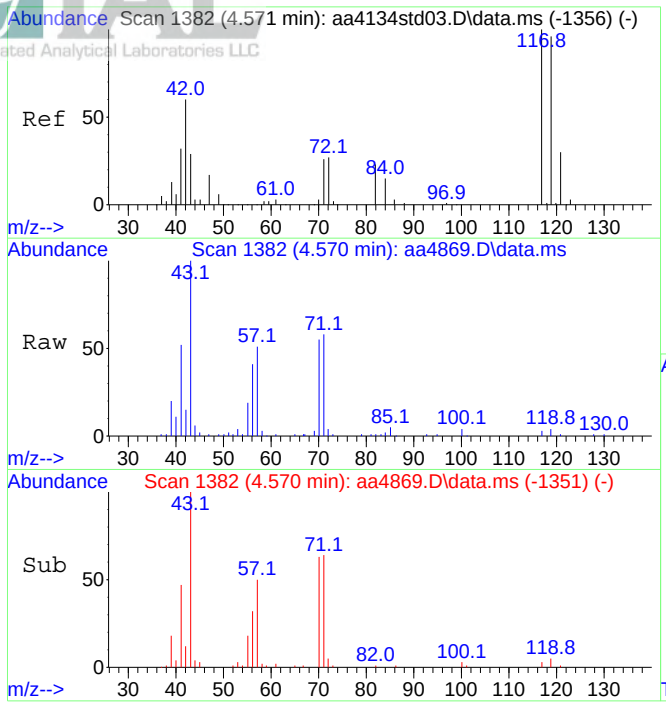


#29
Cyclohexane
Concen: 3.90 ppbV
RT: 4.419 min Scan# 1335
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 56 Resp: 324297

Ion	Ratio	Lower	Upper
56	100		
84	64.3	71.2	106.8#

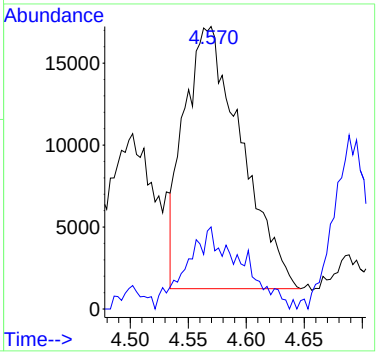


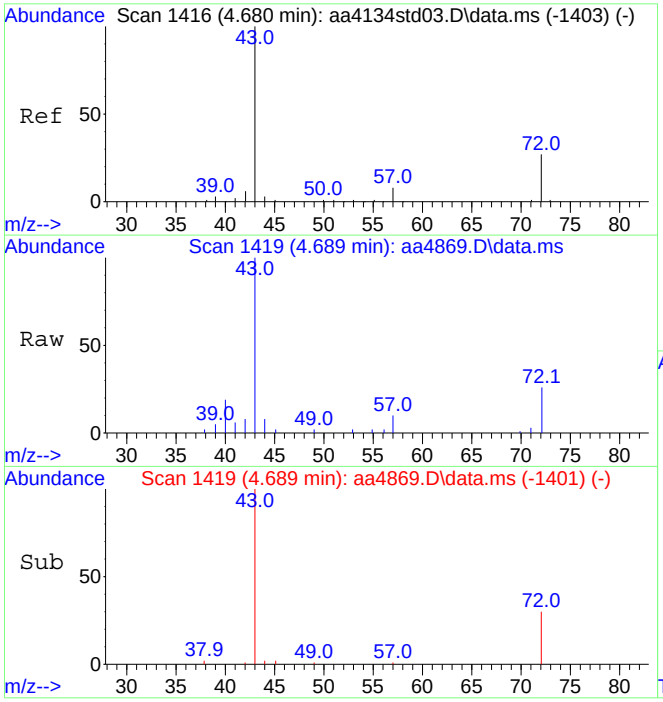


#33
Tetrahydrofuran
Concen: 0.96 ppbV
RT: 4.570 min Scan# 1382
Delta R.T. -0.001 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 42 Resp: 54848

Ion	Ratio	Lower	Upper
42	100		
72	29.9	33.8	50.8#

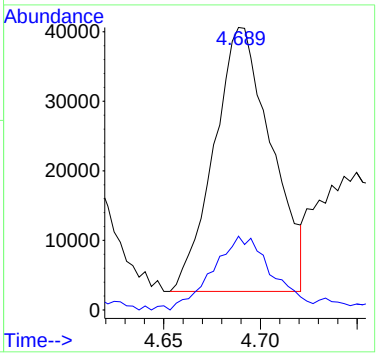


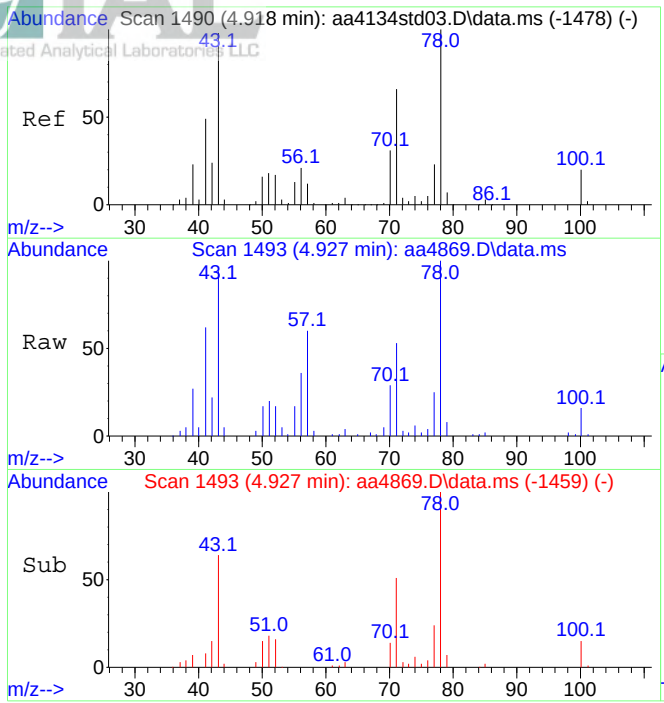


#35
Methyl ethyl ketone
Concen: 0.85 ppbV
RT: 4.689 min Scan# 1419
Delta R.T. 0.009 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 43 Resp: 78559

Ion	Ratio	Lower	Upper
43	100		
72	29.0	21.6	32.4

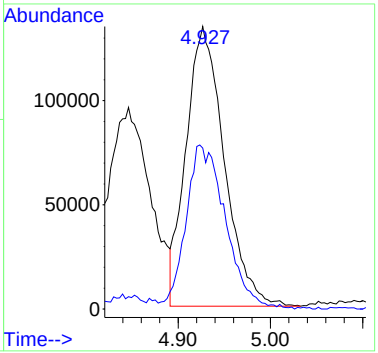


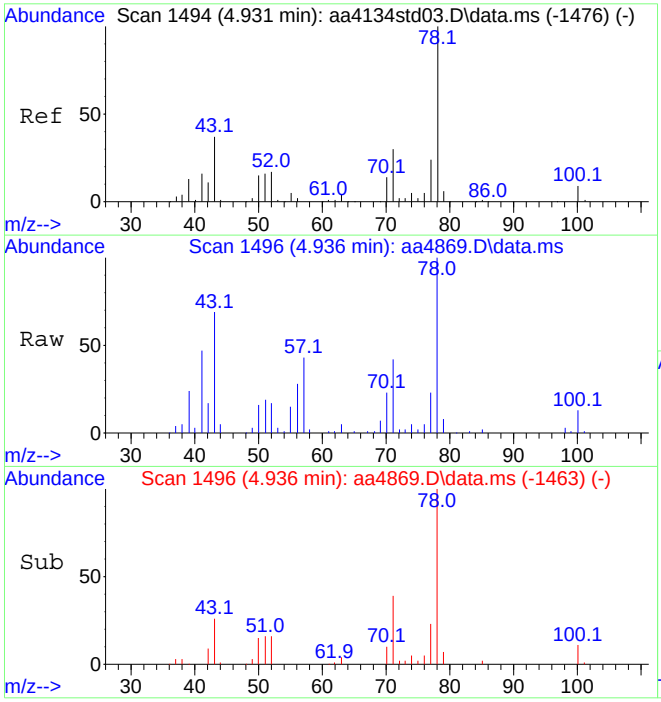


#36
n-Heptane
Concen: 3.70 ppbV
RT: 4.927 min Scan# 1493
Delta R.T. 0.009 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 43 Resp: 386594

Ion	Ratio	Lower	Upper
43	100		
71	60.7	50.5	75.7

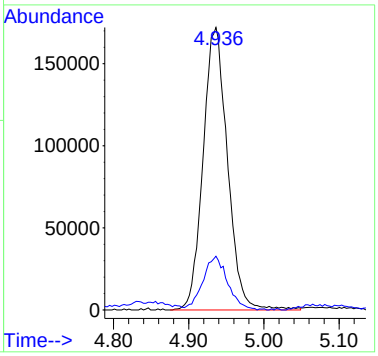


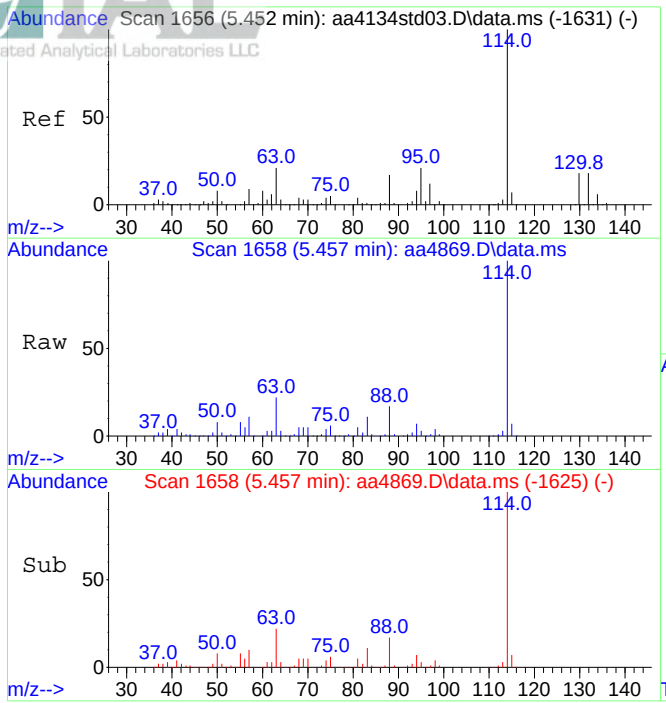


#37
Benzene
Concen: 2.59 ppbV
RT: 4.936 min Scan# 1496
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 78 Resp: 388496

Ion	Ratio	Lower	Upper
78	100		
51	19.2	13.4	20.0

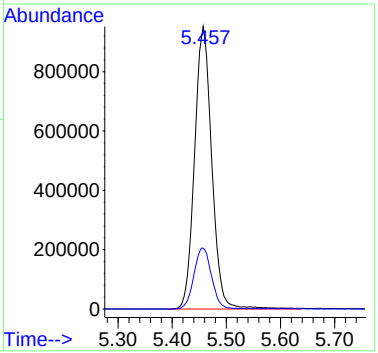


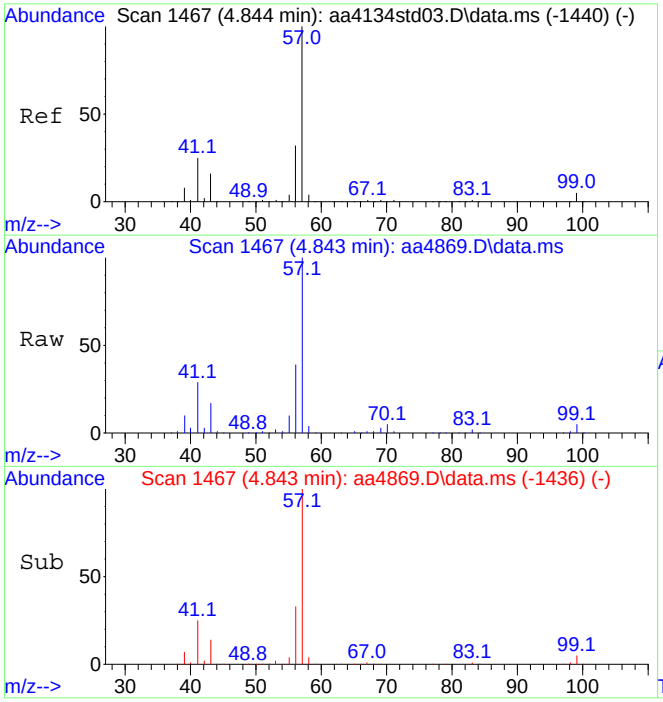


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:114 Resp: 2104054

Ion	Ratio	Lower	Upper
114	100		
63	22.1	17.0	25.6

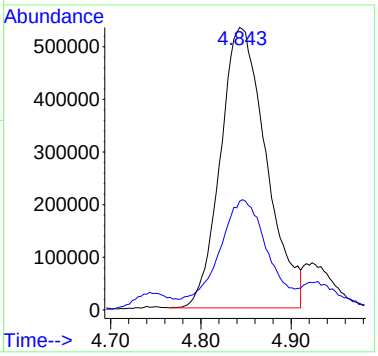


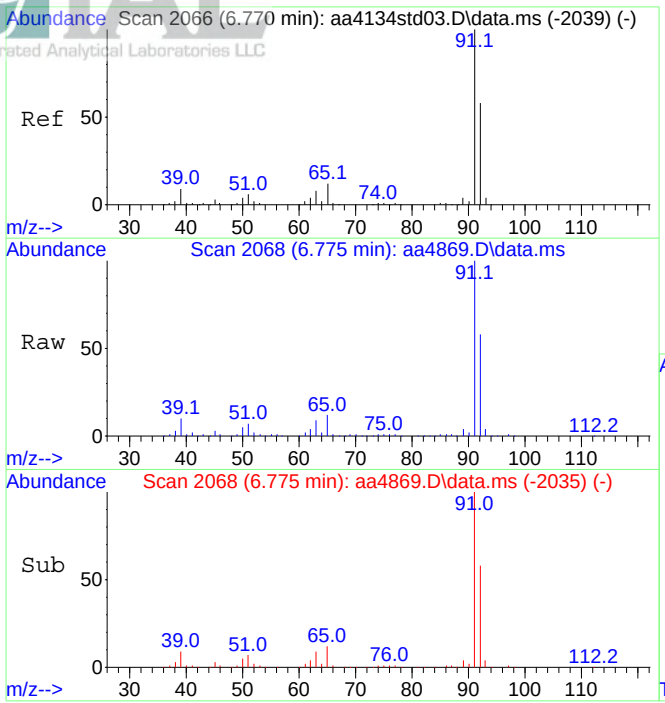


#41
2,2,4-Trimethylpentane
Concen: 6.85 ppbV
RT: 4.843 min Scan# 1467
Delta R.T. -0.001 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 57 Resp: 1877837

Ion	Ratio	Lower	Upper
57	100		
56	34.6	25.7	38.5

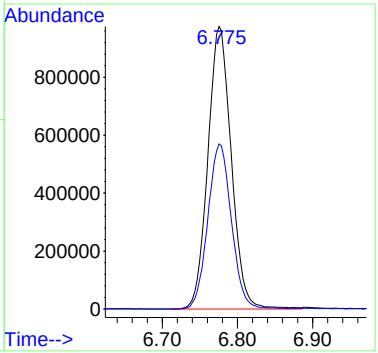


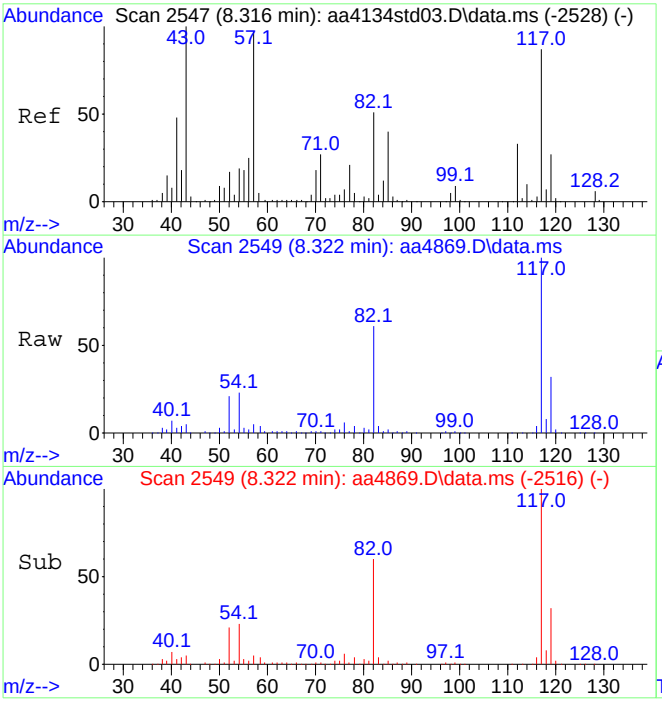


#47
Toluene
Concen: 7.14 ppbV
RT: 6.775 min Scan# 2068
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 91 Resp: 2112833

Ion	Ratio	Lower	Upper
91	100		
92	59.0	47.3	70.9

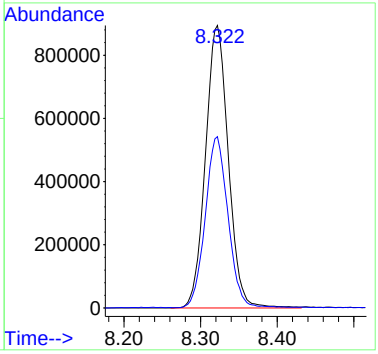


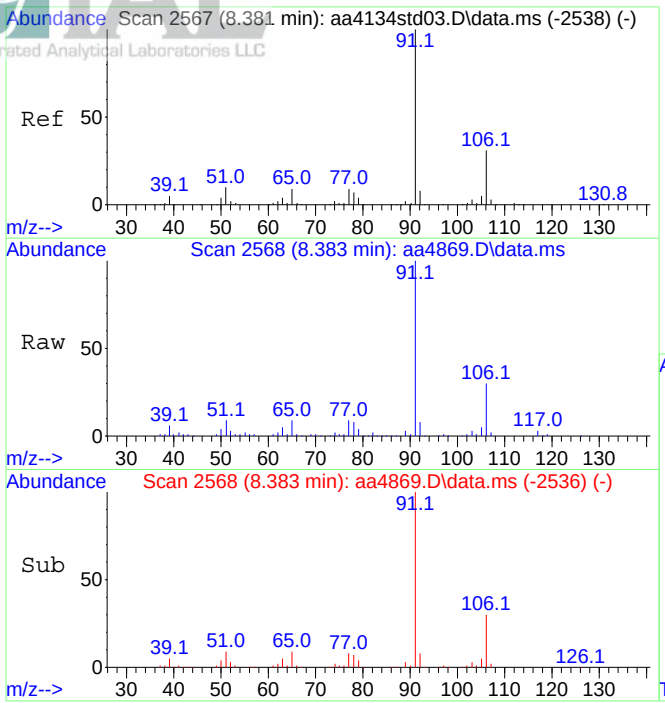


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.322 min Scan# 2549
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:117 Resp: 1855524

Ion	Ratio	Lower	Upper
117	100		
82	60.2	47.0	70.4

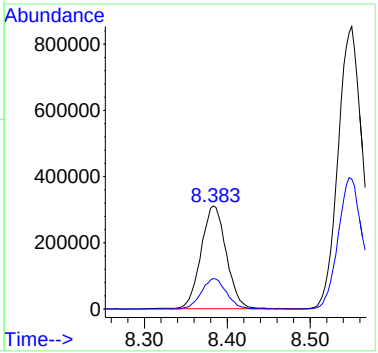


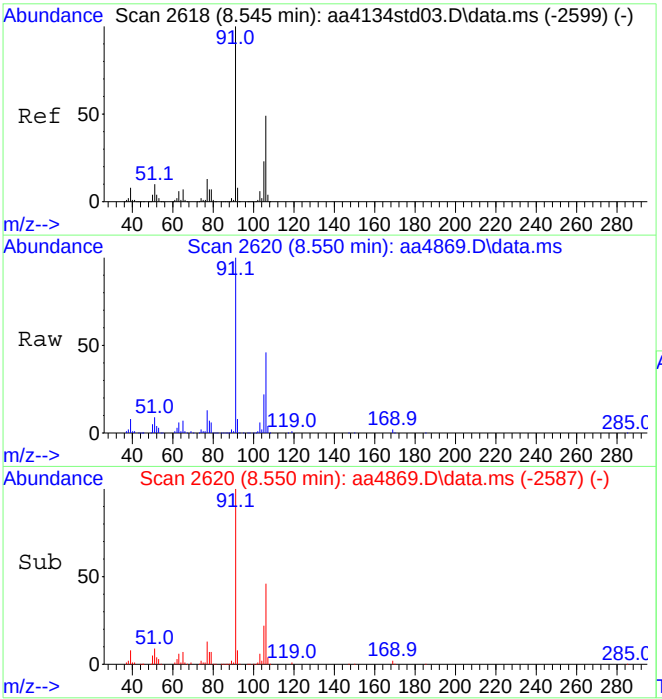


#58
Ethylbenzene
Concen: 1.92 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 91 Resp: 655687

Ion	Ratio	Lower	Upper
91	100		
106	29.4	24.6	36.8

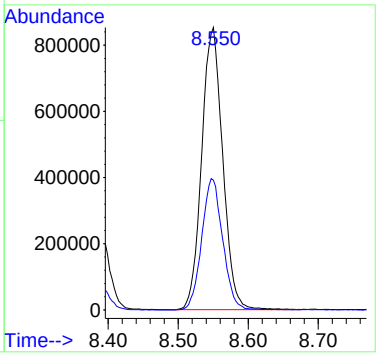


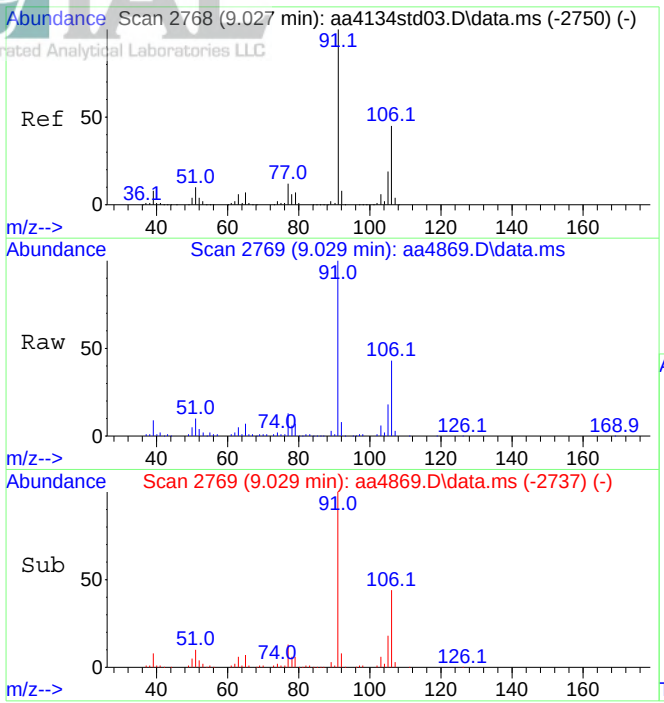


#59
Xylenes (m&p)
Concen: 7.03 ppbV
RT: 8.550 min Scan# 2620
Delta R.T. 0.005 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 91 Resp: 1780980

Ion	Ratio	Lower	Upper
91	100		
106	46.5	39.0	58.4

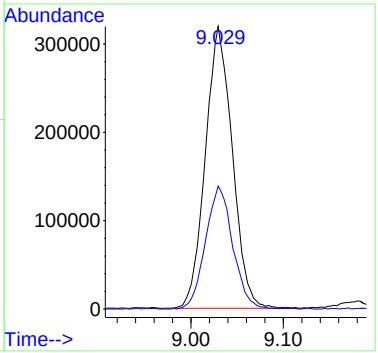


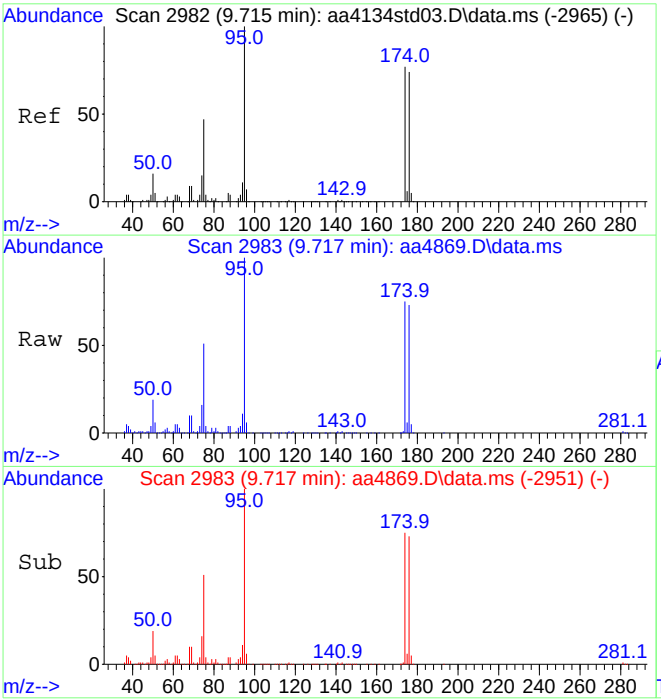


#60
Xylene (o)
Concen: 2.35 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 91 Resp: 648554

Ion	Ratio	Lower	Upper
91	100		
106	44.0	36.8	55.2

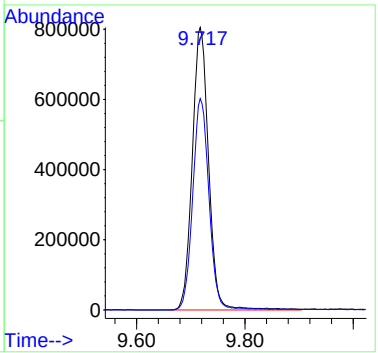


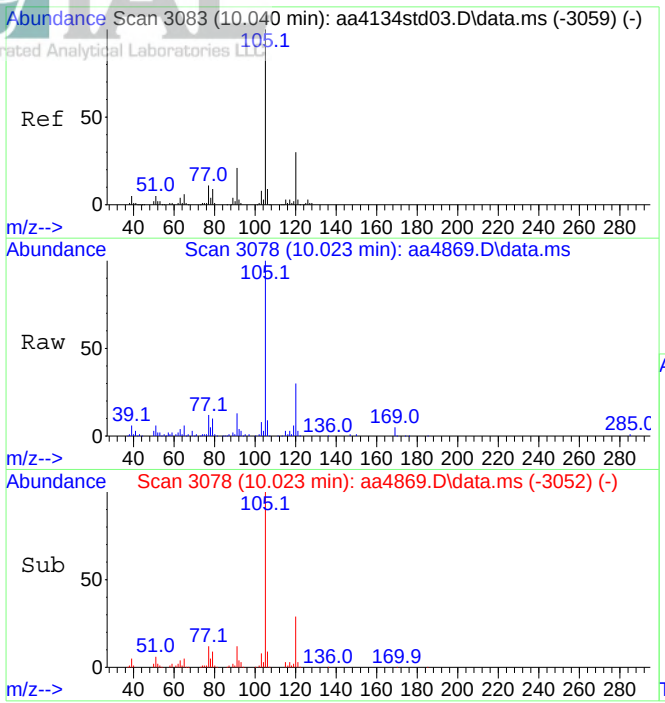


#64
Bromofluorobenzene (tune std)
Concen: 10.43 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion: 95 Resp: 1687506

Ion	Ratio	Lower	Upper
95	100		
174	75.1	61.1	91.7

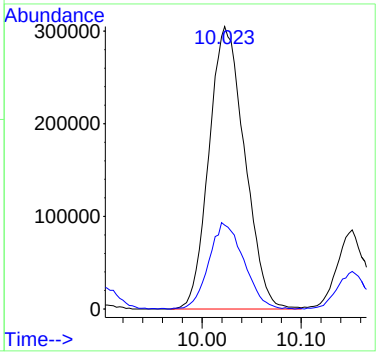


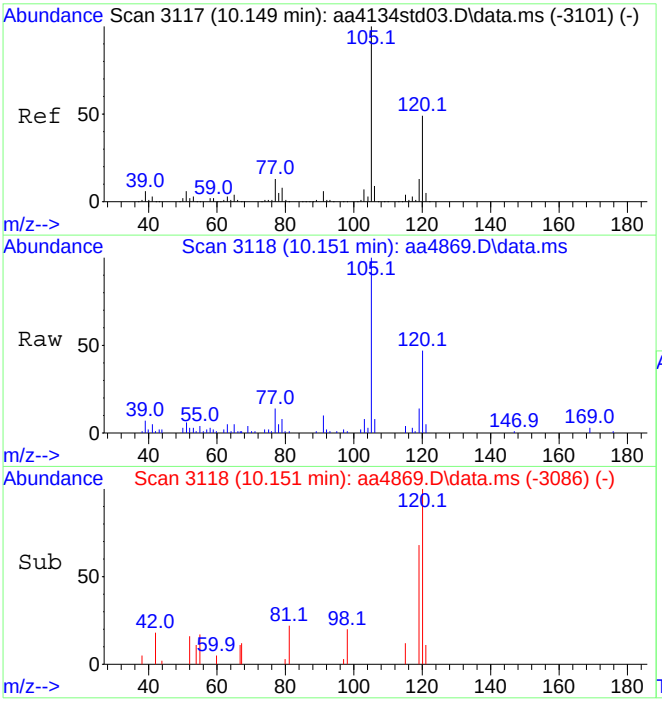


#67
4-Ethyltoluene
Concen: 1.91 ppbV
RT: 10.023 min Scan# 3078
Delta R.T. -0.017 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:105 Resp: 762163

Ion	Ratio	Lower	Upper
105	100		
120	30.0	23.4	35.2

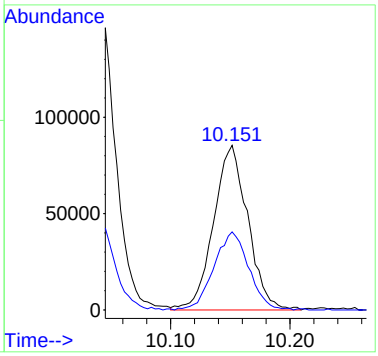


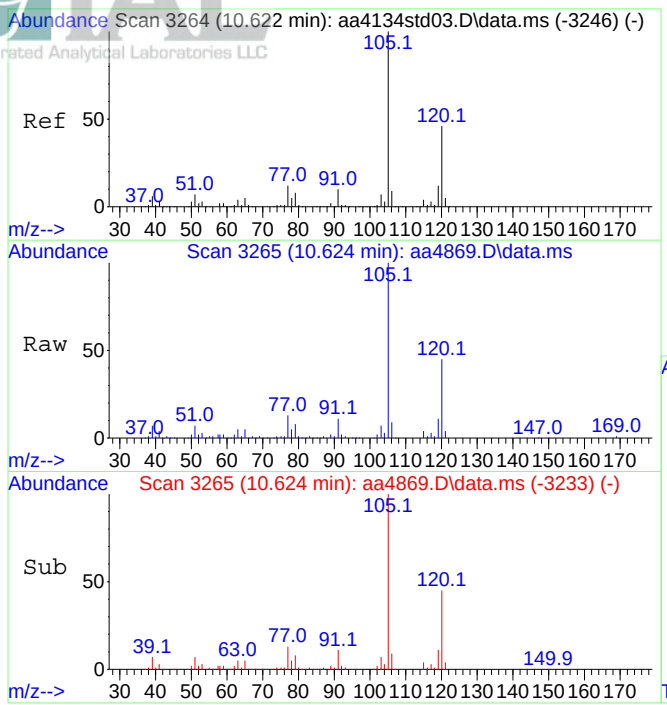


#69
1,3,5-Trimethylbenzene
Concen: 0.53 ppbV
RT: 10.151 min Scan# 3118
Delta R.T. 0.002 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:105 Resp: 170234

Ion	Ratio	Lower	Upper
105	100		
120	48.2	38.9	58.3

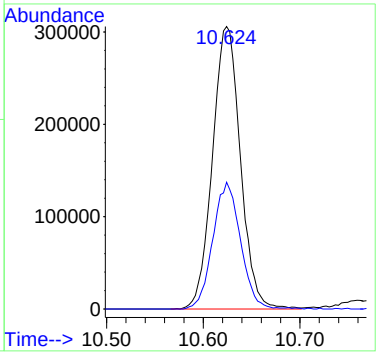




#70
1,2,4-Trimethylbenzene
Concen: 1.92 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4869.D
Acq: 7 Dec 2023 7:50 pm

Tgt Ion:105 Resp: 614979

Ion	Ratio	Lower	Upper
105	100		
120	44.4	36.3	54.5



Data Path : C:\DATA\2023\12-2023\12-07-2023\
Data File : aa4870.D
Acq On : 7 Dec 2023 8:30 pm
Operator : jjw
Sample : E23-05061-23
Misc : Dup of E23-05061-03, Can # 3045A
ALS Vial : 24 Sample Multiplier: 1

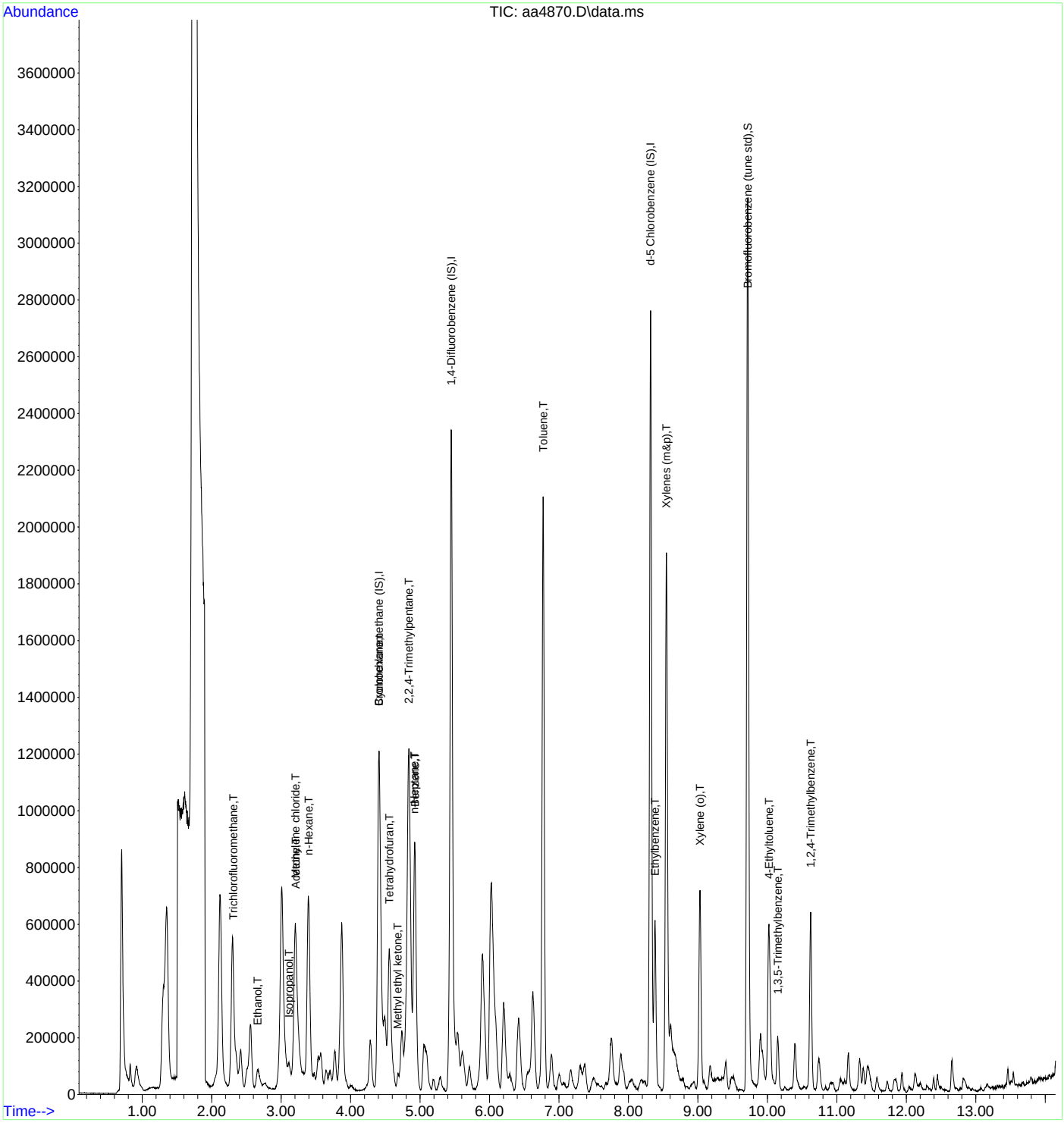
Quant Time: Dec 13 12:53:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

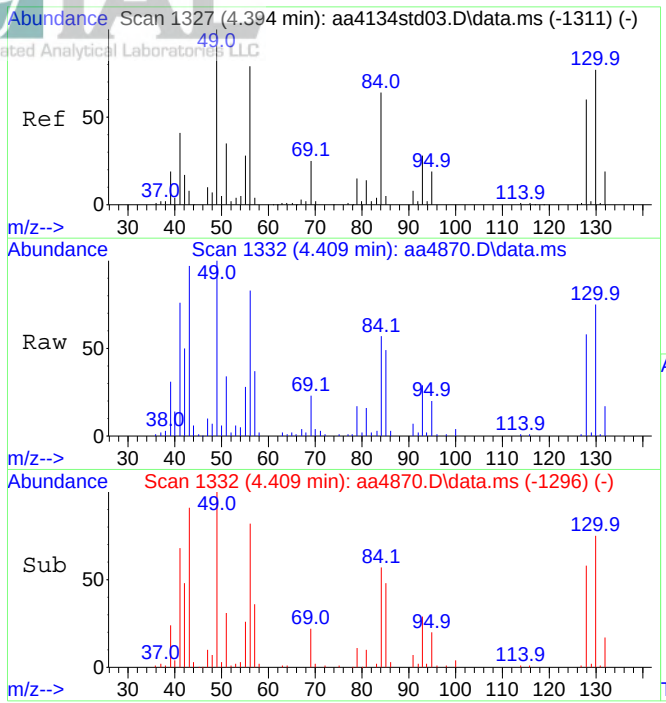
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.409	130	368396	10.00	ppbV		0.015
39) 1,4-Difluorobenzene (IS)	5.451	114	1818981	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1692684	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.717	95	1387863	9.41	ppbV		0.000
Target Compounds							Qvalue
12) Trichlorofluoromethane	2.313	101	33879	0.33	ppbV		90
13) Ethanol	2.663	45	109072	10.11	ppbV		99
19) Isopropanol	3.113	45	208075	2.82	ppbV	#	70
20) Methylene chloride	3.206	49	125882	2.78	ppbV	#	7
21) Acetone	3.213	43	562689	10.13	ppbV		99
24) n-Hexane	3.396	57	444919	3.83	ppbV		97
29) Cyclohexane	4.409	56	279096	3.44	ppbV	#	74
33) Tetrahydrofuran	4.557	42	49663	0.90	ppbV	#	75
35) Methyl ethyl ketone	4.679	43	75094	0.83	ppbV		98
36) n-Heptane	4.917	43	341229	3.35	ppbV		97
37) Benzene	4.930	78	338080	2.31	ppbV		95
41) 2,2,4-Trimethylpentane	4.840	57	1725941	7.28	ppbV		95
47) Toluene	6.772	91	1825367	7.14	ppbV		100
58) Ethylbenzene	8.383	91	499733	1.60	ppbV		99
59) Xylenes (m&p)	8.547	91	1368186	5.92	ppbV		97
60) Xylene (o)	9.029	91	512360	2.03	ppbV		97
67) 4-Ethyltoluene	10.023	105	521383	1.43	ppbV		99
69) 1,3,5-Trimethylbenzene	10.151	105	130813	0.45	ppbV		99
70) 1,2,4-Trimethylbenzene	10.624	105	434326	1.48	ppbV		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-07-2023\
Data File : aa4870.D
Acq On : 7 Dec 2023 8:30 pm
Operator : jjw
Sample : E23-05061-23
Misc : Dup of E23-05061-03, Can # 3045A
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Dec 13 12:53:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

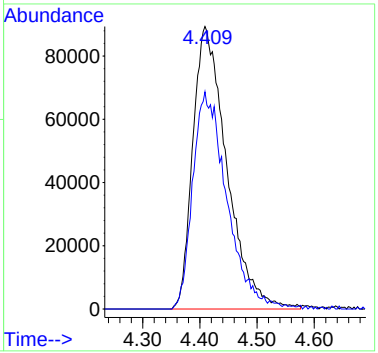


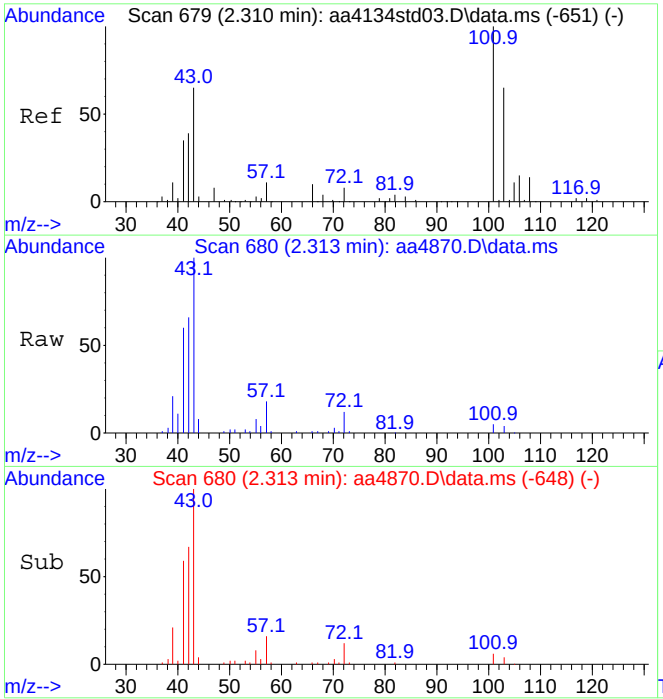


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.409 min Scan# 1332
Delta R.T. 0.015 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:130 Resp: 368396

Ion	Ratio	Lower	Upper
130	100		
128	76.6	62.2	93.4

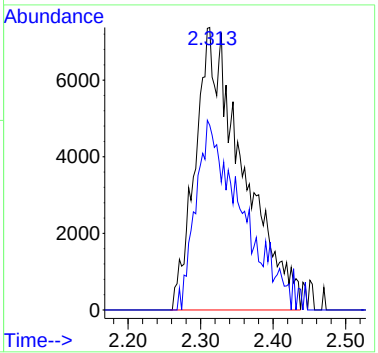


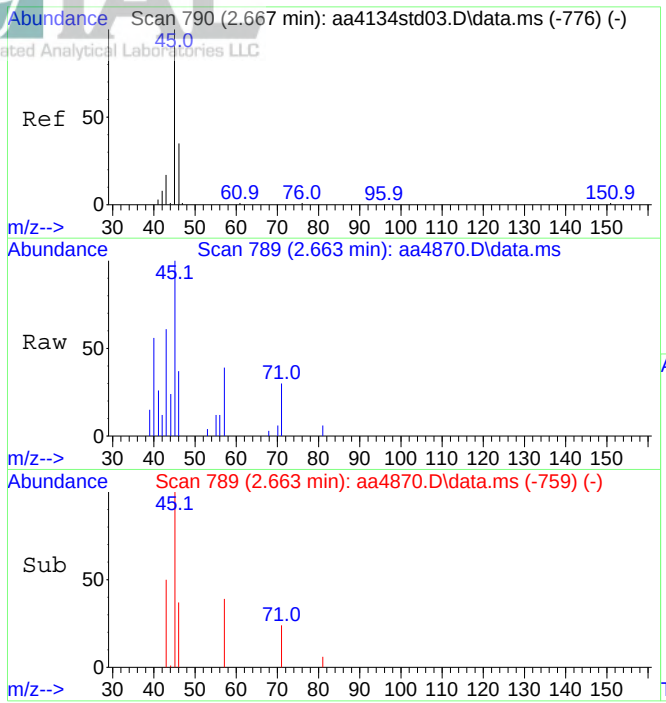


#12
Trichlorofluoromethane
Concen: 0.33 ppbV
RT: 2.313 min Scan# 680
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:101 Resp: 33879

Ion	Ratio	Lower	Upper
101	100		
103	57.5	52.5	78.7

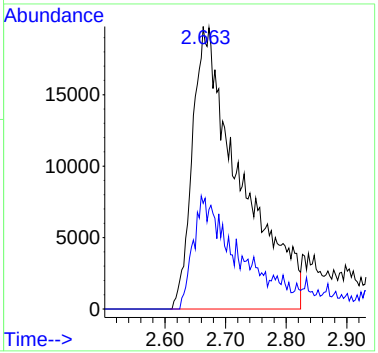


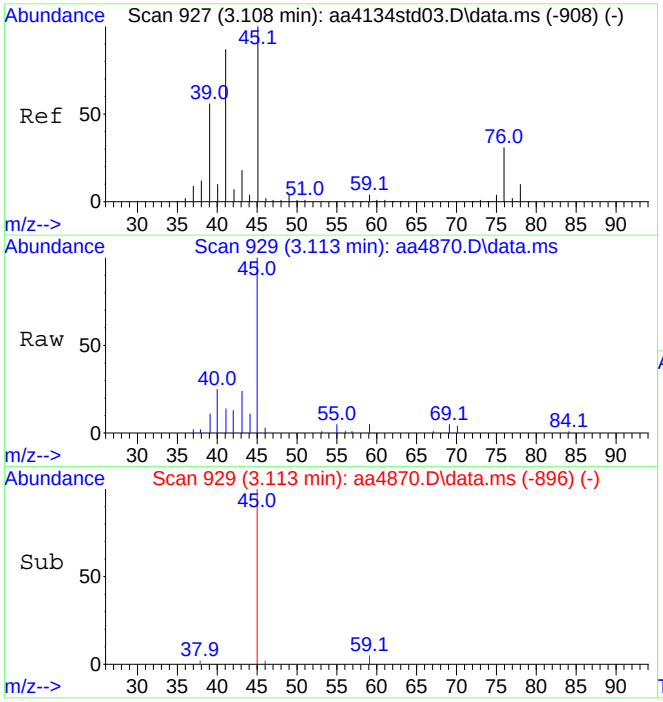


#13
Ethanol
Concen: 10.11 ppbV
RT: 2.663 min Scan# 789
Delta R.T. -0.004 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 45 Resp: 109072

Ion	Ratio	Lower	Upper
45	100		
46	37.9	30.0	45.0

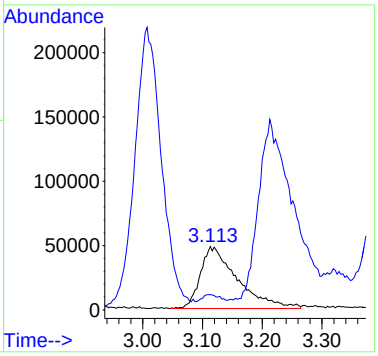


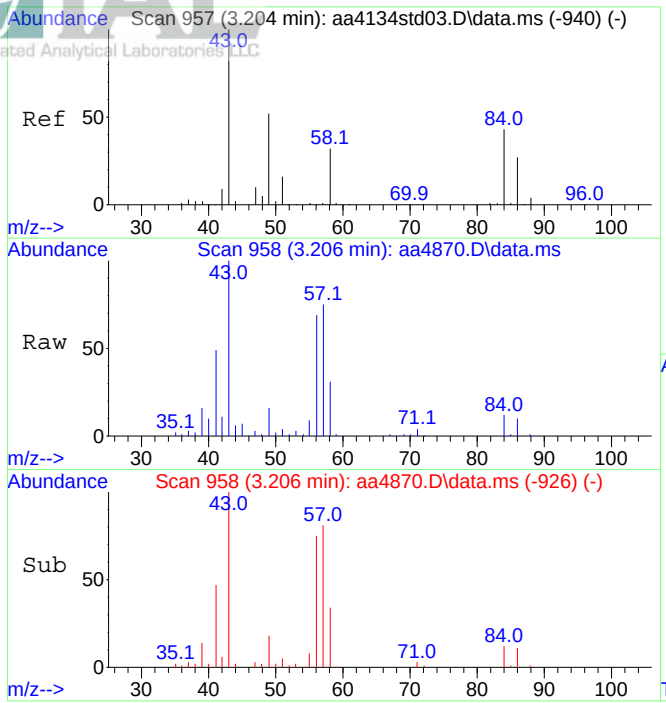


#19
Isopropanol
Concen: 2.82 ppbV
RT: 3.113 min Scan# 929
Delta R.T. 0.005 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 45 Resp: 208075

Ion	Ratio	Lower	Upper
45	100		
43	5.0	14.6	21.8#

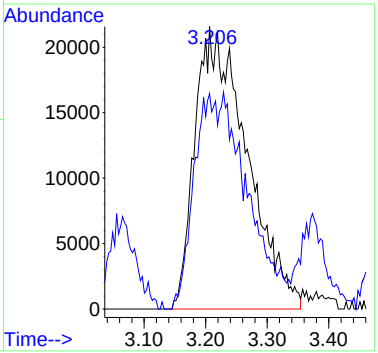


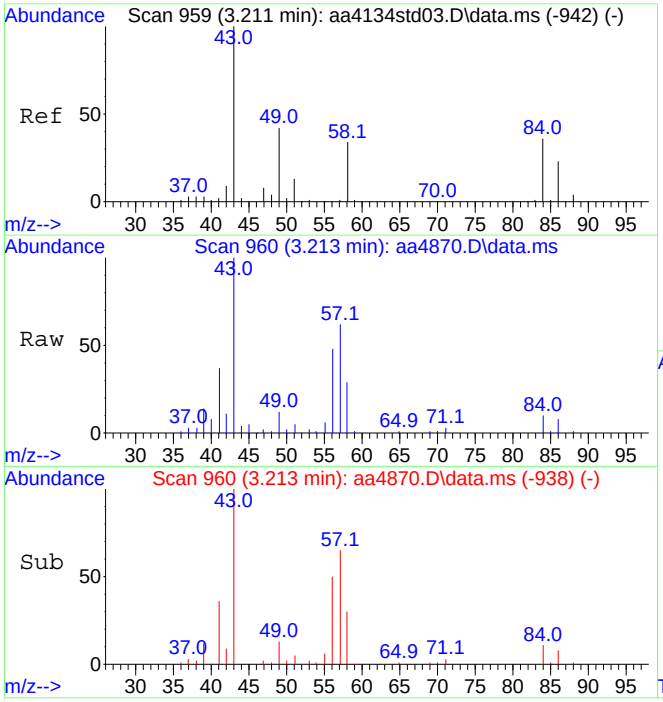


#20
Methylene chloride
Concen: 2.78 ppbV
RT: 3.206 min Scan# 958
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 49 Resp: 125882

Ion	Ratio	Lower	Upper
49	100		
84	0.0	64.8	104.8#

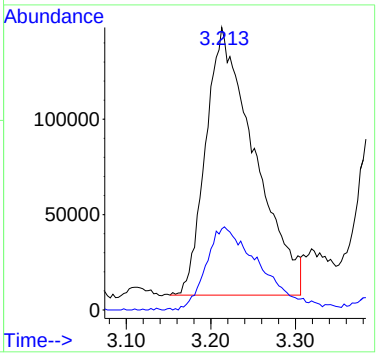


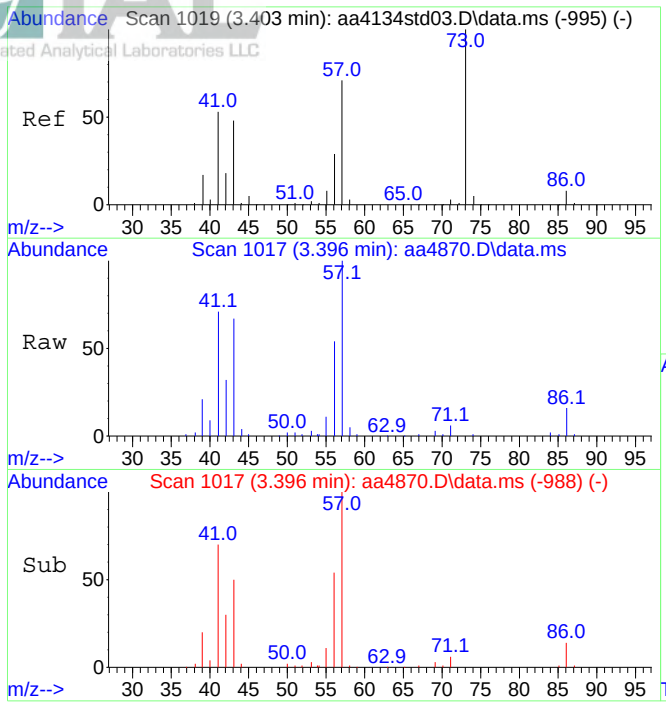


#21
Acetone
Concen: 10.13 ppbV
RT: 3.213 min Scan# 960
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 43 Resp: 562689

Ion	Ratio	Lower	Upper
43	100		
58	33.1	27.1	40.7

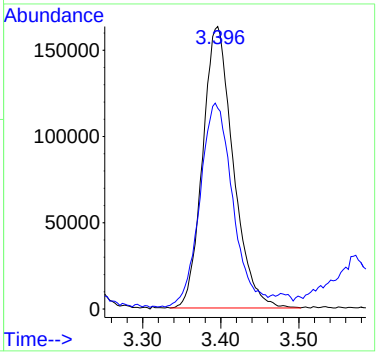


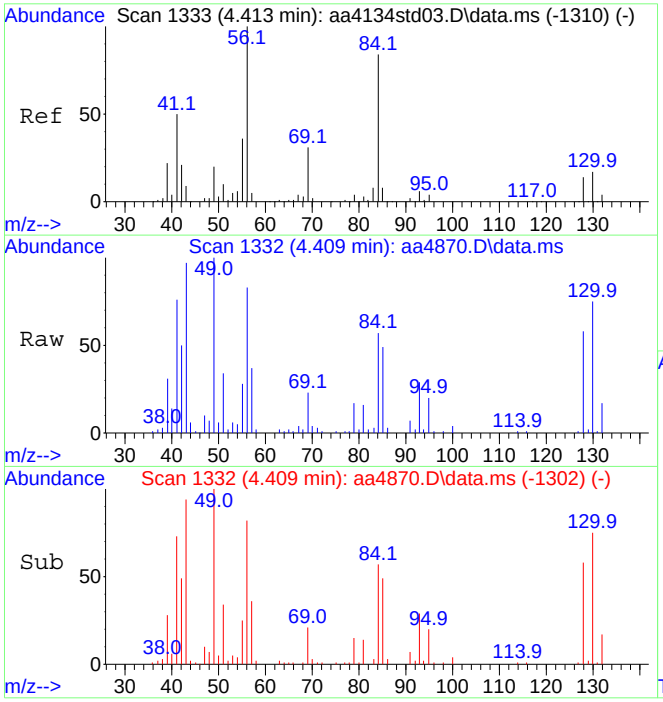


#24
n-Hexane
Concen: 3.83 ppbV
RT: 3.396 min Scan# 1017
Delta R.T. -0.007 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 57 Resp: 444919

Ion	Ratio	Lower	Upper
57	100		
41	80.6	66.4	99.6

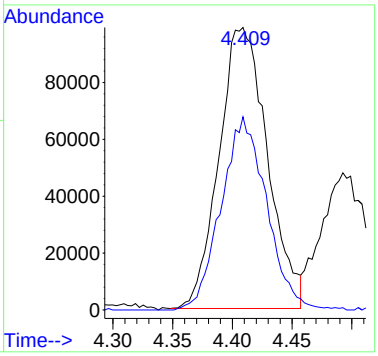


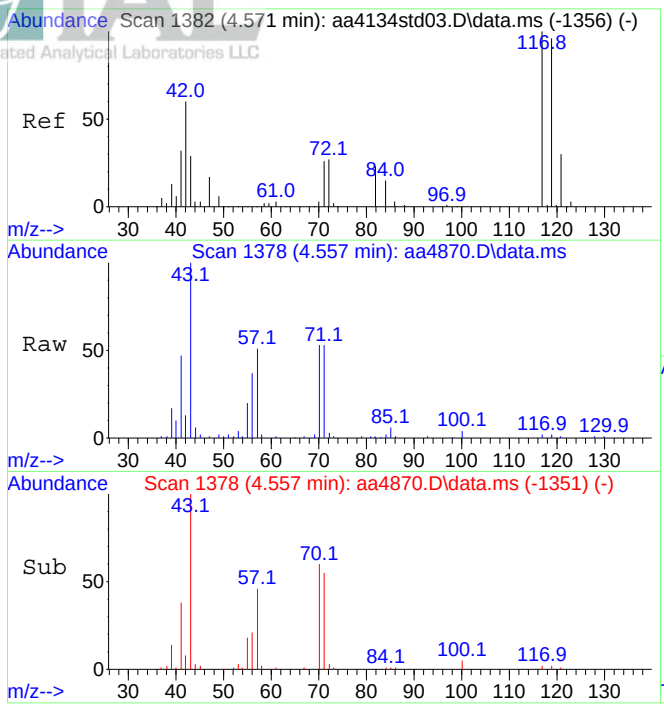


#29
Cyclohexane
Concen: 3.44 ppbV
RT: 4.409 min Scan# 1332
Delta R.T. -0.004 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 56 Resp: 279096

Ion	Ratio	Lower	Upper
56	100		
84	64.4	71.2	106.8#

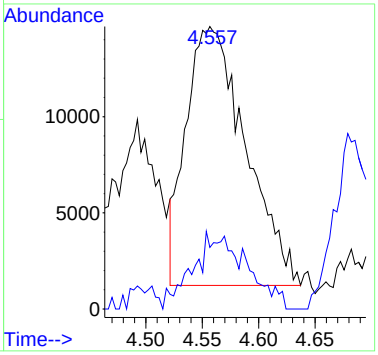


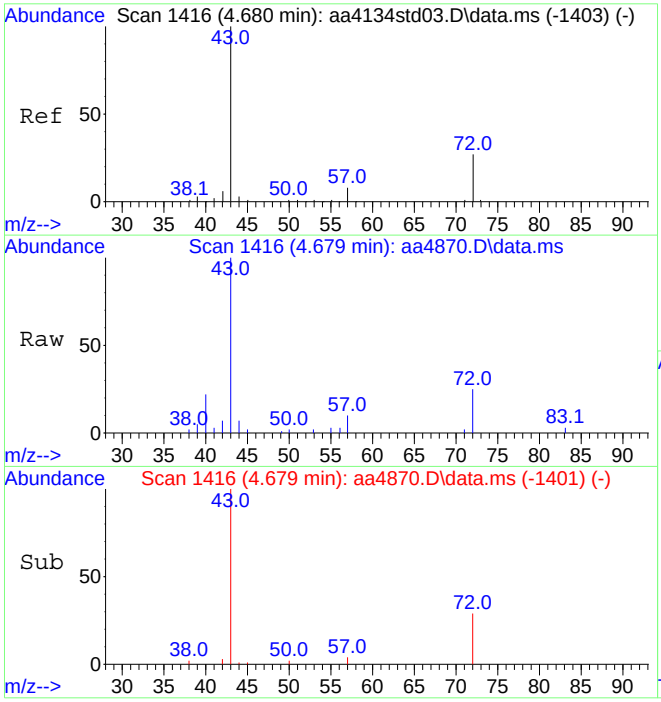


#33
Tetrahydrofuran
Concen: 0.90 ppbV
RT: 4.557 min Scan# 1378
Delta R.T. -0.014 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 42 Resp: 49663

Ion	Ratio	Lower	Upper
42	100		
72	26.4	33.8	50.8#

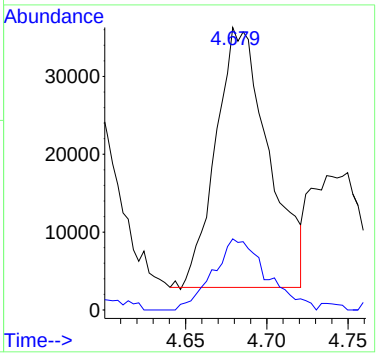


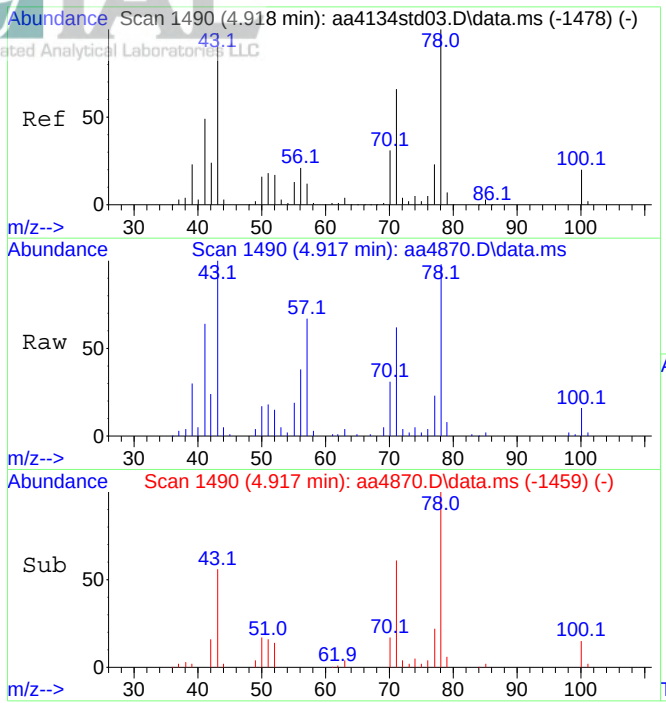


#35
Methyl ethyl ketone
Concen: 0.83 ppbV
RT: 4.679 min Scan# 1416
Delta R.T. -0.001 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 43 Resp: 75094

Ion	Ratio	Lower	Upper
43	100		
72	27.9	21.6	32.4

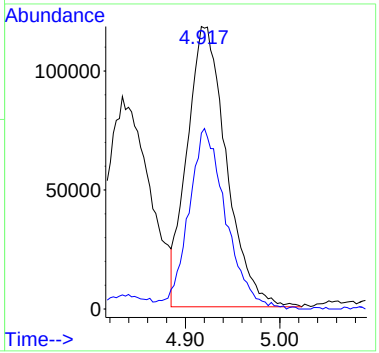


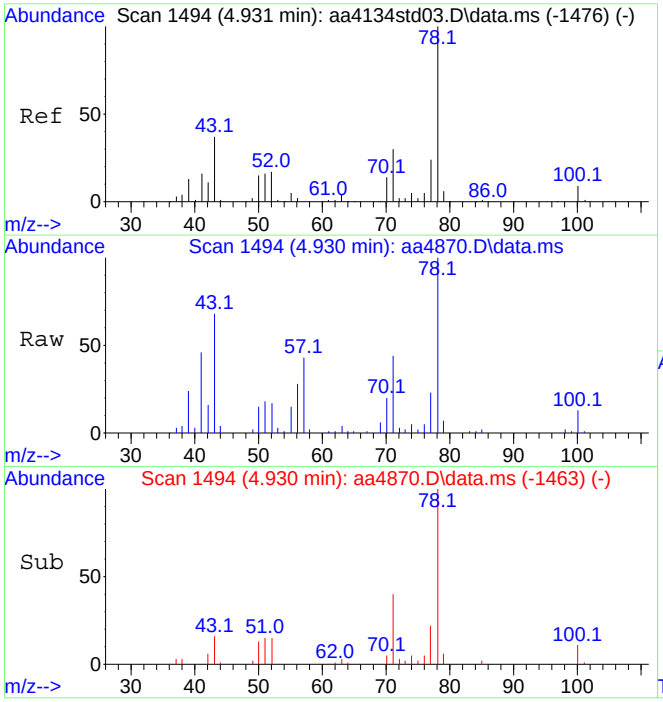


#36
n-Heptane
Concen: 3.35 ppbV
RT: 4.917 min Scan# 1490
Delta R.T. -0.001 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 43 Resp: 341229

Ion	Ratio	Lower	Upper
43	100		
71	61.1	50.5	75.7

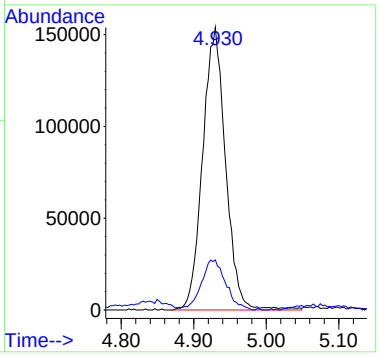


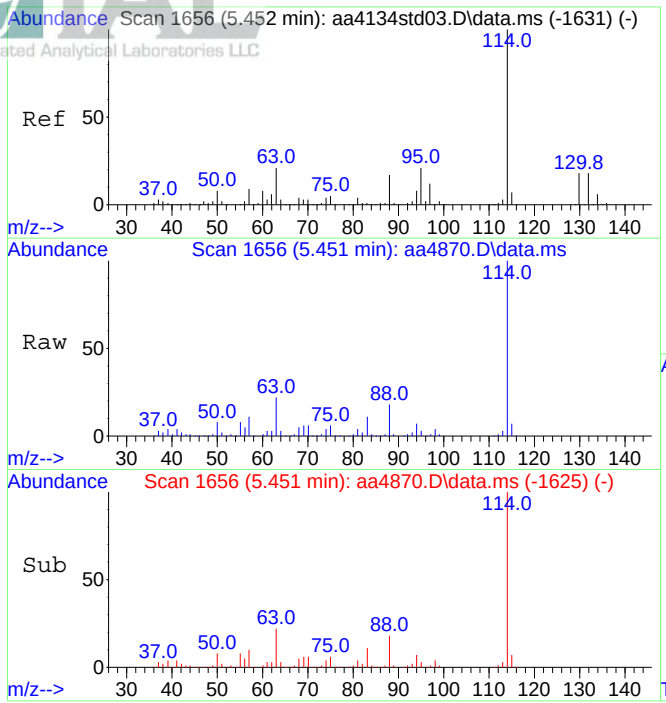


#37
Benzene
Concen: 2.31 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. -0.001 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 78 Resp: 338080

Ion	Ratio	Lower	Upper
78	100		
51	18.8	13.4	20.0

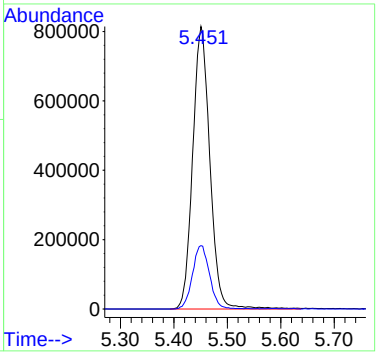


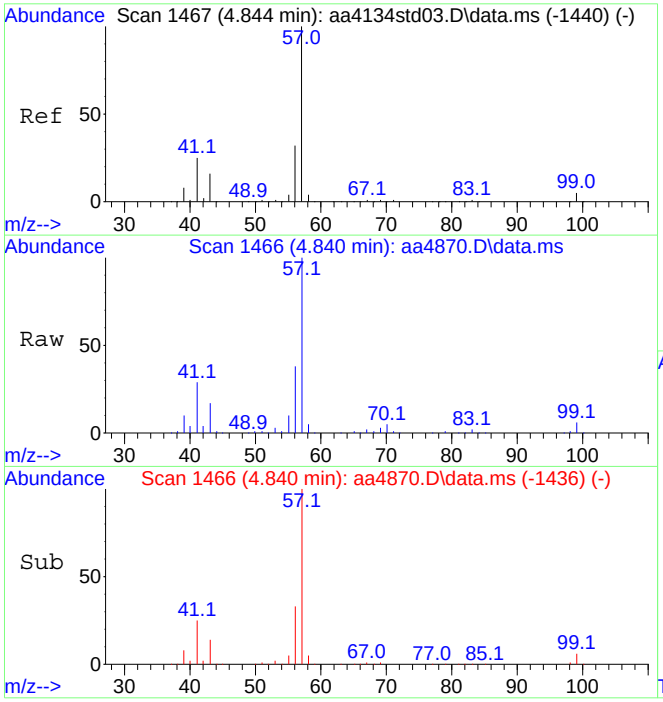


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.451 min Scan# 1656
Delta R.T. -0.001 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:114 Resp: 1818981

Ion	Ratio	Lower	Upper
114	100		
63	22.3	17.0	25.6

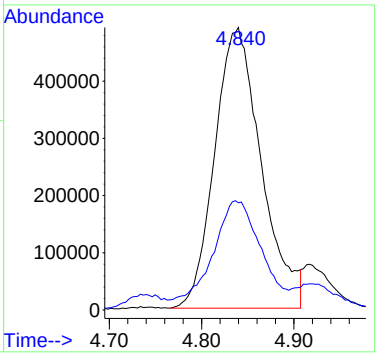


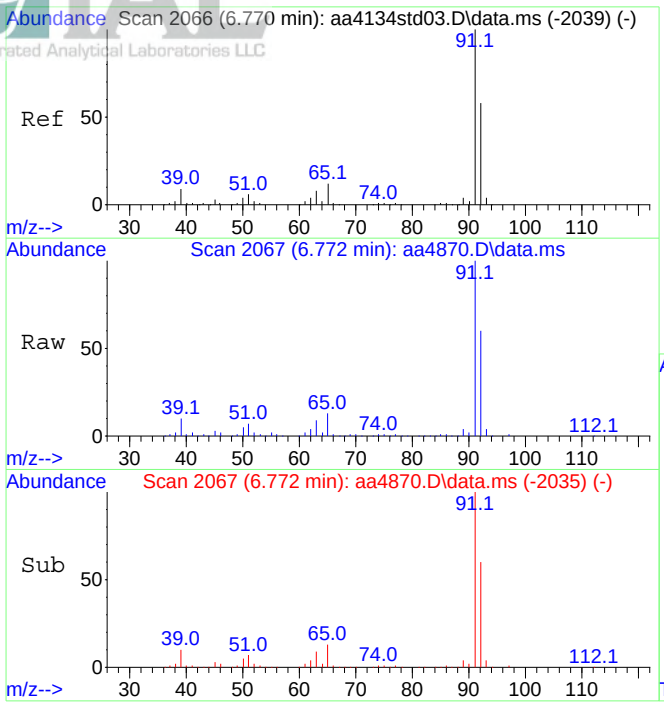


#41
2,2,4-Trimethylpentane
Concen: 7.28 ppbV
RT: 4.840 min Scan# 1466
Delta R.T. -0.004 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 57 Resp: 1725941

Ion	Ratio	Lower	Upper
57	100		
56	34.7	25.7	38.5

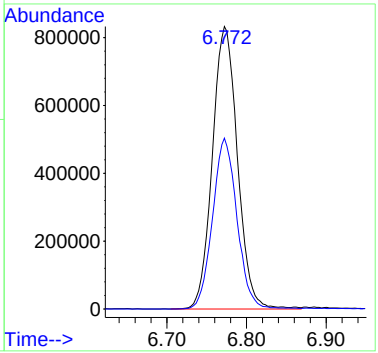


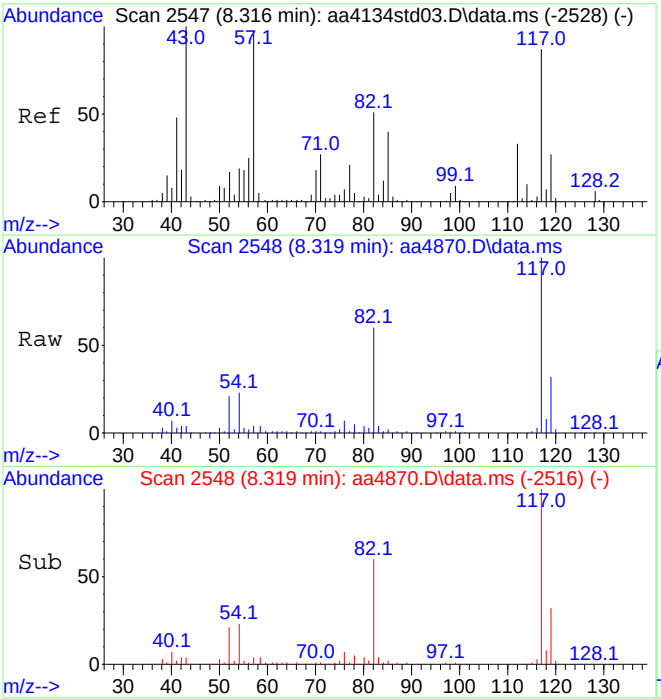


#47
Toluene
Concen: 7.14 ppbV
RT: 6.772 min Scan# 2067
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 91 Resp: 1825367

Ion	Ratio	Lower	Upper
91	100		
92	59.2	47.3	70.9

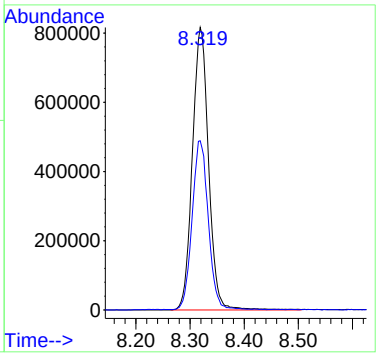


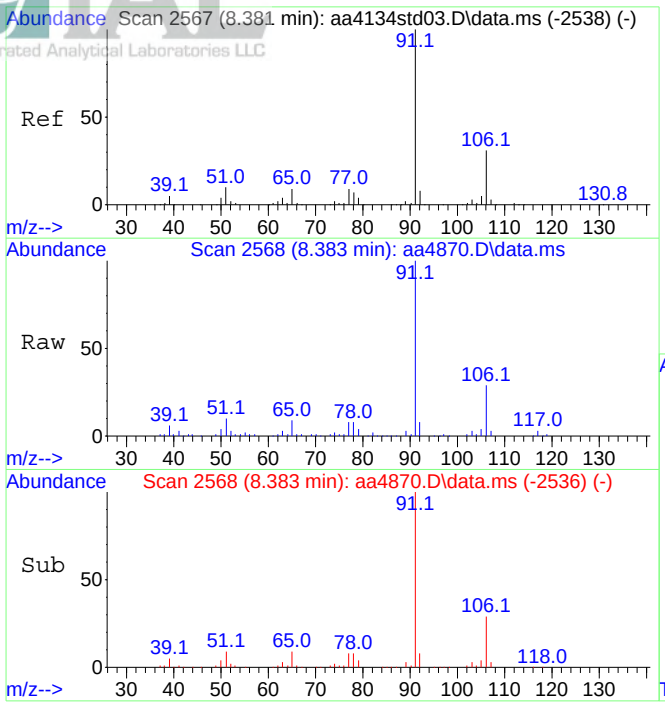


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:117 Resp: 1692684

Ion	Ratio	Lower	Upper
117	100		
82	59.7	47.0	70.4

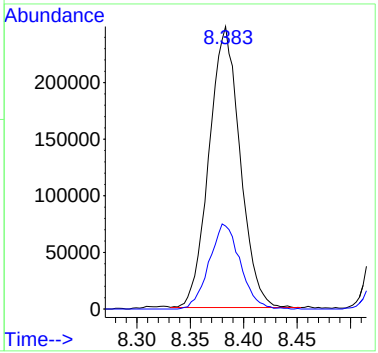


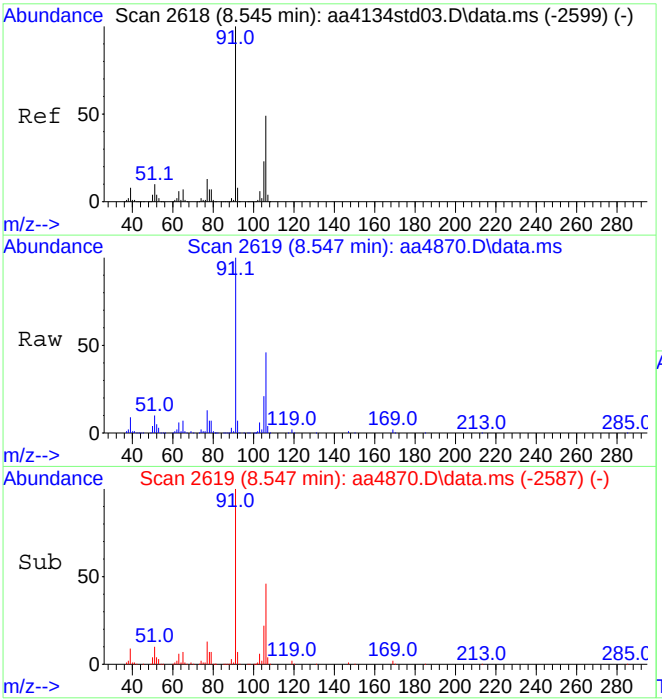


#58
Ethylbenzene
Concen: 1.60 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 91 Resp: 499733

Ion	Ratio	Lower	Upper
91	100		
106	30.4	24.6	36.8

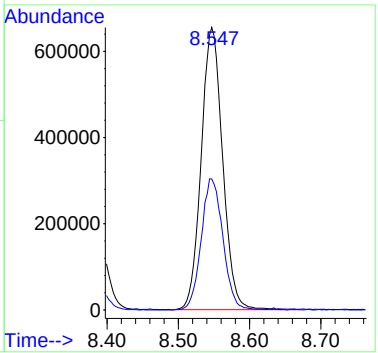


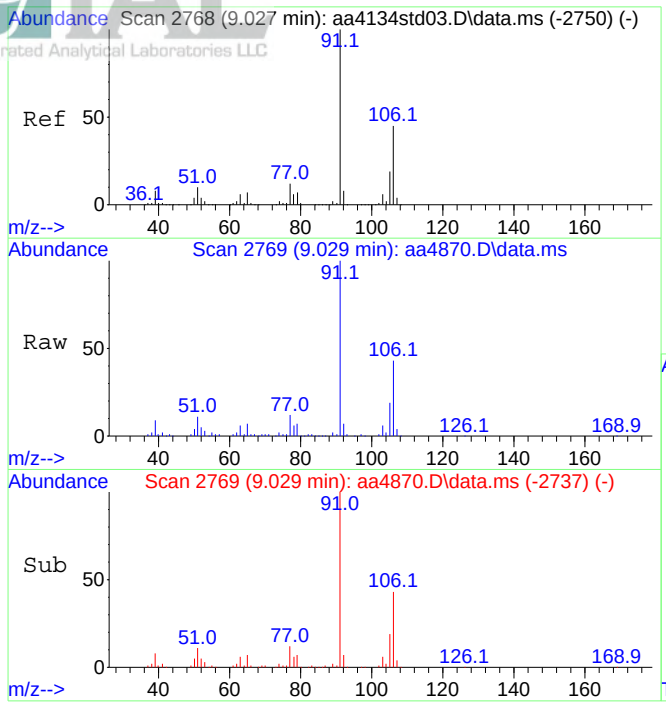


#59
Xylenes (m&p)
Concen: 5.92 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 91 Resp: 1368186

Ion	Ratio	Lower	Upper
91	100		
106	47.0	39.0	58.4

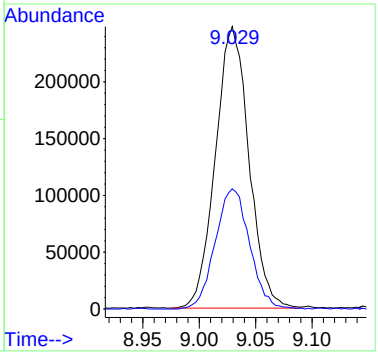


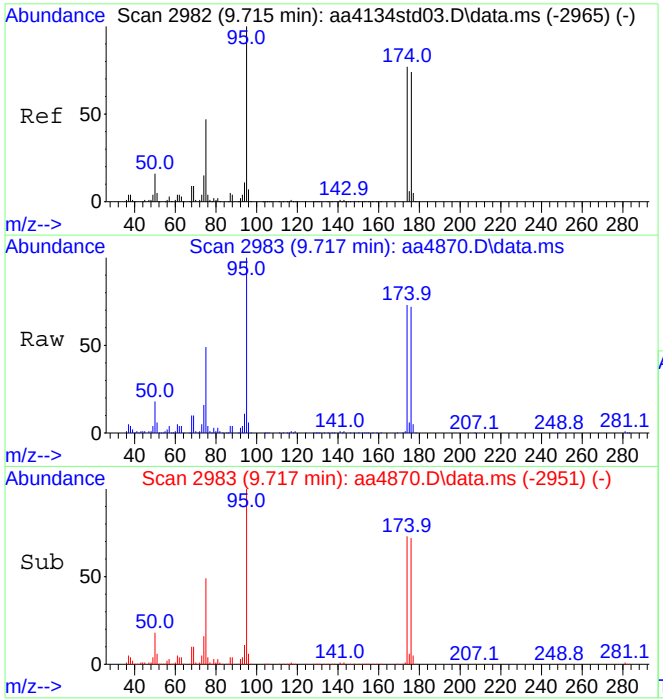


#60
Xylene (o)
Concen: 2.03 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 91 Resp: 512360

Ion	Ratio	Lower	Upper
91	100		
106	43.7	36.8	55.2

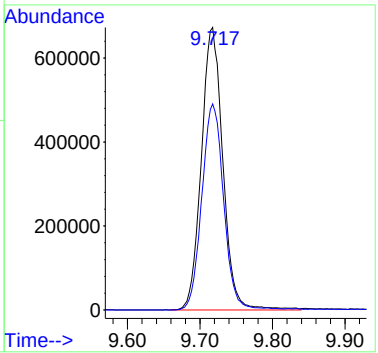


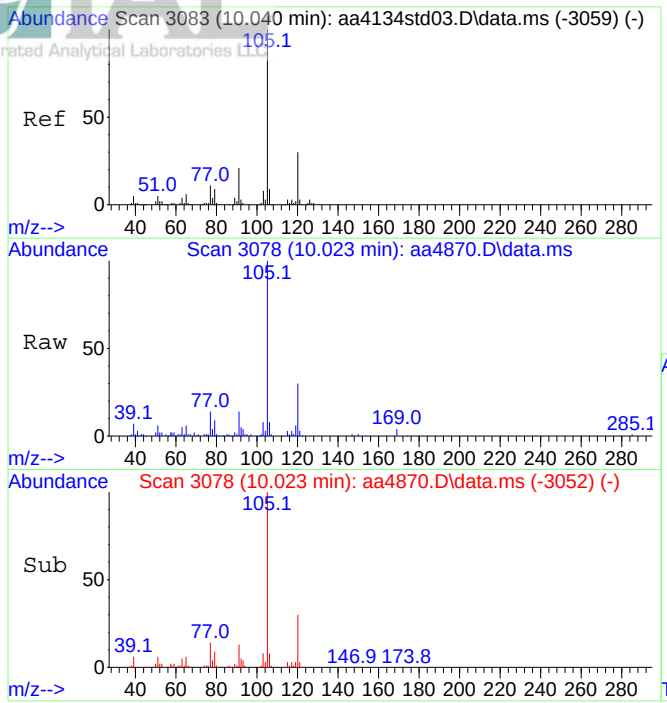


#64
Bromofluorobenzene (tune std)
Concen: 9.41 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion: 95 Resp: 1387863

Ion	Ratio	Lower	Upper
95	100		
174	74.3	61.1	91.7

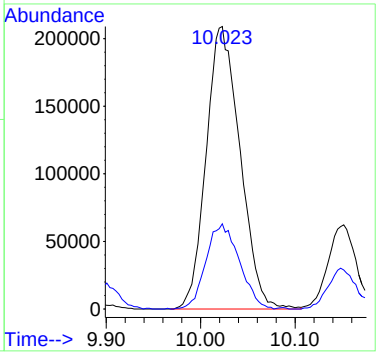


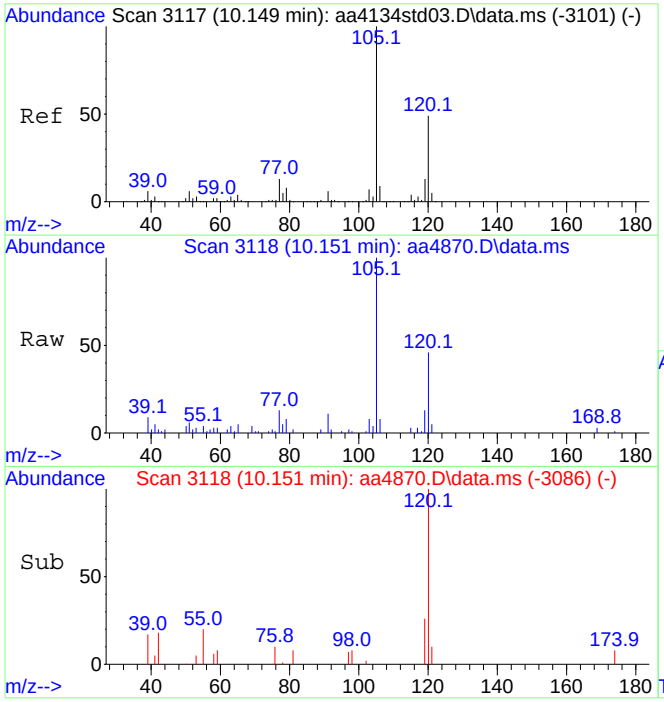


#67
4-Ethyltoluene
Concen: 1.43 ppbV
RT: 10.023 min Scan# 3078
Delta R.T. -0.017 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:105 Resp: 521383

Ion	Ratio	Lower	Upper
105	100		
120	29.6	23.4	35.2

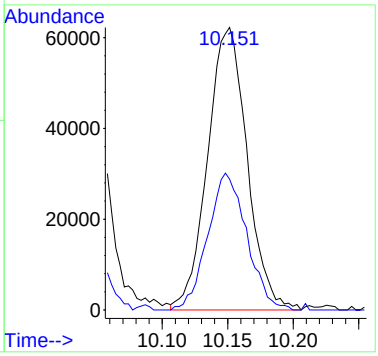


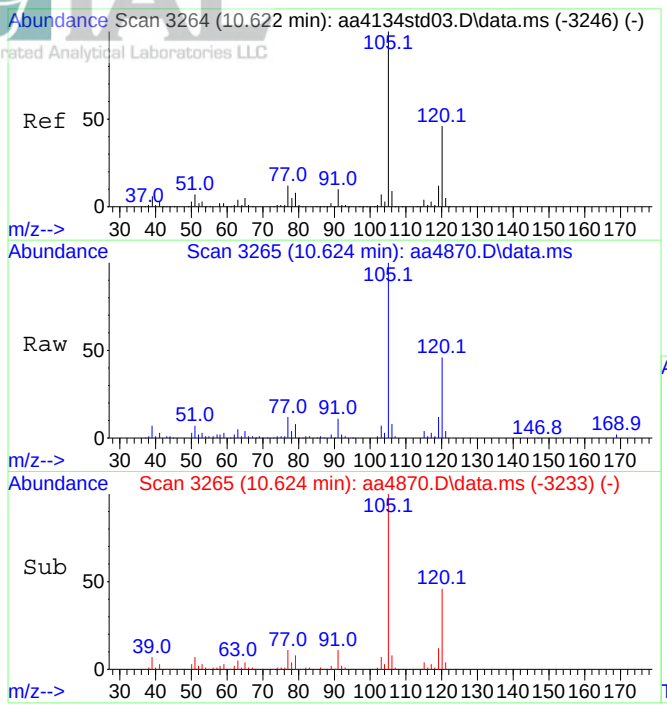


#69
1,3,5-Trimethylbenzene
Concen: 0.45 ppbV
RT: 10.151 min Scan# 3118
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:105 Resp: 130813

Ion	Ratio	Lower	Upper
105	100		
120	47.7	38.9	58.3

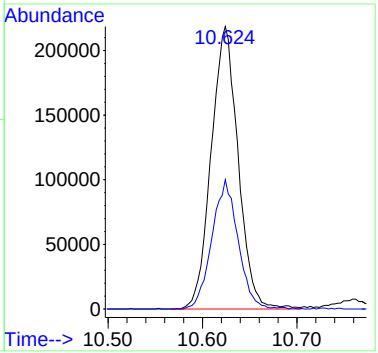




#70
1,2,4-Trimethylbenzene
Concen: 1.48 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4870.D
Acq: 7 Dec 2023 8:30 pm

Tgt Ion:105 Resp: 434326

Ion	Ratio	Lower	Upper
105	100		
120	44.2	36.3	54.5



INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SDG Number:	E23-05079	Date Received:	11/20/23
IAL Sample ID:	E23-05079-03	Date Analyzed:	12/12/23,12/12/23
Matrix:	Air	Lab Data File#:	AA4929,AA4930
Summa ID:	3830	Dilution Factor:	1
		Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**6.1**		**5.9**		0.40	**3.33%**
Allyl Chloride	107-05-1	0.40	U	0.40	U	0.40	0.00%
Benzene	71-43-2	**0.31**		**0.32**		0.20	**-3.17%**
Bromodichloromethane	75-27-4	0.40	U	0.40	U	0.40	0.00%
Bromoform	75-25-2	0.40	U	0.40	U	0.40	0.00%
Bromomethane	74-83-9	0.40	U	0.40	U	0.40	0.00%
1,3-Butadiene	106-99-0	0.40	U	0.40	U	0.40	0.00%
Chlorobenzene	108-90-7	0.40	U	0.40	U	0.40	0.00%
Chloroethane	75-00-3	0.40	U	0.40	U	0.40	0.00%
Chloroform	67-66-3	0.40	U	0.40	U	0.40	0.00%
Chloromethane	74-87-3	0.40	U	0.40	U	0.40	0.00%
Carbon disulfide	75-15-0	0.40	U	0.40	U	0.40	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.40	U	0.40	U	0.40	0.00%
Cyclohexane	110-82-7	0.40	U	0.40	U	0.40	0.00%
Dibromochloromethane	124-48-1	0.40	U	0.40	U	0.40	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.40	U	0.40	U	0.40	0.00%
1,3-Dichlorobenzene	541-73-1	0.40	U	0.40	U	0.40	0.00%
1,4-Dichlorobenzene	106-46-7	0.40	U	0.40	U	0.40	0.00%
Dichlorodifluoromethane	75-71-8	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethane	75-34-3	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethane	107-06-2	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethene	75-35-4	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.40	U	0.40	U	0.40	0.00%
Ethylbenzene	100-41-4	0.20	U	0.20	U	0.20	0.00%
4-Ethyltoluene	622-96-8	0.40	U	0.40	U	0.40	0.00%
n-Heptane	142-82-5	0.40	U	0.40	U	0.40	0.00%
1,3-Hexachlorobutadiene	87-68-3	0.40	U	0.40	U	0.40	0.00%
n-Hexane	110-54-3	0.40	U	0.40	U	0.40	0.00%
Methylene chloride	75-09-2	**3.5**		**3.4**		0.40	**2.90%**
Methyl ethyl ketone	78-93-3	0.40	U	0.40	U	0.40	0.00%
Methyl isobutyl ketone	108-10-1	0.40	U	0.40	U	0.40	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SDG Number:	E23-05079	Date Received:	11/20/23
IAL Sample ID:	E23-05079-03	Date Analyzed:	12/12/23,12/12/23
Matrix:	Air	Lab Data File#:	AA4929,AA4930
Summa ID:	3830	Dilution Factor:	1
		Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	0.40	U	0.40	U	0.40	0.00%
Styrene	100-42-5	0.40	U	0.40	U	0.40	0.00%
Tert-butyl alcohol	75-65-0	0.40	U	0.40	U	0.40	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.40	U	0.40	U	0.40	0.00%
Tetrachloroethene	127-18-4	0.40	U	0.40	U	0.40	0.00%
Toluene	108-88-3	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trichlorobenzene	120-82-1	0.40	U	0.40	U	0.40	0.00%
1,1,1-Trichloroethane	71-55-6	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloroethane	79-00-5	0.40	U	0.40	U	0.40	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trimethylbenzene	95-63-6	0.40	U	0.40	U	0.40	0.00%
1,3,5-Trimethylbenzene	108-67-8	0.40	U	0.40	U	0.40	0.00%
2,2,4-Trimethylpentane	540-84-1	0.40	U	0.40	U	0.40	0.00%
Vinyl bromide	593-60-2	0.40	U	0.40	U	0.40	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	0.40	U	0.40	U	0.40	0.00%
Xylenes (o)	95-47-6	0.40	U	0.40	U	0.40	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4929.D
Acq On : 12 Dec 2023 12:58 am
Operator : jjw
Sample : E23-05079-03
Misc : 3830, 500cc
ALS Vial : 32 Sample Multiplier: 1

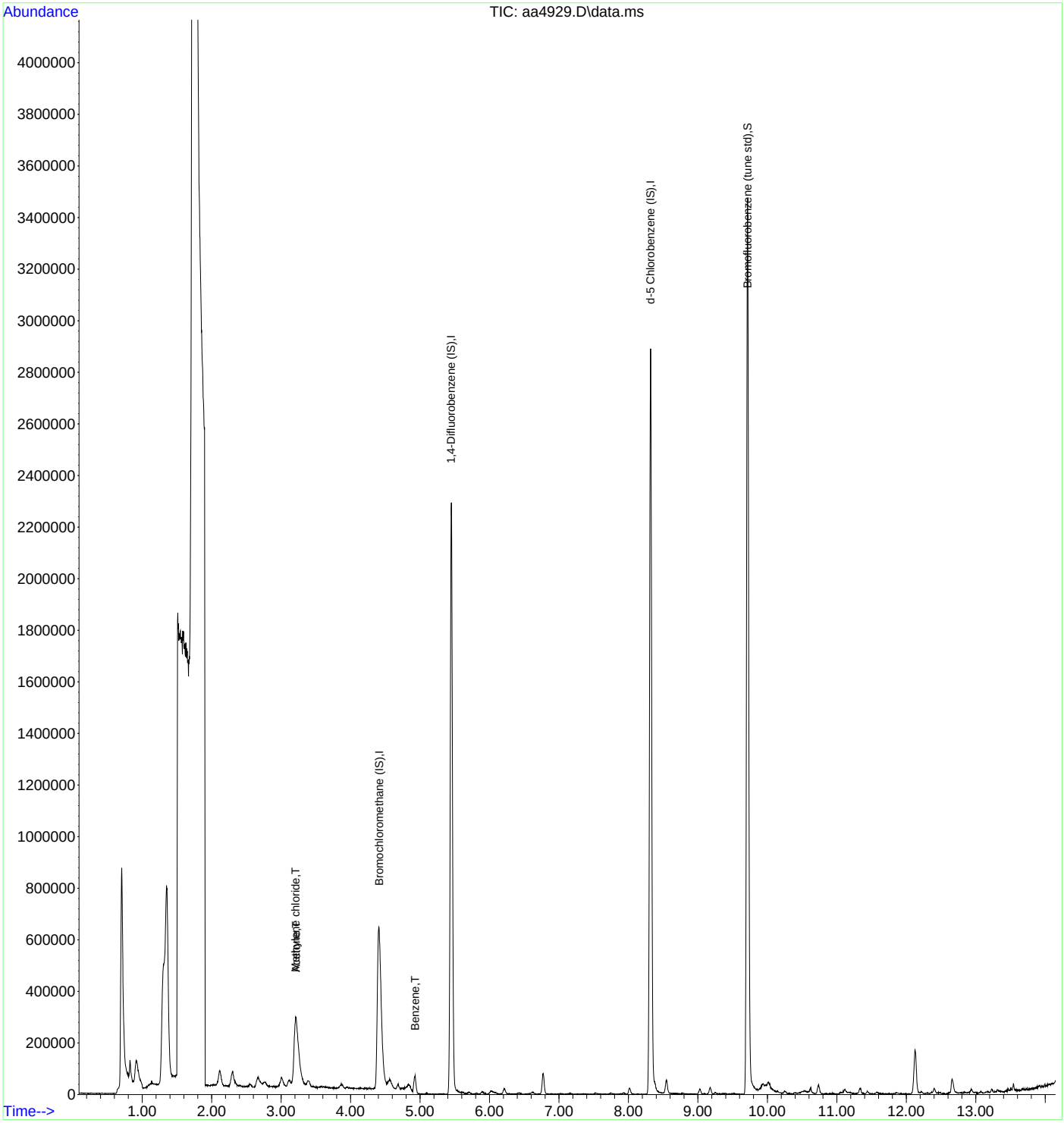
Quant Time: Dec 13 11:23:02 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

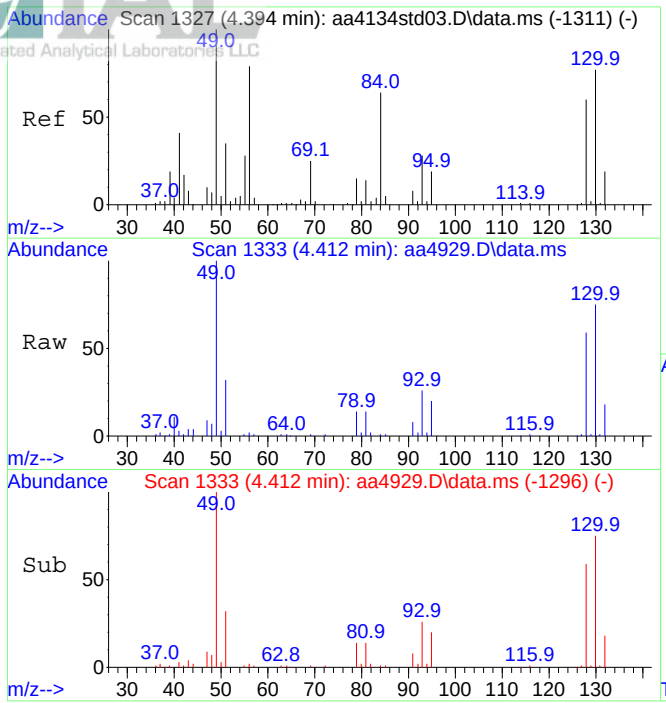
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Bromochloromethane (IS)	4.412	130	441232	10.00 ppbV	0.018
39) 1,4-Difluorobenzene (IS)	5.448	114	2147334	10.00 ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1948898	10.00 ppbV	0.000
System Monitoring Compounds					
64) Bromofluorobenzene (tu...	9.714	95	1597112	9.40 ppbV	0.000
Target Compounds					Qvalue
20) Methylene chloride	3.210	49	190775	3.52 ppbV	93
21) Acetone	3.216	43	404473	6.08 ppbV	99
37) Benzene	4.930	78	54291	0.31 ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4929.D
Acq On : 12 Dec 2023 12:58 am
Operator : jjw
Sample : E23-05079-03
Misc : 3830, 500cc
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Dec 13 11:23:02 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

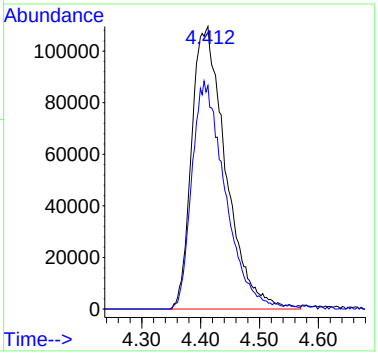


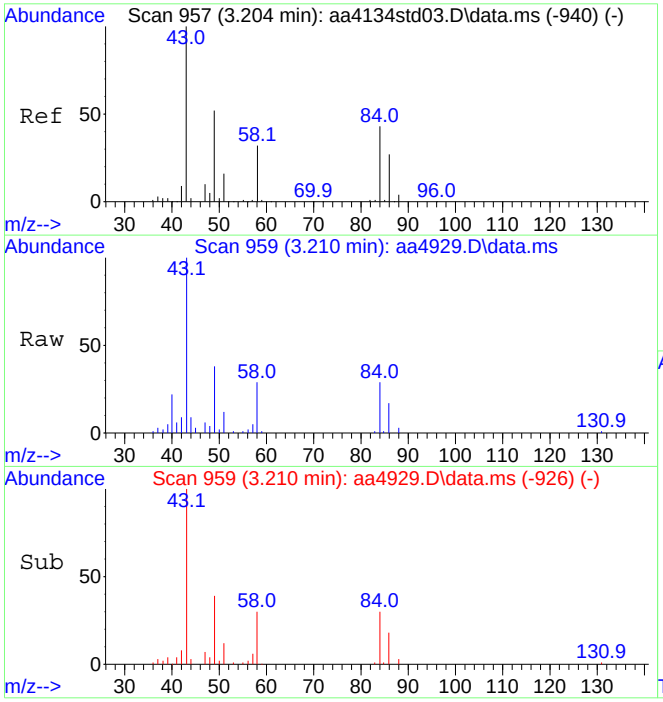


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.412 min Scan# 1333
Delta R.T. 0.018 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion:130 Resp: 441232

Ion	Ratio	Lower	Upper
130	100		
128	78.4	62.2	93.4

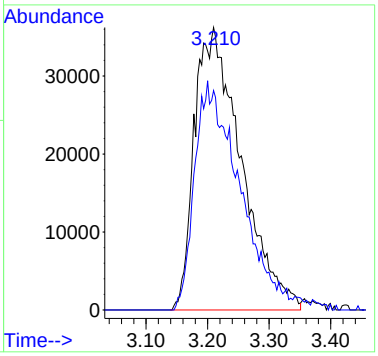


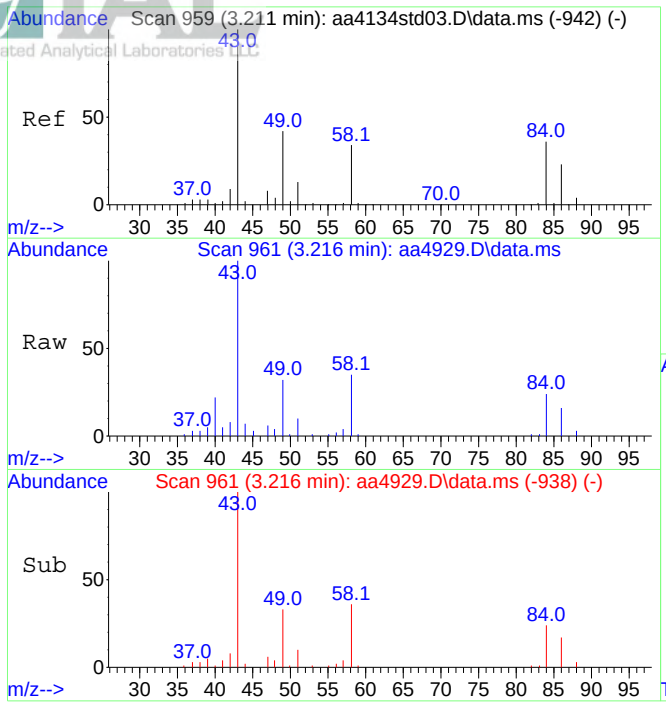


#20
Methylene chloride
Concen: 3.52 ppbV
RT: 3.210 min Scan# 959
Delta R.T. 0.006 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 49 Resp: 190775

Ion	Ratio	Lower	Upper
49	100		
84	78.6	64.8	104.8

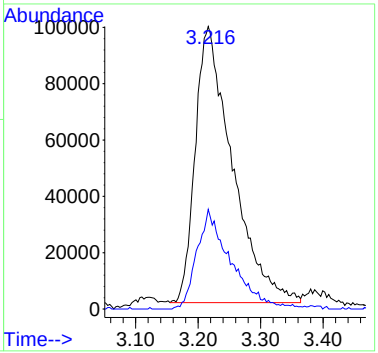


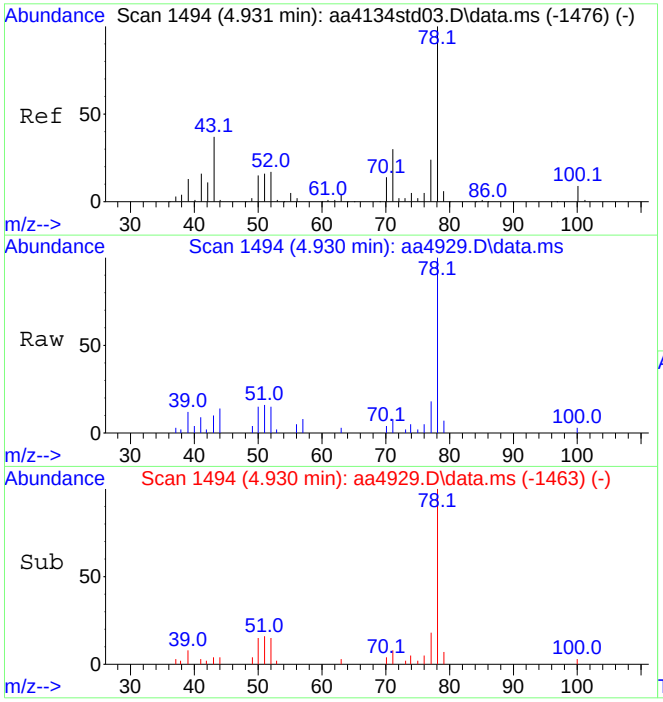


#21
Acetone
Concen: 6.08 ppbV
RT: 3.216 min Scan# 961
Delta R.T. 0.006 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 43 Resp: 404473

Ion	Ratio	Lower	Upper
43	100		
58	33.2	27.1	40.7

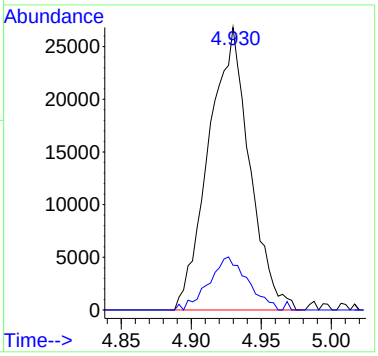


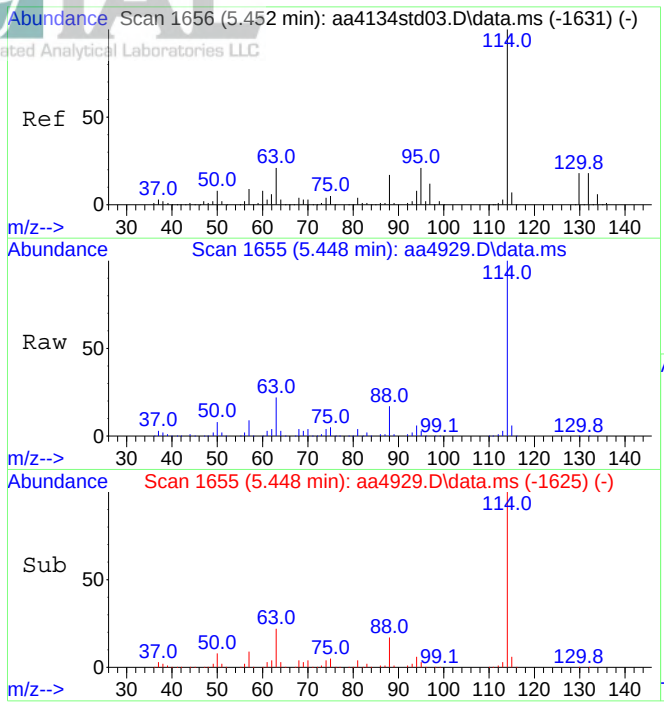


#37
Benzene
Concen: 0.31 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. -0.001 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 78 Resp: 54291

Ion	Ratio	Lower	Upper
78	100		
51	17.9	13.4	20.0

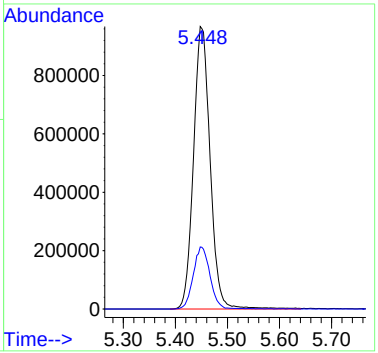


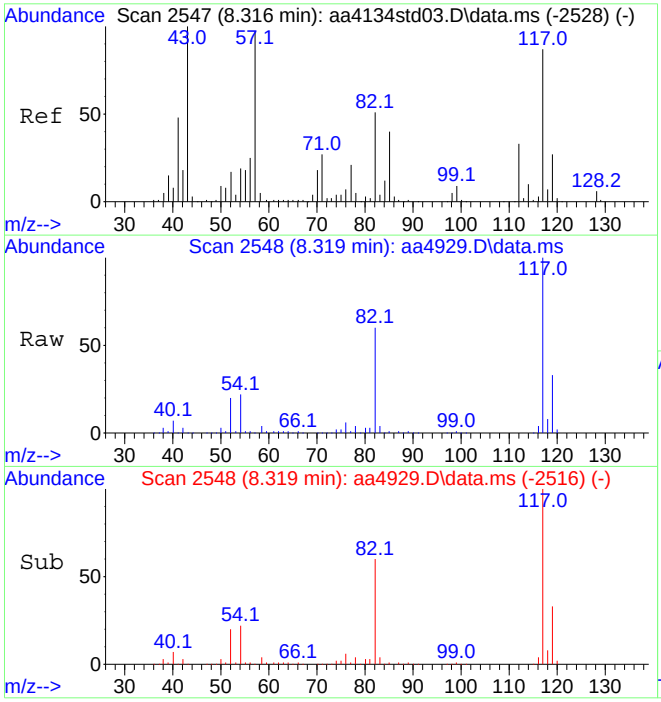


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.448 min Scan# 1655
Delta R.T. -0.004 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion:114 Resp: 2147334

Ion	Ratio	Lower	Upper
114	100		
63	22.0	17.0	25.6

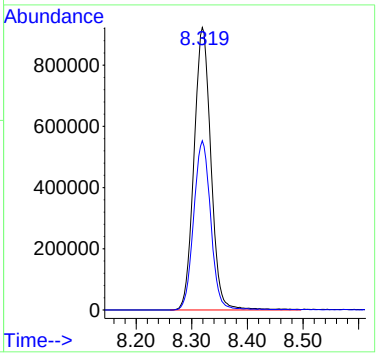


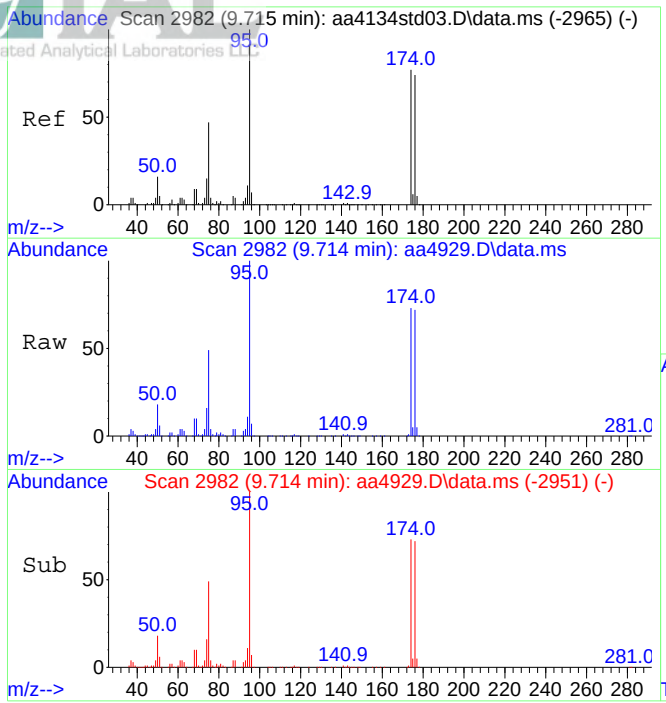


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion:117 Resp: 1948898

Ion	Ratio	Lower	Upper
117	100		
82	60.3	47.0	70.4

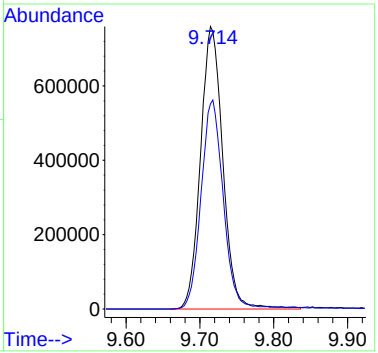




#64
Bromofluorobenzene (tune std)
Concen: 9.40 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 95 Resp: 1597112

Ion	Ratio	Lower	Upper
95	100		
174	74.1	61.1	91.7



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4930.D
Acq On : 12 Dec 2023 1:31 am
Operator : jjw
Sample : E23-05079-23
Misc : Dup of E23-05079-03, Can # 3830
ALS Vial : 33 Sample Multiplier: 1

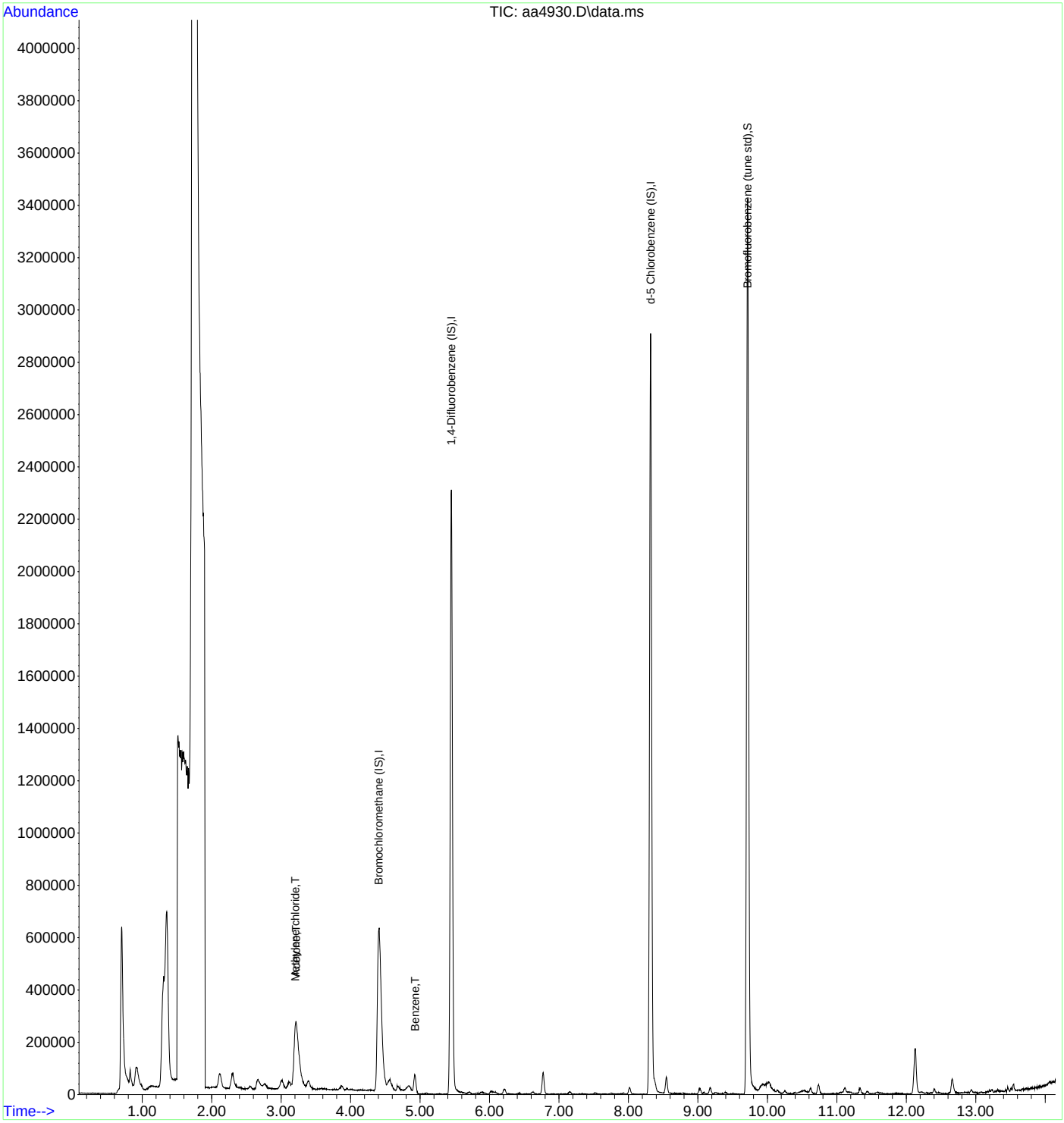
Quant Time: Dec 13 11:24:13 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

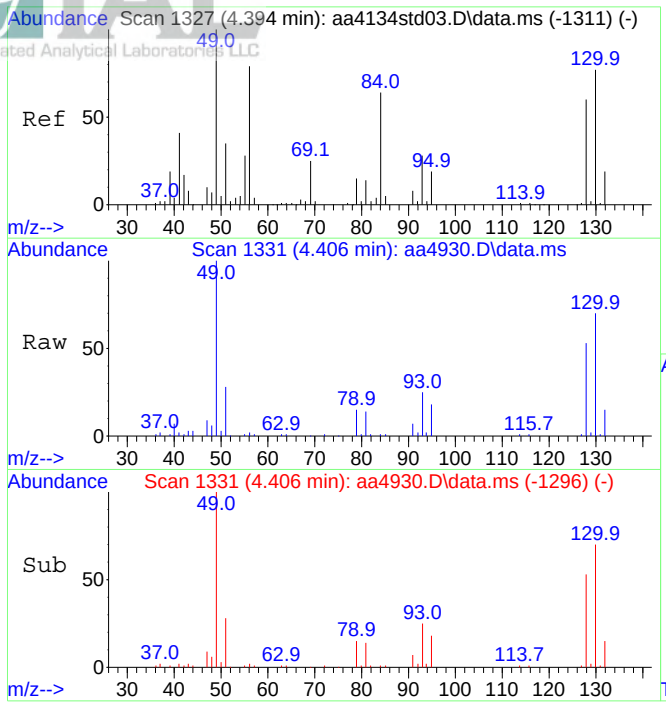
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.406	130	452291	10.00	ppbV	0.012
39) 1,4-Difluorobenzene (IS)	5.451	114	2167232	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.322	117	1931386	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1574669	9.35	ppbV	0.000
Target Compounds						Qvalue
20) Methylene chloride	3.203	49	191374	3.44	ppbV	90
21) Acetone	3.216	43	399825	5.86	ppbV	99
37) Benzene	4.930	78	56929	0.32	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4930.D
Acq On : 12 Dec 2023 1:31 am
Operator : jjw
Sample : E23-05079-23
Misc : Dup of E23-05079-03, Can # 3830
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Dec 13 11:24:13 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

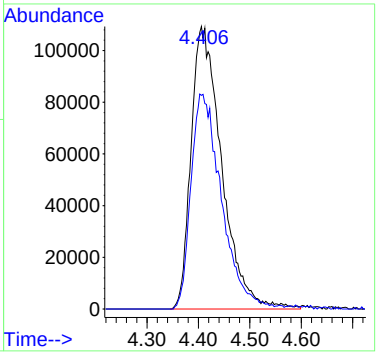


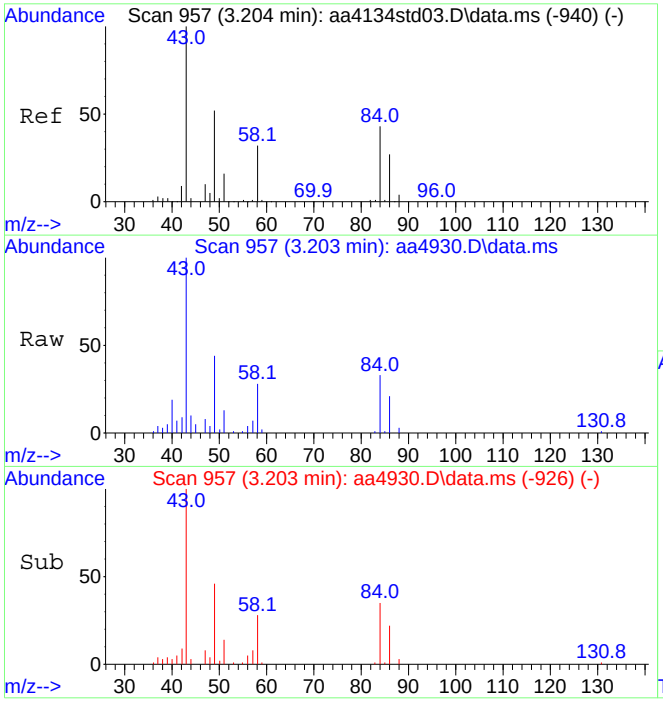


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.406 min Scan# 1331
Delta R.T. 0.012 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion:130 Resp: 452291

Ion	Ratio	Lower	Upper
130	100		
128	75.9	62.2	93.4

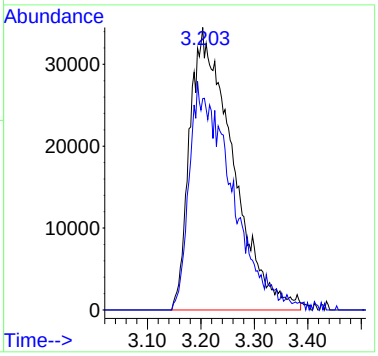


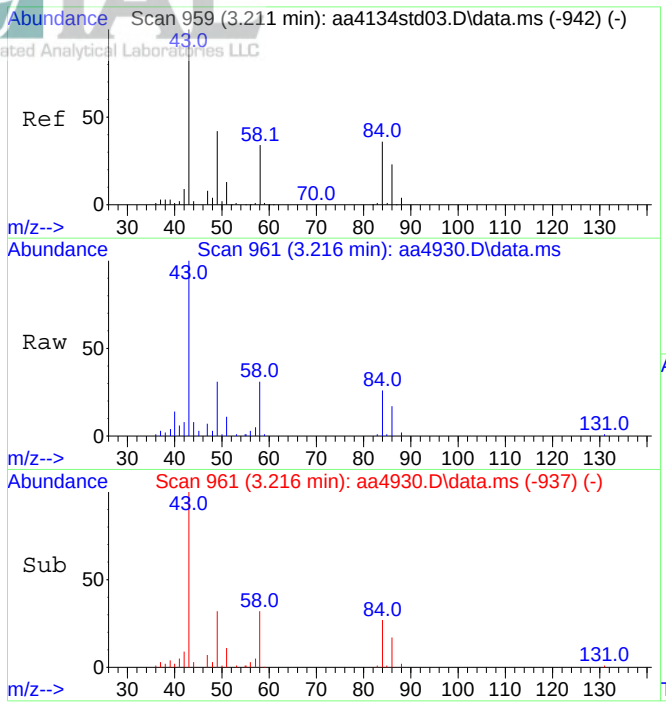


#20
Methylene chloride
Concen: 3.44 ppbV
RT: 3.203 min Scan# 957
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 49 Resp: 191374

Ion	Ratio	Lower	Upper
49	100		
84	76.0	64.8	104.8

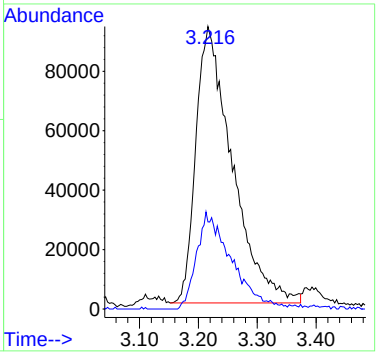


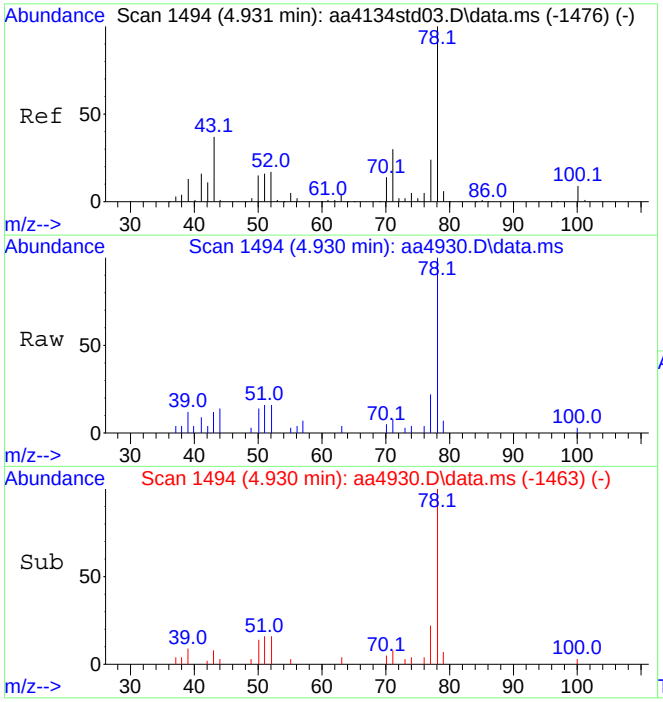


#21
Acetone
Concen: 5.86 ppbV
RT: 3.216 min Scan# 961
Delta R.T. 0.006 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 43 Resp: 399825

Ion	Ratio	Lower	Upper
43	100		
58	33.3	27.1	40.7

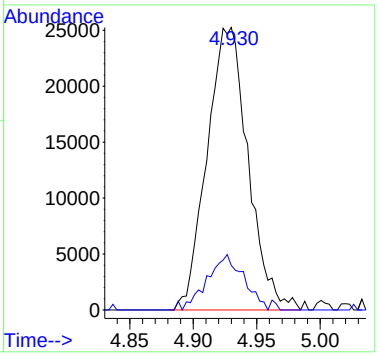


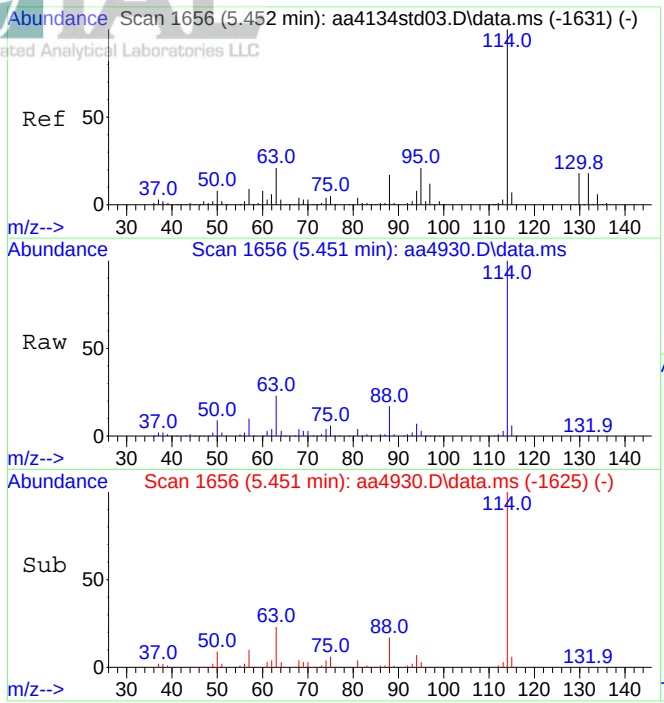


#37
Benzene
Concen: 0.32 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 78 Resp: 56929

Ion	Ratio	Lower	Upper
78	100		
51	17.1	13.4	20.0

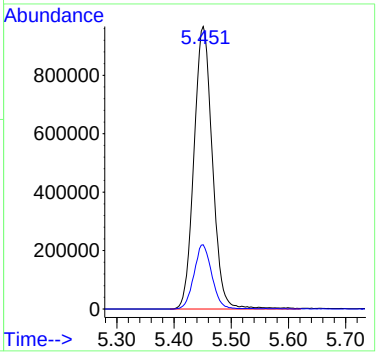


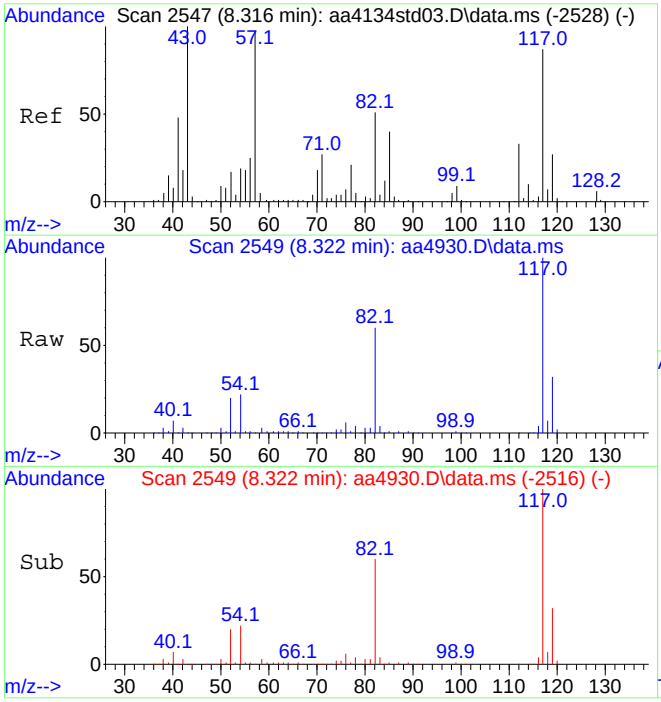


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.451 min Scan# 1656
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion:114 Resp: 2167232

Ion	Ratio	Lower	Upper
114	100		
63	22.0	17.0	25.6

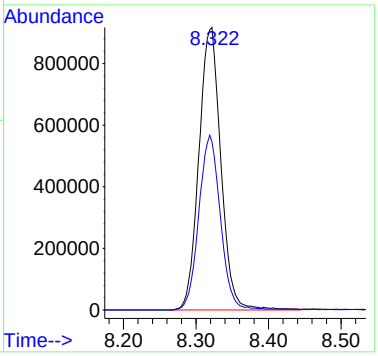


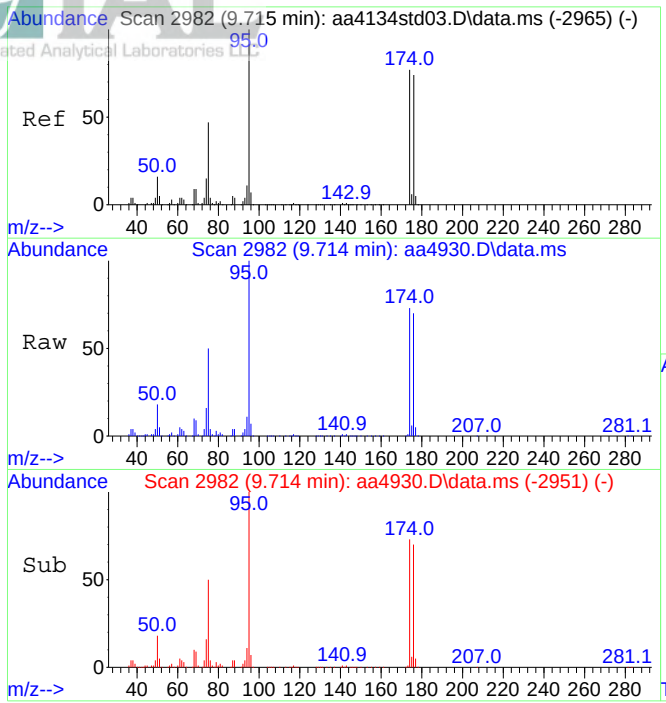


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.322 min Scan# 2549
Delta R.T. 0.006 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion:117 Resp: 1931386

Ion	Ratio	Lower	Upper
117	100		
82	61.0	47.0	70.4

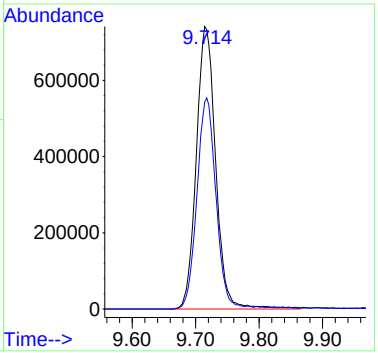




#64
Bromofluorobenzene (tune std)
Concen: 9.35 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 95 Resp: 1574669

Ion	Ratio	Lower	Upper
95	100		
174	74.6	61.1	91.7



INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories

GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05080

								Make-up Air		*Acquisition*		*Room*		*TO-15 Standard*	
File #	**Laboratory Sample ID**	**QC Check**	**Dilution Factor**	**Can #**	**Analyst**	**Injection Volume (cc)**	**Comments**	**Added to canister (cc)**	**Added for dilution**	**Date**	**Time**	**Temp**	**BP "Hg**	**Working ID**	**Vendor ID (Lot#)**
aa3401bfb	BFB	✓		ALM018474	JJW	0.5				**8/15/2023**	10:11	70	30.30		160-402352677-1
aa3402std05	0.2 ppbv Std	✓		EB0103704	JJW	1								8/15/2023	160-402619255-1
aa3403std04	2 ppbv Std	✓		EB0103704	JJW	10								8/15/2023	160-402619255-1
aa3404std03	10 ppbv Std	✓		EB0103704	JJW	50								8/15/2023	160-402619255-1
aa3405std02	20 ppbv Std	✓		EB0103704	JJW	100								8/15/2023	160-402619255-1
aa3406std01	40 ppbv Std	✓		EB0103704	JJW	200								8/15/2023	160-402619255-1
aa3407icvss	10 ppbv ICVSS	✓		EB0116272	JJW	50								8/15/2023	160-402744241-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05080

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	*Make-up Air* Added to canister (cc)	*Make-up Air* Added for dilution	*Acquisition* Date	*Acquisition* Time	*Room* Temp	*Room* BP "Hg	*TO-15 Standard* Working ID	*TO-15 Standard* Vendor ID (Lot#)
aa4071bfb	BFB	✓		ALM018474	JJW	0.5				**9/28/2023**	10:01	70	30.54		160-402352677-1
aa4072dcvs	10 ppbv DCVS	✓		EB0103704	JJW	50								8/15/2023	160-401980152-1
aa4073lcs	10 ppbv LCS	✓		EB0103704	JJW	50								8/15/2023	160-401980152-1
aa4074blk	Method Blank	✓		1127	JJW	500									
aa4075rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								8/15/2023	160-401980152-1
aa4076	2164	✓		8242301	JJW	500									
aa4077	4870	✓		9132301	JJW	500									
aa4078	2160	✓		9142301	JJW	500									
aa4079	E23-03970-01x5 dil	✓	5	2881	JJW	100									
aa4080	E23-03970-02x5 dil	✓	5	3025A	JJW	100									
aa4081	E23-04122-02x10 dil	✓	10	1068	JJW	50									
aa4082	blk	✓		x	JJW	500									
aa4083	E23-04122-03x10 dil	✓	10	1571	JJW	50									
aa4084	E23-04122-04x10 dil	✓	10	1366	JJW	50									
aa4085	E23-04122-05x10 dil	✓	10	1596	JJW	50									
aa4086	blk	✓		x	JJW	500									
aa4087	E23-04122-06x10 dil	✓	10	1781	JJW	50									
aa4088	E23-04122-26x10 dil	✓	10	4122-06x10 d	JJW	50									
aa4089	E23-04154-05x10 dil	✓	10	1404	JJW	50									
aa4090	E23-04154-06x10 dil	✓	10	1565	JJW	50									
aa4091	blk	✓		x	JJW	500									
aa4092	blk	✓		x	JJW	500									
aa4093cccvs	10 ppbv CCCVS	✓		EB0103704	JJW	50				9/29/2023	12:28			8/15/2023	160-402619255-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05080

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	*Make-up Air* Added to canister (cc)	*Make-up Air* Added for dilution	*Acquisition* Date	*Acquisition* Time	*Room* Temp	*Room* BP "Hg	*TO-15 Standard* Working ID	*TO-15 Standard* Vendor ID (Lot#)
aa4131bfb	BFB	✓		ALM018474	JJW	0.5				**10/10/2023**	10:13	70	30.10		160-402352677-1
aa4132std05	0.2 ppbv Std	✓		EB0103704	JJW	1								10/10/2023	160-402619255-1
aa4133std04	2 ppbv Std	✓		EB0103704	JJW	10								10/10/2023	160-402619255-1
aa4134std03	10 ppbv Std	✓		EB0103704	JJW	50								10/10/2023	160-402619255-1
aa4135std02	20 ppbv Std	✓		EB0103704	JJW	100								10/10/2023	160-402619255-1
aa4136std01	40 ppbv Std	✓		EB0103704	JJW	200								10/10/2023	160-402619255-1
aa4137icvss	10 ppbv ICVSS	✓		EB0116272	JJW	50								10/10/2023	160-402744241-1
aa4138lcs	10 ppbv LCS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4139blk	Method Blank	✓		1127	JJW	500									
aa4140rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								10/10/2023	160-401980152-1
aa4141	5078	✓		9252301	JJW	500									
aa4142	5101	✓		9262301	JJW	500									
aa4143	4869	✓		9272301	JJW	500									
aa4144	2157	✓		10022301	JJW	500									
aa4145	E23-04192-01	✓		5100	JJW	500									
aa4146	E23-04192-02	✓		2072	JJW	500									
aa4147	blank	✓		x	JJW	500									
aa4148	E23-04378-01	✓		2033	JJW	500									
aa4149	E23-04378-02	✓		5080	JJW	500									
aa4150	E23-04378-22	✓	Dup of E23-04378-02, (		JJW	500									
aa4151	E23-04513-01	✓		3814	JJW	500									
aa4152	blank	✓		x	JJW	500									
aa4153	blank	✓		x	JJW	500									
aa4154cccvs	10 ppbv CCCVS	✓		EB0103704	JJW	50				10/11/2023	1:53			10/10/2023	160-402619255-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05080

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	*Make-up Air* Added to canister (cc)	*Make-up Air* Added for dilution	*Acquisition* Date	*Acquisition* Time	*Room* Temp	*Room* BP "Hg	*TO-15 Standard* Working ID	*TO-15 Standard* Vendor ID (Lot#)
aa4881bfb	BFB	✓		ALM018474	JJW	0.5				**12/8/2023**	10:21	68	30.46		160-402352677-1
aa4882dcvs	10 ppbv DCVS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4883lcs	10 ppbv LCS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4884blk	Method Blank	✓		1127	JJW	500									
aa4885rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								10/10/2023	160-401980152-1
aa4886	E23-05047-01	✓		2902	JJW	500									
aa4887	E23-05047-02	✓		2037	JJW	500									
aa4888	E23-05047-03	✓		3811	JJW	500									
aa4889	E23-05047-04	✓		3283	JJW	500									
aa4890	E23-05047-05	✓		2749	JJW	500									
aa4891	E23-05047-06	✓		5091	JJW	500									
aa4892	blk	✓		x	JJW	500									
aa4893	E23-05080-01	✓		3006	JJW	500									
aa4894	E23-05080-02	✓		2155	JJW	500									
aa4895	E23-05093-01	✓		3044A	JJW	500									
aa4896	E23-05047-01x10 dil	✓	10	2902	JJW	50									
aa4897	E23-05047-03x10 dil	✓	10	3811	JJW	50									
aa4898	E23-05047-04x10 dil	✓	10	3283	JJW	50									

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/8, 11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05080

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	*Make-up Air* Added to canister (cc)	*Make-up Air* Added for dilution	*Acquisition* Date	*Acquisition* Time	*Room* Temp	*Room* BP "Hg	*TO-15 Standard* Working ID	*TO-15 Standard* Vendor ID (Lot#)
aa4901bfb	BFB	✓		ALM018474	JJW	0.5				**12/11/2023**	9:24	68	30.07		160-402352677-1
aa4902dcvs	10 ppbv DCVS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4903lcs	10 ppbv LCS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4904blk	Method Blank	✓		1127	JJW	500									
aa4905rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								10/10/2023	160-401980152-1
aa4906	1458	✓		12062301	JJW	50									
aa4907	1588	✓		12082301	JJW	50									
aa4908	3012	✓		12072301	JJW	500									
aa4909	E23-05047-03x10 dil	✓	10	3811	JJW	50									
aa4910	E23-05047-04x5 dil	✓	5	3283	JJW	100									
aa4911	E23-05080-01x10 dil	✓	10	3006	JJW	50									
aa4912	E23-05080-02x10 dil	✓	10	2155	JJW	50									
aa4913	E23-05093-01x5 dil	✓	5	3044Ac	JJW	100									
aa4914	E23-05047-06x5 dil	✓	5	5091	JJW	100									
aa4915	E23-05047-06	✓		5091	JJW	500									
aa4916	E23-05081-01x5 dil	✓	5	5073	JJW	100									
aa4917	E23-05081-01	✓		5073	JJW	500									
aa4918	E23-05081-02x5 dil	✓	5	2758	JJW	100									
aa4919	E23-05081-02	✓		2758	JJW	500									
aa4920	E23-05081-03x5 dil	✓	5	3809	JJW	100									
aa4921	E23-05081-03	✓		3809	JJW	500									
aa4922	E23-05081-04x5 dil	✓	5	2896B	JJW	100									
aa4923	E23-05081-04	✓		2896B	JJW	500									
aa4924	blk	✓		x	JJW	500									
aa4925	E23-05007-01x10 dil	✓	10	1543	JJW	50									
aa4926	E23-05007-02x10 dil	✓	10	1601	JJW	50									
aa4927	E23-05007-03x10 dil	✓	10	1773	JJW	50									
aa4928	blk	✓		x	JJW	500									
aa4929	E23-05079-03	✓		3830	JJW	500									
aa4930	E23-05079-23	✓	Dup of E23-05079-03, (		JJW	500									
aa4931cccvs	10 ppbv CCCVS	✓		EB0103704	JJW	50				12/12/2023	1:59			10/10/2023	160-401980152-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Labs
273 Franklin Rd
Randolph, NJ 07869

External Chain of Custody Record/
Field Test Data Sheet
USEPA Method TO-15

Contact Us: 973 361-4252
fax: 973 366-5613
Web: www.ialonline.com

Carrier (check one): ____ IAL Courier ____ Client Courier ____ FedEx/UPS

pg 1 of 1

Client Contact Information	Project Information	Invoice Information
Company: HK Engineering and Geology D.P.C.	Project Name: HK2661.2	
Address: 1600 US 22 East	Project Location (State): NY	Attn:
Union, NJ 07083	Project Manager: Chris Hirschmann	Address:
Phone: 908 -688-7800	PM Signature: Chris Hirschmann	
Fax:	PM E-Mail: chirschmann@hillmannconsulting.com	PO #: HK2661.2
Report to: Chris Hirschmann	Sampler: D. Aponte	Quote #:

Analysis Turnaround Time - IF NO TAT IS SPECIFIED, 2 WEEK TAT IS ASSUMED

IAL Standard: 2 weeks (10 business days)

Rush (**pre-approved by lab): 24hr** 48hr** 72hr** 96hr** 1wk**

Barometric Pressure: Start ____ Stop ____

Sample Identification	Start DATE & TIME (24hr Clock)	End DATE & TIME (24hr Clock)	Starting Vacuum ("Hg)	Ending Vacuum ("Hg)	Starting Temp. (°F)	Ending Temp. (°F)	Outgoing Vacuum - Lab ("Hg)	Incoming Vacuum - Lab ("Hg)	Flow Regulator ID	Canister ID	Canister Size (1L or 6L)	Flow Controller Readout (cc/min)	EPA TO - 15	NJDEP LLTO-15 (includes 30 TICs)	Library Search (10, 20, or 30 TICs)	Other (Explain in Comments)	Regulatory/ NY Cat B / Full (NJ Required)	Reduced / NY Cat A Data Package	Results Only	Indoor Air	Ambient / Outdoor Air	Sub Slab / Soil Gas / Near Slab (Circle One)	Stack Emission / SVE System	High Concentrations Expected
SV2	11/16/23 - 12:10	11/16/23 - 14:35	-30	-7	50	64	-29.0	-6.5	A0070621-6	3006	6L	33.80	X											
SV3	11/16/23 - 12:30	11/16/23 - 15:15	-30	-7	52	65	-29.0	-6.5	7337462	2155	6L	33.30	X											

Comments/ Special Analysis Instructions / QC Requirements:

5 Day TAT Hard Copy and Verbal.

0914 2301 : 1, 2
0928 23aa : 2160

Note: Hold or contingent samples may be designated by writing an "H" or "C" in the appropriate analysis box.

ALL FIELDS IN RED ARE REQUIRED

Shipping Information / Canister Preparation (for laboratory use only)

Individual Preparing Canisters / Title: Desmond Flores / Air Department Sample Custodian

Lab Affixed Seal Number(s): ____

Date/Time Shipping Container Sealed: 1615 11/13/23

Laboratory Canister Certification

GC/MS Analyst Signature: Joseph J Walukiewicz III (IAL)

IAL 05080

External Chain of Custody

Relinquished	Received	Date / Time	Reason for Change of External Custody
DW HK	Dale Martin	11/17/23 1500	shipment from laboratory to client
Dale Martin	Desmond Flores	11-17-23 1634	received at lab
	Joseph J Walukiewicz III (IAL)	11/20/23 0920	sample pressure check & storage

Name/Title Resealing Shipping Container Name: ____

Date/Time Sample Shipping Container Resealed: ____

Date/Time Sample Shipping Container Opened: 11/17/23 1634

NJDEP Affixed Seal Number: ____

Individual Opening Sample Shipping Container: Joseph Walukiewicz/Desmond Flores

Date/Time Internal Chain of Custody Initiated: 11/20/23 0920

White and yellow - lab copies; Pink - client copy

Use appropriate care with IAL sampling equipment when sampling and packing for shipment. The client is responsible for all damage incurred to IAL equipment. Notify IAL if equipment is damaged upon receipt. Holding time before sampling is 15 days, after sampling is 30 days; failure to follow these times may result in data rejection by regulatory agencies. The lab will contact you if your COC is not clear, incomplete, or if discrepancies exist. The use of initials is not permitted on the COC except when correcting errors.

Example Calculation (EPA TO-15)

$$\frac{\text{Area of Compound}}{\text{Area of Internal Standard}} \times \frac{\text{Concentration of Internal Standard (10 ppbv)}}{\text{Response Factor}} = \text{Concentration of Compound (ppbv)}$$

Conversion from ppbv to µg/m^3

$$\frac{\text{Concentration of Compound (ppbv)} \times \text{Molecular Weight of Compound}}{24.45} = \text{Concentration of Compound (µg/m3)}$$

INTEGRATED ANALYTICAL LABORATORIES, LLC

Clean Canister Certification Report

Lab Sample Name:	**Clean Canister, Batch Master 2160**	**Data File:**	**AA4078**
Field Sample Name:	**Canister 2160**	**Date Analyzed:**	**9/28/2023**
Sample Volume:	**500ml**	**Matrix:**	**Air**

Canisters associated with this run: 2160, 3011, 5073, 4865, 2155 (used for E23-05080-02), 3809, 3006 (used for E23-05080-01), 3028

Runs with this Clean Canister Certification:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
CLEAN CAN CERTIFICATION, BATCH MASTER 2164 [AA4076]	09/28/2023 15:00
CLEAN CAN CERTIFICATION, BATCH MASTER 4870 [AA4077]	09/28/2023 15:30
CLEAN CAN CERTIFICATION, BATCH MASTER 2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 00:28

This canister has been certified clean, all compounds are below 0.2 ppbv.

Compound	CAS #	RL (ppbv)	Calculated Amount (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.20	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.20	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.20	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND

Clean Canister Certification Report

Lab Sample Name:	**Clean Canister, Batch Master 2160**	**Data File:**	**AA4078**
Field Sample Name:	**Canister 2160**	**Date Analyzed:**	**9/28/2023**
Sample Volume:	**500ml**	**Matrix:**	**Air**

Canisters associated with this run: 2160, 3011, 5073, 4865, 2155 (used for E23-05080-02), 3809, 3006 (used for E23-05080-01), 3028

Runs with this Clean Canister Certification:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
CLEAN CAN CERTIFICATION, BATCH MASTER 2164 [AA4076]	09/28/2023 15:00
CLEAN CAN CERTIFICATION, BATCH MASTER 4870 [AA4077]	09/28/2023 15:30
CLEAN CAN CERTIFICATION, BATCH MASTER 2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 00:28

This canister has been certified clean, all compounds are below 0.2 ppbv.

Compound	CAS #	RL (ppbv)	Calculated Amount (ppbv)
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.20	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.20	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.40	ND
Xylenes (o)	95-47-6	0.20	ND

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4078.D
Acq On : 28 Sep 2023 4:00 pm
Operator : jjw
Sample : 2160
Misc : 3011, 5073, 4865, 2155, 3809, 3006, 3028
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 05 12:01:48 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

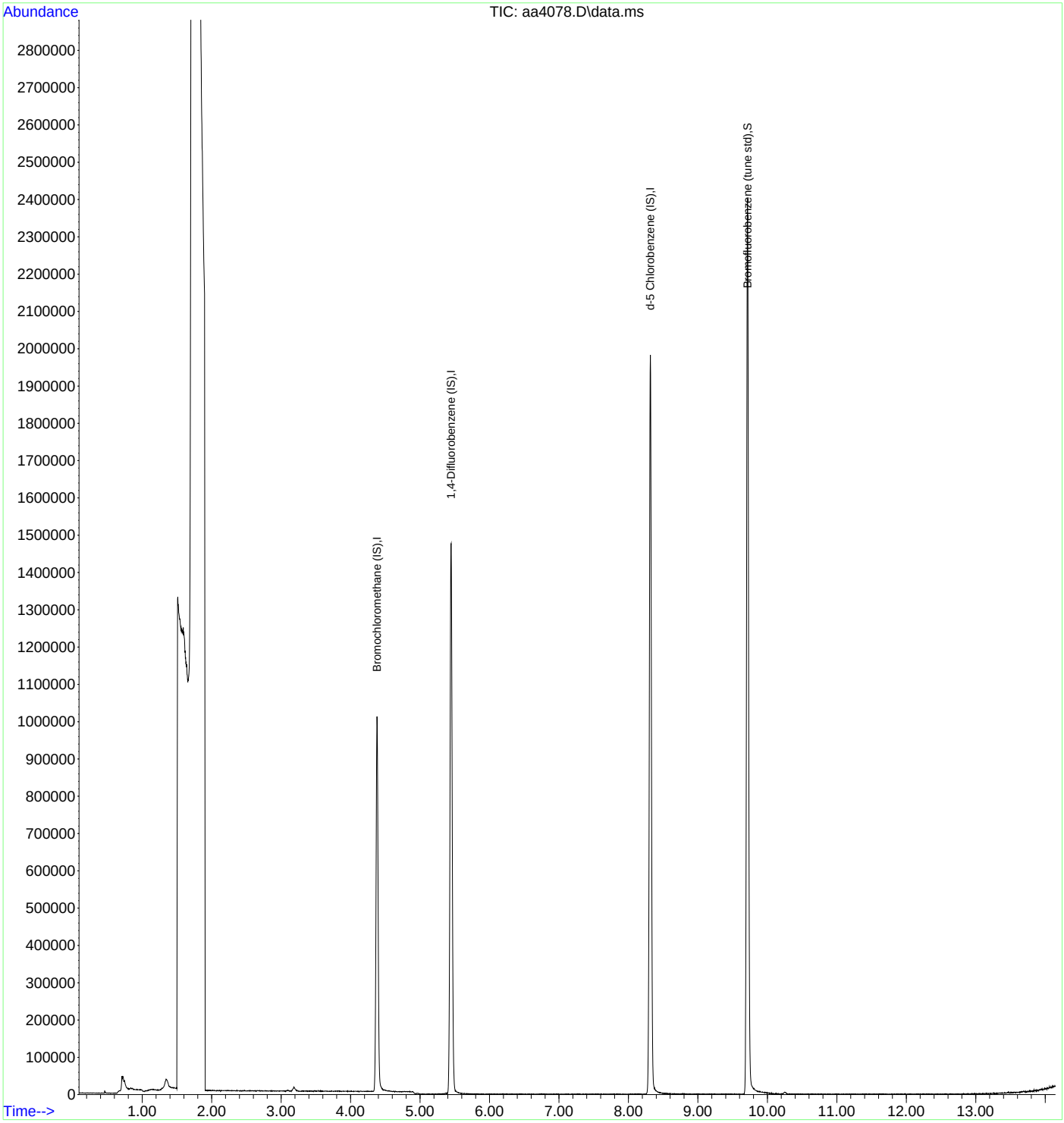
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.380	130	361668	10.00	ppbV	-0.016
39) 1,4-Difluorobenzene (IS)	5.448	114	1313235	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1248229	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	997562	9.61	ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4078.D
Acq On : 28 Sep 2023 4:00 pm
Operator : jjw
Sample : 2160
Misc : 3011, 5073, 4865, 2155, 3809, 3006, 3028
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 05 12:01:48 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



LSC Area Percent Report

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4078.D
Acq On : 28 Sep 2023 4:00 pm
Operator : jjw
Sample : 2160
Misc : 3011, 5073, 4865, 2155, 3809, 3006, 3028
ALS Vial : 11 Sample Multiplier: 1

Integration Parameters: rteint.p
Integrator: RTE
Smoothing : OFF Filtering: 5
Sampling : 1 Min Area: 1 % of largest Peak
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method : C:\msdchem\1\METHODS\230815.M
Title : TO-15 on the Agilent 7890A / 5975C

Signal : TIC: aa4078.D\data.ms

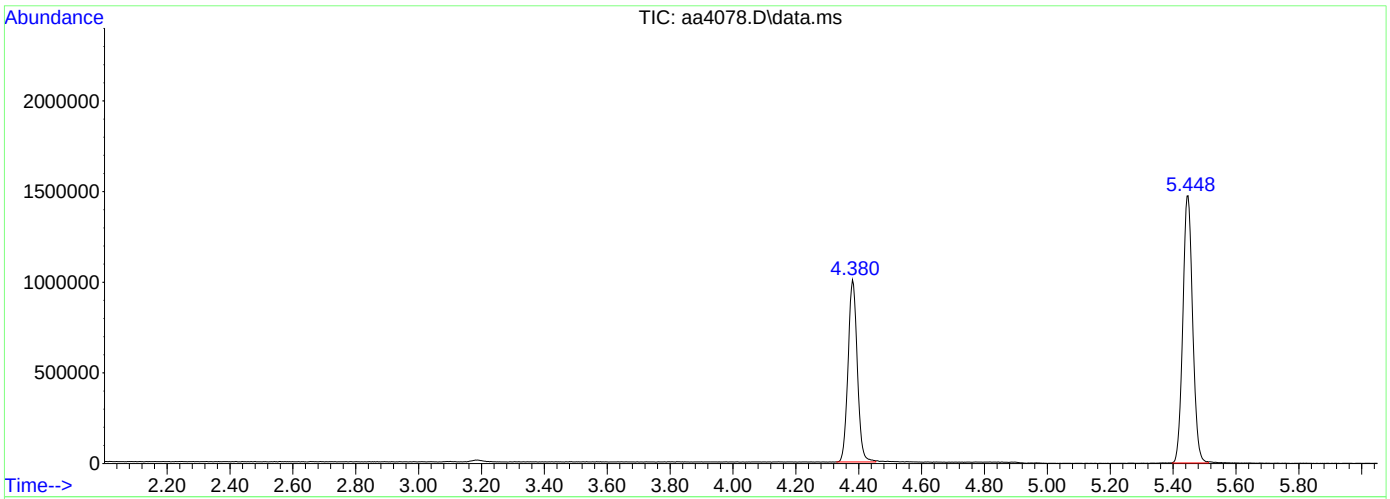
peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	4.380	1307	1323	1346	rBV2	1005279	2047575	42.51%	14.558%
2	5.448	1639	1655	1675	rBV	1474469	3190803	66.24%	22.685%
3	8.316	2529	2547	2567	rBV	1981592	4010050	83.25%	28.510%
4	9.714	2967	2982	3008	rBV	2400669	4816990	100.00%	34.247%

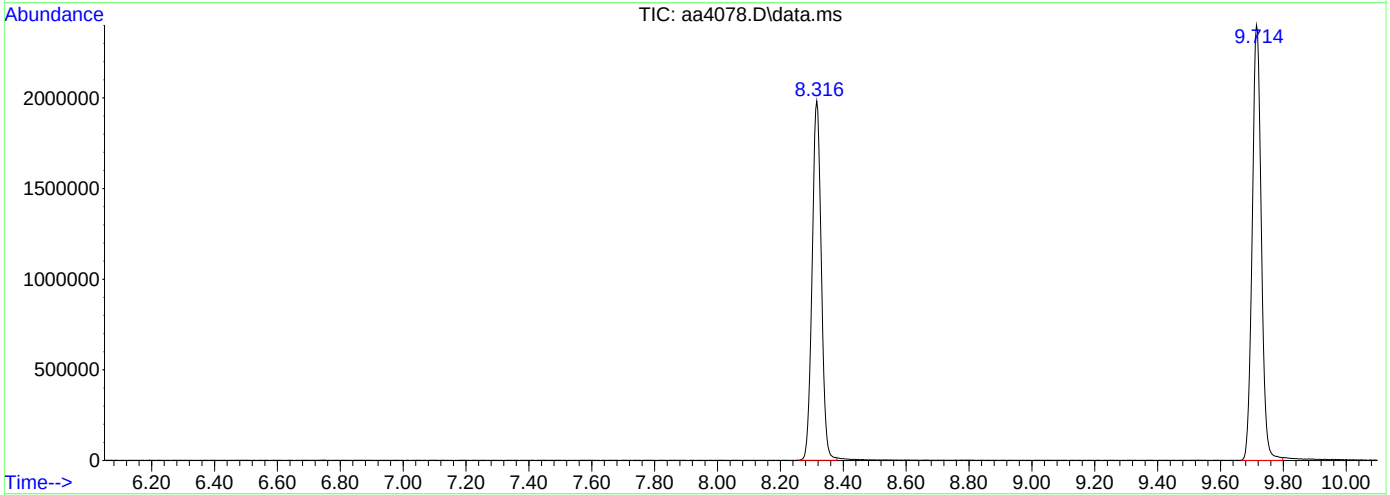
Sum of corrected areas: 14065418

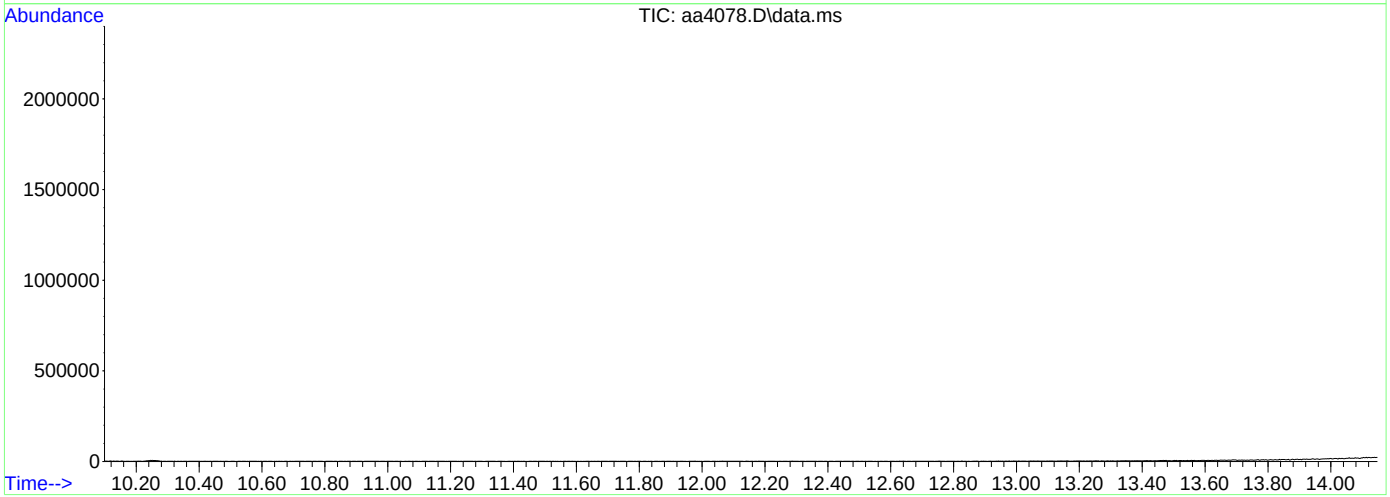
Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4078.D
Acq On : 28 Sep 2023 4:00 pm
Operator : jjw
Sample : 2160
Misc : 3011, 5073, 4865, 2155, 3809, 3006, 3028
ALS Vial : 11 Sample Multiplier: 1

Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C

TIC Library : C:\Database\NIST05a.L
TIC Integration Parameters: LSCINT.P







Library Search Compound Report

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4078.D
Acq On : 28 Sep 2023 4:00 pm
Operator : jjw
Sample : 2160
Misc : 3011, 5073, 4865, 2155, 3809, 3006, 3028
ALS Vial : 11 Sample Multiplier: 1

Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C

TIC Library : C:\Database\NIST05a.L
TIC Integration Parameters: LSCINT.P

No Library Search Compounds Detected
****

Tentatively Identified Compound (LSC) summary

```
  Data Path : C:\DATA\2023\09-2023\09-28-2023\
  Data File : aa4078.D
  Acq On    : 28 Sep 2023   4:00 pm
  Operator  : jjw
  Sample    : 2160
  Misc      : 3011, 5073, 4865, 2155, 3809, 3006, 3028
  ALS Vial  : 11   Sample Multiplier: 1

  Quant Method : C:\msdchem\1\METHODS\230815.M
  Quant Title  : TO-15 on the Agilent 7890A / 5975C

  TIC Library   : C:\Database\NIST05a.L
  TIC Integration Parameters: LSCINT.P

                                                      |--Internal Standard---|
  TIC Top Hit name      RT  EstConc Units Response |#    RT     Resp  Conc|
-----------------------------------------------------------------------------
```

LAST PAGE OF DOCUMENT

EPA TO-15 DATA PACKAGE

ANALYTICAL DATA PACKAGE FOR THE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY NEW YORK 12233

Integrated Analytical Laboratories, LLC — **Randolph, NJ 07869**
Project#: HK2661.2 — **NY ELAP Certification#: 11402**
SDG #: E23-05081 — **NJDEP (Primary AB) Certification#: 14751**
Date of first sample receipt: 11/20/2023 — **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.

Project/Site: HK2661.2/NY

Client Sample Number	Laboratory Sample	Sample Location	Date/Time of Collection
SV1	E23-05081-01	NA	11/17/2023 7:45
SV4	E23-05081-02	NA	11/17/2023 9:40
SV9	E23-05081-03	NA	11/17/2023 8:00
SV8-401-Compactor Room	E23-05081-04	NA	11/17/2023 11:00

This report shall not be reproduced, except in its entirety, without the written consent of Integrated Analytical Laboratories, LLC. The test results included in this report relate only to the samples analyzed. The results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of data contained in this hardcopy data package and in the computer-readable data submitted on CD/diskette and by electronic mail has been authorized by the laboratory manager or his designee, as verified by the following signature.

Michael H. Leftin, Ph.D.
Laboratory Director

Date: December 20, 2023

Ming-Hwa Reitan
QA/QC Manager

Date: December 20, 2023

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Laboratory Acronyms

The following is a list of laboratory acronyms commonly used in EPA Method TO-15 testing:

Acronym	Definition
BLK	Blank/Method Blank
BFB	4-Bromofluorobenzene (Tuning Standard)
CAS Number	Chemical Abstract Service Registry Number
cc	cubic centimeters
CCCVS	Closing Calibration Check Verification Standard
COC	Chain of Custody
DCVS	Daily Calibration Verification Standard
DF	Dilution Factor
EPA	U. S. Environmental Protection Agency (aka USEPA)
"Hg	Inches of Mercury
IA	Indoor Air
IASL	Indoor Air Screening Level
ICAL	Initial Calibration
ICVSS	Initial Calibration Verification Standard
ISTD	Internal Standard
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LCS	Laboratory Control Sample/Spike
LLTO-15	Low Level TO-15
MDL	Method Detection Limit
MDLV	Method Detection Limit Verification
ml	milliliters
ND	Not Detected (at or above RL)
NJDEP	New Jersey Department of Environmental Protection
PM	Project Manager
ppbv	parts per billion, volume-to-volume ratio
PQL	Practical Quantitation Limit - MDLx3
QA	Quality Assurance
QC	Quality Control
RAL	Rapid Action Limit
RL	Reporting Limit
RLLCS	Reporting Limit Laboratory Control Sample
RPD	Relative Percent Difference
RRF	Relative Response Factor
RSD	Relative Standard Deviation
SDG	Sample Delivery Group
SGSL	Soil Gas Screening Levels
SS	Sub Slab
TAT	Turnaround Time
TIC	Tentatively Identified Compound
µg/m3	micrograms per cubic meter

Section I: Chain of Custody

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Labs
273 Franklin Rd
Randolph, NJ 07869

External Chain of Custody Record/
Field Test Data Sheet
USEPA Method TO-15

Contact Us: 973 361-4252
fax: 973 366-5613
Web: www.ialonline.com

Client Contact Information	Project Information	Carrier (check one): ____ IAL Courier ____ Client Courier ____ FedEx/UPS	pg 1 of 1
Company: HK Engineering and Geology D.P.C.	Project Name: HK2661.2	Invoice Information	
Address: 1600 US 22 East	Project Location (State): NY	Attn:	
Union, NJ 07083	Project Manager: Chris Hirschmann	Address:	
Phone: 908 -688-7800	PM Signature: Chris Hirschmann		
Fax:	PM E-Mail: chirschmann@hillmannconsulting.com	PO #: HK2661.2	
Report to: Chris Hirschmann	Sampler: D. Aponte	Quote #:	

Analysis Turnaround Time - IF NO TAT IS SPECIFIED, 2 WEEK TAT IS ASSUMED

IAL Standard: 2 weeks (10 business days)

Rush (**pre-approved by lab): 24hr** 48hr** 72hr** 96hr** 1wk**

	Sample Identification	Start DATE & TIME (24hr Clock)	End DATE & TIME (24hr Clock)	Starting Vacuum ("Hg)	Ending Vacuum ("Hg)	Starting Temp. (°F)	Ending Temp. (°F)	Outgoing Vacuum - Lab ("Hg)	Incoming Vacuum - Lab ("Hg)	Flow Regulator ID	Canister ID	Canister Size (1L or 6L)	Flow Controller Readout (cc/min)	EPA TO - 15	NJDEP LLTO-15 (includes 30 TICs)	Library Search (10, 20, or 30 TICs)	Other (Explain in Comments)	Regulatory/ NY Cat B / Full (NJ Required)	Reduced / NY Cat A Data Package	Results Only	Indoor Air	Ambient / Outdoor Air	Sub Slab / Soil Gas / Near Slab (Circle One)	Stack Emission / SVE System	High Concentrations Expected
1	SV1	11/17/23 - 7:45	11/17/23 - 10:00	-29	-7	49	56	-29.0	-7.0	A0121687-3	5073	6L	32.70	X											
2	SV4	11/17/23 - 9:40	11/17/23 - 11:55	-28	-6	56	64	-29.0	-6.0	A0098643-4	2758	6L	33.80	X											
3	SV9	11/17/23 - 8:00	11/17/23 - 10:30	-28	-7	51	59	-29.0	-7.0	A0098637-7	3809	6L	33.40	X											
4	SV8 - 401 - COMPACTOR ROOM	11/17/23 - 11:00	11/17/23 -	-29	-6	65	67	-29.0	-6.0	A0160008-5	2896B	6L	33.30	X											

Barometric Pressure: Start / Stop

Comments/ Special Analysis Instructions / QC Requirements:

5 Day TAT Hard Copy and Verbal. 091323011 2,4 10022301A 3830 09142301 1,3 09282301A 2160

Note: Hold or contingent samples may be designated by writing an "H" or "C" in the appropriate analysis box.

ALL FIELDS IN RED ARE REQUIRED

Shipping Information / Canister Preparation (for laboratory use only)

Individual Preparing Canisters / Title: Desmond Flores / Air Department Sample Custodian

Lab Affixed Seal Number(s):

Date/Time Shipping Container Sealed: 11/13/23 1615

Laboratory Canister Certification

GC/MS Analyst Signature: Joseph J Walukiewicz III (EAL)

IAL 05081

External Chain of Custody

Relinquished	Received	Date / Time	Reason for Change of External Custody
[signature] HK	[signature]	11/17/23 15:00	shipment from laboratory to client
Dale Mont	Desmond Fl	11/17/23 1634	received at lab
	Joseph J Walukiewicz III (EAL)	11/20/23 0920	sample storage & pressure check

Name/Title Resealing Shipping Container Name:

Date/Time Sample Shipping Container Resealed:

Date/Time Sample Shipping Container Opened: 11/17/23 1634

NJDEP Affixed Seal Number:

Individual Opening Sample Shipping Container: Joseph Walukiewicz/Desmond Flores

Date/Time Internal Chain of Custody Initiated: 11/20/23 0920

White and yellow - lab copies; Pink - client copy

se appropriate care with IAL sampling equipment when sampling and packing for shipment. The client is responsible for all damage incurred to IAL equipment. Notify IAL if equipment is damaged upon receipt. Holding time before sampling is 15 days, ter sampling is 30 days; failure to follow these times may result in data rejection by regulatory agencies. The lab will contact you if your COC is not clear, incomplete, or if discrepancies exist. The use of initials is not permitted on the COC except hen correcting errors.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Dec 20, 2023 @ 08:00

PROJECT INFORMATION

RUSH

E23-05081: HK2661.2

To: Chris Hirschmann
HK Engineering & Geology, D.P.C.
Fax: 908-377-8909 cell
EMail: chirschmann@hillmannconsulting.com;rpowell@hillmanngroup.com

Report To

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083
Attn: Chris Hirschmann

Bill To

HK Engineering & Geology, D.P.C.
1600 Route 22 East
Union, NJ 07083
Attn: Chris Hirschmann

Report Format	P.O. #	Received At Lab	PHC Due	Verbal Due	Hardcopy Due	
Air Regulatory	HK2661.2	Nov 17, 2023 @ 16:34	NA	Nov 28, 2023	Nov 29, 2023	*

* Any ***Conditional or Hold*** status will delay final hardcopy report sent date.

Diskette Req. Not Required

Lab ID	Client Sample ID	Depth	Sampling Time	Matrix	Unit	Field pH/Temp
05081-001	SV1	NA	11/17/23@10:00	Air-Indoor	ppbV	
05081-002	SV4	NA	11/17/23@11:55	Air-Indoor	ppbV	
05081-003	SB9	NA	11/17/23@10:30	Air-Indoor	ppbV	
05081-004	SV8 - 401 - COMPACTOR ROOM	NA	11/17/23@13:00	Air-Indoor	ppbV	

* No Cert = IAL does not hold certification for this test/method

Sample #	Test	Status	Analytical Method	TAT	Holding Time Expires
001	EPA TO-15	Analyze	TO-15	RUSH 1 WK	12/17/2023
002	EPA TO-15	Analyze	TO-15	RUSH 1 WK	12/17/2023
003	EPA TO-15	Analyze	TO-15	RUSH 1 WK	12/17/2023
004	EPA TO-15	Analyze	TO-15	RUSH 1 WK	12/17/2023

Project Notes:

NOTE 1 taken by kfalconer on 11/20/2023 01:00
CLIENT DID NOT RECORD BAROMETRIC PRESSURE.

273 Franklin Road
Randolph, NJ 07869
Phone: 973 361 4252
www.ialonline.com

IAL is a NELAP accredited lab (TNI01284) and maintains certification in Connecticut (PH-0699), New Jersey (14751), New York (11402), and Pennsylvania (68-00773).

Internal Chain of Custody

Instructions: Use 1 form for each 20 samples of aliquot.

Laboratory Person Accepting Responsibility for Sample(s)

Laboratory: Integrated Analytical Laboratories
Name: Joseph Walukiewicz
Case No.: E23-05081
Location: 273 Franklin Rd Randolph, NJ 07869
Title: Air Department Receiving
Analytical Parameter/Fraction: (check one) ____ NJDEP LLTO-15 __x__ EPA TO-15

Sample No.	Aliquot/Extract No.
SV1	E23-05081-01
" 4	E23- " -02
" 9	E23- " -03
" B-401-Compactor Room	E23- " -04
	E23-
	E23
	E23-
	E23-
	E23-
	E23-

Sample No.	Aliquot/Extract No.
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-
	E23-

Date	Time	Relinquished By	Received By	Purpose of Change of Custody
11 20 23	0900	SIGNATURE / PRINTED NAME	SIGNATURE Joseph Walukiewicz / PRINTED NAME JOSEPH WALUKIEWICZ	1. Sample log-in 2. Pressure Check 3. Pre-analysis storage
11 20 23	0930	SIGNATURE Joseph Walukiewicz / PRINTED NAME JOSEPH WALUKIEWICZ	SIGNATURE / PRINTED NAME	Placement in TO-15 sample storage area until ready for analysis
12 12 23	1065	SIGNATURE / PRINTED NAME	SIGNATURE Joseph Walukiewicz / PRINTED NAME JOSEPH WALUKIEWICZ	TO-15 analysis on: 05081-01 to -04
		SIGNATURE / PRINTED NAME	SIGNATURE Joseph Walukiewicz / PRINTED NAME JOSEPH WALUKIEWICZ	TO-15 analysis on:
		SIGNATURE / PRINTED NAME	SIGNATURE / PRINTED NAME	
		SIGNATURE / PRINTED NAME	SIGNATURE / PRINTED NAME	
		SIGNATURE / PRINTED NAME	SIGNATURE / PRINTED NAME	
		SIGNATURE / PRINTED NAME	SIGNATURE / PRINTED NAME	

Rev. 12/16

Section II: Methodology Review

Methodology Summary for Air Collected from Hazardous Waste Site Contract

Laboratory:	**Integrated Analytical Lab, LLC**	**Project No:**	**HK2661.2**
Location:	**Randolph, NJ**	**SDG No:**	**E23-05081**

Name	Required Methodology	Indicate Method
Volatile Organics	US EPA TO-15	US EPA Method TO-15

Section III: Case Narrative

CASE NARRATIVE

Integrated Analytical Laboratories, LLC — **Randolph, NJ 07869**
Project #: HK2661.2 — **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05081 — **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 — **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 — **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.2 / NY

Client ID	Lab ID	Receipt Date	Analysis Date	DF	Diluted For
SV1	E23-05081-01	11/20/2023	12/11/2023	5.0	Ethylbenzene Xylenes (m&p) Xylenes (o)
SV1	E23-05081-01	11/20/2023	12/11/2023	1.0	NA
SV4	E23-05081-02	11/20/2023	12/11/2023	1.0	NA
SV9	E23-05081-03	11/20/2023	12/11/2023	5.0	Ethylbenzene Xylenes (m&p)
SV9	E23-05081-03	11/20/2023	12/11/2023	1.0	NA
SV8-401-Compactor Room	E23-05081-04	11/20/2023	12/11/2023	5.0	Xylenes (m&p)
SV8-401-Compactor Room	E23-05081-04	11/20/2023	12/11/2023	1.0	NA

IAL Sample ID	Canister ID	Outgoing Pressure ("Hg)	Incoming Pressure ("Hg)	Flow Controller ID	Outgoing Flow Rate (cc/min)	Incoming Flow Rate (cc/min)	Flow Rate RPD*
E23-05081-01	5073	-29	-7	A0121687-3	32.70	32.30	1.23
E23-05081-02	2758	-29	-6	A0098643-4	33.80	33.30	1.49
E23-05081-03	3809	-29	-7	A0098637-7	33.40	32.80	1.81
E23-05081-04	2896B	-29	-6	A0160008-5	33.30	32.70	1.82

*Pre-sampling and Post-sampling Flow Controller calibration check RPD ≤ 20%

Flow Controller Note: none

Sample Receipt: Samples were received in good condition. Documentation was in order.
Samples were received at IAL by: Joseph Walukiewicz

Sample Preparation: None required.

Sample Analysis:
Hold Time: All within recommended hold times.
Instrument Calibration: Meets method criteria.
Analysis performed by: jjw
SDG Non-Conformances: none

CASE NARRATIVE

Integrated Analytical Laboratories, LLC | **Randolph, NJ 07869**
Project #: HK2661.2 | **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05081 | **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 | **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 | **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.2 / NY

Tentatively Identified Compounds: Tentatively Identified Compounds (TICs) are determined using a NIST library search. TICs are reported at 10% of the applicable internal standard. Dilution factors are calculated into the final reported result. Since the compounds found are tentatively identified, the conversion from ppbv to ug/m3 may not be made.

Canister-to-Canister dilutions: none

Dilutions: Dilutions, if necessary, will be conducted directly on the instrument up to a 500x dilution. When dilutions of 1000x or higher are necessary, the laboratory must inject a volume of sample into another certified clean canister and add humidified Z-1 zero air to the remainder of the canister volume. Tedlar bags are not used for dilutions.

If a sample is received with historically high levels of analytes, a 100x can-to-can dilution my be used from the start. A 100x canister-to-canister dilution may be also be used at the analyst's discretion.

On-instrument dilutions are conducted as follows:

Dilution Factor	Sample Volume Injected (cc)
1	500
2.5	200
5	100
10	50
20	25
25	20
50	10
100	5
200	2.5
250	2
500	1

Canister-to-canister dilutions are conducted as follows:

A certified clean canister is obtained and evacuated to approximately -30"Hg. Both the clean/dilution canister and sample canister are fitted with a ¼" Swagelok® nut fitting equipped with septa. Depending on dilution factor necessary, a sample aliquot is removed from the canister and injected into the clean canister using 30cc Multifit gas-tight syringe. Once the correct sample aliquot has been transferred, the dilution canister should be connected to the humidified Z-1 zero air supply and filled to ambient pressure (0"Hg).

Dilution Factor	Sample Aliquot	Z-1 Make-up Added
100	60ml	5940ml
1000	6ml	5994ml

CASE NARRATIVE

Integrated Analytical Laboratories, LLC | **Randolph, NJ 07869**
Project #: HK2661.2 | **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05081 | **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 | **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 | **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.2 / NY

If further dilutions need to be made from the dilution canister, they may be made on-instrument. Using a 100x dilution canister, the following on-instrument dilutions can be produced:

Dilution Factor	Sample Volume Injected
100	500ml
250	200ml
500	100ml
1000	50ml
2000	25ml
2500	20ml
5000	10ml

Using a 1000x dilution canister, the following on-instrument dilutions can be produced:

Dilution Factor	Sample Volume Injected
1000	500ml
2500	200ml
5000	100ml
10,000	50ml
20,000	25ml
25,000	20ml
50,000	10ml

If further dilutions need to be made from the dilution canister, beyond 50,000x, a subsequent canister-to-canister dilution must be made using the above prescribed protocol.

GC Column and ID: RTX-1 SN 1119138, RTX-VMS SN 1586881, or equivalent

Calibration Standards: Only gas phase standards were used. Primary and second-source standards provided by Scott Specialty Gases or Airgas Specialty Gases/ Air Liquide

Working Standards: Primary source standards* are created from:
- Airgas Specialty Gases #EB0103704, valid 1/18/2021 through 12/30/2024, @ approximately 100ppb per compound, with exception of m&p-xylenes @ 200ppb. Standard is directly introduced into the instrument for all calibration standard concentrations. Dilutions are made accordingly, on instrument. The 10ppbv standard is also used for the Daily Calibration Verification Standard (DCVS), the Laboratory Control Sample (LCS) and Closing Calibration Verification Standard (CCCVS).

The second source standard*, used as the Initial Calibration Verification Standard (ICVSS), is introduced into the instrument in the same manner as the primary source standard, using:

CASE NARRATIVE

Integrated Analytical Laboratories, LLC | **Randolph, NJ 07869**
Project #: HK2661.2 | **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05081 | **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 | **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 | **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.2 / NY

- Airgas Specialty Gases Cylinder #EB0116272, valid 7/28/2021 through 5/12/2025, @ approximately 100ppb per compound, with exception of m&p-xylenes @ 200ppb.

Internal standards* are created from:
- Airgas Specialty Gases Cylinder #ALM018474, valid 2/24/2022 through 2/24/2025. @ 5ppm per compound. Standard is directly introduced into the instrument to reach the 10ppbv concentrations. 1cc of internal standard is added to every standard, method blank, instrument blank, and sample run.

*Standard may be used past its expiration date provided that concentrations are verified by a current/unexpired second source standard.

08/15/2023
100 ppbv internal standard mix (AA3401BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (aa3406std01) - prepared in cylinder #EB0103704
40 ppbv standard - 200 ml injected
20 ppbv standard - 100 ml injected
10 ppbv standard* - 50 ml injected
*Standard also used for CCCVS
2 ppbv standard - 10 ml injected
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS

09/28/2023
100 ppbv internal standard mix (AA4071BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (AA4072DCVS) - prepared in cylinder #EB0103704
10 ppbv standard* - 50 ml injected
*Standard also used for DCVS & CCCVS
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
Method Blank (AA4074BLK) - prepared in canister #1127
500 ml injected

10/10/2023
100 ppbv internal standard mix (AA4131BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (aa4136std01) - prepared in cylinder #EB0103704
40 ppbv standard - 200 ml injected
20 ppbv standard - 100 ml injected
10 ppbv standard* - 50 ml injected
*Standard also used for CCCVS
2 ppbv standard - 10 ml injected

CASE NARRATIVE

Integrated Analytical Laboratories, LLC **Randolph, NJ 07869**
Project #: HK2661.2 **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05081 **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.2 / NY

10/10/2023

0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
Method Blank (AA4139BLK) - prepared in canister #1127
500 ml injected

12/11/2023

100 ppbv internal standard mix (AA4901BFB) - prepared in cylinder #ALM018474
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard (AA4902DCVS) - prepared in cylinder #EB0103704
10 ppbv standard* - 50 ml injected
*Standard also used for DCVS & CCCVS
0.20 ppbv standard* - 1 ml injected
*Standard also used for RLLCS
Method Blank (AA4904BLK) - prepared in canister #1127
500 ml injected
Sample E23-05081-01 (AA4916) - sample taken in canister #5073
100 ml sample volume injected, 5x dilution
Sample E23-05081-01 (AA4917) - sample taken in canister #5073
500 ml sample volume injected, 1x dilution
Sample E23-05081-02 (AA4919) - sample taken in canister #2758
500 ml sample volume injected, 1x dilution
Sample E23-05081-03 (AA4920) - sample taken in canister #3809
100 ml sample volume injected, 5x dilution
Sample E23-05081-03 (AA4921) - sample taken in canister #3809
500 ml sample volume injected, 1x dilution
Sample E23-05081-04 (AA4922) - sample taken in canister #2896B
100 ml sample volume injected, 5x dilution
Sample E23-05081-04 (AA4923) - sample taken in canister #2896B
500 ml sample volume injected, 1x dilution

CASE NARRATIVE

Integrated Analytical Laboratories, LLC | **Randolph, NJ 07869**
Project #: HK2661.2 | **NJDEP (Primary AB) Certification#: 14751**
SDG #: E23-05081 | **NY ELAP Certification #: 11402**
CT DPH Certification#: PH-0699
Analytical Method: EPA Method TO-15 | **PADEP Certification#: 68-00773**

Date of first sample receipt: 11/20/2023 | **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
Project/Site: HK2661.2 / NY

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. All conversions are based upon a room temperature of 77°F(25°C) and room pressure of 101.325 kPa (1atm).

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of data contained in this hardcopy data package and in the computer-readable data submitted on CD/diskette and by electronic mail has been authorized by the laboratory manager or his designee, as verified by the following signature.

Michael H. Leftin, Ph.D.
Laboratory Director

December 20, 2023
Date

Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

R 362

Received 01/06/2023

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED HYDROCARBON

Customer:	INTEGRATED ANALYTICAL LABS		
Part Number:	X76NI99C15AC001	Reference Number:	160-402619255-1
Cylinder Number:	EB0103704	Cylinder Volume:	101.0 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	1400 PSIG
Analysis Date:	Dec 30, 2022	Valve Outlet:	350SS
Lot Number:	160-402619255-1	Expiration Date:	Dec 30, 2024

Traceability Statement: Hydrocarbon Process standards are NIST traceable either directly by weight or by comparison to Airgas laboratory standards that are directly NIST traceable by weight.

