

Former Swivelier Site
VILLAGE OF NANUET, ROCKLAND COUNTY, NEW YORK

Final Engineering Report

NYSDEC Site Number: 3-44-036

Prepared for:

S.F. Properties, LLC
627 South Main Street
New City, NY 10956

Prepared by:

EWMA/EWMA Engineering Services, LLC
100 Misty Lane
P.O. Box 5430
Parsippany, NJ 07054
EWMA Project No. 205548
(973) 560-1400

JUNE 2018

CERTIFICATIONS

I, Jacob M. Strauss, am currently a registered professional engineer licensed by the State of New York. My firm had primary direct responsibility for implementation of the remedial program activities, and I certify that the Remedial Action Workplan was implemented and that all construction activities were completed in substantial conformance with the Department-approved Remedial Action Workplan.

I certify that the data submitted to the Department with this Draft Final Engineering Report demonstrates that the remediation requirements set forth in the Remedial Action Workplan and in all applicable statutes and regulations have been or will be achieved under the SMP in accordance with the time frames, if any, established in for the remedy.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and/or any operation and maintenance requirements applicable to the Site are contained in an environmental easement created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

I certify that a Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells and that such plan has been approved by Department.

I certify that all documents generated in support of this report have been submitted in accordance with the DER's electronic submission protocols and have been accepted by the Department.

I certify that all data generated in support of this report have been submitted in accordance with the Department's electronic data deliverable and have been accepted by the Department.

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Jacob M. Strauss, of EWMA Engineering Services, LLC, am certifying as Owner's Designated Site Representative for the Site.

097765
NYS Professional Engineer #

6/27/2018
Date



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LIST OF ACRONYMS

bsg - below surface grade

BNA- Base/neutral/acid extractable compound

CAMP - Community Air Monitoring Plan

COC – Chain of Custody

CUSCO - Commerical Restricted Use Soil Cleanup Objective (per 6 NYCRR Part 375-6.8(b))

DER – Department of Environmental Regulation

DUSR - Data Usability Summary Report

EWMA – Environmental Waste Management Associates, LLC, Parsippany, New Jersey

FER - Final Engineering Report

GWQS – Groundwater Quality Standards (per NYSDEC, Part 703)

HASP - Health and Safety Plan

IAL - Integrated Analytical Laboratory

MDLs – Method Detection Limits

mg/m³ - milligrams per cubic meter

NYSDEC - New York State Department of Environmental Conservation

NYSDOH - New York State Department of Health

PAHs – Polynuclear aromatic hydrocarbons

PCBs – Polychlorinated biphenyls

PID - Photoionization Detector

ppb – parts per billion

ppbv – parts per billion by volume

ppm - parts per million

QAPP - Quality Assurance Project Plan

QHHEA - Qualitative Human Health Exposure Assessment

RAWP – Remedial Action Workplan

RI - Remedial Investigation

RIR – Remedial Investigation Report

RUSCO - Restricted Use Soil Cleanup Objective (per 6 NYCRR Part 375-6.8(b))

SMP - Site Management Plan

SCO - Soil Cleanup Objectives (per 6 NYCRR, Subpart 375-6)

SVOCs - Semi-volatile Organic Compounds

TAL Metals – Target Analyte Metals

TCE - Trichloroethene

TCL/TAL - Target Compound List/Target Analyte List

USEPA - United States Environmental Protection Agency

USGS - United States Geologic Survey

UST – Underground Storage Tank

UUSCO – Unrestricted Use Soil Cleanup Objectives (per 6 NYCRR, Subpart 375-6.8(a))

VOCs or VOs - Volatile Organic Compounds

FINAL ENGINEERING REPORT

1.0 BACKGROUND AND SITE DESCRIPTION

S.F. Properties, LLC (S.F. Properties) entered into a Voluntary Cleanup Agreement (VCA) with the New York State Department of Environmental Conservation (NYSDEC) in April 2002, to investigate and remediate a 9.81-acre property located in Nanuet, Rockland County, New York. The property was remediated to commercial and industrial use and will be used for commercial and industrial use.

The Site is located in the County of Rockland, New York and is identified as Block 1 and Lot 26 on the Village of Nanuet Tax Map. The Site is situated on an approximately 9.81-acre area bounded by Demarest Mill Road to the north, West Nyack Road to the south, Route 304 to the east, and commercial/industrial properties to the west (see **Figure 1**). The boundaries of the Site are fully described in **Appendix 1: Metes and Bounds**.

An electronic copy of this FER with all supporting documentation is included as **Appendix 2**.

2.0 SUMMARY OF SITE REMEDY

The remedial measures included the following:

- In-Situ Oxidation Technologies, Inc. (ISOTEC) in-situ chemox treatment processes to remediate subsurface contamination via injection of peroxide and proprietary catalysts, thereby oxidizing contamination using Fenton's Reaction.
- Installation of a sub-slab depressurization system (SSDS) at the Property to create a negative pressure field directly underneath the building floor slab, thereby intercepting any vapors otherwise migrating into the building through vapor intrusion; and
- Long-term monitored natural attenuation (MNA) of groundwater within the overburden aquifers reliant on natural attenuation processes to achieve applicable groundwater remediation standards.

2.1 REMEDIAL ACTION OBJECTIVES

Based on the results of the Remedial Investigation, the following Remedial Action Objectives (RAOs) were identified for this Site.

2.1.1 Groundwater RAOs

RAOs for Public Health Protection

- Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer, to the extent practicable, to pre-disposal/pre-release conditions.
- Prevent the discharge of contaminants to surface water.

- Remove the source of ground or surface water contamination.

2.1.2 Soil Vapor RAOs

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at the site.

2.2 DESCRIPTION OF SELECTED REMEDY

The Site was remediated in accordance with the remedy selected by the NYSDEC in the Remedial Action Workplan Report - Groundwater (RAWR-GW) dated November 2004 and revised December 28, 2004, NYSDEC's approval letter dated March 24, 2005 approving the SSDS Design and Installation Strategy, the Remedial Action Workplan (RAWP) dated August 28, 2013, and the RAWP Addendum dated November 25, 2013.

The factors considered during the selection of the remedy are those listed in 6NYCRR 375-1.8. The following are the components of the selected remedy:

- 1) In-Situ Oxidation Technologies, Inc. (ISOTEC) in-situ chemox treatment processes to remediate subsurface contamination via injection of peroxide and proprietary catalysts, thereby oxidizing contamination using Fenton's Reaction. ISOTEC treatments were intended to aggressively treat the impacted groundwater within the on-site bedrock aquifer in order to facilitate the ongoing natural attenuation process for the existing groundwater contamination at the site. Continued natural attenuation of the groundwater within the overburden aquifers is proposed based upon the current contamination concentrations;
- 2) Installation and operation of a sub-slab depressurization system (SSDS) consisting of two separate SSDS and blower units mounted on the roof-top, one for each the western and eastern building portions, respectively;
- 3) Long-term groundwater monitoring to evaluate the performance of the remedy with respect to attainment of groundwater standards;

- 4) A Site Management Plan for long term management of residual contamination, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting.

3.0 INTERIM REMEDIAL MEASURES, OPERABLE UNITS AND REMEDIAL CONTRACTS

The remedy for this Site was performed as a single project, and no interim remedial measures, operable units or separate construction contracts were implemented.

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED

Remedial activities completed at the Site were conducted in accordance with the Remedial Action Workplan Report - Groundwater (RAWR-GW) dated November 2004 and revised December 28, 2004, NYSDEC's approval letter dated March 24, 2005 approving the SSDS Design and Installation Strategy, the Remedial Action Workplan (RAWP) dated August 28, 2013, and the RAWP Addendum dated November 25, 2013, for the Former Swivelier Site. Additionally, EWMA submitted a Voluntary Cleanup Program (VCP) Revised RI Progress Report dated May 4, 2015, and VCP Revised Supplemental RI Progress Report dated August 26, 2015, approved by NYSDEC on December 9, 2015. All deviations from the RAWR-GW, RAWP and RAWP Addendum are noted below.

4.1 GOVERNING DOCUMENTS

The governing documents are as follows:

4.1.1 Site Specific Health & Safety Plan (HASP)

A Site specific HASP was included as Appendix 14 of the RAWP approved by the NYSDEC. The HASP and requirements defined in the RAWP pertain to all remedial and invasive work performed at the Site. All remedial work performed under this Remedial Action was in full compliance with governmental requirements, including Site

and worker safety requirements mandated by Federal OSHA. The Health and Safety Plan (HASP) was complied with for all remedial and invasive work performed at the Site.

4.1.2 Quality Assurance Project Plan (QAPP)

A Quality Assurance/Quality Control Plan (QA/QC) was included as Appendix 1 of the RAWP approved by the NYSDEC. Additionally, a standalone QAPP was included as an attachment to the July 2002 RAWP. The QAPP describes the specific policies, objectives, organization, functional activities and quality assurance/ quality control activities designed to achieve the project data quality objectives.

- Groundwater samples collected for volatile organic compounds and a forward library search (VO+10) were analyzed via EPA Method 624.

All samples were analyzed by the following NYSDOH ELAP certified laboratory:

Integrated Analytical Laboratories, LLC (IAL)
273 Franklin Road
Randolph, NJ 07869
New York Lab ID No. 11402

The Project Manager for the Site was Kevin Seise, Senior Project Manager, EWMA.

4.1.3 Community Air Monitoring Plan (CAMP)

A Community Air Monitoring Plan (CAMP) was included as part of the site-specific HASP as Appendix 14 of the RAWP approved by the NYSDEC.

During the Site remediation activities, it was never necessary to implement the CAMP due to on Site conditions, due to the absence of fugitive dust and ambient organic vapors. The off-Site public within close proximity to the remedial action Site was protected throughout the duration of the remediation activities.

4.1.4 Contractors Site Operations Plans (SOPs)

The Remediation Engineer reviewed all plans and submittals for this remedial project (i.e. those listed above plus contractor and subcontractor submittals) and confirmed that they were in compliance with the RAWP. All remedial documents were submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

4.1.5 Community Participation Plan

After approval of the RAWP, a Voluntary Cleanup Project Remediation Fact Sheet was distributed before the start of remedial activities.

No changes were made to the approved Fact Sheets authorized for release by NYSDEC without written consent of the NYSDEC until the project was completed. The Fact Sheet was distributed to the contact list in February 2005. Refer to **Appendix 3** for copies of Project Fact Sheets.

In addition, a document repository will be established at the following location and all applicable project documents will be submitted to:

Nanuet Public Library
149 Church Street
Nanuet, NY 10954

4.2 REMEDIAL PROGRAM ELEMENTS

4.2.1 Contractors and Consultants

Personnel	Affiliation	Responsibilities
Kevin Seise	EWMA, LLC 100 Misty Lane Parsippany, New Jersey 07054 973-560-1400 973-560-0400-fax	○ Project Manager (PM). ○ Provides overall direction from the office upon consultation with the SM. ○
Ajay Kathuria, PE	EWMA, LLC 100 Misty Lane Parsippany, New Jersey 07054 973-560-1400 973-560-0400-fax	○ Project Engineer ○ Review/oversight of project remediation activities with PM and SM. ○ Preparation and certification of the final engineering report with the PM.
Joseph Krulik, PG	EWMA, LLC 100 Misty Lane Parsippany, New Jersey 07054 973-560-1400 973-560-0400-fax	○ Site Manager (SM); Site Safety Officer (SSO); reports to PM. ○ Supervises all on-Site activities in connection with the work plan. ○ Assures adherence with the technical requirements of the work plan. ○ Primary contact for on-Site H&S emergencies. ○ Primary contact concerning activities, field personnel, contact with the PM and public inquiries.
Gary Schwartz, CIH, CSP, CMC	Phase Associates, LLC 316 Eisenhower Parkway Livingston, New Jersey 07039 973-597-0750 973-597-6445-fax	○ Site Health & Safety Office (HSO); reports to SM. ○ Assures adherence with the HASP of the work plan. ○ Assists in ensuring adherence with the QA/QC procedures of the work plan. ○ Has authority in stopping work per SM approval when H&S concerns arise.
Jacob Strauss, PE	EWMA, LLC 100 Misty Lane Parsippany, NJ (973) 560-1400 973-560-0400-fax	● Project Engineer ● Preparation and certification of the final engineering report with the PM.
n/a	Summit Well Drilling 81 Chimney Rock Road Bridgewater, NJ 08807	● Certified well drilling ● Permitting. ● Controlled Inspections. ● Letter of Completion.
n/a	Integrated Analytical Laboratories 273 Franklin Road Randolph, NJ 07869	● Certified analytical laboratory
n/a	In-Situ Oxidative Technologies 11 Princess Road, Suite A Lawrenceville, NJ 08648	● In-situ chemical oxidation services

Remedial Engineer

The Remedial Engineer for this project was Ajay Kathuria. The Remedial Engineer was a registered professional engineer licensed by the State of New York and was a former employee of EWMA during the remedial activities described in this Final Engineering Report. The NYSDEC assigned the Remedial Engineer with primary direct responsibility for implementation of the remedial program for the Former Swivelier Site (NYSDEC Site No. 3-44-036).

The Project Engineer certifying this Final Engineering Report is Jacob Strauss and is a registered professional engineer licensed by the State of New York. The Project Engineer certifies that his firm's (EWMA) remedial activities were observed by qualified environmental professionals under his supervision and that the remediation requirements set forth in the Remedial Action Work Plan, and any other relevant provisions of ECL 27-1419, have been achieved in substantial compliance with that plan.

The Remedial Engineer or delegated personnel coordinated the work of other contractors and subcontractors involved in all aspects of remedial construction. The Remedial Engineer or delegated personnel were responsible for all appropriate communication with NYSDEC and NYSDOH.

The Remedial Engineer reviewed all pre-remedial plans submitted by contractors for compliance with the RAWP, as well as the performed remedial actions, which are certified in compliance with the approved RAWP in this Final Engineering Report.

4.2.2 Site Preparation

A pre-construction meeting was held with NYSDEC and all contractors on January 18, 2002.

Documentation of agency approvals required by the RAWP is included in Appendix 3. Other non-agency permits relating to the remediation project are provided in Appendix 3.

All SEQRA requirements and all substantive compliance requirements for attainment of applicable natural resource or other permits were achieved during this Remedial Action.

A NYSDEC-approved project sign was erected at the project entrance and remained in place during all phases of the Remedial Action.

The following is a summary of activities that were performed prior to commencement of remedial activities.

4.2.2.1 Mobilization

The mobilization of equipment, including the transportation and staging of ISOTEC equipment, materials, instruments, personnel, and services required for implementing the treatment injections at the Property began in November 2002 for the field pilot study and again in May 2005 for the full-scale treatment program, after the RAWP was approved by the NYSDEC/NYSDOH.

The equipment transported to the site included the ISOTEC trailer housing and miscellaneous equipment such as hoses, pumps, pipes, drums, tanks, mixers, generators, etc. The materials transported to the site included 35% hydrogen peroxide and other proprietary chemical mixes required for reagent preparation. All reagent chemicals were transported to the site in DOT approved HDPE drums throughout the treatment program.

4.2.2.2 Equipment and Material Staging

All materials were stored away from the surrounding roads and associated storm sewers and, where possible, were stored in covered areas.

4.2.2.3 Demobilization

Demobilization activities for the full-scale treatment program took place in April 2006 and included removal of all staged equipment, materials, instruments, personnel, and services from the treatment area. In addition, the activities included decontamination

and removal of all equipment, drums, tanks and instruments. All materials generated during the course of the remedial activities were disposed off-Site in accordance with acceptable rules and regulations.

4.2.3 General Site Controls

4.2.3.1 Site Security

The property is partially enclosed by chain link fencing. No other security measures were provided during remedial action activities.

4.2.3.2 Job Site Record Keeping

Job Site field notes were maintained in dated and bound field book maintained on-Site throughout the project. Additionally, digital photographs were taken during site activities.

4.2.4 Nuisance controls

4.2.4.1 Odor Control

Odor controls were effective, no nuisance odors migrated off-site, and there were no odor events that required notification to NYSDEC and NYSDOH.

4.2.4.2 Dust Control

Dust controls were effective, no nuisance odors migrated off-site, and there were no dust events that required notification to NYSDEC and NYSDOH.

4.2.5 CAMP Results

A Community Air Monitoring Plan (CAMP) was included as part of the site-specific HASP as Appendix 14 of the RAWP approved by the NYSDEC.

During the Site remediation activities, it was never necessary to implement the CAMP due to on Site conditions, and the absence of fugitive dust and ambient organic vapors. The off-Site public within close proximity to the remedial action Site was protected throughout the duration of the remediation activities.

4.2.6 Reporting

Daily and Monthly Progress Reports and digital photo logs were not required by NYSDEC in accordance with the approved RAWP.

4.3 CONTAMINATED MATERIALS REMOVAL

There were no contaminated materials or sources of contamination removed from the Site in association with ISOTEC in-situ chemox treatment injections or the SSDS installation and operation.

Soil investigation and soil remedial activities were conducted by Camp Dresser & McKee (CDM) under NYSDEC oversight. Therefore, soil cleanup objectives (SCOs) for the contaminants of concern for this portion of the project do not apply. A summary of soil excavation, handling, storage, transport and disposal activities is documented in CDM's July 2000 Supplemental Investigation Report, along with EWMA's November 2004 RAWR-GW.

4.4 REMEDIAL PERFORMANCE/DOCUMENTATION SAMPLING

Remedial performance was evaluated through confirmation sampling performed in compliance with analytical QA/QC requirements of the approved RAWP. All samples were analyzed by Integrated Analytical Laboratories, LLC (IAL) of Randolph, New Jersey, a New York certified laboratory (Certified Lab ID No. 11402).

4.4.1 ISOTEC Treatment / Groundwater Sampling

Groundwater samples were collected during the treatment program to obtain information related to the ISOTEC treatment process of the bedrock aquifer and natural attenuation. VOCs, mainly TCE and cis-1,2-DCE, were the contaminants of concern driving the cleanup at the site. Post-treatment samples were analyzed for TCL VO+15 (EPA Method 8260C).

Frequent groundwater sampling events were conducted between September 2005 and November 2017. Initially, the groundwater sampling program consisted of samples collected biannually from wells MW-10D, 11D, 12D, and 13D. After the May 2009 sampling event, MW-12D was removed from the sampling program per NYSDEC approval via e-mail, after results were below standards for the prior eight sampling events dating back to September 2005.

During the most recent event groundwater sampling event in November 2017, twenty-three (23) wells were sampled to ascertain current contaminant levels. The analytical results for the samples collected during this sampling round revealed concentrations of MTBE, cis-1,2-DCE, benzene, TCE, toluene, acetone, and vinyl chloride. However, MTBE, benzene, and toluene are not known site contaminants of concern and are believed not to be associated with the former Swivelier facility.

Table 1 provides a historical summary of all groundwater samples that have been taken as part of remedial actions performed to remediate groundwater.

Table 2 provides a historical summary of all ISOTEC injection events performed as part of remedial actions to remediate groundwater.

4.4.2 Sub-Slab Vapor and Indoor Air (IAQ) Sampling

On January 14, 2004, an inspection of the Property was conducted by representatives of EWMA, the NYSDEC, and the NYSDOH. Four sample locations were chosen for collecting sub-slab vapor and indoor air samples. A sub-slab investigation was conducted by EWMA at the site on February 3, 2004 and representatives from NYSDEC were on-site to observe the sampling protocols. One of

the four sub-slab soil gas samples and its corresponding indoor air sample indicated the need for mitigation, and in March 2008, a sub-slab depressurization system (SSDS) was installed and activated at the site (see Section 4.8).

In April 2014, in accordance with the November 25, 2013 RAWP Addendum, EWMA installed seven shallow on-site temporary well points and one shallow off-site temporary well point / soil vapor point to investigate TCE detected in shallow ground water at off-site temporary well point GW-02 installed as part of NYSDOH's 2004 investigation.

Groundwater samples were obtained from all eight temporary well points and analyzed for chlorinated volatile organic compounds (CVOCs), via EPA method 8260. The soil vapor sample was analyzed for volatile organic compounds via EPA Method TO-15 by Integrated Analytical Laboratories, LLC (IAL) of Randolph, New Jersey. Ground water sample results obtained from the temporary well points indicated compliance with the exception of temporary well point TW-5, which exhibited concentrations of TCE and cis-1,2-Dichloroethene at concentrations above their respective New York State AWQS. Results from the soil vapor sample obtained from the TW-8 location did not identify compounds of concern associated with the former Swivelier facility. No further offsite assessment of ground water or soil vapor was warranted across West Nyack Road, as documented in EWMA's August 26, 2015 Revised Supplemental RI Progress Report, submitted to NYSDEC.

During November 2017, four (4) sub-slab soil gas sampling ports were installed in the building slab to investigate the contaminated groundwater as a potential vapor intrusion source. Four (4) sub-slab soil gas samples were taken and were analyzed for volatile organic compounds via EPA Method TO-15 by IAL.

The analytical results for the samples collected during the November 2017 sampling event revealed elevated concentrations of cis-1,2-DCE and TCE in one of the four samples. Based on the magnitude of these sub-slab concentrations, it is recommended that SSDS mitigation continue to minimize potential exposures associated with vapor intrusion.

4.5 IMPORTED BACKFILL

There were no contaminated materials or sources of contamination removed from the Site in association with ISOTEC in-situ chemox treatment injections or the SSDS installation and operation. Site activities included only ISOTEC in-situ chemox treatment injections and the installation and operation of an SSDS, neither of which required the importation of backfill.

4.6 CONTAMINATION REMAINING AT THE SITE

Since contaminated groundwater and soil vapor remains beneath the site after completion of the Remedial Action, Institutional and Engineering Controls are required to protect human health and the environment. These Engineering and Institutional Controls (ECs/ICs) are described in the following sections. Long-term management of these EC/ICs and residual contamination will be performed under the Site Management Plan (SMP) approved by the NYSDEC.

Table 1 provides a historical summary of all groundwater samples that have been taken as part of remedial actions performed to remediate groundwater.

4.7 SOIL COVER/CAP SYSTEM

Exposure to remaining contamination in groundwater at the site is prevented by asphalt pavement, concrete-covered sidewalks, and concrete building slabs. **Figure 4** shows the location of each cover type built at the Site.

4.8 OTHER ENGINEERING CONTROLS

Since remaining contaminated groundwater and soil vapor exists beneath the Site, Engineering Controls (EC) are required to protect human health and the environment. The Site has the following primary Engineering Controls, as described in the following subsections.

4.8.1 Sub-Slab Depressurization System (SSDS)

In accordance with the November 2004 RAWP, an SSDS was installed in March 2008 to address concerns regarding a potential source of vapor intrusion beneath the building.

The results of the diagnostic field pilot test, conducted by EWMA on August 23, 2004, provided a basis to determine the locations and number of extraction points necessary to achieve adequate depressurization underneath the entire building. Upon instructions from the property representative, all SSDS installation activities were conducted within the empty warehouse portion of the building.

The following provides a summary of the SSDS design:

- Two (2) separate SSDSs are installed along the western and eastern portions of the building and connected to vacuum blower #1 and #2, respectively, which are located on the roof of the building;
- Each SSDS consists of a 4-inch PVC main header pipe installed along the ceiling in order to connect all extraction points to the header pipe, and extending to the outside of the building into the vacuum blower;
- A total of nine (9) extraction points were connected to the western SSDS and eight (8) extraction points were connected to the eastern SSDS, each via 2-inch PVC connecting pipes extending upwards from the extraction points along the walls and corner and along the ceiling to the 4-inch PVC main header pipe;
- Extraction point connector pipes and main header inlets to the vacuum blowers were equipped with ball valves and sampling ports in order to optimize the vacuum and flow through all points, and collect flow readings and air samples, as necessary;
- The vacuum blowers are 7.5 HP Regenerative Blowers capable of providing a total flow rate of 250 to 300 CFM. However, based on recent sub-slab soil gas sampling results, taken in November 2017, the full efficiency of the blowers is not

required, and it is recommended that inline radon fans with reduced flow rates be installed within the vent risers.

Procedures for monitoring, operating and maintaining the SSDS are provided in the Operation and Maintenance Plan in Section 5.0 of the Site Management Plan (SMP). The Monitoring Plan also addresses inspection procedures that must occur after any severe weather condition has taken place that may affect on-site ECs.

4.9 INSTITUTIONAL CONTROLS

The Site remedy requires that a deed restriction be placed on the property to (1) implement, maintain and monitor the Engineering Controls; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the Site to commercial and industrial uses only.

The environmental easement for the Site was executed by the Department on September 28, 2000 and filed with the Rockland County Clerk on December 8, 2000. The County Recording Identifier number for this filing is Deed No. 2000-00054294. A copy of the easement and proof of filing is provided in **Appendix 4**.

An additional Deed Notice restricting the property use, the tampering with engineering controls, restriction of groundwater use, and periodic monitoring and reporting will be filed at a later date.

4.10 DEVIATIONS FROM THE REMEDIAL ACTION WORK PLAN

The Volunteer has implemented the approved RAWP with only a few field changes, but none of which involved changes to the approved remedies. Based on NYSDEC comments to the RAWR-GW dated November 2004, the RAWR-GW was revised and submitted on December 28, 2004 and approved by NYSDEC.

Additionally, based on NYSDEC comments to the RAWP dated August 28, 2013, a RAWP Addendum was submitted on November 25, 2013. The RAWP Addendum reflected the approved RAWP with modifications to include two additional temporary well sampling points and one additional temporary soil vapor sampling point to investigate the source of TCE.

Final Engineering Report

Property Known As:

**Former Swivelier Site
Village of Nanuet, Rockland County, New York
NYSDEC Site Number: 3-44-036
EWMA Project No. 205548**

June 2018

Table 1 – Historical Groundwater Results



Table 1 - Historic Groundwater Results
Former Swivelier Site
Route 304, Nanuet NY
EWMA Project No. 205548

Well Information (ft.)	Sampling Date	Acetone	Vinyl Chloride	Chloroethane	Chloroform	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	2-Butanone	Methyl tert-butyl ether (MTBE)	Benzene	Trichloroethene	Bromodichloromethane	Tetrachloroethene	1,4-Dichlorobenzene	1,2-Dichlorobenzene	Toluene	1,1-Dichloroethene	TOTAL VO's:	TOTAL TIC's:	TOTAL VO's & TIC's:
TOGS 1.1.1 GW STANDARDS GA CLASS		50*	2	5	7	5	5	50*	NS	1	5	50*	5	3	3	5	5	NS	NS	NS
MW-10D	9/2/2005	ND	ND	ND	ND	NA	ND	ND	NA	ND	249	ND	ND	ND	2.03	ND	ND	262	97	359
	12/21/2005	ND	ND	ND	ND	4390	ND	ND	ND	ND	14500	ND	ND	ND	ND	ND	ND	18,900	ND	18,900
	8/9/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	131	ND	ND	ND	1.13	ND	ND	132	44.0	176
	3/14/2007	23.4	ND	ND	ND	ND	73	ND	ND	ND	10900	ND	32.6	12.9	95.7	ND	ND	11,100	NA	NA
	10/16/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	861	ND	ND	ND	ND	ND	ND	861	232	861
	5/5/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	330	ND	ND	ND	ND	ND	ND	330	58.0	388
	10/29/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	2920	ND	ND	ND	ND	ND	ND	2,920	875	3,800
	5/14/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	4260	ND	ND	ND	ND	ND	ND	4,260	1,800	6,060
	11/10/2009	ND	ND	ND	ND	2010	ND	ND	ND	ND	5000	ND	ND	ND	ND	ND	ND	7,010	ND	7,010
	4/29/2014	ND	ND	ND	ND	1720.0	9.6	ND	ND	ND	3700	ND	ND	ND	ND	ND	ND	5,430	NA	NA
	10/16/2015	ND	ND	ND	ND	1960.0	ND	ND	ND	ND	4420	ND	ND	ND	ND	ND	ND	6,380	NA	NA
	5/18/2017	ND	ND	ND	ND	3760.0	29.8	ND	ND	ND	7480	ND	24.6	ND	ND	ND	ND	11,300	NA	NA
	11/21/2017	ND	ND	ND	ND	3620.0	ND	ND	ND	ND	7210	ND	ND	ND	ND	ND	ND	10,800	ND	10,800
MW-11D	11/19/2002	ND	ND	ND	ND	91	ND	ND	ND	ND	617	ND	4.24	2.12	9.4	2.66	ND	635	91	726
	9/2/2005	ND	ND	ND	ND	NA	ND	ND	NA	ND	6.86	ND	ND	ND	ND	ND	ND	6.86	27.8	34.7
	12/21/2005	ND	ND	ND	ND	13.6	ND	ND	ND	ND	10.9	ND	ND	ND	ND	ND	ND	24.5	6.8	31.3
	8/9/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.82	ND	ND	ND	ND	ND	ND	2.82	201	204
	3/14/2007	11.3	ND	ND	ND	ND	ND	13.0	ND	ND	8.72	ND	ND	ND	ND	ND	ND	33.0	NA	NA
	10/16/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	25.0	ND	ND	ND	ND	ND	ND	25.0	99.4	124
	5/5/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.29	ND	ND	ND	ND	ND	ND	5.29	ND	5.29
	10/29/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.62	ND	ND	ND	ND	ND	ND	7.62	ND	7.62
	5/14/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.00	ND	ND	ND	ND	ND	ND	6.00	ND	6.00
	11/10/2009	ND	ND	ND	ND	2.07	ND	ND	ND	ND	17.0	ND	ND	ND	ND	ND	ND	19.1	ND	19.1
	4/29/2014	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.37	ND	ND	ND	ND	ND	ND	3.37	NA	NA
	10/16/2015	ND	ND	ND	ND	2.69	ND	ND	ND	ND	3.08	ND	ND	ND	ND	ND	ND	5.77	NA	NA
	5/18/2017	ND	ND	ND	ND	1.95	ND	ND	ND	ND	4.64	ND	ND	ND	ND	ND	ND	6.59	NA	NA
	11/21/2017	ND	ND	ND	ND	1.72	ND	ND	0.575	ND	1.84	ND	ND	ND	ND	ND	ND	4.14	ND	4.14
MW-12D	11/19/2002	ND	ND	ND	ND	9.7	ND	ND	222	ND	9.45	ND	ND	ND	0.35	ND	ND	9.8	232	242
	9/2/2005	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	23.1	23.1
	12/21/2005	ND	ND	ND	ND	1.59	ND	ND	ND	ND	2.09	ND	ND	ND	ND	ND	ND	3.68	82.2	85.9
	8/9/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21.1	21.1
	3/13/2007	8.05	ND	ND	ND	ND	ND	ND	ND	ND	1.14	ND	ND	ND	ND	ND	ND	9.19	NA	NA
	10/16/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/2/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/29/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	5/14/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.587	ND	ND	ND	ND	ND	ND	0.587	5.50	6.09
	11/21/2017	ND	ND	ND	ND	3.33	ND	ND	0.733	ND	3.90	ND	ND	ND	ND	ND	ND	7.69	ND	7.69