CERTIFIED CONCENTRATIONS

Component	Requested Concentration	Reported Mole %	Accuracy
1,1 DICHLOROETHANE	100.000 PPB	107.000 PPB	+/- 10%
1,1 DICHLOROETHYLENE	100.000 PPB	104.000 PPB	+/- 10%
1,1,1 TRICHLOROETHANE	100.000 PPB	109.000 PPB	+/- 10%
1,1,2 TRICHLORO ETHANE	100.000 PPB	108.000 PPB	+/- 10%
1,1,2,2 TETRACHLOROETHANE	100.000 PPB	114.000 PPB	+/- 10%
1,2 DIBROMO ETHANE	100.000 PPB	108.000 PPB	+/- 10%
1,2 DICHLORO PROPANE	100.000 PPB	110.000 PPB	+/- 10%
1,2 DICHLOROBENZENE	100.000 PPB	107.000 PPB	+/- 10%
1,2 DICHLOROETHANE	100.000 PPB	109.000 PPB	+/- 10%
1,2,4 TRICHLOROBENZENE	100.000 PPB	110.000 PPB	+/- 10%
1,2,4 TRIMETHYLBENZENE	100.000 PPB	108.000 PPB	+/- 10%
1,3 BUTADIENE	100.000 PPB	107.000 PPB	+/- 10%
1,3 DICHLORO BENZENE	100.000 PPB	111.000 PPB	+/- 10%
1,3,5 TRIMETHYL BENZENE	100.000 PPB	109.000 PPB	+/- 10%
1,4 DICHLOROBENZENE	100.000 PPB	107.000 PPB	+/- 10%
1,4 DIOXANE	100.000 PPB	117.000 PPB	+/- 10%
2 CHLOROTOLUENE	100.000 PPB	109.000 PPB	+/- 10%
3 CHLOROPROPYLENE	100.000 PPB	108.000 PPB	+/- 10%
4 ETHYL TOLUENE	100.000 PPB	108.000 PPB	+/- 10%
ACETONE	100.000 PPB	108.000 PPB	+/- 10%
ACROLEIN	100.000 PPB	100.000 PPB	+/- 10%
BENZENE	100.000 PPB	108.000 PPB	+/- 10%
BENZYL CHLORIDE	100.000 PPB	100.000 PPB	+/- 10%
BROMO DICHLORO METHANE	100.000 PPB	115.000 PPB	+/- 10%
BROMOFORM	100.000 PPB	113.000 PPB	+/- 10%
CARBON DISULFIDE	100.000 PPB	107.000 PPB	+/- 10%
CARBON TETRACHLORIDE	100.000 PPB	110.000 PPB	+/- 10%
CHLORO DIBROMO METHANE	100.000 PPB	112.000 PPB	+/- 10%
CHLOROBENZENE	100.000 PPB	111.000 PPB	+/- 10%
CHLOROFORM	100.000 PPB	108.000 PPB	+/- 10%
CIS 1,2 DICHLOROETHYLENE	100.000 PPB	109.000 PPB	+/- 10%
CIS 1,3 DICHLOROPROPENE	100.000 PPB	111.000 PPB	+/- 10%
CUMENE	100.000 PPB	107.000 PPB	+/- 10%
CYCLOHEXANE	100.000 PPB	112.000 PPB	+/- 10%
ETHANOL	100.000 PPB	104.000 PPB	+/- 10%
ETHYL ACETATE	100.000 PPB	108.000 PPB	+/- 10%
ETHYL BENZENE	100.000 PPB	111.000 PPB	+/- 10%
ETHYL CHLORIDE	100.000 PPB	106.000 PPB	+/- 10%
HEXACHLORO 1,3 BUTADIENE	100.000 PPB	111.000 PPB	+/- 10%

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Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

HEXANE	100.000 PPB	111.000 PPB	+/- 10%
ISOOCTANE	100.000 PPB	109.000 PPB	+/- 10%
ISOPROPYL ALCOHOL	100.000 PPB	89.000 PPB	+/- 10%
M XYLENE	100.000 PPB	112.000 PPB	+/- 10%
METHYL BROMIDE	100.000 PPB	100.000 PPB	+/- 10%
METHYL BUTYL KETONE	100.000 PPB	113.000 PPB	+/- 10%
METHYL CHLORIDE	100.000 PPB	112.000 PPB	+/- 10%
METHYL ETHYL KETONE	100.000 PPB	110.000 PPB	+/- 10%
METHYL ISOBUTYL KETONE	100.000 PPB	109.000 PPB	+/- 10%
METHYL METHACRYLATE	100.000 PPB	110.000 PPB	+/- 10%
METHYL TERT BUTYL ETHER	100.000 PPB	112.000 PPB	+/- 10%
METHYLENE CHLORIDE	100.000 PPB	108.000 PPB	+/- 10%
N BUTANE	100.000 PPB	109.000 PPB	+/- 10%
N HEPTANE	100.000 PPB	111.000 PPB	+/- 10%
N NONANE	100.000 PPB	110.000 PPB	+/- 10%
N PENTANE	100.000 PPB	108.000 PPB	+/- 10%
N PROPYL BENZENE	100.000 PPB	108.000 PPB	+/- 10%
NAPHTHALENE	100.000 PPB	100.000 PPB	+/- 10%
O XYLENE	100.000 PPB	110.000 PPB	+/- 10%
P XYLENE	100.000 PPB	111.000 PPB	+/- 10%
PERCHLOROETHYLENE	100.000 PPB	112.000 PPB	+/- 10%
PROPYLENE	100.000 PPB	109.000 PPB	+/- 10%
R11 TRICHLOROFLUOROMETHANE	100.000 PPB	110.000 PPB	+/- 10%
R113 TRICHLOROTRIFLUOROETHANE	100.000 PPB	109.000 PPB	+/- 10%
R114 DICHLOROTETRAFLUOROETHANE	100.000 PPB	98.000 PPB	+/- 10%
R12 DICHLORODIFLUOROMETHANE	100.000 PPB	106.000 PPB	+/- 10%
STYRENE	100.000 PPB	113.000 PPB	+/- 10%
TERT BUTANOL	100.000 PPB	115.000 PPB	+/- 10%
TETRAHYDROFURAN	100.000 PPB	110.000 PPB	+/- 10%
TOLUENE	100.000 PPB	108.000 PPB	+/- 10%
TRANS 1,2 DICHLOROETHYLENE	100.000 PPB	111.000 PPB	+/- 10%
TRANS 1,3 DICHLOROPROPENE	100.000 PPB	111.000 PPB	+/- 10%
TRICHLOROETHYLENE	100.000 PPB	100.000 PPB	+/- 10%
VINYL ACETATE	100.000 PPB	110.000 PPB	+/- 10%
VINYL BROMIDE	100.000 PPB	101.000 PPB	+/- 10%
VINYL CHLORIDE	100.000 PPB	108.000 PPB	+/- 10%
NITROGEN	99.99925 %	99.999187 %	+/- 10%

Permanent Notes:CUSTOM TO MIX - TO-15/17 MODIFIED NJ STD + NAPHTHALENE

Notes:PO number: 22578

Approved for Release

Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

R 366

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED HYDROCARBON

Customer:	INTEGRATED ANALYTICAL LABS		
Part Number:	X76NI99C15AC001	Reference Number:	160-402744241-1
Cylinder Number:	EB0116272	Cylinder Volume:	146.0 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	2050 PSIG
Analysis Date:	May 12, 2023	Valve Outlet:	350SS
Lot Number:	160-402744241-1	Expiration Date:	May 12, 2025

Traceability Statement: Hydrocarbon Process standards are NIST traceable either directly by weight or by comparison to Airgas laboratory standards that are directly NIST traceable by weight.

CERTIFIED CONCENTRATIONS

Component	Requested Concentration	Reported Mole %	Accuracy
1,1 DICHLOROETHANE	100.000 PPB	100.000 PPB	+/- 10%
1,1 DICHLOROETHYLENE	100.000 PPB	100.000 PPB	+/- 10%
1,1,1 TRICHLOROETHANE	100.000 PPB	104.000 PPB	+/- 10%
1,1,2 TRICHLORO ETHANE	100.000 PPB	101.000 PPB	+/- 10%
1,1,2,2 TETRACHLOROETHANE	100.000 PPB	104.000 PPB	+/- 10%
1,2 DIBROMO ETHANE	100.000 PPB	103.000 PPB	+/- 10%
1,2 DICHLORO PROPANE	100.000 PPB	103.000 PPB	+/- 10%
1,2 DICHLOROBENZENE	100.000 PPB	101.000 PPB	+/- 10%
1,2 DICHLOROETHANE	100.000 PPB	102.000 PPB	+/- 10%
1,2,4 TRICHLOROBENZENE	100.000 PPB	100.000 PPB	+/- 10%
1,2,4 TRIMETHYLBENZENE	100.000 PPB	102.000 PPB	+/- 10%
1,3 BUTADIENE	100.000 PPB	106.000 PPB	+/- 10%
1,3 DICHLORO BENZENE	100.000 PPB	105.000 PPB	+/- 10%
1,3,5 TRIMETHYL BENZENE	100.000 PPB	103.000 PPB	+/- 10%
1,4 DICHLOROBENZENE	100.000 PPB	100.000 PPB	+/- 10%
1,4 DIOXANE	100.000 PPB	113.000 PPB	+/- 10%
2 CHLOROTOLUENE	100.000 PPB	107.000 PPB	+/- 10%
3 CHLOROPROPYLENE	100.000 PPB	106.000 PPB	+/- 10%
4 ETHYL TOLUENE	100.000 PPB	106.000 PPB	+/- 10%
ACETONE	100.000 PPB	108.000 PPB	+/- 10%
ACROLEIN	100.000 PPB	105.000 PPB	+/- 10%
BENZENE	100.000 PPB	103.000 PPB	+/- 10%
BENZYL CHLORIDE	100.000 PPB	102.000 PPB	+/- 10%
BROMO DICHLORO METHANE	100.000 PPB	112.000 PPB	+/- 10%
BROMOFORM	100.000 PPB	113.000 PPB	+/- 10%
CARBON DISULFIDE	100.000 PPB	95.000 PPB	+/- 10%
CARBON TETRACHLORIDE	100.000 PPB	107.000 PPB	+/- 10%
CHLORO DIBROMO METHANE	100.000 PPB	110.000 PPB	+/- 10%
CHLOROBENZENE	100.000 PPB	104.000 PPB	+/- 10%
CHLOROFORM	100.000 PPB	106.000 PPB	+/- 10%
CIS 1,2 DICHLOROETHYLENE	100.000 PPB	102.000 PPB	+/- 10%
CIS 1,3 DICHLOROPROPENE	100.000 PPB	94.000 PPB	+/- 10%
CUMENE	100.000 PPB	106.000 PPB	+/- 10%
CYCLOHEXANE	100.000 PPB	109.000 PPB	+/- 10%
ETHANOL	100.000 PPB	98.000 PPB	+/- 10%
ETHYL ACETATE	100.000 PPB	104.000 PPB	+/- 10%
ETHYL BENZENE	100.000 PPB	105.000 PPB	+/- 10%
ETHYL CHLORIDE	100.000 PPB	104.000 PPB	+/- 10%
HEXACHLORO 1,3 BUTADIENE	100.000 PPB	101.000 PPB	+/- 10%

Approved for Release

Integrated Analytical Laboratories LLC

Airgas
an Air Liquide company

Airgas Specialty Gases
Airgas USA LLC
6141 Easton Road
Plumsteadville, PA 18949
Airgas.com

HEXANE	100.000 PPB	107.000 PPB	+/- 10%
ISOOCTANE	100.000 PPB	106.000 PPB	+/- 10%
ISOPROPYL ALCOHOL	100.000 PPB	95.000 PPB	+/- 10%
M XYLENE	100.000 PPB	106.000 PPB	+/- 10%
METHYL BROMIDE	100.000 PPB	103.000 PPB	+/- 10%
METHYL BUTYL KETONE	100.000 PPB	109.000 PPB	+/- 10%
METHYL CHLORIDE	100.000 PPB	108.000 PPB	+/- 10%
METHYL ETHYL KETONE	100.000 PPB	105.000 PPB	+/- 10%
METHYL ISOBUTYL KETONE	100.000 PPB	105.000 PPB	+/- 10%
METHYL METHACRYLATE	100.000 PPB	106.000 PPB	+/- 10%
METHYL TERT BUTYL ETHER	100.000 PPB	107.000 PPB	+/- 10%
METHYLENE CHLORIDE	100.000 PPB	101.000 PPB	+/- 10%
N BUTANE	100.000 PPB	107.000 PPB	+/- 10%
N HEPTANE	100.000 PPB	107.000 PPB	+/- 10%
N NONANE	100.000 PPB	108.000 PPB	+/- 10%
N PENTANE	100.000 PPB	105.000 PPB	+/- 10%
N PROPYL BENZENE	100.000 PPB	112.000 PPB	+/- 10%
NAPHTHALENE	100.000 PPB	101.000 PPB	+/- 10%
O XYLENE	100.000 PPB	102.000 PPB	+/- 10%
P XYLENE	100.000 PPB	106.000 PPB	+/- 10%
PERCHLOROETHYLENE	100.000 PPB	104.000 PPB	+/- 10%
PROPYLENE	100.000 PPB	108.000 PPB	+/- 10%
R11 TRICHLOROFLUOROMETHANE	100.000 PPB	106.000 PPB	+/- 10%
R113 TRICHLOROTRIFLUOROETHANE	100.000 PPB	102.000 PPB	+/- 10%
R114 DICHLOROTETRAFLUOROETHANE	100.000 PPB	99.000 PPB	+/- 10%
R12 DICHLORODIFLUOROMETHANE	100.000 PPB	109.000 PPB	+/- 10%
STYRENE	100.000 PPB	106.000 PPB	+/- 10%
TERT BUTANOL	100.000 PPB	111.000 PPB	+/- 10%
TETRAHYDROFURAN	100.000 PPB	106.000 PPB	+/- 10%
TOLUENE	100.000 PPB	101.000 PPB	+/- 10%
TRANS 1,2 DICHLOROETHYLENE	100.000 PPB	108.000 PPB	+/- 10%
TRANS 1,3 DICHLOROPROPENE	100.000 PPB	106.000 PPB	+/- 10%
TRICHLOROETHYLENE	100.000 PPB	102.000 PPB	+/- 10%
VINYL ACETATE	100.000 PPB	105.000 PPB	+/- 10%
VINYL BROMIDE	100.000 PPB	100.000 PPB	+/- 10%
VINYL CHLORIDE	100.000 PPB	107.000 PPB	+/- 10%
NITROGEN	99.99925 %	99.999216 %	

Permanent Notes:CUSTOM TO MIX - TO-15/17 MODIFIED NJ STD + NAPHTHALENE

Notes:PO Number: 22896

Approved for Release

Section IV: Method Detection Limit Summary

INTEGRATED ANALYTICAL LABORATORIES, LLC
REPORTING METHOD DETECTION LIMIT (MDL) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Matrix: Air
Column ID: Restek RtX-VMS, 30 meter, 0.32mm ID, 1.8 um DF
Instrument ID: GC - Agilent 7890A / MS - Agilent 5975C (IAL ID: *Instrument AA*)
Report Prepared by: Joe Waluliewicz

MDL Effective Date: 8/16/2023
Analyst: Joe Waluliewicz

Compound Name	CAS #	Molecular Weight	MDL ppbv	MDL µg/m^3	PQL ppbv	RL ppbv	RL µg/m^3	True value/ MDL
Propene	115-07-1	42.08	0.18	0.31	0.54	0.20	0.34	1
Dichlorodifluoromethane	75-71-8	120.9	0.081	0.40	0.24	0.20	0.99	3
1,2-Dichlorotetrafluoroethane	76-14-2	170.9	0.071	0.50	0.21	0.20	1.4	3
n-Butane	106-97-8	58	0.13	0.32	0.40	0.20	0.47	2
Chloromethane	74-87-3	50.49	0.15	0.30	0.44	0.20	0.41	1
Vinyl chloride	75-01-4	62.5	0.11	0.29	0.34	0.20	0.51	2
1,3-Butadiene	106-99-0	54.09	0.12	0.27	0.37	0.20	0.44	2
Bromomethane	74-83-9	94.94	0.12	0.46	0.36	0.20	0.78	2
Chloroethane	75-00-3	64.52	0.12	0.32	0.36	0.20	0.53	2
Vinyl bromide	593-60-2	106.9	0.080	0.35	0.24	0.20	0.87	3
Trichlorofluoromethane	75-69-4	137.4	0.068	0.38	0.20	0.20	1.1	3
Ethanol	64-17-5	46.07	0.17	0.32	0.51	0.20	0.38	1
1,1-Dichloroethene	75-35-4	96.94	0.086	0.34	0.26	0.20	0.79	3
Carbon disulfide	75-15-0	76.14	0.076	0.24	0.23	0.20	0.62	3
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	187.40	0.087	0.66	0.26	0.20	1.5	3
Acrolein	107-02-8	56.06	0.15	0.34	0.44	0.20	0.46	2
Allyl Chloride	107-05-1	76.53	0.088	0.27	0.26	0.20	0.63	3
Isopropanol	67-63-0	60.1	0.10	0.25	0.30	0.20	0.49	2
Methylene chloride	75-09-2	84.94	0.10	0.36	0.31	0.20	0.69	2
Acetone	67-64-1	58.08	0.12	0.28	0.36	0.20	0.48	2
1,2-Dichloroethene (trans)	156-60-5	96.94	0.080	0.32	0.24	0.20	0.79	3
n-Pentane	109-66-0	72.15	0.16	0.48	0.49	0.20	0.59	1
n-Hexane	110-54-3	86.17	0.087	0.31	0.26	0.20	0.70	3
Methyl tert-butyl ether	1634-04-4	88.15	0.080	0.29	0.24	0.20	0.72	3
Tert-butyl alcohol	75-65-0	74.12	0.14	0.44	0.43	0.20	0.61	2
1,1-Dichloroethane	75-34-3	98.96	0.079	0.32	0.24	0.20	0.81	3
1,2-Dichloroethene (cis)	156-59-2	96.94	0.083	0.33	0.25	0.20	0.79	3
Cyclohexane	110-82-7	84.16	0.078	0.27	0.23	0.20	0.69	3
Chloroform	67-66-3	119.4	0.077	0.38	0.23	0.20	0.98	3
Ethyl acetate	141-78-6	88.11	0.11	0.40	0.33	0.20	0.72	2
Carbon tetrachloride	56-23-5	153.8	0.080	0.50	0.24	0.20	1.3	3
Tetrahydrofuran	109-99-9	72.11	0.11	0.31	0.32	0.20	0.59	2
1,1,1-Trichloroethane	71-55-6	133.4	0.071	0.39	0.21	0.20	1.1	3
Methyl ethyl ketone	78-93-3	72.11	0.11	0.31	0.32	0.20	0.59	2
n-Heptane	142-82-5	100.2	0.090	0.37	0.27	0.20	0.82	2
Benzene	71-43-2	78.11	0.076	0.24	0.23	0.20	0.64	3
1,2-Dichloroethane	107-06-2	98.96	0.079	0.32	0.24	0.20	0.81	3
Trichloroethene	79-01-6	131.4	0.064	0.34	0.19	0.20	1.1	3
2,2,4-Trimethylpentane	540-84-1	114.2	0.085	0.40	0.26	0.20	0.93	3
1,2-Dichloropropane	78-87-5	113	0.085	0.39	0.25	0.20	0.92	3
Bromodichloromethane	75-27-4	163.8	0.066	0.44	0.20	0.20	1.3	3
Methyl methacrylate	80-62-6	100.12	0.079	0.32	0.24	0.20	0.82	3
1,4-Dioxane	123-91-1	88.12	0.092	0.33	0.28	0.20	0.72	2
1,3-Dichloropropene (cis)	10061-01-5	111.0	0.070	0.32	0.21	0.20	0.91	3
Toluene	108-88-3	92.14	0.064	0.24	0.19	0.20	0.75	3
Methyl isobutyl ketone	108-10-1	100.2	0.11	0.43	0.32	0.20	0.82	2
Tetrachloroethene	127-18-4	165.8	0.063	0.43	0.19	0.20	1.4	3
1,3-Dichloropropene (trans)	10061-02-6	111	0.077	0.35	0.23	0.20	0.91	3
1,1,2-Trichloroethane	79-00-5	133.4	0.075	0.41	0.22	0.20	1.1	3
Dibromochloromethane	124-48-1	208.3	0.073	0.62	0.22	0.20	1.7	3
1,2-Dibromoethane	106-93-4	187.9	0.067	0.52	0.20	0.20	1.5	3
Methyl n-butyl ketone	591-78-6	100.16	0.13	0.54	0.40	0.20	0.82	2
n-Nonane	111-84-2	128.2	0.10	0.52	0.30	0.20	1.0	2
Chlorobenzene	108-90-7	112.6	0.073	0.34	0.22	0.20	0.92	3
Ethylbenzene	100-41-4	106.2	0.067	0.29	0.20	0.20	0.9	3
Xylenes (m&p)	179601-23-1	106.2	0.15	0.64	0.44	0.40	1.74	3
Xylene (o)	79-34-5	167.9	0.073	0.50	0.22	0.20	1.4	3
Styrene	100-42-5	104.1	0.072	0.31	0.22	0.20	0.85	3
Bromoform	75-25-2	252.8	0.075	0.77	0.22	0.20	2.1	3
Cumene (Isopropylbenzene)	98-82-8	120.2	0.069	0.34	0.21	0.20	0.98	3
n-Propyl benzene	103-65-1	120.19	0.085	0.42	0.25	0.20	0.98	3
1,1,2,2-Tetrachloroethane	95-47-6	106.2	0.069	0.30	0.21	0.20	0.87	3
4-Ethyltoluene	622-96-8	120.2	0.090	0.44	0.27	0.20	0.98	2
2-Chlorotoluene	95-49-8	126.6	0.077	0.40	0.23	0.20	1.0	3
1,3,5-Trimethylbenzene	108-67-8	120.2	0.076	0.37	0.23	0.20	0.98	3
1,2,4-Trimethylbenzene	95-63-6	120.2	0.080	0.39	0.24	0.20	0.98	3

INTEGRATED ANALYTICAL LABORATORIES, LLC
REPORTING METHOD DETECTION LIMIT (MDL) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Matrix: Air
Column ID: Restek RtX-VMS, 30 meter, 0.32mm ID, 1.8 um DF
Instrument ID: GC - Agilent 7890A / MS - Agilent 5975C (IAL ID: *Instrument AA*)
Report Prepared by: Joe Waluliewicz

MDL Effective Date: 8/16/2023
Analyst: Joe Waluliewicz

Compound Name	CAS #	Molecular Weight	MDL ppbv	MDL µg/m^3	PQL ppbv	RL ppbv	RL µg/m^3	True value/ MDL
1,3-Dichlorobenzene	541-73-1	147	0.086	0.52	0.26	0.20	1.2	3
1,4-Dichlorobenzene	106-46-7	147.0	0.089	0.54	0.27	0.20	1.2	2
Benzyl chloride	100-44-7	126.6	0.064	0.33	0.19	0.20	1.0	3
1,2-Dichlorobenzene	95-50-1	147.0	0.083	0.50	0.25	0.20	1.2	3
1,3-Hexachlorobutadiene	87-68-3	260.8	0.096	1.03	0.29	0.20	2.1	2
1,2,4-Trichlorobenzene	120-82-1	181.5	0.12	0.89	0.36	0.20	1.5	2
Naphthalene	91-20-3	128	0.15	0.79	0.45	0.20	1.0	2

Where:
MDL is defined as the higher of the MDL Spike and MDL Blank
PQL is MDLx3
RL is defined as the lowest point of the calibration curve
ppbv is parts per billion by volume and is how results come off the instrument
µg/m^3 = ppbv x molecular weight / 24.45

Location of this file: P:\PAL Reports\LLTO-15 and TO-15 Common Files\Agilent MDL

Instrument used for Clean Canister Certification Analysis? YES

Michael Leftin, Ph.D.
Laboratory Director

Date: August 16, 2023

INTEGRATED ANALYTICAL LABORATORIES, LLC
METHOD DETECTION LIMIT VERIFICATION (MDLV) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Analysis Level:	0.20 ppbv, 0.40 for m&p-xylenes
Matrix:	Air
Column ID:	RTX-VMS, 30-meter, 0.32 mm ID, 1.8 µm d_f
Instrument Identification:	AA
Date of Verification Study:	8/16/2023
Study Identification File #:	aa3415rllcs
Analyst:	Joe Walukiewicz
Analysis/Processing Method:	C:\MSDCHEM\1\METHODS\230815.M
Cylinder ID:	EB0103704

Michael Leftin, Ph.D.
Laboratory Director

Date: August 16, 2023

Compound Name	CAS #	MDLV (ppbv)	RL (ppbv)	RL/MDLV Ratio
Propene	115-07-1	0.23	0.20	1
Dichlorodifluoromethane	124-48-1	0.24	0.20	1
1,2-Dichlorotetrafluoroethane	76-14-2	0.26	0.20	1
n-Butane	106-97-8	0.23	0.20	1
Chloromethane	74-87-3	0.24	0.20	1
Vinyl chloride	75-01-4	0.26	0.20	1
1,3-Butadiene	106-99-0	0.23	0.20	1
Bromomethane	74-83-9	0.23	0.20	1
Chloroethane	75-00-3	0.22	0.20	1
Vinyl bromide	593-60-2	0.23	0.20	1
Trichlorofluoromethane	75-69-4	0.26	0.20	1
Ethanol	64-17-5	0.30	0.20	2
1,1-Dichloroethene	75-35-4	0.22	0.20	1
Carbon disulfide	75-15-0	0.22	0.20	1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.27	0.20	1
Acrolein	107-02-8	0.24	0.20	1
Allyl Chloride	107-05-1	0.22	0.20	1
Isopropanol	67-63-0	0.20	0.20	1
Methylene chloride	75-09-2	0.35	0.20	2
Acetone	67-64-1	0.27	0.20	1
1,2-Dichloroethene (trans)	156-60-5	0.22	0.20	1
n-Pentane	109-66-0	0.25	0.20	1
n-Hexane	110-54-3	0.26	0.20	1
Methyl tert-butyl ether	1634-04-4	0.25	0.20	1
Tert-butyl alcohol	75-65-0	0.24	0.20	1
1,1-Dichloroethane	75-34-3	0.24	0.20	1
1,2-Dichloroethene (cis)	156-59-2	0.21	0.20	1
Cyclohexane	110-82-7	0.24	0.20	1
Chloroform	67-66-3	0.23	0.20	1
Ethyl acetate	141-78-6	0.23	0.20	1
Carbon tetrachloride	56-23-5	0.26	0.20	1
Tetrahydrofuran	109-99-9	0.23	0.20	1
1,1,1-Trichloroethane	71-55-6	0.24	0.20	1
Methyl ethyl ketone	78-93-3	0.24	0.20	1
n-Heptane	142-82-5	0.23	0.20	1
Benzene	71-43-2	0.24	0.20	1
1,2-Dichloroethane	106-93-4	0.23	0.20	1
Trichloroethene	79-01-6	0.25	0.20	1
2,2,4-Trimethylpentane	540-84-1	0.29	0.20	1
1,2-Dichloropropane	78-87-5	0.26	0.20	1
Bromodichloromethane	75-27-4	0.28	0.20	1
Methyl methacrylate	80-62-6	0.22	0.20	1
1,4-Dioxane	123-91-1	0.28	0.20	1
1,3-Dichloropropene (cis)	10061-01-5	0.25	0.20	1
Toluene	108-88-3	0.24	0.20	1
Methyl isobutyl ketone	108-10-1	0.22	0.20	1
Tetrachloroethene	127-18-4	0.26	0.20	1
1,3-Dichloropropene (trans)	10061-02-6	0.24	0.20	1
1,1,2-Trichloroethane	79-00-5	0.23	0.20	1
Dibromochloromethane	75-71-8	0.24	0.20	1
1,2-Dibromoethane	107-06-2	0.22	0.20	1
Methyl n-butyl ketone	591-78-6	0.21	0.20	1

INTEGRATED ANALYTICAL LABORATORIES, LLC
METHOD DETECTION LIMIT VERIFICATION (MDLV) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Analysis Level:	0.20 ppbv, 0.40 for m&p-xylenes
Matrix:	Air
Column ID:	RTX-VMS, 30-meter, 0.32 mm ID, 1.8 µm d_f
Instrument Identification:	AA
Date of Verification Study:	8/16/2023
Study Identification File #:	aa3415rllcs
Analyst:	Joe Walukiewicz
Analysis/Processing Method:	C:\MSDCHEM\1\METHODS\230815.M
Cylinder ID:	EB0103704

Michael Leftin, Ph.D.
Laboratory Director

Date: August 16, 2023

Compound Name	CAS #	MDLV (ppbv)	RL (ppbv)	RL/MDLV Ratio
n-Nonane	111-84-2	0.21	0.20	1
Chlorobenzene	108-90-7	0.28	0.20	1
Ethylbenzene	100-41-4	0.26	0.20	1
Xylenes (m&p)	179601-23-1	0.54	0.40	1
Xylene (o)	95-47-6	0.26	0.20	1
Styrene	100-42-5	0.23	0.20	1
Bromoform	75-25-2	0.26	0.20	1
Cumene	98-82-8	0.24	0.20	1
n-Propyl benzene	103-65-1	0.25	0.20	1
1,1,2,2-Tetrachloroethane	79-34-5	0.25	0.20	1
4-Ethyltoluene	622-96-8	0.24	0.20	1
2-Chlorotoluene	95-49-8	0.25	0.20	1
1,3,5-Trimethylbenzene	108-67-8	0.24	0.20	1
1,2,4-Trimethylbenzene	95-63-6	0.22	0.20	1
1,3-Dichlorobenzene	541-73-1	0.27	0.20	1
1,4-Dichlorobenzene	106-46-7	0.24	0.20	1
Benzyl chloride	100-44-7	0.17	0.20	1
1,2-Dichlorobenzene	95-50-1	0.25	0.20	1
1,3-Hexachlorobutadiene	87-68-3	0.31	0.20	2
1,2,4-Trichlorobenzene	120-82-1	0.25	0.20	1
Naphthalene	91-20-3	0.28	0.20	1

Section V: Quality Control Data Summary

BFB Tune Summary

Method Blank

Laboratory Control Sample

Laboratory Sample Duplicate

Internal Standard Area Summary

BFB

Data Path: C:\DATA\2023\08-2023\08-15-2023\
Data File: AA3401BFB.D
Acq On: 8/15/2023 10:11:00AM
Operator: jls
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230525.M
Last Update: Tue May 30 13:24:12 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	251499	18.7
PASS	75	95	30	66	703104	52.3
PASS	95	95	100	100	1345024	100.0
PASS	96	95	5	9	89525	6.7
PASS	173	174	0.00	2	8293	0.8
PASS	174	95	50	100	1069397	79.5
PASS	175	174	4	9	78181	7.3
PASS	176	174	93	101	1035413	96.8
PASS	177	176	5	9	68613	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA3401BFB	NA	8/15/2023 10:11:00 AM
0.2 PPBV STD	AA3402STD05	NA	8/15/2023 11:15:00 AM
10 PPBV STD	AA3404STD03	NA	8/15/2023 1:09:00 PM
2 PPBV STD	AA3403STD04	NA	8/15/2023 1:45:00 PM
20 PPBV STD	AA3405STD02	NA	8/15/2023 3:12:00 PM
40 PPBV STD	AA3406STD01	NA	8/15/2023 4:47:00 PM
10 PPBV ICVSS	AA3407ICVSS	NA	8/15/2023 6:09:00 PM

BFB

Data Path: C:\DATA\2023\09-2023\09-28-2023\
Data File: AA4071BFB.D
Acq On: 9/28/2023 10:01:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230815.M
Last Update: Wed Aug 16 10:00:51 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	96931	19.9
PASS	75	95	30	66	265259	54.6
PASS	95	95	100	100	485931	100.0
PASS	96	95	5	9	33264	6.8
PASS	173	174	0.00	2	3017	0.8
PASS	174	95	50	100	366187	75.4
PASS	175	174	4	9	27080	7.4
PASS	176	174	93	101	360832	98.5
PASS	177	176	5	9	23088	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4071BFB	NA	9/28/2023 10:01:00 AM
10 PPBV DCVS	AA4072DCVS	NA	9/28/2023 10:31:00 AM
10 PPBV LCS	AA4073LCS	NA	9/28/2023 11:19:00 AM
METHOD BLANK	AA4074BLK	NA	9/28/2023 11:47:00 AM
02 PPBV RLLCS	AA4075RLLCS	NA	9/28/2023 1:22:00 PM
2164	AA4076	NA	9/28/2023 3:00:00 PM
4870	AA4077	NA	9/28/2023 3:30:00 PM
2160	AA4078	NA	9/28/2023 4:00:00 PM
10 PPBV CCCVS	AA4093CCCVS	NA	9/29/2023 12:28:00 AM

INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path: C:\DATA\2023\10-2023\10-10-2023\

Data File: AA4131BFB.D

Acq On: 10/10/2023 10:13:00AM

Operator: jls

Sample: BFB

Misc: ALM018474

ALS Vial: 1 **Multiplier:** 1

Integration File: rteint.p

Method: C:\msdchem\1\METHODS\231009.M

Last Update: Tue Oct 10 09:54:56 2023

Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	65523	16.8
PASS	75	95	30	66	182571	46.8
PASS	95	95	100	100	389867	100.0
PASS	96	95	5	9	25643	6.6
PASS	173	174	0.00	2	0	0.0
PASS	174	95	50	100	293952	75.4
PASS	175	174	4	9	22269	7.6
PASS	176	174	93	101	282667	96.2
PASS	177	176	5	9	18629	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4131BFB	NA	10/10/2023 10:13:00 AM
0.2 PPBV STD	AA4132STD05	NA	10/10/2023 10:40:00 AM
2 PPBV STD	AA4133STD04	NA	10/10/2023 11:46:00 AM
10 PPBV STANDARD STD	AA4134STD03	NA	10/10/2023 12:21:00 PM
20 PPBV STD	AA4135STD02	NA	10/10/2023 12:55:00 PM
40 PPBV STD	AA4136STD01	NA	10/10/2023 2:05:00 PM
10 PPBV ICVSS	AA4137ICVSS	NA	10/10/2023 4:48:00 PM
10 PPBV LCS	AA4138LCS	NA	10/10/2023 5:39:00 PM
METHOD BLANK	AA4139BLK	NA	10/10/2023 6:07:00 PM
02 PPBV RLLCS	AA4140RLLCS	NA	10/10/2023 6:35:00 PM
5101	AA4142	NA	10/10/2023 7:36:00 PM
4869	AA4143	NA	10/10/2023 8:06:00 PM
2157	AA4144	NA	10/10/2023 8:36:00 PM
10 PPBV CCCVS	AA4154CCCVS	NA	10/11/2023 1:53:00 AM

INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path: C:\DATA\2023\12-2023\12-11-2023\

Data File: AA4901BFB.D

Acq On: 12/11/2023 9:24:00AM

Operator: jjw

Sample: BFB

Misc: ALM018474

ALS Vial: 1 **Multiplier:** 1

Integration File: rteint.p

Method: C:\msdchem\1\METHODS\231009.M

Last Update: Tue Oct 10 15:12:35 2023

Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	267904	18.4
PASS	75	95	30	66	717035	49.1
PASS	95	95	100	100	1459371	100.0
PASS	96	95	5	9	91040	6.2
PASS	173	174	0.00	2	10848	1.0
PASS	174	95	50	100	1053269	72.2
PASS	175	174	4	9	81547	7.7
PASS	176	174	93	101	1021824	97.0
PASS	177	176	5	9	65264	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4901BFB	NA	12/11/2023 9:24:00 AM
10 PPBV DCVS	AA4902DCVS	NA	12/11/2023 10:26:00 AM
10 PPBV LCS	AA4903LCS	NA	12/11/2023 10:57:00 AM
METHOD BLANK	AA4904BLK	NA	12/11/2023 11:51:00 AM
02 PPBV RLLCS	AA4905RLLCS	NA	12/11/2023 12:18:00 PM
1458	AA4906	NA	12/11/2023 12:50:00 PM
1588	AA4907	NA	12/11/2023 1:19:00 PM
3012	AA4908	NA	12/11/2023 1:49:00 PM
E23-05081-01	AA4916	SV1	12/11/2023 6:15:00 PM
E23-05081-01	AA4917	SV1	12/11/2023 6:47:00 PM
E23-05081-02	AA4919	SV4	12/11/2023 7:52:00 PM
E23-05081-03	AA4920	SV9	12/11/2023 8:24:00 PM
E23-05081-03	AA4921	SV9	12/11/2023 9:04:00 PM
E23-05081-04	AA4922	SV8-401-Compactor Room	12/11/2023 9:35:00 PM
E23-05081-04	AA4923	SV8-401-Compactor Room	12/11/2023 10:07:00 PM

BFB

Data Path: C:\DATA\2023\12-2023\12-11-2023\

Data File: AA4901BFB.D

Acq On: 12/11/2023 9:24:00AM

Operator: jjw

Sample: BFB

Misc: ALM018474

ALS Vial: 1 **Multiplier:** 1

Integration File: rteint.p

Method: C:\msdchem\1\METHODS\231009.M

Last Update: Tue Oct 10 15:12:35 2023

Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	267904	18.4
PASS	75	95	30	66	717035	49.1
PASS	95	95	100	100	1459371	100.0
PASS	96	95	5	9	91040	6.2
PASS	173	174	0.00	2	10848	1.0
PASS	174	95	50	100	1053269	72.2
PASS	175	174	4	9	81547	7.7
PASS	176	174	93	101	1021824	97.0
PASS	177	176	5	9	65264	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
10 PPBV CCCVS	AA4931CCCVS	NA	12/12/2023 1:59:00 AM

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4074BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**9/28/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4074BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**9/28/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05081-01 [AA4916]	12/11/2023 18:15
E23-05081-01 [AA4917]	12/11/2023 18:47
E23-05081-02 [AA4919]	12/11/2023 19:52
E23-05081-03 [AA4920]	12/11/2023 20:24
E23-05081-03 [AA4921]	12/11/2023 21:04
E23-05081-04 [AA4922]	12/11/2023 21:35
E23-05081-04 [AA4923]	12/11/2023 22:07
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05081-01 [AA4916]	12/11/2023 18:15
E23-05081-01 [AA4917]	12/11/2023 18:47
E23-05081-02 [AA4919]	12/11/2023 19:52
E23-05081-03 [AA4920]	12/11/2023 20:24
E23-05081-03 [AA4921]	12/11/2023 21:04
E23-05081-04 [AA4922]	12/11/2023 21:35
E23-05081-04 [AA4923]	12/11/2023 22:07
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05081-01 [AA4916]	12/11/2023 18:15
E23-05081-01 [AA4917]	12/11/2023 18:47
E23-05081-02 [AA4919]	12/11/2023 19:52
E23-05081-03 [AA4920]	12/11/2023 20:24
E23-05081-03 [AA4921]	12/11/2023 21:04
E23-05081-04 [AA4922]	12/11/2023 21:35
E23-05081-04 [AA4923]	12/11/2023 22:07
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4073LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 9/28/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	13	120
Benzene	71-43-2	12	120
Bromodichloromethane	75-27-4	12	110
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	12	110
1,3-Butadiene	106-99-0	14	130
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	13	130
Chloroform	67-66-3	13	130
Chloromethane	74-87-3	14	120
Carbon disulfide	75-15-0	14	130
Carbon tetrachloride	56-23-5	11	110
Cyclohexane	110-82-7	12	120
Dibromochloromethane	124-48-1	11	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	10	91
1,4-Dichlorobenzene	106-46-7	11	100
Dichlorodifluoromethane	75-71-8	13	120
1,1-Dichloroethane	75-34-3	13	120
1,2-Dichloroethane	107-06-2	13	130
1,1-Dichloroethene	75-35-4	13	120
1,2-Dichloroethene (cis)	156-59-2	14	130
1,2-Dichloroethene (trans)	156-60-5	14	130
1,2-Dichloropropane	78-87-5	11	110
1,3-Dichloropropene (cis)	10061-01-5	12	110
1,3-Dichloropropene (trans)	10061-02-6	13	130
1,2-Dichlorotetrafluoroethane	76-14-2	11	100
1,4-Dioxane	123-91-1	12	100
Ethylbenzene	100-41-4	11	110
n-Heptane	142-82-5	12	120

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4073LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 9/28/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
1,3-Hexachlorobutadiene	87-68-3	9.6	84
n-Hexane	110-54-3	13	130
Methylene chloride	75-09-2	13	120
Methyl ethyl ketone	78-93-3	14	120
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	12	110
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	13	110
1,1,2,2-Tetrachloroethane	79-34-5	10	91
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	11	110
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	11	110
1,1,2-Trichloroethane	79-00-5	11	100
Trichloroethene	79-01-6	9.8	98
Trichlorofluoromethane	75-69-4	13	120
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	110
1,2,4-Trimethylbenzene	95-63-6	11	100
1,3,5-Trimethylbenzene	108-67-8	10	91
2,2,4-Trimethylpentane	540-84-1	12	120
Vinyl bromide	593-60-2	12	120
Vinyl chloride	75-01-4	14	130
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	10	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4903LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/11/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05081-01 [AA4916]	12/11/2023 18:15
E23-05081-01 [AA4917]	12/11/2023 18:47
E23-05081-02 [AA4919]	12/11/2023 19:52
E23-05081-03 [AA4920]	12/11/2023 20:24
E23-05081-03 [AA4921]	12/11/2023 21:04
E23-05081-04 [AA4922]	12/11/2023 21:35
E23-05081-04 [AA4923]	12/11/2023 22:07
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	100
Benzene	71-43-2	9.5	95
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	10	91
1,3-Butadiene	106-99-0	10	100
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	11	110
Chloroform	67-66-3	10	100
Chloromethane	74-87-3	11	96
Carbon disulfide	75-15-0	11	100
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	10	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	10	91
1,4-Dichlorobenzene	106-46-7	10	91
Dichlorodifluoromethane	75-71-8	11	100
1,1-Dichloroethane	75-34-3	9.8	89
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	100
1,2-Dichloroethene (cis)	156-59-2	10	91
1,2-Dichloroethene (trans)	156-60-5	11	100
1,2-Dichloropropane	78-87-5	10	100
1,3-Dichloropropene (cis)	10061-01-5	11	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4903LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/11/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05081-01 [AA4916]	12/11/2023 18:15
E23-05081-01 [AA4917]	12/11/2023 18:47
E23-05081-02 [AA4919]	12/11/2023 19:52
E23-05081-03 [AA4920]	12/11/2023 20:24
E23-05081-03 [AA4921]	12/11/2023 21:04
E23-05081-04 [AA4922]	12/11/2023 21:35
E23-05081-04 [AA4923]	12/11/2023 22:07
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
1,3-Dichloropropene (trans)	10061-02-6	11	110
1,2-Dichlorotetrafluoroethane	76-14-2	8.8	80
1,4-Dioxane	123-91-1	11	92
Ethylbenzene	100-41-4	11	110
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	10	88
n-Hexane	110-54-3	10	100
Methylene chloride	75-09-2	9.6	87
Methyl ethyl ketone	78-93-3	11	93
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	11	100
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	11	100
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	10	100
1,1,2-Trichloroethane	79-00-5	10	91
Trichloroethene	79-01-6	9.1	91
Trichlorofluoromethane	75-69-4	11	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.4	94
1,2,4-Trimethylbenzene	95-63-6	11	100
1,3,5-Trimethylbenzene	108-67-8	11	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.
*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: **10 PPBV LCS** **Data File:** **AA4903LCS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **12/11/2023**

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05081-01 [AA4916]	12/11/2023 18:15
E23-05081-01 [AA4917]	12/11/2023 18:47
E23-05081-02 [AA4919]	12/11/2023 19:52
E23-05081-03 [AA4920]	12/11/2023 20:24
E23-05081-03 [AA4921]	12/11/2023 21:04
E23-05081-04 [AA4922]	12/11/2023 21:35
E23-05081-04 [AA4923]	12/11/2023 22:07
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
2,2,4-Trimethylpentane	540-84-1	10	100
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	11	110
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	10	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**50**		**54**		4.0	**-7.69%**
Allyl Chloride	107-05-1	4.0	U	4.0	U	4.0	0.00%
Benzene	71-43-2	2.0	U	2.0	U	2.0	0.00%
Bromodichloromethane	75-27-4	4.0	U	4.0	U	4.0	0.00%
Bromoform	75-25-2	4.0	U	4.0	U	4.0	0.00%
Bromomethane	74-83-9	4.0	U	4.0	U	4.0	0.00%
1,3-Butadiene	106-99-0	4.0	U	4.0	U	4.0	0.00%
Chlorobenzene	108-90-7	4.0	U	4.0	U	4.0	0.00%
Chloroethane	75-00-3	4.0	U	4.0	U	4.0	0.00%
Chloroform	67-66-3	4.0	U	4.0	U	4.0	0.00%
Chloromethane	74-87-3	4.0	U	4.0	U	4.0	0.00%
Carbon disulfide	75-15-0	**10.0**		**11**		4.0	**-9.52%**
Carbon tetrachloride	56-23-5	2.0	U	2.0	U	2.0	0.00%
2-Chlorotoluene	95-49-8	4.0	U	4.0	U	4.0	0.00%
Cyclohexane	110-82-7	4.0	U	4.0	U	4.0	0.00%
Dibromochloromethane	124-48-1	4.0	U	4.0	U	4.0	0.00%
1,2-Dibromoethane	106-93-4	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorobenzene	95-50-1	4.0	U	4.0	U	4.0	0.00%
1,3-Dichlorobenzene	541-73-1	4.0	U	4.0	U	4.0	0.00%
1,4-Dichlorobenzene	106-46-7	4.0	U	4.0	U	4.0	0.00%
Dichlorodifluoromethane	75-71-8	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethane	75-34-3	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethane	107-06-2	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethene	75-35-4	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (cis)	156-59-2	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (trans)	156-60-5	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloropropane	78-87-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (cis)	10061-01-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (trans)	10061-02-6	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	4.0	U	4.0	U	4.0	0.00%
Ethylbenzene	100-41-4	2.0	U	2.0	U	2.0	0.00%
4-Ethyltoluene	622-96-8	4.0	U	4.0	U	4.0	0.00%
n-Heptane	142-82-5	4.0	U	4.0	U	4.0	0.00%
1,3-Hexachlorobutadiene	87-68-3	4.0	U	4.0	U	4.0	0.00%
n-Hexane	110-54-3	4.0	U	4.0	U	4.0	0.00%
Methylene chloride	75-09-2	4.0	U	4.0	U	4.0	0.00%
Methyl ethyl ketone	78-93-3	**8.1**		**10**		4.0	**-20.99%**
Methyl isobutyl ketone	108-10-1	4.0	U	4.0	U	4.0	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	4.0	U	4.0	U	4.0	0.00%
Styrene	100-42-5	4.0	U	4.0	U	4.0	0.00%
Tert-butyl alcohol	75-65-0	4.0	U	4.0	U	4.0	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	4.0	U	4.0	U	4.0	0.00%
Tetrachloroethene	127-18-4	4.0	U	4.0	U	4.0	0.00%
Toluene	108-88-3	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trichlorobenzene	120-82-1	4.0	U	4.0	U	4.0	0.00%
1,1,1-Trichloroethane	71-55-6	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloroethane	79-00-5	4.0	U	4.0	U	4.0	0.00%
Trichloroethene	79-01-6	2.0	U	2.0	U	2.0	0.00%
Trichlorofluoromethane	75-69-4	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trimethylbenzene	95-63-6	4.0	U	4.0	U	4.0	0.00%
1,3,5-Trimethylbenzene	108-67-8	4.0	U	4.0	U	4.0	0.00%
2,2,4-Trimethylpentane	540-84-1	4.0	U	4.0	U	4.0	0.00%
Vinyl bromide	593-60-2	4.0	U	4.0	U	4.0	0.00%
Vinyl chloride	75-01-4	2.0	U	2.0	U	2.0	0.00%
Xylenes (m&p)	179601-23-1	4.0	U	**4.2**		4.0	**NC**
Xylenes (o)	95-47-6	4.0	U	4.0	U	4.0	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SDG Number:	E23-05079	Date Received:	11/20/23
IAL Sample ID:	E23-05079-03	Date Analyzed:	12/12/23,12/12/23
Matrix:	Air	Lab Data File#:	AA4929,AA4930
Summa ID:	3830	Dilution Factor:	1
		Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**6.1**		**5.9**		0.40	**3.33%**
Allyl Chloride	107-05-1	0.40	U	0.40	U	0.40	0.00%
Benzene	71-43-2	**0.31**		**0.32**		0.20	**-3.17%**
Bromodichloromethane	75-27-4	0.40	U	0.40	U	0.40	0.00%
Bromoform	75-25-2	0.40	U	0.40	U	0.40	0.00%
Bromomethane	74-83-9	0.40	U	0.40	U	0.40	0.00%
1,3-Butadiene	106-99-0	0.40	U	0.40	U	0.40	0.00%
Chlorobenzene	108-90-7	0.40	U	0.40	U	0.40	0.00%
Chloroethane	75-00-3	0.40	U	0.40	U	0.40	0.00%
Chloroform	67-66-3	0.40	U	0.40	U	0.40	0.00%
Chloromethane	74-87-3	0.40	U	0.40	U	0.40	0.00%
Carbon disulfide	75-15-0	0.40	U	0.40	U	0.40	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.40	U	0.40	U	0.40	0.00%
Cyclohexane	110-82-7	0.40	U	0.40	U	0.40	0.00%
Dibromochloromethane	124-48-1	0.40	U	0.40	U	0.40	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.40	U	0.40	U	0.40	0.00%
1,3-Dichlorobenzene	541-73-1	0.40	U	0.40	U	0.40	0.00%
1,4-Dichlorobenzene	106-46-7	0.40	U	0.40	U	0.40	0.00%
Dichlorodifluoromethane	75-71-8	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethane	75-34-3	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethane	107-06-2	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethene	75-35-4	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.40	U	0.40	U	0.40	0.00%
Ethylbenzene	100-41-4	0.20	U	0.20	U	0.20	0.00%
4-Ethyltoluene	622-96-8	0.40	U	0.40	U	0.40	0.00%
n-Heptane	142-82-5	0.40	U	0.40	U	0.40	0.00%
1,3-Hexachlorobutadiene	87-68-3	0.40	U	0.40	U	0.40	0.00%
n-Hexane	110-54-3	0.40	U	0.40	U	0.40	0.00%
Methylene chloride	75-09-2	**3.5**		**3.4**		0.40	**2.90%**
Methyl ethyl ketone	78-93-3	0.40	U	0.40	U	0.40	0.00%
Methyl isobutyl ketone	108-10-1	0.40	U	0.40	U	0.40	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/20/23
SDG Number:	E23-05079	Date Analyzed:	12/12/23,12/12/23
IAL Sample ID:	E23-05079-03	Lab Data File#:	AA4929,AA4930
Matrix:	Air	Dilution Factor:	1
Summa ID:	3830	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	0.40	U	0.40	U	0.40	0.00%
Styrene	100-42-5	0.40	U	0.40	U	0.40	0.00%
Tert-butyl alcohol	75-65-0	0.40	U	0.40	U	0.40	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.40	U	0.40	U	0.40	0.00%
Tetrachloroethene	127-18-4	0.40	U	0.40	U	0.40	0.00%
Toluene	108-88-3	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trichlorobenzene	120-82-1	0.40	U	0.40	U	0.40	0.00%
1,1,1-Trichloroethane	71-55-6	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloroethane	79-00-5	0.40	U	0.40	U	0.40	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trimethylbenzene	95-63-6	0.40	U	0.40	U	0.40	0.00%
1,3,5-Trimethylbenzene	108-67-8	0.40	U	0.40	U	0.40	0.00%
2,2,4-Trimethylpentane	540-84-1	0.40	U	0.40	U	0.40	0.00%
Vinyl bromide	593-60-2	0.40	U	0.40	U	0.40	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	0.40	U	0.40	U	0.40	0.00%
Xylenes (o)	95-47-6	0.40	U	0.40	U	0.40	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

Initial Calibration Curve Internal Standard Area and Retention Time Summary

Instrument: AA **ICAL Date:** 8/15/2023

		BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
		Area #		RT		Area #		RT		Area #		RT	
AVERAGE OF CALIBRATION STANDARDS		520465		4.395		2280663		5.455		2627605		8.318	
UPPER LIMIT		728651		4.725		3192928		5.785		3678646		8.648	
LOWER LIMIT		312279		4.065		1368398		5.125		1576563		7.988	
Lab ID		Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
40 PPBV STD	AA 3406 STD01	487271	-6.38	4.406	0.01	2425798	6.36	5.457	0.00	2732166	3.98	8.319	0.00
20 PPBV STD	AA 3405 STD02	499473	-4.03	4.399	0.00	2278768	-0.08	5.457	0.00	2812211	7.03	8.319	0.00
10 PPBV STD	AA 3404 STD03	530723	1.97	4.396	0.00	2268530	-0.53	5.457	0.00	2737620	4.19	8.319	0.00
2 PPBV STD	AA 3403 STD04	541075	3.96	4.393	0.00	2325427	1.96	5.454	0.00	2787489	6.08	8.319	0.00
0.2 PPBV STD	AA 3402 STD05	543782	4.48	4.380	-0.01	2104790	-7.71	5.448	0.01	2068537	-21.28	8.316	0.00
ICVSS	AA 3407 ICVSS	614925	18.15	4.396	0.00	2660514	16.66	5.454	0.00	3151139	19.92	8.319	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.

* Values outsite QC limits.

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA4072DCVS **Date Analyzed:** 9/28/2023

Instrument: AA **ICAL Date:** 8/15/2023

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
			Area #		RT		Area #		RT		Area #		RT	
	CALIBRATION STANDARD		394533		4.399		1846241		5.457		1956014		8.319	
	UPPER LIMIT		552346		4.73		2584737		5.79		2738420		8.65	
	LOWER LIMIT		236720		4.07		1107745		5.13		1173608		7.99	
Lab ID		DF	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Method Blank	AA4074BLK	1.0	502187	27.29	4.393	-0.01	2139413	15.88	5.454	0.00	2500606	27.84	8.319	0.00
Reporting Limit Laboratory Control Standard	AA4075RLLCS	1.0	400577	1.53	4.380	-0.02	1566223	-15.17	5.447	-0.01	1477412	-24.47	8.316	0.00
2164	AA4076	1.0	481338	22.00	4.393	-0.01	2110781	14.33	5.454	0.00	2516144	28.64	8.319	0.00
4870	AA4077	1.0	360790	-8.55	4.383	-0.02	1388747	-24.78	5.447	-0.01	1279774	-34.57	8.316	0.00
2160	AA4078	1.0	361668	-8.33	4.380	-0.02	1313235	-28.87	5.448	-0.01	1248229	-36.19	8.316	0.00
Closing Calibration	AA4093CCCVS	1.0	393835	-0.18	4.399	0.00	1857833	0.63	5.457	0.00	2315299	18.37	8.319	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.
* Values outsite QC limits.

Initial Calibration Curve Internal Standard Area and Retention Time Summary

Instrument: AA **ICAL Date:** 10/10/2023

	BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
	Area #		RT		Area #		RT		Area #		RT	
AVERAGE OF CALIBRATION STANDARDS	343159		4.390		1499624		5.451		1637040		8.316	
UPPER LIMIT	480423		4.720		2099474		5.781		2291856		8.646	
LOWER LIMIT	205896		4.060		899774		5.121		982224		7.986	
Lab ID	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
40 PPBV STD AA 4136 STD01	356266	3.82	4.400	0.01	1769398	17.99	5.458	-0.01	1970985	20.40	8.319	0.00
20 PPBV STD AA 4135 STD02	363381	5.89	4.397	0.01	1661895	10.82	5.455	0.00	1933627	18.12	8.316	0.00
10 PPBV STD AA 4134 STD03	393970	14.81	4.394	0.00	1695876	13.09	5.452	0.00	1964329	19.99	8.316	0.00
2 PPBV STD AA 4133 STD04	266219	-22.42	4.378	-0.01	1004403	-33.02	5.445	0.01	1028709	-37.16	8.313	0.00
0.2 PPBV STD AA 4132 STD05	335961	-2.10	4.380	-0.01	1366548	-8.87	5.444	0.01	1287551	-21.35	8.316	0.00
ICVSS AA 4137 ICVSS	450439	31.26	4.394	0.00	1936760	29.15	5.451	0.00	2279414	39.24	8.316	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.

* Values outsite QC limits.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA4902DCVS **Date Analyzed:** 12/11/2023

Instrument: AA **ICAL Date:** 10/10/2023

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
			Area #		RT		Area #		RT		Area #		RT	
	CALIBRATION STANDARD		596109		4.393		2484518		5.454		2791354		8.319	
	UPPER LIMIT		834553		4.72		3478325		5.78		3907896		8.65	
	LOWER LIMIT		357665		4.06		1490711		5.12		1674812		7.99	
Lab ID		DF	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Method Blank	AA4904BLK	1.0	518939	-12.95	4.377	-0.02	1920464	-22.70	5.444	-0.01	1920350	-31.20	8.315	0.00
Reporting Limit Laboratory Control Standard	AA4905RLLCS	1.0	566007	-5.05	4.380	-0.01	2290490	-7.81	5.447	-0.01	2210970	-20.79	8.315	0.00
1458	AA4906	1.0	809785	35.85	4.393	0.00	3431480	38.11	5.451	0.00	3836872	37.46	8.316	0.00
1588	AA4907	1.0	706799	18.57	4.393	0.00	3079067	23.93	5.454	0.00	3708162	32.84	8.316	0.00
3012	AA4908	1.0	589784	-1.06	4.380	-0.01	2099848	-15.48	5.444	-0.01	2006025	-28.13	8.316	0.00
E23-05081-01	AA4916	5.0	518793	-12.97	4.402	0.01	2789837	12.29	5.457	0.00	3170366	13.58	8.319	0.00
E23-05081-01	AA4917	1.0	454287	-23.79	4.409	0.02	2219413	-10.67	5.451	0.00	1989521	-28.73	8.319	0.00
E23-05081-02	AA4919	1.0	480922	-19.32	4.415	0.02	2600665	4.67	5.457	0.00	2272991	-18.57	8.322	0.00
E23-05081-03	AA4920	5.0	514731	-13.65	4.406	0.01	2776988	11.77	5.457	0.00	3081592	10.40	8.319	0.00
E23-05081-03	AA4921	1.0	460173	-22.80	4.419	0.03	2604286	4.82	5.457	0.00	2267933	-18.75	8.322	0.00
E23-05081-04	AA4922	5.0	536382	-10.02	4.403	0.01	2778333	11.83	5.454	0.00	3352079	20.09	8.316	0.00
E23-05081-04	AA4923	1.0	495105	-16.94	4.412	0.02	2648087	6.58	5.457	0.00	2297485	-17.69	8.322	0.00

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA4902DCVS **Date Analyzed:** 12/11/2023

Instrument: AA **ICAL Date:** 10/10/2023

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLOROBENZENE			
			Area #		RT		Area #		RT		Area #		RT	
	CALIBRATION STANDARD		596109		4.393		2484518		5.454		2791354		8.319	
	UPPER LIMIT		834553		4.72		3478325		5.78		3907896		8.65	
	LOWER LIMIT		357665		4.06		1490711		5.12		1674812		7.99	
Lab ID		DF	Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Closing Calibration	AA4931CCCVS	1.0	737975	23.80	4.393	0.00	3126526	25.84	5.454	0.00	3543265	26.94	8.316	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.
* Values outsite QC limits.

Section VI: Sample Data Summary

Certificate of Analysis

Summary of Results

Quantitation Reports, Chromatograms,
and Peak Integration Reports

CERTIFICATE OF ANALYSIS

ANALYTICAL DATA PACKAGE FOR THE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY NEW YORK 12233

Integrated Analytical Laboratories, LLC — **Randolph, NJ 07869**
Project#: HK2661.2 — **NY ELAP Certification#: 11402**
SDG #: E23-05081 — **NJDEP (Primary AB) Certification#: 14751**
Date of first sample receipt: 11/20/2023 — **Date of last sample receipt: 11/20/2023**

Client: HK Engineering+Geology, D.P.C.
1600 US Route 22 East
Union, NJ 07083
Attention: Attention: Chris Hirschmann

Project/Site: HK2661.2/NY

Analysis conducted at: Integrated Analytical Laboratories, LLC
273 Franklin Road
Randolph, NJ 07869
Contact: Michael H. Leftin, Ph.D.

Sample(s):
E23-05081-01
E23-05081-02
E23-05081-03
E23-05081-04

Samples for this analysis were received in good condition with a chain of custody.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Once analysis has been performed on canisters that meets regulatory criteria, samples are recycled for future use, unless other provisions have been made by the client.

Michael H. Leftin, Ph.D.
Laboratory Director

Date: December 20, 2023

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05081-01	Instrument ID:	AA
Client ID:	SV1	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/17/2023 07:45	Injection Volmue:	500ml, 100ml
Date Received:	11/20/2023	Matrix:	Air-Other
Date Analyzed:	12/11/2023 18:47, 12/11/2023 18:15	% Moisture:	NA
Data File:	AA4917, AA4916	Dilution Factor:	1, 5
Summa ID:	5073	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Acetone	67-64-1		20	46	0.20	0.48
Benzene	71-43-2		0.82	2.6	0.20	0.64
Bromodichloromethane	75-27-4		ND	ND	0.20	1.3
Bromoform	75-25-2		ND	ND	0.20	2.1
Bromomethane	74-83-9		ND	ND	0.20	0.78
1,3-Butadiene	106-99-0		ND	ND	0.20	0.44
Chlorobenzene	108-90-7		ND	ND	0.20	0.92
Chloroethane	75-00-3		ND	ND	0.20	0.53
Chloroform	67-66-3		1.8	8.7	0.20	0.98
Chloromethane	74-87-3		ND	ND	0.20	0.41
Carbon disulfide	75-15-0		2.0	6.2	0.20	0.62
Carbon tetrachloride	56-23-5		ND	ND	0.040	0.25
Cyclohexane	110-82-7		0.85	2.9	0.20	0.69
Dibromochloromethane	124-48-1		ND	ND	0.20	1.7
1,2-Dibromoethane	106-93-4		ND	ND	0.20	1.5
1,2-Dichlorobenzene	95-50-1		ND	ND	0.20	1.2
1,3-Dichlorobenzene	541-73-1		ND	ND	0.20	1.2
1,4-Dichlorobenzene	106-46-7		ND	ND	0.20	1.2
Dichlorodifluoromethane	75-71-8		ND	ND	0.20	0.99
1,1-Dichloroethane	75-34-3		ND	ND	0.20	0.81
1,2-Dichloroethane	107-06-2		ND	ND	0.20	0.81
1,1-Dichloroethene	75-35-4		ND	ND	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2		ND	ND	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5		ND	ND	0.20	0.79
1,2-Dichloropropane	78-87-5		ND	ND	0.20	0.92
1,3-Dichloropropene (cis)	10061-01-5		ND	ND	0.20	0.91
1,3-Dichloropropene (trans)	10061-02-6		ND	ND	0.20	0.91
1,2-Dichlorotetrafluoroethane	76-14-2		ND	ND	0.20	1.4
1,4-Dioxane	123-91-1		ND	ND	0.20	0.72
Ethylbenzene	100-41-4	D	65	280	1.0	4.3
n-Heptane	142-82-5		2.9	12	0.20	0.82
1,3-Hexachlorobutadiene	87-68-3		ND	ND	0.20	2.1
n-Hexane	110-54-3		ND	ND	0.20	0.70
Methylene chloride	75-09-2		ND	ND	0.20	0.69
Methyl ethyl ketone	78-93-3		2.0	5.8	0.20	0.59
Methyl isobutyl ketone	108-10-1		ND	ND	0.20	0.82
Methyl tert-butyl ether	1634-04-4		ND	ND	0.20	0.72
Styrene	100-42-5		0.44	1.9	0.20	0.85
Tert-butyl alcohol	75-65-0		8.0	24	0.20	0.61
1,1,2,2-Tetrachloroethane	79-34-5		ND	ND	0.20	1.4
Tetrachloroethene	127-18-4		6.4	43	0.20	1.4
Toluene	108-88-3		2.2	8.2	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1		ND	ND	0.20	1.5
1,1,1-Trichloroethane	71-55-6		ND	ND	0.20	1.1
1,1,2-Trichloroethane	79-00-5		ND	ND	0.20	1.1

Qualifiers:
D = Dilution required

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05081-01	Instrument ID:	AA
Client ID:	SV1	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/17/2023 07:45	Injection Volmue:	500ml, 100ml
Date Received:	11/20/2023	Matrix:	Air-Other
Date Analyzed:	12/11/2023 18:47, 12/11/2023 18:15	% Moisture:	NA
Data File:	AA4917, AA4916	Dilution Factor:	1, 5
Summa ID:	5073	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Trichloroethene	79-01-6		ND	ND	0.046	0.25
Trichlorofluoromethane	75-69-4		0.31	1.7	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		ND	ND	0.20	1.5
1,2,4-Trimethylbenzene	95-63-6		1.4	6.7	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8		0.45	2.2	0.20	0.98
2,2,4-Trimethylpentane	540-84-1		ND	ND	0.20	0.93
Vinyl bromide	593-60-2		ND	ND	0.20	0.87
Vinyl chloride	75-01-4		ND	ND	0.20	0.51
Xylenes (m&p)	179601-23-1	D	240	1000	1.0	4.3
Xylenes (o)	95-47-6	D	50	220	1.0	4.3

Qualifiers:
D = Dilution required

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4917.D
Acq On : 11 Dec 2023 6:47 pm
Operator : jjw
Sample : E23-05081-01
Misc : 5073, 500cc
ALS Vial : 20 Sample Multiplier: 1

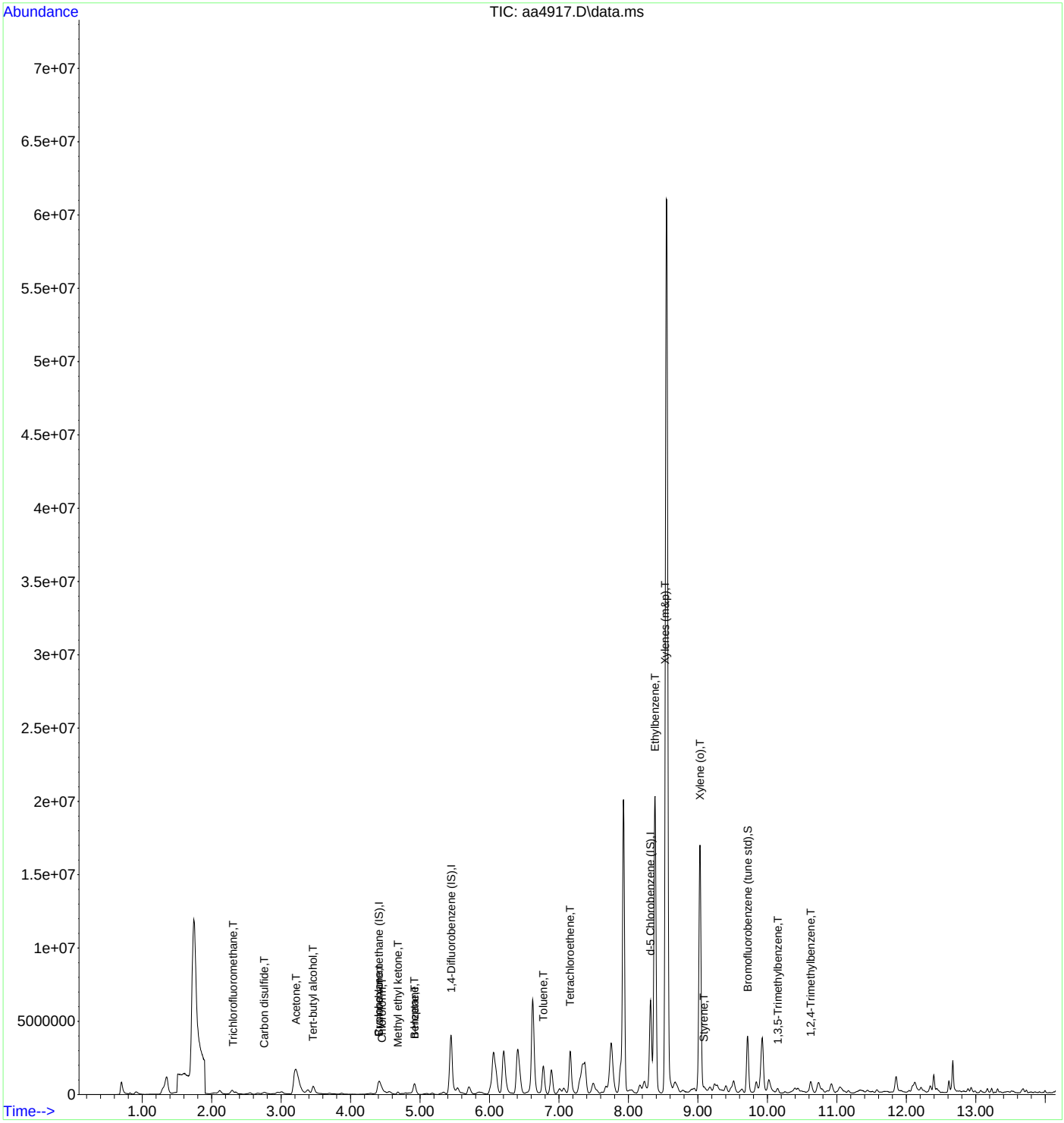
Quant Time: Dec 12 10:55:20 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

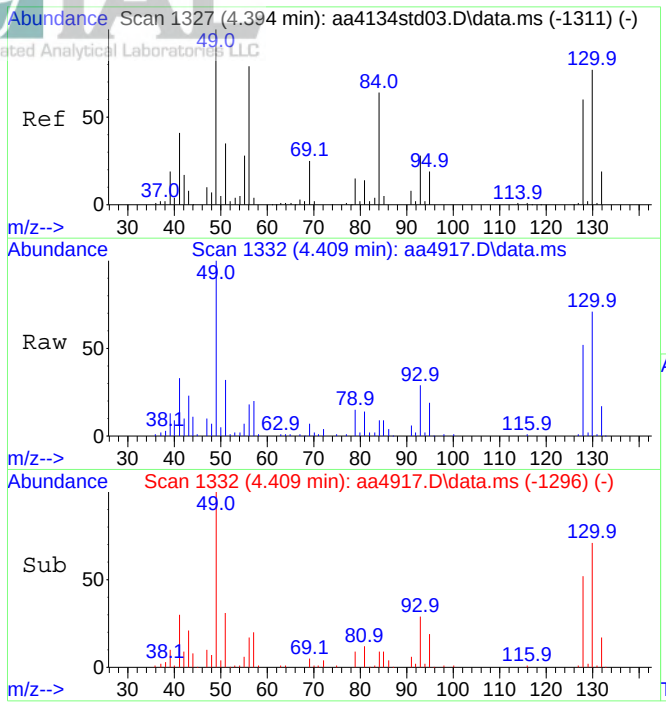
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.409	130	454287	10.00	ppbV	0.015
39) 1,4-Difluorobenzene (IS)	5.451	114	2219413	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1989521	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	1666637	9.61	ppbV	0.000
Target Compounds						Qvalue
12) Trichlorofluoromethane	2.309	101	39545	0.31	ppbV	94
15) Carbon disulfide	2.756	76	278085	2.00	ppbV #	89
21) Acetone	3.216	43	1340526	19.56	ppbV	98
26) Tert-butyl alcohol	3.460	59	952941	8.05	ppbV	100
29) Cyclohexane	4.406	56	84792	0.85	ppbV #	68
30) Chloroform	4.454	83	215809	1.78	ppbV	97
35) Methyl ethyl ketone	4.682	43	219859	1.98	ppbV	98
36) n-Heptane	4.917	43	363051	2.89	ppbV	97
37) Benzene	4.923	78	147494	0.82	ppbV #	87
47) Toluene	6.775	91	678167	2.17	ppbV	100
49) Tetrachloroethene	7.161	166	854931	6.36	ppbV	99
58) Ethylbenzene	8.383	91	18486538	50.42	ppbV	98
59) Xylenes (m&p)	8.528	91	29738951	109.47	ppbV #	56
60) Xylene (o)	9.029	91	12584226	42.46	ppbV	99
61) Styrene	9.087	104	89857	0.44	ppbV	86
69) 1,3,5-Trimethylbenzene	10.152	105	156189	0.45	ppbV	99
70) 1,2,4-Trimethylbenzene	10.624	105	467714	1.36	ppbV	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4917.D
Acq On : 11 Dec 2023 6:47 pm
Operator : jjw
Sample : E23-05081-01
Misc : 5073, 500cc
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Dec 12 10:55:20 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

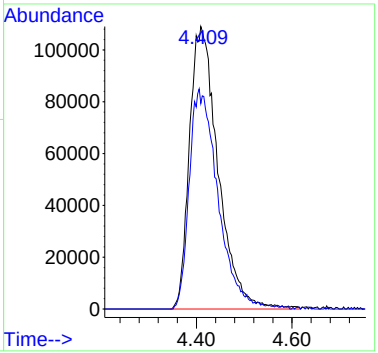


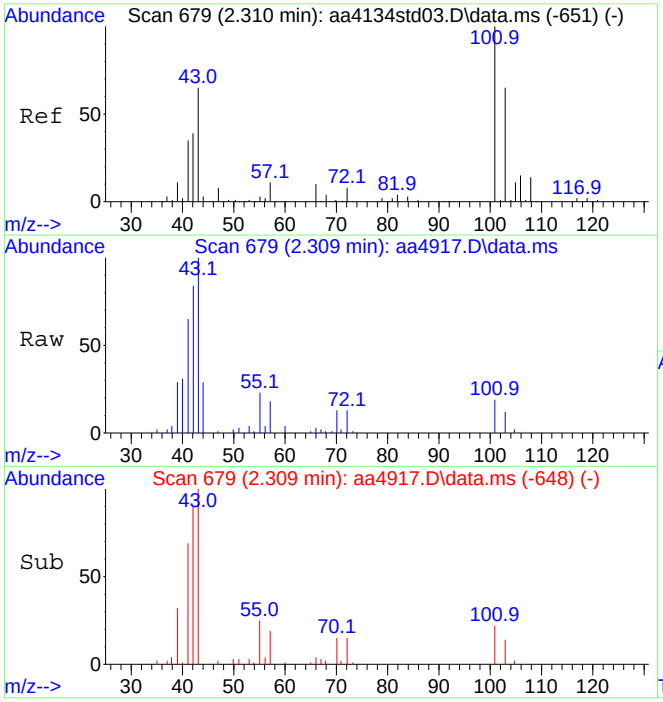


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.409 min Scan# 1332
Delta R.T. 0.015 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion:130 Resp: 454287

Ion	Ratio	Lower	Upper
130	100		
128	77.9	62.2	93.4

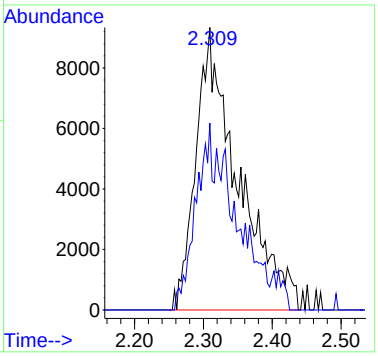


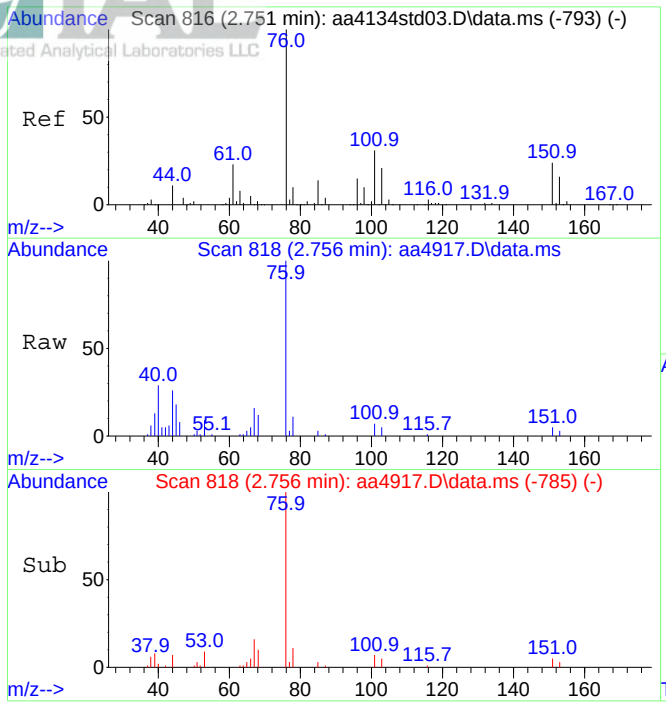


#12
Trichlorofluoromethane
Concen: 0.31 ppbV
RT: 2.309 min Scan# 679
Delta R.T. -0.001 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion:101 Resp: 39545

Ion	Ratio	Lower	Upper
101	100		
103	61.0	52.5	78.7

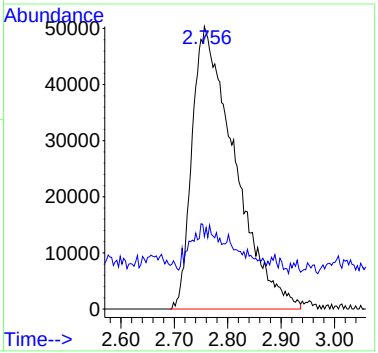


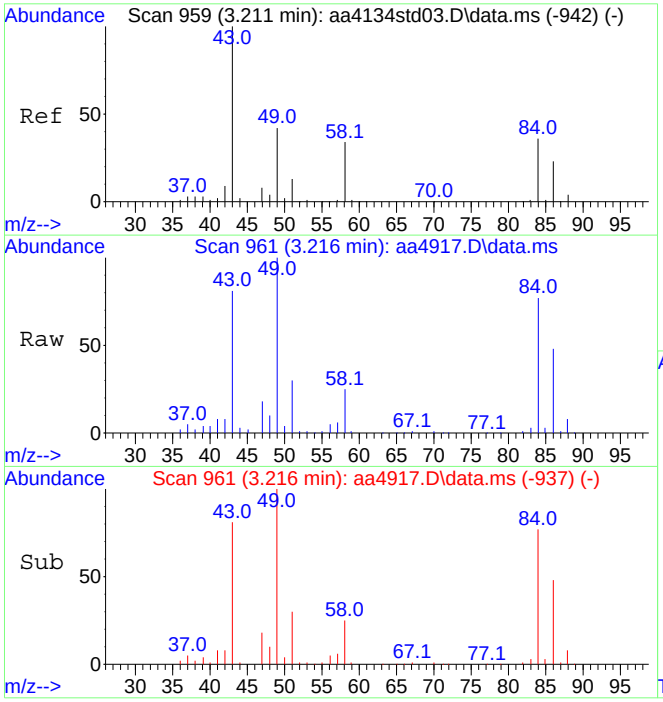


#15
Carbon disulfide
Concen: 2.00 ppbV
RT: 2.756 min Scan# 818
Delta R.T. 0.006 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion: 76 Resp: 278085

Ion	Ratio	Lower	Upper
76	100		
44	15.5	9.0	13.4#

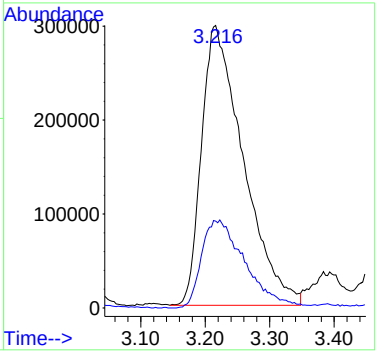


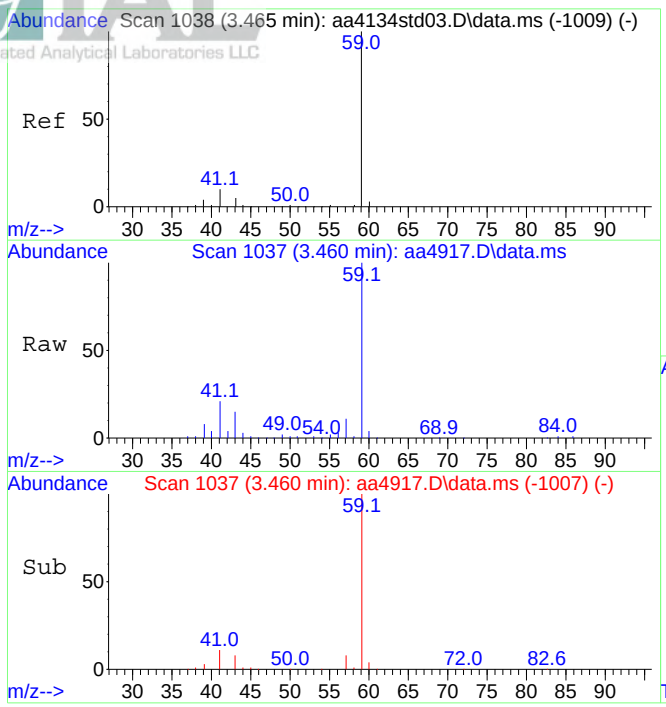


#21
Acetone
Concen: 19.56 ppbV
RT: 3.216 min Scan# 961
Delta R.T. 0.006 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion: 43 Resp: 1340526

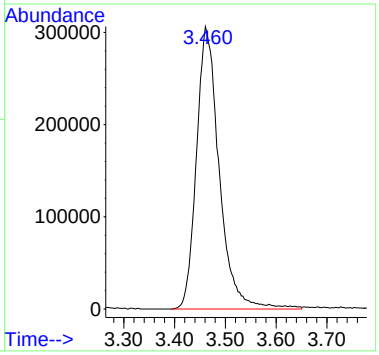
Ion	Ratio	Lower	Upper
43	100		
58	33.0	27.1	40.7

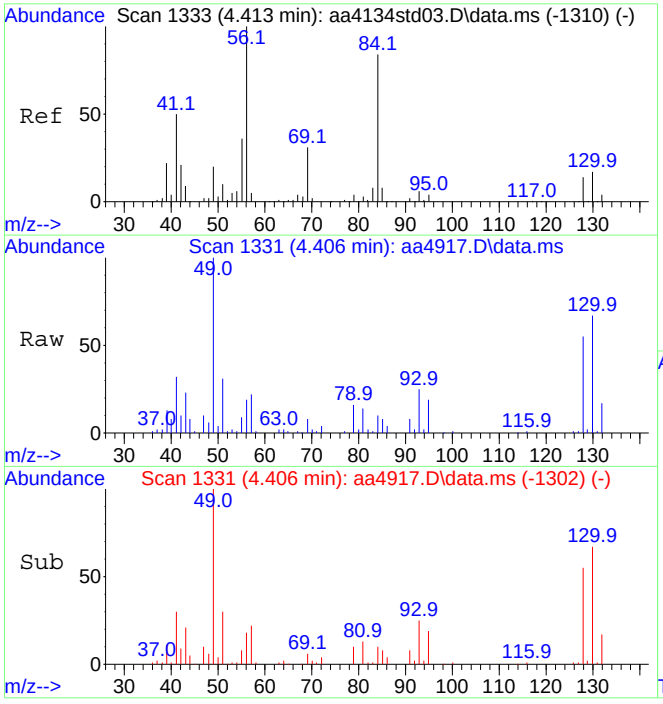




#26
Tert-butyl alcohol
Concen: 8.05 ppbV
RT: 3.460 min Scan# 1037
Delta R.T. -0.005 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion: 59 Resp: 952941

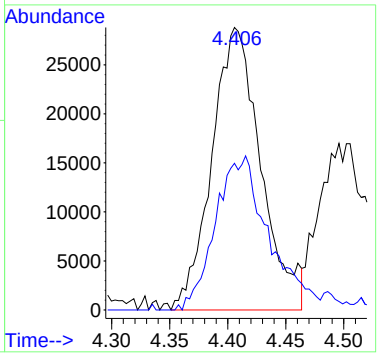


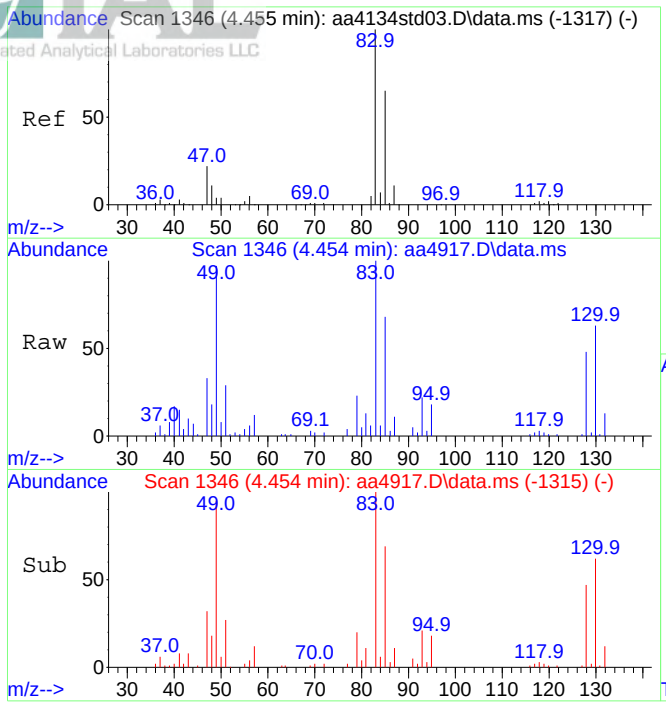


#29
Cyclohexane
Concen: 0.85 ppbV
RT: 4.406 min Scan# 1331
Delta R.T. -0.007 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion: 56 Resp: 84792

Ion	Ratio	Lower	Upper
56	100		
84	59.1	71.2	106.8#

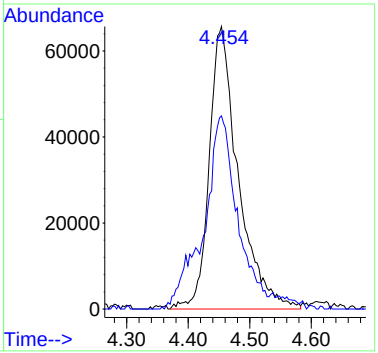


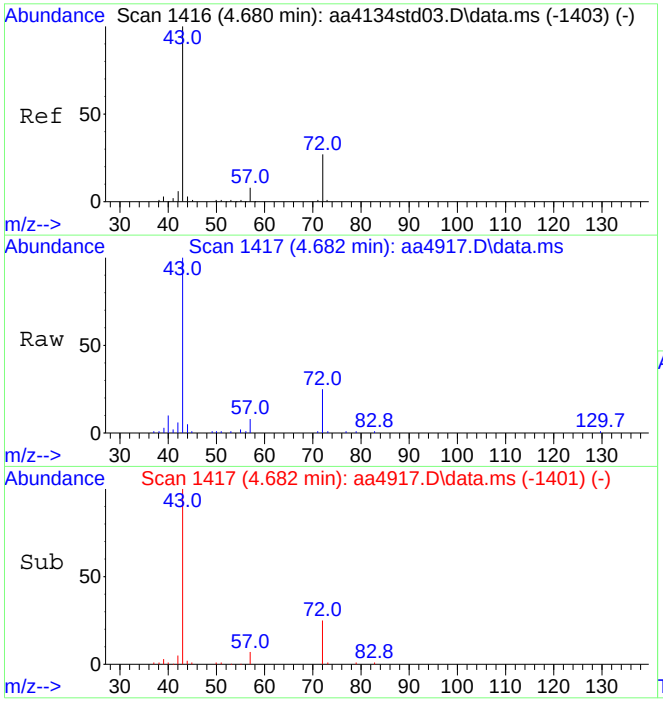


#30
Chloroform
Concen: 1.78 ppbV
RT: 4.454 min Scan# 1346
Delta R.T. -0.001 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion: 83 Resp: 215809

Ion	Ratio	Lower	Upper
83	100		
85	69.8	53.9	80.9

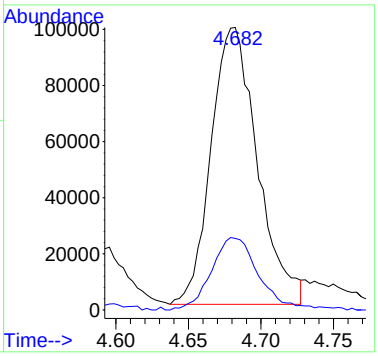


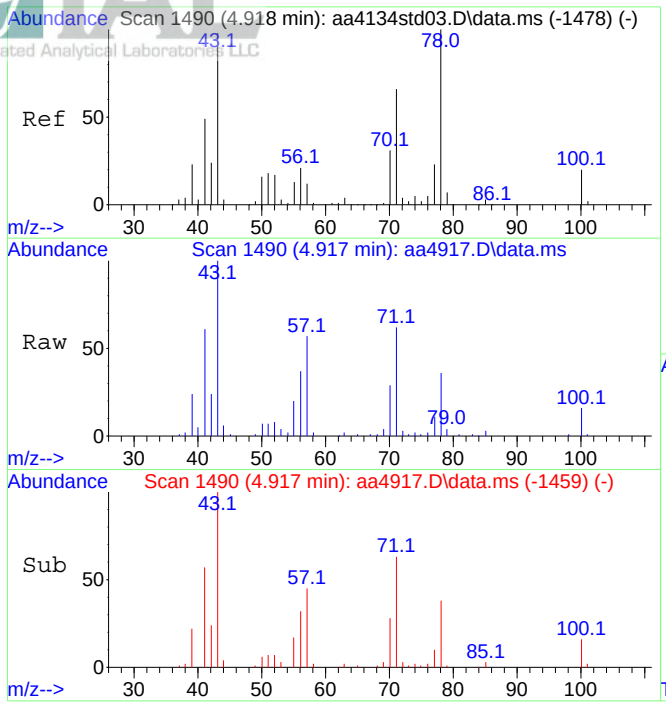


#35
Methyl ethyl ketone
Concen: 1.98 ppbV
RT: 4.682 min Scan# 1417
Delta R.T. 0.002 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion: 43 Resp: 219859

Ion	Ratio	Lower	Upper
43	100		
72	25.9	21.6	32.4

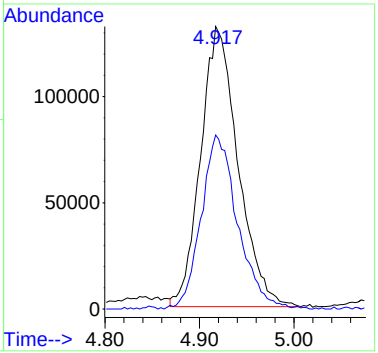


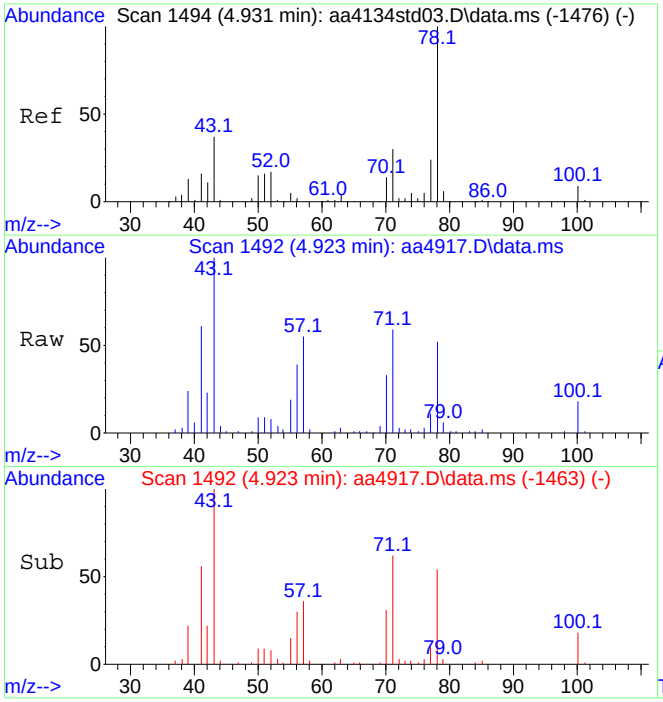


#36
n-Heptane
Concen: 2.89 ppbV
RT: 4.917 min Scan# 1490
Delta R.T. -0.001 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion: 43 Resp: 363051

Ion	Ratio	Lower	Upper
43	100		
71	60.6	50.5	75.7

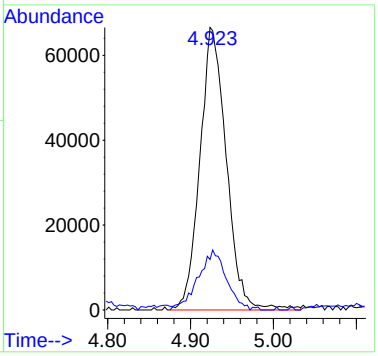


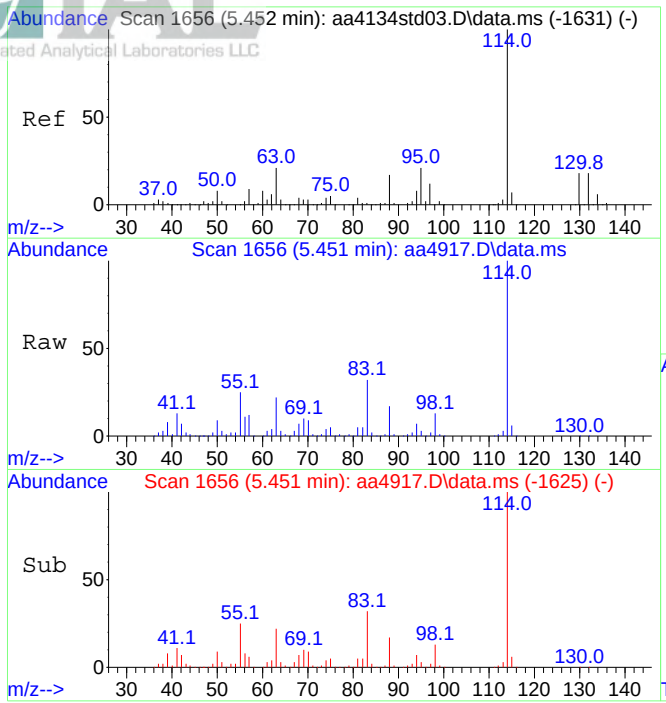


#37
Benzene
Concen: 0.82 ppbV
RT: 4.923 min Scan# 1492
Delta R.T. -0.007 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion: 78 Resp: 147494

Ion	Ratio	Lower	Upper
78	100		
51	22.4	13.4	20.0#

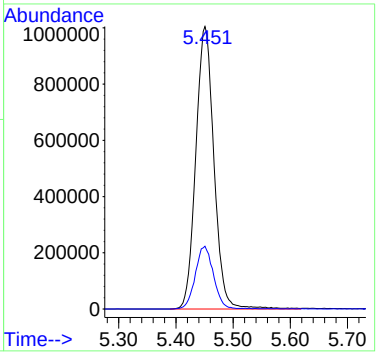


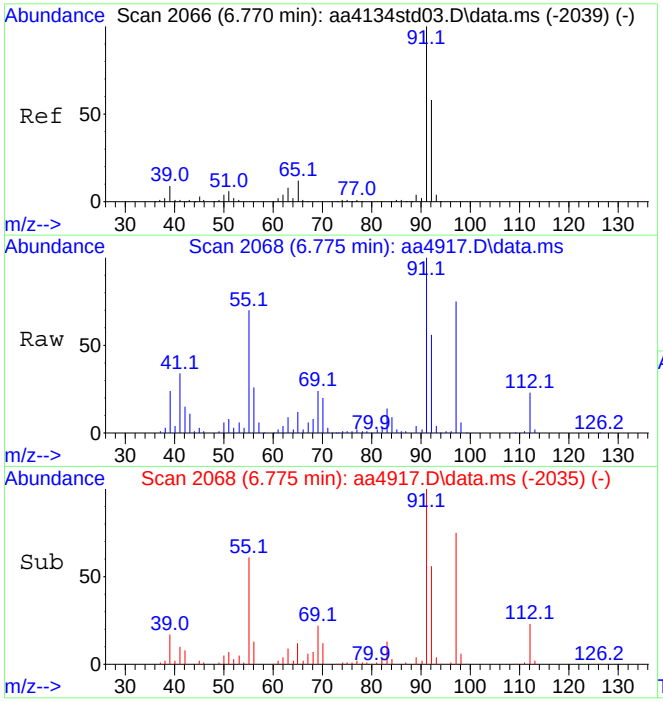


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.451 min Scan# 1656
Delta R.T. -0.001 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion:114 Resp: 2219413

Ion	Ratio	Lower	Upper
114	100		
63	22.5	17.0	25.6

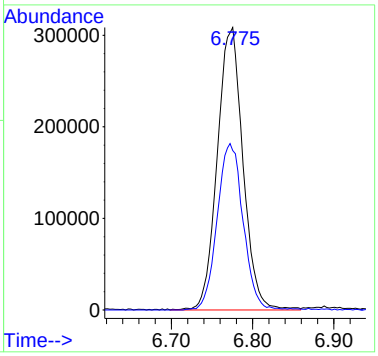


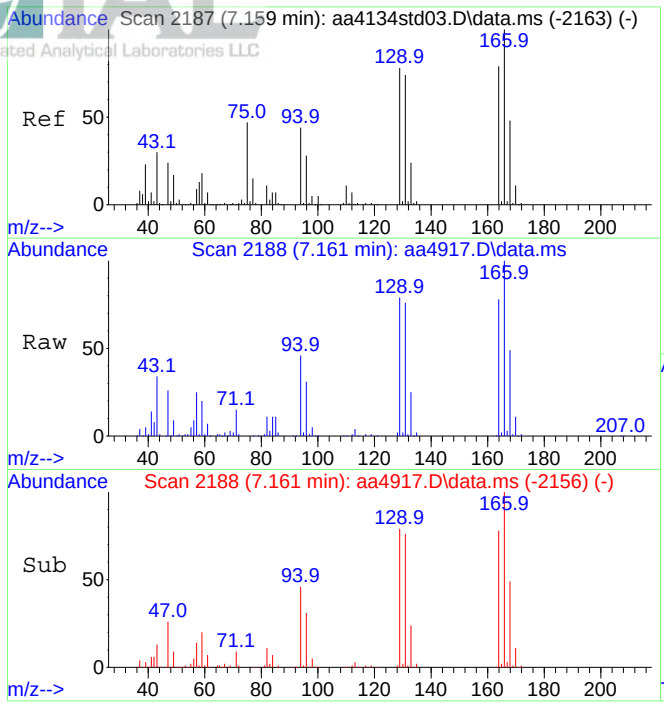


#47
Toluene
Concen: 2.17 ppbV
RT: 6.775 min Scan# 2068
Delta R.T. 0.006 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion: 91 Resp: 678167

Ion	Ratio	Lower	Upper
91	100		
92	59.4	47.3	70.9

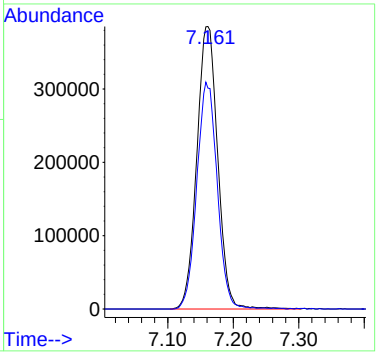


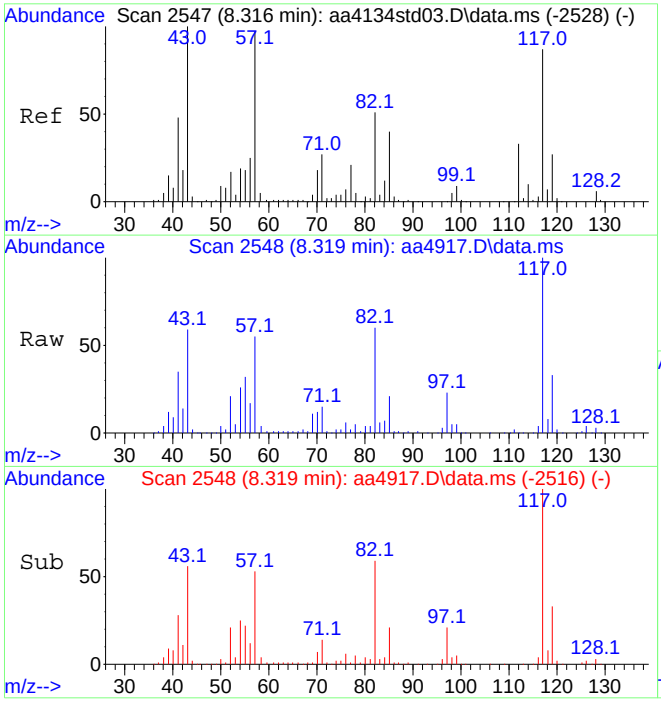


#49
Tetrachloroethene
Concen: 6.36 ppbV
RT: 7.161 min Scan# 2188
Delta R.T. 0.002 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion:166 Resp: 854931

Ion	Ratio	Lower	Upper
166	100		
164	78.6	62.3	93.5

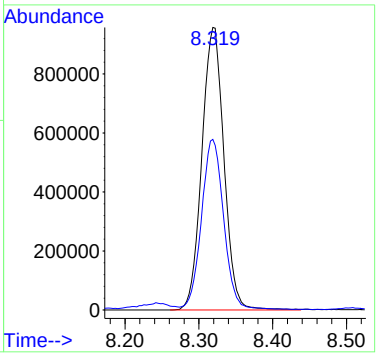


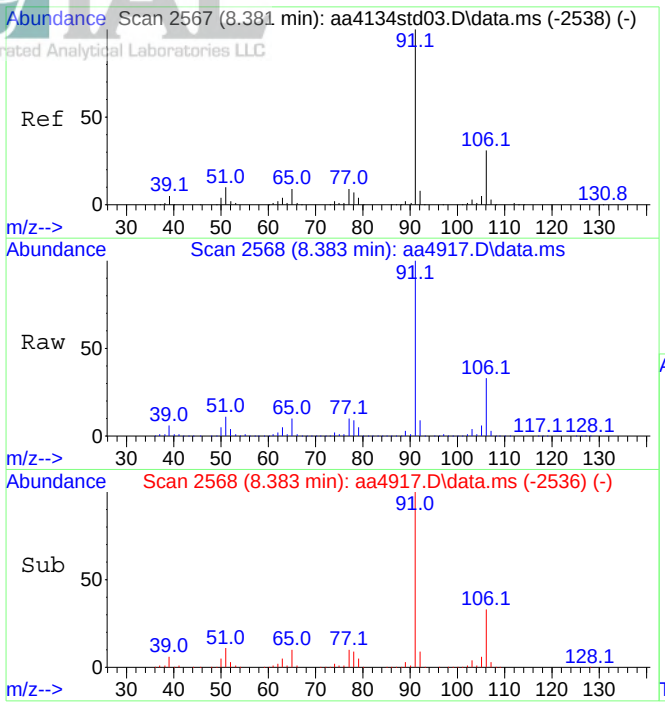


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion:117 Resp: 1989521

Ion	Ratio	Lower	Upper
117	100		
82	60.4	47.0	70.4

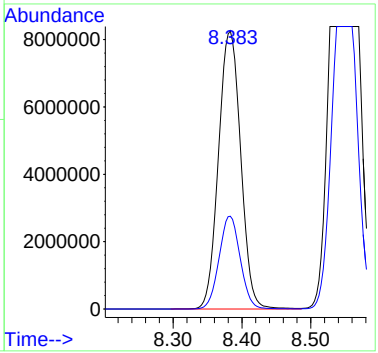


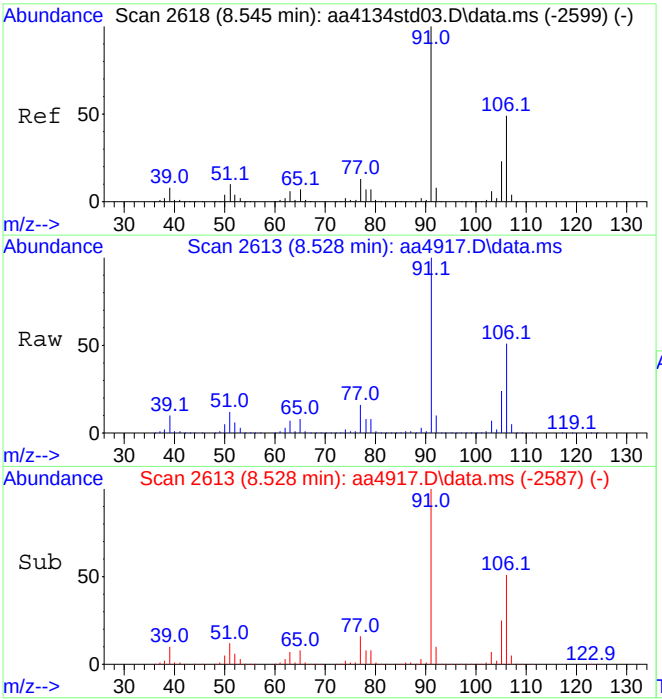


#58
Ethylbenzene
Concen: 50.42 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion: 91 Resp:18486538

Ion	Ratio	Lower	Upper
91	100		
106	31.9	24.6	36.8

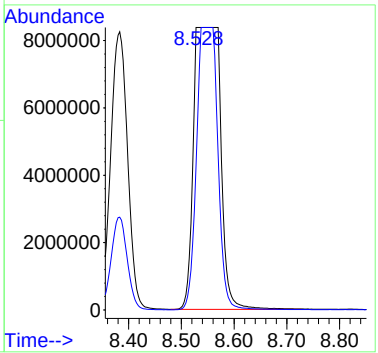


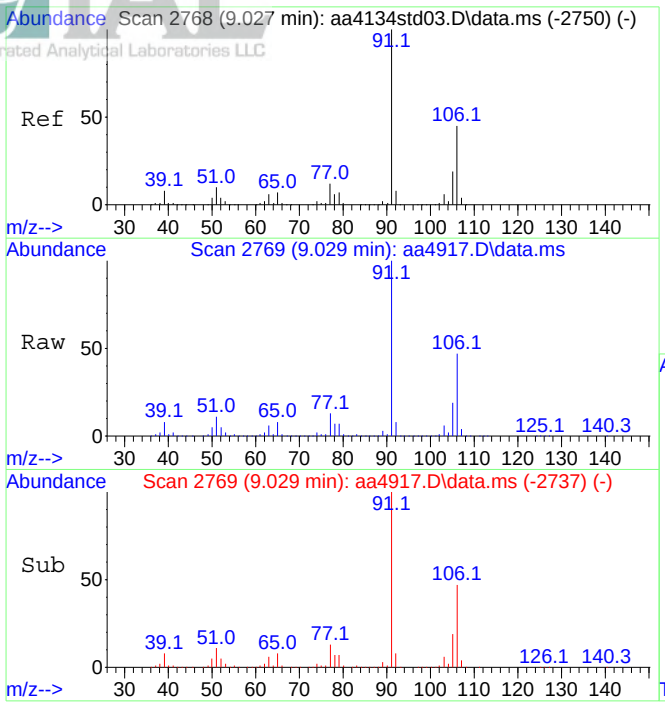


#59
Xylenes (m&p)
Concen: 109.47 ppbV
RT: 8.528 min Scan# 2613
Delta R.T. -0.017 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion: 91 Resp:29738951

Ion	Ratio	Lower	Upper
91	100		
106	78.3	39.0	58.4#

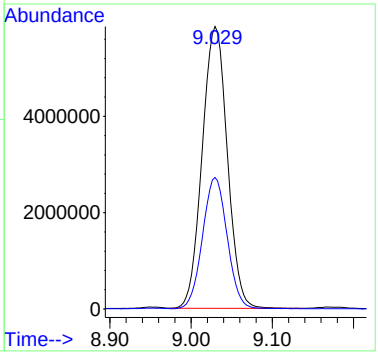


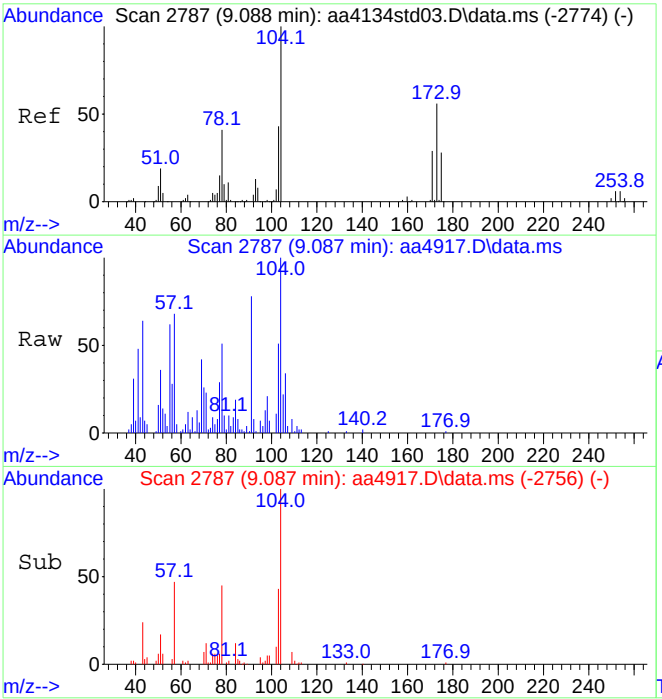


#60
Xylene (o)
Concen: 42.46 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion: 91 Resp:12584226

Ion	Ratio	Lower	Upper
91	100		
106	45.6	36.8	55.2

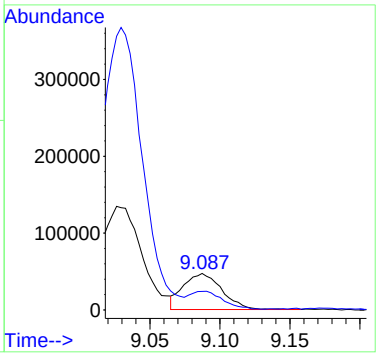


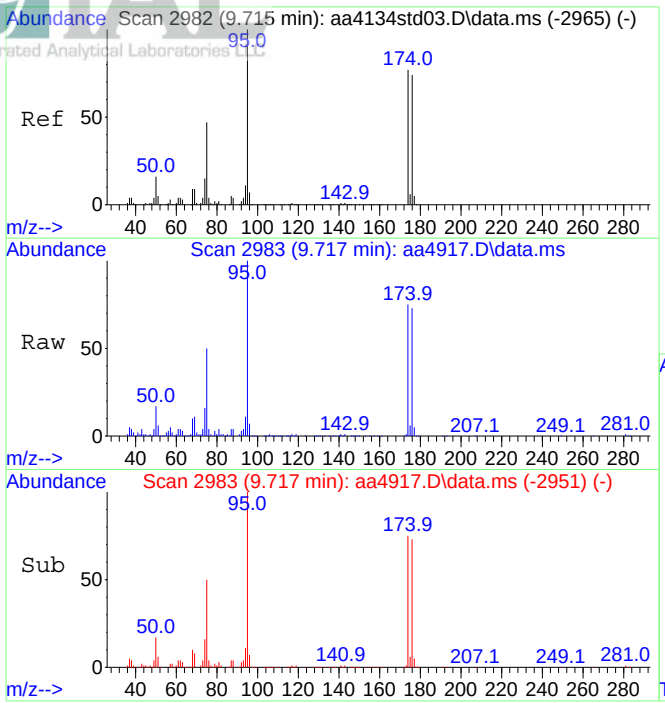


#61
Styrene
Concen: 0.44 ppbV
RT: 9.087 min Scan# 2787
Delta R.T. -0.001 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion:104 Resp: 89857

Ion	Ratio	Lower	Upper
104	100		
103	38.1	37.8	56.6

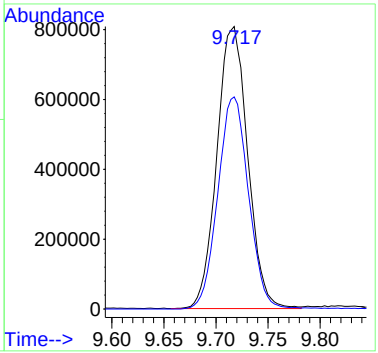


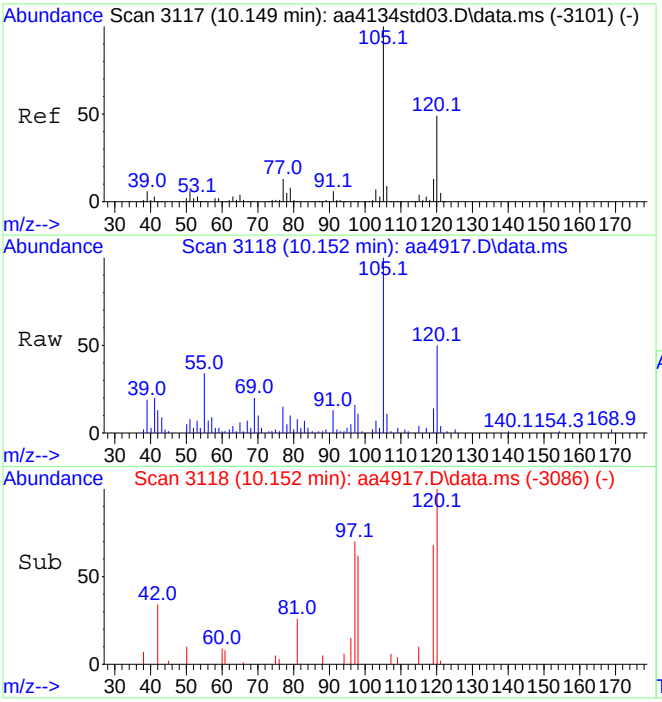


#64
Bromofluorobenzene (tune std)
Concen: 9.61 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion: 95 Resp: 1666637

Ion	Ratio	Lower	Upper
95	100		
174	75.3	61.1	91.7

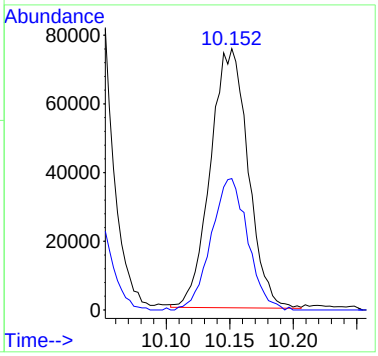


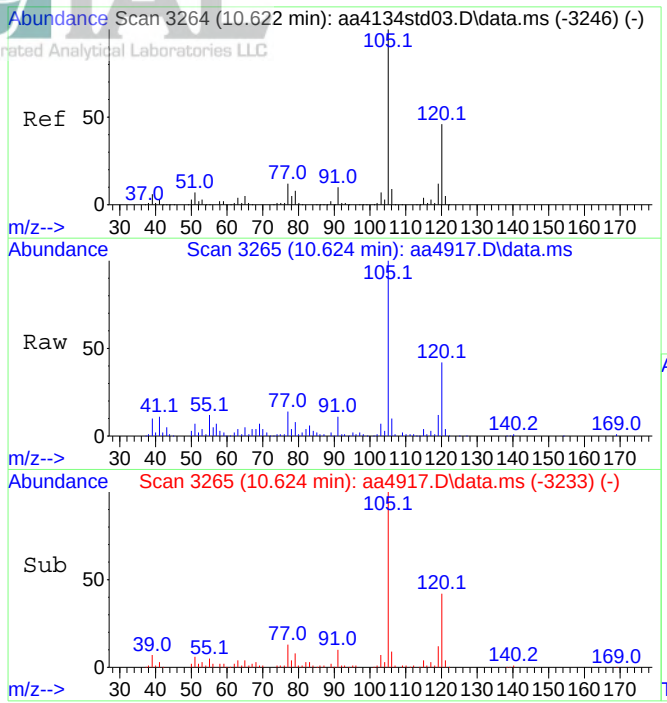


#69
1,3,5-Trimethylbenzene
Concen: 0.45 ppbV
RT: 10.152 min Scan# 3118
Delta R.T. 0.002 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion:105 Resp: 156189

Ion	Ratio	Lower	Upper
105	100		
120	49.2	38.9	58.3

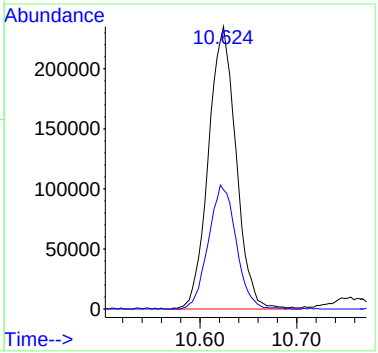




#70
1,2,4-Trimethylbenzene
Concen: 1.36 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4917.D
Acq: 11 Dec 2023 6:47 pm

Tgt Ion:105 Resp: 467714

Ion	Ratio	Lower	Upper
105	100		
120	44.0	36.3	54.5



Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4916.D
Acq On : 11 Dec 2023 6:15 pm
Operator : jjw
Sample : E23-05081-01x5 dil
Misc : 5073, 100cc
ALS Vial : 19 Sample Multiplier: 1

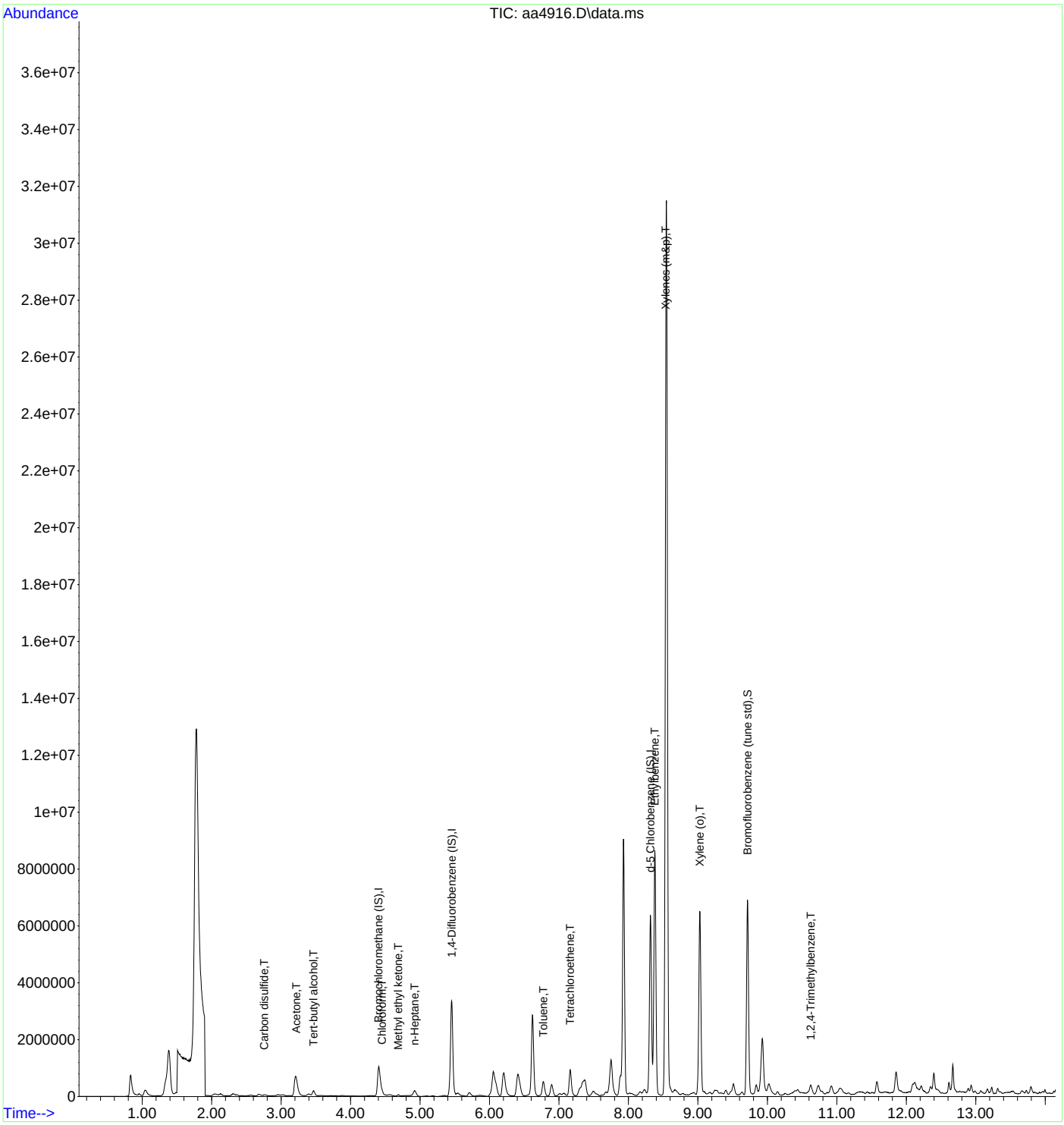
Quant Time: Dec 12 10:57:17 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

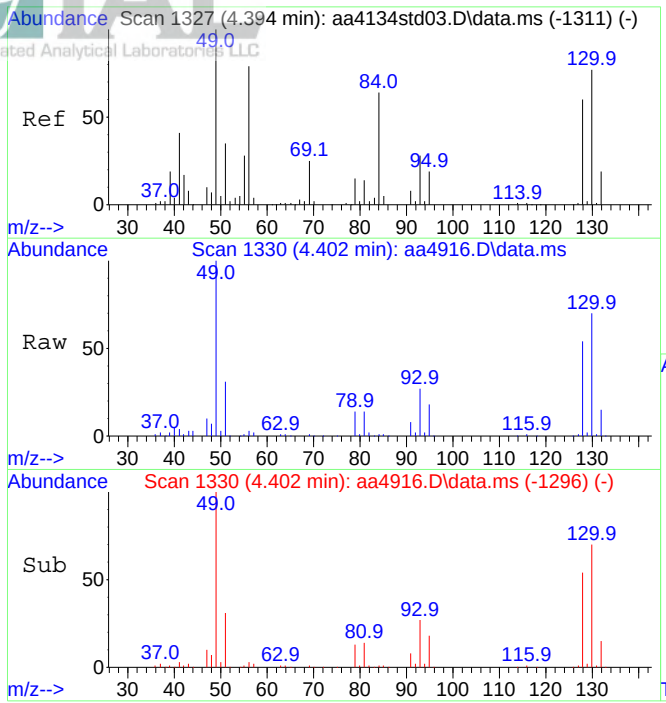
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.402	130	518793	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	2789837	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	3170366	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2965341	10.73	ppbV	0.000
Target Compounds						Qvalue
15) Carbon disulfide	2.756	76	65210	0.41	ppbV	# 87
21) Acetone	3.219	43	352926	4.51	ppbV	96
26) Tert-butyl alcohol	3.467	59	260895	1.93	ppbV	100
30) Chloroform	4.454	83	59559	0.43	ppbV	98
35) Methyl ethyl ketone	4.685	43	64084	0.51	ppbV	98
36) n-Heptane	4.920	43	103925	0.72	ppbV	98
47) Toluene	6.772	91	217388	0.55	ppbV	100
49) Tetrachloroethene	7.161	166	266016	1.57	ppbV	100
58) Ethylbenzene	8.380	91	7559119	12.94	ppbV	99
59) Xylenes (m&p)	8.537	91	20706134	47.83	ppbV	92
60) Xylene (o)	9.026	91	4714295	9.98	ppbV	98
70) 1,2,4-Trimethylbenzene	10.624	105	178438	0.33	ppbV	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4916.D
Acq On : 11 Dec 2023 6:15 pm
Operator : jjw
Sample : E23-05081-01x5 dil
Misc : 5073, 100cc
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 12 10:57:17 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

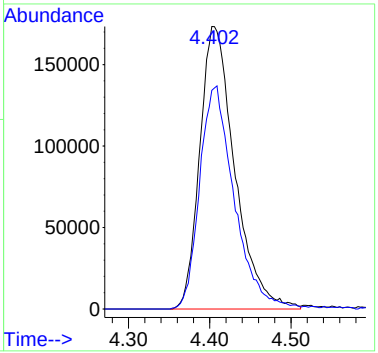


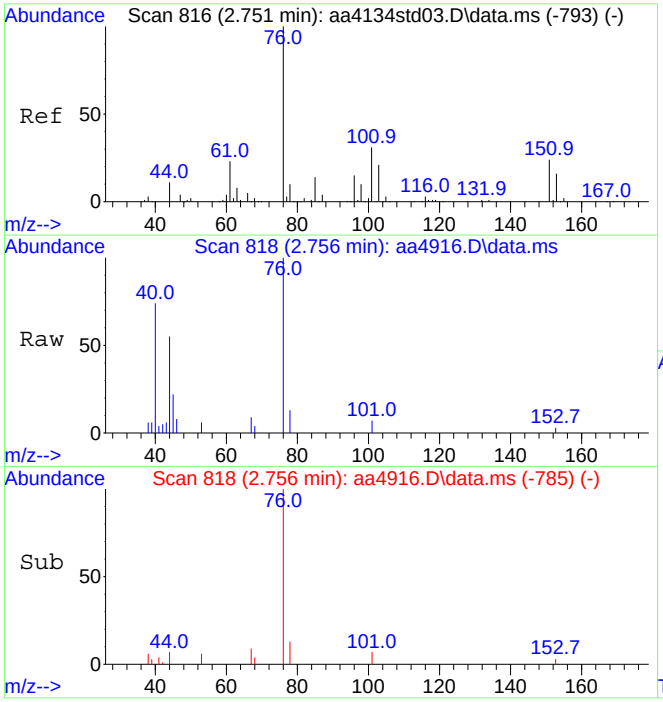


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.402 min Scan# 1330
Delta R.T. 0.008 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion:130 Resp: 518793

Ion	Ratio	Lower	Upper
130	100		
128	77.9	62.2	93.4

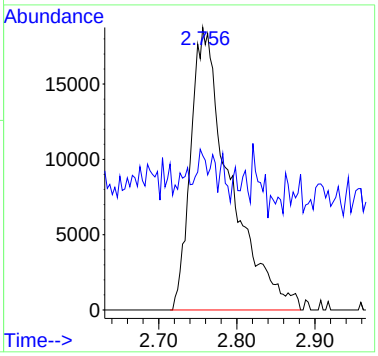


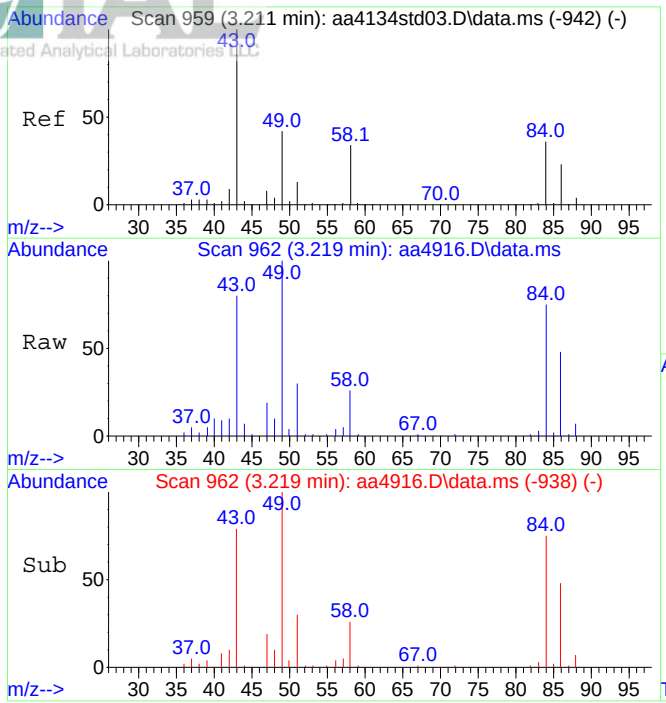


#15
Carbon disulfide
Concen: 0.41 ppbV
RT: 2.756 min Scan# 818
Delta R.T. 0.006 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion: 76 Resp: 65210

Ion	Ratio	Lower	Upper
76	100		
44	6.3	9.0	13.4#

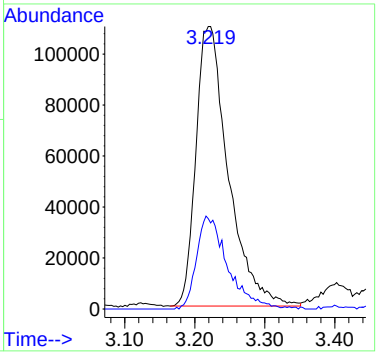


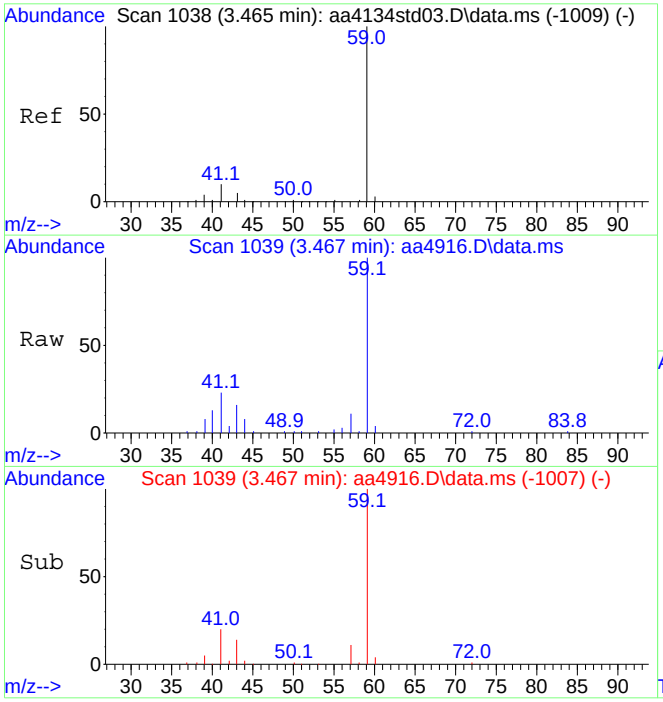


#21
Acetone
Concen: 4.51 ppbV
RT: 3.219 min Scan# 962
Delta R.T. 0.009 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion: 43 Resp: 352926

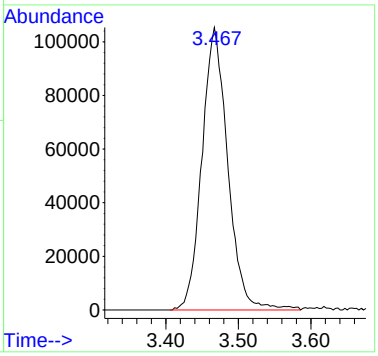
Ion	Ratio	Lower	Upper
43	100		
58	31.7	27.1	40.7

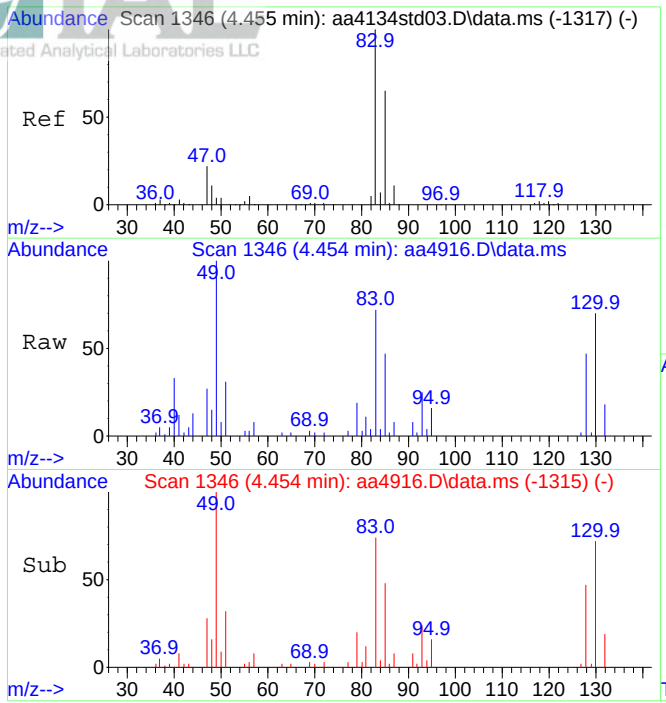




#26
Tert-butyl alcohol
Concen: 1.93 ppbV
RT: 3.467 min Scan# 1039
Delta R.T. 0.002 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion: 59 Resp: 260895

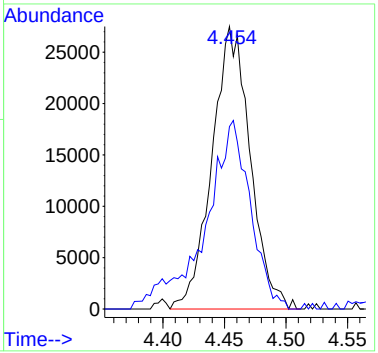


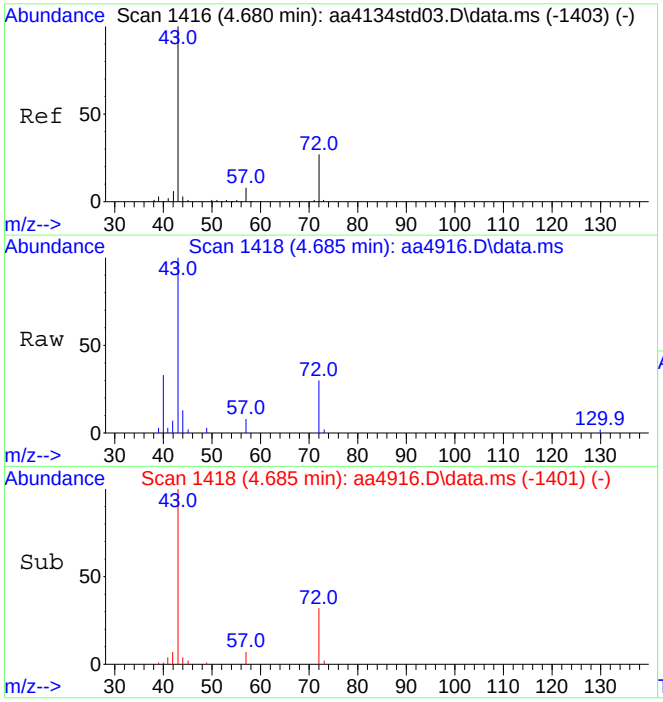


#30
Chloroform
Concen: 0.43 ppbV
RT: 4.454 min Scan# 1346
Delta R.T. -0.001 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion: 83 Resp: 59559

Ion	Ratio	Lower	Upper
83	100		
85	68.9	53.9	80.9

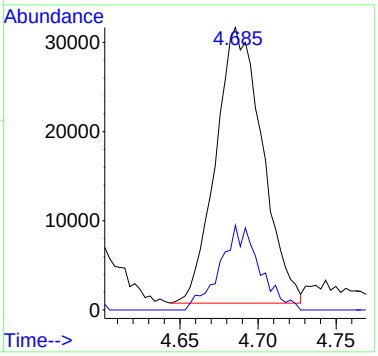


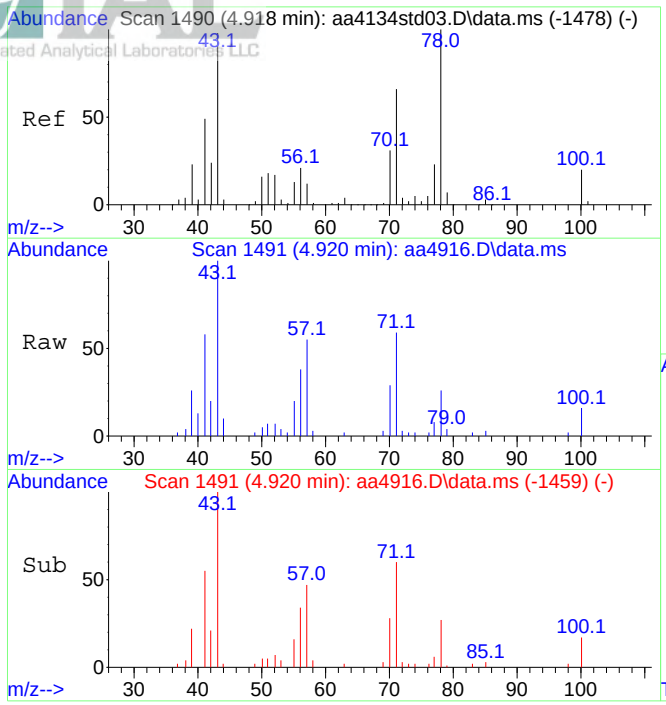


#35
Methyl ethyl ketone
Concen: 0.51 ppbV
RT: 4.685 min Scan# 1418
Delta R.T. 0.005 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion: 43 Resp: 64084

Ion	Ratio	Lower	Upper
43	100		
72	26.0	21.6	32.4

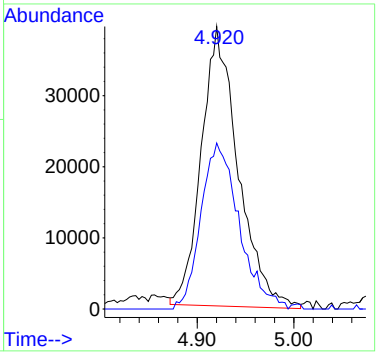


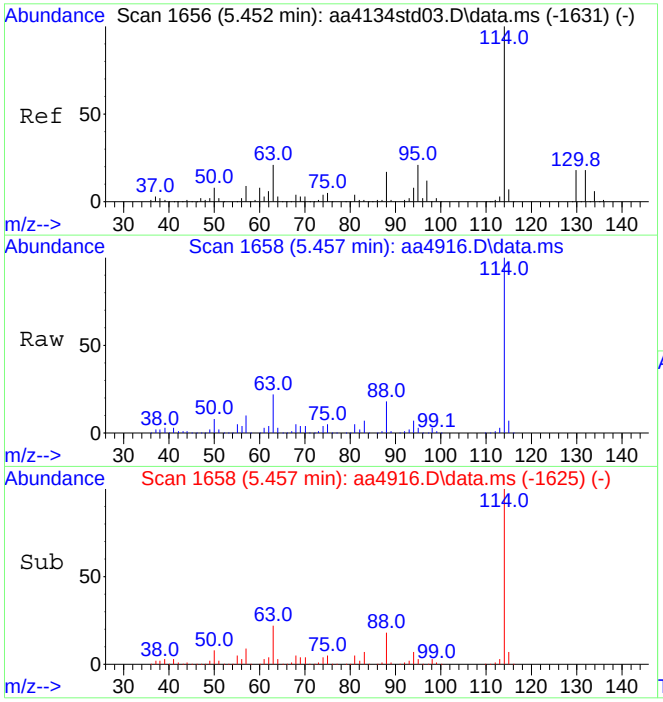


#36
n-Heptane
Concen: 0.72 ppbV
RT: 4.920 min Scan# 1491
Delta R.T. 0.002 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion: 43 Resp: 103925

Ion	Ratio	Lower	Upper
43	100		
71	61.5	50.5	75.7

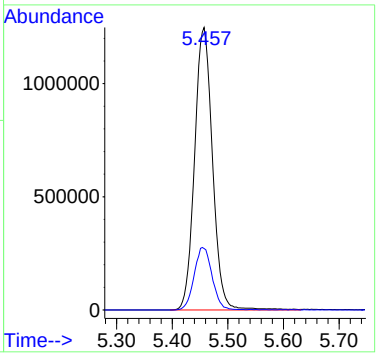


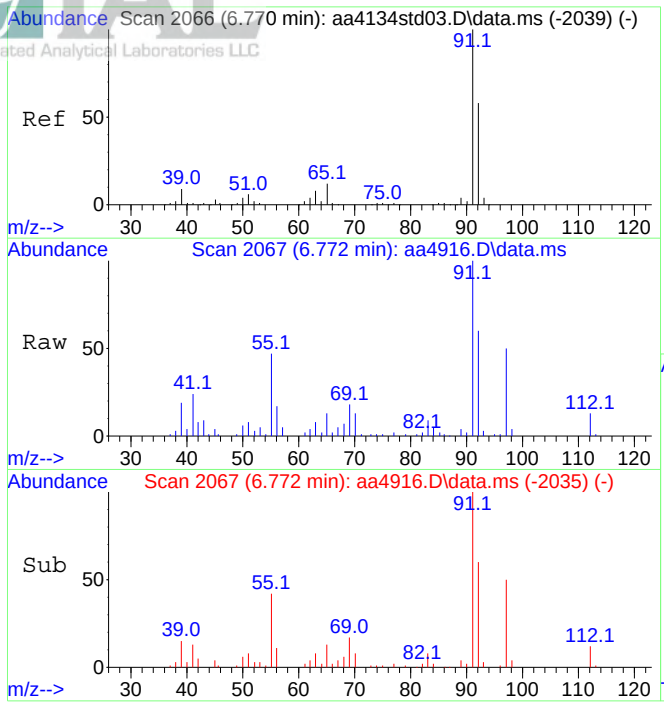


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.005 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion:114 Resp: 2789837

Ion	Ratio	Lower	Upper
114	100		
63	22.2	17.0	25.6

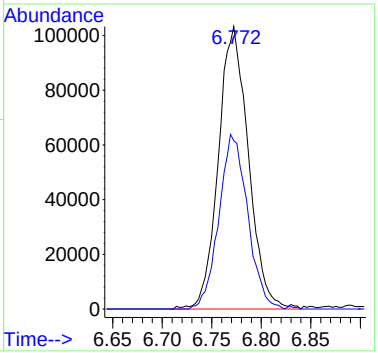


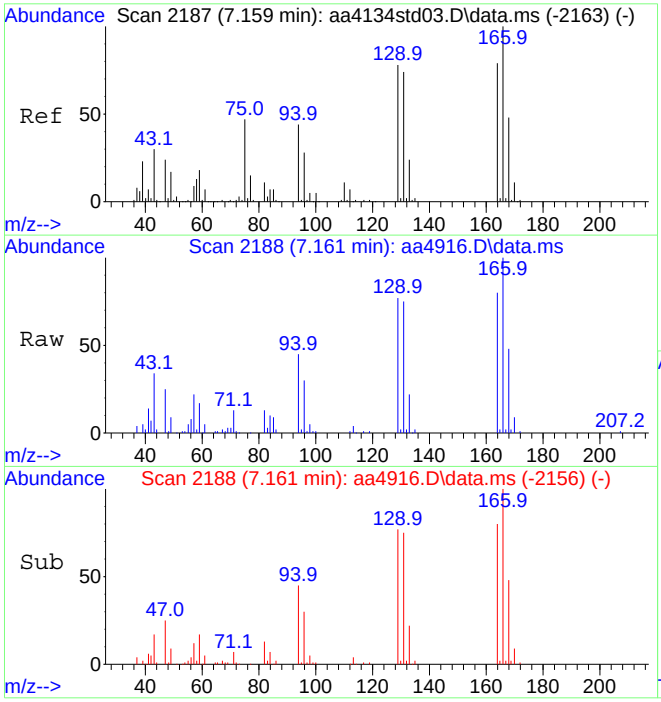


#47
Toluene
Concen: 0.55 ppbV
RT: 6.772 min Scan# 2067
Delta R.T. 0.002 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion: 91 Resp: 217388

Ion	Ratio	Lower	Upper
91	100		
92	59.1	47.3	70.9

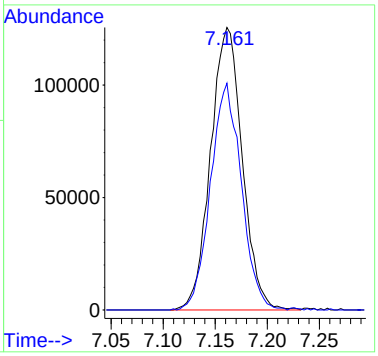


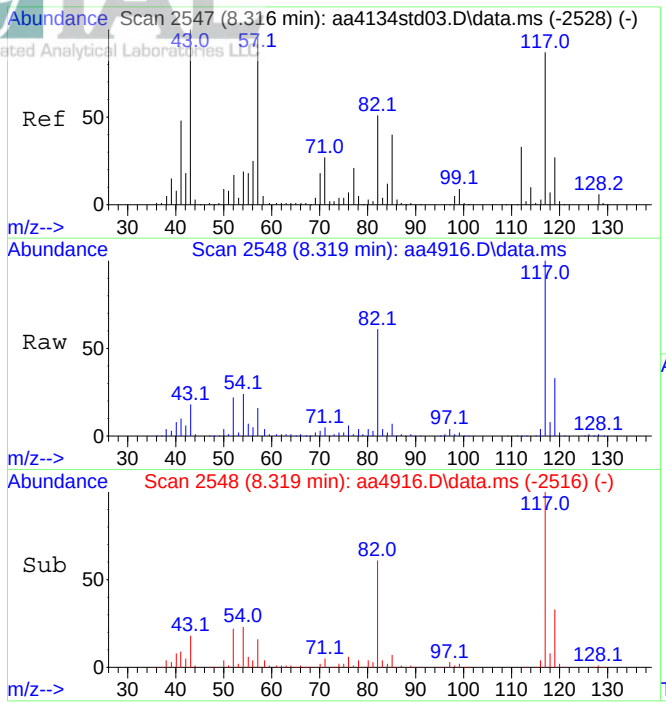


#49
Tetrachloroethene
Concen: 1.57 ppbV
RT: 7.161 min Scan# 2188
Delta R.T. 0.002 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion:166 Resp: 266016

Ion	Ratio	Lower	Upper
166	100		
164	78.0	62.3	93.5

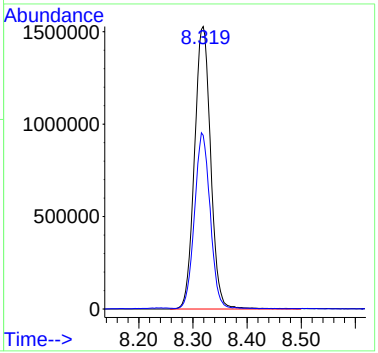


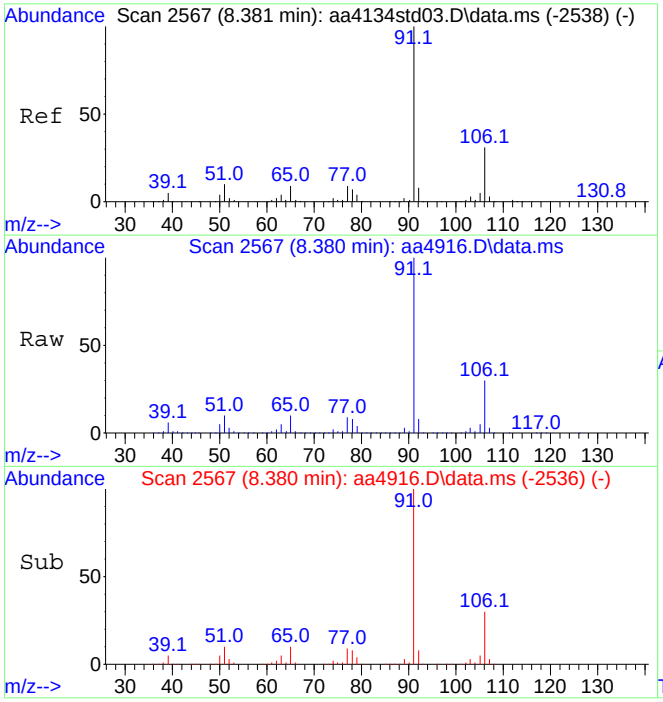


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion:117 Resp: 3170366

Ion	Ratio	Lower	Upper
117	100		
82	60.2	47.0	70.4

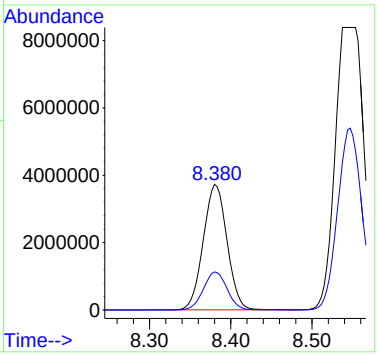


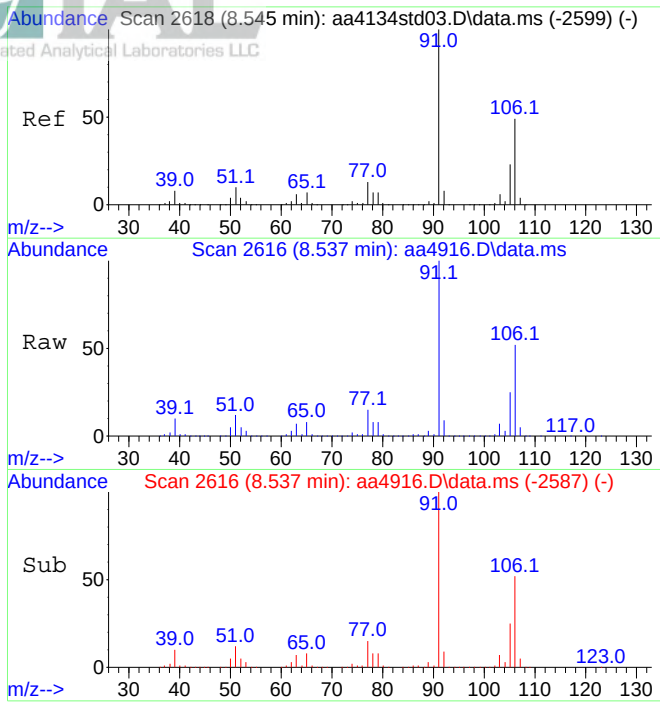


#58
Ethylbenzene
Concen: 12.94 ppbV
RT: 8.380 min Scan# 2567
Delta R.T. -0.001 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion: 91 Resp: 7559119

Ion	Ratio	Lower	Upper
91	100		
106	30.4	24.6	36.8

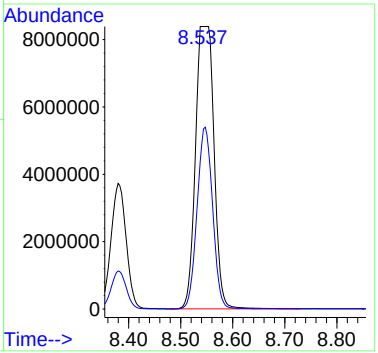


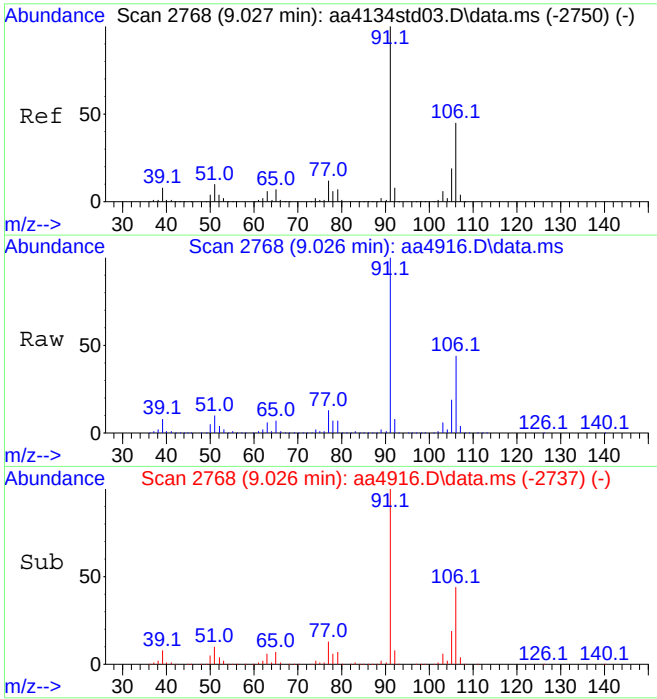


#59
Xylenes (m&p)
Concen: 47.83 ppbV
RT: 8.537 min Scan# 2616
Delta R.T. -0.007 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion: 91 Resp:20706134

Ion	Ratio	Lower	Upper
91	100		
106	54.2	39.0	58.4

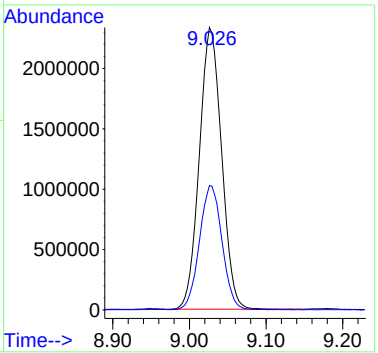


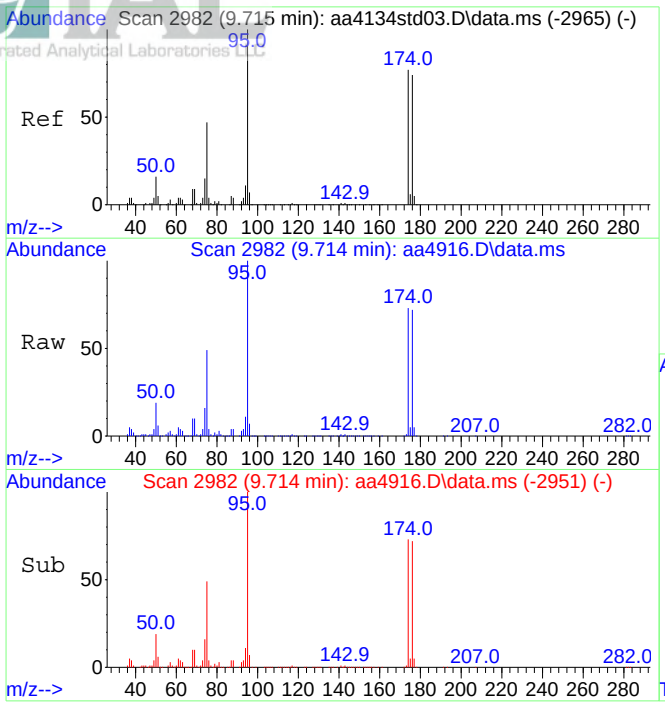


#60
Xylene (o)
Concen: 9.98 ppbV
RT: 9.026 min Scan# 2768
Delta R.T. -0.001 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion: 91 Resp: 4714295

Ion	Ratio	Lower	Upper
91	100		
106	44.7	36.8	55.2

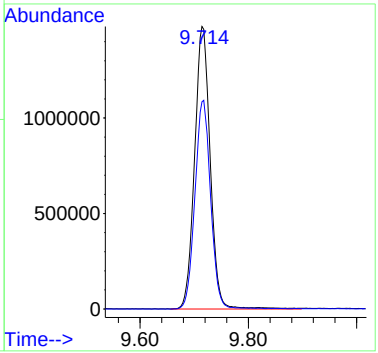


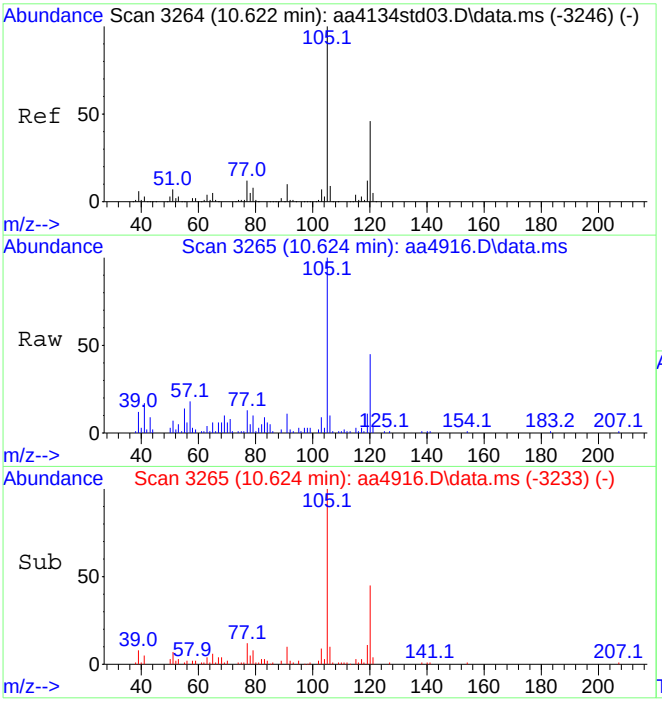


#64
Bromofluorobenzene (tune std)
Concen: 10.73 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion: 95 Resp: 2965341

Ion	Ratio	Lower	Upper
95	100		
174	74.5	61.1	91.7

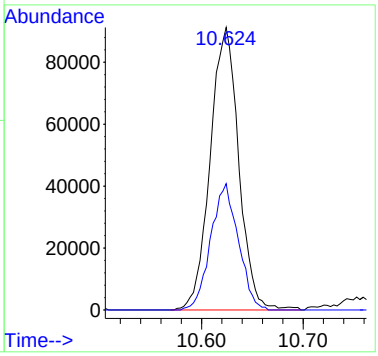




#70
1,2,4-Trimethylbenzene
Concen: 0.33 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4916.D
Acq: 11 Dec 2023 6:15 pm

Tgt Ion:105 Resp: 178438

Ion	Ratio	Lower	Upper
105	100		
120	43.1	36.3	54.5



INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05081-02	Instrument ID:	AA
Client ID:	SV4	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/17/2023 09:40	Injection Volmue:	500ml
Date Received:	11/20/2023	Matrix:	Air-Other
Date Analyzed:	12/11/2023 19:52	% Moisture:	NA
Data File:	AA4919	Dilution Factor:	1
Summa ID:	2758	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Acetone	67-64-1		22	53	0.20	0.48
Benzene	71-43-2		2.9	9.2	0.20	0.64
Bromodichloromethane	75-27-4		ND	ND	0.20	1.3
Bromoform	75-25-2		ND	ND	0.20	2.1
Bromomethane	74-83-9		ND	ND	0.20	0.78
1,3-Butadiene	106-99-0		ND	ND	0.20	0.44
Chlorobenzene	108-90-7		ND	ND	0.20	0.92
Chloroethane	75-00-3		ND	ND	0.20	0.53
Chloroform	67-66-3		ND	ND	0.20	0.98
Chloromethane	74-87-3		ND	ND	0.20	0.41
Carbon disulfide	75-15-0		1.1	3.4	0.20	0.62
Carbon tetrachloride	56-23-5		ND	ND	0.040	0.25
Cyclohexane	110-82-7		1.3	4.5	0.20	0.69
Dibromochloromethane	124-48-1		ND	ND	0.20	1.7
1,2-Dibromoethane	106-93-4		ND	ND	0.20	1.5
1,2-Dichlorobenzene	95-50-1		ND	ND	0.20	1.2
1,3-Dichlorobenzene	541-73-1		ND	ND	0.20	1.2
1,4-Dichlorobenzene	106-46-7		ND	ND	0.20	1.2
Dichlorodifluoromethane	75-71-8		ND	ND	0.20	0.99
1,1-Dichloroethane	75-34-3		ND	ND	0.20	0.81
1,2-Dichloroethane	107-06-2		ND	ND	0.20	0.81
1,1-Dichloroethene	75-35-4		ND	ND	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2		ND	ND	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5		ND	ND	0.20	0.79
1,2-Dichloropropane	78-87-5		ND	ND	0.20	0.92
1,3-Dichloropropene (cis)	10061-01-5		ND	ND	0.20	0.91
1,3-Dichloropropene (trans)	10061-02-6		ND	ND	0.20	0.91
1,2-Dichlorotetrafluoroethane	76-14-2		ND	ND	0.20	1.4
1,4-Dioxane	123-91-1		ND	ND	0.20	0.72
Ethylbenzene	100-41-4		0.94	4.1	0.20	0.87
n-Heptane	142-82-5		2.2	9.2	0.20	0.82
1,3-Hexachlorobutadiene	87-68-3		ND	ND	0.20	2.1
n-Hexane	110-54-3		2.9	10	0.20	0.70
Methylene chloride	75-09-2		ND	ND	0.20	0.69
Methyl ethyl ketone	78-93-3		1.4	4.1	0.20	0.59
Methyl isobutyl ketone	108-10-1		ND	ND	0.20	0.82
Methyl tert-butyl ether	1634-04-4		ND	ND	0.20	0.72
Styrene	100-42-5		0.38	1.6	0.20	0.85
Tert-butyl alcohol	75-65-0		2.6	7.9	0.20	0.61
1,1,2,2-Tetrachloroethane	79-34-5		ND	ND	0.20	1.4
Tetrachloroethene	127-18-4		7.2	49	0.20	1.4
Toluene	108-88-3		2.4	8.9	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1		ND	ND	0.20	1.5
1,1,1-Trichloroethane	71-55-6		ND	ND	0.20	1.1
1,1,2-Trichloroethane	79-00-5		ND	ND	0.20	1.1

Qualifiers:
D = Dilution required

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05081-02	Instrument ID:	AA
Client ID:	SV4	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/17/2023 09:40	Injection Volmue:	500ml
Date Received:	11/20/2023	Matrix:	Air-Other
Date Analyzed:	12/11/2023 19:52	% Moisture:	NA
Data File:	AA4919	Dilution Factor:	1
Summa ID:	2758	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Trichloroethene	79-01-6		ND	ND	0.046	0.25
Trichlorofluoromethane	75-69-4		0.33	1.9	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		ND	ND	0.20	1.5
1,2,4-Trimethylbenzene	95-63-6		0.65	3.2	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8		0.21	1.0	0.20	0.98
2,2,4-Trimethylpentane	540-84-1		ND	ND	0.20	0.93
Vinyl bromide	593-60-2		ND	ND	0.20	0.87
Vinyl chloride	75-01-4		ND	ND	0.20	0.51
Xylenes (m&p)	179601-23-1		3.7	16	0.20	0.87
Xylenes (o)	95-47-6		2.0	8.9	0.20	0.87

Qualifiers:
D = Dilution required

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4919.D
Acq On : 11 Dec 2023 7:52 pm
Operator : jjw
Sample : E23-05081-02
Misc : 2758, 500cc
ALS Vial : 22 Sample Multiplier: 1

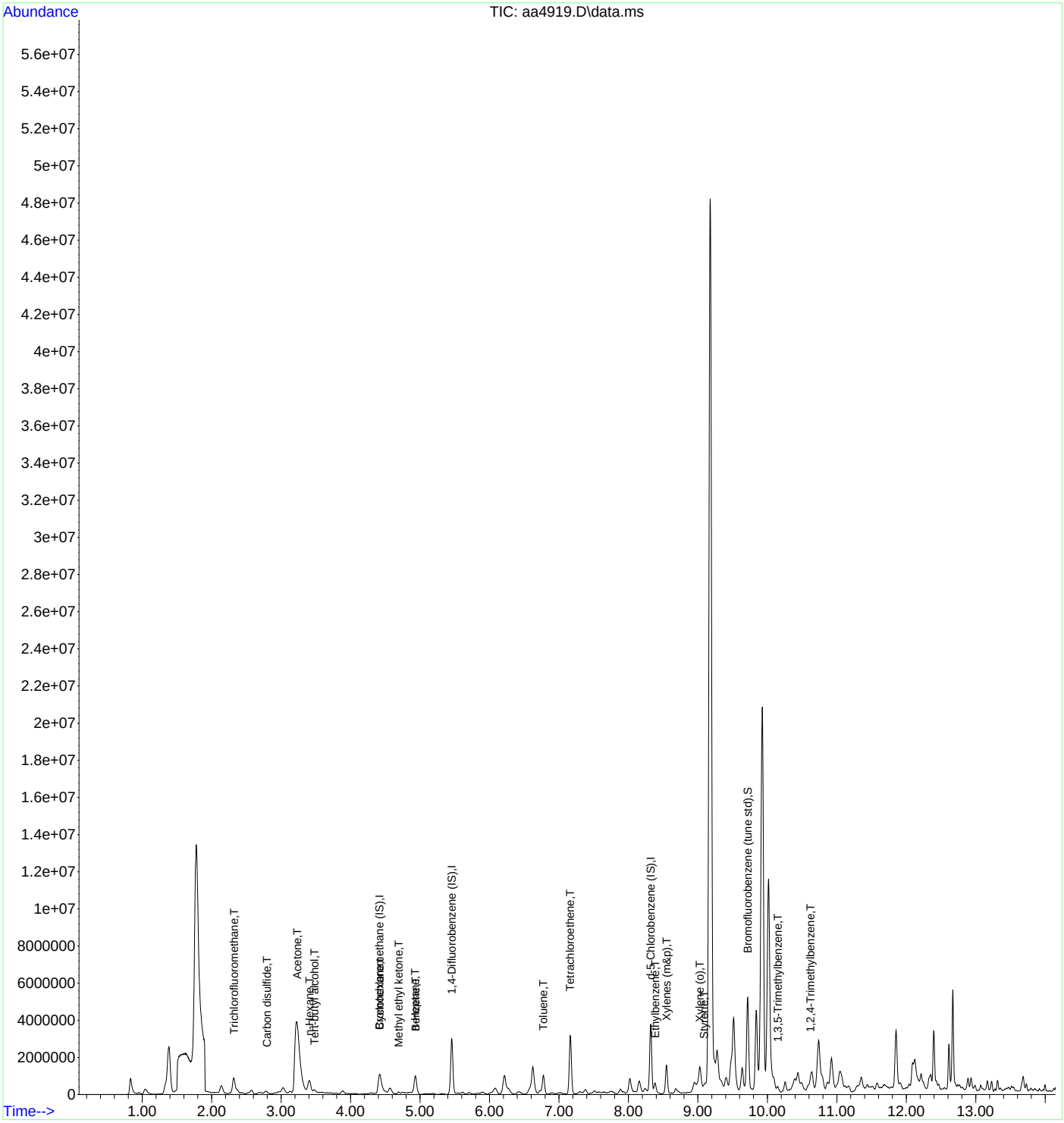
Quant Time: Dec 12 11:02:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

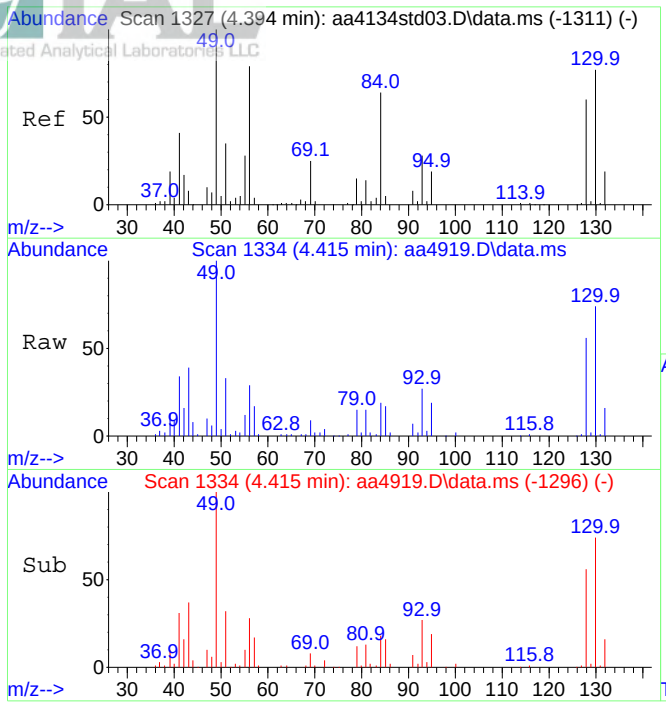
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.415	130	480922	10.00	ppbV		0.021
39) 1,4-Difluorobenzene (IS)	5.457	114	2600665	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.322	117	2272991	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.717	95	2045815	10.33	ppbV		0.000
Target Compounds							Qvalue
12) Trichlorofluoromethane	2.325	101	44394	0.33	ppbV		98
15) Carbon disulfide	2.798	76	161725	1.10	ppbV	#	83
21) Acetone	3.232	43	1613731	22.25	ppbV		99
24) n-Hexane	3.409	57	443494	2.93	ppbV		92
26) Tert-butyl alcohol	3.480	59	325566	2.60	ppbV		100
29) Cyclohexane	4.419	56	139338	1.32	ppbV	#	73
35) Methyl ethyl ketone	4.692	43	164465	1.40	ppbV		98
36) n-Heptane	4.930	43	298361	2.24	ppbV		96
37) Benzene	4.936	78	547852	2.87	ppbV		98
47) Toluene	6.775	91	863092	2.36	ppbV		100
49) Tetrachloroethene	7.161	166	1134119	7.20	ppbV		100
58) Ethylbenzene	8.386	91	391744	0.94	ppbV		99
59) Xylenes (m&p)	8.550	91	1147853	3.70	ppbV		98
60) Xylene (o)	9.026	91	694215	2.05	ppbV	#	78
61) Styrene	9.090	104	87051	0.38	ppbV		99
69) 1,3,5-Trimethylbenzene	10.152	105	82081	0.21	ppbV		99
70) 1,2,4-Trimethylbenzene	10.621	105	255974	0.65	ppbV		95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4919.D
Acq On : 11 Dec 2023 7:52 pm
Operator : jjw
Sample : E23-05081-02
Misc : 2758, 500cc
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Dec 12 11:02:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

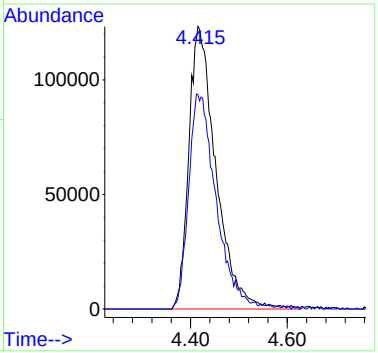


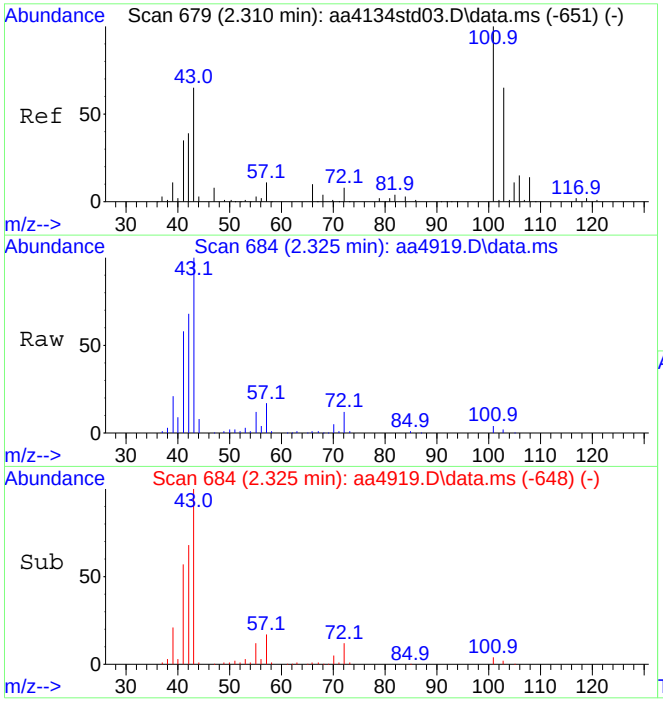


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.415 min Scan# 1334
Delta R.T. 0.021 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion:130 Resp: 480922

Ion	Ratio	Lower	Upper
130	100		
128	76.5	62.2	93.4

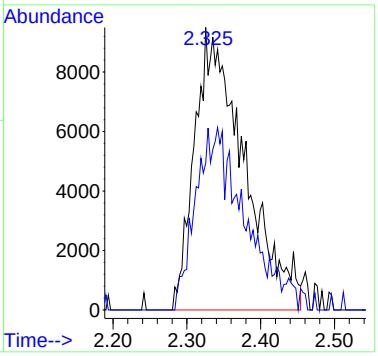


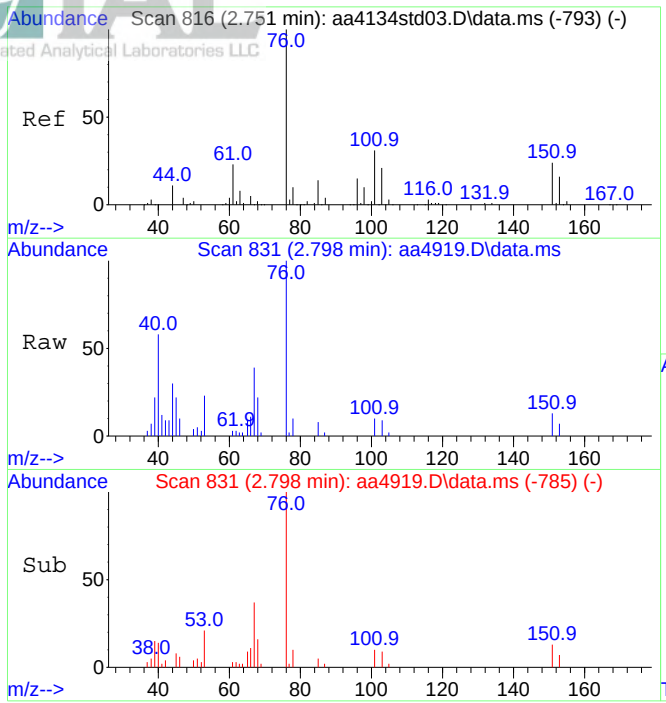


#12
Trichlorofluoromethane
Concen: 0.33 ppbV
RT: 2.325 min Scan# 684
Delta R.T. 0.015 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion:101 Resp: 44394

Ion	Ratio	Lower	Upper
101	100		
103	64.1	52.5	78.7

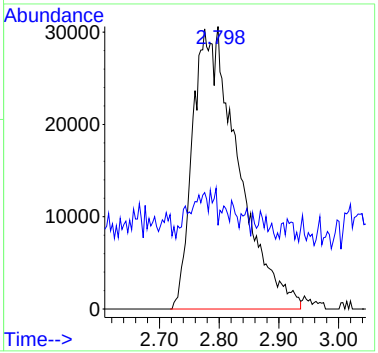


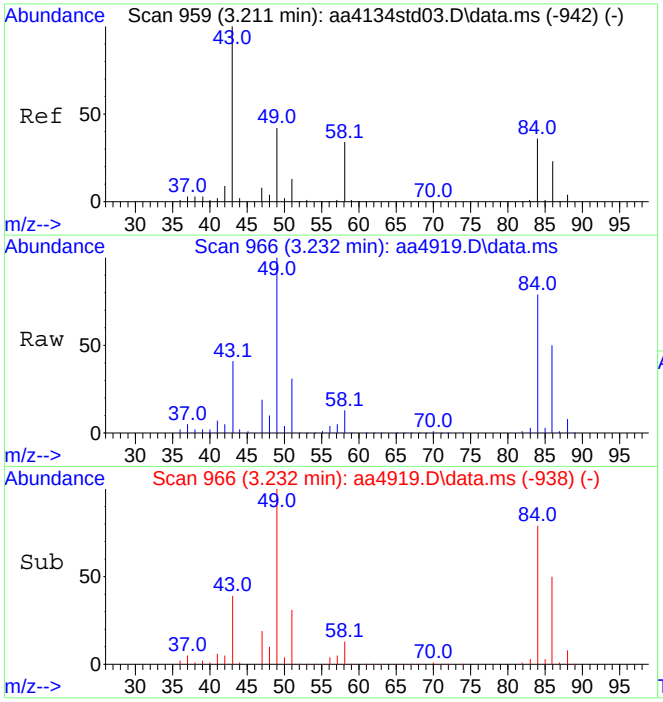


#15
Carbon disulfide
Concen: 1.10 ppbV
RT: 2.798 min Scan# 831
Delta R.T. 0.047 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion: 76 Resp: 161725

Ion	Ratio	Lower	Upper
76	100		
44	4.7	9.0	13.4#

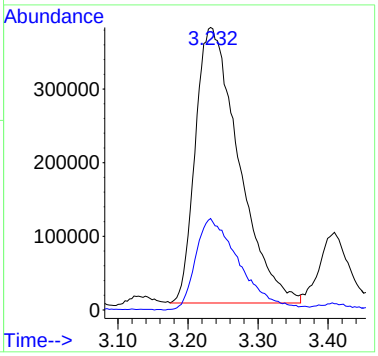


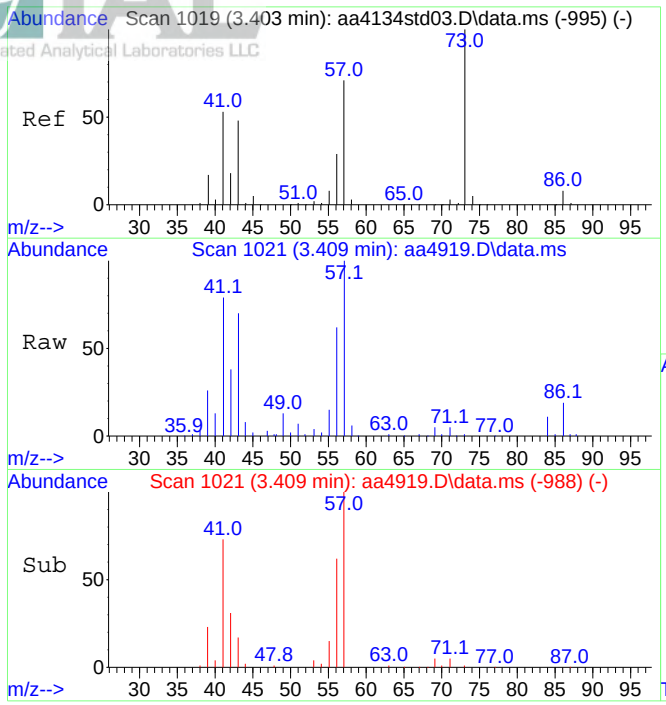


#21
Acetone
Concen: 22.25 ppbV
RT: 3.232 min Scan# 966
Delta R.T. 0.022 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion: 43 Resp: 1613731

Ion	Ratio	Lower	Upper
43	100		
58	33.6	27.1	40.7

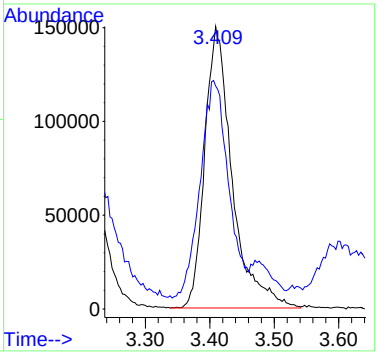


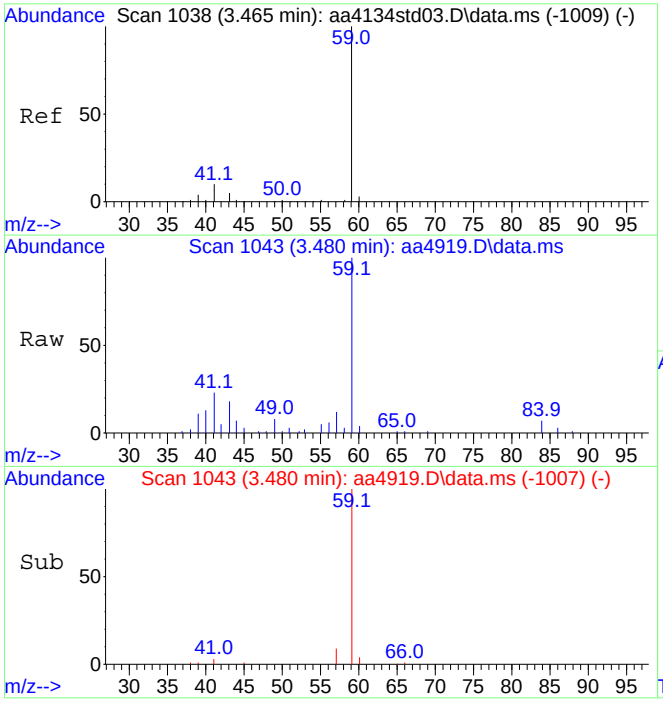


#24
n-Hexane
Concen: 2.93 ppbV
RT: 3.409 min Scan# 1021
Delta R.T. 0.006 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion: 57 Resp: 443494

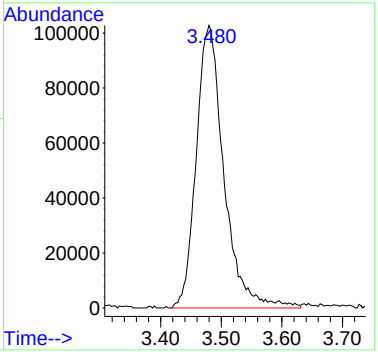
Ion	Ratio	Lower	Upper
57	100		
41	90.3	66.4	99.6

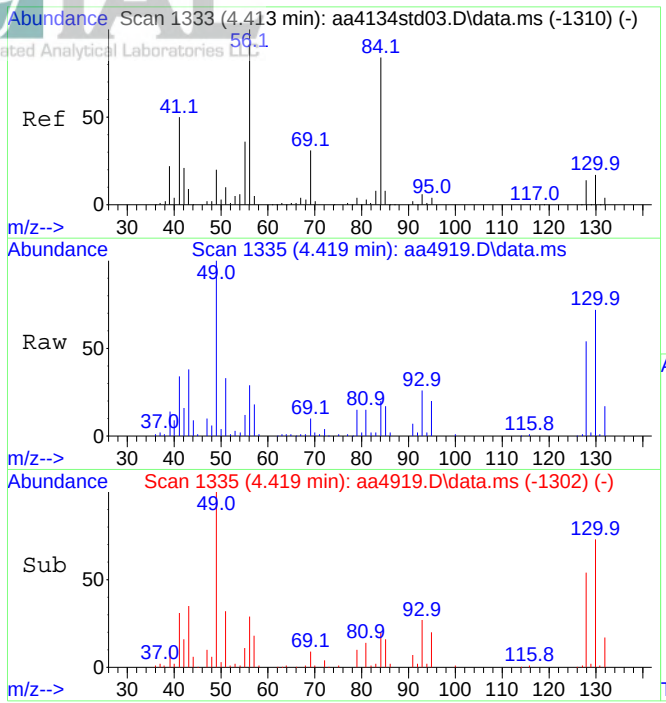




#26
Tert-butyl alcohol
Concen: 2.60 ppbV
RT: 3.480 min Scan# 1043
Delta R.T. 0.015 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion: 59 Resp: 325566

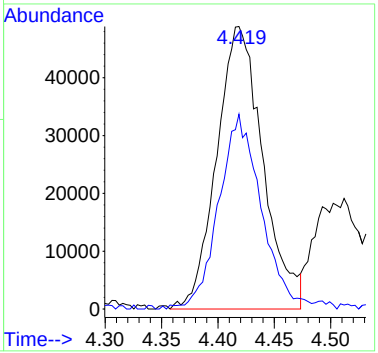


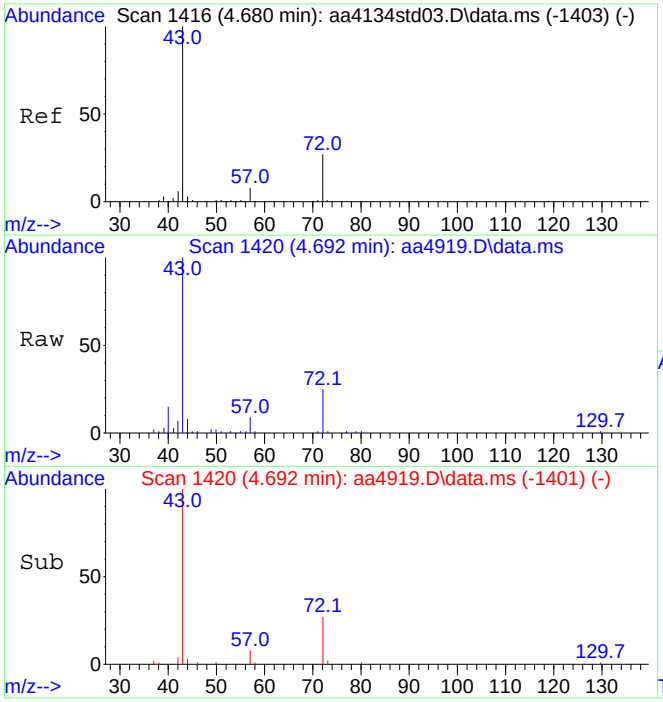


#29
Cyclohexane
Concen: 1.32 ppbV
RT: 4.419 min Scan# 1335
Delta R.T. 0.006 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion: 56 Resp: 139338

Ion	Ratio	Lower	Upper
56	100		
84	64.0	71.2	106.8#

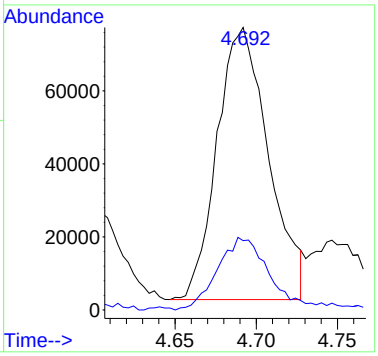


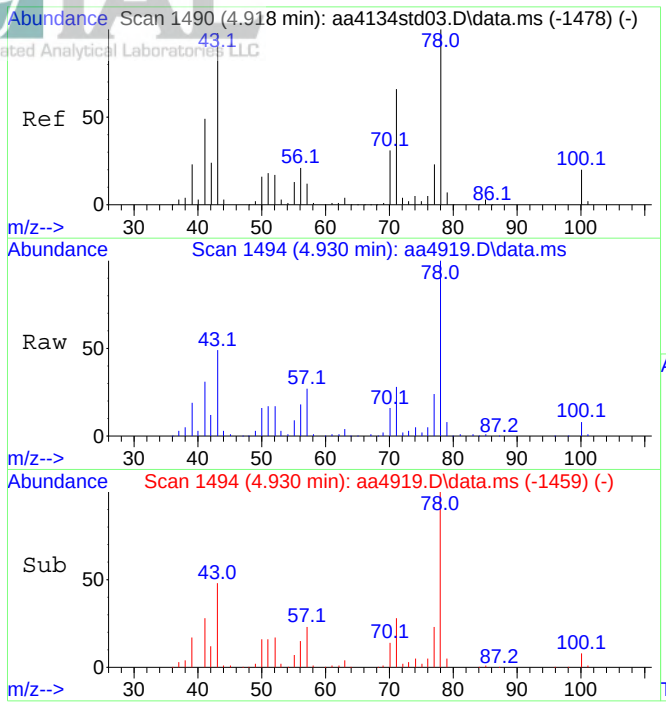


#35
Methyl ethyl ketone
Concen: 1.40 ppbV
RT: 4.692 min Scan# 1420
Delta R.T. 0.012 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion: 43 Resp: 164465

Ion	Ratio	Lower	Upper
43	100		
72	25.8	21.6	32.4

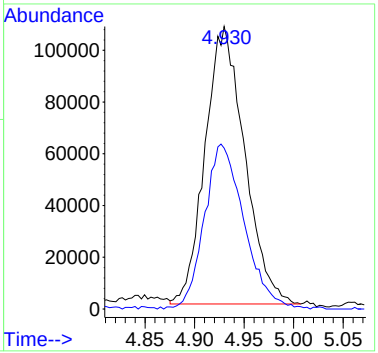


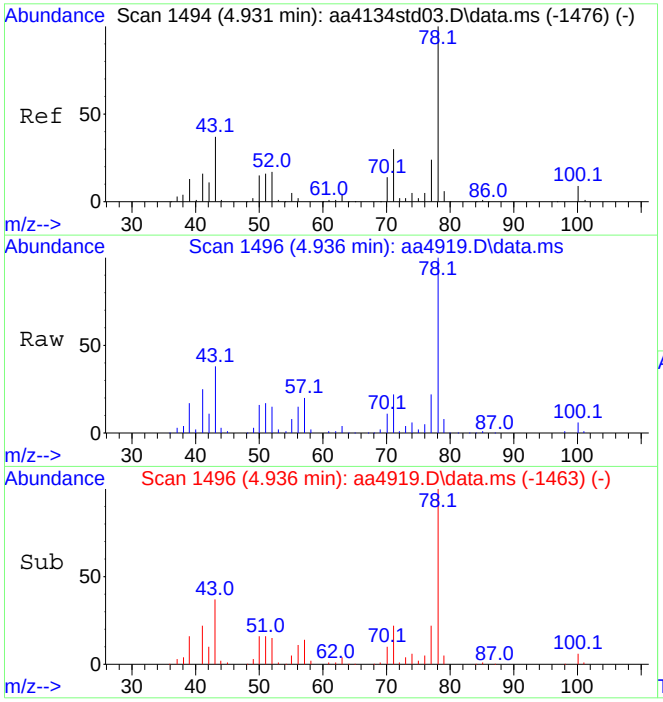


#36
n-Heptane
Concen: 2.24 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. 0.012 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion: 43 Resp: 298361

Ion	Ratio	Lower	Upper
43	100		
71	59.7	50.5	75.7

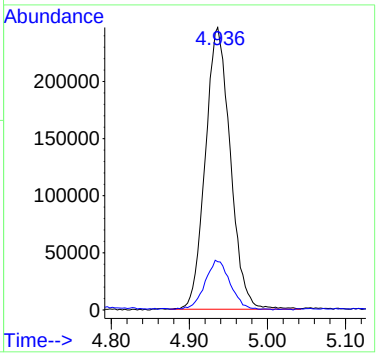


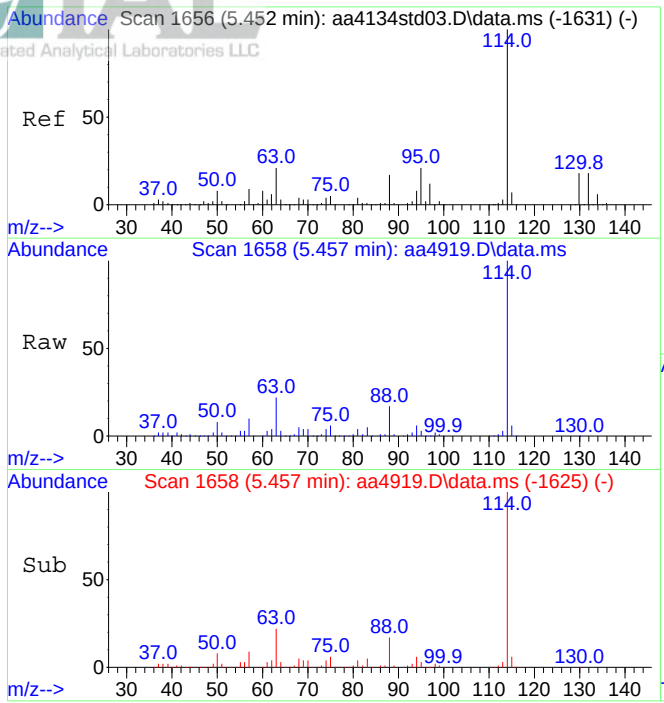


#37
Benzene
Concen: 2.87 ppbV
RT: 4.936 min Scan# 1496
Delta R.T. 0.006 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion: 78 Resp: 547852

Ion	Ratio	Lower	Upper
78	100		
51	17.3	13.4	20.0

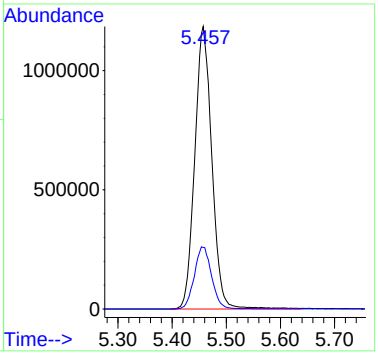


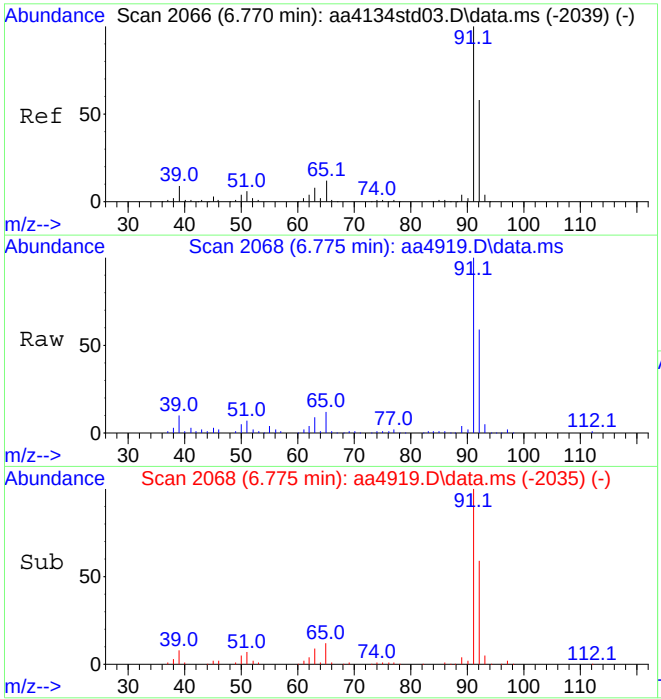


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.005 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion:114 Resp: 2600665

Ion	Ratio	Lower	Upper
114	100		
63	22.1	17.0	25.6

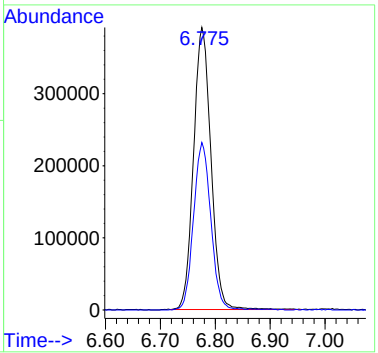


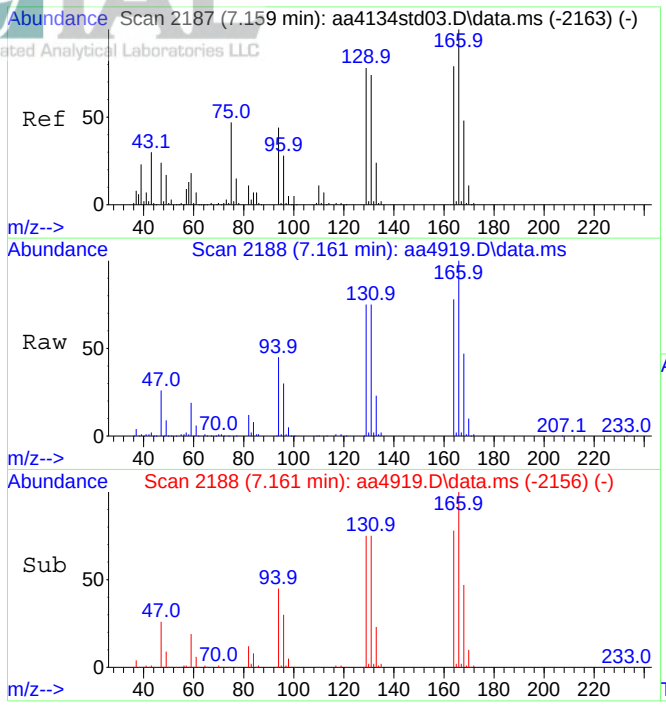


#47
Toluene
Concen: 2.36 ppbV
RT: 6.775 min Scan# 2068
Delta R.T. 0.006 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion: 91 Resp: 863092

Ion	Ratio	Lower	Upper
91	100		
92	58.8	47.3	70.9

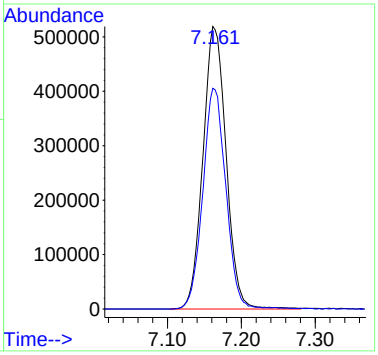


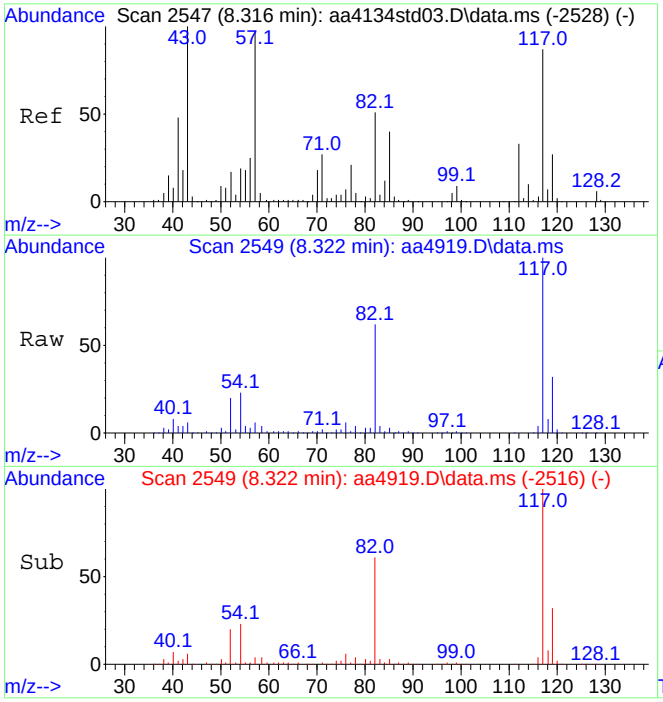


#49
Tetrachloroethene
Concen: 7.20 ppbV
RT: 7.161 min Scan# 2188
Delta R.T. 0.002 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion:166 Resp: 1134119

Ion	Ratio	Lower	Upper
166	100		
164	77.8	62.3	93.5

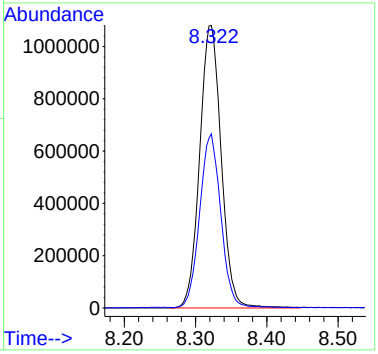


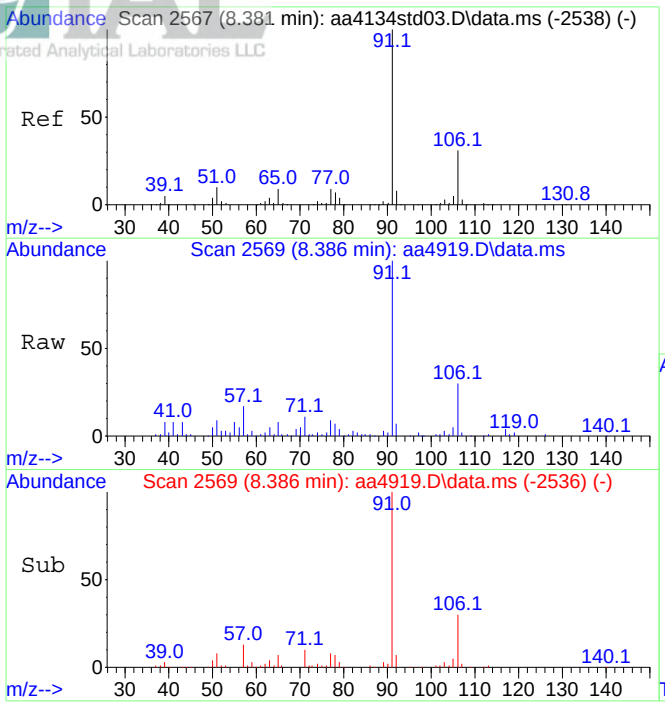


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.322 min Scan# 2549
Delta R.T. 0.006 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion:117 Resp: 2272991

Ion	Ratio	Lower	Upper
117	100		
82	59.7	47.0	70.4

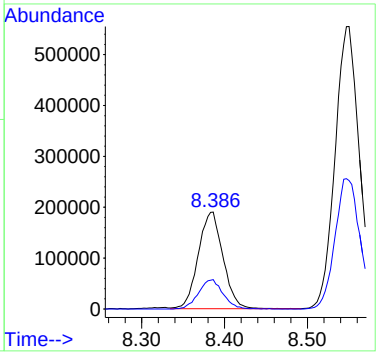


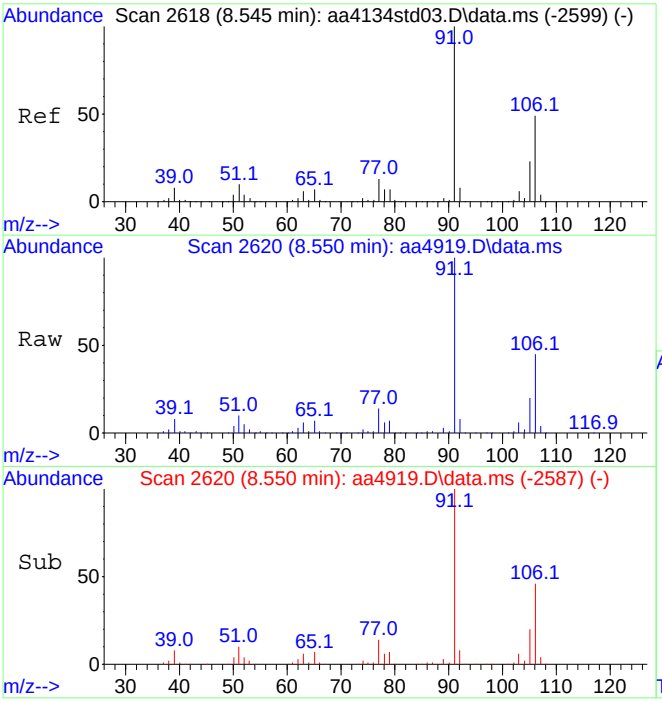


#58
Ethylbenzene
Concen: 0.94 ppbV
RT: 8.386 min Scan# 2569
Delta R.T. 0.006 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion: 91 Resp: 391744

Ion	Ratio	Lower	Upper
91	100		
106	30.2	24.6	36.8

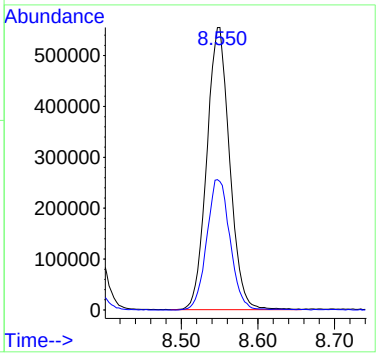


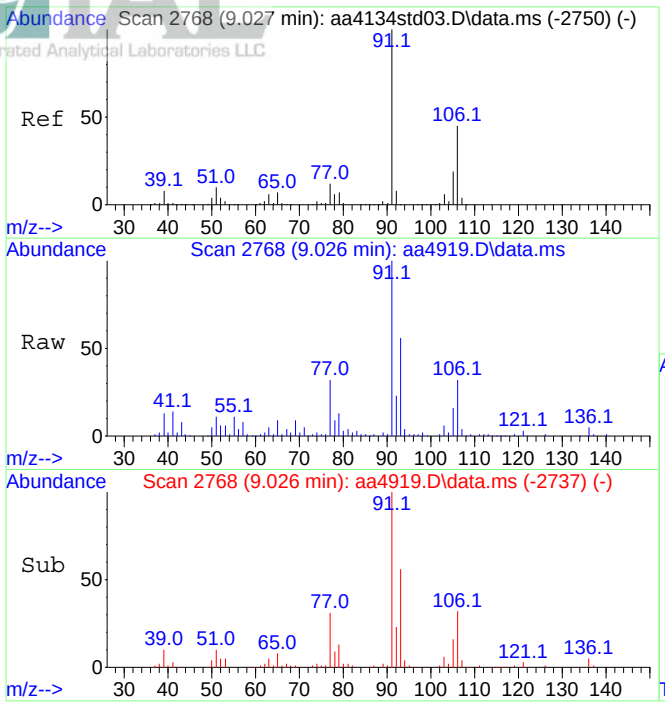


#59
Xylenes (m&p)
Concen: 3.70 ppbV
RT: 8.550 min Scan# 2620
Delta R.T. 0.006 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion: 91 Resp: 1147853

Ion	Ratio	Lower	Upper
91	100		
106	47.0	39.0	58.4

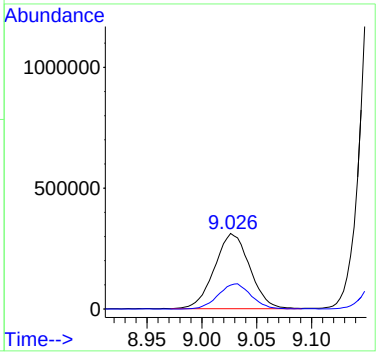


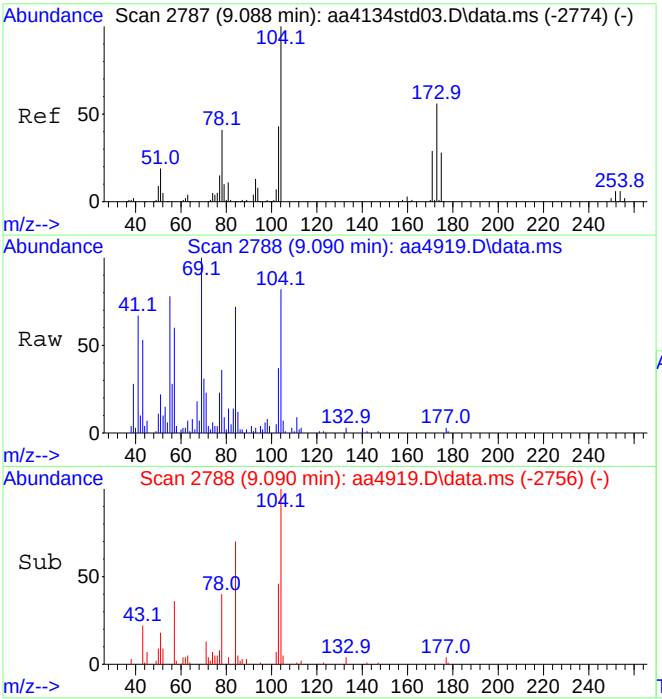


#60
Xylene (o)
Concen: 2.05 ppbV
RT: 9.026 min Scan# 2768
Delta R.T. -0.001 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion: 91 Resp: 694215

Ion	Ratio	Lower	Upper
91	100		
106	31.3	36.8	55.2#

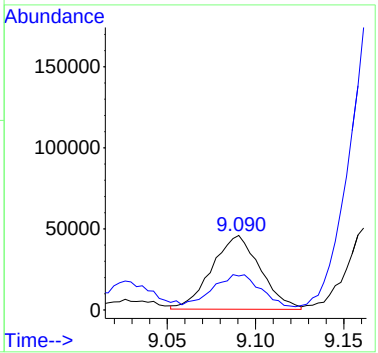


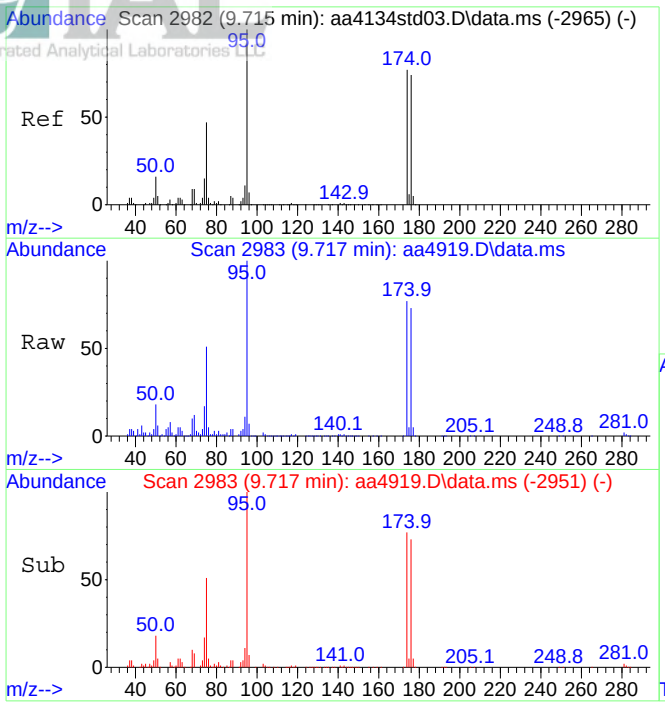


#61
Styrene
Concen: 0.38 ppbV
RT: 9.090 min Scan# 2788
Delta R.T. 0.002 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion:104 Resp: 87051

Ion	Ratio	Lower	Upper
104	100		
103	48.1	37.8	56.6

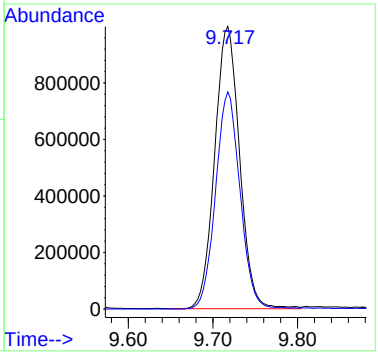


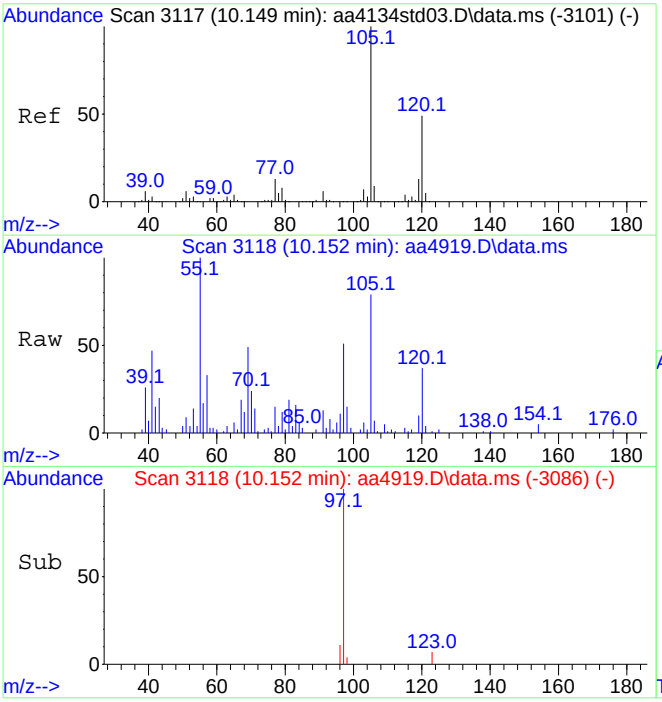


#64
Bromofluorobenzene (tune std)
Concen: 10.33 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion: 95 Resp: 2045815

Ion	Ratio	Lower	Upper
95	100		
174	76.2	61.1	91.7

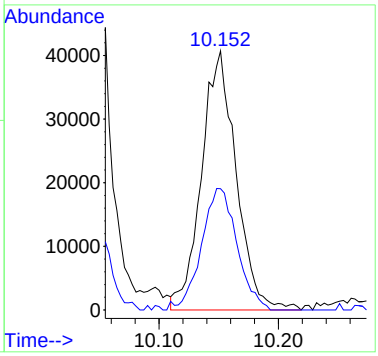


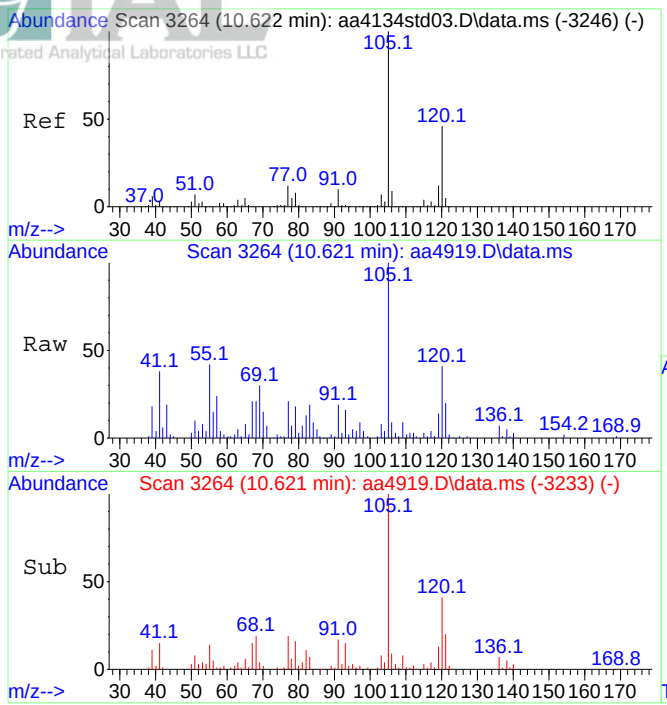


#69
1,3,5-Trimethylbenzene
Concen: 0.21 ppbV
RT: 10.152 min Scan# 3118
Delta R.T. 0.002 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion:105 Resp: 82081

Ion	Ratio	Lower	Upper
105	100		
120	48.0	38.9	58.3

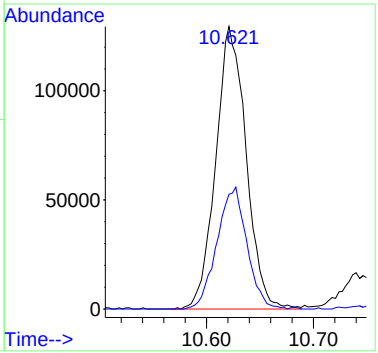




#70
1,2,4-Trimethylbenzene
Concen: 0.65 ppbV
RT: 10.621 min Scan# 3264
Delta R.T. -0.001 min
Lab File: aa4919.D
Acq: 11 Dec 2023 7:52 pm

Tgt Ion:105 Resp: 255974

Ion	Ratio	Lower	Upper
105	100		
120	42.3	36.3	54.5



INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05081-03	Instrument ID:	AA
Client ID:	SV9	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/17/2023 08:00	Injection Volmue:	500ml, 100ml
Date Received:	11/20/2023	Matrix:	Air-Other
Date Analyzed:	12/11/2023 21:04, 12/11/2023 20:24	% Moisture:	NA
Data File:	AA4921, AA4920	Dilution Factor:	1, 5
Summa ID:	3809	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Acetone	67-64-1		15	35	0.20	0.48
Benzene	71-43-2		0.43	1.4	0.20	0.64
Bromodichloromethane	75-27-4		ND	ND	0.20	1.3
Bromoform	75-25-2		ND	ND	0.20	2.1
Bromomethane	74-83-9		ND	ND	0.20	0.78
1,3-Butadiene	106-99-0		ND	ND	0.20	0.44
Chlorobenzene	108-90-7		ND	ND	0.20	0.92
Chloroethane	75-00-3		ND	ND	0.20	0.53
Chloroform	67-66-3		ND	ND	0.20	0.98
Chloromethane	74-87-3		ND	ND	0.20	0.41
Carbon disulfide	75-15-0		1.5	4.6	0.20	0.62
Carbon tetrachloride	56-23-5		ND	ND	0.040	0.25
Cyclohexane	110-82-7		0.66	2.3	0.20	0.69
Dibromochloromethane	124-48-1		ND	ND	0.20	1.7
1,2-Dibromoethane	106-93-4		ND	ND	0.20	1.5
1,2-Dichlorobenzene	95-50-1		ND	ND	0.20	1.2
1,3-Dichlorobenzene	541-73-1		ND	ND	0.20	1.2
1,4-Dichlorobenzene	106-46-7		ND	ND	0.20	1.2
Dichlorodifluoromethane	75-71-8		ND	ND	0.20	0.99
1,1-Dichloroethane	75-34-3		ND	ND	0.20	0.81
1,2-Dichloroethane	107-06-2		ND	ND	0.20	0.81
1,1-Dichloroethene	75-35-4		ND	ND	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2		ND	ND	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5		ND	ND	0.20	0.79
1,2-Dichloropropane	78-87-5		ND	ND	0.20	0.92
1,3-Dichloropropene (cis)	10061-01-5		ND	ND	0.20	0.91
1,3-Dichloropropene (trans)	10061-02-6		ND	ND	0.20	0.91
1,2-Dichlorotetrafluoroethane	76-14-2		ND	ND	0.20	1.4
1,4-Dioxane	123-91-1		ND	ND	0.20	0.72
Ethylbenzene	100-41-4	D	48	210	1.0	4.3
n-Heptane	142-82-5		2.7	11	0.20	0.82
1,3-Hexachlorobutadiene	87-68-3		ND	ND	0.20	2.1
n-Hexane	110-54-3		2.5	8.7	0.20	0.70
Methylene chloride	75-09-2		ND	ND	0.20	0.69
Methyl ethyl ketone	78-93-3		1.1	3.1	0.20	0.59
Methyl isobutyl ketone	108-10-1		ND	ND	0.20	0.82
Methyl tert-butyl ether	1634-04-4		ND	ND	0.20	0.72
Styrene	100-42-5		0.49	2.1	0.20	0.85
Tert-butyl alcohol	75-65-0		5.8	18	0.20	0.61
1,1,2,2-Tetrachloroethane	79-34-5		ND	ND	0.20	1.4
Tetrachloroethene	127-18-4		9.8	66	0.20	1.4
Toluene	108-88-3		1.7	6.4	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1		ND	ND	0.20	1.5
1,1,1-Trichloroethane	71-55-6		ND	ND	0.20	1.1
1,1,2-Trichloroethane	79-00-5		ND	ND	0.20	1.1

Qualifiers:
D = Dilution required

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05081-03	Instrument ID:	AA
Client ID:	SV9	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/17/2023 08:00	Injection Volmue:	500ml, 100ml
Date Received:	11/20/2023	Matrix:	Air-Other
Date Analyzed:	12/11/2023 21:04, 12/11/2023 20:24	% Moisture:	NA
Data File:	AA4921, AA4920	Dilution Factor:	1, 5
Summa ID:	3809	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Trichloroethene	79-01-6		ND	ND	0.046	0.25
Trichlorofluoromethane	75-69-4		0.32	1.8	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		ND	ND	0.20	1.5
1,2,4-Trimethylbenzene	95-63-6		2.7	13	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8		1.0	5.1	0.20	0.98
2,2,4-Trimethylpentane	540-84-1		0.21	0.97	0.20	0.93
Vinyl bromide	593-60-2		ND	ND	0.20	0.87
Vinyl chloride	75-01-4		ND	ND	0.20	0.51
Xylenes (m&p)	179601-23-1	D	210	890	1.0	4.3
Xylenes (o)	95-47-6		38	170	0.20	0.87

Qualifiers:
D = Dilution required

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4921.D
Acq On : 11 Dec 2023 9:04 pm
Operator : jjw
Sample : E23-05081-03
Misc : 3809, 500cc
ALS Vial : 24 Sample Multiplier: 1

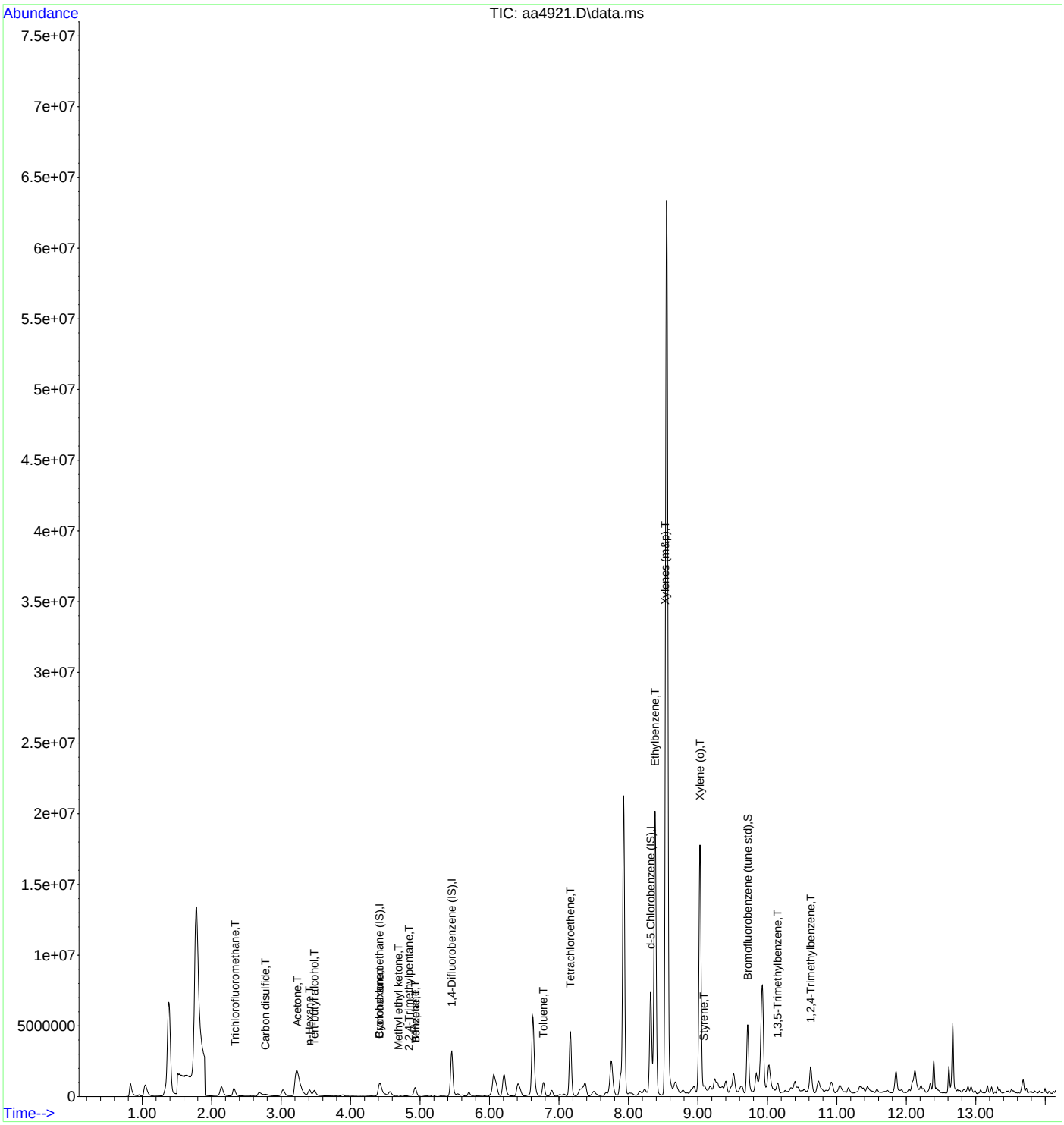
Quant Time: Dec 12 11:06:14 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

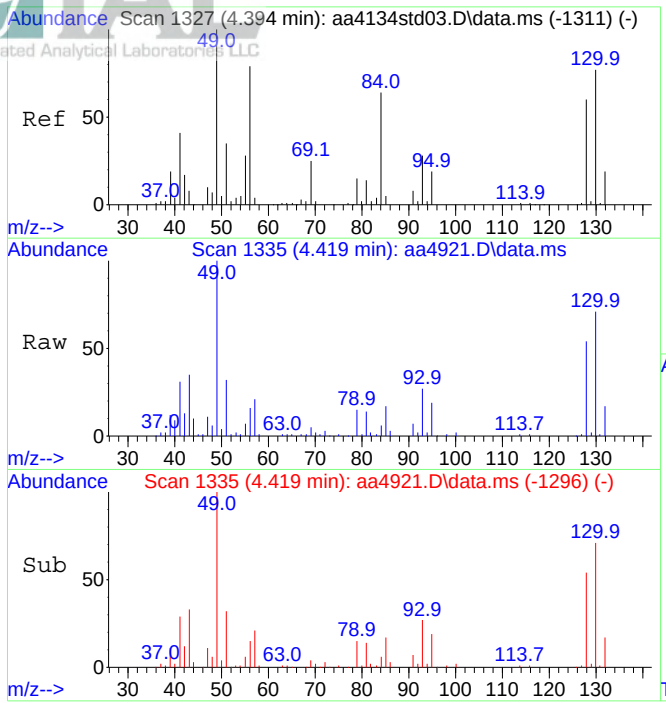
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.419	130	460173	10.00	ppbV	0.025
39) 1,4-Difluorobenzene (IS)	5.457	114	2604286	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.322	117	2267933	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2022524	10.23	ppbV	0.000
Target Compounds						Qvalue
12) Trichlorofluoromethane	2.338	101	41519	0.32	ppbV	98
15) Carbon disulfide	2.776	76	208427	1.48	ppbV #	84
21) Acetone	3.235	43	1030652	14.85	ppbV	98
24) n-Hexane	3.409	57	358220	2.47	ppbV #	75
26) Tert-butyl alcohol	3.477	59	697696	5.82	ppbV	100
29) Cyclohexane	4.419	56	66885	0.66	ppbV #	56
35) Methyl ethyl ketone	4.692	43	118672	1.06	ppbV	100
36) n-Heptane	4.930	43	337223	2.65	ppbV	98
37) Benzene	4.936	78	77965	0.43	ppbV #	80
41) 2,2,4-Trimethylpentane	4.843	57	70177	0.21	ppbV #	58
47) Toluene	6.775	91	617420	1.69	ppbV	99
49) Tetrachloroethene	7.164	166	1540760	9.76	ppbV	100
58) Ethylbenzene	8.383	91	18470313	44.19	ppbV	98
59) Xylenes (m&p)	8.531	91	29895342	96.54	ppbV #	55
60) Xylene (o)	9.029	91	12984045	38.43	ppbV	100
61) Styrene	9.087	104	112436	0.49	ppbV	88
69) 1,3,5-Trimethylbenzene	10.148	105	409205	1.04	ppbV	99
70) 1,2,4-Trimethylbenzene	10.624	105	1054476	2.69	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4921.D
Acq On : 11 Dec 2023 9:04 pm
Operator : jjw
Sample : E23-05081-03
Misc : 3809, 500cc
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Dec 12 11:06:14 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

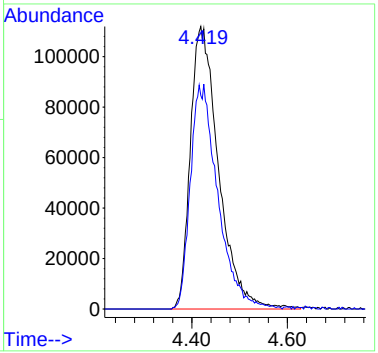


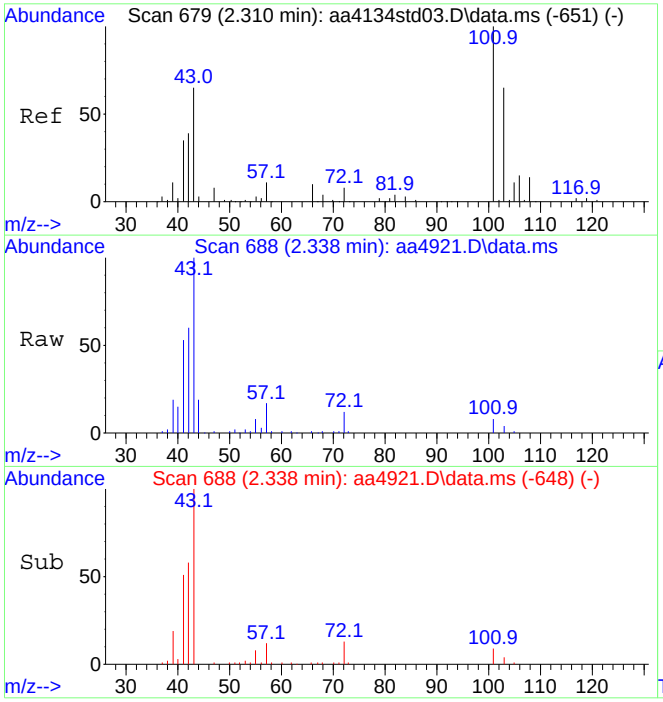


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.419 min Scan# 1335
Delta R.T. 0.025 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion:130 Resp: 460173

Ion	Ratio	Lower	Upper
130	100		
128	77.3	62.2	93.4

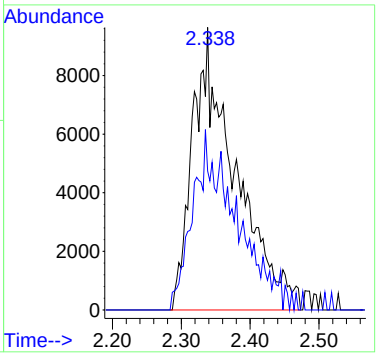


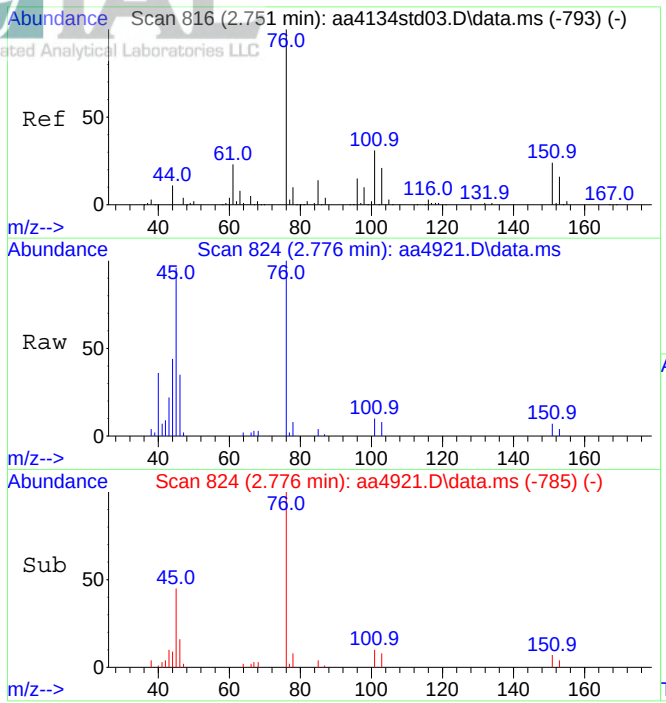


#12
Trichlorofluoromethane
Concen: 0.32 ppbV
RT: 2.338 min Scan# 688
Delta R.T. 0.028 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion:101 Resp: 41519

Ion	Ratio	Lower	Upper
101	100		
103	63.9	52.5	78.7

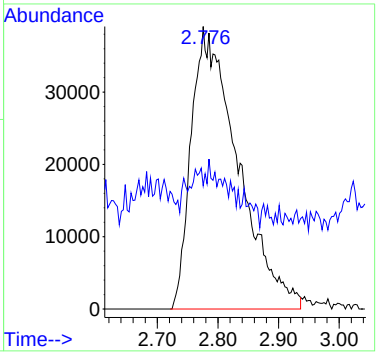


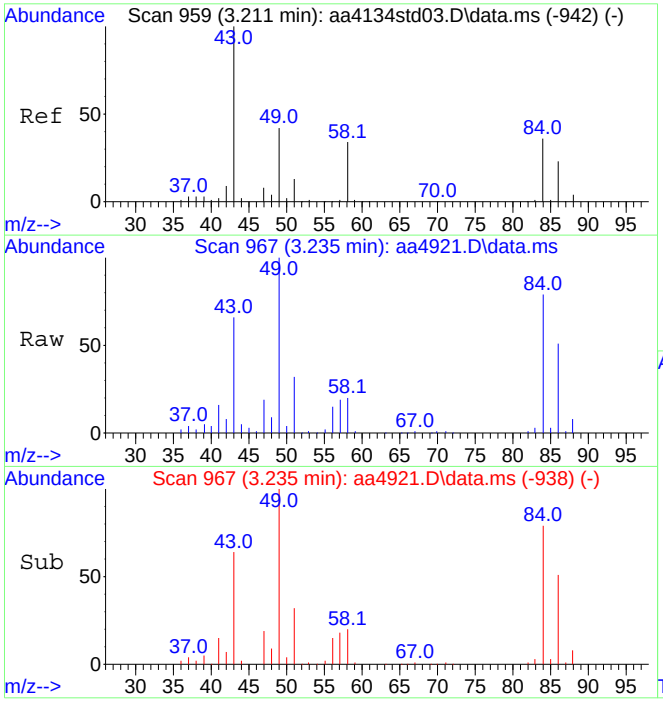


#15
Carbon disulfide
Concen: 1.48 ppbV
RT: 2.776 min Scan# 824
Delta R.T. 0.025 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion: 76 Resp: 208427

Ion	Ratio	Lower	Upper
76	100		
44	17.4	9.0	13.4#

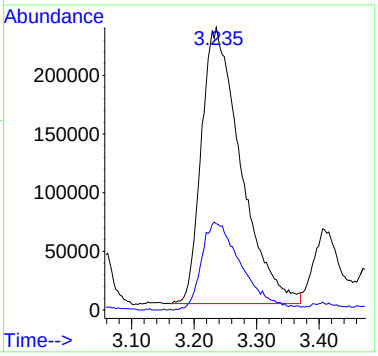


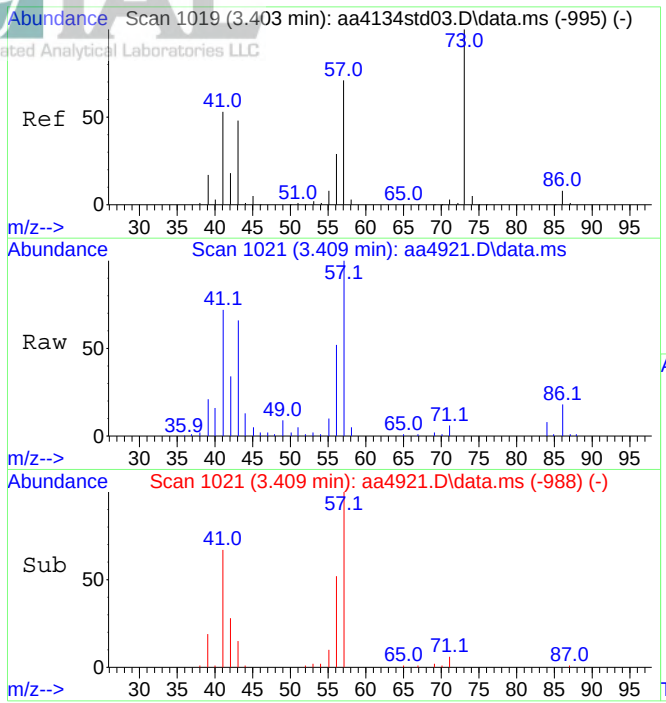


#21
Acetone
Concen: 14.85 ppbV
RT: 3.235 min Scan# 967
Delta R.T. 0.025 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion: 43 Resp: 1030652

Ion	Ratio	Lower	Upper
43	100		
58	32.5	27.1	40.7

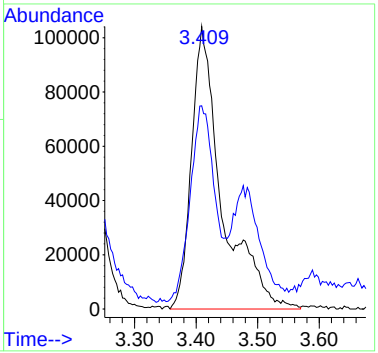


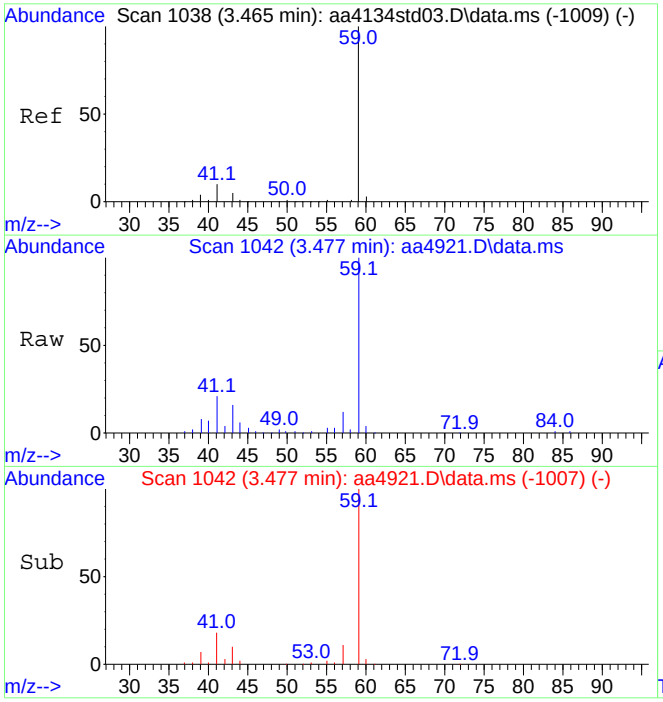


#24
n-Hexane
Concen: 2.47 ppbV
RT: 3.409 min Scan# 1021
Delta R.T. 0.006 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion: 57 Resp: 358220

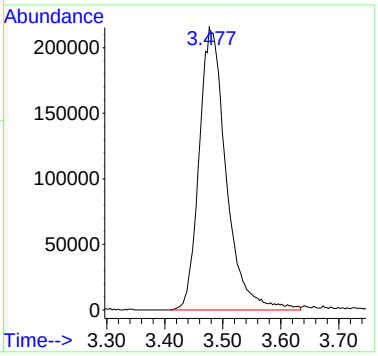
Ion	Ratio	Lower	Upper
57	100		
41	60.1	66.4	99.6#

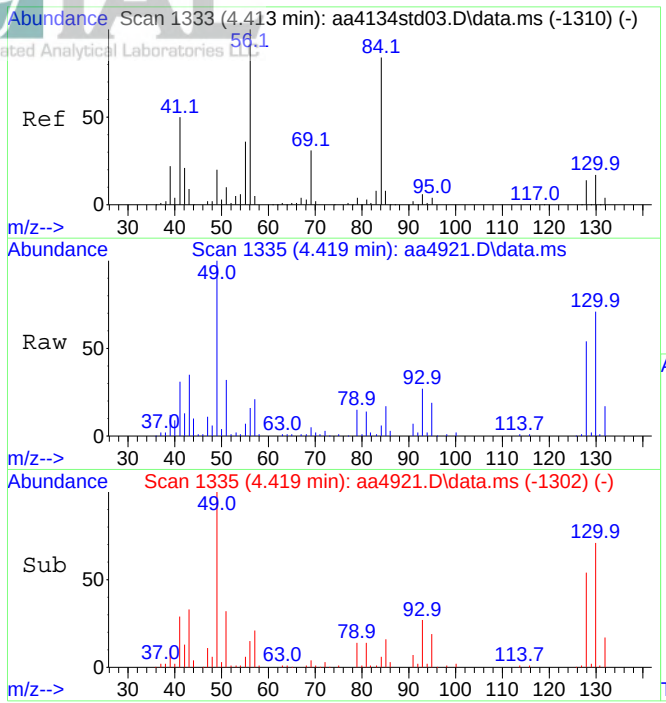




#26
Tert-butyl alcohol
Concen: 5.82 ppbV
RT: 3.477 min Scan# 1042
Delta R.T. 0.012 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion: 59 Resp: 697696

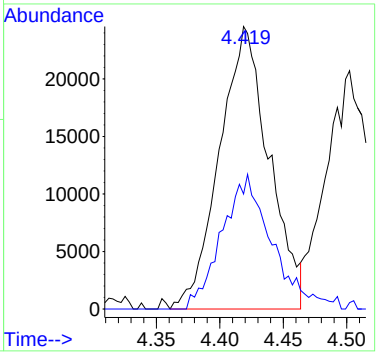


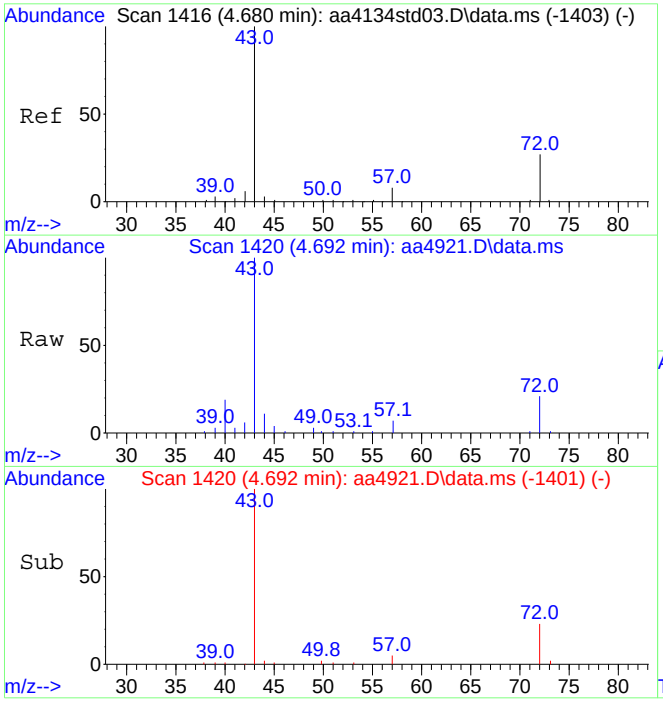


#29
Cyclohexane
Concen: 0.66 ppbV
RT: 4.419 min Scan# 1335
Delta R.T. 0.006 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion: 56 Resp: 66885

Ion	Ratio	Lower	Upper
56	100		
84	48.0	71.2	106.8#

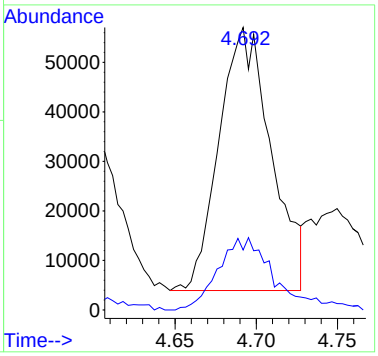


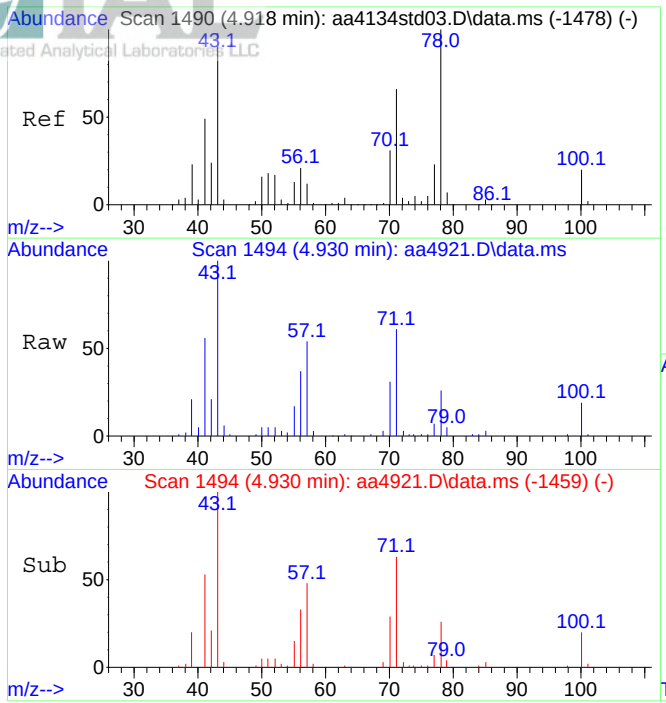


#35
Methyl ethyl ketone
Concen: 1.06 ppbV
RT: 4.692 min Scan# 1420
Delta R.T. 0.012 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion: 43 Resp: 118672

Ion	Ratio	Lower	Upper
43	100		
72	27.1	21.6	32.4

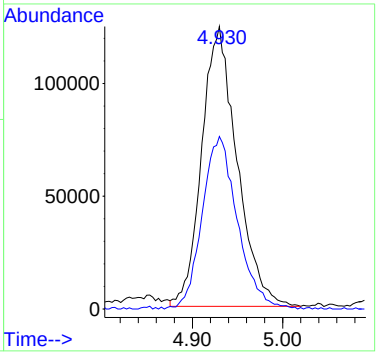


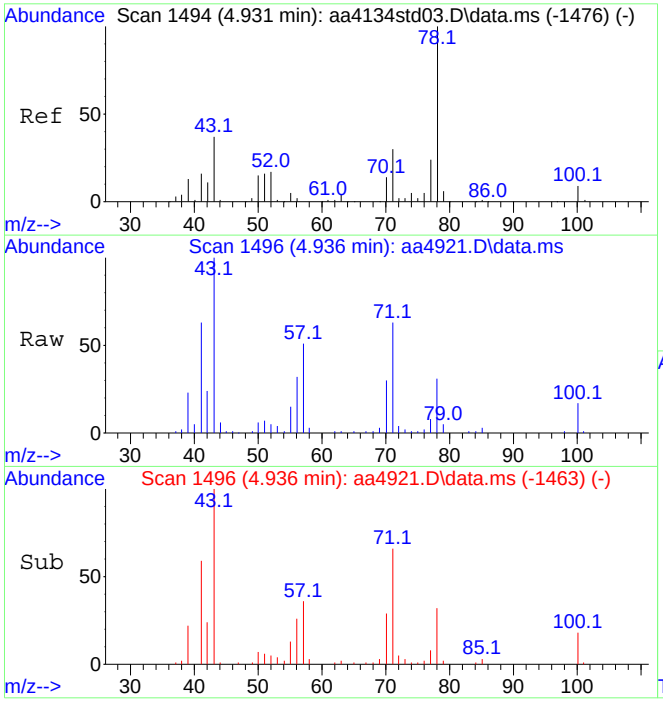


#36
n-Heptane
Concen: 2.65 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. 0.012 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion: 43 Resp: 337223

Ion	Ratio	Lower	Upper
43	100		
71	61.5	50.5	75.7

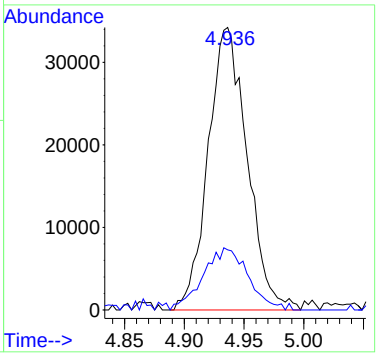


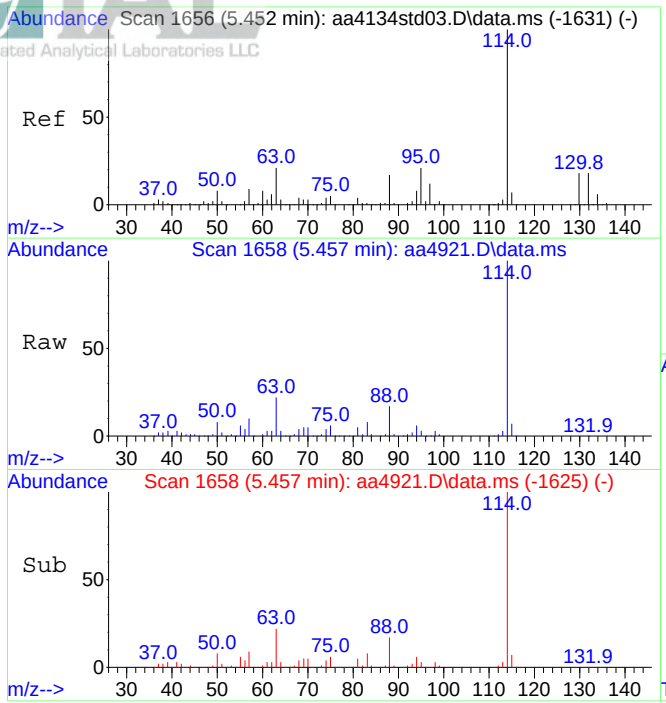


#37
Benzene
Concen: 0.43 ppbV
RT: 4.936 min Scan# 1496
Delta R.T. 0.006 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion: 78 Resp: 77965

Ion	Ratio	Lower	Upper
78	100		
51	25.3	13.4	20.0#

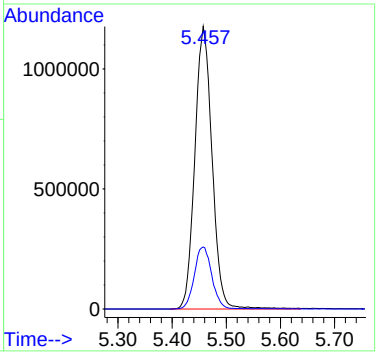


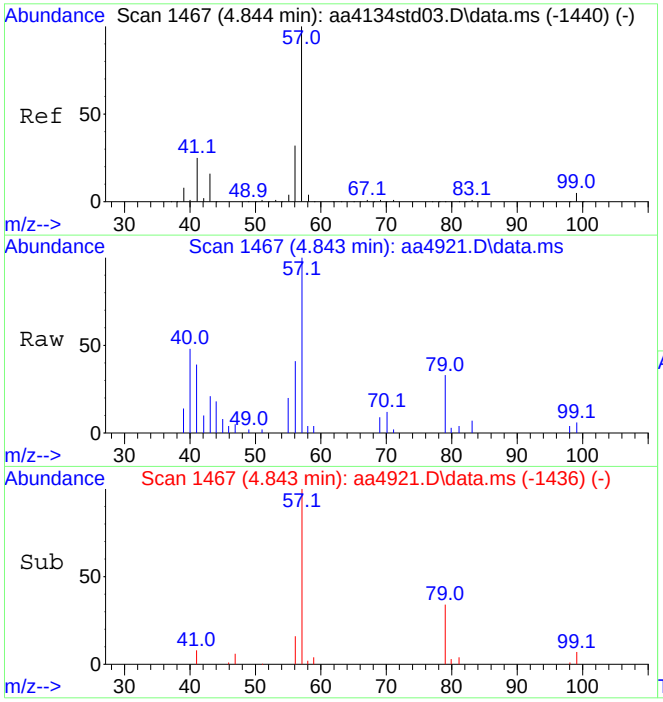


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.005 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion:114 Resp: 2604286

Ion	Ratio	Lower	Upper
114	100		
63	22.3	17.0	25.6

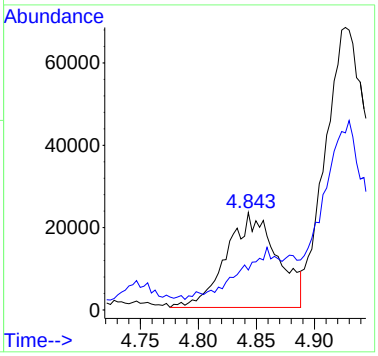


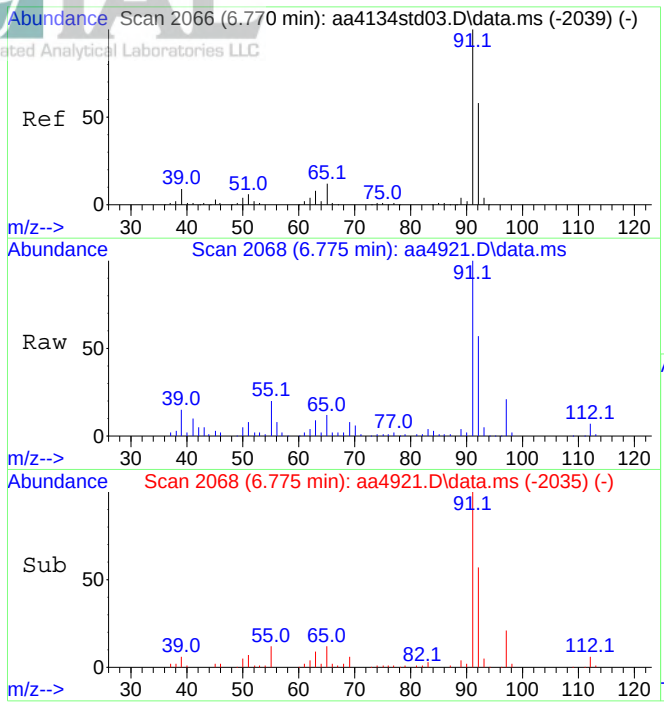


#41
2,2,4-Trimethylpentane
Concen: 0.21 ppbV
RT: 4.843 min Scan# 1467
Delta R.T. -0.001 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion: 57 Resp: 70177

Ion	Ratio	Lower	Upper
57	100		
56	55.5	25.7	38.5#

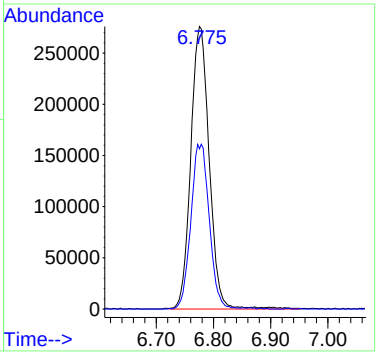


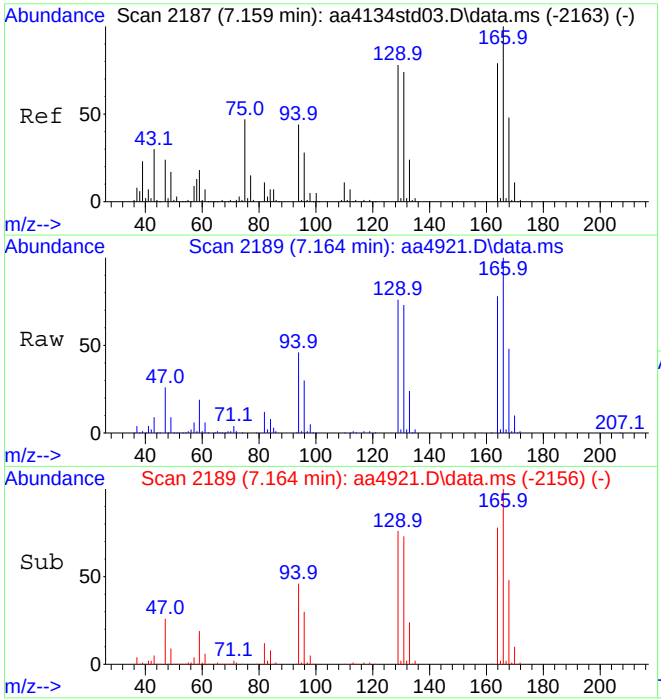


#47
Toluene
Concen: 1.69 ppbV
RT: 6.775 min Scan# 2068
Delta R.T. 0.006 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion: 91 Resp: 617420

Ion	Ratio	Lower	Upper
91	100		
92	58.2	47.3	70.9

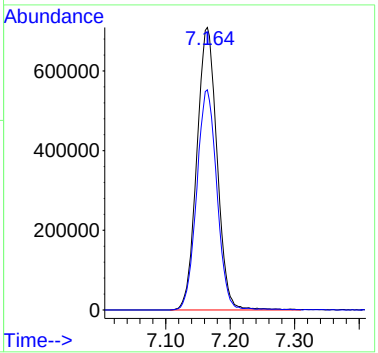


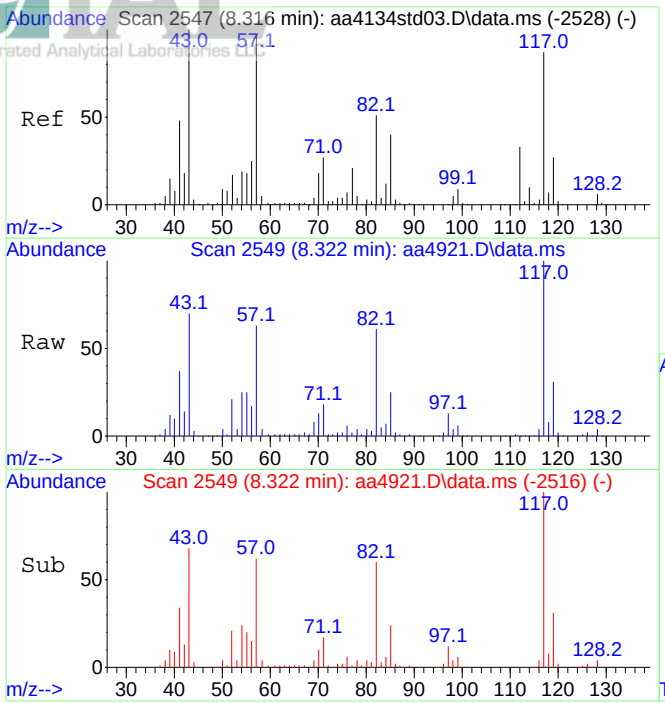


#49
Tetrachloroethene
Concen: 9.76 ppbV
RT: 7.164 min Scan# 2189
Delta R.T. 0.006 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion:166 Resp: 1540760

Ion	Ratio	Lower	Upper
166	100		
164	77.7	62.3	93.5

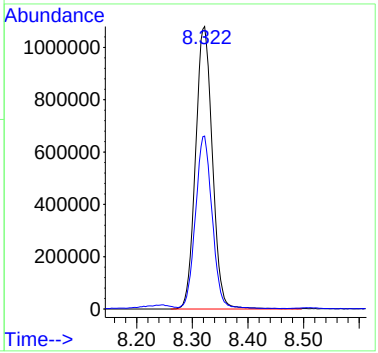


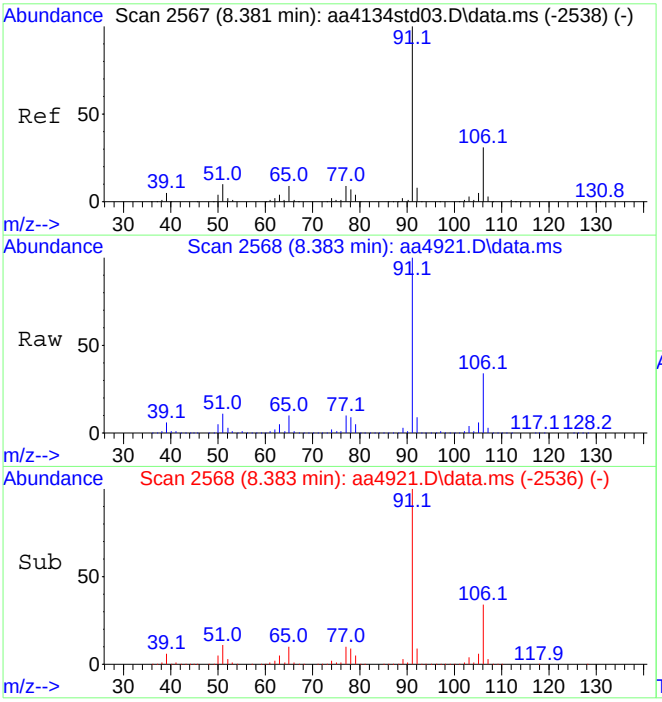


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.322 min Scan# 2549
Delta R.T. 0.006 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion:117 Resp: 2267933

Ion	Ratio	Lower	Upper
117	100		
82	60.2	47.0	70.4

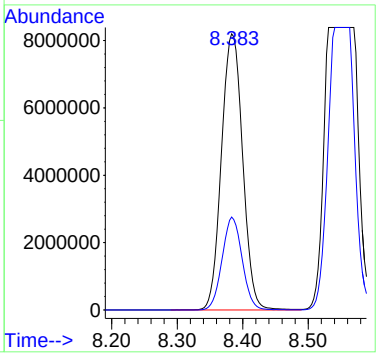


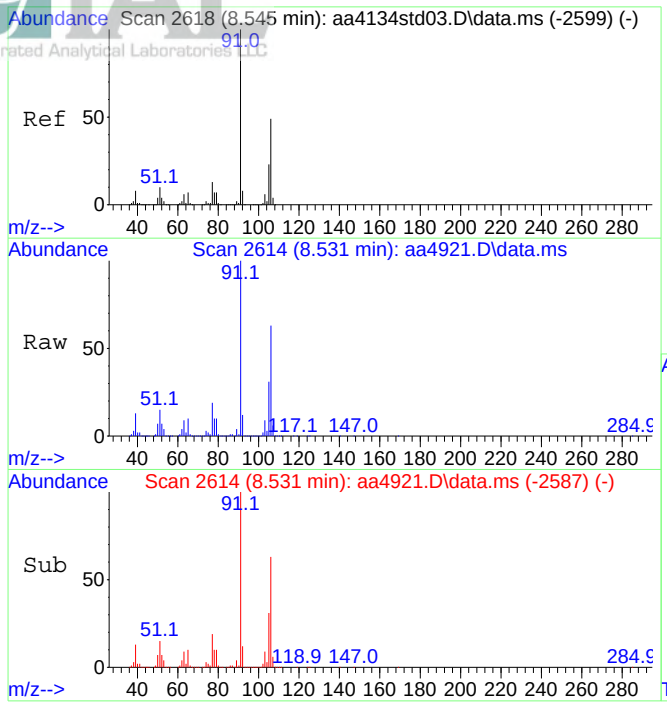


#58
Ethylbenzene
Concen: 44.19 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion: 91 Resp:18470313

Ion	Ratio	Lower	Upper
91	100		
106	31.7	24.6	36.8

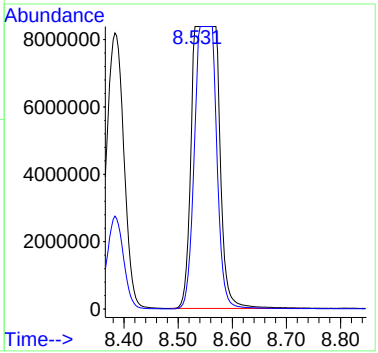


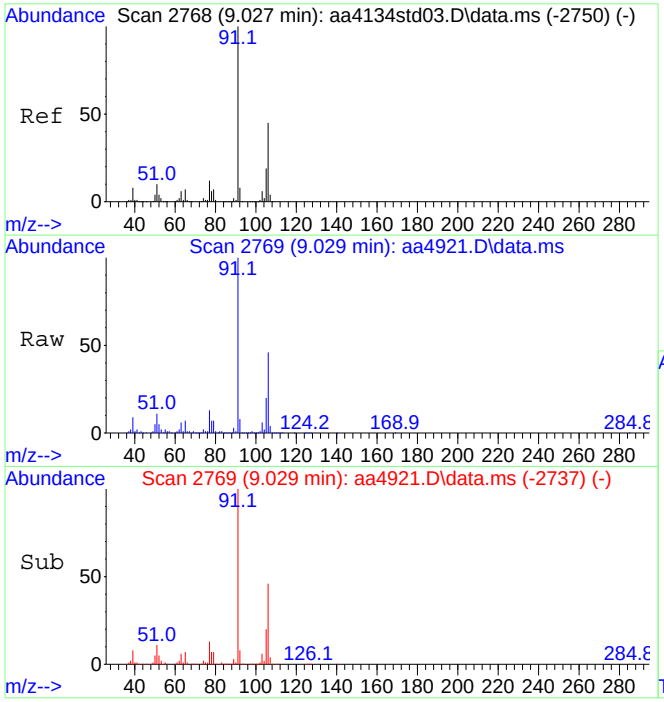


#59
Xylenes (m&p)
Concen: 96.54 ppbV
RT: 8.531 min Scan# 2614
Delta R.T. -0.014 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion: 91 Resp:29895342

Ion	Ratio	Lower	Upper
91	100		
106	79.2	39.0	58.4#

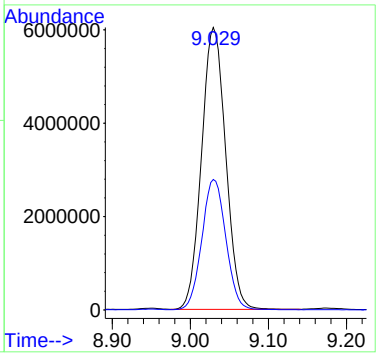


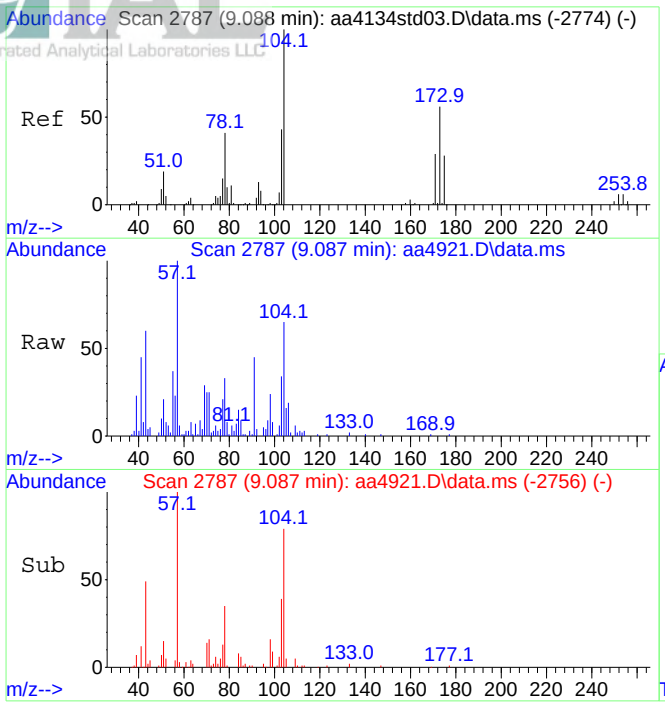


#60
Xylene (o)
Concen: 38.43 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion: 91 Resp:12984045

Ion	Ratio	Lower	Upper
91	100		
106	45.8	36.8	55.2

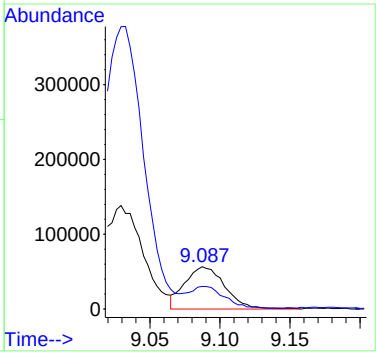


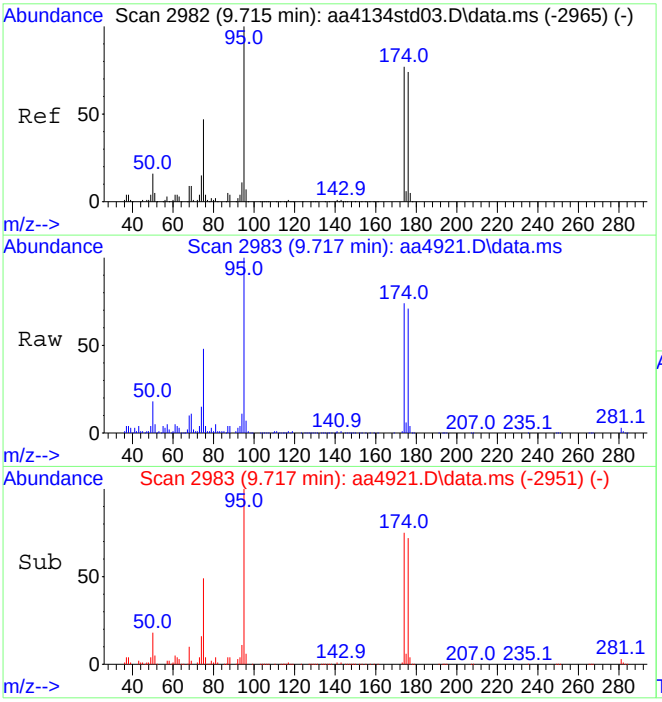


#61
Styrene
Concen: 0.49 ppbV
RT: 9.087 min Scan# 2787
Delta R.T. -0.001 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion:104 Resp: 112436

Ion	Ratio	Lower	Upper
104	100		
103	39.1	37.8	56.6

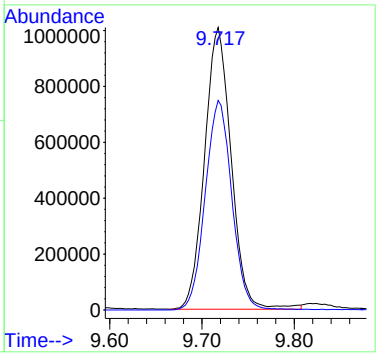


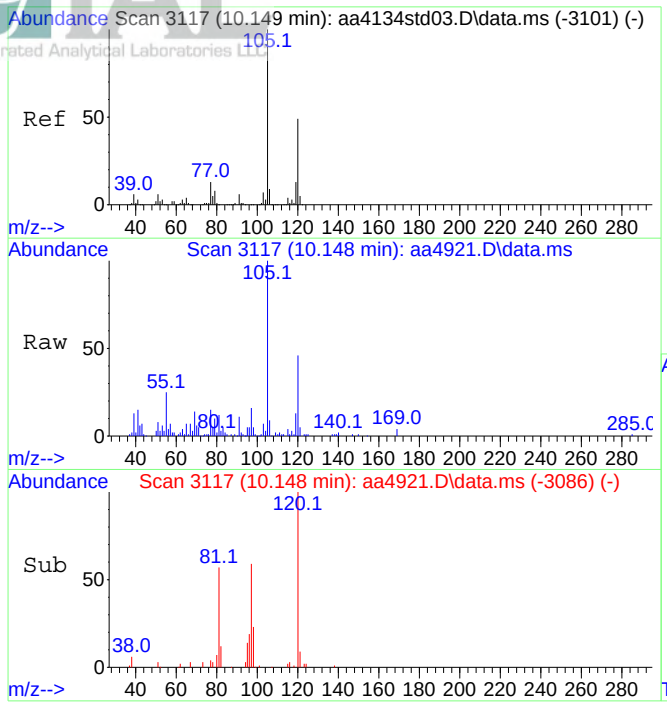


#64
Bromofluorobenzene (tune std)
Concen: 10.23 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion: 95 Resp: 2022524

Ion	Ratio	Lower	Upper
95	100		
174	74.3	61.1	91.7

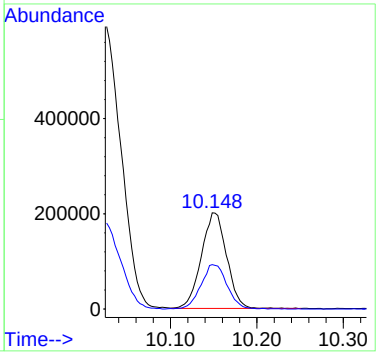


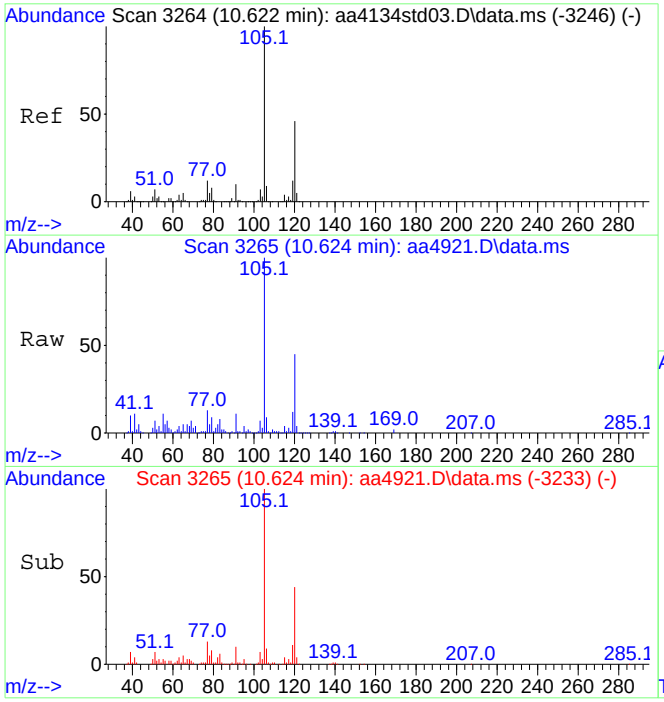


#69
1,3,5-Trimethylbenzene
Concen: 1.04 ppbV
RT: 10.148 min Scan# 3117
Delta R.T. -0.001 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion:105 Resp: 409205

Ion	Ratio	Lower	Upper
105	100		
120	47.7	38.9	58.3

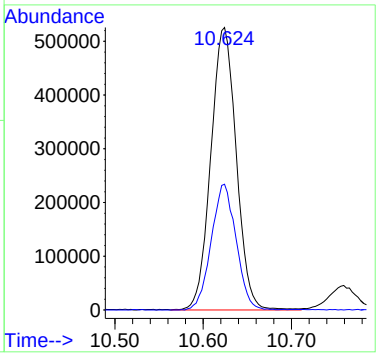




#70
1,2,4-Trimethylbenzene
Concen: 2.69 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4921.D
Acq: 11 Dec 2023 9:04 pm

Tgt Ion:105 Resp: 1054476

Ion	Ratio	Lower	Upper
105	100		
120	43.5	36.3	54.5



Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4920.D
Acq On : 11 Dec 2023 8:24 pm
Operator : jjw
Sample : E23-05081-03x5 dil
Misc : 3809, 100cc
ALS Vial : 23 Sample Multiplier: 1

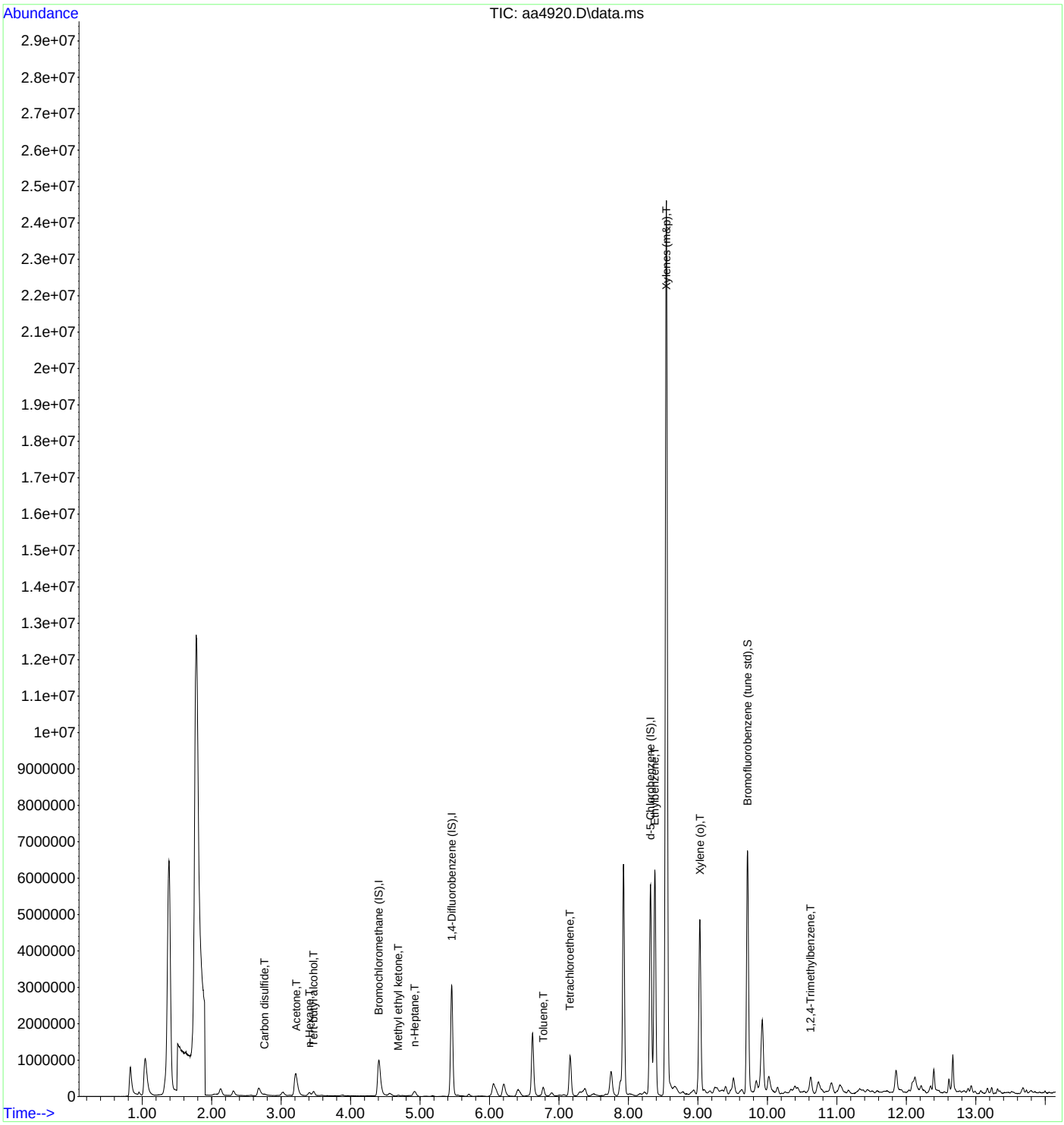
Quant Time: Dec 12 11:06:44 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

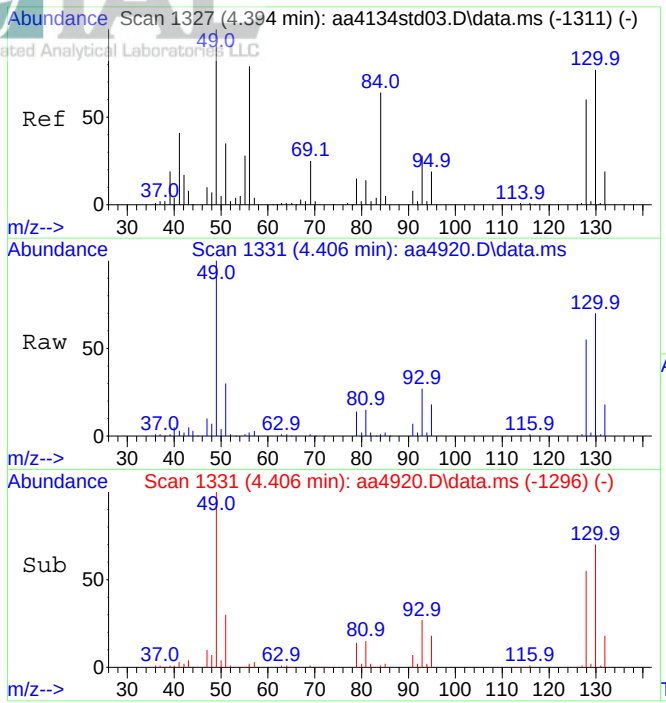
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.406	130	514731	10.00	ppbV	0.012
39) 1,4-Difluorobenzene (IS)	5.457	114	2776988	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	3081592	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2945791	10.97	ppbV	0.000
Target Compounds						Qvalue
15) Carbon disulfide	2.763	76	45146	0.29	ppbV	97
21) Acetone	3.219	43	236314	3.04	ppbV	97
24) n-Hexane	3.409	57	76444	0.47	ppbV #	81
26) Tert-butyl alcohol	3.467	59	165848	1.24	ppbV	100
35) Methyl ethyl ketone	4.686	43	31923	0.25	ppbV	96
36) n-Heptane	4.920	43	74529	0.52	ppbV	99
47) Toluene	6.772	91	153157	0.39	ppbV	99
49) Tetrachloroethene	7.158	166	380691	2.26	ppbV	99
58) Ethylbenzene	8.380	91	5478786	9.65	ppbV	98
59) Xylenes (m&p)	8.547	91	17266223	41.04	ppbV	99
60) Xylene (o)	9.029	91	3468551	7.56	ppbV	98
70) 1,2,4-Trimethylbenzene	10.621	105	254285	0.48	ppbV	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4920.D
Acq On : 11 Dec 2023 8:24 pm
Operator : jjw
Sample : E23-05081-03x5 dil
Misc : 3809, 100cc
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Dec 12 11:06:44 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

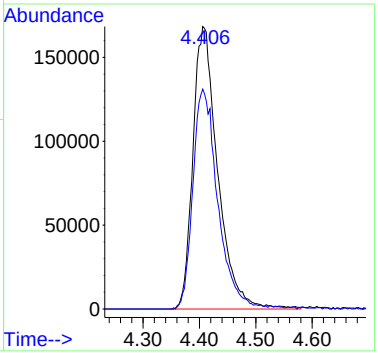


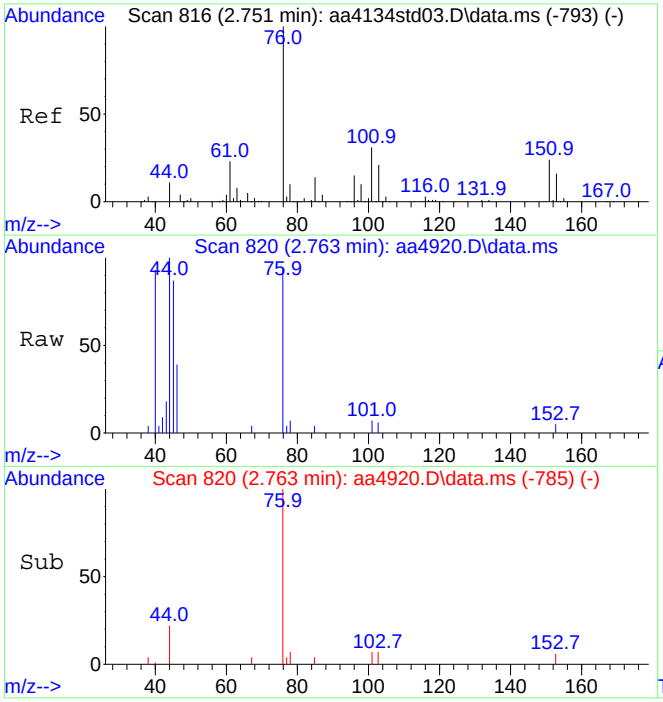


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.406 min Scan# 1331
Delta R.T. 0.012 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion:130 Resp: 514731

Ion	Ratio	Lower	Upper
130	100		
128	77.8	62.2	93.4

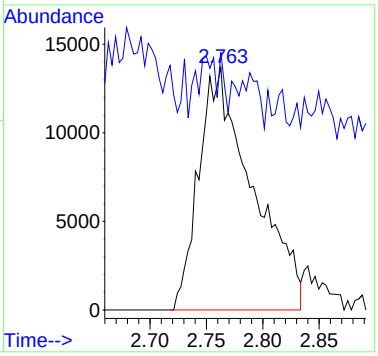


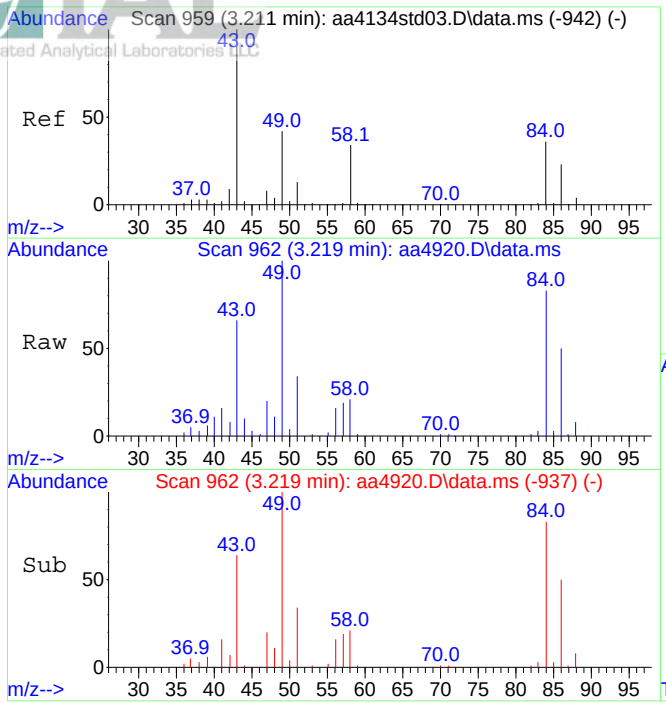


#15
Carbon disulfide
Concen: 0.29 ppbV
RT: 2.763 min Scan# 820
Delta R.T. 0.012 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion: 76 Resp: 45146

Ion	Ratio	Lower	Upper
76	100		
44	12.2	9.0	13.4

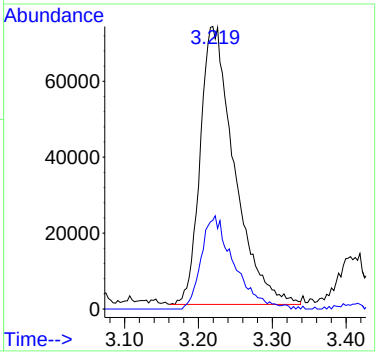


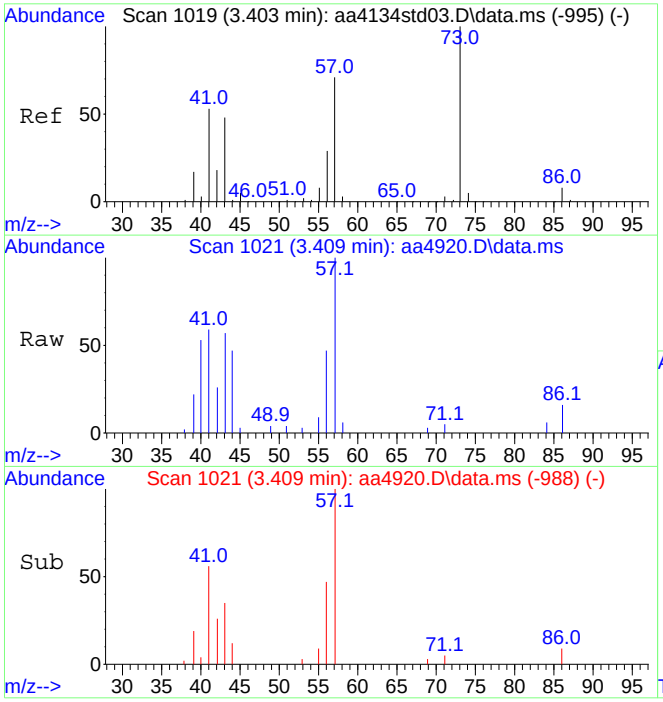


#21
Acetone
Concen: 3.04 ppbV
RT: 3.219 min Scan# 962
Delta R.T. 0.009 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion: 43 Resp: 236314

Ion	Ratio	Lower	Upper
43	100		
58	32.0	27.1	40.7

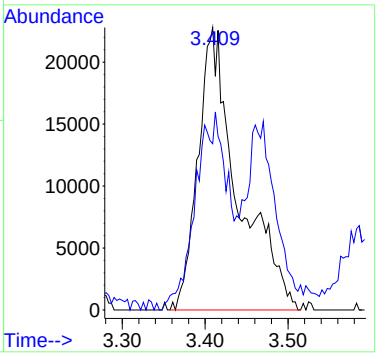


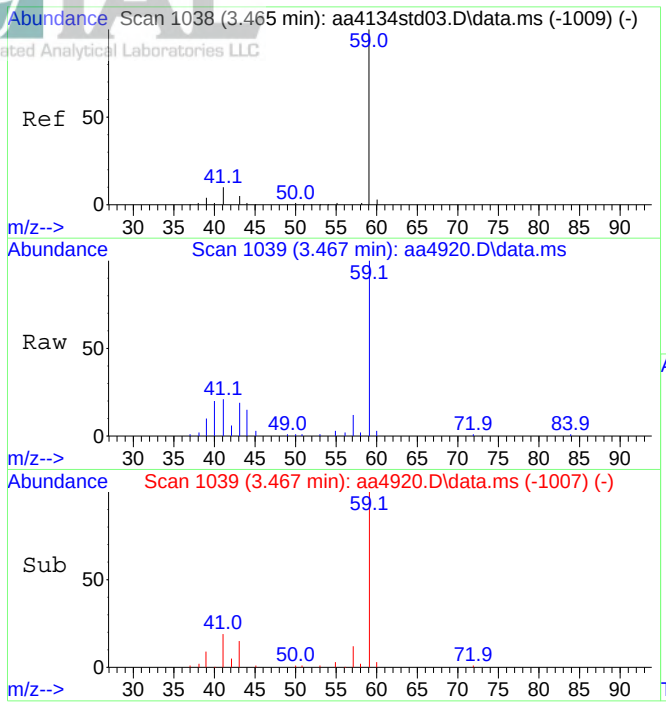


#24
n-Hexane
Concen: 0.47 ppbV
RT: 3.409 min Scan# 1021
Delta R.T. 0.006 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion: 57 Resp: 76444

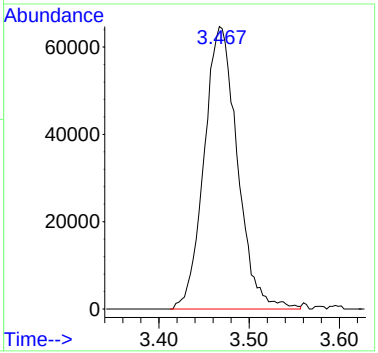
Ion	Ratio	Lower	Upper
57	100		
41	65.6	66.4	99.6#

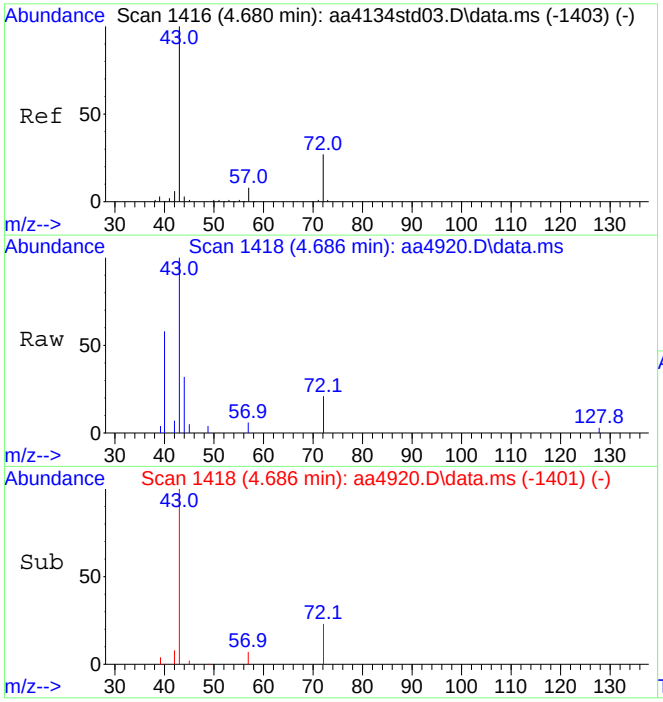




#26
Tert-butyl alcohol
Concen: 1.24 ppbV
RT: 3.467 min Scan# 1039
Delta R.T. 0.002 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion: 59 Resp: 165848

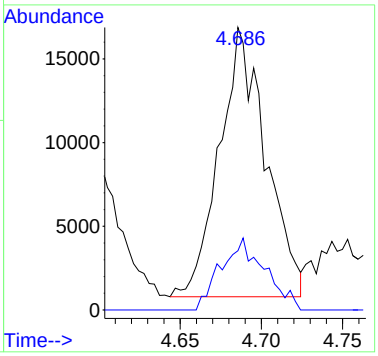


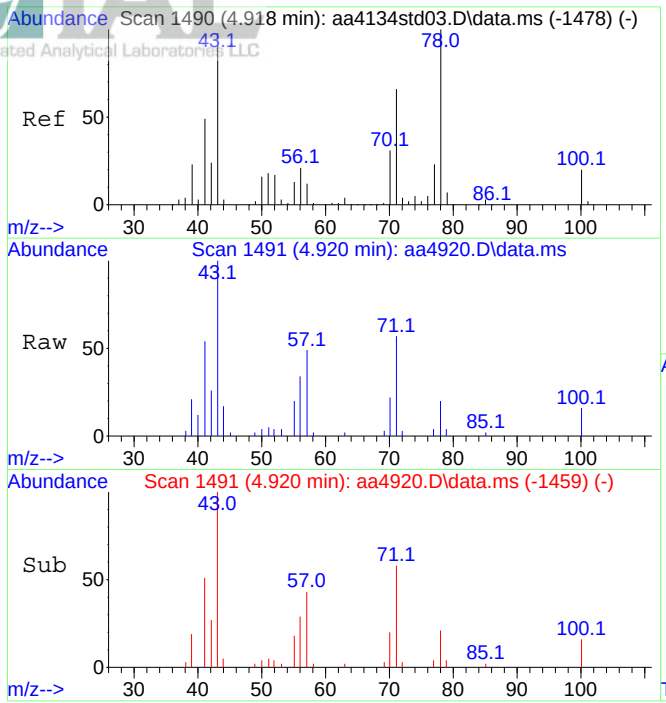


#35
Methyl ethyl ketone
Concen: 0.25 ppbV
RT: 4.686 min Scan# 1418
Delta R.T. 0.006 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion: 43 Resp: 31923

Ion	Ratio	Lower	Upper
43	100		
72	25.2	21.6	32.4

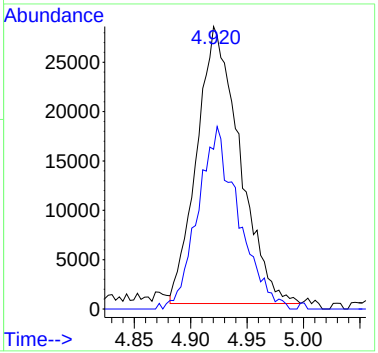


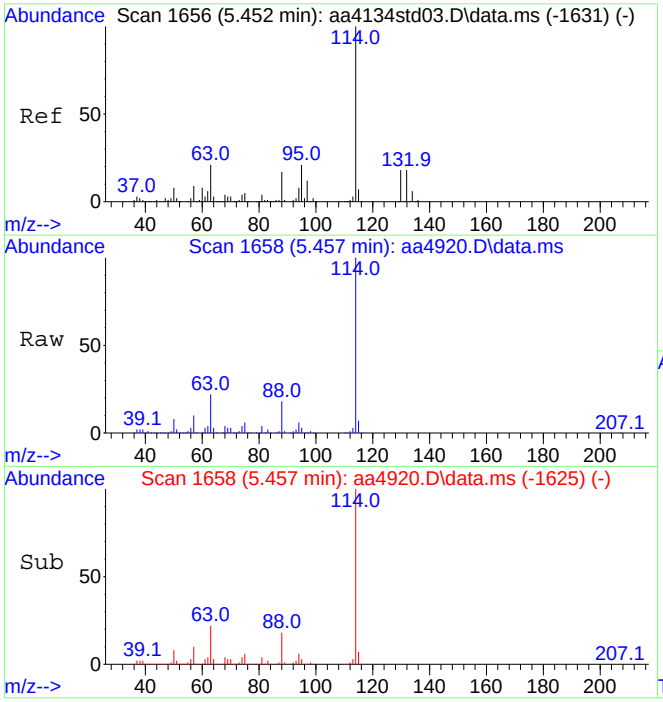


#36
n-Heptane
Concen: 0.52 ppbV
RT: 4.920 min Scan# 1491
Delta R.T. 0.002 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion: 43 Resp: 74529

Ion	Ratio	Lower	Upper
43	100		
71	62.3	50.5	75.7

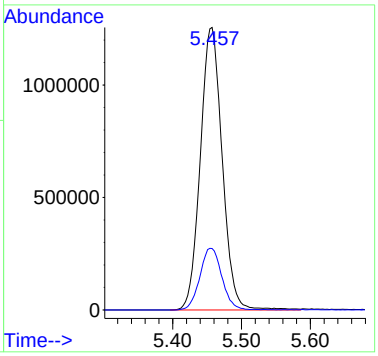


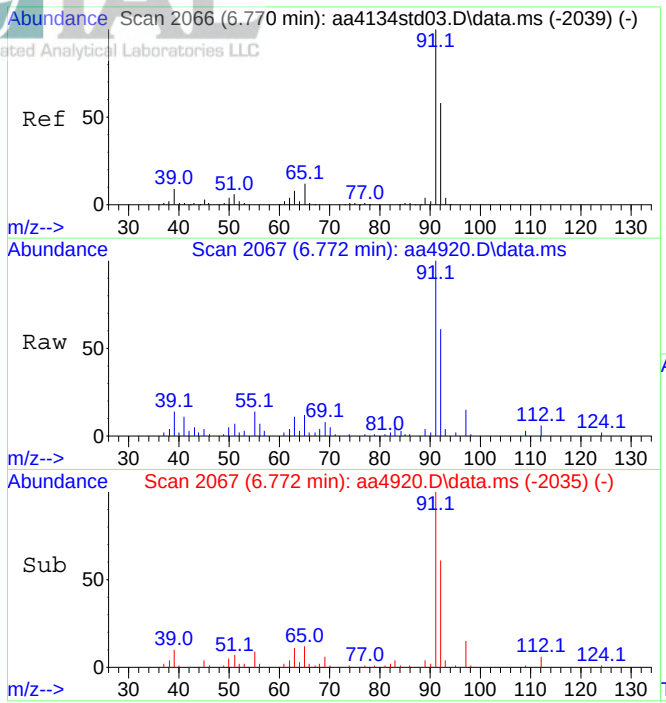


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.005 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion:114 Resp: 2776988

Ion	Ratio	Lower	Upper
114	100		
63	22.1	17.0	25.6

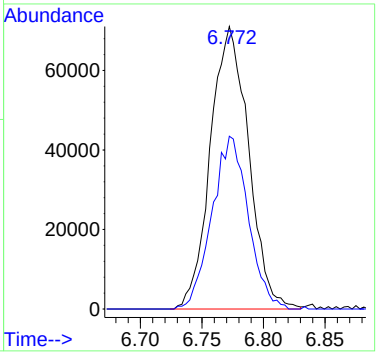


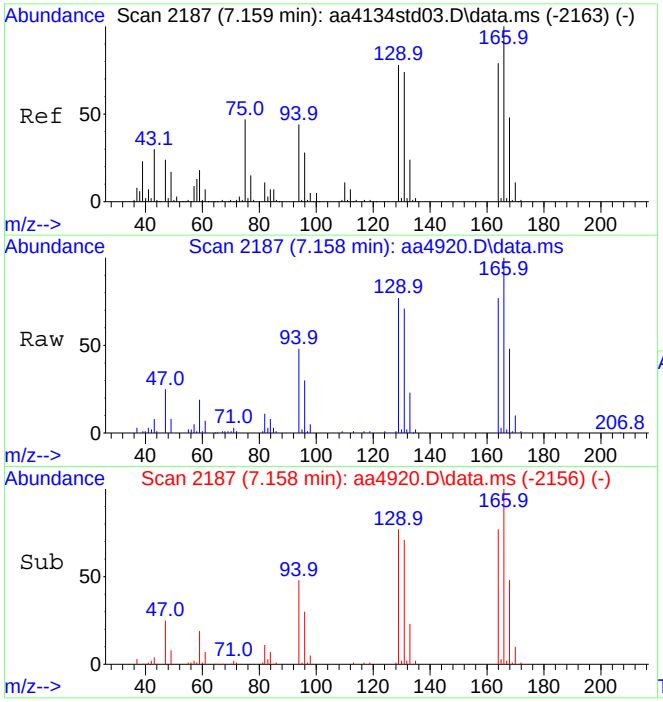


#47
Toluene
Concen: 0.39 ppbV
RT: 6.772 min Scan# 2067
Delta R.T. 0.002 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion: 91 Resp: 153157

Ion	Ratio	Lower	Upper
91	100		
92	58.1	47.3	70.9

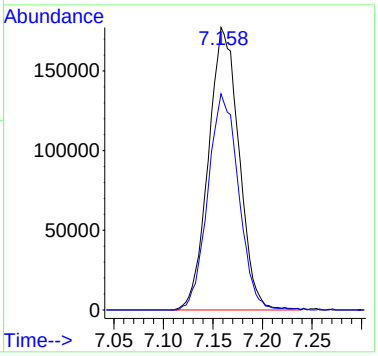


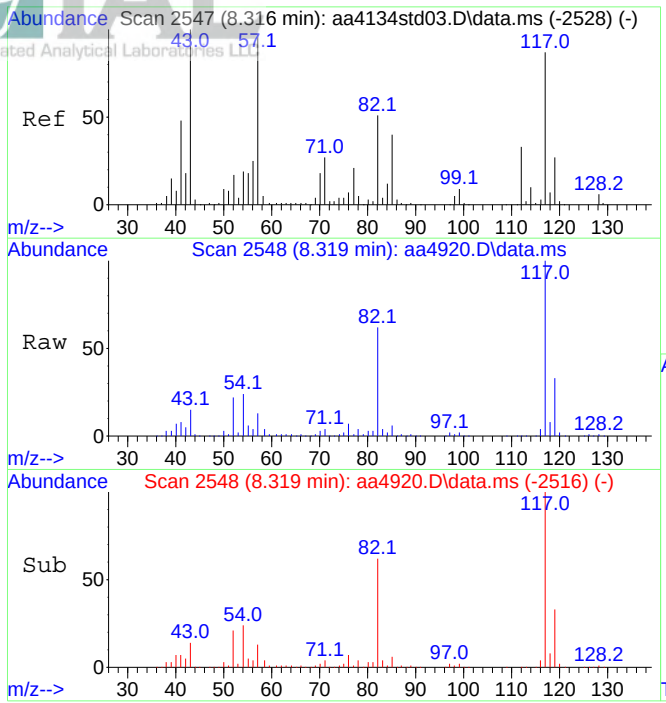


#49
Tetrachloroethene
Concen: 2.26 ppbV
RT: 7.158 min Scan# 2187
Delta R.T. -0.001 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion:166 Resp: 380691

Ion	Ratio	Lower	Upper
166	100		
164	76.8	62.3	93.5

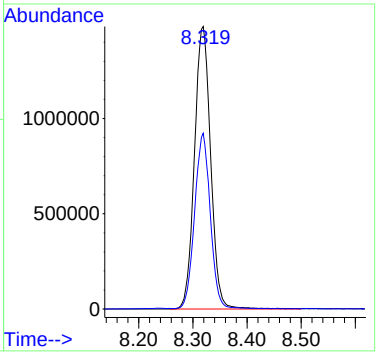


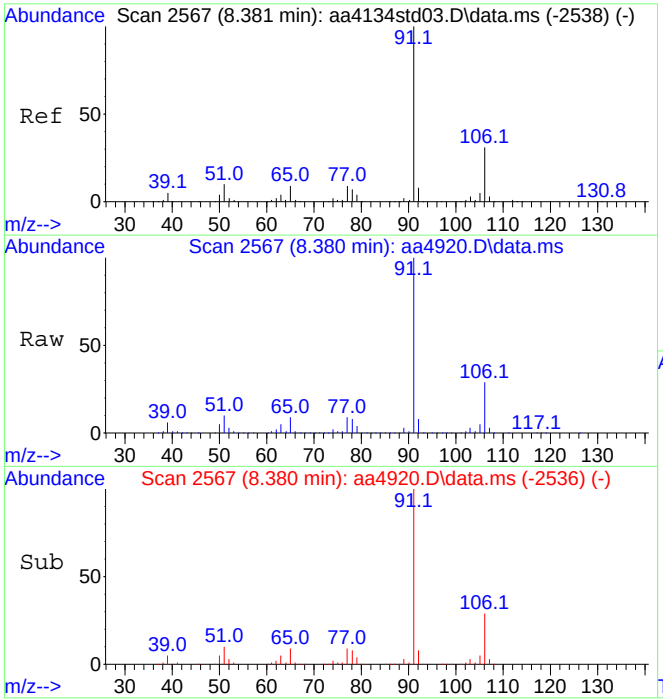


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion:117 Resp: 3081592

Ion	Ratio	Lower	Upper
117	100		
82	59.7	47.0	70.4

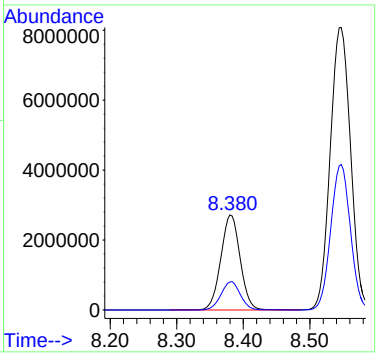


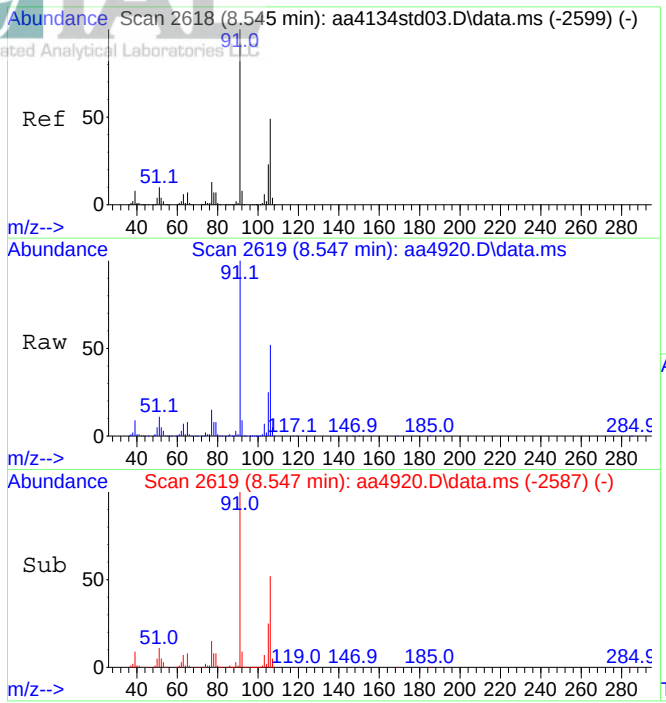


#58
Ethylbenzene
Concen: 9.65 ppbV
RT: 8.380 min Scan# 2567
Delta R.T. -0.001 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion: 91 Resp: 5478786

Ion	Ratio	Lower	Upper
91	100		
106	29.8	24.6	36.8

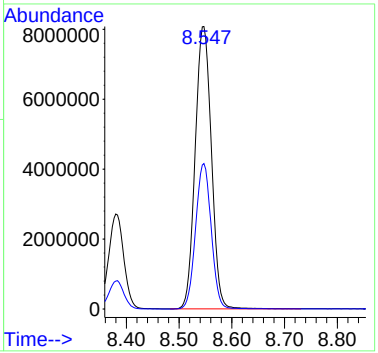


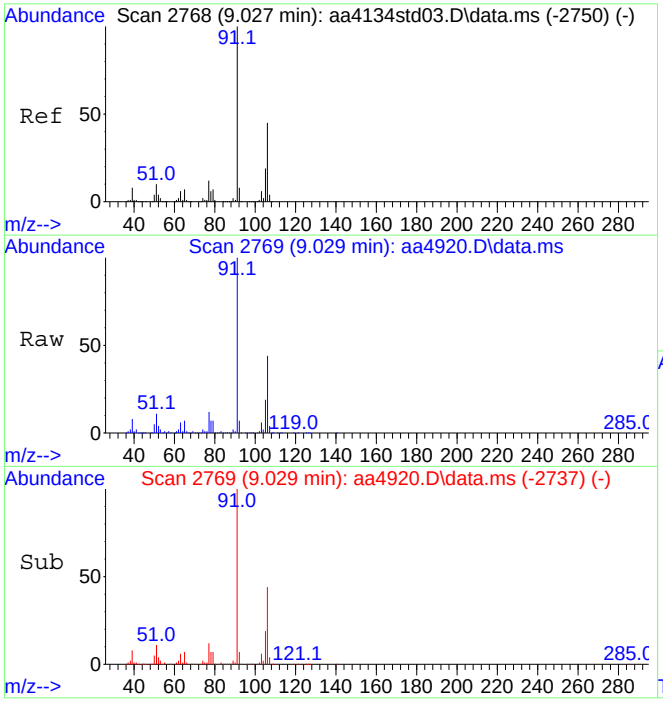


#59
Xylenes (m&p)
Concen: 41.04 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. 0.002 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion: 91 Resp:17266223

Ion	Ratio	Lower	Upper
91	100		
106	49.7	39.0	58.4

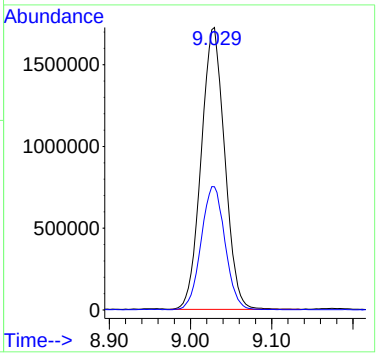


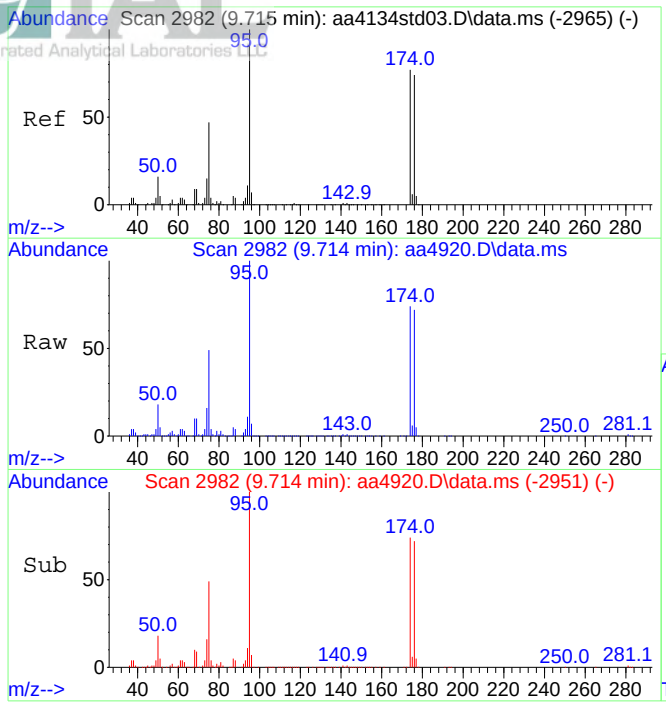


#60
Xylene (o)
Concen: 7.56 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion: 91 Resp: 3468551

Ion	Ratio	Lower	Upper
91	100		
106	44.5	36.8	55.2

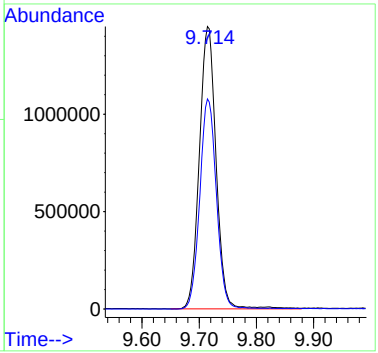


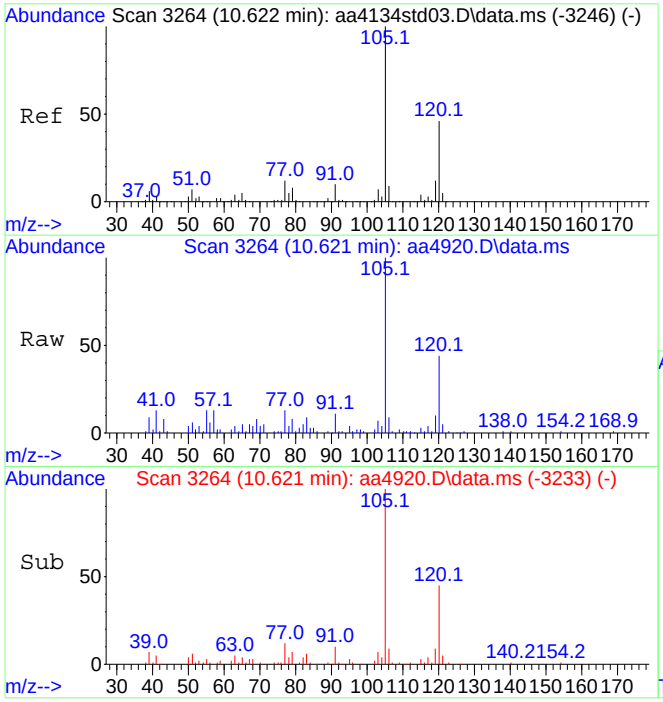


#64
Bromofluorobenzene (tune std)
Concen: 10.97 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion: 95 Resp: 2945791

Ion	Ratio	Lower	Upper
95	100		
174	74.3	61.1	91.7

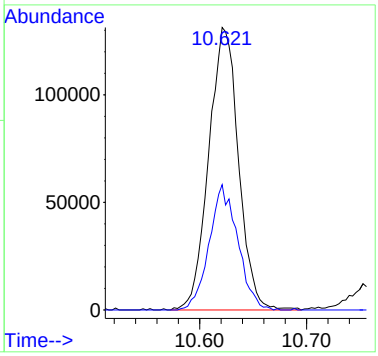




#70
1,2,4-Trimethylbenzene
Concen: 0.48 ppbV
RT: 10.621 min Scan# 3264
Delta R.T. -0.001 min
Lab File: aa4920.D
Acq: 11 Dec 2023 8:24 pm

Tgt Ion:105 Resp: 254285

Ion	Ratio	Lower	Upper
105	100		
120	42.4	36.3	54.5



INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05081-04	Instrument ID:	AA
Client ID:	SV8-401-Compactor Room	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/17/2023 11:00	Injection Volmue:	500ml, 100ml
Date Received:	11/20/2023	Matrix:	Air-Other
Date Analyzed:	12/11/2023 22:07, 12/11/2023 21:35	% Moisture:	NA
Data File:	AA4923, AA4922	Dilution Factor:	1, 5
Summa ID:	2896B	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Acetone	67-64-1		15	35	0.20	0.48
Benzene	71-43-2		0.30	0.96	0.20	0.64
Bromodichloromethane	75-27-4		ND	ND	0.20	1.3
Bromoform	75-25-2		ND	ND	0.20	2.1
Bromomethane	74-83-9		ND	ND	0.20	0.78
1,3-Butadiene	106-99-0		ND	ND	0.20	0.44
Chlorobenzene	108-90-7		ND	ND	0.20	0.92
Chloroethane	75-00-3		ND	ND	0.20	0.53
Chloroform	67-66-3		ND	ND	0.20	0.98
Chloromethane	74-87-3		ND	ND	0.20	0.41
Carbon disulfide	75-15-0		0.46	1.4	0.20	0.62
Carbon tetrachloride	56-23-5		ND	ND	0.040	0.25
Cyclohexane	110-82-7		ND	ND	0.20	0.69
Dibromochloromethane	124-48-1		ND	ND	0.20	1.7
1,2-Dibromoethane	106-93-4		ND	ND	0.20	1.5
1,2-Dichlorobenzene	95-50-1		ND	ND	0.20	1.2
1,3-Dichlorobenzene	541-73-1		ND	ND	0.20	1.2
1,4-Dichlorobenzene	106-46-7		ND	ND	0.20	1.2
Dichlorodifluoromethane	75-71-8		ND	ND	0.20	0.99
1,1-Dichloroethane	75-34-3		ND	ND	0.20	0.81
1,2-Dichloroethane	107-06-2		ND	ND	0.20	0.81
1,1-Dichloroethene	75-35-4		ND	ND	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2		ND	ND	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5		ND	ND	0.20	0.79
1,2-Dichloropropane	78-87-5		ND	ND	0.20	0.92
1,3-Dichloropropene (cis)	10061-01-5		ND	ND	0.20	0.91
1,3-Dichloropropene (trans)	10061-02-6		ND	ND	0.20	0.91
1,2-Dichlorotetrafluoroethane	76-14-2		ND	ND	0.20	1.4
1,4-Dioxane	123-91-1		ND	ND	0.20	0.72
Ethylbenzene	100-41-4		24	100	0.20	0.87
n-Heptane	142-82-5		0.83	3.4	0.20	0.82
1,3-Hexachlorobutadiene	87-68-3		ND	ND	0.20	2.1
n-Hexane	110-54-3		0.23	0.80	0.20	0.70
Methylene chloride	75-09-2		ND	ND	0.20	0.69
Methyl ethyl ketone	78-93-3		0.55	1.6	0.20	0.59
Methyl isobutyl ketone	108-10-1		ND	ND	0.20	0.82
Methyl tert-butyl ether	1634-04-4		ND	ND	0.20	0.72
Styrene	100-42-5		0.26	1.1	0.20	0.85
Tert-butyl alcohol	75-65-0		1.6	4.8	0.20	0.61
1,1,2,2-Tetrachloroethane	79-34-5		ND	ND	0.20	1.4
Tetrachloroethene	127-18-4		1.8	12	0.20	1.4
Toluene	108-88-3		0.90	3.4	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1		ND	ND	0.20	1.5
1,1,1-Trichloroethane	71-55-6		ND	ND	0.20	1.1
1,1,2-Trichloroethane	79-00-5		ND	ND	0.20	1.1

Qualifiers:
D = Dilution required

INTEGRATED ANALYTICAL LABORATORIES, LLC
Integrated Analytical Laboratories LLC

Volatile Organic Compounds by EPA Method TO-15
Summary of Results

Lab ID:	E23-05081-04	Instrument ID:	AA
Client ID:	SV8-401-Compactor Room	GC/MS Column:	RTX-1, 0.32 mmID
Date Sampled:	11/17/2023 11:00	Injection Volmue:	500ml, 100ml
Date Received:	11/20/2023	Matrix:	Air-Other
Date Analyzed:	12/11/2023 22:07, 12/11/2023 21:35	% Moisture:	NA
Data File:	AA4923, AA4922	Dilution Factor:	1, 5
Summa ID:	2896B	Analyst:	J. Walukiewicz

			Concentration Reported		Reporting Limits	
Compound	**CAS #**	**Q**	**ppbv**	**ug/m3**	**ppbv**	**ug/m3**
Trichloroethene	79-01-6		ND	ND	0.046	0.25
Trichlorofluoromethane	75-69-4		0.31	1.7	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		ND	ND	0.20	1.5
1,2,4-Trimethylbenzene	95-63-6		1.5	7.1	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8		0.44	2.1	0.20	0.98
2,2,4-Trimethylpentane	540-84-1		ND	ND	0.20	0.93
Vinyl bromide	593-60-2		ND	ND	0.20	0.87
Vinyl chloride	75-01-4		ND	ND	0.20	0.51
Xylenes (m&p)	179601-23-1	D	150	650	1.0	4.3
Xylenes (o)	95-47-6		21	90	0.20	0.87

Qualifiers:
D = Dilution required

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4923.D
Acq On : 11 Dec 2023 10:07 pm
Operator : jjw
Sample : E23-05081-04
Misc : 2896B, 500cc
ALS Vial : 26 Sample Multiplier: 1

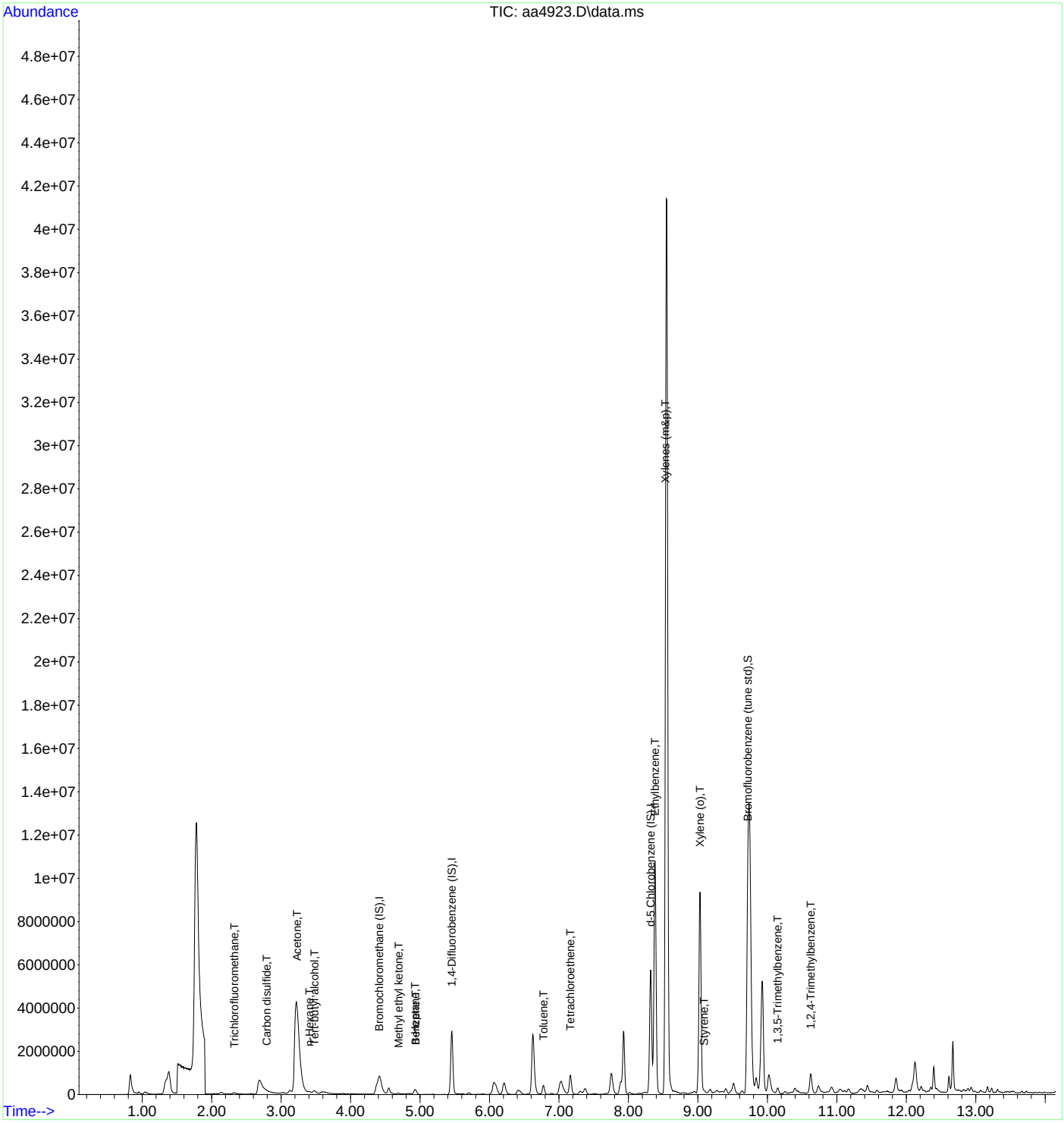
Quant Time: Dec 12 11:19:14 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

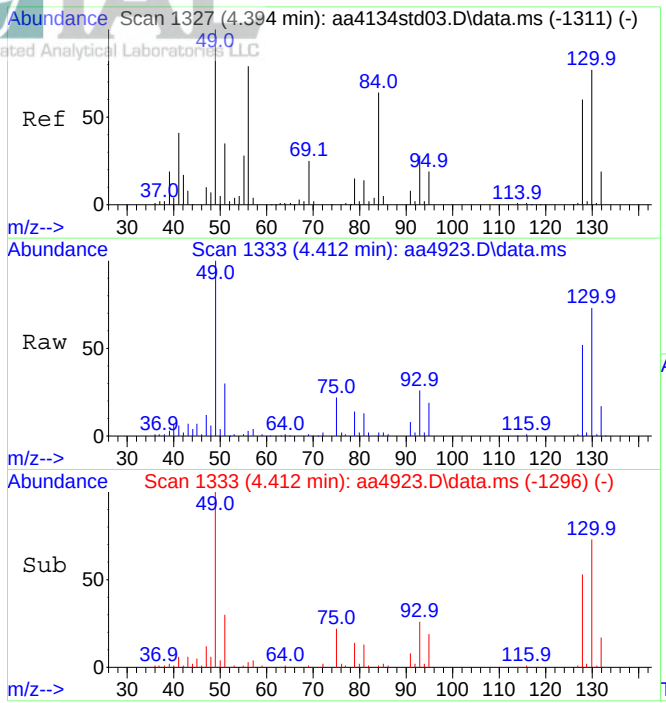
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.412	130	495105	10.00	ppbV	0.018
39) 1,4-Difluorobenzene (IS)	5.457	114	2648087	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.322	117	2297485	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2131744	10.64	ppbV	0.000
Target Compounds						Qvalue
12) Trichlorofluoromethane	2.329	101	42496	0.31	ppbV	100
15) Carbon disulfide	2.795	76	69775	0.46	ppbV #	71
21) Acetone	3.229	43	1093292	14.64	ppbV	99
24) n-Hexane	3.409	57	35503	0.23	ppbV #	78
26) Tert-butyl alcohol	3.480	59	206263	1.60	ppbV	100
35) Methyl ethyl ketone	4.692	43	66775	0.55	ppbV	98
36) n-Heptane	4.930	43	113828	0.83	ppbV	97
37) Benzene	4.936	78	59266	0.30	ppbV #	90
47) Toluene	6.779	91	335581	0.90	ppbV	100
49) Tetrachloroethene	7.164	166	292927	1.83	ppbV	99
58) Ethylbenzene	8.383	91	9965075	23.54	ppbV	99
59) Xylenes (m&p)	8.534	91	25143885	80.15	ppbV #	77
60) Xylene (o)	9.029	91	7094421	20.73	ppbV	98
61) Styrene	9.090	104	61618	0.26	ppbV #	29
69) 1,3,5-Trimethylbenzene	10.148	105	172803	0.43	ppbV	100
70) 1,2,4-Trimethylbenzene	10.624	105	576370	1.45	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4923.D
Acq On : 11 Dec 2023 10:07 pm
Operator : jjw
Sample : E23-05081-04
Misc : 2896B, 500cc
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Dec 12 11:19:14 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

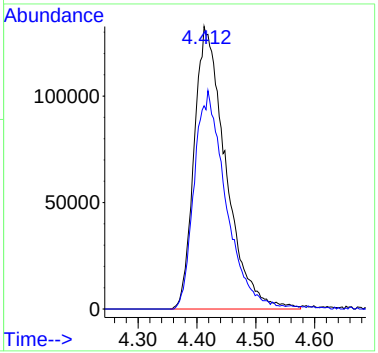


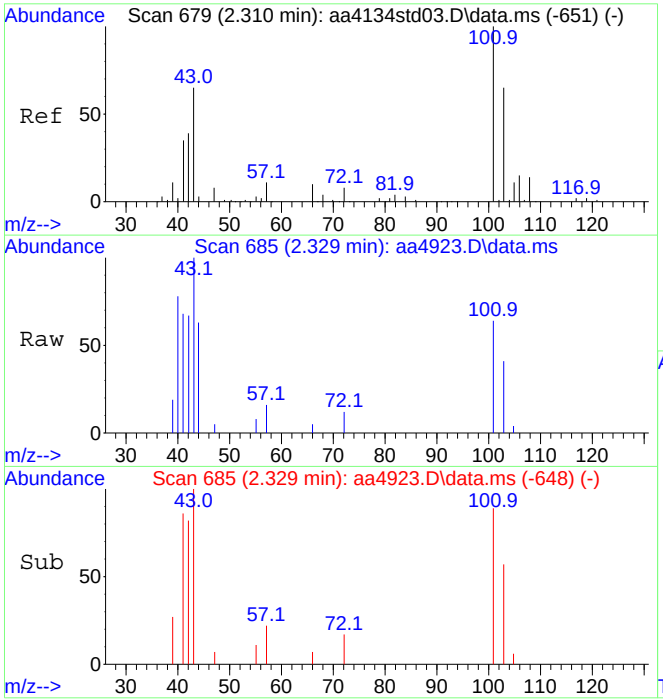


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.412 min Scan# 1333
Delta R.T. 0.018 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion:130 Resp: 495105

Ion	Ratio	Lower	Upper
130	100		
128	77.9	62.2	93.4

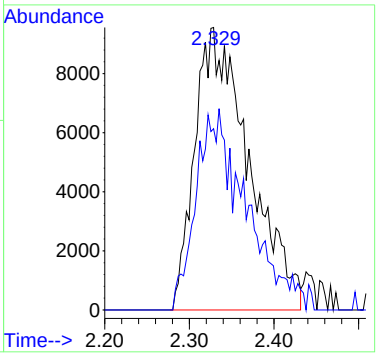


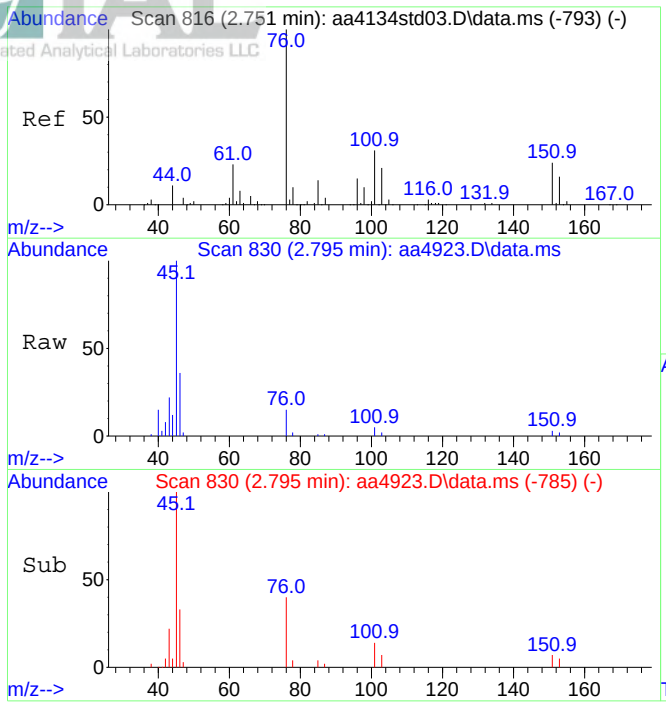


#12
Trichlorofluoromethane
Concen: 0.31 ppbV
RT: 2.329 min Scan# 685
Delta R.T. 0.018 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion:101 Resp: 42496

Ion	Ratio	Lower	Upper
101	100		
103	65.4	52.5	78.7

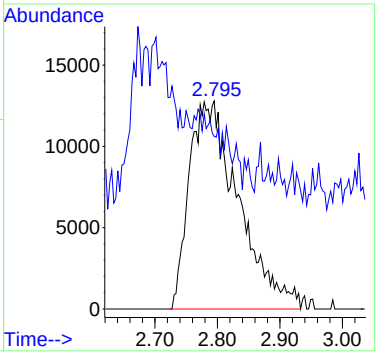


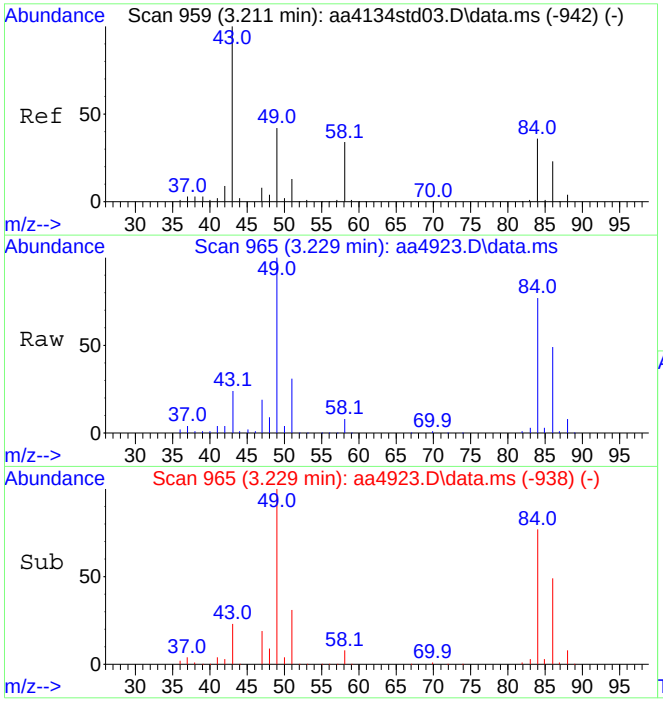


#15
Carbon disulfide
Concen: 0.46 ppbV
RT: 2.795 min Scan# 830
Delta R.T. 0.044 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion: 76 Resp: 69775

Ion	Ratio	Lower	Upper
76	100		
44	0.0	9.0	13.4#

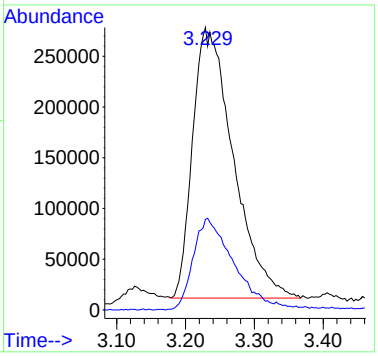


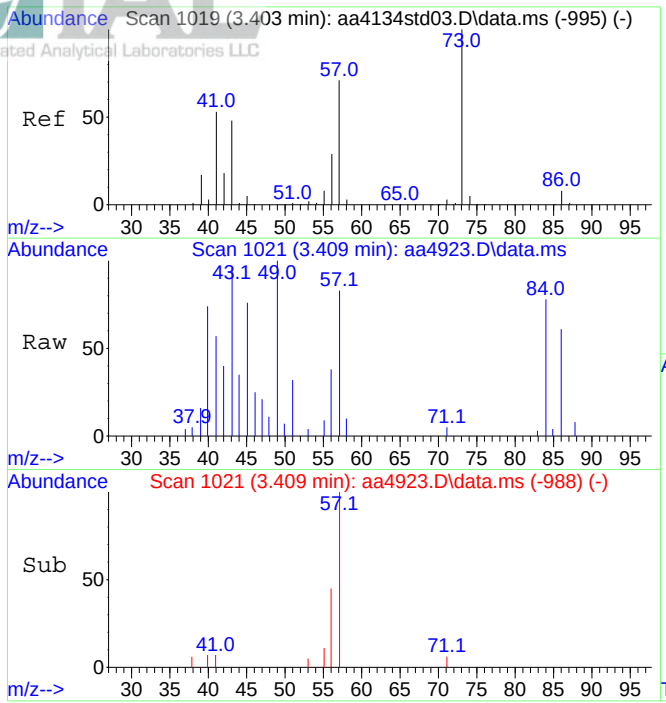


#21
Acetone
Concen: 14.64 ppbV
RT: 3.229 min Scan# 965
Delta R.T. 0.018 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion: 43 Resp: 1093292

Ion	Ratio	Lower	Upper
43	100		
58	34.4	27.1	40.7

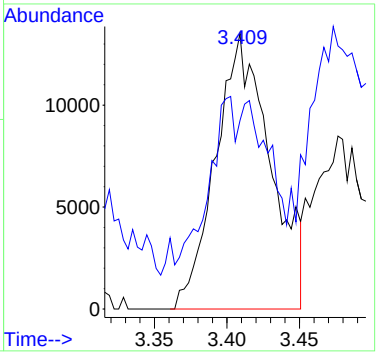


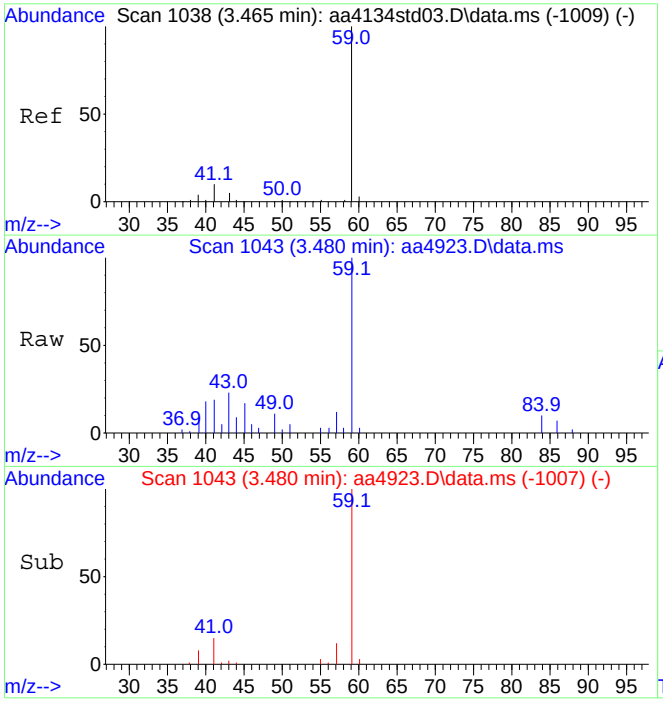


#24
n-Hexane
Concen: 0.23 ppbV
RT: 3.409 min Scan# 1021
Delta R.T. 0.006 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion: 57 Resp: 35503

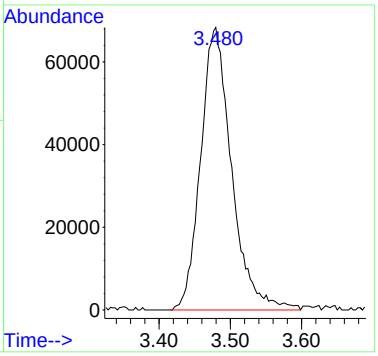
Ion	Ratio	Lower	Upper
57	100		
41	63.4	66.4	99.6#

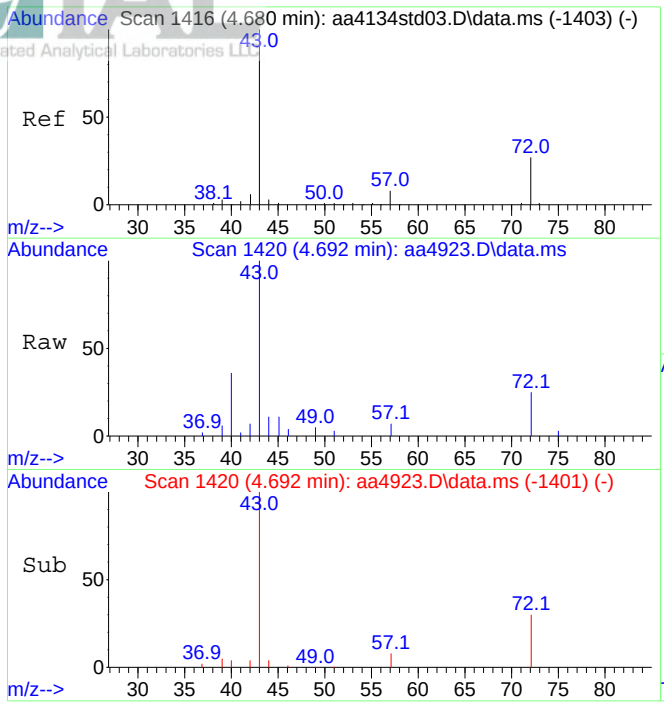




#26
Tert-butyl alcohol
Concen: 1.60 ppbV
RT: 3.480 min Scan# 1043
Delta R.T. 0.015 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion: 59 Resp: 206263

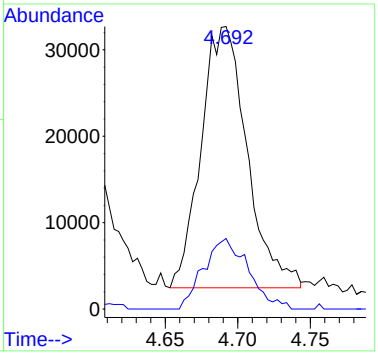


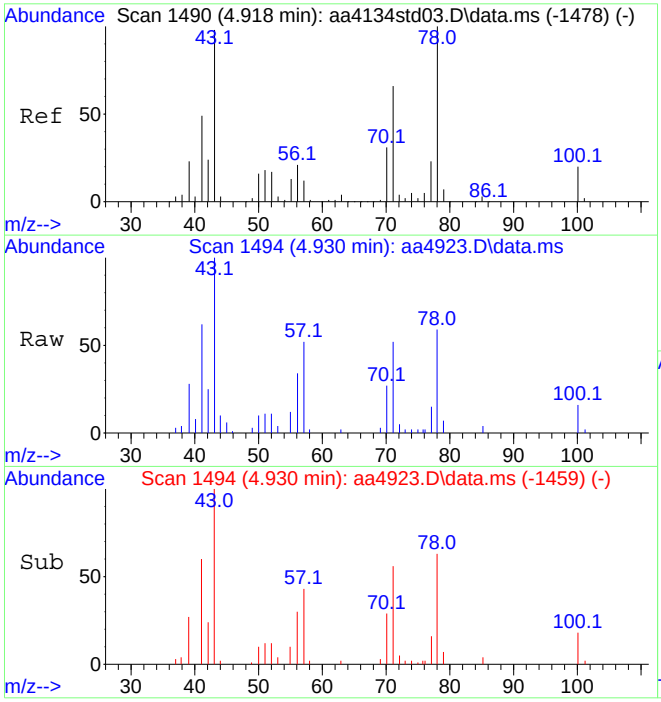


#35
Methyl ethyl ketone
Concen: 0.55 ppbV
RT: 4.692 min Scan# 1420
Delta R.T. 0.012 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion: 43 Resp: 66775

Ion	Ratio	Lower	Upper
43	100		
72	26.2	21.6	32.4

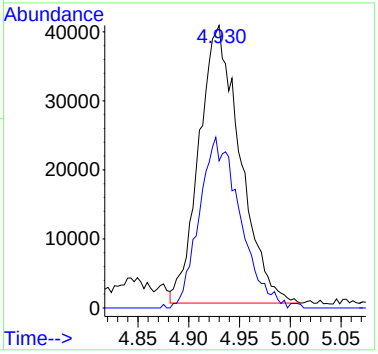


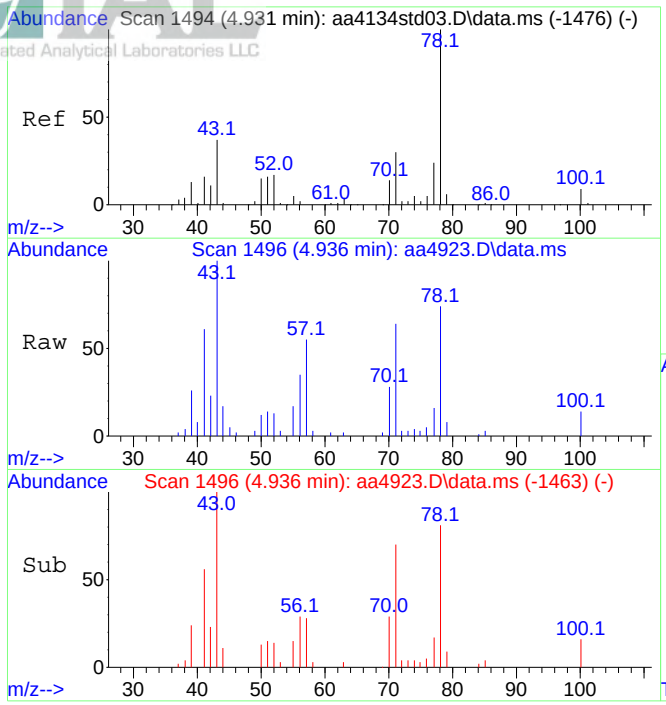


#36
n-Heptane
Concen: 0.83 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. 0.012 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion: 43 Resp: 113828

Ion	Ratio	Lower	Upper
43	100		
71	60.7	50.5	75.7

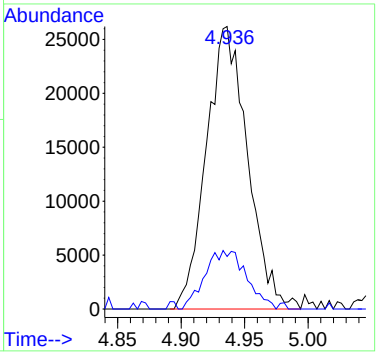


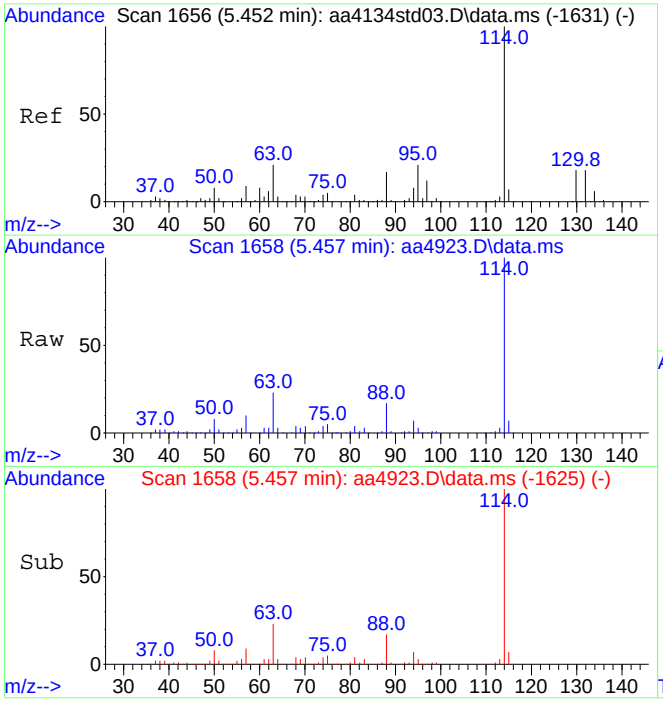


#37
Benzene
Concen: 0.30 ppbV
RT: 4.936 min Scan# 1496
Delta R.T. 0.005 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion: 78 Resp: 59266

Ion	Ratio	Lower	Upper
78	100		
51	20.8	13.4	20.0#

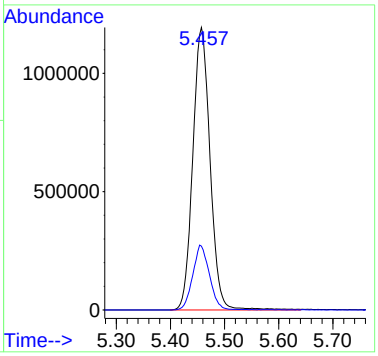


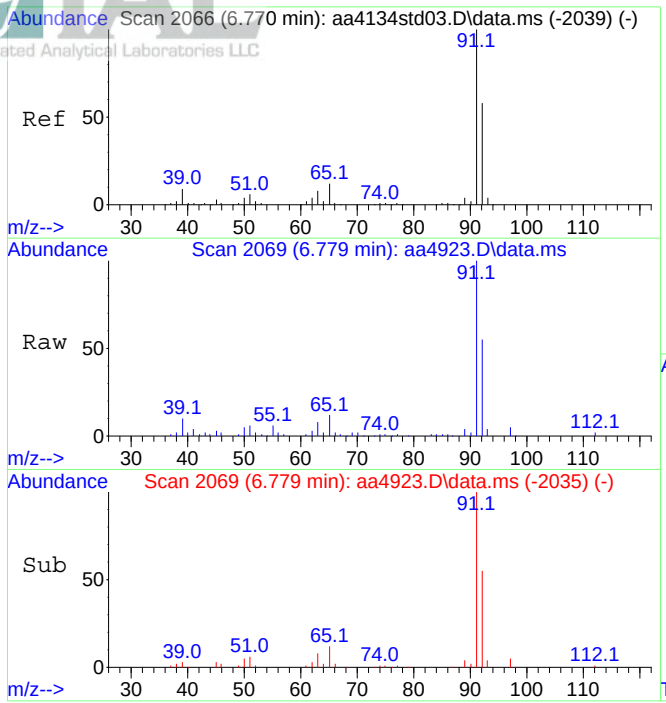


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.005 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion:114 Resp: 2648087

Ion	Ratio	Lower	Upper
114	100		
63	22.2	17.0	25.6

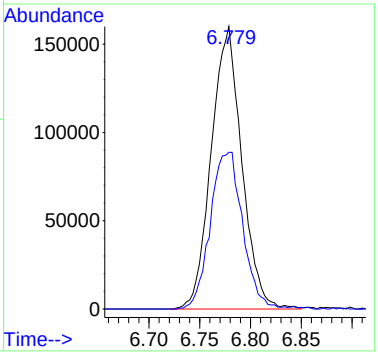


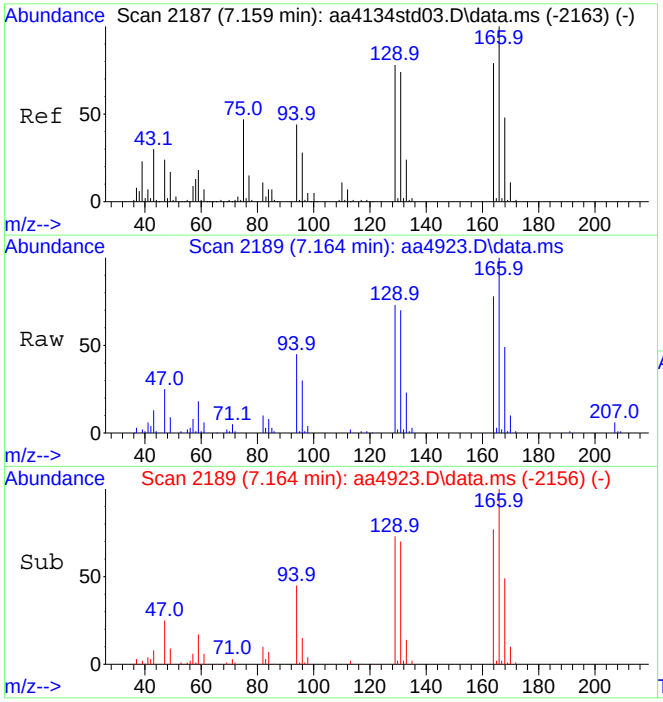


#47
Toluene
Concen: 0.90 ppbV
RT: 6.779 min Scan# 2069
Delta R.T. 0.009 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion: 91 Resp: 335581

Ion	Ratio	Lower	Upper
91	100		
92	59.1	47.3	70.9

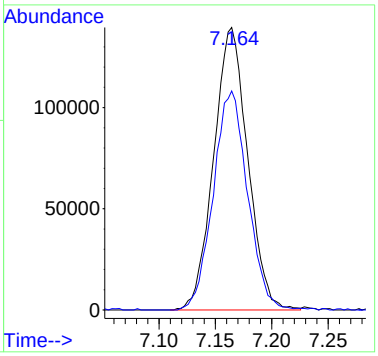


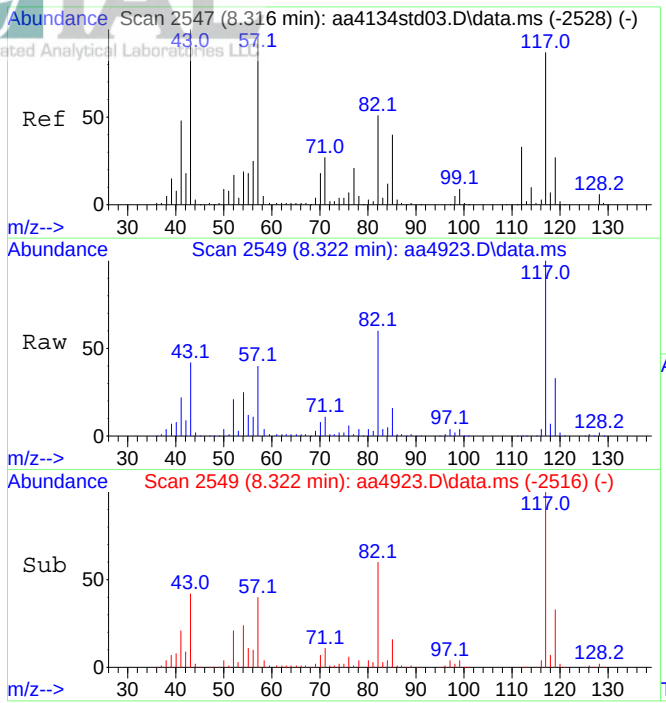


#49
Tetrachloroethene
Concen: 1.83 ppbV
RT: 7.164 min Scan# 2189
Delta R.T. 0.005 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion:166 Resp: 292927

Ion	Ratio	Lower	Upper
166	100		
164	78.4	62.3	93.5

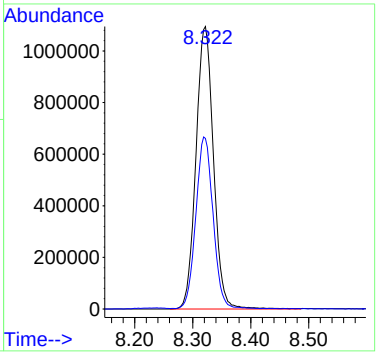


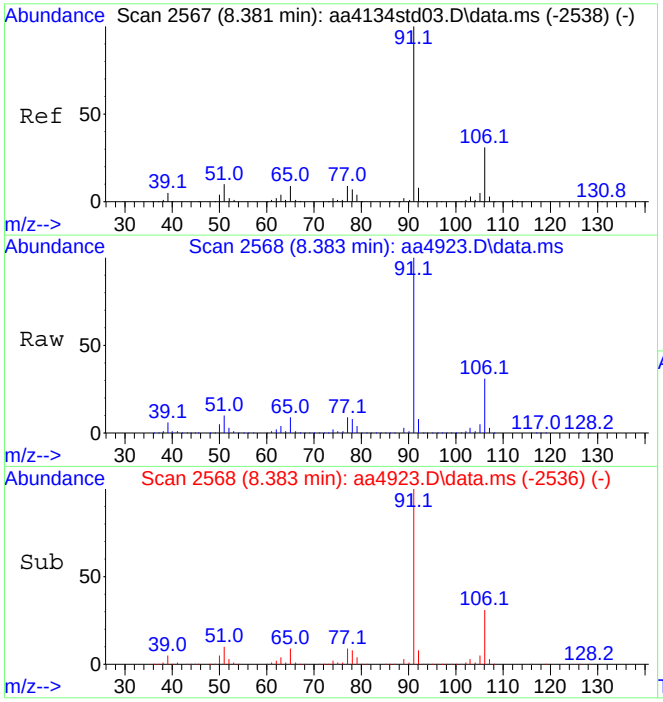


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.322 min Scan# 2549
Delta R.T. 0.005 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion:117 Resp: 2297485

Ion	Ratio	Lower	Upper
117	100		
82	59.6	47.0	70.4

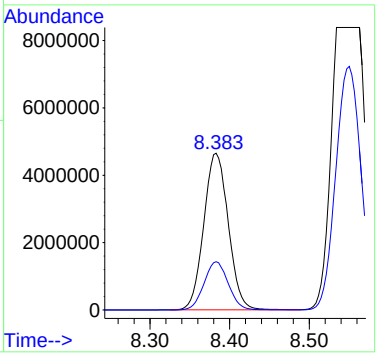


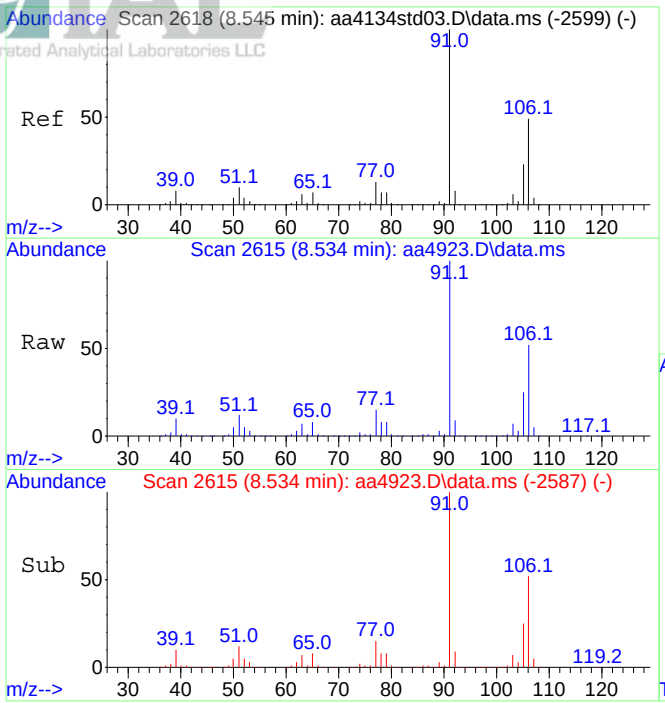


#58
Ethylbenzene
Concen: 23.54 ppbV
RT: 8.383 min Scan# 2568
Delta R.T. 0.002 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion: 91 Resp: 9965075

Ion	Ratio	Lower	Upper
91	100		
106	30.4	24.6	36.8

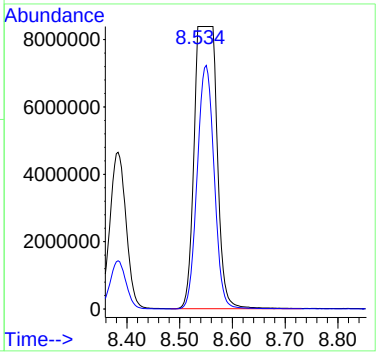


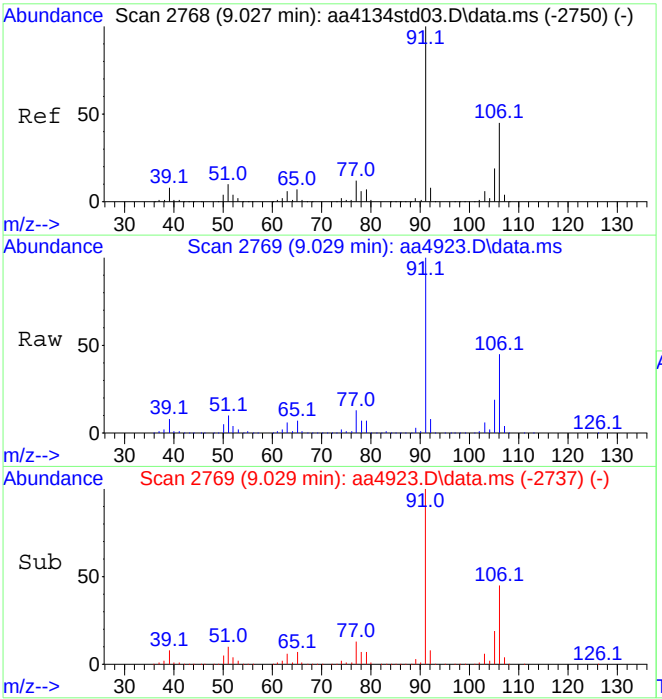


#59
Xylenes (m&p)
Concen: 80.15 ppbV
RT: 8.534 min Scan# 2615
Delta R.T. -0.011 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion: 91 Resp:25143885

Ion	Ratio	Lower	Upper
91	100		
106	64.4	39.0	58.4#

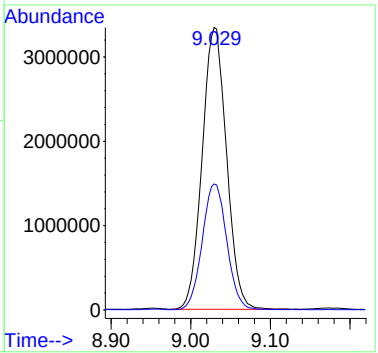


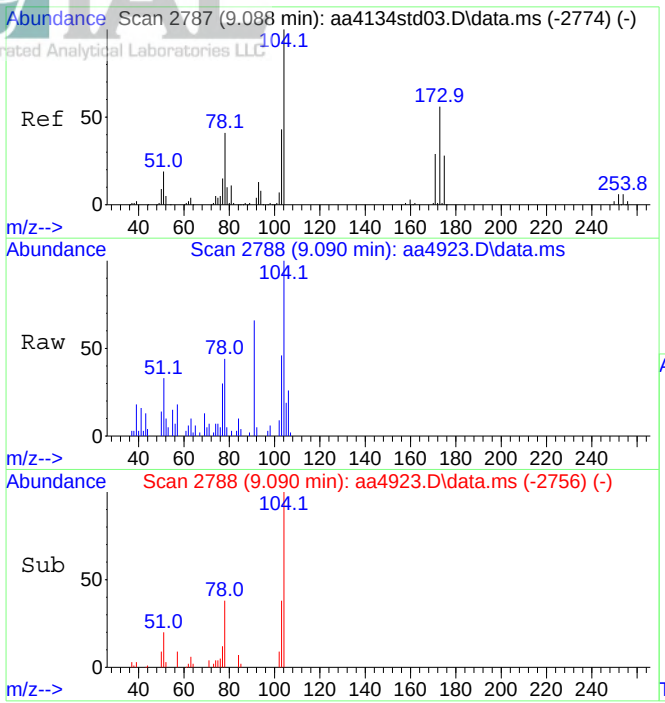


#60
Xylene (o)
Concen: 20.73 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion: 91 Resp: 7094421

Ion	Ratio	Lower	Upper
91	100		
106	44.9	36.8	55.2

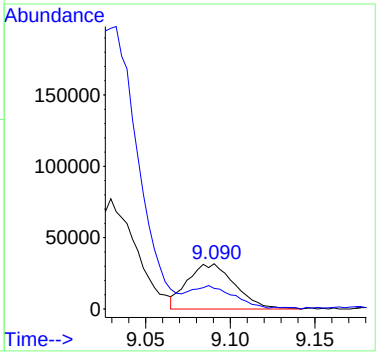


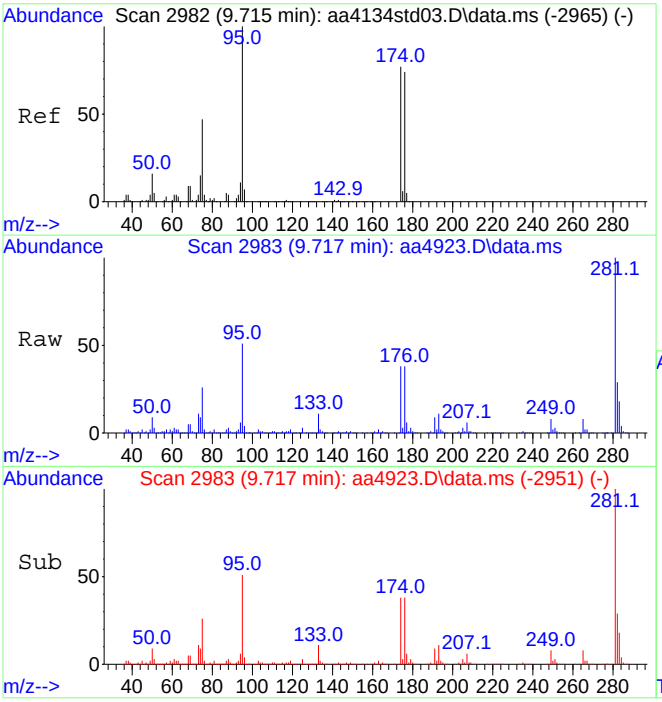


#61
Styrene
Concen: 0.26 ppbV
RT: 9.090 min Scan# 2788
Delta R.T. 0.002 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion:104 Resp: 61618

Ion	Ratio	Lower	Upper
104	100		
103	0.0	37.8	56.6#

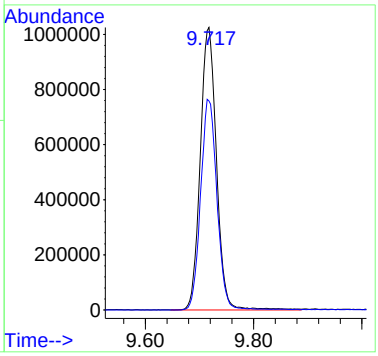


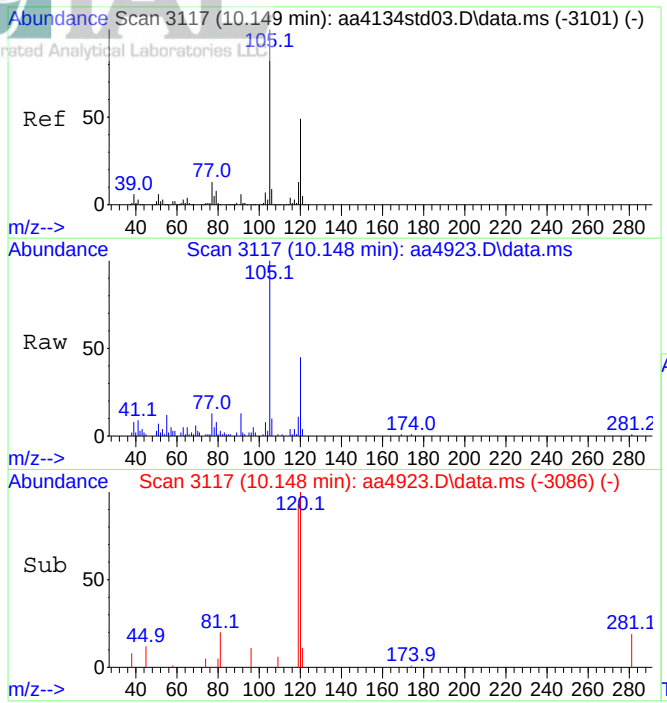


#64
Bromofluorobenzene (tune std)
Concen: 10.64 ppbV
RT: 9.717 min Scan# 2983
Delta R.T. 0.002 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion: 95 Resp: 2131744

Ion	Ratio	Lower	Upper
95	100		
174	75.4	61.1	91.7

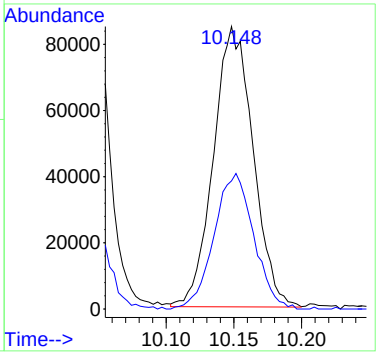


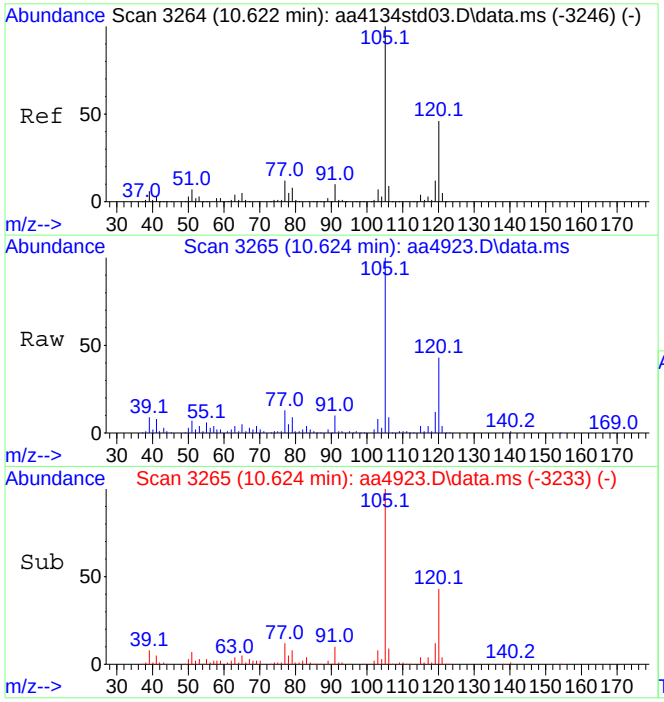


#69
1,3,5-Trimethylbenzene
Concen: 0.43 ppbV
RT: 10.148 min Scan# 3117
Delta R.T. -0.001 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion:105 Resp: 172803

Ion	Ratio	Lower	Upper
105	100		
120	48.3	38.9	58.3

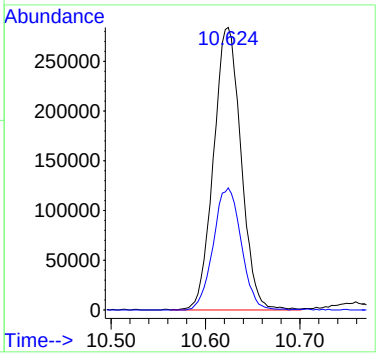




#70
1,2,4-Trimethylbenzene
Concen: 1.45 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4923.D
Acq: 11 Dec 2023 10:07 pm

Tgt Ion:105 Resp: 576370

Ion	Ratio	Lower	Upper
105	100		
120	43.7	36.3	54.5



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4922.D
Acq On : 11 Dec 2023 9:35 pm
Operator : jjw
Sample : E23-05081-04x5 dil
Misc : 2896B, 100cc
ALS Vial : 25 Sample Multiplier: 1

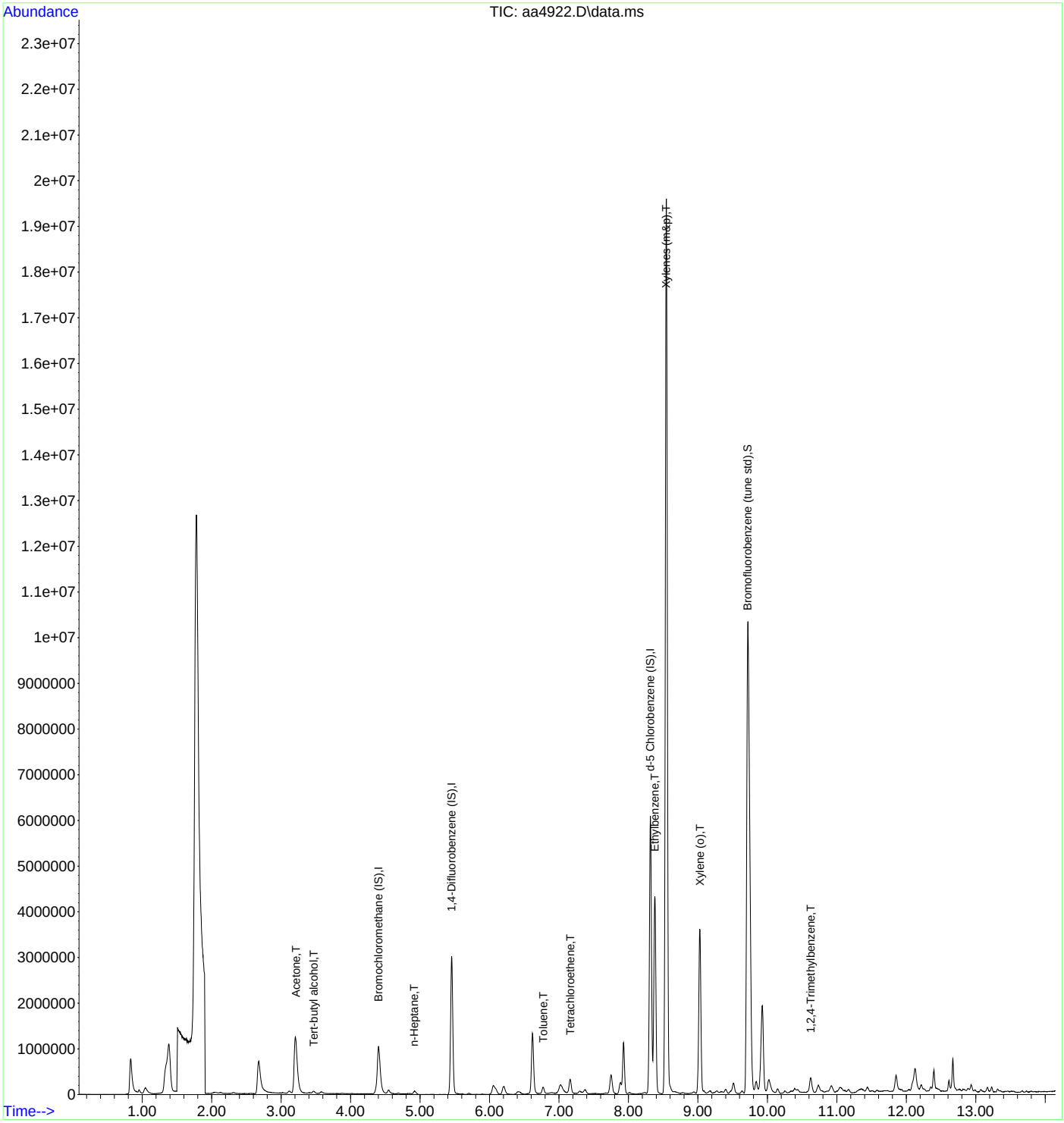
Quant Time: Dec 12 11:15:46 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