Table 1 - Historic Groundwater Results
Former Swivelier Site
Route 304, Nanuet NY
EWMA Project No. 205548

Well Information (ft.)	Sampling Date	Acetone	Vinyl Chloride	Chloroethane	Chloroform	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	2-Butanone	Methyl tert-butyl ether (MTBE)	Benzene	Trichloroethene	Bromodichloromethane	Tetrachloroethene	1,4-Dichlorobenzene	1,2-Dichlorobenzene	Toluene	1,1-Dichloroethene	TOTAL VO's:	TOTAL TIC's:	TOTAL VO's & TIC's:
TOGS 1.1.1 GW STANDARDS GA CLASS		50*	2	5	7	6	6	50*	NS	1	5	50*	6	3	3	5	5	NS	NS	NS
MW-13D	11/19/2002	ND	ND	ND	ND	58.5	ND	ND	ND	ND	255	ND	ND	ND	2.14	ND	ND	257	58.5	316
	9/2/2005	ND	ND	ND	ND	NA	ND	ND	NA	ND	39.4	ND	ND	ND	ND	ND	ND	39	5.8	45.2
	12/21/2005	ND	ND	ND	ND	1.95	ND	ND	ND	ND	9.00	ND	ND	ND	ND	ND	ND	11.0	ND	11.0
	8/9/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	32.6	ND	ND	ND	ND	ND	ND	32.6	9.00	41.6
	3/13/2007	2.12	ND	ND	ND	ND	1.75	ND	ND	ND	208	ND	0.722	ND	1.57	ND	ND	214	NA	NA
	10/16/2007	ND	0.637	ND	ND	ND	ND	ND	ND	ND	130	ND	0.827	ND	1.99	ND	ND	133	86.2	219
	5/2/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	22.0	ND	ND	ND	ND	ND	ND	22.0	10.6	32.6
	10/29/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	4120	ND	ND	ND	ND	ND	ND	4120	1130	5250
	5/14/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	337	ND	2	ND	ND	ND	ND	339	309	648
	11/10/2009	ND	ND	ND	ND	24.4	ND	ND	ND	ND	1.72	ND	ND	ND	ND	ND	ND	26.1	ND	26.1
	4/29/2014	ND	ND	ND	ND	15.20	ND	ND	ND	ND	36.1	ND	ND	ND	ND	ND	ND	51.3	NA	NA
	10/16/2015	ND	ND	ND	ND	1750	ND	ND	ND	ND	4300	ND	ND	ND	ND	ND	ND	6050	NA	NA
	5/18/2017	ND	ND	ND	ND	1830	ND	ND	ND	ND	3910	ND	16.2	ND	ND	ND	ND	5790	NA	NA
	11/20/2017	ND	ND	ND	ND	517	ND	ND	ND	ND	1350	ND	ND	ND	ND	ND	ND	1870	ND	1870
MW-1R	9/2/2005	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/21/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	8/9/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	27.2	27.2
	3/13/2007	2.76	ND	ND	ND	ND	ND	ND	ND	ND	0.770	ND	ND	ND	ND	ND	ND	3.53	NA	NA
	11/22/2017	ND	ND	ND	ND	ND	ND	ND	3.26	ND	0.531	ND	ND	ND	ND	ND	ND	3.79	ND	3.79
MW-6I	9/2/2005	ND	ND	ND	ND	NA	ND	ND	NA	ND	54.7	ND	ND	ND	ND	ND	ND	54.7	ND	54.7
	12/21/2005	ND	60.6	ND	ND	153	ND	ND	ND	ND	24.5	ND	ND	ND	ND	ND	ND	238	ND	238
	8/9/2006	ND	15.1	0.911	ND	ND	ND	ND	ND	ND	33.1	ND	ND	ND	ND	ND	ND	49.1	65.4	115
	3/14/2007	4.50	4.04	ND	ND	ND	ND	ND	ND	ND	1.95	ND	ND	ND	ND	ND	ND	10.5	NA	NA
	11/21/2017	ND	121	ND	ND	170	ND	ND	0.940	ND	17.2	ND	ND	ND	ND	ND	0.546	310	ND	310
MW-6R	9/2/2005	ND	ND	ND	ND	NA	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	12/21/2005	ND	ND	ND	ND	22.8	ND	ND	ND	ND	83.6	ND	ND	ND	ND	ND	ND	106	58.5	165
	8/9/2006	ND	ND	ND	0.929	ND	ND	ND	ND	ND	8.14	0.33	ND	ND	ND	ND	ND	9.40	55.1	64.5
	3/13/2007	186	ND	ND	0.776	ND	ND	6.88	ND	2.12	6.54	ND	ND	ND	ND	ND	ND	202	NA	NA
	11/21/2017	ND	ND	ND	ND	7.39	ND	ND	8.29	0.544	10.2	ND	ND	ND	ND	1.09	ND	27.5	ND	27.5
MW-1N	11/22/2017	ND	ND	ND	ND	5.12	ND	ND	1.37	ND	ND	ND	ND	ND	ND	ND	ND	6.49	ND	6.49
MW-1S	11/22/2017	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-1SE	11/22/2017	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.719	ND	ND	ND	ND	ND	ND	0.719	ND	0.719
MW-2I	11/22/2017	ND	ND	ND	ND	ND	ND	ND	6.43	ND	ND	ND	ND	ND	ND	ND	ND	6.43	ND	6.43
MW-2N	11/22/2017	ND	ND	ND	ND	ND	ND	ND	0.504	ND	ND	ND	ND	ND	ND	ND	ND	0.504	39.4	39.9
MW-2S	11/22/2017	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3N	11/22/2017	ND	2.08	ND	ND	9.93	ND	ND	2.47	ND	ND	ND	ND	ND	ND	ND	1.39	15.9	131	147
MW-4I	11/22/2017	ND	ND	ND	ND	ND	ND	ND	66.6	ND	ND	ND	ND	ND	ND	ND	ND	66.6	14.7	81.3

Table 1 - Historic Groundwater Results
Former Swivelier Site
Route 304, Nanuet NY
EWMA Project No. 205548

Well Information (ft.)	Sampling Date	Acetone	Vinyl Chloride	Chloroethane	Chloroform	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	2-Butanone	Methyl tert-butyl ether (MTBE)	Benzene	Trichloroethene	Bromodichloromethane	Tetrachloroethene	1,4-Dichlorobenzene	1,2-Dichlorobenzene	Toluene	1,1-Dichloroethene	TOTAL VO's:	TOTAL TIC's:	TOTAL VO's & TIC's:
TOGS 1.1.1 GW STANDARDS GA CLASS		50*	2	5	7	6	9	50*	NS	1	6	50*	6	3	3	6	9	NS	NS	NS
MW-4S	11/21/2017	ND	ND	ND	ND	ND	ND	ND	13.7	ND	ND	ND	ND	ND	ND	ND	ND	13.7	ND	13.7
MW-7I	11/21/2017	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.31	ND	ND	ND	ND	ND	ND	1.31	ND	1.31
MW-7SE	11/21/2017	ND	1.20	ND	ND	4.50	ND	ND	7.32	ND	ND	ND	ND	ND	ND	ND	ND	13.0	ND	13.0
MW-7SW	11/21/2018	ND	ND	ND	ND	ND	ND	ND	46.2	ND	ND	ND	ND	ND	ND	ND	ND	46.2	ND	46.2
MW-8I	11/21/2017	ND	17.9	ND	ND	1660	ND	ND	90.8	ND	3780	ND	ND	ND	ND	ND	ND	5550	ND	5550
MW-9D	11/21/2017	15.7	ND	ND	ND	6.79	ND	ND	ND	ND	84.2	ND	ND	ND	ND	ND	ND	107	ND	107
MW-9DI	11/21/2017	ND	ND	ND	ND	1.37	ND	ND	58.4	ND	82.9	ND	ND	ND	ND	ND	ND	143	ND	143
MW-9SI	11/21/2017	ND	ND	ND	ND	ND	ND	ND	3.53	ND	ND	ND	ND	ND	ND	ND	ND	3.53	ND	3.53
TW-1	4/29/2014	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TW-2	4/29/2014	ND	ND	ND	ND	1.14	ND	ND	ND	ND	4.95	ND	ND	ND	ND	ND	ND	6.09	ND	ND
TW-3	4/29/2014	ND	ND	ND	ND	4.33	ND	ND	ND	ND	3.48	ND	ND	ND	ND	ND	ND	7.81	ND	ND
TW-4	4/29/2014	ND	ND	ND	ND	1.5	ND	ND	ND	ND	0.993	ND	ND	ND	ND	ND	ND	2.49	ND	ND
TW-5	4/29/2014	ND	ND	ND	ND	5.21	ND	ND	ND	ND	15	ND	ND	ND	ND	ND	ND	20.2	ND	ND
TW-6	4/29/2014	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TW-7	4/29/2014	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TW-8	4/29/2014	ND	ND	ND	ND	3.61	ND	ND	ND	ND	0.48	ND	ND	ND	ND	ND	ND	4.09	ND	ND

Final Engineering Report

Property Known As:

**Former Swivelier Site
Village of Nanuet, Rockland County, New York
NYSDEC Site Number: 3-44-036
EWMA Project No. 205548**

June 2018

Table 2 – Historical ISOTEC Injection Events



**Table 2: Historical ISOTEC Injection Events
Former Swivelier Site
Route 304, Nanuet NY
EWMA Job #205548**

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)	Location Depth (feet)
ISCO-1	12-May-05	60	19	120	106	3.16	1.13	35'-48'
Total Volume		60		120		3.16	1.13	

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)	Location Depth (feet)
ISCO-2	13-May-05	120	24	240	48	5.00	5.00	33'-48'
	13-May-05	60	19	120	33	3.16	3.64	18'-33'
Total Volume		180		360		4.08	4.32	

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)	Location Depth (feet)
ISCO-3	12-May-05	20	33	35	47	0.61	0.74	26'-36'
	13-May-05	60	44	120	83	1.36	1.45	36'-46'
	13-May-05	30	9	60	15	3.33	4.00	16'-26'
Total Volume		110		215		1.77	2.06	

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)	Location Depth (feet)
ISCO-4	12-May-05	60	29	145	85	2.07	1.71	35'-48'
Total Volume		60		145		2.07	1.71	

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)	Location Depth (feet)
ISCO-5	11-May-05	60	60	120	112	1.00	1.07	28'-32'
	13-May-05	120	29	240	42	4.14	5.71	15'-25'
Total Volume		180		360		2.57	3.39	

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)	Location Depth (feet)
ISCO-6	13-May-05	30	19	60	46	1.58	1.30	31'-46'
	13-May-05	30	16	60	21	1.88	2.86	16'-31'
Total Volume		60		120		1.73	2.08	

NOTE: Oxidizer is 12.5% Stabilized Hydrogen Peroxide
Catalyst is ISOTEC series Cat-4260 chelated iron complex

Table 2: Historical ISOTEC Injection Events
Former Swivelier Site
Route 304, Nanuet NY
EWMA Job #205548

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)
MW-6R	06-Jun-05	0	0	20	9	~	2.22
	08-Jun-05	0	0	30	41	~	0.73
	09-Jun-05	0	0	35	39	~	0.90
	13-Jun-05	15	95	0	0	0.16	~
Total Volume		15		85		0.16	1.28

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)
MW-10D	06-Jun-05	0	0	25	18	~	1.39
	07-Jun-05	0	0	30	91	~	0.33
	08-Jun-05	0	0	60	96	~	0.63
	09-Jun-05	0	0	45	44	~	1.02
	13-Jun-05	45	50	0	0	0.90	~
Total Volume		45		160		0.90	0.84

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)
MW-11D	06-Jun-05	0	0	60	188	~	0.32
	07-Jun-05	0	0	135	327	~	0.41
	08-Jun-05	0	0	75	249	~	0.30
	09-Jun-05	85	219	45	29	0.39	1.55
	13-Jun-05	95	44	195	273	2.16	0.71
Total Volume		180		510		1.27	0.66

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)
MW-12D	07-Jun-05	0	0	60	185	~	0.32
	08-Jun-05	60	42	80	104	1.43	0.77
	09-Jun-05	0	0	35	119	~	0.29
	13-Jun-05	0	0	60	208	~	0.29
Total Volume		60		235		1.43	0.42

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)
MW-13D	06-Jun-05	0	0	90	35	~	2.57
	07-Jun-05	90	103	210	104	0.87	2.02
	08-Jun-05	150	49	180	89	3.06	2.02
	09-Jun-05	0	0	300	185	~	1.62
	13-Jun-05	240	97	210	99	2.47	2.12
Total Volume		480		990		2.14	2.07

NOTE: Oxidizer is 12.5% Stabilized Hydrogen Peroxide
Catalyst is ISOTEC series Cat-4260 chelated iron complex

Table 2: Historical ISOTEC Injection Events
Former Swivelier Site
Route 304, Nanuet NY
EWMA Job #205548

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)
MW-6R	23-Feb-06	0	0	55	28	~	1.96
	24-Feb-06	0	0	50	26	~	1.92
	01-Mar-06	30	13	0	0	2.31	~
Total Volume		30		105		2.31	1.94

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)
MW-10D	23-Feb-06	0	0	50	26	~	1.92
	24-Feb-06	0	0	60	26	~	2.31
	01-Mar-06	45	25	0	0	1.80	~
Total Volume		45		110		1.80	2.12

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)
MW-11D	23-Feb-06	0	0	80	42	~	1.90
	24-Feb-06	0	0	40	23	~	1.74
	01-Mar-06	35	20	0	0	1.75	~
Total Volume		35		120		1.75	1.82

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)
MW-12D	23-Feb-06	0	0	35	14	~	2.50
	24-Feb-06	0	0	20	14	~	1.43
	01-Mar-06	25	18	0	0	1.39	~
Total Volume		25		55		1.39	1.96

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)
MW-13D	24-Feb-06	0	0	90	37	~	2.43
	01-Mar-06	45	27	0	0	1.67	~
Total Volume		45		90		1.67	2.43

NOTE: Oxidizer is 12.5% Stabilized Hydrogen Peroxide
Catalyst is ISOTEC series Cat-4260 chelated iron complex

Table 2: Historical ISOTEC Injection Events
Former Swivelier Site
Route 304, Nanuet NY
EWMA Job #205548

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)
MW-6R	10-May-05	0	0	20	58	~	0.34
	11-May-05	0	0	25	73	~	0.34
	12-May-05	0	0	20	71	~	0.28
	13-May-05	30	18	10	4	1.67	2.50
Total Volume		30		75		1.67	0.87

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)
MW-10D	10-May-05	0	0	90	41	~	2.20
	11-May-05	0	0	20	16	~	1.25
	12-May-05	0	0	10	12	~	0.83
	13-May-05	30	218	0	0	0.14	~
Total Volume		30		120		0.14	1.43

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)
MW-11D	11-May-05	0	0	120	78	~	1.54
	12-May-05	40	88	0	0	0.45	~
	13-May-05	30	68	30	66	0.44	0.45
Total Volume		70		150		0.45	1.00

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)
MW-12D	10-May-05	40	10	120	35	4.00	3.43
	11-May-05	80	96	240	106	0.83	2.26
	12-May-05	30	146	20	14	0.21	1.43
	13-May-05	120	150	120	118	0.80	1.02
Total Volume		270		500		1.46	2.03

Injection Point ID	Injection Date	Catalyst Volume (gal)	Injection Time (Cat)	Oxidizer Volume (gal)	Injection Time (H2O2)	Catalyst Flow Rate (gal/min)	Oxidizer Flow Rate (gal/min)
MW-13D	10-May-05	120	64	240	85	1.88	2.82
	11-May-05	120	36	240	105	3.33	2.29
	12-May-05	120	49	240	262	2.45	0.92
Total Volume		360		720		2.55	2.01

Final Engineering Report

Property Known As:

**Former Swivelier Site
Village of Nanuet, Rockland County, New York
NYSDEC Site Number: 3-44-036
EWMA Project No. 205548**

June 2018

Table 3 – Historical Soil Vapor Results



Table 3: Historical Soil Vapor Results
Former Swivelier Site
Route 304, Nanuet NY
EWMA Job #205548

Sample Name:		SS-1			SS-2			SS-3			SS-4			SG			AIR-1			AIR-2			AIR-3			AIR-4		
Lab:		IAL			IAL			IAL			IAL			IAL			Accutest Laboratories			Accutest Laboratories			Accutest Laboratories			Accutest Laboratories		
Lab ID:		E17-09837-01			E17-09837-02			E17-09837-03			E17-09837-04			E14-03224-01			n58770-1			N58770-2			N58770-3			N58770-4		
Date		11/6/17			11/6/17			11/6/17			11/6/17			5/1/14			2/4/04			2/4/04			2/4/04			2/4/04		
		RL			RL			RL			RL			RL			RL			RL			RL			RL		
Compound	CAS#	Q	ug/m3	ug/m3	Q	ug/m3	ug/m3	Q	ug/m3	ug/m3	Q	ug/m3	ug/m3	Q	ug/m3	ug/m3	Q	ug/m3	ug/m3	Q	ug/m3	ug/m3	Q	ug/m3	ug/m3	Q	ug/m3	ug/m3
Acetone	67-64-1	D	260	4.8	D	130	4.8		86	0.48		45	0.48	D	180	4.8		123 b	1.9		46.8	0.48		19	0.48		625	7.6
Benzene	71-43-2		ND	0.64		ND	6.4		ND	0.64		ND	0.64	D	6.7	6.4		5.1	0.64		4.5	0.64		4.5	0.64		2.1	0.64
Benzyl chloride	100-44-7		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		ND	1		ND	1		ND	1		ND	1
Bromodichloromethane	75-27-4		ND	1.3		ND	13		ND	1.3		ND	1.3		ND	13		ND	1.3		ND	1.3		ND	1.3		ND	1.3
Bromoform	75-25-2		ND	2.1		ND	21		ND	2.1		ND	2.1		ND	21		ND	2.1		ND	2.1		ND	2.1		ND	2.1
Bromomethane	74-83-9		ND	0.78		ND	7.8		ND	0.78		ND	0.78		ND	7.8		ND	0.78		ND	0.78		ND	0.78		ND	0.78
1,3-Butadiene	106-99-0		ND	0.44		ND	4.4		ND	0.44		ND	0.44		ND	4.4		ND	0.44		ND	0.44		ND	0.44		ND	0.44
Chlorobenzene	108-90-7		ND	0.92		ND	9.2		ND	0.92		ND	0.92		ND	9.2		ND	0.92		ND	0.92		ND	0.92		ND	0.92
Chloroethane	75-00-3		ND	0.53		ND	5.3		ND	0.53		ND	0.53		ND	5.3		ND	0.53		ND	0.53		ND	0.53		ND	0.53
Chloroform	67-66-3		2.0	0.98		ND	9.8		1.8	0.98		ND	0.98		ND	9.8		ND	0.98		ND	0.98		ND	0.98		ND	0.98
Chloromethane	74-87-3		ND	0.41		ND	4.1		ND	0.41		ND	0.41		ND	4.1		ND	0.41		ND	0.41		ND	0.41		ND	0.41
Carbon disulfide	75-15-0		0.72	0.62		ND	6.2		ND	0.62		1.4	0.62	D	75	6.2		ND	0.62		1.2	0.62		ND	0.62		0.59	0.62
Carbon tetrachloride	56-23-5		0.50	0.25		ND	2.5		0.50	0.25		0.38	0.25		ND	2.5		ND	0.31		ND	0.31		0.5	0.31		ND	0.31
Cyclohexane	110-82-7		1.8	0.69		ND	6.9		1.1	0.69		ND	0.69		ND	6.9		ND	0.69		ND	0.69		ND	0.69		ND	0.69
Dibromochloromethane	124-48-1		ND	1.7		ND	17		ND	1.7		ND	1.7		ND	17		ND	1.7		ND	1.7		ND	1.7		ND	1.7
1,2-Dibromoethane	106-93-4		ND	1.5		ND	15		ND	1.5		ND	1.5		ND	15		ND	1.5		ND	1.5		ND	1.5		ND	1.5
1,2-Dichlorobenzene	95-50-1		ND	1.2		ND	12		ND	1.2		ND	1.2		ND	12		ND	1.2		ND	1.2		ND	1.2		ND	1.2
1,3-Dichlorobenzene	541-73-1		ND	1.2		ND	12		ND	1.2		ND	1.2		ND	12		ND	1.2		ND	1.2		ND	1.2		ND	1.2
1,4-Dichlorobenzene	106-46-7		ND	1.2		ND	12		ND	1.2		ND	1.2		ND	12		ND	1.2		ND	1.2		0.72	1.2		1	1.2
Dichlorodifluoromethane	75-71-8		1.2	0.99		ND	9.9		ND	0.99		ND	0.99		ND	9.9		3.4	0.99		ND	0.99		2.9	0.99		2.9	0.99
1,1-Dichloroethane	75-34-3		ND	0.81		ND	8.1		ND	0.81		ND	0.81		ND	8.1		ND	0.81		ND	0.81		2.9	0.81		ND	0.81
1,2-Dichloroethane	107-06-2		ND	0.81		ND	8.1		ND	0.81		ND	0.81		ND	8.1		0.45	0.2		ND	0.2		ND	0.2		ND	0.2
1,1-Dichloroethene	75-35-4		ND	0.79		ND	7.9		ND	0.79		ND	0.79		ND	7.9		ND	0.79		ND	0.79		ND	0.79		ND	0.79
1,2-Dichloroethene (cis)	156-59-2		ND	0.79	D	820	7.9		ND	0.79		ND	0.79		ND	7.9		ND	0.79		ND	0.79		ND	0.79		0.75	0.79
1,2-Dichloroethene (trans)	156-60-5		ND	0.79	D	57	7.9		ND	0.79		ND	0.79		ND	7.9		ND	0.79		ND	0.79		ND	0.79		ND	0.79
1,2-Dichloropropane	78-87-5		ND	0.92		ND	9.2		ND	0.92		ND	0.92		ND	9.2		ND	0.92		ND	0.92		ND	0.92		ND	0.92
1,3-Dichloropropene (cis)	10061-01-5		ND	0.91		ND	9.1		ND	0.91		ND	0.91		ND	9.1		ND	0.91		ND	0.91		ND	0.91		ND	0.91
1,3-Dichloropropene (trans)	10061-02-6		ND	0.91		ND	9.1		ND	0.91		ND	0.91		ND	9.1		ND	0.91		ND	0.91		ND	0.91		ND	0.91
1,3-Dichloropropene - TOTAL	542-75-6		ND	0.91		ND	9.1		ND	0.91		ND	0.91		ND	9.1		ND	1.91		ND	1.91		ND	1.91		ND	1.91
1,2-Dichlorotetrafluoroethane	76-14-2		ND	1.4		ND	14		ND	1.4		ND	1.4		ND	14		NA	NA		NA	NA		NA	NA		NA	NA
1,4-Dioxane	123-91-1		ND	0.72		ND	7.2		ND	0.72		ND	0.72		ND	7.2		ND	0.72		ND	0.72		ND	0.72		ND	0.72
Ethyl Acetate	141-78-6		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		ND	0.72		ND	0.72		ND	0.72		ND	0.72
Ethylbenzene	100-41-4		1.3	0.87		ND	8.7		1.0	0.87		1.0	0.87		ND	8.7		9.1	0.87		4.3	0.87		3.7	0.87		7.8	0.87
Ethanol	64-17-5		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		73	0.94		143 b	9.4		99.9	1.9		239	15
4-Ethyltoluene	622-96-8		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		5.4	0.98		5.9	0.98		2.8	0.98		1.2	0.98
Freon 113	76-13-1		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		ND	1.5		ND	1.5		ND	1.5		ND	1.5
Freon 114	76-14-2		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		ND	1.4		ND	1.4		ND	1.4		ND	1.4
n-Heptane	142-82-5		ND	0.82		ND	8.2		ND	0.82		ND	0.82		ND	8.2		3.4	0.82		3.6	0.82		3.5	0.82		3.3	0.82
1,3-Hexachlorobutadiene	87-68-3		ND	2.1		ND	21		ND	2.1		ND	2.1		ND	21		ND	2.1		ND	2.1		ND	2.1		ND	2.1
n-Hexane	110-54-3		7.5	0.71		ND	7.1		5.2	0.71		7.5	0.71	D	7.4	7.1		5.6	0.7		14	0.7		13	0.7		2.6	

Final Engineering Report

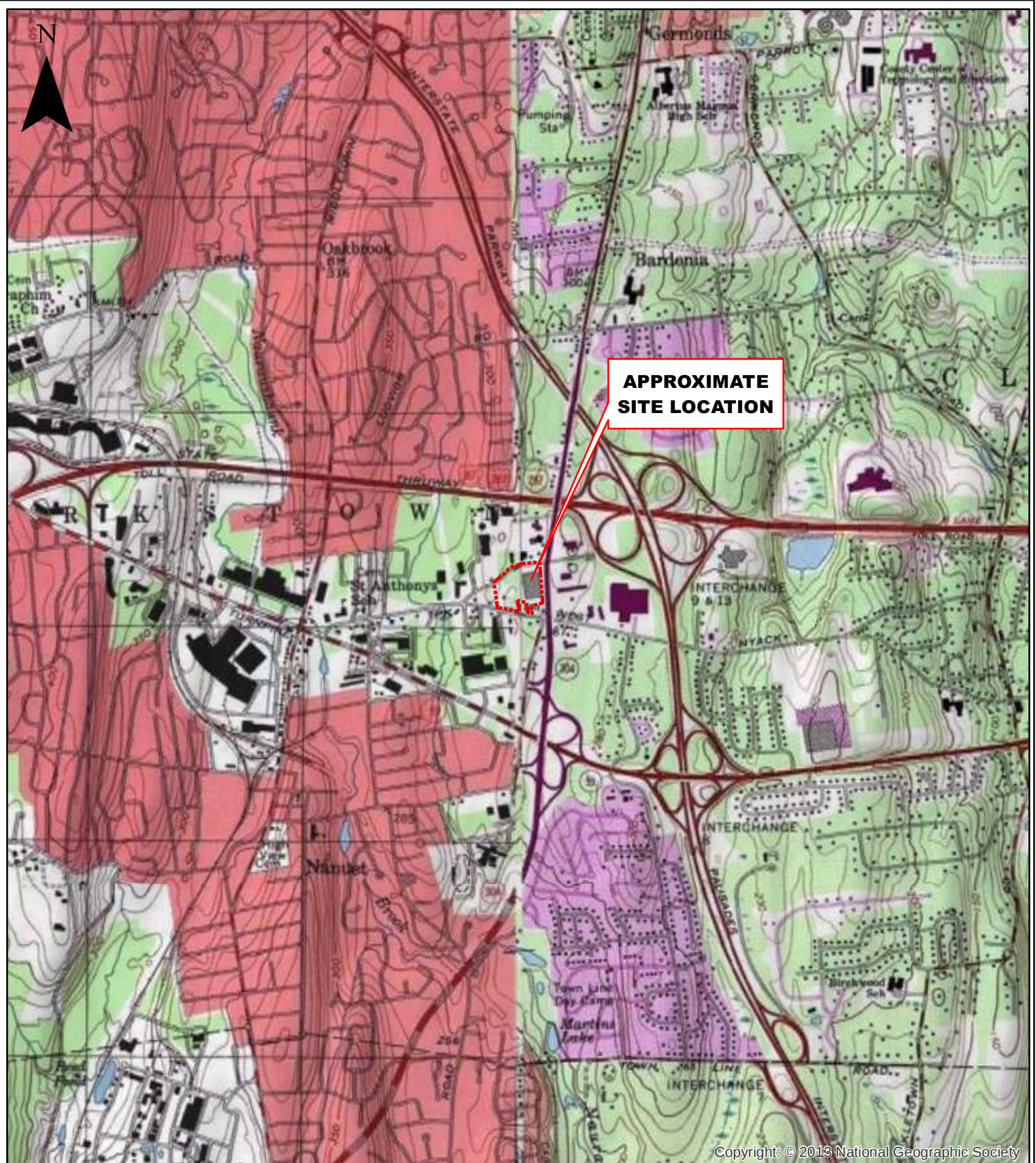
Property Known As:

**Former Swivelier Site
Village of Nanuet, Rockland County, New York
NYSDEC Site Number: 3-44-036
EWMA Project No. 205548**

June 2018

Figure 1 – Site Location Map





■ NEW JERSEY
QUADRANGLE LOCATION

2,000 1,000 0 2,000 Feet



SOURCE: USGS PARK RIDGE, N.J.-N.Y. 7.5 MINUTE. QUADRANGLE, TOPOGRAPHIC
IMAGERY OBTAINED FROM ARCGIS ONLINE



100 MISTY LANE
P.O. BOX 5430
PARSIPPANY, NEW JERSEY

DATE:
1/29/18

PROJECT #
205548

DRAWN BY: RR
CHECKED BY: JS

Document Path: G:\Job Data\205000\205548\Drawings\205548F1 Site Location map.mxd

SITE LOCATION
FORMER SWIVELIER COMPANY SITE
33 ROUTE 304
VILLAGE OF NANUET, NEW YORK

Figure #

1

Final Engineering Report

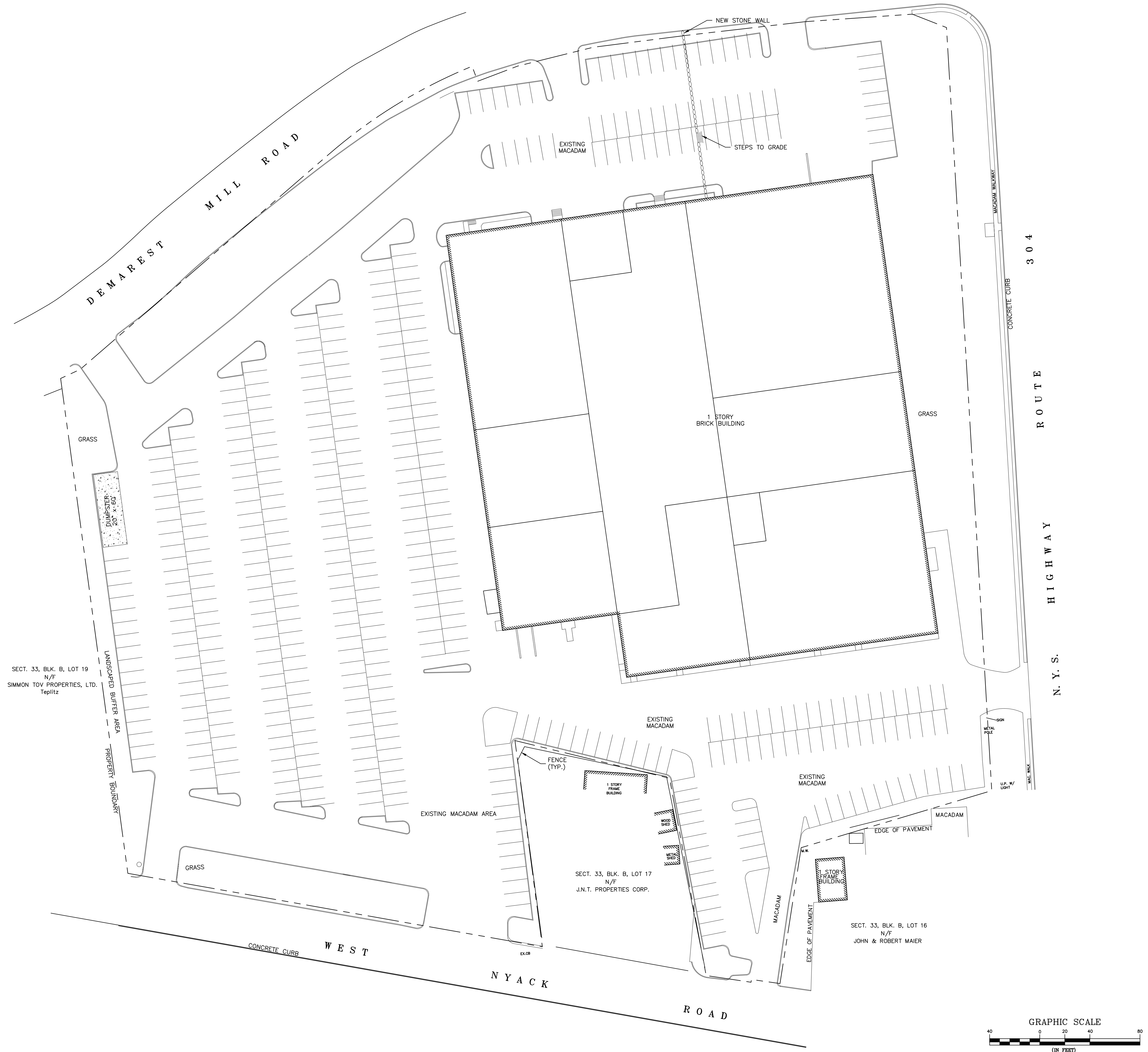
Property Known As:

**Former Swivelier Site
Village of Nanuet, Rockland County, New York
NYSDEC Site Number: 3-44-036
EWMA Project No. 205548**

June 2018

Figure 2 – Site Layout Map





 PROPERTY BOUNDARY
 FENCE (TYP.)

Final Engineering Report

Property Known As:

**Former Swivelier Site
Village of Nanuet, Rockland County, New York
NYSDEC Site Number: 3-44-036
EWMA Project No. 205548**

June 2018

Figure 3 – Existing and Former Monitoring Well Locations





- LEGEND**
- EXISTING MONITORING WELL LOCATION*
 - TEMPORARY WELL POINT LOCATION
 - ⊙ TEMPORARY WELL POINT/SOIL VAPOR LOCATION

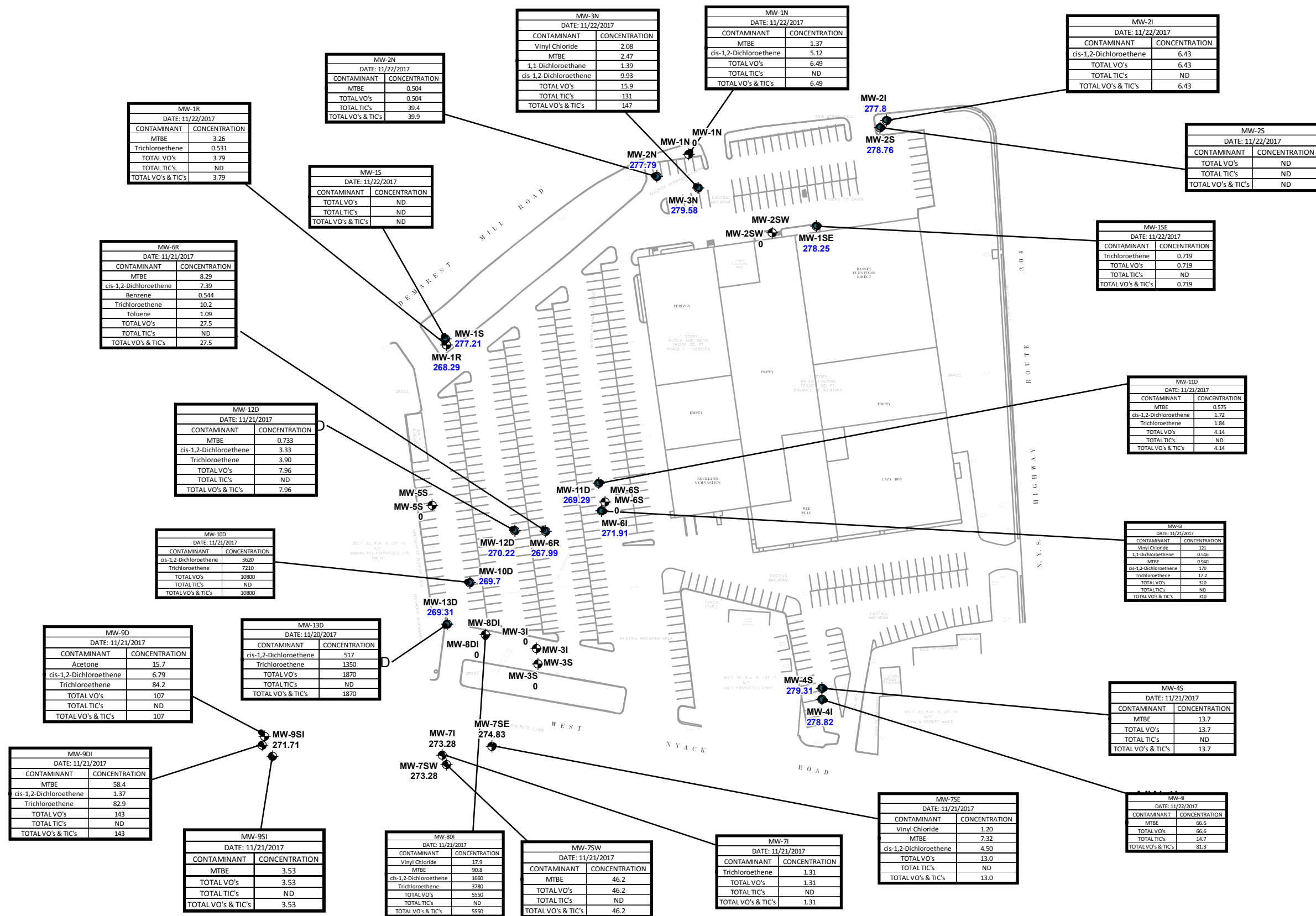
MW-9D
MW-9DI
MW-9SI

MW-7I
MW-7SW

MW-7SE

TW-8/SG

 100 Misty Lane P.O. Box 5430 Parsippany, NJ 07054	SCALE: AS SHOWN	PROJECT# 205548
	DATE: 2/6/18	
	DRAWN BY: RR/CL CHECKED BY: JS	
	FILE: h:\drawings\205548\205548.dwg	FIGURE# 3
EXISTING AND FORMER MONITORING WELL LOCATIONS FORMER SWIVELIER COMPANY SITE ROUTE 304 VILLAGE OF NANUET, NEW YORK		

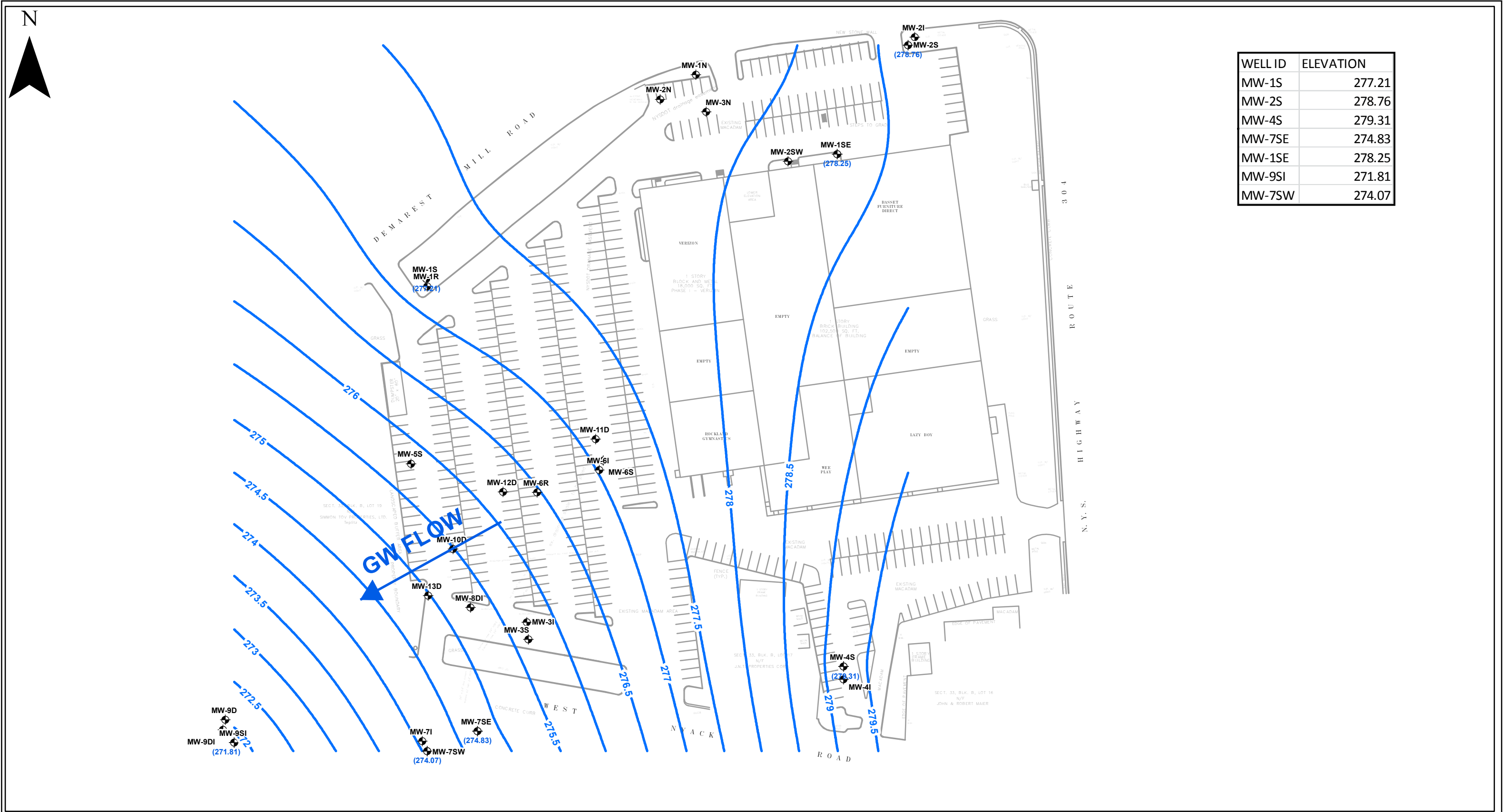


Legend

- GW_ELE_NO_1S
- ⊕ MONITORING WELL

NOTE: ALL RESULTS ARE IN PARTS PER BILLION (PPB)

	DATE:	PROJECT #
	6/27/2018	205548
100 MISTY LANE P.O. BOX 5430 PARSIPPANY, NEW JERSEY	DRAWN BY: JS CHECKED BY: KS	
Document Path: G:\Job Data\205000\205548\Drawings\CHEM_BOX_CONTOUR.mxd SAMPLE LOCATION PLAN FORMER SWIVELIER COMPANY SITE ROUTE 304 NANUET, NEW YORK		
		Figure# 2



WELL ID	ELEVATION
MW-1S	277.21
MW-2S	278.76
MW-4S	279.31
MW-7SE	274.83
MW-1SE	278.25
MW-9SI	271.81
MW-7SW	274.07

Legend

- Shallow Monitor Wells
- Shallow GW Contours





100 MISTY LANE
P.O. BOX 5430
PARSIPPANY, NEW JERSEY

DATE:
6/18/2018

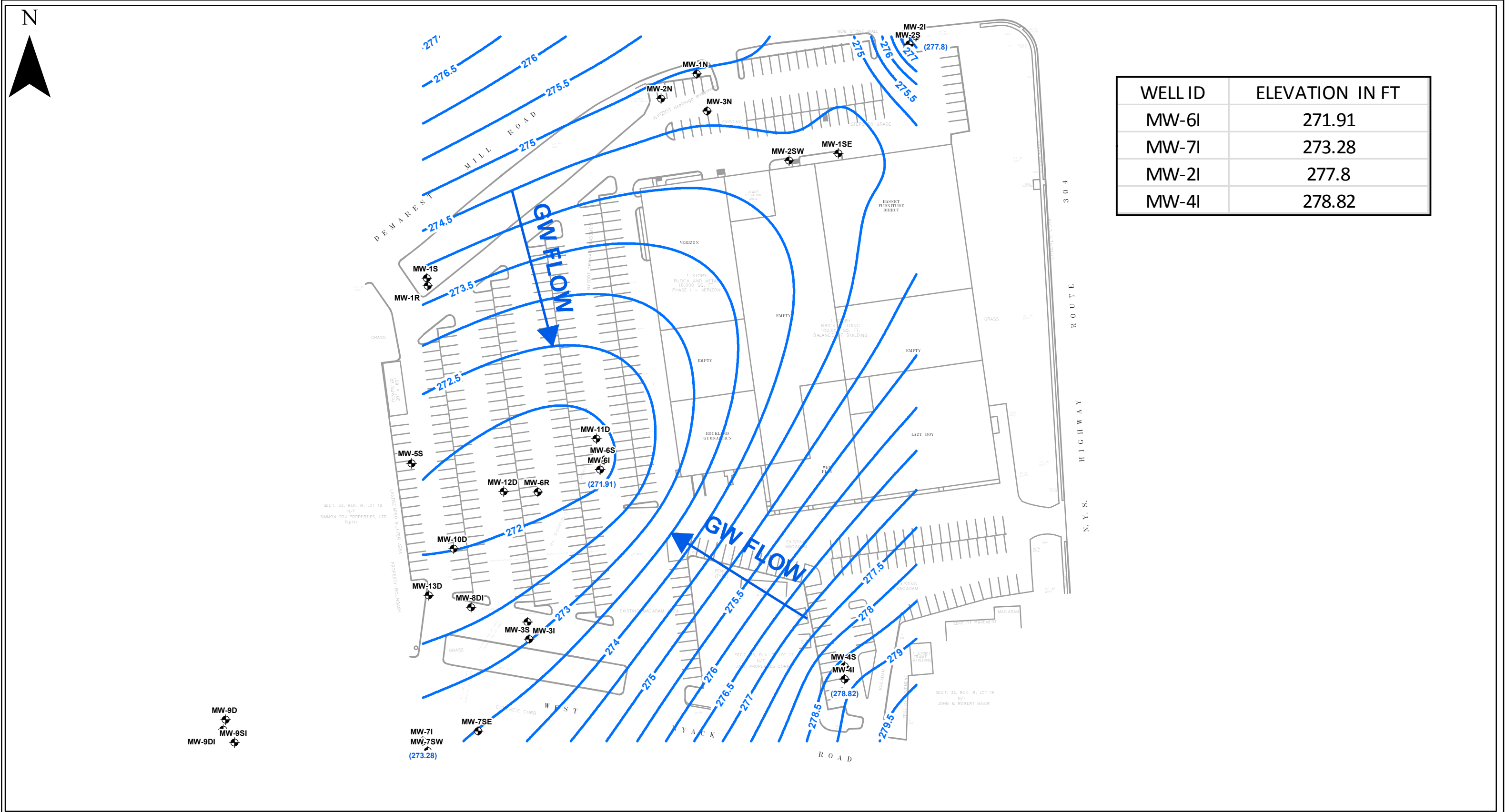
PROJECT #
205548

DRAWN BY: JS
CHECKED BY: KS

Document Path: G:\Job Data\205000\205548\Drawings\2018\SHALLOW_CONTOURS.mxd

SHALLOW WELLS GROUNDWATER CONTOURS
FORMER SWIVELIER COMPANY SITE
ROUTE 304
NANUET, NEW YORK

Figure#
1



- Legend**
- Intermediate Monitor Wells
 - Intermediate GW Contours



100 MISTY LANE
P.O. BOX 5430
PARSIPPANY, NEW JERSEY

DATE:
6/19/2018

DRAWN BY: JS
CHECKED BY: KS

PROJECT #
205548

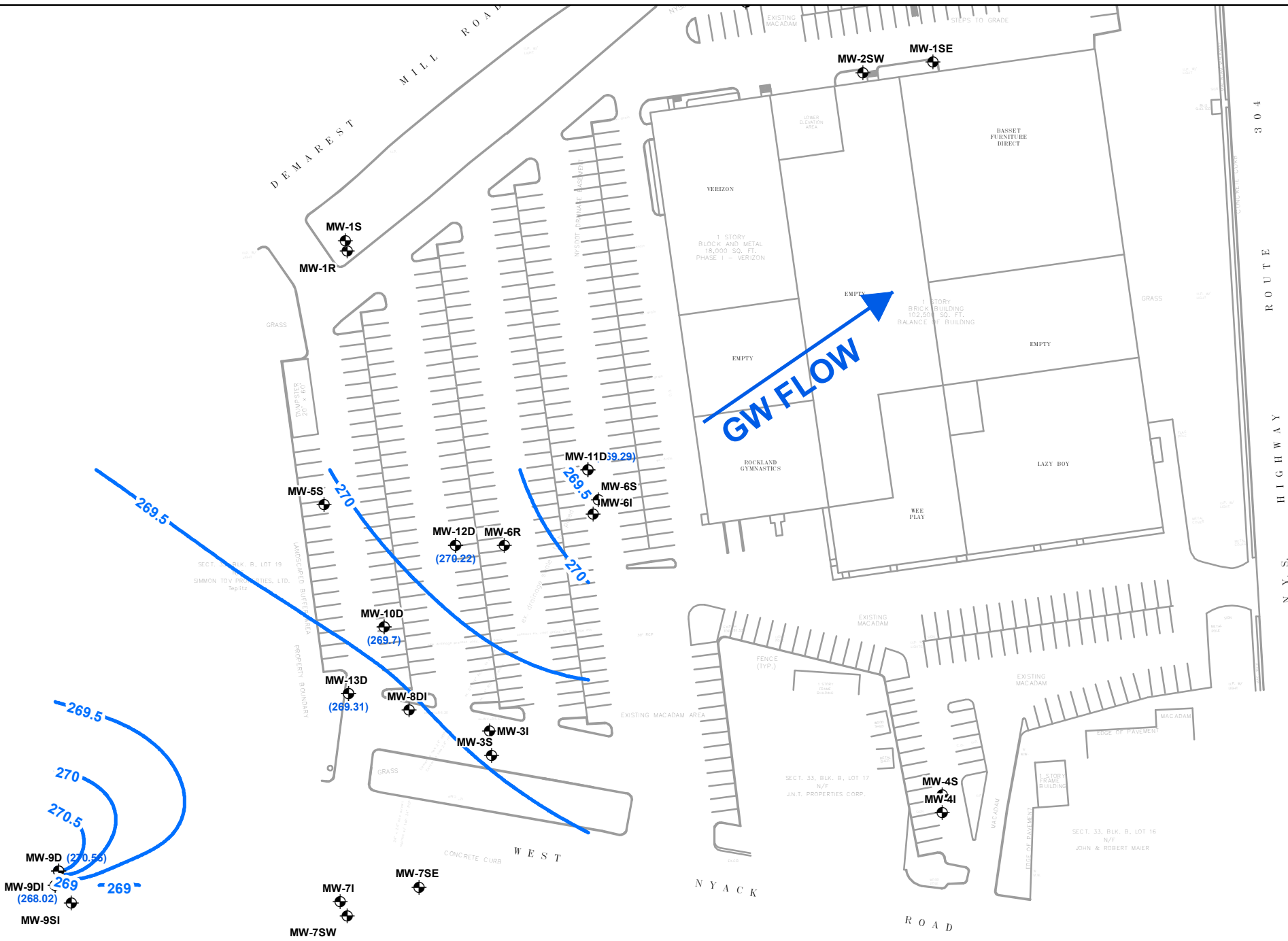
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INTERMEDIATE WELLS GROUNDWATER CONTOURS
FORMER SWIVELIER COMPANY SITE
ROUTE 304
NANUET, NEW YORK

Figure#
2

N

WELL ID	ELEVATION IN FEET
MW-11D	269.29
MW-13D	269.31
MW-10D	269.7
MW-12D	270.22
MW-9D	270.56
MW-9DI	268.02



- Legend
- Deep Monitor Wells

Deep GW Contours



INNOVATIVE | EXPERIENCED | RESPONSIVE

100 MISTY LANE
P.O. BOX 5430
PARSIPPANY, NEW JERSEY

DATE:
6/15/2018

PROJECT #
205548

DRAWN BY: JS
CHECKED BY: KS

Document Path: G:\Job Data\205000\205548\Drawings\2018\DEEP_CONTOURS.mxd

DEEP WELLS GROUNDWATER CONTOURS
FORMER SWIVELIER COMPANY SITE
ROUTE 304
NANUET, NEW YORK

Figure#
3

Final Engineering Report

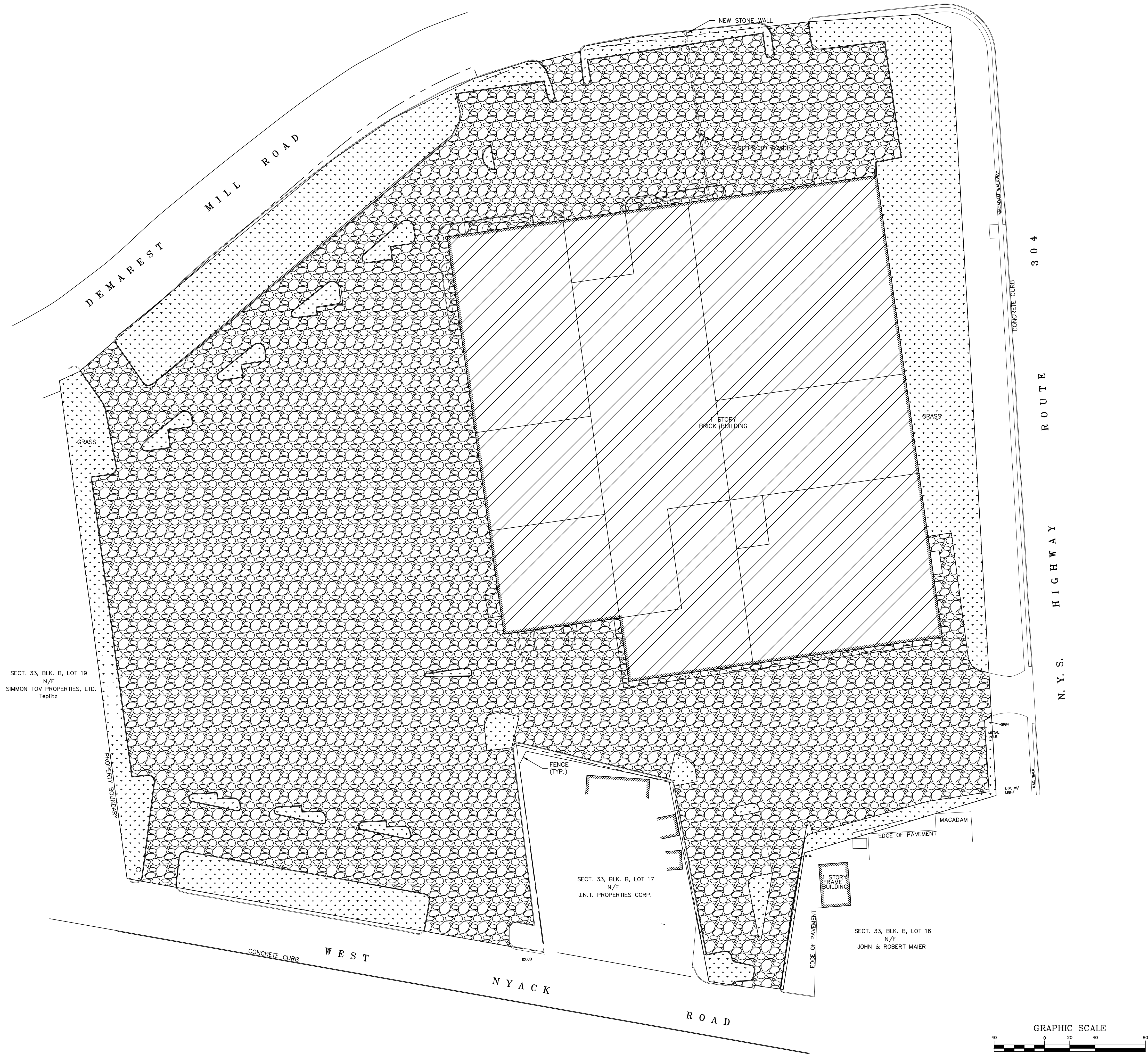
Property Known As:

**Former Swivelier Site
Village of Nanuet, Rockland County, New York
NYSDEC Site Number: 3-44-036
EWMA Project No. 205548**

June 2018

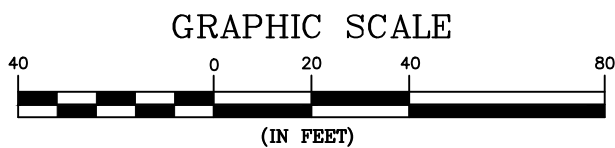
Figure 4 – Cover System Location Map





LEGEND

- BUILDING SLAB
- LANDSCAPED AREAS
- ASPHALT



 100 Misty Lane P.O. Box 5430 Parsippany, NJ 07054 FILE: N:\Drawing\205548\205548-CL.dwg	SCALE: AS SHOWN	PROJECT# 205548
	DATE: 2/22/18	
	DRAWN BY: RR/CL	
	CHECKED BY: JS	FIGURE# 4

COVER SYSTEM LOCATION MAP
FORMER SWIVELIER COMPANY SITE
ROUTE 304
VILLAGE OF NANUET, NEW YORK

Final Engineering Report

Property Known As:

**Former Swivelier Site
Village of Nanuet, Rockland County, New York
NYSDEC Site Number: 3-44-036
EWMA Project No. 205548**

June 2018

Appendix 1 – Metes and Bounds



Lawyers Title Insurance Corporation

SCHEDULE A

Title No. VJM10136LT

All that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Hamlet of Nanuet, Town of Clarkstown, County of Rockland and State of New York being more particularly bounded and described as follows:

Beginning at a point on the northerly side of West Nyack Road (Route 59-A) where the same is intersected by the easterly line of lands now or formerly of P.C.S. Holding Corp.;

Running thence along said easterly line of lands now or formerly of P.C.S. Holding Corp. North 2 degrees 50' 00" East 398.75 feet to the southerly side of DeMarest Mill Road;

Thence running along the southerly side of DeMarest Mill Road the following ten (10) courses and distances:

- (1) North 75 degrees 42' 00" East 17.21 feet;
- (2) North 59 degrees 41' 30" East 263.22 feet to a point of curve;
- (3) Northeasterly along the southerly side of DeMarest Mill Road on a curve to the right having a radius of 410.82 feet an arc length of 134.04 feet to a point;
- (4) South 10 degrees 05' 34" East 12.77 feet;
- (5) North 79 degrees 48' 03" East 34.18 feet;
- (6) North 86 degrees 33' 38" East 61.93 feet;
- (7) South 86 degrees 43' 03" East 76.05 feet;
- (8) South 87 degrees 04' 15" East 66.60 feet;
- (9) South 83 degrees 26' 55" East 113.59 feet and
- (10) South 58 degrees 05' 38" East 29.34 feet to the westerly side of Route 304;

Running thence along the westerly side of Route 304 South 07 degrees 10' 33" West 610.35 feet to a point;

Thence running South 83 degrees 53' 57" West 158.76 feet and South 19 degrees 24' 50" West 109.81 feet to a point on the northerly side of West Nyack Road;

Running thence along the northerly side of West Nyack Road North 71 degrees 18' 04" West 23.04 feet and South 18 degrees 41' 56" West 2.22 feet to the northerly side of West Nyack Road,

Running thence along the northerly side of West Nyack Road, North 70 degrees 56' 20" West 36.23 feet to the easterly line of lands now or formerly of J.F.W.M. Realty Corp.

Thence running along said last mentioned lands North 0 degrees 03' 44" East 160.19 feet, North 65 degrees 43' 16" West 127.00 feet and South 3 degrees 00' 00" West 166.07 feet to the northerly side of West Nyack Road;

Running thence along said northerly side of West Nyack Road North 69 degrees 23' 20" West 335.98 feet to the point or place of Beginning.

DESCRIPTION

Final Engineering Report

Property Known As:

**Former Swivelier Site
Village of Nanuet, Rockland County, New York
NYSDEC Site Number: 3-44-036
EWMA Project No. 205548**

June 2018

Appendix 2 – Electronic Final Engineering Report



Final Engineering Report

Property Known As:

**Former Swivelier Site
Village of Nanuet, Rockland County, New York
NYSDEC Site Number: 3-44-036
EWMA Project No. 205548**

June 2018

Appendix 3 – Project Fact Sheets





**New York State Department of
Environmental Conservation
Division of Environmental Remediation**

**VOLUNTARY CLEANUP PROJECT
REMEDiation FACT SHEET**

**Former Swivelier Company Site
VCP No. V00520-3**

February 2005

PUBLIC COMMENT PERIOD ANNOUNCED

The New York State Department of Environmental Conservation (NYSDEC), in cooperation with the New York State Department of Health (NYSDOH), announces the availability of the Remedial Action Work Plan (RAWP) for the Former Swivelier Company Site. The work will be carried out by the owner of the property, S.F. Properties, LLC, who has volunteered to investigate and remediate contamination found on the site at 33 Route 304, Village of Nanuet, Clarkstown Township, Rockland County, New York (see figure on last page).

The proposed remediation activities, to be performed under the NYSDEC's Voluntary Cleanup Program, include soil and groundwater remediation using in situ (in-place) chemical oxidation (ISCO). This process breaks down volatile organic compounds (VOCs) into inert byproducts. In addition, a Sub-Slab Depressurization System (SSDS) will be installed within the on-site building to eliminate the migration pathway for VOCs, present below the building slab, which could potentially impact air quality within the building.