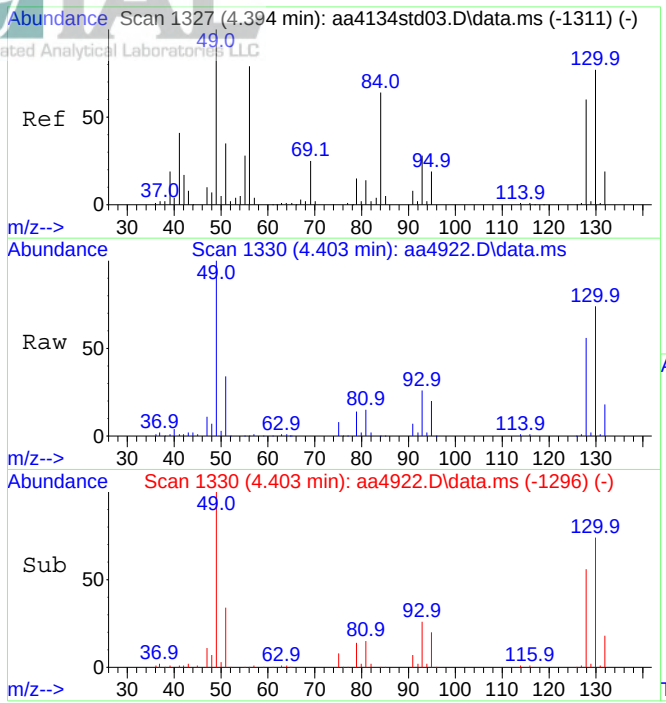
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.403	130	536382	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2778333	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	3352079	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	3060568	10.47	ppbV	0.000
Target Compounds						Qvalue
21) Acetone	3.216	43	307745	3.80	ppbV	99
26) Tert-butyl alcohol	3.470	59	70343	0.50	ppbV	100
36) n-Heptane	4.914	43	39659	0.27	ppbV	89
47) Toluene	6.775	91	112438	0.29	ppbV	99
49) Tetrachloroethene	7.165	166	101537	0.60	ppbV	99
58) Ethylbenzene	8.380	91	3910465	6.33	ppbV	99
59) Xylenes (m&p)	8.544	91	13790854	30.13	ppbV	100
60) Xylene (o)	9.029	91	2676039	5.36	ppbV	98
70) 1,2,4-Trimethylbenzene	10.624	105	193620	0.33	ppbV	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4922.D
Acq On : 11 Dec 2023 9:35 pm
Operator : jjw
Sample : E23-05081-04x5 dil
Misc : 2896B, 100cc
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Dec 12 11:15:46 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

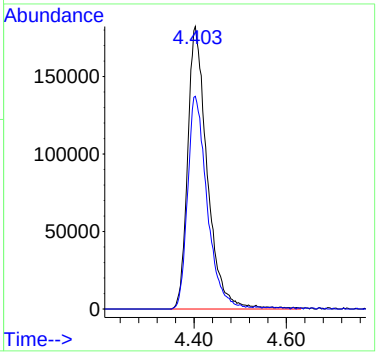


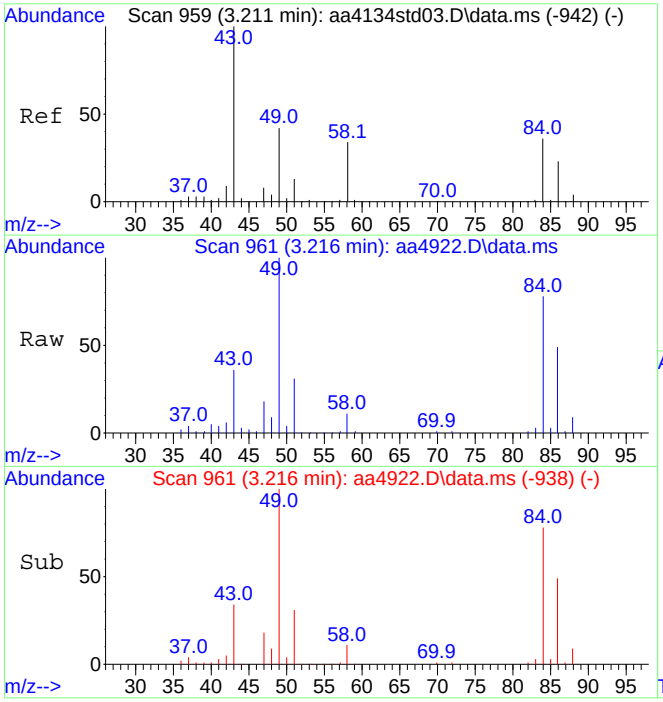


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.403 min Scan# 1330
Delta R.T. 0.009 min
Lab File: aa4922.D
Acq: 11 Dec 2023 9:35 pm

Tgt Ion:130 Resp: 536382

Ion	Ratio	Lower	Upper
130	100		
128	75.4	62.2	93.4

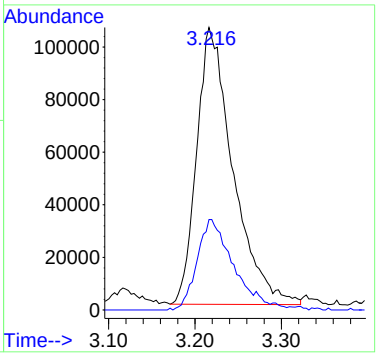


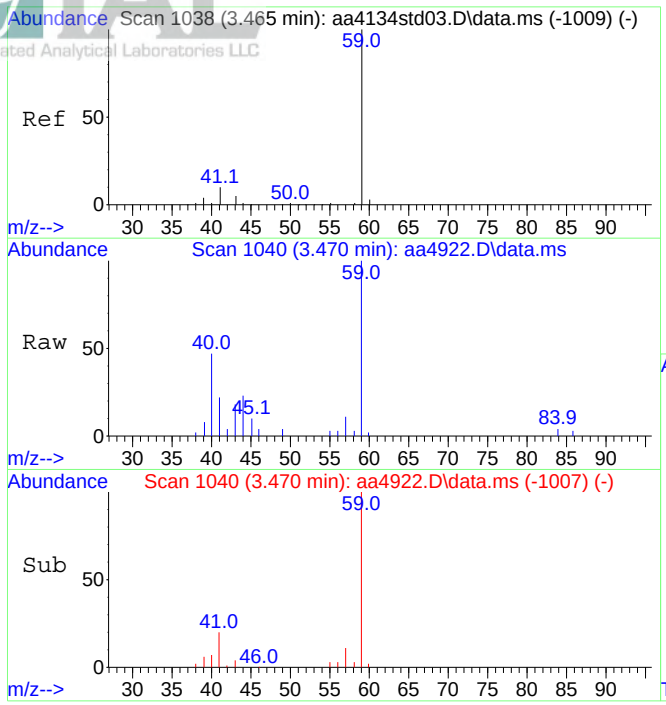


#21
Acetone
Concen: 3.80 ppbV
RT: 3.216 min Scan# 961
Delta R.T. 0.006 min
Lab File: aa4922.D
Acq: 11 Dec 2023 9:35 pm

Tgt Ion: 43 Resp: 307745

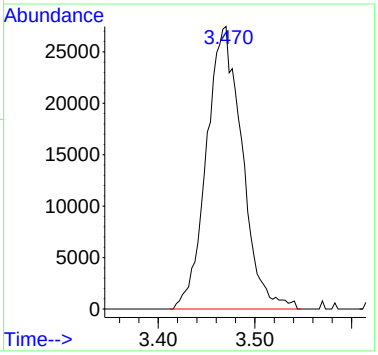
Ion	Ratio	Lower	Upper
43	100		
58	33.3	27.1	40.7

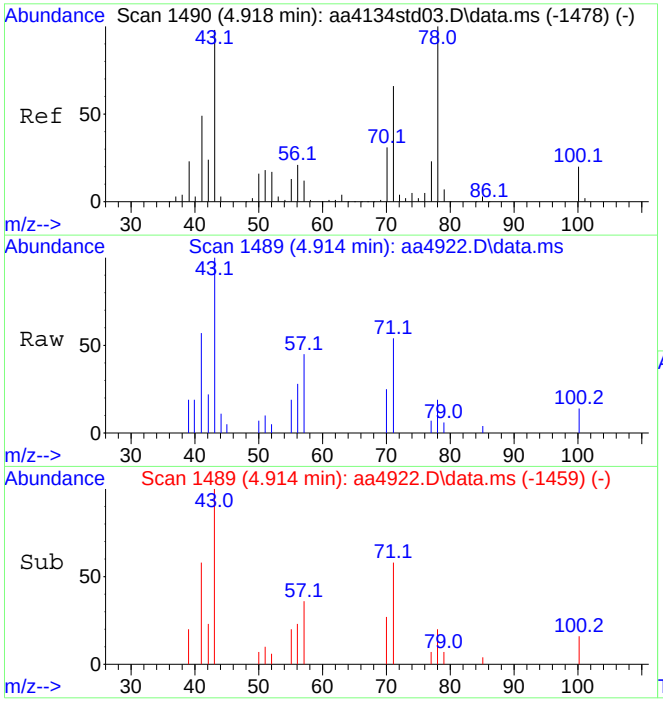




#26
Tert-butyl alcohol
Concen: 0.50 ppbV
RT: 3.470 min Scan# 1040
Delta R.T. 0.006 min
Lab File: aa4922.D
Acq: 11 Dec 2023 9:35 pm

Tgt Ion: 59 Resp: 70343

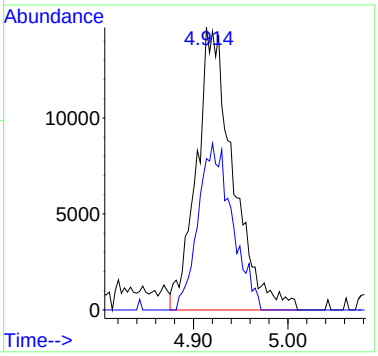


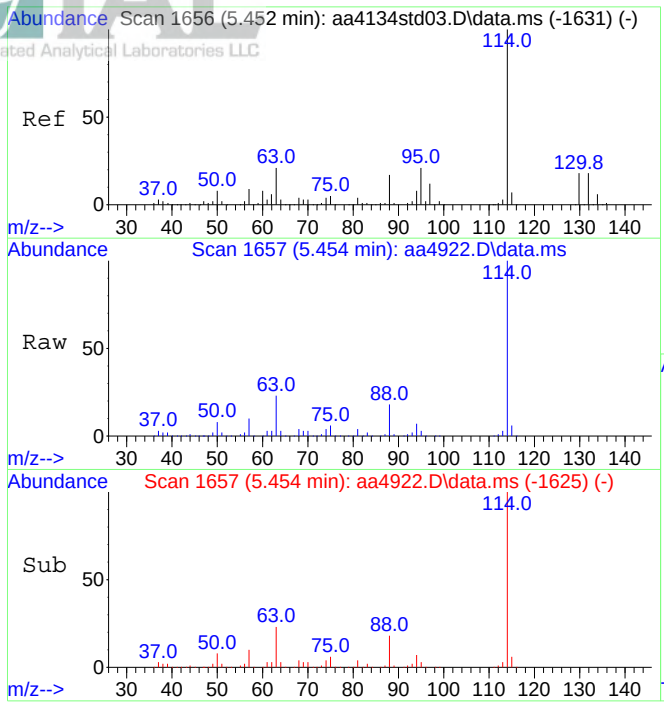


#36
n-Heptane
Concen: 0.27 ppbV
RT: 4.914 min Scan# 1489
Delta R.T. -0.004 min
Lab File: aa4922.D
Acq: 11 Dec 2023 9:35 pm

Tgt Ion: 43 Resp: 39659

Ion	Ratio	Lower	Upper
43	100		
71	54.6	50.5	75.7

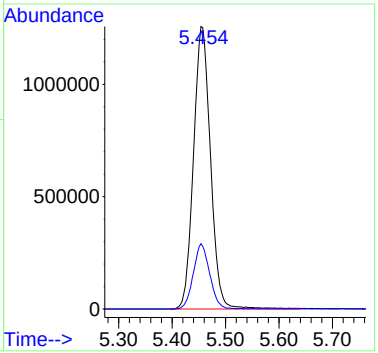


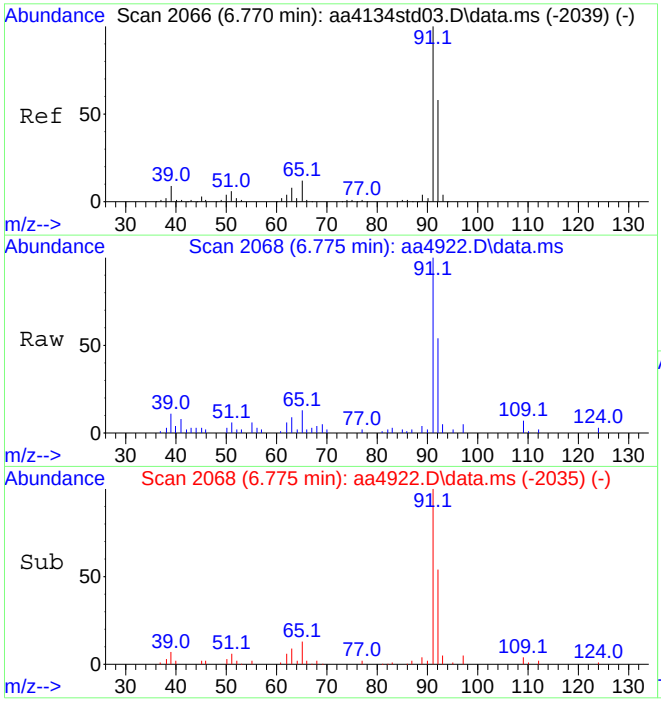


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.454 min Scan# 1657
Delta R.T. 0.002 min
Lab File: aa4922.D
Acq: 11 Dec 2023 9:35 pm

Tgt Ion:114 Resp: 2778333

Ion	Ratio	Lower	Upper
114	100		
63	22.3	17.0	25.6

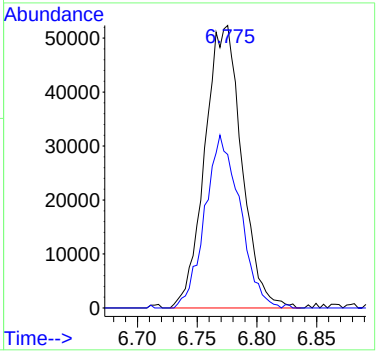


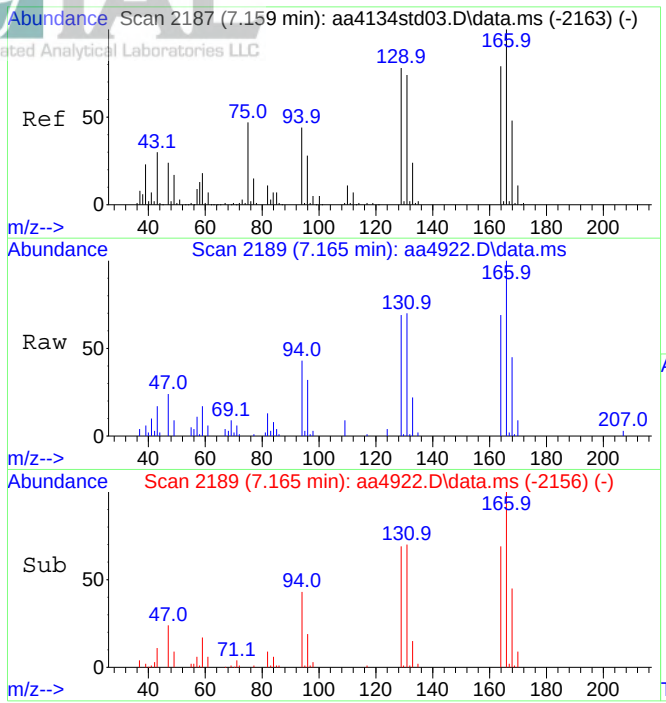


#47
Toluene
Concen: 0.29 ppbV
RT: 6.775 min Scan# 2068
Delta R.T. 0.006 min
Lab File: aa4922.D
Acq: 11 Dec 2023 9:35 pm

Tgt Ion: 91 Resp: 112438

Ion	Ratio	Lower	Upper
91	100		
92	58.0	47.3	70.9

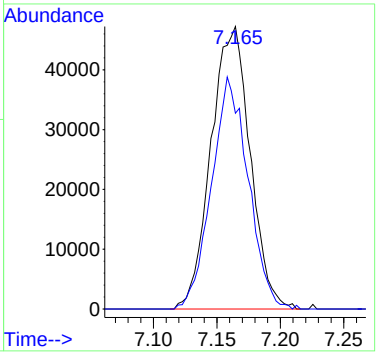


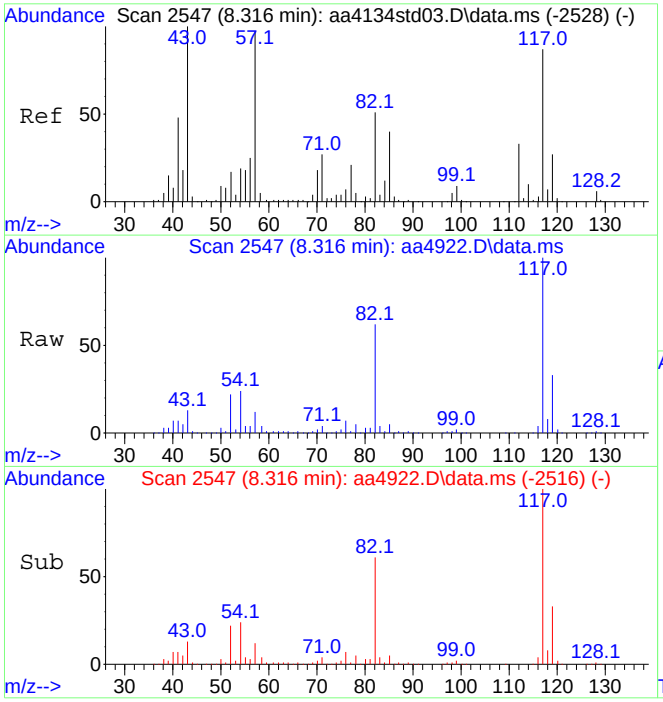


#49
Tetrachloroethene
Concen: 0.60 ppbV
RT: 7.165 min Scan# 2189
Delta R.T. 0.006 min
Lab File: aa4922.D
Acq: 11 Dec 2023 9:35 pm

Tgt Ion:166 Resp: 101537

Ion	Ratio	Lower	Upper
166	100		
164	76.8	62.3	93.5

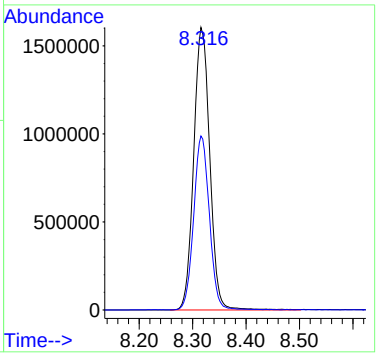


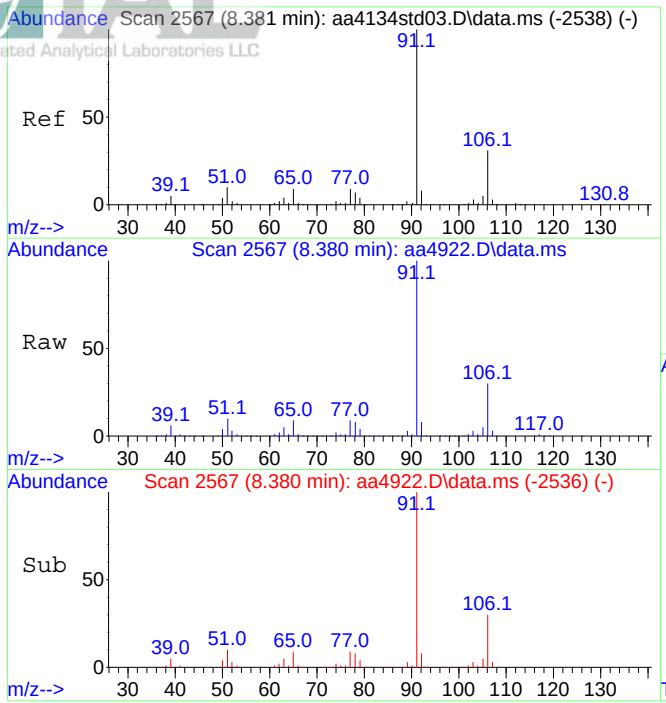


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.316 min Scan# 2547
Delta R.T. -0.001 min
Lab File: aa4922.D
Acq: 11 Dec 2023 9:35 pm

Tgt Ion:117 Resp: 3352079

Ion	Ratio	Lower	Upper
117	100		
82	59.9	47.0	70.4

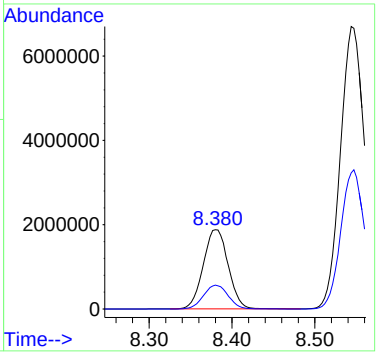


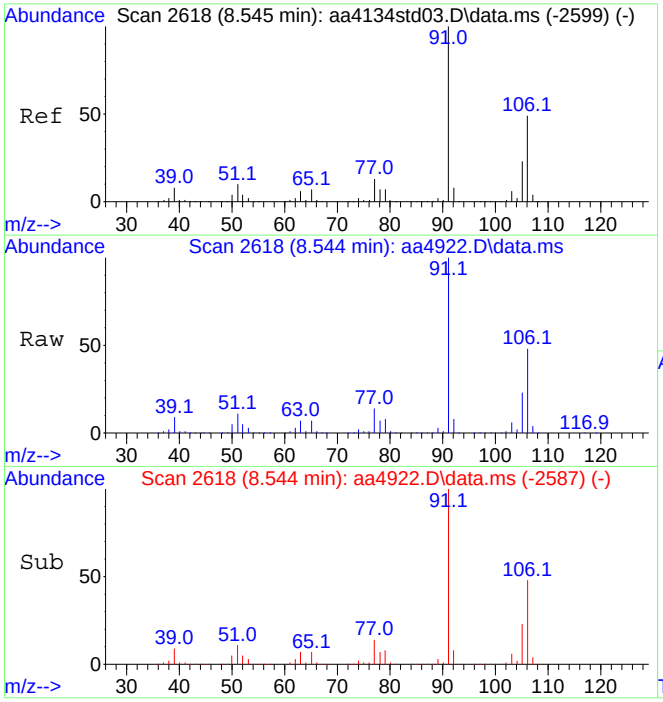


#58
Ethylbenzene
Concen: 6.33 ppbV
RT: 8.380 min Scan# 2567
Delta R.T. -0.001 min
Lab File: aa4922.D
Acq: 11 Dec 2023 9:35 pm

Tgt Ion: 91 Resp: 3910465

Ion	Ratio	Lower	Upper
91	100		
106	30.1	24.6	36.8

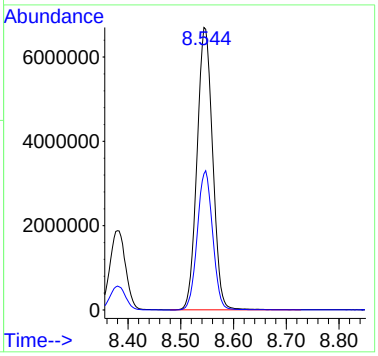


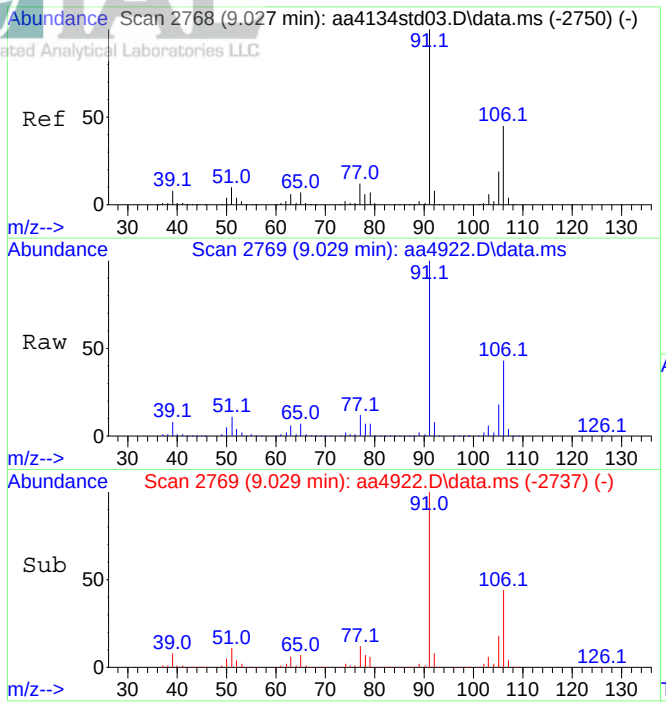


#59
Xylenes (m&p)
Concen: 30.13 ppbV
RT: 8.544 min Scan# 2618
Delta R.T. -0.001 min
Lab File: aa4922.D
Acq: 11 Dec 2023 9:35 pm

Tgt Ion: 91 Resp:13790854

Ion	Ratio	Lower	Upper
91	100		
106	48.5	39.0	58.4

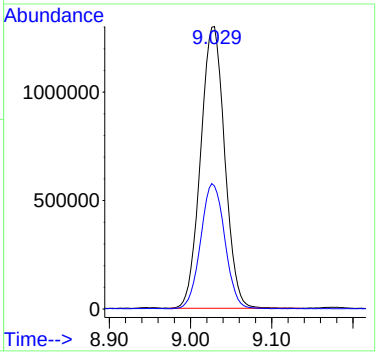


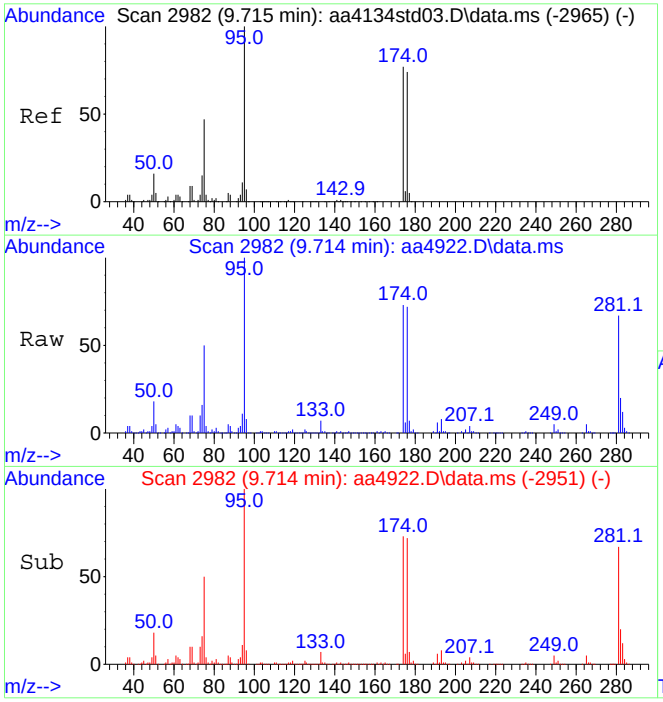


#60
Xylene (o)
Concen: 5.36 ppbV
RT: 9.029 min Scan# 2769
Delta R.T. 0.002 min
Lab File: aa4922.D
Acq: 11 Dec 2023 9:35 pm

Tgt Ion: 91 Resp: 2676039

Ion	Ratio	Lower	Upper
91	100		
106	44.5	36.8	55.2

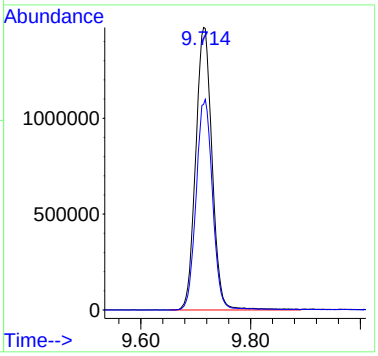


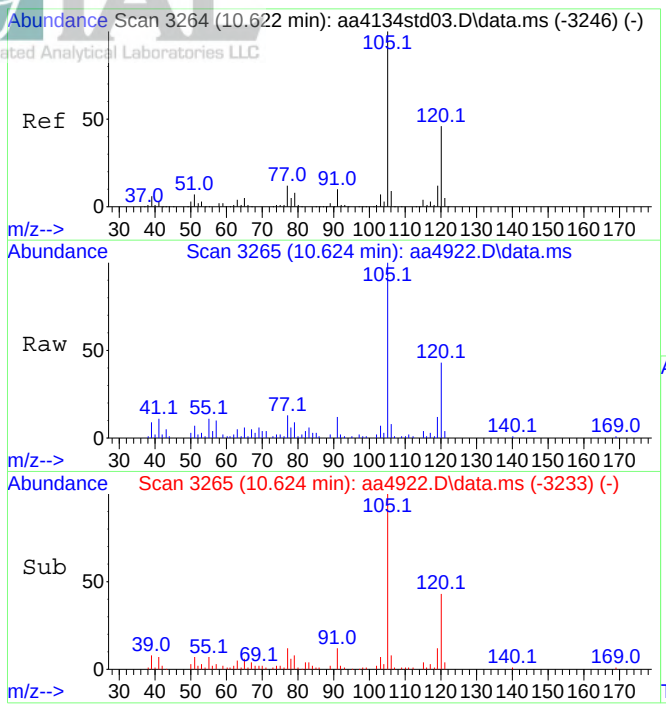


#64
Bromofluorobenzene (tune std)
Concen: 10.47 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4922.D
Acq: 11 Dec 2023 9:35 pm

Tgt Ion: 95 Resp: 3060568

Ion	Ratio	Lower	Upper
95	100		
174	74.9	61.1	91.7

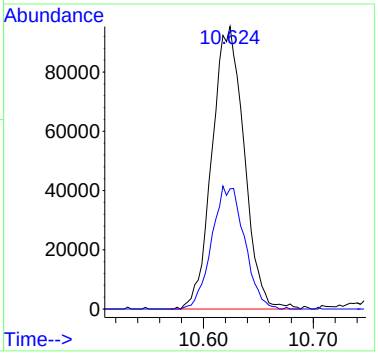




#70
1,2,4-Trimethylbenzene
Concen: 0.33 ppbV
RT: 10.624 min Scan# 3265
Delta R.T. 0.002 min
Lab File: aa4922.D
Acq: 11 Dec 2023 9:35 pm

Tgt Ion:105 Resp: 193620

Ion	Ratio	Lower	Upper
105	100		
120	44.3	36.3	54.5



Section VII: Standards Data

Initial Calibration Data

Initial Calibration Verification Data

Continuing Calibration Data

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 8/15/2023 **Method ID:** 230815.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

	Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
1)	Bromochloromethane	----------ISTD----------						
3)	Dichlorodifluoromethane	2.6	2.1	2.4	2.6	2.9	2.5	12
4)	1,2-Dichlorotetrafluoroethane	4.7	3.4	3.2	3.3	3.6	3.6	17
6)	Chloromethane	0.073	0.12	0.12	0.13	0.15	0.12	23
7)	Vinyl chloride	0.87	0.81	0.94	1.0	1.1	0.95	14
8)	1,3-Butadiene	0.94	0.96	0.93	0.99	1.0	0.97	4.6
9)	Bromomethane	0.75	0.65	0.78	0.85	0.96	0.80	14
10)	Chloroethane	0.44	0.40	0.52	0.57	0.65	0.52	19
11)	Vinyl bromide	0.89	0.81	0.99	1.1	1.2	1.0	17
12)	Trichlorofluoromethane	3.8	3.2	3.1	3.4	3.6	3.4	8.1
14)	1,1-Dichloroethene	1.8	1.7	2.1	2.3	2.5	2.1	15
15)	Carbon disulfide	3.2	2.8	3.5	3.7	3.9	3.4	12
16)	1,1,2-Trichloro-1,2,2-trifluoroethane	4.1	3.6	2.8	3.0	3.3	3.4	16
17)	Acrolein	0.45	0.34	0.43	0.45	0.49	0.43	13
18)	Allyl Chloride	0.51	0.46	0.56	0.62	0.65	0.56	14
19)	Isopropanol	2.2	2.0	2.3	2.5	2.6	2.3	10
20)	Methylene chloride	1.9	0.89	1.1	1.2	1.3	1.3	29
21)	Acetone	2.2	1.5	1.8	1.9	1.9	1.9	14
22)	1,2-Dichloroethene (trans)	1.6	1.5	1.9	2.1	2.3	1.9	17
24)	n-Hexane	3.6	3.4	3.0	3.2	3.6	3.3	7.2
25)	Methyl tert-butyl ether	4.7	5.1	4.0	4.3	4.7	4.6	9.5
26)	Tert-butyl alcohol	2.9	3.2	2.6	2.8	3.2	2.9	8.1
27)	1,1-Dichloroethane	2.9	2.3	2.4	2.7	2.9	2.6	11
28)	1,2-Dichloroethene (cis)	1.7	1.5	1.8	2.0	2.2	1.8	14
29)	Cyclohexane	2.5	2.7	2.1	2.3	2.5	2.4	9.8
30)	Chloroform	3.3	2.8	3.0	3.3	3.6	3.2	9.6
32)	Carbon tetrachloride	4.2	4.4	3.4	3.5	3.9	3.9	11
33)	Tetrahydrofuran	1.8	1.6	1.7	1.9	2.0	1.8	8.7
34)	1,1,1-Trichloroethane	3.8	4.0	3.0	3.2	3.5	3.5	12
35)	Methyl ethyl ketone	2.9	2.5	2.7	3.0	3.3	2.9	11
36)	n-Heptane	3.0	4.0	3.2	3.3	3.3	3.4	11
37)	Benzene	5.1	4.3	4.2	4.6	4.9	4.6	8.4
38)	1,2-Dichloroethane	2.0	1.8	1.9	2.2	2.4	2.1	11
39)	1,4-Difluorobenzene	----------ISTD----------						
40)	Trichloroethene	0.60	0.46	0.48	0.50	0.50	0.51	11
41)	2,2,4-Trimethylpentane	1.4	1.3	1.2	1.2	1.3	1.3	7.7
42)	1,2-Dichloropropane	0.54	0.45	0.43	0.44	0.42	0.46	11
43)	Bromodichloromethane	0.91	0.75	0.76	0.79	0.77	0.80	8.1

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 8/15/2023 **Method ID:** 230815.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

	Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
44)	Methyl methacrylate	0.53	0.60	0.60	0.62	0.59	0.59	5.4
45)	1,4-Dioxane	0.30	0.29	0.27	0.28	0.27	0.28	3.5
46)	1,3-Dichloropropene (cis)	0.76	0.67	0.69	0.72	0.69	0.71	4.8
47)	Toluene	1.6	1.8	1.6	1.6	1.4	1.6	7.6
48)	Methyl isobutyl ketone	1.0	1.4	1.2	1.2	1.1	1.2	11
49)	Tetrachloroethene	0.80	0.79	0.70	0.69	0.63	0.72	10
50)	1,3-Dichloropropene (trans)	0.59	0.70	0.73	0.76	0.71	0.70	9.3
51)	1,1,2-Trichloroethane	0.60	0.58	0.55	0.56	0.53	0.57	4.9
52)	Dibromochloromethane	0.94	0.97	0.94	0.96	0.91	0.94	2.5
53)	1,2-Dibromoethane	0.77	0.84	0.84	0.87	0.82	0.83	4.3
54)	Methyl n-butyl ketone	0.82	1.2	1.1	1.2	1.1	1.1	14
55)	d-5 Chlorbenzene	----------ISTD----------						
57)	Chlorobenzene	1.3	1.1	1.0	1.0	1.0	1.1	11
58)	Ethylbenzene	2.3	2.4	1.9	1.8	1.7	2.0	15
59)	Xylenes (m&p)	1.7	1.8	1.5	1.3	0.99	1.5	22
60)	Xylenes (o)	1.7	1.9	1.5	1.5	1.5	1.6	11
61)	Styrene	0.95	1.2	1.1	1.1	1.1	1.1	8.3
62)	Bromoform	0.90	0.87	0.81	0.79	0.79	0.83	6.3
63)	Cumene	2.2	2.6	2.0	1.9	1.8	2.1	14
66)	1,1,2,2-Tetrachloroethane	1.4	1.4	1.1	1.1	1.1	1.2	11
67)	4-Ethyltoluene	2.4	2.7	2.3	2.1	1.8	2.3	14
68)	2-Chlorotoluene	2.0	2.2	1.8	1.7	1.7	1.9	11
69)	1,3,5-Trimethylbenzene	1.8	2.2	1.8	1.7	1.6	1.8	12
70)	1,2,4-Trimethylbenzene	1.6	2.2	1.9	1.8	1.7	1.8	13
71)	1,3-Dichlorobenzene	1.5	1.2	1.1	1.1	1.2	1.2	12
72)	1,4-Dichlorobenzene	1.2	1.2	1.2	1.1	1.2	1.2	1.4
73)	Benzyl chloride	1.2	1.6	1.7	1.7	1.8	1.6	16
74)	1,2-Dichlorobenzene	1.2	1.2	1.1	1.1	1.1	1.1	4.8
75)	1,3-Hexachlorobutadiene	1.2	0.86	0.73	0.67	0.63	0.82	29
76)	1,2,4-Trichlorobenzene	1.2	0.85	0.86	0.82	0.78	0.90	18
77)	Naphthalene	2.3	1.8	1.9	1.8	1.5	1.9	16

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Response Factor Report GCMS2B

Method Path : C:\msdchem\1\METHODS\
Method File : 230815.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Wed Aug 16 10:00:51 2023
Response Via : Initial Calibration

Calibration Files
0.2 =aa3402std05.D 2 =aa3403std04.D 10 =aa3404std03.D 20 =aa3405std02.D 40 =aa3406std01.D

		Compound	0.2	2	10	20	40	Avg	%RSD
1)	I	Bromochloromethane...	----------ISTD----------						
2)	T	Propene	0.693	0.590	0.649	0.708	0.804	0.689	11.46
3)	T	Dichlorodifluoro...	2.627	2.060	2.419	2.640	2.888	2.527	12.25
4)	T	1,2-Dichlorotetr...	4.698	3.379	3.171	3.318	3.612	3.636	16.92
5)	T	n-Butane	1.529	1.686	1.607	1.650	1.703	1.635	4.27
6)	T	Chloromethane	0.073	0.121	0.116	0.128	0.147	0.117	23.33
7)	T	Vinyl chloride	0.866	0.806	0.938	1.004	1.138	0.950	13.56
8)	T	1,3-Butadiene	0.939	0.962	0.929	0.985	1.043	0.972	4.66
9)	T	Bromomethane	0.754	0.650	0.781	0.852	0.955	0.798	14.26
10)	T	Chloroethane	0.437	0.404	0.524	0.567	0.652	0.517	19.32
11)	T	Vinyl bromide	0.891	0.806	0.989	1.088	1.246	1.004	17.12
12)	T	Trichlorofluorom...	3.753	3.179	3.089	3.381	3.599	3.400	8.19
13)	T	Ethanol	0.566	0.336	0.323	0.344	0.433	0.400	25.53
14)	T	1,1-Dichloroethene	1.836	1.703	2.114	2.324	2.466	2.088	15.36
15)	T	Carbon disulfide	3.198	2.847	3.522	3.709	3.868	3.429	11.95
16)	T	1,1,2-Trichloro-...	4.138	3.589	2.807	2.990	3.274	3.360	15.67
17)	T	Acrolein	0.446	0.337	0.430	0.447	0.488	0.430	13.07
18)	T	Allyl chloride	0.510	0.458	0.563	0.616	0.651	0.559	13.89
19)	T	Isopropanol	2.218	2.002	2.266	2.475	2.597	2.312	10.02
20)	T	Methylene chloride	1.853	0.894	1.059	1.168	1.335	1.262	29.12
21)	T	Acetone	2.238	1.490	1.826	1.890	1.937	1.876	14.27
22)	T	trans-1,2-Dichlo...	1.626	1.515	1.873	2.082	2.300	1.879	17.14
23)	T	n-Pentane	2.737	2.398	2.021	2.278	2.555	2.398	11.35
24)	T	n-Hexane	3.560	3.405	3.010	3.196	3.573	3.349	7.26
25)	T	Methyl tert-buty...	4.721	5.118	3.992	4.267	4.676	4.555	9.56
26)	T	Tert-butyl alcohol	2.872	3.165	2.601	2.846	3.159	2.929	8.11
27)	T	1,1-Dichloroethane	2.886	2.279	2.406	2.680	2.935	2.637	10.96
28)	T	cis-1,2-Dichloro...	1.666	1.532	1.766	1.984	2.173	1.824	14.01
29)	t	Cyclohexane	2.480	2.742	2.109	2.281	2.488	2.420	9.87
30)	T	Chloroform	3.341	2.813	3.029	3.345	3.610	3.228	9.60
31)	T	Ethyl acetate	0.519	0.459	0.476	0.532	0.583	0.514	9.56
32)	T	Carbon tetrachlo...	4.190	4.380	3.355	3.527	3.897	3.870	11.16
33)	T	Tetrahydrofuran	1.813	1.612	1.725	1.883	2.033	1.813	8.79
34)	T	1,1,1-Trichloroe...	3.831	3.967	2.981	3.175	3.465	3.484	12.03
35)	T	Methyl ethyl ketone	2.907	2.461	2.724	3.040	3.340	2.894	11.42
36)	T	n-Heptane	3.009	3.965	3.169	3.287	3.321	3.350	10.89
37)	T	Benzene	5.118	4.274	4.213	4.582	4.885	4.614	8.43
38)	T	1,2-Dichloroethane	2.033	1.799	1.949	2.171	2.385	2.067	10.78
39)	I	1,4-Difluorobenzen...	----------ISTD----------						
40)	T	Trichloroethene	0.604	0.461	0.476	0.499	0.498	0.508	11.08
41)	T	2,2,4-Trimethylp...	1.422	1.283	1.173	1.194	1.261	1.267	7.75
42)	T	1,2-Dichloropropane	0.544	0.451	0.428	0.436	0.423	0.456	10.95
43)	T	Bromodichloromet...	0.909	0.753	0.759	0.786	0.768	0.795	8.19
44)	T	Methyl methacrylate	0.533	0.595	0.599	0.618	0.589	0.587	5.41
45)	T	1,4-Dioxane	0.295	0.288	0.274	0.280	0.270	0.281	3.52
46)	T	cis-1,3-Dichloro...	0.756	0.671	0.693	0.721	0.685	0.705	4.82
47)	T	Toluene	1.603	1.770	1.615	1.607	1.423	1.603	7.69
48)	T	Methyl isobutyl ...	1.020	1.358	1.158	1.169	1.085	1.158	10.96
49)	T	Tetrachloroethene	0.802	0.785	0.698	0.693	0.626	0.721	10.04
50)	T	trans-1,3-Dichlo...	0.586	0.696	0.728	0.757	0.709	0.695	9.37
51)	T	1,1,2-Trichloroe...	0.602	0.582	0.549	0.561	0.531	0.565	4.93
52)	T	Dibromochloromet...	0.941	0.968	0.936	0.964	0.910	0.944	2.50
53)	T	1,2-Dibromoethane	0.770	0.838	0.835	0.869	0.822	0.827	4.35
54)	T	Methyl n-butyl k...	0.821	1.172	1.136	1.176	1.120	1.085	13.80
55)	I	d-5 Chlorobenzene ...	----------ISTD----------						
56)	T	n-Nonane	1.127	1.476	1.174	1.162	1.180	1.224	11.64
57)	T	Chlorobenzene	1.289	1.143	1.029	1.009	1.005	1.095	11.15
58)	T	Ethylbenzene	2.334	2.354	1.930	1.830	1.678	2.025	15.04
59)	T	Xylenes (m&p)	1.738	1.788	1.455	1.324	0.993	1.460	22.23
60)	T	Xylene (o)	1.710	1.878	1.542	1.505	1.471	1.621	10.51

Method Path : C:\msdchem\1\METHODS\
Method File : 230815.M

61)	T	Styrene	0.947	1.200	1.093	1.071	1.068	1.076	8.35
62)	T	Bromoform	0.903	0.872	0.806	0.789	0.786	0.831	6.38
63)	T	Cumene	2.186	2.576	2.043	1.945	1.808	2.112	13.92
64)	S	Bromofluorobenze...	0.736	0.817	0.818	0.845	0.943	0.832	8.94
65)	T	n-Propyl benzene	2.996	3.397	2.766	2.573	2.034	2.753	18.37
66)	T	1,1,2,2-Tetrachl...	1.381	1.376	1.137	1.117	1.132	1.228	11.16
67)	T	4-Ethyltoluene	2.355	2.737	2.278	2.143	1.835	2.270	14.45
68)	T	2-Chlorotoluene	1.964	2.171	1.778	1.722	1.704	1.868	10.62
69)	T	1,3,5-Trimethylb...	1.800	2.225	1.792	1.719	1.648	1.837	12.28
70)	T	1,2,4-Trimethylb...	1.568	2.188	1.854	1.793	1.705	1.821	12.71
71)	T	1,3-Dichlorobenzene	1.459	1.183	1.126	1.114	1.157	1.208	11.85
72)	T	1,4-Dichlorobenzene	1.161	1.161	1.153	1.142	1.187	1.161	1.43
73)	T	Benzyl chloride	1.168	1.566	1.708	1.744	1.770	1.591	15.67
74)	T	1,2-Dichlorobenzene	1.169	1.225	1.111	1.083	1.128	1.143	4.82
75)	T	1,3-Hexachlorobu...	1.209	0.857	0.729	0.674	0.629	0.820	28.53
76)	T	1,2,4-Trichlorob...	1.191	0.845	0.860	0.816	0.781	0.899	18.48
77)	T	Naphthalene	2.270	1.826	1.920	1.809	1.459	1.857	15.61

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3402std05.D
Acq On : 15 Aug 2023 11:15 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 15 17:16:53 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:15:22 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.380	130	543782	10.00	ppbV	-0.016
39) 1,4-Difluorobenzene (IS)	5.448	114	2104790	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2068537	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1523370	8.85	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.454	41	8216	0.22	ppbV #	67
3) Dichlorodifluoromethane	1.492	85	30288	0.22	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.626	85	50076	0.25	ppbV	96
5) n-Butane	1.698	43	18121	0.20	ppbV	97
6) Chloromethane	1.763	52	890	0.14	ppbV	54
7) Vinyl chloride	1.760	62	10168	0.20	ppbV	97
8) 1,3-Butadiene	1.767	39	10931	0.21	ppbV	84
9) Bromomethane	2.049	94	8195	0.19	ppbV	87
10) Chloroethane	2.171	64	5038	0.18	ppbV #	73
11) Vinyl bromide	2.271	106	9786	0.18	ppbV	94
12) Trichlorofluoromethane	2.287	101	44897	0.24	ppbV	99
13) Ethanol	2.650	45	6400	0.29	ppbV #	53
14) 1,1-Dichloroethene	2.711	61	20761	0.18	ppbV	99
15) Carbon disulfide	2.731	76	37217	0.20	ppbV #	87
16) 1,1,2-Trichloro-1,2,2-...	2.750	101	49053	0.27	ppbV	100
17) Acrolein	2.956	56	4855	0.21	ppbV	84
18) Allyl chloride	3.091	76	5995	0.20	ppbV	100
19) Isopropanol	3.097	45	21471	0.17	ppbV #	78
20) Methylene chloride	3.184	49	21768	0.31	ppbV	94
21) Acetone	3.194	43	26290	0.26	ppbV #	87
22) trans-1,2-Dichloroethene	3.309	61	19630	0.19	ppbV	99
23) n-Pentane	3.393	43	32143	0.25	ppbV	94
24) n-Hexane	3.387	57	42982	0.24	ppbV	89
25) Methyl tert-butyl ether	3.396	73	57505	0.23	ppbV	99
26) Tert-butyl alcohol	3.454	59	35922	0.23	ppbV	100
27) 1,1-Dichloroethane	3.798	63	33581	0.23	ppbV	93
28) cis-1,2-Dichloroethene	4.223	61	19745	0.20	ppbV	100
29) Cyclohexane	4.396	56	30214	0.23	ppbV	97
30) Chloroform	4.441	83	39248	0.22	ppbV	97
31) Ethyl acetate	4.534	61	6099	0.22	ppbV	99
32) Carbon tetrachloride	4.560	117	50587	0.24	ppbV	99
33) Tetrahydrofuran	4.567	42	21884	0.22	ppbV	96
34) 1,1,1-Trichloroethane	4.608	97	45414	0.24	ppbV	97
35) Methyl ethyl ketone	4.676	43	34778	0.22	ppbV	96
36) n-Heptane	4.907	43	36329	0.20	ppbV	98
37) Benzene	4.923	78	60118	0.24	ppbV	100
38) 1,2-Dichloroethane	5.087	62	24098	0.21	ppbV	100
40) Trichloroethene	5.425	130	25424	0.24	ppbV	97
41) 2,2,4-Trimethylpentane	4.833	57	65257	0.24	ppbV	99
42) 1,2-Dichloropropane	5.875	63	25405	0.26	ppbV	97
43) Bromodichloromethane	5.943	83	44017	0.26	ppbV	100
44) Methyl methacrylate	6.081	41	24702	0.20	ppbV	95
45) 1,4-Dioxane	6.116	88	14508	0.25	ppbV	92
46) cis-1,3-Dichloropropene	6.534	75	35333	0.24	ppbV	100
47) Toluene	6.769	91	72857	0.22	ppbV	97
48) Methyl isobutyl ketone	7.132	43	46816	0.19	ppbV	96
49) Tetrachloroethene	7.161	166	37803	0.25	ppbV	99
50) trans-1,3-Dichloropropene	7.174	75	27399	0.19	ppbV	93
51) 1,1,2-Trichloroethane	7.335	97	27389	0.23	ppbV	98

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3402std05.D
Acq On : 15 Aug 2023 11:15 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

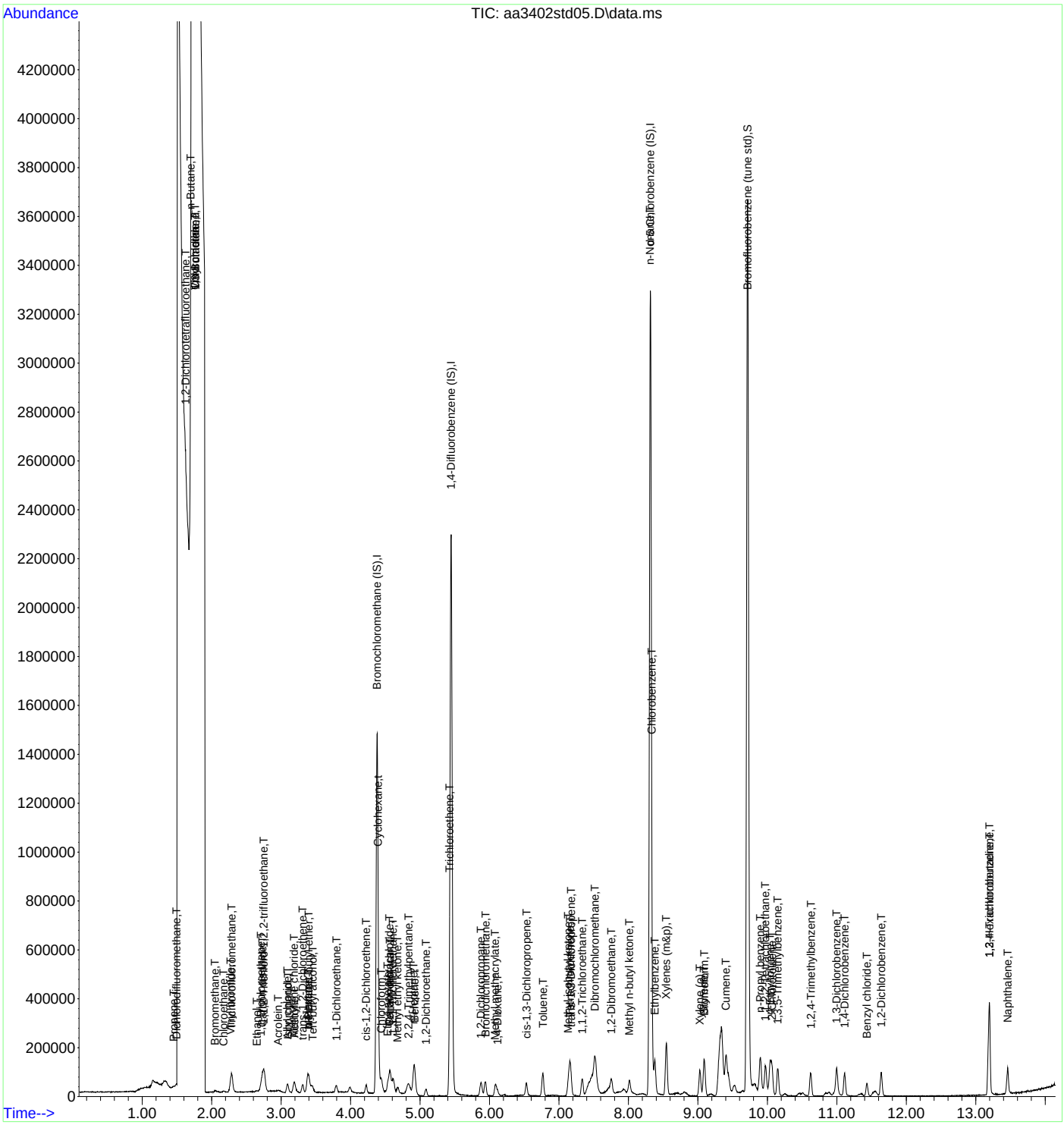
Quant Time: Aug 15 17:16:53 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:15:22 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.518	129	44365	0.22	ppbV		98
53)	1,2-Dibromoethane	7.753	107	35025	0.20	ppbV		99
54)	Methyl n-butyl ketone	8.010	43	39036	0.17	ppbV		94
56)	n-Nonane	8.312	43	51740	0.20	ppbV		94
57)	Chlorobenzene	8.335	112	59186	0.26	ppbV	#	57
58)	Ethylbenzene	8.380	91	107190	0.26	ppbV		98
59)	Xylenes (m&p)	8.544	91	160319	0.53	ppbV		96
60)	Xylene (o)	9.026	91	77796	0.23	ppbV		100
61)	Styrene	9.087	104	44277	0.20	ppbV		97
62)	Bromoform	9.094	173	42204	0.25	ppbV		99
63)	Cumene	9.402	105	96781	0.22	ppbV		99
65)	n-Propyl benzene	9.898	91	133875	0.24	ppbV		91
66)	1,1,2,2-Tetrachloroethane	9.968	83	65139	0.26	ppbV		99
67)	4-Ethyltoluene	10.039	105	105229	0.22	ppbV		94
68)	2-Chlorotoluene	10.068	91	88564	0.23	ppbV		100
69)	1,3,5-Trimethylbenzene	10.148	105	81154	0.21	ppbV		99
70)	1,2,4-Trimethylbenzene	10.627	105	70043	0.19	ppbV		100
71)	1,3-Dichlorobenzene	10.997	146	67007	0.27	ppbV		97
72)	1,4-Dichlorobenzene	11.113	146	51408	0.21	ppbV		98
73)	Benzyl chloride	11.431	91	48312	0.15	ppbV		99
74)	1,2-Dichlorobenzene	11.640	146	51755	0.22	ppbV		97
75)	1,3-Hexachlorobutadiene	13.196	225	55512	0.33	ppbV		100
76)	1,2,4-Trichlorobenzene	13.196	180	54202	0.29	ppbV		99
77)	Naphthalene	13.460	128	93896	0.24	ppbV		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3402std05.D
Acq On : 15 Aug 2023 11:15 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 15 17:16:53 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:15:22 2023
Response via : Initial Calibration



Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3403std04.D
Acq On : 15 Aug 2023 1:45 pm
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 16 09:55:55 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.393	130	541075	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2325427	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2787489	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2277207	9.82	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	69587	1.87	ppbV	98
3) Dichlorodifluoromethane	1.529	85	236252	1.73	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.650	85	358355	1.82	ppbV	100
5) n-Butane	1.729	43	199054	2.26	ppbV	98
6) Chloromethane	1.791	52	14658	2.32	ppbV	76
7) Vinyl chloride	1.780	62	94169	1.83	ppbV	96
8) 1,3-Butadiene	1.794	39	111420	2.12	ppbV	99
9) Bromomethane	2.081	94	70289	1.63	ppbV	99
10) Chloroethane	2.190	64	46371	1.66	ppbV	96
11) Vinyl bromide	2.296	106	88069	1.62	ppbV	100
12) Trichlorofluoromethane	2.313	101	378425	2.06	ppbV	100
13) Ethanol	2.676	45	37762	1.74	ppbV	98
14) 1,1-Dichloroethene	2.731	61	191611	1.70	ppbV	99
15) Carbon disulfide	2.753	76	329694	1.78	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	423345	2.33	ppbV	99
17) Acrolein	2.985	56	36438	1.57	ppbV	98
18) Allyl chloride	3.110	76	53539	1.77	ppbV	100
19) Isopropanol	3.113	45	192840	1.54	ppbV	99
20) Methylene chloride	3.203	49	104527	1.53	ppbV	97
21) Acetone	3.213	43	174115	1.72	ppbV	100
22) trans-1,2-Dichloroethene	3.325	61	182032	1.79	ppbV	100
23) n-Pentane	3.406	43	280301	2.16	ppbV	97
24) n-Hexane	3.403	57	408984	2.26	ppbV	97
25) Methyl tert-butyl ether	3.409	73	620249	2.52	ppbV	91
26) Tert-butyl alcohol	3.460	59	393824	2.49	ppbV	100
27) 1,1-Dichloroethane	3.808	63	246573	1.73	ppbV	100
28) cis-1,2-Dichloroethene	4.239	61	180663	1.83	ppbV	99
29) Cyclohexane	4.409	56	332356	2.54	ppbV	100
30) Chloroform	4.454	83	328798	1.88	ppbV	100
31) Ethyl acetate	4.544	61	53660	1.93	ppbV	98
32) Carbon tetrachloride	4.573	117	526172	2.51	ppbV	100
33) Tetrahydrofuran	4.576	42	193630	1.97	ppbV	100
34) 1,1,1-Trichloroethane	4.624	97	467891	2.48	ppbV	99
35) Methyl ethyl ketone	4.685	43	292932	1.87	ppbV	98
36) n-Heptane	4.917	43	476323	2.63	ppbV	99
37) Benzene	4.933	78	499517	2.00	ppbV	99
38) 1,2-Dichloroethane	5.094	62	212238	1.90	ppbV	100
40) Trichloroethene	5.435	130	214306	1.82	ppbV	99
41) 2,2,4-Trimethylpentane	4.837	57	650366	2.21	ppbV	100
42) 1,2-Dichloropropane	5.885	63	232645	2.19	ppbV	99
43) Bromodichloromethane	5.946	83	402522	2.18	ppbV	98
44) Methyl methacrylate	6.091	41	304586	2.23	ppbV	100
45) 1,4-Dioxane	6.113	88	156518	2.39	ppbV	99
46) cis-1,3-Dichloropropene	6.534	75	346212	2.11	ppbV	100
47) Toluene	6.772	91	889263	2.39	ppbV	98
48) Methyl isobutyl ketone	7.136	43	688572	2.56	ppbV	99
49) Tetrachloroethene	7.161	166	408926	2.44	ppbV	99
50) trans-1,3-Dichloropropene	7.177	75	359255	2.22	ppbV	99
51) 1,1,2-Trichloroethane	7.338	97	292415	2.23	ppbV	99

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3403std04.D
Acq On : 15 Aug 2023 1:45 pm
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

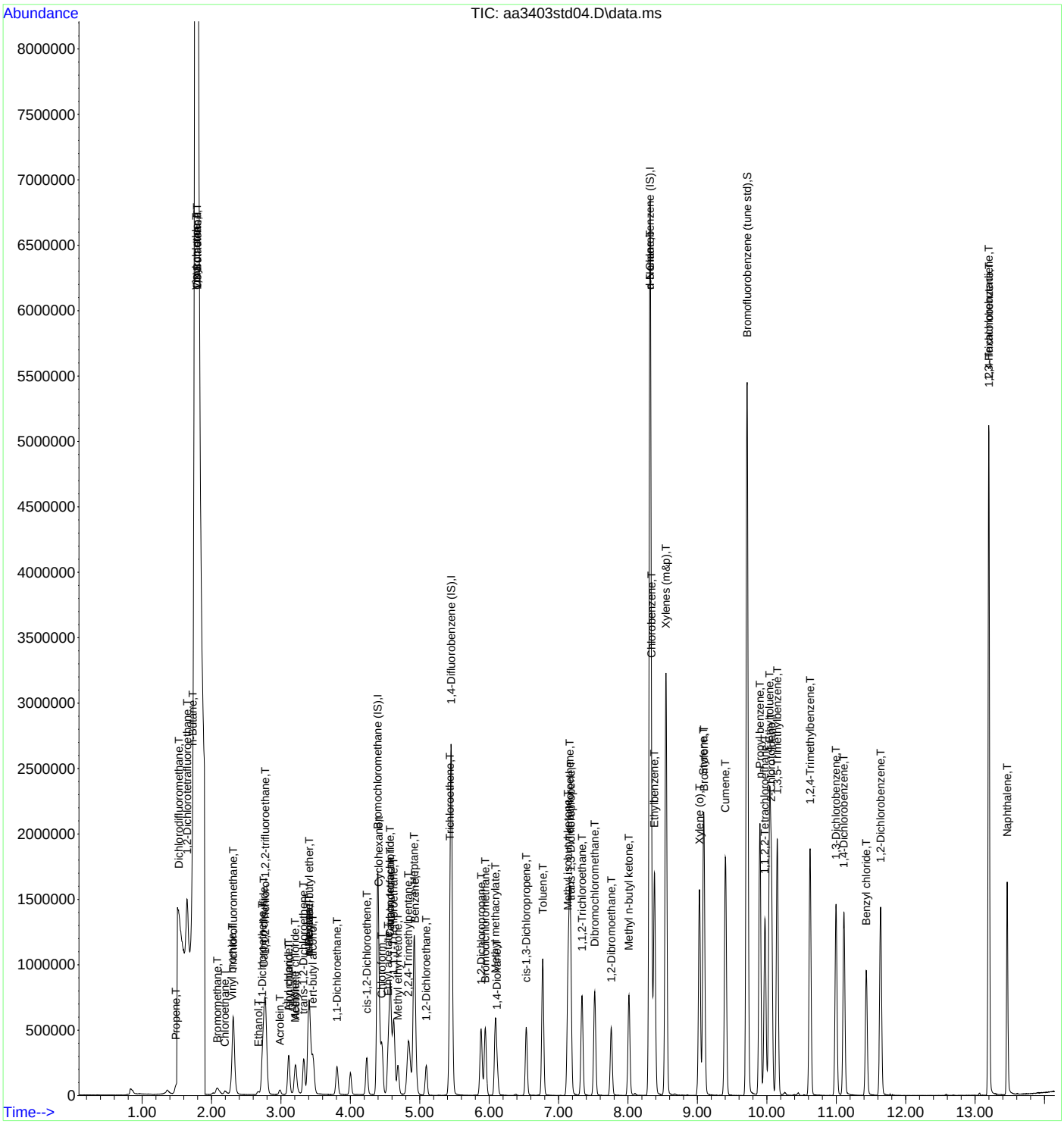
Quant Time: Aug 16 09:55:55 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	504182	2.30	ppbV	99
53)	1,2-Dibromoethane	7.759	107	421042	2.19	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	615992	2.44	ppbV	99
56)	n-Nonane	8.319	43	913232	2.68	ppbV	98
57)	Chlorobenzene	8.338	112	707397	2.32	ppbV	96
58)	Ethylbenzene	8.380	91	1456927	2.58	ppbV	100
59)	Xylenes (m&p)	8.547	91	2222904	5.46	ppbV	99
60)	Xylene (o)	9.029	91	1151590	2.55	ppbV	99
61)	Styrene	9.087	104	755721	2.52	ppbV	98
62)	Bromoform	9.097	173	549148	2.37	ppbV	100
63)	Cumene	9.402	105	1536381	2.61	ppbV	99
65)	n-Propyl benzene	9.901	91	2045481	2.67	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.971	83	874245	2.55	ppbV	100
67)	4-Ethyltoluene	10.039	105	1647910	2.60	ppbV	99
68)	2-Chlorotoluene	10.065	91	1319338	2.53	ppbV	99
69)	1,3,5-Trimethylbenzene	10.151	105	1352228	2.64	ppbV	100
70)	1,2,4-Trimethylbenzene	10.624	105	1317527	2.59	ppbV	99
71)	1,3-Dichlorobenzene	10.997	146	732133	2.17	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	692835	2.14	ppbV	99
73)	Benzyl chloride	11.431	91	873022	1.97	ppbV	99
74)	1,2-Dichlorobenzene	11.640	146	730471	2.29	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	530064	2.32	ppbV	99
76)	1,2,4-Trichlorobenzene	13.200	180	518457	2.07	ppbV	100
77)	Naphthalene	13.463	128	1018158	1.97	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3403std04.D
Acq On : 15 Aug 2023 1:45 pm
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 16 09:55:55 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3404std03.D
Acq On : 15 Aug 2023 1:09 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 16 09:54:13 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.396	130	530723	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	2268530	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2737620	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.718	95	2240242	9.84	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.492	41	375623	10.28	ppbV	100
3) Dichlorodifluoromethane	1.529	85	1361127	10.15	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.650	85	1649087	8.55	ppbV	100
5) n-Butane	1.732	43	929570	10.75	ppbV	98
6) Chloromethane	1.794	52	69017	11.11	ppbV	100
7) Vinyl chloride	1.784	62	537570	10.66	ppbV	100
8) 1,3-Butadiene	1.794	39	527528	10.23	ppbV	100
9) Bromomethane	2.084	94	414507	9.79	ppbV	100
10) Chloroethane	2.197	64	294705	10.74	ppbV	100
11) Vinyl bromide	2.297	106	529947	9.94	ppbV	100
12) Trichlorofluoromethane	2.313	101	1803210	9.99	ppbV	100
13) Ethanol	2.670	45	178190	8.39	ppbV	100
14) 1,1-Dichloroethene	2.734	61	1166579	10.54	ppbV	100
15) Carbon disulfide	2.753	76	2000133	10.99	ppbV	100
16) 1,1,2-Trichloro-1,2,2-...	2.779	101	1623708	9.11	ppbV	100
17) Acrolein	2.988	56	228259	10.01	ppbV	100
18) Allyl chloride	3.113	76	322565	10.86	ppbV	100
19) Isopropanol	3.113	45	1070426	8.72	ppbV	100
20) Methylene chloride	3.203	49	607018	9.06	ppbV	100
21) Acetone	3.213	43	1046415	10.51	ppbV	100
22) trans-1,2-Dichloroethene	3.329	61	1103133	11.06	ppbV	100
23) n-Pentane	3.409	43	1158219	9.10	ppbV	100
24) n-Hexane	3.406	57	1757143	9.89	ppbV	100
25) Methyl tert-butyl ether	3.412	73	2372793	9.82	ppbV	100
26) Tert-butyl alcohol	3.467	59	1587668	10.21	ppbV	100
27) 1,1-Dichloroethane	3.811	63	1366393	9.76	ppbV	100
28) cis-1,2-Dichloroethene	4.235	61	1021823	10.55	ppbV	100
29) Cyclohexane	4.415	56	1253558	9.76	ppbV	100
30) Chloroform	4.457	83	1736397	10.14	ppbV	100
31) Ethyl acetate	4.544	61	272622	10.00	ppbV	100
32) Carbon tetrachloride	4.579	117	1958808	9.54	ppbV	100
33) Tetrahydrofuran	4.576	42	1006885	10.46	ppbV	100
34) 1,1,1-Trichloroethane	4.628	97	1724281	9.33	ppbV	100
35) Methyl ethyl ketone	4.686	43	1590191	10.35	ppbV	100
36) n-Heptane	4.920	43	1866612	10.50	ppbV	100
37) Benzene	4.933	78	2414826	9.86	ppbV	100
38) 1,2-Dichloroethane	5.094	62	1127298	10.27	ppbV	100
40) Trichloroethene	5.435	130	1079500	9.38	ppbV	100
41) 2,2,4-Trimethylpentane	4.846	57	2899901	10.09	ppbV	100
42) 1,2-Dichloropropane	5.885	63	1067336	10.31	ppbV	100
43) Bromodichloromethane	5.946	83	1979492	10.98	ppbV	100
44) Methyl methacrylate	6.091	41	1493887	11.22	ppbV	100
45) 1,4-Dioxane	6.113	88	728333	11.41	ppbV	100
46) cis-1,3-Dichloropropene	6.534	75	1744754	10.91	ppbV	100
47) Toluene	6.772	91	3957437	10.88	ppbV	100
48) Methyl isobutyl ketone	7.136	43	2863824	10.90	ppbV	100
49) Tetrachloroethene	7.161	166	1772265	10.84	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	1834063	11.63	ppbV	100
51) 1,1,2-Trichloroethane	7.338	97	1345722	10.50	ppbV	100

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3404std03.D
Acq On : 15 Aug 2023 1:09 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

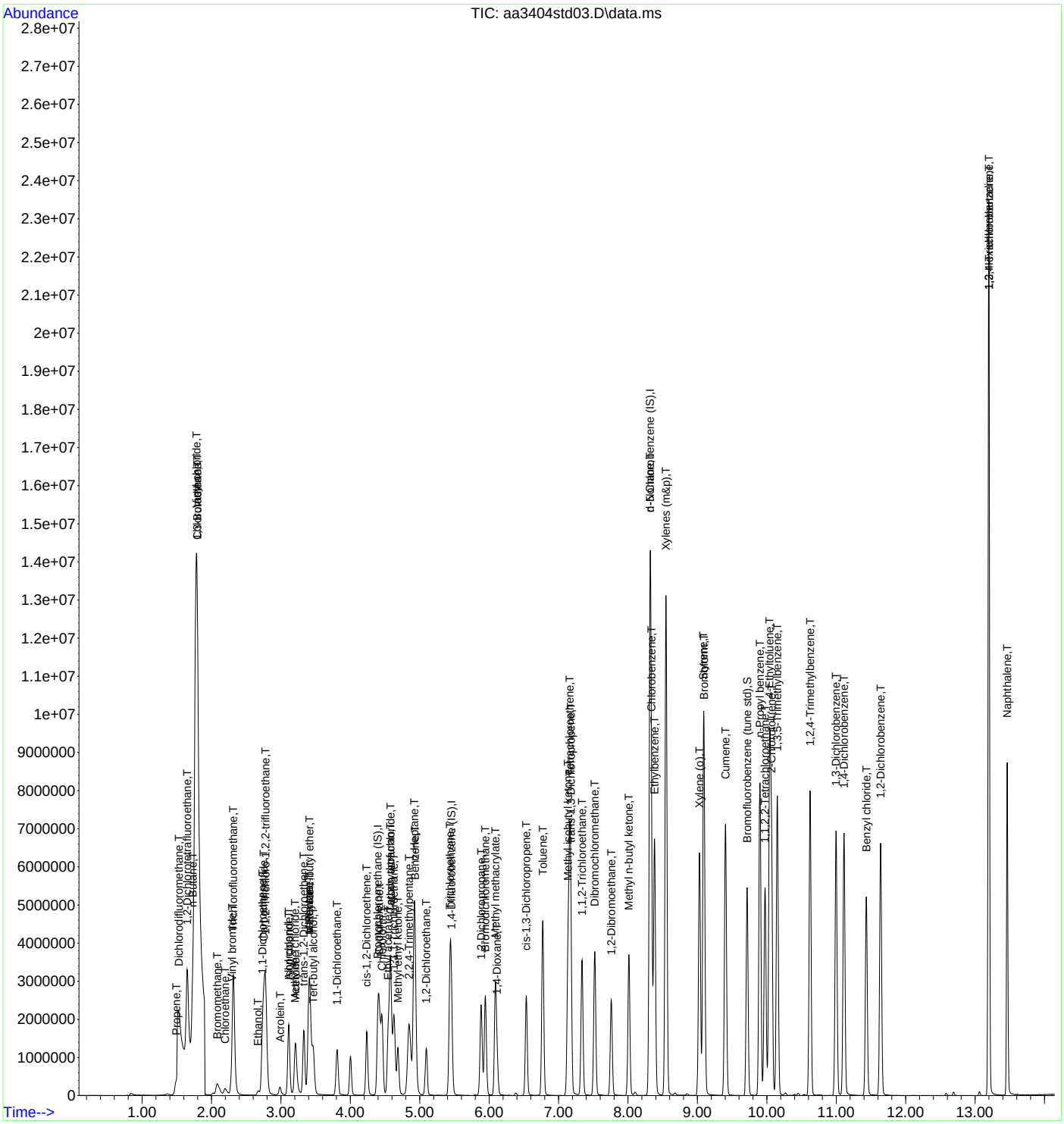
Quant Time: Aug 16 09:54:13 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2376959	11.11	ppbV	100
53)	1,2-Dibromoethane	7.759	107	2045235	10.91	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	2912111	11.83	ppbV	100
56)	n-Nonane	8.319	43	3534946	10.55	ppbV	100
57)	Chlorobenzene	8.338	112	3126708	10.43	ppbV	100
58)	Ethylbenzene	8.383	91	5864430	10.58	ppbV	100
59)	Xylenes (m&p)	8.547	91	8881004	22.23	ppbV	100
60)	Xylene (o)	9.029	91	4642943	10.46	ppbV	100
61)	Styrene	9.087	104	3380250	11.48	ppbV	100
62)	Bromoform	9.097	173	2491890	10.95	ppbV	100
63)	Cumene	9.406	105	5984852	10.35	ppbV	100
65)	n-Propyl benzene	9.901	91	8177614	10.85	ppbV	100
66)	1,1,2,2-Tetrachloroethane	9.975	83	3547036	10.55	ppbV	100
67)	4-Ethyltoluene	10.039	105	6733965	10.84	ppbV	100
68)	2-Chlorotoluene	10.068	91	5305123	10.37	ppbV	100
69)	1,3,5-Trimethylbenzene	10.152	105	5348299	10.64	ppbV	100
70)	1,2,4-Trimethylbenzene	10.624	105	5481212	10.99	ppbV	100
71)	1,3-Dichlorobenzene	10.997	146	3421975	10.35	ppbV	100
72)	1,4-Dichlorobenzene	11.113	146	3376978	10.63	ppbV	100
73)	Benzyl chloride	11.434	91	4675578	10.73	ppbV	100
74)	1,2-Dichlorobenzene	11.640	146	3254751	10.40	ppbV	100
75)	1,3-Hexachlorobutadiene	13.200	225	2216471	9.88	ppbV	100
76)	1,2,4-Trichlorobenzene	13.200	180	2590387	10.53	ppbV	100
77)	Naphthalene	13.463	128	5257288	10.34	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3404std03.D
Acq On : 15 Aug 2023 1:09 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 16 09:54:13 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3405std02.D
Acq On : 15 Aug 2023 3:12 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 16 09:53:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.399	130	499473	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	2278768	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2812211	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2375515	10.15	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.499	41	770871	22.41	ppbV	99
3) Dichlorodifluoromethane	1.533	85	2795748	22.15	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.657	85	3247750	17.89	ppbV	100
5) n-Butane	1.736	43	1882829	23.14	ppbV	99
6) Chloromethane	1.798	52	142733	24.42	ppbV	98
7) Vinyl chloride	1.787	62	1083251	22.82	ppbV	99
8) 1,3-Butadiene	1.801	39	1052739	21.69	ppbV	99
9) Bromomethane	2.091	94	850633	21.34	ppbV	100
10) Chloroethane	2.200	64	600686	23.27	ppbV	98
11) Vinyl bromide	2.300	106	1097918	21.89	ppbV	100
12) Trichlorofluoromethane	2.319	101	3715497	21.88	ppbV	100
13) Ethanol	2.673	45	357760	17.89	ppbV	99
14) 1,1-Dichloroethene	2.737	61	2414830	23.18	ppbV	100
15) Carbon disulfide	2.756	76	3964880	23.15	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.779	101	3255314	19.40	ppbV	100
17) Acrolein	2.991	56	446408	20.80	ppbV	98
18) Allyl chloride	3.113	76	664077	23.76	ppbV	100
19) Isopropanol	3.113	45	2200207	19.06	ppbV	99
20) Methylene chloride	3.207	49	1260244	19.99	ppbV	100
21) Acetone	3.216	43	2038682	21.76	ppbV	100
22) trans-1,2-Dichloroethene	3.332	61	2308104	24.59	ppbV	99
23) n-Pentane	3.409	43	2302426	19.23	ppbV	99
24) n-Hexane	3.412	57	3543404	21.18	ppbV	99
25) Methyl tert-butyl ether	3.412	73	4774341	20.99	ppbV	99
26) Tert-butyl alcohol	3.467	59	3269773	22.35	ppbV	100
27) 1,1-Dichloroethane	3.811	63	2864453	21.75	ppbV	100
28) cis-1,2-Dichloroethene	4.239	61	2160622	23.71	ppbV	100
29) Cyclohexane	4.419	56	2552240	21.11	ppbV	100
30) Chloroform	4.457	83	3608439	22.38	ppbV	99
31) Ethyl acetate	4.544	61	573589	22.35	ppbV	98
32) Carbon tetrachloride	4.579	117	3910518	20.23	ppbV	100
33) Tetrahydrofuran	4.576	42	2087668	23.05	ppbV	99
34) 1,1,1-Trichloroethane	4.631	97	3456960	19.87	ppbV	100
35) Methyl ethyl ketone	4.686	43	3340979	23.11	ppbV	100
36) n-Heptane	4.920	43	3644916	21.78	ppbV	99
37) Benzene	4.936	78	4942978	21.45	ppbV	99
38) 1,2-Dichloroethane	5.097	62	2363649	22.89	ppbV	99
40) Trichloroethene	5.435	130	2273330	19.66	ppbV	99
41) 2,2,4-Trimethylpentane	4.846	57	5933707	20.56	ppbV	100
42) 1,2-Dichloropropane	5.885	63	2205432	21.21	ppbV	99
43) Bromodichloromethane	5.946	83	4121290	22.75	ppbV	100
44) Methyl methacrylate	6.091	41	3097965	23.17	ppbV	99
45) 1,4-Dioxane	6.113	88	1493343	23.30	ppbV	99
46) cis-1,3-Dichloropropene	6.538	75	3649298	22.71	ppbV	100
47) Toluene	6.772	91	7908022	21.65	ppbV	99
48) Methyl isobutyl ketone	7.136	43	5805171	22.00	ppbV	99
49) Tetrachloroethene	7.161	166	3535315	21.53	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	3830549	24.18	ppbV	98
51) 1,1,2-Trichloroethane	7.338	97	2762664	21.45	ppbV	99

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3405std02.D
Acq On : 15 Aug 2023 3:12 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 7 Sample Multiplier: 1

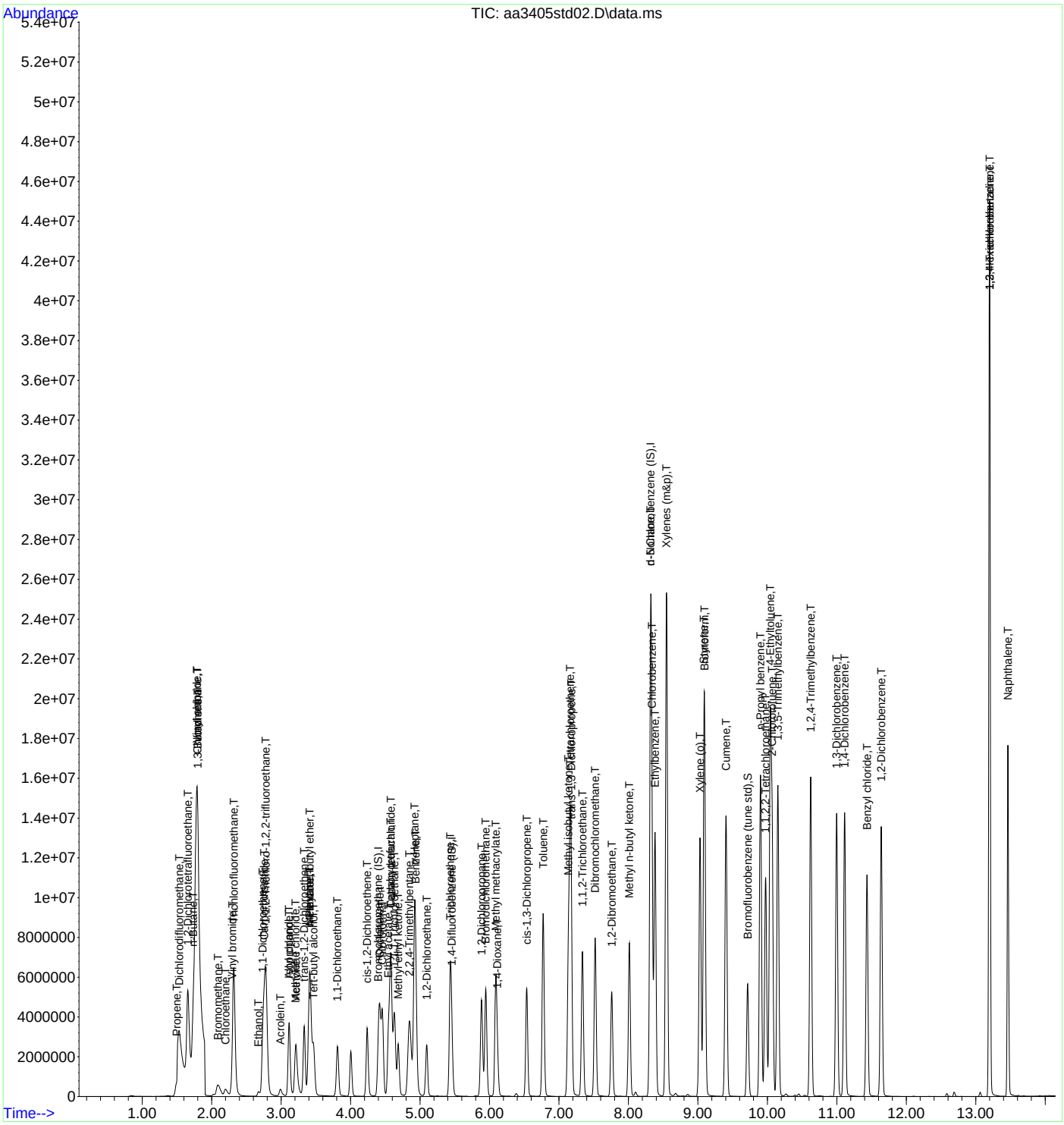
Quant Time: Aug 16 09:53:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	4920304	22.89	ppbV	99
53)	1,2-Dibromoethane	7.759	107	4277090	22.71	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	6056833	24.50	ppbV	99
56)	n-Nonane	8.319	43	7191778	20.90	ppbV	100
57)	Chlorobenzene	8.338	112	6300402	20.46	ppbV	99
58)	Ethylbenzene	8.383	91	11427551	20.06	ppbV	98
59)	Xylenes (m&p)	8.547	91	16612160	40.47	ppbV	96
60)	Xylene (o)	9.029	91	9308971	20.42	ppbV	99
61)	Styrene	9.087	104	6805349	22.50	ppbV	100
62)	Bromoform	9.097	173	5013505	21.45	ppbV	99
63)	Cumene	9.406	105	11708179	19.72	ppbV	98
65)	n-Propyl benzene	9.901	91	15630674	20.19	ppbV	97
66)	1,1,2,2-Tetrachloroethane	9.975	83	7162257	20.73	ppbV	100
67)	4-Ethyltoluene	10.042	105	13015117	20.39	ppbV	97
68)	2-Chlorotoluene	10.068	91	10557525	20.10	ppbV	99
69)	1,3,5-Trimethylbenzene	10.152	105	10540320	20.40	ppbV	98
70)	1,2,4-Trimethylbenzene	10.624	105	10891140	21.26	ppbV	98
71)	1,3-Dichlorobenzene	10.997	146	6954730	20.48	ppbV	99
72)	1,4-Dichlorobenzene	11.113	146	6870236	21.05	ppbV	99
73)	Benzyl chloride	11.434	91	9809727	21.92	ppbV	99
74)	1,2-Dichlorobenzene	11.640	146	6519746	20.28	ppbV	99
75)	1,3-Hexachlorobutadiene	13.200	225	4206699	18.25	ppbV	99
76)	1,2,4-Trichlorobenzene	13.200	180	5049468	19.98	ppbV	100
77)	Naphthalene	13.463	128	10176689	19.49	ppbV	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3405std02.D
Acq On : 15 Aug 2023 3:12 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 16 09:53:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3406std01.D
Acq On : 15 Aug 2023 4:47 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 09:52:28 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.406	130	487271	10.00	ppbV		0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	2425798	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2732166	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.717	95	2577792	11.34	ppbV		0.000
Target Compounds							Qvalue
2) Propene	1.512	41	1707516	50.87	ppbV		99
3) Dichlorodifluoromethane	1.536	85	5966633	48.46	ppbV		100
4) 1,2-Dichlorotetrafluor...	1.660	85	6899713	38.95	ppbV		99
5) n-Butane	1.739	43	3778324	47.60	ppbV		100
6) Chloromethane	1.798	52	321722	56.43	ppbV	#	1
7) Vinyl chloride	1.791	62	2395758	51.74	ppbV		99
8) 1,3-Butadiene	1.801	39	2174685	45.93	ppbV		97
9) Bromomethane	2.097	94	1861404	47.86	ppbV		100
10) Chloroethane	2.200	64	1346794	53.48	ppbV		100
11) Vinyl bromide	2.300	106	2453541	50.15	ppbV		100
12) Trichlorofluoromethane	2.319	101	7717062	46.58	ppbV		100
13) Ethanol	2.673	45	877297	44.97	ppbV	#	88
14) 1,1-Dichloroethene	2.737	61	4997972	49.17	ppbV		100
15) Carbon disulfide	2.763	76	8067769	48.28	ppbV		99
16) 1,1,2-Trichloro-1,2,2-...	2.782	101	6956660	42.50	ppbV		100
17) Acrolein	2.994	56	951140	45.44	ppbV		98
18) Allyl chloride	3.116	76	1369570	50.24	ppbV		100
19) Isopropanol	3.116	45	4505255	40.00	ppbV		98
20) Methylene chloride	3.206	49	2810050	45.70	ppbV		100
21) Acetone	3.222	43	4077485	44.60	ppbV		100
22) trans-1,2-Dichloroethene	3.332	61	4976980	54.35	ppbV		98
23) n-Pentane	3.412	43	5051897	43.24	ppbV		99
24) n-Hexane	3.412	57	7730831	47.37	ppbV		99
25) Methyl tert-butyl ether	3.412	73	10208419	46.00	ppbV		97
26) Tert-butyl alcohol	3.467	59	7080253	49.62	ppbV		100
27) 1,1-Dichloroethane	3.814	63	6120009	47.63	ppbV		99
28) cis-1,2-Dichloroethene	4.238	61	4615777	51.93	ppbV		100
29) Cyclohexane	4.419	56	5431445	46.06	ppbV		100
30) Chloroform	4.457	83	7598750	48.31	ppbV		100
31) Ethyl acetate	4.547	61	1228122	49.05	ppbV		99
32) Carbon tetrachloride	4.583	117	8430867	44.71	ppbV		100
33) Tetrahydrofuran	4.576	42	4398645	49.79	ppbV		99
34) 1,1,1-Trichloroethane	4.631	97	7362144	43.37	ppbV		100
35) Methyl ethyl ketone	4.685	43	7160721	50.77	ppbV		99
36) n-Heptane	4.920	43	7185919	44.02	ppbV		100
37) Benzene	4.936	78	10281932	45.73	ppbV		98
38) 1,2-Dichloroethane	5.097	62	5067261	50.30	ppbV		99
40) Trichloroethene	5.438	130	4836394	39.29	ppbV		100
41) 2,2,4-Trimethylpentane	4.849	57	13336894	43.41	ppbV		98
42) 1,2-Dichloropropane	5.888	63	4560844	41.21	ppbV		99
43) Bromodichloromethane	5.949	83	8574056	44.47	ppbV		99
44) Methyl methacrylate	6.090	41	6283616	44.15	ppbV		100
45) 1,4-Dioxane	6.116	88	3065935	44.93	ppbV		99
46) cis-1,3-Dichloropropene	6.537	75	7375814	43.13	ppbV		99
47) Toluene	6.772	91	14907224	38.33	ppbV		96
48) Methyl isobutyl ketone	7.135	43	11479037	40.87	ppbV		98
49) Tetrachloroethene	7.164	166	6808224	38.95	ppbV		100
50) trans-1,3-Dichloropropene	7.177	75	7633904	45.27	ppbV		99
51) 1,1,2-Trichloroethane	7.338	97	5566488	40.60	ppbV		99

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3406std01.D
Acq On : 15 Aug 2023 4:47 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 09:52:28 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration

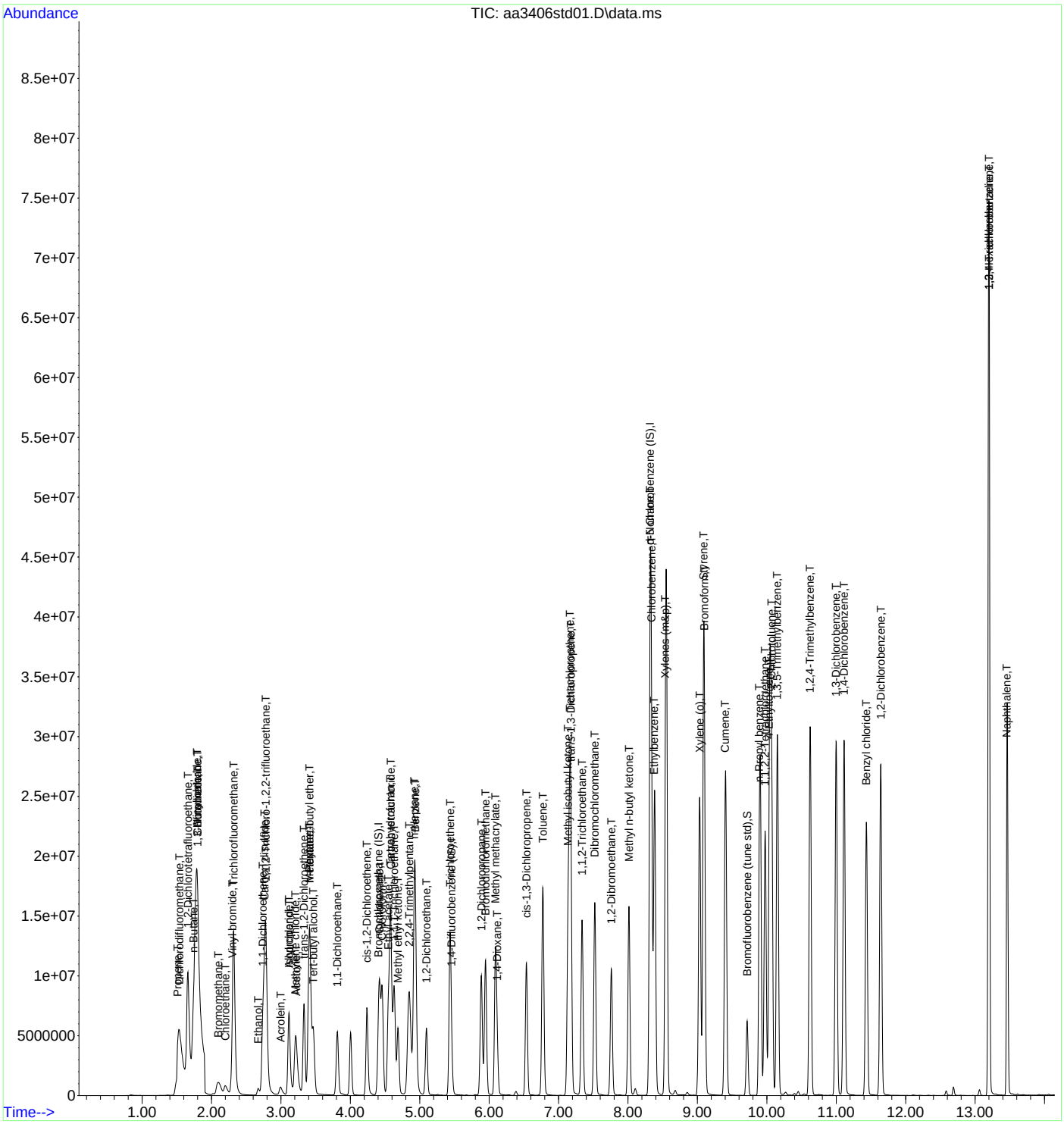
	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.521	129	9886675	43.20	ppbV		99
53)	1,2-Dibromoethane	7.759	107	8609104	42.93	ppbV		100
54)	Methyl n-butyl ketone	8.013	43	12284613	46.68	ppbV		97
56)	n-Nonane	8.319	43	14182361	42.42	ppbV		98
57)	Chlorobenzene	8.338	112	12196934	40.77	ppbV		96
58)	Ethylbenzene	8.377	91	20355846	36.79	ppbV		90
59)	Xylenes (m&p)	8.537	91	24199756	60.68	ppbV	#	74
60)	Xylene (o)	9.033	91	17688374	39.94	ppbV		95
61)	Styrene	9.090	104	13186398	44.87	ppbV		97
62)	Bromoform	9.100	173	9710978	42.77	ppbV		98
63)	Cumene	9.399	105	21140296	36.64	ppbV		91
65)	n-Propyl benzene	9.891	91	24008413	31.92	ppbV	#	80
66)	1,1,2,2-Tetrachloroethane	9.975	83	14100555	42.01	ppbV		97
67)	4-Ethyltoluene	10.032	105	21664037	34.94	ppbV	#	84
68)	2-Chlorotoluene	10.068	91	20299207	39.78	ppbV		97
69)	1,3,5-Trimethylbenzene	10.148	105	19633662	39.12	ppbV		92
70)	1,2,4-Trimethylbenzene	10.621	105	20118523	40.43	ppbV		91
71)	1,3-Dichlorobenzene	10.997	146	14030394	42.52	ppbV		97
72)	1,4-Dichlorobenzene	11.113	146	13876826	43.76	ppbV		97
73)	Benzyl chloride	11.431	91	19339251	44.49	ppbV		93
74)	1,2-Dichlorobenzene	11.643	146	13190929	42.23	ppbV		97
75)	1,3-Hexachlorobutadiene	13.200	225	7629643	34.08	ppbV		97
76)	1,2,4-Trichlorobenzene	13.200	180	9392234	38.25	ppbV		99
77)	Naphthalene	13.457	128	15939992	31.42	ppbV	#	83

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3406std01.D
Acq On : 15 Aug 2023 4:47 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 16 09:52:28 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Aug 15 17:18:05 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 10/10/2023 **Method ID:** 231009.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48

	Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
1)	Bromochloromethane	----------ISTD----------						
3)	Dichlorodifluoromethane	1.9	2.0	2.2	2.4	2.6	2.2	13
4)	1,2-Dichlorotetrafluoroethane	3.2	3.4	2.9	3.2	3.5	3.2	6.1
6)	Chloromethane	0.085	0.098	0.11	0.12	0.14	0.11	18
7)	Vinyl chloride	0.70	0.84	0.91	0.98	1.1	0.91	17
8)	1,3-Butadiene	0.87	0.82	0.80	0.84	0.91	0.85	4.8
9)	Bromomethane	0.49	0.70	0.75	0.81	0.91	0.73	22
10)	Chloroethane	0.24	0.45	0.50	0.55	0.63	0.48	31
11)	Vinyl bromide	0.53	0.86	0.92	1.0	1.1	0.90	26
12)	Trichlorofluoromethane	2.6	2.6	2.7	2.9	3.2	2.8	8.9
14)	1,1-Dichloroethene	1.4	1.5	1.9	2.1	2.3	1.9	21
15)	Carbon disulfide	2.4	2.6	3.2	3.4	3.7	3.1	18
16)	1,1,2-Trichloro-1,2,2-trifluoroethane	2.8	3.0	2.5	2.7	3.0	2.8	7.4
17)	Acrolein	0.39	0.33	0.43	0.45	0.49	0.42	15
18)	Allyl Chloride	0.35	0.42	0.54	0.58	0.62	0.50	23
19)	Isopropanol	1.6	1.7	2.1	2.3	2.4	2.0	17
20)	Methylene chloride	1.7	0.97	1.0	1.1	1.3	1.2	25
21)	Acetone	1.5	1.2	1.5	1.6	1.7	1.5	12
22)	1,2-Dichloroethene (trans)	1.4	1.3	1.8	2.0	2.2	1.7	21
24)	n-Hexane	3.1	3.0	3.0	3.1	3.5	3.2	7.1
25)	Methyl tert-butyl ether	3.5	4.1	3.6	3.9	4.3	3.9	8.5
26)	Tert-butyl alcohol	2.3	2.5	2.5	2.7	3.0	2.6	11
27)	1,1-Dichloroethane	2.2	2.0	2.2	2.4	2.7	2.3	12
28)	1,2-Dichloroethene (cis)	1.3	1.4	1.7	1.8	2.0	1.6	18
29)	Cyclohexane	2.1	2.2	2.1	2.2	2.4	2.2	6.8
30)	Chloroform	2.2	2.3	2.6	2.9	3.2	2.7	15
32)	Carbon tetrachloride	3.0	3.1	3.0	3.2	3.5	3.2	6.9
33)	Tetrahydrofuran	1.5	1.3	1.5	1.6	1.7	1.5	9.4
34)	1,1,1-Trichloroethane	2.5	2.7	2.7	2.9	3.1	2.8	8.7
35)	Methyl ethyl ketone	2.3	2.1	2.4	2.6	2.9	2.4	13
36)	n-Heptane	2.6	2.6	2.9	2.9	2.9	2.8	6.9
37)	Benzene	3.6	3.8	3.8	4.1	4.5	4.0	9.3
38)	1,2-Dichloroethane	1.3	1.5	1.7	1.8	2.0	1.7	17
39)	1,4-Difluorobenzene	----------ISTD----------						
40)	Trichloroethene	0.38	0.47	0.44	0.45	0.47	0.44	8.1
41)	2,2,4-Trimethylpentane	1.2	1.5	1.2	1.3	1.3	1.3	9.8
42)	1,2-Dichloropropane	0.38	0.40	0.39	0.39	0.39	0.39	2.1
43)	Bromodichloromethane	0.59	0.68	0.66	0.68	0.68	0.66	6.0

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Data Summary Report

Initial Calibration Curve: 10/10/2023 **Method ID:** 231009.M

Instrument: AA

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48

	Parameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
44)	Methyl methacrylate	0.42	0.46	0.50	0.50	0.48	0.47	6.8
45)	1,4-Dioxane	0.21	0.24	0.24	0.25	0.25	0.24	5.9
46)	1,3-Dichloropropene (cis)	0.55	0.59	0.63	0.63	0.62	0.60	5.6
47)	Toluene	1.2	1.5	1.5	1.5	1.4	1.4	7.6
48)	Methyl isobutyl ketone	0.76	0.92	0.95	0.93	0.86	0.88	8.6
49)	Tetrachloroethene	0.53	0.61	0.63	0.64	0.61	0.61	7.1
50)	1,3-Dichloropropene (trans)	0.46	0.57	0.63	0.65	0.62	0.59	13
51)	1,1,2-Trichloroethane	0.40	0.48	0.49	0.51	0.50	0.48	9.3
52)	Dibromochloromethane	0.64	0.78	0.83	0.86	0.85	0.79	12
53)	1,2-Dibromoethane	0.54	0.67	0.73	0.75	0.74	0.69	13
54)	Methyl n-butyl ketone	0.70	0.78	0.93	0.93	0.90	0.85	12
55)	d-5 Chlorbenzene	----------ISTD----------						
57)	Chlorobenzene	0.97	1.1	0.99	0.99	0.99	1.00	3.0
58)	Ethylbenzene	1.8	2.0	1.9	1.8	1.8	1.8	4.5
59)	Xylenes (m&p)	1.3	1.5	1.4	1.4	1.2	1.4	9.3
60)	Xylenes (o)	1.4	1.6	1.5	1.5	1.5	1.5	5.0
61)	Styrene	0.85	1.0	1.1	1.1	1.1	1.0	9.4
62)	Bromoform	0.63	0.72	0.75	0.77	0.80	0.73	8.7
63)	Cumene	1.8	2.2	2.0	1.9	1.9	1.9	7.1
66)	1,1,2,2-Tetrachloroethane	0.96	1.1	1.0	1.0	1.1	1.0	5.5
67)	4-Ethyltoluene	2.1	2.2	2.2	2.2	2.1	2.2	3.8
68)	2-Chlorotoluene	1.6	1.8	1.7	1.7	1.7	1.7	4.3
69)	1,3,5-Trimethylbenzene	1.5	1.9	1.8	1.8	1.7	1.7	7.6
70)	1,2,4-Trimethylbenzene	1.4	1.9	1.8	1.8	1.8	1.7	9.6
71)	1,3-Dichlorobenzene	1.0	1.0	1.1	1.1	1.1	1.1	4.2
72)	1,4-Dichlorobenzene	0.94	1.0	1.1	1.1	1.2	1.1	8.6
73)	Benzyl chloride	1.2	1.4	1.6	1.7	1.7	1.5	15
74)	1,2-Dichlorobenzene	0.90	1.1	1.0	1.1	1.1	1.0	7.4
75)	1,3-Hexachlorobutadiene	0.73	0.78	0.70	0.69	0.66	0.71	6.1
76)	1,2,4-Trichlorobenzene	0.83	0.81	0.82	0.84	0.83	0.82	1.4
77)	Naphthalene	2.0	1.9	1.9	1.9	1.7	1.9	4.8

***% RSD (Relative Standard Deviation) must be within 30%**

****An exception is made for 2 compounds that must be within 40%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Response Factor Report GCMS2B

Method Path : C:\msdchem\1\METHODS\
Method File : 231009.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Tue Oct 10 15:12:35 2023
Response Via : Initial Calibration

Calibration Files
0.2 =aa4132std05.D 2 =aa4133std04.D 10 =aa4134std03.D 20 =aa4135std02.D 40 =aa4136std01.D

		Compound	0.2	2	10	20	40	Avg	%RSD
1)	I	Bromochloromethane...	----------ISTD----------						
2)	T	Propene	0.779	0.688	0.601	0.651	0.751	0.694	10.44
3)	T	Dichlorodifluoro...	1.907	1.983	2.168	2.390	2.633	2.216	13.46
4)	T	1,2-Dichlorotetr...	3.185	3.352	2.944	3.158	3.458	3.219	6.12
5)	T	n-Butane	1.490	1.596	1.532	1.649	1.719	1.597	5.69
6)	T	Chloromethane	0.085	0.098	0.113	0.121	0.137	0.111	18.16
7)	T	Vinyl chloride	0.695	0.837	0.907	0.984	1.107	0.906	17.06
8)	T	1,3-Butadiene	0.868	0.820	0.800	0.839	0.905	0.846	4.88
9)	T	Bromomethane	0.486	0.695	0.751	0.814	0.911	0.731	21.71
10)	T	Chloroethane	0.242	0.451	0.502	0.547	0.634	0.475	30.85
11)	T	Vinyl bromide	0.534	0.864	0.915	1.018	1.146	0.895	25.58
12)	T	Trichlorofluorom...	2.621	2.609	2.656	2.932	3.178	2.799	8.92
13)	T	Ethanol	0.278	0.262	0.269	0.289	0.366	0.293	14.44
14)	T	1,1-Dichloroethene	1.413	1.490	1.944	2.133	2.308	1.858	21.17
15)	T	Carbon disulfide	2.407	2.574	3.227	3.426	3.653	3.058	17.73
16)	T	1,1,2-Trichloro-...	2.836	3.030	2.523	2.712	2.994	2.819	7.42
17)	T	Acrolein	0.385	0.331	0.431	0.447	0.494	0.418	14.91
18)	T	Allyl chloride	0.345	0.421	0.535	0.582	0.624	0.501	23.11
19)	T	Isopropanol	1.617	1.677	2.082	2.254	2.397	2.005	17.28
20)	T	Methylene chloride	1.726	0.973	1.020	1.121	1.307	1.229	24.89
21)	T	Acetone	1.489	1.226	1.538	1.595	1.694	1.508	11.62
22)	T	trans-1,2-Dichlo...	1.377	1.330	1.784	1.951	2.181	1.724	21.29
23)	T	n-Pentane	2.223	2.305	2.173	2.308	2.616	2.325	7.41
24)	T	n-Hexane	3.143	2.995	2.967	3.122	3.534	3.152	7.19
25)	T	Methyl tert-buty...	3.476	4.059	3.641	3.875	4.310	3.872	8.54
26)	T	Tert-butyl alcohol	2.280	2.528	2.502	2.698	3.027	2.607	10.66
27)	T	1,1-Dichloroethane	2.208	2.008	2.236	2.445	2.714	2.322	11.56
28)	T	cis-1,2-Dichloro...	1.343	1.351	1.654	1.825	2.018	1.638	18.03
29)	t	Cyclohexane	2.057	2.245	2.081	2.192	2.434	2.202	6.86
30)	T	Chloroform	2.233	2.343	2.644	2.933	3.225	2.676	15.36
31)	T	Ethyl acetate	0.310	0.390	0.450	0.493	0.533	0.435	20.09
32)	T	Carbon tetrachlo...	2.964	3.097	3.048	3.232	3.528	3.174	6.95
33)	T	Tetrahydrofuran	1.456	1.307	1.488	1.591	1.681	1.504	9.42
34)	T	1,1,1-Trichloroe...	2.481	2.746	2.667	2.869	3.137	2.780	8.79
35)	T	Methyl ethyl ketone	2.291	2.066	2.372	2.620	2.862	2.442	12.58
36)	T	n-Heptane	2.552	2.559	2.850	2.930	2.928	2.764	6.98
37)	T	Benzene	3.627	3.758	3.801	4.128	4.544	3.972	9.30
38)	T	1,2-Dichloroethane	1.312	1.486	1.666	1.833	2.016	1.663	16.69
39)	I	1,4-Difluorobenzen...	----------ISTD----------						
40)	T	Trichloroethene	0.381	0.468	0.441	0.454	0.469	0.442	8.16
41)	T	2,2,4-Trimethylp...	1.199	1.522	1.226	1.268	1.298	1.303	9.87
42)	T	1,2-Dichloropropane	0.377	0.399	0.391	0.393	0.385	0.389	2.16
43)	T	Bromodichloromet...	0.586	0.682	0.655	0.678	0.675	0.655	6.09
44)	T	Methyl methacrylate	0.419	0.464	0.497	0.498	0.481	0.472	6.88
45)	T	1,4-Dioxane	0.214	0.238	0.243	0.249	0.248	0.238	5.94
46)	T	cis-1,3-Dichloro...	0.549	0.592	0.626	0.634	0.615	0.603	5.69
47)	T	Toluene	1.225	1.453	1.484	1.478	1.387	1.405	7.68
48)	T	Methyl isobutyl ...	0.759	0.922	0.947	0.925	0.863	0.883	8.63
49)	T	Tetrachloroethene	0.531	0.613	0.633	0.639	0.613	0.606	7.17
50)	T	trans-1,3-Dichlo...	0.459	0.568	0.633	0.647	0.618	0.585	13.11
51)	T	1,1,2-Trichloroe...	0.399	0.475	0.494	0.506	0.500	0.475	9.30
52)	T	Dibromochloromet...	0.636	0.778	0.834	0.857	0.849	0.791	11.62
53)	T	1,2-Dibromoethane	0.535	0.672	0.732	0.751	0.743	0.686	13.15
54)	T	Methyl n-butyl k...	0.704	0.779	0.932	0.932	0.900	0.849	12.07
55)	I	d-5 Chlorobenzene ...	----------ISTD----------						
56)	T	n-Nonane	0.927	1.067	1.027	0.986	0.955	0.992	5.62
57)	T	Chlorobenzene	0.971	1.050	0.990	0.986	0.988	0.997	3.09
58)	T	Ethylbenzene	1.789	1.981	1.852	1.820	1.771	1.843	4.51
59)	T	Xylenes (m&p)	1.326	1.536	1.415	1.363	1.186	1.365	9.36
60)	T	Xylene (o)	1.445	1.623	1.468	1.461	1.451	1.490	5.05

Method Path : C:\msdchem\1\METHODS\
Method File : 231009.M

61)	T	Styrene	0.849	1.047	1.067	1.065	1.073	1.020	9.41
62)	T	Bromoform	0.629	0.724	0.745	0.767	0.797	0.732	8.70
63)	T	Cumene	1.783	2.168	1.955	1.932	1.897	1.947	7.18
64)	S	Bromofluorobenze...	0.801	0.842	0.870	0.891	0.954	0.872	6.54
65)	T	n-Propyl benzene	2.478	2.727	2.610	2.556	2.335	2.541	5.77
66)	T	1,1,2,2-Tetrachl...	0.959	1.120	1.040	1.040	1.055	1.043	5.50
67)	T	4-Ethyltoluene	2.059	2.245	2.204	2.174	2.073	2.151	3.80
68)	T	2-Chlorotoluene	1.626	1.829	1.701	1.690	1.690	1.707	4.35
69)	T	1,3,5-Trimethylb...	1.513	1.880	1.755	1.754	1.747	1.730	7.69
70)	T	1,2,4-Trimethylb...	1.441	1.880	1.785	1.775	1.764	1.729	9.68
71)	T	1,3-Dichlorobenzene	1.031	1.007	1.050	1.081	1.124	1.059	4.27
72)	T	1,4-Dichlorobenzene	0.943	1.005	1.082	1.123	1.174	1.065	8.65
73)	T	Benzyl chloride	1.159	1.435	1.619	1.688	1.742	1.529	15.48
74)	T	1,2-Dichlorobenzene	0.895	1.065	1.034	1.054	1.089	1.027	7.47
75)	T	1,3-Hexachlorobu...	0.731	0.778	0.703	0.687	0.664	0.713	6.17
76)	T	1,2,4-Trichlorob...	0.829	0.807	0.819	0.838	0.828	0.824	1.43
77)	T	Naphthalene	1.972	1.901	1.894	1.926	1.733	1.885	4.80

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4132std05.D
Acq On : 10 Oct 2023 10:40 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 15:08:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:03:48 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.380	130	335961	10.00	ppbV	-0.014
39) 1,4-Difluorobenzene (IS)	5.444	114	1366548	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1287551	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1031937	9.01	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.451	41	5709	0.25	ppbV	95
3) Dichlorodifluoromethane	1.499	85	13581	0.18	ppbV #	83
4) 1,2-Dichlorotetrafluor...	1.619	85	20971	0.19	ppbV	99
5) n-Butane	1.702	43	10916	0.20	ppbV #	85
6) Chloromethane	1.684	52	641	0.16	ppbV	65
7) Vinyl chloride	1.753	62	5046	0.16	ppbV #	50
8) 1,3-Butadiene	1.760	39	6239	0.22	ppbV	75
9) Bromomethane	2.059	94	3266	0.12	ppbV	66
10) Chloroethane	2.168	64	1724	0.10	ppbV	80
11) Vinyl bromide	2.261	106	3625	0.11	ppbV	95
12) Trichlorofluoromethane	2.287	101	19370	0.20	ppbV	97
13) Ethanol	2.654	45	1944	0.20	ppbV #	47
14) 1,1-Dichloroethene	2.708	61	9877	0.15	ppbV	99
15) Carbon disulfide	2.728	76	17305	0.16	ppbV	100
16) 1,1,2-Trichloro-1,2,2-...	2.750	101	20772	0.22	ppbV	98
17) Acrolein	2.969	56	2586	0.18	ppbV #	42
18) Allyl chloride	3.084	76	2500	0.14	ppbV	100
19) Isopropanol	3.094	45	9669	0.14	ppbV #	84
20) Methylene chloride	3.178	49	12526	0.34	ppbV	92
21) Acetone	3.194	43	10805	0.21	ppbV #	83
22) trans-1,2-Dichloroethene	3.306	61	10268	0.17	ppbV	100
23) n-Pentane	3.393	43	16132	0.20	ppbV	92
24) n-Hexane	3.380	57	23439	0.22	ppbV	95
25) Methyl tert-butyl ether	3.393	73	26157	0.20	ppbV	89
26) Tert-butyl alcohol	3.445	59	17620	0.20	ppbV	100
27) 1,1-Dichloroethane	3.792	63	15876	0.20	ppbV	91
28) cis-1,2-Dichloroethene	4.219	61	9833	0.17	ppbV	98
29) Cyclohexane	4.396	56	15483	0.21	ppbV	99
30) Chloroform	4.445	83	16203	0.17	ppbV	96
31) Ethyl acetate	4.535	61	2253	0.14	ppbV	88
32) Carbon tetrachloride	4.563	117	22109	0.20	ppbV	100
33) Tetrahydrofuran	4.570	42	10856	0.21	ppbV	87
34) 1,1,1-Trichloroethane	4.615	97	18169	0.19	ppbV	97
35) Methyl ethyl ketone	4.676	43	16932	0.20	ppbV	91
36) n-Heptane	4.911	43	19030	0.20	ppbV	92
37) Benzene	4.920	78	26320	0.19	ppbV	98
38) 1,2-Dichloroethane	5.078	62	9608	0.16	ppbV	97
40) Trichloroethene	5.428	130	10418	0.17	ppbV	93
41) 2,2,4-Trimethylpentane	4.827	57	35716	0.20	ppbV	97
42) 1,2-Dichloropropane	5.882	63	11430	0.21	ppbV	90
43) Bromodichloromethane	5.940	83	18430	0.20	ppbV	98
44) Methyl methacrylate	6.081	41	12606	0.19	ppbV	96
45) 1,4-Dioxane	6.116	88	6852	0.21	ppbV	97
46) cis-1,3-Dichloropropene	6.528	75	16642	0.20	ppbV	95
47) Toluene	6.766	91	36156	0.18	ppbV	100
48) Methyl isobutyl ketone	7.136	43	22603	0.18	ppbV	98
49) Tetrachloroethene	7.155	166	16259	0.19	ppbV	100
50) trans-1,3-Dichloropropene	7.174	75	13916	0.17	ppbV	98
51) 1,1,2-Trichloroethane	7.332	97	11763	0.17	ppbV	94

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4132std05.D
Acq On : 10 Oct 2023 10:40 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 15:08:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:03:48 2023
Response via : Initial Calibration

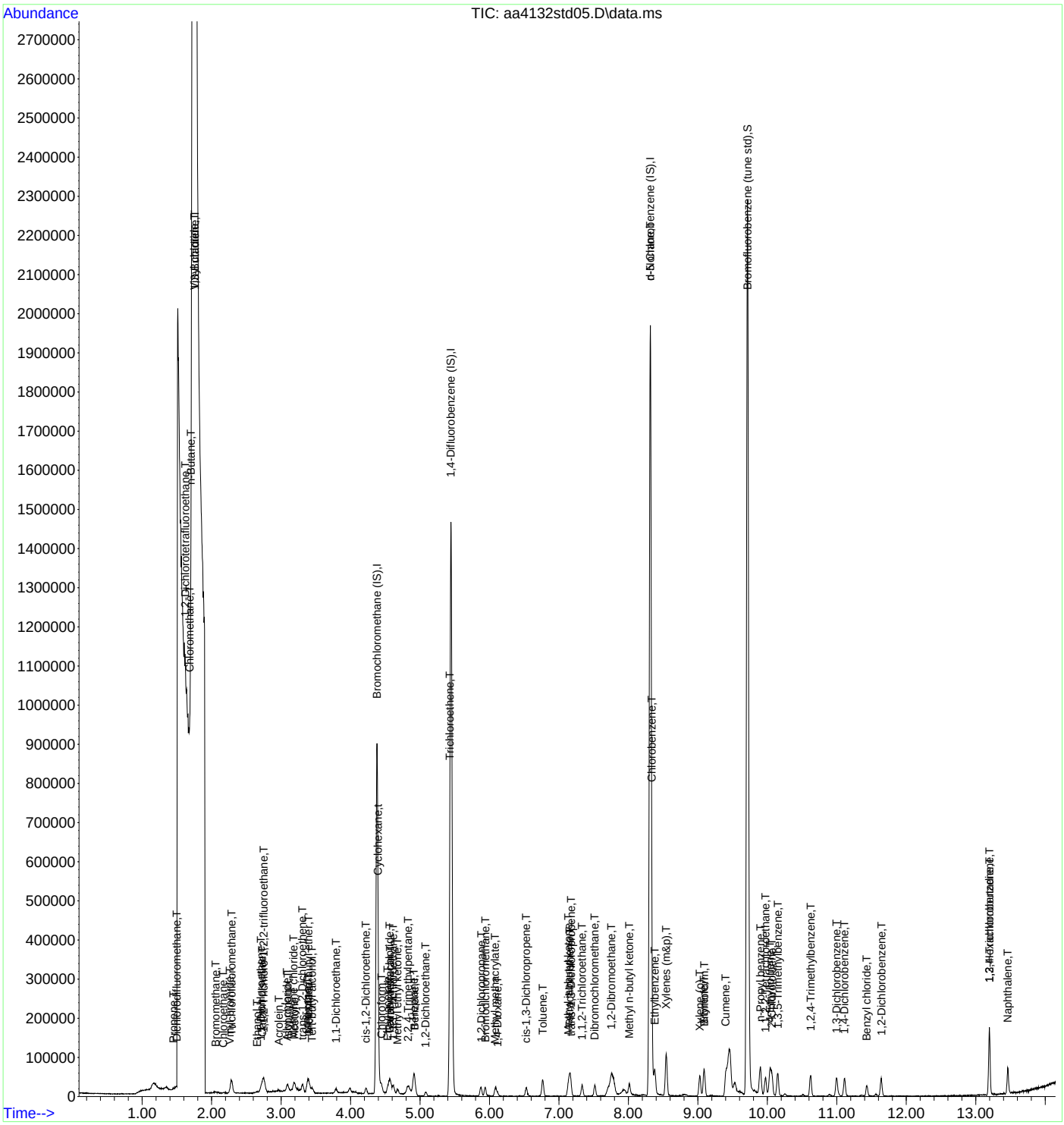
	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.515	129	19465	0.17	ppbV		100
53)	1,2-Dibromoethane	7.753	107	15790	0.16	ppbV		99
54)	Methyl n-butyl ketone	8.014	43	21755	0.18	ppbV		91
56)	n-Nonane	8.316	43	26498	0.20	ppbV		95
57)	Chlorobenzene	8.335	112	27757	0.21	ppbV	#	47
58)	Ethylbenzene	8.380	91	51133	0.21	ppbV		99
59)	Xylenes (m&p)	8.544	91	76173	0.43	ppbV		98
60)	Xylene (o)	9.026	91	40935	0.21	ppbV		95
61)	Styrene	9.087	104	24712	0.18	ppbV		97
62)	Bromoform	9.094	173	18307	0.19	ppbV		99
63)	Cumene	9.399	105	49138	0.19	ppbV		100
65)	n-Propyl benzene	9.901	91	68920	0.21	ppbV		97
66)	1,1,2,2-Tetrachloroethane	9.975	83	28157	0.21	ppbV		96
67)	4-Ethyltoluene	10.039	105	57273	0.20	ppbV		99
68)	2-Chlorotoluene	10.065	91	45637	0.21	ppbV		98
69)	1,3,5-Trimethylbenzene	10.152	105	42479	0.18	ppbV		99
70)	1,2,4-Trimethylbenzene	10.624	105	40083	0.17	ppbV		96
71)	1,3-Dichlorobenzene	10.997	146	29481	0.21	ppbV		95
72)	1,4-Dichlorobenzene	11.110	146	25984	0.18	ppbV		99
73)	Benzyl chloride	11.428	91	29858	0.14	ppbV		95
74)	1,2-Dichlorobenzene	11.644	146	24649	0.18	ppbV		99
75)	1,3-Hexachlorobutadiene	13.197	225	20901	0.23	ppbV		99
76)	1,2,4-Trichlorobenzene	13.197	180	23485	0.22	ppbV		97
77)	Naphthalene	13.460	128	50770	0.21	ppbV		99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4132std05.D
Acq On : 10 Oct 2023 10:40 am
Operator : jjw
Sample : 0.2 ppbv standard
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 15:08:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:03:48 2023
Response via : Initial Calibration



Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4133std04.D
Acq On : 10 Oct 2023 11:46 am
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 10 15:14:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.378	130	266219	10.00	ppbV	-0.016
39) 1,4-Difluorobenzene (IS)	5.445	114	1004403	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.313	117	1028709	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	866440	9.66	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.454	41	39983	2.16	ppbV	100
3) Dichlorodifluoromethane	1.496	85	111937	1.90	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.613	85	174894	2.04	ppbV	97
5) n-Butane	1.699	43	92630	2.18	ppbV	97
6) Chloromethane	1.767	52	6226	2.11	ppbV	99
7) Vinyl chloride	1.761	62	48102	1.99	ppbV	99
8) 1,3-Butadiene	1.764	39	46700	2.07	ppbV	98
9) Bromomethane	2.046	94	37014	1.90	ppbV	98
10) Chloroethane	2.172	64	25446	2.01	ppbV	97
11) Vinyl bromide	2.262	106	46443	1.95	ppbV	99
12) Trichlorofluoromethane	2.284	101	152810	2.05	ppbV	98
13) Ethanol	2.641	45	14500	1.86	ppbV	99
14) 1,1-Dichloroethene	2.706	61	82725	1.67	ppbV	100
15) Carbon disulfide	2.728	76	146663	1.80	ppbV	96
16) 1,1,2-Trichloro-1,2,2-...	2.747	101	175871	2.34	ppbV	99
17) Acrolein	2.963	56	17616	1.58	ppbV	96
18) Allyl chloride	3.091	76	24227	1.82	ppbV	100
19) Isopropanol	3.088	45	79453	1.49	ppbV	96
20) Methylene chloride	3.178	49	55923	1.71	ppbV	98
21) Acetone	3.188	43	70498	1.76	ppbV	98
22) trans-1,2-Dichloroethene	3.307	61	78613	1.71	ppbV	100
23) n-Pentane	3.390	43	132521	2.14	ppbV	97
24) n-Hexane	3.387	57	176979	2.11	ppbV	97
25) Methyl tert-butyl ether	3.390	73	242041	2.35	ppbV	92
26) Tert-butyl alcohol	3.442	59	154807	2.23	ppbV	100
27) 1,1-Dichloroethane	3.789	63	106902	1.73	ppbV	99
28) cis-1,2-Dichloroethene	4.217	61	78716	1.80	ppbV	98
29) Cyclohexane	4.397	56	133883	2.28	ppbV	98
30) Chloroform	4.439	83	134737	1.89	ppbV	98
31) Ethyl acetate	4.532	61	22449	1.94	ppbV	99
32) Carbon tetrachloride	4.561	117	183055	2.17	ppbV	99
33) Tetrahydrofuran	4.564	42	77218	1.93	ppbV	99
34) 1,1,1-Trichloroethane	4.612	97	159351	2.15	ppbV	97
35) Methyl ethyl ketone	4.670	43	121249	1.86	ppbV	100
36) n-Heptane	4.905	43	151248	2.06	ppbV	99
37) Benzene	4.921	78	216088	2.04	ppbV	99
38) 1,2-Dichloroethane	5.079	62	86250	1.95	ppbV	100
40) Trichloroethene	5.423	130	93973	2.11	ppbV	100
41) 2,2,4-Trimethylpentane	4.828	57	337914	2.58	ppbV	98
42) 1,2-Dichloropropane	5.873	63	89006	2.28	ppbV	98
43) Bromodichloromethane	5.937	83	157497	2.39	ppbV	99
44) Methyl methacrylate	6.082	41	102545	2.16	ppbV	96
45) 1,4-Dioxane	6.107	88	55879	2.33	ppbV	99
46) cis-1,3-Dichloropropene	6.529	75	132030	2.18	ppbV	98
47) Toluene	6.767	91	315155	2.23	ppbV	100
48) Methyl isobutyl ketone	7.133	43	201872	2.28	ppbV	98
49) Tetrachloroethene	7.152	166	137965	2.27	ppbV	99
50) trans-1,3-Dichloropropene	7.175	75	126648	2.16	ppbV	100
51) 1,1,2-Trichloroethane	7.336	97	103047	2.16	ppbV	99

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4133std04.D
Acq On : 10 Oct 2023 11:46 am
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

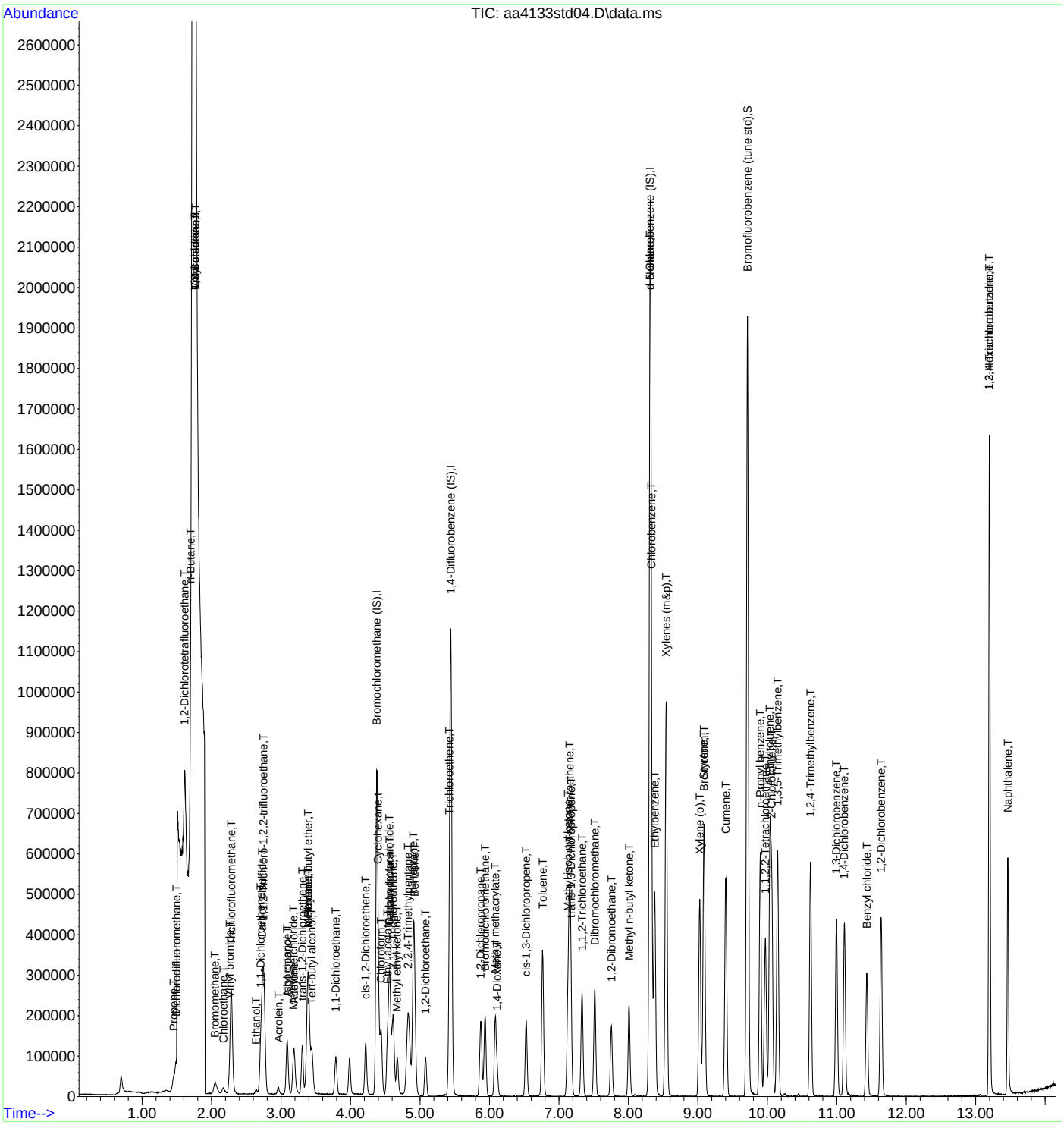
Quant Time: Oct 10 15:14:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.516	129	175087	2.20	ppbV	99
53)	1,2-Dibromoethane	7.757	107	145737	2.11	ppbV	99
54)	Methyl n-butyl ketone	8.011	43	176926	2.07	ppbV	99
56)	n-Nonane	8.313	43	243566	2.39	ppbV	99
57)	Chlorobenzene	8.332	112	239887	2.34	ppbV	96
58)	Ethylbenzene	8.381	91	452392	2.39	ppbV	99
59)	Xylenes (m&p)	8.545	91	704842	5.02	ppbV	98
60)	Xylene (o)	9.027	91	367407	2.40	ppbV	99
61)	Styrene	9.088	104	243368	2.32	ppbV	99
62)	Bromoform	9.091	173	168245	2.23	ppbV	100
63)	Cumene	9.403	105	477213	2.38	ppbV	99
65)	n-Propyl benzene	9.898	91	606010	2.32	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.972	83	262772	2.45	ppbV	100
67)	4-Ethyltoluene	10.037	105	498880	2.25	ppbV	98
68)	2-Chlorotoluene	10.062	91	410155	2.34	ppbV	99
69)	1,3,5-Trimethylbenzene	10.149	105	421510	2.37	ppbV	100
70)	1,2,4-Trimethylbenzene	10.622	105	417786	2.35	ppbV	99
71)	1,3-Dichlorobenzene	10.995	146	230016	2.11	ppbV	99
72)	1,4-Dichlorobenzene	11.107	146	221287	2.02	ppbV	99
73)	Benzyl chloride	11.432	91	295275	1.88	ppbV	98
74)	1,2-Dichlorobenzene	11.638	146	234385	2.22	ppbV	99
75)	1,3-Hexachlorobutadiene	13.197	225	177745	2.42	ppbV	99
76)	1,2,4-Trichlorobenzene	13.197	180	182140	2.15	ppbV	99
77)	Naphthalene	13.464	128	391079	2.02	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4133std04.D
Acq On : 10 Oct 2023 11:46 am
Operator : jjw
Sample : 2.0 ppbv standard
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 10 15:14:52 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4134std03.D
Acq On : 10 Oct 2023 12:21 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 10 15:20:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.394	130	393970	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.452	114	1695876	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1964329	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1708242	9.98	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.487	41	258254	9.44	ppbV	100
3) Dichlorodifluoromethane	1.523	85	905524	10.37	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.644	85	1136761	8.96	ppbV	100
5) n-Butane	1.730	43	657868	10.46	ppbV	100
6) Chloromethane	1.792	52	50221	11.51	ppbV	98
7) Vinyl chloride	1.781	62	385978	10.81	ppbV	100
8) 1,3-Butadiene	1.792	39	337213	10.11	ppbV	100
9) Bromomethane	2.082	94	295814	10.27	ppbV	100
10) Chloroethane	2.195	64	209472	11.19	ppbV	100
11) Vinyl bromide	2.288	106	363736	10.31	ppbV	100
12) Trichlorofluoromethane	2.310	101	1152906	10.45	ppbV	100
13) Ethanol	2.667	45	110171	9.55	ppbV	100
14) 1,1-Dichloroethene	2.728	61	796558	10.88	ppbV	100
15) Carbon disulfide	2.751	76	1360498	11.29	ppbV	100
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	1083429	9.75	ppbV	100
17) Acrolein	2.982	56	169981	10.33	ppbV	100
18) Allyl chloride	3.111	76	227552	11.52	ppbV	100
19) Isopropanol	3.108	45	729204	9.23	ppbV	100
20) Methylene chloride	3.204	49	433980	8.96	ppbV	100
21) Acetone	3.211	43	654299	11.01	ppbV	100
22) trans-1,2-Dichloroethene	3.326	61	780121	11.48	ppbV	100
23) n-Pentane	3.407	43	924569	10.09	ppbV	100
24) n-Hexane	3.403	57	1285851	10.35	ppbV	100
25) Methyl tert-butyl ether	3.410	73	1606753	10.53	ppbV	100
26) Tert-butyl alcohol	3.465	59	1133398	11.03	ppbV	100
27) 1,1-Dichloroethane	3.805	63	942517	10.30	ppbV	100
28) cis-1,2-Dichloroethene	4.230	61	719414	11.15	ppbV	99
29) Cyclohexane	4.413	56	918448	10.59	ppbV	100
30) Chloroform	4.455	83	1125163	10.67	ppbV	100
31) Ethyl acetate	4.538	61	191456	11.17	ppbV	100
32) Carbon tetrachloride	4.574	117	1320797	10.56	ppbV	100
33) Tetrahydrofuran	4.571	42	644824	10.88	ppbV	100
34) 1,1,1-Trichloroethane	4.625	97	1145085	10.46	ppbV	100
35) Methyl ethyl ketone	4.680	43	1033883	10.75	ppbV	100
36) n-Heptane	4.918	43	1246184	11.45	ppbV	100
37) Benzene	4.931	78	1617158	10.34	ppbV	100
38) 1,2-Dichloroethane	5.091	62	715639	10.92	ppbV	100
40) Trichloroethene	5.432	130	747440	9.96	ppbV	100
41) 2,2,4-Trimethylpentane	4.844	57	2224941	10.07	ppbV	100
42) 1,2-Dichloropropane	5.882	63	729348	11.06	ppbV	100
43) Bromodichloromethane	5.944	83	1277100	11.49	ppbV	100
44) Methyl methacrylate	6.088	41	926458	11.58	ppbV	100
45) 1,4-Dioxane	6.114	88	481882	11.92	ppbV	100
46) cis-1,3-Dichloropropene	6.532	75	1178257	11.52	ppbV	100
47) Toluene	6.770	91	2718261	11.40	ppbV	100
48) Methyl isobutyl ketone	7.133	43	1751107	11.69	ppbV	100
49) Tetrachloroethene	7.159	166	1202779	11.70	ppbV	100
50) trans-1,3-Dichloropropene	7.175	75	1191758	12.01	ppbV	100
51) 1,1,2-Trichloroethane	7.336	97	904123	11.23	ppbV	100

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4134std03.D
Acq On : 10 Oct 2023 12:21 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

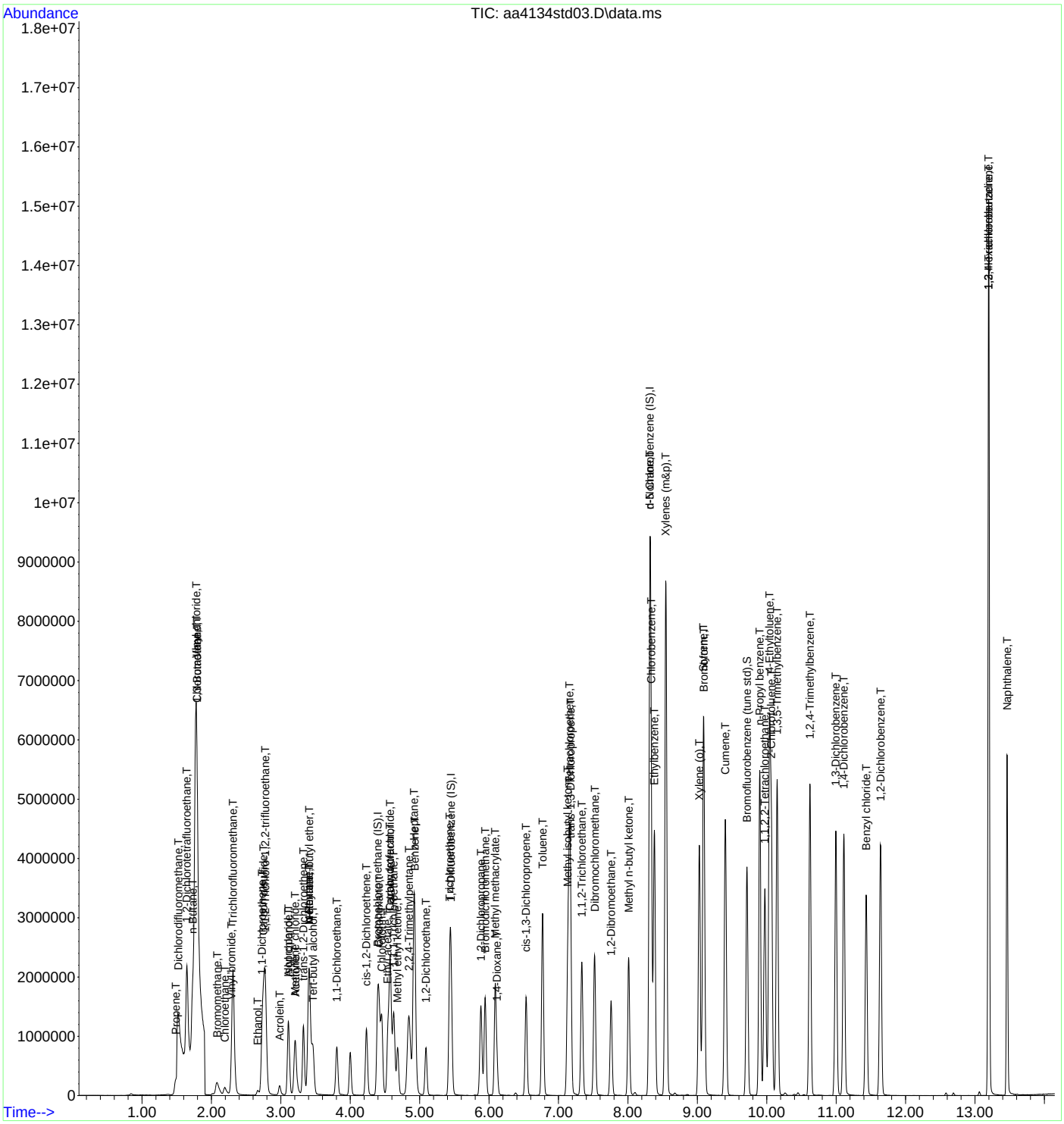
Quant Time: Oct 10 15:20:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.522	129	1584449	11.81	ppbV	100
53)	1,2-Dibromoethane	7.757	107	1340384	11.51	ppbV	100
54)	Methyl n-butyl ketone	8.011	43	1785511	12.39	ppbV	100
56)	n-Nonane	8.316	43	2220175	11.39	ppbV	100
57)	Chlorobenzene	8.336	112	2157593	11.02	ppbV	100
58)	Ethylbenzene	8.381	91	4038783	11.16	ppbV	100
59)	Xylenes (m&p)	8.545	91	6199781	23.12	ppbV	100
60)	Xylene (o)	9.027	91	3172411	10.84	ppbV	100
61)	Styrene	9.088	104	2368407	11.82	ppbV	100
62)	Bromoform	9.095	173	1652936	11.49	ppbV	100
63)	Cumene	9.403	105	4108750	10.74	ppbV	100
65)	n-Propyl benzene	9.898	91	5536013	11.09	ppbV	100
66)	1,1,2,2-Tetrachloroethane	9.972	83	2329432	11.37	ppbV	100
67)	4-Ethyltoluene	10.040	105	4675293	11.06	ppbV	100
68)	2-Chlorotoluene	10.066	91	3642460	10.86	ppbV	100
69)	1,3,5-Trimethylbenzene	10.149	105	3757367	11.06	ppbV	100
70)	1,2,4-Trimethylbenzene	10.622	105	3786813	11.15	ppbV	100
71)	1,3-Dichlorobenzene	10.995	146	2289894	11.01	ppbV	100
72)	1,4-Dichlorobenzene	11.111	146	2273891	10.87	ppbV	100
73)	Benzyl chloride	11.432	91	3179639	10.59	ppbV	100
74)	1,2-Dichlorobenzene	11.641	146	2172244	10.77	ppbV	100
75)	1,3-Hexachlorobutadiene	13.197	225	1532545	10.95	ppbV	100
76)	1,2,4-Trichlorobenzene	13.197	180	1768989	10.93	ppbV	100
77)	Naphthalene	13.464	128	3720647	10.05	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4134std03.D
Acq On : 10 Oct 2023 12:21 pm
Operator : jjw
Sample : 10 ppbv standard
Misc : EB0103704
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 10 15:20:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4135std02.D
Acq On : 10 Oct 2023 12:55 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 10 15:20:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.397	130	363381	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.455	114	1661895	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1933627	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1722328	10.22	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.490	41	515568	20.44	ppbV	98
3) Dichlorodifluoromethane	1.530	85	1841081	22.86	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.650	85	2249237	19.23	ppbV	99
5) n-Butane	1.730	43	1305900	22.50	ppbV	99
6) Chloromethane	1.788	52	98143	24.39	ppbV	93
7) Vinyl chloride	1.781	62	772248	23.46	ppbV	100
8) 1,3-Butadiene	1.795	39	652429	21.21	ppbV	98
9) Bromomethane	2.085	94	591691	22.26	ppbV	98
10) Chloroethane	2.194	64	421571	24.42	ppbV	99
11) Vinyl bromide	2.294	106	747200	22.97	ppbV	100
12) Trichlorofluoromethane	2.313	101	2343589	23.04	ppbV	100
13) Ethanol	2.667	45	218329	20.52	ppbV	96
14) 1,1-Dichloroethene	2.735	61	1612191	23.88	ppbV	100
15) Carbon disulfide	2.754	76	2664558	23.98	ppbV	100
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	2148248	20.97	ppbV	100
17) Acrolein	2.989	56	325182	21.42	ppbV	99
18) Allyl chloride	3.111	76	456662	25.07	ppbV	100
19) Isopropanol	3.111	45	1457678	20.00	ppbV	99
20) Methylene chloride	3.204	49	879522	19.69	ppbV	98
21) Acetone	3.214	43	1252029	22.84	ppbV	99
22) trans-1,2-Dichloroethene	3.326	61	1573792	25.11	ppbV	99
23) n-Pentane	3.407	43	1811231	21.44	ppbV	99
24) n-Hexane	3.407	57	2518540	21.99	ppbV	100
25) Methyl tert-butyl ether	3.410	73	3154053	22.42	ppbV	100
26) Tert-butyl alcohol	3.464	59	2254575	23.80	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1901162	22.53	ppbV	99
28) cis-1,2-Dichloroethene	4.236	61	1445410	24.28	ppbV	99
29) Cyclohexane	4.413	56	1783891	22.29	ppbV	99
30) Chloroform	4.455	83	2301846	23.67	ppbV	99
31) Ethyl acetate	4.542	61	386835	24.46	ppbV	99
32) Carbon tetrachloride	4.577	117	2607121	22.61	ppbV	100
33) Tetrahydrofuran	4.574	42	1283380	23.48	ppbV	99
34) 1,1,1-Trichloroethane	4.625	97	2272798	22.50	ppbV	99
35) Methyl ethyl ketone	4.683	43	2094715	23.60	ppbV	100
36) n-Heptane	4.918	43	2363613	23.53	ppbV	100
37) Benzene	4.934	78	3240471	22.45	ppbV	100
38) 1,2-Dichloroethane	5.091	62	1451918	24.03	ppbV	100
40) Trichloroethene	5.432	130	1508747	20.52	ppbV	98
41) 2,2,4-Trimethylpentane	4.841	57	4438426	20.50	ppbV	100
42) 1,2-Dichloropropane	5.886	63	1448431	22.41	ppbV	99
43) Bromodichloromethane	5.943	83	2592041	23.80	ppbV	99
44) Methyl methacrylate	6.088	41	1821528	23.23	ppbV	99
45) 1,4-Dioxane	6.114	88	966504	24.40	ppbV	99
46) cis-1,3-Dichloropropene	6.535	75	2338061	23.33	ppbV	100
47) Toluene	6.773	91	5305706	22.72	ppbV	100
48) Methyl isobutyl ketone	7.133	43	3350206	22.82	ppbV	99
49) Tetrachloroethene	7.162	166	2379736	23.63	ppbV	100
50) trans-1,3-Dichloropropene	7.175	75	2387243	24.55	ppbV	98
51) 1,1,2-Trichloroethane	7.339	97	1817644	23.04	ppbV	100

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4135std02.D
Acq On : 10 Oct 2023 12:55 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 5 Sample Multiplier: 1

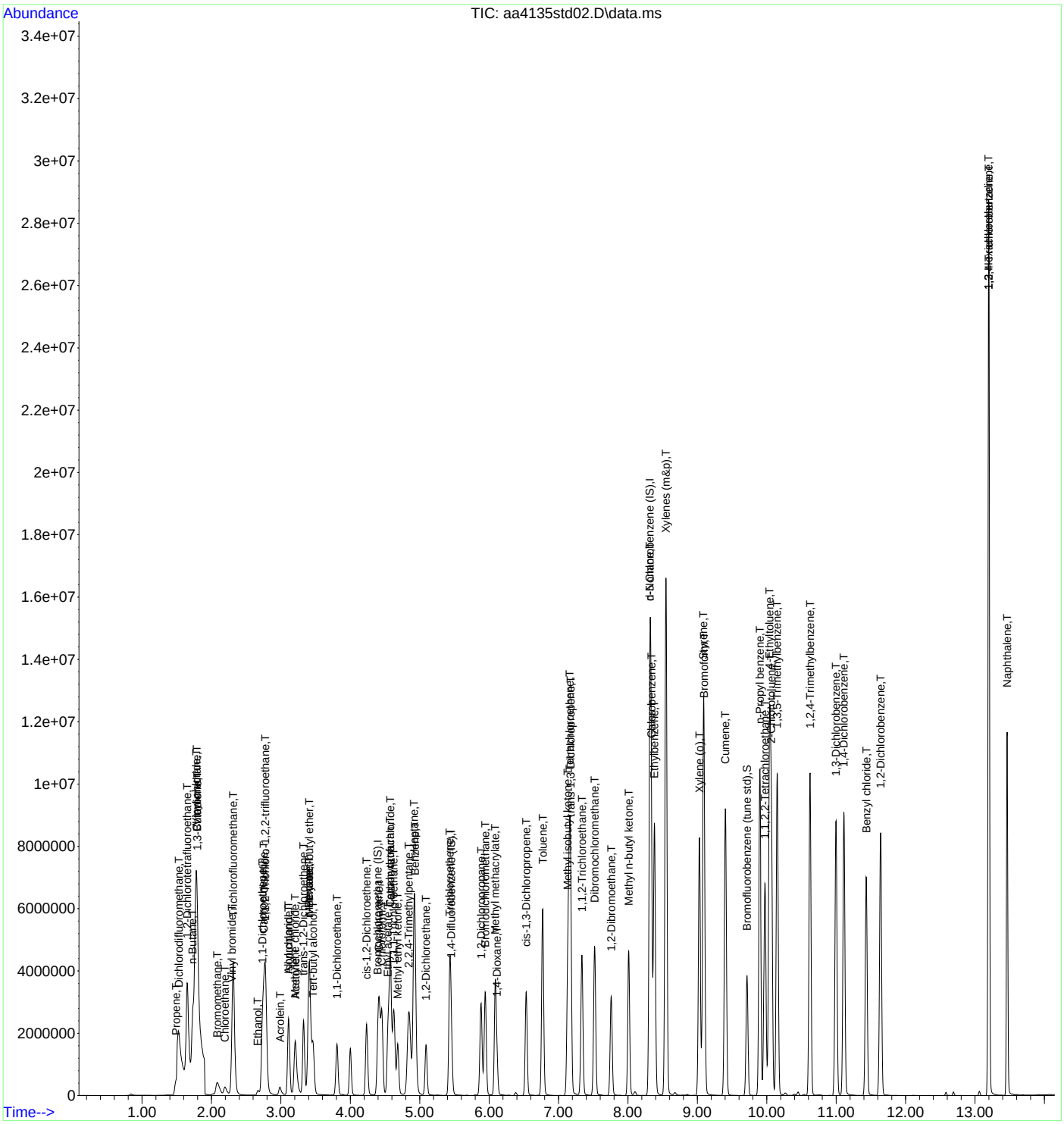
Quant Time: Oct 10 15:20:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.522	129	3189477	24.27	ppbV	99
53)	1,2-Dibromoethane	7.760	107	2695314	23.62	ppbV	100
54)	Methyl n-butyl ketone	8.011	43	3500354	24.80	ppbV	100
56)	n-Nonane	8.316	43	4196367	21.87	ppbV	99
57)	Chlorobenzene	8.339	112	4231170	21.95	ppbV	100
58)	Ethylbenzene	8.381	91	7813775	21.93	ppbV	99
59)	Xylenes (m&p)	8.548	91	11753861	44.52	ppbV	98
60)	Xylene (o)	9.030	91	6215156	21.57	ppbV	100
61)	Styrene	9.088	104	4654583	23.60	ppbV	99
62)	Bromoform	9.098	173	3352006	23.67	ppbV	99
63)	Cumene	9.403	105	7994834	21.23	ppbV	99
65)	n-Propyl benzene	9.901	91	10677156	21.73	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.975	83	4583433	22.73	ppbV	99
67)	4-Ethyltoluene	10.040	105	9079626	21.83	ppbV	99
68)	2-Chlorotoluene	10.065	91	7122967	21.58	ppbV	99
69)	1,3,5-Trimethylbenzene	10.149	105	7395052	22.11	ppbV	99
70)	1,2,4-Trimethylbenzene	10.625	105	7412335	22.17	ppbV	99
71)	1,3-Dichlorobenzene	10.998	146	4641497	22.67	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	4645158	22.55	ppbV	100
73)	Benzyl chloride	11.435	91	6527364	22.08	ppbV	99
74)	1,2-Dichlorobenzene	11.641	146	4361556	21.96	ppbV	99
75)	1,3-Hexachlorobutadiene	13.197	225	2950129	21.41	ppbV	100
76)	1,2,4-Trichlorobenzene	13.200	180	3565503	22.37	ppbV	99
77)	Naphthalene	13.464	128	7448434	20.44	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4135std02.D
Acq On : 10 Oct 2023 12:55 pm
Operator : jjw
Sample : 20 ppbv standard
Misc : EB0103704
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Oct 10 15:20:48 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4136std01.D
Acq On : 10 Oct 2023 2:05 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 10 15:21:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS)	4.400	130	356266	10.00	ppbV		0.000
39) 1,4-Difluorobenzene (IS)	5.458	114	1769398	10.00	ppbV		0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1970985	10.00	ppbV		0.000
System Monitoring Compounds							
64) Bromofluorobenzene (tu...	9.718	95	1881267	10.95	ppbV		0.000
Target Compounds							Qvalue
2) Propene	1.493	41	1166461	47.16	ppbV		99
3) Dichlorodifluoromethane	1.530	85	3976819	50.37	ppbV		100
4) 1,2-Dichlorotetrafluor...	1.654	85	4829984	42.11	ppbV		100
5) n-Butane	1.733	43	2669458	46.92	ppbV		100
6) Chloromethane	1.798	52	218685	55.44	ppbV	#	1
7) Vinyl chloride	1.788	62	1703493	52.78	ppbV		100
8) 1,3-Butadiene	1.798	39	1380202	45.78	ppbV		97
9) Bromomethane	2.088	94	1297810	49.81	ppbV		98
10) Chloroethane	2.197	64	957066	56.55	ppbV		99
11) Vinyl bromide	2.294	106	1649730	51.72	ppbV		99
12) Trichlorofluoromethane	2.316	101	4982088	49.96	ppbV		100
13) Ethanol	2.670	45	542733	52.03	ppbV		98
14) 1,1-Dichloroethene	2.734	61	3420744	51.68	ppbV		100
15) Carbon disulfide	2.757	76	5570013	51.13	ppbV		99
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	4651123	46.31	ppbV		99
17) Acrolein	2.991	56	704002	47.31	ppbV		100
18) Allyl chloride	3.114	76	960536	53.78	ppbV		100
19) Isopropanol	3.114	45	3040718	42.56	ppbV		99
20) Methylene chloride	3.204	49	2011731	45.94	ppbV		99
21) Acetone	3.217	43	2606931	48.51	ppbV		99
22) trans-1,2-Dichloroethene	3.329	61	3449388	56.15	ppbV		99
23) n-Pentane	3.409	43	4025985	48.61	ppbV		99
24) n-Hexane	3.409	57	5589811	49.78	ppbV		100
25) Methyl tert-butyl ether	3.409	73	6879864	49.87	ppbV		99
26) Tert-butyl alcohol	3.464	59	4961423	53.42	ppbV		100
27) 1,1-Dichloroethane	3.811	63	4139076	50.03	ppbV		98
28) cis-1,2-Dichloroethene	4.236	61	3134852	53.71	ppbV		99
29) Cyclohexane	4.416	56	3885234	49.53	ppbV		100
30) Chloroform	4.454	83	4963958	52.07	ppbV		99
31) Ethyl acetate	4.541	61	819660	52.86	ppbV		99
32) Carbon tetrachloride	4.580	117	5580598	49.35	ppbV		99
33) Tetrahydrofuran	4.573	42	2658620	49.61	ppbV		98
34) 1,1,1-Trichloroethane	4.628	97	4872977	49.20	ppbV		99
35) Methyl ethyl ketone	4.686	43	4486611	51.57	ppbV		99
36) n-Heptane	4.921	43	4632338	47.05	ppbV		99
37) Benzene	4.933	78	6993711	49.43	ppbV		100
38) 1,2-Dichloroethane	5.094	62	3131902	52.87	ppbV		100
40) Trichloroethene	5.435	130	3316781	42.37	ppbV		99
41) 2,2,4-Trimethylpentane	4.843	57	9712768	42.14	ppbV		98
42) 1,2-Dichloropropane	5.885	63	3027090	43.98	ppbV		99
43) Bromodichloromethane	5.946	83	5494302	47.39	ppbV		99
44) Methyl methacrylate	6.088	41	3747387	44.88	ppbV		99
45) 1,4-Dioxane	6.114	88	2055391	48.74	ppbV		98
46) cis-1,3-Dichloropropene	6.535	75	4834720	45.30	ppbV		99
47) Toluene	6.773	91	10605745	42.65	ppbV		98
48) Methyl isobutyl ketone	7.133	43	6661468	42.63	ppbV		99
49) Tetrachloroethene	7.162	166	4858576	45.31	ppbV		99
50) trans-1,3-Dichloropropene	7.178	75	4856047	46.91	ppbV		100
51) 1,1,2-Trichloroethane	7.339	97	3819106	45.48	ppbV		100

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4136std01.D
Acq On : 10 Oct 2023 2:05 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 10 15:21:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

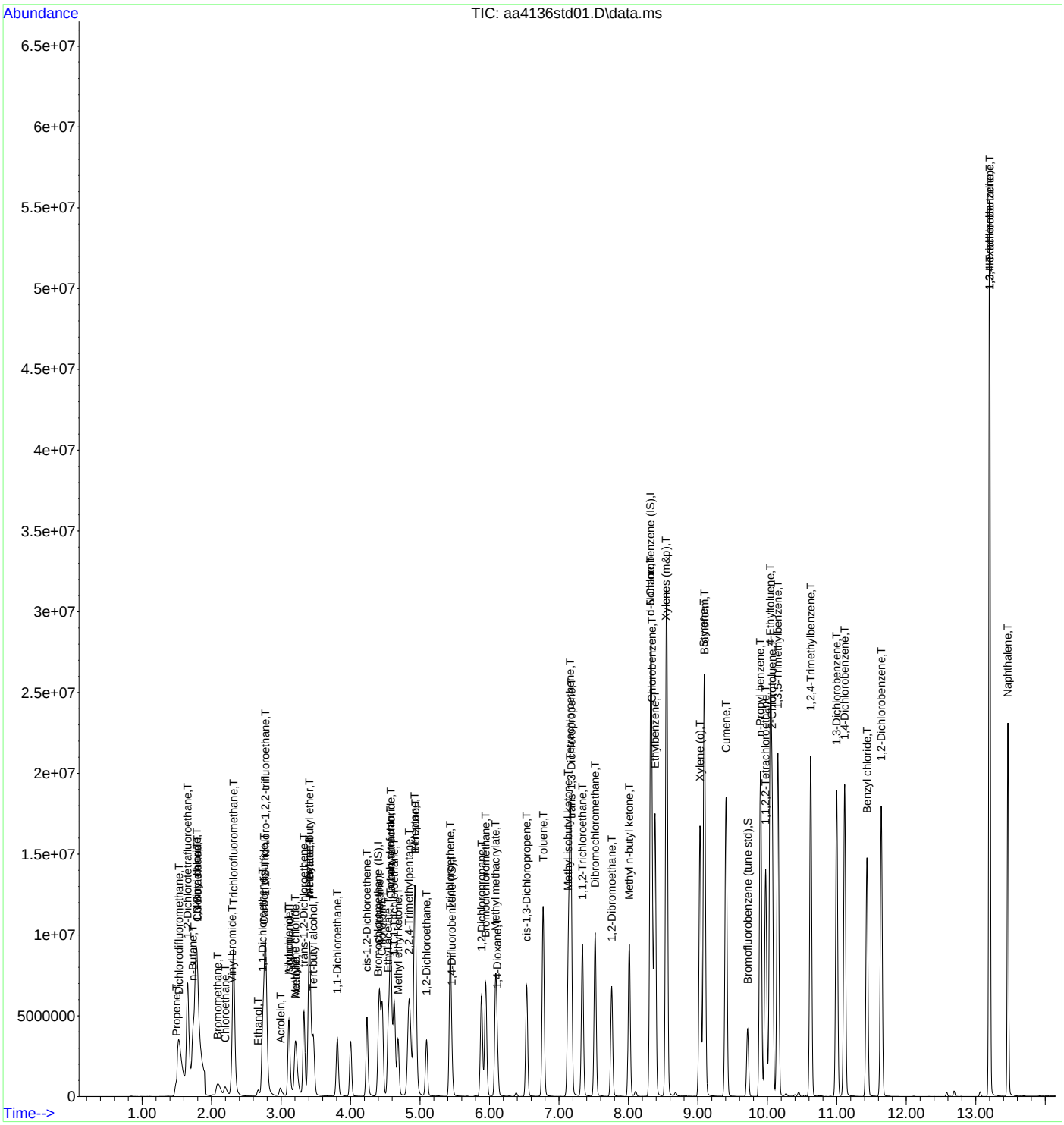
	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
52)	Dibromochloromethane	7.522	129	6730612	48.10	ppbV		99
53)	1,2-Dibromoethane	7.760	107	5679586	46.76	ppbV		100
54)	Methyl n-butyl ketone	8.011	43	7194438	47.87	ppbV		98
56)	n-Nonane	8.319	43	8278410	42.32	ppbV		98
57)	Chlorobenzene	8.338	112	8642594	43.99	ppbV		100
58)	Ethylbenzene	8.384	91	15502498	42.68	ppbV		96
59)	Xylenes (m&p)	8.541	91	20852616	77.48	ppbV		89
60)	Xylene (o)	9.030	91	12586480	42.86	ppbV		98
61)	Styrene	9.088	104	9555594	47.52	ppbV		98
62)	Bromoform	9.097	173	7098495	49.18	ppbV		99
63)	Cumene	9.406	105	16006588	41.71	ppbV		96
65)	n-Propyl benzene	9.898	91	19885132	39.70	ppbV		93
66)	1,1,2,2-Tetrachloroethane	9.975	83	9484025	46.14	ppbV		99
67)	4-Ethyltoluene	10.043	105	17650930	41.63	ppbV		95
68)	2-Chlorotoluene	10.068	91	14525182	43.17	ppbV		97
69)	1,3,5-Trimethylbenzene	10.152	105	15012049	44.03	ppbV		96
70)	1,2,4-Trimethylbenzene	10.625	105	15021608	44.08	ppbV		97
71)	1,3-Dichlorobenzene	10.998	146	9832383	47.12	ppbV		99
72)	1,4-Dichlorobenzene	11.113	146	9906545	47.18	ppbV		99
73)	Benzyl chloride	11.435	91	13735706	45.59	ppbV		96
74)	1,2-Dichlorobenzene	11.641	146	9184158	45.37	ppbV		98
75)	1,3-Hexachlorobutadiene	13.200	225	5812342	41.37	ppbV		99
76)	1,2,4-Trichlorobenzene	13.200	180	7183784	44.22	ppbV		99
77)	Naphthalene	13.460	128	13659104	36.76	ppbV	#	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4136std01.D
Acq On : 10 Oct 2023 2:05 pm
Operator : jjw
Sample : 40 ppbv standard
Misc : EB0103704
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 10 15:21:12 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA3407ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 8/15/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STANDARD STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Acetone	67-64-1	11	10	95	
Acrolein	107-02-8	9.4	10.0	110	
Allyl Chloride	107-05-1	11	11	99	
Benzene	71-43-2	10	9.7	93	
Benzyl chloride	100-44-7	11	11	100	
Bromodichloromethane	75-27-4	11	11	100	
Bromoform	75-25-2	11	11	96	
Bromomethane	74-83-9	11	10	92	
1,3-Butadiene	106-99-0	11	10	92	
n-Butane	106-97-8	11	11	100	
Chlorobenzene	108-90-7	10	11	110	
Chloroethane	75-00-3	9.8	11	110	
Chloroform	67-66-3	11	10	92	
Chloromethane	74-87-3	9.9	12	120	
Carbon disulfide	75-15-0	10	11	110	
Carbon tetrachloride	56-23-5	11	9.7	91	
2-Chlorotoluene	95-49-8	11	10	91	
Cumene	98-82-8	10	10	99	
Cyclohexane	110-82-7	11	9.7	89	
Dibromochloromethane	124-48-1	11	11	100	
1,2-Dibromoethane	106-93-4	11	11	100	
1,2-Dichlorobenzene	95-50-1	10	10	97	
1,3-Dichlorobenzene	541-73-1	10	10	96	
1,4-Dichlorobenzene	106-46-7	10	11	110	
Dichlorodifluoromethane	75-71-8	11	10	92	
1,1-Dichloroethane	75-34-3	11	9.7	92	
1,2-Dichloroethane	107-06-2	11	10	95	
1,1-Dichloroethene	75-35-4	11	11	100	
1,2-Dichloroethene (cis)	156-59-2	10	11	110	
1,2-Dichloroethene (trans)	156-60-5	11	11	100	
1,2-Dichloropropane	78-87-5	11	10.0	95	
1,3-Dichloropropene (cis)	10061-01-5	9.9	11	110	
1,3-Dichloropropene (trans)	10061-02-6	11	11	100	
1,2-Dichlorotetrafluoroethane	76-14-2	11	8.6	77	
1,4-Dioxane	123-91-1	11	11	98	
Ethanol	64-17-5	9.8	8.5	87	
Ethyl acetate	141-78-6	10	9.9	96	
Ethylbenzene	100-41-4	10	11	110	
4-Ethyltoluene	622-96-8	11	11	100	
n-Heptane	142-82-5	11	10	92	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA3407ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 8/15/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3401BFB]	08/15/2023 10:11
0.2 PPBV STD [AA3402STD05]	08/15/2023 11:15
10 PPBV STANDARD STD [AA3404STD03]	08/15/2023 13:09
2 PPBV STD [AA3403STD04]	08/15/2023 13:45
20 PPBV STD [AA3405STD02]	08/15/2023 15:12
40 PPBV STD [AA3406STD01]	08/15/2023 16:47
10 PPBV ICVSS [AA3407ICVSS]	08/15/2023 18:09

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
1,3-Hexachlorobutadiene	87-68-3	9.8	9.8	100	
n-Hexane	110-54-3	11	9.7	90	
Isopropanol	67-63-0	8.1	8.8	110	
Methylene chloride	75-09-2	11	9.1	85	
Methyl ethyl ketone	78-93-3	11	10	92	
Methyl isobutyl ketone	108-10-1	10	11	110	
Methyl methacrylate	80-62-6	11	11	100	
Methyl n-butyl ketone	591-78-6	11	12	110	
Methyl tert-butyl ether	1634-04-4	11	9.9	91	
Naphthalene	91-20-3	11	10	93	
n-Nonane	111-84-2	11	10	89	
n-Pentane	109-66-0	11	9.1	82	
Propene	115-07-1	11	10	91	
n-Propyl benzene	103-65-1	11	11	100	
Styrene	100-42-5	11	12	110	
Tert-butyl alcohol	75-65-0	12	10	87	
1,1,2,2-Tetrachloroethane	79-34-5	10	10	97	
Tetrachloroethene	127-18-4	12	11	93	
Tetrahydrofuran	109-99-9	11	10	93	
Toluene	108-88-3	11	11	100	
1,2,4-Trichlorobenzene	120-82-1	10	10	100	
1,1,1-Trichloroethane	71-55-6	11	9.4	88	
1,1,2-Trichloroethane	79-00-5	11	10	93	
Trichloroethene	79-01-6	10	9.5	93	
Trichlorofluoromethane	75-69-4	11	10	94	
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	9.1	83	
1,2,4-Trimethylbenzene	95-63-6	10	11	100	
1,3,5-Trimethylbenzene	108-67-8	10	11	110	
2,2,4-Trimethylpentane	540-84-1	11	10	92	
Vinyl bromide	593-60-2	10	10	100	
Vinyl chloride	75-01-4	11	11	97	
Xylenes (m&p)	179601-23-1	21	22	110	
Xylenes (o)	95-47-6	10	11	110	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3407icvss.D
Acq On : 15 Aug 2023 6:09 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 10:02:33 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.396	130	614925	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2660514	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	3151139	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2639252	10.07	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	437009	10.32	ppbV	100
3) Dichlorodifluoromethane	1.526	85	1589571	10.23	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.646	85	1915451	8.57	ppbV	100
5) n-Butane	1.729	43	1085164	10.79	ppbV	99
6) Chloromethane	1.791	52	84692	11.77	ppbV	91
7) Vinyl chloride	1.780	62	624265	10.68	ppbV	99
8) 1,3-Butadiene	1.794	39	615975	10.31	ppbV	99
9) Bromomethane	2.084	94	497818	10.14	ppbV	99
10) Chloroethane	2.197	64	339826	10.69	ppbV	99
11) Vinyl bromide	2.293	106	630457	10.21	ppbV	100
12) Trichlorofluoromethane	2.312	101	2122221	10.15	ppbV	100
13) Ethanol	2.669	45	210384	8.55	ppbV	99
14) 1,1-Dichloroethene	2.734	61	1353018	10.54	ppbV	100
15) Carbon disulfide	2.753	76	2291667	10.87	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	1880237	9.10	ppbV	99
17) Acrolein	2.984	56	263590	9.98	ppbV	99
18) Allyl chloride	3.113	76	378917	11.01	ppbV	100
19) Isopropanol	3.113	45	1247145	8.77	ppbV	99
20) Methylene chloride	3.203	49	707555	9.12	ppbV	99
21) Acetone	3.213	43	1199665	10.40	ppbV	99
22) trans-1,2-Dichloroethene	3.329	61	1279551	11.07	ppbV	99
23) n-Pentane	3.409	43	1345011	9.12	ppbV	99
24) n-Hexane	3.409	57	2003979	9.73	ppbV	100
25) Methyl tert-butyl ether	3.412	73	2769119	9.89	ppbV	99
26) Tert-butyl alcohol	3.464	59	1862648	10.34	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1576537	9.72	ppbV	100
28) cis-1,2-Dichloroethene	4.235	61	1186018	10.57	ppbV	99
29) Cyclohexane	4.415	56	1446092	9.72	ppbV	99
30) Chloroform	4.454	83	2014411	10.15	ppbV	99
31) Ethyl acetate	4.541	61	312517	9.89	ppbV	100
32) Carbon tetrachloride	4.576	117	2310805	9.71	ppbV	100
33) Tetrahydrofuran	4.576	42	1135151	10.18	ppbV	99
34) 1,1,1-Trichloroethane	4.631	97	2017204	9.42	ppbV	100
35) Methyl ethyl ketone	4.685	43	1824867	10.25	ppbV	99
36) n-Heptane	4.917	43	2119295	10.29	ppbV	99
37) Benzene	4.933	78	2760579	9.73	ppbV	100
38) 1,2-Dichloroethane	5.094	62	1306989	10.28	ppbV	99
40) Trichloroethene	5.435	130	1277643	9.46	ppbV	100
41) 2,2,4-Trimethylpentane	4.846	57	3384494	10.04	ppbV	100
42) 1,2-Dichloropropane	5.881	63	1210091	9.97	ppbV	99
43) Bromodichloromethane	5.946	83	2297408	10.86	ppbV	100
44) Methyl methacrylate	6.087	41	1707517	10.94	ppbV	100
45) 1,4-Dioxane	6.113	88	839393	11.21	ppbV	99
46) cis-1,3-Dichloropropene	6.534	75	2028992	10.81	ppbV	99
47) Toluene	6.772	91	4536523	10.63	ppbV	99
48) Methyl isobutyl ketone	7.135	43	3266617	10.60	ppbV	100
49) Tetrachloroethene	7.161	166	2057579	10.73	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	2121255	11.47	ppbV	99
51) 1,1,2-Trichloroethane	7.338	97	1545574	10.28	ppbV	100

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3407icvss.D
Acq On : 15 Aug 2023 6:09 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 10:02:33 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

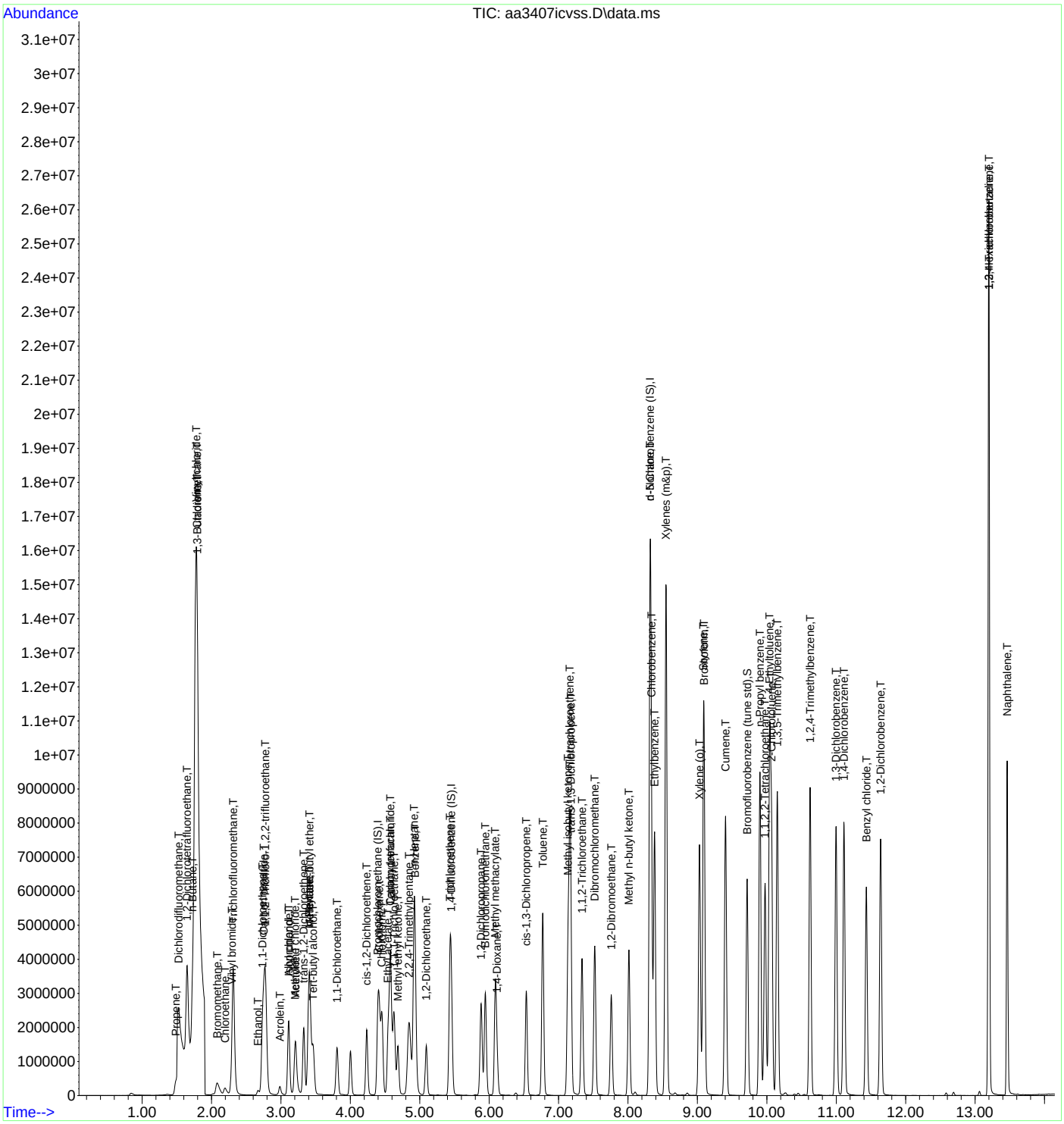
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	7.521	129	2775633	11.06	ppbV	100
53) 1,2-Dibromoethane	7.759	107	2393720	10.88	ppbV	100
54) Methyl n-butyl ketone	8.013	43	3342265	11.58	ppbV	99
56) n-Nonane	8.319	43	3980940	10.32	ppbV	99
57) Chlorobenzene	8.338	112	3631305	10.52	ppbV	99
58) Ethylbenzene	8.383	91	6749535	10.58	ppbV	99
59) Xylenes (m&p)	8.547	91	10243811	22.27	ppbV	100
60) Xylene (o)	9.029	91	5367160	10.51	ppbV	100
61) Styrene	9.087	104	3897707	11.50	ppbV	99
62) Bromoform	9.097	173	2909911	11.11	ppbV	100
63) Cumene	9.405	105	6858593	10.31	ppbV	100
65) n-Propyl benzene	9.901	91	9335682	10.76	ppbV	99
66) 1,1,2,2-Tetrachloroethane	9.975	83	4046668	10.45	ppbV	100
67) 4-Ethyltoluene	10.039	105	7675301	10.73	ppbV	100
68) 2-Chlorotoluene	10.068	91	6134373	10.42	ppbV	100
69) 1,3,5-Trimethylbenzene	10.151	105	6150320	10.63	ppbV	100
70) 1,2,4-Trimethylbenzene	10.624	105	6292442	10.96	ppbV	100
71) 1,3-Dichlorobenzene	10.997	146	3955353	10.39	ppbV	100
72) 1,4-Dichlorobenzene	11.113	146	3900278	10.66	ppbV	99
73) Benzyl chloride	11.434	91	5411364	10.79	ppbV	100
74) 1,2-Dichlorobenzene	11.640	146	3729037	10.35	ppbV	100
75) 1,3-Hexachlorobutadiene	13.200	225	2519603	9.76	ppbV	99
76) 1,2,4-Trichlorobenzene	13.200	180	2920155	10.31	ppbV	100
77) Naphthalene	13.463	128	6029829	10.31	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3407icvss.D
Acq On : 15 Aug 2023 6:09 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 16 10:02:33 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA4137ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 10/10/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48
10 PPBV LCS [AA4138LCS]	10/10/2023 17:39
METHOD BLANK [AA4139BLK]	10/10/2023 18:07
02 PPBV RLLCS [AA4140RLLCS]	10/10/2023 18:35
10 PPBV CCCVS [AA4154CCCVS]	10/11/2023 1:53

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Acetone	67-64-1	11	10	95	
Acrolein	107-02-8	9.4	9.5	100	
Allyl Chloride	107-05-1	11	11	99	
Benzene	71-43-2	10	9.7	93	
Benzyl chloride	100-44-7	11	10	93	
Bromodichloromethane	75-27-4	11	11	100	
Bromoform	75-25-2	11	11	96	
Bromomethane	74-83-9	11	10	92	
1,3-Butadiene	106-99-0	11	10	92	
n-Butane	106-97-8	11	10	94	
Chlorobenzene	108-90-7	10	10	96	
Chloroethane	75-00-3	9.8	11	110	
Chloroform	67-66-3	11	9.9	91	
Chloromethane	74-87-3	9.9	11	110	
Carbon disulfide	75-15-0	10	11	110	
Carbon tetrachloride	56-23-5	11	10	93	
2-Chlorotoluene	95-49-8	11	10	91	
Cumene	98-82-8	10	10	99	
Cyclohexane	110-82-7	11	10	92	
Dibromochloromethane	124-48-1	11	12	110	
1,2-Dibromoethane	106-93-4	11	11	100	
1,2-Dichlorobenzene	95-50-1	10	10.0	97	
1,3-Dichlorobenzene	541-73-1	10	10	96	
1,4-Dichlorobenzene	106-46-7	10	10.0	97	
Dichlorodifluoromethane	75-71-8	11	10	92	
1,1-Dichloroethane	75-34-3	11	9.4	90	
1,2-Dichloroethane	107-06-2	11	10	95	
1,1-Dichloroethene	75-35-4	11	10.0	93	
1,2-Dichloroethene (cis)	156-59-2	10	10	97	
1,2-Dichloroethene (trans)	156-60-5	11	11	100	
1,2-Dichloropropane	78-87-5	11	10	95	
1,3-Dichloropropene (cis)	10061-01-5	9.9	11	110	
1,3-Dichloropropene (trans)	10061-02-6	11	11	100	
1,2-Dichlorotetrafluoroethane	76-14-2	11	9.0	80	
1,4-Dioxane	123-91-1	11	11	98	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: 10 PPBV ICVSS **Data File:** AA4137ICVSS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 10/10/2023

Amount of standard injected (ml): 50

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48
10 PPBV LCS [AA4138LCS]	10/10/2023 17:39
METHOD BLANK [AA4139BLK]	10/10/2023 18:07
02 PPBV RLLCS [AA4140RLLCS]	10/10/2023 18:35
10 PPBV CCCVS [AA4154CCCVS]	10/11/2023 1:53

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Ethanol	64-17-5	9.8	7.0	71	
Ethyl acetate	141-78-6	10	11	110	
Ethylbenzene	100-41-4	10	10	96	
4-Ethyltoluene	622-96-8	11	11	100	
n-Heptane	142-82-5	11	11	100	
1,3-Hexachlorobutadiene	87-68-3	9.8	9.8	100	
n-Hexane	110-54-3	11	10	93	
Isopropanol	67-63-0	8.1	8.4	100	
Methylene chloride	75-09-2	11	8.1	76	
Methyl ethyl ketone	78-93-3	11	10.0	92	
Methyl isobutyl ketone	108-10-1	10	11	110	
Methyl methacrylate	80-62-6	11	11	100	
Methyl n-butyl ketone	591-78-6	11	11	99	
Methyl tert-butyl ether	1634-04-4	11	10	92	
Naphthalene	91-20-3	11	9.7	91	
n-Nonane	111-84-2	11	11	97	
n-Pentane	109-66-0	11	9.7	87	
Propene	115-07-1	11	9.2	84	
n-Propyl benzene	103-65-1	11	11	100	
Styrene	100-42-5	11	11	100	
Tert-butyl alcohol	75-65-0	12	11	96	
1,1,2,2-Tetrachloroethane	79-34-5	10	11	110	
Tetrachloroethene	127-18-4	12	11	93	
Tetrahydrofuran	109-99-9	11	10	93	
Toluene	108-88-3	11	11	100	
1,2,4-Trichlorobenzene	120-82-1	10	9.7	97	
1,1,1-Trichloroethane	71-55-6	11	10.0	93	
1,1,2-Trichloroethane	79-00-5	11	11	100	
Trichloroethene	79-01-6	10	9.2	90	
Trichlorofluoromethane	75-69-4	11	10	94	
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	9.3	85	
1,2,4-Trimethylbenzene	95-63-6	10	10	100	
1,3,5-Trimethylbenzene	108-67-8	10	10	96	
2,2,4-Trimethylpentane	540-84-1	11	9.6	88	
Vinyl bromide	593-60-2	10	10	100	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Initial Calibration Verification Sample Standard

Lab Sample Name: **10 PPBV ICVSS** **Data File:** **AA4137ICVSS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **10/10/2023**

Amount of standard injected (ml): **50**

Runs with this ICVSS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4131BFB]	10/10/2023 10:13
0.2 PPBV STD [AA4132STD05]	10/10/2023 10:40
2 PPBV STD [AA4133STD04]	10/10/2023 11:46
10 PPBV STD [AA4134STD03]	10/10/2023 12:21
20 PPBV STD [AA4135STD02]	10/10/2023 12:55
40 PPBV STD [AA4136STD01]	10/10/2023 14:05
10 PPBV ICVSS [AA4137ICVSS]	10/10/2023 16:48
10 PPBV LCS [AA4138LCS]	10/10/2023 17:39
METHOD BLANK [AA4139BLK]	10/10/2023 18:07
02 PPBV RLLCS [AA4140RLLCS]	10/10/2023 18:35
10 PPBV CCCVS [AA4154CCCVS]	10/11/2023 1:53

Compound	CAS #	Injected Amount (ppbv)	Recovered Amount (ppbv)	% Recovery	QC Limit
Vinyl chloride	75-01-4	11	11	97	
Xylenes (m&p)	179601-23-1	21	22	110	
Xylenes (o)	95-47-6	10	10	96	

ICVSS recovery must be within 70-130% of the spiked value for all compounds.

*** Values outside of QC limits**

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4137icvss.D
Acq On : 10 Oct 2023 4:48 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 11 12:34:17 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.394	130	450439	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	1936760	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2279414	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.715	95	1999577	10.06	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.487	41	289233	9.25	ppbV	98
3) Dichlorodifluoromethane	1.527	85	1032587	10.34	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.647	85	1304952	9.00	ppbV	100
5) n-Butane	1.730	43	750417	10.43	ppbV	99
6) Chloromethane	1.792	52	54388	10.90	ppbV	98
7) Vinyl chloride	1.781	62	431150	10.57	ppbV	99
8) 1,3-Butadiene	1.795	39	382252	10.03	ppbV	97
9) Bromomethane	2.079	94	336675	10.22	ppbV	97
10) Chloroethane	2.191	64	232639	10.87	ppbV	99
11) Vinyl bromide	2.291	106	412014	10.22	ppbV	100
12) Trichlorofluoromethane	2.313	101	1310652	10.39	ppbV	99
13) Ethanol	2.664	45	92719	7.03	ppbV	99
14) 1,1-Dichloroethene	2.731	61	835358	9.98	ppbV	99
15) Carbon disulfide	2.751	76	1485573	10.79	ppbV	99
16) 1,1,2-Trichloro-1,2,2-...	2.773	101	1177177	9.27	ppbV	100
17) Acrolein	2.985	56	178709	9.50	ppbV	99
18) Allyl chloride	3.111	76	250470	11.09	ppbV	100
19) Isopropanol	3.111	45	759040	8.40	ppbV	100
20) Methylene chloride	3.204	49	449695	8.12	ppbV	99
21) Acetone	3.210	43	693658	10.21	ppbV	98
22) trans-1,2-Dichloroethene	3.329	61	849185	10.93	ppbV	100
23) n-Pentane	3.403	43	1018939	9.73	ppbV	98
24) n-Hexane	3.403	57	1426750	10.05	ppbV	99
25) Methyl tert-butyl ether	3.413	73	1803139	10.34	ppbV	99
26) Tert-butyl alcohol	3.464	59	1242393	10.58	ppbV	100
27) 1,1-Dichloroethane	3.808	63	977991	9.35	ppbV	99
28) cis-1,2-Dichloroethene	4.233	61	755931	10.24	ppbV	99
29) Cyclohexane	4.416	56	1026465	10.35	ppbV	99
30) Chloroform	4.455	83	1194486	9.91	ppbV	99
31) Ethyl acetate	4.545	61	208391	10.63	ppbV	99
32) Carbon tetrachloride	4.577	117	1452418	10.16	ppbV	100
33) Tetrahydrofuran	4.574	42	693411	10.23	ppbV	100
34) 1,1,1-Trichloroethane	4.625	97	1251697	10.00	ppbV	99
35) Methyl ethyl ketone	4.683	43	1099463	9.99	ppbV	100
36) n-Heptane	4.915	43	1406396	11.30	ppbV	100
37) Benzene	4.934	78	1734004	9.69	ppbV	100
38) 1,2-Dichloroethane	5.091	62	756182	10.10	ppbV	100
40) Trichloroethene	5.432	130	792615	9.25	ppbV	97
41) 2,2,4-Trimethylpentane	4.844	57	2425296	9.61	ppbV	100
42) 1,2-Dichloropropane	5.882	63	788220	10.46	ppbV	100
43) Bromodichloromethane	5.943	83	1432936	11.29	ppbV	99
44) Methyl methacrylate	6.088	41	1025399	11.22	ppbV	100
45) 1,4-Dioxane	6.111	88	520094	11.27	ppbV	99
46) cis-1,3-Dichloropropene	6.535	75	1277949	10.94	ppbV	99
47) Toluene	6.770	91	2952624	10.85	ppbV	100
48) Methyl isobutyl ketone	7.133	43	1919423	11.22	ppbV	99
49) Tetrachloroethene	7.159	166	1314607	11.20	ppbV	100
50) trans-1,3-Dichloropropene	7.178	75	1281531	11.31	ppbV	97
51) 1,1,2-Trichloroethane	7.336	97	989955	10.77	ppbV	99

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4137icvss.D
Acq On : 10 Oct 2023 4:48 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 11 12:34:17 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

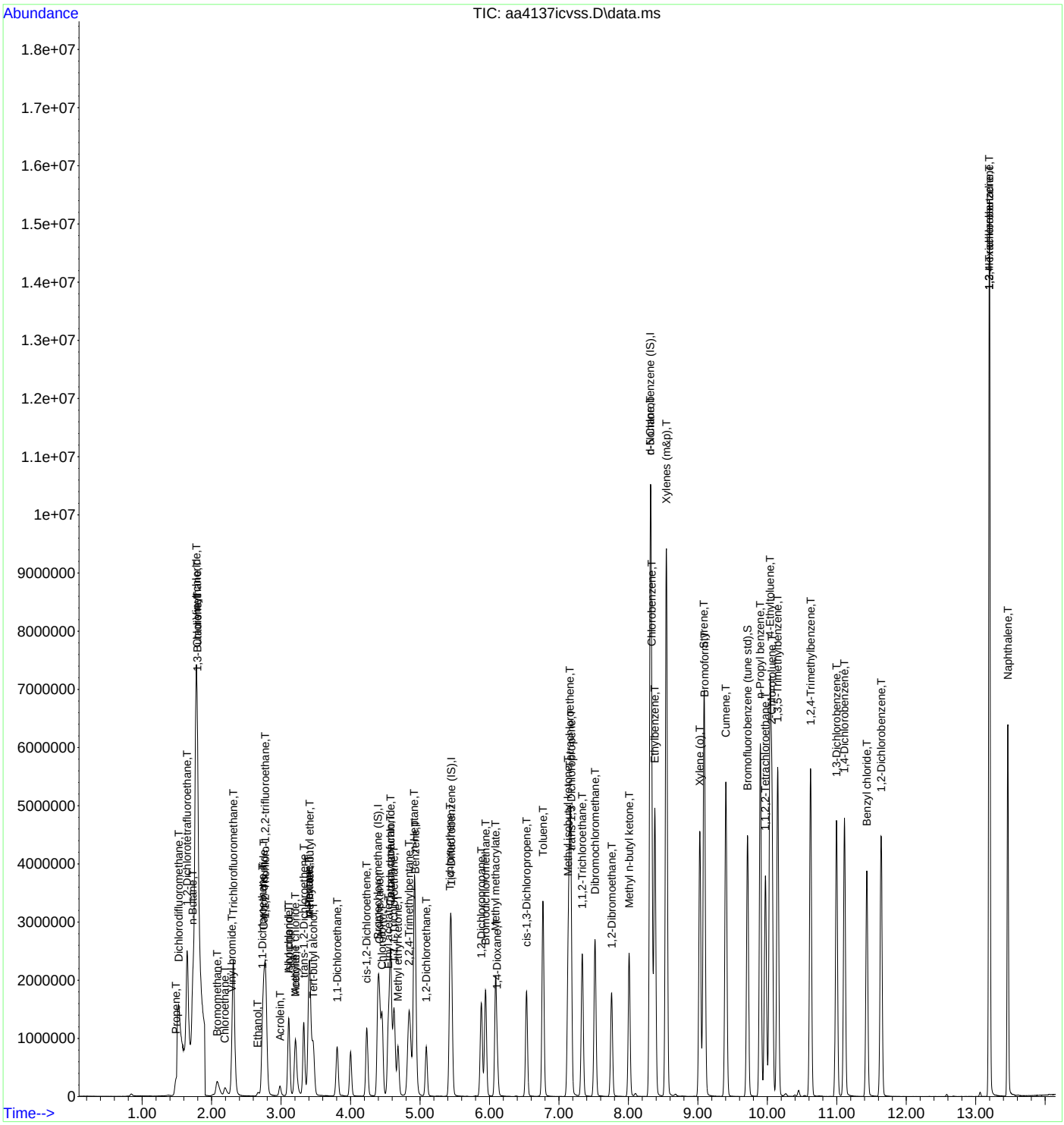
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.519	129	1775637	11.59	ppbV	100
53)	1,2-Dibromoethane	7.760	107	1480875	11.14	ppbV	100
54)	Methyl n-butyl ketone	8.011	43	1847140	11.23	ppbV	100
56)	n-Nonane	8.316	43	2482776	10.98	ppbV	100
57)	Chlorobenzene	8.336	112	2343720	10.31	ppbV	100
58)	Ethylbenzene	8.381	91	4399658	10.47	ppbV	100
59)	Xylenes (m&p)	8.548	91	6725199	21.61	ppbV	100
60)	Xylene (o)	9.027	91	3439926	10.13	ppbV	100
61)	Styrene	9.088	104	2542191	10.93	ppbV	98
62)	Bromoform	9.098	173	1858650	11.14	ppbV	100
63)	Cumene	9.403	105	4624440	10.42	ppbV	99
65)	n-Propyl benzene	9.898	91	6209527	10.72	ppbV	100
66)	1,1,2,2-Tetrachloroethane	9.972	83	2517951	10.59	ppbV	100
67)	4-Ethyltoluene	10.040	105	5225612	10.66	ppbV	100
68)	2-Chlorotoluene	10.065	91	4079374	10.48	ppbV	99
69)	1,3,5-Trimethylbenzene	10.149	105	4048872	10.27	ppbV	100
70)	1,2,4-Trimethylbenzene	10.625	105	4049729	10.28	ppbV	100
71)	1,3-Dichlorobenzene	10.998	146	2445218	10.13	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	2419709	9.96	ppbV	99
73)	Benzyl chloride	11.432	91	3624814	10.40	ppbV	100
74)	1,2-Dichlorobenzene	11.641	146	2329520	9.95	ppbV	100
75)	1,3-Hexachlorobutadiene	13.197	225	1597275	9.83	ppbV	100
76)	1,2,4-Trichlorobenzene	13.197	180	1825252	9.71	ppbV	100
77)	Naphthalene	13.464	128	4147327	9.65	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4137icvss.D
Acq On : 10 Oct 2023 4:48 pm
Operator : jjw
Sample : 10 ppbv icvss
Misc : EB0116272
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 11 12:34:17 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**8/15/2023**	**Date/Time of Calibration:**	**9/28/2023 10:31**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4072DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
CLEAN CAN CERTIFICATION, BATCH MASTER 2164 [AA4076]	09/28/2023 15:00
CLEAN CAN CERTIFICATION, BATCH MASTER 4870 [AA4077]	09/28/2023 15:30
CLEAN CAN CERTIFICATION, BATCH MASTER 2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 00:28

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Acetone	1.9	2.3	-22	PASS	
Benzene	4.6	5.3	-16	PASS	
Bromodichloromethane	0.80	0.86	-8.4	PASS	
Bromoform	0.83	0.94	-13	PASS	
Bromomethane	0.80	0.95	-19	PASS	
1,3-Butadiene	0.97	1.3	-29	PASS	
Chlorobenzene	1.1	1.2	-10	PASS	
Chloroethane	0.52	0.59	-14	PASS	
Chloroform	3.2	3.9	-22	PASS	
Chloromethane	0.12	0.13	-14	PASS	
Carbon disulfide	3.4	3.9	-14	PASS	
Carbon tetrachloride	3.9	3.9	-0.40	PASS	
Cyclohexane	2.4	2.6	-8.2	PASS	
Dibromochloromethane	0.94	0.96	-1.2	PASS	
1,2-Dibromoethane	0.83	0.86	-4.5	PASS	
1,2-Dichlorobenzene	1.1	1.3	-14	PASS	
1,3-Dichlorobenzene	1.2	1.4	-12	PASS	
1,4-Dichlorobenzene	1.2	1.4	-20	PASS	
Dichlorodifluoromethane	2.5	3.1	-22	PASS	
1,1-Dichloroethane	2.6	3.2	-23	PASS	
1,2-Dichloroethane	2.1	2.6	-24	PASS	
1,1-Dichloroethene	2.1	2.2	-6.4	PASS	
1,2-Dichloroethene (cis)	1.8	2.4	-30	PASS	
1,2-Dichloroethene (trans)	1.9	2.4	-28	PASS	
1,2-Dichloropropane	0.46	0.48	-5.7	PASS	
1,3-Dichloropropene (cis)	0.71	0.75	-6.8	PASS	
1,3-Dichloropropene (trans)	0.70	0.79	-14	PASS	
1,2-Dichlorotetrafluoroethane	3.6	4.0	-9.4	PASS	
1,4-Dioxane	0.28	0.29	-3.2	PASS	
Ethylbenzene	2.0	2.3	-13	PASS	
n-Heptane	3.4	3.7	-11	PASS	
1,3-Hexachlorobutadiene	0.82	0.86	-4.5	PASS	
n-Hexane	3.3	3.9	-15	PASS	
Methylene chloride	1.3	1.5	-21	PASS	
Methyl ethyl ketone	2.9	3.7	-29	PASS	
Methyl isobutyl ketone	1.2	1.3	-8.7	PASS	
Methyl tert-butyl ether	4.6	4.9	-8.5	PASS	
Styrene	1.1	1.3	-21	PASS	
Tert-butyl alcohol	2.9	3.3	-13	PASS	
1,1,2,2-Tetrachloroethane	1.2	1.3	-8.6	PASS	
Tetrachloroethene	0.72	0.70	3.5	PASS	

***%Difference must be within +/- 30%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**8/15/2023**	**Date/Time of Calibration:**	**9/28/2023 10:31**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4072DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
CLEAN CAN CERTIFICATION, BATCH MASTER 2164 [AA4076]	09/28/2023 15:00
CLEAN CAN CERTIFICATION, BATCH MASTER 4870 [AA4077]	09/28/2023 15:30
CLEAN CAN CERTIFICATION, BATCH MASTER 2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 00:28

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Toluene	1.6	1.7	-4.2	PASS	
1,2,4-Trichlorobenzene	0.90	1.1	-19	PASS	
1,1,1-Trichloroethane	3.5	3.6	-1.9	PASS	
1,1,2-Trichloroethane	0.57	0.57	-1.4	PASS	
Trichloroethene	0.51	0.51	-0.60	PASS	
Trichlorofluoromethane	3.4	4.0	-17	PASS	
1,1,2-Trichloro-1,2,2-trifluoroethane	3.4	3.4	-1.3	PASS	
1,2,4-Trimethylbenzene	1.8	2.2	-20	PASS	
1,3,5-Trimethylbenzene	1.8	2.1	-13	PASS	
2,2,4-Trimethylpentane	1.3	1.4	-11	PASS	
Vinyl bromide	1.0	1.3	-25	PASS	
Vinyl chloride	0.95	1.2	-29	PASS	
Xylenes (m&p)	1.5	1.7	-20	PASS	
Xylenes (o)	1.6	1.8	-11	PASS	

***%Difference must be within +/- 30%**
RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Evaluate Continuing Calibration Report

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4072dcvs.D
Acq On : 28 Sep 2023 10:31 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 05 12:20:58 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS)	1.000	1.000	0.0	74	0.00
2	T	Propene	0.689	0.782	-13.5	89	0.00
3	T	Dichlorodifluoromethane	2.527	3.082	-22.0	95	0.00
4	T	1,2-Dichlorotetrafluoroetha	3.636	3.979	-9.4	93	0.00
5	T	n-Butane	1.635	1.772	-8.4	82	0.00
6	T	Chloromethane	0.117	0.133	-13.7	85	0.00
7	T	Vinyl chloride	0.950	1.223	-28.7	97	0.00
8	T	1,3-Butadiene	0.972	1.253	-28.9	100	0.00
9	T	Bromomethane	0.798	0.946	-18.5	90	0.00
10	T	Chloroethane	0.517	0.591	-14.3	84	0.00
11	T	Vinyl bromide	1.004	1.257	-25.2	94	0.00
12	T	Trichlorofluoromethane	3.400	3.990	-17.4	96	0.00
13	T	Ethanol	0.400	0.423	-5.7	97	0.00
14	T	1,1-Dichloroethene	2.088	2.222	-6.4	78	0.00
15	T	Carbon disulfide	3.429	3.921	-14.3	83	0.00
16	T	1,1,2-Trichloro-1,2,2-trifl	3.360	3.402	-1.3	90	0.00
17	T	Acrolein	0.430	0.491	-14.2	85	0.00
18	T	Allyl chloride	0.559	0.693	-24.0	92	0.00
19	T	Isopropanol	2.312	2.922	-26.4	96	0.00
20	T	Methylene chloride	1.262	1.521	-20.5	107	0.00
21	T	Acetone	1.876	2.285	-21.8	93	0.00
22	T	trans-1,2-Dichloroethene	1.879	2.400	-27.7	95	0.00
23	T	n-Pentane	2.398	2.695	-12.4	99	0.00
24	T	n-Hexane	3.349	3.850	-15.0	95	0.00
25	T	Methyl tert-butyl ether	4.555	4.942	-8.5	92	0.00
26	T	Tert-butyl alcohol	2.929	3.318	-13.3	95	0.00
27	T	1,1-Dichloroethane	2.637	3.242	-22.9	100	0.00
28	T	cis-1,2-Dichloroethene	1.824	2.366	-29.7	100	0.00
29	t	Cyclohexane	2.420	2.619	-8.2	92	0.00
30	T	Chloroform	3.228	3.928	-21.7	96	0.00
31	T	Ethyl acetate	0.514	0.617	-20.0	96	0.00
32	T	Carbon tetrachloride	3.870	3.885	-0.4	86	0.00
33	T	Tetrahydrofuran	1.813	2.046	-12.9	88	0.00
34	T	1,1,1-Trichloroethane	3.484	3.550	-1.9	89	0.00
35	T	Methyl ethyl ketone	2.894	3.723	-28.6	102	0.00
36	T	n-Heptane	3.350	3.721	-11.1	87	0.00
37	T	Benzene	4.614	5.348	-15.9	94	0.00
38	T	1,2-Dichloroethane	2.067	2.563	-24.0	98	0.00
39	I	1,4-Difluorobenzene (IS)	1.000	1.000	0.0	81	0.00
40	T	Trichloroethene	0.508	0.511	-0.6	87	0.00
41	T	2,2,4-Trimethylpentane	1.267	1.406	-11.0	98	0.00
42	T	1,2-Dichloropropane	0.456	0.482	-5.7	92	0.00
43	T	Bromodichloromethane	0.795	0.862	-8.4	92	0.00
44	T	Methyl methacrylate	0.587	0.686	-16.9	93	0.00
45	T	1,4-Dioxane	0.281	0.290	-3.2	86	0.00
46	T	cis-1,3-Dichloropropene	0.705	0.753	-6.8	88	0.00
47	T	Toluene	1.603	1.670	-4.2	84	0.00
48	T	Methyl isobutyl ketone	1.158	1.259	-8.7	88	0.00
49	T	Tetrachloroethene	0.721	0.696	3.5	81	0.00
50	T	trans-1,3-Dichloropropene	0.695	0.791	-13.8	88	0.00
51	T	1,1,2-Trichloroethane	0.565	0.573	-1.4	85	0.00
52	T	Dibromochloromethane	0.944	0.955	-1.2	83	0.00
53	T	1,2-Dibromoethane	0.827	0.864	-4.5	84	0.00

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4072dcvs.D
Acq On : 28 Sep 2023 10:31 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 05 12:20:58 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	T	Methyl n-butyl ketone	1.085	1.314	-21.1	94	0.00
55	I	d-5 Chlorobenzene (IS)	1.000	1.000	0.0	71	0.00
56	T	n-Nonane	1.224	1.455	-18.9	89	0.00
57	T	Chlorobenzene	1.095	1.205	-10.0	84	0.00
58	T	Ethylbenzene	2.025	2.281	-12.6	84	0.00
59	T	Xylenes (m&p)	1.460	1.746	-19.6	86	0.00
60	T	Xylene (o)	1.621	1.793	-10.6	83	0.00
61	T	Styrene	1.076	1.301	-20.9	85	0.00
62	T	Bromoform	0.831	0.940	-13.1	83	0.00
63	T	Cumene	2.112	2.309	-9.3	81	0.00
64	S	Bromofluorobenzene (tune st	0.832	1.037	-24.6	91	0.00
65	T	n-Propyl benzene	2.753	3.313	-20.3	86	0.00
66	T	1,1,2,2-Tetrachloroethane	1.228	1.333	-8.6	84	0.00
67	T	4-Ethyltoluene	2.270	2.728	-20.2	86	0.00
68	T	2-Chlorotoluene	1.868	2.133	-14.2	86	0.00
69	T	1,3,5-Trimethylbenzene	1.837	2.075	-13.0	83	0.00
70	T	1,2,4-Trimethylbenzene	1.821	2.187	-20.1	84	0.00
71	T	1,3-Dichlorobenzene	1.208	1.351	-11.8	86	0.00
72	T	1,4-Dichlorobenzene	1.161	1.398	-20.4	87	0.00
73	T	Benzyl chloride	1.591	2.051	-28.9	86	0.00
74	T	1,2-Dichlorobenzene	1.143	1.308	-14.4	84	0.00
75	T	1,3-Hexachlorobutadiene	0.820	0.857	-4.5	84	0.00
76	T	1,2,4-Trichlorobenzene	0.899	1.068	-18.8	89	0.00
77	T	Naphthalene	1.857	2.352	-26.7	88	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4072dcvs.D
Acq On : 28 Sep 2023 10:31 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 05 12:20:58 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.399	130	394533	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	1846241	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1956014	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2028598	12.47	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.492	41	336126	12.37	ppbV	99
3) Dichlorodifluoromethane	1.533	85	1288817	12.93	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.650	85	1538324	10.72	ppbV	95
5) n-Butane	1.729	43	762109	11.81	ppbV	100
6) Chloromethane	1.791	52	58792	12.73	ppbV	99
7) Vinyl chloride	1.784	62	521002	13.90	ppbV	100
8) 1,3-Butadiene	1.794	39	528910	13.80	ppbV	94
9) Bromomethane	2.091	94	373349	11.86	ppbV	100
10) Chloroethane	2.200	64	247247	12.12	ppbV	97
11) Vinyl bromide	2.293	106	500772	12.64	ppbV	99
12) Trichlorofluoromethane	2.312	101	1731764	12.91	ppbV	100
13) Ethanol	2.669	45	173409	10.98	ppbV	98
14) 1,1-Dichloroethene	2.734	61	911565	11.06	ppbV	96
15) Carbon disulfide	2.756	76	1655394	12.24	ppbV	98
16) 1,1,2-Trichloro-1,2,2-...	2.775	101	1462822	11.04	ppbV	98
17) Acrolein	2.988	56	193825	11.44	ppbV	99
18) Allyl chloride	3.116	76	295490	13.39	ppbV	100
19) Isopropanol	3.113	45	1026023	11.25	ppbV	98
20) Methylene chloride	3.203	49	648001	13.02	ppbV	93
21) Acetone	3.213	43	973812	13.16	ppbV	97
22) trans-1,2-Dichloroethene	3.329	61	1051022	14.18	ppbV	94
23) n-Pentane	3.412	43	1148262	12.14	ppbV	98
24) n-Hexane	3.409	57	1670880	12.65	ppbV	94
25) Methyl tert-butyl ether	3.412	73	2183824	12.15	ppbV	96
26) Tert-butyl alcohol	3.464	59	1505615	13.03	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1368811	13.16	ppbV	100
28) cis-1,2-Dichloroethene	4.235	61	1017589	14.14	ppbV	95
29) Cyclohexane	4.415	56	1157367	12.12	ppbV	95
30) Chloroform	4.457	83	1673696	13.14	ppbV	99
31) Ethyl acetate	4.544	61	262896	12.97	ppbV	96
32) Carbon tetrachloride	4.576	117	1686035	11.04	ppbV	100
33) Tetrahydrofuran	4.576	42	888033	12.41	ppbV	98
34) 1,1,1-Trichloroethane	4.628	97	1526804	11.11	ppbV	99
35) Methyl ethyl ketone	4.685	43	1615518	14.15	ppbV	96
36) n-Heptane	4.920	43	1629713	12.33	ppbV	95
37) Benzene	4.933	78	2278943	12.52	ppbV	99
38) 1,2-Dichloroethane	5.094	62	1102144	13.51	ppbV	100
40) Trichloroethene	5.435	130	942528	10.06	ppbV	99
41) 2,2,4-Trimethylpentane	4.846	57	2829737	12.10	ppbV	100
42) 1,2-Dichloropropane	5.885	63	978690	11.62	ppbV	99
43) Bromodichloromethane	5.946	83	1830581	12.47	ppbV	98
44) Methyl methacrylate	6.090	41	1393236	12.86	ppbV	96
45) 1,4-Dioxane	6.113	88	626413	12.06	ppbV	95
46) cis-1,3-Dichloropropene	6.534	75	1542564	11.85	ppbV	100
47) Toluene	6.772	91	3329666	11.25	ppbV	100
48) Methyl isobutyl ketone	7.135	43	2533215	11.85	ppbV	97
49) Tetrachloroethene	7.161	166	1439441	10.82	ppbV	99
50) trans-1,3-Dichloropropene	7.177	75	1621869	12.63	ppbV	95
51) 1,1,2-Trichloroethane	7.335	97	1143196	10.95	ppbV	98

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4072dcvs.D
Acq On : 28 Sep 2023 10:31 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

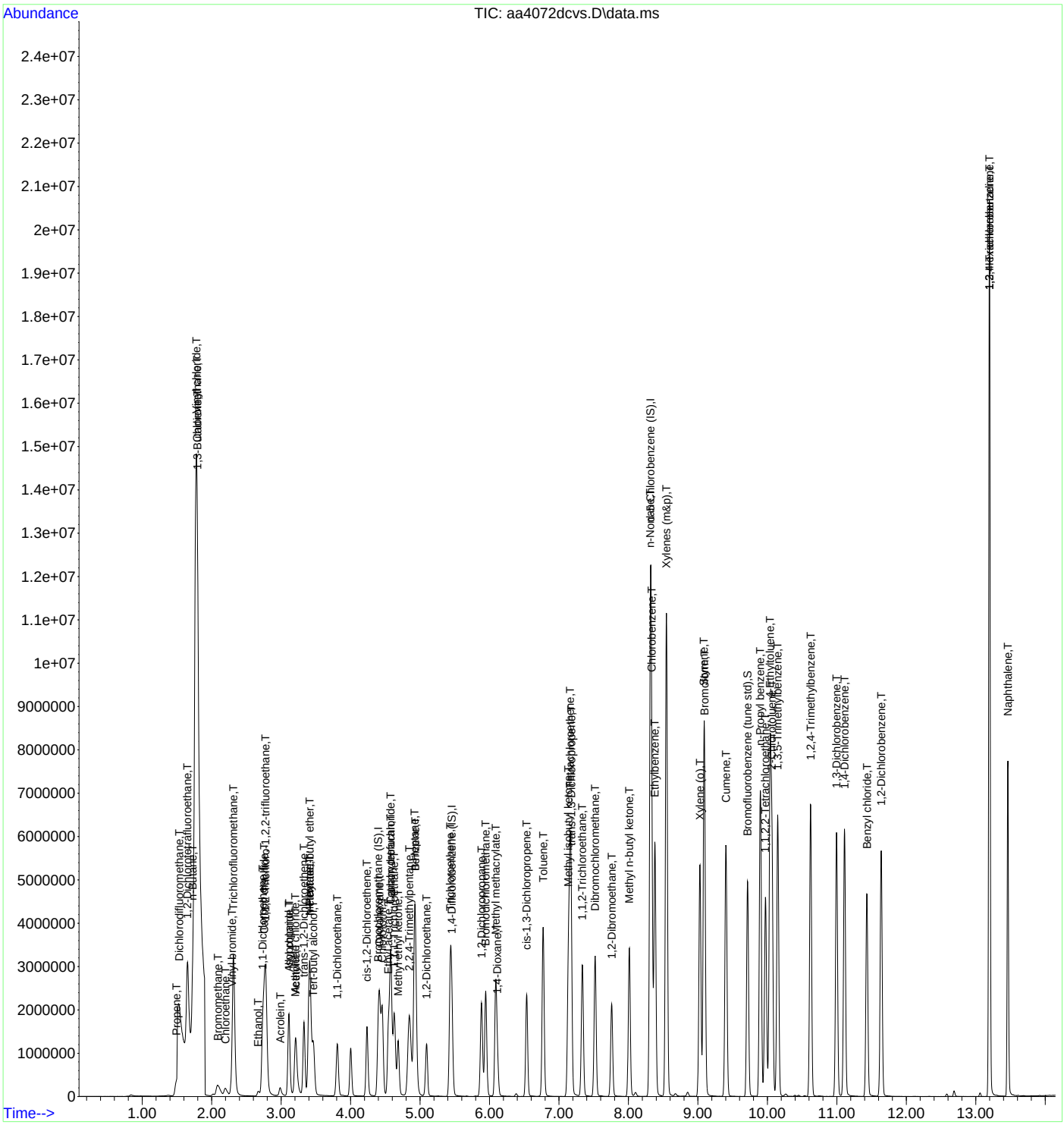
Quant Time: Oct 05 12:20:58 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	7.521	129	1974797	11.34	ppbV	100
53) 1,2-Dibromoethane	7.759	107	1723352	11.29	ppbV	99
54) Methyl n-butyl ketone	8.013	43	2740906	13.68	ppbV	97
56) n-Nonane	8.315	43	3130203	13.08	ppbV	95
57) Chlorobenzene	8.335	112	2616855	12.22	ppbV	96
58) Ethylbenzene	8.380	91	4951669	12.50	ppbV	99
59) Xylenes (m&p)	8.547	91	7618001	26.68	ppbV	98
60) Xylene (o)	9.029	91	3858864	12.17	ppbV	98
61) Styrene	9.087	104	2876626	13.67	ppbV	100
62) Bromoform	9.097	173	2077944	12.78	ppbV	100
63) Cumene	9.405	105	4831919	11.70	ppbV	99
65) n-Propyl benzene	9.897	91	6998521	12.99	ppbV	98
66) 1,1,2,2-Tetrachloroethane	9.971	83	2971483	12.37	ppbV	100
67) 4-Ethyltoluene	10.039	105	5763454	12.98	ppbV	98
68) 2-Chlorotoluene	10.065	91	4548166	12.45	ppbV	98
69) 1,3,5-Trimethylbenzene	10.148	105	4424594	12.31	ppbV	98
70) 1,2,4-Trimethylbenzene	10.624	105	4619816	12.97	ppbV	98
71) 1,3-Dichlorobenzene	10.997	146	2933863	12.42	ppbV	99
72) 1,4-Dichlorobenzene	11.113	146	2925919	12.89	ppbV	100
73) Benzyl chloride	11.434	91	4012288	12.89	ppbV	98
74) 1,2-Dichlorobenzene	11.640	146	2736550	12.24	ppbV	100
75) 1,3-Hexachlorobutadiene	13.196	225	1861511	11.61	ppbV	99
76) 1,2,4-Trichlorobenzene	13.196	180	2298365	13.07	ppbV	100
77) Naphthalene	13.463	128	4601232	12.67	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4072dcvs.D
Acq On : 28 Sep 2023 10:31 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 05 12:20:58 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**12/11/2023 10:26**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4902DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 09:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
CLEAN CAN CERTIFICATION, BATCH MASTER 1458 [AA4906]	12/11/2023 12:50
CLEAN CAN CERTIFICATION, BATCH MASTER 1588 [AA4907]	12/11/2023 13:19
CLEAN CAN CERTIFICATION, BATCH MASTER 3012 [AA4908]	12/11/2023 13:49
E23-05081-01 [AA4916]	12/11/2023 18:15
E23-05081-01 [AA4917]	12/11/2023 18:47
E23-05081-02 [AA4919]	12/11/2023 19:52
E23-05081-03 [AA4920]	12/11/2023 20:24
E23-05081-03 [AA4921]	12/11/2023 21:04
E23-05081-04 [AA4922]	12/11/2023 21:35
E23-05081-04 [AA4923]	12/11/2023 22:07
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 01:59

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Acetone	1.5	1.6	-2.9	PASS	
Benzene	4.0	3.4	14	PASS	
Bromoform	0.73	0.73	0.10	PASS	
Bromomethane	0.73	0.76	-4.4	PASS	
1,3-Butadiene	0.85	0.80	5.7	PASS	
Chlorobenzene	1.00	0.92	7.3	PASS	
Chloroethane	0.48	0.52	-9.3	PASS	
Chloroform	2.7	2.5	8.2	PASS	
Chloromethane	0.11	0.12	-5.4	PASS	
Carbon disulfide	3.1	3.1	-0.90	PASS	
Carbon tetrachloride	3.2	2.9	9.9	PASS	
Cyclohexane	2.2	2.0	7.9	PASS	
1,2-Dibromoethane	0.69	0.69	0.10	PASS	
1,2-Dichlorobenzene	1.0	0.97	5.6	PASS	
1,3-Dichlorobenzene	1.1	0.98	7.4	PASS	
1,4-Dichlorobenzene	1.1	1.0	4.5	PASS	
Dichlorodifluoromethane	2.2	2.2	1.3	PASS	
1,1-Dichloroethane	2.3	2.1	10	PASS	
1,2-Dichloroethane	1.7	1.6	3.6	PASS	
1,1-Dichloroethene	1.9	1.9	-1.0	PASS	
1,2-Dichloroethene (cis)	1.6	1.6	3.8	PASS	
1,2-Dichloroethene (trans)	1.7	1.7	0.20	PASS	
1,2-Dichloropropane	0.39	0.37	4.6	PASS	
1,3-Dichloropropene (cis)	0.60	0.59	2.7	PASS	
1,3-Dichloropropene (trans)	0.59	0.60	-2.6	PASS	
1,2-Dichlorotetrafluoroethane	3.2	2.9	11	PASS	
1,4-Dioxane	0.24	0.23	2.5	PASS	
Ethylbenzene	1.8	1.7	5.1	PASS	
n-Heptane	2.8	2.7	1.0	PASS	
1,3-Hexachlorobutadiene	0.71	0.67	6.3	PASS	
n-Hexane	3.2	2.9	7.9	PASS	
Methylene chloride	1.2	1.1	12	PASS	
Methyl ethyl ketone	2.4	2.4	3.5	PASS	
Methyl isobutyl ketone	0.88	0.96	-8.5	PASS	

***%Difference must be within +/- 30%**

RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Continuing Calibration Data Summary Report

Initial Calibration Curve:	**10/10/2023**	**Date/Time of Calibration:**	**12/11/2023 10:26**
Instrument:	**AA**	**Sample ID:**	**DCS**
Amount of standard injected (ml):	**50**	**Laboratory ID:**	**AA4902DCVS**

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 09:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
CLEAN CAN CERTIFICATION, BATCH MASTER 1458 [AA4906]	12/11/2023 12:50
CLEAN CAN CERTIFICATION, BATCH MASTER 1588 [AA4907]	12/11/2023 13:19
CLEAN CAN CERTIFICATION, BATCH MASTER 3012 [AA4908]	12/11/2023 13:49
E23-05081-01 [AA4916]	12/11/2023 18:15
E23-05081-01 [AA4917]	12/11/2023 18:47
E23-05081-02 [AA4919]	12/11/2023 19:52
E23-05081-03 [AA4920]	12/11/2023 20:24
E23-05081-03 [AA4921]	12/11/2023 21:04
E23-05081-04 [AA4922]	12/11/2023 21:35
E23-05081-04 [AA4923]	12/11/2023 22:07
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 01:59

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Methyl tert-butyl ether	3.9	3.6	6.7	PASS	
Styrene	1.0	0.98	3.7	PASS	
Tert-butyl alcohol	2.6	2.4	6.1	PASS	
1,1,2,2-Tetrachloroethane	1.0	1.00	4.3	PASS	
Tetrachloroethene	0.61	0.57	5.4	PASS	
Toluene	1.4	1.3	4.0	PASS	
1,2,4-Trichlorobenzene	0.82	0.79	3.9	PASS	
1,1,1-Trichloroethane	2.8	2.5	8.6	PASS	
1,1,2-Trichloroethane	0.48	0.46	4.0	PASS	
Trichloroethene	0.44	0.41	8.4	PASS	
Trichlorofluoromethane	2.8	2.7	3.1	PASS	
1,1,2-Trichloro-1,2,2-trifluoroethane	2.8	2.4	15	PASS	
1,2,4-Trimethylbenzene	1.7	1.7	3.1	PASS	
1,3,5-Trimethylbenzene	1.7	1.7	4.2	PASS	
2,2,4-Trimethylpentane	1.3	1.2	4.3	PASS	
Vinyl bromide	0.90	0.91	-1.8	PASS	
Vinyl chloride	0.91	0.89	1.5	PASS	
Xylenes (m&p)	1.4	1.3	2.0	PASS	
Xylenes (o)	1.5	1.4	6.4	PASS	

***%Difference must be within +/- 30%**
RRF - Relative Response Factor

INTEGRATED ANALYTICAL LABORATORIES, LLC

Evaluate Continuing Calibration Report

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS)	1.000	1.000	0.0	151	0.00
2	T	Propene	0.694	0.638	8.1	161	0.00
3	T	Dichlorodifluoromethane	2.216	2.188	1.3	153	0.00
4	T	1,2-Dichlorotetrafluoroetha	3.219	2.870	10.8	147	0.00
5	T	n-Butane	1.597	1.560	2.3	154	0.00
6	T	Chloromethane	0.111	0.117	-5.4	157	0.00
7	T	Vinyl chloride	0.906	0.892	1.5	149	0.00
8	T	1,3-Butadiene	0.846	0.798	5.7	151	0.00
9	T	Bromomethane	0.731	0.763	-4.4	154	0.00
10	T	Chloroethane	0.475	0.519	-9.3	156	0.00
11	T	Vinyl bromide	0.895	0.911	-1.8	151	0.00
12	T	Trichlorofluoromethane	2.799	2.713	3.1	155	0.00
13	T	Ethanol	0.293	0.325	-10.9	183	0.00
14	T	1,1-Dichloroethene	1.858	1.877	-1.0	146	0.00
15	T	Carbon disulfide	3.058	3.087	-0.9	145	0.00
16	T	1,1,2-Trichloro-1,2,2-trifl	2.819	2.390	15.2	143	0.00
17	T	Acrolein	0.418	0.423	-1.2	149	0.00
18	T	Allyl chloride	0.501	0.513	-2.4	145	0.00
19	T	Isopropanol	2.005	2.110	-5.2	153	0.00
20	T	Methylene chloride	1.229	1.083	11.9	161	0.00
21	T	Acetone	1.508	1.551	-2.9	153	0.00
22	T	trans-1,2-Dichloroethene	1.724	1.721	0.2	146	0.00
23	T	n-Pentane	2.325	2.210	4.9	154	0.00
24	T	n-Hexane	3.152	2.903	7.9	148	0.00
25	T	Methyl tert-butyl ether	3.872	3.613	6.7	150	0.00
26	T	Tert-butyl alcohol	2.607	2.448	6.1	148	0.00
27	T	1,1-Dichloroethane	2.322	2.083	10.3	141	0.00
28	T	cis-1,2-Dichloroethene	1.638	1.576	3.8	144	0.00
29	t	Cyclohexane	2.202	2.029	7.9	148	0.00
30	T	Chloroform	2.676	2.457	8.2	141	0.00
31	T	Ethyl acetate	0.435	0.434	0.2	146	0.00
32	T	Carbon tetrachloride	3.174	2.860	9.9	142	0.00
33	T	Tetrahydrofuran	1.504	1.466	2.5	149	0.00
34	T	1,1,1-Trichloroethane	2.780	2.541	8.6	144	0.00
35	T	Methyl ethyl ketone	2.442	2.356	3.5	150	0.00
36	T	n-Heptane	2.764	2.735	1.0	145	0.00
37	T	Benzene	3.972	3.428	13.7	136	0.00
38	T	1,2-Dichloroethane	1.663	1.603	3.6	146	0.00
39	I	1,4-Difluorobenzene (IS)	1.000	1.000	0.0	147	0.00
40	T	Trichloroethene	0.442	0.405	8.4	135	0.00
41	T	2,2,4-Trimethylpentane	1.303	1.247	4.3	149	0.00
42	T	1,2-Dichloropropane	0.389	0.371	4.6	139	0.00
43	T	Bromodichloromethane	0.655	0.640	2.3	143	0.00
44	T	Methyl methacrylate	0.472	0.494	-4.7	146	0.00
45	T	1,4-Dioxane	0.238	0.232	2.5	140	0.00
46	T	cis-1,3-Dichloropropene	0.603	0.587	2.7	137	0.00
47	T	Toluene	1.405	1.349	4.0	133	0.00
48	T	Methyl isobutyl ketone	0.883	0.958	-8.5	148	0.00
49	T	Tetrachloroethene	0.606	0.573	5.4	133	0.00
50	T	trans-1,3-Dichloropropene	0.585	0.600	-2.6	139	0.00
51	T	1,1,2-Trichloroethane	0.475	0.456	4.0	135	0.00
52	T	Dibromochloromethane	0.791	0.789	0.3	139	0.00
53	T	1,2-Dibromoethane	0.686	0.685	0.1	137	0.00

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 0% Max. R.T. Dev 0.40min
Max. RRF Dev : 30% Max. Rel. Area : 500%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54	T	Methyl n-butyl ketone	0.849	0.947	-11.5	149	0.00
55	I	d-5 Chlorobenzene (IS)	1.000	1.000	0.0	142	0.00
56	T	n-Nonane	0.992	1.053	-6.1	146	0.00
57	T	Chlorobenzene	0.997	0.924	7.3	133	0.00
58	T	Ethylbenzene	1.843	1.749	5.1	134	0.00
59	T	Xylenes (m&p)	1.365	1.338	2.0	134	0.00
60	T	Xylene (o)	1.490	1.395	6.4	135	0.00
61	T	Styrene	1.020	0.982	3.7	131	0.00
62	T	Bromoform	0.732	0.731	0.1	139	0.00
63	T	Cumene	1.947	1.907	2.1	139	0.00
64	S	Bromofluorobenzene (tune st	0.872	0.871	0.1	142	0.00
65	T	n-Propyl benzene	2.541	2.576	-1.4	140	0.00
66	T	1,1,2,2-Tetrachloroethane	1.043	0.998	4.3	136	0.00
67	T	4-Ethyltoluene	2.151	2.143	0.4	138	0.00
68	T	2-Chlorotoluene	1.707	1.675	1.9	140	0.00
69	T	1,3,5-Trimethylbenzene	1.730	1.657	4.2	134	0.00
70	T	1,2,4-Trimethylbenzene	1.729	1.675	3.1	133	0.00
71	T	1,3-Dichlorobenzene	1.059	0.981	7.4	133	0.00
72	T	1,4-Dichlorobenzene	1.065	1.017	4.5	134	0.00
73	T	Benzyl chloride	1.529	1.639	-7.2	144	0.00
74	T	1,2-Dichlorobenzene	1.027	0.970	5.6	133	0.00
75	T	1,3-Hexachlorobutadiene	0.713	0.668	6.3	135	0.00
76	T	1,2,4-Trichlorobenzene	0.824	0.792	3.9	137	0.00
77	T	Naphthalene	1.885	1.937	-2.8	145	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.393	130	596109	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2484518	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2791354	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2431677	9.99	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	414687	10.02	ppbV	98
3) Dichlorodifluoromethane	1.522	85	1382298	10.46	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.646	85	1676477	8.74	ppbV	97
5) n-Butane	1.729	43	1013335	10.64	ppbV	99
6) Chloromethane	1.791	52	78218	11.85	ppbV	100
7) Vinyl chloride	1.784	62	574429	10.64	ppbV	100
8) 1,3-Butadiene	1.794	39	509282	10.09	ppbV	97
9) Bromomethane	2.081	94	454826	10.43	ppbV	98
10) Chloroethane	2.194	64	327772	11.57	ppbV	98
11) Vinyl bromide	2.293	106	548259	10.27	ppbV	99
12) Trichlorofluoromethane	2.309	101	1779124	10.66	ppbV	99
13) Ethanol	2.666	45	201466	11.54	ppbV	97
14) 1,1-Dichloroethene	2.731	61	1163954	10.51	ppbV	96
15) Carbon disulfide	2.750	76	1969223	10.80	ppbV	97
16) 1,1,2-Trichloro-1,2,2-...	2.772	101	1553181	9.24	ppbV	99
17) Acrolein	2.985	56	252446	10.14	ppbV	100
18) Allyl chloride	3.110	76	330196	11.05	ppbV	100
19) Isopropanol	3.110	45	1119255	9.36	ppbV	100
20) Methylene chloride	3.203	49	696985	9.51	ppbV	95
21) Acetone	3.210	43	998590	11.11	ppbV	100
22) trans-1,2-Dichloroethene	3.325	61	1138568	11.08	ppbV	98
23) n-Pentane	3.409	43	1422770	10.27	ppbV	98
24) n-Hexane	3.406	57	1903376	10.13	ppbV	98
25) Methyl tert-butyl ether	3.409	73	2411960	10.45	ppbV	99
26) Tert-butyl alcohol	3.464	59	1678450	10.80	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1328374	9.60	ppbV	100
28) cis-1,2-Dichloroethene	4.232	61	1023865	10.48	ppbV	96
29) Cyclohexane	4.412	56	1354780	10.32	ppbV	97
30) Chloroform	4.454	83	1581616	9.92	ppbV	99
31) Ethyl acetate	4.541	61	279320	10.77	ppbV	96
32) Carbon tetrachloride	4.576	117	1875059	9.91	ppbV	99
33) Tetrahydrofuran	4.573	42	961491	10.72	ppbV	97
34) 1,1,1-Trichloroethane	4.628	97	1650986	9.96	ppbV	99
35) Methyl ethyl ketone	4.682	43	1545036	10.61	ppbV	98
36) n-Heptane	4.914	43	1809408	10.98	ppbV	97
37) Benzene	4.930	78	2206639	9.32	ppbV	97
38) 1,2-Dichloroethane	5.091	62	1041657	10.51	ppbV	100
40) Trichloroethene	5.431	130	1006216	9.15	ppbV	100
41) 2,2,4-Trimethylpentane	4.846	57	3376289	10.43	ppbV	100
42) 1,2-Dichloropropane	5.885	63	1014651	10.50	ppbV	99
43) Bromodichloromethane	5.943	83	1828286	11.23	ppbV	100
44) Methyl methacrylate	6.087	41	1350577	11.52	ppbV	96
45) 1,4-Dioxane	6.113	88	673669	11.38	ppbV	99
46) cis-1,3-Dichloropropene	6.534	75	1619348	10.81	ppbV	99
47) Toluene	6.772	91	3618902	10.36	ppbV	100
48) Methyl isobutyl ketone	7.135	43	2595670	11.83	ppbV	98
49) Tetrachloroethene	7.161	166	1595415	10.60	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	1655291	11.39	ppbV	98
51) 1,1,2-Trichloroethane	7.335	97	1222341	10.37	ppbV	100

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

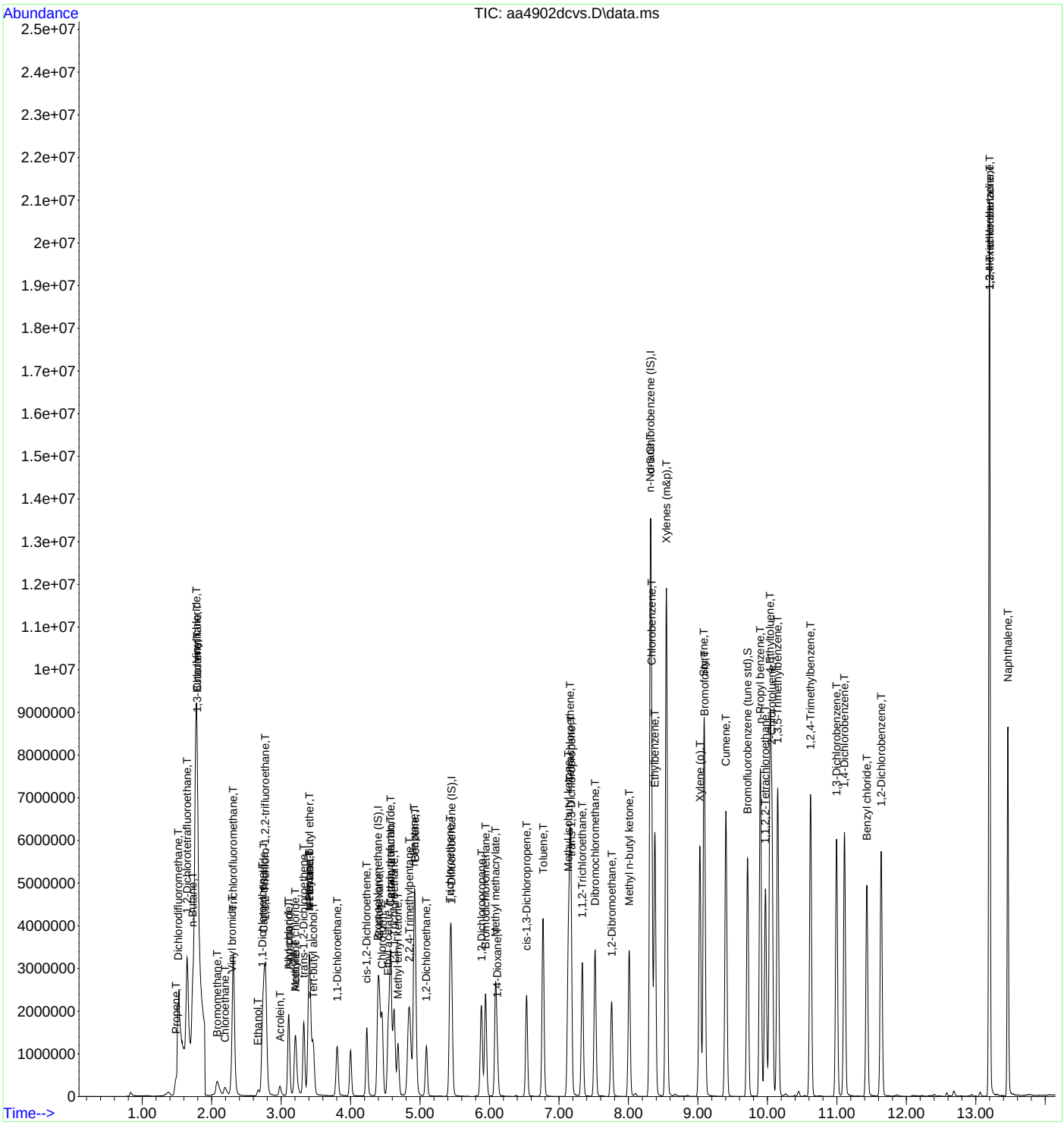
Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2194895	11.17	ppbV	99
53)	1,2-Dibromoethane	7.759	107	1838806	10.78	ppbV	100
54)	Methyl n-butyl ketone	8.010	43	2657481	12.59	ppbV	97
56)	n-Nonane	8.316	43	3233636	11.67	ppbV	98
57)	Chlorobenzene	8.335	112	2863155	10.29	ppbV	98
58)	Ethylbenzene	8.380	91	5418295	10.53	ppbV	99
59)	Xylenes (m&p)	8.547	91	8329861	21.86	ppbV	99
60)	Xylene (o)	9.029	91	4282583	10.30	ppbV	98
61)	Styrene	9.087	104	3096431	10.87	ppbV	99
62)	Bromoform	9.097	173	2305769	11.28	ppbV	100
63)	Cumene	9.402	105	5696839	10.48	ppbV	100
65)	n-Propyl benzene	9.897	91	7764284	10.95	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.971	83	3175462	10.91	ppbV	100
67)	4-Ethyltoluene	10.039	105	6460729	10.76	ppbV	99
68)	2-Chlorotoluene	10.065	91	5096400	10.69	ppbV	99
69)	1,3,5-Trimethylbenzene	10.148	105	5041969	10.44	ppbV	99
70)	1,2,4-Trimethylbenzene	10.621	105	5048160	10.46	ppbV	99
71)	1,3-Dichlorobenzene	10.997	146	3039816	10.29	ppbV	100
72)	1,4-Dichlorobenzene	11.110	146	3038927	10.22	ppbV	99
73)	Benzyl chloride	11.431	91	4575705	10.72	ppbV	99
74)	1,2-Dichlorobenzene	11.640	146	2896425	10.10	ppbV	99
75)	1,3-Hexachlorobutadiene	13.200	225	2068735	10.40	ppbV	99
76)	1,2,4-Trichlorobenzene	13.200	180	2432158	10.57	ppbV	99
77)	Naphthalene	13.463	128	5407318	10.28	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4902dcvs.D
Acq On : 11 Dec 2023 10:26 am
Operator : jjw
Sample : 10 ppbv DCVS
Misc : EB0103704
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 11 10:45:53 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



Section VIII: Raw Quality Control Data Package

BFB Tune Spectra

Method Blank

Laboratory Control Sample

Laboratory Sample Duplicate

Instrument Run Logs

Pressure Gauge Readings (initial and final)

Example Calculations

Screening Data

Clean Canister Certification

BFB

Data Path: C:\DATA\2023\08-2023\08-15-2023\
Data File: AA3401BFB.D
Acq On: 8/15/2023 10:11:00AM
Operator: jls
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230525.M
Last Update: Tue May 30 13:24:12 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	251499	18.7
PASS	75	95	30	66	703104	52.3
PASS	95	95	100	100	1345024	100.0
PASS	96	95	5	9	89525	6.7
PASS	173	174	0.00	2	8293	0.8
PASS	174	95	50	100	1069397	79.5
PASS	175	174	4	9	78181	7.3
PASS	176	174	93	101	1035413	96.8
PASS	177	176	5	9	68613	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA3401BFB	NA	8/15/2023 10:11:00 AM
0.2 PPBV STD	AA3402STD05	NA	8/15/2023 11:15:00 AM
10 PPBV STD	AA3404STD03	NA	8/15/2023 1:09:00 PM
2 PPBV STD	AA3403STD04	NA	8/15/2023 1:45:00 PM
20 PPBV STD	AA3405STD02	NA	8/15/2023 3:12:00 PM
40 PPBV STD	AA3406STD01	NA	8/15/2023 4:47:00 PM
10 PPBV ICVSS	AA3407ICVSS	NA	8/15/2023 6:09:00 PM

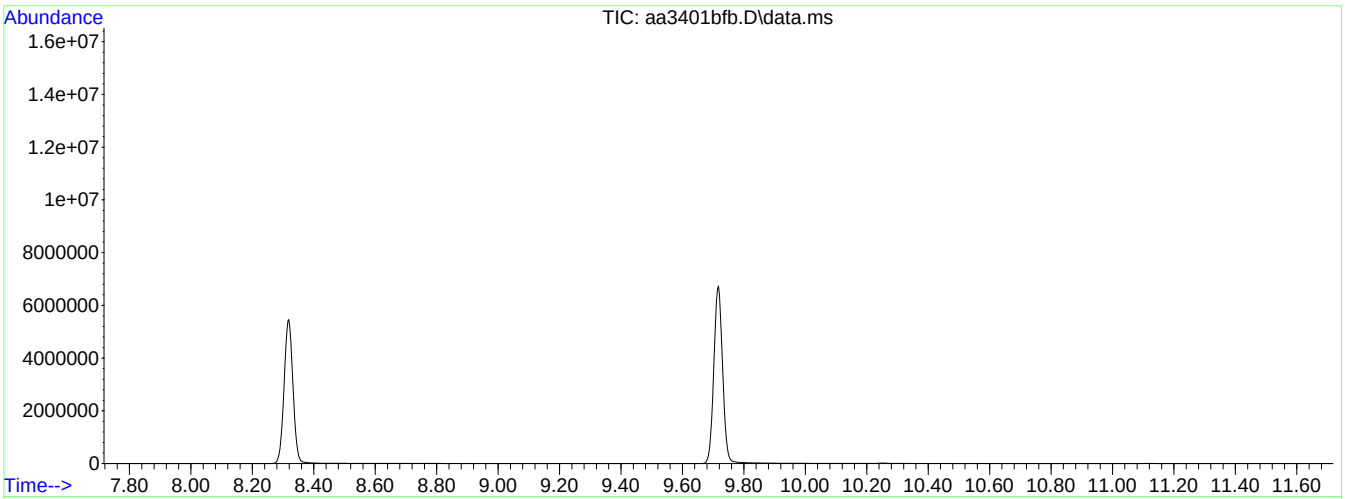
INTEGRATED ANALYTICAL LABORATORIES, LLC

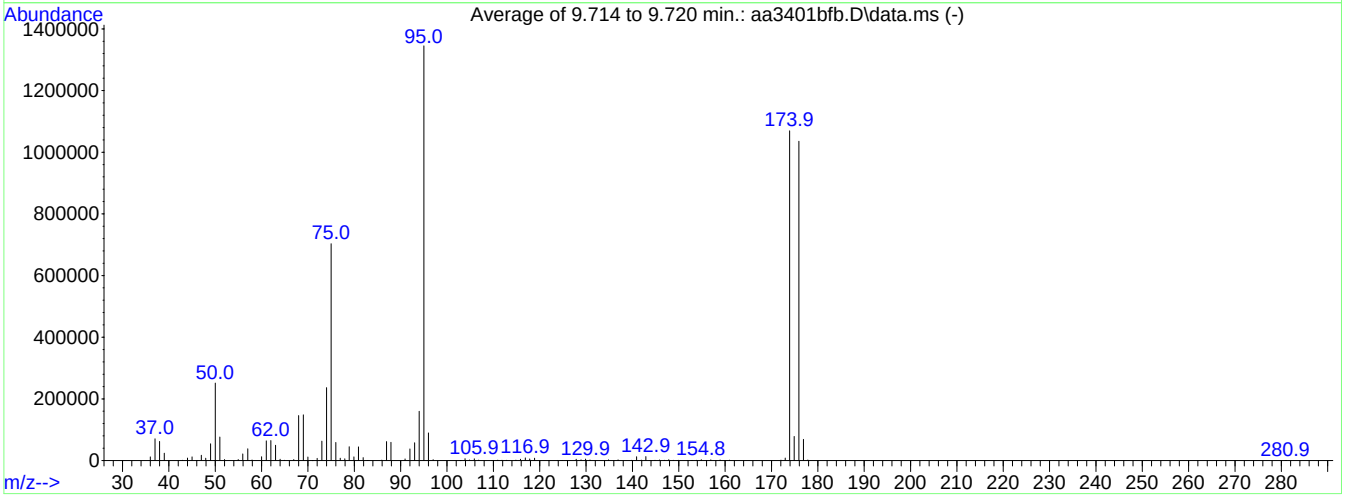
BFB

Data Path : C:\DATA\2023\08-2023\08-15-2023\
Data File : aa3401bfb.D
Acq On : 15 Aug 2023 10:11 am
Operator : jjw
Sample : BFB
Misc : ALM018474
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\230525.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Tue May 30 13:24:12 2023





AutoFind: Scans 2982, 2983, 2984; Background Corrected with Scan 2964

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.7	251499	PASS
75	95	30	66	52.3	703104	PASS
95	95	100	100	100.0	1345024	PASS
96	95	5	9	6.7	89525	PASS
173	174	0.00	2	0.8	8293	PASS
174	95	50	100	79.5	1069397	PASS
175	174	4	9	7.3	78181	PASS
176	174	93	101	96.8	1035413	PASS
177	176	5	9	6.6	68613	PASS

BFB

Data Path: C:\DATA\2023\09-2023\09-28-2023\
Data File: AA4071BFB.D
Acq On: 9/28/2023 10:01:00AM
Operator: jjw
Sample: BFB
Misc: ALM018474
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\230815.M
Last Update: Wed Aug 16 10:00:51 2023
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	96931	19.9
PASS	75	95	30	66	265259	54.6
PASS	95	95	100	100	485931	100.0
PASS	96	95	5	9	33264	6.8
PASS	173	174	0.00	2	3017	0.8
PASS	174	95	50	100	366187	75.4
PASS	175	174	4	9	27080	7.4
PASS	176	174	93	101	360832	98.5
PASS	177	176	5	9	23088	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4071BFB	NA	9/28/2023 10:01:00 AM
10 PPBV DCVS	AA4072DCVS	NA	9/28/2023 10:31:00 AM
10 PPBV LCS	AA4073LCS	NA	9/28/2023 11:19:00 AM
METHOD BLANK	AA4074BLK	NA	9/28/2023 11:47:00 AM
02 PPBV RLLCS	AA4075RLLCS	NA	9/28/2023 1:22:00 PM
2164	AA4076	NA	9/28/2023 3:00:00 PM
4870	AA4077	NA	9/28/2023 3:30:00 PM
2160	AA4078	NA	9/28/2023 4:00:00 PM
10 PPBV CCCVS	AA4093CCCVS	NA	9/29/2023 12:28:00 AM

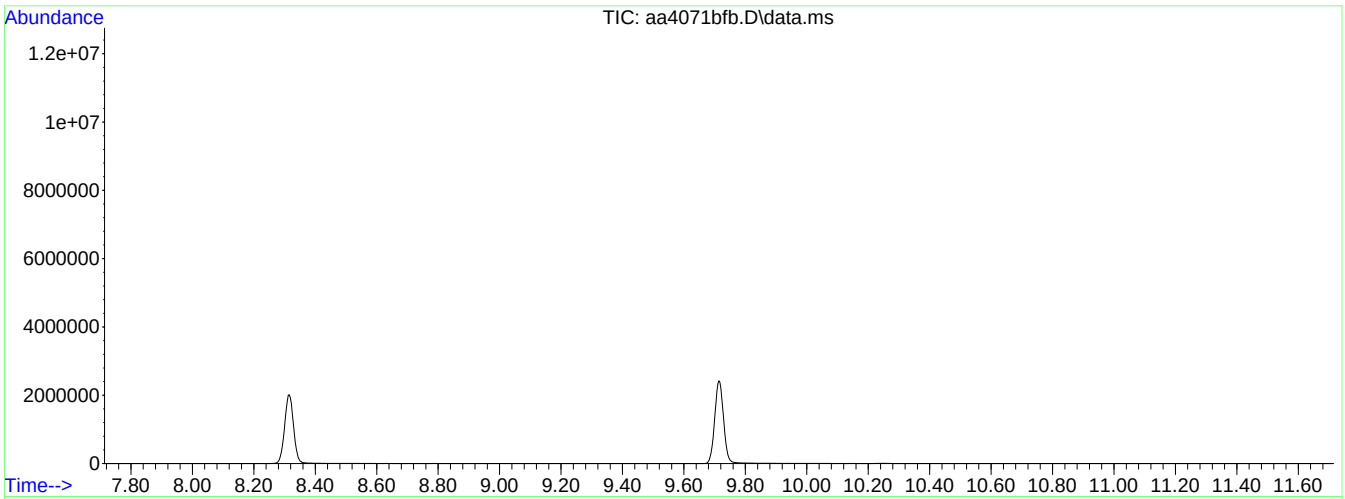
INTEGRATED ANALYTICAL LABORATORIES, LLC

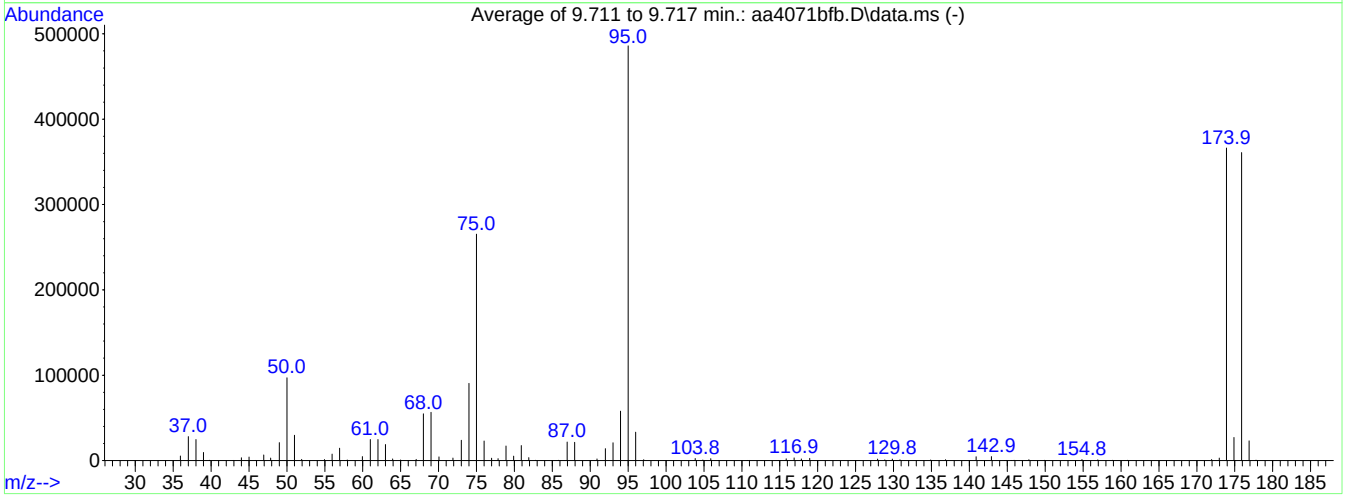
BFB

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4071bfb.D
Acq On : 28 Sep 2023 10:01 am
Operator : jjw
Sample : BFB
Misc : ALM018474
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\230815.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Wed Aug 16 10:00:51 2023





AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2965

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	19.9	96931	PASS
75	95	30	66	54.6	265259	PASS
95	95	100	100	100.0	485931	PASS
96	95	5	9	6.8	33264	PASS
173	174	0.00	2	0.8	3017	PASS
174	95	50	100	75.4	366187	PASS
175	174	4	9	7.4	27080	PASS
176	174	93	101	98.5	360832	PASS
177	176	5	9	6.4	23088	PASS

INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path: C:\DATA\2023\10-2023\10-10-2023\

Data File: AA4131BFB.D

Acq On: 10/10/2023 10:13:00AM

Operator: jls

Sample: BFB

Misc: ALM018474

ALS Vial: 1 **Multiplier:** 1

Integration File: rteint.p

Method: C:\msdchem\1\METHODS\231009.M

Last Update: Tue Oct 10 09:54:56 2023

Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	65523	16.8
PASS	75	95	30	66	182571	46.8
PASS	95	95	100	100	389867	100.0
PASS	96	95	5	9	25643	6.6
PASS	173	174	0.00	2	0	0.0
PASS	174	95	50	100	293952	75.4
PASS	175	174	4	9	22269	7.6
PASS	176	174	93	101	282667	96.2
PASS	177	176	5	9	18629	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4131BFB	NA	10/10/2023 10:13:00 AM
0.2 PPBV STD	AA4132STD05	NA	10/10/2023 10:40:00 AM
2 PPBV STD	AA4133STD04	NA	10/10/2023 11:46:00 AM
10 PPBV STANDARD STD	AA4134STD03	NA	10/10/2023 12:21:00 PM
20 PPBV STD	AA4135STD02	NA	10/10/2023 12:55:00 PM
40 PPBV STD	AA4136STD01	NA	10/10/2023 2:05:00 PM
10 PPBV ICVSS	AA4137ICVSS	NA	10/10/2023 4:48:00 PM
10 PPBV LCS	AA4138LCS	NA	10/10/2023 5:39:00 PM
METHOD BLANK	AA4139BLK	NA	10/10/2023 6:07:00 PM
02 PPBV RLLCS	AA4140RLLCS	NA	10/10/2023 6:35:00 PM
5101	AA4142	NA	10/10/2023 7:36:00 PM
4869	AA4143	NA	10/10/2023 8:06:00 PM
2157	AA4144	NA	10/10/2023 8:36:00 PM
10 PPBV CCCVS	AA4154CCCVS	NA	10/11/2023 1:53:00 AM

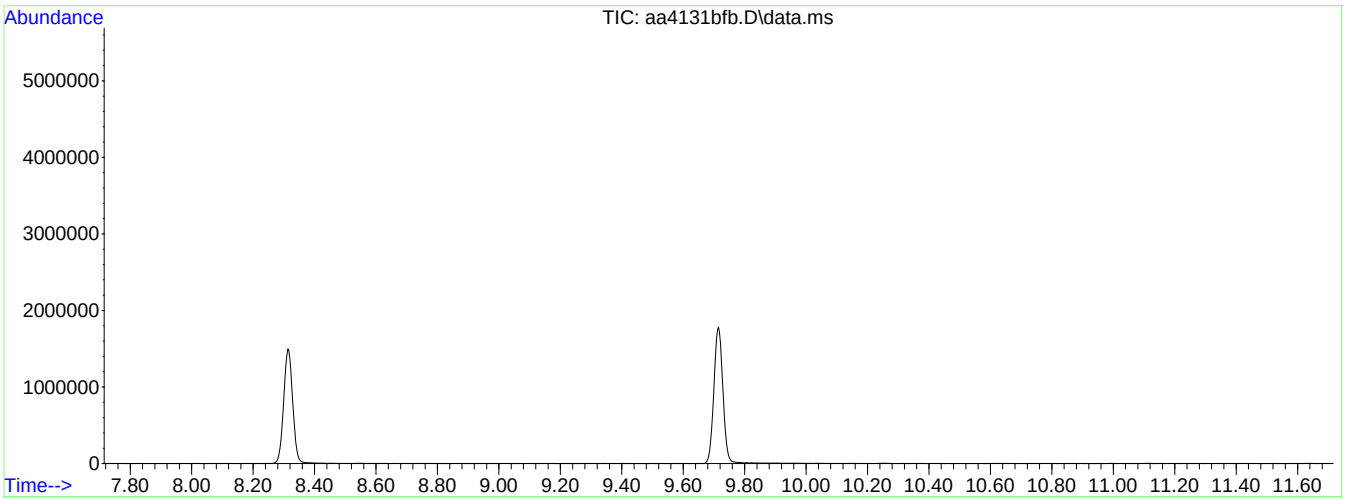
INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

```
Data Path : C:\DATA\2023\10-2023\10-10-2023\
Data File : aa4131bfb.D
Acq On    : 10 Oct 2023  10:13 am
Operator  : jjw
Sample    : BFB
Misc      : ALM018474
ALS Vial  : 1   Sample Multiplier: 1

Integration File: rteint.p

Method    : C:\msdchem\1\METHODS\231009.M
Title     : TO-15 on the Agilent 7890A / 5975C
Last Update  : Tue Oct 10 09:54:56 2023
```



AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2964

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	16.8	65523	PASS
75	95	30	66	46.8	182571	PASS
95	95	100	100	100.0	389867	PASS
96	95	5	9	6.6	25643	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	75.4	293952	PASS
175	174	4	9	7.6	22269	PASS
176	174	93	101	96.2	282667	PASS
177	176	5	9	6.6	18629	PASS

INTEGRATED ANALYTICAL LABORATORIES, LLC

BFB

Data Path: C:\DATA\2023\12-2023\12-11-2023\

Data File: AA4901BFB.D

Acq On: 12/11/2023 9:24:00AM

Operator: jjw

Sample: BFB

Misc: ALM018474

ALS Vial: 1 **Multiplier:** 1

Integration File: rteint.p

Method: C:\msdchem\1\METHODS\231009.M

Last Update: Tue Oct 10 15:12:35 2023

Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	267904	18.4
PASS	75	95	30	66	717035	49.1
PASS	95	95	100	100	1459371	100.0
PASS	96	95	5	9	91040	6.2
PASS	173	174	0.00	2	10848	1.0
PASS	174	95	50	100	1053269	72.2
PASS	175	174	4	9	81547	7.7
PASS	176	174	93	101	1021824	97.0
PASS	177	176	5	9	65264	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4901BFB	NA	12/11/2023 9:24:00 AM
10 PPBV DCVS	AA4902DCVS	NA	12/11/2023 10:26:00 AM
10 PPBV LCS	AA4903LCS	NA	12/11/2023 10:57:00 AM
METHOD BLANK	AA4904BLK	NA	12/11/2023 11:51:00 AM
02 PPBV RLLCS	AA4905RLLCS	NA	12/11/2023 12:18:00 PM
1458	AA4906	NA	12/11/2023 12:50:00 PM
1588	AA4907	NA	12/11/2023 1:19:00 PM
3012	AA4908	NA	12/11/2023 1:49:00 PM
E23-05081-01	AA4916	SV1	12/11/2023 6:15:00 PM
E23-05081-01	AA4917	SV1	12/11/2023 6:47:00 PM
E23-05081-02	AA4919	SV4	12/11/2023 7:52:00 PM
E23-05081-03	AA4920	SV9	12/11/2023 8:24:00 PM
E23-05081-03	AA4921	SV9	12/11/2023 9:04:00 PM
E23-05081-04	AA4922	SV8-401-Compactor Room	12/11/2023 9:35:00 PM
E23-05081-04	AA4923	SV8-401-Compactor Room	12/11/2023 10:07:00 PM

BFB

Data Path: C:\DATA\2023\12-2023\12-11-2023\

Data File: AA4901BFB.D

Acq On: 12/11/2023 9:24:00AM

Operator: jjw

Sample: BFB

Misc: ALM018474

ALS Vial: 1 **Multiplier:** 1

Integration File: rteint.p

Method: C:\msdchem\1\METHODS\231009.M

Last Update: Tue Oct 10 15:12:35 2023

Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	267904	18.4
PASS	75	95	30	66	717035	49.1
PASS	95	95	100	100	1459371	100.0
PASS	96	95	5	9	91040	6.2
PASS	173	174	0.00	2	10848	1.0
PASS	174	95	50	100	1053269	72.2
PASS	175	174	4	9	81547	7.7
PASS	176	174	93	101	1021824	97.0
PASS	177	176	5	9	65264	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
10 PPBV CCCVS	AA4931CCCVS	NA	12/12/2023 1:59:00 AM

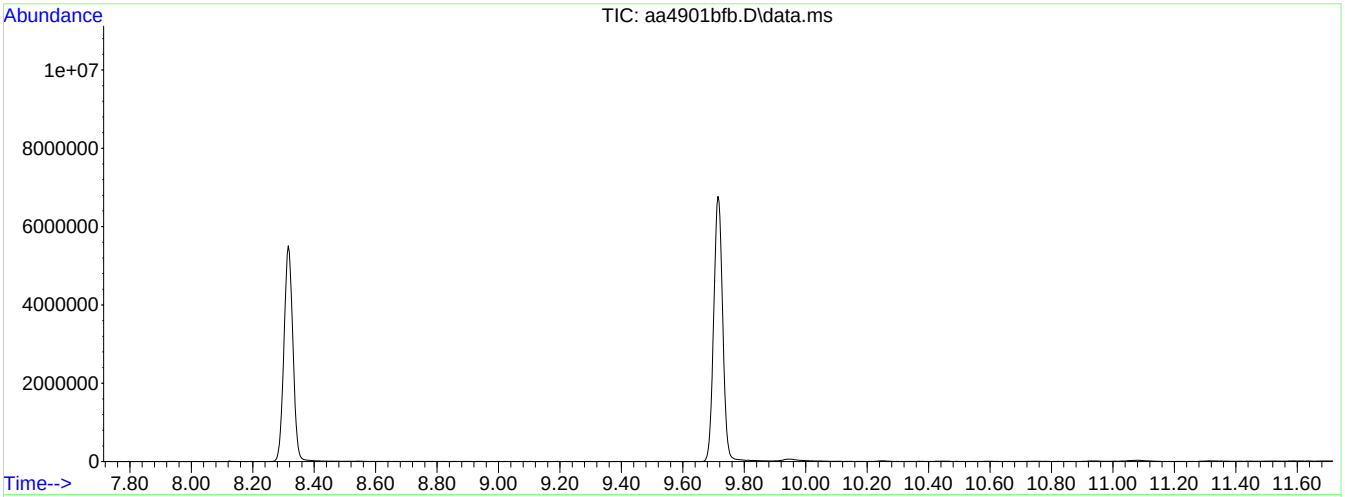
INTEGRATED ANALYTICAL LABORATORIES, LLC

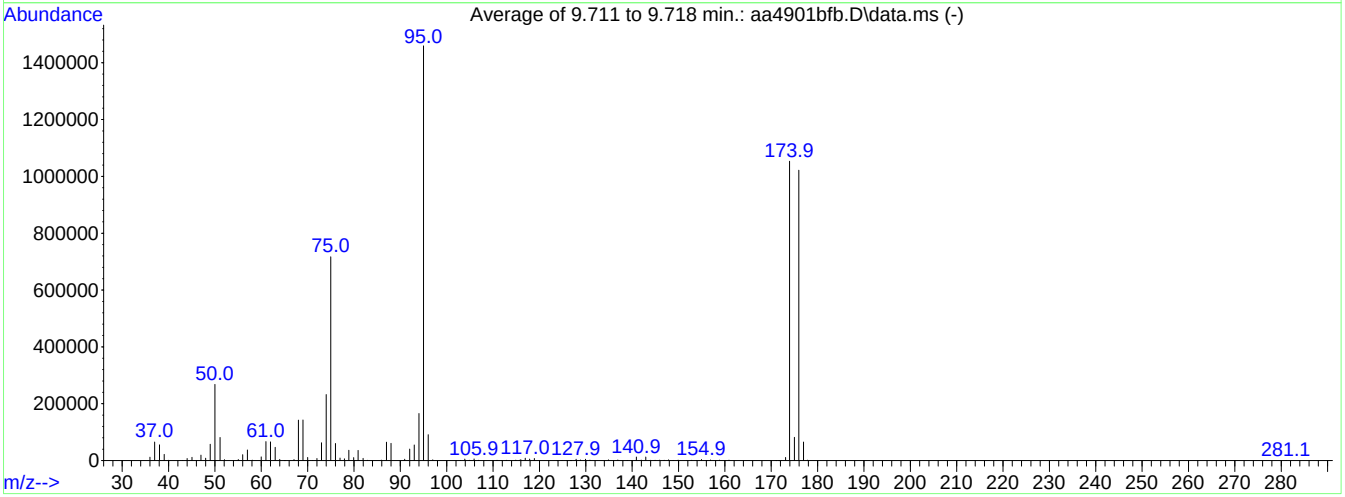
BFB

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4901bfb.D
Acq On : 11 Dec 2023 9:24 am
Operator : jjw
Sample : BFB
Misc : ALM018474
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\231009.M
Title : TO-15 on the Agilent 7890A / 5975C
Last Update : Tue Oct 10 15:12:35 2023





AutoFind: Scans 2981, 2982, 2983; Background Corrected with Scan 2963

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	18.4	267904	PASS
75	95	30	66	49.1	717035	PASS
95	95	100	100	100.0	1459371	PASS
96	95	5	9	6.2	91040	PASS
173	174	0.00	2	1.0	10848	PASS
174	95	50	100	72.2	1053269	PASS
175	174	4	9	7.7	81547	PASS
176	174	93	101	97.0	1021824	PASS
177	176	5	9	6.4	65264	PASS

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4074BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**9/28/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4074BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**9/28/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4074blk.D
Acq On : 28 Sep 2023 11:47 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 28 12:02:32 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

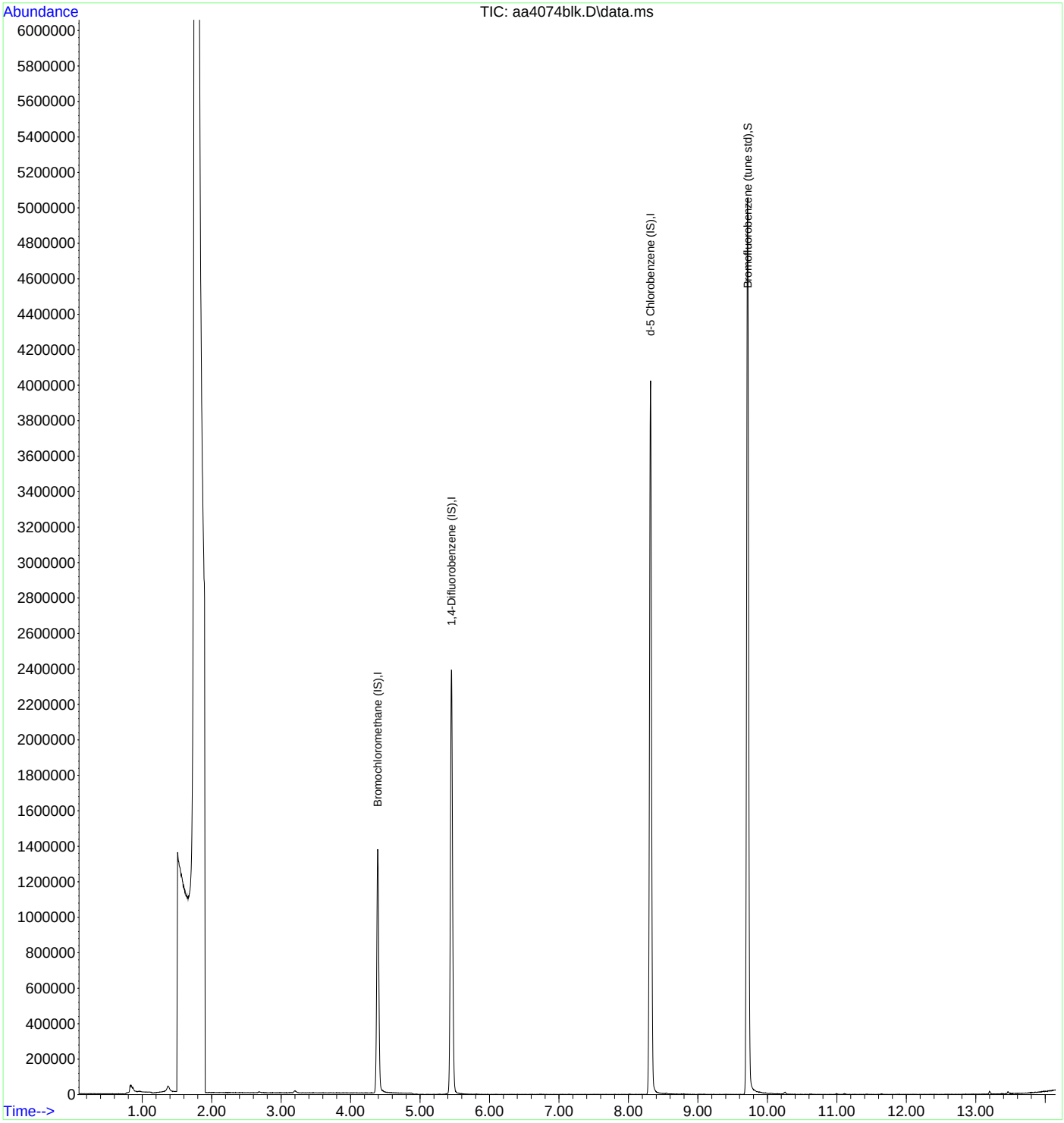
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.393	130	502187	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2139413	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2500606	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.717	95	2123353	10.21	ppbV	0.000

Target Compounds	Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4074blk.D
Acq On : 28 Sep 2023 11:47 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 28 12:02:32 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05081-01 [AA4916]	12/11/2023 18:15
E23-05081-01 [AA4917]	12/11/2023 18:47
E23-05081-02 [AA4919]	12/11/2023 19:52
E23-05081-03 [AA4920]	12/11/2023 20:24
E23-05081-03 [AA4921]	12/11/2023 21:04
E23-05081-04 [AA4922]	12/11/2023 21:35
E23-05081-04 [AA4923]	12/11/2023 22:07
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
1,2-Dibromoethane	106-93-4	0.17	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05081-01 [AA4916]	12/11/2023 18:15
E23-05081-01 [AA4917]	12/11/2023 18:47
E23-05081-02 [AA4919]	12/11/2023 19:52
E23-05081-03 [AA4920]	12/11/2023 20:24
E23-05081-03 [AA4921]	12/11/2023 21:04
E23-05081-04 [AA4922]	12/11/2023 21:35
E23-05081-04 [AA4923]	12/11/2023 22:07
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.18	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.17	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.17	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

INTEGRATED ANALYTICAL LABORATORIES, LLC

Method Blank Report

Lab Sample Name:	**METHOD BLANK**	**Data File:**	**AA4904BLK**
Field Sample Name:	**METHOD BLANK**	**Date Analyzed:**	**12/11/2023**
Matrix:	**Air**	**Sample Volume:**	**500ml**
Dilution Factor:	**1**	**GC/MS Column:**	**RTX-1, 0.32 mmID**

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05081-01 [AA4916]	12/11/2023 18:15
E23-05081-01 [AA4917]	12/11/2023 18:47
E23-05081-02 [AA4919]	12/11/2023 19:52
E23-05081-03 [AA4920]	12/11/2023 20:24
E23-05081-03 [AA4921]	12/11/2023 21:04
E23-05081-04 [AA4922]	12/11/2023 21:35
E23-05081-04 [AA4923]	12/11/2023 22:07
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.20	ND
Xylenes (o)	95-47-6	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4904blk.D
Acq On : 11 Dec 2023 11:51 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 11 12:06:14 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

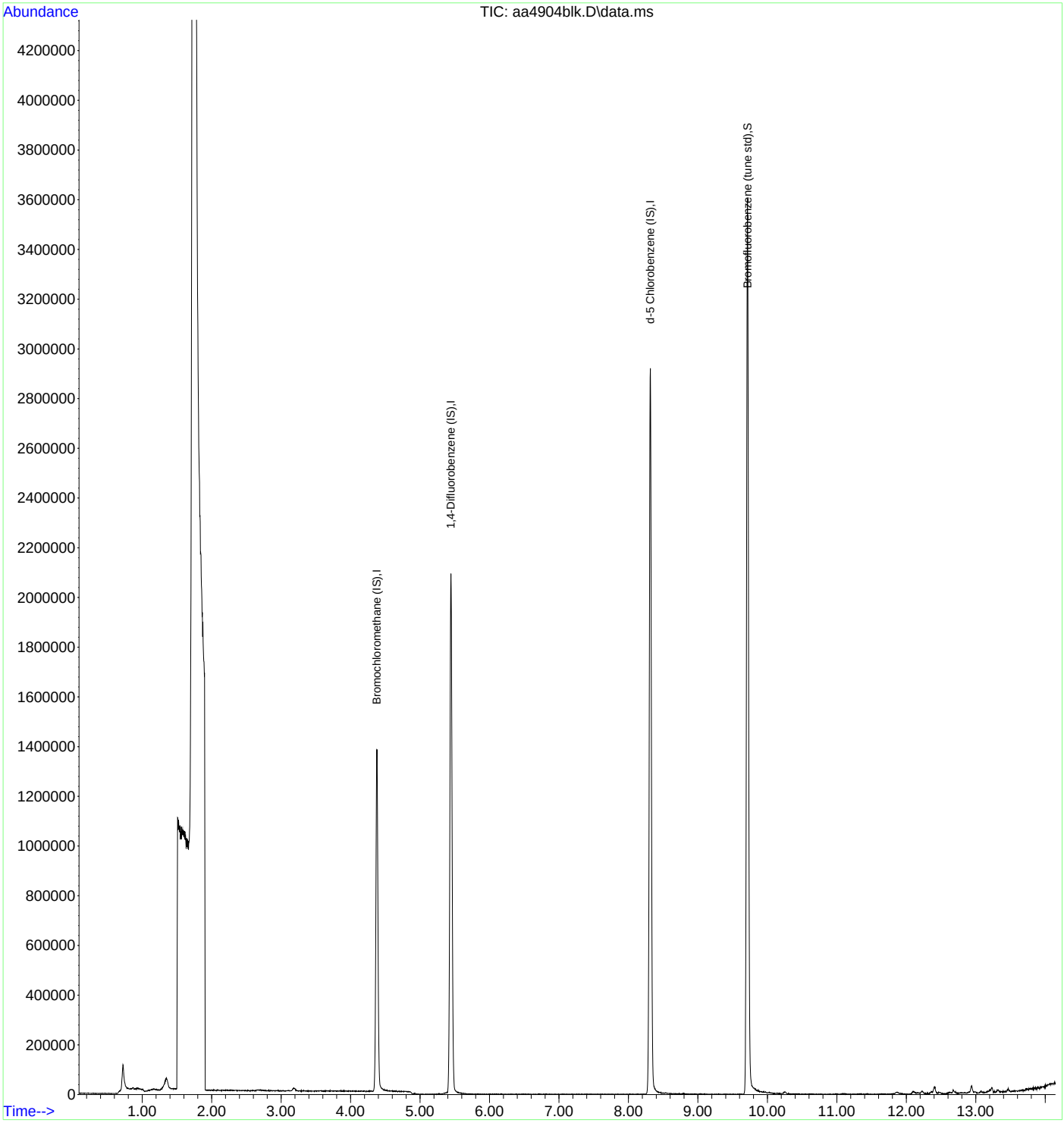
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.377	130	518939	10.00	ppbV	-0.017
39) 1,4-Difluorobenzene (IS)	5.444	114	1920464	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	1920350	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1609305	9.61	ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4904blk.D
Acq On : 11 Dec 2023 11:51 am
Operator : jjw
Sample : Method Blank
Misc : 1127
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 11 12:06:14 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4073LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 9/28/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	13	120
Benzene	71-43-2	12	120
Bromodichloromethane	75-27-4	12	110
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	12	110
1,3-Butadiene	106-99-0	14	130
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	13	130
Chloroform	67-66-3	13	130
Chloromethane	74-87-3	14	120
Carbon disulfide	75-15-0	14	130
Carbon tetrachloride	56-23-5	11	110
Cyclohexane	110-82-7	12	120
Dibromochloromethane	124-48-1	11	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	10	91
1,4-Dichlorobenzene	106-46-7	11	100
Dichlorodifluoromethane	75-71-8	13	120
1,1-Dichloroethane	75-34-3	13	120
1,2-Dichloroethane	107-06-2	13	130
1,1-Dichloroethene	75-35-4	13	120
1,2-Dichloroethene (cis)	156-59-2	14	130
1,2-Dichloroethene (trans)	156-60-5	14	130
1,2-Dichloropropane	78-87-5	11	110
1,3-Dichloropropene (cis)	10061-01-5	12	110
1,3-Dichloropropene (trans)	10061-02-6	13	130
1,2-Dichlorotetrafluoroethane	76-14-2	11	100
1,4-Dioxane	123-91-1	12	100
Ethylbenzene	100-41-4	11	110
n-Heptane	142-82-5	12	120

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4073LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 9/28/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
2164 [AA4076]	09/28/2023 15:00
4870 [AA4077]	09/28/2023 15:30
2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 0:28

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
1,3-Hexachlorobutadiene	87-68-3	9.6	84
n-Hexane	110-54-3	13	130
Methylene chloride	75-09-2	13	120
Methyl ethyl ketone	78-93-3	14	120
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	12	110
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	13	110
1,1,2,2-Tetrachloroethane	79-34-5	10	91
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	11	110
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	11	110
1,1,2-Trichloroethane	79-00-5	11	100
Trichloroethene	79-01-6	9.8	98
Trichlorofluoromethane	75-69-4	13	120
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	11	110
1,2,4-Trimethylbenzene	95-63-6	11	100
1,3,5-Trimethylbenzene	108-67-8	10	91
2,2,4-Trimethylpentane	540-84-1	12	120
Vinyl bromide	593-60-2	12	120
Vinyl chloride	75-01-4	14	130
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	10	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4073lcs.D
Acq On : 28 Sep 2023 11:19 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 28 12:10:06 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.396	130	409432	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	1933513	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	2364904	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2078765	10.57	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	371726	13.18	ppbV	100
3) Dichlorodifluoromethane	1.529	85	1310888	12.67	ppbV	100
4) 1,2-Dichlorotetrafluor...	1.650	85	1582960	10.63	ppbV	94
5) n-Butane	1.729	43	904419	13.51	ppbV	100
6) Chloromethane	1.791	52	67655	14.12	ppbV	94
7) Vinyl chloride	1.780	62	531992	13.67	ppbV	100
8) 1,3-Butadiene	1.794	39	550480	13.84	ppbV	93
9) Bromomethane	2.091	94	397168	12.15	ppbV	100
10) Chloroethane	2.194	64	271717	12.84	ppbV	98
11) Vinyl bromide	2.297	106	511821	12.45	ppbV	100
12) Trichlorofluoromethane	2.313	101	1773173	12.74	ppbV	99
13) Ethanol	2.670	45	187147	11.42	ppbV	99
14) 1,1-Dichloroethene	2.734	61	1143672	13.38	ppbV	95
15) Carbon disulfide	2.753	76	1947574	13.87	ppbV	98
16) 1,1,2-Trichloro-1,2,2-...	2.776	101	1493461	10.86	ppbV	98
17) Acrolein	2.985	56	208388	11.85	ppbV	100
18) Allyl chloride	3.110	76	311360	13.59	ppbV	100
19) Isopropanol	3.110	45	1091138	11.53	ppbV	99
20) Methylene chloride	3.200	49	664730	12.87	ppbV	93
21) Acetone	3.213	43	1016794	13.24	ppbV	97
22) trans-1,2-Dichloroethene	3.329	61	1107246	14.39	ppbV	95
23) n-Pentane	3.409	43	1192108	12.14	ppbV	99
24) n-Hexane	3.406	57	1715467	12.51	ppbV	94
25) Methyl tert-butyl ether	3.409	73	2233934	11.98	ppbV	96
26) Tert-butyl alcohol	3.464	59	1556448	12.98	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1410547	13.06	ppbV	99
28) cis-1,2-Dichloroethene	4.232	61	1043309	13.97	ppbV	94
29) Cyclohexane	4.419	56	1188304	11.99	ppbV	96
30) Chloroform	4.454	83	1720861	13.02	ppbV	98
31) Ethyl acetate	4.544	61	270686	12.87	ppbV	96
32) Carbon tetrachloride	4.579	117	1731906	10.93	ppbV	100
33) Tetrahydrofuran	4.576	42	1055646	14.22	ppbV	95
34) 1,1,1-Trichloroethane	4.628	97	1558554	10.93	ppbV	100
35) Methyl ethyl ketone	4.682	43	1682004	14.19	ppbV	97
36) n-Heptane	4.917	43	1673877	12.20	ppbV	95
37) Benzene	4.933	78	2314027	12.25	ppbV	99
38) 1,2-Dichloroethane	5.094	62	1125187	13.29	ppbV	100
40) Trichloroethene	5.435	130	960270	9.78	ppbV	99
41) 2,2,4-Trimethylpentane	4.846	57	2903918	11.86	ppbV	100
42) 1,2-Dichloropropane	5.885	63	987657	11.19	ppbV	99
43) Bromodichloromethane	5.946	83	1869255	12.16	ppbV	100
44) Methyl methacrylate	6.087	41	1444941	12.73	ppbV	95
45) 1,4-Dioxane	6.113	88	646261	11.88	ppbV	95
46) cis-1,3-Dichloropropene	6.534	75	1603607	11.76	ppbV	99
47) Toluene	6.772	91	3435166	11.08	ppbV	100
48) Methyl isobutyl ketone	7.136	43	2598152	11.60	ppbV	97
49) Tetrachloroethene	7.161	166	1477394	10.60	ppbV	100
50) trans-1,3-Dichloropropene	7.177	75	1686526	12.54	ppbV	95
51) 1,1,2-Trichloroethane	7.335	97	1173769	10.74	ppbV	97

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4073lcs.D
Acq On : 28 Sep 2023 11:19 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

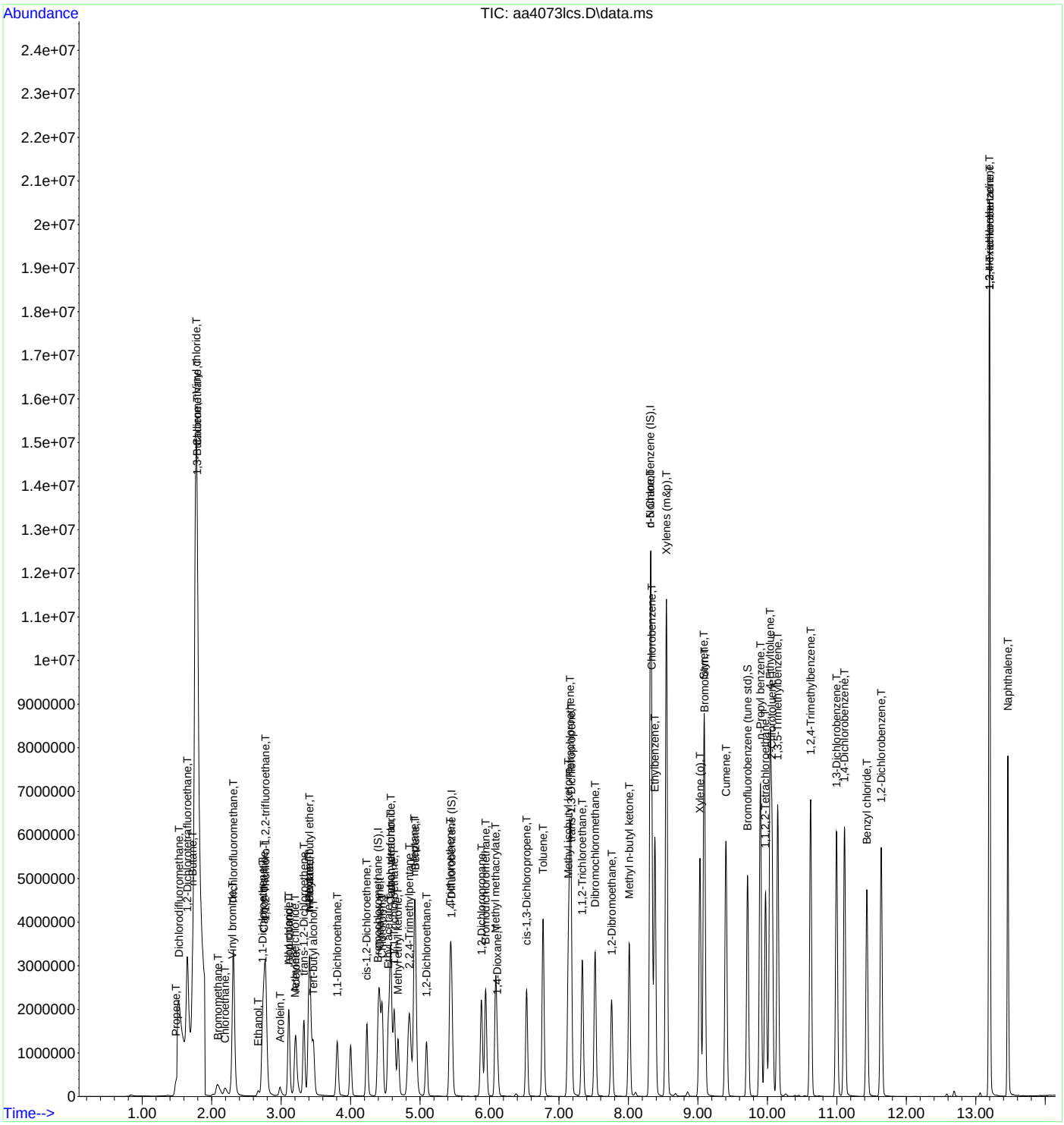
Quant Time: Sep 28 12:10:06 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2046806	11.22	ppbV	100
53)	1,2-Dibromoethane	7.759	107	1776029	11.11	ppbV	100
54)	Methyl n-butyl ketone	8.010	43	2823122	13.46	ppbV	97
56)	n-Nonane	8.316	43	3181135	10.99	ppbV	95
57)	Chlorobenzene	8.335	112	2697259	10.41	ppbV	97
58)	Ethylbenzene	8.380	91	5055299	10.55	ppbV	99
59)	Xylenes (m&p)	8.547	91	7753841	22.46	ppbV	98
60)	Xylene (o)	9.029	91	3909805	10.20	ppbV	99
61)	Styrene	9.087	104	2909338	11.44	ppbV	100
62)	Bromoform	9.097	173	2119263	10.78	ppbV	100
63)	Cumene	9.406	105	4907030	9.83	ppbV	98
65)	n-Propyl benzene	9.901	91	7047936	10.82	ppbV	98
66)	1,1,2,2-Tetrachloroethane	9.971	83	3018168	10.39	ppbV	99
67)	4-Ethyltoluene	10.039	105	5768083	10.75	ppbV	98
68)	2-Chlorotoluene	10.065	91	4590640	10.39	ppbV	98
69)	1,3,5-Trimethylbenzene	10.148	105	4460371	10.27	ppbV	98
70)	1,2,4-Trimethylbenzene	10.624	105	4654164	10.80	ppbV	97
71)	1,3-Dichlorobenzene	10.997	146	2940866	10.30	ppbV	99
72)	1,4-Dichlorobenzene	11.110	146	2934826	10.69	ppbV	100
73)	Benzyl chloride	11.431	91	4169793	11.08	ppbV	98
74)	1,2-Dichlorobenzene	11.640	146	2748354	10.17	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	1870014	9.65	ppbV	100
76)	1,2,4-Trichlorobenzene	13.200	180	2281637	10.73	ppbV	100
77)	Naphthalene	13.463	128	4616007	10.51	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4073lcs.D
Acq On : 28 Sep 2023 11:19 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 28 12:10:06 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4903LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/11/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05081-01 [AA4916]	12/11/2023 18:15
E23-05081-01 [AA4917]	12/11/2023 18:47
E23-05081-02 [AA4919]	12/11/2023 19:52
E23-05081-03 [AA4920]	12/11/2023 20:24
E23-05081-03 [AA4921]	12/11/2023 21:04
E23-05081-04 [AA4922]	12/11/2023 21:35
E23-05081-04 [AA4923]	12/11/2023 22:07
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	100
Benzene	71-43-2	9.5	95
Bromoform	75-25-2	11	100
Bromomethane	74-83-9	10	91
1,3-Butadiene	106-99-0	10	100
Chlorobenzene	108-90-7	10	100
Chloroethane	75-00-3	11	110
Chloroform	67-66-3	10	100
Chloromethane	74-87-3	11	96
Carbon disulfide	75-15-0	11	100
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	10	100
1,2-Dibromoethane	106-93-4	11	100
1,2-Dichlorobenzene	95-50-1	10	91
1,3-Dichlorobenzene	541-73-1	10	91
1,4-Dichlorobenzene	106-46-7	10	91
Dichlorodifluoromethane	75-71-8	11	100
1,1-Dichloroethane	75-34-3	9.8	89
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	100
1,2-Dichloroethene (cis)	156-59-2	10	91
1,2-Dichloroethene (trans)	156-60-5	11	100
1,2-Dichloropropane	78-87-5	10	100
1,3-Dichloropropene (cis)	10061-01-5	11	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS **Data File:** AA4903LCS

Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv **Date Analyzed:** 12/11/2023

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05081-01 [AA4916]	12/11/2023 18:15
E23-05081-01 [AA4917]	12/11/2023 18:47
E23-05081-02 [AA4919]	12/11/2023 19:52
E23-05081-03 [AA4920]	12/11/2023 20:24
E23-05081-03 [AA4921]	12/11/2023 21:04
E23-05081-04 [AA4922]	12/11/2023 21:35
E23-05081-04 [AA4923]	12/11/2023 22:07
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
1,3-Dichloropropene (trans)	10061-02-6	11	110
1,2-Dichlorotetrafluoroethane	76-14-2	8.8	80
1,4-Dioxane	123-91-1	11	92
Ethylbenzene	100-41-4	11	110
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	10	88
n-Hexane	110-54-3	10	100
Methylene chloride	75-09-2	9.6	87
Methyl ethyl ketone	78-93-3	11	93
Methyl isobutyl ketone	108-10-1	12	110
Methyl tert-butyl ether	1634-04-4	11	100
Styrene	100-42-5	11	100
Tert-butyl alcohol	75-65-0	11	93
1,1,2,2-Tetrachloroethane	79-34-5	11	100
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	11	96
1,1,1-Trichloroethane	71-55-6	10	100
1,1,2-Trichloroethane	79-00-5	10	91
Trichloroethene	79-01-6	9.1	91
Trichlorofluoromethane	75-69-4	11	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.4	94
1,2,4-Trimethylbenzene	95-63-6	11	100
1,3,5-Trimethylbenzene	108-67-8	11	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Laboratory Control Spike

Lab Sample Name: **10 PPBV LCS** **Data File:** **AA4903LCS**

Spike Amount: **10 ppbv, except m&p-Xylenes at 20 ppbv** **Date Analyzed:** **12/11/2023**

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4901BFB]	12/11/2023 9:24
10 PPBV DCVS [AA4902DCVS]	12/11/2023 10:26
10 PPBV LCS [AA4903LCS]	12/11/2023 10:57
METHOD BLANK [AA4904BLK]	12/11/2023 11:51
02 PPBV RLLCS [AA4905RLLCS]	12/11/2023 12:18
1458 [AA4906]	12/11/2023 12:50
1588 [AA4907]	12/11/2023 13:19
3012 [AA4908]	12/11/2023 13:49
E23-05081-01 [AA4916]	12/11/2023 18:15
E23-05081-01 [AA4917]	12/11/2023 18:47
E23-05081-02 [AA4919]	12/11/2023 19:52
E23-05081-03 [AA4920]	12/11/2023 20:24
E23-05081-03 [AA4921]	12/11/2023 21:04
E23-05081-04 [AA4922]	12/11/2023 21:35
E23-05081-04 [AA4923]	12/11/2023 22:07
10 PPBV CCCVS [AA4931CCCVS]	12/12/2023 1:59

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
2,2,4-Trimethylpentane	540-84-1	10	100
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	11	110
Xylenes (m&p)	179601-23-1	22	110
Xylenes (o)	95-47-6	10	100

LCS recovery must be within 70-130% of the spiked value for all compounds except Acetone, Dioxane (1,4-), Hexachlorobutadiene, Naphthalene, and 1,2,4-Trichlorobenzene. These compounds must be within 40-160%.

*** Values outside of QC limits* Values outside of 70-130% QC limits**

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4903lcs.D
Acq On : 11 Dec 2023 10:57 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 11 11:13:35 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.390	130	647607	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.454	114	2729004	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	3090532	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2704486	10.04	ppbV	0.000
Target Compounds						Qvalue
2) Propene	1.486	41	448674	9.98	ppbV	100
3) Dichlorodifluoromethane	1.522	85	1540061	10.73	ppbV	99
4) 1,2-Dichlorotetrafluor...	1.650	85	1837270	8.81	ppbV	99
5) n-Butane	1.729	43	1071383	10.36	ppbV	100
6) Chloromethane	1.794	52	79721	11.12	ppbV	100
7) Vinyl chloride	1.784	62	624707	10.65	ppbV	99
8) 1,3-Butadiene	1.794	39	556597	10.16	ppbV	97
9) Bromomethane	2.081	94	492205	10.39	ppbV	96
10) Chloroethane	2.190	64	343138	11.15	ppbV	98
11) Vinyl bromide	2.296	106	601925	10.38	ppbV	100
12) Trichlorofluoromethane	2.309	101	1958992	10.81	ppbV	99
13) Ethanol	2.669	45	223820	11.80	ppbV	98
14) 1,1-Dichloroethene	2.730	61	1287938	10.71	ppbV	96
15) Carbon disulfide	2.753	76	2170829	10.96	ppbV	98
16) 1,1,2-Trichloro-1,2,2-...	2.775	101	1721921	9.43	ppbV	99
17) Acrolein	2.981	56	275902	10.20	ppbV	98
18) Allyl chloride	3.110	76	363800	11.21	ppbV	100
19) Isopropanol	3.107	45	1249280	9.62	ppbV	99
20) Methylene chloride	3.203	49	760938	9.56	ppbV	96
21) Acetone	3.209	43	1102830	11.29	ppbV	100
22) trans-1,2-Dichloroethene	3.325	61	1261504	11.30	ppbV	98
23) n-Pentane	3.409	43	1563342	10.38	ppbV	98
24) n-Hexane	3.409	57	2086837	10.22	ppbV	98
25) Methyl tert-butyl ether	3.409	73	2641389	10.53	ppbV	99
26) Tert-butyl alcohol	3.460	59	1870916	11.08	ppbV	100
27) 1,1-Dichloroethane	3.808	63	1473126	9.80	ppbV	100
28) cis-1,2-Dichloroethene	4.232	61	1109173	10.46	ppbV	97
29) Cyclohexane	4.415	56	1494221	10.48	ppbV	98
30) Chloroform	4.454	83	1763283	10.18	ppbV	99
31) Ethyl acetate	4.544	61	310143	11.00	ppbV	98
32) Carbon tetrachloride	4.576	117	2075194	10.10	ppbV	99
33) Tetrahydrofuran	4.573	42	1055760	10.84	ppbV	98
34) 1,1,1-Trichloroethane	4.627	97	1829339	10.16	ppbV	98
35) Methyl ethyl ketone	4.682	43	1694596	10.71	ppbV	98
36) n-Heptane	4.917	43	1984236	11.09	ppbV	98
37) Benzene	4.933	78	2436463	9.47	ppbV	98
38) 1,2-Dichloroethane	5.090	62	1158367	10.76	ppbV	100
40) Trichloroethene	5.431	130	1104206	9.14	ppbV	98
41) 2,2,4-Trimethylpentane	4.843	57	3701197	10.41	ppbV	100
42) 1,2-Dichloropropane	5.885	63	1110425	10.46	ppbV	100
43) Bromodichloromethane	5.946	83	2026843	11.34	ppbV	100
44) Methyl methacrylate	6.087	41	1477655	11.47	ppbV	97
45) 1,4-Dioxane	6.113	88	746186	11.47	ppbV	98
46) cis-1,3-Dichloropropene	6.534	75	1788041	10.86	ppbV	99
47) Toluene	6.772	91	4000386	10.43	ppbV	100
48) Methyl isobutyl ketone	7.132	43	2867635	11.90	ppbV	98
49) Tetrachloroethene	7.161	166	1771569	10.71	ppbV	99
50) trans-1,3-Dichloropropene	7.174	75	1825213	11.43	ppbV	98
51) 1,1,2-Trichloroethane	7.335	97	1347280	10.40	ppbV	99

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4903lcs.D
Acq On : 11 Dec 2023 10:57 am
Operator : jjw
Sample : 10 ppbv LCS
Misc : EB0103704
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 11 11:13:35 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52)	Dibromochloromethane	7.521	129	2436418	11.29	ppbV	99
53)	1,2-Dibromoethane	7.759	107	2033372	10.85	ppbV	100
54)	Methyl n-butyl ketone	8.013	43	2915562	12.58	ppbV	98
56)	n-Nonane	8.315	43	3624209	11.82	ppbV	98
57)	Chlorobenzene	8.335	112	3170809	10.29	ppbV	98
58)	Ethylbenzene	8.380	91	6016260	10.56	ppbV	99
59)	Xylenes (m&p)	8.547	91	9208112	21.82	ppbV	99
60)	Xylene (o)	9.026	91	4740095	10.29	ppbV	99
61)	Styrene	9.087	104	3439384	10.91	ppbV	100
62)	Bromoform	9.094	173	2568104	11.35	ppbV	100
63)	Cumene	9.402	105	6358038	10.57	ppbV	100
65)	n-Propyl benzene	9.897	91	8673958	11.04	ppbV	99
66)	1,1,2,2-Tetrachloroethane	9.971	83	3528435	10.95	ppbV	100
67)	4-Ethyltoluene	10.039	105	7191816	10.82	ppbV	100
68)	2-Chlorotoluene	10.065	91	5637797	10.69	ppbV	99
69)	1,3,5-Trimethylbenzene	10.148	105	5654494	10.58	ppbV	99
70)	1,2,4-Trimethylbenzene	10.624	105	5639014	10.55	ppbV	99
71)	1,3-Dichlorobenzene	10.997	146	3401177	10.39	ppbV	100
72)	1,4-Dichlorobenzene	11.109	146	3376653	10.26	ppbV	99
73)	Benzyl chloride	11.434	91	5116198	10.83	ppbV	99
74)	1,2-Dichlorobenzene	11.637	146	3236300	10.20	ppbV	100
75)	1,3-Hexachlorobutadiene	13.196	225	2308103	10.48	ppbV	100
76)	1,2,4-Trichlorobenzene	13.199	180	2718525	10.67	ppbV	100
77)	Naphthalene	13.463	128	6001329	10.30	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

INTEGRATED ANALYTICAL LABORATORIES, LLC

Quantitation Report (QT Reviewed)

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Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4903lcs.D
Acq On    : 11 Dec 2023  10:57 am
Operator  : jjw
Sample    : 10 ppbv LCS
Misc      : EB0103704
ALS Vial  : 3   Sample Multiplier: 1

Quant Time: Dec 11 11:13:35 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title  : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration
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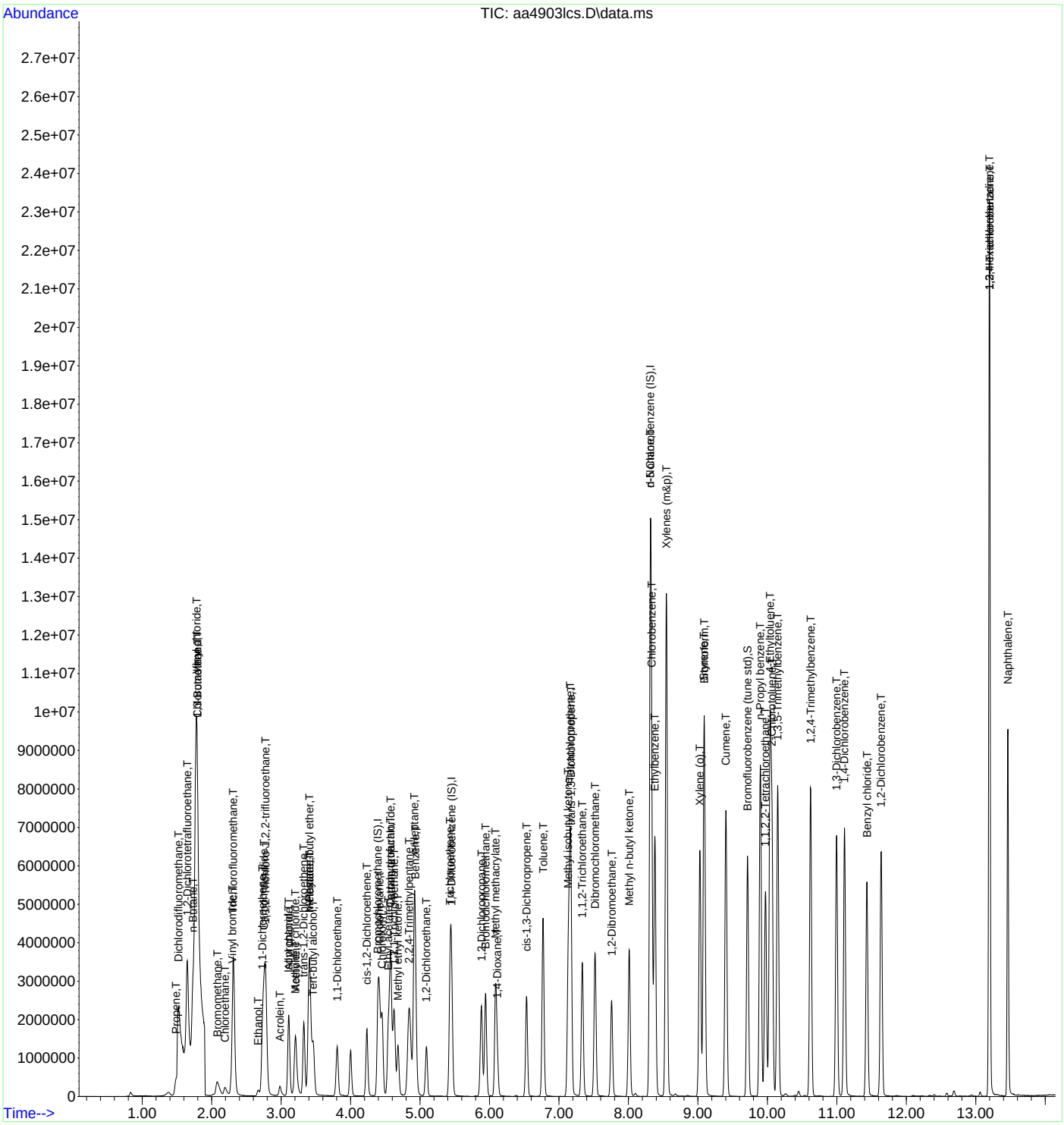


INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**50**		**54**		4.0	**-7.69%**
Allyl Chloride	107-05-1	4.0	U	4.0	U	4.0	0.00%
Benzene	71-43-2	2.0	U	2.0	U	2.0	0.00%
Bromodichloromethane	75-27-4	4.0	U	4.0	U	4.0	0.00%
Bromoform	75-25-2	4.0	U	4.0	U	4.0	0.00%
Bromomethane	74-83-9	4.0	U	4.0	U	4.0	0.00%
1,3-Butadiene	106-99-0	4.0	U	4.0	U	4.0	0.00%
Chlorobenzene	108-90-7	4.0	U	4.0	U	4.0	0.00%
Chloroethane	75-00-3	4.0	U	4.0	U	4.0	0.00%
Chloroform	67-66-3	4.0	U	4.0	U	4.0	0.00%
Chloromethane	74-87-3	4.0	U	4.0	U	4.0	0.00%
Carbon disulfide	75-15-0	**10.0**		**11**		4.0	**-9.52%**
Carbon tetrachloride	56-23-5	2.0	U	2.0	U	2.0	0.00%
2-Chlorotoluene	95-49-8	4.0	U	4.0	U	4.0	0.00%
Cyclohexane	110-82-7	4.0	U	4.0	U	4.0	0.00%
Dibromochloromethane	124-48-1	4.0	U	4.0	U	4.0	0.00%
1,2-Dibromoethane	106-93-4	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorobenzene	95-50-1	4.0	U	4.0	U	4.0	0.00%
1,3-Dichlorobenzene	541-73-1	4.0	U	4.0	U	4.0	0.00%
1,4-Dichlorobenzene	106-46-7	4.0	U	4.0	U	4.0	0.00%
Dichlorodifluoromethane	75-71-8	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethane	75-34-3	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethane	107-06-2	4.0	U	4.0	U	4.0	0.00%
1,1-Dichloroethene	75-35-4	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (cis)	156-59-2	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloroethene (trans)	156-60-5	4.0	U	4.0	U	4.0	0.00%
1,2-Dichloropropane	78-87-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (cis)	10061-01-5	2.0	U	2.0	U	2.0	0.00%
1,3-Dichloropropene (trans)	10061-02-6	2.0	U	2.0	U	2.0	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	4.0	U	4.0	U	4.0	0.00%
Ethylbenzene	100-41-4	2.0	U	2.0	U	2.0	0.00%
4-Ethyltoluene	622-96-8	4.0	U	4.0	U	4.0	0.00%
n-Heptane	142-82-5	4.0	U	4.0	U	4.0	0.00%
1,3-Hexachlorobutadiene	87-68-3	4.0	U	4.0	U	4.0	0.00%
n-Hexane	110-54-3	4.0	U	4.0	U	4.0	0.00%
Methylene chloride	75-09-2	4.0	U	4.0	U	4.0	0.00%
Methyl ethyl ketone	78-93-3	**8.1**		**10**		4.0	**-20.99%**
Methyl isobutyl ketone	108-10-1	4.0	U	4.0	U	4.0	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	9/13/23
SDG Number:	E23-04122	Date Analyzed:	9/28/23,9/28/23
IAL Sample ID:	E23-04122-06	Lab Data File#:	AA4087,AA4088
Matrix:	Air	Dilution Factor:	1
Summa ID:	1781	Injection Volume:	50ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-04122-06 Concentration Reported ppbv	Q	Sample Dup E23-04122-26 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	4.0	U	4.0	U	4.0	0.00%
Styrene	100-42-5	4.0	U	4.0	U	4.0	0.00%
Tert-butyl alcohol	75-65-0	4.0	U	4.0	U	4.0	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	4.0	U	4.0	U	4.0	0.00%
Tetrachloroethene	127-18-4	4.0	U	4.0	U	4.0	0.00%
Toluene	108-88-3	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trichlorobenzene	120-82-1	4.0	U	4.0	U	4.0	0.00%
1,1,1-Trichloroethane	71-55-6	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloroethane	79-00-5	4.0	U	4.0	U	4.0	0.00%
Trichloroethene	79-01-6	2.0	U	2.0	U	2.0	0.00%
Trichlorofluoromethane	75-69-4	4.0	U	4.0	U	4.0	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	4.0	U	4.0	U	4.0	0.00%
1,2,4-Trimethylbenzene	95-63-6	4.0	U	4.0	U	4.0	0.00%
1,3,5-Trimethylbenzene	108-67-8	4.0	U	4.0	U	4.0	0.00%
2,2,4-Trimethylpentane	540-84-1	4.0	U	4.0	U	4.0	0.00%
Vinyl bromide	593-60-2	4.0	U	4.0	U	4.0	0.00%
Vinyl chloride	75-01-4	2.0	U	2.0	U	2.0	0.00%
Xylenes (m&p)	179601-23-1	4.0	U	**4.2**		4.0	**NC**
Xylenes (o)	95-47-6	4.0	U	4.0	U	4.0	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4087.D
Acq On : 28 Sep 2023 9:29 pm
Operator : jjw
Sample : E23-04122-06x10 dil
Misc : 1781, 50cc
ALS Vial : 21 Sample Multiplier: 1

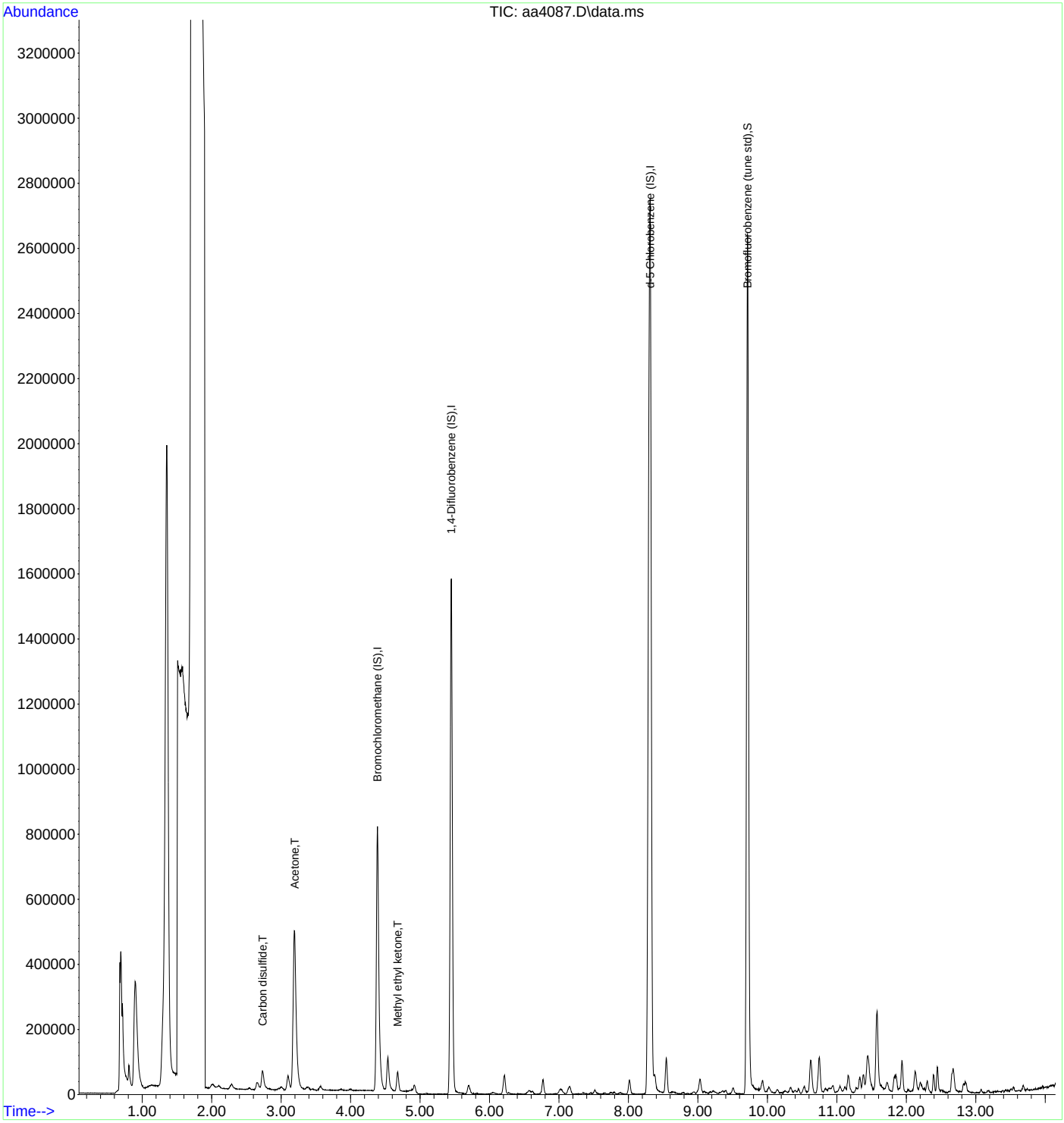
Quant Time: Oct 04 12:38:10 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

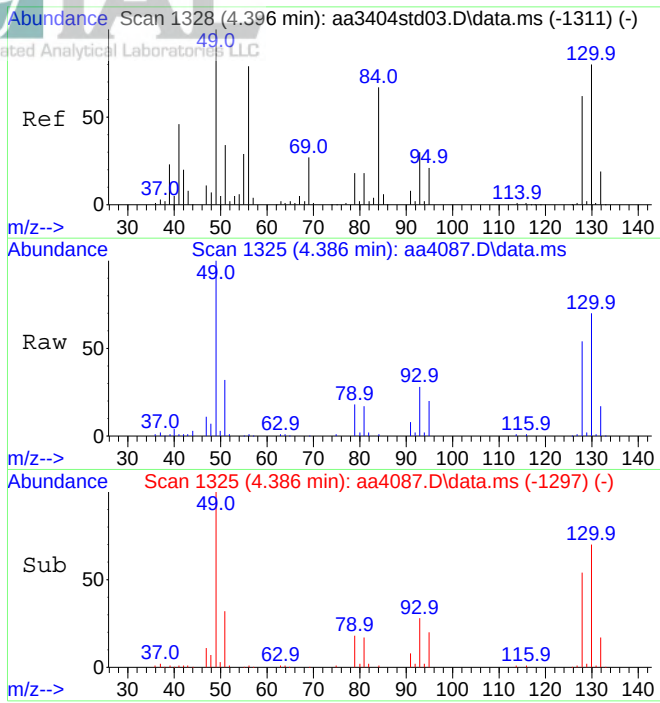
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.386	130	333645	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.451	114	1400704	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.315	117	1383190	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1064307	9.25	ppbV	0.000
Target Compounds						Qvalue
15) Carbon disulfide	2.734	76	114195	1.00	ppbV	97
21) Acetone	3.197	43	311157	4.97	ppbV	99
35) Methyl ethyl ketone	4.679	43	78641	0.81	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4087.D
Acq On : 28 Sep 2023 9:29 pm
Operator : jjw
Sample : E23-04122-06x10 dil
Misc : 1781, 50cc
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Oct 04 12:38:10 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

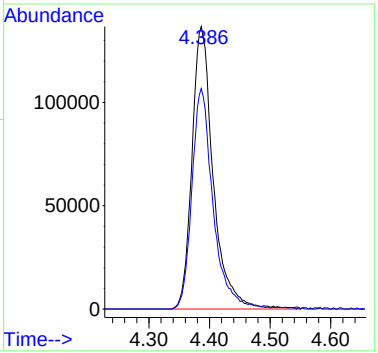


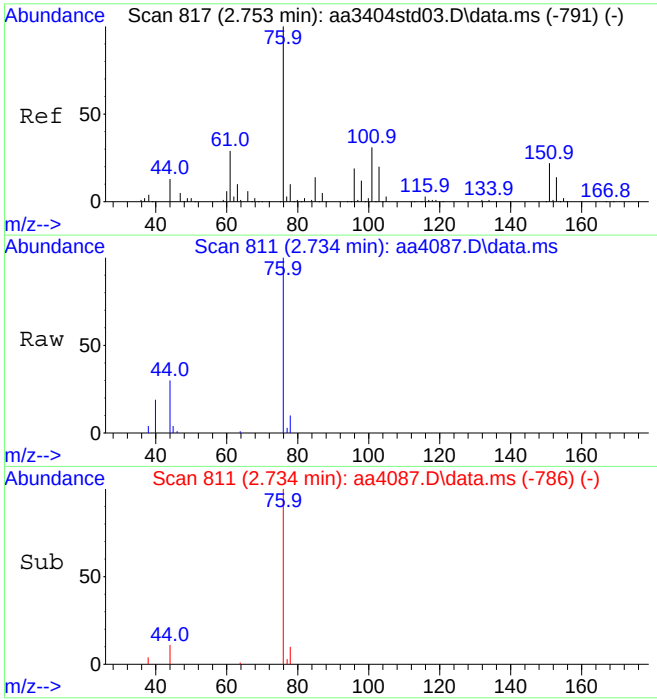


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.386 min Scan# 1325
Delta R.T. -0.010 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion:130 Resp: 333645

Ion	Ratio	Lower	Upper
130	100		
128	78.0	61.8	92.6

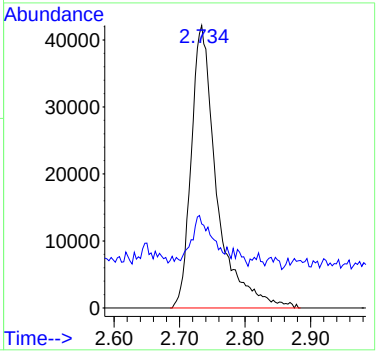


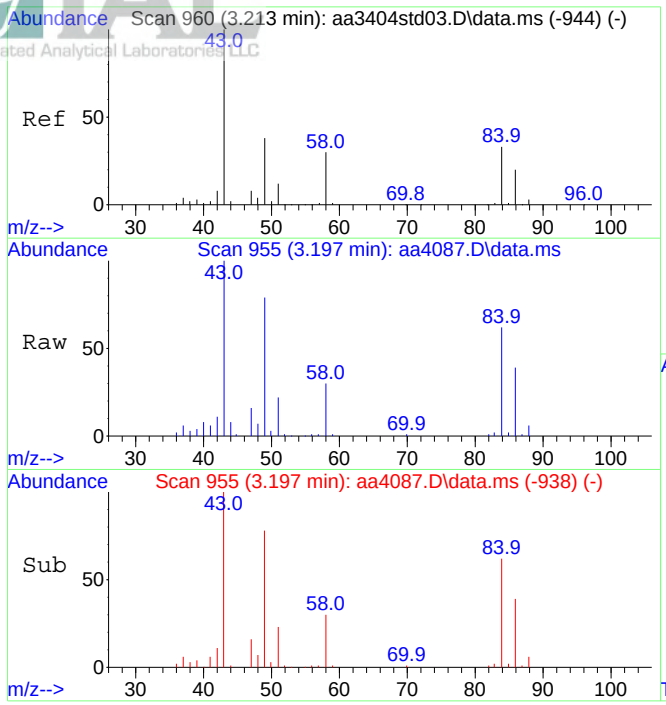


#15
Carbon disulfide
Concen: 1.00 ppbV
RT: 2.734 min Scan# 811
Delta R.T. -0.020 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 76 Resp: 114195

Ion	Ratio	Lower	Upper
76	100		
44	14.2	10.5	15.7

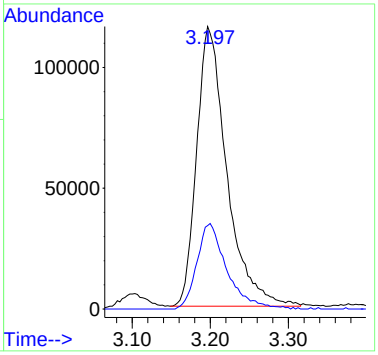


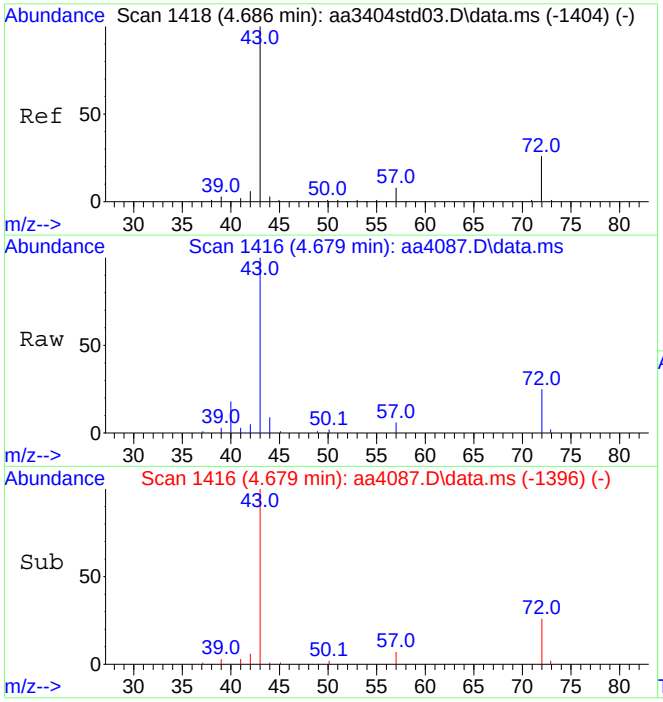


#21
Acetone
Concen: 4.97 ppbV
RT: 3.197 min Scan# 955
Delta R.T. -0.016 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 43 Resp: 311157

Ion	Ratio	Lower	Upper
43	100		
58	30.3	24.9	37.3

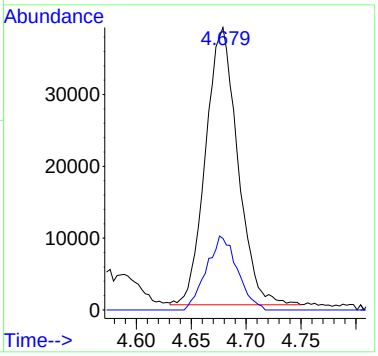


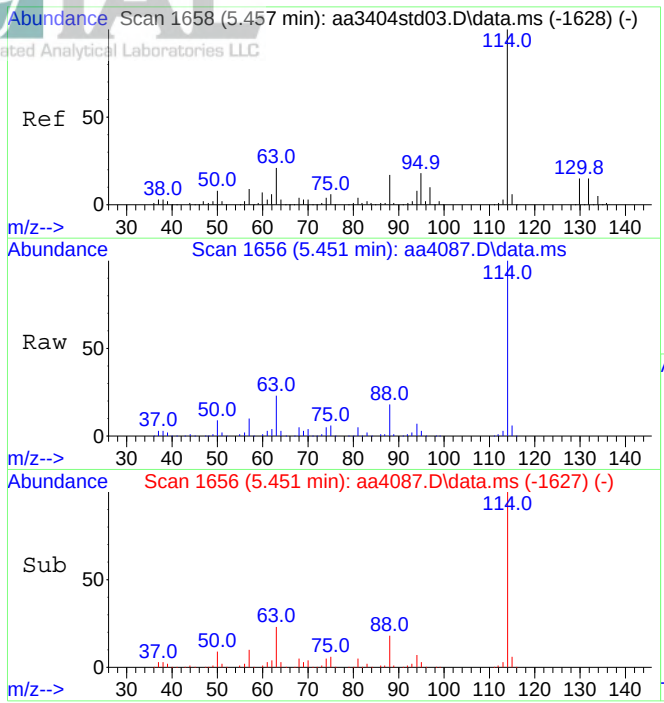


#35
Methyl ethyl ketone
Concen: 0.81 ppbV
RT: 4.679 min Scan# 1416
Delta R.T. -0.007 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 43 Resp: 78641

Ion	Ratio	Lower	Upper
43	100		
72	25.5	20.8	31.2

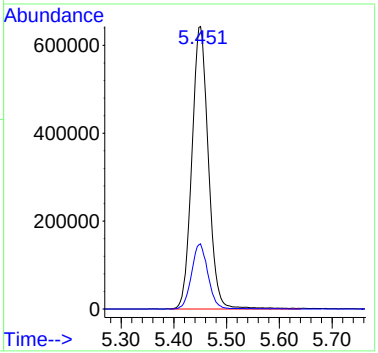


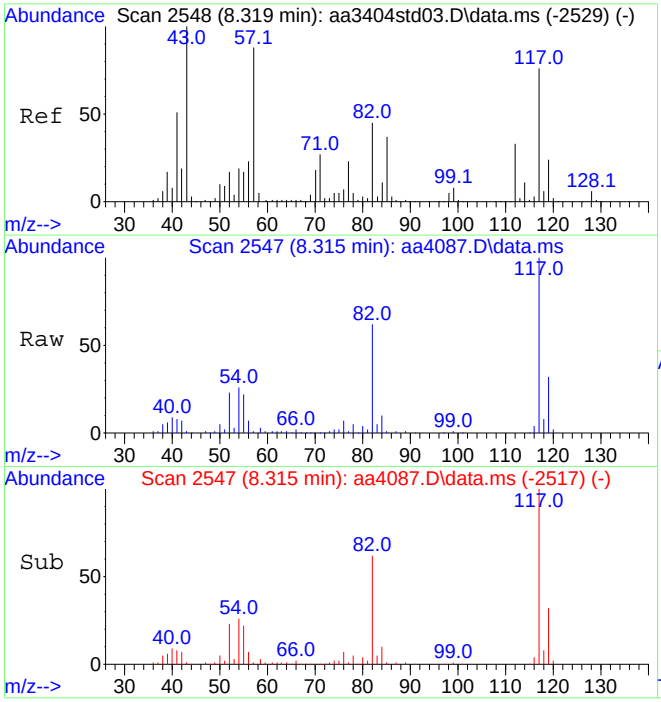


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.451 min Scan# 1656
Delta R.T. -0.006 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion:114 Resp: 1400704

Ion	Ratio	Lower	Upper
114	100		
63	23.0	17.4	26.2

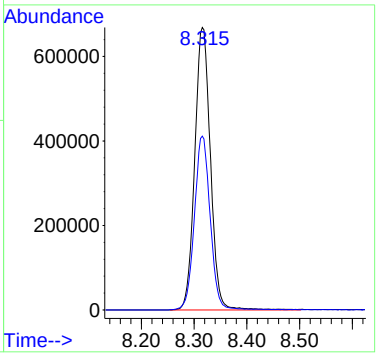


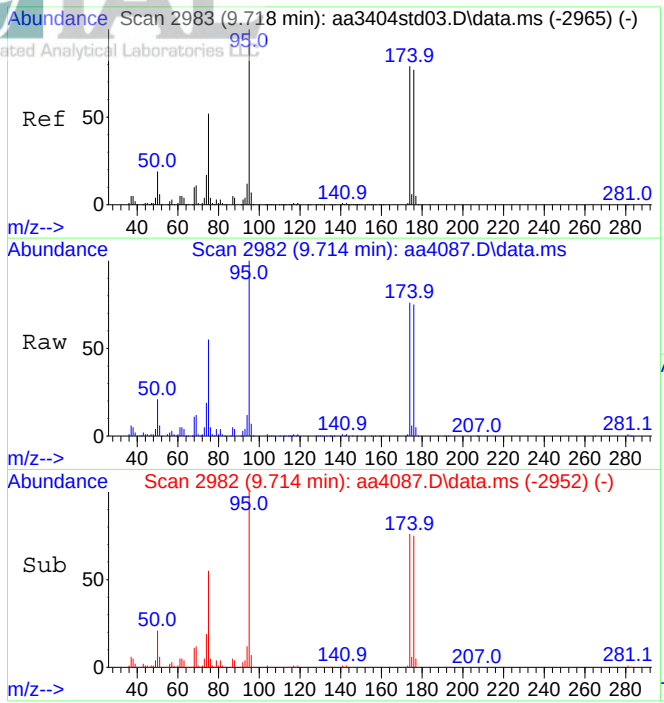


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.315 min Scan# 2547
Delta R.T. -0.004 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion:117 Resp: 1383190

Ion	Ratio	Lower	Upper
117	100		
82	62.2	47.4	71.0

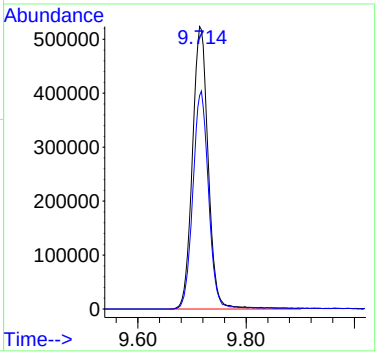




#64
Bromofluorobenzene (tune std)
Concen: 9.25 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.003 min
Lab File: aa4087.D
Acq: 28 Sep 2023 9:29 pm

Tgt Ion: 95 Resp: 1064307

Ion	Ratio	Lower	Upper
95	100		
174	77.0	62.9	94.3



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4088.D
Acq On : 28 Sep 2023 10:00 pm
Operator : jjw
Sample : E23-04122-26x10 dil
Misc : Dup of E23-04122-06x10 dil, Can # 1781
ALS Vial : 22 Sample Multiplier: 1

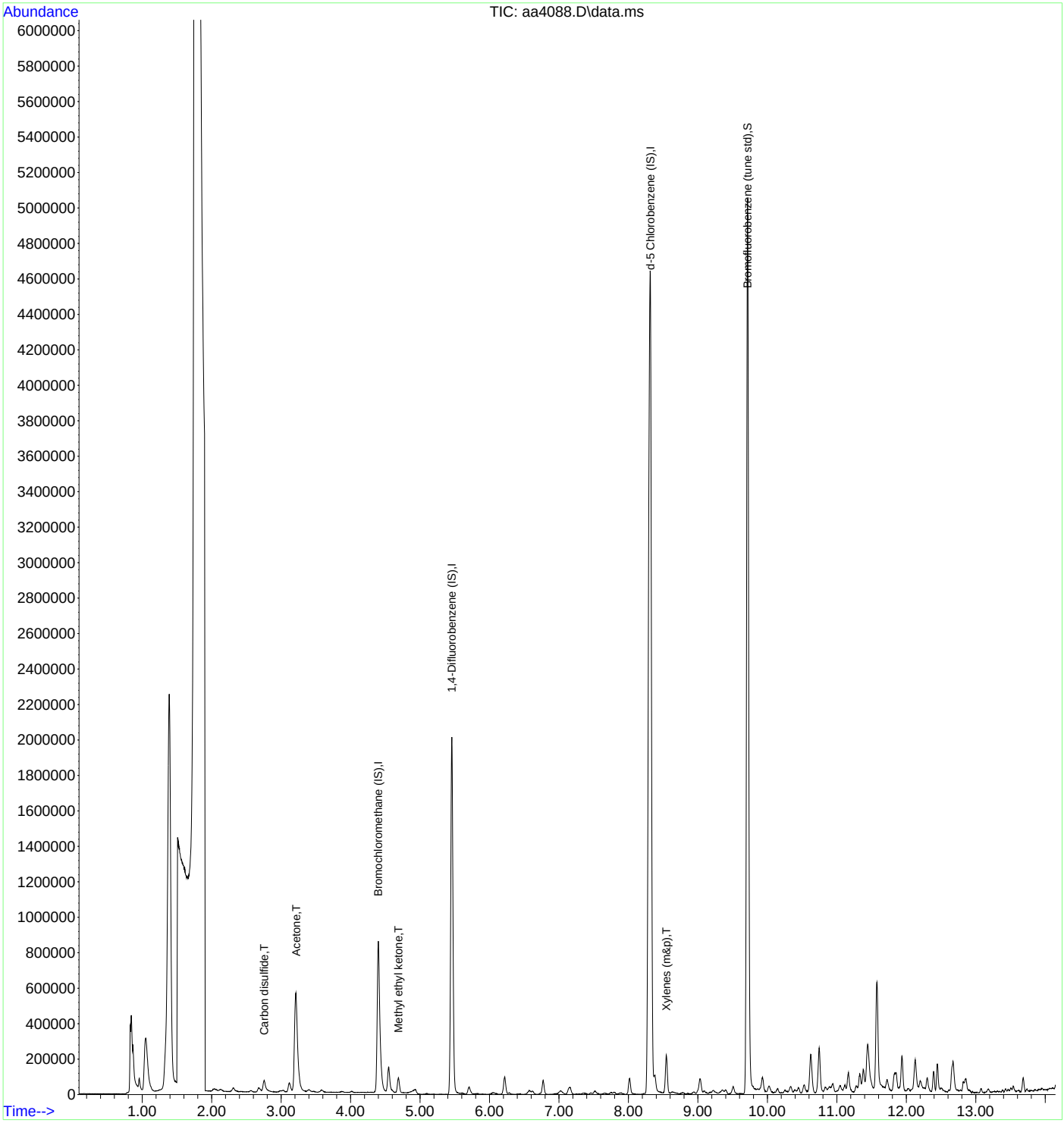
Quant Time: Oct 04 12:49:41 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

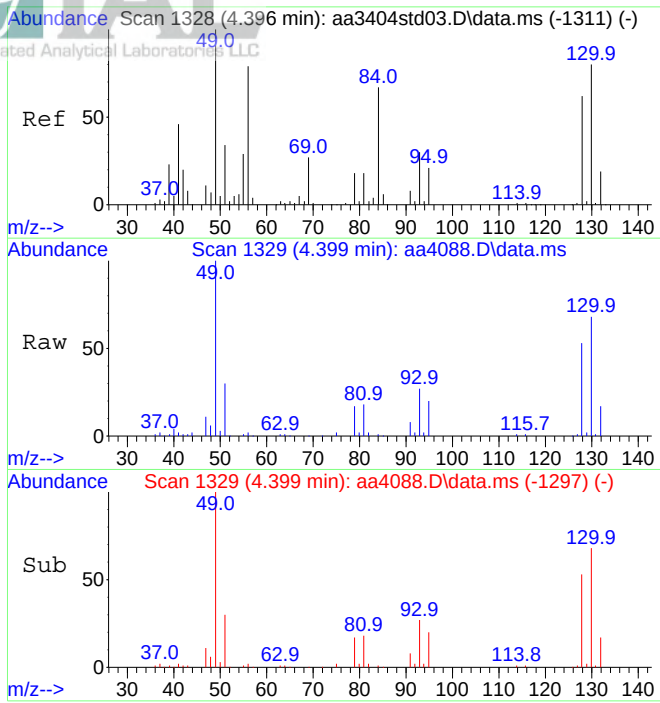
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.399	130	378421	10.00	ppbV	0.000
39) 1,4-Difluorobenzene (IS)	5.457	114	1821981	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	2357353	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	2004719	10.22	ppbV	0.000
Target Compounds						Qvalue
15) Carbon disulfide	2.756	76	137474	1.06	ppbV	97
21) Acetone	3.219	43	384617	5.42	ppbV	98
35) Methyl ethyl ketone	4.689	43	112963	1.03	ppbV	98
59) Xylenes (m&p)	8.547	91	145250	0.42	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4088.D
Acq On : 28 Sep 2023 10:00 pm
Operator : jjw
Sample : E23-04122-26x10 dil
Misc : Dup of E23-04122-06x10 dil, Can # 1781
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Oct 04 12:49:41 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

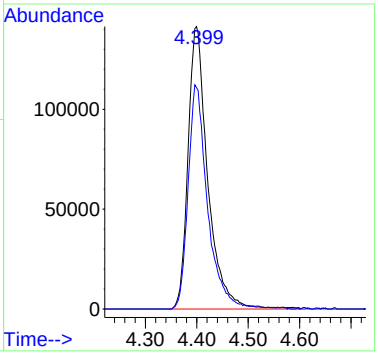


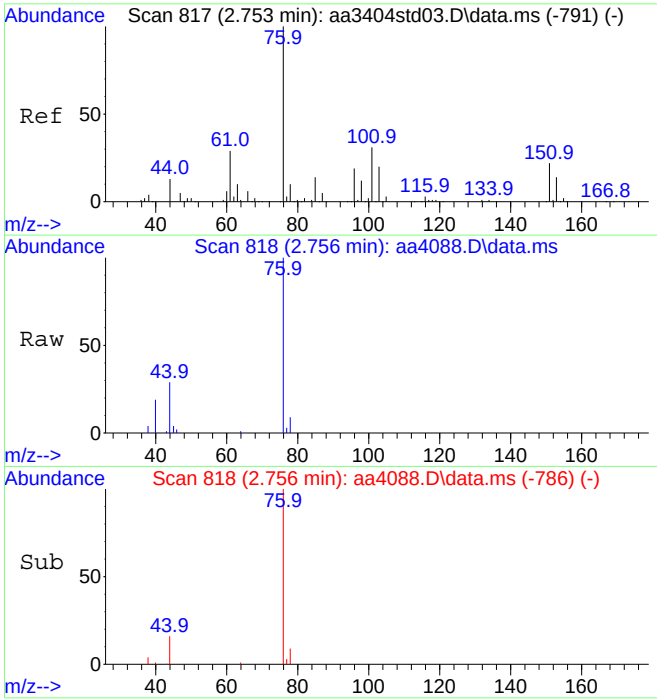


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.399 min Scan# 1329
Delta R.T. 0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion:130 Resp: 378421

Ion	Ratio	Lower	Upper
130	100		
128	78.2	61.8	92.6

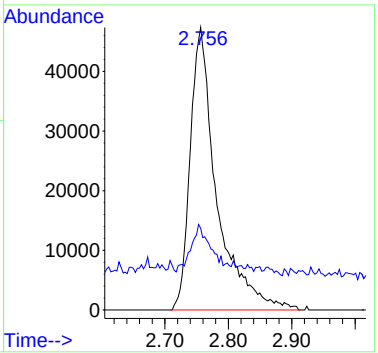


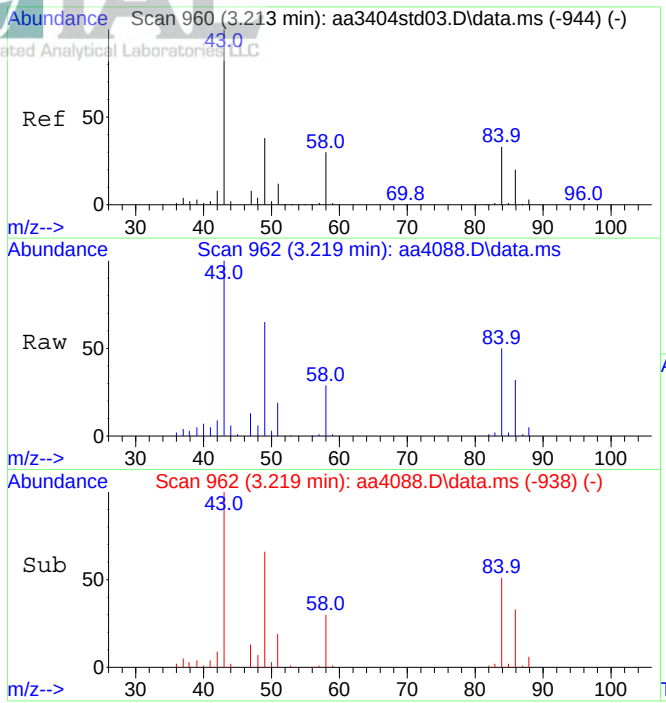


#15
Carbon disulfide
Concen: 1.06 ppbV
RT: 2.756 min Scan# 818
Delta R.T. 0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 76 Resp: 137474

Ion	Ratio	Lower	Upper
76	100		
44	14.5	10.5	15.7

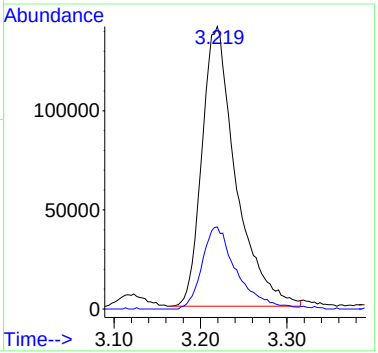


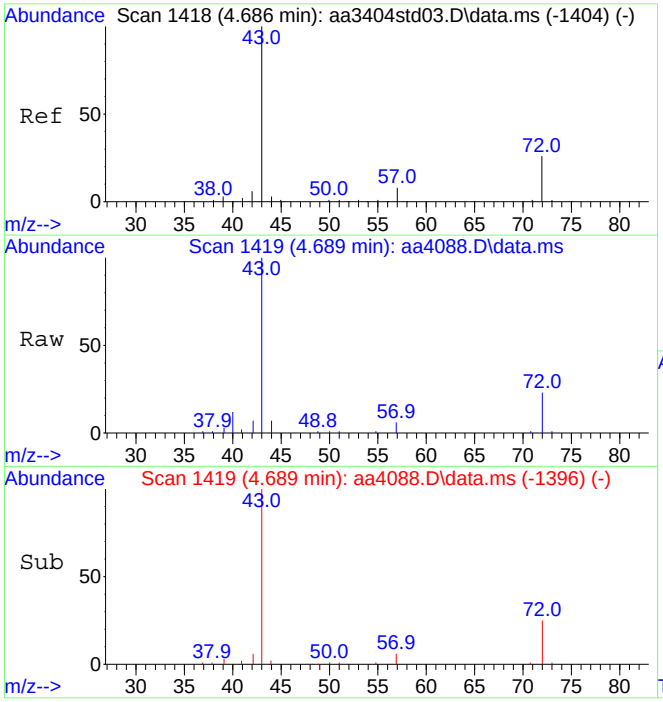


#21
Acetone
Concen: 5.42 ppbV
RT: 3.219 min Scan# 962
Delta R.T. 0.006 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 43 Resp: 384617

Ion	Ratio	Lower	Upper
43	100		
58	30.0	24.9	37.3

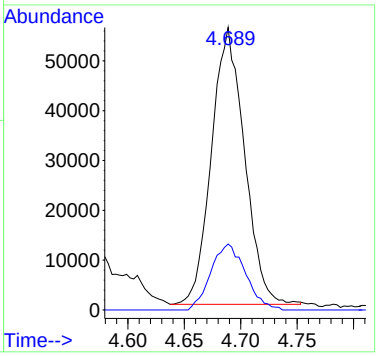


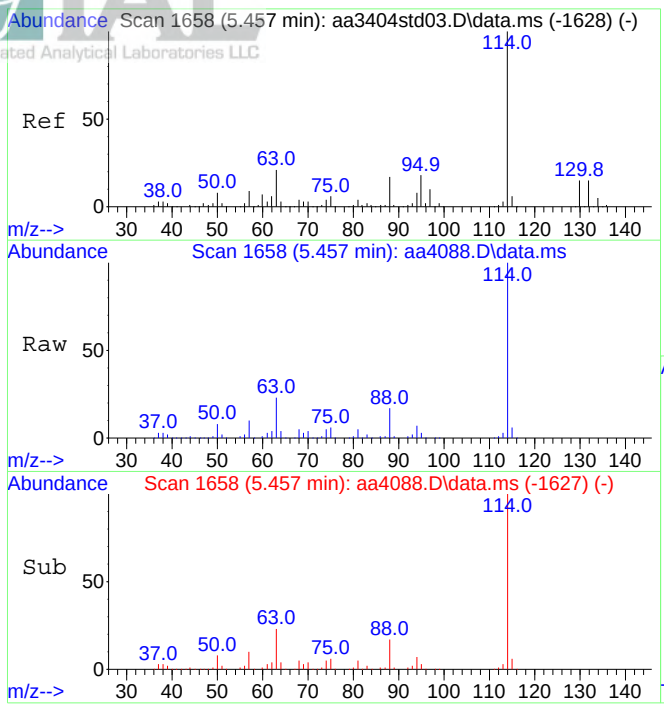


#35
Methyl ethyl ketone
Concen: 1.03 ppbV
RT: 4.689 min Scan# 1419
Delta R.T. 0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 43 Resp: 112963

Ion	Ratio	Lower	Upper
43	100		
72	25.1	20.8	31.2

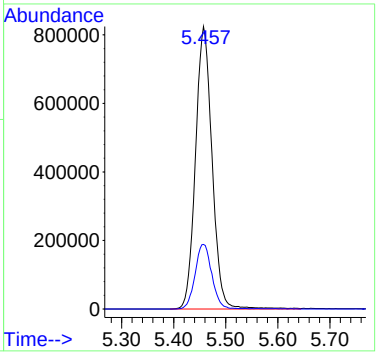


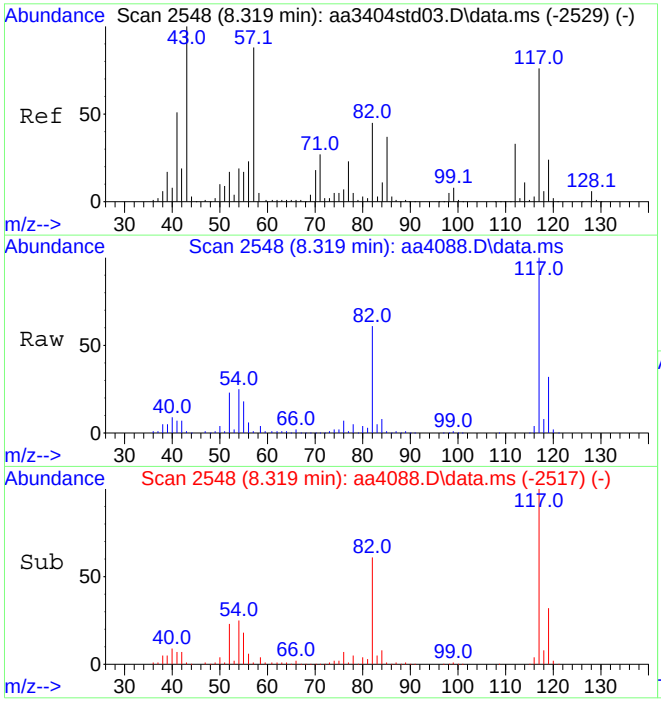


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.457 min Scan# 1658
Delta R.T. 0.000 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion:114 Resp: 1821981

Ion	Ratio	Lower	Upper
114	100		
63	23.3	17.4	26.2

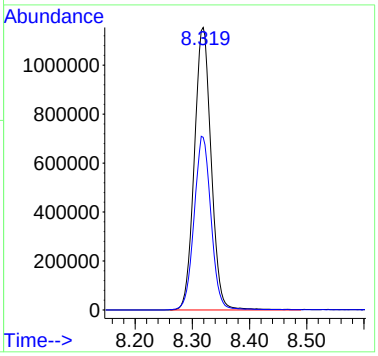


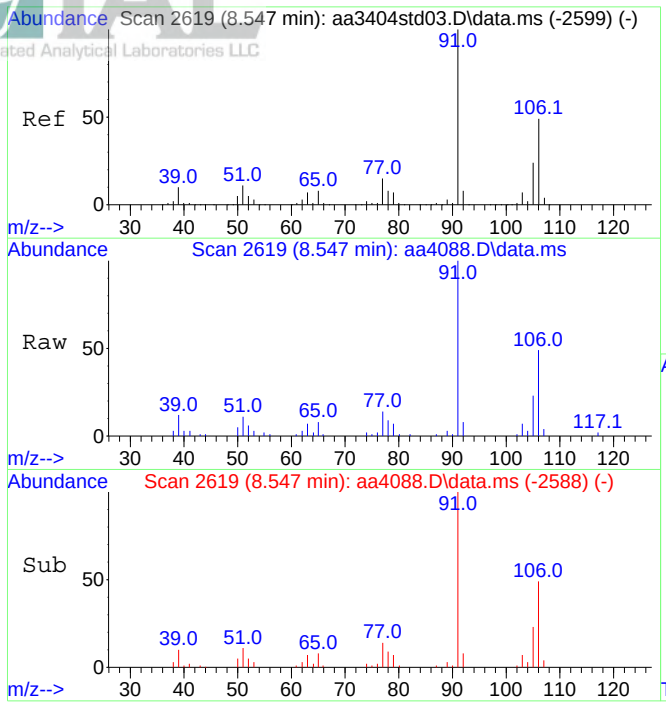


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. -0.000 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion:117 Resp: 2357353

Ion	Ratio	Lower	Upper
117	100		
82	61.9	47.4	71.0

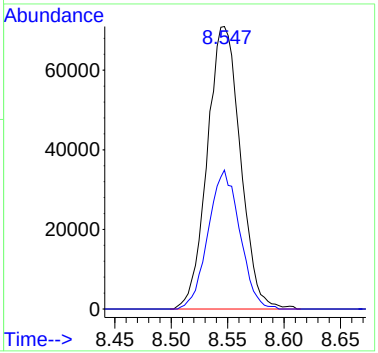


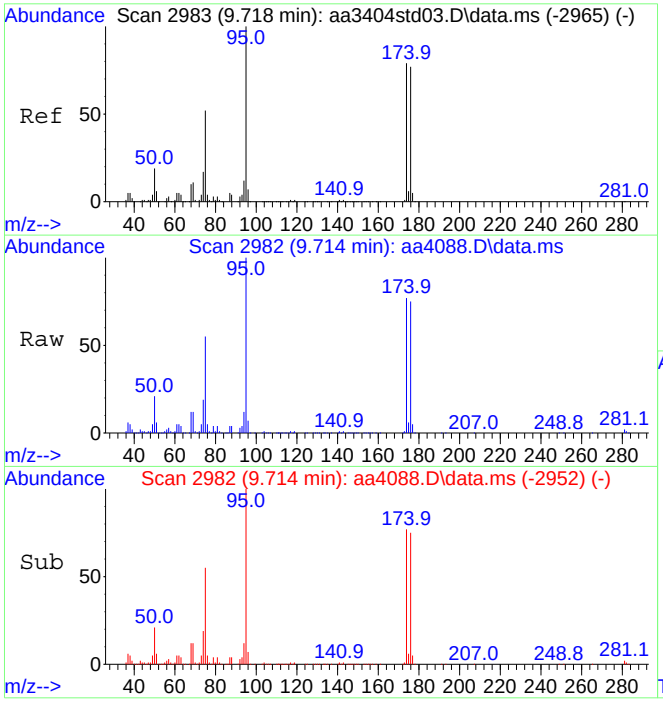


#59
Xylenes (m&p)
Concen: 0.42 ppbV
RT: 8.547 min Scan# 2619
Delta R.T. -0.000 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 91 Resp: 145250

Ion	Ratio	Lower	Upper
91	100		
106	46.9	39.2	58.8

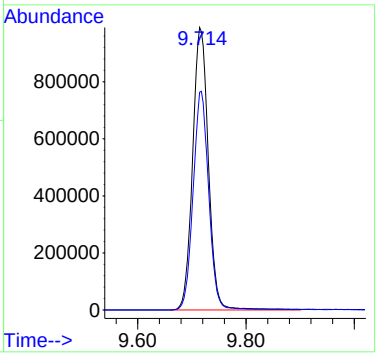




#64
Bromofluorobenzene (tune std)
Concen: 10.22 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.003 min
Lab File: aa4088.D
Acq: 28 Sep 2023 10:00 pm

Tgt Ion: 95 Resp: 2004719

Ion	Ratio	Lower	Upper
95	100		
174	76.8	62.9	94.3



INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SDG Number:	E23-05079	Date Received:	11/20/23
IAL Sample ID:	E23-05079-03	Date Analyzed:	12/12/23,12/12/23
Matrix:	Air	Lab Data File#:	AA4929,AA4930
Summa ID:	3830	Dilution Factor:	1
		Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Acetone	67-64-1	**6.1**		**5.9**		0.40	**3.33%**
Allyl Chloride	107-05-1	0.40	U	0.40	U	0.40	0.00%
Benzene	71-43-2	**0.31**		**0.32**		0.20	**-3.17%**
Bromodichloromethane	75-27-4	0.40	U	0.40	U	0.40	0.00%
Bromoform	75-25-2	0.40	U	0.40	U	0.40	0.00%
Bromomethane	74-83-9	0.40	U	0.40	U	0.40	0.00%
1,3-Butadiene	106-99-0	0.40	U	0.40	U	0.40	0.00%
Chlorobenzene	108-90-7	0.40	U	0.40	U	0.40	0.00%
Chloroethane	75-00-3	0.40	U	0.40	U	0.40	0.00%
Chloroform	67-66-3	0.40	U	0.40	U	0.40	0.00%
Chloromethane	74-87-3	0.40	U	0.40	U	0.40	0.00%
Carbon disulfide	75-15-0	0.40	U	0.40	U	0.40	0.00%
Carbon tetrachloride	56-23-5	0.20	U	0.20	U	0.20	0.00%
2-Chlorotoluene	95-49-8	0.40	U	0.40	U	0.40	0.00%
Cyclohexane	110-82-7	0.40	U	0.40	U	0.40	0.00%
Dibromochloromethane	124-48-1	0.40	U	0.40	U	0.40	0.00%
1,2-Dibromoethane	106-93-4	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorobenzene	95-50-1	0.40	U	0.40	U	0.40	0.00%
1,3-Dichlorobenzene	541-73-1	0.40	U	0.40	U	0.40	0.00%
1,4-Dichlorobenzene	106-46-7	0.40	U	0.40	U	0.40	0.00%
Dichlorodifluoromethane	75-71-8	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethane	75-34-3	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethane	107-06-2	0.40	U	0.40	U	0.40	0.00%
1,1-Dichloroethene	75-35-4	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (cis)	156-59-2	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloroethene (trans)	156-60-5	0.40	U	0.40	U	0.40	0.00%
1,2-Dichloropropane	78-87-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (cis)	10061-01-5	0.20	U	0.20	U	0.20	0.00%
1,3-Dichloropropene (trans)	10061-02-6	0.20	U	0.20	U	0.20	0.00%
1,2-Dichlorotetrafluoroethane	76-14-2	0.40	U	0.40	U	0.40	0.00%
Ethylbenzene	100-41-4	0.20	U	0.20	U	0.20	0.00%
4-Ethyltoluene	622-96-8	0.40	U	0.40	U	0.40	0.00%
n-Heptane	142-82-5	0.40	U	0.40	U	0.40	0.00%
1,3-Hexachlorobutadiene	87-68-3	0.40	U	0.40	U	0.40	0.00%
n-Hexane	110-54-3	0.40	U	0.40	U	0.40	0.00%
Methylene chloride	75-09-2	**3.5**		**3.4**		0.40	**2.90%**
Methyl ethyl ketone	78-93-3	0.40	U	0.40	U	0.40	0.00%
Methyl isobutyl ketone	108-10-1	0.40	U	0.40	U	0.40	0.00%

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories LLC

Analysis: Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

		Date Received:	11/20/23
SDG Number:	E23-05079	Date Analyzed:	12/12/23,12/12/23
IAL Sample ID:	E23-05079-03	Lab Data File#:	AA4929,AA4930
Matrix:	Air	Dilution Factor:	1
Summa ID:	3830	Injection Volume:	500ml
		GC/MS Column:	RTX-1, 0.32 mmID

Compound	CAS #	Sample E23-05079-03 Concentration Reported ppbv	Q	Sample Dup E23-05079-23 Concentration Reported ppbv	Q	Reporting Limits ppbv	RPD
Methyl tert-butyl ether	1634-04-4	0.40	U	0.40	U	0.40	0.00%
Styrene	100-42-5	0.40	U	0.40	U	0.40	0.00%
Tert-butyl alcohol	75-65-0	0.40	U	0.40	U	0.40	0.00%
1,1,2,2-Tetrachloroethane	79-34-5	0.40	U	0.40	U	0.40	0.00%
Tetrachloroethene	127-18-4	0.40	U	0.40	U	0.40	0.00%
Toluene	108-88-3	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trichlorobenzene	120-82-1	0.40	U	0.40	U	0.40	0.00%
1,1,1-Trichloroethane	71-55-6	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloroethane	79-00-5	0.40	U	0.40	U	0.40	0.00%
Trichloroethene	79-01-6	0.20	U	0.20	U	0.20	0.00%
Trichlorofluoromethane	75-69-4	0.40	U	0.40	U	0.40	0.00%
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.40	U	0.40	U	0.40	0.00%
1,2,4-Trimethylbenzene	95-63-6	0.40	U	0.40	U	0.40	0.00%
1,3,5-Trimethylbenzene	108-67-8	0.40	U	0.40	U	0.40	0.00%
2,2,4-Trimethylpentane	540-84-1	0.40	U	0.40	U	0.40	0.00%
Vinyl bromide	593-60-2	0.40	U	0.40	U	0.40	0.00%
Vinyl chloride	75-01-4	0.20	U	0.20	U	0.20	0.00%
Xylenes (m&p)	179601-23-1	0.40	U	0.40	U	0.40	0.00%
Xylenes (o)	95-47-6	0.40	U	0.40	U	0.40	0.00%

RPD must be <25% for all laboratory duplicate samples. Laboratory duplicate samples are run once daily.

NC = The RPD could not be calculated since the compound was only detected in either the parent or duplicate sample.

Qualifiers:
E=Concentration exceeds upper level of calibration range for instrument.
D=Extra dilution required for this compound. X=Duplicate samples do not met RPD criteria.
U=Compound ND or under reporting limit.