Release of the Work Plan initiates a process of finalizing the remedy selected for this site. Your comments and input about the proposed remedy are important and encouraged. Comments will be received by the NYSDEC during the period of:

February 9, 2005 through March 10, 2005

Comments should be postmarked by March 10, 2005 and submitted to:

Thomas Gibbons, NYS Department of Environmental Conservation, Division of Environmental Remediation, 625 Broadway, Albany, NY 12233-7016

SITE BACKGROUND

The Swivelier property was occupied by the former Swivelier Company, located at 33 Route 304 in a residential/commercial area of the Town of Clarkstown, New York. A 32,000 square-foot building is located on a six-acre parcel surrounded by paved parking lots. The Swivelier Company operation in a portion of the building included the assembly, manufacture,

warehousing, and distribution of lighting fixtures from 1956 to 1997. In 1980, following various complaints received by the Rockland County Department of Health (RCDH), chemical testing of the water from the outfall pipe and surface waters in the drainage ditch along the western portion of the site indicated the presence of chlorinated VOCs at 14,425 ppb and 8,962 ppb, respectively. This contamination was determined to be a result of Swivelier's discharge of non-contact process and cooling water and wastewater into a nearby drainage ditch. The use of chlorinated VOCs was subsequently discontinued by Swivelier in 1980. In July 1991, NYSDEC listed this property on the New York State Registry of Inactive Waste Disposal Sites as a Class 2 site. A Class 2 site is an inactive hazardous waste disposal site that "presents a significant threat to the public health or the environment".

ENVIRONMENTAL HISTORY

In 1994 and 1995, NYSDEC conducted a Remedial Investigation/Feasibility Study (RI/FS) at this property which included the collection of numerous soil, groundwater and sediment samples. The results of the RI/FS identified VOC-contaminated sediments and soils in the drainage ditch (discharge area) and VOC contamination in the underlying bedrock aquifer. In March 1996, NYSDEC issued a Record of Decision (ROD) outlining the selected remedial action for soil and groundwater at the site which included hotspot excavation and off-site disposal; deed restrictions on future groundwater use; natural attenuation of the groundwater contamination to acceptable VOC levels; and groundwater/ surface water monitoring for five (5) years. An exposure assessment conducted during the RI/FS indicated that the site has minimal potential for human or ecological exposure.

In 1999, NYSDEC completed the excavation and removal of the contaminated soil/ sediment hotspots from the source area down to the water table, approximately 8 feet below the ground surface. The installation and sampling of additional borings and monitoring wells was conducted in 1999 and 2002 and led to the discovery of additional on-site contaminated soil and both on-site and off-site contaminated groundwater. The levels of contamination were determined to be significant and require further remedial action. S.F. Properties, LLC entered into a Voluntary Cleanup Agreement with NYSDEC on April 25, 2002 to conduct an investigation and remediation of the property. The volunteer retained Environmental Waste Management Associates, LLC (EWMA) as their environmental consultant.

In November 2002, the volunteer conducted testing on contaminated groundwater samples to evaluate the potential effectiveness ISCO. The results of this study showed a 99.9% reduction in VOCs in the groundwater sample, indicating that ISCO is a viable technology for this site.

In August 2004, the volunteer conducted a field test at the existing on-site building in order to obtain data for the design of a SSDS. The data indicated that a SSDS would effectively eliminate VOCs present beneath the building's footprint and eliminate the potential for vapor intrusion.

PROPOSED REMEDIAL ACTION

As part of the RAWP, the Volunteer is proposing to ISCO to reduce groundwater contamination to acceptable levels. The RAWP proposes additional soil and groundwater investigation within the source area to determine the extent of impacted soil that may remain in-place, and placement of appropriate engineering and remedial controls (e.g. sub-slab venting system) to prevent any on-site human exposure from the source area.

EWMA will complete all outstanding environmental remediation activities at the Property pursuant to the NYSDEC-approved RAWP dated December 28, 2004. Specifically, the

activities proposed under this RAWP include an ISCO field pilot study within the source area in order to determine the effectiveness of chemical oxidation on soil and groundwater contamination. The results will be used to prepare a remedial design plan and establish the engineering and operational parameters for full-scale treatment. The remedial design plan will also include a proposed design for the installation and operation of a SSDS at the on-site building in order to protect the building occupants from any potential intrusion of VOCs. Full scale operation of the proposed remediation systems is expected to begin by Summer 2005.

DOCUMENT REPOSITORIES

If you would like more information about this project, you are invited to visit the document repositories listed below. Included in the repositories are the Voluntary Agreement and the Remedial Action Work Plan discussed above. The repositories are located at:

Nanuet Public Library
149 Church Street
Nanuet, NY 10954
Phone: (845) 623-4281
Hours: Mon.-Thur., 10:00 am to 9:00 pm
Fri. and Sat., 10:00 am to 5:00 pm
Sun., 12:00 pm to 5:00 pm

NYSDEC Region 3 Office
21 South Putt Corners Road
New Paltz, New York 12561
Phone: (845) 256-3154
Hours: Mon.- Fri., 8:30 am to 4:45 pm

FOR MORE INFORMATION

Your understanding and involvement in this project will help insure its effectiveness. You are encouraged to contact the NYSDEC and NYSDOH individuals at any time with your questions and concerns as follows:

For general site related questions, please contact:

Thomas Gibbons, Project Manager, at the address on the front page of this fact sheet or call at (518) 402-9768

For site related health questions, please contact:

Bridget Callaghan, Project Manager, New York State Department of Health, 547 River Street, Troy, NY 12180 or call at 1(800) 458-1158, Ext. 27880

For citizen participation questions, please contact:

Michael Knipfing, Citizen Participation Specialist, New York State Department of Environmental Conservation, 21 South Putt Corners Road, New Paltz, NY 12561 or call at (845) 256-3154

ABOUT THE VOLUNTARY CLEANUP PROGRAM

The Voluntary Cleanup Program (VCP) was developed to enhance private sector cleanup of properties by enabling volunteers to remediate sites using private rather than public funds, and to reduce the development pressures on "greenfield" sites. Under the VCP, a volunteer agreed to investigate and remediate a site to a level that is protective of human health and the environment for the present or intended use of the property. Investigation and remediation is

carried out under the oversight of the NYSDEC and the NYSDOH. When the volunteer satisfactorily completes the work, the State provides a release from State liability for the work done, thus providing an incentive to return the site to productive use. For more information regarding New York State's VCP, please visit the NYSDEC's web site at:

<http://www.dec.state.ny.us/website/der/vcp/index.html>

PUBLIC NOTICE

Voluntary Cleanup Program Availability of Remediation Work Plan for Comment

Name of Volunteer: S.F. Properties, LLC

Site Name and Number: Former Swivelier Company Site, VCP No. V00520-3

Project Location: This property consists of a 6 acre parcel located at 33 Route 304, Village of Nanuet, Clarkstown Township, Rockland County, New York, NYSDEC Region 3.

Project Location and History: This property was occupied by the former Swivelier Company, located at 33 Route 304 in a residential/commercial area of the Town of Clarkstown, New York. A 32,000 square-foot building is located on a six-acre parcel surrounded by paved parking lots. The Swivelier Company operation in a portion of the building included the assembly, manufacture, warehousing, and distribution of lighting fixtures from 1956 to 1997. In 1980, following various complaints received by the Rockland County Department of Health (RCDH), chemical testing of the discharge from an outfall pipe and surface waters in the drainage ditch along the western portion of the site indicated elevated levels of chlorinated VOCs. This contamination was determined to be a result of Swivelier's discharge of wastewater into the drainage ditch. The use of these chemicals was subsequently discontinued by Swivelier in 1980. The site is listed on the New York State Registry of Inactive Hazardous Waste Disposal Sites as Site #344036, a Class 2 site. A Class 2 site is an inactive hazardous waste disposal site that "presents a significant threat to the public health or the environment".

Project Description: The *Remedial Action Work Plan Report - Groundwater, Former Swivelier Company Site (RAWP)* describes the proposed remediation activities to be performed under the NYSDEC's Voluntary Cleanup Program, including soil and groundwater remediation using in situ (in-place) chemical oxidation. This process breaks down the contaminants into inert byproducts. In addition, a sub-slab depressurization system is proposed within the on-site building to eliminate VOCs present in the soil vapor below the building slab that have the potential to impact indoor air quality.

Comment Period: The Voluntary Cleanup Agreement and the RAWP for the site (described above) are available for review at the locations set forth below. Written comments on this action must be received within 30 days following the date of this Notice. Written comments expressing objections or opposition to the Work Plan must explain the basis of the opposition and identify the specific grounds which could justify the Department's imposing significant changes to a Work Plan. No formal response is made to comments, but as a result of comments, the Department may reevaluate and revise the Work Plan.

Contact Person: Thomas Gibbons, NYS Department of Environmental Conservation, Division of Environmental Remediation, 625 Broadway, Albany, NY 12233-7016 or call at (518) 402-9768. For individuals with health-related concerns, contact: Bridget Callaghan, Project Manager, New York State Department of Health, 547 River Street, Troy, NY 12180 or call at 1(800) 458-1158, Ext. 27880

The Work Plan is available for review at the NYSDEC Region 3 Office, 21 South Putt Corners Road, New Paltz, NY 12561, Phone: (845) 256-3154, Hours: Mon.- Fri., 8:30 am to 4:45 pm or at the Nanuet

Public Library, 149 Church Street, Nanuet, NY 10954, Phone: (845) 623-4281, Hours:
Mon.-Thur., 10:00 am to 9:00 pm, Fri. and Sat., 10:00 am to 5:00 pm and Sun., 12:00 pm to 5:00
pm.

Final Engineering Report

Property Known As:

**Former Swivelier Site
Village of Nanuet, Rockland County, New York
NYSDEC Site Number: 3-44-036
EWMA Project No. 205548**

June 2018

Appendix 4 – Deed Restriction



ENVELOPE

ROCKLAND COUNTY, NEW YORK
Edward Gorman
RECORDING CERTIFICATE

INSTRUMENT ID: 2000-00054294

Type of Instrument: DEED

SCHWARTZ/NATHAN-EST OF
TO
SF PROPERTIES LLC

Received From: VINCENT MONTE AGENCY
67 NORTH MAIN ST
NEW CITY

NY 10956-

Recording Charge: 56.00 Recording Pages: 5

** TRANSFER TAX **	** EXAMINED AND CHARGED AS FOLLOWS : **	** MTG/DEED AMOUNT **
10,600.00		2,650,000.00

RS#: 2758

Mortgage#:

Original ID#:

Received Tax on Above Mortgage

Town:

Basic:	.00
Special Addl:	.00
Additional:	.00
Mortgage Tax Total:	.00

Total Recording Fees: 10,656.00

** THIS PAGE IS PART OF THE INSTRUMENT **

I HEREBY CERTIFY THAT THE WITHIN AND FOREGOING WAS RECORDED IN THE
CLERK'S OFFICE FOR ROCKLAND COUNTY, NEW YORK

INSTRUMENT ID#: 2000-00054294
ON (Recorded Date): 12/08/00
AT (Time): 09:42
Terminal ID: 248



Edward Gorman
EDWARD GORMAN
County Clerk



EXECUTOR'S DEED (INDIVIDUAL OR CORPORATION)

STANDARD NYBTU FORM 8010

CAUTION: THIS AGREEMENT SHOULD BE PREPARED BY AN ATTORNEY AND REVIEWED BY ATTORNEYS FOR SELLER AND PURCHASER BEFORE SIGNING.

THIS INDENTURE, made the 28th day of SEPTEMBER, two thousand,

between RUTH SCHWARTZ, 21848 Cypress Circle, Boca Raton, Florida 33433, as executor of the Estate of Nathan Schwartz the last will and testament of Nathan Schwartz, late of the State of Florida who died on the 2nd day of February, nineteen hundred and ninety-eight, party of the first part, and

SF PROPERTIES, LLC, 627 South Main Street, New City, New York 10956

party of the second part,

WITNESSETH, that the party of the first part, to whom ancillary letters testamentary were issued by the Surrogate's Court, Rockland County, New York on May 25, 1999 and by virtue of the power and authority given in and by said last will and testament, and/or by Article 11 of the Estates, Powers and Trusts Law, and in consideration of TWO MILLION SIX HUNDRED FIFTY THOUSAND (\$2,650,000) DOLLARS, by assuming the mortgage obligations set forth herein lawful money of the United States, paid by the party of the second part, does hereby grant and release unto the party of the second part, the distributees or successors and assigns of the party of the second part forever,

T.F.
10,600
ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Hamlet of Nanuet, Town of Clarkstown, County of Rockland, State of New York

SEE SCHEDULE "A" ANNEXED HERETO

Subject to a mortgage between NATHAN SCHWARTZ and Mortgagor and MARINE MIDLAND BANK, NA in the amount of \$2,100,000 dated April 28, 1989 and recorded on May 8, 1989 and recorded in Liber 352 at Page 2378, in the Rockland County Clerk's Office, that was assigned to SNMP Corp. by Assignment dated June 4, 1997 and recorded on October 21, 1997 in Liber 860 Page 001 (Instrument ID# 1997-41940); that was assigned to KD EQUITIES, LLC by Assignment dated February 22, 2000, recorded on March 8, 2000 Instrument ID# 2000-107/8.

Subject to a mortgage between LESTER E. TOMBACK. as Mortgagor, and NATHAN SCHWARTZ, as Mortgagee recorded May 8, 1989 in Liber 03512, Page 2403 and assigned to FKF HOLDING CO., LP dated September 13, 2000.

Subject to a mortgage dated April 28, 1989 made by NATHAN R. SCHWARTZ to MARINE MIDLAND BANK, N.A., in the sum of \$500,000 and recorded August 22, 1991 in Liber 474 at Page 2302 in the Office of the Rockland County Clerk and assigned to Assignor by Assignment dated June 4, 1997 and recorded on October 21, 1997 in Liber 858 at Page 001 (Instrument ID# 1997-41938) in the Office of the Clerk of Rockland County that was assigned to KD EQUITIES by Assignment dated February 22, 2000.

TOGETHER with all right, title and interest, if any, of the party of the first part in and to any streets and roads abutting the above described premises to the center lines thereof,

TOGETHER with the appurtenances, and also all the estate which the said decedent had at the time of decedent's death in said premises, and also the estate therein, which the party of the first part has or has power to convey or dispose of, whether individually, or by virtue of said will or otherwise,

TO HAVE AND TO HOLD the premises herein granted unto the party of the second part, the heirs or successors and assigns of the party of the second part forever.

AND the party of the first part covenants that the party of the first part has not done or suffered anything whereby the said premises have been encumbered in any way whatever, except as aforesaid.

The word "party" shall be construed as if it read "parties" whenever the sense of this indenture so requires.

IN WITNESS WHEREOF, the party of the first part has duly executed this deed the day and year first above written.

IN PRESENCE OF:

Mary Steward

Ruth Schwartz
RUTH SCHWARTZ, as Executrix
Of the Estate of Nathan Schwartz

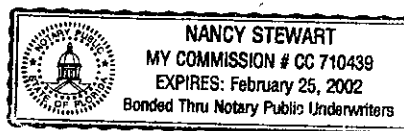
Acknowledgment by a Person Outside New York State (RPL § 309-b)

STATE OF FLORIDA)
) ss.:
COUNTY OF PALM BEACH)

On the 28TH day of SEPTEMBER in the year 2000 before me, the undersigned, personally appeared RUTH SCHWARTZ personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument, and that such individual(s) made such appearance before the undersigned in BOCA RATON, FLORIDA.

Nancy Stewart

(signature and office of individual taking acknowledgment)



R. & R.

Dorfman, Lynch & Knoebel
51 NORTH BROADWAY
NYACK, N.Y. 10960
ATTN: BURTON I. DORFMAN, ESQ.

VJH 10136

SEC: 33

BLK: B

LOT: 18

COUNTY: ROCKLAND

TOWN: CLARKSTOWN

VJM 10136 LI

VINCENT J. MONTE AGENCY, INC.
Title Insurance
67 NORTH MAIN STREET
NEW CITY, NEW YORK 10953
914-634-0668

Lawyers Title Insurance Corporation

SCHEDULE A

Title No. VJM10136LT

All that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Hamlet of Nanuet, Town of Clarkstown, County of Rockland and State of New York being more particularly bounded and described as follows:

Beginning at a point on the northerly side of West Nyack Road (Route 59-A) where the same is intersected by the easterly line of lands now or formerly of P.C.S. Holding Corp.;

Running thence along said easterly line of lands now or formerly of P.C.S. Holding Corp. North 2 degrees 50' 00" East 398.75 feet to the southerly side of DeMarest Mill Road;

Thence running along the southerly side of DeMarest Mill Road the following ten (10) courses and distances:

- (1) North 75 degrees 42' 00" East 17.21 feet;
- (2) North 59 degrees 41' 30" East 263.22 feet to a point of curve;
- (3) Northeasterly along the southerly side of DeMarest Mill Road on a curve to the right having a radius of 410.82 feet an arc length of 134.04 feet to a point;
- (4) South 10 degrees 05' 34" East 12.77 feet;
- (5) North 79 degrees 48' 03" East 34.18 feet;
- (6) North 86 degrees 33' 38" East 61.93 feet;
- (7) South 86 degrees 43' 03" East 76.05 feet;
- (8) South 87 degrees 04' 15" East 66.60 feet;
- (9) South 83 degrees 26' 55" East 113.59 feet and
- (10) South 58 degrees 05' 38" East 29.34 feet to the westerly side of Route 304;

Running thence along the westerly side of Route 304 South 07 degrees 10' 33" West 610.35 feet to a point;

Thence running South 83 degrees 53' 57" West 158.76 feet and South 19 degrees 24' 50" West 109.81 feet to a point on the northerly side of West Nyack Road;

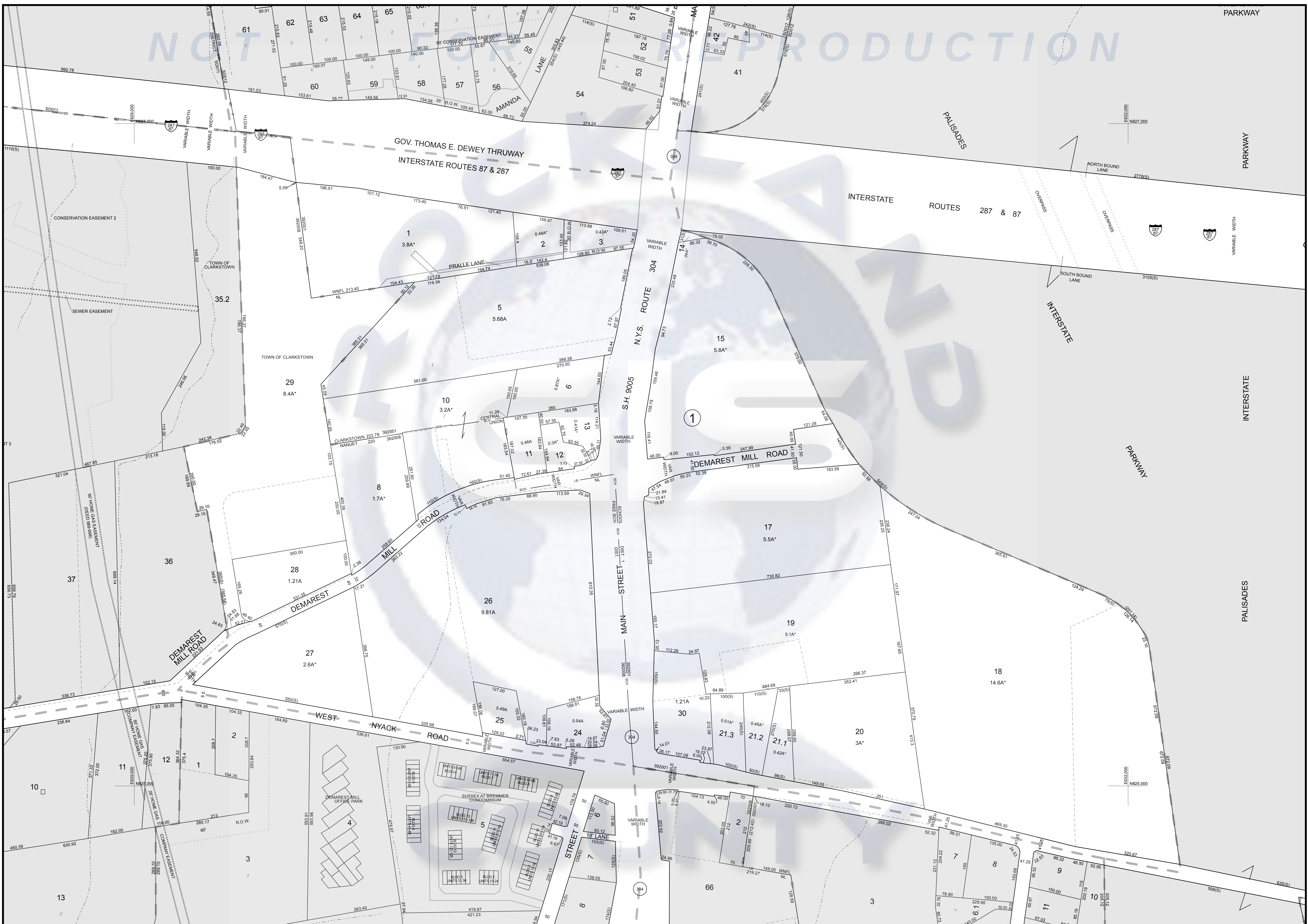
Running thence along the northerly side of West Nyack Road North 71 degrees 18' 04" West 23.04 feet and South 18 degrees 41' 56" West 2.22 feet to the northerly side of West Nyack Road,

Running thence along the northerly side of West Nyack Road, North 70 degrees 56' 20" West 36.23 feet to the easterly line of lands now or formerly of J.F.W.M. Realty Corp.

Thence running along said last mentioned lands North 0 degrees 03' 44" East 160.19 feet, North 65 degrees 43' 16" West 127.00 feet and South 3 degrees 00' 00" West 166.07 feet to the northerly side of West Nyack Road;

Running thence along said northerly side of West Nyack Road North 69 degrees 23' 20" West 335.98 feet to the point or place of Beginning.

DESCRIPTION



JAMES W. SEWALL COMPANY / Since 1880

Digital Map Converted from Intergraph to AutoCAD Sept. 1993
Digital Map Converted from NAD 27 to NAD 83 Sept. 2000
Digital Map Converted from AutoCAD to ESRI GDB Oct. 2004

MAP REVISIONS		
DATE	MADE BY	REVISIONS
2012	PMB	MERGED 58.18-1.18.1 INTO 58.18-1.18
2004	JEA	DELETE BLK1 PCL 4
2004	JEA	DELETE BLK1 PCL 9
2003	JEA	DELETE BLK1 PCL 7
1992	MDM	DEL PAR. 16/19/17

SCHOOL AND SPECIAL DISTRICTS		
DATE	MADE BY	REVISIONS
		SCHOOL CLARKS CSD 1 392001
		SCHOOL NANJET UFSD 392008
		FIRE NANJET FD01
		LIGHTING CONSOL TD01
		WATER CONSOL WD01
		SEWER CLARKS MHD 80012
		LIBRARY WEST NYACK FREE LIB
		LIBRARY NANJET LIB

COUNTY OF ROCKLAND		
DATE	MADE BY	REVISIONS
		AMBULANCE DIST.
		FIRE DIST.
		SEWER DIST.
		WATER DIST.
		SCHOOL DIST.
		REFUSE DIST.
		LIBRARY DIST.
		LIGHTING DIST.

LEGEND		
DATE	MADE BY	REVISIONS
		PROPERTY LINE
		ROAD ROW
		UNSPECIFIED RR ROW
		BLOCK UNIT LINE
		SCHOOL DIST.
		SEWER EASEMENT
		WATER EASEMENT
		EASEMENT LINE

TAX MAP BLOCK NUMBER		
DATE	MADE BY	REVISIONS
		HISTORIC SUBDIV. LINE
		SENIOR COMMON OWNER
		REPLICATED DIMENSION
		DEED ACRES
		CALCULATED ACRES
		DEED DIMENSION
		SCALED DIMENSION
		ADD. REFERENCE DIMS.
		HISTORIC SUBDIV. LOT NO.

REVISED THROUGH		
FEBRUARY 28, 2017		
58.13	58.14	58.15
58.17	58.18	58.19
64.05	64.06	64.07

TOWN OF CLARKSTOWN
ROCKLAND COUNTY, NEW YORK

58.18

Final Engineering Report

Property Known As:

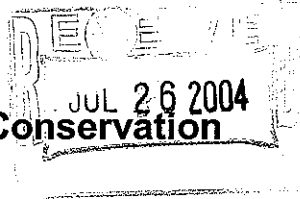
**Former Swivelier Site
Village of Nanuet, Rockland County, New York
NYSDEC Site Number: 3-44-036
EWMA Project No. 205548**

June 2018

Appendix 5 – Agency and Non-Agency Approvals

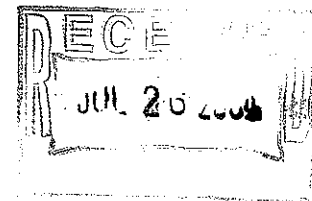


New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, Albany, New York 12233-7016
Phone: (518) 402-9768 • FAX: (518) 402-9773
Website: www.dec.state.ny.us



Erin M. Crotty
Commissioner

July 22, 2004



Mr. Alfred Moffit
Environmental Waste Management Associates, LLC
100 Misty Lane
P.O. Box 5430
Parsippany, NJ 07054

Re: Swivelier Company Site
Village of Nanuet, Rockland County
VCP # V00520-3
Sub-Slab Depressurization System

Dear Mr. Moffit:

The New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH) have reviewed Environmental Waste Management Associates, LLC (EWMA) July 15, 2004 letter. This letter is in response to the Departments July 8, 2004 comment letter based on EWMA's Sub-Slab Depressurization System (SSDS) design and installation strategy for the Swivelier site, submitted to NYSDEC in a letter dated June 29, 2004.

This letter addresses the Department's concerns. As such, EWMA may proceed with the collection of the field data outlined in this work plan, as modified by the July 15, 2004 submittal. Please submit a final Sub-Slab Depressurization System (SSDS) design and installation strategy which incorporates your July 15, 2004 responses. Based on the schedule included in this submittal, fieldwork is expected to be initiated on August 6, 2004. Please confirm this date as soon in advance of fieldwork as possible so that I may arrange my schedule accordingly. If you have any questions, don't hesitate to call me at (518) 402-9768.

Sincerely,

Thomas Gibbons
Project Manager
Remedial Bureau B, Section D
Division of Environmental Remediation

cc: R. Cozzy/File
T. Gibbons
C. Quinn/ D. Miller (RCHD)
B. Callaghan (DOH)
B. Dorfman (Dorfman, Lynch & Knoebel)

cc: R. Rusinko (Tarrytown)

**New York State Department of Environmental Conservation
Division of Environmental Remediation**

Remedial Bureau B

625 Broadway, Albany, New York 12233-7016

Phone: (518) 402-9768 • **FAX:** (518) 402-9773

Website: www.dec.state.ny.us



Denise M. Sheehan
Acting
Commissioner

March 24, 2005

Mr. Ajay Kathuria, P.E.
Environmental Waste Management Associates, LLC
100 Misty Lane
P.O. Box 5430
Parsippany, NJ 07054

Re: Swivelier Company Site
Village of Nanuet, Rockland County
VCP # V00520-3
Remedial Action Work Plan

Dear Mr. Kathuria:

The Department has completed its review of the Remedial Action Work Plan (RAWP) for the subject site titled "Voluntary Cleanup Program Remedial Action Work Plan - Groundwater, Former Swivelier Company Site, Village of Nanuet, Rockland County, NY", dated November 2004. In addition, this work plan was posted in the Environmental Notice Bulletin (ENB) for a period of 30 days (from February 9, 2005 through March 10, 2005) to allow for public comment as required under the Voluntary Cleanup Program. No comments were received during the 30-day comment period. Based upon this and the information and representations given in the RAWP, the RAWP is hereby approved.

Please contact Thomas Gibbons, project manager, at your earliest convenience to discuss scheduling of the various tasks. If you have any questions, don't hesitate to call me or Tom at (518) 402-9768.

Sincerely,

Robert Cozzy
Remedial Bureau B, Section D
Division of Environmental Remediation

cc: R. Cozzy/File
T. Gibbons
B. Callahan (DOH)
M. Klein (SF Properties, LLC)



New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau B
625 Broadway, Albany, New York 12233-7016
Phone: (518) 402-9768 • **FAX:** (518) 402-9773
Website: www.dec.state.ny.us



November 3, 2006

Burton I. Dorfman, Esq.
Dorfman, Knoebel and Conway, LLP
Attorney's at Law
51 North Broadway
Nyack, New York 10960

Re: Swivelier Company Site
Village of Nanuet, Rockland County
VCP # V00520-3
Voluntary Cleanup Agreement

Dear Mr. Dorfman:

The New York State Department of Environmental Conservation (NYSDEC) is in receipt of your letter dated November 3, 2006 which responds to the NYSDEC's September 29, 2006 request to implement the Department-approved Remedial Action Work Plan (RAWP) for this site titled "Voluntary Cleanup Program Remedial Action Work Plan (RAWP) - Groundwater, Former Swivelier Company Site, Village of Nanuet, Rockland County, NY", dated November 2004. This work plan, approved by NYSDEC in a letter dated March 24, 2005, called for the implementation of a sub-slab depressurization system (SSDS) beneath the footprint of the former Swivelier Company building.

A SSDS work plan titled "Sub-Slab Depressurization System (SSDS) Design and Installation Strategy" was submitted to the Department on June 23, 2004 and approved in a letter dated July 22, 2004. This work plan was carried out and the results were incorporated into a SSDS Design document which is part of the approved RAWP.

Based on our phone conversation of November 2, 2006 and your November 3, 2006 letter, you indicate that a copy of this letter was sent to Environmental Waste Management Associates, LLC (EWMA), attention Mr. Ajay Kathuria, requesting EWMA's assistance in implementing the above-mentioned SSDS Design work plan. You have also requested, on behalf of SF Properties, LLC, that they be granted a 30-day extension to commence construction of the SSDS, followed by a 90-day completion period.

The NYSDEC will grant SF Properties, LLC a 30-day extension (to December 4, 2006) to begin implementation of the approved SSDS Design, which is part of the approved RAWP dated November 2004. Further, the NYSDEC also approves a 90-day completion period for installation and start-up of the SSDS.

If you have any questions, don't hesitate to call me or Thomas Gibbons at (518) 402-9768.

Sincerely,

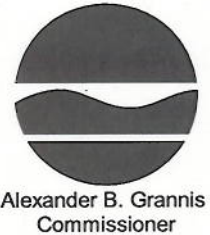
A handwritten signature in black ink, appearing to read 'R. Cozzy', with a stylized, cursive script.