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4929.D
Acq On : 12 Dec 2023 12:58 am
Operator : jjw
Sample : E23-05079-03
Misc : 3830, 500cc
ALS Vial : 32 Sample Multiplier: 1

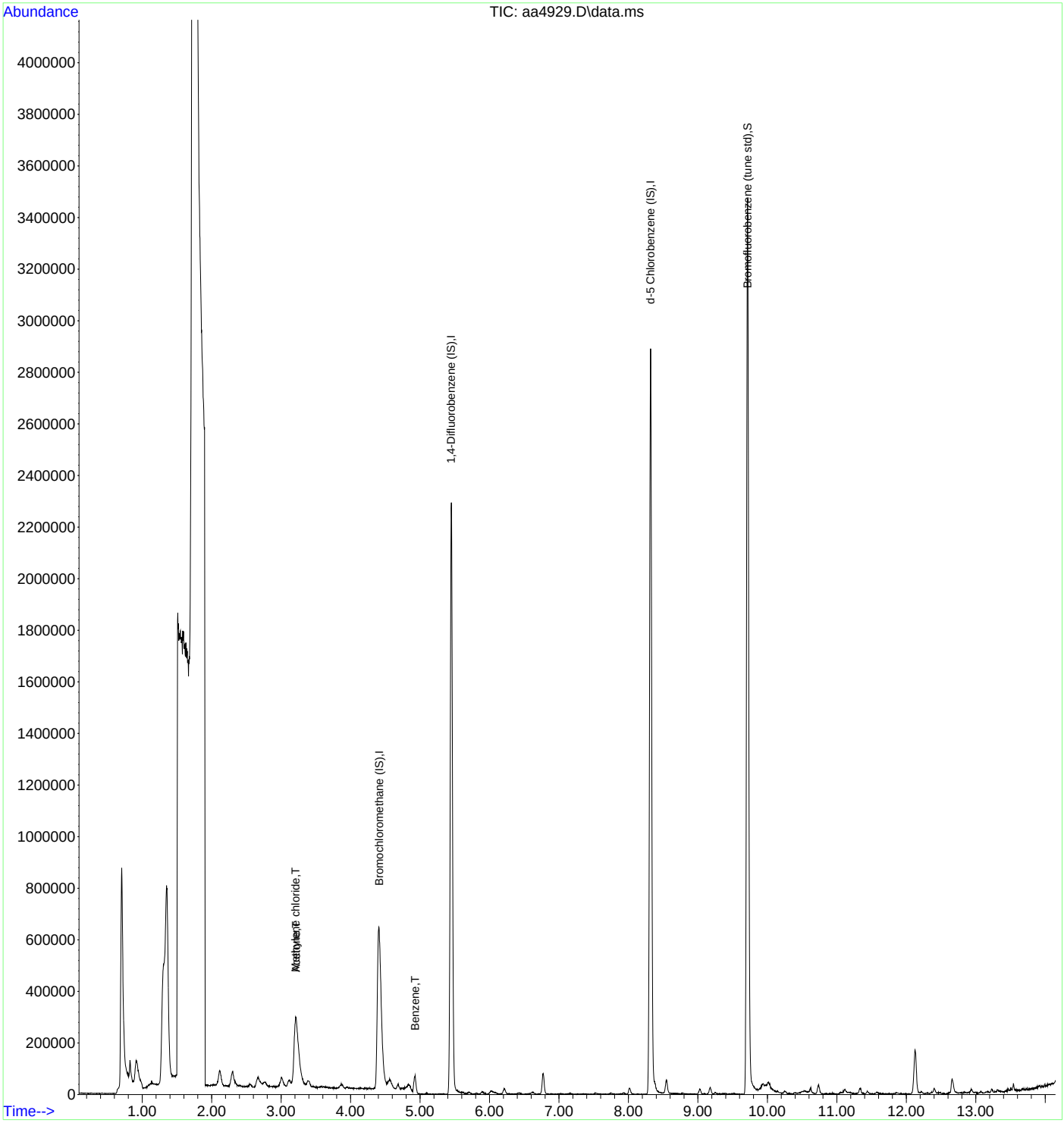
Quant Time: Dec 13 11:23:02 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

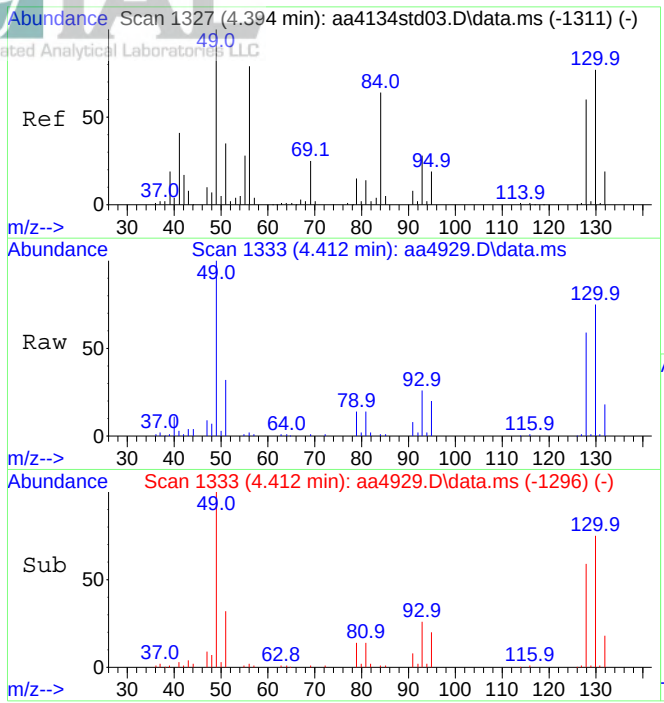
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Bromochloromethane (IS)	4.412	130	441232	10.00 ppbV	0.018
39) 1,4-Difluorobenzene (IS)	5.448	114	2147334	10.00 ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.319	117	1948898	10.00 ppbV	0.000
System Monitoring Compounds					
64) Bromofluorobenzene (tu...	9.714	95	1597112	9.40 ppbV	0.000
Target Compounds					Qvalue
20) Methylene chloride	3.210	49	190775	3.52 ppbV	93
21) Acetone	3.216	43	404473	6.08 ppbV	99
37) Benzene	4.930	78	54291	0.31 ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4929.D
Acq On : 12 Dec 2023 12:58 am
Operator : jjw
Sample : E23-05079-03
Misc : 3830, 500cc
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Dec 13 11:23:02 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

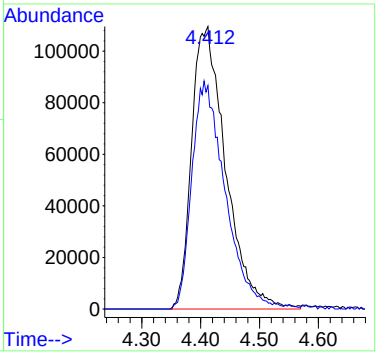


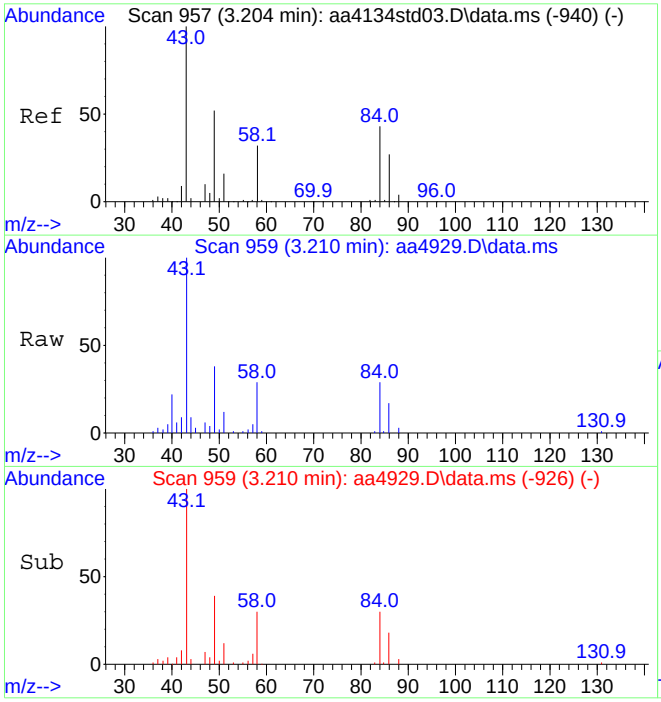


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.412 min Scan# 1333
Delta R.T. 0.018 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion:130 Resp: 441232

Ion	Ratio	Lower	Upper
130	100		
128	78.4	62.2	93.4

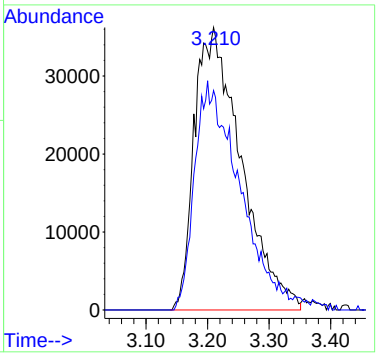


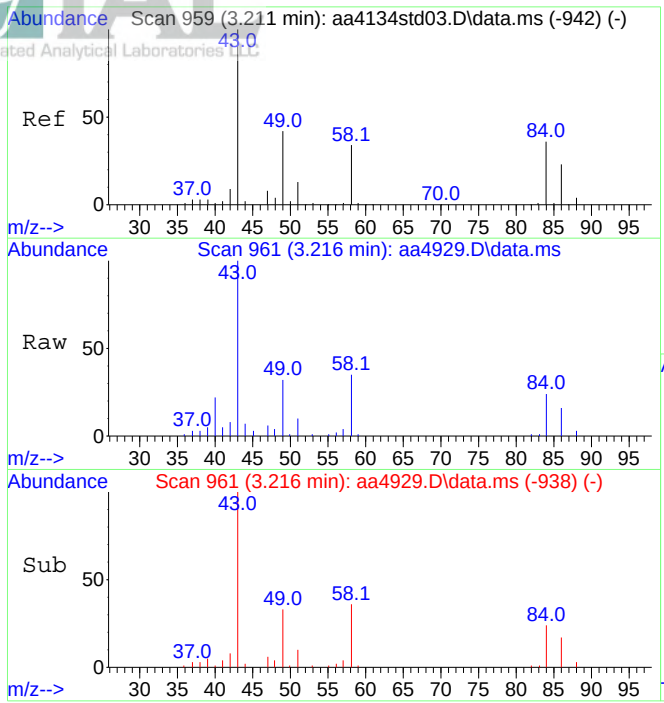


#20
Methylene chloride
Concen: 3.52 ppbV
RT: 3.210 min Scan# 959
Delta R.T. 0.006 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 49 Resp: 190775

Ion	Ratio	Lower	Upper
49	100		
84	78.6	64.8	104.8

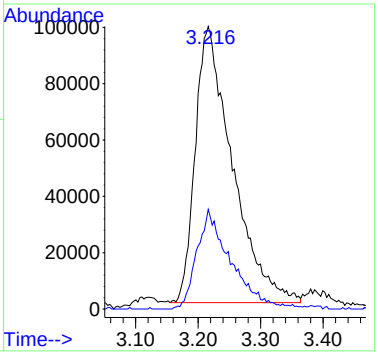


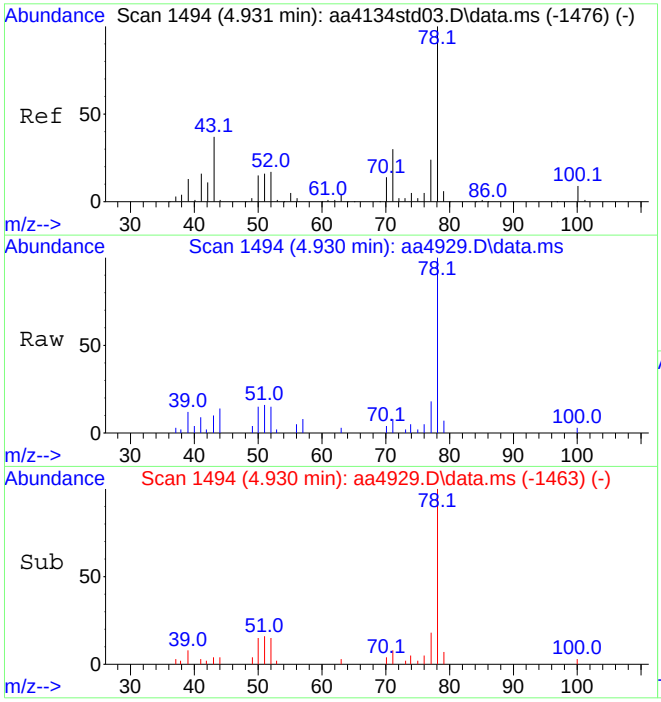


#21
Acetone
Concen: 6.08 ppbV
RT: 3.216 min Scan# 961
Delta R.T. 0.006 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 43 Resp: 404473

Ion	Ratio	Lower	Upper
43	100		
58	33.2	27.1	40.7

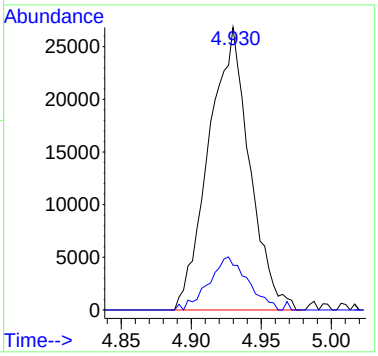


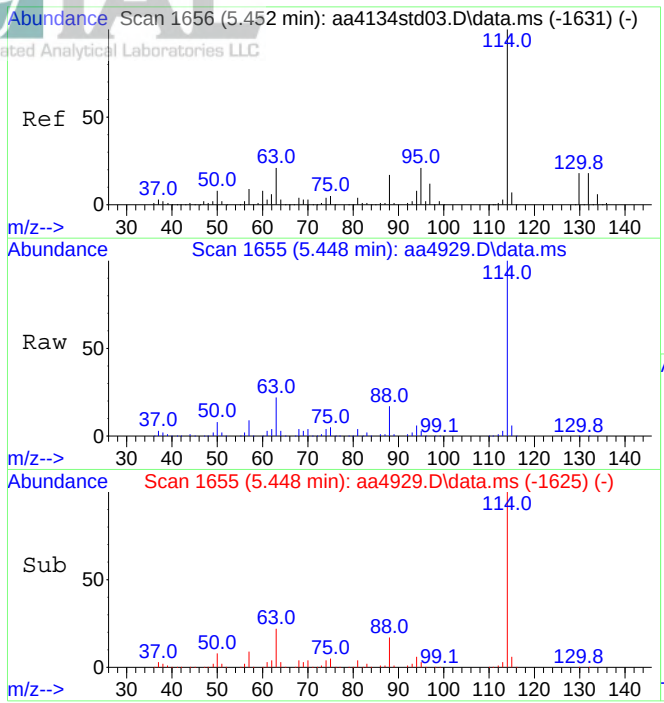


#37
Benzene
Concen: 0.31 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. -0.001 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 78 Resp: 54291

Ion	Ratio	Lower	Upper
78	100		
51	17.9	13.4	20.0

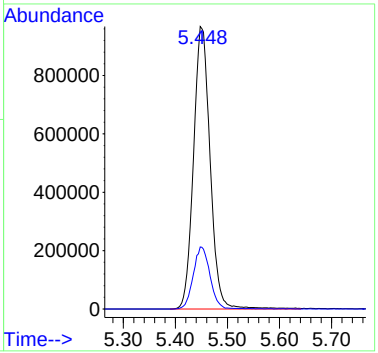


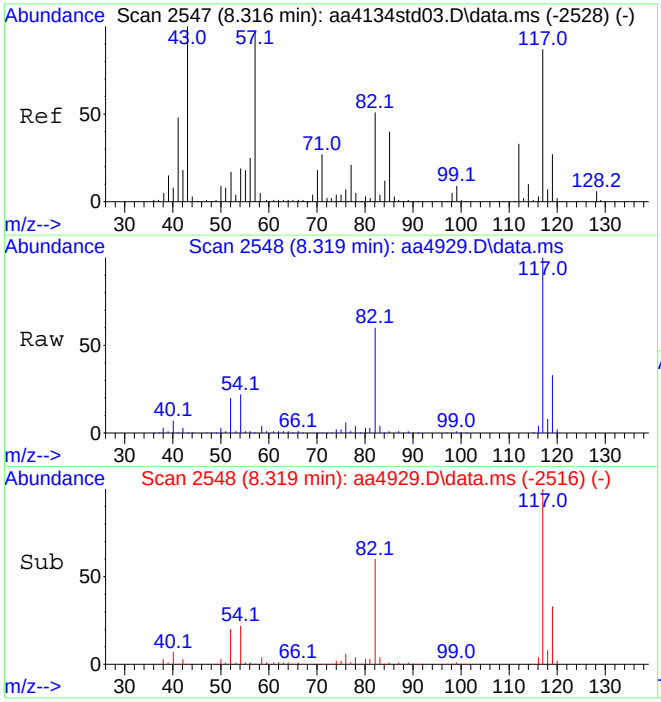


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.448 min Scan# 1655
Delta R.T. -0.004 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion:114 Resp: 2147334

Ion	Ratio	Lower	Upper
114	100		
63	22.0	17.0	25.6

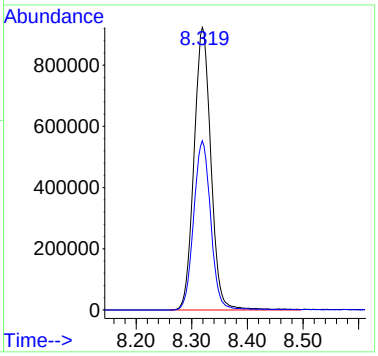


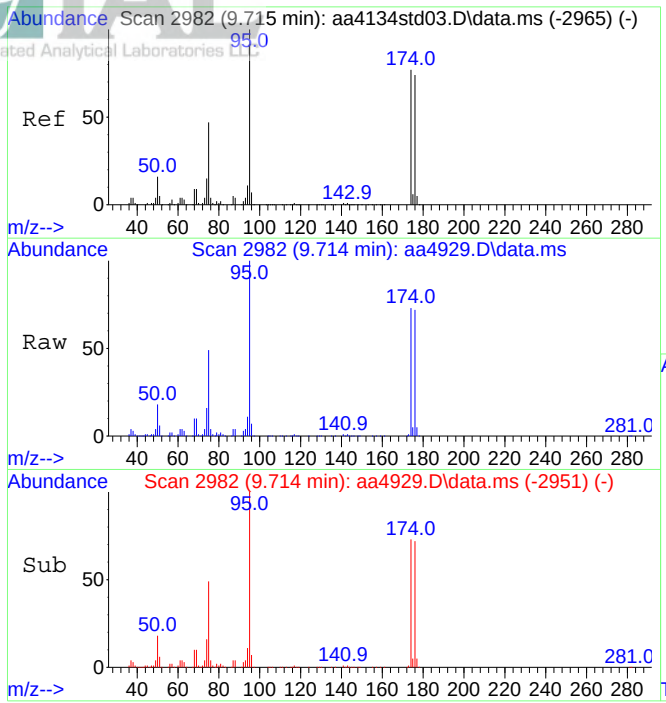


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.319 min Scan# 2548
Delta R.T. 0.002 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion:117 Resp: 1948898

Ion	Ratio	Lower	Upper
117	100		
82	60.3	47.0	70.4

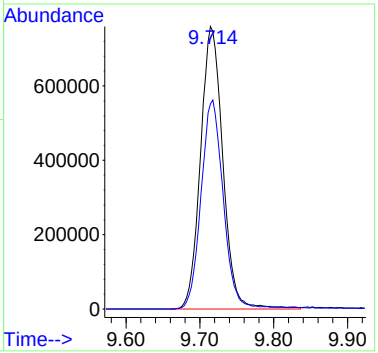




#64
Bromofluorobenzene (tune std)
Concen: 9.40 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4929.D
Acq: 12 Dec 2023 12:58 am

Tgt Ion: 95 Resp: 1597112

Ion	Ratio	Lower	Upper
95	100		
174	74.1	61.1	91.7



Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4930.D
Acq On : 12 Dec 2023 1:31 am
Operator : jjw
Sample : E23-05079-23
Misc : Dup of E23-05079-03, Can # 3830
ALS Vial : 33 Sample Multiplier: 1

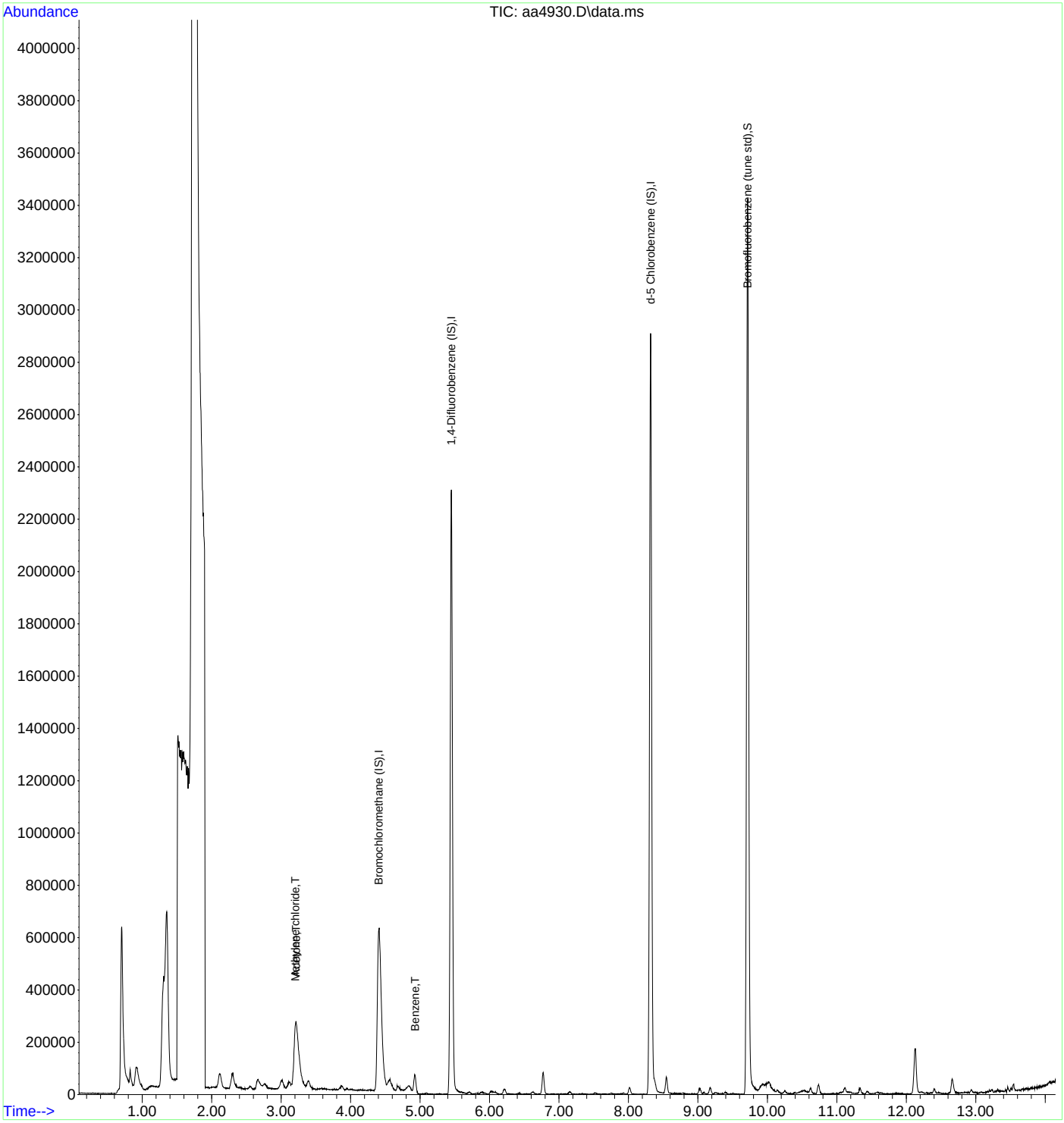
Quant Time: Dec 13 11:24:13 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

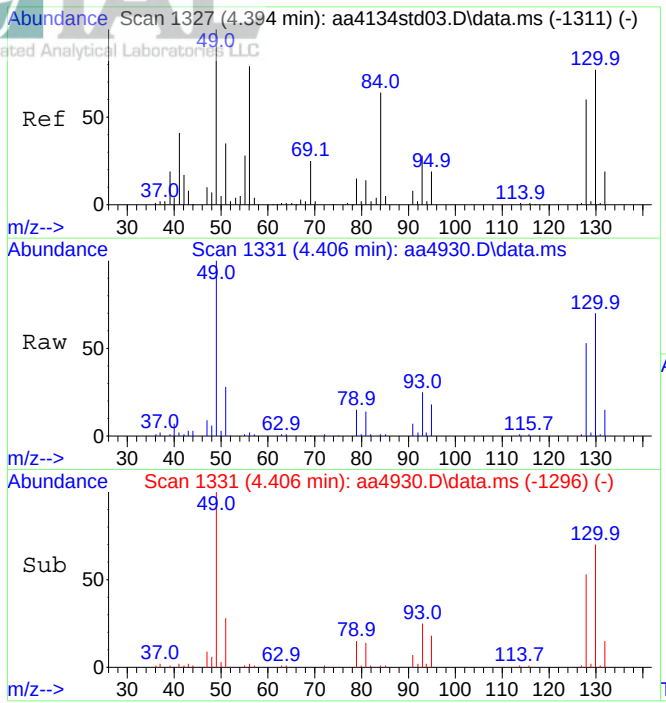
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.406	130	452291	10.00	ppbV	0.012
39) 1,4-Difluorobenzene (IS)	5.451	114	2167232	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.322	117	1931386	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1574669	9.35	ppbV	0.000
Target Compounds						Qvalue
20) Methylene chloride	3.203	49	191374	3.44	ppbV	90
21) Acetone	3.216	43	399825	5.86	ppbV	99
37) Benzene	4.930	78	56929	0.32	ppbV	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\12-2023\12-11-2023\
Data File : aa4930.D
Acq On : 12 Dec 2023 1:31 am
Operator : jjw
Sample : E23-05079-23
Misc : Dup of E23-05079-03, Can # 3830
ALS Vial : 33 Sample Multiplier: 1

Quant Time: Dec 13 11:24:13 2023
Quant Method : C:\msdchem\1\METHODS\231009.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Oct 10 15:12:35 2023
Response via : Initial Calibration

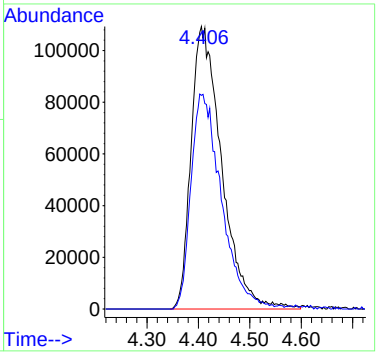


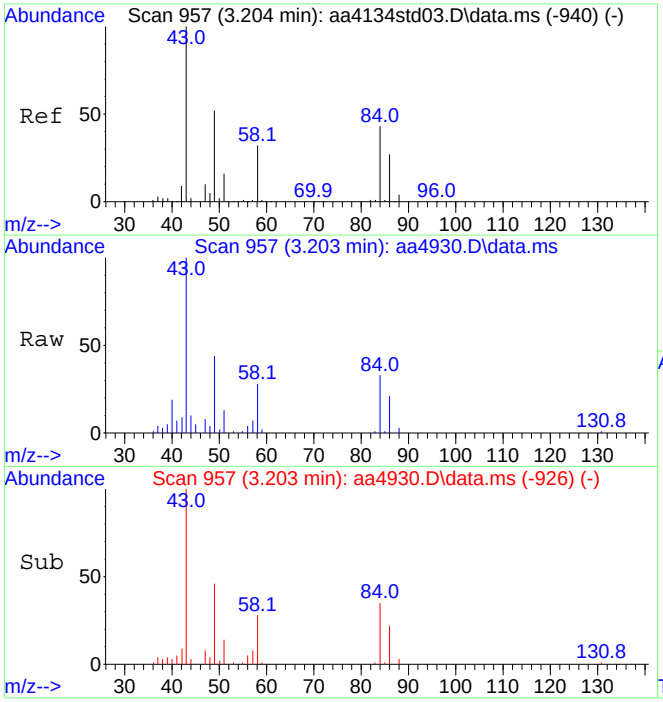


#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 4.406 min Scan# 1331
Delta R.T. 0.012 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion:130 Resp: 452291

Ion	Ratio	Lower	Upper
130	100		
128	75.9	62.2	93.4

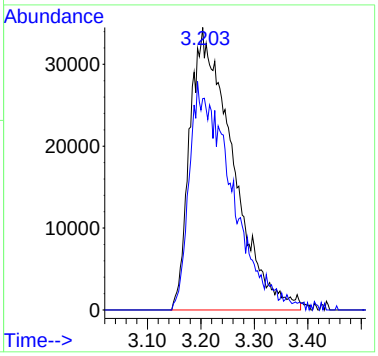


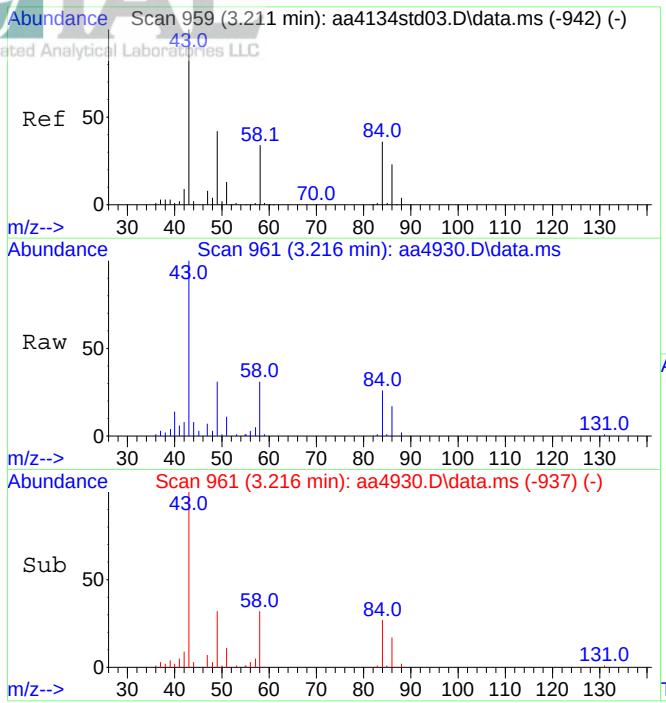


#20
Methylene chloride
Concen: 3.44 ppbV
RT: 3.203 min Scan# 957
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 49 Resp: 191374

Ion	Ratio	Lower	Upper
49	100		
84	76.0	64.8	104.8

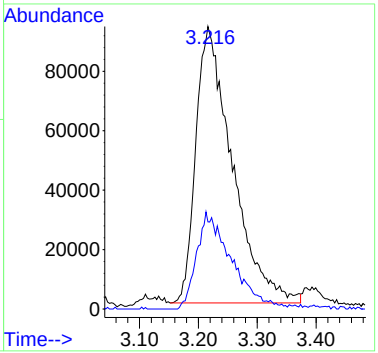


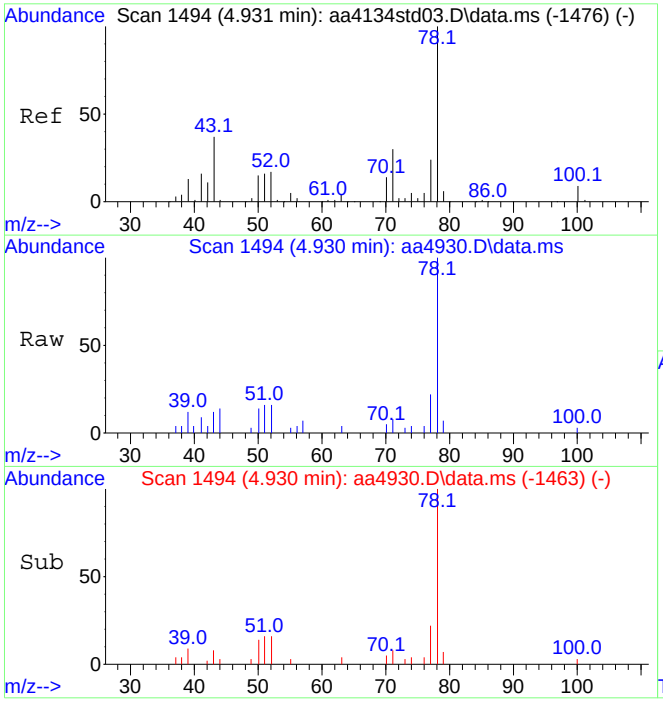


#21
Acetone
Concen: 5.86 ppbV
RT: 3.216 min Scan# 961
Delta R.T. 0.006 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 43 Resp: 399825

Ion	Ratio	Lower	Upper
43	100		
58	33.3	27.1	40.7

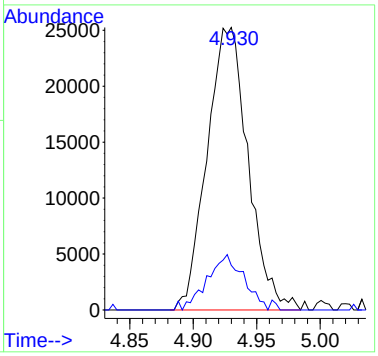


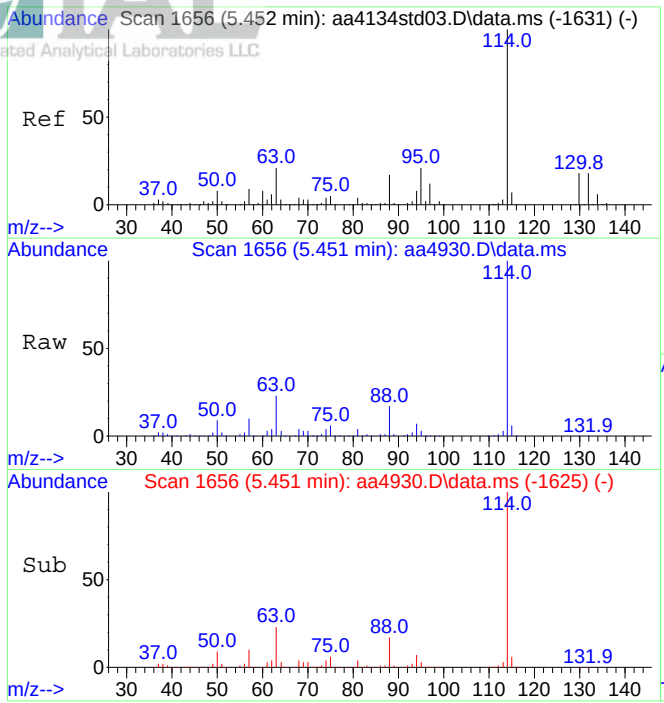


#37
Benzene
Concen: 0.32 ppbV
RT: 4.930 min Scan# 1494
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 78 Resp: 56929

Ion	Ratio	Lower	Upper
78	100		
51	17.1	13.4	20.0

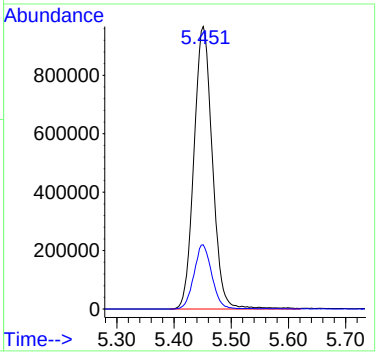


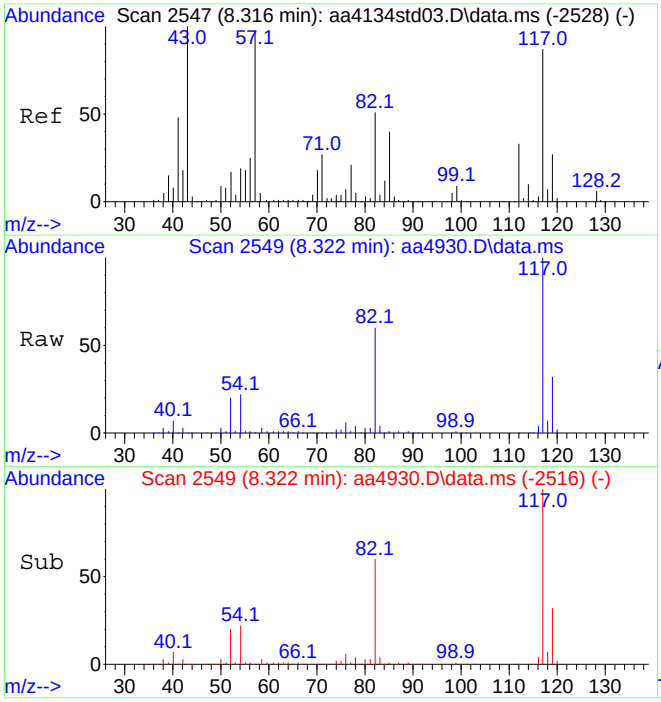


#39
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 5.451 min Scan# 1656
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion:114 Resp: 2167232

Ion	Ratio	Lower	Upper
114	100		
63	22.0	17.0	25.6

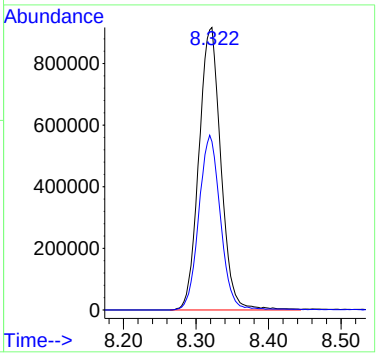


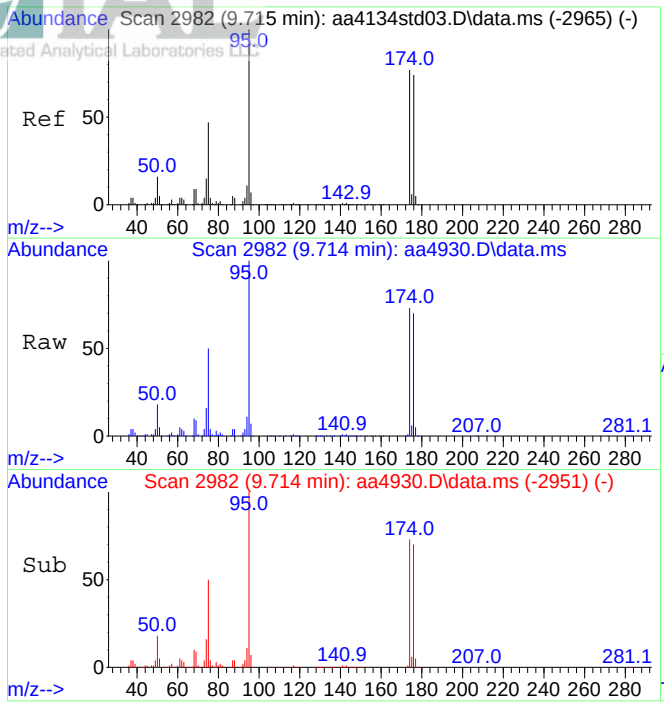


#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 8.322 min Scan# 2549
Delta R.T. 0.006 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion:117 Resp: 1931386

Ion	Ratio	Lower	Upper
117	100		
82	61.0	47.0	70.4

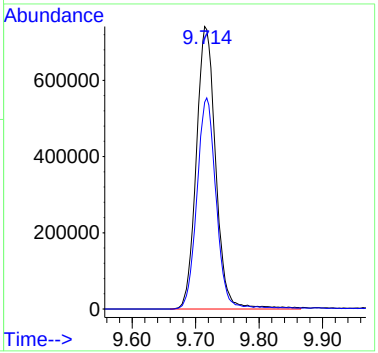




#64
Bromofluorobenzene (tune std)
Concen: 9.35 ppbV
RT: 9.714 min Scan# 2982
Delta R.T. -0.001 min
Lab File: aa4930.D
Acq: 12 Dec 2023 1:31 am

Tgt Ion: 95 Resp: 1574669

Ion	Ratio	Lower	Upper
95	100		
174	74.6	61.1	91.7



INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories

GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05081

								Make-up Air		*Acquisition*		*Room*		*TO-15 Standard*	
File #	**Laboratory Sample ID**	**QC Check**	**Dilution Factor**	**Can #**	**Analyst**	**Injection Volume (cc)**	**Comments**	**Added to canister (cc)**	**Added for dilution**	**Date**	**Time**	**Temp**	**BP "Hg**	**Working ID**	**Vendor ID (Lot#)**
aa3401bfb	BFB	✓		ALM018474	JJW	0.5				**8/15/2023**	10:11	70	30.30		160-402352677-1
aa3402std05	0.2 ppbv Std	✓		EB0103704	JJW	1								8/15/2023	160-402619255-1
aa3403std04	2 ppbv Std	✓		EB0103704	JJW	10								8/15/2023	160-402619255-1
aa3404std03	10 ppbv Std	✓		EB0103704	JJW	50								8/15/2023	160-402619255-1
aa3405std02	20 ppbv Std	✓		EB0103704	JJW	100								8/15/2023	160-402619255-1
aa3406std01	40 ppbv Std	✓		EB0103704	JJW	200								8/15/2023	160-402619255-1
aa3407icvss	10 ppbv ICVSS	✓		EB0116272	JJW	50								8/15/2023	160-402744241-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05081

								Make-up Air		*Acquisition*		*Room*		*TO-15 Standard*	
File #	**Laboratory Sample ID**	**QC Check**	**Dilution Factor**	**Can #**	**Analyst**	**Injection Volume (cc)**	**Comments**	**Added to canister (cc)**	**Added for dilution**	**Date**	**Time**	**Temp**	**BP "Hg**	**Working ID**	**Vendor ID (Lot#)**
aa4071bfb	BFB	✓		ALM018474	JJW	0.5				**9/28/2023**	10:01	70	30.54		160-402352677-1
aa4072dcvs	10 ppbv DCVS	✓		EB0103704	JJW	50								8/15/2023	160-401980152-1
aa4073lcs	10 ppbv LCS	✓		EB0103704	JJW	50								8/15/2023	160-401980152-1
aa4074blk	Method Blank	✓		1127	JJW	500									
aa4075rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								8/15/2023	160-401980152-1
aa4076	2164	✓		8242301	JJW	500									
aa4077	4870	✓		9132301	JJW	500									
aa4078	2160	✓		9142301	JJW	500									
aa4079	E23-03970-01x5 dil	✓	5	2881	JJW	100									
aa4080	E23-03970-02x5 dil	✓	5	3025A	JJW	100									
aa4081	E23-04122-02x10 dil	✓	10	1068	JJW	50									
aa4082	blk	✓		x	JJW	500									
aa4083	E23-04122-03x10 dil	✓	10	1571	JJW	50									
aa4084	E23-04122-04x10 dil	✓	10	1366	JJW	50									
aa4085	E23-04122-05x10 dil	✓	10	1596	JJW	50									
aa4086	blk	✓		x	JJW	500									
aa4087	E23-04122-06x10 dil	✓	10	1781	JJW	50									
aa4088	E23-04122-26x10 dil	✓	10	4122-06x10 d	JJW	50									
aa4089	E23-04154-05x10 dil	✓	10	1404	JJW	50									
aa4090	E23-04154-06x10 dil	✓	10	1565	JJW	50									
aa4091	blk	✓		x	JJW	500									
aa4092	blk	✓		x	JJW	500									
aa4093cccvs	10 ppbv CCCVS	✓		EB0103704	JJW	50				9/29/2023	12:28			8/15/2023	160-402619255-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05081

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	*Make-up Air* Added to canister (cc)	*Make-up Air* Added for dilution	*Acquisition* Date	*Acquisition* Time	*Room* Temp	*Room* BP "Hg	*TO-15 Standard* Working ID	*TO-15 Standard* Vendor ID (Lot#)
aa4131bfb	BFB	✓		ALM018474	JJW	0.5				**10/10/2023**	10:13	70	30.10		160-402352677-1
aa4132std05	0.2 ppbv Std	✓		EB0103704	JJW	1								10/10/2023	160-402619255-1
aa4133std04	2 ppbv Std	✓		EB0103704	JJW	10								10/10/2023	160-402619255-1
aa4134std03	10 ppbv Std	✓		EB0103704	JJW	50								10/10/2023	160-402619255-1
aa4135std02	20 ppbv Std	✓		EB0103704	JJW	100								10/10/2023	160-402619255-1
aa4136std01	40 ppbv Std	✓		EB0103704	JJW	200								10/10/2023	160-402619255-1
aa4137icvss	10 ppbv ICVSS	✓		EB0116272	JJW	50								10/10/2023	160-402744241-1
aa4138lcs	10 ppbv LCS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4139blk	Method Blank	✓		1127	JJW	500									
aa4140rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								10/10/2023	160-401980152-1
aa4141	5078	✓		9252301	JJW	500									
aa4142	5101	✓		9262301	JJW	500									
aa4143	4869	✓		9272301	JJW	500									
aa4144	2157	✓		10022301	JJW	500									
aa4145	E23-04192-01	✓		5100	JJW	500									
aa4146	E23-04192-02	✓		2072	JJW	500									
aa4147	blank	✓		x	JJW	500									
aa4148	E23-04378-01	✓		2033	JJW	500									
aa4149	E23-04378-02	✓		5080	JJW	500									
aa4150	E23-04378-22	✓	Dup of E23-04378-02, (		JJW	500									
aa4151	E23-04513-01	✓		3814	JJW	500									
aa4152	blank	✓		x	JJW	500									
aa4153	blank	✓		x	JJW	500									
aa4154cccvs	10 ppbv CCCVS	✓		EB0103704	JJW	50				10/11/2023	1:53			10/10/2023	160-402619255-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: Agilent 7890A / 5975C
Column: Restek RTX-1 SN 992567

Target Directory: D:\Agilent GCMS\

Date of Analysis: 12/11/2023
Date of Initial Calibration: 8/15/2023, 10/10/2023
SDG #: E23-05081

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	*Make-up Air* Added to canister (cc)	*Make-up Air* Added for dilution	*Acquisition* Date	*Acquisition* Time	*Room* Temp	*Room* BP "Hg	*TO-15 Standard* Working ID	*TO-15 Standard* Vendor ID (Lot#)
aa4901bfb	BFB	✓		ALM018474	JJW	0.5				**12/11/2023**	9:24	68	30.07		160-402352677-1
aa4902dcvs	10 ppbv DCVS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4903lcs	10 ppbv LCS	✓		EB0103704	JJW	50								10/10/2023	160-401980152-1
aa4904blk	Method Blank	✓		1127	JJW	500									
aa4905rllcs	0.2 ppbv RLLCS	✓		EB0103704	JJW	1								10/10/2023	160-401980152-1
aa4906	1458	✓		12062301	JJW	50									
aa4907	1588	✓		12082301	JJW	50									
aa4908	3012	✓		12072301	JJW	500									
aa4909	E23-05047-03x10 dil	✓	10	3811	JJW	50									
aa4910	E23-05047-04x5 dil	✓	5	3283	JJW	100									
aa4911	E23-05080-01x10 dil	✓	10	3006	JJW	50									
aa4912	E23-05080-02x10 dil	✓	10	2155	JJW	50									
aa4913	E23-05093-01x5 dil	✓	5	3044Ac	JJW	100									
aa4914	E23-05047-06x5 dil	✓	5	5091	JJW	100									
aa4915	E23-05047-06	✓		5091	JJW	500									
aa4916	E23-05081-01x5 dil	✓	5	5073	JJW	100									
aa4917	E23-05081-01	✓		5073	JJW	500									
aa4918	E23-05081-02x5 dil	✓	5	2758	JJW	100									
aa4919	E23-05081-02	✓		2758	JJW	500									
aa4920	E23-05081-03x5 dil	✓	5	3809	JJW	100									
aa4921	E23-05081-03	✓		3809	JJW	500									
aa4922	E23-05081-04x5 dil	✓	5	2896B	JJW	100									
aa4923	E23-05081-04	✓		2896B	JJW	500									
aa4924	blk	✓		x	JJW	500									
aa4925	E23-05007-01x10 dil	✓	10	1543	JJW	50									
aa4926	E23-05007-02x10 dil	✓	10	1601	JJW	50									
aa4927	E23-05007-03x10 dil	✓	10	1773	JJW	50									
aa4928	blk	✓		x	JJW	500									
aa4929	E23-05079-03	✓		3830	JJW	500									
aa4930	E23-05079-23	✓	Dup of E23-05079-03, (		JJW	500									
aa4931cccvs	10 ppbv CCCVS	✓		EB0103704	JJW	50				12/12/2023	1:59			10/10/2023	160-401980152-1

Analyst Name: J Walukiewicz

Signature: Joseph Walukiewicz

INTEGRATED ANALYTICAL LABORATORIES, LLC

Integrated Analytical Labs
273 Franklin Rd
Randolph, NJ 07869

External Chain of Custody Record/
Field Test Data Sheet
USEPA Method TO-15

Contact Us: 973 361-4252
fax: 973 366-5613
Web: www.ialonline.com

Client Contact Information	Project Information	Carrier (check one): ____ IAL Courier ____ Client Courier ____ FedEx/UPS	pg 1 of 1
Company: HK Engineering and Geology D.P.C.	Project Name: HK2661.2	Invoice Information	
Address: 1600 US 22 East	Project Location (State): NY	Attn:	
Union, NJ 07083	Project Manager: Chris Hirschmann	Address:	
Phone: 908 -688-7800	PM Signature: Chris Hirschmann		
Fax:	PM E-Mail: chirschmann@hillmannconsulting.com	PO #: HK2661.2	
Report to: Chris Hirschmann	Sampler: D. Aponte	Quote #:	

Analysis Turnaround Time - IF NO TAT IS SPECIFIED, 2 WEEK TAT IS ASSUMED

IAL Standard: 2 weeks (10 business days)

Rush (**pre-approved by lab): 24hr** 48hr** 72hr** 96hr** 1wk**

	Sample Identification	Start DATE & TIME (24hr Clock)	End DATE & TIME (24hr Clock)	Starting Vacuum ("Hg)	Ending Vacuum ("Hg)	Starting Temp. (°F)	Ending Temp. (°F)	Outgoing Vacuum - Lab ("Hg)	Incoming Vacuum - Lab ("Hg)	Flow Regulator ID	Canister ID	Canister Size (1L or 6L)	Flow Controller Readout (cc/min)	EPA TO - 15	NJDEP LLTO-15 (includes 30 TICs)	Library Search (10, 20, or 30 TICs)	Other (Explain in Comments)	Regulatory/ NY Cat B / Full (NJ Required)	Reduced / NY Cat A Data Package	Results Only	Indoor Air	Ambient / Outdoor Air	Sub Slab / Soil Gas / Near Slab (Circle One)	Stack Emission / SVE System	High Concentrations Expected
1	SV1	11/17/23 - 7:45	11/17/23 - 10:00	-29	-7	49	56	-29.0	-7.0	A0121687-3	5073	6L	32.70	X											
2	SV4	11/17/23 - 9:40	11/17/23 - 11:55	-28	-6	56	64	-29.0	-6.0	A0098643-4	2758	6L	33.80	X											
3	SV9	11/17/23 - 8:00	11/17/23 - 10:30	-28	-7	51	59	-29.0	-7.0	A0098637-7	3809	6L	33.40	X											
4	SV8 - 401 - COMPACTOR ROOM	11/17/23 - 11:00	11/17/23 -	-29	-6	65	67	-29.0	-6.0	A0160008-5	2896B	6L	33.30	X											

Barometric Pressure: Start / Stop

Comments/ Special Analysis Instructions / QC Requirements:

5 Day TAT Hard Copy and Verbal. 091323011 2,4 10022301A 3830 09142301 1,3 09282301A 2160

Note: Hold or contingent samples may be designated by writing an "H" or "C" in the appropriate analysis box.

ALL FIELDS IN RED ARE REQUIRED

Shipping Information / Canister Preparation (for laboratory use only)

Individual Preparing Canisters / Title: Desmond Flores / Air Department Sample Custodian

Lab Affixed Seal Number(s):

Date/Time Shipping Container Sealed: 11/13/23 1615

Laboratory Canister Certification

GC/MS Analyst Signature: Joseph J Walukiewicz III (EAL)

IAL 05081

External Chain of Custody

Relinquished	Received	Date / Time	Reason for Change of External Custody
[signature] HK	[signature]	11/17/23 15:00	shipment from laboratory to client
Dale Mont	Desmond Fl	11/17/23 1634	received at lab
	Joseph J Walukiewicz III (EAL)	11/20/23 0920	sample storage & pressure check

Name/Title Resealing Shipping Container Name:

Date/Time Sample Shipping Container Resealed:

Date/Time Sample Shipping Container Opened: 11/17/23 1634

NJDEP Affixed Seal Number:

Individual Opening Sample Shipping Container: Joseph Walukiewicz/Desmond Flores

Date/Time Internal Chain of Custody Initiated: 11/20/23 0920

White and yellow - lab copies; Pink - client copy

se appropriate care with IAL sampling equipment when sampling and packing for shipment. The client is responsible for all damage incurred to IAL equipment. Notify IAL if equipment is damaged upon receipt. Holding time before sampling is 15 days, ter sampling is 30 days; failure to follow these times may result in data rejection by regulatory agencies. The lab will contact you if your COC is not clear, incomplete, or if discrepancies exist. The use of initials is not permitted on the COC except hen correcting errors.

Example Calculation (EPA TO-15)

$$\frac{\text{Area of Compound}}{\text{Area of Internal Standard}} \times \frac{\text{Concentration of Internal Standard (10 ppbv)}}{\text{Response Factor}} = \text{Concentration of Compound (ppbv)}$$

Conversion from ppbv to µg/m^3

$$\frac{\text{Concentration of Compound (ppbv)} \times \text{Molecular Weight of Compound}}{24.45} = \text{Concentration of Compound (µg/m3)}$$

INTEGRATED ANALYTICAL LABORATORIES, LLC

Clean Canister Certification Report

Lab Sample Name:	**Clean Canister, Batch Master 4870**	**Data File:**	**AA4077**
Field Sample Name:	**Canister 4870**	**Date Analyzed:**	**9/28/2023**
Sample Volume:	**500ml**	**Matrix:**	**Air**

Canisters associated with this run: 4870, 2896B (used for E23-05081-04), 5086, 2890, 2758 (used for E23-05081-02), 3041A, 3045A, 2902

Runs with this Clean Canister Certification:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
CLEAN CAN CERTIFICATION, BATCH MASTER 2164 [AA4076]	09/28/2023 15:00
CLEAN CAN CERTIFICATION, BATCH MASTER 4870 [AA4077]	09/28/2023 15:30
CLEAN CAN CERTIFICATION, BATCH MASTER 2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 00:28

This canister has been certified clean, all compounds are below 0.2 ppbv.

Compound	CAS #	RL (ppbv)	Calculated Amount (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.20	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.20	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.20	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND

Clean Canister Certification Report

Lab Sample Name:	**Clean Canister, Batch Master 4870**	**Data File:**	**AA4077**
Field Sample Name:	**Canister 4870**	**Date Analyzed:**	**9/28/2023**
Sample Volume:	**500ml**	**Matrix:**	**Air**

Canisters associated with this run: 4870, 2896B (used for E23-05081-04), 5086, 2890, 2758 (used for E23-05081-02), 3041A, 3045A, 2902

Runs with this Clean Canister Certification:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
CLEAN CAN CERTIFICATION, BATCH MASTER 2164 [AA4076]	09/28/2023 15:00
CLEAN CAN CERTIFICATION, BATCH MASTER 4870 [AA4077]	09/28/2023 15:30
CLEAN CAN CERTIFICATION, BATCH MASTER 2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 00:28

This canister has been certified clean, all compounds are below 0.2 ppbv.

Compound	CAS #	RL (ppbv)	Calculated Amount (ppbv)
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.20	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.20	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.40	ND
Xylenes (o)	95-47-6	0.20	ND

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4077.D
Acq On : 28 Sep 2023 3:30 pm
Operator : jjw
Sample : 4870
Misc : 2902, 3044A, 3041A, 2758, 2890, 2896B, 5086
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 28 16:47:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

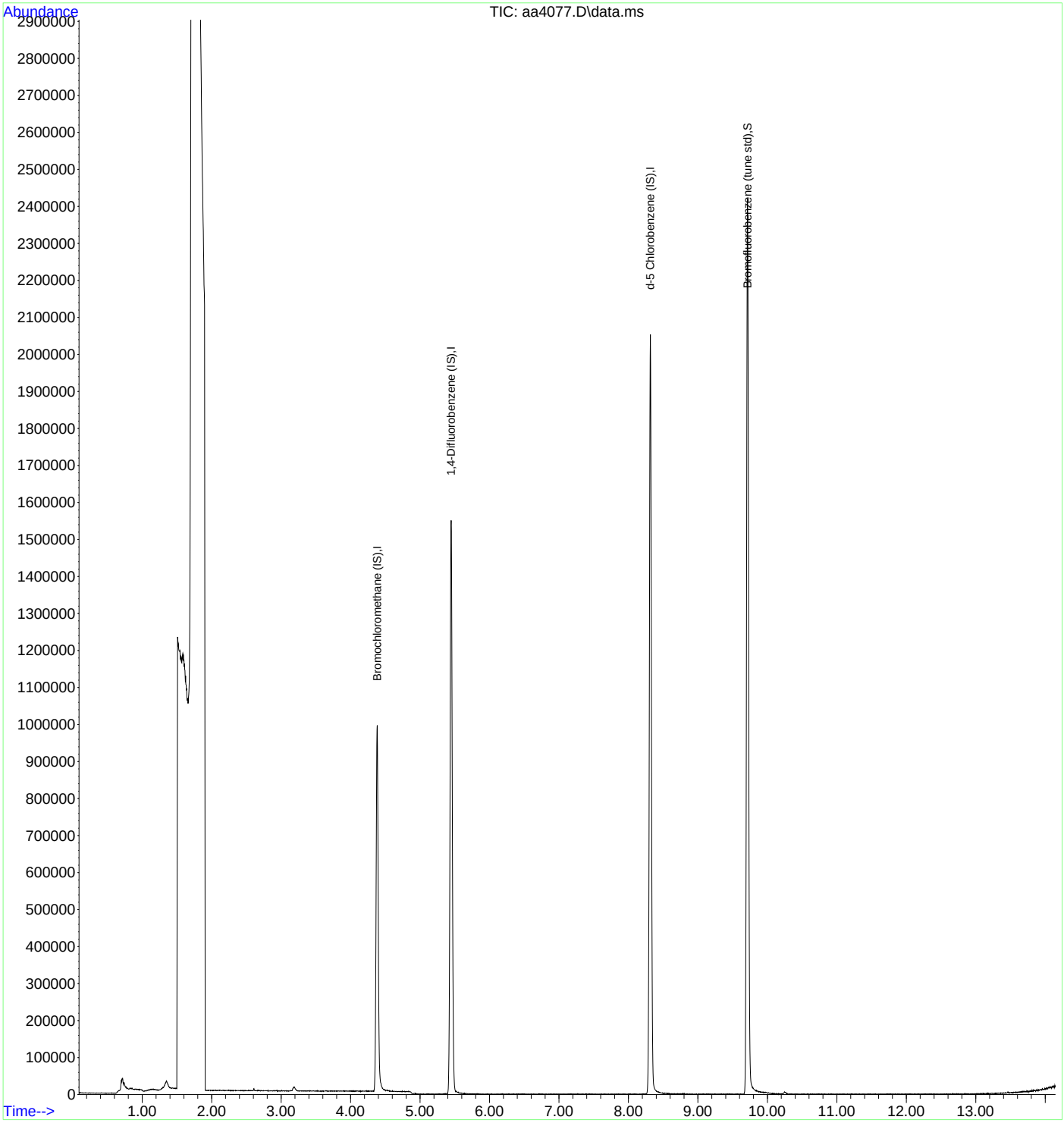
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.383	130	360790	10.00	ppbV	-0.013
39) 1,4-Difluorobenzene (IS)	5.447	114	1388747	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1279774	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	1010735	9.49	ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4077.D
Acq On : 28 Sep 2023 3:30 pm
Operator : jjw
Sample : 4870
Misc : 2902, 3044A, 3041A, 2758, 2890, 2896B, 5086
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Sep 28 16:47:17 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



INTEGRATED ANALYTICAL LABORATORIES, LLC

Clean Canister Certification Report

Lab Sample Name:	**Clean Canister, Batch Master 2160**	**Data File:**	**AA4078**
Field Sample Name:	**Canister 2160**	**Date Analyzed:**	**9/28/2023**
Sample Volume:	**500ml**	**Matrix:**	**Air**

Canisters associated with this run: 2160, 3011, 5073 (used for E23-05081-01), 4865, 2155, 3809 (used for E23-05081-03), 3006, 3028

Runs with this Clean Canister Certification:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
CLEAN CAN CERTIFICATION, BATCH MASTER 2164 [AA4076]	09/28/2023 15:00
CLEAN CAN CERTIFICATION, BATCH MASTER 4870 [AA4077]	09/28/2023 15:30
CLEAN CAN CERTIFICATION, BATCH MASTER 2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 00:28

This canister has been certified clean, all compounds are below 0.2 ppbv.

Compound	CAS #	RL (ppbv)	Calculated Amount (ppbv)
Acetone	67-64-1	0.20	ND
Benzene	71-43-2	0.20	ND
Bromodichloromethane	75-27-4	0.20	ND
Bromoform	75-25-2	0.20	ND
Bromomethane	74-83-9	0.20	ND
1,3-Butadiene	106-99-0	0.20	ND
Chlorobenzene	108-90-7	0.20	ND
Chloroethane	75-00-3	0.20	ND
Chloroform	67-66-3	0.20	ND
Chloromethane	74-87-3	0.20	ND
Carbon disulfide	75-15-0	0.20	ND
Carbon tetrachloride	56-23-5	0.20	ND
Cyclohexane	110-82-7	0.20	ND
Dibromochloromethane	124-48-1	0.20	ND
1,2-Dibromoethane	106-93-4	0.20	ND
1,2-Dichlorobenzene	95-50-1	0.20	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.20	ND
1,1-Dichloroethane	75-34-3	0.20	ND
1,2-Dichloroethane	107-06-2	0.20	ND
1,1-Dichloroethene	75-35-4	0.20	ND
1,2-Dichloroethene (cis)	156-59-2	0.20	ND
1,2-Dichloroethene (trans)	156-60-5	0.20	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.20	ND
1,3-Dichloropropene (trans)	10061-02-6	0.20	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.20	ND
n-Heptane	142-82-5	0.20	ND
1,3-Hexachlorobutadiene	87-68-3	0.20	ND

Clean Canister Certification Report

Lab Sample Name:	**Clean Canister, Batch Master 2160**	**Data File:**	**AA4078**
Field Sample Name:	**Canister 2160**	**Date Analyzed:**	**9/28/2023**
Sample Volume:	**500ml**	**Matrix:**	**Air**

Canisters associated with this run: 2160, 3011, 5073 (used for E23-05081-01), 4865, 2155, 3809 (used for E23-05081-03), 3006, 3028

Runs with this Clean Canister Certification:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4071BFB]	09/28/2023 10:01
10 PPBV DCVS [AA4072DCVS]	09/28/2023 10:31
10 PPBV LCS [AA4073LCS]	09/28/2023 11:19
METHOD BLANK [AA4074BLK]	09/28/2023 11:47
02 PPBV RLLCS [AA4075RLLCS]	09/28/2023 13:22
CLEAN CAN CERTIFICATION, BATCH MASTER 2164 [AA4076]	09/28/2023 15:00
CLEAN CAN CERTIFICATION, BATCH MASTER 4870 [AA4077]	09/28/2023 15:30
CLEAN CAN CERTIFICATION, BATCH MASTER 2160 [AA4078]	09/28/2023 16:00
10 PPBV CCCVS [AA4093CCCVS]	09/29/2023 00:28

This canister has been certified clean, all compounds are below 0.2 ppbv.

Compound	CAS #	RL (ppbv)	Calculated Amount (ppbv)
n-Hexane	110-54-3	0.20	ND
Methylene chloride	75-09-2	0.20	ND
Methyl ethyl ketone	78-93-3	0.20	ND
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.20	ND
Styrene	100-42-5	0.20	ND
Tert-butyl alcohol	75-65-0	0.20	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.20	ND
Tetrachloroethene	127-18-4	0.20	ND
Toluene	108-88-3	0.20	ND
1,2,4-Trichlorobenzene	120-82-1	0.20	ND
1,1,1-Trichloroethane	71-55-6	0.20	ND
1,1,2-Trichloroethane	79-00-5	0.20	ND
Trichloroethene	79-01-6	0.20	ND
Trichlorofluoromethane	75-69-4	0.20	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.20	ND
1,2,4-Trimethylbenzene	95-63-6	0.20	ND
1,3,5-Trimethylbenzene	108-67-8	0.20	ND
2,2,4-Trimethylpentane	540-84-1	0.20	ND
Vinyl bromide	593-60-2	0.20	ND
Vinyl chloride	75-01-4	0.20	ND
Xylenes (m&p)	179601-23-1	0.40	ND
Xylenes (o)	95-47-6	0.20	ND

Quantitation Report (QT Reviewed)

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4078.D
Acq On : 28 Sep 2023 4:00 pm
Operator : jjw
Sample : 2160
Misc : 3011, 5073, 4865, 2155, 3809, 3006, 3028
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 05 12:01:48 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration

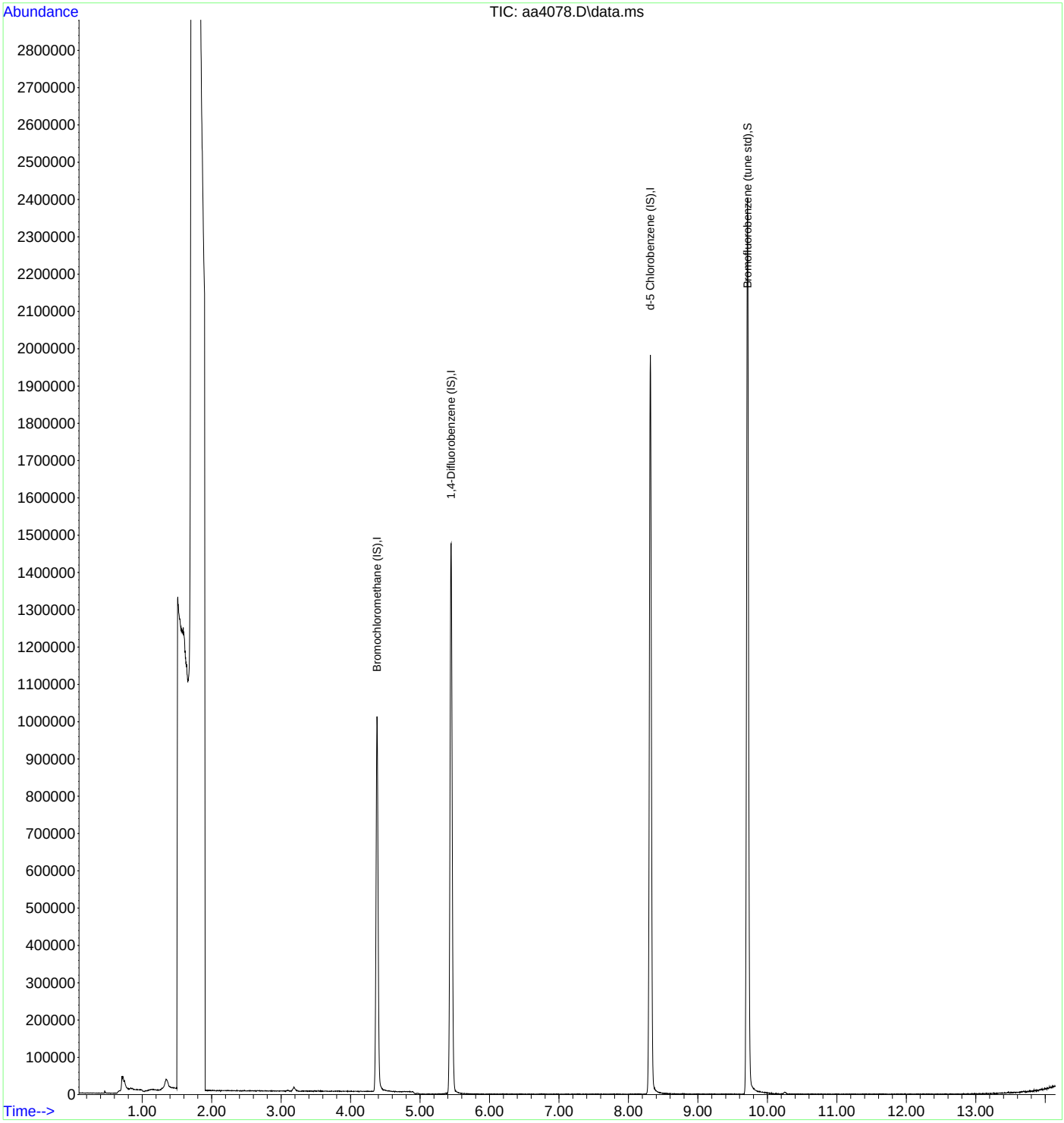
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	4.380	130	361668	10.00	ppbV	-0.016
39) 1,4-Difluorobenzene (IS)	5.448	114	1313235	10.00	ppbV	0.000
55) d-5 Chlorobenzene (IS)	8.316	117	1248229	10.00	ppbV	0.000
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	9.714	95	997562	9.61	ppbV	0.000

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\2023\09-2023\09-28-2023\
Data File : aa4078.D
Acq On : 28 Sep 2023 4:00 pm
Operator : jjw
Sample : 2160
Misc : 3011, 5073, 4865, 2155, 3809, 3006, 3028
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 05 12:01:48 2023
Quant Method : C:\msdchem\1\METHODS\230815.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Wed Aug 16 10:00:51 2023
Response via : Initial Calibration



LAST PAGE OF DOCUMENT

Appendix G.5
Remedial Action Work Plan (RAP) (Fulton and Elliott-Chelsea 1) and Construction Health and Safety Plan (CHASP)

FULTON 11 AND CHELSEA ELLIOTT

MANHATTAN, NEW YORK

Remedial Action Work Plan

DEP Project Number CEQR# 23CHA001M

Prepared For:
Elliott Fulton LLC

c/o Essence Development

30 Hudson Yards

New York, NY 10001

Prepared By:
HK Engineering & Geology, D.P.C.

1600 Route 22 East

Union, NJ 07083

908.688.7800

JANUARY 2024

REMEDIAL ACTION WORK PLAN
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FIGURES

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Figure 1B: Site Location Map – Chelsea Elliott

Figure 2A: Map of End-point Sample Locations – Fulton 11

Figure 2B: Map of End-point Sample Locations – Chelsea Elliott

Figure 3A: Site Excavation Diagram – Fulton 11

Figure 3B: Site Excavation Diagram – Chelsea Elliott

Figure 4A: Clean Soil Backfill Placement Location – Fulton 11

Figure 4B: Clean Soil Backfill Placement Location – Chelsea Elliott

Figure 5A: Site-wide Cover System Plan – Fulton 11

Figure 5B: Site-wide Cover System Plan – Chelsea Elliott

Figure 6: Proposed Cover System Cap Diagram

Figure 7A: Vapor Barrier Placement Diagram – Fulton 11

Figure 7B: Vapor Barrier Placement Diagram – Chelsea Elliott

APPENDICES

Appendix 1: Proposed Floor Layout Diagrams

Appendix 2: Soil/Materials Management Plan

Appendix 3: Construction Health and Safety Plan

Appendix 4: Vapor Barrier Specifications

LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
AS/SVE	Air Sparging/Soil Vapor Extraction
BOA	Brownfield Opportunity Area
CAMP	Community Air Monitoring Plan
C&D	Construction and Demolition
CEQR	City Environmental Quality Review
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
COC	Certificate of Completion
CQAP	Construction Quality Assurance Plan
CSOP	Contractors Site Operation Plan
DCR	Declaration of Covenants and Restrictions
ECs/ICs	Engineering Controls and Institutional Controls
ELAP	Environmental Laboratory Accreditation Program
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations Emergency Response
IRM	Interim Remedial Measure
MNA	Monitored Natural Attenuation
NOC	Notice of Completion
NYS DEC	New York State Department of Environmental Conservation
NYC DEP	New York City Department of Environmental Protection
NYC DOHMH	New York State Department of Health and Mental Hygiene
NYC OER	New York City Office of Environmental Remediation
NYC VCP	New York City Voluntary Cleanup Program
NYCRR	New York Codes Rules and Regulations
NYS DEC	New York State Department of Environmental Conservation

NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
ORC	Oxygen-Release Compound
OSHA	United States Occupational Health and Safety Administration
PCBs	Polychlorinated Biphenyls
PE	Professional Engineer
PID	Photo Ionization Detector
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
RAOs	Remedial Action Objectives
RAR	Remedial Action Report
RAWP	Remedial Action Work Plan or Plan
RCA	Recycled Concrete Aggregate
RD	Remedial Design
RI	Remedial Investigation
RMZ	Residual Management Zone
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SSDS	Sub-Slab Depressurization System
SVOC	Semi-Volatile Organic Compound
TAL	Target Analyte List
TCL	Target Compound List
USGS	United States Geological Survey
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VOC	Volatile Organic Compound

CERTIFICATION

I, Matthew Kamin, am currently a registered professional engineer licensed by the State of New York. I performed professional engineering services and had primary direct responsibility for designing the remedial program for the Fulton 11 site located 401-419 West 19th Street, Manhattan, NY and the Chelsea Elliott site located at 436 W. 27th Drive Manhattan, NY, site number 23CHA001M. I certify under the appropriate standard of care to the following:

- Engineering Controls developed for this remedial action were designed by me or a person under my direct supervision and designed to achieve the goals established in this Remedial Action Work Plan for this site.
- The Engineering Controls to be constructed during this remedial action are accurately reflected in the text and drawings of the Remedial Action Work Plan and are of sufficient detail to enable proper construction.
- This Remedial Action Work Plan (RAWP) has a plan for handling, transport and disposal of remediation-related soil, fill and fluids removed from the property in accordance with applicable City, State and Federal laws and regulations. The RAWP also has a plan for importation of all soil, fill and other material from off-Site in accordance with all applicable City, State and Federal laws and requirements. This RAWP has provisions to control nuisances during the remediation and all invasive work, including dust and odor *suppression.*

Matthew Kamin
Name

080387-1
PE License Number

Signature

1/11/24
Date

PE Stamp

STATE OF NEW YORK
MATTHEW J. KAMIN
080387-1
LICENSED PROFESSIONAL ENGINEER

I, Ryan K. Powell, am a qualified Environmental Professional. I will have primary direct responsibility for implementation of the remedial program for the Fulton 11 site located 401-419 West 19th Street, Manhattan, NY and the Chelsea Elliott site located at 436 W. 27th Drive Manhattan, NY, site number 23CHA001M. I certify under the *appropriate standard of care to the following:*

- This Remedial Action Work Plan (RAWP) has a plan for handling, transport and disposal of remediation-related soil, fill and fluids removed from the property in accordance with applicable City, State and Federal laws and regulations. The RAWP also has a plan for importation of all soil, fill and other material from off-Site in accordance with all applicable City, State and Federal laws and requirements. This RAWP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

Ryan K. Powell
QEP Name

QEP Signature

1/11/2024
Date

STATE OF NEW YORK
RYAN K. POWELL
No.001035
PROFESSIONAL GEOLOGIST

EXECUTIVE SUMMARY

Elliott Fulton LLC is working with the NYC Department of Environmental Protection (DEP) to investigate and remediate two separate sites known as Fulton 11 (47,656 gross-square-feet) and the Chelsea Elliott Addition (65,136 gross-square-feet). The address for Fulton 11 is 401-419 West 19th Street, Manhattan, NY. The address for the Chelsea Elliott Addition is 436 West 27th Drive, Manhattan, NY. A remedial investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP). The remedial action described in this document provides for the protection of public health and the environment consistent with the intended property use, complies with applicable environmental standards, criteria and guidance and conforms with applicable laws and regulations.

Site Location and Background

The project site consists of two proposed buildings that will be constructed during the first stage of redevelopment:

Fulton 11, a 7-story, 47,656-gross-square-foot (gsf) apartment building (36 dwelling units) with approximately 10-foot deep basement, located at 401-419 W. 19th Street (Block 717, Lot 19), adjacent to the northwest corner of the W. 19th Street and 9th Avenue intersection.

Chelsea Elliot Addition, a 14-story, 65,136-gsf apartment building (96 dwelling units), 436 W. 27th Drive and the adjoining 2-story John Lovejoy Elliott Center (an approximately 42,225-gsf neighborhood center operated by Hudson Guild), with approximately 10-foot deep basement, located at 441 W. 26th Street (Block 724, Lot 10), on W. 27th Drive east of 10th Avenue. The Elliott Center is set back from W. 26th Street and entered via a footpath from W. 26th Street though its northern wall faces W. 27th Drive.

Summary of Redevelopment Plan

The development project demolition of these buildings and new construction that includes the following components:

In place of Fulton 11 and adjacent areas, a new 11-story (approximately 108.5-foot tall to roof) mixed use apartment building would be developed. It would include approximately 186 dwelling

units, 6,591 gsf of retail space, and 15,000 gsf of community facility space, with a total building area of approximately 196,191 gsf. It would have an approximately 10-foot deep basement. Proposed landscaping at the Site will consist of 2 feet of excavation to remove existing soil and replace with two feet of approved clean soil. Refer to the site plan which shows the location of the proposed building footprint relative to the footprint of Fulton 11.

In place of Chelsea Elliott Addition, the adjoining Elliott Center and adjacent areas, a new 38-story (approximately 396.5-foot tall) mixed use apartment building would be developed. It would include approximately 449 dwelling units and 28,229 gsf of community facility space, with a total building area of approximately 469,578 gsf. It would have an approximately 10-foot deep basement. Proposed landscaping at the Site will consist of 2 feet of excavation to remove existing soil and replace with two feet of approved clean soil. A proposed landscaped areas will be excavated two feet below grade. Refer to the site plan which shows the location of the proposed building footprint relative to the footprint of Chelsea Addition/Elliott Center.

The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

Summary of Past Site Uses and Areas of Concern

Hillmann Consulting, LLC completed a Phase I Environmental Site Assessment (ESA) dated April 21, 2022 for the Fulton locations. The recognized environmental conditions (RECs) from the ESA are listed in bullet form. The Phase I ESA is included in Attachment A.

Multiple historic uses of potential environmental concern occurred at the Property prior to the 1963-1965 construction of the present Property buildings, per review of Sanborn Fire Insurance Maps, as follows:

- Vinegar Factory at 424-426 West 17th Street (off the east side of the present Property Building 4) in 1895;
- “Chinese Laundry” at 101 and 119 9th Avenue (near present Property Buildings 2 and 7) in 1904;
- 165-car garage with auto-repair operations in the basement and a 1,500-gallon gasoline buried tank (in the vicinity of the present asphalt surface parking south of Building 2) and a 15-car private garage with a buried gasoline tank (capacity indecipherable) at 409 West

17th Avenue (off the west side of the present Property Building 7), and iron works 434-436 West 17th Avenue and 414 19th Avenue in 1921;

- Filling station (gas station), taxi garage and auto repair with multiple gasoline tanks depicted along ninth avenue between West 16th and West 17th Avenue and along West 16th and West 17th Avenue and an additional auto filling/service station with multiple gasoline tanks depicted at the northwest corner of 9th Avenue and West 17th Street (near the southern edge of the present Building 7) and auto painting (431-433 West 17th) and repair (443-445 West 17th), a motor freight terminal (410-412 West 19th) in 1950.

The aforementioned historic uses including a factory, laundry, iron works, motor freight station, auto filling/service stations with multiple gasoline tanks found at Fulton 11 was considered a REC.

Chelsea Elliott

Hillmann Consulting, LLC completed a Phase I Environmental Site Assessment (ESA) dated May 6, 2022 for the Chelsea-Elliot locations. The recognized environmental conditions (RECs) from the ESA are listed in bullet form.

Multiple historic uses of potential environmental concern, based on a review of Sanborn Fire Insurance Maps, occurred at the Property prior to the construction of the present Property buildings in the 1940's-1960's, as follows:

- N.Y. Edison Co. Sub Station/transformer station (452 West 27th Street – 1911-1930);
- Machine Shop (429 West 26th Street 1911);

Manufacturing (not specified) use (418-420 West 27th Street, 447-455 West 26th Street, 425-427 West 25th Street; 1911-1930);

Summary of Work Performed under the Remedial Investigation

Fulton Elliott LLC performed the following scope of work at Chelsea Elliott and Fulton 11:

Fulton 11

1. Conducted a Site inspection and geophysical survey at the Fulton 11 site to identify AOC, physical obstructions (i.e. structures, buildings, etc.);

2. Installed nine (9) soil borings across the Fulton 11 Site and collected fifteen (15) soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed four (4) groundwater monitoring wells throughout the Site to establish groundwater flow and collected four (4) groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed six (6) soil vapor probes around Site perimeter and collected six samples for chemical analysis.

Chelsea Elliott

1. Conducted a Site inspection and geophysical survey at the Chelsea Elliott site to identify AOC, physical obstructions (i.e. structures, buildings, etc.);
2. Installed eleven (11) soil borings across the Chelsea Elliott Site and collected eighteen (18) soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed five (5) groundwater monitoring wells throughout the Site to establish groundwater flow and collected five (5) groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed seven (7) soil vapor probes around Site perimeter and collected seven samples for chemical analysis.

Summary of Findings of Remedial Investigation

A remedial investigation was performed and the results are documented in a companion document called "Remedial Investigation Report, Fulton 11 and Chelsea Elliott", dated December 2023 (RIR). Summary of environmental findings for each site are detailed below.

Fulton 11 – Soil Chemistry

- No VOCs compounds were detected above the Unrestricted Use SCOs and Restricted Residential Use SCOs.
- Three metals were detected above the RRUSCOs including barium (max of 517 mg/kg), lead (max. of 1,070 mg/kg), and mercury (max of 1.2 mg/kg). One additional metal, zinc

(max. of 616 mg/kg) was the only metal above the UUSCO but below the RRUSCO. Remaining metals were either not detected or detected below the applicable SCO.

- Four pesticides including 4'4-DDD (max. of 0.099 mg/kg), 4,4'-DDE (max. of 1.34 mg/kg), 4,4'-DDT (max. of 1.58 mg/kg), and Dieldrin (max. of 0.012) were detected mainly in shallow samples above Track 1 Unrestricted Use Soil Cleanup Objectives. No pesticides were detected above Track 2 Restricted-Residential SCOs.
- SVOCs known as Polycyclic aromatic hydrocarbons (PAHs) were detected above both Track 1 Unrestricted Use SCOs and Track 2 Restricted-Residential SCOs. PAHs that were identified above both SCOs include Benzo[a]anthracene (max 10.6 mg/kg), Benzo[a]pyrene (max 9.82 mg/kg), Benzo[b]fluoranthene (max 9.82 mg/kg), Benzo[k]fluoranthene (max 9.27 mg/kg), Chrysene (max 9.92 mg/kg), Dibenz[a,h]anthracene (max 2.34 mg/kg) and Indeno[1,2,3-cd]pyrene (max 4.97 mg/kg) were detected in exceedance in both shallow and deep intervals. Remaining SVOC compounds analyzed were either not detected or detected below the applicable SCO.
- One PCB Aroclor 1254 (max. of 1.95 mg/kg) was detected in exceedance of RRUSCO found in the crawl space sample (SB6-419 CS) located at 419 W. 19th Street. Remaining PCB compounds were not detected in any other soil sample.

Chelsea Elliott – Soil Chemistry

- No VOC or PCB compounds were detected above the Unrestricted Use SCOs and Restricted Residential Use SCOs.
- Six metals were detected above its RRUSCO including barium (max of 2,180 mg/kg), cadmium (max of 12.80 mg/kg) copper (max. of 503 mg/kg), lead (max. of 2,680 mg/kg), manganese (max of 2,890 mg/kg) and mercury (max of 1.10 mg/kg). One additional metal, zinc (max. of 2,550 mg/kg) was the only metal above the UUSCO but below the RRUSCO. Remaining metals were either not detected or detected below the applicable SCO.
- Three pesticides including 4'4-DDD (max. of 0.011 mg/kg), 4,4'-DDE (max. of 0.095 mg/kg), 4,4'-DDT (max. of 0.096 mg/kg) were detected above the Track 1 Unrestricted Use Soil Cleanup Objectives. No pesticides were detected above Track 2 Restricted-Residential SCOs.

- Identical PAHs were detected above both Track 1 Unrestricted Use SCOs and Track 2 Restricted-Residential SCOs. PAHs that were identified above both SCOs include Benzo[a]anthracene (max 15.3 mg/kg), Benzo[a]pyrene (max 13.3 mg/kg), Benzo[b]fluoranthene (max 13.6 mg/kg), Benzo[k]fluoranthene (max 10.4 mg/kg), Chrysene (max 14.0 mg/kg), Dibenz[a,h]anthracene (max 3.51 mg/kg) and Indeno[1,2,3-cd]pyrene (max 7.05 mg/kg) were detected in exceedance in both shallow and deep intervals. Remaining SVOC compounds analyzed were either not detected or detected below the applicable SCO.

Fulton 11 – Groundwater Chemistry

- No pesticides or PCB compounds were identified above their AWQS.
- One VOC, tetrachloroethene was detected above the AWQS in two groundwater samples with a maximum concentration identified at 4.82 µg/L. Remaining analyzed compounds were either not detected or detected below the AWQS.
- Four undissolved metals were identified in exceedance above its AWQS that include beryllium (max of 3.3 µg/L), chromium (max of 66.7 µg/L), copper (max of 105 µg/L), lead (max of 299 µg/L), and sodium (max of 138,000 µg/L).
- Following field filtering, two dissolved metals, sodium and lead were still detected in exceedance above its AWQS. Remaining metals were either not detected or detected below its applicable AWQS.
- Four PAHs were detected above its applicable AWQS which include Benzo[a]anthracene (max. 10.8 µg/L), Benzo[b]fluoranthene (max. 7.43 µg/L), Benzo[k]fluoranthene (max 3.28 µg/L), Chrysene (max. 9.27 µg/L), and Indeno[1,2,3-cd]pyrene (max 3.57 µg/L). Remaining SVOC compounds analyzed were either not detected or detected below its applicable AWQS.

Chelsea Elliott – Groundwater Chemistry

- No pesticides or PCB compounds were identified above their AWQS.
- One VOC, chloroform was detected above the AWQS (max of 14.0 µg/L. Remaining analyzed compounds were either not detected or detected below the AWQS.

- Three undissolved metals were identified in exceedance above its AWQS that include lead (max. of 122 µg/L), selenium (max. of 10.5 µg/L) , and sodium (max. of 274,000 µg/L).
- Following field filtering, two dissolved metals, sodium and selenium were still detected in exceedance above its AWQS. Remaining metals, including lead, were either not detected or detected below its applicable AWQS.
- Four PAHs were detected above its applicable AWQS which include Benzo[a]anthracene (max. 10.8 µg/L), Benzo[b]fluoranthene (max. 7.43 µg/L), Benzo[k]fluoranthene (max 3.28 µg/L), Chrysene (max. 9.27 µg/L), and Indeno[1,2,3-cd]pyrene (max 3.57 µg/L). Remaining SVOC compounds analyzed were either not detected or detected below its applicable AWQS.

Fulton 11 – Soil Vapor Chemistry

- Chlorinated VOCs (CVOCs) detections included tetrachloroethene found at a maximum concentration of 100 $\mu g/m^3$ identified at the exterior portion of the Site. Other CVOCs including trichloroethene, methylene chloride, cis-1,2-dichloroethene, 1,1-dichloroethene, carbon tetrachloride, 1,1,1-trichloroethane, and vinyl chloride were either detected at low concentrations or not detected in the soil vapor sample.

Chelsea Elliott – Soil Vapor Chemistry

- Chlorinated VOCs (CVOCs) detections included tetrachloroethene found at a maximum concentration of 73 $\mu g/m^3$ found inside the basement of the Hudson Guild Center. Other CVOCs including trichloroethene, methylene chloride, cis-1,2-dichloroethene, 1,1-dichloroethene, carbon tetrachloride, 1,1,1-trichloroethane, and vinyl chloride were either detected at low concentrations or not detected in the soil vapor sample.

Summary of the Remedial Action

The proposed remedial action achieves protection of public health and the environment for the intended use of the property. The proposed remedial action achieves all of the remedial action objectives established for the project and addresses applicable standards, criterion, and guidance; is effective in both the short-term and long-term and reduces mobility, toxicity and volume of

contaminants; is cost effective and implementable; and uses standards methods that are well established in the industry.

The proposed remedial action for each Site will consist of:

1. Performance of a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
2. Selection of Restricted-Residential Use(Track 2) Soil Cleanup Objectives (SCOs).
3. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
4. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency dictated by disposal facility(s).
5. Excavation and removal of soil/fill exceeding Restricted-Residential (Track 2) SCOs.

   The footprint of the building area for Fulton 11 (about 95% of the property) will be partially excavated to a depth of approximately 10 feet below grade to facilitate the construction of a partial cellar and two feet below grade in on grade areas and in landscaped areas. A small portion of property will be excavated to the depth of 15 feet below grade for elevator pits. Approximately 21,300 tons of soil/fill will be removed from the Fulton 11 Site and properly disposed at an appropriately licensed or permitted facility.

   The footprint of the building area for Chelsea Elliott (about 85% of the property) will be excavated to a depth of approximately 10 feet below grade to facilitate the construction of a partial cellar and two feet below grade in on grade areas and in landscaped areas. A small portion of property will be excavated to the depth of 15 feet below grade for elevator pits. Approximately 24,322 tons of soil/fill will be removed from the Chelsea Elliott Site and properly disposed at an appropriately licensed or permitted facility.
6. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media on-Site.

7. Management of excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials.
8. Removal of all USTs that are encountered during soil/fill removal actions.

   Registration of tanks and reporting of any petroleum spills associated with USTs and appropriate closure of these petroleum spills in compliance with applicable local, State and Federal laws and regulations.
9. Transportation and off-Site disposal of all soil/fill material at licensed or permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media on-Site.
10. Collection and analysis of end-point samples to determine the performance of the remedy with respect to attainment of Track 2 SCOs.
11. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
12. Performance of all activities required for the remedial action, including acquisition of required permits and attainment of pretreatment requirements, in compliance with applicable laws and regulations.
13. If dewatering is planned or considered dewatering shall be in compliance with city, state, and federal laws and regulations. Extracted groundwater will either be containerized for off-site licensed or permitted disposal or will be treated under a permit from New York City Department of Environmental Protection (NYCDEP) to meet pretreatment requirements prior to discharge to the sewer system.
14. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
15. Submission of a Remedial Action Report (RAR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, and lists any changes from this RAWP. If Track 2 Unrestricted Use SCOs are not achieved, the following construction elements implemented as part of new development will constitute Engineering and Institutional Controls:

16. As part of development, construction of an engineered composite cover for both Sites, Fulton 11 and Elliott Chelsea will consist of a sixteen-inch thick concrete building slab below the partial cellar, an 8-inch thick concrete building slab below the on grade portions of the building underlain by a vapor barrier and 4-inch mud slab sub-base beneath all building areas, 4-inch poured concrete on a 6-inch clean gravel subbase in sidewalk and walkway areas, and two feet of clean soil in all open space and landscaped areas.
17. As part of development, installation of a air barrier system consisting of vapor barrier beneath the building slab and outside of sub-grade foundation sidewalls to mitigate soil vapor migration into the building. The vapor barrier system will consist of a 46-mil Grace Preprufe® 300R Plus below the slab throughout the full building area and a 32-mil Grace Preprufe® 160 Plus outside all sub-grade foundation sidewalls. All welds, seams and penetrations will be properly sealed to using Bituthene® Liquid Membrane to prevent preferential pathways for vapor migration.
18. If necessary, Submission of an approved Site Management Plan (SMP) in the Remedial Action Plan (RAR) for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency.
19. Recording of a Declaration of Covenants and Restrictions that includes a listing of Engineering Controls and Institutional Controls and a requirement that management of these controls must be in compliance with an approved SMP. Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without DEP-approval.

COMMUNITY PROTECTION STATEMENT

The NYC Department of Environmental Protection provides governmental oversight for the cleanup of contaminated property in NYC. This Remedial Action Work Plan ("cleanup plan") describes the findings of prior environmental studies, shows the location of identified contamination at the site, and describes the plans to clean up the site to protect public health and the environment.

This cleanup plan provides a very high level of protection for neighboring communities and also includes many other elements that address common community concerns, such as community air monitoring, odor, dust and noise controls, hours of operation, good housekeeping and cleanliness, truck management and routing, and opportunities for community participation. The purpose of this Community Protection Statement is to explain these community protection measures in non-technical language to simplify community review.

Project Information:

- Site Names: Fulton 11 and Chelsea Elliott Addition
- Site Address: 401-419 West 19th Street (Fulton 11), Manhattan, NY
  436 West 27th Drive (Chelsea Elliott Addition), Manhattan, NY
- NYC DEP Project Number: CEQR# 23CHA001M

Remedial Investigation and Cleanup Plan: Under the oversight of the NYC DEP, a thorough study of this property (called a remedial investigation) has been performed to identify past property usage, to sample and test soils, groundwater and soil vapor, and to identify contaminant sources present on the property. The cleanup plan has been designed to address all contaminant sources that have been identified during the study of this property.

Identification of Sensitive Land Uses: Prior to selecting a cleanup, the neighborhood was evaluated to identify sensitive land uses nearby, such as schools, day care facilities, hospitals and

residential areas. The cleanup program was then tailored to address the special conditions of this community.

Qualitative Human Health Exposure Assessment: An important part of the cleanup planning for the Site is a study to find all of the ways that people might come in contact with contaminants at the Site now or in the future. This study is called a Qualitative Human Health Exposure Assessment (QHHEA). A QHHEA was performed for this project. This assessment has considered all known contamination at the Site and evaluated the potential for people to come in contact with this contamination. All identified public exposures will be addressed under this cleanup plan.

Health and Safety Plan: This cleanup plan includes a Construction Health and Safety Plan (CHASP) that is designed to protect community residents and on-Site workers. The elements of this RAWP are in compliance with applicable safety requirements of the United States Occupational Safety and Health Administration (OSHA). This RAWP includes many protective elements including those discussed below.

Site Safety Coordinator: This project has a designated Site safety coordinator to implement the CHASP. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site safety coordinator is identified at the beginning of this Community Protection Statement.

Worker Training: Workers participating in cleanup of contaminated material on this project are required to be trained in a 40-hour hazardous waste operators training course and to take annual refresher training. This pertains to workers performing specific tasks including removing contaminated material and installing cleanup systems in contaminated areas.

Community Air Monitoring Plan: Community air monitoring will be performed during this cleanup project to ensure that the community is properly protected from contaminants, dust and odors. Air samples will be tested in accordance with a detailed plan called the Community

Air Monitoring Plan or CAMP. This cleanup plan also has a plan to address any unforeseen problems that might occur during the cleanup (called a 'Contingency Plan').

Odor, Dust and Noise Control: This cleanup plan includes actions for odor and dust control. These actions are designed to prevent off-Site odor and dust nuisances and includes steps to be taken if nuisances are detected. Generally, dust is managed by application of physical covers and by water sprays. Odors are controlled by limiting the area of open excavations, physical covers, spray foams and by a series of other actions (called operational measures). The project is also required to comply with applicable NYC noise control standards. If you observe problems in these areas, please contact the onsite Project Manager or NYC Department of Environmental Protection agency.

Quality Assurance: This cleanup plan requires that evidence be provided to illustrate that all cleanup work required under the plan has been completed properly. This evidence will be summarized in the final report, called the Remedial Action Report. This report will be submitted to the NYC Department of Environmental Protection agency and will be thoroughly reviewed.

Stormwater Management: To limit the potential for soil erosion and discharge, this cleanup plan has provisions for stormwater management. The main elements of the stormwater management include physical barriers such as tarp covers and erosion fencing, and a program for frequent inspection.

Hours of Operation: The hours for operation of cleanup will comply with the NYC Department of Buildings construction code requirements or according to specific variances issued by that agency. For this cleanup project, the hours of operation will conform to requirements of the NYC Department of Buildings.

Complaint Management: The contractor performing this cleanup is required to address all complaints. If you have any complaints, you can call the facility Project Manager or the NYC Office of Environmental Remediation Project Manager listed on the first page of this Community

Protection Statement document, or call 311 and mention the Site is in the NYC Voluntary Cleanup Program.

Utility Mark-outs: To promote safety during excavation in this cleanup, the contractor is required to first identify all utilities and must perform all excavation and construction work in compliance with NYC Department of Buildings regulations.

Soil and Liquid Disposal: All soil and liquid material removed from the Site as part of the cleanup will be transported and disposed of in accordance with all applicable City, State and Federal regulations, and required permits will be obtained.

Soil Chemical Testing and Screening: All excavations will be supervised by a trained and properly qualified environmental professional. In addition to extensive sampling and chemical testing of soils on the Site, excavated soil will be screened continuously using hand-held instruments, by sight, and by smell to ensure proper material handling and management, and community protection.

Stockpile Management: Soil stockpiles will be kept covered with tarps to prevent dust, odor and erosion. Stockpiles will be frequently inspected. Damaged tarp covers will be promptly replaced. Stockpiles will be protected with silt fences. Hay bales will be used, as needed, to protect storm water catch basins and other discharge points.

Trucks and Covers: Loaded trucks leaving the Site will be covered in compliance with applicable laws and regulations to prevent dust and odor. Trucks will be properly recorded in logs and records and placarded in compliance with applicable City, State and Federal laws, including those of the New York State Department of Transportation. If loads contain wet material that can leak, truck liners will be used. All transport of materials will be performed by licensed truckers and in compliance with applicable laws and regulations.

Imported Material: All fill materials proposed to be brought onto the Site will comply with rules outlined in this cleanup plan and will be inspected and approved by a qualified worker located on the Site. Waste materials will not be brought onto the Site. Trucks entering the Site with imported clean materials will be covered in compliance with applicable laws and regulations.

Equipment Decontamination: All equipment used for cleanup work will be inspected and washed, if needed, before it leaves the Site. Trucks will be cleaned at a truck inspection station on the property before leaving the Site.

Housekeeping: Locations where trucks enter or leave the Site will be inspected every day and cleaned regularly to ensure that they are free of dirt and other materials from the Site.

Truck Routing: Truck routes have been selected to: (a) limit transport through residential areas and past sensitive nearby properties; (b) maximize use of city-mapped truck routes; (c) limit total distance to major highways; (d) promote safety in entry to highways; (e) promote overall safety in trucking; and (f) minimize off-Site line-ups (queuing) of trucks entering the property. Operators of loaded trucks leaving the Site will be instructed not to stop or idle in the local neighborhood.

Final Report: The results of all cleanup work will be fully documented in a final report (called the Remedial Action Report) that will be available for public review online. A link to the online document repository and the public library with Internet access nearest the Site are listed on the first page of this Community Protection Statement document

Long-Term Site Management: If long-term protection is needed after the cleanup is complete, the property owner will be required to comply with an ongoing Site Management Plan that calls for continued inspection of protective controls, such as Site covers. The Site Management Plan is evaluated and approved by the NYC Department of Environmental Protection. Requirements that the property owner must comply with are defined either in the property's deed or established through a city environmental designation registered with the

Department of Buildings. A certification of continued protectiveness of the cleanup will be required from time to time to show that the approved cleanup is still effective.

REMEDIAL ACTION WORK PLAN

1.0 Project Background

Elliott Fulton LLC is working with the NYC Department of Environmental Protection (DEP) to investigate and remediate two properties known and located as Fulton 11 at 401-419 W. 19th Street (Block 717, Lot 19), adjacent to the northwest corner of the W. 19th Street and 9th Avenue intersection and Chelsea Elliott Addition at 436 W. 27th Drive (Block 724, Lot 10) both in Manhattan, New York (the "Sites"). A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP) in a manner that will render the Site protective of public health and the environment consistent with the contemplated end use. This RAWP establishes remedial action objectives, provides a remedial alternatives analysis that includes consideration of a permanent cleanup, and provides a description of the selected remedial action. The remedial action described in this document provides for the protection of public health and the environment, and complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

1.1 Site Location and Background

The project site consists of two proposed buildings that will be constructed during the first stage of redevelopment:

Fulton 11, a 7-story, 47,656-gross-square-foot (gsf) apartment building (36 dwelling units) with approximately 10-foot deep basement, located at 401-419 W. 19th Street (Block 717, Lot 19), adjacent to the northwest corner of the W. 19th Street and 9th Avenue intersection.

Chelsea Elliot Addition, a 14-story, 65,136-gsf apartment building (96 dwelling units), 436 W. 27th Drive and the adjoining 2-story John Lovejoy Elliott Center (an approximately 42,225-gsf neighborhood center operated by Hudson Guild), with approximately 10-foot deep basement, located at 441 W. 26th Street (Block 724, Lot 10), on W. 27th Drive east of 10th Avenue. The Elliott Center is set back from W. 26th Street and entered via a footpath from W. 26th Street though its northern wall faces W. 27th Drive.

1.2 Redevelopment Plan

The development project demolition of these buildings and new construction that includes the following components:

In place of Fulton 11 and adjacent areas, a new 11-story (approximately 108.5-foot tall to roof) mixed use apartment building would be developed. It would include approximately 186 dwelling units, 6,591 gsf of retail space, and 15,000 gsf of community facility space, with a total building area of approximately 196,191 gsf. It would have an approximately 10-foot deep basement. Proposed landscaping at the Site will consist of 2 feet of excavation to remove existing soil and replace with two feet of approved clean soil. Refer to the site plan which shows the location of the proposed building footprint relative to the footprint of Fulton 11.

In place of Chelsea Elliott Addition, the adjoining Elliott Center and adjacent areas, a new 38-story (approximately 396.5-foot tall) mixed use apartment building would be developed. It would include approximately 449 dwelling units and 28,229 gsf of community facility space, with a total building area of approximately 469,578 gsf. It would have an approximately 10-foot deep basement. Proposed landscaping at the Site will consist of 2 feet of excavation to remove existing soil and replace with two feet of approved clean soil. A proposed landscaped areas will be excavated two feet below grade. Refer to the site plan which shows the location of the proposed building footprint relative to the footprint of Chelsea Addition/Elliott Center.

The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

1.3 Description of Surrounding Property

Adjoining properties that surround each Site consists of residential apartments buildings to the north and west and mixed residential buildings to the south and east.

1.4 Summary of Past Site Uses and Areas of Concern

Hillmann Consulting, LLC completed a Phase I Environmental Site Assessment (ESA) dated April 21, 2022 for the Fulton locations. The recognized environmental conditions (RECs) from the ESA are listed in bullet form. The Phase I ESA is included in Attachment A.

Multiple historic uses of potential environmental concern occurred at the Property prior to the 1963-1965 construction of the present Property buildings, per review of Sanborn Fire Insurance Maps, as follows:

- Vinegar Factory at 424-426 West 17th Street (off the east side of the present Property Building 4) in 1895;
- "Chinese Laundry" at 101 and 119 9th Avenue (near present Property Buildings 2 and 7) in 1904;
- 165-car garage with auto-repair operations in the basement and a 1,500-gallon gasoline buried tank (in the vicinity of the present asphalt surface parking south of Building 2) and a 15-car private garage with a buried gasoline tank (capacity indecipherable) at 409 West 17th Avenue (off the west side of the present Property Building 7), and iron works 434-436 West 17th Avenue and 414 19th Avenue in 1921;
- Filling station (gas station), taxi garage and auto repair with multiple gasoline tanks depicted along ninth avenue between West 16th and West 17th Avenue and along West 16th and West 17th Avenue and an additional auto filling/service station with multiple gasoline tanks depicted at the northwest corner of 9th Avenue and West 17th Street (near the southern edge of the present Building 7) and auto painting (431-433 West 17th) and repair (443-445 West 17th), a motor freight terminal (410-412 West 19th) in 1950.

The aforementioned historic uses including a factory, laundry, iron works, motor freight station, auto filling/service stations with multiple gasoline tanks found at Fulton 11 was considered a REC.

Chelsea Elliott

Hillmann Consulting, LLC completed a Phase I Environmental Site Assessment (ESA) dated May 6, 2022 for the Chelsea-Elliot locations. The recognized environmental conditions (RECs) from the ESA are listed in bullet form.

Multiple historic uses of potential environmental concern, based on a review of Sanborn Fire Insurance Maps, occurred at the Property prior to the construction of the present Property buildings in the 1940's-1960's, as follows:

- N.Y. Edison Co. Sub Station/transformer station (452 West 27th Street – 1911-1930);
- Machine Shop (429 West 26th Street 1911);

Manufacturing (not specified) use (418-420 West 27th Street, 447-455 West 26th Street, 425-427 West 25th Street; 1911-1930);

1.5 Summary of Work Performed under the Remedial Investigation

Fulton Elliott LLC performed the following scope of work at Chelsea Elliott and Fulton 11:

Fulton 11

1. Conducted a Site inspection and geophysical survey at the Fulton 11 site to identify AOC, physical obstructions (i.e. structures, buildings, etc.);
2. Installed nine (9) soil borings across the Fulton 11 Site and collected fifteen (15) soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed four (4) groundwater monitoring wells throughout the Site to establish groundwater flow and collected four (4) groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed six (6) soil vapor probes around Site perimeter and collected six samples for chemical analysis.

Chelsea Elliott

1. Conducted a Site inspection and geophysical survey at the Chelsea Elliott site to identify AOC, physical obstructions (i.e. structures, buildings, etc.);
2. Installed eleven (11) soil borings across the Chelsea Elliott Site and collected eighteen (18) soil samples for chemical analysis from the soil borings to evaluate soil quality;

3. Installed five (5) groundwater monitoring wells throughout the Site to establish groundwater flow and collected five (5) groundwater samples for chemical analysis to evaluate groundwater quality;

4. Installed seven (7) soil vapor probes around Site perimeter and collected seven samples for chemical analysis.

1.6 Summary of Findings of Remedial Investigation

A remedial investigation was performed and the results are documented in a companion document called "Remedial Investigation Report, Fulton 11 and Chelsea Elliott", dated December 2023 (RIR). Summary of environmental findings for each site are detailed below.

Fulton 11 – Soil Chemistry

- No VOCs compounds were detected above the Unrestricted Use SCOs and Restricted Residential Use SCOs.
- Three metals were detected above the RRUSCOs including barium (max of 517 mg/kg), lead (max. of 1,070 mg/kg), and mercury (max of 1.2 mg/kg). One additional metal, zinc (max. of 616 mg/kg) was the only metal above the UUSCO but below the RRUSCO. Remaining metals were either not detected or detected below the applicable SCO.
- Four pesticides including 4'4-DDD (max. of 0.099 mg/kg), 4,4'-DDE (max. of 1.34 mg/kg), 4,4'-DDT (max. of 1.58 mg/kg), and Dieldrin (max. of 0.012) were detected mainly in shallow samples above Track 1 Unrestricted Use Soil Cleanup Objectives. No pesticides were detected above Track 2 Restricted-Residential SCOs.
- SVOCs known as Polycyclic aromatic hydrocarbons (PAHs) were detected above both Track 1 Unrestricted Use SCOs and Track 2 Restricted-Residential SCOs. PAHs that were identified above both SCOs include Benzo[a]anthracene (max 10.6 mg/kg), Benzo[a]pyrene (max 9.82 mg/kg), Benzo[b]fluoranthene (max 9.82 mg/kg), Benzo[k]fluoranthene (max 9.27 mg/kg), Chrysene (max 9.92 mg/kg), Dibenz[a,h]anthracene (max 2.34 mg/kg) and Indeno[1,2,3-cd]pyrene (max 4.97 mg/kg) were detected in exceedance in both shallow and deep intervals. Remaining SVOC compounds analyzed were either not detected or detected below the applicable SCO.

- One PCB Aroclor 1254 (max. of 1.95 mg/kg) was detected in exceedance of RRUSCO found in the crawl space sample (SB6-419 CS) located at 419 W. 19th Street. Remaining PCB compounds were not detected in any other soil sample.

Chelsea Elliott – Soil Chemistry

- No VOC or PCB compounds were detected above the Unrestricted Use SCOs and Restricted Residential Use SCOs.
- Six metals were detected above its RRUSCO including barium (max of 2,180 mg/kg), cadmium (max of 12.80 mg/kg) copper (max. of 503 mg/kg), lead (max. of 2,680 mg/kg), manganese (max of 2,890 mg/kg) and mercury (max of 1.10 mg/kg). One additional metal, zinc (max. of 2,550 mg/kg) was the only metal above the UUSCO but below the RRUSCO. Remaining metals were either not detected or detected below the applicable SCO.
- Three pesticides including 4'4-DDD (max. of 0.011 mg/kg), 4,4'-DDE (max. of 0.095 mg/kg), 4,4'-DDT (max. of 0.096 mg/kg) were detected above the Track 1 Unrestricted Use Soil Cleanup Objectives. No pesticides were detected above Track 2 Restricted-Residential SCOs.
- Identical PAHs were detected above both Track 1 Unrestricted Use SCOs and Track 2 Restricted-Residential SCOs. PAHs that were identified above both SCOs include Benzo[a]anthracene (max 15.3 mg/kg), Benzo[a]pyrene (max 13.3 mg/kg), Benzo[b]fluoranthene (max 13.6 mg/kg), Benzo[k]fluoranthene (max 10.4 mg/kg), Chrysene (max 14.0 mg/kg), Dibenz[a,h]anthracene (max 3.51 mg/kg) and Indeno[1,2,3-cd]pyrene (max 7.05 mg/kg) were detected in exceedance in both shallow and deep intervals. Remaining SVOC compounds analyzed were either not detected or detected below the applicable SCO.

Fulton 11 – Groundwater Chemistry

- No pesticides or PCB compounds were identified above their AWQS.
- One VOC, tetrachloroethene was detected above the AWQS in two groundwater samples with a maximum concentration identified at 4.82 µg/L. Remaining analyzed compounds were either not detected or detected below the AWQS.

- Four undissolved metals were identified in exceedance above its AWQS that include beryllium (max of 3.3 µg/L), chromium (max of 66.7 µg/L), copper (max of 105 µg/L), lead (max of 299 µg/L), and sodium (max of 138,000 µg/L).
- Following field filtering, two dissolved metals, sodium and lead were still detected in exceedance above its AWQS. Remaining metals were either not detected or detected below its applicable AWQS.
- Four PAHs were detected above its applicable AWQS which include Benzo[a]anthracene (max. 10.8 µg/L), Benzo[b]fluoranthene (max. 7.43 µg/L), Benzo[k]fluoranthene (max 3.28 µg/L), Chrysene (max. 9.27 µg/L), and Indeno[1,2,3-cd]pyrene (max 3.57 µg/L). Remaining SVOC compounds analyzed were either not detected or detected below its applicable AWQS.

Chelsea Elliott – Groundwater Chemistry

- No pesticides or PCB compounds were identified above their AWQS.
- One VOC, chloroform was detected above the AWQS (max of 14.0 µg/L. Remaining analyzed compounds were either not detected or detected below the AWQS.
- Three undissolved metals were identified in exceedance above its AWQS that include lead (max. of 122 µg/L), selenium (max. of 10.5 µg/L) , and sodium (max. of 274,000 µg/L).
- Following field filtering, two dissolved metals, sodium and selenium were still detected in exceedance above its AWQS. Remaining metals, including lead, were either not detected or detected below its applicable AWQS.
- Four PAHs were detected above its applicable AWQS which include Benzo[a]anthracene (max. 10.8 µg/L), Benzo[b]fluoranthene (max. 7.43 µg/L), Benzo[k]fluoranthene (max 3.28 µg/L), Chrysene (max. 9.27 µg/L), and Indeno[1,2,3-cd]pyrene (max 3.57 µg/L). Remaining SVOC compounds analyzed were either not detected or detected below its applicable AWQS.

Fulton 11 – Soil Vapor Chemistry

- Chlorinated VOCs (CVOCs) detections included tetrachloroethene found at a maximum concentration of 100 µg/m^3 identified at the exterior portion of the Site. Other CVOCs

including trichloroethene, methylene chloride, cis-1,2-dichloroethene, 1,1-dichloroethene, carbon tetrachloride, 1,1,1-trichloroethane, and vinyl chloride were either detected at low concentrations or not detected in the soil vapor sample.

Chelsea Elliott – Soil Vapor Chemistry

- Chlorinated VOCs (CVOCs) detections included tetrachloroethene found at a maximum concentration of 73 $\mu g/m^3$ found inside the basement of the Hudson Guild Center. Other CVOCs including trichloroethene, methylene chloride, cis-1,2-dichloroethene, 1,1-dichloroethene, carbon tetrachloride, 1,1,1-trichloroethane, and vinyl chloride were either detected at low concentrations or not detected in the soil vapor sample.

For more detailed results, consult the RIR. Based on an evaluation of the data and information from the RIR and this RAWP, disposal of significant amounts of hazardous waste is not suspected at this site.

2.0 Remedial Action Objectives

Based on the results of the RI, the following Remedial Action Objectives (RAOs) have been identified for this Site:

Soil

- Prevent direct contact with contaminated soil.
- Prevent exposure to contaminants volatilizing from contaminated soil.
- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Groundwater

- Remove contaminant sources causing impact to groundwater.
- Monitor groundwater improvement in response to contaminant source removal and/or treatment.
- Prevent direct exposure to contaminated groundwater.
- Prevent exposure to contaminants volatilizing from contaminated groundwater.

- Prevent off-Site migration of contaminated groundwater above applicable groundwater standards.

Soil Vapor

- Prevent exposure to contaminants in soil vapor.
- Prevent migration of soil vapor into dwelling and other occupied structures.

3.0 Remedial Alternatives Analysis

The goal of the remedy selection process is to select a remedy that is protective of human health and the environment taking into consideration the current, intended and reasonably anticipated future use of the property. The remedy selection process begins by establishing RAOs for media in which chemical constituents were found in exceedance of applicable standards, criteria and guidance values (SCGs). Remedial alternatives are then developed and evaluated based on the following ten criteria:

- Protection of human health and the environment;
- Compliance with SCGs;
- Short-term effectiveness and impacts;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume of contaminated material;
- Implementability;
- Cost effectiveness;
- Community acceptance;
- Land use; and
- Sustainability.

As required, a Track 1 Unrestricted Use scenario is evaluated for the remedial action. The following is a detailed description of the alternatives analyzed to address impacted media at the Site:

Alternative 1:

- Selection of NYSDEC 6NYCRR Part 375 Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs).
- Removal of all soil/fill exceeding Track 1 Unrestricted Use SCOs throughout the Site and confirmation that Track 1 Unrestricted Use SCOs have been achieved with post-excavation endpoint sampling. Based on the results of the Remedial Investigation, it is expected that this alternative would be achieved by excavating beyond the proposed construction depth at each Site to a depth of approximately to 15-20 feet below grade to ensure the removal of historic fill at both Fulton 11 and Chelsea Elliott Addition. If soil/fill containing analytes at concentrations above Unrestricted Use SCOs is still present at the base of the excavation

after removal of all soil required for construction of the new building's cellar level is complete, additional excavation would be performed to ensure complete removal of soil/ fill that does not meet Track 1 Unrestricted Use SCOs.

- No Engineering or Institutional Controls are required for a Track 1 cleanup. However, as part of development, a vapor barrier would be installed to prevent potential exposures from soil vapor in the future.

Alternative 2:

- Removal of all soil/fill exceeding Track 2 Restricted-Residential SCOs and confirmation that Track 2 Restricted-Residential Use SCOs have been achieved with post-excavation end point sampling. Based on the results of the Remedial Investigation, it is expected that SCOs would be achieved by excavating for construction of the new building's partial cellar to a depth of approximately 10-12 feet below grade, 2 feet below grade for remaining portions of the building to be constructed as slab on grade and 2 feet below grade for any proposed landscaped/green space areas across the Sites. If soil/fill containing analytes at concentrations above Track 2 Restricted-Residential SCOs is still present at the base of the excavation, the following tasks will apply;
- Placement of a composite cover system over the entire Site to prevent exposure to remaining soil/fill;
- Installation of a vapor barrier system beneath the building slab and along foundation side walls to prevent potential exposures from soil vapor;
- Establishment of use restrictions including prohibitions on the use of groundwater from the Site; prohibitions of restricted Site uses, such as farming or vegetable gardening, to prevent future exposure pathways; and prohibition of a higher level of land use without DEP approval;
- Establishment of an approved Site Management Plan (SMP) to ensure long-term management of these Engineering and Institutional Controls including the performance of periodic inspections and certification that the controls are performing as they were intended. The SMP will note that the property owner and property owner’s successors and assigns must comply with the approved SMP; and

- Placement of a deed notice to record the ECs/ICs on the deed to ensure that future owners of the Site continue to comply with the SMP, as required.

3.1 Threshold Criteria

Protection of Public Health and the Environment

This criterion is an evaluation of the remedy's ability to protect public health and the environment, and an assessment of how risks posed through each existing or potential pathway of exposure are eliminated, reduced or controlled through removal, treatment, and implementation of Engineering Controls or Institutional Controls. Protection of public health and the environment must be achieved for all approved remedial actions.

Alternative 1 would be protective of human health and the environment by removing all soil/fill exceeding Track 1 Unrestricted Use SCOs and groundwater protection standards, thus eliminating potential for direct contact with contaminated soil/fill once construction is complete and eliminating the risk of contaminants leaching into groundwater.

Alternative 2 would achieve comparable protections of human health and the environment by excavation and removal of most of the historic fill at the Site and by ensuring that remaining soil/fill on-Site meets Track 2 Restricted-Residential Use SCOs, as well as by placement of Institutional and Engineering Controls, including a composite cover system. The composite cover system would prevent direct contact with any remaining on-Site soil/fill. Implementing Institutional Controls including a Site Management Plan a deed notice on the property would ensure that the composite cover system remains intact and protective of public health. Establishment of Track 2 Restricted-Residential Use SCOs would minimize the risk of contamination leaching into groundwater.

For both Alternatives, potential exposure to contaminated soils or groundwater during construction would be minimized by implementing a Construction Health and Safety Plan, an approved Soil/Materials Management Plan, and Community Air Monitoring Plan (CAMP). Potential contact with contaminated groundwater would be prevented as its use is prohibited by city laws and regulations. Potential future migration of off-Site soil vapors into the new building would be

prevented by installing a vapor barrier below the building slab and outside foundations walls below grade.

3.2 Balancing Criteria Compliance with Standards, Criteria and Guidance (SCGs)

This evaluation criterion assesses the ability of the alternative to achieve applicable standards, criteria and guidance.

Alternative 1 would achieve compliance with the remedial goals, chemical-specific SCGs and RAOs for soil through removal of soil to achieve Track 1 Unrestricted Use SCOs and Protection of Groundwater SCOs. Compliance with SCGs for soil vapor would also be achieved by installing a waterproofing/vapor barrier system below the new building's basement slab and continuing the vapor barrier outside of subgrade foundation walls, as part of development.

Alternative 2 would achieve compliance with the remedial goals, chemical-specific SCG's and RAOs for soil through removal of soil to meet Track 2 Restricted-Residential Use SCOs. Compliance with SCGs for soil vapor would also be achieved by installing a waterproofing/vapor barrier system below the new building's basement slab and continuing the vapor barrier outside of subgrade foundation walls. A Site Management Plan would ensure that these controls remained protective for the long term.

Health and safety measures contained in the CHASP and Community Air Monitoring Plan (CAMP) will be implemented during Site redevelopment under this RAWP. For both Alternatives, focused attention on means and methods employed during the remedial action would ensure that handling and management of contaminated material would be in compliance with applicable SCGs. These measures will protect on-site workers and the surrounding community from exposure to Site-related contaminants.

Short Term Effectiveness and Impacts

This evaluation criterion assesses the effects of the alternative during the construction and implementation phase until remedial action objectives are met. Under this criterion, alternatives

are evaluated with respect to their short-term effects during the remedial action on public health and the environment during implementation of the remedial action, including protection of the community, protection of onsite workers and environmental impacts.

Both Alternative 1 and 2 have similar short-term effectiveness during their implementation, as each requires excavation of historic fill material. Both alternatives would result in short-term dust generation impacts associated with excavation, handling, load out of materials, and truck traffic. Short-term impacts could potentially be higher for Alternative 1 since excavation of greater amounts of historical fill material would take place. However, focused attention to means and methods during a Track 1 removal action, including community air monitoring and appropriate truck routing, would minimize the overall impact of these activities.

An additional short-term adverse impact and risks to the community associated with both remedial alternatives is increased truck traffic. Truck traffic will be routed on the most direct course using major thoroughfares where possible and flag persons will be used to protect pedestrians at Site entrances and exits.

The potential adverse impact to the community, workers and the environment for both alternatives would be minimized through implementation of control plans including a Construction Health and Safety Plan, a Community Air Monitoring Plan (CAMP) and a Soil/Materials Management Plan (SMMP), during all on-Site soil disturbance activities and would minimize the release of contaminants into the environment. Both alternatives provide short-term effectiveness in protecting the surrounding community by decreasing the risk of contact with on-Site contaminants. Construction workers operating under appropriate management procedures and a Construction Health and Safety Plan (CHASP) would provide protection from on-Site contaminants by using personal protective equipment would be worn consistent with the documented risks within the respective work zones.

Long-term effectiveness and permanence

This evaluation criterion addresses the results of a remedial action in terms of its permanence and quantity/nature of waste or residual contamination remaining at the Site after response objectives have been met, such as permanence of the remedial alternative, magnitude of remaining contamination, adequacy of controls including the adequacy and suitability of Engineering Controls/Institutional Controls (ECs/ICs) that may be used to manage contaminant residuals that

remain at the Site and assessment of containment systems and ICs that are designed to eliminate exposures to contaminants, and long-term reliability of ECs.

Alternative 1 would achieve long-term effectiveness and permanence related to on-Site contamination by permanently removing all impacted soil/fill above Track 1 Unrestricted Use SCOs. Removal of on-Site contaminant sources will also prevent future groundwater contamination.

Alternative 2 would provide long-term effectiveness by removing most on-Site contamination and attaining Track 2 Restricted-Residential Use SCOs; installing a composite cover system across the Site; maintaining use restrictions; and establishing an SMP to ensure long-term management of ICs and ECs. The SMP would ensure long-term effectiveness of all ECs and ICs by requiring periodic inspection and certification that these controls and restrictions continue to be in place and are functioning as they were intended, assuring that protections designed into the remedy continue to provide the required level of protection.

Reduction of toxicity, mobility, or volume of contaminated material

This evaluation criterion assesses the remedial alternative's use of remedial technologies that permanently and significantly reduce toxicity, mobility, or volume of contaminants as their principal element. The following is the hierarchy of source removal and control measures that are to be used to remediate a Site, ranked from most preferable to least preferable: removal and/or treatment, containment, elimination of exposure and treatment of source at the point of exposure. It is preferred to use treatment or removal to eliminate contaminants at a Site, reduce the total mass of toxic contaminants, cause irreversible reduction in contaminants mobility, or reduce of total volume of contaminated media.

Alternative 1 will permanently eliminate the toxicity, mobility, and volume of contaminants from on-Site soil by removing all soil in excess of Track 1 Unrestricted Use SCOs. Alternative 2 would remove most of the historic fill at the Site, and all remaining on-Site soil/fill beneath the new building will meet Track 2 Restricted-Residential Use SCOs.

Alternative 1 would remove a greater total mass of contaminants from the Site. The removal of soil to 15-20 feet bgs for the new development in both scenarios would lessen the difference in contaminant mass removal between these two alternatives.

Implementability

This evaluation criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation, including technical feasibility of construction and operation, reliability of the selected technology, ease of undertaking remedial action, monitoring considerations, administrative feasibility (e.g. obtaining permits for remedial activities), and availability of services and materials.

The techniques, materials and equipment to implement both Alternatives 1 and 2 are readily available and have been proven to be effective in remediating the contaminants present on the Site. They use standard equipment and technologies that are well established in the industry. The reliability of each remedy is also high. There are no special difficulties associated with any of the activities proposed.

Cost effectiveness

This evaluation criterion addresses the cost of alternatives, including capital costs (such as construction costs, equipment costs, and disposal costs, engineering expenses) and site management costs (costs incurred after remedial construction is complete) necessary to ensure the continued effectiveness of a remedial action.

Historic fill at the Site was found to extend to a depth between 2-6 feet below grade at Fulton 11 and between 3-14 feet below grade at Chelsea Elliott below grade during the RI. With each proposed building requiring partial excavation to a depth 10-12 feet for the cellar and footings and 2 feet below for slab on grade and landscaped areas the costs associated with both Alternative 1 and Alternative 2 will likely be comparable given the extent of construction. However, costs associated with Alternative 1 could potentially be higher than Alternative 2 if soil with analytes above Track 1 Unrestricted Use SCOs is encountered below the excavation depth required for development. Additional costs would include installation of additional shoring/underpinning, disposal of additional soil, and import of clean soil for backfill. However, long-term costs for

Alternative 2 are likely higher than Alternative 1 based on implementation of a Site Management Plan as part of Alternative 2.

The remedial plan would couple the remedial action with the redevelopment of the Site, lowering total costs. The remedial plan will also consider the selection of the most appropriate disposal facilities to reduce transportation and disposal costs during cleanup and redevelopment of the Site.

Land use

This evaluation criterion addresses the proposed use of the property. This evaluation has considered reasonably anticipated future uses of the Site and takes into account: current use and historical and/or recent development patterns; applicable zoning laws and maps; NYS Department of State's Brownfield Opportunity Areas (BOA) pursuant to section 970-r of the general municipal law; applicable land use plans; proximity to real property currently used for residential use, and to commercial, industrial, agricultural, and/or recreational areas; environmental justice impacts, Federal or State land use designations; population growth patterns and projections; accessibility to existing infrastructure; proximity of the site to important cultural resources and natural resources, potential vulnerability of groundwater to contamination that might emanate from the site, proximity to flood plains, geography and geology; and current Institutional Controls applicable to the site.

The current, intended, and reasonably anticipated future land use of the Site and its surroundings are compatible with the selected remedy of soil remediation. The proposed future use for Fulton 11 includes an 11-story, 186 dwelling mixed use apartment building with retail space and partial cellar. The proposed future use for Chelsea Elliott includes a 38-story mixed use apartment building with 449 dwellings for residents and partial cellar. Following remediation, each Site will meet either Track 1 Unrestricted Use or Track 2 Restricted Residential Use SCOs, both of which are protective of public health and the environment for its planned residential use. The proposed use is compliant with the property's zoning and is consistent with recent development patterns. The areas surrounding the site is urban and consists of predominantly mixed residential and commercial buildings in zoning districts designated for commercial and residential uses. Each new development would consist of razing the existing building and remediate the lot and provide a modern residential building. The proposed development would clean up the property and make it

safer, create new employment opportunities, living space for affordable and supportive housing and associated societal benefits to the community, and other economic benefits from land revitalization.

Temporary short-term project impacts are being mitigated through site management controls and truck traffic controls during remediation activities. Following remediation, the Site will meet either Track 1 Unrestricted Use SCOs or Track 2 Restricted-Residential Use SCOs, both of which are protective of public health and the environmental for its planned use.

The Site is not in close proximity to important cultural resources, including federal or state historic or heritage sites or Native American religious sites, natural resources, waterways, wildlife refuges, wetlands, or critical habitats of endangered or threatened species. The Site is located in an urban area and not in proximity to fish or wildlife and neither alternative would result in any potential exposure pathways of contaminant migration affecting fish or wildlife. The remedial action is also protective of groundwater natural resources. The Site does not lie in a Federal Emergency Management Agency (FEMA)-designated flood plain. Both alternatives are equally protective of natural resources and cultural resources. Improvements in the current environmental condition of the property achieved by both alternatives considered in this plan are consistent with the City's goals for cleanup of contaminated land.

Sustainability of the Remedial Action

This criterion evaluates the overall sustainability of the remedial action alternatives and the degree to which sustainable means are employed to implement the remedial action including those that take into consideration NYC's sustainability goals defined in PlaNYC: A Greener, Greater New York. Sustainability goals may include: maximizing the recycling and reuse of non-virgin materials; reducing the consumption of virgin and non-renewable resources; minimizing energy consumption and greenhouse gas emissions; improving energy efficiency; and promotion of the use of native vegetation and enhancing biodiversity during landscaping associated with Site development.

While Alternative 2 would potentially result in lower energy usage based on reducing the volume of material transported off-Site, both remedial alternatives are comparable with respect to the opportunity to achieve sustainable remedial action. The remedial plan for either alternative would take into consideration the shortest trucking routes during off-Site disposal of historic fill and other soils, which would reduce greenhouse gas emissions and conserve energy used to fuel trucks. The New York City Clean Soil Bank program is available for reuse of any clean native soils under either alternative. A complete list of green remedial activities considered as part of the NYC VCP is included in a Sustainability Statement.

4.0 Remedial Action

4.1 Summary of Preferred Remedial Action

The preferred remedial action alternative is Alternative 2, the Track 2 remedial action. The preferred remedial action achieves protection of public health and the environment for the intended use of the property. The preferred remedial action will achieve all of the remedial action objectives established for the project and addresses applicable SCGs. The preferred remedial action is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants. The preferred remedial action alternative is cost effective and implementable and uses standards methods that are well established in the industry.

The proposed remedial action for each Site will consist of:

1. Performance of a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
2. Selection of Restricted-Residential Use(Track 2) Soil Cleanup Objectives (SCOs).
3. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
4. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency dictated by disposal facility(s).
5. Excavation and removal of soil/fill exceeding Restricted-Residential (Track 2) SCOs.

   The footprint of the building area for Fulton 11 (about 95% of the property) will be partially excavated to a depth of approximately 10 feet below grade to facilitate the construction of a partial cellar and excavated 2 feet below grade in on grade areas and in landscaped areas. A small portion of property will be excavated to the depth of 15 feet below grade for elevator pits. Approximately 21,300 tons of soil/fill will be removed from the Fulton 11 Site and properly disposed at an appropriately licensed or permitted facility.

   The footprint of the building area for Chelsea Elliott (about 85% of the property) will be partially excavated to a depth of approximately 10 feet below grade to facilitate the construction of a partial cellar and excavated 2 feet below grade in on grade areas and in

landscaped areas. A small portion of property will be excavated to the depth of 15 feet below grade for elevator pits. Approximately 24,322 tons of soil/fill is proposed to be excavated from the Chelsea Elliott Site to be properly disposed of at an appropriately licensed or permitted facility.

6. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media on-Site.
7. Management of excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials.
8. Removal of all USTs that are encountered during soil/fill removal actions.

   Registration of tanks and reporting of any petroleum spills associated with USTs and appropriate closure of these petroleum spills in compliance with applicable local, State and Federal laws and regulations.
9. Transportation and off-Site disposal of all soil/fill material at licensed or permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media on-Site.
10. Collection and analysis of end-point samples to determine the performance of the remedy with respect to attainment of Track 2 SCOs.
11. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
12. Performance of all activities required for the remedial action, including acquisition of required permits and attainment of pretreatment requirements, in compliance with applicable laws and regulations.
13. If dewatering is planned or considered dewatering shall be in compliance with city, state, and federal laws and regulations. Extracted groundwater will either be containerized for off-site licensed or permitted disposal or will be treated under a permit from New York City Department of Environmental Protection (NYCDEP) to meet pretreatment requirements prior to discharge to the sewer system.

14. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
15. Submission of a Remedial Action Report (RAR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, and lists any changes from this RAWP. If Track 2 Unrestricted Use SCOs are not achieved, the following construction elements implemented as part of new development will constitute Engineering and Institutional Controls:
16. As part of development, construction of an engineered composite cover for both Sites, Fulton 11 and Elliott Chelsea will consist of a sixteen-inch thick concrete building slab below the partial cellar, an 8-inch thick concrete building slab below the on grade portions of the building underlain by a vapor barrier and 4-inch mud slab sub-base beneath all building areas, 4-inch poured concrete on a 6-inch clean gravel subbase in sidewalk and walkway areas, and two feet of clean soil in all open space and landscaped areas.
17. As part of development, installation of a air barrier system consisting of vapor barrier beneath the building slab and outside of sub-grade foundation sidewalls to mitigate soil vapor migration into the building. The vapor barrier system will consist of a 46-mil Grace Preprufe® 300R Plus below the slab throughout the full building area and a 32-mil Grace Preprufe® 160 Plus outside all sub-grade foundation sidewalls. All welds, seams and penetrations will be properly sealed to using Bituthene® Liquid Membrane to prevent preferential pathways for vapor migration.
18. If necessary, Submission of an approved Site Management Plan (SMP) in the Remedial Action Plan (RAR) for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency.
19. Recording of a Declaration of Covenants and Restrictions that includes a listing of Engineering Controls and Institutional Controls and a requirement that management of these controls must be in compliance with an approved SMP. Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without DEP-approval.

4.2 Soil Cleanup Objectives and Soil/ Fill Management

Track 2 Restricted Residential Use SCOs are proposed for this project and SCOs are defined in 6 NYCRR Part 375, Table 6.8 Track 2 Restricted Residential Use. If these Track 2 SCOs are not achieved, an approved SMP will be implemented for long-term management of residual contamination.

Soil and materials management on-Site and off-Site, including excavation, handling and disposal, will be conducted in accordance with the Soil/Materials Management Plan in Appendix 2. Discrete contaminant sources (such as hotspots) identified during the remedial action will be identified by GPS or surveyed. This information will be provided in the Remedial Action Report.

Soil/Fill Excavation and Removal

The location of planned excavations is shown in Figure 3A for the Fulton 11 Site and Figure 3B for Chelsea Elliott Site. The approximate quantity of soil/fill expected to be excavated and disposed off-Site for Fulton 11 is 21,300 tons. The approximate quantity of soil/fill expected to be excavated and disposed off-Site for Chelsea Elliott is 24,322 tons.

For each disposal facility to be used in the remedial action, a letter from the developer/QEP to the receiving facility requesting approval for disposal and a letter back to the developer/QEP providing approval for disposal will be submitted to DEP prior to any transport and disposal of soil at a facility.

The proposed disposal locations for Site-derived impacted materials are listed below. Additional disposal locations established at a later date will be reported promptly to the DEP Project Manager. Disposal facilities will be reported to DEP when they are identified and prior to the start of remedial action.

End-point Sampling Analysis

End-point samples will be analyzed for compounds and elements as described below utilizing the following methodology:

- Volatile organic compounds by EPA Method 8260;
- Semi-volatile organic compounds by EPA Method 8270;

- Target Analyte List metals; and
- Pesticides/PCBs by EPA Method 8081/8082.

An additional thirty non-targeted organic compounds (+30) and cyanide will also be analyzed for as a standard precautionary practice.

New York State ELAP certified labs will be used for all end-point sample analyses. Labs performing end-point sample analyses will be reported in the RAR. The RAR will provide a tabular and map summary of all end-point sample results and will include all data including non-detects and applicable standards and/or guidance values.

Diagrams depicting proposed end-point sample locations for Fulton 11 and Chelsea Elliott are shown in Figures 2A and 2B, respectively.

Confirmation End-point Sampling

Removal actions for development purposes under this plan will be performed in conjunction with confirmation end-point soil sampling. Six (6) confirmation samples at Fulton 11 and seven (7) confirmation samples at Chelsea Elliott will be collected from the base of the excavation at locations to be determined by DEP. To evaluate attainment of Track 2 Restricted-Residential Use SCOs, analytes will include those for which SCOs have been developed, including total SVOCs, lead and barium according to analytical methods described above. If Track 1 Unrestricted Use SCOs are attainable samples will be analyzed for VOCs, SVOCs, pesticides, PCBs and metals according to analytical methods described above.

Hotspot End-point Sampling

For any hotspots identified during this remedial program, including any hotspots identified during the remedial action, hotspot removal actions will be performed to ensure that hotspots are fully removed and end-point samples will be collected at the following frequency:

1. For excavations less than 20 feet in total perimeter, at least one bottom sample and one sidewall sample biased in the direction of surface runoff.
2. For excavations 20 to 300 feet in perimeter:
    - For surface removals, one sample from the top of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.

- For subsurface removals, one sample from each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.

3. For sampling of volatile organics, bottom samples should be taken within 24 hours of excavation, and should be taken from the zero to six-inch interval at the excavation floor. Samples taken after 24 hours should be taken at six to twelve inches.
4. For contaminated soil removal, post remediation soil samples for laboratory analysis should be taken immediately after contaminated soil removal. If the excavation is enlarged horizontally, additional soil samples will be taken pursuant to bullets 1-3 above.

Post-remediation end-point sample locations and depth will be biased towards the areas and depths of highest contamination identified during previous sampling episodes unless field indicators such as field instrument measurements or visual contamination identified during the remedial action indicate that other locations and depths may be more heavily contaminated. In all cases, post-remediation samples should be biased toward locations and depths of the highest expected contamination.

If either LNAPL and/or DNAPL are detected, appropriate samples will be collected for characterization and "finger print analysis" and required regulatory reporting (i.e. spills hotline) will be performed.

Quality Assurance/Quality Control

QA/QC procedures will be used to provide performance information with regard to accuracy, precision, sensitivity, representation, completeness, and comparability associated with the sampling and analysis for this remedial action. Field QA/QC procedures will be used (1) to document that samples are representative of actual conditions at the Site and (2) identify possible cross-contamination from field activities or sample transit. Laboratory QA/QC procedures and analyses will be used to demonstrate whether analytical results have been biased either by interfering compounds in the sample matrix, or by laboratory techniques that may have introduced systematic or random errors to the analytical process.

End point soil sampling performed as part of the remedial action will be completed in pre-designated areas prior to composite cover installation. Decontaminated hand tools with Alconox®

detergent will be utilized to collect grab soil samples six-inches below the final excavation depth. Laboratory approved bottle ware will be used for sample collection, kept cool and transported to the laboratory within 24 hours following under chain of custody protocol. QA/QC samples (field and trip blanks, duplicates, etc.) will be collected and analyzed at an ELAP-certified laboratory, if necessary.

Import of Soils

Import of any soils onto the property will be performed in conformance with the Soil/Materials Management Plan in Appendix 2. Imported soil will meet the lower of:

- Track 2 Restricted Residential Use SCOs, and
- Groundwater Protection Standards in Part 375-6.8.

The estimated quantity of soil to be imported into the Site for backfill and cover soil is one (1) ton or less. A map of soil backfill placement locations is for Fulton 11 and Chelsea Elliott are shown in Figures 4A and 4B, respectively.

Reuse of Onsite Soils

Soil reuse is not planned on this project.

4.3 Engineering Controls

Engineering Controls will be employed in the remedial action to address residual contamination remaining at the site. The Site has two primary Engineering Control Systems. These are:

(1) Composite Cover System
(2) Soil Vapor Barrier System

If Track 2 is not achieved, these elements will constitute as Engineering Controls that will be employed in the remedial action to address residual contamination remaining at the Site.

Composite Cover System

Exposure to residual soil/fill will be prevented by an engineered, composite cover system to be built on the Site. The composite cover system for both Sites will be comprised of 16 inches of reinforced concrete slab at the partial cellar areas and 8 inches of reinforced concrete slab at on grade areas underlain by a 4 inch mud slab in all building areas underlain by existing soil; 4 inch

concrete walkways underlain by 6 inches of clean subbase gravel underlain by existing soil; and 2 feet of clean soil in open space landscape areas.

Figure 5A for Fulton 11 and Figure 5B for Chelsea Elliott shows the location of each cover type built at each Site. Figure 6 shows the typical design for each remedial cover type used on this Site.

The composite cover system will be a permanent engineering control. The system will be inspected and its performance certified at specified intervals as required by this RAWP and the Site Management Plan. A Soil and Materials Management Plan will be included in the Site Management Plan and will outline the procedures to be followed in the event that the composite cover system and underlying residual soil/fill is disturbed after the remedial action is complete. Maintenance of this composite cover system will be described in the Site Management Plan in the Remedial Action Report.

Vapor Barrier System

Migration of soil vapor from onsite or offsite sources into the building will be mitigated with a combination of building slab and vapor barrier. The vapor barrier system will consist of a 46-mil Grace Preprufe® 300R Plus below the slab throughout the full building area and a 32-mil Grace Preprufe® 160 Plus outside all sub-grade foundation sidewalls. All welds, seams and penetrations will be properly sealed to using BITUTHENE® Liquid Membrane to prevent preferential pathways for vapor migration. All applied material will be installed in accordance with manufacturer specifications. The specifications for installation will be provided to the construction management company and the foundation contractor or installer of the liner.

A plan view showing the location of the proposed vapor barrier system is provided in Figure 7A for the Fulton 11 Site and Figure 7B for the Chelsea Elliott Site. Typical design sections for the vapor barrier on slab and sidewalls are provided in Figure 6. Product specification sheets are provided in Appendix 4. The Remedial Action Report will include as-built drawings and diagrams; manufacturer documentation; and photographs.

The Remedial Action Report will include a PE-certified letter on company letterhead from the primary contractor responsible for installation oversight and field inspections and a copy of the manufacturer’s certificate of warranty.

The Vapor Barrier System is a permanent engineering control and will be inspected and its performance certified at specified intervals as required by this RAWP and the Site Management Plan. A Soil and Materials Management Plan will be included in the Site Management Plan and will outline the procedures to be followed in the event that the composite cover system and underlying vapor barrier system is disturbed after the remedial action is complete. Maintenance of these systems will be described in the Site Management Plan in the Remedial Action Report.

4.4 Institutional Controls

A series of Institutional Controls (IC's) are required under this Remedial Action to assure permanent protection of public health by elimination of exposure to residual materials. These IC's define the program to operate, maintain, inspect and certify the performance of Engineering Controls and Institutional Controls on this property. Institutional Controls would be implemented in accordance with a Site Management Plan included in the final Remedial Action Report (RAR). Institutional Controls would be:

- Recording of an DEP-approved Declaration of Covenant and Restrictions (DCR) with the City Register or county clerk, as appropriate. The DCR will include a description of all ECs and ICs, will summarize the requirements of the SMP, and will note that the property owner and property owner's successors and assigns must comply with the DCR and the approved SMP. The recorded DCR will be submitted in the Remedial Action Report. The DCR will be recorded prior to DEP issuance of the Notice of Completion;
- Submittal of a SMP in the RAR for approval by DEP that provides procedures for appropriate operation, maintenance, inspection, and certification of ECs and IC's. SMP will require that the property owner and property owner's successors and assigns will submit to DEP a periodic written statement that certifies that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by DEP; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. DEP retains the right to enter the Site in order to evaluate the continued maintenance of any controls. This certification shall be submitted at a frequency to be determine by DEP in the SMP and will comply with RCNY §43-1407(l)(3).

- Vegetable gardens and farming on the Site are prohibited in contact with residual soil materials;
- Use of groundwater underlying the Site is prohibited without treatment rendering it safe for its intended use;
- All future activities on the Site that will disturb residual material must be conducted pursuant to the soil management provisions in an approved SMP;
- The Site will be used for residential and will not be used for a higher level of use without prior approval by DEP.

4.5 Site Management Plan

Site Management is the last phase of remediation and begins with the approval of the Remedial Action Report and issuance of the Notice of Completion (NOC) for the Remedial Action. The Site Management Plan (SMP) describes appropriate methods and procedures to ensure implementation of all ECs and ICs that are required by this RAWP. The Site Management Plan is submitted as part of the RAR but will be written in a manner that allows its use as an independent document. Site Management continues until terminated in writing by DEP. The property owner is responsible to ensure that all Site Management responsibilities defined in the Site Management Plan are implemented.

The SMP will provide a detailed description of the procedures required to manage residual soil/fill left in place following completion of the remedial action in accordance with the Voluntary Cleanup Agreement with DEP. This includes a plan for: (1) implementation of EC's and ICs; (2) operation and maintenance of EC's; (3) inspection and certification of IC's and EC's.

Site management activities and EC/IC certification will be scheduled by DEP on a periodic basis to be established in the RAR and the SMP and will be subject to review and modification by DEP. The Site Management Plan will be based on a calendar year and certification reports will be due for submission to DEP by July 30 of the year following the reporting period.

4.6 Qualitative Human Health Exposure Assessment

The objective of the qualitative exposure assessment is to identify potential receptors and pathways for human exposure to the contaminants of concern (COC) that are present at, or migrating from, the Site. The identification of exposure pathways describes the route that the COC takes to travel from the source to the receptor. An identified pathway indicates that the potential for exposure exists; it does not imply that exposures actually occur.

Data and information reported in the Remedial Investigation Report (RIR) are sufficient to complete a Qualitative Human Health Exposure Assessment (QHHEA) for this project. A QHHEA was performed to determine whether the Site poses an existing or future health hazard to the Sites' exposed or potentially exposed population. The sampling data from the RI were evaluated to determine whether there is any health risk under current and future conditions by characterizing the exposure setting, identifying exposure pathways, and evaluating contaminant fate and transport. This QHHEA was prepared in accordance with Appendix 3B and Section 3.3 (b) 8 of the NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation.

Known and Potential Contaminant Sources

Based on the results of the RIR, the contaminants of concern are:

Fulton 11

Soil: Polycyclic Aromatic Hydrocarbons (PAHs); PCBs; Pesticides; Lead, barium, mercury

Groundwater: Tetrachloroethene; PAHs; Lead

Soil Vapor: Soil vapor results indicated low levels of petroleum-related VOCs and chlorinated VOCs (CVOCs).

Chelsea Elliott

Soil: Polycyclic Aromatic Hydrocarbons (PAHs); Pesticides; Lead, barium, copper, manganese, cadmium, mercury

Groundwater: Chloroform; PAHs; Selenium

Soil Vapor: Soil vapor results indicated low levels of petroleum-related VOCs and chlorinated VOCs (CVOCs).

Receptor Populations

On-Site Receptors: The site is currently developed with residential buildings, playgrounds, and asphalt lots. Onsite receptors are limited to trespassers and site representatives and visitors granted access to the property. During construction, potential on-site receptors include construction workers, site representatives, and visitors. Under proposed future conditions, potential on-site receptors include adult and child building residents, workers and visitors.

Off-Site Receptors: Potential off-site receptors within a 500-foot radius of the Site include adult and child residents; commercial and construction workers; pedestrians; and trespassers based on the following land uses within 500 feet of the Site:

1. Commercial Businesses – existing and future
2. Residential Buildings – existing and future
3. Building Construction/ Renovation – existing and future
4. Pedestrians, Trespassers, Cyclists – existing and future
5. Schools – existing and future

Potential Routes of Exposure

Three potential primary routes exist by which chemicals can enter the body: ingestion, inhalation, and dermal absorption. Exposure can occur based on the following potential media:

- Ingestion of groundwater or fill/ soil;
- Inhalation of vapors or particulates; and
- Dermal absorption of groundwater or fill/ soil.

Potential Exposure Points

Current Conditions: The sites are currently capped with mainly with asphalt lots, concrete walkways and impervious building materials where there are no potential exposure pathways from ingestion, inhalation, or dermal absorption of soil/ fill. Groundwater is not exposed at the site. The site is served by the public water supply and groundwater is not used at the site for potable supply and there is no potential for exposure.

Construction/ Remediation Conditions: During the remedial action, onsite workers will come into direct contact with surface and subsurface soils as a result of on-Site construction and excavation

activities. On-Site construction workers potentially could ingest, inhale or have dermal contact with exposed impacted soil and fill. Similarly, off-Site receptors could be exposed to dust and vapors from on-Site activities. Due to the depth of groundwater and depth of the proposed excavation, groundwater may be encountered. During construction, on-Site and off-Site exposures to contaminated dust from on-Site will be addressed through the Soil/Materials Management Plan, dust controls, and through the implementation of the Community Air-Monitoring Program and a Construction Health and Safety Plan.

Proposed Future Conditions: Under future remediated conditions, all soils in excess of Track 2 SCOs will be removed. The site will be fully capped, preventing potential direct exposure to soil and groundwater remaining in place, and engineering controls (i.e vapor barrier) will prevent any potential exposure due to inhalation by preventing soil vapor intrusion. The site is served by the public water supply, and groundwater is not used at the site. There are no plausible off-site pathways for oral, inhalation, or dermal exposure to contaminants derived from the site.

Overall Human Health Exposure Assessment

There are potential complete exposure pathways for the current site condition. There are potential complete exposure pathways that require mitigation during implementation of the remedy. There are no complete exposure pathways under future conditions after the site is developed. This assessment takes into consideration the reasonably anticipated use of the site, which includes a residential structure, site-wide surface cover, and a subsurface vapor barrier system for the building. Under current conditions, on-Site exposure pathways exist for those with access to the Site and trespassers. During remedial construction, on-Site and off-Site exposures to contaminated dust from historic fill material will be addressed through dust controls, and through the implementation of the Community Air Monitoring Program, the Soil/Materials Management Plan, and a Construction Health and Safety Plan. Potential post-construction use of groundwater is not considered an option because groundwater in this area of New York City is not used as a potable water source. There are no surface waters in close proximity to the Site that could be impacted or threatened.

5.0 Remedial Action Management

5.1 Project Organization and Oversight

Principal personnel who will participate in the remedial action project include Ryan K. Powell, Chris Hirschmann and professional engineer Matthew Kamin.

5.2 Site Security

Site access will be controlled by means of a gated entrance. The perimeter of the site will be fully enclosed within the gate to disallow pedestrian access to the property. Site security personnel may also be requested to work overnight.

5.3 Work Hours

The hours for operation of cleanup will comply with the NYC Department of Buildings construction code requirements or according to specific variances issued by that agency. Typical hours of construction are between 7:00am through 4:00pm.

5.4 Construction Health and Safety Plan

The Health and Safety Plan is included in Appendix 3. The Site Safety Coordinator will be Chris Hirschmann. Remedial work performed under this RAWP will be in full compliance with applicable health and safety laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements. Confined space entry, if any, will comply with OSHA requirements and industry standards and will address potential risks. The parties performing the remedial construction work will ensure that performance of work is in compliance with the HASP and applicable laws and regulations. The HASP pertains to remedial and invasive work performed at the Site until the issuance of the Notice of Completion.

All field personnel involved in remedial activities will participate in training required under 29 CFR 1910.120, such as 40-hour hazardous waste operator training and annual 8-hour refresher training. Site Safety Officer will be responsible for maintaining workers training records.

Personnel entering any exclusion zone will be trained in the provisions of the HASP and will comply with all requirements of 29 CFR 1910.120. Site-specific training will be provided to field

personnel. Additional safety training may be added depending on the tasks performed. Emergency telephone numbers will be posted at the site location before any remedial work begins. A safety meeting will be conducted before each shift begins. Topics to be discussed include task hazards and protective measures (physical, chemical, environmental); emergency procedures; PPE levels and other relevant safety topics. Meetings will be documented in a log book or specific form.

An emergency contact sheet with names and phone numbers is included in the CHASP. That document will define the specific project contacts for use in case of emergency.

5.5 Community Air Monitoring Plan

Real-time air monitoring for volatile organic compounds (VOCs) and particulate levels at the perimeter of the exclusion zone or work area will be performed. Continuous monitoring will be performed for all ground intrusive activities and during the handling of contaminated or potentially contaminated media. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pit excavation or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be performed during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection, for instance, will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well bailing/purging, and taking a reading prior to leaving a sample location. Depending upon the proximity of potentially exposed individuals, continuous monitoring may be performed during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence. Exceedances of action levels observed during performance of the Community Air Monitoring Plan (CAMP) will be included in Daily/Weekly Report.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis during invasive work. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using equipment appropriate to

measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown.
- Instantaneous readings, if any, used for decision purposes will also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate

levels do not exceed 150 mcg/m3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for DEP personnel to review.

5.6 Agency Approvals

All permits or government approvals required for remedial construction have been or will be obtained prior to the start of remedial construction. Approval of this RAWP by DEP does not constitute satisfaction of these requirements and will not be a substitute for any required permit.

5.7 Site Preparation

Pre-Construction Meeting

OER will be invited to attend the pre-construction meeting at the Site with all parties involved in the remedial process prior to the start of remedial construction activities.

Mobilization

Mobilization will be conducted as necessary for each phase of work at the Site. Mobilization includes field personnel orientation, equipment mobilization (including securing all sampling equipment needed for the field investigation), marking/staking sampling locations and utility mark-outs. Each field team member will attend an orientation meeting to become familiar with the general operation of the Site, health and safety requirements, and field procedures.

Utility Marker Layouts, Easement Layouts

The presence of utilities and easements on the Site will be fully investigated prior to the performance of invasive work such as excavation or drilling under this plan by using, at a minimum, the One-Call System (811). Underground utilities may pose an electrocution, explosion, or other hazard during excavation or drilling activities. All invasive activities will be performed

incompliance with applicable laws and regulations including NYC Building Code to assure safety. Utility companies and other responsible authorities will be contacted to locate and mark the locations, and a copy of the Mark-Out Ticket will be retained by the contractor prior to the start of drilling, excavation or other invasive subsurface operations. Overhead utilities may also be present within the anticipated work zones. Electrical hazards associated with drilling in the vicinity of overhead utilities will be prevented by maintaining a safe distance between overhead power lines and drill rig masts.

Proper safety and protective measures pertaining to utilities and easements, and compliance with all laws and regulations will be employed during invasive and other work contemplated under this RAWP. The integrity and safety of on-Site and off-Site structures will be maintained during all invasive, excavation or other remedial activity performed under the RAWP.

Dewatering

Dewatering may be necessary during construction activities. Groundwater found during the RI at Fulton 11 was approximately 15 feet below grade. Groundwater found during the RI at Chelsea Elliott ranged between 11.50 and 14 feet below grade.

If dewatering is to be used it will be performed in order to excavate soil and fill material below the water table. If needed, all required permits and method of dewatering will be approved and obtained from NYC DEP prior to any discharge of groundwater into the sewer system.

Equipment and Material Staging

Equipment and materials will be stored and staged in a manner that complies with applicable laws and regulations.

Stabilized Construction Entrance

Steps will be taken to ensure that trucks departing the site will not track soil, fill or debris off-Site. Such actions may include use of cleaned asphalt or concrete pads or use of stone or other aggregate-based egress paths between the truck inspection station and the property exit. Measures will be taken to ensure that adjacent roadways will be kept clean of project related soils, fill and debris.

Truck Inspection Station

An outbound-truck inspection station will be set up close to the Site exit. Before exiting the Site, trucks will be required to stop at the truck inspection station and will be examined for evidence of contaminated soil on the undercarriage, body, and wheels. Soil and debris will be removed. Brooms, shovels and clean water will be utilized for the removal of soil from vehicles and equipment, as necessary.

Extreme Storm Preparedness and Response Contingency Plan

Damage from flooding or storm surge can include dislocation of soil and stockpiled materials, dislocation of site structures and construction materials and equipment, and dislocation of support of excavation structures. Damage from wind during an extreme storm event can create unsafe or unstable structures, damage safety structures and cause downed power lines creating dangerous site conditions and loss of power. In the event of emergency conditions caused by an extreme storm event, the enrollee will undertake the following steps for site preparedness prior to the event and response after the event.

Storm Preparedness

Preparations in advance of an extreme storm event will include the following: containerized hazardous materials and fuels will be removed from the property; loose materials will be secured to prevent dislocation and blowing by wind or water; heavy equipment such as excavators and generators will be removed from excavated areas, trenches and depressions on the property to high ground or removed from the property; an inventory of the property with photographs will be performed to establish conditions for the site and equipment prior to the event; stockpile covers for soil and fill will be secured by adding weights such as sandbags for added security and worn or ripped stockpile covers will be replaced with competent covers; stockpiled hazardous wastes will be removed from the property; stormwater management systems will be inspected and fortified, including, as necessary: clean and reposition silt fences, hay bales; clean storm sewer filters and traps; and secure and protect pumps and hosing.

Storm Response

At the conclusion of an extreme storm event, as soon as it is safe to access the property, a complete inspection of the property will be performed. A site inspection report will be submitted to DEP at the completion of site inspection and after the site security is assessed. Site conditions will be

compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. Damage from storm conditions that result in acute public safety threats, such as downed power lines or imminent collapse of buildings, structures or equipment will be reported to public safety authorities via appropriate means such as calling 911. Petroleum spills will be reported to NYS DEC within 2 hours of identification and consistent with State regulations. Emergency and spill conditions will also be reported to DEP. Public safety structures, such as construction security fences will be repaired promptly to eliminate public safety threats. Debris will be collected and removed. Dewatering will be performed in compliance with existing laws and regulations and consistent with emergency notifications, if any, from proper authorities. Eroded areas of soil including unsafe slopes will be stabilized and fortified. Dislocated materials will be collected and appropriately managed. Support of excavation structure will be inspected and fortified as necessary. Impacted stockpiles will be contained and damaged stockpile covers will be replaced. Stormwater control systems and structures will be inspected and maintained as necessary. If soil or fill materials are discharged off site to adjacent properties, property owners and DEP will be notified and corrective measure plan designed to remove and clean dislocated material will be submitted to DEP and implemented following approval by DEP and granting of site access by the property owner. Impacted offsite areas may require characterization based on site conditions, at the discretion of DEP. If onsite petroleum spills are identified, a qualified environmental professional will determine the nature and extent of the spill and report to NYS DEC's spill hotline at DEC 800-457-7362 within statutory defined timelines. If the source of the spill is ongoing and can be identified, it should be stopped if this can be done safely. Potential hazards will be addressed immediately, consistent with guidance issued by NYS DEC.

Storm Response Reporting

A site inspection report will be submitted to DEP at the completion of site inspection. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. The site inspection report will be sent to the DEP project manager and will include the site name, address, tax block and lot, site primary and alternate contact name and phone number. Damage and soil release assessment will include: whether the project had stockpiles; whether stockpiles were damaged; photographs of damage and notice of plan for repair; report of whether soil from the site was dislocated and whether any of the

soil left the site; estimates of the volume of soil that left the site, nature of impact, and photographs; description of erosion damage; description of equipment damage; description of damage to the remedial program or the construction program, such as damage to the support of excavation; presence of onsite or offsite exposure pathways caused by the storm; presence of petroleum or other spills and status of spill reporting to NYS DEC; description of corrective actions; schedule for corrective actions. This report should be completed and submitted to DEP project manager with photographs within 24 hours of the time of safe entry to the property after the storm event.

5.8 Traffic Control

Drivers of trucks leaving the Site with soil/fill will be instructed to proceed without stopping in the vicinity of the Site to prevent neighborhood impacts. Traffic route is to be determined.

5.9 Demobilization

Demobilization will include:

- As necessary, restoration of temporary access areas and areas that may have been disturbed to accommodate support areas (e.g., staging areas, decontamination areas, storage areas, temporary water management areas, and access area);
- Removal of sediment from erosion control measures and truck wash and disposal of materials in accordance with applicable laws and regulations;
- Equipment decontamination, and;
- General refuse disposal.

Equipment will be decontaminated and demobilized at the completion of all field activities. Investigation equipment and large equipment (e.g., soil excavators) will be washed at the truck inspection station as necessary. In addition, all investigation and remediation derived waste will be appropriately disposed.

5.10 Reporting and Record Keeping

Daily and Weekly Reports

Daily or weekly reports providing a general summary of activities for each day of active remedial work will be emailed to the DEP Project Manager by the end of the following business day. Those reports will include:

- Project number and statement of the activities and an update of progress made and locations of excavation and other remedial work performed;
- Quantities of material imported and exported from the Site;
- Status of on-Site soil/fill stockpiles;
- A summary of all citizen complaints, with relevant details (basis of complaint; actions taken; etc.);
- A summary of CAMP results noting all excursions. CAMP data may be reported;
- Photograph of notable Site conditions and activities.

The frequency of the reporting period may be revised in consultation with DEP project manager based on planned project tasks. Daily email reports are not intended to be the primary mode of communication for notification to DEP of emergencies (accidents, spills), requests for changes to the RAWP or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the RAWP will be communicated directly to the DEP project manager by personal communication. Daily reports will be included as an Appendix in the Remedial Action Report.

Record Keeping and Photo Documentation

Job-site record keeping for all remedial work will be performed. These records will be maintained on-Site during the project and will be available for inspection by DEP staff. Representative photographs will be taken of the Site prior to any remedial activities and during major remedial activities to illustrate remedial program elements and contaminant source areas. Photographs will be submitted at the completion of the project in the RAR in digital format (i.e. jpeg files).

5.11 Complaint Management

All complaints from citizens will be promptly reported to DEP. Complaints will be addressed and outcomes will also be reported to DEP in daily reports. Notices to DEP will include the nature of the complaint, the party providing the complaint, and the actions taken to resolve any problems.

5.12 Deviations From The Remedial Action Work Plan

All changes to the RAWP will be reported to, and approved by, the DEP Project Manager and will be documented in daily reports and reported in the Remedial Action Report. The process to be followed if there are any deviations from the RAWP will include a request for approval for the change from DEP noting the following:

- Reasons for deviating from the approved RAWP;
- Effect of the deviations on overall remedy; and
- Determination with basis that the remedial action with the deviation(s) is protective of public health and the environment.

6.0 Remedial Action Report

A Remedial Action Report (RAR) will be submitted to DEP following implementation of the remedial action defined in this RAWP. The RAR will document that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The RAR will include:

- Information required by this RAWP;
- Text description with thorough detail of all engineering and institutional controls (if Track 1 remedial action is not achieved)
- As-built drawings for all constructed remedial elements;
- Manifests for al soil or fill disposal;
- Photographic documentation of remedial work performed under this remedy;
- Site Management Plan (if Track 1 remedial action is not achieved);
- Description of any changes in the remedial action from the elements provided in this RAWP and associated design documents;

- Tabular summary of all end point sampling results (including all soil test results from the remedial investigation for soil that will remain on site) and all soil/fill waste characterization results, QA/QC results for end-point sampling, and other sampling and chemical analysis performed as part of the remedial action;
- Test results or other evidence demonstrating that remedial systems are functioning properly;
- Account of the source area locations and characteristics of all soil or fill material removed from the Site including a map showing the location of these excavations and hotspots, tanks or other contaminant source areas;
- Full accounting of the disposal destination of all contaminated material removed from the Site. Documentation associated with disposal of all material will include transportation and disposal records, and letters approving receipt of the material;
- Account of the origin and required chemical quality testing for material imported onto the Site;
- The RAWP and Remedial Investigation Report will be included as appendices to the RAR;
- Reports and supporting material will be submitted in digital form and final PDF's will include bookmarks for each appendix.

7.0 Schedule

Currently a **2-3 month** remediation period is anticipated for soil excavation and disposal. If the schedule for remediation and development activities changes, it will be updated and submitted to DEP.

APPENDIX 2

SOIL/MATERIALS MANAGEMENT PLAN

1.1 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed under the supervision of a Qualified Environmental Professional and will be reported in the final remedial report. Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of final signoff by OER.

1.2 Stockpile Methods

Excavated soil from suspected areas of contamination (e.g., hot spots, USTs, drains, etc.) will be stockpiled separately and will be segregated from clean soil and construction materials. Stockpiles will be used only when necessary and will be removed as soon as practicable. While stockpiles are in place, they will be inspected daily, and before and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. Excavated soils will be stockpiled on, at minimum, double layers of 8-mil minimum sheeting, will be kept covered at all times with appropriately anchored plastic tarps, and will be routinely inspected. Broken or ripped tarps will be promptly replaced.

All stockpile activities will be compliant with applicable laws and regulations. Soil stockpile areas will be appropriately graded to control run-off in accordance with applicable laws and regulations. Stockpiles of excavated soils and other materials shall be located at least of 50 feet from the property boundaries, where possible. Hay bales or equivalent will surround soil stockpiles except for areas where access by equipment is required. Silt fencing and hay bales will be used as needed near catch basins, surface waters and other discharge points.

1.3 Characterization of Excavated Materials

Soil/fill or other excavated media that is transported off-Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Soils proposed for reuse on-Site will be managed as defined in this plan.

1.4 Materials Excavation, Load-Out, and Departure

The PE/QEP overseeing the remedial action will:

- oversee remedial work and the excavation and load-out of excavated material;
- ensure that there is a party responsible for the safe execution of invasive and other work performed under this work plan;
- ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise the remedial activities proposed in this RAWP;
- ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this plan are properly addressed by appropriate parties;
- ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

Open and uncontrolled mechanical processing of historical fill and contaminated soil on-Site will not be performed without prior OER approval.

1.5 Off-Site Materials Transport

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364. If loads contain wet material capable of causing leakage from trucks, truck liners will be used. Queuing of trucks will be performed on-Site, when possible in order to minimize off Site disturbance. Off-Site queuing will be minimized.

Outbound truck transport routes are described in the remedial report. This routing takes into account the following factors: (a) limiting transport through residential areas and past sensitive sites; (b) use of mapped truck routes; (c) minimizing off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

1.6 Materials Disposal Off-Site

The following documentation will be established and reported by the PE/QEP for each disposal destination used in this project to document that the disposal of regulated material exported from the Site conforms with applicable laws and regulations: (1) a letter from the PE/QEP or Enrollee to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in New York City under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or Enrollee. The letter will include as an attachment a summary of all chemical data for the material being transported; and (2) a letter from each disposal facility stating it is in receipt of the correspondence (1, above) and is approved to accept the material. These documents will be included in the final remedial report.

The Remedial Action Report will include an itemized account of the destination of all material removed from the Site during this remedial action. Documentation associated with disposal of all material will include records and approvals for receipt of the material. This information will be presented in the final remedial report.

All impacted soil/fill or other waste excavated and removed from the Site will be managed as regulated material and will be disposed in accordance with applicable laws and regulations. Historic fill and contaminated soils taken off-Site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

Waste characterization will be performed for off-Site disposal in a manner required by the receiving facility and in conformance with its applicable permits. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the

final remedial report. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the final remedial report. Hazardous wastes derived from on-Site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

If disposal of soil/fill from this Site is proposed for unregulated disposal (i.e., clean soil removed for development purposes), including transport to a Part 360-16 Registration Facility, a formal request will be made for approval by OER with an associated plan compliant with 6NYCRR Part 360-16. This request and plan will include the location, volume and a description of the material to be recycled, including verification that the material is not impacted by site uses and that the material complies with receipt requirements for recycling under 6NYCRR Part 360. This material will be appropriately handled on-Site to prevent mixing with impacted material.

1.7 Materials Reuse On-Site

Soil and fill that is derived from the property that meets the Soil Cleanup Objectives (SCOs) established in this plan may be reused on-Site. The SCOs for on-Site reuse are listed in Section 4.2 of this cleanup plan. 'Reuse on-Site' means material that is excavated during the remedy or development, does not leave the property, and is relocated within the same property and on land with comparable levels of contaminants in soil/fill material, compliant with applicable laws and regulations, and addressed pursuant to the NYC VCP agreement subject to Engineering and Institutional Controls. The PE/QEP will ensure that reused materials are segregated from other materials to be exported from the Site and that procedures defined for material reuse in this remedial plan are followed. The expected location for placement of reused material is shown in Section 4.2.

Organic matter (wood, roots, stumps, etc.) or other waste derived from clearing and grubbing of the Site will not be buried on-Site. Soil or fill excavated from the site for grading or other purposes will not be reused within a cover soil layer or within landscaping berms.

1.8 Demarcation

After completion of hotspot removal and any other invasive remedial activities, and prior to backfilling, the top of the residual soil/fill will be defined by one of three methods: (1) placement of a demarcation layer. The demarcation layer will consist of geosynthetic fencing or equivalent

material to be placed on the surface of residual soil/fill to provide an observable reference layer. A description or map of the approximate depth of the demarcation layer will be provided in the SMP; or (2) a land survey of the top elevation of residual soil/fill before the placement of cover soils, pavement and associated sub-soils, or other materials or structures or, (3) all materials beneath the approved cover will be considered impacted and subject to site management after the remedy is complete. Demarcation may be established by one or any combination of these three methods. As appropriate, a map showing the method of demarcation for the Site and all associated documentation will be presented in the RAR.

This demarcation will constitute the top of the site management horizon. Materials within this horizon require adherence to special conditions during future invasive activities as defined in the Site Management Plan.

1.9 Import of Backfill Soil From Off-Site Sources

This Section presents the requirements for imported fill materials to be used below the cover layer and within the clean soil cover layer. All imported soils will meet DEP-approved backfill and cover soil quality objectives for this Site. Imported soils will not exceed groundwater protection standards established in Part 375. Imported soils for Track 2 remedial action projects will not exceed Track 2 SCOs.

A process will be established to evaluate sources of backfill and cover soil to be imported to the Site, and will include an examination of source location, current and historical use(s), and any applicable documentation. Material from industrial sites, spill sites, environmental remediation sites or other potentially contaminated sites will not be imported to the Site.

The following potential sources may be used pending attainment of backfill and cover soil quality objectives:

- Clean soil from construction projects at non-industrial sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;
- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYS DEC.

- All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with provisions in this remedial plan. The final remedial report will report the source of the fill, evidence that an inspection was performed on the source, chemical sampling results, frequency of testing, and a Site map indicating the locations where backfill or soil cover was placed.
- All material will be subject to source screening and chemical testing.
- Inspection of imported fill material will include visual, olfactory and PID screening for evidence of contamination. Materials imported to the Site will be subject to inspection, as follows:
- Trucks with imported fill material will be in compliance with applicable laws and regulations and will enter the Site at designated locations;
- The PE/QEP is responsible to ensure that every truck load of imported material is inspected for evidence of contamination; and
- Fill material will be free of solid waste including pavement materials, debris, stumps, roots, and other organic matter, as well as ashes, oil, perishables or foreign matter.

Composite samples of imported material will be taken at a minimum frequency of one sample for every 500 cubic yards of material. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements and is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) will be imported from facilities permitted or registered by NYSDEC. Facilities will be identified in the final remedial report. A PE/QEP is responsible to ensure that the facility is compliant with 6NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYSDEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA material is not acceptable for, and will not be used as cover material.

1.10 Fluids Management

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable laws and regulations. Liquids discharged into the New

York City sewer system will receive prior approval by New York City Department of Environmental Protection (NYC DEP). The NYC DEP regulates discharges to the New York City sewers under Title 15, Rules of the City of New York Chapter 19. Discharge to the New York City sewer system will require an authorization and sampling data demonstrating that the groundwater meets the City's discharge criteria. The dewatering fluid will be pretreated as necessary to meet the NYC DEP discharge criteria. If discharge to the City sewer system is not appropriate, the dewatering fluids will be managed by transportation and disposal at an off-Site treatment facility.

Discharge of water generated during remedial construction to surface waters (i.e. a stream or river) is prohibited without a SPDES permit issued by New York State Department of Environmental Conservation.

1.11 Stormwater Pollution Prevention

Applicable laws and regulations pertaining to stormwater pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in this remedial plan (silt fences and barriers, and hay bale checks) will be installed around the entire perimeter of the remedial construction area and inspected once a week and after every storm event to ensure that they are operating appropriately. Discharge locations will be inspected to determine whether erosion control measures are effective in preventing significant impacts to receptors. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by DEP. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Undercutting or erosion of the silt fence toe anchor will be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

1.12 Contingency Plan for Unknown Contamination Sources

This contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to DEP's Project Manager. Petroleum spills will be reported to the NYS DEC Spill Hotline. These findings

will be included in the daily report. If previously unidentified contaminant sources are found during on-Site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to DEP. Chemical analytical testing will be performed for TAL metals, TCL volatiles and semi-volatiles, TCL pesticides and PCBs, as appropriate.

1.13 Odor, Dust, and Nuisance Control

Odor Control

All necessary means will be employed to prevent on- and off-Site odor nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) use of foams to cover exposed odorous soils. If odors develop and cannot otherwise be controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; and (e) use of chemical odorants in spray or misting systems.

This odor control plan is capable of controlling emissions of nuisance odors. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. DEP will be notified of all odor complaint events. Implementation of all odor controls, including halt of work, will be the responsibility of the PE/QEP's certifying this remedial plan.

Dust Control

Dust management during invasive on-Site work will include, at a minimum:

- Use of a dedicated water spray methodology for roads, excavation areas and stockpiles.
- Use of properly anchored tarps to cover stockpiles.
- Exercise extra care during dry and high-wind periods.
- Use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted and the source of dusts will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated. DEP will be notified of all dust

complaint events. Implementation of all dust controls, including halt of work, will be the responsibility of the PE/QEP's responsible for certifying this remedial plan.

Other Nuisances

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards. Rodent control will be provided during Site clearing and grubbing and during the remedial program, as necessary, to prevent nuisances.

APPENDIX 1

PROPOSED FLOOR LAYOUT DIAGRAMS

- FULTON 11
- CHELSEA ELLIOTT

Figure 1

Fulton Houses - Rezoning Scenario 1st Stage

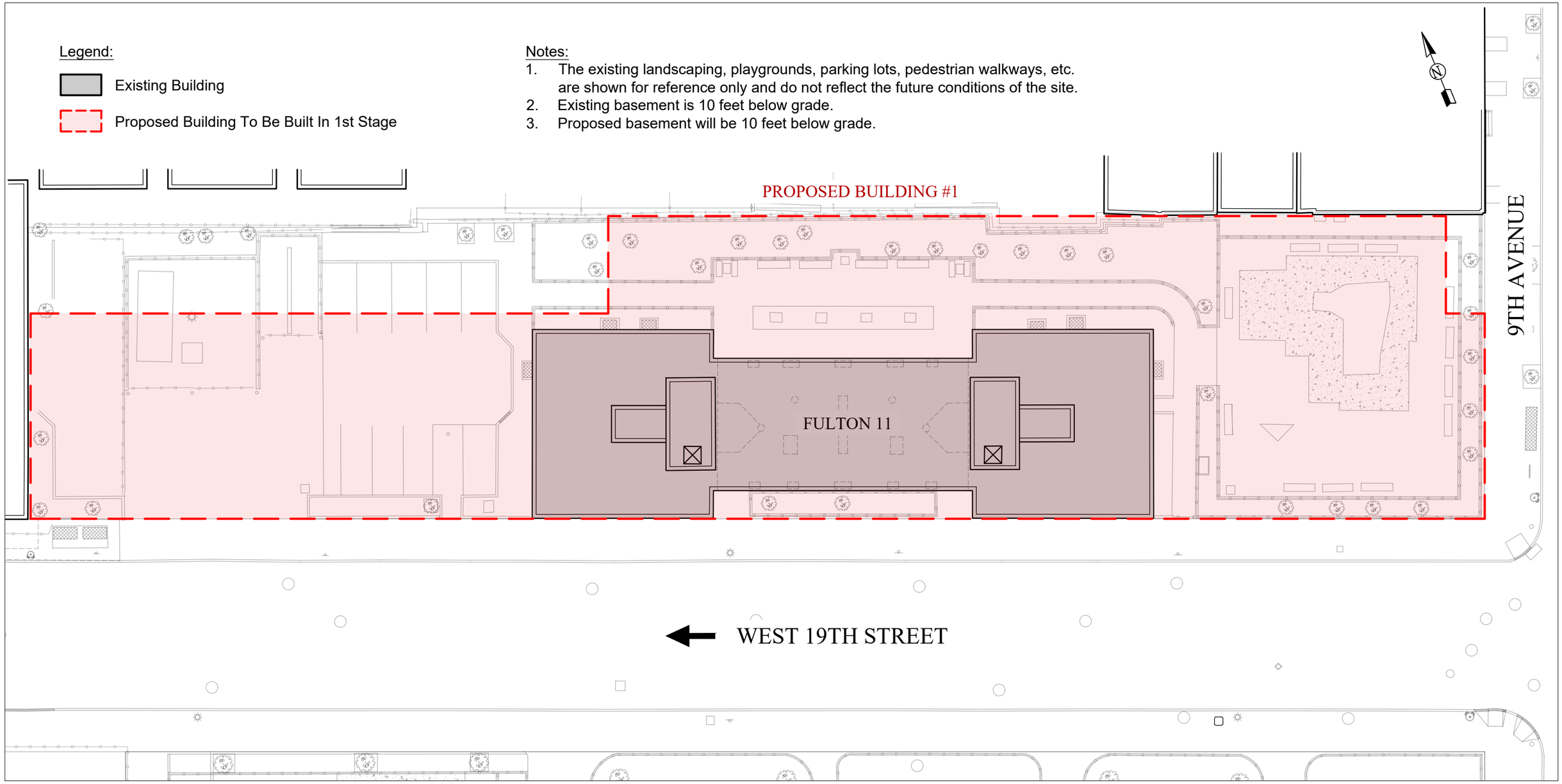
Legend:

Existing Building

Proposed Building To Be Built In 1st Stage

Notes:

1. The existing landscaping, playgrounds, parking lots, pedestrian walkways, etc. are shown for reference only and do not reflect the future conditions of the site.
2. Existing basement is 10 feet below grade.
3. Proposed basement will be 10 feet below grade.



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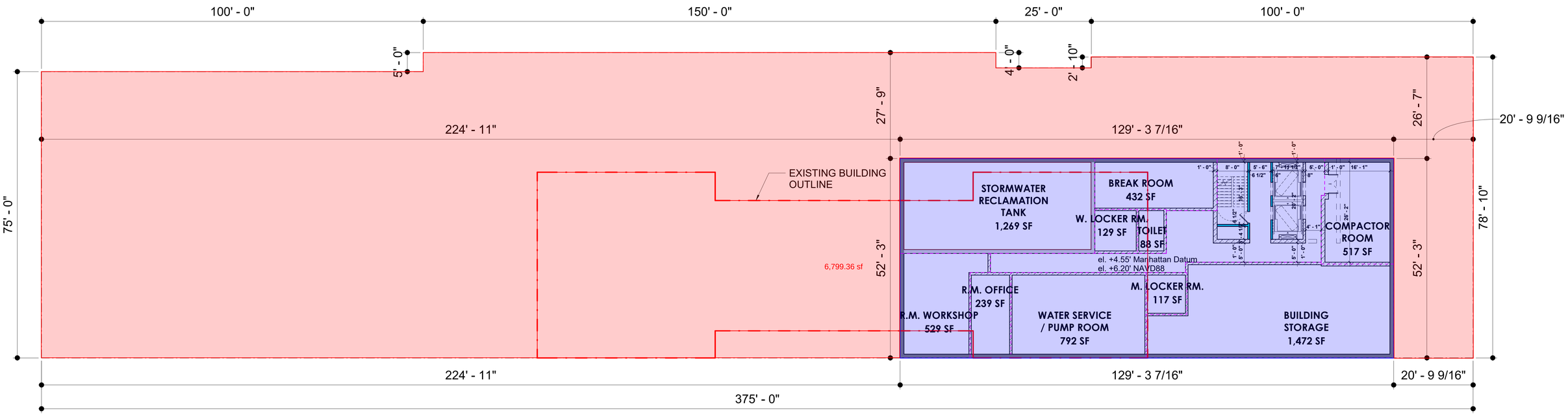


ESTIMATE ON MATERIALS

SOIL EXCAVATION
CELLAR AREA = 130x53x((14.75-6.2)+3.5) = 83,000CFT x 120 = 9,960,000 / 2000 = 4,980 x 1.6 = 8,000TONS
REMAINING AREA = 30,000 - 6,890 = 23,110 x 6 = 138,660 x 120 = 16,639,200 / 2000 = 8320 x 1.6 = 13,300 TONS

TOTAL SOIL TONNAGE = 21,300 TONS

CONCRETE C&D
CELLAR AREA = 6,800 x 3' (AVERAGE) = 20,400CFT x 150 = 3,060,000 / 2000 = 1,530 x 1.6 = 2,448TONS

TOTAL C&D = 2,500TONS

REVISED 01.08.2024

CELLAR AREA SCHEDULE	
AREA NAME	AREA
BREAK ROOM	432 SF
BUILDING STORAGE	1,472 SF
COMPACTOR ROOM	517 SF
CORE+CORRIDOR	1,172 SF
M. LOCKER RM.	117 SF
R.M. OFFICE	239 SF
R.M. WORKSHOP	529 SF
STORMWATER RECLAMATION TANK	1,269 SF
TOILET	88 SF
W. LOCKER RM.	129 SF
WATER SERVICE / PUMP ROOM	792 SF
GROSS AREA	6,755 SF

PAU ISMAEL LEYVA ARCHITECTS

FULTON BUILDING 01 - CELLAR FLOOR PLAN
Chelsea - Elliot & Fulton Housing - AOR

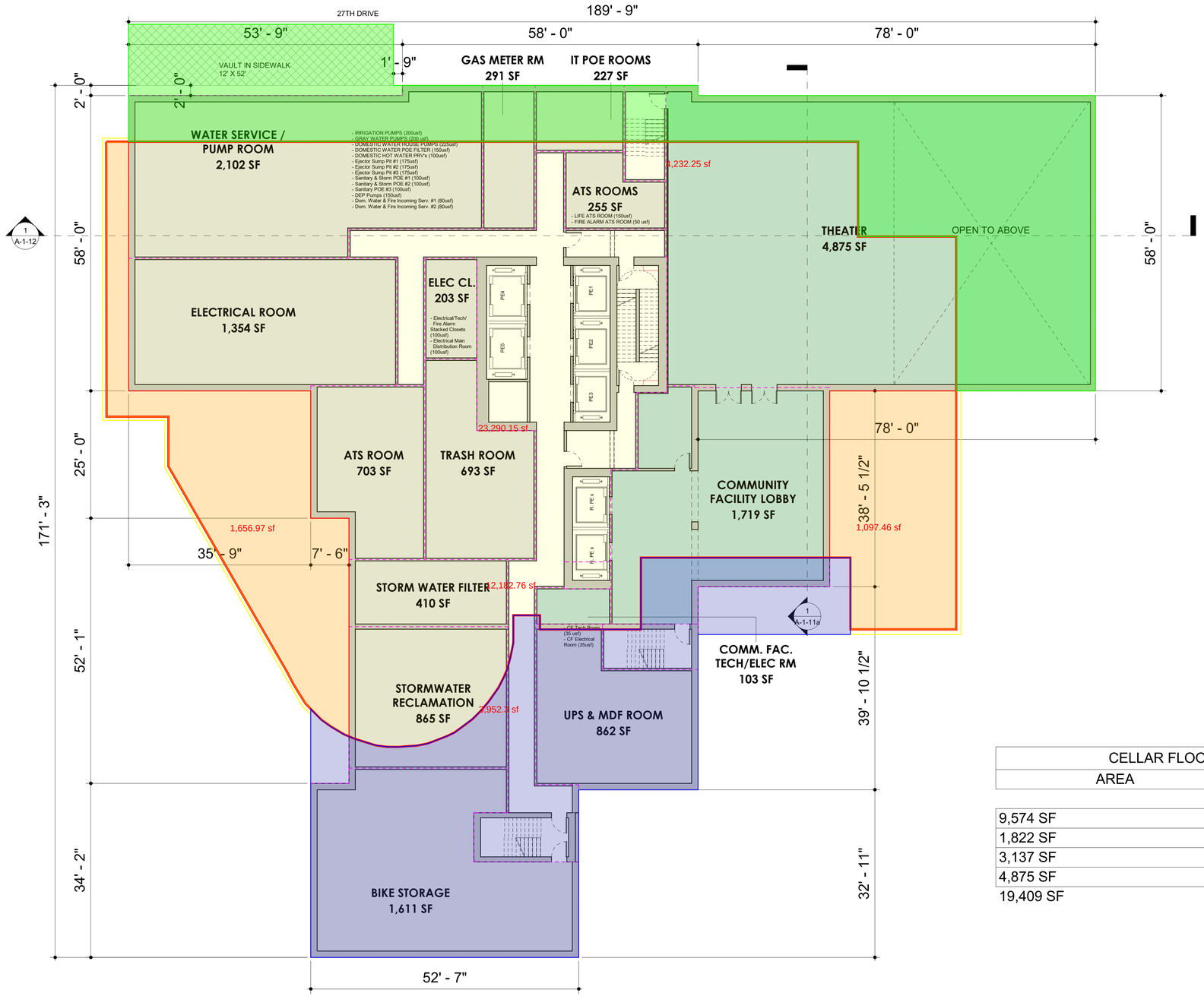
ESSENCE DEVELOPMENT RELATED

12/06/23

Figure 3

Elliott-Chelsea Houses - Rezoning and No Rezoning Scenarios 1st Stage

Scale: 1" = 30'



CELLAR FLOOR AREA SCHEDULE	
AREA	Comments
9,574 SF	BOH
1,822 SF	COMMUNITY FACILITIES
3,137 SF	CORE+CORRIDOR
4,875 SF	THEATER (CF)
19,409 SF	

ESTIMATE ON EXCAVATED MATERIALS

SOE AREA = 23,300x5 = 116,500CFT x 120 = 13,980,000 / 2000 = 6,990 x 1.6 = 11,200TONS SOIL
EXISTING FOOTPRINT = 2753x5 = 13,765 x 120 = 1,651,800 / 2000 = 826 x 1.6 = 1,322TONS SOIL
REMAINING AREA = (3953+4232)x15 = 122,775 x 120 = 14,733,000 / 2000 = 7,367 x 1.6 = 11,800TONS SOIL
TOTAL TONNAGE SOIL = 24,322

C&D MATERIAL = 15,115x3 = 45342 x 150 = 6,801,300 / 2000 = 3,400 x 1.5 = **5,100TONS C&D**

WEST 26TH STREET (60' WIDE)

ISMAEL LEYVA ARCHITECTS

BUILDING 01 - CELLAR
Elliott Chelsea #1 Housing - AOR

ESSENCE DEVELOPMENT RELATED

3/32" = 1'-0" 12/20/2023

APPENDIX 3

CONSTRUCTION HEALTH AND SAFETY PLAN

HK ENGINEERING & GEOLOGY, D. P.C.
1600 Route 22 East
Union, New Jersey 07083
(908) 688-7800 • (908) 688-2636 – Fax

CONSTRUCTION
HEALTH AND SAFETY PLAN

Address: Fulton 11 & Chelsea-Elliott Addition
401 W. 19th Street & 436 West 27th Drive
New York, New York

Project Number: HK2661

Plan Revisions

Number	Date	Initials
1		

Ryan K. Powell — 01-12-2024
Plan Preparer — Date

Ryan K. Powell — 01-12-2024
Site Supervisor & Safety Office — Date

Chris Hirschmann — 01-12-2024
Alternate Site Health & Safety Officer — Date

Jill Asch — 01-12-2024
Site Health & Safety, Director — Date

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Introduction

This Construction Health and Safety Plan (CHASP) has been prepared by Hillmann Consulting, LLC (Hillmann) to summarize the health and safety hazards at the subject site and the requirements and procedures to protect its employees from them. The Fulton 11 Site is located 401-419 W. 19th Street and the Chelsea-Elliott Addition located at 436 West 27th Drive, New York, NY. This plan meets or exceeds the requirements of Occupational Safety and Health Administration (OSHA), 29 CFR 1910.120, for a site-specific health and safety plan.

This plan was designed to reduce the potential for occupational illness or injury resulting from working at this site. The purpose of the CHASP is to inform Hillmann's employees and subcontractors of the health and safety risks present at this site, and the proper methods of protecting themselves from those risks. Each worker must be fully aware of the risks associated with the work to be accomplished, and be dedicated to completing that work safely.

Existing and potential hazards at this site have been identified. As new information becomes available, this CHASP will be revised. Standard practices and procedures of industrial hygiene, occupational health, safety, and environmental protection are prescribed in this plan, which was prepared and reviewed by experienced professionals.

Hillmann employees who work on this site must read the CHASP and sign the form included in this plan, to indicate that they understand the plan's contents, and agree to comply with its provisions. Anyone who cannot, or will not comply with this CHASP will be excluded from on-site activities. Violations of this CHASP or any applicable federal, state, or local health and safety regulations should be reported immediately to the Site Health and Safety Supervisor (SHSO), or to Hillmann's Director, Health & Safety (DHS).

This CHASP will be readily available on site so workers can reference it when necessary.

Site Information

Location: 401-419 W. 19th Street & 436 West 27th Drive

Historical/Current Site Information: The site is currently a residential apartment building.

Location/Class: [ ] Industrial [ ] Commercial [X] Urban/Residential
[ ] Suburban [ ] Rural

Site Regulatory Status: [ ] CERCKA/SARA [ ] US EPA [ ] NJDEP
[ ] NPL [ ] RCRA [X] NYCDEP
[X] NYSDEC [ ] Not Regulated [ ] Due Diligence

Operations or Tasks to be Performed, and Approximate Duration of Each:

1- Soil, Groundwater, and Soil vapor Sampling – 1 week

Surrounding Population/Structures:

Urban mixed use residential and commercial

Site and Surrounding Topography:

Generally Flat Terrain with a slight downward slope to the West

Known or Suspected Pathways of Contaminant Dispersion:

Soil, groundwater, and soil vapor

Emergency Shower, Eyewash and First Aid Equipment Located at:

Eyewash and emergency shower will not be available.

First aid provided by emergency services (911).

Personnel On-Site trained in First Aid:

1. Dominick Aponte
2. Ryan K. Powell
3.
4.
5.
6.
7.
8.

Emergency Medical Care

Hospital #1

Hospital Name: Mount Sinai Beth Israel

Telephone #: 212-252-6000 or 911

Address: 55 East 34th Street, NY, NY

Contact: N/A

Type of Service ( ) Physical Trauma Only

(X) Physical Trauma and Chemical Exposure

(X) Available 24 Hours

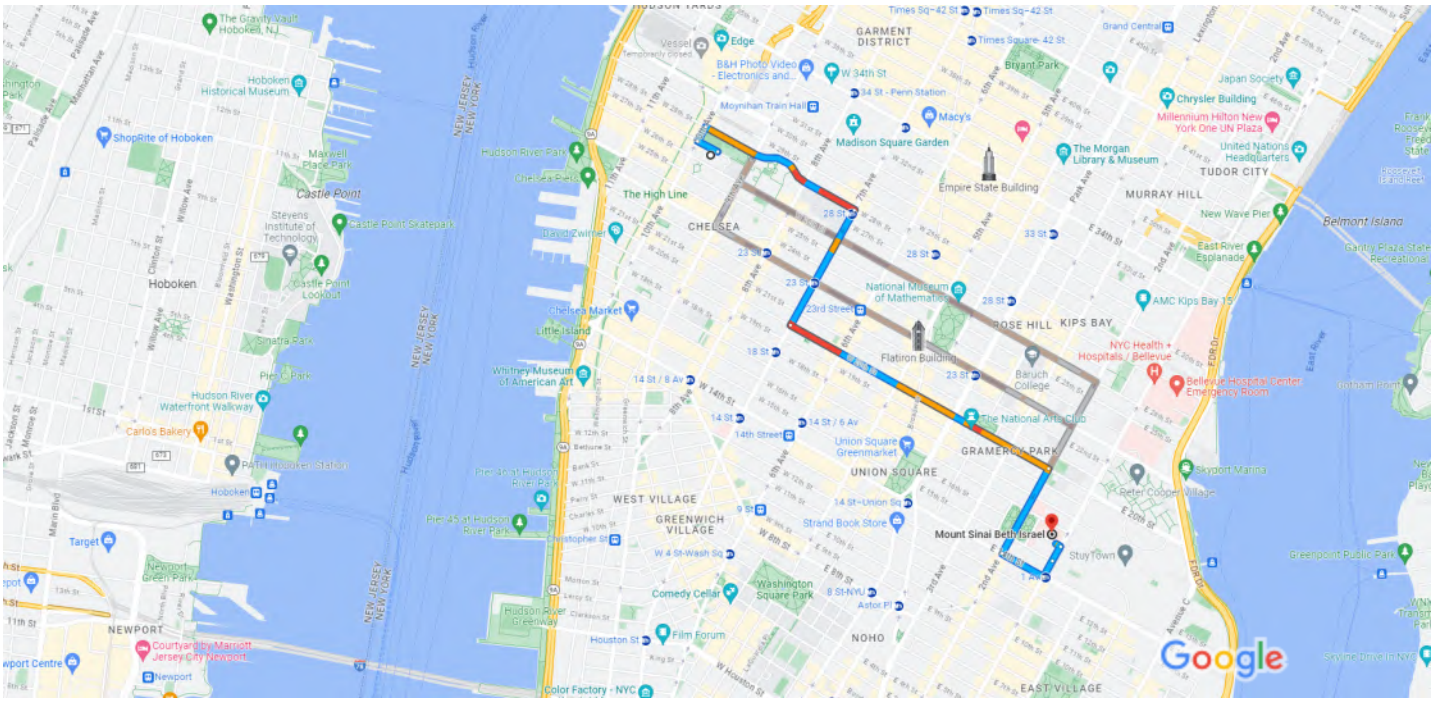
Hospital Route:
See attached map

Hospital route information has been provided to satisfy OSHA requirements (29 CFR 1910.120). **However, where 911-emergency service and/or transport is available, Hillmann personnel are strictly prohibited from transporting accident victims in either company or personal vehicles.

Transporting the injured in non-emergency vehicles increases the potential for motor vehicle accidents during transit to the hospital and further injury to the victim. Also, the victims' condition can worsen during transit. As a result, transportation in non-emergency vehicles can delay or even prevent treatment by trained emergency personnel during a critical time. Employees must remain at the site of the accident, administer appropriate first aid, and await the arrival of **trained emergency and/or rescue personnel.**

436 W 27th Dr, New York, NY 10001 to Mount Sinai Beth Israel

Drive 2.5 miles, 21 min



Map data ©2023 Google 1000 ft

436 W 27th Dr
New York, NY 10001

1. Head northwest on W 27th St toward 10th Ave
   49 sec (354 ft)
2. Turn right onto 10th Ave
   34 sec (259 ft)
3. Turn right at the 1st cross street onto W 28th St
   4 min (0.5 mi)
4. Turn right onto 7th Ave
   2 min (0.4 mi)
5. Turn left onto W 20th St
   7 min (0.9 mi)

Continue on 2nd Ave. Take E 14th St to E 16th St

3 min (0.5 mi)

6. Turn right onto 2nd Ave
   0.3 mi

7. Turn left onto E 14th St

0.1 mi

8. Turn left onto 1st Ave.

285 ft

9. Continue straight to stay on 1st Ave.

266 ft

10. Turn left onto E 16th St

Destination will be on the right

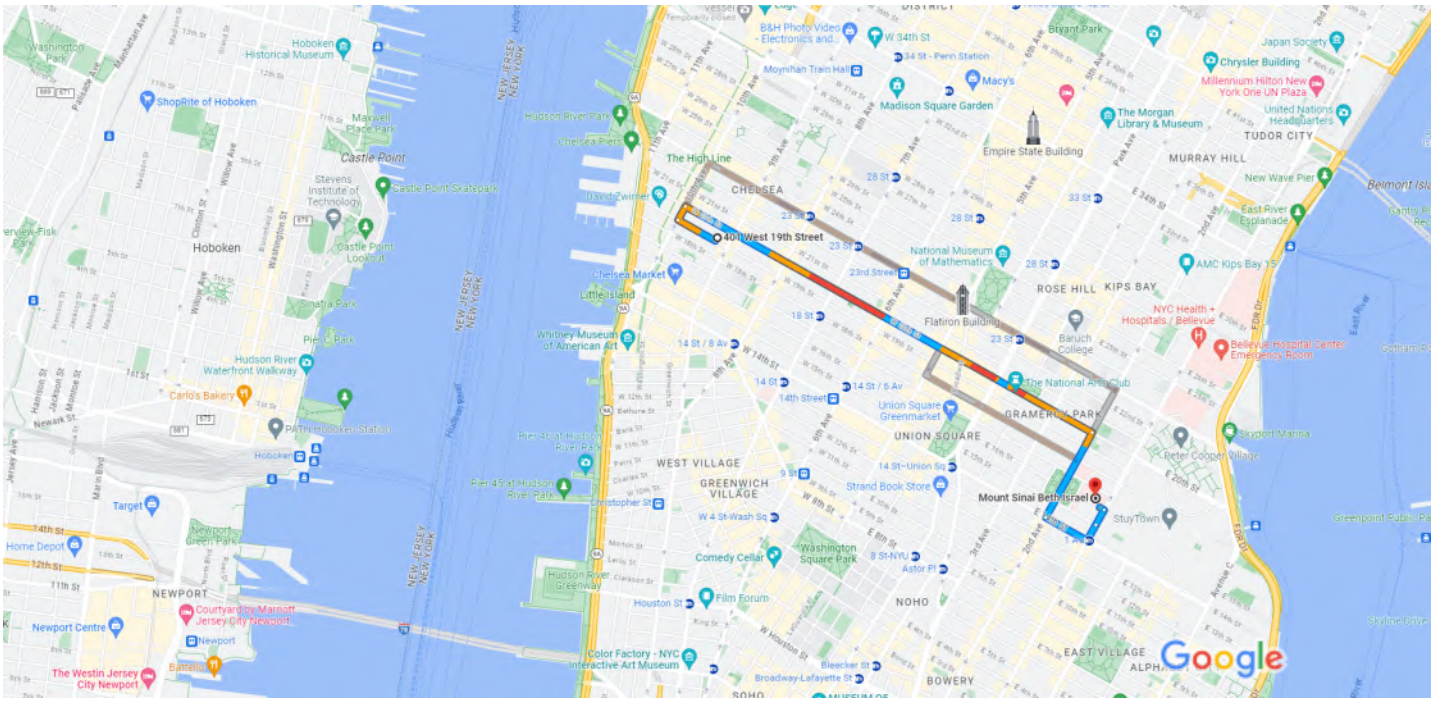
18 sec (82 ft)

Mount Sinai Beth Israel

281 1st Ave., New York, NY 10003

401 W 19th St, New York, NY 10011 to Mount Sinai Beth Israel

Drive 2.1 miles, 19 min



Map data ©2023 Google 1000 ft

401 W 19th St
New York, NY 10011

1. Head northwest on W 19th St toward 10th Ave
   52 sec (0.1 mi)
2. Turn right onto 10th Ave
   26 sec (243 ft)
3. Turn right onto W 20th St
   11 min (1.4 mi)

Continue on 2nd Ave. Take E 14th St to E 16th St

3 min (0.5 mi)

4. Turn right onto 2nd Ave
   0.3 mi
5. Turn left onto E 14th St
   0.1 mi
6. Turn left onto 1st Ave.
   285 ft
7. Continue straight to stay on 1st Ave.
   266 ft

8. Turn left onto E 16th St

Destination will be on the right

18 sec (82 ft)

Mount Sinai Beth Israel

281 1st Ave, New York, NY 10003

Emergency Medical Care

Hospital #2

Hospital Name: NYC Health + Hospitals / Bellevue

Telephone #: 212-562-4141 or 911

Address: 462 1st Ave., New York, NY 10016

Contact: N/A

Type of Service ( ) Physical Trauma Only

(X) Physical Trauma and Chemical Exposure

(X) Available 24 Hours

Hospital Route:
See attached map

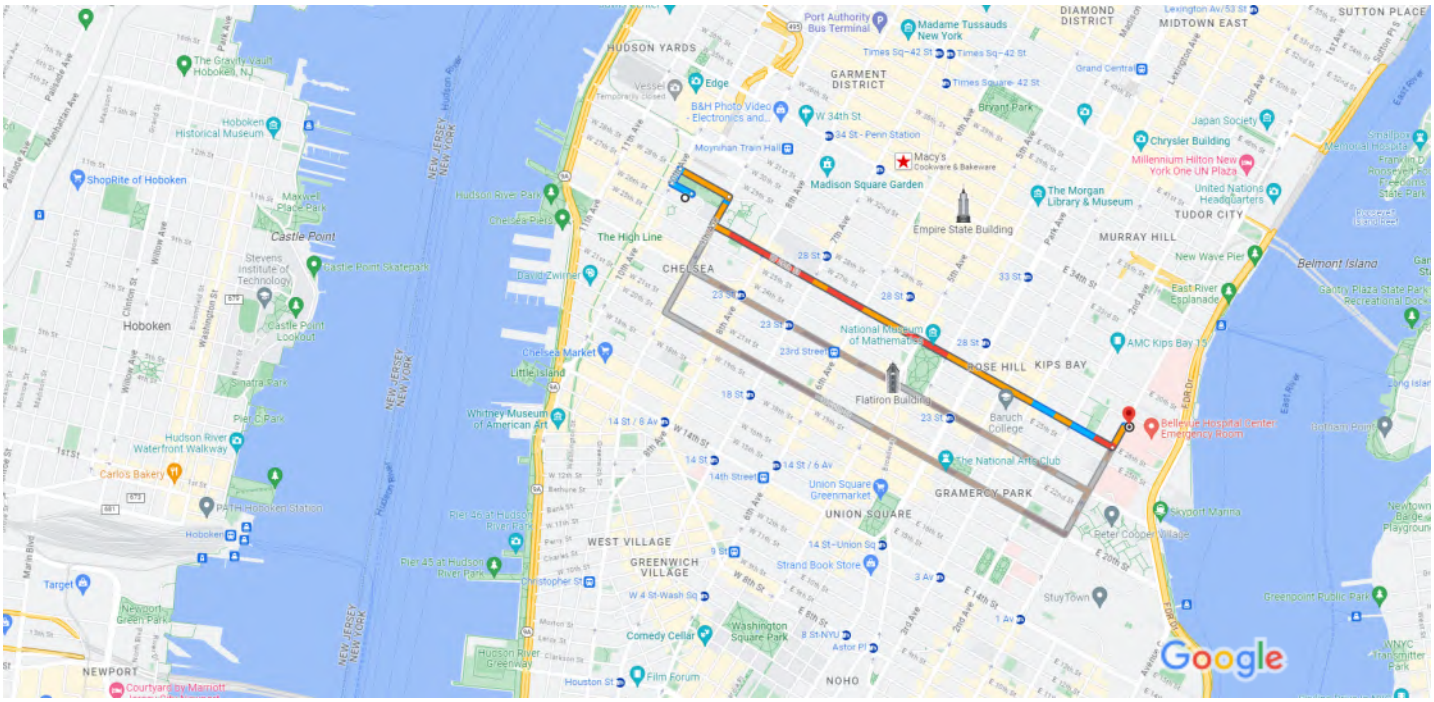
Hospital route information has been provided to satisfy OSHA requirements (29 CFR 1910.120). **However, where 911-emergency service and/or transport is available, Hillmann personnel are strictly prohibited from transporting accident victims in either company or personal vehicles.

Transporting the injured in non-emergency vehicles increases the potential for motor vehicle accidents during transit to the hospital and further injury to the victim. Also, the victims' condition can worsen during transit. As a result, transportation in non-emergency vehicles can delay or even prevent treatment by trained emergency personnel during a critical time. Employees must remain at the site of the accident, administer appropriate first aid, and await the arrival of **trained emergency and/or rescue personnel.**

Google Maps

436 W 27th Dr, New York, NY 10001 to NYC Health + Hospitals / Bellevue., 462 1st Ave., New York, NY 10016

Drive 1.8 miles, 18 min



Map data ©2023 Google 1000 ft

436 W 27th Dr
New York, NY 10001

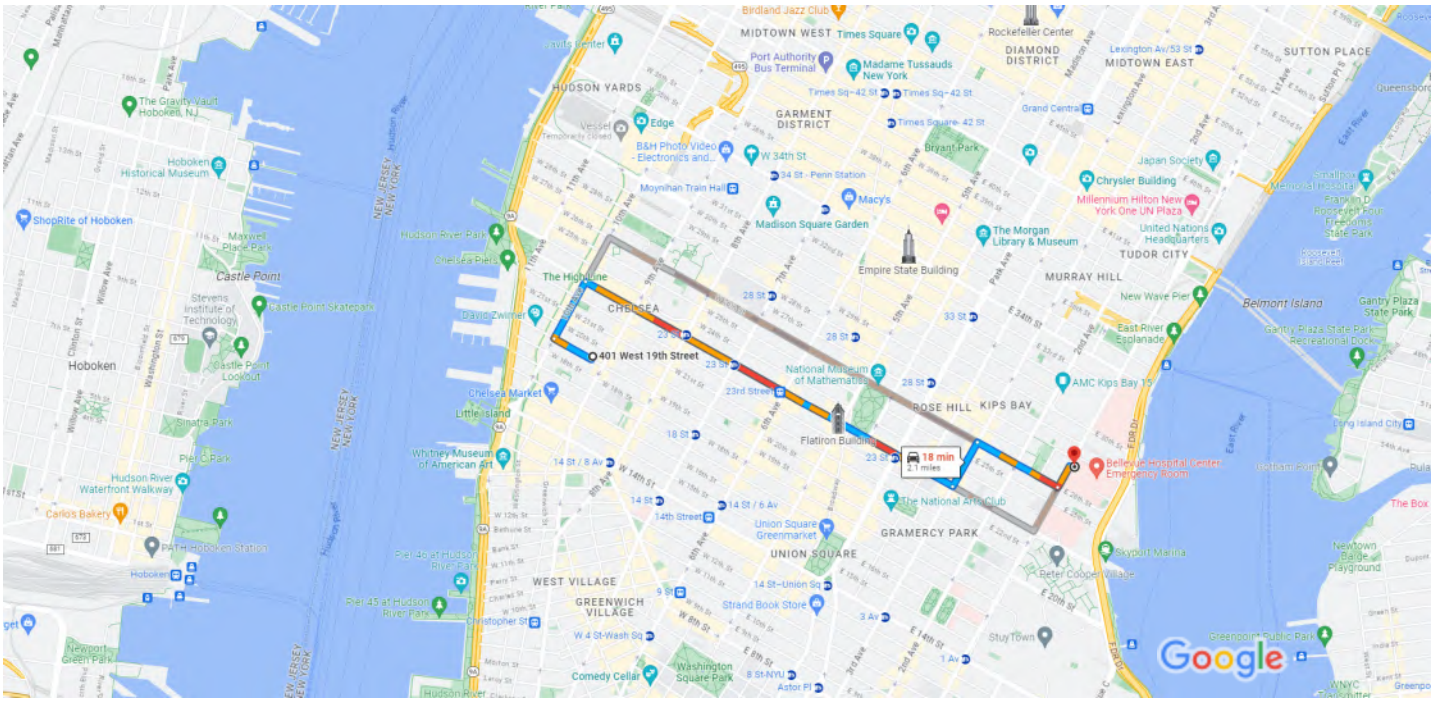
1. Head northwest on W 27th St toward 10th Ave
   354 ft
2. Turn right onto 10th Ave
   259 ft
3. Turn right at the 1st cross street onto W 28th St
   0.2 mi
4. Turn right onto 9th Ave
   0.1 mi
5. Turn left onto W 26th St
   1.4 mi
6. Turn left onto 1st Ave.
   384 ft

NYC Health + Hospitals / Bellevue.
462 1st Ave., New York, NY 10016

Google Maps

401 W 19th St, New York, NY 10011 to NYC Health + Hospitals / Bellevue., 462 1st Ave., New York, NY 10016

Drive 2.1 miles, 18 min



Map data ©2023 Google 1000 ft

401 W 19th St
New York, NY 10011

1. Head northwest on W 19th St toward 10th Ave — 0.1 mi
2. Turn right onto 10th Ave — 0.2 mi
3. Turn right onto W 23rd St — 1.3 mi
4. Turn left after Citizens (on the left) — 0.2 mi
5. Turn right onto E 26th St — 0.3 mi
6. Turn left onto 1st Ave. — 384 ft

NYC Health + Hospitals / Bellevue.
462 1st Ave., New York, NY 10016

Emergency Contacts

Agency	**Name**	**Phone**
Fire Department	FDNY	911
Police Department	NYPD	911
Site Contact	Ryan K. Powell	(908) 323-4051
First Aid/EMS	NA	911
Federal Agency Representative	NA	NA
State Agency Representative	NA	NA
Local Agency Representative	NA	NA
NYSDEC- Region 2	New York	1-718-482-4900
Pesticide Poisoning	NA	NA
Poison Control	U.S.A.	(800) 222-1222
CHEM TREC	Washington, DC	(800) 424-9300
Utility	**Company Name**	**Phone**
Water Supply	NYC.	800-987-5325
Sewer	NYC.	908-647-0070
Power	CON-ED	(800) 322-3223
Gas	National Grid	(800) 322-3223
NY One Call	NY	811

Hillmann Consulting, LLC Emergency Contact List
Cell Phone Numbers

Chris Hirschmann	(908) 377-8909
Dominick Aponte	(908) 335-6048
Ryan K. Powell	(908) 323-4051

Key Project Personnel

The following describes the project position assignments, associated responsibilities, and reporting relationships.

Position	Job Description	Interactions
Director	Responsible for technical and administrative performance of the project. Supports Site Supervisor and is available to him at all times. Will visit the site periodically, or as necessary. Reports progress of project on a regular basis. Assigns key personnel, and identifies, requests, secures, and monitors use of resources for project. Approves program expenditures and invoices.	Reports directly to President. Works closely with Site Supervisor.
Site Supervisor	Acts as point of contact for client and client's representative(s). Supervises all on-site personnel and subcontractors. Coordinates daily site-specific work efforts, and ensures all activities are in strict compliance with site-specific health and safety plan. Has authority to suspend all work that possesses any health and safety risk. Briefs subordinate technical personnel on task requirements. Identifies and resolves technical problems. Provides periodic review of project progress.	Reports directly to Project Manager.
Site Health & Safety Officer (SHSO)	Assures compliance with CHASP. Instructs site personnel in health and safety procedures through daily pre-work meetings. Performs any monitoring activities as required. Has authority to discontinue site operations if safety violations exist.	Reports directly to Project Manager. Works closely with Director, Health & Safety, and Site Supervisor.
Director, Health & Safety (DHS)	Develops, implements, and enforces the on-site safety program. Oversees all health and safety aspects of project, conducts periodic audits to ensure compliance. Available at all times to discuss project progress and health and safety related issues.	Reports directly to President. Works closely with Project Manager, Site Supervisor, and SHSO.

Hillmann is the entity responsible for managing health and safety at this site. Key project personnel are as follows:

Director:	Chris Hirschmann Name	908-688-7800 / 908-377-8909 Telephone / Cellular Number
Site Supervisor:	Ryan Powell Name	908-688-7800 / 908-323-4051 Telephone / Cellular Number
SHSO:	Chris Hirschmann Name	908-688-7800 / 908-377-8909 Telephone / Cellular Number
DHS:	Jill Asch Name	908-688-7800 / 908-377-5639 Telephone / Cellular Number

Medical Surveillance and Training Dates for Authorized Personnel

Employee	Medical Exam	OSHA 8-Hr.	Site Supervisor Training	Respirator Fit Test
Dominick Aponte	09/2023	09/2023		
Ryan Powell	04/2023	09/2023		

Task Identification

Tasks covered under this plan:

Task #	Description
1	Soil, Groundwater, and Soil Vapor sampling

Off-site tasks planned? No

Describe:

Chemical Hazards

Task No.(s)	Chemical Name (or class)	PEL	TLV	Other Pertinent Limits (specify)	Primary Hazard			SDS Attached
					Ingestion	Dermal	Inhalation	Y/N
1,2	**Semi volatiles:**							
	Benzo(a)anthracene	0.2 mg/m³	**		X	X	X	Y
	Benzo(a)pyrene	0.2 mg/m³	0.2 mg/m³		X	X	X	Y
	Benzo(b)fluoranthene	0.2 mg/m³	0.2 mg/m³		X	X	X	Y
	Benzo(k)fluoranthene	**	**		X	X	X	Y
	Chrysene	0.2 mg/m³	**		X	X	X	Y
	Dibenz(a,h)anthracene	**	**		X	X	X	Y
	Indeno(1,2,3-cd) pyrene	**	**		X	X	X	Y
1,2	**Volatiles:**							
	1,1-Dichloroethene	**	**		X	X	X	Y
	1,1,1 - Trichloroethane	350 ppm	350 ppm		X	X	X	Y
	cis - 1,2 dichloroethene	200 ppm	200 ppm		X	X	X	Y
	Benzene	10 ppm	0.5 ppm		X	X	X	Y
	Carbon Tetrachloride	10 ppm	5 ppm		X	X	X	Y
	Ethylbenzene	100 ppm	0.5 ppm		X	X	X	Y
	Methylene Chloride	25 ppm	100 ppm		X	X	X	Y
	Tetrachloroethene (PCE)	100 ppm	25 ppm		X	X	X	Y
	Toluene	200 ppm	20 ppm		X	X	X	Y
	Trichloroethylene (TCE)	100 ppm	10 ppm		X	X	X	Y

	Vinyl Chloride	1 ppm	1 ppm		X	X	X	Y
	Xylenes	100 ppm	100 ppm		X	X	X	Y
	Pesticides:							
	4'4 DDE	**	**		X	X	X	Y
	4'4 DDT	1 mg/m^3	1 mg/m^3	90 ppm	X	X	X	Y
	4'4 DDD	5 mg/m^3	**		X	X	X	Y
1,2	Delta-BHCDieldrin	260 mg/m^3	200 ppm		X	X	X	Y
	Metals							
	Antimony	0.5 mg/m³	0.5 mg/m³		X	X	X	Y
	Arsenic	0.01 mg/m³	0.01 mg/m³		X	X	X	Y
	Barium	0.5 mg/m³	0.5 mg/m³		X	X	X	Y
	Beryllium	0.0002 mg/m³	0.00005 mg/m³		X	X	X	Y
	Cadmium	0.005 mg/m³	0.01 mg/m³		X	X	X	Y
	Chromium	1 mg/m³	0.003 mg/m³		X	X	X	Y
	Copper	0.1 mg/m³	0.2 mg/m³		X	X	X	Y
	Lead	50 mg/m³	0.05 mg/m³		X	X	X	Y
	Mercury	0.1 mg/m³	0.025 mg/m³		X	X	X	Y
	Nickel	1 mg/m³	1.5 mg/m³		X	X	X	Y
	Selenium	0.2 mg/m³	0.2 mg/m³		X	X	X	Y
	Silver	0.01 mg/m³	0.01 mg/m³		X	X	X	Y
	Thallium	0.1 mg/m³	0.02 mg/m³		X	X	X	Y
	Zinc	5 mg/m³	**		X	X	X	Y
1,2	**PCBs**	0.5 mg/m³	**		X	X	X	Y

PEL – OSHA Permissible Exposure Limit: the maximum allowable 8-hour time weighted average (TWA) exposure concentration.
TLV – ACGIH Threshold Limit Value: the recommended 8-hour TWA exposure concentration.
** – Exposure limits not available

Physical and Biological Hazards

Hazard	Yes	No	Task No.(s)	Hazard	Yes	No	Task No.(s)
Electrical (overhead lines)	X		1,2	Uneven Terrain	X		1,2
Electrical (underground lines)	X		1,2	Unstable Surfaces	X		1,2
Gas Lines	X		1,2	Elevated Surfaces		X	
Water Lines	X		1,2	Lightning	X		1,2
Drilling Equipment		X		Rain	X		1,2
Excavation Equipment	X		1,2	Snow	X		1,2
Power Tools	X		1,2	Liquefied/Pressurized Gases		X	
Heat Exposure	X		1,2	Lifting Equipment	X		1,2
Cold Exposure	X		1,2	Vermin	X		1,2
Oxygen Deficiency		X		Insects	X		1,2
Confined Spaces		X		Disease-causing organisms	X		1,2
Noise	X		1,2	Others, e.g., marine sampling (specify)		X	
Ionizing Radiation		X					
Non-Ionizing Radiation		X					
Fire		X					
Explosive Atmospheres		X					
Shoring		X					
Scaffolding		X					
Holes/Ditches	X		1,2				
Steep Grades	X		1,2				
Slippery Surfaces	X		1,2				

Risk Analysis

Task #	Substance	Concentration (if known)	Risk*
1,2	SVOCs	Low	0-1
1,2	PCBs	Low	0-1
1,2	Metals	Low	0-1
1,2	VOCs	Low	0-1
1,2	Pesticides	Low	0-1

*Risk
0 – No Risk
1 – Slight Risk
2 – Moderate Risk
3 – Dangerous Conditions/Caution
4 – High Risk
5 – Extremely Dangerous

General Safety Rules

1. If an employee must work alone, he/she must call his/her supervisor twice a day. If the supervisor is unavailable, that supervisor's supervisor must be contacted.
2. Workers must wear all personal protective equipment required for the tasks to be performed.
3. Horseplay, scuffling, or practical jokes are forbidden on the job.
4. Compressed air must not be used to blow dirt from clothing, or played with or blown at another person. In addition, compressed air tools should be checked periodically for hose leaks, faulty valves and tank pressurization issues as a precursor for potential injury.
5. Drinking of alcoholic beverages or the use drugs on the job is prohibited. Their use will cause immediate dismissal.
6. All areas must be continually cleaned to maintain good housekeeping. Trash is to be piled neatly and removed promptly. All tools and work areas are to be kept in clean and safe condition. Hard floor surfaces should be kept as dry as possible and free to debris in walking zones to prevent potential slips, trips and falls. If an area of flooring will be slippery for an extended period of time, efforts should be taken provide caution signs or high visibility cones/barricades to warn and prevent entrance into the zone.
7. Competent workers must do welding and cutting. Anyone who is required to work in "hot" zones must wear or be provided with proper eye protection and warning that welding will be taking place.
8. A. Ladders are to be of proper design and tied off while in use. Do not go up or down a ladder without the free use of both hands. Use a rope to lift or lower materials or tools. Always face a ladder when climbing or descending. Ladders with structural defects should be discontinued from use and placed aside with a label to warn others not to use until serviced or replaced. Defects include, but are not limited to, bent or broken ladder rung/step, bent or cracked frame rails defected foot holds etc.

   B. Extreme caution must be used with operating with ladders to avoid overhead hazards such as unstable roofing materials or over-head utility lines. Before setting up your ladder, always asses for over-head power lines and avoid operating within those areas. If you have any doubts, don't do it.
9. Every work site must have a qualified first aid person and a complete first aid kit. All first aid materials are to remain clean, unused and non-expired. The first aid materials should remain with a competent first aid responder or in an inconspicuous area for all to use if needed. Eye wash stations or portable bottles should be readily on hand to field personnel in the event of an eye irritant or splashing occurrence. Eye protection should be used to further prevent eye injuries.
10. **ALL** accidents must be investigated and reported. Use the Accident Investigation Form in the back section of this plan.
11. Injuries sustained while on duty must be reported to supervisor immediately, or as soon as possible after injury is sustained.
12. Explosives must be handled and transported by licensed people only. Any doubts of explosive materials should be handled with extreme caution and the project manager notified for further instruction.
13. All tools and electrical equipment must be in proper working order. If a tool is broken/near broken or a piece of electrical equipment has frayed/exposed wiring, sparks generated or missing screws or parts, make sure to disengage use of tool. Faulty tools should be labeled with a "Do NOT use" label and placed in a safe location until it can be serviced or replaced.
14. Clothing appropriate to the duties performed shall be work by all workers. Large pockets, loose jewelry, cuffed trousers and loose or torn clothing are dangerous and should not be worn around machinery, or when climbing ladders, or working on structures.

Employee Training Program

All personnel performing work in areas on this site covered by this CHASP must have completed the appropriate training requirements specified in 29 CFR 1910.120(e). Each individual must have completed an 8-hour refresher-training course and/or initial 40-hour training course within the last year prior to performing any intrusive work on this site covered by this CHASP. Also, on-site managers must have completed the specified 8-hour supervisor's training course. Records that demonstrate that all persons subject to the training requirements have actually met them will be maintained on site. The Project Manager is responsible for verifying compliance of the project team with these rules.

Prior to commencement of on-site activities, a site safety meeting will be held to review the specific information and requirements of this CHASP. CHASP sign-off sheets will be collected at this meeting.

Site Specific Training will include:

- Explanation of the overall site CHASP.
- Health and safety personnel and organization.
- Brief site history.
- Special attention to signs and symptoms of overexposure to known and suspected site contaminants.
- Health effects of site contaminants.
- Air monitoring description.
- Physical hazards associated with the project.
- Selection, use and limitations of available safety.
- Personal hygiene and decontamination.
- Respirator facepiece fit testing.
- PPE use and maintenance.
- Site rules and regulations.
- Work zone establishment and markings.
- Site communication.
- Emergency preparedness procedures.
- Equipment decontamination.
- Medical monitoring procedures.
- Contingency plan.

Prior to work, each Hillmann employee will attend the contractor's health and safety orientation, if applicable. In addition, Hillmann's employees will review health and safety items specific to the tasks to be performed that were not covered in the contractor's orientation.

Site Health and Safety Meetings

In addition, the SHSO will meet daily with all Hillmann employees prior to beginning work on site. The agenda of the meeting will include a review of important elements of this plan, any special safety items, and a discussion of the emergency response procedures. Also, everyone will agree on a schedule for periodic meetings, (for example, before beginning work each day), to review the effectiveness of this plan and make changes as necessary. If significant changes at the site occur, special meetings will be scheduled. (If Hillmann is a subcontractor, all Hillmann employees on site will participate in the contractor's daily safety meetings.)

Training Records

The SHSO will complete a report of the daily safety meetings, using the form in the back section of this plan, and all attending the meeting will sign the Daily Safety Meeting Log.

The training status of contractor and subcontractor employees has been verified, and their training criteria meet the requirements specified in 29 CFR 1910.120(e). A copy of all training certificates will be kept at the job site for each person working at the site.

Personal Protective Equipment (PPE) Requirements

Task No.(s)	Level of Protection (A – D)*	Level of Upgrade	PPE Suit	PPE Gloves	PPE Feet	PPE Head	PPE Eye	PPE Ear	PPE Respirator	Additional PPE for Upgrade
1,2	D	When necessary	Std	N	Steel	When needed	Glasses	Plugs	NA	None

SUIT

Std = Standard Work Clothes
Tyvek = Uncoated Tyvek Disposal Coverall
PE Tyvek = Polyethylene-coated Tyvek
Saranex = Saranex-laminated Tyvek
PVC Suite = PVC Raingear

GLOVES

Work = Work Gloves (canvas, leather)
Neo = Neoprene Gloves
PVC = PVC Gloves
N = Nitrile Gloves
V = Vinyl Gloves
L = Latex Gloves

FEET

Steel = Steel-toe shoes or boots
Steel+ = Steel-toe PVC boots
Booties = PVC booties

HEAD

HH = Hardhat

EYE

Glasses = Safety glasses
Goggles = Goggles
Shield = Face shield

EAR

Plugs = Earplugs
Muff = Ear muffs

RESPIRATOR

APR = Air purifying respirator
Full APR = Full face APR
Half APR = Half face APR
SAR = Airline supplied air respirator
SCBA = Self contained breathing apparatus
Escape = Escape SCBA
OV = Organic Vapor Cartridge
AG = Acid Gas Cartridge
OV/AG = Organic Vapor/Acid Gas Cartridge
AM = Ammonia Cartridge
Dust/Mist = Dust/Mist pre-filter and cover for cartridge
HEPA = High efficiency particulate air filter cartridge

- For unspecified volatile organics (based on 1-minute breathing zone measurement using PID or OVA):
-

Up to 1 ppm above background	Level D
1 – 5 ppm above background	Level C
5 – 500 ppm above background	Level B
500 ppm above background	Level A

Suggested Levels of Protection

Level "D" Protection

1. Coveralls
2. Gloves
3. Boots/shoes – steel toe
4. Boots (outer) chemical resistant (disposable)
5. Safety glasses or chemical splash goggles
6. Hard hat (safety shield)
7. High visibility vest

Level "C" Protection

1. Full-face, air-purifying, canister-equipped respirator (NIOSH/MSHA approved)
2. Chemical resistant clothing (coveralls; hooded, two-piece, chemical splash suit; chemical resistant hood & apron; disposable, chemical-resistant coveralls)
3. Coveralls
4. Gloves (outer) chemical-resistant
5. Gloves (inner) chemical-resistant
6. Boots (outer) chemical-resistant
7. Boots (inner) chemical-resistant
8. Hard hat (face shield)
9. Escape mask
10. Two-way radio

Level "B" Protection

1. Pressure/Demand SCBA (MSHA-NIOSH approved)
2. Chemical resistant clothing (overalls and long-sleeved jacket; coveralls; hooded, one- or two-piece chemical splash suite; disposable, chemical-resistant coveralls)
3. Coveralls
4. Gloves (outer) chemical-resistant
5. Gloves (inner) chemical-resistant
6. Boots (outer) chemical-resistant
7. Boots (inner) chemical-resistant
8. Hard hat (face shield)
9. Two-way radio

Level "A" Protection

1. Pressure/Demand SCBA (MSHA-NIOSH approved)
2. Fully encapsulating, chemical-resistant suit
3. Coveralls
4. Gloves (outer) chemical-resistant
5. Gloves (inner) chemical-resistant
6. Boots, chemical-resistant, steel toe (depending on suit construction, work over or under suit boot)
7. Hard hat (under suit)
8. Two-way radio

Medical Surveillance

Requirements

All Hillmann employees covered by this CHASP, who engage in on site activities governed by 29 CFR 1910.120 for 30 or more days per year, must meet the medical surveillance requirements specified in 1910.120(f). Therefore, such personnel must have completed occupational medical baseline or surveillance examination, performed by a licensed physician, within the last 24 months. The medical examination includes the following components:

- Personal Medical Questionnaire
- Occupational Exposure History
- Physical Examination
- Vision Testing
- Spirometry
- Audiometry
- Blood Chemistry Panel (e.g., SMAC-20)
- Complete Blood Count with Differential
- Urinalysis
- Chest X-Ray (every two years at a minimum)
- Electrocardiogram (at physician's discretion)

Examinations are required upon hiring, termination, and exposure to substances at or above the PEL.

Results of the examinations are communicated directly from the physician to the employee. Medical records for Hillmann's employees are kept by the physician:

Washington Occupational Health
1120 19th Street, Suite 410
Washington, DC 20036
800-777-9642 – office
800-865-6525 – fax

Monitoring Requirements

Monitoring is to be conducted by the SHSO, or his/her designee. The results will be interpreted by the SHSO and the DHS. Copies of monitoring results and calibration logs will be filed with the CHASP.

Monitoring is designed to assess exposure to employees during site activities, and to determine if PPE is required and adequate to assure protection. Because investigation and remediation activities at hazardous waste sites are of an inconsistent nature, it is not possible to assign a monitoring protocol that excludes, or is not directly dependent upon, professional judgment in determining when monitoring is required to assess exposure. Thus, the following generic protocol must be followed at a minimum, and should be modified to be more conservative (e.g., require more monitoring) if deemed necessary by the SHSO or DHS. Under no conditions will the required frequency be decreased.

At a minimum, air monitoring will be conducted before and during each task or activities for which air monitoring has been designated. If airborne concentrations of contaminants reach action levels based on observations with the direct reading instruments, then the appropriate PPE upgrade or work stoppage order will be enforced by the SHSO. In case a work stoppage order is given, the area must be cleared of all personnel immediately.

The use of action levels and the basis for the selection of monitoring equipment is explained as follows:

Action levels determine:

(1) the PPE to be used by site workers
(2) their ability to remain and work in the exclusion zone

The selection of the specified monitoring equipment is based on

(1) the nature of the contaminants
(2) the likely concentrations of the contaminants
(3) the probable duration of exposure
(4) the relative sensitivity of the monitoring equipment to the specific contaminants

The following summarizes the calibration requirements for the air monitoring instruments used at the site:

Instrument	Calibration Frequency
PID: Mini RAE-QRAE	Beginning of each work shift

Air Monitoring and Contaminant Action Levels

Task No.(s)	Location	Contaminant	Monitoring Equipment	Monitoring Frequency	Action Level Concentration	
					Mandatory Respirator Use	Mandatory Work Stoppage
1,2	Work Areas	All analyzed compounds	PID: Multi-Rae	Periodically during all tasks/activities.	--	10 ppm

PID = Photoionization Detector (HNU, TIP, OVM)
FID = Flame Ionization Detector (OVA)
LEL-O_2 = Explosivity and Oxygen Meter

Name(s) of individual(s) responsible for performing the monitoring, and certifying the results:

All Hillmann personnel

Type, make and model of instruments used: Multi-Rae PID Gas Monitor

Method and frequency of calibration: 100 ppm isobutylene-calibration gas. Calibrated prior to each day's use according to manufacturer's instruction.

Procedures for Handling Anticipated Wastes

Waste Generation

Anticipated: Yes: __ No:____X____

Types: NA ___ Liquid _____ Solid ___X___ Sludge_____ Gas _

Quantity: Expected volume of each type:

This project ___will ____X_will not generate non-hazardous, contaminated wastes. These wastes will be:

_____ stored _____ treated
___transported ____manifested in the following manner:

Packaging requirements for waste material:

_____
_____
_____
_____
_____

Decontamination Procedures

All personnel that may be exposed to contaminated soil will wear modified level D Personal Protective Equipment to include disposable gloves. Gloves will be changed after handling potentially impacted material or equipment and placed in a plastic garbage bag for proper disposal. All personnel will wash their hands before eating or drinking and no smoking will be allowed on site.

All equipment brought onto the site will be cleaned of any contaminants prior to accessing the site to prevent offsite cross-contamination or the need to decontaminate prior to the start of field activities. After each borehole is completed, all drilling equipment used for the soil boring (augers, etc.) will be decontaminated with soap (Alconox® or equivalent) and water followed by a water rinse, using a brush as necessary, to remove soil and contaminants. At the conclusion of daily project activities, all equipment will again be decontaminated with soap and water and a water rinse. All equipment will be handled with clean gloves after cleaning to minimize cross-contamination.

Spill Prevention and Response

Potentially hazardous spill situations can be mitigated by using containment devices and materials in work areas. If site conditions are suitable, earthen berms will be constructed around specific areas. If site conditions are not suitable for this, or the potential spill is smaller, barriers will be constructed with sorbent materials such as “speedi-dry”, sorbent booms and/or straw bales. Dikes and berms will also be used to divert stormwater run-on and run-off away from critical zones.

Because a spill cleanup must be conducted under crisis conditions, it is important that the methods used for dealing with a spill be thought out beforehand. However, the steps followed cannot be inflexible, because no two spills are identical. Factors that will be assessed in the event of any and all spills include:

1. The volume of the hazardous substance released and the rate of release.
2. The nature of the spill material.
3. What danger exists to personnel in the immediate area.
4. Nature of damage and possibilities of repair.
5. If the transfer of material to an alternate containment is advisable.
6. Feasibility of the construction of a containment dike.
7. Nature of spill area.
8. Whether the spilled substance has reached a watercourse or sewer.
9. Danger of explosion or fire.
10. Equipment and supplies necessary to confine the material and carry out the cleanup.

In most cases, the success of a cleanup operation is dependent upon the time it takes to contain the spill. Therefore, Hillmann’s first attempt at spill containment will be at the point of discharge. This can often be accomplished by closing valves, reinforcing or repairing damaged containers, moving or changing the position of fallen or ruptured containers, or emptying the container by pumping to a temporary storage or holding vessel. Pumps, suction hoses and containers will be available to recover spilled materials when directed to do so by the Site Supervisor.

Handling and transport of drummed waste always must be conducted in a controlled and safe manner, which will minimize damage to structurally sound drums, repacks and overpacks. If leakage or spillage of waste occurs, the drum must immediately be placed within an overpack unit. Overpack units must be provided at each staging area, at areas of existing drums, and along all site roadways.

In the event of a spill, the drum handling team must immediately contact the SHSO, who will have all personnel evacuated from the immediate spill area. Only personnel trained in spill response procedures shall isolate and contain the spill. Where possible, spilled waste material must be collected and placed in repack containers for ultimate disposal. Following containment and collection of spilled waste, the area must be surveyed by the SHSO, who will decide if it is safe to permit re-entry of work teams.

Task/Work Area	Potential Spill or Discharge	Equipment, Materials, and Procedures for Spill Cleanup
1	Oil & Hydraulic Fluids from excavation/drilling equipment	Use of Sorbent Pads for cleanup

Emergency Procedures

Potential emergencies that may arise are most likely to be associated with physical hazards from heavy equipment operation and/or lifting and loading of debris. Emergency response will, in most cases, be performed in Level D protection.

Modifications to these emergency procedures may be necessary after the actual site set-up, based on prevailing conditions. Periodic reviews of these procedures will be performed by the SHSO to ensure that they are appropriate for all anticipated emergencies.

Responsibilities

The Site Supervisor has the authority and responsibility to commit company resources to appropriately respond to an emergency, and to exclude all personnel not directly responding to the emergency.

Prior to beginning work at the site, Hillmann will designate an employee, usually the SHSO, to be responsible for initiating any emergency response actions. In the event an injury or illness requires more than first aid treatment, the SHSO (or alternate) will accompany the injured person to the hospital, and will remain with the person until release or admittance is decided.

Evacuation Plan

The basic elements of an emergency evacuation plan include employee training, escape routes, escape procedures, critical operations or equipment, rescue and medical duty assignments, designation of responsible parties, emergency reporting procedures and methods to account for all employees after evacuation.

When appropriate, wind indicators visible to all on-site personnel will be provided by the SHSO to indicate possible routes of upwind escape. Work-area entrance and exit routes will be planned, and emergency escape routes will be delineated by the SHSO. The discovery of any condition that would suggest the existence of a situation more hazardous than anticipated, should result in the evacuation of the team and a re-evaluation of the hazard and the level of protection required. This re-evaluation will be conducted by appropriate on-site health and safety personnel.

In the highly unlikely event that barrels, canisters, or chemical gases or vapors are uncovered during site work, the following procedures shall be followed:

1) In the event that barrels, canisters, or any other vessels are encountered during excavation, all work shall immediately cease and all workers to be removed from the area. The SHSO shall be immediately notified, and he/she shall identify vessel contents, handling procedures and storage and disposal techniques prior to starting work.

2) In the event that high concentrations of gases or vapors are detected, the following actions will be taken:

    - Remove all workers from the area
    - Monitor gas or vapor concentrations to determine the type of respiratory protection that will be required before workers reenter the area.

3) In the highly unlikely event of a major leak of toxic gas, such as might occur if a compressed gas cylinder were ruptured during excavation or drilling, all on-site personnel will be evacuated to a safe distance. The risk will be assessed prior to restarting work.

Training

Employees will be instructed in the specific aspects of emergency evaluation applicable to the site as part of the site safety meeting prior to the commencement of all on-site activities. On-site refresher or update training is required anytime escape routes or procedures are modified or personnel assignments are changed. During

the site safety meeting, all employees will be trained in, and reminded of, the location of this plan, the procedures outlined in this plan, and the communication systems and evacuation routes used during an emergency.

On a continuous basis, individual employees should be constantly alert for indicators of potentially hazardous situations, and for signs and symptoms in themselves and others that warn of hazardous conditions and exposures. Rapid recognition of dangerous situations can avert an emergency. In the event of any emergency that necessitates an evaluation of the site, on-site personnel will be notified by the use of car horns sounded in regularly spaced, repeated blasts, as detailed in the next section of this procedure. The Site Supervisor in conjunction with the SHSO will control the site until the appropriate local or state agency representatives arrive, if required.

Alarm Systems Emergency Signals

The simplest and most effective emergency communication system, in any situation, is direct voice communications. Voice communications will be supplemented anytime voices cannot be clearly perceived above ambient noise levels (e.g., noise from heavy equipment, drilling rigs or backhoes, and anytime a clear line-of-sight cannot be easily maintained among all site personnel because of distance, terrain, or other obstructions. When voice communications must be supplemented, the following emergency signals, using car horns, will be used.

- One Horn Blast: General Warning

  One blast is used to signal relatively minor, but important events on site. An example would be a minor chemical spill where there is no immediate damage to life or health, yet personnel working on site should be aware of the situation so unnecessary problems are avoided. If one horn blast is sounded, personnel must stop all activity and equipment on site and await further instruction from the SHSO.

- Two Horn Blasts: Medical Emergency

  Two blasts are used to signal a medical emergency where immediate first aid or emergency medical care is required. If two horn blasts are sounded, all first aid and CPR trained personnel should respond, as appropriate. All other activity and equipment should stop, and personnel should await further instructions from the SHSO.

- Three Horn Blasts Followed by One Continuous Blast: Immediate Danger to Life or Health

  Three blasts followed by another extended or continuous horn blast signals a situation that could present an immediate danger to the life or health (IDLH) to all employees on site. Examples of possible IDLH situations could include fires, explosions, hazardous chemical spills or releases, hurricanes, tornadoes, blizzards or floods. If three horn blasts followed by a continuous blast are sounded, all activity and equipment must stop, and all personnel must evacuate the site to an appropriately designated site located outside the site gate, or further off site if necessary. (Note: unless otherwise specified, all decontamination procedures must be implemented.) All personnel must be accounted for by the SHSO or Site Supervisor, and other response actions determined by the SHSO or Site Supervisor must be followed.

Employees on site will use the “buddy” system (pairs). Buddies should pre-arrange hand signals or other means of emergency communication in case radios cannot be used, or if the radios no longer operate. The following had signals are suggested:

1. Hand gripping throat: out of air, can’t breathe.
2. Grip partner’s wrist or place both hands around waste: leave area immediately, no debate.
3. Hand on top of head: need assistance.
4. Thumbs up: OK, I’m alright, I understand.
5. Thumbs down: No, negative.

Visual contact will be maintained between employee pairs. Team members will remain in close proximity to each other in order to provide assistance in case of emergencies, and will inform each other of any of the following effects of exposure to site contamination:

- Headaches
- Dizziness
- Blurred vision
- Cramps
- Irritation of eyes, skin or respiratory tract

If any member of the work crew experiences any adverse symptoms while on site, the entire work crew will immediately stop work and follow the instructions provided by the SHSO.

Medical Treatment/First Aid

Eyewash stations will be available at the work activity locations, the outside of the personal decontamination facility and at the equipment decontamination area. Community emergency services (EMS, fire, and police) will be notified immediately if their resources are needed on site. If necessary, the injured or sick party shall be taken to the nearest hospital.

Fire Extinguishers

Equipment – All heavy equipment will be supplied with ABC fire extinguishers are also located in all vehicles.

Emergency Reporting

Any incident (other than minor first aid treatment) resulting in injury, illness or property damage will be reported to Hillmann. An incident investigation will be initiated as soon as emergency conditions are under control. The purpose of this investigation is not to attribute blame but to determine the pertinent facts so that repeat or similar occurrences can be avoided.

The investigations will begin while details are fresh in the mind of all involved. The person administering first aid may be able to start the fact gathering process if the injured are able to speak. Pertinent facts must be determined. Questions beginning with who, what, when, where, and how are usually most effective to discover ways to improve job performance in terms of efficiency, quality of work, as well as safety and health concerns.

On-Site Evacuation Plan – An emergency evacuation alarm (air horn, etc.) will be on site at all times. This alarm should be of sufficient power to be heard by personnel operating heavy equipment. A series of repeated blasts is the signal for all Hillmann personnel and subcontractors to evacuate the site and assemble at:

To be determined at the beginning of each field event:

The criteria for activating the alarm will be the first sign of any serious problem that requires assistance or evacuation.

Should either a fire or explosion occur, all personnel will proceed immediately to the evacuation assembly point and await further instructions. At that time a personnel check will be conducted to determine if anyone is missing, and the local fire and police departments will be called for assistance. Once on site, the acting officer of the fire department and the Site Supervisor will determine if further evacuations are necessary. No Hillmann personnel will re-enter the site without clearance from the SHSO.

Subcontractor Safety

It has been and shall continue to be the policy of Hillmann that employees of all subcontractors are required to adhere to all applicable company, local, state, and federal safety rules and regulations.

When an infraction of a local, state, federal, or company safety regulation is observed, the SHSO will request verbally that the subcontractor's supervisory personnel correct the infraction immediately. If correction is not made, then the project director will request in writing that proper corrective action be taken. Subcontractors who continue to ignore proper safety procedures present a danger for all workers around them. A Stop-work call should be initiated until compliance with safety protocols are achieved; subcontractors will have payments withheld until compliance is achieved.

Subcontractors are required to hold safety meetings for their employees when they are working on Hillmann projects, and submit documentation of such meetings to the Project Manager. Subcontractor employees are not required to attend Hillmann's safety meetings.

Job Safety & Health Protection

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers by promoting safe and healthful working conditions throughout the Nation. Provisions of the Act include the following:

Employers

All employers must furnish to employees' employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious harm to employees. Employers must comply with occupational safety and health standards issued under the Act.

Employees

Employees must comply with all occupational safety and health standards, rules, regulations and orders issued under the Act that apply to their own actions and conduct on the job.

The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational salary and health standards, and its Compliance Safety and Health Officers conduct job site inspections to help ensure compliance with the Act.

Inspection

The Act requires that a representative of the employer and a representative authorized by the employees be given an opportunity to accompany the OSHA inspector for the purpose of aiding the inspection.

Complaint

Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection. If they believe unsafe or unhealthful conditions exist in their workplace. OSHA will withhold, on request, names of employees complaining.

The Act provides that employees may not be discharged or discriminated against in any way for filing safety and health complaints or for otherwise exercising their rights under the Act.

Employees who believe they have been discriminated against may file a complaint with their nearest OSHA office within 30 days of the alleged discriminatory action.

Citation

If upon inspection OSHA believes an employer has violated the Act, a citation alleging such violations will be issued to the employer. Each citation will specify a time period with which the alleged violation must be corrected.

The OSHA citation must be prominently displayed at or near the place of alleged violation for three days, or until it is corrected, whichever is later, to warn employees of dangers that may exist there.

Proposed Penalty

The Act provides for mandatory penalties against employers of up to $1,000 for each serious violation and for optional penalties of up to $1,000 for each non-serious violation. Penalties of up to $1,000 per day may be proposed for failure to correct violations within the proposed time period. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to $10,000 for each such violation.

There are also provisions for central penalties. Any willful violation resulting in death of an employee, upon conviction, is punishable by a fine of up to $250,000 (or $500,000 if the employer is a corporation), or by imprisonment for up to six months or both. A second conviction of an employer doubles the possible term of imprisonment.

Voluntary Activity

While providing penalties for violation, the Act also encourages efforts by labor and management before an OSHA inspection, to reduce workplace hazards voluntarily and to develop and improve safety and health programs in all workplaces and industries. OSHA's Voluntary Protection Programs recognize outstanding efforts of this nature.

OSHA has published Safety and Health Program Management Guidelines to assist employers in establishing or perfecting programs to prevent or control employee exposure to workplace hazards. There are many public and private organizations that can provide information and assistance in this effort if requested. Also, your local OSHA office can provide considerable help and advice on saving safety and health problems or can refer you to other sources for help such as training.

Consultation

Free assistance in identifying and correcting hazards and in improving safety and health management is available to employers, without citation or penalty, through OSHA-supported programs in each State. These programs are usually administered by the State of Labor or Health Department or a State University.

Under provisions of Title 29, Code of Federal Regulations, part 1903.2(s)(1) employers must post this notice (or facsimile) in a conspicuous place where notices to employees are customarily posted.

Equipment Calibration Log

Operator Name:_____ Instrument Notice:_____

Signature:_____ Serial Number:_____

Date	Time	Concentration	Comments

Sampling Log

Operator Name:_____ Instrument Notice:_____

Signature:_____ Serial Number:_____

Was the equipment calibrated? _____ Yes _____ No

Date	Time	Concentration	Comments

Daily Sign In/Sign Out Form

(to be completed on site)

Site Name: Fulton 11 and Chelsea-Elliott Addition

Location: 401-419 W 19th St and 436 West 27th Drive, New York, NY

Employee Name	Company Name	Purpose	Time In	Time Out

Signature of SHSO (or designee) Date

Daily Safety Meeting Log

(to be completed on site)

Site Name Fulton 11 and Chelsea-Elliott Addition

Location 401-419 W 19th St and 436 West 27th Drive, New York, NY

Weather _____

Topics _____

_____

_____

_____

_____

_____

_____

Employee Names:	Signatures

_____ _____

Signature of SHSO (or designee) Date

ACCIDENT INVESTIGATION REPORT

Place Accident Occurred:		Name of Person Involved:	
Site Location		Age / Sex	Job Title
		Yrs in This Job	Yrs with Company
Date & Time of Incident AM __/__/_____:__ PM		Date & Time of Investigation AM __/__/___:__ PM	
Date Incident Reported __/__/	Reported to Whom	Investigated By:	
Regulatory Agencies or Insurance Carriers Contacted:		Witness(es):	
Description from injured or witnesses (use reverse side of form for more space): Signature Date			

Select one or more in each column. Don't hesitate to write in your own words (continue on reverse side, if necessary).

When completing the following task:
- ☐Operating (what machine)_____
- ☐Using (what tool)_____
- ☐Handling (what material)_____
- ☐Maintenance or repair (of what)_____
- ☐Office or sales task_____
- ☐Other -- Provide details_____

The following occurred:
- ☐Amputation (total or partial)_____
- ☐Burn (thermal)_____
- ☐Burn (chemical)_____
- ☐Electric shock_____
- ☐Concussion/unconscious_____
- ☐Crushing injury (contusion, crush, bruise) -- intact skin_____
- ☐Cut, laceration, puncture, abrasion_____
- ☐Fracture or dislocation_____
- ☐Sprain/strain_____
- ☐Cumulative trauma_____
- ☐Occupational illness or disease_____
- ☐Internal injuries_____
- ☐None -- Near accident_____
- ☐Other -- Provide details_____
- ☐Respiratory_____

To the (explain details):
- ☐Head, face, neck_____
- ☐Eye_____
- ☐Trunk, abdomen_____
- ☐Back (upper, lower)_____
- ☐Arm, shoulder_____
- ☐Fingers_____
- ☐Leg, hip, knee_____
- ☐Ankle, foot_____
- ☐Toes_____
- ☐Internal Injuries_____
- ☐Body System:_____
- ☐Circulatory_____
- ☐Digestive_____
- ☐Musculoskeletal_____
- ☐Nervous_____
- ☐Other_____
- ☐Other (specify)_____

Person was, or got:
- ☐Struck against (not including falls)_____
- ☐Struck by_____
- ☐Fell from (from a higher level)_____
- ☐Slipped, tripped, fell on (in the same level)_____
- ☐Foreign body in eye_____
- ☐Contacted electrical energy from_____
- ☐Exposure to (substance)_____
  - from inhalation_____
  - ingestion_____
  - skin absorption_____
- ☐Vehicle accident_____
- ☐Caught in, under or between_____
- ☐Repetitive_____
- ☐Other_____

While (taking what position) Where (or What):
- ☐Carrying_____
- ☐Climbing_____
- ☐Bending_____
- ☐Driving_____
- ☐Jumping_____
- ☐Kneeling_____
- ☐Lifting - below waist, give weight)_____
- ☐Lifting - above waist, give weight)_____
- ☐Pulling_____
- ☐Pushing_____
- ☐Reaching or stretching_____
- ☐Riding_____
- ☐Running_____
- ☐Sitting_____
- ☐Standing_____
- ☐Throwing_____
- ☐Twisting or turning_____
- ☐Walking_____
- ☐Other_____

Medical Treatment (check as many as apply)
- ☐The injured employee was able to return to work the same day.
- ☐The injured employee was sent home
- ☐The injured employee was sent to a doctor/ clinic; list the doctor/clinic name, address, and phone:_____

_____
_____
_____

- ☐The employee was hospitalized.

List name and address of hospital:

_____
_____
_____

Attending physician:_____
_____

What conditions contributed
- ☐Awkward job procedure
- ☐Inadequate guard/safety device
- ☐Inadequate warning/labeling system
- ☐Fire/explosion hazard
- ☐Not secured against moving
- ☐Poor housekeeping
- ☐Protruding object
- ☐Close clearance/congestion
- ☐Hazardous arrangement/storage
- ☐Defective tools/equipment
- ☐Inadequate ventilation
- ☐Atmospheric condition: gases, dusts, fumes, vapors
- ☐Repetitive motion
- ☐Illumination/noise hazard
- ☐Other

What unsafe procedures contributed
- ☐Operating without training/authority
- ☐Failure to follow proper procedure
- ☐Failure to secure
- ☐Operating at unsafe speed
- ☐Failure to warn/signal
- ☐Congestion
- ☐Used defective equipment
- ☐Used equipment improperly/unsafely
- ☐Improper loading or placement
- ☐Horseplay/distraction
- ☐Improper protective equipment
- ☐Improper lifting or carrying
- ☐Taking unsafe or awkward position
- ☐Servicing moving equipment
- ☐Other

The underlying causes of the incident are:
- ☐Unaware of job hazards
- ☐Inattention to hazard
- ☐Unaware of how to avoid incident
- ☐Not enough time to act
- ☐Person motivated to use unsafe procedure
- ☐Emotional/mental/physical stress
- ☐Equipment failed to perform as expected
- ☐Intoxicant/drugs
- ☐Failure to report/correct unsafe condition
- ☐Illness/medical condition
- ☐Work procedure not ergonomically correct
- ☐Substandard design
- ☐Other

Classification (check as many as apply)
- ☐Fatality
- ☐Medical treatment other than First Aid
- ☐Occupation illness or disease
- ☐First Aid
- ☐Environmental Release
- ☐Property Damage
- ☐Near-accident

What steps have already been taken to prevent similar incidents?_____

_____

_____

_____

What else can be done (engineering controls, training, enforcement, process changes) to eliminate the hazard?_____

_____

_____

_____
SHSO's Signature Date

Health and Safety Review: Is proposed action appropriate? Yes ☐ No ☐ Comments_____

_____

_____

_____

_____

_____
DHS's Signature Date

VEHICLE ACCIDENT REPORT

EMPLOYEE NAME:_____ DRV LIC NO.:_____

COMPANY ADDRESS:_____ INSURANCE COMPANY_____

POLICY NO.:_____

DESCRIPTION OF ACCIDENT

DATE:_____ TIME:_____ SPEED LIMIT_____:

LOCATION:_____

DIRECTION OF TRAVEL:_____

HOW DID IT HAPPEN?_____

_____

USE SPACE BELOW TO INDICATE VEHICLE PATHS - INDICATE NORTH BY ARROW

POLICE REPORT

NAME OF OFFICER: _____ BADGE #:_____

_____

DEPARTMENT:_____ LOCATION:_____

SUMMONS ISSUED? Y [ ] N [ ] TO WHOM?_____

YOUR VEHICLE

YEAR/MAKE:_____ REGIST #:_____

DRIVEN BY:_____ AGE:___ TEL #:_____

ADDRESS:_____ CITY:_____ STATE:_____

NATURE OF DAMAGE:_____

OTHER DRIVER

(continue below for additional drivers and witnesses)

NAME:_____ DRV LIC NO.:_____

ADDRESS:_____ VEHICLE REGISTRATION:_____

_____ INSURANCE COMPANY_____

POLICY NO.:_____

CHASP Sign-Off Form

INSTRUCTIONS: Site personnel are required to read, understand, and agree to the provision of the plan. Personnel are required to sign this form indicating agreement. The original of this form is maintained by the Project Manager, and becomes part of the permanent site project files upon completion of site work.

Site Name: Fulton 11 and Chelsea-Elliott Addition

Location: 401-419 W 19th St and 436 West 27th Drive, New York, NY

Project Name and Number: HK2660

I have read, understand, and agree to comply with the provisions of this CHASP for work activities on this site.

Name	Signature	Company/Agency	Date

SAFETY DATA SHEET

Revision Date 19-Jan-2018 **Revision Number** 3

1. Identification

Product Name **1,2-Benzanthracene**

Cat No. : **AC105250000; AC105250010; AC105252500**

Synonyms Benzóa!anthracene; Tetraphene

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Carcinogenicity	Category 1B

Label Elements

Signal Word
Danger

Hazard Statements
May cause cancer

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood

Use personal protective equipment as required
Response
IF exposed or concerned: Get medical attention/advice
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Benz[a]anthracene	56-55-3	99

4. First-aid measures

Eye Contact Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.

Inhalation Remove from exposure, lie down. Move to fresh air. If not breathing, give artificial respiration. Immediate medical attention is required.

Ingestion Call a physician immediately. Clean mouth with water.

Most important symptoms and effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. Chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature Not applicable
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
0	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. Handling and storage

Handling Do not breathe dust. Do not get in eyes, on skin, or on clothing. Use only in area provided with appropriate exhaust ventilation.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Beige
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	158 - 161 °C / 316.4 - 321.8 °F
Boiling Point/Range	437.6 °C / 819.7 °F
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available

Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C18 H12
Molecular Weight	228.29

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization No information available.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Benz[a]anthracene	56-55-3	Group 2B	Reasonably Anticipated	A2	X	Not listed

Mutagenic Effects Ames test: positive.

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Benz[a]anthracene	Group III Chemical	Not applicable	Not applicable

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Benz[a]anthracene	Not listed	Not listed	EC50 = 0.26 mg/L 15 min	LC50: = 0.01 mg/L, 96h Static (Daphnia magna) EC50: = 0.0042 mg/L, 48h (Daphnia magna)

Persistence and Degradability May persist

Bioaccumulation/ Accumulation No information available.

Mobility . Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Benz[a]anthracene	5.61

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Benz[a]anthracene - 56-55-3	U018	-

14. Transport information

DOT Not regulated
TDG Not regulated
IATA
- **UN-No** 3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.*
- **Hazard Class** 9
- **Packing Group** III

IMDG/IMO
- **UN-No** 3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
- **Hazard Class** 9
- **Packing Group** III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Benz[a]anthracene	X	-	X	200-280-6	-		-	-	-	X	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Benz[a]anthracene	56-55-3	99	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Benz[a]anthracene	-	-	-	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Benz[a]anthracene	10 lb	-

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Benz[a]anthracene	56-55-3	Carcinogen	0.033 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benz[a]anthracene	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs

Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date	19-Jan-2018
Print Date	19-Jan-2018
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Revision Date 19-Jan-2018 **Revision Number** 3

1. Identification

Product Name **Benzo[a]pyrene, 98%**

Cat No. : **AC105600010; AC105601000**

CAS-No 50-32-8
Synonyms Benzo[def]chrysene.; 3,4-Benzopyrene; 3,4-Benzpyrene

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 1A
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1A

Label Elements

Signal Word
Danger

Hazard Statements
May cause an allergic skin reaction
May cause genetic defects
May cause cancer
May damage fertility or the unborn child

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Benzo[a]pyrene	50-32-8	> 96

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Move to fresh air.

Ingestion Do not induce vomiting.

Most important symptoms and effects May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point
Method - No information available

Autoignition Temperature No information available

Explosion Limits

Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up No information available.

7. Handling and storage

Handling Ensure adequate ventilation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Benzo[a]pyrene		TWA: 0.2 mg/m^3		

Legend

OSHA - Occupational Safety and Health Administration

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Dark yellow
Odor	aromatic
Odor Threshold	No information available
pH	
Melting Point/Range	175 179 °C
Boiling Point/Range	°C @ 760 mmHg
Flash Point	
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Specific Gravity	No information available
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C20H12
Molecular Weight	252.31

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Benzo[a]pyrene	50-32-8	Group 1	Reasonably Anticipated	A2	X	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information No information available

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Benzo[a]pyrene	Group III Chemical	Not applicable	Not applicable

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

Component	log Pow
Benzo[a]pyrene	6.06

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Benzo[a]pyrene - 50-32-8	U022	-

14. Transport information

DOT
- **UN-No** UN3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
- **Hazard Class** 9
- **Packing Group** III

TDG
- **UN-No** UN3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
- **Hazard Class** 9
- **Packing Group** III

IATA
- **UN-No** UN3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
- **Hazard Class** 9
- **Packing Group** III

IMDG/IMO

UN-No	UN3077
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Hazard Class	9
Packing Group	III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Benzo[a]pyrene	X	X	-	200-028-5	-		X	-	-	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Benzo[a]pyrene	50-32-8	> 96	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Benzo[a]pyrene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA Not applicable

Component	Hazardous Substances RQs	CERCLA EHS RQs
Benzo[a]pyrene	1 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Benzo[a]pyrene	50-32-8	Carcinogen	0.06 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benzo[a]pyrene	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 19-Jan-2018
Print Date 19-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Version 5.7
Revision Date 03/09/2018
Print Date 06/03/2018

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name	:	Benzo[*b*]fluoranthene
Product Number	:	275336
Brand	:	Aldrich
Index-No.	:	601-034-00-4
CAS-No.	:	205-99-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	:	Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052

1.4 Emergency telephone number

Emergency Phone #	:	+1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Carcinogenicity (Category 1B), H350
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)

H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P273	Avoid release to the environment.
P281	Use personal protective equipment as required.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P405	Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 3,4-Benzofluoranthene
Benz[e]acephenanthrylene
2,3-Benzfluoranthene
3,4-Benz[e]acephenanthrylene
Benzo[b]fluoranthene
Benzo[e]fluoranthene
NSC 89265

Formula : $C_{20}H_{12}$
Molecular weight : 252.31 g/mol
CAS-No. : 205-99-2
EC-No. : 205-911-9
Index-No. : 601-034-00-4

Hazardous components

Component	Classification	Concentration
Benz[e]acephenanthrylene		
	Carc. 1B; Aquatic Acute 1; Aquatic Chronic 1; H350, H410	90 - 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Contains no substances with occupational exposure limit values.				
	Remarks	Cancer Substances for which there is a Biological Exposure Index or Indices (see BEI® section), see BEI® for Polycyclic Aromatic Hydrocarbons (PAHs) Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		
Benz[e]acephenanthrylene	205-99-2	PEL	0.2 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Hazardous components without workplace control parameters				

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
	-	1-Hydroxypyrene	2.5 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			
		3-hydroxybenzo(a)pyrene		Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance Form: solid

b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 163 - 165 °C (325 - 329 °F) - lit.
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
TDLo Oral - Mouse - 7.57 mg/kg
Remarks: Liver:Changes in liver weight. Endocrine:Changes in thymus weight.

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Benz[e]acephenanthrylene)
NTP:	RAHC - Reasonably anticipated to be a human carcinogen (Benz[e]acephenanthrylene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - > 1.024 mg/l - 24 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Benz[e]acephenanthrylene)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Benz[e]acephenanthrylene)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Benz[e]acephenanthrylene	205-99-2	2007-03-01

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Benz[e]acephenanthrylene	205-99-2	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Benz[e]acephenanthrylene	205-99-2	2007-03-01

	CAS-No.	Revision Date
Benz[e]acephenanthrylene	205-99-2	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Benz[e]acephenanthrylene	205-99-2	2007-03-01

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer. Benz[e]acephenanthrylene	205-99-2	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H350	May cause cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.7 Revision Date: 03/09/2018 Print Date: 06/03/2018

Safety Data Sheet

Revision Date: 12/30/16
www.restek.com

1. IDENTIFICATION

Catalog Number / Product Name:	**31274 / Benzo(k)fluoranthene Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	10
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:	Flammable Liquid Category 2 Serious Eye Damage/Eye Irritation Category 2 Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 3
GHS Signal Word:	Danger
GHS Hazard:	Highly flammable liquid and vapour. Causes serious eye irritation. May cause drowsiness or dizziness.
GHS Precautions:	
Safety Precautions:	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTER or doctor/physician if you feel unwell. If eye irritation persists: Get medical advice/attention. In case of fire: Use extinguishing media in section 5 for extinction.
Storage:	Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Disposal:	Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: No data available.

Repeated Exposure Target Organs: No data available.

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
Acetone	67-64-1	200-662-2	99.900000
benzo (k) fluoranthene	207-08-9	205-916-6	0.100000

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water spray or fog may also be effective for extinguishing if swept across the base of the fire. Water can also be used to absorb heat and keep exposed material from being damaged by fire. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Fire and/or Explosion Hazards: Vapors may be ignited by heat, sparks, flames or other sources of ignition at or above the low flash point giving rise to a Class B fire. Vapors are heavier than air and may travel to a source of ignition and flash back

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained toxic breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface. Use water spray/fog for cooling.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be irritating or harmful. Follow personal protective equipment recommendations found in Section 8 of this SDS. Additional precautions may be necessary based on special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred. Also consider the expertise of employees in the area responding to the spill.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Harmful or irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment

Storage Technical Measures and Conditions: Store in a cool dry ventilated location. Isolate from

incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
Acetone	67-64-1	2500 ppm IDLH (10% LEL)	500 ppm STEL 750 ppm STEL; 1782 mg/m3 STEL	250 ppm TWA 500 ppm TWA; 1188 mg/m3 TWA	1000 ppm TWA; 2400 mg/m3 TWA
benzo (k) fluoranthene	207-08-9	ND		No TLV	No data available.

Personal Protection:

Engineering Measures: Local exhaust ventilation is recommended when generating excessive levels of vapors from handling or thermal processing.

Respiratory Protection: No respiratory protection required under normal conditions of use. Provide general room exhaust ventilation if symptoms of overexposure occur as explained Section 3. A respirator is not normally required.

Eye Protection: Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.

Skin Protection: Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

Medical Conditions Aggravated By Exposure: Respiratory disease including asthma and bronchitis

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color: Depends upon product selection
Odor: Strong
Physical State: No data available.
pH: No data available.
Vapor Pressure: No data available.
Vapor Density: 2.0 (air = 1)
Boiling Point: No data available.
Melting Point: -95.4 °C Melting Point
Flash Point: 39
Flammability: Highly Flammable
Upper Flammable/Explosive Limit, % in air: No data available.
Lower Flammable/Explosive Limit, % in air: No data available.
Autoignition Temperature: 465 deg C
Decomposition Temperature: No data available.
Specific Gravity: 0.7845 g/cm3 at 25 °C
Evaporation Rate: No data available.
Odor Threshold: ND
Solubility: Complete; 100%
Partition Coefficient: n-octanol in water: No data available.
VOC % by weight: 0
Molecular Weight: 58.08

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions.
Conditions to Avoid: No data available.
Materials to Avoid / Chemical Incompatiability: Strong oxidizing agents Strong acids
Hazardous Decomposition Products: Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure: Eyes, Central nervous system stimulation, Respiratory Tract, Skin
Chemical Interactions That Change Toxicity: None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause minor respiratory irritation, dizziness, weakness, fatigue, nausea, and headache.
Skin Contact:	Can cause minor skin irritation, defatting, and dermatitis.
Eye Contact:	Can cause minor irritation, tearing and reddening.
Ingestion Irritation:	May be harmful if swallowed.
Ingestion Toxicity:	Harmful if swallowed. May cause systemic poisoning.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	Contains a probable or known human carcinogen.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation:	Upon prolonged and/or repeated exposure, can cause minor respiratory irritation, dizziness, weakness, fatigue, nausea, and headache.
Skin Contact:	Upon prolonged or repeated contact, can cause minor skin irritation, defatting, and dermatitis.

Component Toxicological Data:
NIOSH:

Chemical Name	CAS No.	LD50/LC50
Acetone	67-64-1	Dermal LD50 Rabbit >15700 mg/kg; Oral LD50 Rat 5800 mg/kg; Inhalation LC50 Rat 50100 mg/m3 8 h

Component Carcinogenic Data:
OSHA:

Chemical Name	CAS No.	
Benzo(k)fluoranthene	207-08-9	Present

ACGIH:

Chemical Name	CAS No.	
Acetone	67-64-1	A4 - Not Classifiable as a Human Carcinogen

NIOSH:

Chemical Name	CAS No.
No data available.	

NTP:

Chemical Name	CAS No.
No data available.	

IARC:

Chemical Name	CAS No.	Group No.
No data.		Group 1
No data.		Group 2A
Benzo(k)fluoranthene	207-08-9	Group 2B

12. ECOLOGICAL INFORMATION

Overview:	This material is not expected to be harmful to the ecology.
Mobility:	No data
Persistence:	No data
Bioaccumulation:	No data
Degradability:	No data
Ecological Toxicity Data:	No data available.

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product:	Spent or discarded material is a hazardous waste.
Disposal Methods:	Dispose of by incineration following Federal, State, Local, or Provincial regulations.
Waste Disposal of Packaging:	Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:	
DOT Proper Shipping Name:	Acetone
UN Number:	UN1090

Hazard Class: 3
Packing Group: II

International:
IATA Proper Shipping Name: Acetone
UN Number: UN1090
Hazard Class: 3
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available.			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
Acetone	67-64-1	X	-	-	X
benzo (k) fluoranthene	207-08-9	X	X	-	-

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Benzo[k]fluoranthene	207-08-9	Prop 65 Cancer

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
Acetone	67-64-1	X	X	X	X
benzo (k) fluoranthene	207-08-9	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 05/15/15
Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.
References: No data available.
Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding prodcuts described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

Safety Data Sheet

Revision Date: 04/24/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**31275 / Chrysene Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	9
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:
Carcinogenicity Category 1B
Flammable Liquid Category 2
Serious Eye Damage/Eye Irritation Category 2
Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 3

GHS Signal Word:
Danger

GHS Hazard:
Highly flammable liquid and vapour.
Causes serious eye irritation.
May cause drowsiness or dizziness.
May cause cancer.

GHS Precautions:

Safety Precautions:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilation and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Wash hands and skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

First Aid Measures:
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/attention.
Call a POISON CENTER or doctor/physician if you feel unwell.
If eye irritation persists: Get medical advice/attention.
In case of fire: Use extinguishing media in section 5 for extinction.

Storage: Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: Specific target organ toxicity - Single exposure - STOT SE 3: H336 May cause drowsiness or dizziness.

Repeated Exposure Target Organs: No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
Acetone	67-64-1	200-662-2	99.9
chrysene	218-01-9	205-923-4	0.1

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water spray or fog may also be effective for extinguishing if swept across the base of the fire. Water can also be used to absorb heat and keep exposed material from being damaged by fire. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Fire and/or Explosion Hazards: Vapors may be ignited by heat, sparks, flames or other sources of ignition at or above the low flash point giving rise to a Class B fire. Vapors are heavier than air and may travel to a source of ignition and flash back

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained toxic breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface. Use water spray/fog for cooling. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be irritating or harmful. Follow personal protective equipment recommendations found in Section 8 of this SDS. Additional precautions may be necessary based on special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred. Also consider the expertise of employees in the area responding to the spill.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal

evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions:	Harmful or irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment
Storage Technical Measures and Conditions:	Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
Acetone	67-64-1	2500 ppm IDLH (10% LEL)	750 ppm STEL; 1782 mg/m3 STEL	500 ppm TWA; 1188 mg/m3 TWA	1000 ppm TWA; 2400 mg/m3 TWA

Personal Protection:

Engineering Measures:	Local exhaust ventilation is recommended when generating excessive levels of vapours from handling or thermal processing.
Respiratory Protection:	No respiratory protection required under normal conditions of use. Provide general room exhaust ventilation if symptoms of overexposure occur as explained Section 3. A respirator is not normally required.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.
Skin Protection:	Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work
Medical Conditions Aggravated By Exposure:	Respiratory disease including asthma and bronchitis

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	Depends upon product selection
Odor:	Strong
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	2.0 (air = 1)
Boiling Point (°C):	56.05 °C at 1013.25 hPa
Melting Point (°C):	-95.4 °C Melting Point
Flash Point (°F):	39
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	No data available
Lower Flammable/Explosive Limit, % in air:	No data available
Autoignition Temperature (°C):	465 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.7845 g/cm3 at 25 °C
Evaporation Rate:	No data available
Odor Threshold:	ND
Solubility:	Complete; 100%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	58.08

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents Strong acids
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure:	Eyes, Central nervous system stimulation, Respiratory Tract, Skin

Chemical Interactions That Change Toxicity: None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation: Can cause minor respiratory irritation, dizziness, weakness, fatigue, nausea, and headache.
Skin Contact: Can cause minor skin irritation, defatting, and dermatitis.
Eye Contact: Can cause minor irritation, tearing and reddening.
Ingestion Irritation: May be harmful if swallowed.
Ingestion Toxicity: Harmful if swallowed. May cause systemic poisoning.

Long-Term (Chronic) Health Effects:

Carcinogenicity: Contains a probable or known human carcinogen.
Reproductive and Developmental Toxicity: No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation: Upon prolonged and/or repeated exposure, can cause minor respiratory irritation, dizziness, weakness, fatigue, nausea, and headache.
Skin Contact: Upon prolonged or repeated contact, can cause minor skin irritation, defatting, and dermatitis.

Component Toxicological Data:
NIOSH:

Chemical Name	CAS No.	LD50/LC50
Acetone	67-64-1	Dermal LD50 Rabbit >15700 mg/kg; Inhalation LC50 Rat 50100 mg/m3 8 h; Oral LD50 Rat 5800 mg/kg

Component Carcinogenic Data:
OSHA:

Chemical Name	CAS No.
No data available	

ACGIH:

Chemical Name	CAS No.	
Acetone	67-64-1	A4 - Not Classifiable as a Human Carcinogen

NIOSH:

Chemical Name	CAS No.
No data available	

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.
Monograph 92 [2010]; Supplement 7 [1987]; Monograph 32 [1983]	218-01-9	Group 2B

12. ECOLOGICAL INFORMATION

Overview: This material is not expected to be harmful to the ecology.
Mobility: No data
Persistence: No data
Bioaccumulation: No data
Degradability: No data
Ecological Toxicity Data: No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures.
Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.
Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial

Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:

DOT Proper Shipping Name:	Acetone
UN Number:	UN1090
Hazard Class:	3
Packing Group:	II

International:

IATA Proper Shipping Name:	Acetone
UN Number:	UN1090
Hazard Class:	3
Packing Group:	II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
Acetone	67-64-1	X	-	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Chrysene	218-01-9	Prop 65 Cancer

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
Acetone	67-64-1	X	X	X	X
chrysene	218-01-9	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 01/06/17

Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.

References: No data available

Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

SAFETY DATA SHEET

Revision Date 23-Jan-2018 **Revision Number** 3

1. Identification

Product Name **Dibenz[a,h]anthracene, 99% (UV-Vis)**

Cat No. : **AC406430010; AC406432500**

Synonyms 1,2:5,6-Dibenz(a)anthracene.

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Carcinogenicity	Category 1B

Label Elements

Signal Word
Danger

Hazard Statements
May cause cancer

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood

Use personal protective equipment as required
Response
IF exposed or concerned: Get medical attention/advice
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Dibenzo(a,h)anthracene	53-70-3	99

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Move to fresh air.

Ingestion Do not induce vomiting.

Most important symptoms and effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
1	1	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions	See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.
Methods for Containment and Clean Up	No information available.

7. Handling and storage

Handling	Ensure adequate ventilation.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines	This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.
Engineering Measures	Ensure adequate ventilation, especially in confined areas.
Personal Protective Equipment	
Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Off-white
Odor	No information available
Odor Threshold	No information available
pH	
Melting Point/Range	265 °C
Boiling Point/Range	
Flash Point	
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Specific Gravity	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	$C_{22}H_{14}$
Molecular Weight	278.34

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information
Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Dibenzo(a,h)anthracene	53-70-3	Group 2A	Reasonably Anticipated	Not listed	X	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

Component	log Pow
Dibenzo(a,h)anthracene	6.50

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Dibenzo(a,h)anthracene - 53-70-3	U063	-

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Dibenzo(a,h)anthracene	X	-	X	200-181-8	-		-	-	-	X	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Dibenzo(a,h)anthracene	53-70-3	99	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Dibenzo(a,h)anthracene	-	-	-	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA Not applicable

Component	Hazardous Substances RQs	CERCLA EHS RQs
Dibenzo(a,h)anthracene	1 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Dibenzo(a,h)anthracene	53-70-3	Carcinogen	0.2 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Dibenzo(a,h)anthracene	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 23-Jan-2018
Print Date 23-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Safety Data Sheet

Revision Date: 03/22/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**31279 / Indeno(1,2,3-c,d)pyrene Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	10
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:	Carcinogenicity Category 2
GHS Signal Word:	Warning
GHS Hazard:	Suspected of causing cancer.
GHS Precautions:	
Safety Precautions:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF exposed or concerned: Get medical advice/attention.
Storage:	Store locked up.
Disposal:	Dispose of contents/container according to section 13 of the SDS.
Single Exposure Target Organs:	No data available
Repeated Exposure Target Organs:	No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
Dichloromethane	75-09-2	200-838-9	99.9
indeno (1,2,3-c,d) pyrene	193-39-5	205-893-2	0.1

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Immediately flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention and monitor the eye daily as advised by your physician. Serious harm (damage) may result if treatment is delayed. Continue to flush eyes while awaiting medical attention

Skin Contact: Wash with soap and water. Remove contaminated clothing, launder immediately, and discard contaminated leather goods. Get medical attention immediately.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS. Never give anything by mouth to an unconscious person

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical when fighting fires. Water or foam may cause frothing if liquid is burning but it still may be a useful extinguishing agent if carefully applied to the surface of the fire. Do Not direct a stream of water into the hot burning liquid. Use methods suitable to fight surrounding fire.

Fire and/or Explosion Hazards: No data.

Fire Fighting Methods and Protection: Use methods for the surrounding fire.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. As with all chemicals, good industrial hygiene practices should be followed when handling this material.

Storage Technical Measures and Conditions: Store in a cool dry place. Isolate from incompatible materials. Keep container closed when not in use

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
Dichloromethane	75-09-2	2300 ppm IDLH	None Known	50 ppm TWA	25 ppm TWA; 125 ppm STEL (15 min. TWA)
indeno (1,2,3-c,d) pyrene	193-39-5	Not established	None Known	Not established	No data available

Personal Protection:

Engineering Measures: Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure.

Respiratory Protection: Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to

	eliminate symptoms.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Wear additional eye protection such as chemical splash goggles and/or face shield when the possibility exists for eye contact with splashing or spraying liquid, or airborne material. Do not wear contact lenses. Have an eye wash station available.
Skin Protection:	Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.
Medical Conditions Aggravated By Exposure:	Eye disease Skin disease including eczema and sensitization Respiratory disease including asthma and bronchitis

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	Colorless
Odor:	Strong
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	2.93 (air = 1)
Boiling Point (°C):	530 °C
Melting Point (°C):	-96.7 °C
Flash Point (°F):	No data available
Upper Flammable/Explosive Limit, % in air:	No data available
Lower Flammable/Explosive Limit, % in air:	No data available
Autoignition Temperature (°C):	556 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	1.3254 - 1.3258 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	ND
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	No data available

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.Contamination High temperatures
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents Caustics (bases)
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation Absorption Ingestion Skin contact Eye contact
Target Organs Potentially Affected By Exposure:	Skin, Cardiovascular System, Eyes, Liver
Chemical Interactions That Change Toxicity:	None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
Inhalation Toxicity:	Harmful! Can cause systemic damage (see "Target Organs)Inhalation may cause severe central nervous system depression (including unconsciousness).
Skin Contact:	Contact causes severe skin irritation and possible burns.
Skin Absorption:	Harmful if absorbed through the skin. May cause severe irritation and systemic damage.
Eye Contact:	Contact with the eyes may cause moderate to severe eye injury. Eye contact may result in tearing and reddening, but not likely to permanently injure eye tissue. Temporary vision impairment (cloudy or blurred vision) is possible.
Ingestion Irritation:	Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.
Ingestion Toxicity:	Harmful if swallowed. May cause systemic poisoning.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	Contains a probable or known human carcinogen.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components

present at greater than 0.1% may cause birth defects.

Inhalation: Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)

Skin Absorption: Upon prolonged or repeated exposure, harmful if absorbed through the skin. May cause severe irritation and systemic damage

Component Toxicological Data:
NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methane, dichloro-	75-09-2	Inhalation LC50 Rat 53 mg/L 6 h

Component Carcinogenic Data:
OSHA:

Chemical Name	CAS No.	
Indeno[1,2,3-cd]pyrene	193-39-5	Present
Methylene chloride	75-09-2	25 ppm TWA (8 hr.); 125 ppm STEL (15 min.); 12.5 ppm Action Level (see 29 CFR 1910.1051); effective date for respiratory protection for certain employers to acheive the 8-hour TWA PEL is August 31, 1998; the start up date to install engineering controls is December 10, 1998.; {OSHA - 29 CFR 1910 Specifically Regulate

ACGIH:

Chemical Name	CAS No.	
Dichloromethane	75-09-2	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

NIOSH:

Chemical Name	CAS No.	
Methylene chloride	75-09-2	potential occupational carcinogen

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.
Monograph 110 [in preparation]; Monograph 71 [1999]	75-09-2	Group 2A
Monograph 92 [2010]; Supplement 7 [1987]; Monograph 32 [1983]	193-39-5	Group 2B

12. ECOLOGICAL INFORMATION

Overview: Moderate ecological hazard. This product may be dangerous to plants and/or wildlife. Keep out of waterways.
Mobility: No data
Persistence: No data
Bioaccumulation: No data
Degradability: No data
Ecological Toxicity Data: No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Incinerate spent or discarded material a permitted hazardous waste facility.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial

Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:

DOT Proper Shipping Name:	Dichloromethane
UN Number:	UN1593
Hazard Class:	6.1
Packing Group:	III

International:

IATA Proper Shipping Name:	Dichloromethane
UN Number:	UN1593
Hazard Class:	6.1
Packing Group:	III

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
Dichloromethane	75-09-2	X	X	-	X
indeno (1,2,3-c,d) pyrene	193-39-5	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Indeno[1,2,3-cd]pyrene	193-39-5	Prop 65 Cancer
Dichloromethane Dichloromethane (Methylene chloride)	75-09-2	Prop 65 Cancer

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
Dichloromethane	75-09-2	X	X	X	X
indeno (1,2,3-c,d) pyrene	193-39-5	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 08/03/16

Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.

References: No data available

Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

SAFETY DATA SHEET

Creation Date 28-Apr-2009 **Revision Date** 19-Jan-2018 **Revision Number** 6

1. Identification

Product Name **Acetone**

Cat No. : **AC177170000; AC177170010; AC177170025; AC177170050; AC177170100; AC177170250**

CAS-No 67-64-1
Synonyms 2-Propanone

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure) Target Organs - Central nervous system (CNS).	Category 3
Specific target organ toxicity - (repeated exposure) Target Organs - Kidney, Liver, spleen, Blood.	Category 2

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor
Causes serious eye irritation
May cause drowsiness or dizziness
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Wear protective gloves/protective clothing/eye protection/face protection
Keep cool
Response
Get medical attention/advice if you feel unwell
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Repeated exposure may cause skin dryness or cracking

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Acetone	67-64-1	>95

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation Move to fresh air. If not breathing, give artificial respiration. Get medical attention if

symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects None reasonably foreseeable. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: May cause pulmonary edema: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media Water may be ineffective

Flash Point -20 °C / -4 °F

Method - Closed cup

Autoignition Temperature 465 °C / 869 °F

Explosion Limits
Upper 12.8 vol %
Lower 2.5 vol %

Oxidizing Properties Not oxidising

Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Flammable. Risk of ignition. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2) Formaldehyde Methanol
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	3	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Do not get in eyes, on skin, or on clothing. Wear personal protective equipment. Ensure adequate ventilation. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Storage Flammables area. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Acetone	TWA: 250 ppm STEL: 500 ppm	(Vacated) TWA: 750 ppm (Vacated) TWA: 1800 mg/m^3 (Vacated) STEL: 2400 mg/m^3 (Vacated) STEL: 1000 ppm TWA: 1000 ppm TWA: 2400 mg/m^3	IDLH: 2500 ppm TWA: 250 ppm TWA: 590 mg/m^3	TWA: 1000 ppm TWA: 2400 mg/m^3 STEL: 1260 ppm STEL: 3000 mg/m^3

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Long sleeved clothing.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	sweet
Odor Threshold	19.8 ppm
pH	7
Melting Point/Range	-95 °C / -139 °F
Boiling Point/Range	56 °C / 132.8 °F
Flash Point	-20 °C / -4 °F
Method -	Closed cup
Evaporation Rate	5.6 (Butyl Acetate = 1.0)
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	12.8 vol %
Lower	2.5 vol %
Vapor Pressure	247 mbar @ 20 °C
Vapor Density	2.0
Specific Gravity	0.790
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available

Autoignition Temperature	465 °C / 869 °F
Decomposition Temperature	> 4°C
Viscosity	0.32 mPa.s @ 20 °C
Molecular Formula	C3 H6 O
Molecular Weight	58.08
Refractive index	1.358 - 1.359

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Heat, flames and sparks. Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Strong reducing agents, Strong bases, Peroxides, Halogenated compounds, Alkali metals, Amines

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Formaldehyde, Methanol

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Acetone	5800 mg/kg (Rat)	> 15800 mg/kg (rabbit) > 7400 mg/kg (rat)	76 mg/l, 4 h, (rat)

Toxicologically Synergistic Products Carbon tetrachloride; Chloroform; Trichloroethylene; Bromodichloromethane; Dibromochloromethane; N-nitrosodimethylamine; 1,1,2-Trichloroethane; Styrene; Acetonitrile, 2,5-Hexanedione; Ethanol; 1,2-Dichlorobenzene

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Acetone	67-64-1	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Kidney Liver spleen Blood

Aspiration hazard No information available

Symptoms / effects,both acute and Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting:

delayed May cause pulmonary edema: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Acetone	NOEC = 430 mg/l (algae; 96 h)	Oncorhynchus mykiss: LC50 = 5540 mg/l 96h Alburnus alburnus: LC50 = 11000 mg/l 96h Leuciscus idus: LC50 = 11300 mg/L/48h Salmo gairdneri: LC50 = 6100 mg/L/24h	EC50 = 14500 mg/L/15 min	EC50 = 8800 mg/L/48h EC50 = 12700 mg/L/48h EC50 = 12600 mg/L/48h

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Acetone	-0.24

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Acetone - 67-64-1	U002	-

14. Transport information

DOT

UN-No UN1090
Proper Shipping Name ACETONE
Hazard Class 3
Packing Group II

TDG

UN-No UN1090
Proper Shipping Name ACETONE
Hazard Class 3
Packing Group II

IATA

UN-No UN1090
Proper Shipping Name ACETONE
Hazard Class 3
Packing Group II

IMDG/IMO

UN-No UN1090
Proper Shipping Name ACETONE
Hazard Class 3
Packing Group II

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Acetone	X	X	-	200-662-2	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Acetone	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Acetone	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product contains the following DHS chemicals:

Component	DHS Chemical Facility Anti-Terrorism Standard
Acetone	2000 lb STQ

Other International Regulations

Mexico - Grade	Serious risk, Grade 3

16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	28-Apr-2009
Revision Date	19-Jan-2018
Print Date	19-Jan-2018
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

TETRACHLOROETHYLENE

ICSC: 0076

1,1,2,2-Tetrachloroethylene Perchloroethylene Tetrachloroethene C_2Cl_4 / $Cl_2C{=}CCl_2$ Molecular mass: 165.8 ICSC # 0076	CAS # 127-18-4 RTECS # KX3850000 UN # 1897 EC # 602-028-00-4 April 13, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			
EXPOSURE		STRICT HYGIENE! PREVENT GENERATION OF MISTS!	
•INHALATION	Dizziness. Drowsiness. Headache. Nausea. Weakness. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety goggles , face shield .	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Give plenty of water to drink. Rest.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. Personal protection: filter respirator for organic gases and vapours.	Separated from metals ,(see Chemical Dangers), food and feedstuffs . Keep in the dark. Ventilation along the floor.	Do not transport with food and feedstuffs. Marine pollutant. Xn symbol N symbol R: 40-51/53 S: (2-)23-36/37-61 UN Hazard Class: 6.1 UN Packing Group: III

ICSC: 0076	Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

ICSC: 0076

TETRACHLOROETHYLENE

I M P O R T A N T D A T A	**PHYSICAL STATE; APPEARANCE:** COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR. **PHYSICAL DANGERS:** The vapour is heavier than air. **CHEMICAL DANGERS:** On contact with hot surfaces or flames this substance decomposes forming toxic and corrosive fumes (hydrogen chloride, phosgene, chlorine). The substance decomposes slowly on contact with moisture producing trichloroacetic acid and hydrochloric acid. Reacts with metals such as aluminium, lithium, barium, beryllium. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: 25 ppm as TWA, 100 ppm as STEL; A3 (confirmed animal carcinogen with unknown relevance to humans); BEI issued; (ACGIH 2004). MAK: skin absorption (H); Carcinogen category: 3B; (DFG 2004). OSHA PEL†: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 3-hours) NIOSH REL: Ca Minimize workplace exposure concentrations. See Appendix A NIOSH IDLH: Ca 150 ppm See: 127184	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation and by ingestion. **INHALATION RISK:** A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C. **EFFECTS OF SHORT-TERM EXPOSURE:** The substance is irritating to the eyes , the skin and the respiratory tract . If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. The substance may cause effects on the central nervous system. Exposure at high levels may result in unconsciousness. **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the liver and kidneys. This substance is probably carcinogenic to humans.
PHYSICAL PROPERTIES	Boiling point: 121°C Melting point: -22°C Relative density (water = 1): 1.6 Solubility in water, g/100 ml at 20°C: 0.015	Vapour pressure, kPa at 20°C: 1.9 Relative vapour density (air = 1): 5.8 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.09 Octanol/water partition coefficient as log Pow: 2.9
ENVIRONMENTAL DATA	The substance is toxic to aquatic organisms. The substance may cause long-term effects in the aquatic environment.	

NOTES

Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert. Card has been partly updated in April 2005. See section Occupational Exposure Limits.

Transport Emergency Card: TEC (R)-61S1897

NFPA Code: H2; F0; R0;

ADDITIONAL INFORMATION

(C) IPCS, CEC, 1994

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Page last reviewed: July 22, 2015

Page last updated: July 1, 2014

Content source: National Institute for Occupational Safety and Health (http://www.cdc.gov/NIOSH/)

TRICHLOROETHYLENE

ICSC: 0081

1,1,2-Trichloroethylene Trichloroethene Ethylene trichloride Acetylene trichloride C_2HCl_3 / $ClCH{=}CCl_2$ Molecular mass: 131.4 ICSC # 0081	CAS # 79-01-6 RTECS # KX4550000 UN # 1710 EC # 602-027-00-9 April 10, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible under specific conditions. See Notes.		In case of fire in the surroundings: all extinguishing agents allowed.
EXPLOSION		Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		PREVENT GENERATION OF MISTS! STRICT HYGIENE!	
•INHALATION	Dizziness. Drowsiness. Headache. Weakness. Nausea. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety spectacles, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Give plenty of water to drink. Rest.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Personal protection: filter respirator for organic gases and vapours. Do NOT let this chemical enter the environment.	Separated from metals (see Chemical Dangers), strong bases, food and feedstuffs . Dry. Keep in the dark. Ventilation along the floor.	Do not transport with food and feedstuffs. Marine pollutant. T symbol R: 45-36/38-52/53-67 S: 53-45-61 UN Hazard Class: 6.1 UN Packing Group: III

ICSC: 0081	Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

ICSC: 0081

TRICHLOROETHYLENE

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour is heavier than air. As a result of flow, agitation, etc., electrostatic charges can be generated.

CHEMICAL DANGERS:
On contact with hot surfaces or flames this substance decomposes forming toxic and corrosive fumes (phosgene , hydrogen chloride). The substance decomposes on contact with strong alkali producing dichloroacetylene , which increases fire hazard. Reacts violently with metal powders such as magnesium, aluminium, titanium, and barium. Slowly decomposed by light in presence of moisture, with formation of corrosive hydrochloric acid.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 50 ppm as TWA; 100 ppm as STEL; A5; BEI issued; (ACGIH 2004).
MAK:
Carcinogen category: 1; Germ cell mutagen group: 3B; (DFG 2004).
OSHA PEL‡: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2 hours)
NIOSH REL: Ca See Appendix A See Appendix C
NIOSH IDLH: Ca 1000 ppm See: 79016

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes and the skin . Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis. The substance may cause effects on the central nervous system , resulting in respiratory failure . Exposure could cause lowering of consciousness.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the central nervous system , resulting in loss of memory. The substance may have effects on the liver and kidneys (see Notes). This substance is probably carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: 87°C
Melting point: -73°C
Relative density (water = 1): 1.5
Solubility in water, g/100 ml at 20°C: 0.1
Vapour pressure, kPa at 20°C: 7.8
Relative vapour density (air = 1): 4.5
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.3
Auto-ignition temperature: 410°C
Explosive limits, vol% in air: 8-10.5
Octanol/water partition coefficient as log Pow: 2.42
Electrical conductivity (NOT on card): 800pS/m

ENVIRONMENTAL DATA

The substance is harmful to aquatic organisms. The substance may cause long-term effects in the aquatic environment.

NOTES

Combustible vapour/air mixtures difficult to ignite, may be developed under certain conditions. Use of alcoholic beverages enhances the harmful effect. Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert. Card has been partly updated in October 2004. See sections Occupational Exposure Limits, EU classification, Emergency Response.

Transport Emergency Card: TEC (R)-61S1710

NFPA Code: H2; F1; R0;

ADDITIONAL INFORMATION

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Page last reviewed: July 22, 2015
Page last updated: July 1, 2014
Content source: National Institute for Occupational Safety and Health (http://www.cdc.gov/NIOSH/)

SAFETY DATA SHEET

Creation Date 27-Jan-2010 **Revision Date** 17-Jan-2018 **Revision Number** 6

1. Identification

Product Name **Methylene chloride**

Cat No. : **D37-1; D37-4; D37-20; D37-200; D37-200LC; D37-500; D37FB-19; D37FB-50; D37FB-115; D37FB-200; D37POP-19; D37POPB-50; D37POPB-200; D37RB-19; D37RB-50; D37RB-115; D37RB-200; D37RS-19; D37RS-28; D37RS-50; D37RS-115; D37RS-200; D37SK-4; D37SK-4LC; D37SS-28; D37SS-50; D37SS-115; D37SS-200; D37SS-1350**

CAS-No 75-09-2
Synonyms Dichloromethane; DCM

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Liver, Kidney, Blood.	

Label Elements

Signal Word
Danger

Hazard Statements
Causes skin irritation
Causes serious eye irritation

May cause drowsiness or dizziness
May cause cancer
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)

WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Methylene chloride	75-09-2	>99.5

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects None reasonably foreseeable. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature 556 °C / 1032.8 °F

Explosion Limits
Upper 23 vol %
Lower 13 vol %
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2) Hydrogen chloride gas Phosgene
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation.
Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Ensure adequate ventilation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Methylene chloride	TWA: 50 ppm	(Vacated) TWA: 500 ppm (Vacated) STEL: 2000 ppm (Vacated) Ceiling: 1000 ppm TWA: 25 ppm STEL: 125 ppm	IDLH: 2300 ppm	TWA: 100 ppm TWA: 330 mg/m^3 STEL: 500 ppm STEL: 1740 mg/m^3

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Long sleeved clothing.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	sweet
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-97 °C / -142.6 °F
Boiling Point/Range	39 °C / 102.2 °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	23 vol %
Lower	13 vol %
Vapor Pressure	350 mbar @ 20°C
Vapor Density	2.93 (Air = 1.0)
Specific Gravity	1.33
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	556 °C / 1032.8 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C H2 Cl2
Molecular Weight	84.93

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat.

Incompatible Materials Strong oxidizing agents, Strong acids, Amines

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Hydrogen chloride gas, Phosgene

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methylene chloride	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rat)	53 mg/L (Rat) 6 h 76000 mg/m³ (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Methylene chloride	75-09-2	Group 2A	Reasonably Anticipated	A3	X	A3

IARC: (International Agency for Research on Cancer)
IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)
NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)
A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens
Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects Mutagenic effects have occured in microorganisms.

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Liver Kidney Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.

12. Ecological information

Ecotoxicity

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Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Methylene chloride	EC50:>660 mg/L/96h	Pimephales promelas: LC50:193 mg/L/96h	EC50: 1 mg/L/24 h EC50: 2.88 mg/L/15 min	EC50: 140 mg/L/48h

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Methylene chloride	1.25

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Methylene chloride - 75-09-2	U080	-

14. Transport information

DOT

UN-No UN1593
Proper Shipping Name DICHLOROMETHANE
Hazard Class 6.1
Packing Group III

TDG

UN-No UN1593
Proper Shipping Name DICHLOROMETHANE
Hazard Class 6.1
Packing Group III

IATA

UN-No UN1593
Proper Shipping Name Dichloromethane
Hazard Class 6.1
Packing Group III

IMDG/IMO

UN-No UN1593
Proper Shipping Name Dichloromethane
Hazard Class 6.1
Packing Group III

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Methylene chloride	X	X	-	200-838-9	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Methylene chloride	75-09-2	>99.5	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Methylene chloride	-	-	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Methylene chloride	X		-

OSHA Occupational Safety and Health Administration

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Methylene chloride	125 ppm STEL 12.5 ppm Action Level 25 ppm TWA	-

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Methylene chloride	1000 lb 1 lb	-

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Methylene chloride	75-09-2	Carcinogen	200 µg/day 50 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Methylene chloride	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 27-Jan-2010
Revision Date 17-Jan-2018
Print Date 17-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Safety Data Sheet

Revision Date: 03/02/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**30279 / cis-1,2-Dichloroethene Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	9
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:	Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1 Flammable Liquid Category 2 Acute Toxicity - Inhalation Dust / Mist Category 3 Acute Toxicity - Dermal Category 3 Acute Toxicity - Oral Category 3
GHS Signal Word:	Danger
GHS Hazard:	Highly flammable liquid and vapour. Toxic if swallowed, in contact with skin or if inhaled. Causes damage to organs.
GHS Precautions:	
Safety Precautions:	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF SWALLOWED: Immediately call a POISON CENTER/doctor/.... IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Specific treatment see section 4. Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use extinguishing media in section 5 for extinction.
Storage:	Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given)

Repeated Exposure Target Organs: No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	99.8
cis-1,2-dichloroethylene	156-59-2	205-859-7	0.2

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.

Fire and/or Explosion Hazards: Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid

	breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment
Storage Technical Measures and Conditions:	Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA

Personal Protection:

Engineering Measures:	Local exhaust ventilation is recommended when generating excessive levels of vapours from handling or thermal processing.
Respiratory Protection:	Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.
Skin Protection:	Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available
Odor:	Mild
Physical State:	Liquid
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	64.7 °C at 760 mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	52
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	No data available
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure:	Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract
Chemical Interactions That Change Toxicity:	None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
Inhalation Toxicity:	Harmful! Can cause systemic damage (see "Target Organs)Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.
Skin Contact:	Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Eye Contact:	Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.
Ingestion Irritation:	Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.
Ingestion Toxicity:	Toxic if swallowed. May cause target organ failure and/or death.May be fatal if swallowed.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	No data.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation:	Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)
Skin Contact:	Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Ingestion:	Toxic if swallowed. May cause target organ failure and/or death.

Component Toxicological Data:
NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methanol	67-56-1	Inhalation LC50 Rat 22500 ppm 8 h

Component Carcinogenic Data:
OSHA:

Chemical Name	CAS No.
No data available	

ACGIH:

Chemical Name	CAS No.
No data available	

NIOSH:

Chemical Name	CAS No.
No data available	

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.

12. ECOLOGICAL INFORMATION

Overview:	Moderate ecological hazard. This product may be dangerous to plants and/or wildlife.
Mobility:	No data
Persistence:	No data
Bioaccumulation:	No data
Degradability:	Biodegrades slowly.
Ecological Toxicity Data:	No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product:	Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may

render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:
DOT Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3
Packing Group: II

International:
IATA Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3(6.1)
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
cis-1,2-dichloroethylene	156-59-2	-	X	X	-

16. OTHER INFORMATION

Prior Version Date: 10/28/16
Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.
References: No data available
Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

Safety Data Sheet

Revision Date: 03/02/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**30279 / cis-1,2-Dichloroethene Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	9
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:	Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1 Flammable Liquid Category 2 Acute Toxicity - Inhalation Dust / Mist Category 3 Acute Toxicity - Dermal Category 3 Acute Toxicity - Oral Category 3
GHS Signal Word:	Danger
GHS Hazard:	Highly flammable liquid and vapour. Toxic if swallowed, in contact with skin or if inhaled. Causes damage to organs.
GHS Precautions:	
Safety Precautions:	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF SWALLOWED: Immediately call a POISON CENTER/doctor/.... IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Specific treatment see section 4. Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use extinguishing media in section 5 for extinction.
Storage:	Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given)

Repeated Exposure Target Organs: No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	99.8
cis-1,2-dichloroethylene	156-59-2	205-859-7	0.2

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.

Fire and/or Explosion Hazards: Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid

	breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment
Storage Technical Measures and Conditions:	Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA

Personal Protection:

Engineering Measures:	Local exhaust ventilation is recommended when generating excessive levels of vapours from handling or thermal processing.
Respiratory Protection:	Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.
Skin Protection:	Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available
Odor:	Mild
Physical State:	Liquid
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	64.7 °C at 760 mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	52
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	No data available
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure:	Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract
Chemical Interactions That Change Toxicity:	None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
Inhalation Toxicity:	Harmful! Can cause systemic damage (see "Target Organs)Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.
Skin Contact:	Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Eye Contact:	Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.
Ingestion Irritation:	Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.
Ingestion Toxicity:	Toxic if swallowed. May cause target organ failure and/or death.May be fatal if swallowed.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	No data.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation:	Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)
Skin Contact:	Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Ingestion:	Toxic if swallowed. May cause target organ failure and/or death.

Component Toxicological Data:
NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methanol	67-56-1	Inhalation LC50 Rat 22500 ppm 8 h

Component Carcinogenic Data:
OSHA:

Chemical Name	CAS No.
No data available	

ACGIH:

Chemical Name	CAS No.
No data available	

NIOSH:

Chemical Name	CAS No.
No data available	

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.

12. ECOLOGICAL INFORMATION

Overview:	Moderate ecological hazard. This product may be dangerous to plants and/or wildlife.
Mobility:	No data
Persistence:	No data
Bioaccumulation:	No data
Degradability:	Biodegrades slowly.
Ecological Toxicity Data:	No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product:	Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may

render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:
DOT Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3
Packing Group: II

International:
IATA Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3(6.1)
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
cis-1,2-dichloroethylene	156-59-2	-	X	X	-

16. OTHER INFORMATION

Prior Version Date: 10/28/16
Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.
References: No data available
Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

Worldwide Helpline :+1.415.685.4395
For further enquiries :info@clearsynth.com
For an online quote : click here

- MATERIAL SAFETY DATA SHEET -

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Name : 4,4'-Dichlorodiphenyldichloroethane

Company Identification : Clearsynth Labs Pvt. Ltd.
413 Laxmi Mall, New Link Road, Andheri (W),
Mumbai-400 053, INDIA

For information call : ++91-22-26355700
For emergencies call : ++91-22-26355699
For further enquiries : info@clearsynth.com

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS

CAS#	Chemical Name	%	EINECS#	Haz Symbols	RISK PHRASES
72-54-8	4,4'-Dichlorodiphenyldichloroethane	>95%	-	-	-

Hazard Symbols: XN
Risk Phrases: 22

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
Harmful if swallowed.

Potential Health Effects
The toxicological properties of this material have not been investigated. Use appropriate procedures to prevent opportunities for direct contact with the skin or eyes and to prevent inhalation. Compound is Non-hazardous,Non-Toxic/Non-Flammable.

SECTION 4 - FIRST AID MEASURES

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.
Skin:
Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion:
Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.
Inhalation:
Remove from exposure and move to fresh air immediately.
Notes to Physician:

SECTION 5 - FIRE FIGHTING MEASURES

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or

combustion.
Extinguishing Media:
In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up, then place into a suitable container for disposal.

SECTION 7 - HANDLING and STORAGE

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.
Storage:
Store in a well closed container.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls:
Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels.
Personal Protective Equipment
Eyes:
Wear safety glasses and chemical goggles if splashing is possible.
Skin:
Wear appropriate protective gloves and clothing to prevent skin exposure.
Clothing:
Wear appropriate protective clothing to minimize contact with skin.
Respirators:
Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State:
Molecular Formula:
$C_{14}H_{10}Cl_4$
Molecular Weight:
320.04

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability:
Stable under normal temperatures and pressures.
Conditions to Avoid:
Incompatible materials, strong oxidants.
Incompatibilities with Other Materials:
Strong oxidizing agents, strong bases.
Hazardous Decomposition Products:
Nitrogen oxides, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, nitrogen.
Hazardous Polymerization: Has not been reported.

SECTION 11 - TOXICOLOGICAL INFORMATION

RTECS#:

CAS#: LD50/LC50:
CAS#:Draize test, rabbit, eye: 100 mg/24H Moderate; Oral, mouse: LD50 = 300 mg/kg; Oral, rabbit: LD50 = 3200 mg/kg; Oral, rat: LD50 = 980 mg/kg.
Carcinogenicity:
Salicylamide -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
See actual entry in RTECS for complete information.

SECTION 12 - ECOLOGICAL INFORMATION

SECTION 13 - DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with federal, state, and local regulations.

SECTION 14 - TRANSPORT INFORMATION

IATA No information available.
IMO No information available.
ID/ADR No information available.

SECTION 15 - REGULATORY INFORMATION

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: XN
Risk Phrases:
R 22 Harmful if swallowed.
Safety Phrases:
WGK (Water Danger/Protection)

CAS# United Kingdom Occupational Exposure Limits
United Kingdom Maximum Exposure Limits

Canada
CAS# is listed on Canada's DSL List.
CAS#is not listed on Canada's Ingredient Disclosure List.
Exposure Limits
US FEDERAL
TSCA
CAS# is listed on the TSCA inventory.

SECTION 16 - ADDITIONAL INFORMATION

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

SAFETY DATA SHEET

Creation Date 22-Mar-2012 **Revision Date** 18-Jan-2018 **Revision Number** 3

1. Identification

Product Name **DDE I, Restriction Enzyme**

Cat No. : **BP3350-1; BP3350-5**

Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Based on available data, the classification criteria are not met

Label Elements
None required

Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Glycerin	56-81-5	50.0
DDE I, Restriction Enzyme	NA	50.0

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Move to fresh air.

Ingestion Do not induce vomiting.

Most important symptoms and effects No information available.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
1	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information.

Methods for Containment and Clean Up No information available.

7. Handling and storage

Handling Ensure adequate ventilation.

Storage Store in freezer. Keep container tightly closed in a dry and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Glycerin		(Vacated) TWA: 10 mg/m^3 (Vacated) TWA: 5 mg/m^3 TWA: 15 mg/m^3 TWA: 5 mg/m^3		TWA: 10 mg/m^3

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration

Engineering Measures None under normal use conditions.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection No protective equipment is needed under normal use conditions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	No information available
Odor	No information available
Odor Threshold	No information available
pH	No information available
Melting Point/Range	No data available
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Specific Gravity	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Hygroscopic. heat sensitive.

Conditions to Avoid Exposure to moist air or water. Excess heat.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Vapor LC50 Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Glycerin	12600 mg/kg (Rat)	> 10 g/kg (Rabbit)	> 2.75 mg/L/4h (Rat)(mist)

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Glycerin	56-81-5	Not listed	Not listed	Not listed	Not listed	Not listed
DDE I, Restriction Enzyme	NA	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Glycerin	Not listed	LC50: 51 - 57 mL/L, 96h static (Oncorhynchus mykiss)	Not listed	EC50: > 500 mg/L, 24h (Daphnia magna)

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

Component	log Pow
Glycerin	-1.76

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN1845
Proper Shipping Name	CARBON DIOXIDE, SOLID
Hazard Class	9
Packing Group	III

TDG

UN-No	UN1845
Proper Shipping Name	CARBON DIOXIDE, SOLID
Hazard Class	9
Packing Group	III

IATA Not regulated

IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Glycerin	X	X	-	200-289-5	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations Not applicable

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Glycerin	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 22-Mar-2012
Revision Date 18-Jan-2018
Print Date 18-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

1. Identification

Product identifier **4,4'-DDT**

Other means of identification

Product code N-10876

Synonym(s) 1,1,1-TRICHLORO-2,2-BIS(4-CHLOROPHENYL)ETHANE * 4,4'-Dichlorodiphenyl trichloroethane

Recommended use For Laboratory Use Only

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name Chem Service, Inc.

Address 660 Tower Lane
West Chester, PA 19380
United States

Telephone Toll Free 800-452-9994
Direct 610-692-3026

Website www.chemservice.com

E-mail info@chemservice.com

Emergency phone number Chemtrec US 800-424-9300
Chemtrec outside US +1 703-527-3887

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Acute toxicity, oral	Category 3
Acute toxicity, dermal	Category 3
Carcinogenicity	Category 2
Specific target organ toxicity, repeated exposure	Category 1

Environmental hazards

Hazardous to the aquatic environment, acute hazard	Category 1
Hazardous to the aquatic environment, long-term hazard	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Toxic if swallowed. Toxic in contact with skin. Suspected of causing cancer. Causes damage to organs through prolonged or repeated exposure. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

Response If swallowed: Immediately call a poison center/doctor. If on skin: Wash with plenty of water. If exposed or concerned: Get medical advice/attention. Call a poison center/doctor if you feel unwell. Specific treatment (see this label). Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. Collect spillage.

Storage Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information Not applicable.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
4,4'-DDT	1,1,1-TRICHLORO-2,2-BIS(4-CHLOROPHENYL)ETHANE 4,4'-Dichlorodiphenyl trichloroethane	50-29-3	100

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Take off immediately all contaminated clothing. Wash off with soap and plenty of water. Call a POISON CENTER or doctor/physician if you feel unwell.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms/effects, acute and delayed Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information Take off immediately all contaminated clothing. IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions Use water spray to cool unopened containers.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up The product is immiscible with water and will spread on the water surface. Stop the flow of material, if this is without risk. Collect spillage. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not taste or swallow. Avoid contact with skin. Avoid contact with eyes. Avoid prolonged exposure. Avoid contact with clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Avoid release to the environment. Do not empty into drains.

Conditions for safe storage, including any incompatibilities Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
4,4"-DDT (CAS 50-29-3)	PEL	1 mg/m3

US. ACGIH Threshold Limit Values

Material	Type	Value
4,4"-DDT (CAS 50-29-3)	TWA	1 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
4,4"-DDT (CAS 50-29-3)	TWA	0.5 mg/m3

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines

US - California OELs: Skin designation

4,4'-DDT (CAS 50-29-3) Can be absorbed through the skin.

US - Tennesse OELs: Skin designation

4,4'-DDT (CAS 50-29-3) Can be absorbed through the skin.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

4,4'-DDT (CAS 50-29-3) Can be absorbed through the skin.

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear eye/face protection. Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear protective gloves.

Other Wear appropriate chemical resistant clothing.

Respiratory protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Solid.

Form Solid. Crystalline Solid

Color Colorless

Odor Not available.

Odor threshold Not available.

pH Not available.

Melting point/freezing point 227.3 °F (108.5 °C)

Initial boiling point and boiling range 500 °F (260 °C)

366.8 °F (186 °C) 0.006666 kPa

Flash point 162.0 - 171.0 °F (72.2 - 77.2 °C) Closed Cup

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 0 kPa at 20 °C
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	6.9
Auto-ignition temperature	Not available.
Decomposition temperature	230 °F (110 °C)
Viscosity	Not available.
Other information	
Density	0.98 g/cm3 estimated
Flammability class	Combustible IIIA estimated
Molecular formula	C14-H9-Cl5
Molecular weight	354.49 g/mol
Specific gravity	0.98 - 0.99

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid temperatures exceeding the decomposition temperature. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Toxic if swallowed.
Inhalation	Prolonged inhalation may be harmful.
Skin contact	Toxic in contact with skin.
Eye contact	Direct contact with eyes may cause temporary irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity Toxic if swallowed. Toxic in contact with skin.

Product	Species	Test Results
4,4'-DDT (CAS 50-29-3)		
Acute		
Dermal		
LD50	Guinea pig	1000 mg/kg
	Mouse	250 mg/kg
	Rabbit	300 mg/kg
	Rat	1931 mg/kg
Oral		
LD50	Dog	500 mg/kg
	Goat	> 1000 mg/kg
	Guinea pig	250 mg/kg
	Mouse	150 mg/kg
	Rabbit	300 mg/kg

Product	Species	Test Results
	Rat	87 mg/kg
	Sheep	> 1000 mg/kg
Other		
LD50	Cat	32 mg/kg
	Dog	68 mg/kg
	Guinea pig	150 mg/kg
	Monkey	55 mg/kg
	Mouse	32 mg/kg
	Rabbit	30 mg/kg
	Rat	9.1 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

4,4'-DDT (CAS 50-29-3) 2B Possibly carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens

4,4'-DDT (CAS 50-29-3) Reasonably Anticipated to be a Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard Not available.

Chronic effects Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects. Causes damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product		Species	Test Results
4,4'-DDT (CAS 50-29-3)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	0.0005 - 0.001 mg/l, 48 hours
Fish	LC50	Bluegill (Lepomis macrochirus)	0.0013 - 0.002 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

6.91

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

US RCRA Hazardous Waste U List: Reference

4,4'-DDT (CAS 50-29-3)	U061

Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN2811
UN proper shipping name	Toxic solids, organic, n.o.s. (4,4'-DDT RQ = 1 LBS), MARINE POLLUTANT
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Label(s)	6.1
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB8, IP3, T1, TP33
Packaging exceptions	153
Packaging non bulk	213
Packaging bulk	240

IATA

UN number	UN2811
UN proper shipping name	Toxic solid, organic, n.o.s. (4,4'-DDT)
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
ERG Code	6L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

UN number	UN2811
UN proper shipping name	TOXIC SOLID, ORGANIC, N.O.S. (4,4'-DDT), MARINE POLLUTANT
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-A
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

DOT

IATA; IMDG

Marine pollutant

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

4,4'-DDT (CAS 50-29-3) 0.1 % One-Time Export Notification only.

CERCLA Hazardous Substance List (40 CFR 302.4)

4,4'-DDT (CAS 50-29-3) Listed.

SARA 304 Emergency release notification

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

4,4'-DDT (CAS 50-29-3)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)	Hazardous substance Priority pollutant Bioaccumulative chemical of concern Toxic pollutant
Safe Drinking Water Act (SDWA)	Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

4,4'-DDT (CAS 50-29-3)

US. New Jersey Worker and Community Right-to-Know Act

4,4'-DDT (CAS 50-29-3) 500 LBS

US. Pennsylvania RTK - Hazardous Substances

4,4'-DDT (CAS 50-29-3)

US. Rhode Island RTK

4,4'-DDT (CAS 50-29-3)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

4,4'-DDT (CAS 50-29-3) Listed: October 1, 1987

US - California Proposition 65 - CRT: Listed date/Developmental toxin

4,4'-DDT (CAS 50-29-3) Listed: May 15, 1998

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

4,4'-DDT (CAS 50-29-3) Listed: May 15, 1998

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

4,4'-DDT (CAS 50-29-3) Listed: May 15, 1998

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	06-09-2014
Version #	01
NFPA ratings	Health: 2 Flammability: 2 Instability: 0

Disclaimer

The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded SDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with CHEM SERVICE, Inc.

Persons not specifically and properly trained should not handle this chemical or its container. This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticide products, food additives or as household chemicals.

This Safety Data Sheet (SDS) is intended only for use with Chem Service, Inc. products and should not be relied on for use with materials from any other supplier even if the chemical name(s) on the product are identical! Whenever using an SDS for a solution or mixture the user should refer to the SDS for every component of the solution or mixture. Chem Service warrants that this SDS is based upon the most current information available to Chem Service at the time it was last revised. THIS WARRANTY IS EXCLUSIVE, AND CHEM SERVICE, INC. MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. This SDS is provided gratis and CHEM SERVICE, INC. SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR CONTINGENT DAMAGES.

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This product is furnished FOR LABORATORY USE ONLY.

Safety Data Sheet

Revision Date: 02/16/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**32217 / Delta-BHC Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	7
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:	Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1 Flammable Liquid Category 2 Acute Toxicity - Dermal Category 3 Acute Toxicity - Oral Category 3
GHS Signal Word:	Danger
GHS Hazard:	Highly flammable liquid and vapour. Toxic if swallowed or in contact with skin. Causes damage to organs.
GHS Precautions:	
Safety Precautions:	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF SWALLOWED: Immediately call a POISON CENTER/doctor/.... IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF exposed: Call a POISON CENTER or doctor/physician. Call a POISON CENTER or doctor/physician if you feel unwell. Specific treatment see section 4. Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use extinguishing media in section 5 for extinction.
Storage:	Keep container tightly closed.

Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given)

Repeated Exposure Target Organs: No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	99.9
delta-BHC	319-86-8	206-272-9	0.1

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.

Fire and/or Explosion Hazards: Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid

	breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment
Storage Technical Measures and Conditions:	Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA

Personal Protection:

Engineering Measures:	Local exhaust ventilation is recommended when generating excessive levels of vapours from handling or thermal processing.
Respiratory Protection:	Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.
Skin Protection:	Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available
Odor:	Mild
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	64.7 °C at 760 mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	52
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	No data available
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure:	Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract
Chemical Interactions That Change Toxicity:	None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
Inhalation Toxicity:	Harmful! Can cause systemic damage (see "Target Organs)Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.
Skin Contact:	Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Eye Contact:	Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.
Ingestion Irritation:	Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.
Ingestion Toxicity:	Toxic if swallowed. May cause target organ failure and/or death.May be fatal if swallowed.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	No data.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation:	Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)
Skin Contact:	Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Ingestion:	Toxic if swallowed. May cause target organ failure and/or death.

Component Toxicological Data:
NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methanol	67-56-1	Inhalation LC50 Rat 22500 ppm 8 h

Component Carcinogenic Data:
OSHA:

Chemical Name	CAS No.
No data available	

ACGIH:

Chemical Name	CAS No.
No data available	

NIOSH:

Chemical Name	CAS No.
No data available	

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.
Supplement 7 [1987] (listed under Hexachlorocyclohexanes)	319-86-8	Group 2B

12. ECOLOGICAL INFORMATION

Overview:	Moderate ecological hazard. This product may be dangerous to plants and/or wildlife.
Mobility:	No data
Persistence:	No data
Bioaccumulation:	No data
Degradability:	Biodegrades slowly.
Ecological Toxicity Data:	No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:

DOT Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3
Packing Group: II

International:

IATA Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3(6.1)
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
delta-BHC	319-86-8	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 09/14/16

Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.

References: No data available

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Safety Data Sheet

Revision Date: 09/13/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**32218 / Dieldrin Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	7
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:
Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1
Flammable Liquid Category 2
Carcinogenicity Category 2
Acute Toxicity - Dermal Category 3
Acute Toxicity - Oral Category 3

GHS Signal Word:
Danger

GHS Hazard:
Highly flammable liquid and vapour.
Toxic if swallowed or in contact with skin.
Suspected of causing cancer.
Causes damage to organs.

GHS Precautions:

Safety Precautions:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilation and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wash hands and skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.

First Aid Measures:
IF SWALLOWED: Immediately call a POISON CENTER/doctor/....
IF ON SKIN: Wash with plenty of soap and water.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF exposed: Call a POISON CENTER or doctor/physician.
IF exposed or concerned: Get medical advice/attention.
Call a POISON CENTER or doctor/physician if you feel unwell.
Specific treatment see section 4.

Rinse mouth.
Take off immediately all contaminated clothing and wash it before reuse.
In case of fire: Use extinguishing media in section 5 for extinction.

Storage: Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given)

Repeated Exposure Target Organs: Specific target organ toxicity - Repeated exposure - STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure. (No information to prove exclusion of certain routes of exposure)

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	99.9
dieldrin	60-57-1	200-484-5	0.1

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.

Fire and/or Explosion Hazards: Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay.

Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment

Storage Technical Measures and Conditions: Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA

Personal Protection:

Engineering Measures: Local exhaust ventilation is recommended when generating excessive levels of vapours from handling or thermal processing.

Respiratory Protection: Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.

Eye Protection: Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.

Skin Protection: Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available
Odor:	Mild
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	64.7 °C at 760 mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	52
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	No data available
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, Skin Contact, Eye Contact, Ingestion

Target Organs Potentially Affected By Exposure: Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract

Chemical Interactions That Change Toxicity: None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation: Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.

Inhalation Toxicity: Harmful! Can cause systemic damage (see "Target Organs)Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.

Skin Contact: Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.

Eye Contact: Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.

Ingestion Irritation: Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.

Ingestion Toxicity: Toxic if swallowed. May cause target organ failure and/or death.May be fatal if swallowed.

Long-Term (Chronic) Health Effects:

Carcinogenicity: Contains a probable or known human carcinogen.

Reproductive and Developmental Toxicity: No data available to indicate product or any components present at greater than 0.1% may cause birth defects.

Inhalation: Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)

Skin Contact: Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.

Ingestion: Toxic if swallowed. May cause target organ failure and/or death.

Component Toxicological Data:

NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methanol	67-56-1	Inhalation LC50 Rat 22500 ppm 8 h

Component Carcinogenic Data:

OSHA:

Chemical Name	CAS No.
No data available	

ACGIH:

Chemical Name	CAS No.
No data available	

NIOSH:

Chemical Name	CAS No.
No data available	

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.
Monograph 117 [in preparation]; Supplement 7 [1987]; Monograph 5 [1974]	60-57-1	Group 2A

12. ECOLOGICAL INFORMATION

Overview: Moderate ecological hazard. This product may be dangerous to plants and/or wildlife.

Mobility: No data

Persistence: No data

Bioaccumulation: No data
Degradability: Biodegrades slowly.
Ecological Toxicity Data: No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:
DOT Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3
Packing Group: II

International:
IATA Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3(6.1)
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Dieldrin	60-57-1	Prop 65 Cancer
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
dieldrin	60-57-1	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 12/23/16
Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.
References: No data available
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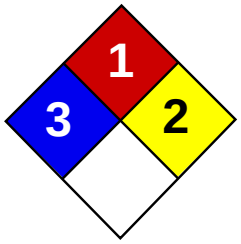

Health	3
Fire	1
Reactivity	2
Personal Protection	E

Material Safety Data Sheet
Arsenic MSDS

Section 1: Chemical Product and Company Identification

Product Name: Arsenic

Catalog Codes: SLA1006

CAS#: 7440-38-2

RTECS: CG0525000

TSCA: TSCA 8(b) inventory: Arsenic

CI#: Not applicable.

Synonym:

Chemical Name: Arsenic

Chemical Formula: As

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Arsenic	7440-38-2	100

Toxicological Data on Ingredients: Arsenic: ORAL (LD50): Acute: 763 mg/kg [Rat]. 145 mg/kg [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, lungs, the nervous system, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Flammable in presence of open flames and sparks, of heat, of oxidizing materials.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:
Material in powder form, capable of creating a dust explosion. When heated to decomposition it emits highly toxic fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, acids, moisture.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.01 from ACGIH (TLV) [United States] [1995] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Lustrous solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 74.92 g/mole

Color: Silvery.

pH (1% soln/water): Not applicable.

Boiling Point: Not available.

Melting Point: Sublimation temperature: 615°C (1139°F)

Critical Temperature: Not available.

Specific Gravity: 5.72 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents, acids, moisture.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 145 mg/kg [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH. Causes damage to the following organs: kidneys, lungs, the nervous system, mucous membranes.

Other Toxic Effects on Humans:
Very hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Arsenic UNNA: UN1558 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Arsenic California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Arsenic Pennsylvania RTK: Arsenic Massachusetts RTK: Arsenic TSCA 8(b) inventory: Arsenic

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R22- Harmful if swallowed. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 1

Reactivity: 2

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 1

Reactivity: 2

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -Liste des produits purs tératogènes, mutagènes, cancérogènes. Répertoire toxicologique de la Commission de la Santé et de la Sécurité du Travail du Québec. -Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec. -SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangeureuses au canada. Centre de conformité internatinal Ltée. 1986.

Other Special Considerations: Not available.

Created: 10/09/2005 04:16 PM

Last Updated: 05/21/2013 12:00 PM

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Barium

SAFETY DATA SHEET

1 PRODUCT AND SUPPLIER IDENTIFICATION

Product Name: Barium

Formula: Ba

Supplier: ESPI Metals
1050 Benson Way
Ashland, OR 97520

Telephone: 800-638-2581

Fax: 541-488-8313

Email: sales@espimetals.com

Emergency: Infotrac 800-535-5053 (US) or 352-323-3500 (24 hour)

Recommended Uses: Scientific Research

2 HAZARDS IDENTIFICATION

GHS Classification (29 CFR 1910.1200): Substances and mixtures which, in contact with water, emit flammable gases, category 2, Skin corrosion/irritation, category 2, Eye damage/irritation, category 2A.

GHS Label Elements:

Signal Word: Danger

Hazard Statements: H261 In contact with water releases flammable gas, H315 Causes skin irritation, H319 Causes serious eye irritation.

Precautionary Statements: P223 Do not allow contact with water, P231+P232 Handle and store contents under inert gas, protect from moisture, P264 Wash skin thoroughly after handling, P280 Wear protective gloves/protective clothing/eye protection/face protection, P302+P335+P334+352 IF ON SKIN: Brush off loose particles from skin, and immerse in cool water, wash with plenty of soap and water, P332+P313 IF SKIN irritation occurs: Get medical advice/attention, P305+P351+P338 IF IN EYES: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing, P337+P313 IF eye irritation persists: Get medical advice/attention, P362+P364 Take off contaminated clothing and wash it before reuse, P370+P378 In case of fire: Use Class D dry powder for extinction, P402+P404 Store in a dry place. Store in a closed container, P501 Dispose of contents/container in accordance with local, state or federal regulations.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient: Barium

CAS#: 7440-39-3

%: 100

EC#: 231-149-1

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Contact

ESPI Metals
1050 Benson Way
Ashland, Oregon 97520

541.488.8311 telephone
800.638.2581 toll-free

541.488.8313 fax
800.488.0060 toll-free fax

sales@espimetals.com

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Palladium	▼	987.00	-4.00	1002.00

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4 FIRST AID MEASURES

General Measures: Remove patient from area of exposure.

INHALATION: Remove to fresh air, keep warm and quiet, give oxygen if breathing is difficult. Seek immediate medical attention.

INGESTION: Quickly wipe material from mouth and rinse with water. Do not induce vomiting. Seek medical attention immediately.

SKIN: Remove contaminated clothing if necessary. Brush off any visible solids. Wash the affected area with water for at least 15 minutes. Seek medical attention.

EYES: Immediately flush eyes with copious amounts of water, including under eyelids for at least 10-15 minutes. A victim may need assistance in keeping their eyelids open. Seek immediate medical attention.

Most Important Symptoms/Effects, Acute and Delayed: May cause severe irritation in contact with moist skin. See section 11 for more information.

Indication of Immediate Medical Attention and Special Treatment: No other relevant information available.

5 FIREFIGHTING MEASURES

Extinguishing Media: Use Class D dry powder extinguishing agent.

Unsuitable Extinguishing Media: Do not use water, carbon dioxide or halogenated extinguishers.

Specific Hazards Arising from the Material: Material readily reacts with water generating flammable hydrogen gas. May emit toxic fumes under fire conditions.

Special Protective Equipment and Precautions for Firefighters: Full face, self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes. Barium metal can reignite after fire is initially extinguished. Never leave extinguished fire unattended.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Wear appropriate respiratory and protective equipment specified in section 8. Isolate spill area and provide ventilation. Avoid breathing dust or fume. Avoid contact with skin and eyes. Eliminate all sources of ignition.

Methods and Materials for Containment and Cleaning Up: Sweep or scoop spilled product and place in a closed container for further handling and disposal. Do not use water for spill clean-up. Cover very small quantities in the open with powdered limestone and let decompose. Use only non-sparking tools and natural bristle brushes.

Environmental Precautions: Do not flush to sewer, stream, or other bodies of water. Do not allow to enter drains or to be released to the environment.

7 HANDLING AND STORAGE

Precautions for Safe Handling: Handle in an enclosed, controlled process under dry protective gas such as argon. Protect from water and moisture. Avoid breathing dust or fumes. Avoid contact with skin and eyes. Wash thoroughly before eating or smoking. See section 8 for information on personal protection equipment.

Conditions for Safe Storage, Including Any Incompatibilities: Store in tightly-sealed containers under argon or mineral oil. Storage containers should be properly labeled and kept in a cool, dry, well-ventilated area, protected from heat and direct sunlight. Do not allow contact with water. Storage area should be free of combustibles and ignition sources. Do not store together with acids or oxidizers. See section 10 for more information on incompatible materials.

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: Barium

OSHA/PEL: 0.5 mg/m^3

ACGIH/TLV: 0.5 mg/m^3

Appropriate Engineering Controls: Handle in an enclosed, controlled process under dry argon. Whenever possible the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne dust and fume to meet established occupational exposure limits. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air. Prepare for the possibility of a fire. Keep extinguishing agents, tools for handling and protective clothing readily available.

Individual Protection Measures, Such as Personal Protective Equipment:

Respiratory Protection: Wear a NIOSH/MSHA approved respirator when high concentrations are present.

Eye Protection: Always wear approved chemical splash proof goggles.

Skin Protection: Rubber gloves, flame retardant protective work clothing.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Form:	Solid in various forms
Color:	Silver-gray metallic
Odor:	Not determined
Odor Threshold:	Not determined
pH:	N/A
Melting Point:	725 ^{o}C
Boiling Point:	1640 ^{o}C
Flash Point:	N/A
Evaporation Rate:	N/A
Flammability:	No data
Upper Flammable Limit:	No data
Lower Flammable Limit:	No data
Vapor Pressure:	10 mm at 1049 ^{o}C
Vapor Density:	N/A
Relative Density (Specific Gravity):	3.51 g/cc at 20 ^{o}C
Solubility in H_2O:	Decomposes
Partition Coefficient (n-octanol/water):	Not determined
Autoignition Temperature:	No data
Decomposition Temperature:	No data
Viscosity:	N/A

10 STABILITY AND REACTIVITY

Reactivity: No specific test data available.

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Reacts readily with water releasing flammable hydrogen gas.

Conditions to Avoid: Avoid contact with water or moist air and possible ignition sources such as sparks or flame.

Incompatible Materials: Water or moisture, oxidizing agents, oxygen, acids, alcohols, halocarbons, carbon dioxide, ammonia.

Hazardous Decomposition Products: Barium hydroxides, barium oxides, hydrogen gas.

11 TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, skin, eyes.

Symptoms of Exposure: May cause severe irritation to the nose, throat, and upper respiratory tract, mouth, throat, and esophagus. Contact with skin can cause mild to moderate irritation. May cause chemical burns in eyes or on skin as it reacts with moisture on living tissue.

Acute and Chronic Effects: Barium compounds may cause severe gastroenteritis, including abdominal pain, vomiting and diarrhea, tremors, faintness, paralysis of the arms and legs, and slow or irregular heartbeat. Severe cases may produce collapse and death due to respiratory failure. Soluble barium compounds are more likely to cause these effects than insoluble compounds. Inhalation of fumes may cause sore throat, coughing, labored breathing, and irritation of the respiratory tract as well as the above symptoms. Chronic exposure to barium may cause sensitization, chronic barium poisoning, dermatitis, corneal opacity and blindness.

Acute Toxicity: No data

Carcinogenicity: NTP: Not identified as carcinogenic IARC: Not identified as carcinogenic

To the best of our knowledge the chemical, physical and toxicological characteristics of the substance are not fully known.

12 ECOLOGICAL INFORMATION

Ecotoxicity: No data

Persistence and Degradability: No data

Bioaccumulative Potential: No data

Mobility in Soil: No data

Other Adverse Effects: Do not allow material to be released to the environment. No further relevant information available.

13 DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Product: Dispose of in accordance with Federal, State and Local regulations.

Packaging: Dispose of in accordance with Federal, State and Local regulations.

14 TRANSPORT INFORMATION

UN Number:	UN1400
UN Proper Shipping Name:	Barium
Transport Hazard Class:	4.3
Packing Group:	II
Marine Pollutant:	No
Special Precautions:	Warning, substances which, in contact with water, emit flammable gases.

15 REGULATORY INFORMATION

TSCA Listed: Yes

DSL Listed: Yes

Regulation (EC) No 1272/2008 (CLP): Substances and mixtures which, in contact with water, emit flammable gases, category 2, Skin corrosion/irritation, category 2, Eye damage/irritation, category 2A.

WHMIS 2015 Classification: Substances and mixtures which, in contact with water, emit flammable gases, Skin corrosion/irritation, Eye damage/irritation.

HMIS Ratings: Health: 2 Flammability: 2 Physical: 2

NFPA Ratings: Health: 2 Flammability: 2 Instability: 2 Special Hazard: W

Chemical Safety Assessment: A chemical safety assessment has not been carried out.

16 OTHER INFORMATION

The information contained in this document is based on the state of our knowledge at the time of publication and is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. ESPI Metals makes no representation, warranty, or guarantee of any kind with respect to the information contained in this document or any use of the product based on this information. ESPI Metals shall not be held liable for any damages resulting from handling or from contact with the above product. Users should satisfy themselves that they have all current data relevant to their particular use.

Prepared by: ESPI Metals

Revised/Reviewed: July 2016

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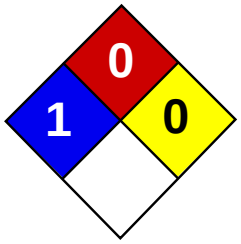

Health	1
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Lead MSDS

Section 1: Chemical Product and Company Identification

Product Name: Lead

Catalog Codes: SLL1291, SLL1669, SLL1081, SLL1459, SLL1834

CAS#: 7439-92-1

RTECS: OF7525000

TSCA: TSCA 8(b) inventory: Lead

CI#: Not available.

Synonym: Lead Metal, granular; Lead Metal, foil; Lead Metal, sheet; Lead Metal, shot

Chemical Name: Lead

Chemical Formula: Pb

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Lead	7439-92-1	100

Toxicological Data on Ingredients: Lead LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Non-flammable in presence of open flames and sparks, of shocks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: When heated to decomposition it emits highly toxic fumes of lead.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.05 (mg/m3) from ACGIH (TLV) [United States] TWA: 0.05 (mg/m3) from OSHA (PEL) [United States] TWA: 0.03 (mg/m3) from NIOSH [United States] TWA: 0.05 (mg/m3) [Canada]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 207.21 g/mole

Color: Bluish-white. Silvery. Gray

pH (1% soln/water): Not applicable.

Boiling Point: 1740°C (3164°F)

Melting Point: 327.43°C (621.4°F)

Critical Temperature: Not available.

Specific Gravity: 11.3 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, excess heat

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Can react vigorously with oxidizing materials. Incompatible with sodium carbide, chlorine trifluoride, trioxane + hydrogen peroxide, ammonium nitrate, sodium azide, disodium acetylide, sodium acetylide, hot concentrated nitric acid, hot concentrated hydrochloric acid, hot concentrated sulfuric acid, zirconium.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. May cause damage to the following organs: blood, kidneys, central nervous system (CNS).

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential: Skin: Lead metal granules or dust: May cause skin irritation by mechanical action. Lead metal foil, shot or sheets: Not likely to cause skin irritation Eyes: Lead metal granules or dust: Can irritate eyes by mechanical action. Lead metal foil, shot or sheets: No hazard. Will not cause eye irritation. Inhalation: In an industrial setting, exposure to lead mainly occurs from inhalation of dust or fumes. Lead dust or fumes: Can irritate the upper respiratory tract (nose, throat) as well as the bronchi and lungsby mechanical action. Lead dust can be absorbed through the respiratory system. However, inhaled lead does not accumulate in the lungs. All of an inhaled dose is eventually abssorbed or transferred to the gastrointestinal tract. Inhalation effects of exposure to fumes or dust of inorganic lead may not develop quickly. Symptoms may include metallic taste, chest pain, decreased physical fitness, fatigue, sleep disturbance, headache, irritability, reduces memory, mood and personality changes, aching bones and muscles, constipation, abdominal pains, decreasing appetite. Inhalation of large amounts may lead to ataxia, deliriuim, convulsions/seizures, coma, and death. Lead metal foil, shot, or sheets: Not an inhalation hazard unless metal is heated. If metal is heated, fumes will be released. Inhalation of these fumes may cause "fume metal fever", which is characterized by flu-like symptoms. Symptoms may include metallic taste, fever, nausea, vomiting, chills, cough, weakness, chest pain, generalized muscle pain/aches, and increased white blood cell count. Ingestion: Lead metal granules or dust: The symptoms of lead poisoning include abdominal pain or cramps (lead cholic), spasms, nausea, vomiting, headache, muscle weakness, hallucinations, distorted perceptions, "lead line" on the gums, metallic taste, loss of appetite, insomnia, dizziness and other symptoms similar to that of inhalation. Acute poisoning may result in high lead levels in the blood and urine, shock, coma and death in extreme cases. Lead metal foil, shot or sheets: Not an ingestion hazard for usual industrial handling.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (female) which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Lead California prop. 65 (no significant risk level): Lead: 0.0005 mg/day (value) California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Lead Connecticut hazardous material survey.: Lead Illinois toxic substances disclosure to employee act: Lead Illinois chemical safety act: Lead New York release reporting list: Lead Rhode Island RTK hazardous substances: Lead Pennsylvania RTK: Lead

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R20/22- Harmful by inhalation and if swallowed. R33- Danger of cumulative effects. R61- May cause harm to the unborn child. R62- Possible risk of impaired fertility. S36/37- Wear suitable protective clothing and gloves. S44- If you feel unwell, seek medical advice (show the label when possible). S53- Avoid exposure - obtain special instructions before use.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:21 PM

Last Updated: 05/21/2013 12:00 PM

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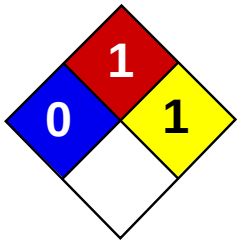

Health	1
Fire	3
Reactivity	2
Personal Protection	E

Material Safety Data Sheet
Magnesium MSDS

Section 1: Chemical Product and Company Identification

Product Name: Magnesium

Catalog Codes: SLM4408, SLM2263, SLM3637

CAS#: 7439-95-4

RTECS: OM2100000

TSCA: TSCA 8(b) inventory: Magnesium

CI#: Not applicable.

Synonym: Magnesium ribbons, turnings or sticks

Chemical Name: Magnesium

Chemical Formula: Mg

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Magnesium	7439-95-4	100

Toxicological Data on Ingredients: Magnesium LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances:
Highly flammable in presence of open flames and sparks, of heat. Flammable in presence of acids, of moisture. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Explosive in presence of acids, of moisture.

Fire Fighting Media and Instructions:
Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:
Magnesium turnings, chips or granules, ribbons, are flammable. They can be easily ignited. They may reignite after fire is extinguished. Produces flammable gases on contact with water and acid. May ignite on contact with water or moist air. Magnesium fires do not flare up violently unless moisture is present.

Special Remarks on Explosion Hazards: Reacts with acids and water to form hydrogen gas with is highly flammable and eplosive

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Flammable solid. Stop leak if without risk. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not breathe dust. Keep away from incompatibles such as oxidizing agents, acids, moisture.

Storage:
Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Moisture sensitive. Dangerous when wet.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid)

Odor: Odorless.

Taste: Not available.

Molecular Weight: 24.31 g/mole

Color: Silver-white

pH (1% soln/water): Not applicable.

Boiling Point: 1100°C (2012°F)

Melting Point: 651°C (1203.8°F)

Critical Temperature: Not available.

Specific Gravity: 1.74 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:
Very slightly soluble in hot water. Insoluble in cold water. Insoluble in chromium trioxides, and mineral acids, alkalies. Slightly soluble with decomposition in hot water. Soluble in concentrated hydrogen fluoride, and ammonium salts.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, incompatible materials, water or moisture, moist air.

Incompatibility with various substances: Reactive with oxidizing agents, acids, moisture.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Violent chemical reaction with oxidizing agents. Reacts with water to create hydrogen gas and heat. Must be kept dry. Reacts with acids to form hydrogen gas which is highly flammable and explosive. Magnesium forms hazardous or explosive mixtures with aluminum and potassium perchlorate; ammonium nitrate; barium nitrate, barium dioxide and zinc; beryllium oxide; boron phosphodiiodide; bromobenzyl trifluoride; cadmium cyanide; cadmium oxide; calcium carbide; carbonates; carbon tetrachloride; chlorine; chlorine trifluoride; chloroform; cobalt cyanide; copper cyanide; copper sulfate(anhydrous), ammonium nitrate, potassium chlorate and water; cupric oxide; cupric sulfate; fluorine; gold cyanide; hydrogen and calcium carbonate; hydrogen iodide; hydrogen peroxide; iodine; lead cyanide; mercuric oxide; mercury cyanide; methyl chloride; molybdenum trioxide; nickel cyanide; nitric acid; nitrogen dioxide; oxygen (liquid); performic acid; phosphates; potassium chlorate; potassium perchlorate; silver nitrate; silver oxide; sodium perchlorate; sodium peroxide; sodium peroxide and carbon dioxide; stannic oxide; sulfates; trichloroethylene; zinc cyanide; zinc oxide.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause skin irritation by mechanical action. May get mechanical injury or embedding of chips/particles in skin. The particles that are embedded in the wounds may retard healing. Eyes: May cause eye irritation by mechanical action. Mechanical injury may occur. Particles or chips may embed in eye and retard healing. Inhalation: Low hazard for ususal industrial handling. It may cause respiratory tract irritation. However, it is unlikely due to physical form. When Magnesium metal is heated during welding or smelting process, Metal Fume Fever may result from inhalation of magnesium fumes. Metal Fume Fever is a flu-like condition consisting of fever, chills, sweating, aches, pains, cough, weakness, headache, nausea, vomiting, and breathing difficulty. Other symptoms may include metallic taste, increased white blood cell count. There is no permanent ill-effect. Ingestion: Low hazard for usual industrial handling. There are no known reports of serious industrial poisonings with Magnesium. Ingeston of large amounts of chips, turnings or ribbons may cause gastrointestinal tract irritation with nausea, vomiting, and diarrhea. Acute ingestion may also result in Hypermagnesia. Hypermagnesia may cause hypotension, bradycardia, CNS depression, respiratory depression, and impairment of neuromuscular transmission (hyporeflexia, paralysis).

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 4.1: Flammable solid.

Identification: : Magnesium UNNA: 1869 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Magnesium Rhode Island RTK hazardous substances: Magnesium Pennsylvania RTK: Magnesium Massachusetts RTK: Magnesium Massachusetts spill list: Magnesium New Jersey: Magnesium TSCA 8(b) inventory: Magnesium

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-4: Flammable solid. CLASS B-6: Reactive and very flammable material.

DSCL (EEC):
R11- Highly flammable. R15- Contact with water liberates extremely flammable gases. S7/8- Keep container tightly closed and dry. S43- In case of fire, use dry chemical. Never use water.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 3

Reactivity: 2

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 0

Flammability: 1

Reactivity: 1

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 06:00 PM

Last Updated: 05/21/2013 12:00 PM

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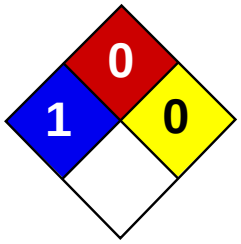

Health	1
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Manganese MSDS

Section 1: Chemical Product and Company Identification

Product Name: Manganese

Catalog Codes: SLM2245

CAS#: 7439-96-5

RTECS: OO9275000

TSCA: TSCA 8(b) inventory: Manganese

CI#: Not available.

Synonym:

Chemical Name: Manganese

Chemical Formula: Mn

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Manganese	7439-96-5	100

Toxicological Data on Ingredients: Manganese: ORAL (LD50): Acute: 9000 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, lungs, brain, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
Moderate fire potential, in the form of dust or powder, when exposed to flame. When manganese if heated in the vapor of phosphorus at a very dull red heat, union occurs with incandescence. Concentrated nitric acid reacts with powdered manganese with incandescence and explosion. Powdered manganese ignites in chlorine.

Special Remarks on Explosion Hazards: Moderate explosion potential, in the form of dust or powder, when exposed to flame.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, reducing agents.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.1 (mg/m3) from ACGIH (TLV) [United States] TWA: 5 (mg/m3) [Canada] TWA: 1 STEL: 3 (mg/m3) from NIOSH [United States] TWA: 5 (mg/m3) from OSHA (PEL) [United States]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

Odor: Odorless.

Taste: Not available.

Molecular Weight: 54.94 g/mole

Color: Grayish white.

pH (1% soln/water): Not applicable.

Boiling Point: 2095°C (3803°F)

Melting Point: 1244°C (2271.2°F)

Critical Temperature: Not available.

Specific Gravity: 7.44 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, reducing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Superficially oxidized on exposure to air. Reacts with aqueous solutions of sodium or potassium bicarbonate. Reacts with dilute mineral acids with evolution of hydrogen and formation of divalent manganous salts. Reacts with fluorine and chlorine to produce di or tri fluoride, and di and tri chloride, respectively. In the form of powder, it reduces most metallic oxides on heating. On heating, it reacts directly with carbon, phosphorus, antimony, or arsenic. Also incompatible with hydroxides, cyanides, carbonates.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 9000 mg/kg [Rat].

Chronic Effects on Humans: May cause damage to the following organs: blood, lungs, brain, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant), of ingestion.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
Manganese can cross the placenta. May cause cancer (tumorigenic) based on animal data.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause skin irritaiton Eyes: Dust may cause mechanical irritation. Inhalation: Dust may cause respiratory tract irritation. May cause "Metal Fume Fever" which may include flu-like symptoms (fever, chills, upset stomach, vomiting, weakness, headache, body aches, muscle pains, dry mouth and throat, coughing, tightness of the chest). May affect behavior/Central Nervous system (change in motor activity, torpor, nervousness, tremor, yawning, mood swings, irritability, restlessness, fatigue, headache, apathy, languor, insomnia than somnolence, hallucinations, delusions, uncontrollable laughter followed by crying, compulsions, aggressivness, weakness in legs, memory loss, decreased libido, impotence, salivation, hearing loss, slow gait,), and respiration (dyspnea, shallow respiration, cyanosis, alveolar inflammation). Ingestion: Repeated or prolonged exposure from ingestion may affect brain (degenerative changes), blood and metabolism. Ingestion: May cause digestive tract irritation. There is a low gastrointesitnal absorption of manganese. Chronic Potential Health Effects: Inhalation: Repeated or prolonged exposure from inhalation may affect brain (degeneratiave changes), behavior/Central Nervous system with symptoms to acute exposure. May also affect liver (chronic liver disease, jaundice) Ingestion: Repeated or prolonged exposure from ingestion may affect brain, blood and metabolism

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
Illinois toxic substances disclosure to employee act: Manganese Rhode Island RTK hazardous substances: Manganese Pennsylvania RTK: Manganese Minnesota: Manganese Massachusetts RTK: Manganese New Jersey: Manganese New Jersey spill list: Manganese Louisiana spill reporting: Manganese California Director's List of Hazardous Substances: Manganese TSCA 8(b) inventory: Manganese SARA 313 toxic chemical notification and release reporting: Manganese

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC): Not applicable.

HMIS (U.S.A.):

- **Health Hazard:** 1
- **Fire Hazard:** 0
- **Reactivity:** 0
- **Personal Protection:** E

National Fire Protection Association (U.S.A.):

- **Health:** 1
- **Flammability:** 0
- **Reactivity:** 0
- **Specific hazard:**

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Last Updated: 05/21/2013 12:00 PM

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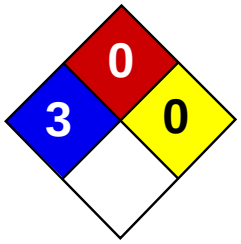

Health	3
Fire	0
Reactivity	0
Personal Protection	

Material Safety Data Sheet
Mercury MSDS

Section 1: Chemical Product and Company Identification

Product Name: Mercury

Catalog Codes: SLM3505, SLM1363

CAS#: 7439-97-6

RTECS: OV4550000

TSCA: TSCA 8(b) inventory: Mercury

CI#: Not applicable.

Synonym: Quick Silver; Colloidal Mercury; Metallic Mercury; Liquid Silver; Hydragyrum

Chemical Name: Mercury

Chemical Formula: Hg

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Mercury	7439-97-6	100

Toxicological Data on Ingredients: Mercury LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (corrosive, permeator). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
Hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Classified A5 (Not suspected for human.) by ACGIH. 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, liver, brain, peripheral nervous system, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation.

Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
When thrown into mercury vapor, boron phosphodiiodide ignites at once. Flame forms with chlorine jet over mercury surface at 200 deg to 300 deg C. Mercury undergoes hazardous reactions in the presence of heat and sparks or ignition.

Special Remarks on Explosion Hazards:
A violent exothermic reaction or possible explosion occurs when mercury comes in contact with lithium and rubidium. CHLORINE DIOXIDE & LIQUID HG, WHEN MIXED, EXPLODE VIOLENTLY. Mercury and Ammonia can produce an

explosive compound. A mixture of the dry carbonyl and oxygen will explode on vigorous shaking with mercury. Methyl azide in the presence of mercury was shown to be potentially explosive.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 25°C (77°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.025 from ACGIH (TLV) [United States] SKIN TWA: 0.05 CEIL: 0.1 (mg/m3) from OSHA (PEL) [United States] Inhalation TWA: 0.025 (mg/m3) [United Kingdom (UK)] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Heavy liquid)

Odor: Odorless.

Taste: Not available.

Molecular Weight: 200.59 g/mole

Color: Silver-white

pH (1% soln/water): Not available.

Boiling Point: 356.73°C (674.1°F)

Melting Point: -38.87°C (-38°F)

Critical Temperature: 1462°C (2663.6°F)

Specific Gravity: 13.55 (Water = 1)

Vapor Pressure: Not available.

Vapor Density: 6.93 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Ground mixtures of sodium carbide and mercury, aluminum, lead, or iron can react vigorously. A violent exothermic reaction or possible explosion occurs when mercury comes in contact with lithium and rubidium. Incompatible with boron diiodophosphide; ethylene oxide; metal oxides, metals(aluminum, potassium, lithium, sodium, rubidium); methyl azide; methylsilane, oxygen; oxidants(bromine, peroxyformic acid, chlorine dioxide, nitric acid, tetracarbonynickel, nitromethane, silver perchlorate, chlorates, sulfuric acid, nitrates,); tetracarbonylnickel, oxygen, acetylinic compounds, ammonia, ethylene oxide, methylsiliane, calcium,

Special Remarks on Corrosivity:
The high mobility and tendency to dispersion exhibited by mercury, and the ease with which it forms alloys (amalga) with many laboratory and electrical contact metals, can cause severe corrosion problems in laboratories. Special precautions: Mercury can attack copper and copper alloy materials.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A5 (Not suspected for human.) by ACGIH. 3 (Not classifiable for human.) by IARC. May cause damage to the following organs: blood, kidneys, liver, brain, peripheral nervous system, central nervous system (CNS).

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (corrosive, permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

May affect genetic material. May cause cancer based on animal data. Passes through the placental barrier in animal. May cause adverse reproductive effects(paternal effects- spermatogenesis; effects on fertility - fetotoxicity, post-implantation mortality), and birth defects.

Special Remarks on other Toxic Effects on Humans:

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification: : Mercury UNNA: 2809 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Mercury California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Mercury Connecticut hazardous material survey.: Mercury Illinois toxic substances disclosure to employee act: Mercury Illinois chemical safety act: Mercury New York acutely hazardous substances: Mercury Rhode Island RTK hazardous substances: Mercury Pennsylvania RTK: Mercury Minnesota: Mercury Massachusetts RTK: Mercury New Jersey: Mercury New Jersey spill list: Mercury Louisiana spill reporting: Mercury California Director's List of Hazardous Substances.: Mercury TSCA 8(b) inventory: Mercury SARA 313 toxic chemical notification and release reporting: Mercury CERCLA: Hazardous substances.: Mercury: 1 lbs. (0.4536 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

DSCL (EEC):
R23- Toxic by inhalation. R33- Danger of cumulative effects. R38- Irritating to skin. R41- Risk of serious damage to eyes. R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S2- Keep out of the

reach of children. S7- Keep container tightly closed. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S39- Wear eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S46- If swallowed, seek medical advice immediately and show this container or label. S60- This material and its container must be disposed of as hazardous waste. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 0

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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SAFETY DATA SHEET

Creation Date 04-Oct-2010 **Revision Date** 19-Jan-2018 **Revision Number** 4

1. Identification

Product Name **Nickel, powder**

Cat No. : **AC193610000; AC193610250; AC193611000; AC193615000**

CAS-No 7440-02-0
Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable solids	Category 2
Skin Sensitization	Category 1
Carcinogenicity	Category 1B
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Kidney, Blood.	

Label Elements

Signal Word
Danger

Hazard Statements
Flammable solid
May cause an allergic skin reaction
May cause cancer
Causes damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Harmful to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Nickel	7440-02-0	>95

4. First-aid measures

General Advice
Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation
Move to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms and effects None reasonably foreseeable. . May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature 400 °C / 752 °F

Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Flammable.

Hazardous Combustion Products
Nickel oxides.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
2	3	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

Environmental Precautions Should not be released into the environment. Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe vapors/dust. Do not ingest.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Nickel	TWA: 1.5 mg/m^3	(Vacated) TWA: 1 mg/m^3 TWA: 1 mg/m^3	IDLH: 10 mg/m^3 TWA: 0.015 mg/m^3	TWA: 1 mg/m^3

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Long sleeved clothing.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Brown
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	1455 °C / 2651 °F
Boiling Point/Range	2730 °C / 4946 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 1810 °C
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	400 °C / 752 °F
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	Ni
Molecular Weight	58.7

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation. acids.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Nickel oxides

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Nickel	LD50 > 9000 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Nickel	7440-02-0	Group 2B	Reasonably Anticipated	Not listed	X	Not listed

IARC: (International Agency for Research on Cancer)
Group 2B - Possibly Carcinogenic to Humans
IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
NTP: (National Toxicity Program)
NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure Kidney Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Do not empty into drains. The product contains following substances which are hazardous for the environment. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Contains a substance which is:. Toxic to aquatic organisms. Very toxic to aquatic organisms. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water

system.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Nickel	EC50: 0.174 - 0.311 mg/L, 96h static (Pseudokirchneriella subcapitata) EC50: = 0.18 mg/L, 72h (Pseudokirchneriella subcapitata)	LC50: = 10.4 mg/L, 96h static (Cyprinus carpio) LC50: = 1.3 mg/L, 96h semi-static (Cyprinus carpio) LC50: > 100 mg/L, 96h (Brachydanio rerio)	Not listed	EC50: = 1 mg/L, 48h Static (Daphnia magna) EC50: > 100 mg/L, 48h (Daphnia magna)

Persistence and Degradability Insoluble in water May persist

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN3089
Proper Shipping Name Metal powder, flammable, n.o.s
Hazard Class 4.1
Packing Group II

TDG

UN-No UN3089
Proper Shipping Name METAL POWDER, FLAMMABLE, N.O.S.
Hazard Class 4.1
Packing Group II

IATA

UN-No UN3089
Proper Shipping Name METAL POWDER, FLAMMABLE, N.O.S.
Hazard Class 4.1
Packing Group II

IMDG/IMO

UN-No UN3089
Proper Shipping Name METAL POWDER, FLAMMABLE, N.O.S.
Hazard Class 4.1
Packing Group II

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Nickel	X	X	-	231-111-4	-		X	-	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Nickel	7440-02-0	>95	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Nickel	-	-	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Nickel	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Nickel	100 lb	-

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Nickel	7440-02-0	Carcinogen	-	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Nickel	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs

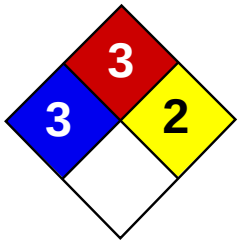
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date	04-Oct-2010
Revision Date	19-Jan-2018
Print Date	19-Jan-2018
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS



Health	3
Fire	3
Reactivity	2
Personal Protection	E

Material Safety Data Sheet
Sodium MSDS

Section 1: Chemical Product and Company Identification

Product Name: Sodium

Catalog Codes: SLS3505

CAS#: 7440-23-5

RTECS: VY0686000

TSCA: TSCA 8(b) inventory: Sodium

CI#: Not applicable.

Synonym: Natrium

Chemical Name: Sodium

Chemical Formula: Na

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Sodium	7440-23-5	100

Toxicological Data on Ingredients: Sodium LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of eye contact (irritant). Hazardous in case of skin contact (permeator), of ingestion, of inhalation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

Skin Contact:

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 115°C (239°F)

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances:
Extremely flammable in presence of moisture. Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable solid. Moisture reactive material. SMALL FIRE: Obtain advice on use of water. Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Do not use water jet.

Special Remarks on Fire Hazards: When heated to decomposition it emits toxic fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Flammable solid that, in contact with water, emits flammable gases. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Cover with dry earth, sand or other non-combustible material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal.

Section 7: Handling and Storage

Precautions:
Keep under inert atmosphere. Keep container dry. Do not breathe dust. Never add water to this product In case of insufficient ventilation, wear suitable respiratory equipment If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes Keep away from incompatibles such as oxidizing agents, acids, moisture.

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. Keep container dry. Keep in a cool place.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 22.99 g/mole

Color: Silvery.

pH (1% soln/water): Not applicable.

Boiling Point: 881.4°C (1618.5°F)

Melting Point: 97.8°C (208°F)

Critical Temperature: Not available.

Specific Gravity: 0.97 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances:
Highly reactive with oxidizing agents, acids, moisture. The product reacts violently with water to emit flammable but non toxic gases.

Corrosivity: Not available.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant). Hazardous in case of skin contact (permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Material is destructive to tissue of the mucous membranes and upper respiratory tract.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 4.3: Material that emits flammable gases on contact with water.

Identification: : Sodium : UN1428 PG: I

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Sodium Massachusetts RTK: Sodium TSCA 8(b) inventory: Sodium CERCLA: Hazardous substances.: Sodium

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R17- Spontaneously flammable in air. R38- Irritating to skin. R41- Risk of serious damage to eyes.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 3

Reactivity: 2

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 3

Reactivity: 2

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangeureuses au canada. Centre de conformité internatinal Ltée. 1986.

Other Special Considerations: Not available.

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Last Updated: 05/21/2013 12:00 PM

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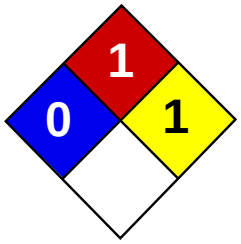

Health	1
Fire	1
Reactivity	1
Personal Protection	E

Material Safety Data Sheet
Zinc Metal MSDS

Section 1: Chemical Product and Company Identification

Product Name: Zinc Metal

Catalog Codes: SLZ1054, SLZ1159, SLZ1267, SLZ1099, SLZ1204

CAS#: 7440-66-6

RTECS: ZG8600000

TSCA: TSCA 8(b) inventory: Zinc Metal

CI#: Not applicable.

Synonym: Zinc Metal Sheets; Zinc Metal Shot; Zinc Metal Strips

Chemical Name: Zinc Metal

Chemical Formula: Zn

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Zinc Metal	7440-66-6	100

Toxicological Data on Ingredients: Zinc Metal LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 480°C (896°F)

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances:
Slightly flammable to flammable in presence of open flames and sparks, of heat, of oxidizing materials, of acids, of alkalis, of moisture. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:
Zinc + NaOH causes ignition. Oxidation of zinc by potassium proceeds with incandescence. Residues from zinc dust /acetic acid reduction operations may ignite after long delay if discarded into waste bins with paper. Incandescent reaction when Zinc and Arsenic or Tellurium, or Selenium are combined. When hydrazine mononitrate is heated in contact with zinc, a flamming decomposition occurs at temperatures a little above its melting point. Contact with acids and alkali hydroxides (sodium hydroxide, postasium hydroxide, calcium hydroxide, etc.) results in evolution of hydrogen with sufficient heat of reaction to ignite the hydrogen gas. Zinc foil ignites if traces of moisture are present. It is water reactive and produces flammable gases on contact with water. It may ignite on contact with water or moist air.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Flammable solid that, in contact with water, emits flammable gases. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Cover with dry earth, sand or other non-combustible material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not breathe dust. Keep away from incompatibles such as oxidizing agents, acids, alkalis, moisture.

Storage:
Keep container tightly closed. Keep container in a cool, well-ventilated area. Keep from any possible contact with water. Do not allow water to get into container because of violent reaction.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Lustrous solid. Metal solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 65.39 g/mole

Color: Bluish-grey

pH (1% soln/water): Not applicable.

Boiling Point: 907°C (1664.6°F)

Melting Point: 419°C (786.2°F)

Critical Temperature: Not available.

Specific Gravity: Not available.

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water, methanol, diethyl ether, n-octanol, acetone.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, incompatible materials, moisture

Incompatibility with various substances:
Reactive with oxidizing agents, acids, alkalis. Slightly reactive to reactive with moisture. The product may react violently with water to emit flammable but non toxic gases.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Incompatible with acids, halogenated hydrocarbons, NH_4NO_3, barium oxide, $Ba(NO_3)_2$, Cadmium, CS_2, chlorates, Cl_2, CrO_3, F_2, Hydroxylamine, $Pb(N_3)_2$, $MnCl_2$, HNO_3, performic acid, $KClO_3$, KNO_3, N_2O_2, Selenium, $NaClO_3$, Na_2O_2, Sulfur, Te, water, $(NH_4)_2S$, As_2O_3, CS_2, $CaCl_2$, chlorinated rubber, catalytic metals, halocarbons, o-nitroanisole, nitrobenzene, nonmetals, oxidants, paint primer base, pentacarbonoyliron, transition metal halides, seleninyl bromide, HCl, H_2SO_4, (Mg +$Ba(NO_3)_2$ +BaO_2), (ethyl acetoacetate +tribromoneopentyl alcohol. Contact with Alkali Hydroxides(Sodium Hydroxide, Potassium Hydroxide, Calcium Hydroxide, etc) results in evolution of hydrogen. Ammonium nitrate + zinc + water causes a violent reaction with evolution of steam and zinc oxide. May react with water.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause skin irritation. Dermal exposure to zinc may produce leg pains, fatigue, anorexia and weight loss. Eyes: May cause eye irritation. Ingestion: May be harmul if swallowed. May cause digestive tract irritation with tightness in throat, nausea, vomiting, diarrhea, loss of appetite, malaise, abdominal pain. fever, and chills. May affect behavior/central nervous system and autonomic nervous system with ataxia, lethargy, staggering gait, mild derrangement in cerebellar function, lightheadness, dizzness, irritability, muscular stiffness, and pain. May also affect blood. Inhalation: Inhalation of zinc dust or fumes may cause respiratory tract and mucous membrane irritation with cough and chest pain. It can also cause "metal fume fever", a flu-like condition characterized appearance of chills, headached fever, maliase, fatigue, sweating, extreme thirst, aches in the legs and chest, and difficulty in breathing. A sweet taste may also be be present in metal fume fever, as well as a dry throat, aches, nausea, and vomiting, and pale grey cyanosis. The toxicological properties of this substance have not been fully investisgated.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: Not available.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
New York release reporting list: Zinc Metal Rhode Island RTK hazardous substances: Zinc Metal Pennsylvania RTK: Zinc Metal Florida: Zinc Metal Michigan critical material: Zinc Metal Massachusetts RTK: Zinc Metal New Jersey: Zinc Metal California Director's List of Hazardous Substances: Zinc Metal TSCA 8(b) inventory: Zinc Metal TSCA 12(b) one time export: Zinc Metal SARA 313 toxic chemical notification and release reporting: Zinc Metal CERCLA: Hazardous substances.: Zinc Metal: 1000 lbs. (453.6 kg)

Other Regulations: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): Not Available

DSCL (EEC):
R15- Contact with water liberates extremely flammable gases. R17- Spontaneously flammable in air. S7/8- Keep container tightly closed and dry.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 1

Reactivity: 1

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 0

Flammability: 1

Reactivity: 1

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 12:18 AM

Last Updated: 05/21/2013 12:00 PM

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APPENDIX 4

VAPOR BARRIER SPECIFICATIONS

PREPRUFE® 300R/160R Plus & PREPRUFE® 300R/160R Plus LT Data Sheet

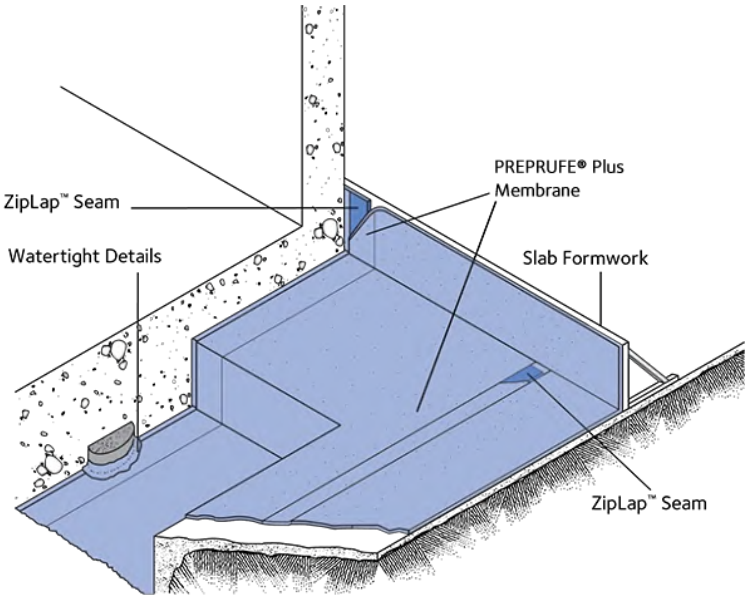
Pre-applied waterproofing membranes that bond integrally to poured concrete for use below slabs or behind basement walls on confined sites.

View Sustainability Certifications: 300R Plus, 160R Plus, 300R Plus LT, 160R Plus LT

Product Description

GCP PREPRUFE® 300R/160R Plus pre applied waterproofing membranes are unique composite sheets comprised of a thick HDPE film, pressure sensitive adhesive, and weather resistant protective coating. Designed with Advanced Bond Technology™ and dual adhesive ZipLap™ seams, PREPRUFE® 300R/160R Plus form a unique, integral bond to poured concrete. This integral bond is specifically designed to provide a robust barrier to water, moisture and gas and prevents both the ingress and lateral migration of water.

PREPRUFE® 300R/160R Plus are release liner free and designed for efficient, reliable installation. PREPRUFE® Plus ZipLap™ seams allow for an adhesive to adhesive bond at membrane sheet overlaps and deliver superior performance in harsh conditions without the need for specialized equipment, heat or power.



Drawings are for illustration purposes only.
Please refer to gcpat.com for specific application details.

Advantages

- The unique continuous adhesive bond to concrete poured against it prevents water migration and makes it unaffected by ground settlement beneath slabs.
- Designed with fully adhered adhesive to adhesive watertight ZipLap™ seams and easy to execute detailing. Provides a barrier to water, moisture and gas physically isolating the structure from the surrounding substrate. Easy roll/kick out installation reduces installation time and cost.
- Release liner free, expedites installation and reduces construction site waste.
- Simple and quick to install requiring no priming or fillets.
- Can be applied to permanent formwork - allows maximum use of confined sites
- Self-protecting - can be trafficked immediately after application and ready for immediate placing of reinforcement Membrane is unaffected by wet jobsite conditions - cannot activate prematurely
- Inherently waterproof as supplied. Passive non-reactive waterproofing system does not require water activation Waterproofing is not reliant on confining pressures or hydration
- PREPRUFE® 300R/160R Plus unaffected by freeze/thaw, wet/dry cycling
- Chemical resistance – designed to help protect structure from salt or sulphate attack effective in most types of soils and waters,
- Gas resistance – PREPRUFE® 300R/160R Plus will restrict the ingress of Methane, Radon, Benzene, Toluene, Gasoline & other VOCs Trichloroethylene & Tetrachloroethylene (TCE/PCE) into buildings from landfill and naturally occurring sources and satisfy the performance criteria for a gas-resistant membrane.

System Components:

Membrane

- PREPRUFE® 300R Plus/300R Plus LT— heavy-duty 46mil grade membrane designed for horizontal and vertical use. Designed for use below slabs and on rafts (i.e. mud slabs) and for vertical blind side applications. Designed to accept the placing of heavy reinforcement using conventional concrete spacers.
- PREPRUFE® 160R Plus/160R Plus LT — 32mil grade membrane designed for vertical use in blindside, zero property line applications against soil retention systems.

Ancillary Components (refer to the most current Data Sheets for all system components available on gcpat.com)

- PREPRUFE® Tape – 4 in. wide tape for covering cut edges, roll ends, penetrations and detailing
- PREPRUFE® CJ Tape – 8 in. wide tape for detailing, and may be used at construction joints for optional additional protection
- BITUTHENE® Liquid Membrane - for sealing around penetrations, etc.
- ADCOR® - hydrophilic waterstop for joints in concrete walls and floors
- PREPRUFE® Tieback Covers - preformed cover for soil retention wall tieback heads
- DE NEEF® INJECTO® Tube groutable Waterstop for non-moving concrete construction joints and penetrations

Limitations of Use

- Approved uses only include those uses specifically detailed in this Product Data Sheet and other current Product Data Sheets that can be found at gcpat.com
- PREPRUFE® 300R/160R Plus Membranes are not intended for any other use. Contact GCP Technical Services where any other use is anticipated or intended.
- PREPRUFE® 300R/160R Plus Membranes are designed for in-service temperatures below 120°F(49°C).
- PREPRUFE® 160R Plus/160R Plus LT membrane should not be used in horizontal applications.
- PREPRUFE® 300R/160R Plus Membranes should not be used with conventional two-sided formwork. (See PREPRUFE® Technical Letter # 13 Forming Systems For Use with PREPRUFE® Membranes)

Special Note: When this information is printed from the gcpat.com global website, a footer appearing on this document will restrict its applicability to the United States. Note that the information and references in this document are hereby expanded and apply to North, Central and South America.

Safety and Handling

Users must read and understand the product label and Safety Data Sheets (SDS's) for each system component before use. All users should acquaint themselves with this information prior to working with the material. Carefully read detailed precaution statements on the product labels and SDS's before use. The most current SDS's can be obtained from the GCP web site at gcpat.com.

Storage

- Observe 1 year shelf life and use on a first in first out basis
- Store in dry conditions between 40°F (4.5°C)-90°F (32°C)
- Store off ground under tarps or otherwise protected from rain and ground moisture
- See PREPRUFE® Technical Letter #30 Shelf Life/Storage and Handling of GCP Waterproofing

Installation

Technical Support, Details and Technical Letters

The most up to date detail drawings and technical letters are available at gcpat.com. For complete application instructions, please refer to the current Literature on (www.gcpat.com). Documents in hardcopy as well as information found on websites other than www.gcpat.com may be out of date or in error. Before using this product it is important that information be confirmed by accessing www.gcpat.com and reviewing the most recent product information, including without limitation Product Data Sheets, Technical Bulletins, Detail Drawings and detailing recommendations. Please review all materials prior to installation of PREPRUFE® 300R/160R Plus.

Support is also available by full-time technically trained GCP field sales representatives and technical service personnel, backed by a central research and development technical services staff. For technical assistance with detailing and problem solving please contact your local representative. A GCP Representative locater is available at www.gcpat.com.

Temperature Requirements

- PREPRUFE® 160R Plus LT and PREPRUFE® 300R Plus LT membrane can be applied between temperature 25ºF to 95ºF. PREPRUFE® 300R Plus & PREPRUFE® 160R Plus membranes can be used for application above 65ºF.
- PREPRUFE® Tape LT and PREPRUFE® CJ Tape LT can be applied between temperature 25ºF to 95ºF. PREPRUFE® Tape HC and PREPRUFE® CJ Tape HC can be used for application above 50ºF.

Substrate Preparation

All surfaces –It is essential to create a sound and solid substrate to eliminate movement during the concrete pour. Substrates must be regular and smooth with no gaps or voids greater than 0.5 in. (12 mm). Grout around all penetrations such as utility conduits, etc. for stability.

Horizontal – The substrate must be free of loose aggregate and sharp protrusions. Avoid curved or rounded substrates. When installing over earth or crushed stone, ensure substrate is well compacted to avoid displacement of substrate due to traffic or concrete pour. The surface does not need to be dry, but standing water must be removed.

Vertical – Use concrete, plywood, insulation or other approved facing over sheet piling to provide support to the membrane. Board systems such as timber lagging must be close butted to provide support and not more than 0.5 in. (12 mm) out of alignment. HYDRODUCT® 220 drainage sheet can be used to bridge voids, gaps and out of alignment up to 2 in. (50mm) prior to PREPRUFE® 300R/160R Plus installation.

Membrane Application

PREPRUFE® 300R/160R Plus has a colored zip strips at the top and bottom of the seam area on the edge of the roll. Both zip strips cover an aggressive adhesive. Once the green zip strip on the top of the membrane and the blue zip strip on the bottom of the membrane are removed, a strong adhesive to adhesive bond is achieved in the overlap area. This PREPRUFE® ZipLap™ provides an enhanced sealing of the overlaps in harsh conditions combined with a fast and easy way of execution without specialized equipment, heat or power.

Horizontal substrates – (PREPRUFE® 300R Plus/ PREPRUFE® 300R Plus LT membrane only) – PREPRUFE® 300R Plus & PREPRUFE® 300R Plus LT membrane can be applied in horizontal applications to smooth prepared concrete, carton forms or well rolled and compacted earth or crushed stone substrate. Kick out or roll out the membrane HDPE film side to the substrate with the green zip strip facing towards the concrete pour. End laps should be staggered to avoid a build-up of layers. Leave green and blue zip strips on the membrane until overlap procedure is completed. When completed remove release liner. When installing over carton forms, contact your local GCP representative.

Accurately position succeeding sheets to overlap the previous sheet 3 in. (75 mm) along the marked selvedge with the blue zip strip on top of the green zip strip. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back and remove both the green and blue zip strips in the overlap area to achieve an adhesive to adhesive bond at the overlap.

Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller.

- PREPRUFE® 300R Plus/300R Plus LT membrane can be returned up the inside face of slab formwork. To attain a fully bonded system and to allow a tie in with BITUTHENE® self-adhered membrane or PROCOR® fluid-applied membrane to all vertical structural surfaces after removal of formwork. Ensure to cut the length of the membrane (terminate) to height of formwork less 2 inches.
- Rebar Chairs: See PREPRUFE® Technical Letter #15 Rebar Chairs on PREPRUFE® Membranes.
- PREPRUFE® 160R Plus & 160R Plus LT membrane may not be used in horizontal applications.

Vertical substrates – PREPRUFE® 300R/160R Plus membranes can be applied vertically to permanent formwork or adjoining structures. Mechanically fasten the membrane vertically using fasteners appropriate for the substrate with the green zip strip facing towards the concrete pour. The membrane may be installed in any convenient length. Fastening can be made through the selvedge within 0.5 in. (50 mm) from the leading edge of the membrane using a small low profile head fastener so that the membrane lays flat and allows firmly rolled overlaps. Accurately position each succeeding sheet to overlap the previous sheet 3 in. (75 mm) along the marked selvedge with the blue zip strip on top of the green zip strip.

Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back and remove both the green and blue zip strips in the overlap area to achieve an adhesive to adhesive bond at the overlap. Roll firmly to ensure a watertight seal.

Note that PREPRUFE® 300R/160R Plus membranes should not be used with conventional two-sided formwork. (See PREPRUFE® Technical Letter # 13 Forming Systems For Use with PREPRUFE® Membranes)

Roll ends and cut edges – Overlap all roll ends and cut edges by a minimum 3 in. (75 mm) and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary. Allow surface to dry and apply PREPRUFE® Tape centered over the lap edges and roll firmly. Immediately remove tinted plastic release liner from the tape.

Membrane Repair

Inspect the membrane before installation of reinforcement steel, formwork and final placement of concrete. The membrane can be easily cleaned by power washing if required. Repair damage by wiping the area with a damp cloth to ensure the area is clean and free from dust, and other contaminants and allow the membrane to dry. Repair small punctures and slices 0.5 in. (12 mm) or less by applying PREPRUFE® Tape centered over the damaged area. Repair punctures and holes larger than 0.5 in. (12mm) by applying a patch of PREPRUFE® Membrane. Extend the patch 6 in. (150 mm) beyond the damaged area. Seal all edges of the patch with PREPRUFE® Tape. Where exposed selvedge has lost adhesion or laps have not been sealed, ensure the area is clean and dry and cover with fresh PREPRUFE® Tape. Any areas of damaged adhesive should be covered with PREPRUFE® Tape. All PREPRUFE® Tape must be rolled firmly and the tinted release liner removed.

Slices or relief cuts can be butted or overlapped and repaired by applying PREPRUFE® Tape centered over the edge of the overlap or center of the butt joint. Where it is not possible to create a butt joint or overlap, repair with fresh membrane and PREPRUFE® Tape as detailed above.

Pouring of Concrete

Ensure the plastic release liner is removed from all PREPRUFE® Tapes.

Under most climatic conditions concrete should be poured within 56 days of membrane installation. Where ambient temperatures will exceed 100ºF (38°C) for more than a total of 7 days, concrete should be placed within 42 days of installation of the membrane. Concrete must be placed and compacted carefully to avoid damage to the membrane. Never use a sharp object to consolidate the concrete.

Removal of Formwork

A minimum concrete compressive strength of 3000 psi (20 N/mm^2) is required prior to stripping formwork supporting PREPRUFE® 300R/160R Plus Membranes. Premature stripping may result in displacement of the membrane and/or spalling of the concrete. (see PREPRUFE® Technical Letter #17 Removal of Formwork Placed against PREPRUFE® 300R/160R Plus Membranes).

After removal of the formwork and prior to backfilling, all exposed PREPRUFE® 300R/160R Plus Membrane must be protected from damage with an approved protective course.

Supply

Dimensions (Nominal)	PREPRUFE® 300R Plus PREPRUFE® 300R Plus LT	PREPRUFE® 160R Plus PREPRUFE® 160R Plus LT
Roll size Note#1	3 ft. 10 in. X 102 ft. (392 ft^2) 1.17m x 31.15m (36.4 m^2)	3 ft. 10 in. X 120 ft. (460 ft^2) 1.17m x 36.6m (42.8 m^2)
Roll weight	108 lbs (49 kg)	92 lbs (42 kg)
Minimum side/end laps	3 in. (75 mm)	3 in. (75 mm)
Note: when calculating coverage account for the Minimum side/end laps Note#1 Individual roll length may vary +/-1%		

Physical Properties

Property	PREPRUFE® 300R Plus & PREPRUFE® 300R Plus LT	PREPRUFE® 160R Plus & PREPRUFE® 160R Plus LT	Test Method
Color	white	white	
Thickness	0.046 in. (1.2 mm)	0.032 in. (0.8 mm)	ASTM D3767
Lateral Water Migration Resistance	Pass at 231 ft (71 m) of hydrostatic head pressure	Pass at 231 ft (71 m) of hydrostatic head pressure	ASTM D5385[1]
Long Term Lateral Water Migration Resistance, After 3 Years Water Immersion	Pass at 231 ft (71 m) of hydrostatic head pressure	Pass at 231 ft (71 m) of hydrostatic head pressure	ASTM D5385[1]
Resistance to hydrostatic head	231 ft (71 m)	231 ft (71 m)	ASTM D5385[2]
Resistance to hydrostatic head, Functional details	231 ft (71 m)	231 ft (71 m)	ASTM D5385[3]
Tensile strength, film	4000 psi (27.6 Mpa)	4000 psi (27.6 Mpa)	ASTM D412

Tensile strength after soil burial, film	Retain >90%	Retain >90%	ASTM D412/ASTM D4068
Elongation	500%	500%	ASTM D412
Elongation after soil burial	Retain >90%	Retain >90%	ASTM D412/ASTM D4068
Low temperature flexibility	Unaffected at -20°F (-29°C)	Unaffected at -20°F (-29°C)	ASTM D1970
Crack cycling at -9.4°F (-23°C), 1/8" Movement	Unaffected, Pass	Unaffected, Pass	ASTM C1305/ASTM C836
Puncture resistance	225lbs (1000N)	100 lbs (445 N)	ASTM E154
Environmental stress resistance	Pass	Pass	ASTM D1693
Peel adhesion to concrete	10 lbs/in. (1750N/m)	10 lbs/in. (1750N/m)	ASTM D 903
Peel adhesion to concrete, After 3 years of water immersion	10 lbs/in. (1750N/m)	10 lbs/in. (1750N/m)	ASTM D 903 (After 3 years of water immersion)
Peel adhesion to concrete, After immersed in underground contaminates	Retain >80%	Retain >80%	ASTM D 543/ASTM D 903[4]
Lap peel adhesion	10 lbs/in. (1750N/m)	10 lbs/in. (1750N/m)	ASTM D1876[5]
Lap peel adhesion, After immersed in underground contaminates	Retain >80%	Retain >80%	ASTM D 543/ASTM D 1876[6]
Shear strength of joint	>100 lb	>60 lb	ASTM D882
VOC permeance	Not Detectable (Membrane, Seam)	Not Detectable (Membrane, Seam)	ASTM F 739 (Open loop)
Methane permeance[7]	<40 ml/day.m^2.atm	74.5 ml/day.m^2.atm	ASTM D 1434
Methane permeance (before and after soil burial)	<40 ml/day.m^2.atm		ASTM D 4068/ASTM D 1434
Radon diffusion coefficient (membrane and seam), m^2/s	3.7×10^{-12} Membrane, Seam	5.3×10^{-12} Membrane, Seam	Method C of ISO/TS11665-1
Permeance to water vapor transmission	<0.01 perms (0.6 ng/(Pa x s x m^2))	<0.01 perms (0.6 ng/(Pa x s x m^2))	ASTM E96, method B

Footnotes:

1. Lateral water migration resistance is tested by casting concrete against membrane with a hole and subjecting the membrane to hydrostatic head pressure with water. The test measures the resistance of lateral water migration between the concrete and the membrane.
2. Hydrostatic head tests of PREPRUFE® Membranes are performed by casting concrete against the membrane with a lap.
3. Test is performed by casting concrete against the membrane with detail prepared per GCP standard details.
4. Sample immersed under TCE, PCE, BETX and acid & alkaline solution
5. The test is conducted 15 minutes after the lap is formed.
6. Sample immersed under TCE, PCE, BETX and acid & alkaline solution
7. PREPRUFE® 300R Plus/LT meets LARR requirement

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate, and is offered for consideration, investigation and verification by the user, but we do not warrant the results to be obtained. Please read all statements, recommendations, and suggestions in conjunction with our conditions of sale, which apply to all goods supplied by us. No statement, recommendation, or suggestion is intended for any use that would infringe any patent, copyright, or other third party right.

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Last Updated: 2023-06-28

gcpat.com/solutions/products/preprufe-comprehensive-waterproofing-system/preprufe-300r160r-plus-preprufe

APPENDIX 3

CONSTRUCTION HEALTH AND SAFETY PLAN

HK ENGINEERING & GEOLOGY, D. P.C.
1600 Route 22 East
Union, New Jersey 07083
(908) 688-7800 • (908) 688-2636 – Fax

CONSTRUCTION
HEALTH AND SAFETY PLAN

Address: Fulton 11 & Chelsea-Elliott Addition
401 W. 19th Street & 436 West 27th Drive
New York, New York

Project Number: HK2661

Plan Revisions

Number	Date	Initials
1		

Ryan K. Powell — 01-12-2024
Plan Preparer — Date

Ryan K. Powell — 01-12-2024
Site Supervisor & Safety Office — Date

Chris Hirschmann — 01-12-2024
Alternate Site Health & Safety Officer — Date

Jill Asch — 01-12-2024
Site Health & Safety, Director — Date

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Introduction

This Construction Health and Safety Plan (CHASP) has been prepared by Hillmann Consulting, LLC (Hillmann) to summarize the health and safety hazards at the subject site and the requirements and procedures to protect its employees from them. The Fulton 11 Site is located 401-419 W. 19th Street and the Chelsea-Elliott Addition located at 436 West 27th Drive, New York, NY. This plan meets or exceeds the requirements of Occupational Safety and Health Administration (OSHA), 29 CFR 1910.120, for a site-specific health and safety plan.

This plan was designed to reduce the potential for occupational illness or injury resulting from working at this site. The purpose of the CHASP is to inform Hillmann's employees and subcontractors of the health and safety risks present at this site, and the proper methods of protecting themselves from those risks. Each worker must be fully aware of the risks associated with the work to be accomplished, and be dedicated to completing that work safely.

Existing and potential hazards at this site have been identified. As new information becomes available, this CHASP will be revised. Standard practices and procedures of industrial hygiene, occupational health, safety, and environmental protection are prescribed in this plan, which was prepared and reviewed by experienced professionals.

Hillmann employees who work on this site must read the CHASP and sign the form included in this plan, to indicate that they understand the plan's contents, and agree to comply with its provisions. Anyone who cannot, or will not comply with this CHASP will be excluded from on-site activities. Violations of this CHASP or any applicable federal, state, or local health and safety regulations should be reported immediately to the Site Health and Safety Supervisor (SHSO), or to Hillmann's Director, Health & Safety (DHS).

This CHASP will be readily available on site so workers can reference it when necessary.

Site Information

Location: 401-419 W. 19th Street & 436 West 27th Drive

Historical/Current Site Information: The site is currently a residential apartment building.

Location/Class: [ ] Industrial [ ] Commercial [X] Urban/Residential
[ ] Suburban [ ] Rural

Site Regulatory Status: [ ] CERCKA/SARA [ ] US EPA [ ] NJDEP
[ ] NPL [ ] RCRA [X] NYCDEP
[X] NYSDEC [ ] Not Regulated [ ] Due Diligence

Operations or Tasks to be Performed, and Approximate Duration of Each:

1- Soil, Groundwater, and Soil vapor Sampling – 1 week

Surrounding Population/Structures:

Urban mixed use residential and commercial

Site and Surrounding Topography:

Generally Flat Terrain with a slight downward slope to the West

Known or Suspected Pathways of Contaminant Dispersion:

Soil, groundwater, and soil vapor

Emergency Shower, Eyewash and First Aid Equipment Located at:

Eyewash and emergency shower will not be available.

First aid provided by emergency services (911).

Personnel On-Site trained in First Aid:

1. Dominick Aponte
2. Ryan K. Powell
3.
4.
5.
6.
7.
8.

Emergency Medical Care

Hospital #1

Hospital Name: Mount Sinai Beth Israel

Telephone #: 212-252-6000 or 911

Address: 55 East 34th Street, NY, NY

Contact: N/A

Type of Service ( ) Physical Trauma Only

(X) Physical Trauma and Chemical Exposure

(X) Available 24 Hours

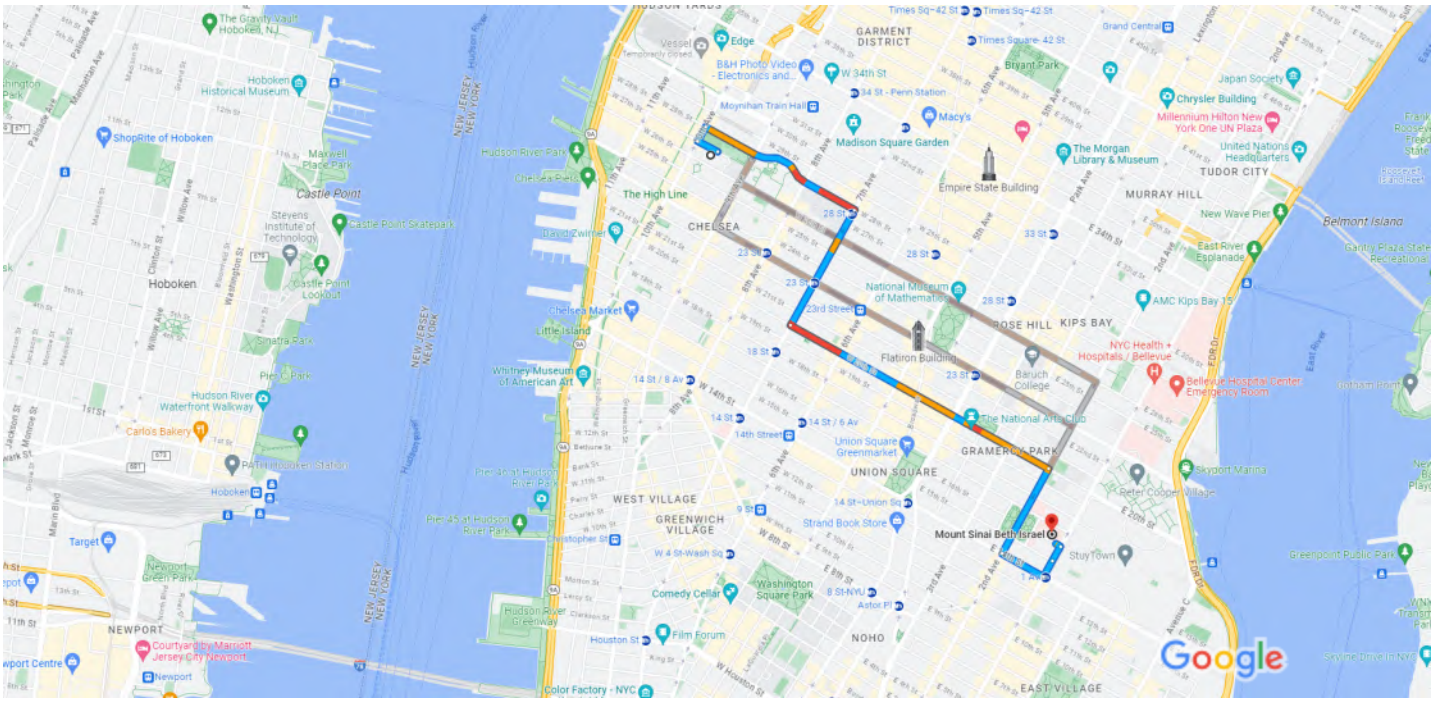
Hospital Route:
See attached map

Hospital route information has been provided to satisfy OSHA requirements (29 CFR 1910.120). **However, where 911-emergency service and/or transport is available, Hillmann personnel are strictly prohibited from transporting accident victims in either company or personal vehicles.

Transporting the injured in non-emergency vehicles increases the potential for motor vehicle accidents during transit to the hospital and further injury to the victim. Also, the victims' condition can worsen during transit. As a result, transportation in non-emergency vehicles can delay or even prevent treatment by trained emergency personnel during a critical time. Employees must remain at the site of the accident, administer appropriate first aid, and await the arrival of **trained emergency and/or rescue personnel.**

436 W 27th Dr, New York, NY 10001 to Mount Sinai Beth Israel

Drive 2.5 miles, 21 min



Map data ©2023 Google 1000 ft

436 W 27th Dr
New York, NY 10001

1. Head northwest on W 27th St toward 10th Ave
   49 sec (354 ft)
2. Turn right onto 10th Ave
   34 sec (259 ft)
3. Turn right at the 1st cross street onto W 28th St
   4 min (0.5 mi)
4. Turn right onto 7th Ave
   2 min (0.4 mi)
5. Turn left onto W 20th St
   7 min (0.9 mi)

Continue on 2nd Ave. Take E 14th St to E 16th St

3 min (0.5 mi)

6. Turn right onto 2nd Ave
   0.3 mi

7. Turn left onto E 14th St

0.1 mi

8. Turn left onto 1st Ave.

285 ft

9. Continue straight to stay on 1st Ave.

266 ft

10. Turn left onto E 16th St

Destination will be on the right

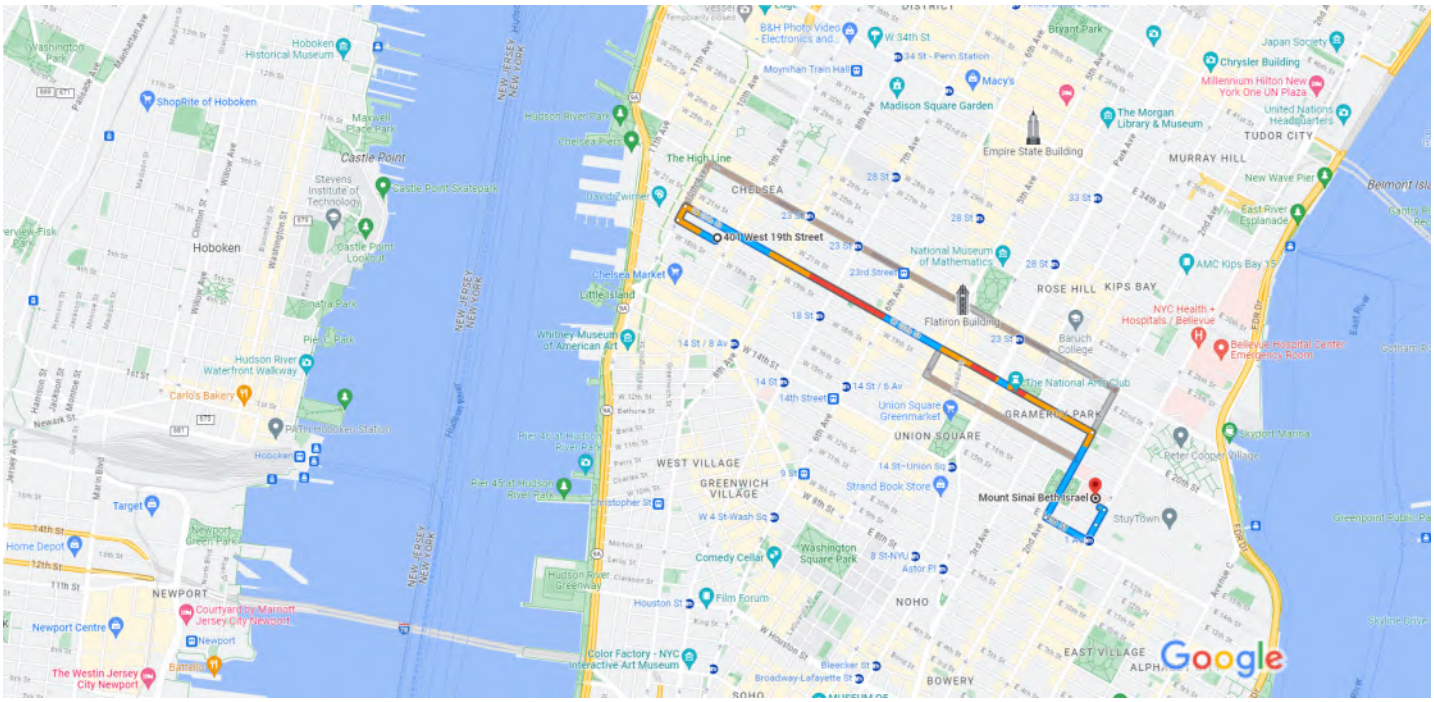
18 sec (82 ft)

Mount Sinai Beth Israel

281 1st Ave., New York, NY 10003

401 W 19th St, New York, NY 10011 to Mount Sinai Beth Israel

Drive 2.1 miles, 19 min



Map data ©2023 Google 1000 ft

401 W 19th St
New York, NY 10011

1. Head northwest on W 19th St toward 10th Ave
   52 sec (0.1 mi)
2. Turn right onto 10th Ave
   26 sec (243 ft)
3. Turn right onto W 20th St
   11 min (1.4 mi)

Continue on 2nd Ave. Take E 14th St to E 16th St

3 min (0.5 mi)

4. Turn right onto 2nd Ave
   0.3 mi
5. Turn left onto E 14th St
   0.1 mi
6. Turn left onto 1st Ave.
   285 ft
7. Continue straight to stay on 1st Ave.
   266 ft

8. Turn left onto E 16th St

Destination will be on the right

18 sec (82 ft)

Mount Sinai Beth Israel

281 1st Ave, New York, NY 10003

Emergency Medical Care

Hospital #2

Hospital Name: NYC Health + Hospitals / Bellevue

Telephone #: 212-562-4141 or 911

Address: 462 1st Ave., New York, NY 10016

Contact: N/A

Type of Service ( ) Physical Trauma Only

(X) Physical Trauma and Chemical Exposure

(X) Available 24 Hours

Hospital Route:
See attached map

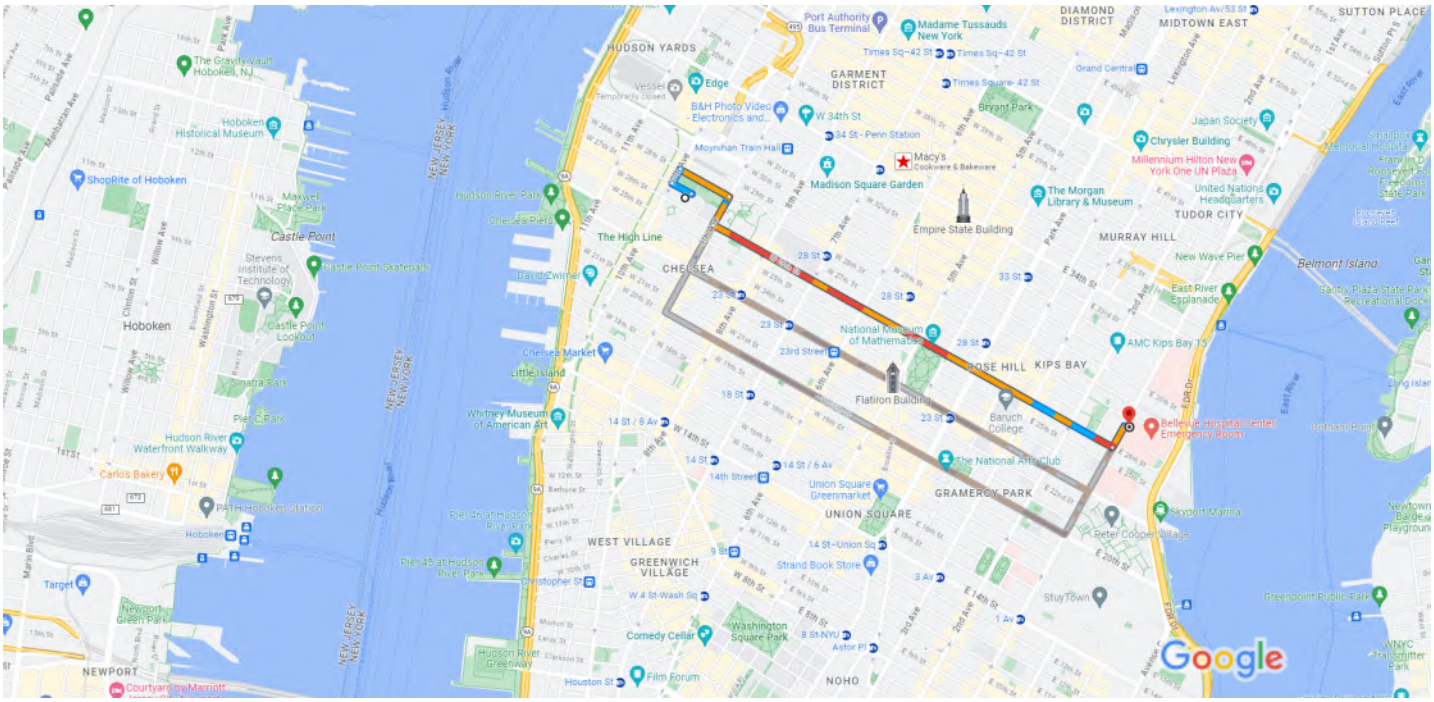
Hospital route information has been provided to satisfy OSHA requirements (29 CFR 1910.120). **However, where 911-emergency service and/or transport is available, Hillmann personnel are strictly prohibited from transporting accident victims in either company or personal vehicles.