Robert Cozzy
Remedial Bureau B, Section D
Division of Environmental Remediation

cc: R. Cozzy/File
T. Gibbons
M. Klein (SF Properties, LLC)
A. Kathuria (EWMA)

ec: R. Rusinko
A. Parretta (DOH)

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau B
625 Broadway, Albany, New York 12233-7016
Phone: (518) 402-9768 • **FAX:** (518) 402-9773
Website: www.dec.state.ny.us



November 13, 2009

Burton I. Dorfman, Esq.
Dorfman, Knoebel and Conway, LLP
Attorney's at Law
51 North Broadway
Nyack, New York 10960

Re: Swivelier Company Site
Village of Nanuet, Rockland County
VCP # V00520-3
Project Status

Dear Mr. Dorfman:

The New York State Department of Environmental Conservation (NYSDEC) has prepared this letter to update you on the current environmental status of the former Swivelier Company Site, Village of Nanuet, Rockland County, NY (VCP# V00520-3). At this time, all soil activities (investigation and remediation) have been completed and no further work is proposed for soils. All indoor air investigation and remediation activities have also been completed to the satisfaction of NYSDEC. The on-site sub-slab depressurization system is periodically maintained and monitored to insure that its performance is consistent with its design requirements.

Ground water remediation activities (in situ chemical oxidation) have been performed and, at this time, only long-term ground water monitoring is being performed by Environmental Waste Management Associates, LLC on a semi-annual basis.

If you have any questions, don't hesitate to call me at (518) 402-9768.

Sincerely,



Thomas Gibbons
Project Manager
Remedial Bureau B, Section D
Division of Environmental Remediation

ec: S. Dewes/File
T. Gibbons
A. Moffit (EWMA)
R. Rusinko
A. Perretta (DOH)
eDOCs: letter.hwV00520.2009-11-13.Environmental_Status_Update_Dorfman.pdf

New York State Department of Environmental Conservation

Division of Environmental Remediation

Remedial Bureau C, 11th Floor

625 Broadway, Albany, New York 12233-7014

Phone: (518) 402-9662 • Fax: (518) 402-9679

Website: www.dec.ny.gov



Joe Martens
Commissioner

November 21, 2013

Via Certified Mail & E-Mail

Mr. Patrick, MaGee Partner
MBC Contractors Inc.
P.O. Box 54
Stony Point, New York 10980

Mr. Alfred Moffit, Project Manager
Environmental Waste Management Associates, LLC
100 Misty Lane
P.O. Box 5430
Parsippany, New Jersey 07054

RE: Former Swivelier Company Site, Site # V00520-3
33 Route 304, Village of Nanuet, Rockland County
Long Term Groundwater Monitoring Program and Work Plan

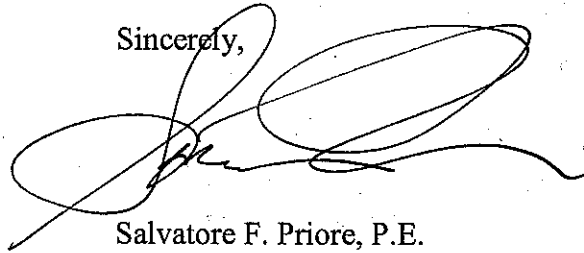
Dear Mr. MaGee and Mr. Moffit:

The New York State Department of Environmental Conservation (Department) in consultation with the New York State Department of Health has reviewed the above referenced work plan dated August 28, 2013, submitted in response to the Department's June 13, 2013 letter. As was discussed with Mr. Alfred Moffit on November 19, 2013, the Department is hereby approving this work plan with the following modifications:

- 1) As detailed in the following attached figure (Figure 3 from the original work plan) is that a new groundwater monitoring well will be installed at the eastern corner of the J.N.T. Properties, and
- 2) That an additional groundwater monitoring well and a soil vapor sampling point adjacent to the previous installed GW-02 well across West Nyack Road will be installed and sampled.

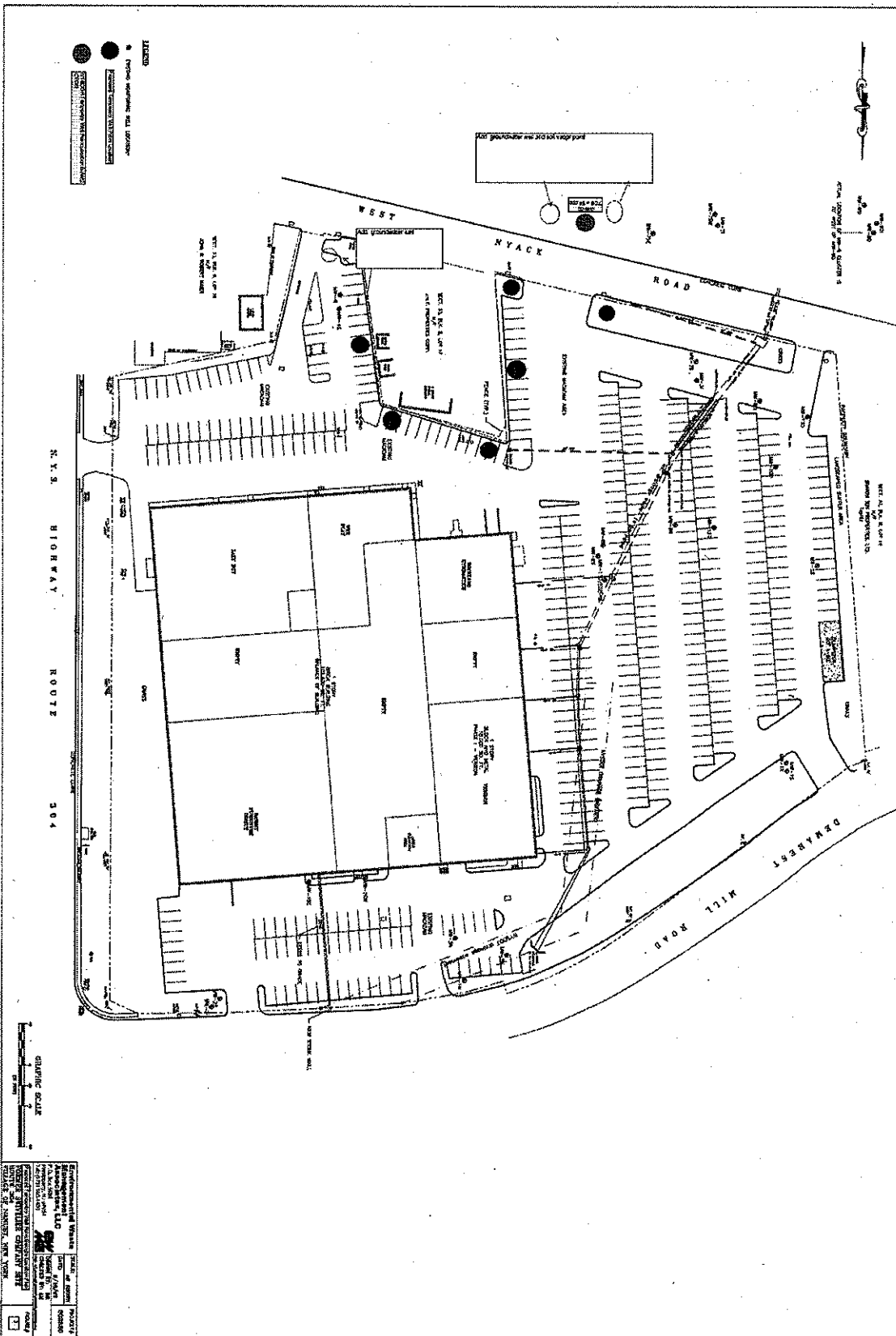
Pursuant to Part 375-1.7(d), should you elect to modify the work plan, please incorporate this letter into the work plan. The Department requires that this program be implemented within thirty (30) days of the approval date of this work plan. If you have any questions or concerns, please contact me at (518) 402-9662 or by e-mail at sfpriore@gw.dec.state.ny.us.

Sincerely,

A handwritten signature in black ink, appearing to read 'Salvatore F. Priore', with a large, stylized flourish extending from the end of the signature.

Salvatore F. Priore, P.E.
Project Manager
Remedial Bureau C
Division of Environmental Remediation

Ec: Maureen Schuck, NYSDOH
Anthony Perretta, NYSDOH
David Crosby, NYSDEC



Additional Monitoring wells and Soil Vapor sampling Point (11/21/13sfp)

New York State Department of Environmental Conservation

Division of Environmental Remediation

Remedial Bureau C, 11th Floor

625 Broadway, Albany, New York 12233-7014

Phone: (518) 402-9662 • **Fax:** (518) 402-9679

Website: www.dec.ny.gov



Joe Martens
Commissioner

November 25, 2013

Via Certified Mail & E-Mail

Mr. Patrick, MaGee Partner
MBC Contractors Inc.
P.O. Box 54
Stony Point, New York 10980

Mr. Alfred Moffit, Project Manager
Environmental Waste Management Associates, LLC
100 Misty Lane
P.O. Box 5430
Parsippany, New Jersey 07054

RE: Former Swivelier Company Site, Site # V00520-3
33 Route 304, Village of Nanuet, Rockland County
Long Term Groundwater Monitoring Program and Revised Work Plan

Dear Mr. MaGee and Mr. Moffit:

The New York State Department of Environmental Conservation (Department) in consultation with the New York State Department of Health has reviewed the above referenced work plan addendum dated November 25, 2013, submitted in response to the Department's November 21st 2013 letter. As was discussed with Mr. Alfred Moffit on November 21, 2013, and in receipt of the revised modifications requested, the Department is hereby approving this work plan for implementation. The Department requires that this program be implemented within thirty (30) days of the approval date of this work plan. If you have any questions or concerns, please contact me at (518) 402-9662 or by e-mail at sfpriore@gw.dec.state.ny.us.

Sincerely,

Salvatore F. Priore, P.E.

Project Manager

Remedial Bureau C

Division of Environmental Remediation

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau C
625 Broadway, 11th Floor, Albany, NY 12233-7014
P: (518) 402-9662 | F: (518) 402-9679
www.dec.ny.gov

December 9, 2015

Mr. Alan Arico, Project Manager
Environmental Waste Management Associates, LLC
100 Misty Lane, PO Box 5430
Parsippany, New Jersey, 07054

RE: Former Swivelier Site,
Site No. 3-44-036
Village of Nanuet, Rockland County

Dear Mr. Arico:

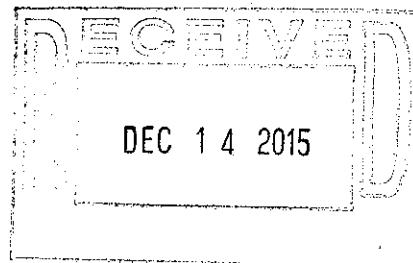
The New York State Department of Environmental Conservation (Department) in consultation with the New York State Department of Health (NYSDOH) has reviewed and hereby approve the submittal entitled "Voluntary Cleanup Program Revised Supplemental RI Progress Report for the Former Swivelier Facility, 33 Route 304, Village of Nanuet, New York" prepared for S.F. Properties LLC by Environmental Waste Management Associates (EWMA), LLC, dated August 26, 2015 for the above-referenced site.

The Department and the NYSDOH concur with the following conclusions and recommendations of the Report which consist of the following:

1. Evaluate the need to continue operation of the on-site Sub-Slab Depressurization System (SSDS) system based on the following:
 - Concentrations of TCE detected in ground water have reduced significantly since 2004;
 - The SSDSs have been in operation for approximately 7 years;
 - Only one location exhibited TCE in sub-slab that required mitigation; and
 - Concentrations in the initial indoor air samples were negligible.
2. Conduct annual groundwater monitoring from on-site monitoring wells MW-10D, MW-11D, and MW-13D for VO+10 analysis.



Department of
Environmental
Conservation

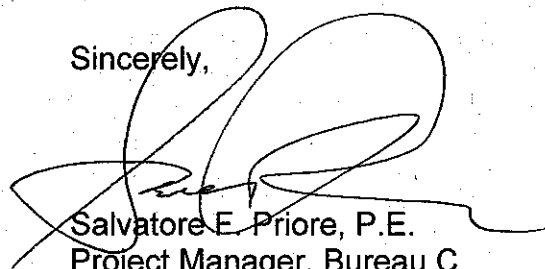


3. No further offsite assessment of ground water or soil vapor is warranted across West Nyack Road based on the following:

- Ground water results obtained from the temporary well point (TP-8) installed across West Nyack Road (near NYSDOH ground water sample location GW-02) indicated compliance with New York State Ambient Water Quality Standards (AWQS);
- Ground water results from temporary well points TW-1 and TW-2 installed immediately up-gradient of NYSDOH sample location GW-02 also indicated compliance with New York State AWQS; and
- Soil vapor sample obtained from the TW-8 location did not identify contaminants of concern associated with the former Swivelier facility or above NYSDOH Soil Vapor Intrusion Guidance.

Please send a schedule for the planned field activities within thirty days of this approval. If you have any questions regarding this approval, please contact me at 518-402-9665 or by e-mail @ salvatore.priore@dec.ny.gov.

Sincerely,



Salvatore E. Priore, P.E.
Project Manager, Bureau C
Division of Environmental Remediation

ec: Dawn Hettrick, NYSDOH- Albany
Maureen Schuck, NYSDOH- Albany
Patrick MaGee, MBC Contractors Inc.
G. Heitzman
D. Crosby
S. Priore
E. Moore-Region 3

Final Engineering Report

Property Known As:

**Former Swivelier Site
Village of Nanuet, Rockland County, New York
NYSDEC Site Number: 3-44-036
EWMA Project No. 205548**

March 2018

Appendix 6 – November 2017 - Sub-slab Vapor Testing



Sent via E-Mail (salvatore.priore@dec.ny.gov)

June 20, 2018

Salvatore F. Priore, PE
Project Manager
NYSDEC
625 Broadway, 11th Floor
Albany, New York 12233-7017

Re: **Summary of Sub-Slab Soil Vapor Sampling Results – November 2017**
Former Swivelier Site
33 Route 304
Village of Nanuet, Rockland County, New York
EWMA Project No. 205548

Dear Mr. Priore,

Per your request, EWMA is providing the following supplemental information summarizing our most recent sub-slab soil vapor sampling event, conducted in November 2017.

During November 2017, four (4) sub-slab soil vapor sampling ports were installed within the building slab to investigate contaminated groundwater as a potential vapor intrusion source. Four (4) sub-slab soil vapor samples were taken (SS-1 thru SS-4) and were analyzed for volatile organic compounds via EPA Method TO-15 by Integrated Analytical Laboratories, LLC (IAL) of Randolph, New Jersey, a New York certified laboratory (Certified Lab ID No. 11402). A results summary is included as **Table 1** and the full analytical lab data is included as **Attachment 1**.

The analytical results for the samples collected during the November 2017 event revealed elevated concentrations of cis-1,2-Dichloroethene (cis-1,2-DCE) and trichloroethene (TCE) in one of the four samples (SS-2) at 820 and 2,700 ug/m³, respectively. When evaluating the sub-slab vapor concentrations of cis-1,2-DCE and TCE in these results using NYSDEC's Revised *Soil Vapor/Indoor Air Matrix A from Guidance for Evaluating Soil Vapor Intrusion in the State of New York (May 2017)*, the recommended action is to mitigate, regardless of indoor air concentrations.

EWMA recommends that the existing sub-slab depressurization system (SSDS), installed beneath the building slab, continue to operate per the March 2018 Site Management Plan (SMP) to minimize current and potential exposures associated with vapor intrusion.

Summary of Sub-Slab Soil Vapor Sampling Event – November 2017
Former Swivelier Site
33 Route 304
Village of Nanuet, Rockland County, New York
EWMA Project No. 205548

Page 2

Should you have questions, please do not hesitate to contact me at (973) 560-1400, ext. 177 or at Kevin.Seise@ewma.com.

Sincerely,
EWMA

Kevin Seise
Senior Project Manager

Att: Table 1 – November 2017 Sub-Slab Vapor Results Summary Table
Attachment 1 – Analytical Lab Data

cc: Jacob Strauss, EWMA



TABLE 1

November 2017 Sub-Slab Vapor Results Summary Table

Table 1
Sub-Slab Vapor Results Summary
November 2017
Former Swivelier Site
EWMA Project No. 205548

Sample Name: IAL ID:		SS-1 E17-09837-01 11/15/2017	SS-2 E17-09837-02 11/15/2017	SS-3 E17-09837-03 11/15/2017	SS-4 E17-09837-04 11/15/2017	Ambient E17-09837-05 11/15/2017
Compound	CAS#	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3
Acetone	67-64-1	260	130	86	45	1.9
Benzene	71-43-2	ND	ND	ND	ND	ND
Bromodichloromethane	75-27-4	ND	ND	ND	ND	ND
Bromoform	75-25-2	ND	ND	ND	ND	ND
Bromomethane	74-83-9	ND	ND	ND	ND	ND
1,3-Butadiene	106-99-0	ND	ND	ND	ND	ND
Chlorobenzene	108-90-7	ND	ND	ND	ND	ND
Chloroethane	75-00-3	ND	ND	ND	ND	ND
Chloroform	67-66-3	2.0	ND	1.8	ND	ND
Chloromethane	74-87-3	ND	ND	ND	ND	ND
Carbon disulfide	75-15-0	0.72	ND	ND	1.4	ND
Carbon tetrachloride	56-23-5	0.50	ND	0.50	0.38	0.57
Cyclohexane	110-82-7	1.8	ND	1.1	ND	ND
Dibromochloromethane	124-48-1	ND	ND	ND	ND	ND
1,2-Dibromoethane	106-93-4	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	95-50-1	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	541-73-1	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	106-46-7	ND	ND	ND	ND	ND
Dichlorodifluoromethane	75-71-8	1.2	ND	ND	ND	ND
1,1-Dichloroethane	75-34-3	ND	ND	ND	ND	ND
1,2-Dichloroethane	107-06-2	ND	ND	ND	ND	ND
1,1-Dichloroethene	75-35-4	ND	ND	ND	ND	ND
1,2-Dichloroethene (cis)	156-59-2	ND	820	ND	ND	ND
1,2-Dichloroethene (trans)	156-60-5	ND	57	ND	ND	ND
1,2-Dichloropropane	78-87-5	ND	ND	ND	ND	ND
1,3-Dichloropropene (cis)	10061-01-5	ND	ND	ND	ND	ND
1,3-Dichloropropene (trans)	10061-02-6	ND	ND	ND	ND	ND
1,3-Dichloropropene - TOTAL	542-75-6	ND	ND	ND	ND	ND
1,2-Dichlorotetrafluoroethane	76-14-2	ND	ND	ND	ND	ND
1,4-Dioxane	123-91-1	ND	ND	ND	ND	ND
Ethylbenzene	100-41-4	1.3	ND	1.0	1.0	ND
n-Heptane	142-82-5	ND	ND	ND	ND	ND
1,3-Hexachlorobutadiene	87-68-3	ND	ND	ND	ND	ND
n-Hexane	110-54-3	7.5	ND	5.2	7.5	ND
Methylene chloride	75-09-2	ND	ND	23	2.2	ND
Methyl ethyl ketone	78-93-3	98	17	41	30	2.7
Methyl isobutyl ketone	108-10-1	ND	ND	0.82	ND	ND
Methyl tert-butyl ether	1634-04-4	ND	ND	ND	ND	ND
Styrene	100-42-5	ND	ND	ND	ND	ND
Tert-butyl alcohol	75-65-0	ND	ND	6.4	ND	ND
1,1,2,2-Tetrachloroethane	79-34-5	ND	ND	ND	ND	ND
Tetrachloroethene	127-18-4	1.6	56	1.6	2.6	ND
Toluene	108-88-3	46	31	25	39	ND
1,2,4-Trichlorobenzene	120-82-1	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	71-55-6	ND	13	ND	1.9	ND
1,1,2-Trichloroethane	79-00-5	ND	ND	ND	ND	ND
Trichloroethene	79-01-6	8.1	2700	3.2	ND	ND
Trichlorofluoromethane	75-69-4	ND	ND	ND	2.3	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	95-63-6	7.2	ND	5.1	7.0	ND
1,3,5-Trimethylbenzene	108-67-8	1.5	ND	1.0	1.5	ND
2,2,4-Trimethylpentane	540-84-1	ND	ND	ND	ND	ND
Vinyl bromide	593-60-2	ND	ND	ND	ND	ND
Vinyl chloride	75-01-4	ND	ND	ND	ND	ND
Xylenes (m&p)	179601-23-1	5.6	ND	4.6	5.5	ND
Xylenes (o)	95-47-6	1.9	ND	1.5	1.8	ND
Xylenes - TOTAL	1330-20-7	7.5	ND	6.1	7.3	ND

ATTACHMENT 1

Analytical Lab Data

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
Project#: Swivilier/175 W Nyack Rd
SDG #: E17-09837
Date of first sample receipt: 11/16/2017

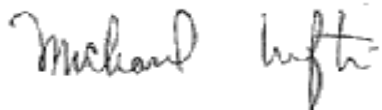
Randolph, NJ 07869
NY ELAP Certification#: 11402
NJDEP (Primary AB) Certification#: 14751
Date of last sample receipt: 11/16/2017

Client: Environmental Waste Management Associates
Project/Site: Swivilier/175 W Nyack Rd/NY

Client Sample Number	Laboratory Sample	Sample Location	Date/Time of Collection
SS-1	E17-09837-01	NA	11/15/2017 11:38
SS-2	E17-09837-02	NA	11/15/2017 13:12
SS-3	E17-09837-03	NA	11/15/2017 15:00
SS-4	E17-09837-04	NA	11/15/2017 16:35
Ambient	E17-09837-05	NA	11/15/2017 13:20

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 04, 2017



Lauren Jenkins
Air Division Quality Assurance Officer

Date: December 04, 2017

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Laboratory Acronyms

The following is a list of laboratory acronyms commonly used in EPA Method TO-15 testing:

Acronym	Definition
BL	Blank Method Blank
B ₀ B	4-Bromobenzene T ₀ in Standard
CS N ₀ er	Chemical Abstract Service Registry Number
CS	Chemical Abstracts
CS ₀ S	Chlorine Calibration Certificate Standard
CO	Carbon monoxide
D ₀ S	Daily Calibration Certificate Standard
D	Dilution factor
EP	E. S. Environmental Protection Agency EPA SPP
"	Interference
I	Indoor air
I ₀ SL	Indoor Air Screening Level
I ₀ L	Initial Calibration
I ₀ SS	Initial Calibration Certificate Standard
ISTD	Internal Standard
MS	Mass chromatography
MS	Mass chromatography Mass Spectrometry
L ₀ S	Laboratory Control Sample Spike
LLTO ₁₅	Low Level TO ₁₅
MDL	Method Detection Limit
MDL ₀	Method Detection Limit Certificate
MI	Intermittents
ND	Not Detected at or above RL
NJD ₀ P	New Jersey Department of Environmental Protection
PM	Project Manager
ppm	parts per million, molar to molar ratio
P ₀ L	Practical Quantitation Limit MDLx3
QA	Quality Assurance
QC	Quality Control
R ₀ L	Rapid Reaction Limit
RL	Reporting Limit
RLL ₀ S	Reporting Limit Laboratory Control Sample
RPD	Relative Percent Difference
RR	Relative Response factor
RSD	Relative Standard Deviation
SD	Sample Delivery drop
S ₀ SL	Soil Gas Screening Levels
SS	Sample Size
T ₀ T	Turnaround Time
TI	Tentatively Identified compound
TP ₀ 3	Tripropanes per meter

Section I: Chain of Custody

Client Contact Information				Project Information				Carrier (check one): <u>IAL Courier</u> Client Courier FedEx/UPS				pg <u> </u> of <u> </u>							
Company: <u>EWMA</u>				Project Name: <u>Swiviller/1756 Nyack Rd</u>				Invoice Information				Analysis		Report		Matrix			
Address: <u>100 Misty Lane</u> <u>Parsippany NJ 07054</u>				Project Location (State): <u>NY</u>				Attn:				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							
Project Manager: <u>Kevin Seise</u>				Address:															
Phone: <u>973-560-1400</u>				PM Signature:															
Fax: <u>973-560-0400</u>				PM E-Mail: <u>Kevin.Seise@ewma.com</u>															
Report to: <u>Proj # 205548</u>				Sampler: <u>Joe Bukowski</u>				PO #:				Quote #:							
Analysis Turnaround Time - IF NO TAT IS SPECIFIED, 2 WEEK TAT IS ASSUMED								Barometric Pressure											
IAL Standard: 2 weeks (10 business days) Rush (**pre-approved by lab): 24hr** 48hr** 72hr** 96hr** 1wk**								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)							
SS-1	11/15/17 / 1138	11/15/17 / 1226	30↑	5	68	68	-29.0	-5.0	7316795	3027	6	99.5							
SS-2	11/15/17 / 1312	11/15/17 / 1358	28↑	5	72	72	-29.0	-5.0	A01600034	3814	6	96.5							
SS-3	11/15/17 / 1500	11/15/17 / 1542	27↑	5	72	72	-29.0	-5.0	A0160003-1	4871	6	100.1							
SS-4	11/15/17 / 1635	11/15/17 / 1728	30↑	5	68	68	-29.0	-5.0	7340542	2753	6	105.0							
Ambient	11/15/17 / 1320	11/15/17 / 1405	28↑	4	45	45	-29.0	-4.0	A0160009-6	2892	6	98.2					X		
Comments/ Special Analysis Instructions / QC Requirements:													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 IAL SDG#: 09837						
<u>NY State TO-15</u> Any Questions Please Call Kevin Seise Log-In For TO-15 ANALYSIS 09291701 100417AA 2162																			
Shipping Information / Canister Preparation (for laboratory use only)									Laboratory Canister Certification										
Individual Preparing Canisters / Title: <u>P. Jenkins</u> J. Walukiewicz / Air Department Sample Custodians									GC/MS Analyst Signature										
Lab Affixed Seal Number(s): <u>IAL20170320-321</u>																			
Date/Time Shipping Container Sealed: <u>11/13/17 1330</u>																			
External Chain of Custody																			
Relinquished				Received				Date / Time				Reason for Change of External Custody							
								<u>11/13/17 1330</u> <u>11/16/17 1500</u>				shipment from laboratory to client							
								<u>11-16-17 16:00</u>				<u>Rec'd at all lab</u>							
Name/Title Resealing Shipping Container Name:									NJDEP Affixed Seal Number:										
Date/Time Sample Shipping Container Resealed:									Individual Opening Sample Shipping Container: <u>Padraic Jenkins / Joseph Walukiewicz</u>										
Date/Time Sample Shipping Container Opened:									Date/Time Internal Chain of Custody Initiated:										

PROJECT INFORMATION

E17-09837: SWIVILIER/175 W NYACK RD

To: Kevin Seise
EWMA - HQ
Fax:
EMail: kevin.seise@ewma.com

Report To

EWMA - HQ
Lanidex Center
100 Misty Lane
Parsippany, NJ 07054
Attn: Kevin Seise

Bill To

EWMA - HQ
Lanidex Center
100 Misty Lane
Parsippany, NJ 07054
Attn: Kevin Seise

Report Format	P.O. #	Received At Lab	TPHC Due	Verbal Due	Hardcopy Due
Air Regulatory		Nov 16, 2017 @ 16:00	NA	Dec 04, 2017	Dec 11, 2017 *

* 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
09837-001	SS-1	NA	11/15/17@12:26	Air-Sub Slab	ppbV	
09837-002	SS-2	NA	11/15/17@13:58	Air-Sub Slab	ppbV	
09837-003	SS-3	NA	11/15/17@15:42	Air-Sub Slab	ppbV	
09837-004	SS-4	NA	11/15/17@17:28	Air-Sub Slab	ppbV	
09837-005	AMBIENT	NA	11/15/17@14:05	Air-Sub Slab	ppbV	

Sample #	Test	Status	QA Method	TAT	Holding Time Expires
001	TO-15 analysis	Analyze	TO-15	STD/2 WKS	12/15/2017
002	TO-15 analysis	Analyze	TO-15	STD/2 WKS	12/15/2017
003	TO-15 analysis	Analyze	TO-15	STD/2 WKS	12/15/2017
004	TO-15 analysis	Analyze	TO-15	STD/2 WKS	12/15/2017
005	TO-15 analysis	Analyze	TO-15	STD/2 WKS	12/15/2017



Integrated Analytical Laboratories 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	Location: 273 Franklin Rd Randolph, NJ 07869		
Name: Joseph Walukiewicz	Title: Air Department Receiving		
Case No.: E17-09837	Analytical Parameter/Fraction: (check one) ☐ NJDEP LLTO-15 ☒ EPA TO-15		

Sample No.	Aliquot/Extract No.
88-1	E17-09837-01
-2	E17- -02
-3	E17- -03
-4	E17- -04
Ambient	E17- -05
	E17-
	E17-
	E17-
	E17-

Sample No.	Aliquot/Extract No.
	E17-
	E17-
	E17-
	E17-
	E17-
	E17-
	E17-
	E17-
	E17-

Date	Time	Relinquished By	Received By	Purpose of Change of Custody
11/16/17	1600	SIGNATURE PRINTED NAME	SIGNATURE <i>Joseph Walukiewicz</i> PRINTED NAME JOSEPH WALUKIEWICZ	1. Sample log-in 2. Pressure Check 3. Pre-analysis storage
11/16/17	1630	SIGNATURE <i>Joseph Walukiewicz</i> PRINTED NAME JOSEPH WALUKIEWICZ	SIGNATURE PRINTED NAME	Placement in TO-15 sample storage area until ready for analysis
11/28/17	1400	SIGNATURE PRINTED NAME	SIGNATURE <i>Jeff Schmitt</i> PRINTED NAME JEFF SCHMITT	TO-15/LLTO-15 analysis on: 09837-01, 02, 03, 04, -05
		SIGNATURE PRINTED NAME	SIGNATURE PRINTED NAME	
		SIGNATURE PRINTED NAME	SIGNATURE PRINTED NAME	
		SIGNATURE PRINTED NAME	SIGNATURE PRINTED NAME	
		SIGNATURE PRINTED NAME	SIGNATURE PRINTED NAME	
		SIGNATURE PRINTED NAME	SIGNATURE PRINTED NAME	
		SIGNATURE PRINTED NAME	SIGNATURE PRINTED NAME	

Section II: Methodology Review

Methodology Summary for Air Collected from Hazardous Waste Site Contract

Laboratory:	Integrated Analytical Lab, LLC	Project No:	Swivilier/175 W Nyack Rd
Location:	Randolph, NJ	SDG No:	E17-09837

Name	Required Methodology	Indicate Method
Volatile Organics	US EPA TO-15	US EPA Method TO-15

Section III: Case Narrative

CASE NARRATIVE

ANALYTICAL DATA PACKAGE FOR THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION ALBANY NEW YORK 12233

Integrated Analytical Laboratories, LLC
Project #: Swivilier/175 W Nyack Rd
SDG #: E17-09837
Date of first sample receipt: 11/16/2017

Randolph, NJ 07869
NY ELAP Certification #: 11402
NJDEP (Primary AB) Certification#: 14751
Date of last sample receipt: 11/16/2017

Client: Environmental Waste Management Associates
Project/Site: Swivilier/175 W Nyack Rd / NY

Client ID	Lab ID	Receipt Date	Analysis Date	DF	Diluted For
SS-1	E17-09837-01	11/16/2017	11/28/2017	10.0	Acetone
SS-1	E17-09837-01	11/16/2017	11/29/2017	1.0	NA
SS-2	E17-09837-02	11/16/2017	11/29/2017	20.0	Trichloroethene
SS-2	E17-09837-02	11/16/2017	11/28/2017	10.0	Screening Data
SS-3	E17-09837-03	11/16/2017	11/29/2017	1.0	NA
SS-4	E17-09837-04	11/16/2017	11/29/2017	1.0	NA
Ambient	E17-09837-05	11/16/2017	11/28/2017	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*
E17-09837-01	3027	-29	-5.0	7316795	99.50	100.20	0.70
E17-09837-02	3814	-29	-5.0	A0160003-9	96.50	101.00	4.56
E17-09837-03	4871	-29	-5.0	A0160003-1	100.10	106.10	5.82
E17-09837-04	2753	-29	-5.0	7340542	105.00	104.30	0.67
E17-09837-05	2892	-29	-4.0	A0160009-6	98.20	101.30	3.11

*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: Jeff Schmitt SDG
Non-Conformances: Sample E17-09837-05 was manually integrated for Carbon tetrachloride due to matrix interferences.
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

CASE NARRATIVE

ANALYTICAL DATA PACKAGE FOR THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION ALBANY NEW YORK 12233

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Date of first sample receipt: 11/16/2017

Randolph, NJ 07869
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NJDEP (Primary AB) Certification#: 14751
Date of last sample receipt: 11/16/2017

Client: Environmental Waste Management Associates
Project/Site: Swivilier/175 W Nyack Rd / NY

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 may be used from the start. A 100x canister-to-canister dilution may 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 1/4" 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:

CASE NARRATIVE

ANALYTICAL DATA PACKAGE FOR THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION ALBANY NEW YORK 12233

Integrated Analytical Laboratories, LLC
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SDG #: E17-09837
Date of first sample receipt: 11/16/2017

Randolph, NJ 07869
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Date of last sample receipt: 11/16/2017

Client: Environmental Waste Management Associates
Project/Site: Swivilier/175 W Nyack Rd / NY

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 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:
- Scott Gas Cylinder #AAL071156, valid 3/9/15 through 2/25/17
 - Airgas Specialty Gases Cylinder #CC483586, valid 3/6/17 through 3/6/18
- @ 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, with humidified clean air. The 10ppbv standard is also used for the Daily Calibration Verification Standard (DCVS) and Closing Calibration Verification Standard (CCVS).