Transporting the injured in non-emergency vehicles increases the potential for motor vehicle accidents during transit to the hospital and further injury to the victim. Also, the victims' condition can worsen during transit. As a result, transportation in non-emergency vehicles can delay or even prevent treatment by trained emergency personnel during a critical time. Employees must remain at the site of the accident, administer appropriate first aid, and await the arrival of **trained emergency and/or rescue personnel.**

Google Maps

436 W 27th Dr, New York, NY 10001 to NYC Health + Hospitals / Bellevue., 462 1st Ave., New York, NY 10016

Drive 1.8 miles, 18 min



Map data ©2023 Google 1000 ft

436 W 27th Dr
New York, NY 10001

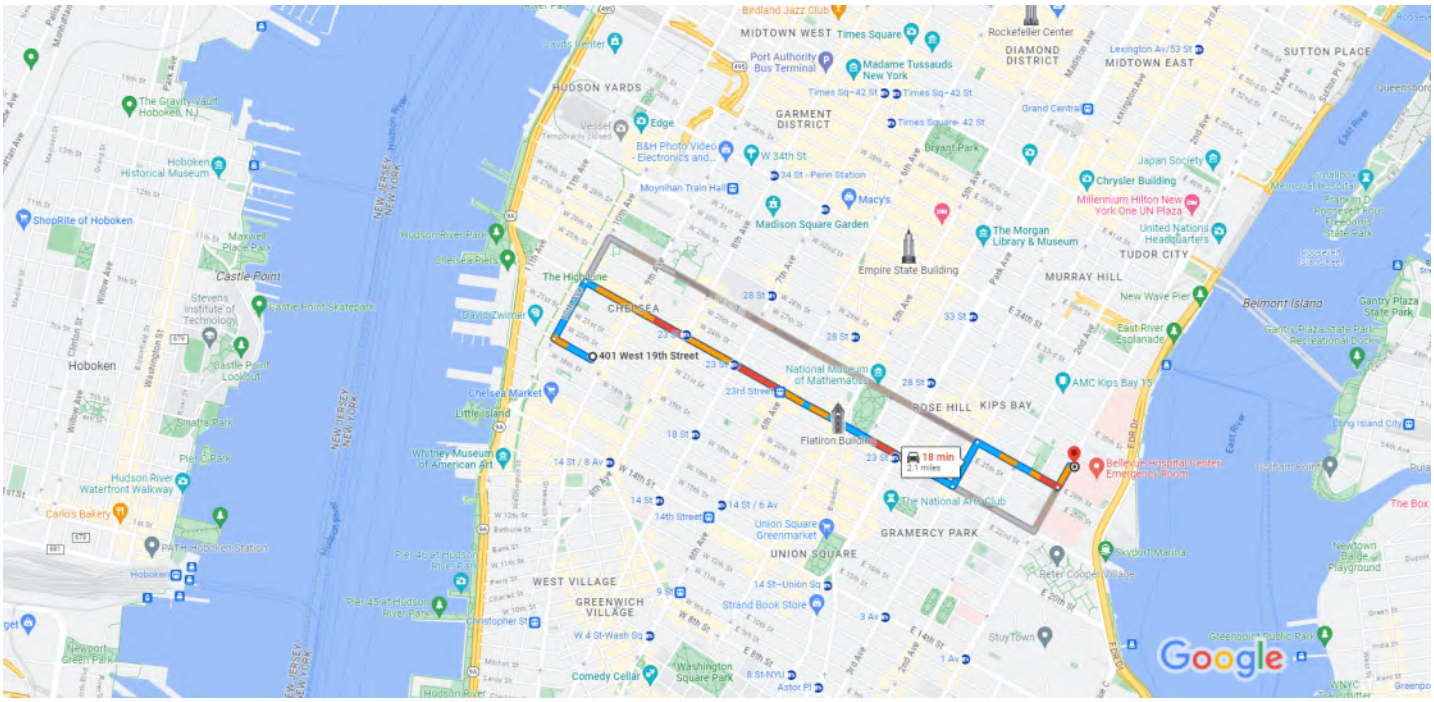
1. Head northwest on W 27th St toward 10th Ave
   354 ft
2. Turn right onto 10th Ave
   259 ft
3. Turn right at the 1st cross street onto W 28th St
   0.2 mi
4. Turn right onto 9th Ave
   0.1 mi
5. Turn left onto W 26th St
   1.4 mi
6. Turn left onto 1st Ave.
   384 ft

NYC Health + Hospitals / Bellevue.
462 1st Ave., New York, NY 10016

Google Maps

401 W 19th St, New York, NY 10011 to NYC Health + Hospitals / Bellevue., 462 1st Ave., New York, NY 10016

Drive 2.1 miles, 18 min



Map data ©2023 Google 1000 ft

401 W 19th St
New York, NY 10011

1. Head northwest on W 19th St toward 10th Ave — 0.1 mi
2. Turn right onto 10th Ave — 0.2 mi
3. Turn right onto W 23rd St — 1.3 mi
4. Turn left after Citizens (on the left) — 0.2 mi
5. Turn right onto E 26th St — 0.3 mi
6. Turn left onto 1st Ave. — 384 ft

NYC Health + Hospitals / Bellevue.
462 1st Ave., New York, NY 10016

Emergency Contacts

Agency	**Name**	**Phone**
Fire Department	FDNY	911
Police Department	NYPD	911
Site Contact	Ryan K. Powell	(908) 323-4051
First Aid/EMS	NA	911
Federal Agency Representative	NA	NA
State Agency Representative	NA	NA
Local Agency Representative	NA	NA
NYSDEC- Region 2	New York	1-718-482-4900
Pesticide Poisoning	NA	NA
Poison Control	U.S.A.	(800) 222-1222
CHEM TREC	Washington, DC	(800) 424-9300
Utility	**Company Name**	**Phone**
Water Supply	NYC.	800-987-5325
Sewer	NYC.	908-647-0070
Power	CON-ED	(800) 322-3223
Gas	National Grid	(800) 322-3223
NY One Call	NY	811

Hillmann Consulting, LLC Emergency Contact List
Cell Phone Numbers

Chris Hirschmann	(908) 377-8909
Dominick Aponte	(908) 335-6048
Ryan K. Powell	(908) 323-4051

Key Project Personnel

The following describes the project position assignments, associated responsibilities, and reporting relationships.

Position	Job Description	Interactions
Director	Responsible for technical and administrative performance of the project. Supports Site Supervisor and is available to him at all times. Will visit the site periodically, or as necessary. Reports progress of project on a regular basis. Assigns key personnel, and identifies, requests, secures, and monitors use of resources for project. Approves program expenditures and invoices.	Reports directly to President. Works closely with Site Supervisor.
Site Supervisor	Acts as point of contact for client and client's representative(s). Supervises all on-site personnel and subcontractors. Coordinates daily site-specific work efforts, and ensures all activities are in strict compliance with site-specific health and safety plan. Has authority to suspend all work that possesses any health and safety risk. Briefs subordinate technical personnel on task requirements. Identifies and resolves technical problems. Provides periodic review of project progress.	Reports directly to Project Manager.
Site Health & Safety Officer (SHSO)	Assures compliance with CHASP. Instructs site personnel in health and safety procedures through daily pre-work meetings. Performs any monitoring activities as required. Has authority to discontinue site operations if safety violations exist.	Reports directly to Project Manager. Works closely with Director, Health & Safety, and Site Supervisor.
Director, Health & Safety (DHS)	Develops, implements, and enforces the on-site safety program. Oversees all health and safety aspects of project, conducts periodic audits to ensure compliance. Available at all times to discuss project progress and health and safety related issues.	Reports directly to President. Works closely with Project Manager, Site Supervisor, and SHSO.

Hillmann is the entity responsible for managing health and safety at this site. Key project personnel are as follows:

Director:	Chris Hirschmann Name	908-688-7800 / 908-377-8909 Telephone / Cellular Number
Site Supervisor:	Ryan Powell Name	908-688-7800 / 908-323-4051 Telephone / Cellular Number
SHSO:	Chris Hirschmann Name	908-688-7800 / 908-377-8909 Telephone / Cellular Number
DHS:	Jill Asch Name	908-688-7800 / 908-377-5639 Telephone / Cellular Number

Medical Surveillance and Training Dates for Authorized Personnel

Employee	Medical Exam	OSHA 8-Hr.	Site Supervisor Training	Respirator Fit Test
Dominick Aponte	09/2023	09/2023		
Ryan Powell	04/2023	09/2023		

Task Identification

Tasks covered under this plan:

Task #	Description
1	Soil, Groundwater, and Soil Vapor sampling

Off-site tasks planned? No

Describe:

Chemical Hazards

Task No.(s)	Chemical Name (or class)	PEL	TLV	Other Pertinent Limits (specify)	Primary Hazard			SDS Attached
					Ingestion	Dermal	Inhalation	Y/N
1,2	**Semi volatiles:**							
	Benzo(a)anthracene	0.2 mg/m³	**		X	X	X	Y
	Benzo(a)pyrene	0.2 mg/m³	0.2 mg/m³		X	X	X	Y
	Benzo(b)fluoranthene	0.2 mg/m³	0.2 mg/m³		X	X	X	Y
	Benzo(k)fluoranthene	**	**		X	X	X	Y
	Chrysene	0.2 mg/m³	**		X	X	X	Y
	Dibenz(a,h)anthracene	**	**		X	X	X	Y
	Indeno(1,2,3-cd) pyrene	**	**		X	X	X	Y
1,2	**Volatiles:**							
	1,1-Dichloroethene	**	**		X	X	X	Y
	1,1,1 - Trichloroethane	350 ppm	350 ppm		X	X	X	Y
	cis - 1,2 dichloroethene	200 ppm	200 ppm		X	X	X	Y
	Benzene	10 ppm	0.5 ppm		X	X	X	Y
	Carbon Tetrachloride	10 ppm	5 ppm		X	X	X	Y
	Ethylbenzene	100 ppm	0.5 ppm		X	X	X	Y
	Methylene Chloride	25 ppm	100 ppm		X	X	X	Y
	Tetrachloroethene (PCE)	100 ppm	25 ppm		X	X	X	Y
	Toluene	200 ppm	20 ppm		X	X	X	Y
	Trichloroethylene (TCE)	100 ppm	10 ppm		X	X	X	Y

	Vinyl Chloride	1 ppm	1 ppm		X	X	X	Y
	Xylenes	100 ppm	100 ppm		X	X	X	Y
	Pesticides:							
	4'4 DDE	**	**		X	X	X	Y
	4'4 DDT	1 mg/m^3	1 mg/m^3	90 ppm	X	X	X	Y
	4'4 DDD	5 mg/m^3	**		X	X	X	Y
1,2	Delta-BHCDieldrin	260 mg/m^3	200 ppm		X	X	X	Y
	Metals							
	Antimony	0.5 mg/m³	0.5 mg/m³		X	X	X	Y
	Arsenic	0.01 mg/m³	0.01 mg/m³		X	X	X	Y
	Barium	0.5 mg/m³	0.5 mg/m³		X	X	X	Y
	Beryllium	0.0002 mg/m³	0.00005 mg/m³		X	X	X	Y
	Cadmium	0.005 mg/m³	0.01 mg/m³		X	X	X	Y
	Chromium	1 mg/m³	0.003 mg/m³		X	X	X	Y
	Copper	0.1 mg/m³	0.2 mg/m³		X	X	X	Y
	Lead	50 mg/m³	0.05 mg/m³		X	X	X	Y
	Mercury	0.1 mg/m³	0.025 mg/m³		X	X	X	Y
	Nickel	1 mg/m³	1.5 mg/m³		X	X	X	Y
	Selenium	0.2 mg/m³	0.2 mg/m³		X	X	X	Y
	Silver	0.01 mg/m³	0.01 mg/m³		X	X	X	Y
	Thallium	0.1 mg/m³	0.02 mg/m³		X	X	X	Y
	Zinc	5 mg/m³	**		X	X	X	Y
1,2	**PCBs**	0.5 mg/m³	**		X	X	X	Y

PEL – OSHA Permissible Exposure Limit: the maximum allowable 8-hour time weighted average (TWA) exposure concentration.
TLV – ACGIH Threshold Limit Value: the recommended 8-hour TWA exposure concentration.
** – Exposure limits not available

Physical and Biological Hazards

Hazard	Yes	No	Task No.(s)	Hazard	Yes	No	Task No.(s)
Electrical (overhead lines)	X		1,2	Uneven Terrain	X		1,2
Electrical (underground lines)	X		1,2	Unstable Surfaces	X		1,2
Gas Lines	X		1,2	Elevated Surfaces		X	
Water Lines	X		1,2	Lightning	X		1,2
Drilling Equipment		X		Rain	X		1,2
Excavation Equipment	X		1,2	Snow	X		1,2
Power Tools	X		1,2	Liquefied/Pressurized Gases		X	
Heat Exposure	X		1,2	Lifting Equipment	X		1,2
Cold Exposure	X		1,2	Vermin	X		1,2
Oxygen Deficiency		X		Insects	X		1,2
Confined Spaces		X		Disease-causing organisms	X		1,2
Noise	X		1,2	Others, e.g., marine sampling (specify)		X	
Ionizing Radiation		X					
Non-Ionizing Radiation		X					
Fire		X					
Explosive Atmospheres		X					
Shoring		X					
Scaffolding		X					
Holes/Ditches	X		1,2				
Steep Grades	X		1,2				
Slippery Surfaces	X		1,2				

Risk Analysis

Task #	Substance	Concentration (if known)	Risk*
1,2	SVOCs	Low	0-1
1,2	PCBs	Low	0-1
1,2	Metals	Low	0-1
1,2	VOCs	Low	0-1
1,2	Pesticides	Low	0-1

*Risk
0 – No Risk
1 – Slight Risk
2 – Moderate Risk
3 – Dangerous Conditions/Caution
4 – High Risk
5 – Extremely Dangerous

General Safety Rules

1. If an employee must work alone, he/she must call his/her supervisor twice a day. If the supervisor is unavailable, that supervisor's supervisor must be contacted.
2. Workers must wear all personal protective equipment required for the tasks to be performed.
3. Horseplay, scuffling, or practical jokes are forbidden on the job.
4. Compressed air must not be used to blow dirt from clothing, or played with or blown at another person. In addition, compressed air tools should be checked periodically for hose leaks, faulty valves and tank pressurization issues as a precursor for potential injury.
5. Drinking of alcoholic beverages or the use drugs on the job is prohibited. Their use will cause immediate dismissal.
6. All areas must be continually cleaned to maintain good housekeeping. Trash is to be piled neatly and removed promptly. All tools and work areas are to be kept in clean and safe condition. Hard floor surfaces should be kept as dry as possible and free to debris in walking zones to prevent potential slips, trips and falls. If an area of flooring will be slippery for an extended period of time, efforts should be taken provide caution signs or high visibility cones/barricades to warn and prevent entrance into the zone.
7. Competent workers must do welding and cutting. Anyone who is required to work in "hot" zones must wear or be provided with proper eye protection and warning that welding will be taking place.
8. A. Ladders are to be of proper design and tied off while in use. Do not go up or down a ladder without the free use of both hands. Use a rope to lift or lower materials or tools. Always face a ladder when climbing or descending. Ladders with structural defects should be discontinued from use and placed aside with a label to warn others not to use until serviced or replaced. Defects include, but are not limited to, bent or broken ladder rung/step, bent or cracked frame rails defected foot holds etc.

   B. Extreme caution must be used with operating with ladders to avoid overhead hazards such as unstable roofing materials or over-head utility lines. Before setting up your ladder, always asses for over-head power lines and avoid operating within those areas. If you have any doubts, don't do it.
9. Every work site must have a qualified first aid person and a complete first aid kit. All first aid materials are to remain clean, unused and non-expired. The first aid materials should remain with a competent first aid responder or in an inconspicuous area for all to use if needed. Eye wash stations or portable bottles should be readily on hand to field personnel in the event of an eye irritant or splashing occurrence. Eye protection should be used to further prevent eye injuries.
10. **ALL** accidents must be investigated and reported. Use the Accident Investigation Form in the back section of this plan.
11. Injuries sustained while on duty must be reported to supervisor immediately, or as soon as possible after injury is sustained.
12. Explosives must be handled and transported by licensed people only. Any doubts of explosive materials should be handled with extreme caution and the project manager notified for further instruction.
13. All tools and electrical equipment must be in proper working order. If a tool is broken/near broken or a piece of electrical equipment has frayed/exposed wiring, sparks generated or missing screws or parts, make sure to disengage use of tool. Faulty tools should be labeled with a "Do NOT use" label and placed in a safe location until it can be serviced or replaced.
14. Clothing appropriate to the duties performed shall be work by all workers. Large pockets, loose jewelry, cuffed trousers and loose or torn clothing are dangerous and should not be worn around machinery, or when climbing ladders, or working on structures.

Employee Training Program

All personnel performing work in areas on this site covered by this CHASP must have completed the appropriate training requirements specified in 29 CFR 1910.120(e). Each individual must have completed an 8-hour refresher-training course and/or initial 40-hour training course within the last year prior to performing any intrusive work on this site covered by this CHASP. Also, on-site managers must have completed the specified 8-hour supervisor's training course. Records that demonstrate that all persons subject to the training requirements have actually met them will be maintained on site. The Project Manager is responsible for verifying compliance of the project team with these rules.

Prior to commencement of on-site activities, a site safety meeting will be held to review the specific information and requirements of this CHASP. CHASP sign-off sheets will be collected at this meeting.

Site Specific Training will include:

- Explanation of the overall site CHASP.
- Health and safety personnel and organization.
- Brief site history.
- Special attention to signs and symptoms of overexposure to known and suspected site contaminants.
- Health effects of site contaminants.
- Air monitoring description.
- Physical hazards associated with the project.
- Selection, use and limitations of available safety.
- Personal hygiene and decontamination.
- Respirator facepiece fit testing.
- PPE use and maintenance.
- Site rules and regulations.
- Work zone establishment and markings.
- Site communication.
- Emergency preparedness procedures.
- Equipment decontamination.
- Medical monitoring procedures.
- Contingency plan.

Prior to work, each Hillmann employee will attend the contractor's health and safety orientation, if applicable. In addition, Hillmann's employees will review health and safety items specific to the tasks to be performed that were not covered in the contractor's orientation.

Site Health and Safety Meetings

In addition, the SHSO will meet daily with all Hillmann employees prior to beginning work on site. The agenda of the meeting will include a review of important elements of this plan, any special safety items, and a discussion of the emergency response procedures. Also, everyone will agree on a schedule for periodic meetings, (for example, before beginning work each day), to review the effectiveness of this plan and make changes as necessary. If significant changes at the site occur, special meetings will be scheduled. (If Hillmann is a subcontractor, all Hillmann employees on site will participate in the contractor's daily safety meetings.)

Training Records

The SHSO will complete a report of the daily safety meetings, using the form in the back section of this plan, and all attending the meeting will sign the Daily Safety Meeting Log.

The training status of contractor and subcontractor employees has been verified, and their training criteria meet the requirements specified in 29 CFR 1910.120(e). A copy of all training certificates will be kept at the job site for each person working at the site.

Personal Protective Equipment (PPE) Requirements

Task No.(s)	Level of Protection (A – D)*	Level of Upgrade	PPE Suit	PPE Gloves	PPE Feet	PPE Head	PPE Eye	PPE Ear	PPE Respirator	Additional PPE for Upgrade
1,2	D	When necessary	Std	N	Steel	When needed	Glasses	Plugs	NA	None

SUIT

Std = Standard Work Clothes
Tyvek = Uncoated Tyvek Disposal Coverall
PE Tyvek = Polyethylene-coated Tyvek
Saranex = Saranex-laminated Tyvek
PVC Suite = PVC Raingear

GLOVES

Work = Work Gloves (canvas, leather)
Neo = Neoprene Gloves
PVC = PVC Gloves
N = Nitrile Gloves
V = Vinyl Gloves
L = Latex Gloves

FEET

Steel = Steel-toe shoes or boots
Steel+ = Steel-toe PVC boots
Booties = PVC booties

HEAD

HH = Hardhat

EYE

Glasses = Safety glasses
Goggles = Goggles
Shield = Face shield

EAR

Plugs = Earplugs
Muff = Ear muffs

RESPIRATOR

APR = Air purifying respirator
Full APR = Full face APR
Half APR = Half face APR
SAR = Airline supplied air respirator
SCBA = Self contained breathing apparatus
Escape = Escape SCBA
OV = Organic Vapor Cartridge
AG = Acid Gas Cartridge
OV/AG = Organic Vapor/Acid Gas Cartridge
AM = Ammonia Cartridge
Dust/Mist = Dust/Mist pre-filter and cover for cartridge
HEPA = High efficiency particulate air filter cartridge

- For unspecified volatile organics (based on 1-minute breathing zone measurement using PID or OVA):
-

Up to 1 ppm above background	Level D
1 – 5 ppm above background	Level C
5 – 500 ppm above background	Level B
500 ppm above background	Level A

Suggested Levels of Protection

Level "D" Protection

1. Coveralls
2. Gloves
3. Boots/shoes – steel toe
4. Boots (outer) chemical resistant (disposable)
5. Safety glasses or chemical splash goggles
6. Hard hat (safety shield)
7. High visibility vest

Level "C" Protection

1. Full-face, air-purifying, canister-equipped respirator (NIOSH/MSHA approved)
2. Chemical resistant clothing (coveralls; hooded, two-piece, chemical splash suit; chemical resistant hood & apron; disposable, chemical-resistant coveralls)
3. Coveralls
4. Gloves (outer) chemical-resistant
5. Gloves (inner) chemical-resistant
6. Boots (outer) chemical-resistant
7. Boots (inner) chemical-resistant
8. Hard hat (face shield)
9. Escape mask
10. Two-way radio

Level "B" Protection

1. Pressure/Demand SCBA (MSHA-NIOSH approved)
2. Chemical resistant clothing (overalls and long-sleeved jacket; coveralls; hooded, one- or two-piece chemical splash suite; disposable, chemical-resistant coveralls)
3. Coveralls
4. Gloves (outer) chemical-resistant
5. Gloves (inner) chemical-resistant
6. Boots (outer) chemical-resistant
7. Boots (inner) chemical-resistant
8. Hard hat (face shield)
9. Two-way radio

Level "A" Protection

1. Pressure/Demand SCBA (MSHA-NIOSH approved)
2. Fully encapsulating, chemical-resistant suit
3. Coveralls
4. Gloves (outer) chemical-resistant
5. Gloves (inner) chemical-resistant
6. Boots, chemical-resistant, steel toe (depending on suit construction, work over or under suit boot)
7. Hard hat (under suit)
8. Two-way radio

Medical Surveillance

Requirements

All Hillmann employees covered by this CHASP, who engage in on site activities governed by 29 CFR 1910.120 for 30 or more days per year, must meet the medical surveillance requirements specified in 1910.120(f). Therefore, such personnel must have completed occupational medical baseline or surveillance examination, performed by a licensed physician, within the last 24 months. The medical examination includes the following components:

- Personal Medical Questionnaire
- Occupational Exposure History
- Physical Examination
- Vision Testing
- Spirometry
- Audiometry
- Blood Chemistry Panel (e.g., SMAC-20)
- Complete Blood Count with Differential
- Urinalysis
- Chest X-Ray (every two years at a minimum)
- Electrocardiogram (at physician's discretion)

Examinations are required upon hiring, termination, and exposure to substances at or above the PEL.

Results of the examinations are communicated directly from the physician to the employee. Medical records for Hillmann's employees are kept by the physician:

Washington Occupational Health
1120 19th Street, Suite 410
Washington, DC 20036
800-777-9642 – office
800-865-6525 – fax

Monitoring Requirements

Monitoring is to be conducted by the SHSO, or his/her designee. The results will be interpreted by the SHSO and the DHS. Copies of monitoring results and calibration logs will be filed with the CHASP.

Monitoring is designed to assess exposure to employees during site activities, and to determine if PPE is required and adequate to assure protection. Because investigation and remediation activities at hazardous waste sites are of an inconsistent nature, it is not possible to assign a monitoring protocol that excludes, or is not directly dependent upon, professional judgment in determining when monitoring is required to assess exposure. Thus, the following generic protocol must be followed at a minimum, and should be modified to be more conservative (e.g., require more monitoring) if deemed necessary by the SHSO or DHS. Under no conditions will the required frequency be decreased.

At a minimum, air monitoring will be conducted before and during each task or activities for which air monitoring has been designated. If airborne concentrations of contaminants reach action levels based on observations with the direct reading instruments, then the appropriate PPE upgrade or work stoppage order will be enforced by the SHSO. In case a work stoppage order is given, the area must be cleared of all personnel immediately.

The use of action levels and the basis for the selection of monitoring equipment is explained as follows:

Action levels determine:

(1) the PPE to be used by site workers
(2) their ability to remain and work in the exclusion zone

The selection of the specified monitoring equipment is based on

(1) the nature of the contaminants
(2) the likely concentrations of the contaminants
(3) the probable duration of exposure
(4) the relative sensitivity of the monitoring equipment to the specific contaminants

The following summarizes the calibration requirements for the air monitoring instruments used at the site:

Instrument	Calibration Frequency
PID: Mini RAE-QRAE	Beginning of each work shift

Air Monitoring and Contaminant Action Levels

Task No.(s)	Location	Contaminant	Monitoring Equipment	Monitoring Frequency	Action Level Concentration	
					Mandatory Respirator Use	Mandatory Work Stoppage
1,2	Work Areas	All analyzed compounds	PID: Multi-Rae	Periodically during all tasks/activities.	--	10 ppm

PID = Photoionization Detector (HNU, TIP, OVM)
FID = Flame Ionization Detector (OVA)
LEL-O_2 = Explosivity and Oxygen Meter

Name(s) of individual(s) responsible for performing the monitoring, and certifying the results:

All Hillmann personnel

Type, make and model of instruments used: Multi-Rae PID Gas Monitor

Method and frequency of calibration: 100 ppm isobutylene-calibration gas. Calibrated prior to each day's use according to manufacturer's instruction.

Procedures for Handling Anticipated Wastes

Waste Generation

Anticipated: Yes: __ No:____X____

Types: NA ___ Liquid _____ Solid ___X___ Sludge_____ Gas _

Quantity: Expected volume of each type:

This project ___will ____X_will not generate non-hazardous, contaminated wastes. These wastes will be:

_____ stored _____ treated
___transported ____manifested in the following manner:

Packaging requirements for waste material:

_____
_____
_____
_____
_____

Decontamination Procedures

All personnel that may be exposed to contaminated soil will wear modified level D Personal Protective Equipment to include disposable gloves. Gloves will be changed after handling potentially impacted material or equipment and placed in a plastic garbage bag for proper disposal. All personnel will wash their hands before eating or drinking and no smoking will be allowed on site.

All equipment brought onto the site will be cleaned of any contaminants prior to accessing the site to prevent offsite cross-contamination or the need to decontaminate prior to the start of field activities. After each borehole is completed, all drilling equipment used for the soil boring (augers, etc.) will be decontaminated with soap (Alconox® or equivalent) and water followed by a water rinse, using a brush as necessary, to remove soil and contaminants. At the conclusion of daily project activities, all equipment will again be decontaminated with soap and water and a water rinse. All equipment will be handled with clean gloves after cleaning to minimize cross-contamination.

Spill Prevention and Response

Potentially hazardous spill situations can be mitigated by using containment devices and materials in work areas. If site conditions are suitable, earthen berms will be constructed around specific areas. If site conditions are not suitable for this, or the potential spill is smaller, barriers will be constructed with sorbent materials such as “speedi-dry”, sorbent booms and/or straw bales. Dikes and berms will also be used to divert stormwater run-on and run-off away from critical zones.

Because a spill cleanup must be conducted under crisis conditions, it is important that the methods used for dealing with a spill be thought out beforehand. However, the steps followed cannot be inflexible, because no two spills are identical. Factors that will be assessed in the event of any and all spills include:

1. The volume of the hazardous substance released and the rate of release.
2. The nature of the spill material.
3. What danger exists to personnel in the immediate area.
4. Nature of damage and possibilities of repair.
5. If the transfer of material to an alternate containment is advisable.
6. Feasibility of the construction of a containment dike.
7. Nature of spill area.
8. Whether the spilled substance has reached a watercourse or sewer.
9. Danger of explosion or fire.
10. Equipment and supplies necessary to confine the material and carry out the cleanup.

In most cases, the success of a cleanup operation is dependent upon the time it takes to contain the spill. Therefore, Hillmann’s first attempt at spill containment will be at the point of discharge. This can often be accomplished by closing valves, reinforcing or repairing damaged containers, moving or changing the position of fallen or ruptured containers, or emptying the container by pumping to a temporary storage or holding vessel. Pumps, suction hoses and containers will be available to recover spilled materials when directed to do so by the Site Supervisor.

Handling and transport of drummed waste always must be conducted in a controlled and safe manner, which will minimize damage to structurally sound drums, repacks and overpacks. If leakage or spillage of waste occurs, the drum must immediately be placed within an overpack unit. Overpack units must be provided at each staging area, at areas of existing drums, and along all site roadways.

In the event of a spill, the drum handling team must immediately contact the SHSO, who will have all personnel evacuated from the immediate spill area. Only personnel trained in spill response procedures shall isolate and contain the spill. Where possible, spilled waste material must be collected and placed in repack containers for ultimate disposal. Following containment and collection of spilled waste, the area must be surveyed by the SHSO, who will decide if it is safe to permit re-entry of work teams.

Task/Work Area	Potential Spill or Discharge	Equipment, Materials, and Procedures for Spill Cleanup
1	Oil & Hydraulic Fluids from excavation/drilling equipment	Use of Sorbent Pads for cleanup

Emergency Procedures

Potential emergencies that may arise are most likely to be associated with physical hazards from heavy equipment operation and/or lifting and loading of debris. Emergency response will, in most cases, be performed in Level D protection.

Modifications to these emergency procedures may be necessary after the actual site set-up, based on prevailing conditions. Periodic reviews of these procedures will be performed by the SHSO to ensure that they are appropriate for all anticipated emergencies.

Responsibilities

The Site Supervisor has the authority and responsibility to commit company resources to appropriately respond to an emergency, and to exclude all personnel not directly responding to the emergency.

Prior to beginning work at the site, Hillmann will designate an employee, usually the SHSO, to be responsible for initiating any emergency response actions. In the event an injury or illness requires more than first aid treatment, the SHSO (or alternate) will accompany the injured person to the hospital, and will remain with the person until release or admittance is decided.

Evacuation Plan

The basic elements of an emergency evacuation plan include employee training, escape routes, escape procedures, critical operations or equipment, rescue and medical duty assignments, designation of responsible parties, emergency reporting procedures and methods to account for all employees after evacuation.

When appropriate, wind indicators visible to all on-site personnel will be provided by the SHSO to indicate possible routes of upwind escape. Work-area entrance and exit routes will be planned, and emergency escape routes will be delineated by the SHSO. The discovery of any condition that would suggest the existence of a situation more hazardous than anticipated, should result in the evacuation of the team and a re-evaluation of the hazard and the level of protection required. This re-evaluation will be conducted by appropriate on-site health and safety personnel.

In the highly unlikely event that barrels, canisters, or chemical gases or vapors are uncovered during site work, the following procedures shall be followed:

1) In the event that barrels, canisters, or any other vessels are encountered during excavation, all work shall immediately cease and all workers to be removed from the area. The SHSO shall be immediately notified, and he/she shall identify vessel contents, handling procedures and storage and disposal techniques prior to starting work.

2) In the event that high concentrations of gases or vapors are detected, the following actions will be taken:

    - Remove all workers from the area
    - Monitor gas or vapor concentrations to determine the type of respiratory protection that will be required before workers reenter the area.

3) In the highly unlikely event of a major leak of toxic gas, such as might occur if a compressed gas cylinder were ruptured during excavation or drilling, all on-site personnel will be evacuated to a safe distance. The risk will be assessed prior to restarting work.

Training

Employees will be instructed in the specific aspects of emergency evaluation applicable to the site as part of the site safety meeting prior to the commencement of all on-site activities. On-site refresher or update training is required anytime escape routes or procedures are modified or personnel assignments are changed. During

the site safety meeting, all employees will be trained in, and reminded of, the location of this plan, the procedures outlined in this plan, and the communication systems and evacuation routes used during an emergency.

On a continuous basis, individual employees should be constantly alert for indicators of potentially hazardous situations, and for signs and symptoms in themselves and others that warn of hazardous conditions and exposures. Rapid recognition of dangerous situations can avert an emergency. In the event of any emergency that necessitates an evaluation of the site, on-site personnel will be notified by the use of car horns sounded in regularly spaced, repeated blasts, as detailed in the next section of this procedure. The Site Supervisor in conjunction with the SHSO will control the site until the appropriate local or state agency representatives arrive, if required.

Alarm Systems Emergency Signals

The simplest and most effective emergency communication system, in any situation, is direct voice communications. Voice communications will be supplemented anytime voices cannot be clearly perceived above ambient noise levels (e.g., noise from heavy equipment, drilling rigs or backhoes, and anytime a clear line-of-sight cannot be easily maintained among all site personnel because of distance, terrain, or other obstructions. When voice communications must be supplemented, the following emergency signals, using car horns, will be used.

- One Horn Blast: General Warning

  One blast is used to signal relatively minor, but important events on site. An example would be a minor chemical spill where there is no immediate damage to life or health, yet personnel working on site should be aware of the situation so unnecessary problems are avoided. If one horn blast is sounded, personnel must stop all activity and equipment on site and await further instruction from the SHSO.

- Two Horn Blasts: Medical Emergency

  Two blasts are used to signal a medical emergency where immediate first aid or emergency medical care is required. If two horn blasts are sounded, all first aid and CPR trained personnel should respond, as appropriate. All other activity and equipment should stop, and personnel should await further instructions from the SHSO.

- Three Horn Blasts Followed by One Continuous Blast: Immediate Danger to Life or Health

  Three blasts followed by another extended or continuous horn blast signals a situation that could present an immediate danger to the life or health (IDLH) to all employees on site. Examples of possible IDLH situations could include fires, explosions, hazardous chemical spills or releases, hurricanes, tornadoes, blizzards or floods. If three horn blasts followed by a continuous blast are sounded, all activity and equipment must stop, and all personnel must evacuate the site to an appropriately designated site located outside the site gate, or further off site if necessary. (Note: unless otherwise specified, all decontamination procedures must be implemented.) All personnel must be accounted for by the SHSO or Site Supervisor, and other response actions determined by the SHSO or Site Supervisor must be followed.

Employees on site will use the “buddy” system (pairs). Buddies should pre-arrange hand signals or other means of emergency communication in case radios cannot be used, or if the radios no longer operate. The following had signals are suggested:

1. Hand gripping throat: out of air, can’t breathe.
2. Grip partner’s wrist or place both hands around waste: leave area immediately, no debate.
3. Hand on top of head: need assistance.
4. Thumbs up: OK, I’m alright, I understand.
5. Thumbs down: No, negative.

Visual contact will be maintained between employee pairs. Team members will remain in close proximity to each other in order to provide assistance in case of emergencies, and will inform each other of any of the following effects of exposure to site contamination:

- Headaches
- Dizziness
- Blurred vision
- Cramps
- Irritation of eyes, skin or respiratory tract

If any member of the work crew experiences any adverse symptoms while on site, the entire work crew will immediately stop work and follow the instructions provided by the SHSO.

Medical Treatment/First Aid

Eyewash stations will be available at the work activity locations, the outside of the personal decontamination facility and at the equipment decontamination area. Community emergency services (EMS, fire, and police) will be notified immediately if their resources are needed on site. If necessary, the injured or sick party shall be taken to the nearest hospital.

Fire Extinguishers

Equipment – All heavy equipment will be supplied with ABC fire extinguishers are also located in all vehicles.

Emergency Reporting

Any incident (other than minor first aid treatment) resulting in injury, illness or property damage will be reported to Hillmann. An incident investigation will be initiated as soon as emergency conditions are under control. The purpose of this investigation is not to attribute blame but to determine the pertinent facts so that repeat or similar occurrences can be avoided.

The investigations will begin while details are fresh in the mind of all involved. The person administering first aid may be able to start the fact gathering process if the injured are able to speak. Pertinent facts must be determined. Questions beginning with who, what, when, where, and how are usually most effective to discover ways to improve job performance in terms of efficiency, quality of work, as well as safety and health concerns.

On-Site Evacuation Plan – An emergency evacuation alarm (air horn, etc.) will be on site at all times. This alarm should be of sufficient power to be heard by personnel operating heavy equipment. A series of repeated blasts is the signal for all Hillmann personnel and subcontractors to evacuate the site and assemble at:

To be determined at the beginning of each field event:

The criteria for activating the alarm will be the first sign of any serious problem that requires assistance or evacuation.

Should either a fire or explosion occur, all personnel will proceed immediately to the evacuation assembly point and await further instructions. At that time a personnel check will be conducted to determine if anyone is missing, and the local fire and police departments will be called for assistance. Once on site, the acting officer of the fire department and the Site Supervisor will determine if further evacuations are necessary. No Hillmann personnel will re-enter the site without clearance from the SHSO.

Subcontractor Safety

It has been and shall continue to be the policy of Hillmann that employees of all subcontractors are required to adhere to all applicable company, local, state, and federal safety rules and regulations.

When an infraction of a local, state, federal, or company safety regulation is observed, the SHSO will request verbally that the subcontractor's supervisory personnel correct the infraction immediately. If correction is not made, then the project director will request in writing that proper corrective action be taken. Subcontractors who continue to ignore proper safety procedures present a danger for all workers around them. A Stop-work call should be initiated until compliance with safety protocols are achieved; subcontractors will have payments withheld until compliance is achieved.

Subcontractors are required to hold safety meetings for their employees when they are working on Hillmann projects, and submit documentation of such meetings to the Project Manager. Subcontractor employees are not required to attend Hillmann's safety meetings.

Job Safety & Health Protection

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers by promoting safe and healthful working conditions throughout the Nation. Provisions of the Act include the following:

Employers

All employers must furnish to employees' employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious harm to employees. Employers must comply with occupational safety and health standards issued under the Act.

Employees

Employees must comply with all occupational safety and health standards, rules, regulations and orders issued under the Act that apply to their own actions and conduct on the job.

The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational salary and health standards, and its Compliance Safety and Health Officers conduct job site inspections to help ensure compliance with the Act.

Inspection

The Act requires that a representative of the employer and a representative authorized by the employees be given an opportunity to accompany the OSHA inspector for the purpose of aiding the inspection.

Complaint

Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection. If they believe unsafe or unhealthful conditions exist in their workplace. OSHA will withhold, on request, names of employees complaining.

The Act provides that employees may not be discharged or discriminated against in any way for filing safety and health complaints or for otherwise exercising their rights under the Act.

Employees who believe they have been discriminated against may file a complaint with their nearest OSHA office within 30 days of the alleged discriminatory action.

Citation

If upon inspection OSHA believes an employer has violated the Act, a citation alleging such violations will be issued to the employer. Each citation will specify a time period with which the alleged violation must be corrected.

The OSHA citation must be prominently displayed at or near the place of alleged violation for three days, or until it is corrected, whichever is later, to warn employees of dangers that may exist there.

Proposed Penalty

The Act provides for mandatory penalties against employers of up to $1,000 for each serious violation and for optional penalties of up to $1,000 for each non-serious violation. Penalties of up to $1,000 per day may be proposed for failure to correct violations within the proposed time period. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to $10,000 for each such violation.

There are also provisions for central penalties. Any willful violation resulting in death of an employee, upon conviction, is punishable by a fine of up to $250,000 (or $500,000 if the employer is a corporation), or by imprisonment for up to six months or both. A second conviction of an employer doubles the possible term of imprisonment.

Voluntary Activity

While providing penalties for violation, the Act also encourages efforts by labor and management before an OSHA inspection, to reduce workplace hazards voluntarily and to develop and improve safety and health programs in all workplaces and industries. OSHA's Voluntary Protection Programs recognize outstanding efforts of this nature.

OSHA has published Safety and Health Program Management Guidelines to assist employers in establishing or perfecting programs to prevent or control employee exposure to workplace hazards. There are many public and private organizations that can provide information and assistance in this effort if requested. Also, your local OSHA office can provide considerable help and advice on saving safety and health problems or can refer you to other sources for help such as training.

Consultation

Free assistance in identifying and correcting hazards and in improving safety and health management is available to employers, without citation or penalty, through OSHA-supported programs in each State. These programs are usually administered by the State of Labor or Health Department or a State University.

Under provisions of Title 29, Code of Federal Regulations, part 1903.2(s)(1) employers must post this notice (or facsimile) in a conspicuous place where notices to employees are customarily posted.

Equipment Calibration Log

Operator Name:_____ Instrument Notice:_____

Signature:_____ Serial Number:_____

Date	Time	Concentration	Comments

Sampling Log

Operator Name:_____ Instrument Notice:_____

Signature:_____ Serial Number:_____

Was the equipment calibrated? _____ Yes _____ No

Date	Time	Concentration	Comments

Daily Sign In/Sign Out Form

(to be completed on site)

Site Name: Fulton 11 and Chelsea-Elliott Addition

Location: 401-419 W 19th St and 436 West 27th Drive, New York, NY

Employee Name	Company Name	Purpose	Time In	Time Out

Signature of SHSO (or designee) Date

Daily Safety Meeting Log

(to be completed on site)

Site Name Fulton 11 and Chelsea-Elliott Addition

Location 401-419 W 19th St and 436 West 27th Drive, New York, NY

Weather _____

Topics _____

_____

_____

_____

_____

_____

_____

Employee Names:	Signatures

_____ _____

Signature of SHSO (or designee) Date

ACCIDENT INVESTIGATION REPORT

Place Accident Occurred:		Name of Person Involved:	
Site Location		Age / Sex	Job Title
		Yrs in This Job	Yrs with Company
Date & Time of Incident AM __/__/_____:__ PM		Date & Time of Investigation AM __/__/___:__ PM	
Date Incident Reported __/__/	Reported to Whom	Investigated By:	
Regulatory Agencies or Insurance Carriers Contacted:		Witness(es):	
Description from injured or witnesses (use reverse side of form for more space): Signature Date			

Select one or more in each column. Don't hesitate to write in your own words (continue on reverse side, if necessary).

When completing the following task:
- ☐Operating (what machine)_____
- ☐Using (what tool)_____
- ☐Handling (what material)_____
- ☐Maintenance or repair (of what)_____
- ☐Office or sales task_____
- ☐Other -- Provide details_____

The following occurred:
- ☐Amputation (total or partial)_____
- ☐Burn (thermal)_____
- ☐Burn (chemical)_____
- ☐Electric shock_____
- ☐Concussion/unconscious_____
- ☐Crushing injury (contusion, crush, bruise) -- intact skin_____
- ☐Cut, laceration, puncture, abrasion_____
- ☐Fracture or dislocation_____
- ☐Sprain/strain_____
- ☐Cumulative trauma_____
- ☐Occupational illness or disease_____
- ☐Internal injuries_____
- ☐None -- Near accident_____
- ☐Other -- Provide details_____
- ☐Respiratory_____

To the (explain details):
- ☐Head, face, neck_____
- ☐Eye_____
- ☐Trunk, abdomen_____
- ☐Back (upper, lower)_____
- ☐Arm, shoulder_____
- ☐Fingers_____
- ☐Leg, hip, knee_____
- ☐Ankle, foot_____
- ☐Toes_____
- ☐Internal Injuries_____
- ☐Body System:_____
- ☐Circulatory_____
- ☐Digestive_____
- ☐Musculoskeletal_____
- ☐Nervous_____
- ☐Other_____
- ☐Other (specify)_____

Person was, or got:
- ☐Struck against (not including falls)_____
- ☐Struck by_____
- ☐Fell from (from a higher level)_____
- ☐Slipped, tripped, fell on (in the same level)_____
- ☐Foreign body in eye_____
- ☐Contacted electrical energy from_____
- ☐Exposure to (substance)_____
  - from inhalation_____
  - ingestion_____
  - skin absorption_____
- ☐Vehicle accident_____
- ☐Caught in, under or between_____
- ☐Repetitive_____
- ☐Other_____

While (taking what position) Where (or What):
- ☐Carrying_____
- ☐Climbing_____
- ☐Bending_____
- ☐Driving_____
- ☐Jumping_____
- ☐Kneeling_____
- ☐Lifting - below waist, give weight)_____
- ☐Lifting - above waist, give weight)_____
- ☐Pulling_____
- ☐Pushing_____
- ☐Reaching or stretching_____
- ☐Riding_____
- ☐Running_____
- ☐Sitting_____
- ☐Standing_____
- ☐Throwing_____
- ☐Twisting or turning_____
- ☐Walking_____
- ☐Other_____

Medical Treatment (check as many as apply)
- ☐The injured employee was able to return to work the same day.
- ☐The injured employee was sent home
- ☐The injured employee was sent to a doctor/ clinic; list the doctor/clinic name, address, and phone:_____

_____
_____
_____

- ☐The employee was hospitalized.

List name and address of hospital:

_____
_____
_____

Attending physician:_____
_____

What conditions contributed
- ☐Awkward job procedure
- ☐Inadequate guard/safety device
- ☐Inadequate warning/labeling system
- ☐Fire/explosion hazard
- ☐Not secured against moving
- ☐Poor housekeeping
- ☐Protruding object
- ☐Close clearance/congestion
- ☐Hazardous arrangement/storage
- ☐Defective tools/equipment
- ☐Inadequate ventilation
- ☐Atmospheric condition: gases, dusts, fumes, vapors
- ☐Repetitive motion
- ☐Illumination/noise hazard
- ☐Other

What unsafe procedures contributed
- ☐Operating without training/authority
- ☐Failure to follow proper procedure
- ☐Failure to secure
- ☐Operating at unsafe speed
- ☐Failure to warn/signal
- ☐Congestion
- ☐Used defective equipment
- ☐Used equipment improperly/unsafely
- ☐Improper loading or placement
- ☐Horseplay/distraction
- ☐Improper protective equipment
- ☐Improper lifting or carrying
- ☐Taking unsafe or awkward position
- ☐Servicing moving equipment
- ☐Other

The underlying causes of the incident are:
- ☐Unaware of job hazards
- ☐Inattention to hazard
- ☐Unaware of how to avoid incident
- ☐Not enough time to act
- ☐Person motivated to use unsafe procedure
- ☐Emotional/mental/physical stress
- ☐Equipment failed to perform as expected
- ☐Intoxicant/drugs
- ☐Failure to report/correct unsafe condition
- ☐Illness/medical condition
- ☐Work procedure not ergonomically correct
- ☐Substandard design
- ☐Other

Classification (check as many as apply)
- ☐Fatality
- ☐Medical treatment other than First Aid
- ☐Occupation illness or disease
- ☐First Aid
- ☐Environmental Release
- ☐Property Damage
- ☐Near-accident

What steps have already been taken to prevent similar incidents?_____

_____

_____

_____

What else can be done (engineering controls, training, enforcement, process changes) to eliminate the hazard?_____

_____

_____

_____
SHSO's Signature Date

Health and Safety Review: Is proposed action appropriate? Yes ☐ No ☐ Comments_____

_____

_____

_____

_____

_____
DHS's Signature Date

VEHICLE ACCIDENT REPORT

EMPLOYEE NAME:_____ DRV LIC NO.:_____

COMPANY ADDRESS:_____ INSURANCE COMPANY_____

POLICY NO.:_____

DESCRIPTION OF ACCIDENT

DATE:_____ TIME:_____ SPEED LIMIT_____:

LOCATION:_____

DIRECTION OF TRAVEL:_____

HOW DID IT HAPPEN?_____

_____

USE SPACE BELOW TO INDICATE VEHICLE PATHS - INDICATE NORTH BY ARROW

POLICE REPORT

NAME OF OFFICER: _____ BADGE #:_____

_____

DEPARTMENT:_____ LOCATION:_____

SUMMONS ISSUED? Y [ ] N [ ] TO WHOM?_____

YOUR VEHICLE

YEAR/MAKE:_____ REGIST #:_____

DRIVEN BY:_____ AGE:___ TEL #:_____

ADDRESS:_____ CITY:_____ STATE:_____

NATURE OF DAMAGE:_____

OTHER DRIVER

(continue below for additional drivers and witnesses)

NAME:_____ DRV LIC NO.:_____

ADDRESS:_____ VEHICLE REGISTRATION:_____

_____ INSURANCE COMPANY_____

POLICY NO.:_____

CHASP Sign-Off Form

INSTRUCTIONS: Site personnel are required to read, understand, and agree to the provision of the plan. Personnel are required to sign this form indicating agreement. The original of this form is maintained by the Project Manager, and becomes part of the permanent site project files upon completion of site work.

Site Name: Fulton 11 and Chelsea-Elliott Addition

Location: 401-419 W 19th St and 436 West 27th Drive, New York, NY

Project Name and Number: HK2660

I have read, understand, and agree to comply with the provisions of this CHASP for work activities on this site.

Name	Signature	Company/Agency	Date

SAFETY DATA SHEET

Revision Date 19-Jan-2018 **Revision Number** 3

1. Identification

Product Name **1,2-Benzanthracene**

Cat No. : **AC105250000; AC105250010; AC105252500**

Synonyms Benzóa!anthracene; Tetraphene

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Carcinogenicity	Category 1B

Label Elements

Signal Word
Danger

Hazard Statements
May cause cancer

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood

Use personal protective equipment as required
Response
IF exposed or concerned: Get medical attention/advice
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Benz[a]anthracene	56-55-3	99

4. First-aid measures

Eye Contact Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.

Inhalation Remove from exposure, lie down. Move to fresh air. If not breathing, give artificial respiration. Immediate medical attention is required.

Ingestion Call a physician immediately. Clean mouth with water.

Most important symptoms and effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. Chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature Not applicable
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
0	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. Handling and storage

Handling Do not breathe dust. Do not get in eyes, on skin, or on clothing. Use only in area provided with appropriate exhaust ventilation.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Beige
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	158 - 161 °C / 316.4 - 321.8 °F
Boiling Point/Range	437.6 °C / 819.7 °F
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	Not applicable
Specific Gravity	No information available

Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C18 H12
Molecular Weight	228.29

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization No information available.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Benz[a]anthracene	56-55-3	Group 2B	Reasonably Anticipated	A2	X	Not listed

Mutagenic Effects Ames test: positive.

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Benz[a]anthracene	Group III Chemical	Not applicable	Not applicable

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Benz[a]anthracene	Not listed	Not listed	EC50 = 0.26 mg/L 15 min	LC50: = 0.01 mg/L, 96h Static (Daphnia magna) EC50: = 0.0042 mg/L, 48h (Daphnia magna)

Persistence and Degradability May persist

Bioaccumulation/ Accumulation No information available.

Mobility . Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Benz[a]anthracene	5.61

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Benz[a]anthracene - 56-55-3	U018	-

14. Transport information

DOT Not regulated
TDG Not regulated
IATA
- **UN-No** 3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.*
- **Hazard Class** 9
- **Packing Group** III

IMDG/IMO
- **UN-No** 3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
- **Hazard Class** 9
- **Packing Group** III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Benz[a]anthracene	X	-	X	200-280-6	-		-	-	-	X	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Benz[a]anthracene	56-55-3	99	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Benz[a]anthracene	-	-	-	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Benz[a]anthracene	10 lb	-

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Benz[a]anthracene	56-55-3	Carcinogen	0.033 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benz[a]anthracene	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs

Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date	19-Jan-2018
Print Date	19-Jan-2018
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Revision Date 19-Jan-2018 **Revision Number** 3

1. Identification

Product Name **Benzo[a]pyrene, 98%**

Cat No. : **AC105600010; AC105601000**

CAS-No 50-32-8
Synonyms Benzo[def]chrysene.; 3,4-Benzopyrene; 3,4-Benzpyrene

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 1A
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1A

Label Elements

Signal Word
Danger

Hazard Statements
May cause an allergic skin reaction
May cause genetic defects
May cause cancer
May damage fertility or the unborn child

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Benzo[a]pyrene	50-32-8	> 96

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Move to fresh air.

Ingestion Do not induce vomiting.

Most important symptoms and effects May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point
Method - No information available

Autoignition Temperature No information available

Explosion Limits

Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up No information available.

7. Handling and storage

Handling Ensure adequate ventilation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Benzo[a]pyrene		TWA: 0.2 mg/m^3		

Legend

OSHA - Occupational Safety and Health Administration

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Dark yellow
Odor	aromatic
Odor Threshold	No information available
pH	
Melting Point/Range	175 179 °C
Boiling Point/Range	°C @ 760 mmHg
Flash Point	
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Specific Gravity	No information available
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C20H12
Molecular Weight	252.31

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Benzo[a]pyrene	50-32-8	Group 1	Reasonably Anticipated	A2	X	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information No information available

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Benzo[a]pyrene	Group III Chemical	Not applicable	Not applicable

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

Component	log Pow
Benzo[a]pyrene	6.06

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Benzo[a]pyrene - 50-32-8	U022	-

14. Transport information

DOT
- **UN-No** UN3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
- **Hazard Class** 9
- **Packing Group** III

TDG
- **UN-No** UN3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
- **Hazard Class** 9
- **Packing Group** III

IATA
- **UN-No** UN3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
- **Hazard Class** 9
- **Packing Group** III

IMDG/IMO

UN-No	UN3077
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Hazard Class	9
Packing Group	III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Benzo[a]pyrene	X	X	-	200-028-5	-		X	-	-	X	X

Legend:
X - Listed
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T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
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Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Benzo[a]pyrene	50-32-8	> 96	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Benzo[a]pyrene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA Not applicable

Component	Hazardous Substances RQs	CERCLA EHS RQs
Benzo[a]pyrene	1 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Benzo[a]pyrene	50-32-8	Carcinogen	0.06 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benzo[a]pyrene	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 19-Jan-2018
Print Date 19-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
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End of SDS

SAFETY DATA SHEET

Version 5.7
Revision Date 03/09/2018
Print Date 06/03/2018

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name	:	Benzo[*b*]fluoranthene
Product Number	:	275336
Brand	:	Aldrich
Index-No.	:	601-034-00-4
CAS-No.	:	205-99-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	:	Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052

1.4 Emergency telephone number

Emergency Phone #	:	+1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Carcinogenicity (Category 1B), H350
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)

H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P273	Avoid release to the environment.
P281	Use personal protective equipment as required.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P405	Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 3,4-Benzofluoranthene
Benz[e]acephenanthrylene
2,3-Benzfluoranthene
3,4-Benz[e]acephenanthrylene
Benzo[b]fluoranthene
Benzo[e]fluoranthene
NSC 89265

Formula : $C_{20}H_{12}$
Molecular weight : 252.31 g/mol
CAS-No. : 205-99-2
EC-No. : 205-911-9
Index-No. : 601-034-00-4

Hazardous components

Component	Classification	Concentration
Benz[e]acephenanthrylene		
	Carc. 1B; Aquatic Acute 1; Aquatic Chronic 1; H350, H410	90 - 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Contains no substances with occupational exposure limit values.				
	Remarks	Cancer Substances for which there is a Biological Exposure Index or Indices (see BEI® section), see BEI® for Polycyclic Aromatic Hydrocarbons (PAHs) Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		
Benz[e]acephenanthrylene	205-99-2	PEL	0.2 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Hazardous components without workplace control parameters				

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
	-	1-Hydroxypyrene	2.5 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			
		3-hydroxybenzo(a)pyrene		Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance Form: solid

b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 163 - 165 °C (325 - 329 °F) - lit.
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
TDLo Oral - Mouse - 7.57 mg/kg
Remarks: Liver:Changes in liver weight. Endocrine:Changes in thymus weight.

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Possible human carcinogen

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Benz[e]acephenanthrylene)
NTP:	RAHC - Reasonably anticipated to be a human carcinogen (Benz[e]acephenanthrylene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - > 1.024 mg/l - 24 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Benz[e]acephenanthrylene)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Benz[e]acephenanthrylene)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Benz[e]acephenanthrylene	205-99-2	2007-03-01

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Benz[e]acephenanthrylene	205-99-2	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Benz[e]acephenanthrylene	205-99-2	2007-03-01

	CAS-No.	Revision Date
Benz[e]acephenanthrylene	205-99-2	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Benz[e]acephenanthrylene	205-99-2	2007-03-01

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer. Benz[e]acephenanthrylene	205-99-2	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H350	May cause cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.7 Revision Date: 03/09/2018 Print Date: 06/03/2018

Safety Data Sheet

Revision Date: 12/30/16
www.restek.com

1. IDENTIFICATION

Catalog Number / Product Name:	**31274 / Benzo(k)fluoranthene Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	10
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:	Flammable Liquid Category 2 Serious Eye Damage/Eye Irritation Category 2 Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 3
GHS Signal Word:	Danger
GHS Hazard:	Highly flammable liquid and vapour. Causes serious eye irritation. May cause drowsiness or dizziness.
GHS Precautions:	
Safety Precautions:	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTER or doctor/physician if you feel unwell. If eye irritation persists: Get medical advice/attention. In case of fire: Use extinguishing media in section 5 for extinction.
Storage:	Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Disposal:	Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: No data available.

Repeated Exposure Target Organs: No data available.

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
Acetone	67-64-1	200-662-2	99.900000
benzo (k) fluoranthene	207-08-9	205-916-6	0.100000

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water spray or fog may also be effective for extinguishing if swept across the base of the fire. Water can also be used to absorb heat and keep exposed material from being damaged by fire. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Fire and/or Explosion Hazards: Vapors may be ignited by heat, sparks, flames or other sources of ignition at or above the low flash point giving rise to a Class B fire. Vapors are heavier than air and may travel to a source of ignition and flash back

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained toxic breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface. Use water spray/fog for cooling.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be irritating or harmful. Follow personal protective equipment recommendations found in Section 8 of this SDS. Additional precautions may be necessary based on special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred. Also consider the expertise of employees in the area responding to the spill.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Harmful or irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment

Storage Technical Measures and Conditions: Store in a cool dry ventilated location. Isolate from

incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
Acetone	67-64-1	2500 ppm IDLH (10% LEL)	500 ppm STEL 750 ppm STEL; 1782 mg/m3 STEL	250 ppm TWA 500 ppm TWA; 1188 mg/m3 TWA	1000 ppm TWA; 2400 mg/m3 TWA
benzo (k) fluoranthene	207-08-9	ND		No TLV	No data available.

Personal Protection:

Engineering Measures: Local exhaust ventilation is recommended when generating excessive levels of vapors from handling or thermal processing.

Respiratory Protection: No respiratory protection required under normal conditions of use. Provide general room exhaust ventilation if symptoms of overexposure occur as explained Section 3. A respirator is not normally required.

Eye Protection: Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.

Skin Protection: Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

Medical Conditions Aggravated By Exposure: Respiratory disease including asthma and bronchitis

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color: Depends upon product selection
Odor: Strong
Physical State: No data available.
pH: No data available.
Vapor Pressure: No data available.
Vapor Density: 2.0 (air = 1)
Boiling Point: No data available.
Melting Point: -95.4 °C Melting Point
Flash Point: 39
Flammability: Highly Flammable
Upper Flammable/Explosive Limit, % in air: No data available.
Lower Flammable/Explosive Limit, % in air: No data available.
Autoignition Temperature: 465 deg C
Decomposition Temperature: No data available.
Specific Gravity: 0.7845 g/cm3 at 25 °C
Evaporation Rate: No data available.
Odor Threshold: ND
Solubility: Complete; 100%
Partition Coefficient: n-octanol in water: No data available.
VOC % by weight: 0
Molecular Weight: 58.08

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions.
Conditions to Avoid: No data available.
Materials to Avoid / Chemical Incompatiability: Strong oxidizing agents Strong acids
Hazardous Decomposition Products: Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure: Eyes, Central nervous system stimulation, Respiratory Tract, Skin
Chemical Interactions That Change Toxicity: None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause minor respiratory irritation, dizziness, weakness, fatigue, nausea, and headache.
Skin Contact:	Can cause minor skin irritation, defatting, and dermatitis.
Eye Contact:	Can cause minor irritation, tearing and reddening.
Ingestion Irritation:	May be harmful if swallowed.
Ingestion Toxicity:	Harmful if swallowed. May cause systemic poisoning.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	Contains a probable or known human carcinogen.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation:	Upon prolonged and/or repeated exposure, can cause minor respiratory irritation, dizziness, weakness, fatigue, nausea, and headache.
Skin Contact:	Upon prolonged or repeated contact, can cause minor skin irritation, defatting, and dermatitis.

Component Toxicological Data:
NIOSH:

Chemical Name	CAS No.	LD50/LC50
Acetone	67-64-1	Dermal LD50 Rabbit >15700 mg/kg; Oral LD50 Rat 5800 mg/kg; Inhalation LC50 Rat 50100 mg/m3 8 h

Component Carcinogenic Data:
OSHA:

Chemical Name	CAS No.	
Benzo(k)fluoranthene	207-08-9	Present

ACGIH:

Chemical Name	CAS No.	
Acetone	67-64-1	A4 - Not Classifiable as a Human Carcinogen

NIOSH:

Chemical Name	CAS No.
No data available.	

NTP:

Chemical Name	CAS No.
No data available.	

IARC:

Chemical Name	CAS No.	Group No.
No data.		Group 1
No data.		Group 2A
Benzo(k)fluoranthene	207-08-9	Group 2B

12. ECOLOGICAL INFORMATION

Overview:	This material is not expected to be harmful to the ecology.
Mobility:	No data
Persistence:	No data
Bioaccumulation:	No data
Degradability:	No data
Ecological Toxicity Data:	No data available.

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product:	Spent or discarded material is a hazardous waste.
Disposal Methods:	Dispose of by incineration following Federal, State, Local, or Provincial regulations.
Waste Disposal of Packaging:	Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:	
DOT Proper Shipping Name:	Acetone
UN Number:	UN1090

Hazard Class: 3
Packing Group: II

International:
IATA Proper Shipping Name: Acetone
UN Number: UN1090
Hazard Class: 3
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available.			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
Acetone	67-64-1	X	-	-	X
benzo (k) fluoranthene	207-08-9	X	X	-	-

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Benzo[k]fluoranthene	207-08-9	Prop 65 Cancer

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
Acetone	67-64-1	X	X	X	X
benzo (k) fluoranthene	207-08-9	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 05/15/15
Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.
References: No data available.
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Safety Data Sheet

Revision Date: 04/24/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**31275 / Chrysene Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	9
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:
Carcinogenicity Category 1B
Flammable Liquid Category 2
Serious Eye Damage/Eye Irritation Category 2
Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 3

GHS Signal Word:
Danger

GHS Hazard:
Highly flammable liquid and vapour.
Causes serious eye irritation.
May cause drowsiness or dizziness.
May cause cancer.

GHS Precautions:

Safety Precautions:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilation and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Wash hands and skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

First Aid Measures:
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/attention.
Call a POISON CENTER or doctor/physician if you feel unwell.
If eye irritation persists: Get medical advice/attention.
In case of fire: Use extinguishing media in section 5 for extinction.

Storage: Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: Specific target organ toxicity - Single exposure - STOT SE 3: H336 May cause drowsiness or dizziness.

Repeated Exposure Target Organs: No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
Acetone	67-64-1	200-662-2	99.9
chrysene	218-01-9	205-923-4	0.1

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water spray or fog may also be effective for extinguishing if swept across the base of the fire. Water can also be used to absorb heat and keep exposed material from being damaged by fire. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Fire and/or Explosion Hazards: Vapors may be ignited by heat, sparks, flames or other sources of ignition at or above the low flash point giving rise to a Class B fire. Vapors are heavier than air and may travel to a source of ignition and flash back

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained toxic breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface. Use water spray/fog for cooling. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be irritating or harmful. Follow personal protective equipment recommendations found in Section 8 of this SDS. Additional precautions may be necessary based on special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred. Also consider the expertise of employees in the area responding to the spill.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal

evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions:	Harmful or irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment
Storage Technical Measures and Conditions:	Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
Acetone	67-64-1	2500 ppm IDLH (10% LEL)	750 ppm STEL; 1782 mg/m3 STEL	500 ppm TWA; 1188 mg/m3 TWA	1000 ppm TWA; 2400 mg/m3 TWA

Personal Protection:

Engineering Measures:	Local exhaust ventilation is recommended when generating excessive levels of vapours from handling or thermal processing.
Respiratory Protection:	No respiratory protection required under normal conditions of use. Provide general room exhaust ventilation if symptoms of overexposure occur as explained Section 3. A respirator is not normally required.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.
Skin Protection:	Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work
Medical Conditions Aggravated By Exposure:	Respiratory disease including asthma and bronchitis

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	Depends upon product selection
Odor:	Strong
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	2.0 (air = 1)
Boiling Point (°C):	56.05 °C at 1013.25 hPa
Melting Point (°C):	-95.4 °C Melting Point
Flash Point (°F):	39
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	No data available
Lower Flammable/Explosive Limit, % in air:	No data available
Autoignition Temperature (°C):	465 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.7845 g/cm3 at 25 °C
Evaporation Rate:	No data available
Odor Threshold:	ND
Solubility:	Complete; 100%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	58.08

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents Strong acids
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure:	Eyes, Central nervous system stimulation, Respiratory Tract, Skin

Chemical Interactions That Change Toxicity: None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation: Can cause minor respiratory irritation, dizziness, weakness, fatigue, nausea, and headache.
Skin Contact: Can cause minor skin irritation, defatting, and dermatitis.
Eye Contact: Can cause minor irritation, tearing and reddening.
Ingestion Irritation: May be harmful if swallowed.
Ingestion Toxicity: Harmful if swallowed. May cause systemic poisoning.

Long-Term (Chronic) Health Effects:

Carcinogenicity: Contains a probable or known human carcinogen.
Reproductive and Developmental Toxicity: No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation: Upon prolonged and/or repeated exposure, can cause minor respiratory irritation, dizziness, weakness, fatigue, nausea, and headache.
Skin Contact: Upon prolonged or repeated contact, can cause minor skin irritation, defatting, and dermatitis.

Component Toxicological Data:
NIOSH:

Chemical Name	CAS No.	LD50/LC50
Acetone	67-64-1	Dermal LD50 Rabbit >15700 mg/kg; Inhalation LC50 Rat 50100 mg/m3 8 h; Oral LD50 Rat 5800 mg/kg

Component Carcinogenic Data:
OSHA:

Chemical Name	CAS No.
No data available	

ACGIH:

Chemical Name	CAS No.	
Acetone	67-64-1	A4 - Not Classifiable as a Human Carcinogen

NIOSH:

Chemical Name	CAS No.
No data available	

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.
Monograph 92 [2010]; Supplement 7 [1987]; Monograph 32 [1983]	218-01-9	Group 2B

12. ECOLOGICAL INFORMATION

Overview: This material is not expected to be harmful to the ecology.
Mobility: No data
Persistence: No data
Bioaccumulation: No data
Degradability: No data
Ecological Toxicity Data: No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures.
Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.
Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial

Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:

DOT Proper Shipping Name:	Acetone
UN Number:	UN1090
Hazard Class:	3
Packing Group:	II

International:

IATA Proper Shipping Name:	Acetone
UN Number:	UN1090
Hazard Class:	3
Packing Group:	II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
Acetone	67-64-1	X	-	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Chrysene	218-01-9	Prop 65 Cancer

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
Acetone	67-64-1	X	X	X	X
chrysene	218-01-9	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 01/06/17

Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.

References: No data available

Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

SAFETY DATA SHEET

Revision Date 23-Jan-2018 **Revision Number** 3

1. Identification

Product Name **Dibenz[a,h]anthracene, 99% (UV-Vis)**

Cat No. : **AC406430010; AC406432500**

Synonyms 1,2:5,6-Dibenz(a)anthracene.

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Carcinogenicity	Category 1B

Label Elements

Signal Word
Danger

Hazard Statements
May cause cancer

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood

Use personal protective equipment as required
Response
IF exposed or concerned: Get medical attention/advice
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Dibenzo(a,h)anthracene	53-70-3	99

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Move to fresh air.

Ingestion Do not induce vomiting.

Most important symptoms and effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
1	1	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions	See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.
Methods for Containment and Clean Up	No information available.

7. Handling and storage

Handling	Ensure adequate ventilation.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines	This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.
Engineering Measures	Ensure adequate ventilation, especially in confined areas.
Personal Protective Equipment	
Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Off-white
Odor	No information available
Odor Threshold	No information available
pH	
Melting Point/Range	265 °C
Boiling Point/Range	
Flash Point	
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Specific Gravity	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	$C_{22}H_{14}$
Molecular Weight	278.34

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information
Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Dibenzo(a,h)anthracene	53-70-3	Group 2A	Reasonably Anticipated	Not listed	X	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

Component	log Pow
Dibenzo(a,h)anthracene	6.50

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Dibenzo(a,h)anthracene - 53-70-3	U063	-

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Dibenzo(a,h)anthracene	X	-	X	200-181-8	-		-	-	-	X	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Dibenzo(a,h)anthracene	53-70-3	99	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Dibenzo(a,h)anthracene	-	-	-	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA Not applicable

Component	Hazardous Substances RQs	CERCLA EHS RQs
Dibenzo(a,h)anthracene	1 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Dibenzo(a,h)anthracene	53-70-3	Carcinogen	0.2 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Dibenzo(a,h)anthracene	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 23-Jan-2018
Print Date 23-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Safety Data Sheet

Revision Date: 03/22/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**31279 / Indeno(1,2,3-c,d)pyrene Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	10
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:	Carcinogenicity Category 2
GHS Signal Word:	Warning
GHS Hazard:	Suspected of causing cancer.
GHS Precautions:	
Safety Precautions:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF exposed or concerned: Get medical advice/attention.
Storage:	Store locked up.
Disposal:	Dispose of contents/container according to section 13 of the SDS.
Single Exposure Target Organs:	No data available
Repeated Exposure Target Organs:	No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
Dichloromethane	75-09-2	200-838-9	99.9
indeno (1,2,3-c,d) pyrene	193-39-5	205-893-2	0.1

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Immediately flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention and monitor the eye daily as advised by your physician. Serious harm (damage) may result if treatment is delayed. Continue to flush eyes while awaiting medical attention

Skin Contact: Wash with soap and water. Remove contaminated clothing, launder immediately, and discard contaminated leather goods. Get medical attention immediately.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS. Never give anything by mouth to an unconscious person

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical when fighting fires. Water or foam may cause frothing if liquid is burning but it still may be a useful extinguishing agent if carefully applied to the surface of the fire. Do Not direct a stream of water into the hot burning liquid. Use methods suitable to fight surrounding fire.

Fire and/or Explosion Hazards: No data.

Fire Fighting Methods and Protection: Use methods for the surrounding fire.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. As with all chemicals, good industrial hygiene practices should be followed when handling this material.

Storage Technical Measures and Conditions: Store in a cool dry place. Isolate from incompatible materials. Keep container closed when not in use

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
Dichloromethane	75-09-2	2300 ppm IDLH	None Known	50 ppm TWA	25 ppm TWA; 125 ppm STEL (15 min. TWA)
indeno (1,2,3-c,d) pyrene	193-39-5	Not established	None Known	Not established	No data available

Personal Protection:

Engineering Measures: Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure.

Respiratory Protection: Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to

	eliminate symptoms.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Wear additional eye protection such as chemical splash goggles and/or face shield when the possibility exists for eye contact with splashing or spraying liquid, or airborne material. Do not wear contact lenses. Have an eye wash station available.
Skin Protection:	Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.
Medical Conditions Aggravated By Exposure:	Eye disease Skin disease including eczema and sensitization Respiratory disease including asthma and bronchitis

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	Colorless
Odor:	Strong
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	2.93 (air = 1)
Boiling Point (°C):	530 °C
Melting Point (°C):	-96.7 °C
Flash Point (°F):	No data available
Upper Flammable/Explosive Limit, % in air:	No data available
Lower Flammable/Explosive Limit, % in air:	No data available
Autoignition Temperature (°C):	556 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	1.3254 - 1.3258 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	ND
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	No data available

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.Contamination High temperatures
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents Caustics (bases)
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation Absorption Ingestion Skin contact Eye contact
Target Organs Potentially Affected By Exposure:	Skin, Cardiovascular System, Eyes, Liver
Chemical Interactions That Change Toxicity:	None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
Inhalation Toxicity:	Harmful! Can cause systemic damage (see "Target Organs)Inhalation may cause severe central nervous system depression (including unconsciousness).
Skin Contact:	Contact causes severe skin irritation and possible burns.
Skin Absorption:	Harmful if absorbed through the skin. May cause severe irritation and systemic damage.
Eye Contact:	Contact with the eyes may cause moderate to severe eye injury. Eye contact may result in tearing and reddening, but not likely to permanently injure eye tissue. Temporary vision impairment (cloudy or blurred vision) is possible.
Ingestion Irritation:	Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.
Ingestion Toxicity:	Harmful if swallowed. May cause systemic poisoning.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	Contains a probable or known human carcinogen.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components

present at greater than 0.1% may cause birth defects.

Inhalation: Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)

Skin Absorption: Upon prolonged or repeated exposure, harmful if absorbed through the skin. May cause severe irritation and systemic damage

Component Toxicological Data:
NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methane, dichloro-	75-09-2	Inhalation LC50 Rat 53 mg/L 6 h

Component Carcinogenic Data:
OSHA:

Chemical Name	CAS No.	
Indeno[1,2,3-cd]pyrene	193-39-5	Present
Methylene chloride	75-09-2	25 ppm TWA (8 hr.); 125 ppm STEL (15 min.); 12.5 ppm Action Level (see 29 CFR 1910.1051); effective date for respiratory protection for certain employers to acheive the 8-hour TWA PEL is August 31, 1998; the start up date to install engineering controls is December 10, 1998.; {OSHA - 29 CFR 1910 Specifically Regulate

ACGIH:

Chemical Name	CAS No.	
Dichloromethane	75-09-2	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

NIOSH:

Chemical Name	CAS No.	
Methylene chloride	75-09-2	potential occupational carcinogen

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.
Monograph 110 [in preparation]; Monograph 71 [1999]	75-09-2	Group 2A
Monograph 92 [2010]; Supplement 7 [1987]; Monograph 32 [1983]	193-39-5	Group 2B

12. ECOLOGICAL INFORMATION

Overview: Moderate ecological hazard. This product may be dangerous to plants and/or wildlife. Keep out of waterways.
Mobility: No data
Persistence: No data
Bioaccumulation: No data
Degradability: No data
Ecological Toxicity Data: No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Incinerate spent or discarded material a permitted hazardous waste facility.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial

Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:

DOT Proper Shipping Name:	Dichloromethane
UN Number:	UN1593
Hazard Class:	6.1
Packing Group:	III

International:

IATA Proper Shipping Name:	Dichloromethane
UN Number:	UN1593
Hazard Class:	6.1
Packing Group:	III

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
Dichloromethane	75-09-2	X	X	-	X
indeno (1,2,3-c,d) pyrene	193-39-5	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Indeno[1,2,3-cd]pyrene	193-39-5	Prop 65 Cancer
Dichloromethane Dichloromethane (Methylene chloride)	75-09-2	Prop 65 Cancer

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
Dichloromethane	75-09-2	X	X	X	X
indeno (1,2,3-c,d) pyrene	193-39-5	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 08/03/16

Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.

References: No data available

Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

SAFETY DATA SHEET

Creation Date 28-Apr-2009 **Revision Date** 19-Jan-2018 **Revision Number** 6

1. Identification

Product Name **Acetone**

Cat No. : **AC177170000; AC177170010; AC177170025; AC177170050; AC177170100; AC177170250**

CAS-No 67-64-1
Synonyms 2-Propanone

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure) Target Organs - Central nervous system (CNS).	Category 3
Specific target organ toxicity - (repeated exposure) Target Organs - Kidney, Liver, spleen, Blood.	Category 2

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor
Causes serious eye irritation
May cause drowsiness or dizziness
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Wear protective gloves/protective clothing/eye protection/face protection
Keep cool
Response
Get medical attention/advice if you feel unwell
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Repeated exposure may cause skin dryness or cracking

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Acetone	67-64-1	>95

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation Move to fresh air. If not breathing, give artificial respiration. Get medical attention if

symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects None reasonably foreseeable. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: May cause pulmonary edema: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media Water may be ineffective

Flash Point -20 °C / -4 °F

Method - Closed cup

Autoignition Temperature 465 °C / 869 °F

Explosion Limits
Upper 12.8 vol %
Lower 2.5 vol %

Oxidizing Properties Not oxidising

Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Flammable. Risk of ignition. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2) Formaldehyde Methanol
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	3	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Do not get in eyes, on skin, or on clothing. Wear personal protective equipment. Ensure adequate ventilation. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Storage Flammables area. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Acetone	TWA: 250 ppm STEL: 500 ppm	(Vacated) TWA: 750 ppm (Vacated) TWA: 1800 mg/m^3 (Vacated) STEL: 2400 mg/m^3 (Vacated) STEL: 1000 ppm TWA: 1000 ppm TWA: 2400 mg/m^3	IDLH: 2500 ppm TWA: 250 ppm TWA: 590 mg/m^3	TWA: 1000 ppm TWA: 2400 mg/m^3 STEL: 1260 ppm STEL: 3000 mg/m^3

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Long sleeved clothing.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	sweet
Odor Threshold	19.8 ppm
pH	7
Melting Point/Range	-95 °C / -139 °F
Boiling Point/Range	56 °C / 132.8 °F
Flash Point	-20 °C / -4 °F
Method -	Closed cup
Evaporation Rate	5.6 (Butyl Acetate = 1.0)
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	12.8 vol %
Lower	2.5 vol %
Vapor Pressure	247 mbar @ 20 °C
Vapor Density	2.0
Specific Gravity	0.790
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available

Autoignition Temperature	465 °C / 869 °F
Decomposition Temperature	> 4°C
Viscosity	0.32 mPa.s @ 20 °C
Molecular Formula	C3 H6 O
Molecular Weight	58.08
Refractive index	1.358 - 1.359

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Heat, flames and sparks. Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Strong reducing agents, Strong bases, Peroxides, Halogenated compounds, Alkali metals, Amines

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Formaldehyde, Methanol

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Acetone	5800 mg/kg (Rat)	> 15800 mg/kg (rabbit) > 7400 mg/kg (rat)	76 mg/l, 4 h, (rat)

Toxicologically Synergistic Products Carbon tetrachloride; Chloroform; Trichloroethylene; Bromodichloromethane; Dibromochloromethane; N-nitrosodimethylamine; 1,1,2-Trichloroethane; Styrene; Acetonitrile, 2,5-Hexanedione; Ethanol; 1,2-Dichlorobenzene

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Acetone	67-64-1	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Kidney Liver spleen Blood

Aspiration hazard No information available

Symptoms / effects,both acute and Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting:

delayed May cause pulmonary edema: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Acetone	NOEC = 430 mg/l (algae; 96 h)	Oncorhynchus mykiss: LC50 = 5540 mg/l 96h Alburnus alburnus: LC50 = 11000 mg/l 96h Leuciscus idus: LC50 = 11300 mg/L/48h Salmo gairdneri: LC50 = 6100 mg/L/24h	EC50 = 14500 mg/L/15 min	EC50 = 8800 mg/L/48h EC50 = 12700 mg/L/48h EC50 = 12600 mg/L/48h

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Acetone	-0.24

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Acetone - 67-64-1	U002	-

14. Transport information

DOT

UN-No UN1090
Proper Shipping Name ACETONE
Hazard Class 3
Packing Group II

TDG

UN-No UN1090
Proper Shipping Name ACETONE
Hazard Class 3
Packing Group II

IATA

UN-No UN1090
Proper Shipping Name ACETONE
Hazard Class 3
Packing Group II

IMDG/IMO

UN-No UN1090
Proper Shipping Name ACETONE
Hazard Class 3
Packing Group II

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Acetone	X	X	-	200-662-2	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Acetone	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Acetone	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product contains the following DHS chemicals:

Component	DHS Chemical Facility Anti-Terrorism Standard
Acetone	2000 lb STQ

Other International Regulations

Mexico - Grade	Serious risk, Grade 3

16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	28-Apr-2009
Revision Date	19-Jan-2018
Print Date	19-Jan-2018
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

TETRACHLOROETHYLENE

ICSC: 0076

1,1,2,2-Tetrachloroethylene Perchloroethylene Tetrachloroethene C_2Cl_4 / $Cl_2C{=}CCl_2$ Molecular mass: 165.8 ICSC # 0076	CAS # 127-18-4 RTECS # KX3850000 UN # 1897 EC # 602-028-00-4 April 13, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			
EXPOSURE		STRICT HYGIENE! PREVENT GENERATION OF MISTS!	
•INHALATION	Dizziness. Drowsiness. Headache. Nausea. Weakness. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety goggles , face shield .	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Give plenty of water to drink. Rest.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. Personal protection: filter respirator for organic gases and vapours.	Separated from metals ,(see Chemical Dangers), food and feedstuffs . Keep in the dark. Ventilation along the floor.	Do not transport with food and feedstuffs. Marine pollutant. Xn symbol N symbol R: 40-51/53 S: (2-)23-36/37-61 UN Hazard Class: 6.1 UN Packing Group: III

ICSC: 0076	Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

ICSC: 0076

TETRACHLOROETHYLENE

I M P O R T A N T D A T A	**PHYSICAL STATE; APPEARANCE:** COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR. **PHYSICAL DANGERS:** The vapour is heavier than air. **CHEMICAL DANGERS:** On contact with hot surfaces or flames this substance decomposes forming toxic and corrosive fumes (hydrogen chloride, phosgene, chlorine). The substance decomposes slowly on contact with moisture producing trichloroacetic acid and hydrochloric acid. Reacts with metals such as aluminium, lithium, barium, beryllium. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: 25 ppm as TWA, 100 ppm as STEL; A3 (confirmed animal carcinogen with unknown relevance to humans); BEI issued; (ACGIH 2004). MAK: skin absorption (H); Carcinogen category: 3B; (DFG 2004). OSHA PEL†: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 3-hours) NIOSH REL: Ca Minimize workplace exposure concentrations. See Appendix A NIOSH IDLH: Ca 150 ppm See: 127184	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation and by ingestion. **INHALATION RISK:** A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C. **EFFECTS OF SHORT-TERM EXPOSURE:** The substance is irritating to the eyes , the skin and the respiratory tract . If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. The substance may cause effects on the central nervous system. Exposure at high levels may result in unconsciousness. **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the liver and kidneys. This substance is probably carcinogenic to humans.
PHYSICAL PROPERTIES	Boiling point: 121°C Melting point: -22°C Relative density (water = 1): 1.6 Solubility in water, g/100 ml at 20°C: 0.015	Vapour pressure, kPa at 20°C: 1.9 Relative vapour density (air = 1): 5.8 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.09 Octanol/water partition coefficient as log Pow: 2.9
ENVIRONMENTAL DATA	The substance is toxic to aquatic organisms. The substance may cause long-term effects in the aquatic environment.	

NOTES

Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert. Card has been partly updated in April 2005. See section Occupational Exposure Limits.

Transport Emergency Card: TEC (R)-61S1897

NFPA Code: H2; F0; R0;

ADDITIONAL INFORMATION

(C) IPCS, CEC, 1994

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

Page last reviewed: July 22, 2015

Page last updated: July 1, 2014

Content source: National Institute for Occupational Safety and Health (http://www.cdc.gov/NIOSH/)

TRICHLOROETHYLENE

ICSC: 0081

1,1,2-Trichloroethylene Trichloroethene Ethylene trichloride Acetylene trichloride C_2HCl_3 / $ClCH{=}CCl_2$ Molecular mass: 131.4 ICSC # 0081	CAS # 79-01-6 RTECS # KX4550000 UN # 1710 EC # 602-027-00-9 April 10, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible under specific conditions. See Notes.		In case of fire in the surroundings: all extinguishing agents allowed.
EXPLOSION		Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		PREVENT GENERATION OF MISTS! STRICT HYGIENE!	
•INHALATION	Dizziness. Drowsiness. Headache. Weakness. Nausea. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety spectacles, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Give plenty of water to drink. Rest.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Personal protection: filter respirator for organic gases and vapours. Do NOT let this chemical enter the environment.	Separated from metals (see Chemical Dangers), strong bases, food and feedstuffs . Dry. Keep in the dark. Ventilation along the floor.	Do not transport with food and feedstuffs. Marine pollutant. T symbol R: 45-36/38-52/53-67 S: 53-45-61 UN Hazard Class: 6.1 UN Packing Group: III

ICSC: 0081	Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

ICSC: 0081

TRICHLOROETHYLENE

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour is heavier than air. As a result of flow, agitation, etc., electrostatic charges can be generated.

CHEMICAL DANGERS:
On contact with hot surfaces or flames this substance decomposes forming toxic and corrosive fumes (phosgene , hydrogen chloride). The substance decomposes on contact with strong alkali producing dichloroacetylene , which increases fire hazard. Reacts violently with metal powders such as magnesium, aluminium, titanium, and barium. Slowly decomposed by light in presence of moisture, with formation of corrosive hydrochloric acid.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 50 ppm as TWA; 100 ppm as STEL; A5; BEI issued; (ACGIH 2004).
MAK:
Carcinogen category: 1; Germ cell mutagen group: 3B; (DFG 2004).
OSHA PEL‡: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2 hours)
NIOSH REL: Ca See Appendix A See Appendix C
NIOSH IDLH: Ca 1000 ppm See: 79016

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes and the skin . Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis. The substance may cause effects on the central nervous system , resulting in respiratory failure . Exposure could cause lowering of consciousness.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the central nervous system , resulting in loss of memory. The substance may have effects on the liver and kidneys (see Notes). This substance is probably carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: 87°C
Melting point: -73°C
Relative density (water = 1): 1.5
Solubility in water, g/100 ml at 20°C: 0.1
Vapour pressure, kPa at 20°C: 7.8
Relative vapour density (air = 1): 4.5
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.3
Auto-ignition temperature: 410°C
Explosive limits, vol% in air: 8-10.5
Octanol/water partition coefficient as log Pow: 2.42
Electrical conductivity (NOT on card): 800pS/m

ENVIRONMENTAL DATA

The substance is harmful to aquatic organisms. The substance may cause long-term effects in the aquatic environment.

NOTES

Combustible vapour/air mixtures difficult to ignite, may be developed under certain conditions. Use of alcoholic beverages enhances the harmful effect. Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert. Card has been partly updated in October 2004. See sections Occupational Exposure Limits, EU classification, Emergency Response.

Transport Emergency Card: TEC (R)-61S1710

NFPA Code: H2; F1; R0;

ADDITIONAL INFORMATION

(C) IPCS, CEC, 1994

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Page last reviewed: July 22, 2015
Page last updated: July 1, 2014
Content source: National Institute for Occupational Safety and Health (http://www.cdc.gov/NIOSH/)

SAFETY DATA SHEET

Creation Date 27-Jan-2010 **Revision Date** 17-Jan-2018 **Revision Number** 6

1. Identification

Product Name **Methylene chloride**

Cat No. : **D37-1; D37-4; D37-20; D37-200; D37-200LC; D37-500; D37FB-19; D37FB-50; D37FB-115; D37FB-200; D37POP-19; D37POPB-50; D37POPB-200; D37RB-19; D37RB-50; D37RB-115; D37RB-200; D37RS-19; D37RS-28; D37RS-50; D37RS-115; D37RS-200; D37SK-4; D37SK-4LC; D37SS-28; D37SS-50; D37SS-115; D37SS-200; D37SS-1350**

CAS-No 75-09-2
Synonyms Dichloromethane; DCM

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Liver, Kidney, Blood.	

Label Elements

Signal Word
Danger

Hazard Statements
Causes skin irritation
Causes serious eye irritation

May cause drowsiness or dizziness
May cause cancer
May cause damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)

WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Methylene chloride	75-09-2	>99.5

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Inhalation Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects None reasonably foreseeable. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature 556 °C / 1032.8 °F

Explosion Limits
Upper 23 vol %
Lower 13 vol %
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2) Hydrogen chloride gas Phosgene
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation.
Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Ensure adequate ventilation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Methylene chloride	TWA: 50 ppm	(Vacated) TWA: 500 ppm (Vacated) STEL: 2000 ppm (Vacated) Ceiling: 1000 ppm TWA: 25 ppm STEL: 125 ppm	IDLH: 2300 ppm	TWA: 100 ppm TWA: 330 mg/m^3 STEL: 500 ppm STEL: 1740 mg/m^3

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Long sleeved clothing.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	sweet
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-97 °C / -142.6 °F
Boiling Point/Range	39 °C / 102.2 °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	23 vol %
Lower	13 vol %
Vapor Pressure	350 mbar @ 20°C
Vapor Density	2.93 (Air = 1.0)
Specific Gravity	1.33
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	556 °C / 1032.8 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C H2 Cl2
Molecular Weight	84.93

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat.

Incompatible Materials Strong oxidizing agents, Strong acids, Amines

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Hydrogen chloride gas, Phosgene

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methylene chloride	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rat)	53 mg/L (Rat) 6 h 76000 mg/m³ (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Methylene chloride	75-09-2	Group 2A	Reasonably Anticipated	A3	X	A3

IARC: (International Agency for Research on Cancer)
IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)
NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)
A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens
Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects Mutagenic effects have occured in microorganisms.

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure Liver Kidney Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.

12. Ecological information

Ecotoxicity

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Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Methylene chloride	EC50:>660 mg/L/96h	Pimephales promelas: LC50:193 mg/L/96h	EC50: 1 mg/L/24 h EC50: 2.88 mg/L/15 min	EC50: 140 mg/L/48h

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Methylene chloride	1.25

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Methylene chloride - 75-09-2	U080	-

14. Transport information

DOT

UN-No UN1593
Proper Shipping Name DICHLOROMETHANE
Hazard Class 6.1
Packing Group III

TDG

UN-No UN1593
Proper Shipping Name DICHLOROMETHANE
Hazard Class 6.1
Packing Group III

IATA

UN-No UN1593
Proper Shipping Name Dichloromethane
Hazard Class 6.1
Packing Group III

IMDG/IMO

UN-No UN1593
Proper Shipping Name Dichloromethane
Hazard Class 6.1
Packing Group III

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Methylene chloride	X	X	-	200-838-9	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Methylene chloride	75-09-2	>99.5	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Methylene chloride	-	-	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Methylene chloride	X		-

OSHA Occupational Safety and Health Administration

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Methylene chloride	125 ppm STEL 12.5 ppm Action Level 25 ppm TWA	-

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Methylene chloride	1000 lb 1 lb	-

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Methylene chloride	75-09-2	Carcinogen	200 µg/day 50 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Methylene chloride	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 27-Jan-2010
Revision Date 17-Jan-2018
Print Date 17-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Safety Data Sheet

Revision Date: 03/02/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**30279 / cis-1,2-Dichloroethene Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	9
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:	Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1 Flammable Liquid Category 2 Acute Toxicity - Inhalation Dust / Mist Category 3 Acute Toxicity - Dermal Category 3 Acute Toxicity - Oral Category 3
GHS Signal Word:	Danger
GHS Hazard:	Highly flammable liquid and vapour. Toxic if swallowed, in contact with skin or if inhaled. Causes damage to organs.
GHS Precautions:	
Safety Precautions:	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF SWALLOWED: Immediately call a POISON CENTER/doctor/.... IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Specific treatment see section 4. Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use extinguishing media in section 5 for extinction.
Storage:	Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given)

Repeated Exposure Target Organs: No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	99.8
cis-1,2-dichloroethylene	156-59-2	205-859-7	0.2

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.

Fire and/or Explosion Hazards: Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid

	breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment
Storage Technical Measures and Conditions:	Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA

Personal Protection:

Engineering Measures:	Local exhaust ventilation is recommended when generating excessive levels of vapours from handling or thermal processing.
Respiratory Protection:	Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.
Skin Protection:	Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available
Odor:	Mild
Physical State:	Liquid
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	64.7 °C at 760 mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	52
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	No data available
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure:	Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract
Chemical Interactions That Change Toxicity:	None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
Inhalation Toxicity:	Harmful! Can cause systemic damage (see "Target Organs)Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.
Skin Contact:	Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Eye Contact:	Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.
Ingestion Irritation:	Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.
Ingestion Toxicity:	Toxic if swallowed. May cause target organ failure and/or death.May be fatal if swallowed.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	No data.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation:	Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)
Skin Contact:	Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Ingestion:	Toxic if swallowed. May cause target organ failure and/or death.

Component Toxicological Data:
NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methanol	67-56-1	Inhalation LC50 Rat 22500 ppm 8 h

Component Carcinogenic Data:
OSHA:

Chemical Name	CAS No.
No data available	

ACGIH:

Chemical Name	CAS No.
No data available	

NIOSH:

Chemical Name	CAS No.
No data available	

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.

12. ECOLOGICAL INFORMATION

Overview:	Moderate ecological hazard. This product may be dangerous to plants and/or wildlife.
Mobility:	No data
Persistence:	No data
Bioaccumulation:	No data
Degradability:	Biodegrades slowly.
Ecological Toxicity Data:	No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product:	Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may

render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:
DOT Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3
Packing Group: II

International:
IATA Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3(6.1)
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
cis-1,2-dichloroethylene	156-59-2	-	X	X	-

16. OTHER INFORMATION

Prior Version Date: 10/28/16
Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.
References: No data available
Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

Safety Data Sheet

Revision Date: 03/02/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**30279 / cis-1,2-Dichloroethene Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	9
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:	Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1 Flammable Liquid Category 2 Acute Toxicity - Inhalation Dust / Mist Category 3 Acute Toxicity - Dermal Category 3 Acute Toxicity - Oral Category 3
GHS Signal Word:	Danger
GHS Hazard:	Highly flammable liquid and vapour. Toxic if swallowed, in contact with skin or if inhaled. Causes damage to organs.
GHS Precautions:	
Safety Precautions:	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF SWALLOWED: Immediately call a POISON CENTER/doctor/.... IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Specific treatment see section 4. Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use extinguishing media in section 5 for extinction.
Storage:	Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given)

Repeated Exposure Target Organs: No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	99.8
cis-1,2-dichloroethylene	156-59-2	205-859-7	0.2

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.

Fire and/or Explosion Hazards: Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid

	breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment
Storage Technical Measures and Conditions:	Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA

Personal Protection:

Engineering Measures:	Local exhaust ventilation is recommended when generating excessive levels of vapours from handling or thermal processing.
Respiratory Protection:	Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.
Skin Protection:	Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available
Odor:	Mild
Physical State:	Liquid
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	64.7 °C at 760 mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	52
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	No data available
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure:	Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract
Chemical Interactions That Change Toxicity:	None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
Inhalation Toxicity:	Harmful! Can cause systemic damage (see "Target Organs)Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.
Skin Contact:	Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Eye Contact:	Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.
Ingestion Irritation:	Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.
Ingestion Toxicity:	Toxic if swallowed. May cause target organ failure and/or death.May be fatal if swallowed.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	No data.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation:	Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)
Skin Contact:	Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Ingestion:	Toxic if swallowed. May cause target organ failure and/or death.

Component Toxicological Data:
NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methanol	67-56-1	Inhalation LC50 Rat 22500 ppm 8 h

Component Carcinogenic Data:
OSHA:

Chemical Name	CAS No.
No data available	

ACGIH:

Chemical Name	CAS No.
No data available	

NIOSH:

Chemical Name	CAS No.
No data available	

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.

12. ECOLOGICAL INFORMATION

Overview:	Moderate ecological hazard. This product may be dangerous to plants and/or wildlife.
Mobility:	No data
Persistence:	No data
Bioaccumulation:	No data
Degradability:	Biodegrades slowly.
Ecological Toxicity Data:	No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product:	Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may

render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:
DOT Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3
Packing Group: II

International:
IATA Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3(6.1)
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
cis-1,2-dichloroethylene	156-59-2	-	X	X	-

16. OTHER INFORMATION

Prior Version Date: 10/28/16
Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.
References: No data available
Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

Worldwide Helpline :+1.415.685.4395
For further enquiries :info@clearsynth.com
For an online quote : click here

- MATERIAL SAFETY DATA SHEET -

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Name : 4,4'-Dichlorodiphenyldichloroethane

Company Identification : Clearsynth Labs Pvt. Ltd.
413 Laxmi Mall, New Link Road, Andheri (W),
Mumbai-400 053, INDIA

For information call : ++91-22-26355700
For emergencies call : ++91-22-26355699
For further enquiries : info@clearsynth.com

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS

CAS#	Chemical Name	%	EINECS#	Haz Symbols	RISK PHRASES
72-54-8	4,4'-Dichlorodiphenyldichloroethane	>95%	-	-	-

Hazard Symbols: XN
Risk Phrases: 22

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
Harmful if swallowed.

Potential Health Effects
The toxicological properties of this material have not been investigated. Use appropriate procedures to prevent opportunities for direct contact with the skin or eyes and to prevent inhalation. Compound is Non-hazardous,Non-Toxic/Non-Flammable.

SECTION 4 - FIRST AID MEASURES

Eyes:
Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.
Skin:
Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion:
Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.
Inhalation:
Remove from exposure and move to fresh air immediately.
Notes to Physician:

SECTION 5 - FIRE FIGHTING MEASURES

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or

combustion.
Extinguishing Media:
In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up, then place into a suitable container for disposal.

SECTION 7 - HANDLING and STORAGE

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.
Storage:
Store in a well closed container.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls:
Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels.
Personal Protective Equipment
Eyes:
Wear safety glasses and chemical goggles if splashing is possible.
Skin:
Wear appropriate protective gloves and clothing to prevent skin exposure.
Clothing:
Wear appropriate protective clothing to minimize contact with skin.
Respirators:
Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State:
Molecular Formula:
$C_{14}H_{10}Cl_4$
Molecular Weight:
320.04

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability:
Stable under normal temperatures and pressures.
Conditions to Avoid:
Incompatible materials, strong oxidants.
Incompatibilities with Other Materials:
Strong oxidizing agents, strong bases.
Hazardous Decomposition Products:
Nitrogen oxides, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, nitrogen.
Hazardous Polymerization: Has not been reported.

SECTION 11 - TOXICOLOGICAL INFORMATION

RTECS#:

CAS#: LD50/LC50:
CAS#:Draize test, rabbit, eye: 100 mg/24H Moderate; Oral, mouse: LD50 = 300 mg/kg; Oral, rabbit: LD50 = 3200 mg/kg; Oral, rat: LD50 = 980 mg/kg.
Carcinogenicity:
Salicylamide -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
See actual entry in RTECS for complete information.

SECTION 12 - ECOLOGICAL INFORMATION

SECTION 13 - DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with federal, state, and local regulations.

SECTION 14 - TRANSPORT INFORMATION

IATA No information available.
IMO No information available.
ID/ADR No information available.

SECTION 15 - REGULATORY INFORMATION

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: XN
Risk Phrases:
R 22 Harmful if swallowed.
Safety Phrases:
WGK (Water Danger/Protection)

CAS# United Kingdom Occupational Exposure Limits
United Kingdom Maximum Exposure Limits

Canada
CAS# is listed on Canada's DSL List.
CAS#is not listed on Canada's Ingredient Disclosure List.
Exposure Limits
US FEDERAL
TSCA
CAS# is listed on the TSCA inventory.

SECTION 16 - ADDITIONAL INFORMATION

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

SAFETY DATA SHEET

Creation Date 22-Mar-2012 **Revision Date** 18-Jan-2018 **Revision Number** 3

1. Identification

Product Name **DDE I, Restriction Enzyme**

Cat No. : **BP3350-1; BP3350-5**

Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Based on available data, the classification criteria are not met

Label Elements
None required

Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Glycerin	56-81-5	50.0
DDE I, Restriction Enzyme	NA	50.0

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Move to fresh air.

Ingestion Do not induce vomiting.

Most important symptoms and effects No information available.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
1	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information.

Methods for Containment and Clean Up No information available.

7. Handling and storage

Handling Ensure adequate ventilation.

Storage Store in freezer. Keep container tightly closed in a dry and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Glycerin		(Vacated) TWA: 10 mg/m^3 (Vacated) TWA: 5 mg/m^3 TWA: 15 mg/m^3 TWA: 5 mg/m^3		TWA: 10 mg/m^3

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration

Engineering Measures None under normal use conditions.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection No protective equipment is needed under normal use conditions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	No information available
Odor	No information available
Odor Threshold	No information available
pH	No information available
Melting Point/Range	No data available
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Specific Gravity	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Hygroscopic. heat sensitive.

Conditions to Avoid Exposure to moist air or water. Excess heat.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Vapor LC50 Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Glycerin	12600 mg/kg (Rat)	> 10 g/kg (Rabbit)	> 2.75 mg/L/4h (Rat)(mist)

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Glycerin	56-81-5	Not listed	Not listed	Not listed	Not listed	Not listed
DDE I, Restriction Enzyme	NA	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

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Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Glycerin	Not listed	LC50: 51 - 57 mL/L, 96h static (Oncorhynchus mykiss)	Not listed	EC50: > 500 mg/L, 24h (Daphnia magna)

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

Component	log Pow
Glycerin	-1.76

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN1845
Proper Shipping Name	CARBON DIOXIDE, SOLID
Hazard Class	9
Packing Group	III

TDG

UN-No	UN1845
Proper Shipping Name	CARBON DIOXIDE, SOLID
Hazard Class	9
Packing Group	III

IATA Not regulated

IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Glycerin	X	X	-	200-289-5	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations Not applicable

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Glycerin	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 22-Mar-2012
Revision Date 18-Jan-2018
Print Date 18-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

1. Identification

Product identifier **4,4'-DDT**

Other means of identification

Product code N-10876

Synonym(s) 1,1,1-TRICHLORO-2,2-BIS(4-CHLOROPHENYL)ETHANE * 4,4'-Dichlorodiphenyl trichloroethane

Recommended use For Laboratory Use Only

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name Chem Service, Inc.

Address 660 Tower Lane
West Chester, PA 19380
United States

Telephone Toll Free 800-452-9994
Direct 610-692-3026

Website www.chemservice.com

E-mail info@chemservice.com

Emergency phone number Chemtrec US 800-424-9300
Chemtrec outside US +1 703-527-3887

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Acute toxicity, oral	Category 3
Acute toxicity, dermal	Category 3
Carcinogenicity	Category 2
Specific target organ toxicity, repeated exposure	Category 1

Environmental hazards

Hazardous to the aquatic environment, acute hazard	Category 1
Hazardous to the aquatic environment, long-term hazard	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Toxic if swallowed. Toxic in contact with skin. Suspected of causing cancer. Causes damage to organs through prolonged or repeated exposure. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

Response If swallowed: Immediately call a poison center/doctor. If on skin: Wash with plenty of water. If exposed or concerned: Get medical advice/attention. Call a poison center/doctor if you feel unwell. Specific treatment (see this label). Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. Collect spillage.

Storage Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information Not applicable.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
4,4'-DDT	1,1,1-TRICHLORO-2,2-BIS(4-CHLOROPHENYL)ETHANE 4,4'-Dichlorodiphenyl trichloroethane	50-29-3	100

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Take off immediately all contaminated clothing. Wash off with soap and plenty of water. Call a POISON CENTER or doctor/physician if you feel unwell.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms/effects, acute and delayed Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information Take off immediately all contaminated clothing. IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire-fighting equipment/instructions Use water spray to cool unopened containers.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up The product is immiscible with water and will spread on the water surface. Stop the flow of material, if this is without risk. Collect spillage. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not taste or swallow. Avoid contact with skin. Avoid contact with eyes. Avoid prolonged exposure. Avoid contact with clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Avoid release to the environment. Do not empty into drains.

Conditions for safe storage, including any incompatibilities Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
4,4"-DDT (CAS 50-29-3)	PEL	1 mg/m3

US. ACGIH Threshold Limit Values

Material	Type	Value
4,4"-DDT (CAS 50-29-3)	TWA	1 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
4,4"-DDT (CAS 50-29-3)	TWA	0.5 mg/m3

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines

US - California OELs: Skin designation

4,4'-DDT (CAS 50-29-3) Can be absorbed through the skin.

US - Tennesse OELs: Skin designation

4,4'-DDT (CAS 50-29-3) Can be absorbed through the skin.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

4,4'-DDT (CAS 50-29-3) Can be absorbed through the skin.

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear eye/face protection. Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear protective gloves.

Other Wear appropriate chemical resistant clothing.

Respiratory protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Solid.

Form Solid. Crystalline Solid

Color Colorless

Odor Not available.

Odor threshold Not available.

pH Not available.

Melting point/freezing point 227.3 °F (108.5 °C)

Initial boiling point and boiling range 500 °F (260 °C)

366.8 °F (186 °C) 0.006666 kPa

Flash point 162.0 - 171.0 °F (72.2 - 77.2 °C) Closed Cup

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 0 kPa at 20 °C
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	6.9
Auto-ignition temperature	Not available.
Decomposition temperature	230 °F (110 °C)
Viscosity	Not available.
Other information	
Density	0.98 g/cm3 estimated
Flammability class	Combustible IIIA estimated
Molecular formula	C14-H9-Cl5
Molecular weight	354.49 g/mol
Specific gravity	0.98 - 0.99

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid temperatures exceeding the decomposition temperature. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Toxic if swallowed.
Inhalation	Prolonged inhalation may be harmful.
Skin contact	Toxic in contact with skin.
Eye contact	Direct contact with eyes may cause temporary irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity Toxic if swallowed. Toxic in contact with skin.

Product	Species	Test Results
4,4'-DDT (CAS 50-29-3)		
Acute		
Dermal		
LD50	Guinea pig	1000 mg/kg
	Mouse	250 mg/kg
	Rabbit	300 mg/kg
	Rat	1931 mg/kg
Oral		
LD50	Dog	500 mg/kg
	Goat	> 1000 mg/kg
	Guinea pig	250 mg/kg
	Mouse	150 mg/kg
	Rabbit	300 mg/kg

Product	Species	Test Results
	Rat	87 mg/kg
	Sheep	> 1000 mg/kg
Other		
LD50	Cat	32 mg/kg
	Dog	68 mg/kg
	Guinea pig	150 mg/kg
	Monkey	55 mg/kg
	Mouse	32 mg/kg
	Rabbit	30 mg/kg
	Rat	9.1 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

4,4'-DDT (CAS 50-29-3) 2B Possibly carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens

4,4'-DDT (CAS 50-29-3) Reasonably Anticipated to be a Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard Not available.

Chronic effects Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects. Causes damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product		Species	Test Results
4,4'-DDT (CAS 50-29-3)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	0.0005 - 0.001 mg/l, 48 hours
Fish	LC50	Bluegill (Lepomis macrochirus)	0.0013 - 0.002 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

6.91

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

US RCRA Hazardous Waste U List: Reference

4,4'-DDT (CAS 50-29-3)	U061

Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN2811
UN proper shipping name	Toxic solids, organic, n.o.s. (4,4'-DDT RQ = 1 LBS), MARINE POLLUTANT
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Label(s)	6.1
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB8, IP3, T1, TP33
Packaging exceptions	153
Packaging non bulk	213
Packaging bulk	240

IATA

UN number	UN2811
UN proper shipping name	Toxic solid, organic, n.o.s. (4,4'-DDT)
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
ERG Code	6L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

UN number	UN2811
UN proper shipping name	TOXIC SOLID, ORGANIC, N.O.S. (4,4'-DDT), MARINE POLLUTANT
Transport hazard class(es)	
Class	6.1(PGIII)
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-A
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

DOT

IATA; IMDG

Marine pollutant

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

4,4'-DDT (CAS 50-29-3) 0.1 % One-Time Export Notification only.

CERCLA Hazardous Substance List (40 CFR 302.4)

4,4'-DDT (CAS 50-29-3) Listed.

SARA 304 Emergency release notification

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

4,4'-DDT (CAS 50-29-3)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)	Hazardous substance Priority pollutant Bioaccumulative chemical of concern Toxic pollutant
Safe Drinking Water Act (SDWA)	Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

4,4'-DDT (CAS 50-29-3)

US. New Jersey Worker and Community Right-to-Know Act

4,4'-DDT (CAS 50-29-3) 500 LBS

US. Pennsylvania RTK - Hazardous Substances

4,4'-DDT (CAS 50-29-3)

US. Rhode Island RTK

4,4'-DDT (CAS 50-29-3)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

4,4'-DDT (CAS 50-29-3) Listed: October 1, 1987

US - California Proposition 65 - CRT: Listed date/Developmental toxin

4,4'-DDT (CAS 50-29-3) Listed: May 15, 1998

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

4,4'-DDT (CAS 50-29-3) Listed: May 15, 1998

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

4,4'-DDT (CAS 50-29-3) Listed: May 15, 1998

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	06-09-2014
Version #	01
NFPA ratings	Health: 2 Flammability: 2 Instability: 0

Disclaimer

The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded SDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with CHEM SERVICE, Inc.

Persons not specifically and properly trained should not handle this chemical or its container. This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticide products, food additives or as household chemicals.

This Safety Data Sheet (SDS) is intended only for use with Chem Service, Inc. products and should not be relied on for use with materials from any other supplier even if the chemical name(s) on the product are identical! Whenever using an SDS for a solution or mixture the user should refer to the SDS for every component of the solution or mixture. Chem Service warrants that this SDS is based upon the most current information available to Chem Service at the time it was last revised. THIS WARRANTY IS EXCLUSIVE, AND CHEM SERVICE, INC. MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. This SDS is provided gratis and CHEM SERVICE, INC. SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR CONTINGENT DAMAGES.

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This product is furnished FOR LABORATORY USE ONLY.

Safety Data Sheet

Revision Date: 02/16/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**32217 / Delta-BHC Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	7
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:	Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1 Flammable Liquid Category 2 Acute Toxicity - Dermal Category 3 Acute Toxicity - Oral Category 3
GHS Signal Word:	Danger
GHS Hazard:	Highly flammable liquid and vapour. Toxic if swallowed or in contact with skin. Causes damage to organs.
GHS Precautions:	
Safety Precautions:	Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilation and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
First Aid Measures:	IF SWALLOWED: Immediately call a POISON CENTER/doctor/.... IF ON SKIN: Wash with plenty of soap and water. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF exposed: Call a POISON CENTER or doctor/physician. Call a POISON CENTER or doctor/physician if you feel unwell. Specific treatment see section 4. Rinse mouth. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use extinguishing media in section 5 for extinction.
Storage:	Keep container tightly closed.

Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given)

Repeated Exposure Target Organs: No data available

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	99.9
delta-BHC	319-86-8	206-272-9	0.1

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.

Fire and/or Explosion Hazards: Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid

	breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment
Storage Technical Measures and Conditions:	Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA

Personal Protection:

Engineering Measures:	Local exhaust ventilation is recommended when generating excessive levels of vapours from handling or thermal processing.
Respiratory Protection:	Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.
Eye Protection:	Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.
Skin Protection:	Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available
Odor:	Mild
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	64.7 °C at 760 mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	52
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	No data available
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry:	Inhalation, Skin Contact, Eye Contact, Ingestion
Target Organs Potentially Affected By Exposure:	Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract
Chemical Interactions That Change Toxicity:	None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation:	Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
Inhalation Toxicity:	Harmful! Can cause systemic damage (see "Target Organs)Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.
Skin Contact:	Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Eye Contact:	Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.
Ingestion Irritation:	Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.
Ingestion Toxicity:	Toxic if swallowed. May cause target organ failure and/or death.May be fatal if swallowed.

Long-Term (Chronic) Health Effects:

Carcinogenicity:	No data.
Reproductive and Developmental Toxicity:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Inhalation:	Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)
Skin Contact:	Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Ingestion:	Toxic if swallowed. May cause target organ failure and/or death.

Component Toxicological Data:
NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methanol	67-56-1	Inhalation LC50 Rat 22500 ppm 8 h

Component Carcinogenic Data:
OSHA:

Chemical Name	CAS No.
No data available	

ACGIH:

Chemical Name	CAS No.
No data available	

NIOSH:

Chemical Name	CAS No.
No data available	

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.
Supplement 7 [1987] (listed under Hexachlorocyclohexanes)	319-86-8	Group 2B

12. ECOLOGICAL INFORMATION

Overview:	Moderate ecological hazard. This product may be dangerous to plants and/or wildlife.
Mobility:	No data
Persistence:	No data
Bioaccumulation:	No data
Degradability:	Biodegrades slowly.
Ecological Toxicity Data:	No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:

DOT Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3
Packing Group: II

International:

IATA Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3(6.1)
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
delta-BHC	319-86-8	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 09/14/16

Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.

References: No data available

Disclaimer: Restek Corporation provides the descriptions, data and information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. It is provided for your guidance only. Because many factors may affect processing or application/use, Restek Corporation recommends you perform an assessment to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including fitness for a particular purpose, are made regarding products described, data or information set forth. In no case shall the descriptions, information, or data provided be considered a part of our terms and conditions of sale. Further, the descriptions, data and information furnished hereunder are given gratis. No obligation or liability for the description, data and information given are assumed. All such being given and accepted at your risk.

Safety Data Sheet

Revision Date: 09/13/18
www.restek.com

2 Letter ISO country code/language code: US/EN

1. IDENTIFICATION

Catalog Number / Product Name:	**32218 / Dieldrin Standard**
Company:	Restek Corporation
Address:	110 Benner Circle Bellefonte, Pa. 16823
Phone#:	814-353-1300
Fax#:	814-353-1309
Emergency#:	800-424-9300 (CHEMTREC) 703-527-3887 (Outside the US)
Email:	www.restek.com
Revision Number:	7
Intended use:	For Laboratory use only

2. HAZARD(S)IDENTIFICATION

Emergency Overview:

GHS Hazard Symbols:

GHS Classification:
Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 1
Flammable Liquid Category 2
Carcinogenicity Category 2
Acute Toxicity - Dermal Category 3
Acute Toxicity - Oral Category 3

GHS Signal Word:
Danger

GHS Hazard:
Highly flammable liquid and vapour.
Toxic if swallowed or in contact with skin.
Suspected of causing cancer.
Causes damage to organs.

GHS Precautions:

Safety Precautions:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilation and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wash hands and skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.

First Aid Measures:
IF SWALLOWED: Immediately call a POISON CENTER/doctor/....
IF ON SKIN: Wash with plenty of soap and water.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF exposed: Call a POISON CENTER or doctor/physician.
IF exposed or concerned: Get medical advice/attention.
Call a POISON CENTER or doctor/physician if you feel unwell.
Specific treatment see section 4.

Rinse mouth.
Take off immediately all contaminated clothing and wash it before reuse.
In case of fire: Use extinguishing media in section 5 for extinction.

Storage: Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal: Dispose of contents/container according to section 13 of the SDS.

Single Exposure Target Organs: Specific target organ toxicity - Single exposure - STOT SE 1: H370 Causes damage to organs. (C >= 10 %; No information to prove exclusion of certain routes of exposure); Specific target organ toxicity - Single exposure - STOT SE 2: H371 May cause damage to organs. (3 % <= C <10 %; Concentration limits for acute toxicity cannot be translated into GHS from the DSD especially when minimum classifications are given)

Repeated Exposure Target Organs: Specific target organ toxicity - Repeated exposure - STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure. (No information to prove exclusion of certain routes of exposure)

3. COMPOSITION / INFORMATION ON INGREDIENT

Chemical Name	CAS #	EINEC #	% Composition
methanol	67-56-1	200-659-6	99.9
dieldrin	60-57-1	200-484-5	0.1

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately

Eyes: Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting and seek medical attention immediately. Drink two glasses of water or milk to dilute. Provide medical care provider with this SDS.

5. FIRE- FIGHTING MEASURES

Extinguishing Media: Use alcohol resistant foam, carbon dioxide, or dry chemical extinguishing agents. Water may be ineffective but water spray can be used extinguish a fire if swept across the base of the flames. Water can absorb heat and keep exposed material from being damaged by fire.

Fire and/or Explosion Hazards: Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point giving rise to a fire (Class B). Vapors are heavier than air and may travel to a source of ignition and flash back.

Fire Fighting Methods and Protection: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products. Flammable component(s) of this material may be lighter than water and burn while floating on the surface.

Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Equipment: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

Methods for Clean-up: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay.

Gather and store in a sealed container pending a waste disposal evaluation.

7. HANDLING AND STORAGE

Handling Technical Measures and Precautions: Toxic or severely irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. Use spark-proof tools and explosion-proof equipment

Storage Technical Measures and Conditions: Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed. Keep away from sources of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

United States:

Chemical Name	CAS No.	IDLH	ACGIH STEL	ACGIH TLV-TWA	OSHA Exposure Limit
methanol	67-56-1	6000 ppm IDLH	250 ppm STEL	200 ppm TWA	200 ppm TWA; 260 mg/m3 TWA

Personal Protection:

Engineering Measures: Local exhaust ventilation is recommended when generating excessive levels of vapours from handling or thermal processing.

Respiratory Protection: Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.If an exposure limit is exceeded or if an operator is experiencing symptoms of inhalation overexposure as explained in Section 3, provide respiratory protection.

Eye Protection: Wear chemically resistant safety glasses with side shields when handling this product. Do not wear contact lenses.

Skin Protection: Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance, color:	No data available
Odor:	Mild
Physical State:	No data available
pH:	Not applicable
Vapor Pressure:	No data available
Vapor Density:	1.1 (air = 1)
Boiling Point (°C):	64.7 °C at 760 mmHg (HSDB)
Melting Point (°C):	-98 °C
Flash Point (°F):	52
Flammability:	Highly Flammable
Upper Flammable/Explosive Limit, % in air:	36
Lower Flammable/Explosive Limit, % in air:	6
Autoignition Temperature (°C):	464 deg C
Decomposition Temperature (°C):	No data available
Specific Gravity:	0.791 - 0.792 g/cm3 at 20 °C
Evaporation Rate:	No data available
Odor Threshold:	No data available
Solubility:	Moderate; 50-99%
Partition Coefficient: n-octanol in water:	No data available
VOC % by weight:	0
Molecular Weight:	32.04

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	None known.
Materials to Avoid / Chemical Incompatiability:	Strong oxidizing agents
Hazardous Decomposition Products:	Carbon dioxide Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, Skin Contact, Eye Contact, Ingestion

Target Organs Potentially Affected By Exposure: Eyes, Central nervous system stimulation, Skin, GI Tract, Respiratory Tract

Chemical Interactions That Change Toxicity: None Known

Immediate (Acute) Health Effects by Route of Exposure:

Inhalation Irritation: Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.

Inhalation Toxicity: Harmful! Can cause systemic damage (see "Target Organs)Methanol can cause central nervous system depression and overexposure can cause damage to the optic nerve resulting in visual impairment or blindness.

Skin Contact: Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.

Eye Contact: Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.

Ingestion Irritation: Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.Highly toxic and may be fatal if swallowed.

Ingestion Toxicity: Toxic if swallowed. May cause target organ failure and/or death.May be fatal if swallowed.

Long-Term (Chronic) Health Effects:

Carcinogenicity: Contains a probable or known human carcinogen.

Reproductive and Developmental Toxicity: No data available to indicate product or any components present at greater than 0.1% may cause birth defects.

Inhalation: Upon prolonged and/or repeated exposure, can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.Harmful! Can cause systemic damage upon prolonged and/or repeated exposure (see "Target Organs)

Skin Contact: Upon prolonged or repeated contact, can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.

Ingestion: Toxic if swallowed. May cause target organ failure and/or death.

Component Toxicological Data:

NIOSH:

Chemical Name	CAS No.	LD50/LC50
Methanol	67-56-1	Inhalation LC50 Rat 22500 ppm 8 h

Component Carcinogenic Data:

OSHA:

Chemical Name	CAS No.
No data available	

ACGIH:

Chemical Name	CAS No.
No data available	

NIOSH:

Chemical Name	CAS No.
No data available	

NTP:

Chemical Name	CAS No.
No data available	

IARC:

Chemical Name	CAS No.	Group No.
Monograph 117 [in preparation]; Supplement 7 [1987]; Monograph 5 [1974]	60-57-1	Group 2A

12. ECOLOGICAL INFORMATION

Overview: Moderate ecological hazard. This product may be dangerous to plants and/or wildlife.

Mobility: No data

Persistence: No data

Bioaccumulation: No data
Degradability: Biodegrades slowly.
Ecological Toxicity Data: No data available

13. DISPOSAL CONSIDERATIONS

Waste Description of Spent Product: Spent or discarded material is a hazardous waste.Mixing spent or discarded material with other materials may render the mixture hazardous. Perform a hazardous waste determination on mixtures.

Disposal Methods: Dispose of by incineration following Federal, State, Local, or Provincial regulations.

Waste Disposal of Packaging: Comply with all Local, State, Federal, and Provincial Environmental Regulations.

14. TRANSPORTATION INFORMATION

United States:
DOT Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3
Packing Group: II

International:
IATA Proper Shipping Name: Methanol
UN Number: UN1230
Hazard Class: 3(6.1)
Packing Group: II

Marine Pollutant: No

Chemical Name	CAS#	Marine Pollutant	Severe Marine Pollutant
No data available			

15. REGULATORY INFORMATION

United States:

Chemical Name	CAS#	CERCLA	SARA 313	SARA EHS 313	TSCA
methanol	67-56-1	X	X	-	X

The following chemicals are listed on CA Prop 65:

Chemical Name	CAS #	Regulation
Dieldrin	60-57-1	Prop 65 Cancer
Methanol	67-56-1	Prop 65 Devolop Tox

State Right To Know Listing:

Chemical Name	CAS#	New Jersey	Massachusetts	Pennsylvania	California
methanol	67-56-1	X	X	X	X
dieldrin	60-57-1	X	X	X	X

16. OTHER INFORMATION

Prior Version Date: 12/23/16
Other Information: Any changes to the SDS compared to previous versions are marked by a vertical line in front of the concerned paragraph.
References: No data available
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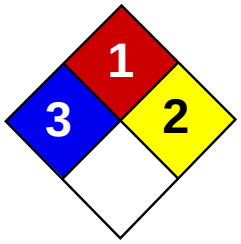

Health	3
Fire	1
Reactivity	2
Personal Protection	E

Material Safety Data Sheet
Arsenic MSDS

Section 1: Chemical Product and Company Identification

Product Name: Arsenic

Catalog Codes: SLA1006

CAS#: 7440-38-2

RTECS: CG0525000

TSCA: TSCA 8(b) inventory: Arsenic

CI#: Not applicable.

Synonym:

Chemical Name: Arsenic

Chemical Formula: As

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Arsenic	7440-38-2	100

Toxicological Data on Ingredients: Arsenic: ORAL (LD50): Acute: 763 mg/kg [Rat]. 145 mg/kg [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, lungs, the nervous system, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Flammable in presence of open flames and sparks, of heat, of oxidizing materials.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:
Material in powder form, capable of creating a dust explosion. When heated to decomposition it emits highly toxic fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, acids, moisture.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.01 from ACGIH (TLV) [United States] [1995] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Lustrous solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 74.92 g/mole

Color: Silvery.

pH (1% soln/water): Not applicable.

Boiling Point: Not available.

Melting Point: Sublimation temperature: 615°C (1139°F)

Critical Temperature: Not available.

Specific Gravity: 5.72 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents, acids, moisture.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 145 mg/kg [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH. Causes damage to the following organs: kidneys, lungs, the nervous system, mucous membranes.

Other Toxic Effects on Humans:
Very hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Arsenic UNNA: UN1558 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Arsenic California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Arsenic Pennsylvania RTK: Arsenic Massachusetts RTK: Arsenic TSCA 8(b) inventory: Arsenic

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R22- Harmful if swallowed. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 1

Reactivity: 2

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 1

Reactivity: 2

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -Liste des produits purs tératogènes, mutagènes, cancérogènes. Répertoire toxicologique de la Commission de la Santé et de la Sécurité du Travail du Québec. -Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec. -SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangeureuses au canada. Centre de conformité internatinal Ltée. 1986.

Other Special Considerations: Not available.

Created: 10/09/2005 04:16 PM

Last Updated: 05/21/2013 12:00 PM

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Barium

SAFETY DATA SHEET

1 PRODUCT AND SUPPLIER IDENTIFICATION

Product Name: Barium

Formula: Ba

Supplier: ESPI Metals
1050 Benson Way
Ashland, OR 97520

Telephone: 800-638-2581

Fax: 541-488-8313

Email: sales@espimetals.com

Emergency: Infotrac 800-535-5053 (US) or 352-323-3500 (24 hour)

Recommended Uses: Scientific Research

2 HAZARDS IDENTIFICATION

GHS Classification (29 CFR 1910.1200): Substances and mixtures which, in contact with water, emit flammable gases, category 2, Skin corrosion/irritation, category 2, Eye damage/irritation, category 2A.

GHS Label Elements:

Signal Word: Danger

Hazard Statements: H261 In contact with water releases flammable gas, H315 Causes skin irritation, H319 Causes serious eye irritation.

Precautionary Statements: P223 Do not allow contact with water, P231+P232 Handle and store contents under inert gas, protect from moisture, P264 Wash skin thoroughly after handling, P280 Wear protective gloves/protective clothing/eye protection/face protection, P302+P335+P334+352 IF ON SKIN: Brush off loose particles from skin, and immerse in cool water, wash with plenty of soap and water, P332+P313 IF SKIN irritation occurs: Get medical advice/attention, P305+P351+P338 IF IN EYES: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing, P337+P313 IF eye irritation persists: Get medical advice/attention, P362+P364 Take off contaminated clothing and wash it before reuse, P370+P378 In case of fire: Use Class D dry powder for extinction, P402+P404 Store in a dry place. Store in a closed container, P501 Dispose of contents/container in accordance with local, state or federal regulations.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient: Barium

CAS#: 7440-39-3

%: 100

EC#: 231-149-1

Need Help?

Available Mon-Fri 8am to 5pm Pacific Time

LIVE HELP CHAT NOW ONLINE

Contact

ESPI Metals
1050 Benson Way
Ashland, Oregon 97520

541.488.8311 telephone
800.638.2581 toll-free

541.488.8313 fax
800.488.0060 toll-free fax

sales@espimetals.com

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Palladium	▼	987.00	-4.00	1002.00

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4 FIRST AID MEASURES

General Measures: Remove patient from area of exposure.

INHALATION: Remove to fresh air, keep warm and quiet, give oxygen if breathing is difficult. Seek immediate medical attention.

INGESTION: Quickly wipe material from mouth and rinse with water. Do not induce vomiting. Seek medical attention immediately.

SKIN: Remove contaminated clothing if necessary. Brush off any visible solids. Wash the affected area with water for at least 15 minutes. Seek medical attention.

EYES: Immediately flush eyes with copious amounts of water, including under eyelids for at least 10-15 minutes. A victim may need assistance in keeping their eyelids open. Seek immediate medical attention.

Most Important Symptoms/Effects, Acute and Delayed: May cause severe irritation in contact with moist skin. See section 11 for more information.

Indication of Immediate Medical Attention and Special Treatment: No other relevant information available.

5 FIREFIGHTING MEASURES

Extinguishing Media: Use Class D dry powder extinguishing agent.

Unsuitable Extinguishing Media: Do not use water, carbon dioxide or halogenated extinguishers.

Specific Hazards Arising from the Material: Material readily reacts with water generating flammable hydrogen gas. May emit toxic fumes under fire conditions.

Special Protective Equipment and Precautions for Firefighters: Full face, self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes. Barium metal can reignite after fire is initially extinguished. Never leave extinguished fire unattended.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Wear appropriate respiratory and protective equipment specified in section 8. Isolate spill area and provide ventilation. Avoid breathing dust or fume. Avoid contact with skin and eyes. Eliminate all sources of ignition.

Methods and Materials for Containment and Cleaning Up: Sweep or scoop spilled product and place in a closed container for further handling and disposal. Do not use water for spill clean-up. Cover very small quantities in the open with powdered limestone and let decompose. Use only non-sparking tools and natural bristle brushes.

Environmental Precautions: Do not flush to sewer, stream, or other bodies of water. Do not allow to enter drains or to be released to the environment.

7 HANDLING AND STORAGE

Precautions for Safe Handling: Handle in an enclosed, controlled process under dry protective gas such as argon. Protect from water and moisture. Avoid breathing dust or fumes. Avoid contact with skin and eyes. Wash thoroughly before eating or smoking. See section 8 for information on personal protection equipment.

Conditions for Safe Storage, Including Any Incompatibilities: Store in tightly-sealed containers under argon or mineral oil. Storage containers should be properly labeled and kept in a cool, dry, well-ventilated area, protected from heat and direct sunlight. Do not allow contact with water. Storage area should be free of combustibles and ignition sources. Do not store together with acids or oxidizers. See section 10 for more information on incompatible materials.

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: Barium

OSHA/PEL: 0.5 mg/m^3

ACGIH/TLV: 0.5 mg/m^3

Appropriate Engineering Controls: Handle in an enclosed, controlled process under dry argon. Whenever possible the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne dust and fume to meet established occupational exposure limits. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air. Prepare for the possibility of a fire. Keep extinguishing agents, tools for handling and protective clothing readily available.

Individual Protection Measures, Such as Personal Protective Equipment:

Respiratory Protection: Wear a NIOSH/MSHA approved respirator when high concentrations are present.

Eye Protection: Always wear approved chemical splash proof goggles.

Skin Protection: Rubber gloves, flame retardant protective work clothing.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Form:	Solid in various forms
Color:	Silver-gray metallic
Odor:	Not determined
Odor Threshold:	Not determined
pH:	N/A
Melting Point:	725 ^{o}C
Boiling Point:	1640 ^{o}C
Flash Point:	N/A
Evaporation Rate:	N/A
Flammability:	No data
Upper Flammable Limit:	No data
Lower Flammable Limit:	No data
Vapor Pressure:	10 mm at 1049 ^{o}C
Vapor Density:	N/A
Relative Density (Specific Gravity):	3.51 g/cc at 20 ^{o}C
Solubility in H_2O:	Decomposes
Partition Coefficient (n-octanol/water):	Not determined
Autoignition Temperature:	No data
Decomposition Temperature:	No data
Viscosity:	N/A

10 STABILITY AND REACTIVITY

Reactivity: No specific test data available.

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Reacts readily with water releasing flammable hydrogen gas.

Conditions to Avoid: Avoid contact with water or moist air and possible ignition sources such as sparks or flame.

Incompatible Materials: Water or moisture, oxidizing agents, oxygen, acids, alcohols, halocarbons, carbon dioxide, ammonia.

Hazardous Decomposition Products: Barium hydroxides, barium oxides, hydrogen gas.

11 TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, skin, eyes.

Symptoms of Exposure: May cause severe irritation to the nose, throat, and upper respiratory tract, mouth, throat, and esophagus. Contact with skin can cause mild to moderate irritation. May cause chemical burns in eyes or on skin as it reacts with moisture on living tissue.

Acute and Chronic Effects: Barium compounds may cause severe gastroenteritis, including abdominal pain, vomiting and diarrhea, tremors, faintness, paralysis of the arms and legs, and slow or irregular heartbeat. Severe cases may produce collapse and death due to respiratory failure. Soluble barium compounds are more likely to cause these effects than insoluble compounds. Inhalation of fumes may cause sore throat, coughing, labored breathing, and irritation of the respiratory tract as well as the above symptoms. Chronic exposure to barium may cause sensitization, chronic barium poisoning, dermatitis, corneal opacity and blindness.

Acute Toxicity: No data

Carcinogenicity: NTP: Not identified as carcinogenic IARC: Not identified as carcinogenic

To the best of our knowledge the chemical, physical and toxicological characteristics of the substance are not fully known.

12 ECOLOGICAL INFORMATION

Ecotoxicity: No data

Persistence and Degradability: No data

Bioaccumulative Potential: No data

Mobility in Soil: No data

Other Adverse Effects: Do not allow material to be released to the environment. No further relevant information available.

13 DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Product: Dispose of in accordance with Federal, State and Local regulations.

Packaging: Dispose of in accordance with Federal, State and Local regulations.

14 TRANSPORT INFORMATION

UN Number:	UN1400
UN Proper Shipping Name:	Barium
Transport Hazard Class:	4.3
Packing Group:	II
Marine Pollutant:	No
Special Precautions:	Warning, substances which, in contact with water, emit flammable gases.

15 REGULATORY INFORMATION

TSCA Listed: Yes

DSL Listed: Yes

Regulation (EC) No 1272/2008 (CLP): Substances and mixtures which, in contact with water, emit flammable gases, category 2, Skin corrosion/irritation, category 2, Eye damage/irritation, category 2A.

WHMIS 2015 Classification: Substances and mixtures which, in contact with water, emit flammable gases, Skin corrosion/irritation, Eye damage/irritation.

HMIS Ratings: Health: 2 Flammability: 2 Physical: 2

NFPA Ratings: Health: 2 Flammability: 2 Instability: 2 Special Hazard: W

Chemical Safety Assessment: A chemical safety assessment has not been carried out.

16 OTHER INFORMATION

The information contained in this document is based on the state of our knowledge at the time of publication and is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. ESPI Metals makes no representation, warranty, or guarantee of any kind with respect to the information contained in this document or any use of the product based on this information. ESPI Metals shall not be held liable for any damages resulting from handling or from contact with the above product. Users should satisfy themselves that they have all current data relevant to their particular use.

Prepared by: ESPI Metals

Revised/Reviewed: July 2016

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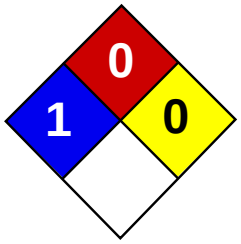

Health	1
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Lead MSDS

Section 1: Chemical Product and Company Identification

Product Name: Lead

Catalog Codes: SLL1291, SLL1669, SLL1081, SLL1459, SLL1834

CAS#: 7439-92-1

RTECS: OF7525000

TSCA: TSCA 8(b) inventory: Lead

CI#: Not available.

Synonym: Lead Metal, granular; Lead Metal, foil; Lead Metal, sheet; Lead Metal, shot

Chemical Name: Lead

Chemical Formula: Pb

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Lead	7439-92-1	100

Toxicological Data on Ingredients: Lead LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Non-flammable in presence of open flames and sparks, of shocks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: When heated to decomposition it emits highly toxic fumes of lead.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.05 (mg/m3) from ACGIH (TLV) [United States] TWA: 0.05 (mg/m3) from OSHA (PEL) [United States] TWA: 0.03 (mg/m3) from NIOSH [United States] TWA: 0.05 (mg/m3) [Canada]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 207.21 g/mole

Color: Bluish-white. Silvery. Gray

pH (1% soln/water): Not applicable.

Boiling Point: 1740°C (3164°F)

Melting Point: 327.43°C (621.4°F)

Critical Temperature: Not available.

Specific Gravity: 11.3 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, excess heat

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Can react vigorously with oxidizing materials. Incompatible with sodium carbide, chlorine trifluoride, trioxane + hydrogen peroxide, ammonium nitrate, sodium azide, disodium acetylide, sodium acetylide, hot concentrated nitric acid, hot concentrated hydrochloric acid, hot concentrated sulfuric acid, zirconium.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. May cause damage to the following organs: blood, kidneys, central nervous system (CNS).

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential: Skin: Lead metal granules or dust: May cause skin irritation by mechanical action. Lead metal foil, shot or sheets: Not likely to cause skin irritation Eyes: Lead metal granules or dust: Can irritate eyes by mechanical action. Lead metal foil, shot or sheets: No hazard. Will not cause eye irritation. Inhalation: In an industrial setting, exposure to lead mainly occurs from inhalation of dust or fumes. Lead dust or fumes: Can irritate the upper respiratory tract (nose, throat) as well as the bronchi and lungsby mechanical action. Lead dust can be absorbed through the respiratory system. However, inhaled lead does not accumulate in the lungs. All of an inhaled dose is eventually abssorbed or transferred to the gastrointestinal tract. Inhalation effects of exposure to fumes or dust of inorganic lead may not develop quickly. Symptoms may include metallic taste, chest pain, decreased physical fitness, fatigue, sleep disturbance, headache, irritability, reduces memory, mood and personality changes, aching bones and muscles, constipation, abdominal pains, decreasing appetite. Inhalation of large amounts may lead to ataxia, deliriuim, convulsions/seizures, coma, and death. Lead metal foil, shot, or sheets: Not an inhalation hazard unless metal is heated. If metal is heated, fumes will be released. Inhalation of these fumes may cause "fume metal fever", which is characterized by flu-like symptoms. Symptoms may include metallic taste, fever, nausea, vomiting, chills, cough, weakness, chest pain, generalized muscle pain/aches, and increased white blood cell count. Ingestion: Lead metal granules or dust: The symptoms of lead poisoning include abdominal pain or cramps (lead cholic), spasms, nausea, vomiting, headache, muscle weakness, hallucinations, distorted perceptions, "lead line" on the gums, metallic taste, loss of appetite, insomnia, dizziness and other symptoms similar to that of inhalation. Acute poisoning may result in high lead levels in the blood and urine, shock, coma and death in extreme cases. Lead metal foil, shot or sheets: Not an ingestion hazard for usual industrial handling.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (female) which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Lead California prop. 65 (no significant risk level): Lead: 0.0005 mg/day (value) California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Lead Connecticut hazardous material survey.: Lead Illinois toxic substances disclosure to employee act: Lead Illinois chemical safety act: Lead New York release reporting list: Lead Rhode Island RTK hazardous substances: Lead Pennsylvania RTK: Lead

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R20/22- Harmful by inhalation and if swallowed. R33- Danger of cumulative effects. R61- May cause harm to the unborn child. R62- Possible risk of impaired fertility. S36/37- Wear suitable protective clothing and gloves. S44- If you feel unwell, seek medical advice (show the label when possible). S53- Avoid exposure - obtain special instructions before use.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Last Updated: 05/21/2013 12:00 PM

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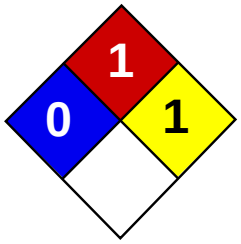

Health	1
Fire	3
Reactivity	2
Personal Protection	E

Material Safety Data Sheet
Magnesium MSDS

Section 1: Chemical Product and Company Identification

Product Name: Magnesium

Catalog Codes: SLM4408, SLM2263, SLM3637

CAS#: 7439-95-4

RTECS: OM2100000

TSCA: TSCA 8(b) inventory: Magnesium

CI#: Not applicable.

Synonym: Magnesium ribbons, turnings or sticks

Chemical Name: Magnesium

Chemical Formula: Mg

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Magnesium	7439-95-4	100

Toxicological Data on Ingredients: Magnesium LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances:
Highly flammable in presence of open flames and sparks, of heat. Flammable in presence of acids, of moisture. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Explosive in presence of acids, of moisture.

Fire Fighting Media and Instructions:
Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:
Magnesium turnings, chips or granules, ribbons, are flammable. They can be easily ignited. They may reignite after fire is extinguished. Produces flammable gases on contact with water and acid. May ignite on contact with water or moist air. Magnesium fires do not flare up violently unless moisture is present.

Special Remarks on Explosion Hazards: Reacts with acids and water to form hydrogen gas with is highly flammable and eplosive

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Flammable solid. Stop leak if without risk. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not breathe dust. Keep away from incompatibles such as oxidizing agents, acids, moisture.

Storage:
Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Moisture sensitive. Dangerous when wet.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid)

Odor: Odorless.

Taste: Not available.

Molecular Weight: 24.31 g/mole

Color: Silver-white

pH (1% soln/water): Not applicable.

Boiling Point: 1100°C (2012°F)

Melting Point: 651°C (1203.8°F)

Critical Temperature: Not available.

Specific Gravity: 1.74 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:
Very slightly soluble in hot water. Insoluble in cold water. Insoluble in chromium trioxides, and mineral acids, alkalies. Slightly soluble with decomposition in hot water. Soluble in concentrated hydrogen fluoride, and ammonium salts.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, incompatible materials, water or moisture, moist air.

Incompatibility with various substances: Reactive with oxidizing agents, acids, moisture.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Violent chemical reaction with oxidizing agents. Reacts with water to create hydrogen gas and heat. Must be kept dry. Reacts with acids to form hydrogen gas which is highly flammable and explosive. Magnesium forms hazardous or explosive mixtures with aluminum and potassium perchlorate; ammonium nitrate; barium nitrate, barium dioxide and zinc; beryllium oxide; boron phosphodiiodide; bromobenzyl trifluoride; cadmium cyanide; cadmium oxide; calcium carbide; carbonates; carbon tetrachloride; chlorine; chlorine trifluoride; chloroform; cobalt cyanide; copper cyanide; copper sulfate(anhydrous), ammonium nitrate, potassium chlorate and water; cupric oxide; cupric sulfate; fluorine; gold cyanide; hydrogen and calcium carbonate; hydrogen iodide; hydrogen peroxide; iodine; lead cyanide; mercuric oxide; mercury cyanide; methyl chloride; molybdenum trioxide; nickel cyanide; nitric acid; nitrogen dioxide; oxygen (liquid); performic acid; phosphates; potassium chlorate; potassium perchlorate; silver nitrate; silver oxide; sodium perchlorate; sodium peroxide; sodium peroxide and carbon dioxide; stannic oxide; sulfates; trichloroethylene; zinc cyanide; zinc oxide.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause skin irritation by mechanical action. May get mechanical injury or embedding of chips/particles in skin. The particles that are embedded in the wounds may retard healing. Eyes: May cause eye irritation by mechanical action. Mechanical injury may occur. Particles or chips may embed in eye and retard healing. Inhalation: Low hazard for ususal industrial handling. It may cause respiratory tract irritation. However, it is unlikely due to physical form. When Magnesium metal is heated during welding or smelting process, Metal Fume Fever may result from inhalation of magnesium fumes. Metal Fume Fever is a flu-like condition consisting of fever, chills, sweating, aches, pains, cough, weakness, headache, nausea, vomiting, and breathing difficulty. Other symptoms may include metallic taste, increased white blood cell count. There is no permanent ill-effect. Ingestion: Low hazard for usual industrial handling. There are no known reports of serious industrial poisonings with Magnesium. Ingeston of large amounts of chips, turnings or ribbons may cause gastrointestinal tract irritation with nausea, vomiting, and diarrhea. Acute ingestion may also result in Hypermagnesia. Hypermagnesia may cause hypotension, bradycardia, CNS depression, respiratory depression, and impairment of neuromuscular transmission (hyporeflexia, paralysis).

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 4.1: Flammable solid.

Identification: : Magnesium UNNA: 1869 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Magnesium Rhode Island RTK hazardous substances: Magnesium Pennsylvania RTK: Magnesium Massachusetts RTK: Magnesium Massachusetts spill list: Magnesium New Jersey: Magnesium TSCA 8(b) inventory: Magnesium

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-4: Flammable solid. CLASS B-6: Reactive and very flammable material.

DSCL (EEC):
R11- Highly flammable. R15- Contact with water liberates extremely flammable gases. S7/8- Keep container tightly closed and dry. S43- In case of fire, use dry chemical. Never use water.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 3

Reactivity: 2

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 0

Flammability: 1

Reactivity: 1

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Last Updated: 05/21/2013 12:00 PM

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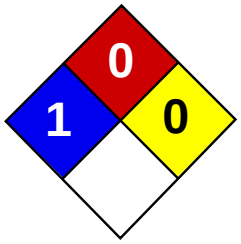

Health	1
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Manganese MSDS

Section 1: Chemical Product and Company Identification

Product Name: Manganese

Catalog Codes: SLM2245

CAS#: 7439-96-5

RTECS: OO9275000

TSCA: TSCA 8(b) inventory: Manganese

CI#: Not available.

Synonym:

Chemical Name: Manganese

Chemical Formula: Mn

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Manganese	7439-96-5	100

Toxicological Data on Ingredients: Manganese: ORAL (LD50): Acute: 9000 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, lungs, brain, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
Moderate fire potential, in the form of dust or powder, when exposed to flame. When manganese if heated in the vapor of phosphorus at a very dull red heat, union occurs with incandescence. Concentrated nitric acid reacts with powdered manganese with incandescence and explosion. Powdered manganese ignites in chlorine.

Special Remarks on Explosion Hazards: Moderate explosion potential, in the form of dust or powder, when exposed to flame.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, reducing agents.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.1 (mg/m3) from ACGIH (TLV) [United States] TWA: 5 (mg/m3) [Canada] TWA: 1 STEL: 3 (mg/m3) from NIOSH [United States] TWA: 5 (mg/m3) from OSHA (PEL) [United States]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

Odor: Odorless.

Taste: Not available.

Molecular Weight: 54.94 g/mole

Color: Grayish white.

pH (1% soln/water): Not applicable.

Boiling Point: 2095°C (3803°F)

Melting Point: 1244°C (2271.2°F)

Critical Temperature: Not available.

Specific Gravity: 7.44 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, reducing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Superficially oxidized on exposure to air. Reacts with aqueous solutions of sodium or potassium bicarbonate. Reacts with dilute mineral acids with evolution of hydrogen and formation of divalent manganous salts. Reacts with fluorine and chlorine to produce di or tri fluoride, and di and tri chloride, respectively. In the form of powder, it reduces most metallic oxides on heating. On heating, it reacts directly with carbon, phosphorus, antimony, or arsenic. Also incompatible with hydroxides, cyanides, carbonates.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 9000 mg/kg [Rat].

Chronic Effects on Humans: May cause damage to the following organs: blood, lungs, brain, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant), of ingestion.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
Manganese can cross the placenta. May cause cancer (tumorigenic) based on animal data.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause skin irritaiton Eyes: Dust may cause mechanical irritation. Inhalation: Dust may cause respiratory tract irritation. May cause "Metal Fume Fever" which may include flu-like symptoms (fever, chills, upset stomach, vomiting, weakness, headache, body aches, muscle pains, dry mouth and throat, coughing, tightness of the chest). May affect behavior/Central Nervous system (change in motor activity, torpor, nervousness, tremor, yawning, mood swings, irritability, restlessness, fatigue, headache, apathy, languor, insomnia than somnolence, hallucinations, delusions, uncontrollable laughter followed by crying, compulsions, aggressivness, weakness in legs, memory loss, decreased libido, impotence, salivation, hearing loss, slow gait,), and respiration (dyspnea, shallow respiration, cyanosis, alveolar inflammation). Ingestion: Repeated or prolonged exposure from ingestion may affect brain (degenerative changes), blood and metabolism. Ingestion: May cause digestive tract irritation. There is a low gastrointesitnal absorption of manganese. Chronic Potential Health Effects: Inhalation: Repeated or prolonged exposure from inhalation may affect brain (degeneratiave changes), behavior/Central Nervous system with symptoms to acute exposure. May also affect liver (chronic liver disease, jaundice) Ingestion: Repeated or prolonged exposure from ingestion may affect brain, blood and metabolism

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
Illinois toxic substances disclosure to employee act: Manganese Rhode Island RTK hazardous substances: Manganese Pennsylvania RTK: Manganese Minnesota: Manganese Massachusetts RTK: Manganese New Jersey: Manganese New Jersey spill list: Manganese Louisiana spill reporting: Manganese California Director's List of Hazardous Substances: Manganese TSCA 8(b) inventory: Manganese SARA 313 toxic chemical notification and release reporting: Manganese

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC): Not applicable.

HMIS (U.S.A.):

- **Health Hazard:** 1
- **Fire Hazard:** 0
- **Reactivity:** 0
- **Personal Protection:** E

National Fire Protection Association (U.S.A.):

- **Health:** 1
- **Flammability:** 0
- **Reactivity:** 0
- **Specific hazard:**

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 06:03 PM

Last Updated: 05/21/2013 12:00 PM

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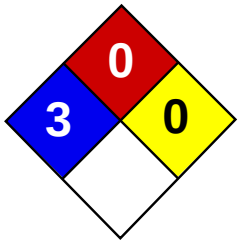

Health	3
Fire	0
Reactivity	0
Personal Protection	

Material Safety Data Sheet
Mercury MSDS

Section 1: Chemical Product and Company Identification

Product Name: Mercury

Catalog Codes: SLM3505, SLM1363

CAS#: 7439-97-6

RTECS: OV4550000

TSCA: TSCA 8(b) inventory: Mercury

CI#: Not applicable.

Synonym: Quick Silver; Colloidal Mercury; Metallic Mercury; Liquid Silver; Hydragyrum

Chemical Name: Mercury

Chemical Formula: Hg

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Mercury	7439-97-6	100

Toxicological Data on Ingredients: Mercury LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (corrosive, permeator). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
Hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Classified A5 (Not suspected for human.) by ACGIH. 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, liver, brain, peripheral nervous system, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation.

Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
When thrown into mercury vapor, boron phosphodiiodide ignites at once. Flame forms with chlorine jet over mercury surface at 200 deg to 300 deg C. Mercury undergoes hazardous reactions in the presence of heat and sparks or ignition.

Special Remarks on Explosion Hazards:
A violent exothermic reaction or possible explosion occurs when mercury comes in contact with lithium and rubidium. CHLORINE DIOXIDE & LIQUID HG, WHEN MIXED, EXPLODE VIOLENTLY. Mercury and Ammonia can produce an

explosive compound. A mixture of the dry carbonyl and oxygen will explode on vigorous shaking with mercury. Methyl azide in the presence of mercury was shown to be potentially explosive.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 25°C (77°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.025 from ACGIH (TLV) [United States] SKIN TWA: 0.05 CEIL: 0.1 (mg/m3) from OSHA (PEL) [United States] Inhalation TWA: 0.025 (mg/m3) [United Kingdom (UK)] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Heavy liquid)

Odor: Odorless.

Taste: Not available.

Molecular Weight: 200.59 g/mole

Color: Silver-white

pH (1% soln/water): Not available.

Boiling Point: 356.73°C (674.1°F)

Melting Point: -38.87°C (-38°F)

Critical Temperature: 1462°C (2663.6°F)

Specific Gravity: 13.55 (Water = 1)

Vapor Pressure: Not available.

Vapor Density: 6.93 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Ground mixtures of sodium carbide and mercury, aluminum, lead, or iron can react vigorously. A violent exothermic reaction or possible explosion occurs when mercury comes in contact with lithium and rubidium. Incompatible with boron diiodophosphide; ethylene oxide; metal oxides, metals(aluminum, potassium, lithium, sodium, rubidium); methyl azide; methylsilane, oxygen; oxidants(bromine, peroxyformic acid, chlorine dioxide, nitric acid, tetracarbonynickel, nitromethane, silver perchlorate, chlorates, sulfuric acid, nitrates,); tetracarbonylnickel, oxygen, acetylinic compounds, ammonia, ethylene oxide, methylsiliane, calcium,

Special Remarks on Corrosivity:
The high mobility and tendency to dispersion exhibited by mercury, and the ease with which it forms alloys (amalga) with many laboratory and electrical contact metals, can cause severe corrosion problems in laboratories. Special precautions: Mercury can attack copper and copper alloy materials.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A5 (Not suspected for human.) by ACGIH. 3 (Not classifiable for human.) by IARC. May cause damage to the following organs: blood, kidneys, liver, brain, peripheral nervous system, central nervous system (CNS).

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (corrosive, permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

May affect genetic material. May cause cancer based on animal data. Passes through the placental barrier in animal. May cause adverse reproductive effects(paternal effects- spermatogenesis; effects on fertility - fetotoxicity, post-implantation mortality), and birth defects.

Special Remarks on other Toxic Effects on Humans:

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification: : Mercury UNNA: 2809 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Mercury California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Mercury Connecticut hazardous material survey.: Mercury Illinois toxic substances disclosure to employee act: Mercury Illinois chemical safety act: Mercury New York acutely hazardous substances: Mercury Rhode Island RTK hazardous substances: Mercury Pennsylvania RTK: Mercury Minnesota: Mercury Massachusetts RTK: Mercury New Jersey: Mercury New Jersey spill list: Mercury Louisiana spill reporting: Mercury California Director's List of Hazardous Substances.: Mercury TSCA 8(b) inventory: Mercury SARA 313 toxic chemical notification and release reporting: Mercury CERCLA: Hazardous substances.: Mercury: 1 lbs. (0.4536 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

DSCL (EEC):
R23- Toxic by inhalation. R33- Danger of cumulative effects. R38- Irritating to skin. R41- Risk of serious damage to eyes. R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S2- Keep out of the

reach of children. S7- Keep container tightly closed. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S39- Wear eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S46- If swallowed, seek medical advice immediately and show this container or label. S60- This material and its container must be disposed of as hazardous waste. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 0

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:22 PM

Last Updated: 05/21/2013 12:00 PM

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SAFETY DATA SHEET

Creation Date 04-Oct-2010 **Revision Date** 19-Jan-2018 **Revision Number** 4

1. Identification

Product Name **Nickel, powder**

Cat No. : **AC193610000; AC193610250; AC193611000; AC193615000**

CAS-No 7440-02-0
Synonyms No information available

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable solids	Category 2
Skin Sensitization	Category 1
Carcinogenicity	Category 1B
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Kidney, Blood.	

Label Elements

Signal Word
Danger

Hazard Statements
Flammable solid
May cause an allergic skin reaction
May cause cancer
Causes damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Harmful to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Nickel	7440-02-0	>95

4. First-aid measures

General Advice
Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation
Move to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms and effects None reasonably foreseeable. . May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature 400 °C / 752 °F

Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Flammable.

Hazardous Combustion Products
Nickel oxides.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
2	3	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

Environmental Precautions Should not be released into the environment. Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe vapors/dust. Do not ingest.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Nickel	TWA: 1.5 mg/m^3	(Vacated) TWA: 1 mg/m^3 TWA: 1 mg/m^3	IDLH: 10 mg/m^3 TWA: 0.015 mg/m^3	TWA: 1 mg/m^3

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Long sleeved clothing.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Brown
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	1455 °C / 2651 °F
Boiling Point/Range	2730 °C / 4946 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 1810 °C
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	400 °C / 752 °F
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	Ni
Molecular Weight	58.7

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation. acids.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Nickel oxides

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Nickel	LD50 > 9000 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Nickel	7440-02-0	Group 2B	Reasonably Anticipated	Not listed	X	Not listed

IARC: (International Agency for Research on Cancer)
Group 2B - Possibly Carcinogenic to Humans
IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
NTP: (National Toxicity Program)
NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure Kidney Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Do not empty into drains. The product contains following substances which are hazardous for the environment. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Contains a substance which is:. Toxic to aquatic organisms. Very toxic to aquatic organisms. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water

system.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Nickel	EC50: 0.174 - 0.311 mg/L, 96h static (Pseudokirchneriella subcapitata) EC50: = 0.18 mg/L, 72h (Pseudokirchneriella subcapitata)	LC50: = 10.4 mg/L, 96h static (Cyprinus carpio) LC50: = 1.3 mg/L, 96h semi-static (Cyprinus carpio) LC50: > 100 mg/L, 96h (Brachydanio rerio)	Not listed	EC50: = 1 mg/L, 48h Static (Daphnia magna) EC50: > 100 mg/L, 48h (Daphnia magna)

Persistence and Degradability Insoluble in water May persist

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN3089
Proper Shipping Name Metal powder, flammable, n.o.s
Hazard Class 4.1
Packing Group II

TDG

UN-No UN3089
Proper Shipping Name METAL POWDER, FLAMMABLE, N.O.S.
Hazard Class 4.1
Packing Group II

IATA

UN-No UN3089
Proper Shipping Name METAL POWDER, FLAMMABLE, N.O.S.
Hazard Class 4.1
Packing Group II

IMDG/IMO

UN-No UN3089
Proper Shipping Name METAL POWDER, FLAMMABLE, N.O.S.
Hazard Class 4.1
Packing Group II

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Nickel	X	X	-	231-111-4	-		X	-	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Nickel	7440-02-0	>95	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Nickel	-	-	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Nickel	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Nickel	100 lb	-

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Nickel	7440-02-0	Carcinogen	-	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Nickel	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs

Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date	04-Oct-2010
Revision Date	19-Jan-2018
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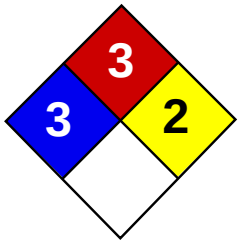
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS



Health	3
Fire	3
Reactivity	2
Personal Protection	E

Material Safety Data Sheet
Sodium MSDS

Section 1: Chemical Product and Company Identification

Product Name: Sodium

Catalog Codes: SLS3505

CAS#: 7440-23-5

RTECS: VY0686000

TSCA: TSCA 8(b) inventory: Sodium

CI#: Not applicable.

Synonym: Natrium

Chemical Name: Sodium

Chemical Formula: Na

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Sodium	7440-23-5	100

Toxicological Data on Ingredients: Sodium LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of eye contact (irritant). Hazardous in case of skin contact (permeator), of ingestion, of inhalation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

Skin Contact:

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 115°C (239°F)

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances:
Extremely flammable in presence of moisture. Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable solid. Moisture reactive material. SMALL FIRE: Obtain advice on use of water. Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Do not use water jet.

Special Remarks on Fire Hazards: When heated to decomposition it emits toxic fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Flammable solid that, in contact with water, emits flammable gases. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Cover with dry earth, sand or other non-combustible material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal.

Section 7: Handling and Storage

Precautions:
Keep under inert atmosphere. Keep container dry. Do not breathe dust. Never add water to this product In case of insufficient ventilation, wear suitable respiratory equipment If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes Keep away from incompatibles such as oxidizing agents, acids, moisture.

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. Keep container dry. Keep in a cool place.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 22.99 g/mole

Color: Silvery.

pH (1% soln/water): Not applicable.

Boiling Point: 881.4°C (1618.5°F)

Melting Point: 97.8°C (208°F)

Critical Temperature: Not available.

Specific Gravity: 0.97 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances:
Highly reactive with oxidizing agents, acids, moisture. The product reacts violently with water to emit flammable but non toxic gases.

Corrosivity: Not available.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant). Hazardous in case of skin contact (permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Material is destructive to tissue of the mucous membranes and upper respiratory tract.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 4.3: Material that emits flammable gases on contact with water.

Identification: : Sodium : UN1428 PG: I

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Sodium Massachusetts RTK: Sodium TSCA 8(b) inventory: Sodium CERCLA: Hazardous substances.: Sodium

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R17- Spontaneously flammable in air. R38- Irritating to skin. R41- Risk of serious damage to eyes.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 3

Reactivity: 2

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 3

Reactivity: 2

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangeureuses au canada. Centre de conformité internatinal Ltée. 1986.

Other Special Considerations: Not available.

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Last Updated: 05/21/2013 12:00 PM

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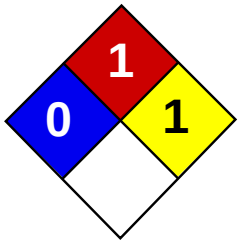

Health	1
Fire	1
Reactivity	1
Personal Protection	E

Material Safety Data Sheet
Zinc Metal MSDS

Section 1: Chemical Product and Company Identification

Product Name: Zinc Metal

Catalog Codes: SLZ1054, SLZ1159, SLZ1267, SLZ1099, SLZ1204

CAS#: 7440-66-6

RTECS: ZG8600000

TSCA: TSCA 8(b) inventory: Zinc Metal

CI#: Not applicable.

Synonym: Zinc Metal Sheets; Zinc Metal Shot; Zinc Metal Strips

Chemical Name: Zinc Metal

Chemical Formula: Zn

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Zinc Metal	7440-66-6	100

Toxicological Data on Ingredients: Zinc Metal LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 480°C (896°F)

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances:
Slightly flammable to flammable in presence of open flames and sparks, of heat, of oxidizing materials, of acids, of alkalis, of moisture. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:
Zinc + NaOH causes ignition. Oxidation of zinc by potassium proceeds with incandescence. Residues from zinc dust /acetic acid reduction operations may ignite after long delay if discarded into waste bins with paper. Incandescent reaction when Zinc and Arsenic or Tellurium, or Selenium are combined. When hydrazine mononitrate is heated in contact with zinc, a flamming decomposition occurs at temperatures a little above its melting point. Contact with acids and alkali hydroxides (sodium hydroxide, postasium hydroxide, calcium hydroxide, etc.) results in evolution of hydrogen with sufficient heat of reaction to ignite the hydrogen gas. Zinc foil ignites if traces of moisture are present. It is water reactive and produces flammable gases on contact with water. It may ignite on contact with water or moist air.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Flammable solid that, in contact with water, emits flammable gases. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Cover with dry earth, sand or other non-combustible material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not breathe dust. Keep away from incompatibles such as oxidizing agents, acids, alkalis, moisture.

Storage:
Keep container tightly closed. Keep container in a cool, well-ventilated area. Keep from any possible contact with water. Do not allow water to get into container because of violent reaction.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Lustrous solid. Metal solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 65.39 g/mole

Color: Bluish-grey

pH (1% soln/water): Not applicable.

Boiling Point: 907°C (1664.6°F)

Melting Point: 419°C (786.2°F)

Critical Temperature: Not available.

Specific Gravity: Not available.

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water, methanol, diethyl ether, n-octanol, acetone.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, incompatible materials, moisture

Incompatibility with various substances:
Reactive with oxidizing agents, acids, alkalis. Slightly reactive to reactive with moisture. The product may react violently with water to emit flammable but non toxic gases.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Incompatible with acids, halogenated hydrocarbons, NH_4NO_3, barium oxide, $Ba(NO_3)_2$, Cadmium, CS_2, chlorates, Cl_2, CrO_3, F_2, Hydroxylamine, $Pb(N_3)_2$, $MnCl_2$, HNO_3, performic acid, $KClO_3$, KNO_3, N_2O_2, Selenium, $NaClO_3$, Na_2O_2, Sulfur, Te, water, $(NH_4)_2S$, As_2O_3, CS_2, $CaCl_2$, chlorinated rubber, catalytic metals, halocarbons, o-nitroanisole, nitrobenzene, nonmetals, oxidants, paint primer base, pentacarbonoyliron, transition metal halides, seleninyl bromide, HCl, H_2SO_4, (Mg +$Ba(NO_3)_2$ +BaO_2), (ethyl acetoacetate +tribromoneopentyl alcohol. Contact with Alkali Hydroxides(Sodium Hydroxide, Potassium Hydroxide, Calcium Hydroxide, etc) results in evolution of hydrogen. Ammonium nitrate + zinc + water causes a violent reaction with evolution of steam and zinc oxide. May react with water.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause skin irritation. Dermal exposure to zinc may produce leg pains, fatigue, anorexia and weight loss. Eyes: May cause eye irritation. Ingestion: May be harmul if swallowed. May cause digestive tract irritation with tightness in throat, nausea, vomiting, diarrhea, loss of appetite, malaise, abdominal pain. fever, and chills. May affect behavior/central nervous system and autonomic nervous system with ataxia, lethargy, staggering gait, mild derrangement in cerebellar function, lightheadness, dizzness, irritability, muscular stiffness, and pain. May also affect blood. Inhalation: Inhalation of zinc dust or fumes may cause respiratory tract and mucous membrane irritation with cough and chest pain. It can also cause "metal fume fever", a flu-like condition characterized appearance of chills, headached fever, maliase, fatigue, sweating, extreme thirst, aches in the legs and chest, and difficulty in breathing. A sweet taste may also be be present in metal fume fever, as well as a dry throat, aches, nausea, and vomiting, and pale grey cyanosis. The toxicological properties of this substance have not been fully investisgated.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: Not available.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
New York release reporting list: Zinc Metal Rhode Island RTK hazardous substances: Zinc Metal Pennsylvania RTK: Zinc Metal Florida: Zinc Metal Michigan critical material: Zinc Metal Massachusetts RTK: Zinc Metal New Jersey: Zinc Metal California Director's List of Hazardous Substances: Zinc Metal TSCA 8(b) inventory: Zinc Metal TSCA 12(b) one time export: Zinc Metal SARA 313 toxic chemical notification and release reporting: Zinc Metal CERCLA: Hazardous substances.: Zinc Metal: 1000 lbs. (453.6 kg)

Other Regulations: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): Not Available

DSCL (EEC):
R15- Contact with water liberates extremely flammable gases. R17- Spontaneously flammable in air. S7/8- Keep container tightly closed and dry.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 1

Reactivity: 1

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 0

Flammability: 1

Reactivity: 1

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 12:18 AM

Last Updated: 05/21/2013 12:00 PM

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APPENDIX 4

VAPOR BARRIER SPECIFICATIONS

PREPRUFE® 300R/160R Plus & PREPRUFE® 300R/160R Plus LT Data Sheet

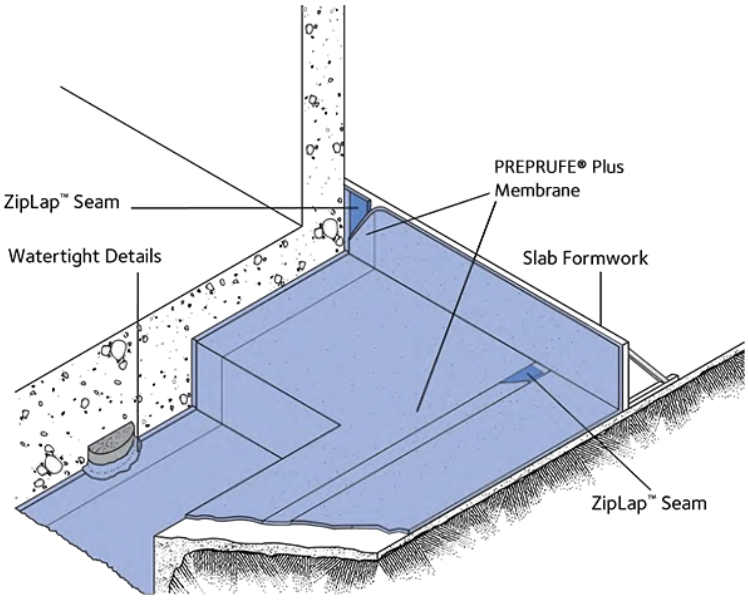
Pre-applied waterproofing membranes that bond integrally to poured concrete for use below slabs or behind basement walls on confined sites.

View Sustainability Certifications: 300R Plus, 160R Plus, 300R Plus LT, 160R Plus LT

Product Description

GCP PREPRUFE® 300R/160R Plus pre applied waterproofing membranes are unique composite sheets comprised of a thick HDPE film, pressure sensitive adhesive, and weather resistant protective coating. Designed with Advanced Bond Technology™ and dual adhesive ZipLap™ seams, PREPRUFE® 300R/160R Plus form a unique, integral bond to poured concrete. This integral bond is specifically designed to provide a robust barrier to water, moisture and gas and prevents both the ingress and lateral migration of water.

PREPRUFE® 300R/160R Plus are release liner free and designed for efficient, reliable installation. PREPRUFE® Plus ZipLap™ seams allow for an adhesive to adhesive bond at membrane sheet overlaps and deliver superior performance in harsh conditions without the need for specialized equipment, heat or power.



Drawings are for illustration purposes only.
Please refer to gcpat.com for specific application details.

Advantages

- The unique continuous adhesive bond to concrete poured against it prevents water migration and makes it unaffected by ground settlement beneath slabs.
- Designed with fully adhered adhesive to adhesive watertight ZipLap™ seams and easy to execute detailing. Provides a barrier to water, moisture and gas physically isolating the structure from the surrounding substrate. Easy roll/kick out installation reduces installation time and cost.
- Release liner free, expedites installation and reduces construction site waste.
- Simple and quick to install requiring no priming or fillets.
- Can be applied to permanent formwork - allows maximum use of confined sites
- Self-protecting - can be trafficked immediately after application and ready for immediate placing of reinforcement Membrane is unaffected by wet jobsite conditions - cannot activate prematurely
- Inherently waterproof as supplied. Passive non-reactive waterproofing system does not require water activation Waterproofing is not reliant on confining pressures or hydration
- PREPRUFE® 300R/160R Plus unaffected by freeze/thaw, wet/dry cycling
- Chemical resistance – designed to help protect structure from salt or sulphate attack effective in most types of soils and waters,
- Gas resistance – PREPRUFE® 300R/160R Plus will restrict the ingress of Methane, Radon, Benzene, Toluene, Gasoline & other VOCs Trichloroethylene & Tetrachloroethylene (TCE/PCE) into buildings from landfill and naturally occurring sources and satisfy the performance criteria for a gas-resistant membrane.

System Components:

Membrane

- PREPRUFE® 300R Plus/300R Plus LT— heavy-duty 46mil grade membrane designed for horizontal and vertical use. Designed for use below slabs and on rafts (i.e. mud slabs) and for vertical blind side applications. Designed to accept the placing of heavy reinforcement using conventional concrete spacers.
- PREPRUFE® 160R Plus/160R Plus LT — 32mil grade membrane designed for vertical use in blindside, zero property line applications against soil retention systems.

Ancillary Components (refer to the most current Data Sheets for all system components available on gcpat.com)

- PREPRUFE® Tape – 4 in. wide tape for covering cut edges, roll ends, penetrations and detailing
- PREPRUFE® CJ Tape – 8 in. wide tape for detailing, and may be used at construction joints for optional additional protection
- BITUTHENE® Liquid Membrane - for sealing around penetrations, etc.
- ADCOR® - hydrophilic waterstop for joints in concrete walls and floors
- PREPRUFE® Tieback Covers - preformed cover for soil retention wall tieback heads
- DE NEEF® INJECTO® Tube groutable Waterstop for non-moving concrete construction joints and penetrations

Limitations of Use

- Approved uses only include those uses specifically detailed in this Product Data Sheet and other current Product Data Sheets that can be found at gcpat.com
- PREPRUFE® 300R/160R Plus Membranes are not intended for any other use. Contact GCP Technical Services where any other use is anticipated or intended.
- PREPRUFE® 300R/160R Plus Membranes are designed for in-service temperatures below 120°F(49°C).
- PREPRUFE® 160R Plus/160R Plus LT membrane should not be used in horizontal applications.
- PREPRUFE® 300R/160R Plus Membranes should not be used with conventional two-sided formwork. (See PREPRUFE® Technical Letter # 13 Forming Systems For Use with PREPRUFE® Membranes)

Special Note: When this information is printed from the gcpat.com global website, a footer appearing on this document will restrict its applicability to the United States. Note that the information and references in this document are hereby expanded and apply to North, Central and South America.

Safety and Handling

Users must read and understand the product label and Safety Data Sheets (SDS's) for each system component before use. All users should acquaint themselves with this information prior to working with the material. Carefully read detailed precaution statements on the product labels and SDS's before use. The most current SDS's can be obtained from the GCP web site at gcpat.com.

Storage

- Observe 1 year shelf life and use on a first in first out basis
- Store in dry conditions between 40°F (4.5°C)-90°F (32°C)
- Store off ground under tarps or otherwise protected from rain and ground moisture
- See PREPRUFE® Technical Letter #30 Shelf Life/Storage and Handling of GCP Waterproofing

Installation

Technical Support, Details and Technical Letters

The most up to date detail drawings and technical letters are available at gcpat.com. For complete application instructions, please refer to the current Literature on (www.gcpat.com). Documents in hardcopy as well as information found on websites other than www.gcpat.com may be out of date or in error. Before using this product it is important that information be confirmed by accessing www.gcpat.com and reviewing the most recent product information, including without limitation Product Data Sheets, Technical Bulletins, Detail Drawings and detailing recommendations. Please review all materials prior to installation of PREPRUFE® 300R/160R Plus.

Support is also available by full-time technically trained GCP field sales representatives and technical service personnel, backed by a central research and development technical services staff. For technical assistance with detailing and problem solving please contact your local representative. A GCP Representative locater is available at www.gcpat.com.

Temperature Requirements

- PREPRUFE® 160R Plus LT and PREPRUFE® 300R Plus LT membrane can be applied between temperature 25ºF to 95ºF. PREPRUFE® 300R Plus & PREPRUFE® 160R Plus membranes can be used for application above 65ºF.
- PREPRUFE® Tape LT and PREPRUFE® CJ Tape LT can be applied between temperature 25ºF to 95ºF. PREPRUFE® Tape HC and PREPRUFE® CJ Tape HC can be used for application above 50ºF.

Substrate Preparation

All surfaces –It is essential to create a sound and solid substrate to eliminate movement during the concrete pour. Substrates must be regular and smooth with no gaps or voids greater than 0.5 in. (12 mm). Grout around all penetrations such as utility conduits, etc. for stability.

Horizontal – The substrate must be free of loose aggregate and sharp protrusions. Avoid curved or rounded substrates. When installing over earth or crushed stone, ensure substrate is well compacted to avoid displacement of substrate due to traffic or concrete pour. The surface does not need to be dry, but standing water must be removed.

Vertical – Use concrete, plywood, insulation or other approved facing over sheet piling to provide support to the membrane. Board systems such as timber lagging must be close butted to provide support and not more than 0.5 in. (12 mm) out of alignment. HYDRODUCT® 220 drainage sheet can be used to bridge voids, gaps and out of alignment up to 2 in. (50mm) prior to PREPRUFE® 300R/160R Plus installation.

Membrane Application

PREPRUFE® 300R/160R Plus has a colored zip strips at the top and bottom of the seam area on the edge of the roll. Both zip strips cover an aggressive adhesive. Once the green zip strip on the top of the membrane and the blue zip strip on the bottom of the membrane are removed, a strong adhesive to adhesive bond is achieved in the overlap area. This PREPRUFE® ZipLap™ provides an enhanced sealing of the overlaps in harsh conditions combined with a fast and easy way of execution without specialized equipment, heat or power.

Horizontal substrates – (PREPRUFE® 300R Plus/ PREPRUFE® 300R Plus LT membrane only) – PREPRUFE® 300R Plus & PREPRUFE® 300R Plus LT membrane can be applied in horizontal applications to smooth prepared concrete, carton forms or well rolled and compacted earth or crushed stone substrate. Kick out or roll out the membrane HDPE film side to the substrate with the green zip strip facing towards the concrete pour. End laps should be staggered to avoid a build-up of layers. Leave green and blue zip strips on the membrane until overlap procedure is completed. When completed remove release liner. When installing over carton forms, contact your local GCP representative.

Accurately position succeeding sheets to overlap the previous sheet 3 in. (75 mm) along the marked selvedge with the blue zip strip on top of the green zip strip. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back and remove both the green and blue zip strips in the overlap area to achieve an adhesive to adhesive bond at the overlap.

Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller.

- PREPRUFE® 300R Plus/300R Plus LT membrane can be returned up the inside face of slab formwork. To attain a fully bonded system and to allow a tie in with BITUTHENE® self-adhered membrane or PROCOR® fluid-applied membrane to all vertical structural surfaces after removal of formwork. Ensure to cut the length of the membrane (terminate) to height of formwork less 2 inches.
- Rebar Chairs: See PREPRUFE® Technical Letter #15 Rebar Chairs on PREPRUFE® Membranes.
- PREPRUFE® 160R Plus & 160R Plus LT membrane may not be used in horizontal applications.

Vertical substrates – PREPRUFE® 300R/160R Plus membranes can be applied vertically to permanent formwork or adjoining structures. Mechanically fasten the membrane vertically using fasteners appropriate for the substrate with the green zip strip facing towards the concrete pour. The membrane may be installed in any convenient length. Fastening can be made through the selvedge within 0.5 in. (50 mm) from the leading edge of the membrane using a small low profile head fastener so that the membrane lays flat and allows firmly rolled overlaps. Accurately position each succeeding sheet to overlap the previous sheet 3 in. (75 mm) along the marked selvedge with the blue zip strip on top of the green zip strip.

Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back and remove both the green and blue zip strips in the overlap area to achieve an adhesive to adhesive bond at the overlap. Roll firmly to ensure a watertight seal.

Note that PREPRUFE® 300R/160R Plus membranes should not be used with conventional two-sided formwork. (See PREPRUFE® Technical Letter # 13 Forming Systems For Use with PREPRUFE® Membranes)

Roll ends and cut edges – Overlap all roll ends and cut edges by a minimum 3 in. (75 mm) and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary. Allow surface to dry and apply PREPRUFE® Tape centered over the lap edges and roll firmly. Immediately remove tinted plastic release liner from the tape.

Membrane Repair

Inspect the membrane before installation of reinforcement steel, formwork and final placement of concrete. The membrane can be easily cleaned by power washing if required. Repair damage by wiping the area with a damp cloth to ensure the area is clean and free from dust, and other contaminants and allow the membrane to dry. Repair small punctures and slices 0.5 in. (12 mm) or less by applying PREPRUFE® Tape centered over the damaged area. Repair punctures and holes larger than 0.5 in. (12mm) by applying a patch of PREPRUFE® Membrane. Extend the patch 6 in. (150 mm) beyond the damaged area. Seal all edges of the patch with PREPRUFE® Tape. Where exposed selvedge has lost adhesion or laps have not been sealed, ensure the area is clean and dry and cover with fresh PREPRUFE® Tape. Any areas of damaged adhesive should be covered with PREPRUFE® Tape. All PREPRUFE® Tape must be rolled firmly and the tinted release liner removed.

Slices or relief cuts can be butted or overlapped and repaired by applying PREPRUFE® Tape centered over the edge of the overlap or center of the butt joint. Where it is not possible to create a butt joint or overlap, repair with fresh membrane and PREPRUFE® Tape as detailed above.

Pouring of Concrete

Ensure the plastic release liner is removed from all PREPRUFE® Tapes.

Under most climatic conditions concrete should be poured within 56 days of membrane installation. Where ambient temperatures will exceed 100ºF (38°C) for more than a total of 7 days, concrete should be placed within 42 days of installation of the membrane. Concrete must be placed and compacted carefully to avoid damage to the membrane. Never use a sharp object to consolidate the concrete.

Removal of Formwork

A minimum concrete compressive strength of 3000 psi (20 N/mm^2) is required prior to stripping formwork supporting PREPRUFE® 300R/160R Plus Membranes. Premature stripping may result in displacement of the membrane and/or spalling of the concrete. (see PREPRUFE® Technical Letter #17 Removal of Formwork Placed against PREPRUFE® 300R/160R Plus Membranes).

After removal of the formwork and prior to backfilling, all exposed PREPRUFE® 300R/160R Plus Membrane must be protected from damage with an approved protective course.

Supply

Dimensions (Nominal)	PREPRUFE® 300R Plus PREPRUFE® 300R Plus LT	PREPRUFE® 160R Plus PREPRUFE® 160R Plus LT
Roll size Note#1	3 ft. 10 in. X 102 ft. (392 ft^2) 1.17m x 31.15m (36.4 m^2)	3 ft. 10 in. X 120 ft. (460 ft^2) 1.17m x 36.6m (42.8 m^2)
Roll weight	108 lbs (49 kg)	92 lbs (42 kg)
Minimum side/end laps	3 in. (75 mm)	3 in. (75 mm)
Note: when calculating coverage account for the Minimum side/end laps Note#1 Individual roll length may vary +/-1%		

Physical Properties

Property	PREPRUFE® 300R Plus & PREPRUFE® 300R Plus LT	PREPRUFE® 160R Plus & PREPRUFE® 160R Plus LT	Test Method
Color	white	white	
Thickness	0.046 in. (1.2 mm)	0.032 in. (0.8 mm)	ASTM D3767
Lateral Water Migration Resistance	Pass at 231 ft (71 m) of hydrostatic head pressure	Pass at 231 ft (71 m) of hydrostatic head pressure	ASTM D5385[1]
Long Term Lateral Water Migration Resistance, After 3 Years Water Immersion	Pass at 231 ft (71 m) of hydrostatic head pressure	Pass at 231 ft (71 m) of hydrostatic head pressure	ASTM D5385[1]
Resistance to hydrostatic head	231 ft (71 m)	231 ft (71 m)	ASTM D5385[2]
Resistance to hydrostatic head, Functional details	231 ft (71 m)	231 ft (71 m)	ASTM D5385[3]
Tensile strength, film	4000 psi (27.6 Mpa)	4000 psi (27.6 Mpa)	ASTM D412

Tensile strength after soil burial, film	Retain >90%	Retain >90%	ASTM D412/ASTM D4068
Elongation	500%	500%	ASTM D412
Elongation after soil burial	Retain >90%	Retain >90%	ASTM D412/ASTM D4068
Low temperature flexibility	Unaffected at -20°F (-29°C)	Unaffected at -20°F (-29°C)	ASTM D1970
Crack cycling at -9.4°F (-23°C), 1/8" Movement	Unaffected, Pass	Unaffected, Pass	ASTM C1305/ASTM C836
Puncture resistance	225lbs (1000N)	100 lbs (445 N)	ASTM E154
Environmental stress resistance	Pass	Pass	ASTM D1693
Peel adhesion to concrete	10 lbs/in. (1750N/m)	10 lbs/in. (1750N/m)	ASTM D 903
Peel adhesion to concrete, After 3 years of water immersion	10 lbs/in. (1750N/m)	10 lbs/in. (1750N/m)	ASTM D 903 (After 3 years of water immersion)
Peel adhesion to concrete, After immersed in underground contaminates	Retain >80%	Retain >80%	ASTM D 543/ASTM D 903[4]
Lap peel adhesion	10 lbs/in. (1750N/m)	10 lbs/in. (1750N/m)	ASTM D1876[5]
Lap peel adhesion, After immersed in underground contaminates	Retain >80%	Retain >80%	ASTM D 543/ASTM D 1876[6]
Shear strength of joint	>100 lb	>60 lb	ASTM D882
VOC permeance	Not Detectable (Membrane, Seam)	Not Detectable (Membrane, Seam)	ASTM F 739 (Open loop)
Methane permeance[7]	<40 ml/day.m^2.atm	74.5 ml/day.m^2.atm	ASTM D 1434
Methane permeance (before and after soil burial)	<40 ml/day.m^2.atm		ASTM D 4068/ASTM D 1434
Radon diffusion coefficient (membrane and seam), m^2/s	3.7×10^{-12} Membrane, Seam	5.3×10^{-12} Membrane, Seam	Method C of ISO/TS11665-1
Permeance to water vapor transmission	<0.01 perms (0.6 ng/(Pa x s x m^2))	<0.01 perms (0.6 ng/(Pa x s x m^2))	ASTM E96, method B

Footnotes:

1. Lateral water migration resistance is tested by casting concrete against membrane with a hole and subjecting the membrane to hydrostatic head pressure with water. The test measures the resistance of lateral water migration between the concrete and the membrane.
2. Hydrostatic head tests of PREPRUFE® Membranes are performed by casting concrete against the membrane with a lap.
3. Test is performed by casting concrete against the membrane with detail prepared per GCP standard details.
4. Sample immersed under TCE, PCE, BETX and acid & alkaline solution
5. The test is conducted 15 minutes after the lap is formed.
6. Sample immersed under TCE, PCE, BETX and acid & alkaline solution
7. PREPRUFE® 300R Plus/LT meets LARR requirement

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gcpat.com/solutions/products/preprufe-comprehensive-waterproofing-system/preprufe-300r160r-plus-preprufe