The second source standard*, used as the Initial Calibration Verification Standard (ICVSS) and Laboratory Control Sample (LCS), is introduced into the instrument in the same manner as the primary source standard, using:

- Scott Gas Cylinder #AAL07303, valid 6/11/15 through 5/14/17
- Airgas Specialty Gases Cylinder #CC483422, valid 5/4/17 through 5/4/18

CASE NARRATIVE

ANALYTICAL DATA PACKAGE FOR THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION ALBANY NEW YORK 12233

Integrated Analytical Laboratories, LLC
Project #: Swivilier/175 W Nyack Rd
SDG #: E17-09837
Date of first sample receipt: 11/16/2017

Randolph, NJ 07869
NY ELAP Certification #: 11402
NJDEP (Primary AB) Certification#: 14751
Date of last sample receipt: 11/16/2017

Client: Environmental Waste Management Associates
Project/Site: Swivilier/175 W Nyack Rd / NY

@ 100ppb per compound, with exception of m&p-xylenes @ 200ppb.

Internal standards* are created from:

- Scott Gas, Cylinder #ALM029426, valid 5/11/2016 through 5/12/2019

@ 5ppm per compound. Standard is directly introduced into the instrument to reach the 10ppbv concentrations. 1:500 Dilutions are made on instrument with humidified clean air. 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.

09/12/2017

100 ppbv internal standard mix - prepared in cylinder #ALM029426

10 ppbv per standard/sample - 50 ml injected

100 ppbv calibration standard - prepared in cylinder #CC483586

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

10/04/2017

100 ppbv internal standard mix - prepared in cylinder #ALM029426

10 ppbv per standard/sample - 50 ml injected

100 ppbv calibration standard - prepared in cylinder #CC483586

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 - prepared in canister #1127

500 ml injected

11/28/2017

100 ppbv internal standard mix - prepared in cylinder #ALM029426

10 ppbv per standard/sample - 50 ml injected

100 ppbv calibration standard - prepared in cylinder #CC483586

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 - prepared in canister #1127

CASE NARRATIVE

**ANALYTICAL DATA PACKAGE FOR THE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY NEW YORK 12233**

Integrated Analytical Laboratories, LLC
Project #: Swivilier/175 W Nyack Rd
SDG #: E17-09837
Date of first sample receipt: 11/16/2017

Randolph, NJ 07869
NY ELAP Certification #: 11402
NJDEP (Primary AB) Certification#: 14751
Date of last sample receipt: 11/16/2017

Client: Environmental Waste Management Associates
Project/Site: Swivilier/175 W Nyack Rd / NY

500 ml injected
Sample E17-09837-01 - sample taken in canister #3027
50 ml sample volume injected, 10x dilution
Sample E17-09837-02 - sample taken in canister #3814
50 ml sample volume injected, 10x dilution
Sample E17-09837-05 - sample taken in canister #2892
500 ml sample volume injected, 1x dilution

11/29/2017

100 ppbv internal standard mix - prepared in cylinder #ALM029426
10 ppbv per standard/sample - 50 ml injected
100 ppbv calibration standard - prepared in cylinder #CC483586
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 - prepared in canister #1127
500 ml injected
Sample E17-09837-01 - sample taken in canister #3027
500 ml sample volume injected, 1x dilution
Sample E17-09837-02 - sample taken in canister #3814
25 ml sample volume injected, 20x dilution
Sample E17-09837-03 - sample taken in canister #4871
500 ml sample volume injected, 1x dilution
Sample E17-09837-04 - sample taken in canister #2753
500 ml sample volume injected, 1x dilution

CASE NARRATIVE

**ANALYTICAL DATA PACKAGE FOR THE
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Date of last sample receipt: 11/16/2017

Client: Environmental Waste Management Associates
Project/Site: Swivilier/175 W Nyack Rd / NY

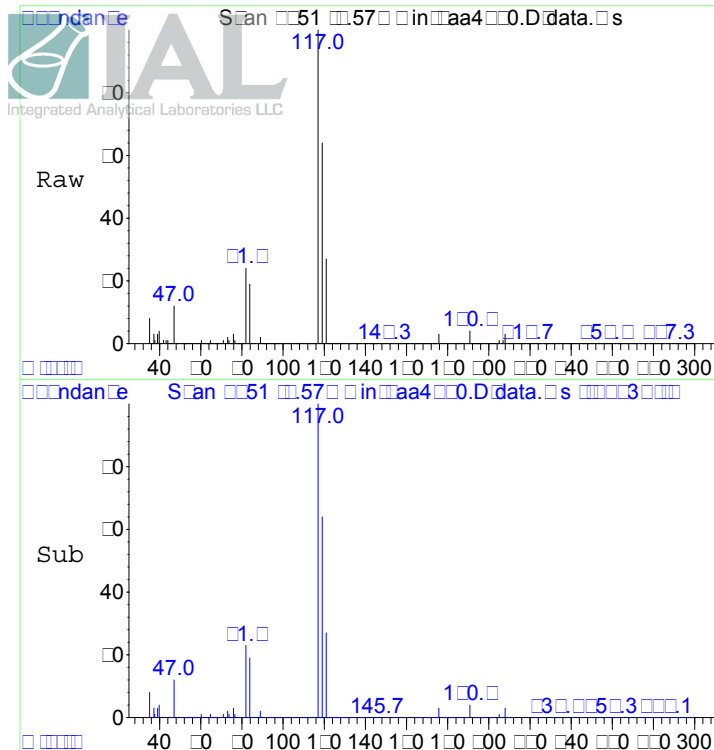
All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. All conversions are based upon a room temperature 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

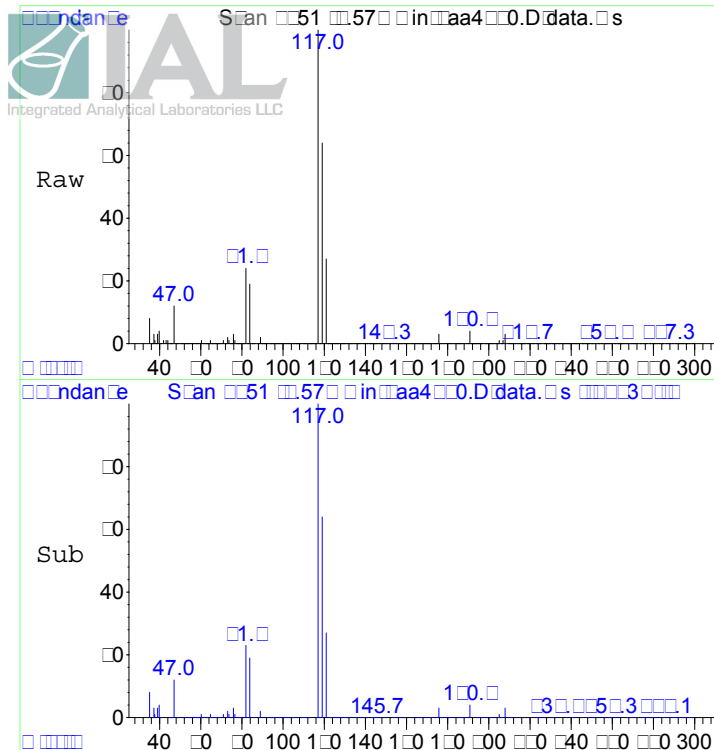
December 04, 2017
Date



#36
 Carbon tetrachloride
 Concen: 0.05 ppbV
 RT: 9.576 min Scan# 2951
 Delta R.T. -0.010 min
 Lab File: aa4290.D
 Acq: 28 Nov 2017 10:48 pm

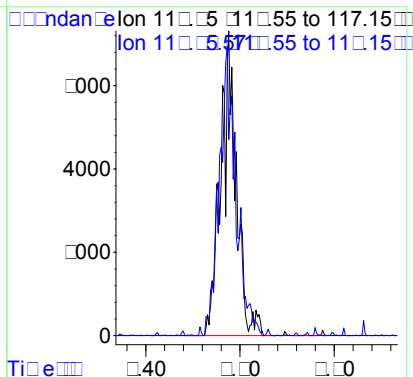
Tgt Ion	Ratio	Lower	Upper
117	100		
119	174.2	77.0	115.4#

Before manual integration for Carbon tetrachloride.



#36
 Carbon tetrachloride
 Concen: 0.09 ppbV m
 RT: 9.576 min Scan# 2951
 Delta R.T. -0.010 min
 Lab File: aa4290.D
 Acq: 28 Nov 2017 10:48 pm

Tgt Ion:117 Resp: 17055
 Ion Ratio Lower Upper
 117 100
 119 98.3 77.0 115.4



After manual integration for Carbon tetrachloride.

Section IV: Method Detection Limit Summary

METHOD DETECTION LIMIT (MDL) REPORT

Integrated Analytical Laboratories - Randolph, NJ

Matrix ir

☐ ☐ ☐ ☐ n ID ☐ Reste ☐ Rtx ☐ 1, ☐ 0 ☐ eter, 0.3 ☐ ☐ ID, 1 ☐

Instrument ID 700 MS 575 L ID Instrument AA

Report Prepared by Je Sitt

Preparation Date 000717

MDL e file Date 7 / 017MDL expiration Date 7 01

MDL Analysis Date 07/01/17

☐ na ☐ yst ☐ Je ☐ S ☐ ☐ ☐ itt

Filename	Run #	Date	Time	Filename	Run #	Date	Time
aa_53	Rn 1	007017	11:54	aa_544	Rn 0	007017	14:44
aa_540	Rn 0	007017	1000	aa_545	Rn 7	007017	1510
aa_541	Rn 3	007017	13:00				
aa_540	Rn 4	007017	13:30				
aa_543	Rn 5	007017	14:10				

Compound Name	Run 1*	Run 2*	Run 3*	Run 4*	Run 5*	Run 6*	Run 7*	Mean Value	TR Value	Percent Recovery	Std Dev	MDL ppbv	PQL ppbv	NY:LLTO 15:P:RL ppbv	NY:LLTO 15:P:RL μg/L	NJ TO:15 RL ppbv	NJ TO:15 RL μg/L	True Value MDL
Propene	0.10	0.15	0.10	0.00	0.15	0.05	0.13	0.10	0.00	01	0.045	0.14	0.43	0.00	0.34	0.40	0.00	1.4
Diisopropyl ether	0.10	0.00	0.10	0.10	0.01	0.01	0.10	0.10	0.00	04	0.014	0.050	0.15	0.00	0.00	0.40	0.00	4.0
Diisopropyl ether	0.00	0.17	0.10	0.00	0.13	0.10	0.17	0.10	0.00	01	0.030	0.10	0.30	0.00	0.41	0.40	0.00	1.7
1,1-Dichloroethane	0.31	0.30	0.31	0.00	0.34	0.34	0.30	0.30	0.00	150	0.010	0.050	0.10	0.00	1.4	0.40	0.00	3.4
Diethyl ether	0.10	0.14	0.13	0.11	0.15	0.14	0.10	0.13	0.00	05	0.015	0.040	0.14	0.00	0.51	0.40	1.0	4.3
1,3-Butadiene	0.10	0.01	0.10	0.15	0.01	0.00	0.10	0.10	0.00	00	0.000	0.000	0.01	0.00	0.44	0.40	0.00	0.0
n-Butane	0.00	0.00	0.07	0.04	0.30	0.00	0.00	0.00	0.00	130	0.000	0.000	0.00	0.00	0.47	0.40	0.00	3.0
Bromochloroethane	0.10	0.10	0.10	0.00	0.10	0.00	0.11	0.11	0.00	53	0.003	0.073	0.00	0.00	0.70	0.40	1.0	0.7
Diisopropyl ether	0.00	0.10	0.00	0.10	0.04	0.00	0.17	0.15	0.00	77	0.050	0.10	0.54	0.00	0.53	0.40	1.1	1.1
Diisopropyl ether	0.04	0.11	0.17	0.00	0.07	0.00	0.00	0.01	0.00	107	0.001	0.10	0.57	0.00	0.30	0.40	0.75	1.0
Diisopropyl ether	0.14	0.14	0.14	0.10	0.10	0.17	0.14	0.14	0.00	70	0.015	0.047	0.14	0.00	0.07	0.40	1.7	4.3
Diisopropyl ether	0.00	0.04	0.01	0.10	0.10	0.00	0.00	0.10	0.00	07	0.043	0.14	0.41	0.00	0.40	0.40	0.00	1.5
Diisopropyl ether	0.00	0.00	0.05	0.03	0.00	0.10	0.04	0.04	0.00	100	0.000	0.000	0.00	0.00	0.40	0.40	0.00	0.3
Triisopropyl ether	0.33	0.35	0.35	0.30	0.30	0.30	0.35	0.35	0.00	170	0.003	0.070	0.00	0.00	1.1	0.40	0.00	3
Isopropanol	0.34	0.35	0.33	0.30	0.40	0.34	0.30	0.34	0.00	170	0.030	0.10	0.30	0.00	0.40	0.40	0.00	0.0
n-Pentane	0.31	0.33	0.30	0.00	0.31	0.30	0.30	0.31	0.00	155	0.015	0.040	0.14	0.00	0.50	0.40	1.0	4.3
1,1-Dichloroethene	0.01	0.03	0.00	0.00	0.05	0.05	0.00	0.03	0.00	113	0.017	0.054	0.10	0.00	0.70	0.40	1.0	3.7
Methyl ethyl ether	0.07	0.07	0.00	0.05	0.00	0.00	0.00	0.07	0.00	137	0.014	0.045	0.13	0.00	0.00	0.40	1.4	4.5
Tert-butyl alcohol	0.00	0.30	0.35	0.30	0.34	0.30	0.31	0.34	0.00	170	0.030	0.030	0.00	0.00	0.01	0.40	1.0	0.0
Diethyl ether	0.00	0.00	0.01	0.10	0.00	0.03	0.10	0.01	0.00	105	0.017	0.054	0.10	0.00	0.00	0.40	1.3	3.7
1,1,1-Trichloro-1,1,1-trichloroethane	0.34	0.30	0.35	0.31	0.37	0.30	0.35	0.35	0.00	175	0.000	0.000	0.00	0.00	1.5	0.40	3.1	0.0
Carbon disulfide	0.17	0.10	0.10	0.15	0.00	0.10	0.17	0.10	0.00	00	0.017	0.050	0.10	0.00	0.00	0.40	1.0	3.0
1,1-Dichloroethene trans	0.01	0.04	0.00	0.00	0.04	0.04	0.01	0.00	0.00	110	0.010	0.057	0.17	0.00	0.70	0.40	1.0	3.5
1,1-Dichloroethene	0.00	0.30	0.00	0.00	0.33	0.34	0.30	0.31	0.00	155	0.000	0.000	0.01	0.00	0.01	0.40	1.0	0.0
Methyl tert-butyl ether	0.00	0.00	0.05	0.00	0.07	0.07	0.04	0.00	0.00	100	0.000	0.004	0.10	0.00	0.70	0.40	1.4	3.1
Methyl ethyl ketone	0.35	0.37	0.34	0.31	0.30	0.37	0.34	0.35	0.00	170	0.004	0.077	0.03	0.00	0.50	0.40	1.0	0.0
1,1-Dichloroethene cis	0.05	0.07	0.05	0.00	0.07	0.07	0.04	0.05	0.00	107	0.010	0.050	0.17	0.00	0.70	0.40	1.0	3.4
Ethyl acetate	0.40	0.40	0.40	0.44	0.51	0.54	0.45	0.40	0.00	041	0.035	0.11	0.33	0.00	0.70	0.40	1.4	1.0
n-Hexane	0.33	0.35	0.34	0.31	0.30	0.35	0.30	0.34	0.00	170	0.000	0.000	0.01	0.00	0.70	0.40	1.4	0.0
Diisobutyl	0.00	0.33	0.31	0.00	0.34	0.34	0.31	0.31	0.00	157	0.000	0.000	0.00	0.00	0.00	0.40	0.0	0.0
Tetrahydrofuran	0.30	0.41	0.41	0.35	0.43	0.43	0.30	0.40	0.00	000	0.000	0.000	0.04	0.00	0.50	0.40	1.0	0.5
1,1-Dichloroethane	0.00	0.34	0.33	0.30	0.37	0.37	0.34	0.34	0.00	170	0.000	0.000	0.05	0.00	0.01	0.40	1.0	0.4
1,1,1-Trichloroethane	0.31	0.33	0.31	0.00	0.34	0.34	0.31	0.30	0.00	150	0.000	0.004	0.10	0.00	1.1	0.40	0.0	3.1
Benzene	0.33	0.35	0.33	0.30	0.35	0.30	0.30	0.33	0.00	107	0.001	0.005	0.00	0.00	0.04	0.40	1.3	3
Carbon tetrachloride	0.05	0.07	0.04	0.00	0.00	0.07	0.05	0.05	0.00	100	0.010	0.050	0.15	0.00	1.3	0.40	0.5	4.0
Cyclohexane	0.07	0.00	0.07	0.04	0.00	0.00	0.05	0.07	0.00	134	0.010	0.001	0.10	0.00	0.00	0.40	1.4	3.3
1,1-Dichloropropane	0.40	0.41	0.41	0.30	0.44	0.44	0.40	0.41	0.00	000	0.003	0.071	0.01	0.00	0.00	0.40	1.0	0.0
Bromodichloroethane	0.00	0.34	0.33	0.30	0.30	0.35	0.30	0.33	0.00	105	0.001	0.000	0.00	0.00	1.3	0.40	0.7	3.0
1,1,1-Trichloropentane	0.00	0.05	0.04	0.00	0.05	0.00	0.00	0.03	0.00	117	0.001	0.005	0.00	0.00	0.03	0.40	1.0	3.1
Trichloroethene	0.00	0.30	0.37	0.30	0.30	0.30	0.35	0.37	0.00	103	0.000	0.000	0.04	0.00	1.1	0.40	0.1	0.5
1,4-Dioxane	0.00	0.41	0.30	0.35	0.41	0.41	0.30	0.30	0.00	104	0.004	0.070	0.03	0.00	0.70	0.40	1.4	0.0
Methyl ethyl carbylate	0.00	0.40	0.30	0.37	0.40	0.41	0.30	0.40	0.00	100	0.003	0.071	0.01	0.00	0.00	0.40	1.0	0.0
n-Heptane	0.35	0.37	0.35	0.31	0.37	0.30	0.34	0.35	0.00	175	0.000	0.000	0.00	0.00	0.00	0.40	1.0	3.0
1,3-Dichloropropene cis	0.33	0.35	0.33	0.31	0.30	0.30	0.30	0.34	0.00	100	0.000	0.003	0.10	0.00	0.01	0.40	1.0	3.0
Methyl isobutyl ketone	0.44	0.40	0.45	0.40	0.51	0.50	0.44	0.40	0.00	030	0.034	0.11	0.30	0.00	0.00	0.40	1.0	1.0
1,3-Dichloropropene trans	0.37	0.30	0.30	0.34	0.40	0.30	0.35	0.37	0.00	100	0.000	0.003	0.10	0.00	0.01	0.40	1.0	3.0
1,1,1-Trichloroethane	0.40	0.40	0.30	0.30	0.40	0.45	0.41	0.41	0.00	003	0.007	0.005	0.00	0.00	1.1	0.40	0.0	0.0

METHOD DETECTION LIMIT (MDL) REPORT

Integrated Analytical Laboratories | Randolph, NJ

Matrix $\square \square$ ir

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Instrument ID 700 MS 575 L ID Instrument AA

Report Prepared by Jesse Smith

Preparation Date 0000717

MDL e file Date 7 / 017MDL expiration Date 7 01

MDL Analysis Date 07/01/17

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Filename	Run #	Date	Time	Filename	Run #	Date	Time
aa_53	Run 1	007/017	11:54	aa_544	Run 0	007/017	14:44
aa_540	Run 0	007/017	10:00	aa_545	Run 7	007/017	15:10
aa_541	Run 3	007/017	13:00				
aa_540	Run 4	007/017	13:30				
aa_543	Run 5	007/017	14:10				

Compound Name	Run 1*	Run 2*	Run 3*	Run 4*	Run 5*	Run 6*	Run 7*	MDN Rate	TR Rate	Percent Recovery	Std Dev ppbv	MDL ppbv	PQL ppbv	NY/LLTO 15:P:R ppbv	NY/LLTO 15:P:R μg/m³	NJ TO-15 ppbv	NJ TO-15 RL μg/m³	True Value MDL
Toluene	0.43	0.45	0.43	0.3	0.45	0.44	0.4	0.43	0.0	14	0.05	0.077	0.3	0.0	0.75	0.40	1.5	0.0
Methylcyclopentadiene	0.4	0.50	0.47	0.43	0.51	0.5	0.4	0.4	0.0	140	0.031	0.10	0.30	0.0	0.0	0.40	1.0	0.0
Dichlorodibromodifluoromethane	0.17	0.0	0.17	0.4	0.0	0.0	0.17	0.17	0.0	13	0.01	0.051	0.15	0.0	1.7	0.40	3.4	4
1,1-Dichloroethane	0.3	0.40	0.3	0.34	0.41	0.41	0.3	0.3	0.0	1	0.05	0.07	0.3	0.0	1.5	0.40	3.1	0.0
Tetrahydroethene	0.41	0.43	0.43	0.3	0.4	0.4	0.41	0.43	0.0	13	0.05	0.07	0.4	0.0	1.4	0.40	1.7	0.5
Chlorobenzene	0.3	0.41	0.40	0.3	0.43	0.43	0.3	0.40	0.0	00	0.0	0.0	0.4	0.0	0.0	0.40	1.0	0.5
Cyclopentadiene	0.3	0.3	0.35	0.3	0.3	0.37	0.34	0.3	0.0	17	0.03	0.071	0.1	0.0	0.17	0.40	1.7	3
Xylenes (p)	0.75	0.7	0.7	0.17	0.77	0.7	0.0	0.73	0.40	1	0.040	0.13	0.3	0.40	1.7	0.40	1.7	1.0
Bromobenzene	0.0	0.3	0.0	0.0	0.4	0.4	0.0	0.3	0.0	113	0.014	0.045	0.13	0.0	1.1	0.40	4.1	4
Styrene	0.33	0.34	0.3	0.0	0.35	0.33	0.30	0.3	0.0	1	0.0	0.0	0.1	0.0	0.15	0.40	1.7	3
1,1,1-Tetrahydroethene	0.37	0.3	0.37	0.3	0.3	0.3	0.34	0.3	0.0	1	0.03	0.073	0.0	0.0	1.4	0.40	1.7	0.0
Xylene (o)	0.40	0.41	0.3	0.35	0.43	0.43	0.3	0.40	0.0	1	0.0	0.03	0.15	0.0	0.17	0.40	1.7	0.4
n-Nonane	0.34	0.35	0.3	0.30	0.3	0.3	0.31	0.33	0.0	17	0.03	0.07	0.0	0.0	1.4	0.40	1.1	3
Isobutene	0.34	0.3	0.34	0.31	0.37	0.37	0.33	0.35	0.0	173	0.04	0.075	0.3	0.0	1.0	0.40	0.0	3
Chlorobenzene	0.3	0.3	0.34	0.3	0.37	0.37	0.34	0.35	0.0	175	0.01	0.05	0.1	0.0	0.0	0.40	1.1	3.4
n-Propylbenzene	0.35	0.37	0.34	0.31	0.37	0.3	0.33	0.35	0.0	173	0.03	0.07	0.0	0.0	1.0	0.40	0.0	0.0
4-Ethyltoluene	0.3	0.34	0.3	0.0	0.34	0.34	0.30	0.3	0.0	1	0.0	0.0	0.1	0.0	0.0	0.40	0.0	3.0
1,3,5-Trichlorobenzene	0.3	0.34	0.3	0.0	0.34	0.34	0.30	0.3	0.0	1	0.0	0.0	0.1	0.0	0.0	0.40	0.0	0.0
1,4-Trichlorobenzene	0.31	0.3	0.30	0.17	0.3	0.31	0.0	0.30	0.0	151	0.0	0.0	0.1	0.0	0.0	0.40	0.0	3
Benzonitrile	0.17	0.17	0.15	0.13	0.17	0.17	0.4	0.0	0.0	1	0.01	0.05	0.17	0.0	1.0	0.40	1.1	3.0
1,3-Dichlorobenzene	0.3	0.3	0.37	0.34	0.40	0.40	0.3	0.3	0.0	1	0.03	0.07	0.0	0.0	1.0	0.40	0.4	0.0
1,4-Dichlorobenzene	0.3	0.3	0.35	0.3	0.3	0.3	0.34	0.3	0.0	17	0.04	0.07	0.3	0.0	1.0	0.40	0.4	0.0
1,2-Dichlorobenzene	0.3	0.37	0.3	0.33	0.3	0.3	0.34	0.3	0.0	17	0.0	0.03	0.1	0.0	1.0	0.40	0.4	3.0
1,4,4-Trichlorobenzene	0.41	0.41	0.3	0.35	0.41	0.41	0.3	0.40	0.0	1	0.04	0.077	0.3	0.0	1.5	0.40	3.0	3
Naphthalene	0.41	0.41	0.3	0.3	0.41	0.40	0.35	0.3	0.0	1	0.05	0.07	0.4	0.0	1.0	0.40	1.1	0.5
1,3,5-Exatrioxadecadiene	0.40	0.4	0.40	0.3	0.43	0.45	0.40	0.41	0.0	0	0.04	0.075	0.0	0.0	1.1	0.40	4.3	1.7

Processing Method: MSD M1 METHODS 01 M

Initial ☐ a ☐ i ☐ r ☐ a ☐ t ☐ i ☐ o ☐ n ☐ M ☐ S ☐ D ☐ M ☐ 1 ☐ M ☐ T ☐ O ☐ P ☐ S ☐ 0 ☐ 1 ☐ M

Location of this file: PPL Reports\015\LT015 and TO15\ on the client MDL

Michael Kufte

Mi□□ae□Le□tin, P□D.

Laboratory Director

Date July 5, 2017

Lauren Jenkins

Lauren Jenkins

☐ Air Division ☐ Quality Assurance Office

Date July 5, 2017

Instrument used or lean analyzer certification analysis Y/S

Section V: Quality Control Data Summary

BFB Tune Summary

Method Blank

Laboratory Control Sample

Laboratory Sample Duplicate

Internal Standard Area Summary

Data Path: C:\DATA\09-12-17\
Data File: AA3441BFB.D
Acq On: 9/12/2017 8:18:00AM
Operator: jls
Sample: BFB
Misc: ALM029426
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\0816.M
Last Update: Thu Aug 17 08:51:27 2017
Spectrum Information:

Pass/Fail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	77682	13.2
PASS	75	95	30	66	348928	59.5
PASS	95	95	100	100	586303	100.0
PASS	96	95	5	9	39699	6.8
PASS	173	174	0.00	2	3809	0.9
PASS	174	95	50	100	410368	70.0
PASS	175	174	4	9	30821	7.5
PASS	176	174	93	101	385131	93.9
PASS	177	176	5	9	25240	6.6

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA3441BFB	NA	9/12/2017 8:18:00 AM
40 PPBV STD	AA3443STD01	NA	9/12/2017 9:44:00 AM
20 PPBV STD	AA3444STD02	NA	9/12/2017 10:17:00 AM
10 PPBV STD	AA3445STD03	NA	9/12/2017 10:51:00 AM
2 PPBV STD	AA3446STD04	NA	9/12/2017 11:24:00 AM
0.2 PPBV STD	AA3447STD05	NA	9/12/2017 12:06:00 PM
10 PPBV ICVSS	AA3448ICVSS	NA	9/12/2017 1:28:00 PM

Data Path: C:\DATA\10-04-17\
Data File: AA3701BFB.D
Acq On: 10/4/2017 8:23:00AM
Operator: jls
Sample: BFB
Misc: ALM029426
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\0912.M
Last Update: Tue Sep 12 13:00:02 2017
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	72509	13.5
PASS	75	95	30	66	338679	62.9
PASS	95	95	100	100	538731	100.0
PASS	96	95	5	9	36859	6.8
PASS	173	174	0.00	2	2769	0.7
PASS	174	95	50	100	379947	70.5
PASS	175	174	4	9	27965	7.4
PASS	176	174	93	101	366379	96.4
PASS	177	176	5	9	22832	6.2

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA3701BFB	NA	10/4/2017 8:23:00 AM
10 PPBV DCVS	AA3702DCVS	NA	10/4/2017 9:02:00 AM
10 PPBV LCS	AA3703LCS	NA	10/4/2017 9:55:00 AM
METHOD BLANK	AA3704BLK	NA	10/4/2017 10:33:00 AM
02 PPBV RLLCS	AA3705RLLCS	NA	10/4/2017 11:14:00 AM
2162	AA3717	NA	10/4/2017 6:34:00 PM
10 PPBV CCCVS	AA3728CCCVS	NA	10/4/2017 7:08:00 PM

Data Path: C:\DATA\11-28-17\
Data File: AA4271BFB.D
Acq On: 11/28/2017 8:37:00AM
Operator: jls
Sample: BFB
Misc: ALM029426
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\0912.M
Last Update: Tue Sep 12 13:00:02 2017
Spectrum Information:

Pass/Fail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	97275	13.9
PASS	75	95	30	66	399829	57.1
PASS	95	95	100	100	700502	100.0
PASS	96	95	5	9	45515	6.5
PASS	173	174	0.00	2	4963	0.9
PASS	174	95	50	100	541242	77.3
PASS	175	174	4	9	39455	7.3
PASS	176	174	93	101	523454	96.7
PASS	177	176	5	9	33592	6.4

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4271BFB	NA	11/28/2017 8:37:00 AM
10 PPBV DCVS	AA4272DCVS	NA	11/28/2017 9:29:00 AM
10 PPBV LCS	AA4273LCS	NA	11/28/2017 10:09:00 AM
METHOD BLANK	AA4274BLK	NA	11/28/2017 1:04:00 PM
02 PPBV RLLCS	AA4275RLLCS	NA	11/28/2017 1:44:00 PM
E17-09837-01	AA4286	SS-1	11/28/2017 8:34:00 PM
E17-09837-02	AA4287	SS-2	11/28/2017 9:07:00 PM
E17-09837-05	AA4290	Ambient	11/28/2017 10:48:00 PM
10 PPBV CCCVS	AA4292CCCVS	NA	11/28/2017 11:56:00 PM

Data Path: C:\DATA\11-29-17\
Data File: AA4301BFB.D
Acq On: 11/29/2017 8:42:00AM
Operator: jls
Sample: BFB
Misc: ALM029426
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\0912.M
Last Update: Tue Sep 12 13:00:02 2017
Spectrum Information:

Pass/Fail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	97565	15.2
PASS	75	95	30	66	400064	62.3
PASS	95	95	100	100	641984	100.0
PASS	96	95	5	9	39141	6.1
PASS	173	174	0.00	2	5077	1.1
PASS	174	95	50	100	482837	75.2
PASS	175	174	4	9	36367	7.5
PASS	176	174	93	101	469473	97.2
PASS	177	176	5	9	28931	6.2

Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4301BFB	NA	11/29/2017 8:42:00 AM
10 PPBV DCVS	AA4302DCVS	NA	11/29/2017 10:04:00 AM
10 PPBV LCS	AA4303LCS	NA	11/29/2017 10:45:00 AM
METHOD BLANK	AA4304BLK	NA	11/29/2017 11:19:00 AM
02 PPBV RLLCS	AA4305RLLCS	NA	11/29/2017 11:59:00 AM
3059	AA4306	NA	11/29/2017 2:35:00 PM
E17-09837-01	AA4307	SS-1	11/29/2017 3:08:00 PM
E17-09837-02	AA4308	SS-2	11/29/2017 3:55:00 PM
E17-09837-03	AA4309	SS-3	11/29/2017 4:29:00 PM
E17-09837-04	AA4310	SS-4	11/29/2017 5:03:00 PM
10 PPBV CCCVS	AA4319CCCVS	NA	11/29/2017 10:05:00 PM

Method Blank Report

Lab Sample Name: METHOD BLANK
Field Sample Name: METHOD BLANK
Matrix: Air
Dilution Factor: 1

Data File: AA3704BLK
Date Analyzed: 10/4/2017
Sample Volume: 500ml
GC/MS Column: RTX-1, 0.32 mmID

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3701BFB]	10/04/2017 8:23
10 PPBV DCVS [AA3702DCVS]	10/04/2017 9:02
10 PPBV LCS [AA3703LCS]	10/04/2017 9:55
METHOD BLANK [AA3704BLK]	10/04/2017 10:33
02 PPBV RLLCS [AA3705RLLCS]	10/04/2017 11:14
2162 [AA3717]	10/04/2017 18:34
10 PPBV CCCVS [AA3728CCCVS]	10/04/2017 19:08

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	0.14	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	0.16	ND
Carbon tetrachloride	56-23-5	0.15	ND
Cyclohexane	110-82-7	0.18	ND
Dibromochloromethane	124-48-1	0.15	ND
1,2-Dibromoethane	106-93-4	0.20	ND
1,2-Dichlorobenzene	95-50-1	0.19	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.15	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	0.16	ND
1,2-Dichloroethene (cis)	156-59-2	0.17	ND
1,2-Dichloroethene (trans)	156-60-5	0.17	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.19	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.18	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	0.14	ND
Methyl ethyl ketone	78-93-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Method Blank Report

Lab Sample Name: METHOD BLANK
Field Sample Name: METHOD BLANK
Matrix: Air
Dilution Factor: 1

Data File: AA3704BLK
Date Analyzed: 10/4/2017
Sample Volume: 500ml
GC/MS Column: RTX-1, 0.32 mmID

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3701BFB]	10/04/2017 8:23
10 PPBV DCVS [AA3702DCVS]	10/04/2017 9:02
10 PPBV LCS [AA3703LCS]	10/04/2017 9:55
METHOD BLANK [AA3704BLK]	10/04/2017 10:33
02 PPBV RLLCS [AA3705RLLCS]	10/04/2017 11:14
2162 [AA3717]	10/04/2017 18:34
10 PPBV CCCVS [AA3728CCCVS]	10/04/2017 19:08

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.19	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	0.19	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	0.14	ND
Vinyl chloride	75-01-4	0.14	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).

Method Blank Report

Lab Sample Name: METHOD BLANK
Field Sample Name: METHOD BLANK
Matrix: Air
Dilution Factor: 1

Data File: AA4274BLK
Date Analyzed: 11/28/2017
Sample Volume: 500ml
GC/MS Column: RTX-1, 0.32 mmID

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4271BFB]	11/28/2017 8:37
10 PPBV DCVS [AA4272DCVS]	11/28/2017 9:29
10 PPBV LCS [AA4273LCS]	11/28/2017 10:09
METHOD BLANK [AA4274BLK]	11/28/2017 13:04
02 PPBV RLLCS [AA4275RLLCS]	11/28/2017 13:44
E17-09837-01 [AA4286]	11/28/2017 20:34
E17-09837-02 [AA4287]	11/28/2017 21:07
E17-09837-05 [AA4290]	11/28/2017 22:48
10 PPBV CCCVS [AA4292CCCVS]	11/28/2017 23:56

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	0.14	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	0.16	ND
Carbon tetrachloride	56-23-5	0.15	ND
Cyclohexane	110-82-7	0.18	ND
Dibromochloromethane	124-48-1	0.15	ND
1,2-Dibromoethane	106-93-4	0.20	ND
1,2-Dichlorobenzene	95-50-1	0.19	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.15	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	0.16	ND
1,2-Dichloroethene (cis)	156-59-2	0.17	ND
1,2-Dichloroethene (trans)	156-60-5	0.17	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.19	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.18	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

Method Blank must be less than the Practical Quantitation Limit (PQL).

Method Blank Report

Lab Sample Name: METHOD BLANK
Field Sample Name: METHOD BLANK
Matrix: Air
Dilution Factor: 1

Data File: AA4274BLK
Date Analyzed: 11/28/2017
Sample Volume: 500ml
GC/MS Column: RTX-1, 0.32 mmID

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4271BFB]	11/28/2017 8:37
10 PPBV DCVS [AA4272DCVS]	11/28/2017 9:29
10 PPBV LCS [AA4273LCS]	11/28/2017 10:09
METHOD BLANK [AA4274BLK]	11/28/2017 13:04
02 PPBV RLLCS [AA4275RLLCS]	11/28/2017 13:44
E17-09837-01 [AA4286]	11/28/2017 20:34
E17-09837-02 [AA4287]	11/28/2017 21:07
E17-09837-05 [AA4290]	11/28/2017 22:48
10 PPBV CCCVS [AA4292CCCVS]	11/28/2017 23:56

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methylene chloride	75-09-2	0.14	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	0.19	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	0.19	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	0.14	ND
Vinyl chloride	75-01-4	0.14	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).

Method Blank Report

Lab Sample Name: METHOD BLANK
Field Sample Name: METHOD BLANK
Matrix: Air
Dilution Factor: 1

Data File: AA4304BLK
Date Analyzed: 11/29/2017
Sample Volume: 500ml
GC/MS Column: RTX-1, 0.32 mmID

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4301BFB]	11/29/2017 8:42
10 PPBV DCVS [AA4302DCVS]	11/29/2017 10:04
10 PPBV LCS [AA4303LCS]	11/29/2017 10:45
METHOD BLANK [AA4304BLK]	11/29/2017 11:19
02 PPBV RLLCS [AA4305RLLCS]	11/29/2017 11:59
3059 [AA4306]	11/29/2017 14:35
E17-09837-01 [AA4307]	11/29/2017 15:08
E17-09837-02 [AA4308]	11/29/2017 15:55
E17-09837-03 [AA4309]	11/29/2017 16:29
E17-09837-04 [AA4310]	11/29/2017 17:03
10 PPBV CCCVS [AA4319CCCVS]	11/29/2017 22:05

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	0.14	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	0.16	ND
Carbon tetrachloride	56-23-5	0.15	ND
Cyclohexane	110-82-7	0.18	ND
Dibromochloromethane	124-48-1	0.15	ND
1,2-Dibromoethane	106-93-4	0.20	ND
1,2-Dichlorobenzene	95-50-1	0.19	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.15	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	0.16	ND
1,2-Dichloroethene (cis)	156-59-2	0.17	ND
1,2-Dichloroethene (trans)	156-60-5	0.17	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.19	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.18	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Method Blank Report

Lab Sample Name: METHOD BLANK
Field Sample Name: METHOD BLANK
Matrix: Air
Dilution Factor: 1

Data File: AA4304BLK
Date Analyzed: 11/29/2017
Sample Volume: 500ml
GC/MS Column: RTX-1, 0.32 mmID

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4301BFB]	11/29/2017 8:42
10 PPBV DCVS [AA4302DCVS]	11/29/2017 10:04
10 PPBV LCS [AA4303LCS]	11/29/2017 10:45
METHOD BLANK [AA4304BLK]	11/29/2017 11:19
02 PPBV RLLCS [AA4305RLLCS]	11/29/2017 11:59
3059 [AA4306]	11/29/2017 14:35
E17-09837-01 [AA4307]	11/29/2017 15:08
E17-09837-02 [AA4308]	11/29/2017 15:55
E17-09837-03 [AA4309]	11/29/2017 16:29
E17-09837-04 [AA4310]	11/29/2017 17:03
10 PPBV CCCVS [AA4319CCCVS]	11/29/2017 22:05

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	0.14	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	0.19	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	0.19	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	0.14	ND
Vinyl chloride	75-01-4	0.14	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).

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS
Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv

Data File: AA3703LCS
Date Analyzed: 10/4/2017

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3701BFB]	10/04/2017 8:23
10 PPBV DCVS [AA3702DCVS]	10/04/2017 9:02
10 PPBV LCS [AA3703LCS]	10/04/2017 9:55
METHOD BLANK [AA3704BLK]	10/04/2017 10:33
02 PPBV RLLCS [AA3705RLLCS]	10/04/2017 11:14
2162 [AA3717]	10/04/2017 18:34
10 PPBV CCCVS [AA3728CCCVS]	10/04/2017 19:08

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	10	100
Benzene	71-43-2	9.0	90
Bromodichloromethane	75-27-4	9.9	99
Bromoform	75-25-2	9.8	98
Bromomethane	74-83-9	11	110
1,3-Butadiene	106-99-0	9.8	98
Chlorobenzene	108-90-7	8.9	89
Chloroethane	75-00-3	10	100
Chloroform	67-66-3	9.8	98
Chloromethane	74-87-3	11	110
Carbon disulfide	75-15-0	9.5	95
Carbon tetrachloride	56-23-5	9.7	97
Cyclohexane	110-82-7	9.5	95
Dibromochloromethane	124-48-1	9.8	98
1,2-Dibromoethane	106-93-4	9.3	93
1,2-Dichlorobenzene	95-50-1	9.3	93
1,3-Dichlorobenzene	541-73-1	9.4	94
1,4-Dichlorobenzene	106-46-7	9.4	94
Dichlorodifluoromethane	75-71-8	10	100
1,1-Dichloroethane	75-34-3	9.1	91
1,2-Dichloroethane	107-06-2	9.8	98
1,1-Dichloroethene	75-35-4	10	100
1,2-Dichloroethene (cis)	156-59-2	9.6	96
1,2-Dichloroethene (trans)	156-60-5	9.6	96
1,2-Dichloropropane	78-87-5	8.5	85
1,3-Dichloropropene (cis)	10061-01-5	9.6	96
1,3-Dichloropropene (trans)	10061-02-6	9.8	98
1,2-Dichlorotetrafluoroethane	76-14-2	9.5	95
1,4-Dioxane	123-91-1	8.4	84
Ethylbenzene	100-41-4	9.7	97
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	8.8	88
n-Hexane	110-54-3	8.9	89

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

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS
Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv

Data File: AA3703LCS
Date Analyzed: 10/4/2017

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3701BFB]	10/04/2017 8:23
10 PPBV DCVS [AA3702DCVS]	10/04/2017 9:02
10 PPBV LCS [AA3703LCS]	10/04/2017 9:55
METHOD BLANK [AA3704BLK]	10/04/2017 10:33
02 PPBV RLLCS [AA3705RLLCS]	10/04/2017 11:14
2162 [AA3717]	10/04/2017 18:34
10 PPBV CCCVS [AA3728CCCVS]	10/04/2017 19:08

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Methylene chloride	75-09-2	8.8	88
Methyl ethyl ketone	78-93-3	11	110
Methyl isobutyl ketone	108-10-1	9.1	91
Methyl tert-butyl ether	1634-04-4	9.4	94
Styrene	100-42-5	10	100
Tert-butyl alcohol	75-65-0	9.1	91
1,1,2,2-Tetrachloroethane	79-34-5	8.9	89
Tetrachloroethene	127-18-4	9.1	91
Toluene	108-88-3	9.6	96
1,2,4-Trichlorobenzene	120-82-1	9.0	90
1,1,1-Trichloroethane	71-55-6	9.5	95
1,1,2-Trichloroethane	79-00-5	9.0	90
Trichloroethene	79-01-6	9.6	96
Trichlorofluoromethane	75-69-4	10.0	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	8.9	89
1,2,4-Trimethylbenzene	95-63-6	11	110
1,3,5-Trimethylbenzene	108-67-8	10	100
2,2,4-Trimethylpentane	540-84-1	9.4	94
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	10	100
Xylenes (m&p)	179601-23-1	20	99
Xylenes (o)	95-47-6	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

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS
Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv

Data File: AA4273LCS
Date Analyzed: 11/28/2017

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4271BFB]	11/28/2017 8:37
10 PPBV DCVS [AA4272DCVS]	11/28/2017 9:29
10 PPBV LCS [AA4273LCS]	11/28/2017 10:09
METHOD BLANK [AA4274BLK]	11/28/2017 13:04
02 PPBV RLLCS [AA4275RLLCS]	11/28/2017 13:44
E17-09837-01 [AA4286]	11/28/2017 20:34
E17-09837-02 [AA4287]	11/28/2017 21:07
E17-09837-05 [AA4290]	11/28/2017 22:48
10 PPBV CCCVS [AA4292CCCVS]	11/28/2017 23:56

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	110
Benzene	71-43-2	9.7	97
Bromodichloromethane	75-27-4	9.4	94
Bromoform	75-25-2	9.4	94
Bromomethane	74-83-9	13	130
1,3-Butadiene	106-99-0	11	110
Chlorobenzene	108-90-7	8.5	85
Chloroethane	75-00-3	10	100
Chloroform	67-66-3	9.4	94
Chloromethane	74-87-3	12	120
Carbon disulfide	75-15-0	9.3	93
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	9.6	96
Dibromochloromethane	124-48-1	10	100
1,2-Dibromoethane	106-93-4	9.6	96
1,2-Dichlorobenzene	95-50-1	8.9	89
1,3-Dichlorobenzene	541-73-1	8.6	86
1,4-Dichlorobenzene	106-46-7	8.7	87
Dichlorodifluoromethane	75-71-8	10	100
1,1-Dichloroethane	75-34-3	9.3	93
1,2-Dichloroethane	107-06-2	10	100
1,1-Dichloroethene	75-35-4	10	100
1,2-Dichloroethene (cis)	156-59-2	10.0	100
1,2-Dichloroethene (trans)	156-60-5	10	100
1,2-Dichloropropane	78-87-5	8.7	87
1,3-Dichloropropene (cis)	10061-01-5	9.6	96
1,3-Dichloropropene (trans)	10061-02-6	9.8	98
1,2-Dichlorotetrafluoroethane	76-14-2	9.8	98
1,4-Dioxane	123-91-1	9.3	93
Ethylbenzene	100-41-4	9.0	90
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

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS
Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv

Data File: AA4273LCS
Date Analyzed: 11/28/2017

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4271BFB]	11/28/2017 8:37
10 PPBV DCVS [AA4272DCVS]	11/28/2017 9:29
10 PPBV LCS [AA4273LCS]	11/28/2017 10:09
METHOD BLANK [AA4274BLK]	11/28/2017 13:04
02 PPBV RLLCS [AA4275RLLCS]	11/28/2017 13:44
E17-09837-01 [AA4286]	11/28/2017 20:34
E17-09837-02 [AA4287]	11/28/2017 21:07
E17-09837-05 [AA4290]	11/28/2017 22:48
10 PPBV CCCVS [AA4292CCCVS]	11/28/2017 23:56

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
1,3-Hexachlorobutadiene	87-68-3	9.2	92
n-Hexane	110-54-3	10	100
Methylene chloride	75-09-2	8.6	86
Methyl ethyl ketone	78-93-3	10	100
Methyl isobutyl ketone	108-10-1	11	110
Methyl tert-butyl ether	1634-04-4	9.8	98
Styrene	100-42-5	9.2	92
Tert-butyl alcohol	75-65-0	9.9	99
1,1,2,2-Tetrachloroethane	79-34-5	7.5	75
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	9.7	97
1,2,4-Trichlorobenzene	120-82-1	9.3	93
1,1,1-Trichloroethane	71-55-6	9.7	97
1,1,2-Trichloroethane	79-00-5	9.4	94
Trichloroethene	79-01-6	10	100
Trichlorofluoromethane	75-69-4	9.9	99
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.1	91
1,2,4-Trimethylbenzene	95-63-6	9.6	96
1,3,5-Trimethylbenzene	108-67-8	9.3	93
2,2,4-Trimethylpentane	540-84-1	11	110
Vinyl bromide	593-60-2	11	110
Vinyl chloride	75-01-4	11	110
Xylenes (m&p)	179601-23-1	17	86
Xylenes (o)	95-47-6	8.7	87

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

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS
Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv

Data File: AA4303LCS
Date Analyzed: 11/29/2017

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4301BFB]	11/29/2017 8:42
10 PPBV DCVS [AA4302DCVS]	11/29/2017 10:04
10 PPBV LCS [AA4303LCS]	11/29/2017 10:45
METHOD BLANK [AA4304BLK]	11/29/2017 11:19
02 PPBV RLLCS [AA4305RLLCS]	11/29/2017 11:59
3059 [AA4306]	11/29/2017 14:35
E17-09837-01 [AA4307]	11/29/2017 15:08
E17-09837-02 [AA4308]	11/29/2017 15:55
E17-09837-03 [AA4309]	11/29/2017 16:29
E17-09837-04 [AA4310]	11/29/2017 17:03
10 PPBV CCCVS [AA4319CCCVS]	11/29/2017 22:05

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	9.3	93
Benzene	71-43-2	9.5	95
Bromodichloromethane	75-27-4	11	110
Bromoform	75-25-2	12	120
Bromomethane	74-83-9	12	120
1,3-Butadiene	106-99-0	8.9	89
Chlorobenzene	108-90-7	9.5	95
Chloroethane	75-00-3	9.2	92
Chloroform	67-66-3	10	100
Chloromethane	74-87-3	10	100
Carbon disulfide	75-15-0	8.9	89
Carbon tetrachloride	56-23-5	12	120
Cyclohexane	110-82-7	9.4	94
Dibromochloromethane	124-48-1	12	120
1,2-Dibromoethane	106-93-4	11	110
1,2-Dichlorobenzene	95-50-1	10	100
1,3-Dichlorobenzene	541-73-1	10	100
1,4-Dichlorobenzene	106-46-7	10	100
Dichlorodifluoromethane	75-71-8	12	120
1,1-Dichloroethane	75-34-3	9.1	91
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	110
1,2-Dichloroethene (cis)	156-59-2	9.7	97
1,2-Dichloroethene (trans)	156-60-5	9.7	97
1,2-Dichloropropane	78-87-5	9.0	90
1,3-Dichloropropene (cis)	10061-01-5	10	100
1,3-Dichloropropene (trans)	10061-02-6	11	110
1,2-Dichlorotetrafluoroethane	76-14-2	10	100
1,4-Dioxane	123-91-1	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

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS
Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv

Data File: AA4303LCS
Date Analyzed: 11/29/2017

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4301BFB]	11/29/2017 8:42
10 PPBV DCVS [AA4302DCVS]	11/29/2017 10:04
10 PPBV LCS [AA4303LCS]	11/29/2017 10:45
METHOD BLANK [AA4304BLK]	11/29/2017 11:19
02 PPBV RLLCS [AA4305RLLCS]	11/29/2017 11:59
3059 [AA4306]	11/29/2017 14:35
E17-09837-01 [AA4307]	11/29/2017 15:08
E17-09837-02 [AA4308]	11/29/2017 15:55
E17-09837-03 [AA4309]	11/29/2017 16:29
E17-09837-04 [AA4310]	11/29/2017 17:03
10 PPBV CCCVS [AA4319CCCVS]	11/29/2017 22:05

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Ethylbenzene	100-41-4	9.9	99
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	11	110
n-Hexane	110-54-3	9.5	95
Methylene chloride	75-09-2	8.1	81
Methyl ethyl ketone	78-93-3	10	100
Methyl isobutyl ketone	108-10-1	11	110
Methyl tert-butyl ether	1634-04-4	9.8	98
Styrene	100-42-5	11	110
Tert-butyl alcohol	75-65-0	9.7	97
1,1,2,2-Tetrachloroethane	79-34-5	9.0	90
Tetrachloroethene	127-18-4	12	120
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	10	100
1,1,1-Trichloroethane	71-55-6	11	110
1,1,2-Trichloroethane	79-00-5	10	100
Trichloroethene	79-01-6	11	110
Trichlorofluoromethane	75-69-4	11	110
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.6	96
1,2,4-Trimethylbenzene	95-63-6	11	110
1,3,5-Trimethylbenzene	108-67-8	11	110
2,2,4-Trimethylpentane	540-84-1	11	110
Vinyl bromide	593-60-2	11	110
Vinyl chloride	75-01-4	9.6	96
Xylenes (m&p)	179601-23-1	21	100
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

Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SD# N# Ser# 171004
 IOL Sample ID# 17100401
 Matrix# Air
 Sample ID# 45

Date Received 10/4/17
 Date Analyzed 10/4/17, 10/4/17
 Lab Data File# 3711, 3711
 Dilution Factor 1
 Injection Volume 500 µl
 MS Ionization RTX 1, 0.3 min ID

Compound	CAS #	Sample E17-08248-01 Concentration Reported		Sample Dup E17-08248-21 Concentration Reported		Reporting Limits ppbv	RPD
		ppbv	Q	ppbv	Q		
Acetone	75066	8.8		8.5		0.40	3.47%
Acrylonitrile	107051	0.40		0.40		0.40	0.00%
Benzene	71432	0.40		0.40		0.40	0.00%
Bromodichloroethane	75074	0.40		0.40		0.40	0.00%
Bromochloroethane	75052	0.40		0.40		0.40	0.00%
Bromochloroethane	74332	0.40		0.40		0.40	0.00%
1,3-Butadiene	106600	0.40		0.40		0.40	0.00%
Chlorobenzene	108907	0.40		0.40		0.40	0.00%
Chloroethane	75003	0.40		0.40		0.40	0.00%
Chloroform	75003	0.40		0.40		0.40	0.00%
Chloroethane	74373	0.40		0.40		0.40	0.00%
Carbon disulfide	75150	0.40		0.40		0.40	0.00%
Carbon tetrachloride	5035	0.40		0.40		0.40	0.00%
Cyclohexene	5400	0.40		0.40		0.40	0.00%
Cyclohexane	110007	0.40		0.40		0.40	0.00%
Dichlorodichloroethane	14441	0.40		0.40		0.40	0.00%
1,1-Dichloroethane	10034	0.40		0.40		0.40	0.00%
1,1-Dichlorobenzene	5501	0.40		0.40		0.40	0.00%
1,3-Dichlorobenzene	541731	0.40		0.40		0.40	0.00%
1,4-Dichlorobenzene	10647	0.40		0.40		0.40	0.00%
Dichlorodichloroethane	75710	0.40		0.40		0.40	0.00%
1,1-Dichloroethane	75343	0.40		0.40		0.40	0.00%
1,1-Dichloroethane	107000	0.40		0.40		0.40	0.00%
1,1-Dichloroethene	75354	0.40		0.40		0.40	0.00%
1,1-Dichloroethene cis	155500	0.40		0.40		0.40	0.00%
1,1-Dichloroethene trans	15005	0.40		0.40		0.40	0.00%
1,1-Dichloropropane	70075	0.40		0.40		0.40	0.00%
1,3-Dichloropropene cis	1001015	0.40		0.40		0.40	0.00%
1,3-Dichloropropene trans	1001000	0.40		0.40		0.40	0.00%
1,1-Dichlorotetrahydroethane	70140	0.40		0.40		0.40	0.00%
Diethylbenzene	100414	0.40		0.40		0.40	0.00%
4-Ethyltoluene	000000	0.40		0.40		0.40	0.00%
Heptane	140005	0.40		0.40		0.40	0.00%
1,3-Hexadiene	7003	0.40		0.40		0.40	0.00%
Hexane	110543	0.42		0.40		0.40	NC
Methylchloride	75000	1.5		1.4		0.40	6.90%
Methylcyclopentane	70033	0.76		0.71		0.40	6.80%
Methylisobutylketone	100101	0.40		0.40		0.40	0.00%

Calibration

Concentration exceeds upper detection limit range or instrument.

Additional information required for this compound. Duplicate samples do not meet RPD criteria.

Compound ND or under reporting limit.

Integrated Analytical Laboratories, LLC

Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SD# N# Ser# 17004
 IOL Sample ID# 17004001
 Matrix# 1
 Sample ID# 45

Date Received 10/4/17
 Date Analyzed 10/4/17, 10/4/17
 Lab Data File# 3711, 3711
 Dilution Factor 1
 Injection Volume 500 µL
 MS Ionization RTX 1, 0.3 min ID

Compound	CAS #	Sample E17-08248-01 Concentration Reported		Sample Dup E17-08248-21 Concentration Reported		Reporting Limits ppbv	RPD
		ppbv	Q	ppbv	Q		
Methyl tert-butyl ether	134044	0.40		0.40		0.40	0.00
Styrene	100405	0.40		0.40		0.40	0.00
Tert-butyl alcohol	75050	0.40		0.40		0.40	0.00
1,1,1-Tetrahydroethane	70345	0.40		0.40		0.40	0.00
Tetrahydroethene	17104	0.40		0.40		0.40	0.00
Toluene	10003	1.3		1.2		0.40	8.00%
1,4-Dichlorobenzene	10001	0.40		0.40		0.40	0.00
1,1,1-Trichloroethane	71550	0.40		0.40		0.40	0.00
1,1,2-Trichloroethane	70005	0.40		0.40		0.40	0.00
Trichloroethene	70010	0.40		0.40		0.40	0.00
Trichloromethane	75004	0.40		0.40		0.40	0.00
1,1,2-Trichloro-1,2,2-trichloroethane	70131	0.40		0.40		0.40	0.00
1,4-Dichlorobenzene	10001	0.40		0.40		0.40	0.00
1,3,5-Trichlorobenzene	10007	0.40		0.40		0.40	0.00
1,4-Dichloropentane	540041	0.40		0.40		0.40	0.00
Chloroform	53000	0.40		0.40		0.40	0.00
Chloroform	75014	0.40		0.40		0.40	0.00
Xylenes (m,p)	1700131	0.40		0.40		0.40	0.00
Xylenes (o)	15470	0.40		0.40		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.

Integrated Analytical Laboratories, LLC

Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SD# N# Ser# 171003
 IOL Sample ID# 17100300
 Matrix# 1
 Sample ID# 000

Date Received 11/11/17
 Date Analyzed 11/17/17
 Lab Data File 400,0401
 Dilution Factor 10
 Injection Volume 50 µl
 MS Ionization RTx 1, 0.3 min ID

Compound	CAS #	Sample E17-09836-02 Concentration Reported		Sample Dup E17-09836-22 Concentration Reported		Reporting Limits	
		ppbv	Q	ppbv	Q	ppbv	RPD
Acetone	7440	230	D	230	D	4.0	0.00%
Acrylonitrile	107051	4.0		4.0		4.0	0.00
Benzene	7143	4.0		4.0		4.0	0.00
Bromodichloroethane	75274	4.0		4.0		4.0	0.00
Bromochloroethane	7525	4.0		4.0		4.0	0.00
Bromoethane	7433	4.0		4.0		4.0	0.00
1,3-Butadiene	10660	4.0		4.0		4.0	0.00
Chlorobenzene	10807	4.0		4.0		4.0	0.00
Chloroethane	75003	4.0		4.0		4.0	0.00
Chloroform	77003	4.0		4.0		4.0	0.00
Chloroethane	7473	4.0		4.0		4.0	0.00
Carbon disulfide	75150	4.0		4.0		4.0	0.00
Carbon tetrachloride	5035	4.0		4.0		4.0	0.00
Cyclohexene	5400	4.0		4.0		4.0	0.00
Cyclohexane	110007	4.0		4.0		4.0	0.00
Dichlorodichloroethane	14401	4.0		4.0		4.0	0.00
1,1-Dichloroethane	10034	4.0		4.0		4.0	0.00
1,1-Dichlorobenzene	5501	4.0		4.0		4.0	0.00
1,3-Dichlorobenzene	541731	4.0		4.0		4.0	0.00
1,4-Dichlorobenzene	10607	4.0		4.0		4.0	0.00
Dichlorodichloroethane	7571	4.0		4.0		4.0	0.00
1,1-Dichloroethane	75343	4.0		4.0		4.0	0.00
1,1-Dichloroethane	107000	4.0		4.0		4.0	0.00
1,1-Dichloroethene	75354	4.0		4.0		4.0	0.00
1,1-Dichloroethene cis	155500	4.0		4.0		4.0	0.00
1,1-Dichloroethene trans	15005	4.0		4.0		4.0	0.00
1,1-Dichloropropane	7075	4.0		4.0		4.0	0.00
1,3-Dichloropropene cis	1001015	4.0		4.0		4.0	0.00
1,3-Dichloropropene trans	1001000	4.0		4.0		4.0	0.00
1,1-Dichlorotetrahydroethane	7014	4.0		4.0		4.0	0.00
1,1-Dichloroethene	100414	4.0		4.0		4.0	0.00
4-Ethyltoluene	000000	4.0		4.0		4.0	0.00
Heptane	140005	4.0		4.0		4.0	0.00
1,3-Hexadiene	7003	4.0		4.0		4.0	0.00
Hexane	110543	4.0		4.0		4.0	0.00
Methylchloride	75000	4.0		4.0		4.0	0.00
Methylcyclopentane	70033	130	D	130	D	4.0	0.00%
Methylisobutylcyclopentane	100101	4.0		4.0		4.0	0.00

Caution

Concentration exceeds upper detection limit range for instrument.

IAL SDG #E17-09837
 Duplicate samples do not meet RPD criteria.

Sample ND or under reporting limit.

Integrated Analytical Laboratories, LLC

Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SD# N# Ser# 17003
 IOL Sample ID# 1700300
 Matrix# 1r
 Sample ID# 000

Date Received 11/1/17
 Date Analyzed 11/17/17
 Lab Data File 400,00401
 Dilution Factor 10
 Injection Volume 50 µl
 MS Ionization RTX 1, 0.3 µl ID

Compound	CAS #	Sample E17-09836-02 Concentration Reported		Sample Dup E17-09836-22 Concentration Reported		Reporting Limits ppbv	RPD
		ppbv	Q	ppbv	Q		
Methyl tert-butyl ether	134044	4.0		4.0		4.0	0.00
Styrene	100405	4.0		4.0		4.0	0.00
Tert-butyl alcohol	75050	4.0		4.0		4.0	0.00
1,1,1-Tetrahydroethane	70345	4.0		4.0		4.0	0.00
Tetrahydroethene	17104	4.0		4.0		4.0	0.00
Toluene	100003	4.0		4.0		4.0	0.00
1,4-Dichlorobenzene	100001	4.0		4.0		4.0	0.00
1,1,1-Trichloroethane	71550	4.0		4.0		4.0	0.00
1,1,2-Trichloroethane	70005	4.0		4.0		4.0	0.00
Trichloroethene	70010	4.0		4.0		4.0	0.00
Trichloromethane	75004	4.0		4.0		4.0	0.00
1,1,2-Trichloro-1,2,2-trichloroethane	70131	4.0		4.0		4.0	0.00
1,4-Dichloroethene	15300	4.0		4.0		4.0	0.00
1,3,5-Trichloroethene	100070	4.0		4.0		4.0	0.00
1,4-Dichloropentane	540041	4.0		4.0		4.0	0.00
vinyl chloride	53000	4.0		4.0		4.0	0.00
vinyl bromide	75014	4.0		4.0		4.0	0.00
Xylenes m,p	17001031	4.0		4.0		4.0	0.00
Xylenes o	15470	4.0		4.0		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.

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA3702DCVS

Date Analyzed: 10/4/2017

Instrument: AA

ICAL Date: 9/12/2017

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLORO BENZENE			
			Area #		RT		Area #		RT		Area #		RT	
CALIBRATION STANDARD			481943		7.746		1664213		9.804		1491654		15.138	
UPPER LIMIT			674720		8.08		2329898		10.13		2088316		15.47	
LOWER LIMIT			289166		7.42		998528		9.47		894992		14.81	
Lab ID	DF		Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Method Blank	AA3704BLK	1.0	499560	3.66	7.746	0.00	1674182	0.60	9.804	0.00	1477054	-0.98	15.141	0.00
Reporting Limit Laboratory Control Standard	AA3705RLLCS	1.0	469540	-2.57	7.743	0.00	1562685	-6.10	9.801	0.00	1424219	-4.52	15.142	0.00
2162	AA3717	1.0	446352	-7.38	7.746	0.00	1451786	-12.76	9.801	0.00	1314300	-11.89	15.141	0.00
Closing Calibration	AA3728CCCVS	1.0	477397	-0.94	7.747	0.00	1693033	1.73	9.804	0.00	1487017	-0.31	15.139	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.

* Values outside QC limits.

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA4272DCVS

Date Analyzed: 11/28/2017

Instrument: AA

ICAL Date: 9/12/2017

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLORO BENZENE			
			Area #		RT		Area #		RT		Area #		RT	
CALIBRATION STANDARD			540836		7.743		1834939		9.801		1780782		15.135	
UPPER LIMIT			757170		8.07		2568915		10.13		2493095		15.47	
LOWER LIMIT			324502		7.41		1100963		9.47		1068469		14.81	
Lab ID	DF		Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Method Blank	AA4274BLK	1.0	523990	-3.11	7.743	0.00	1666080	-9.20	9.804	0.00	1556624	-12.59	15.135	0.00
Reporting Limit Laboratory Control Standard	AA4275RLLCS	1.0	396771	-26.64	7.737	-0.01	1769626	-3.56	9.798	0.00	1780715	0.00	15.138	0.00
E17-09837-01	AA4286	10	487854	-9.80	7.750	0.01	1627288	-11.32	9.804	0.00	1563073	-12.23	15.135	0.00
E17-09837-02	AA4287	10	508077	-6.06	7.743	0.00	1632670	-11.02	9.804	0.00	1591956	-10.60	15.135	0.00
E17-09837-05	AA4290	1.0	421726	-22.02	7.753	0.01	1509290	-17.75	9.795	-0.01	1458218	-18.11	15.139	0.00
Closing Calibration	AA4292CCCVS	1.0	533618	-1.33	7.743	0.00	1727599	-5.85	9.798	0.00	1683052	-5.49	15.135	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.

* Values outside QC limits.

Internal Standard Area and Retention Time Summary

Lab File ID (Standard): AA4302DCVS

Date Analyzed: 11/29/2017

Instrument: AA

ICAL Date: 9/12/2017

			BROMOCHLOROMETHANE				1,4-DIFLUOROBENZENE				D-5 CHLORO BENZENE			
			Area #		RT		Area #		RT		Area #		RT	
CALIBRATION STANDARD			565734		7.746		1860863		9.801		1814288		15.138	
UPPER LIMIT			792028		8.08		2605208		10.13		2540003		15.47	
LOWER LIMIT			339440		7.42		1116518		9.47		1088573		14.81	
Lab ID	DF		Area #	%	RT	+/-	Area #	%	RT	+/-	Area #	%	RT	+/-
Method Blank	AA4304BLK	1.0	573088	1.30	7.740	-0.01	1791275	-3.74	9.798	0.00	1711339	-5.67	15.135	0.00
Reporting Limit Laboratory Control Standard	AA4305RLLCS	1.0	498695	-11.85	7.740	-0.01	1665280	-10.51	9.798	0.00	1718165	-5.30	15.138	0.00
3059	AA4306	1.0	501677	-11.32	7.743	0.00	1558445	-16.25	9.804	0.00	1508649	-16.85	15.138	0.00
E17-09837-01	AA4307	1.0	437131	-22.73	7.766	0.02	1672111	-10.14	9.808	0.01	1680778	-7.36	15.145	0.01
E17-09837-02	AA4308	20	595493	5.26	7.746	0.00	1864530	0.20	9.807	0.01	1801295	-0.72	15.135	0.00
E17-09837-03	AA4309	1.0	479904	-15.17	7.772	0.03	1785995	-4.02	9.804	0.00	1723154	-5.02	15.142	0.00
E17-09837-04	AA4310	1.0	520418	-8.01	7.766	0.02	1944157	4.48	9.807	0.01	1912210	5.40	15.145	0.01
Closing Calibration	AA4319CCCVS	1.0	511202	-9.64	7.743	0.00	1724864	-7.31	9.801	0.00	1634373	-9.92	15.135	0.00

Difference of Internal Area must be within +/- 40%; Retention Times must be within +/- 0.33 minute.

* Values outside 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
Project#: Swivilier/175 W Nyack Rd
SDG #: E17-09837
Date of first sample receipt: 11/16/2017

Randolph, NJ 07869
NY ELAP Certification#: 11402
NJDEP (Primary AB) Certification#: 14751
Date of last sample receipt: 11/16/2017

Client: Environmental Waste Management Associates
100 Misty Lane
Parsippany, NJ 07054

Attention: Attention: Kevin Seise

Project/Site: Swivilier/175 W Nyack Rd/NY

Analysis conducted at: Integrated Analytical Laboratories, LLC
273 Franklin Road
Randolph, NJ 07869

Contact: Michael H. Leftin, Ph.D.

Sample(s):

E17-09837-01
E17-09837-02
E17-09837-03
E17-09837-04
E17-09837-05

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 04, 2017



Integrated Analytical Laboratories LLC

Summary of Results

Iron Pentastate Manufacturing Associates
100 Misty Lane
Parsippany, NJ 07054
Attention: Seise
Project: Site #175 - Nya Rd
Site: NY

Report Date: 11/30/17
SD Number: 17-0037
Date Sampled: 11/15/17
Date Received: 11/16/17
Date Analyzed: 11/17/17, 11/18/17
Data File: 4307, 4400
Sample ID: 307
Dilution: 1, 10

Analysis of Organic Compounds by EPA Method TO-15

Sample Name:		SS-1		Reporting Limits	
IAL ID:		E17-09837-01			
Compound	CAS #	ppbv	ug/m3	ppbv	ug/m3
Acetone	75-06-6	D 110	0.0	0.0	4.0
Benzene	71-43-2	ND	ND	0.0	0.4
Bromodichloroethane	75-74-4	ND	ND	0.0	1.3
Bromochloroethane	75-55-0	ND	ND	0.0	1.1
Bromochloroethane	74-33-3	ND	ND	0.0	0.7
1,3-Butadiene	106-99-0	ND	ND	0.0	0.44
Chlorobenzene	108-90-7	ND	ND	0.0	0.0
Chloroethane	75-00-3	ND	ND	0.0	0.53
Chloroform	77-42-3	0.40	0.0	0.0	0.0
Chloroethane	74-71-3	ND	ND	0.0	0.41
Carbon disulfide	75-15-0	0.03	0.7	0.0	0.0
Carbon tetrachloride	50-49-5	0.0	0.50	0.04	0.5
Cyclohexane	110-82-7	0.5	1.0	0.0	0.0
Dichlorodichloroethane	1464-1	ND	ND	0.0	1.7
1,1-Dichloroethane	107-06-4	ND	ND	0.0	1.5
1,1-Dichloroethene	5550-1	ND	ND	0.0	1.0
1,3-Dichloroethene	54173-1	ND	ND	0.0	1.0
1,4-Dichloroethene	1064-07	ND	ND	0.0	1.0
Dichlorodichloroethane	7571-0	0.05	1.0	0.0	0.0
1,1-Dichloroethane	7534-3	ND	ND	0.0	0.01
1,1-Dichloroethane	1070-00	ND	ND	0.0	0.01
1,1-Dichloroethene	7535-4	ND	ND	0.0	0.7
1,1-Dichloroethene cis	1515-00	ND	ND	0.0	0.7
1,1-Dichloroethene trans	1510-05	ND	ND	0.0	0.7
1,1-Dichloropropane	7007-5	ND	ND	0.0	0.0
1,3-Dichloropropene cis	1001101-5	ND	ND	0.0	0.01
1,3-Dichloropropene trans	1001100-0	ND	ND	0.0	0.01
1,1-Dichlorotetrahydroethane	7014-0	ND	ND	0.0	1.4
1,4-Dioxane	1301-1	ND	ND	0.0	0.7
Diethylbenzene	10041-4	0.0	1.3	0.0	0.7
Heptane	14000-5	ND	ND	0.0	0.0
1,3-Hexachlorobutadiene	7000-3	ND	ND	0.0	1.1
Hexane	11054-3	1	7.5	0.0	0.71
Methyl ethyl ether	7500-0	ND	ND	0.0	0.70
Methyl ethyl ketone	7003-3	33	0.0	0.0	0.5
Methyl isobutyl ketone	10010-1	ND	ND	0.0	0.0
Methyl tert-butyl ether	13404-4	ND	ND	0.0	0.7
Styrene	1004-05	ND	ND	0.0	0.5
Tetrahydrofuran	7505-0	ND	ND	0.0	0.01
1,1,1-Tetrahydroethane	7034-5	ND	ND	0.0	1.4
Tetrahydroethene	10710-4	0.04	1.0	0.0	1.4
Toluene	10000-3	1	4	0.0	0.75
1,4-Trichlorobenzene	10000-1	ND	ND	0.0	1.5
1,1,1-Trichloroethane	7155-0	ND	ND	0.0	1.1
1,1,1-Trichloroethane	7000-5	ND	ND	0.0	1.1
Trichloroethene	7001-0	1.5	1	0.05	0.5

IAL SDG #E17-09837

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Do not use this report for this compound

Page 1 of 10

Analyst: J. Smith



Integrated Analytical Laboratories LLC

Summary of Results

Iron Pentamethylenes
100 Misty Lane
Parsippany, NJ 07054
Attention: Seise
Project: Sider 175 Nya Rd
Site: NY

Report Date: 11/30/17
SD: N/A
Date Sampled: 11/15/17
Date Received: 11/16/17
Date Analyzed: 11/17/17, 11/17/17
Data File: 4307, 4400
Sample ID: 307
Dilution: 1, 10

Analysis of Volatile Organic Compounds by EPA Method TO-15

Sample Name:		SS-1		Reporting	
IAL ID:		E17-09837-01		Limits	
Triisobutylene	75004	ND	ND	0.00	1.1
1,1-Dichloroethene	70131	ND	ND	0.00	1.5
1,4-Dichlorobenzene	5030	1.5	7.0	0.00	0.00
1,3,5-Trichlorobenzene	100070	0.31	1.5	0.00	0.00
1,4-Dichloropentane	540041	ND	ND	0.00	0.03
Dichloromethane	503000	ND	ND	0.00	0.07
Dichloroethene	75014	ND	ND	0.00	0.51
Xylenes (m+p)	17001031	1.3	5.0	0.00	0.07
Xylenes (o)	5470	0.43	1.0	0.00	0.07

Data Path : C:\DATA\11-29-17\
 Data File : aa4307.D
 Acq On : 29 Nov 2017 3:08 pm
 Operator : jls
 Sample : E17-09837-01
 Misc : 3027, 500cc
 ALS Vial : 7 Sample Multiplier: 1

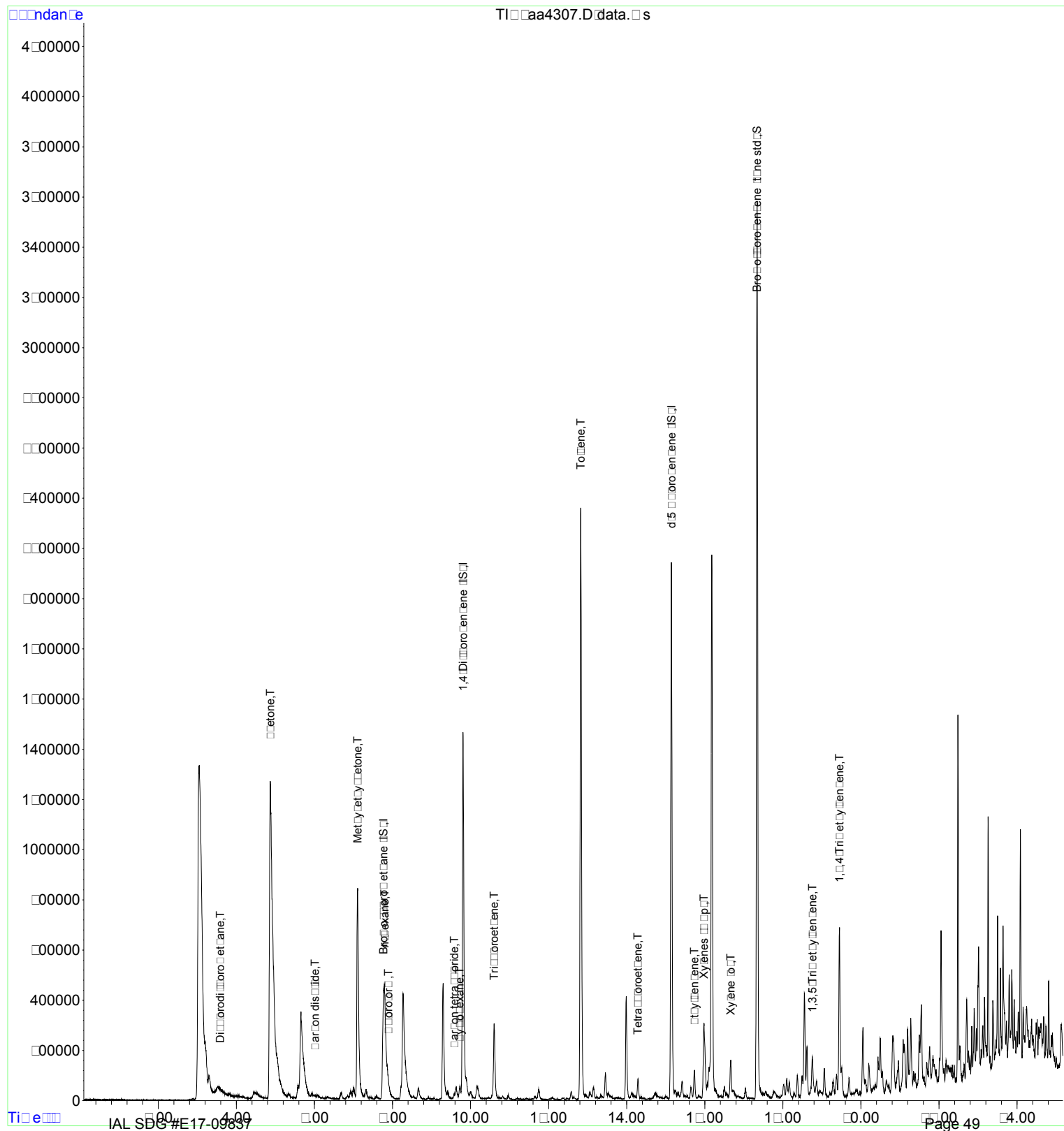
Quant Time: Nov 30 10:00:09 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

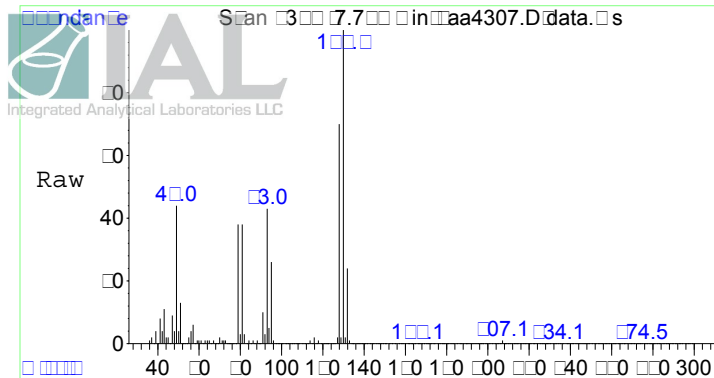
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.766	130	437131	10.00	ppbV	0.02
38) 1,4-Difluorobenzene (IS)	9.808	114	1672111	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.145	117	1680778	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.338	95	1506029	10.23	ppbV	0.00
Target Compounds						
					Qvalue	
3) Dichlorodifluoromethane	3.589	85	40555	0.25	ppbV #	55
14) Acetone	4.872	58	1152516	106.55	ppbV #	31
23) Carbon disulfide	6.017	76	26712	0.23	ppbV #	74
27) Methyl ethyl ketone	7.107	72	568057	33.11	ppbV	86
30) n-Hexane	7.798	57	75717	2.13	ppbV	82
31) Chloroform	7.894	83	53239	0.40	ppbV	100
36) Carbon tetrachloride	9.582	117	15288	0.08	ppbV	90
37) Cyclohexane	9.721	84	27558	0.52	ppbV	89
42) Trichloroethene	10.602	130	132158	1.51	ppbV	100
50) Toluene	12.820	91	2332000	12.14	ppbV	100
54) Tetrachloroethene	14.283	166	25701	0.24	ppbV	93
57) Ethylbenzene	15.737	91	91382	0.29	ppbV	96
58) Xylenes (m&p)	15.981	91	338199	1.29	ppbV	99
61) Xylene (o)	16.666	91	118320	0.43	ppbV	90
69) 1,3,5-Trimethylbenzene	18.756	105	104033	0.31	ppbV #	82
70) 1,2,4-Trimethylbenzene	19.450	105	481403	1.47	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\11-29-17\
Data File : aa4307.D
Acq On : 29 Nov 2017 3:08 pm
Operator : jls
Sample : E17-09837-01
Misc : 3027, 500cc
ALS Vial : 7 Sample Multiplier: 1

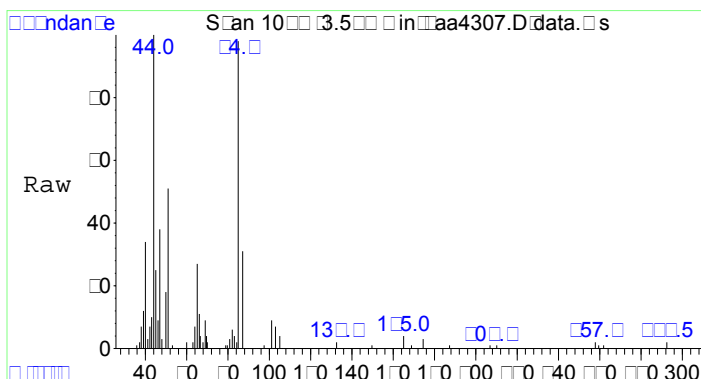
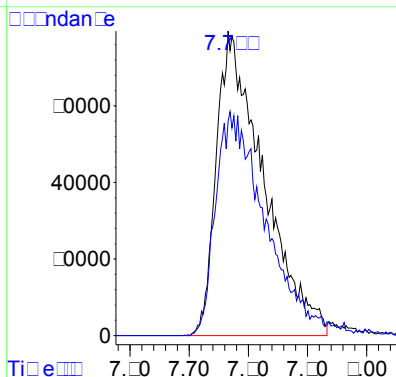
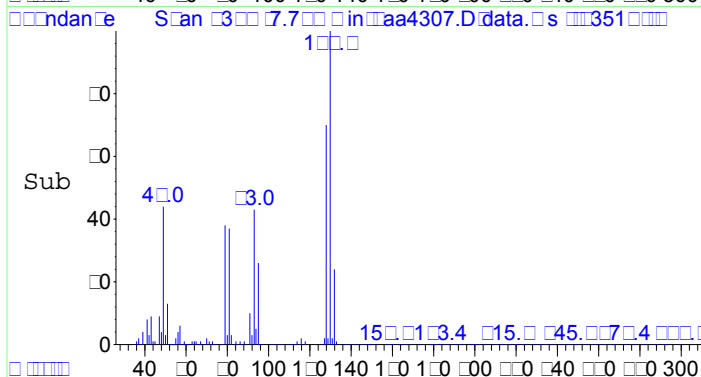
Quant Time: Nov 30 10:00:09 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
Response via : Initial Calibration





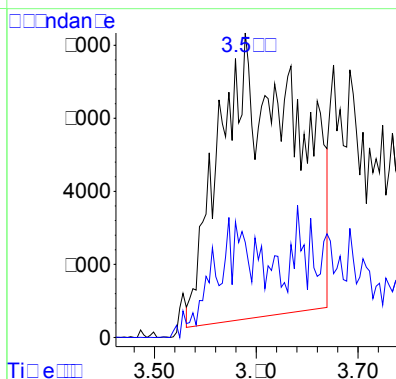
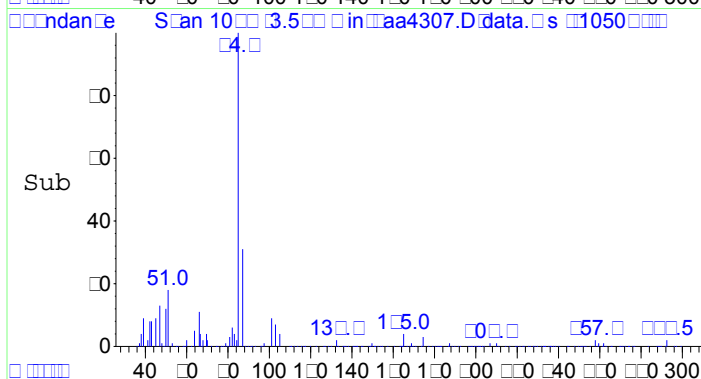
#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 7.766 min Scan# 2388
Delta R.T. 0.019 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

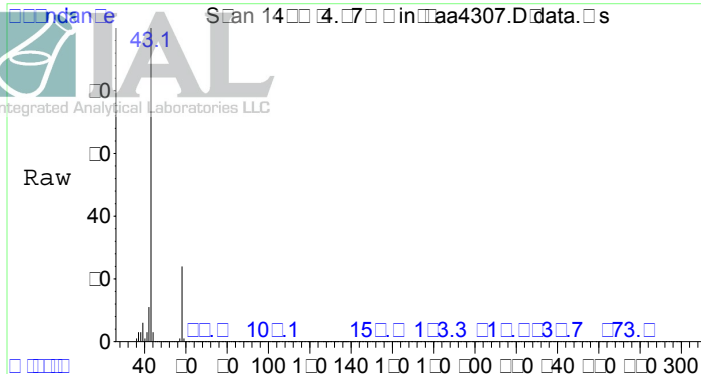
Tgt Ion: 130 Resp: 437131
Ion Ratio Lower Upper
130 100
128 77.3 62.6 94.0



#3
Dichlorodifluoromethane
Concen: 0.25 ppbV
RT: 3.589 min Scan# 1089
Delta R.T. 0.026 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

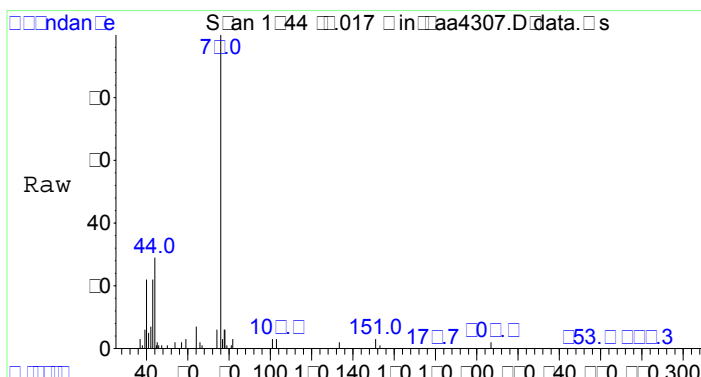
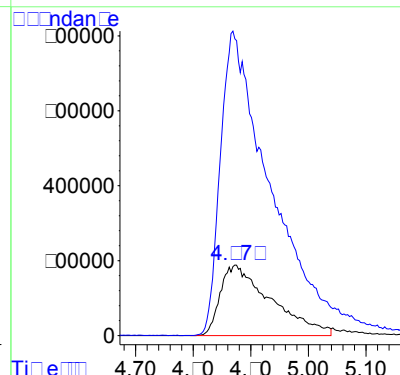
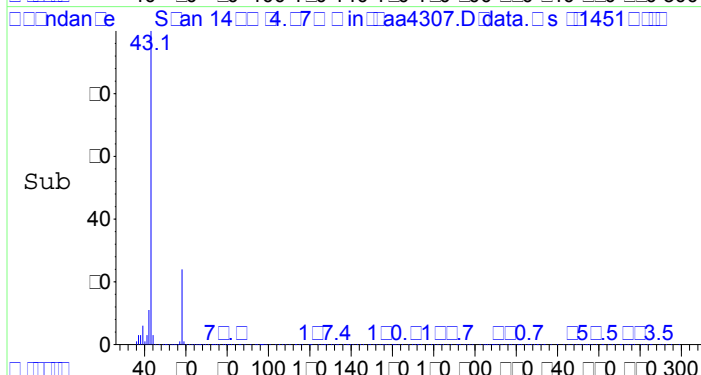
Tgt Ion: 85 Resp: 40555
Ion Ratio Lower Upper
85 100
87 8.2 27.4 41.0#





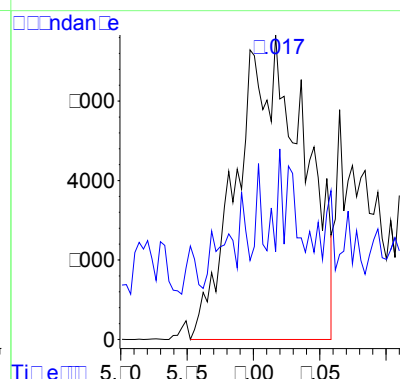
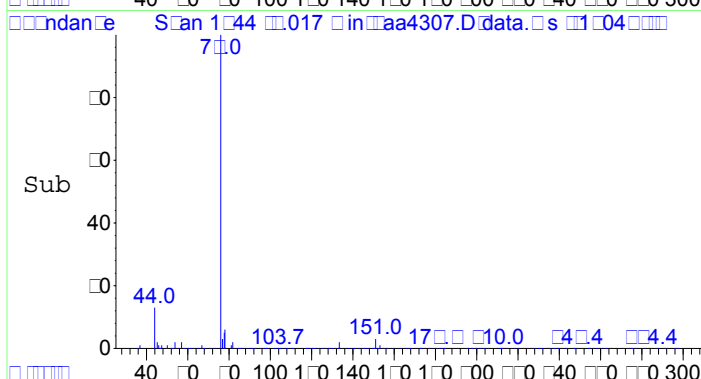
#14
Acetone
Concen: 106.55 ppbV
RT: 4.872 min Scan# 1488
Delta R.T. 0.019 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

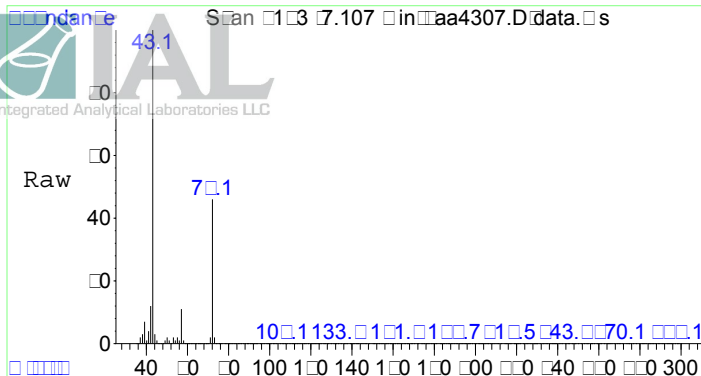
Tgt Ion: 58 Resp: 1152516
Ion Ratio Lower Upper
58 100
43 419.3 229.6 344.4#



#23
Carbon disulfide
Concen: 0.23 ppbV
RT: 6.017 min Scan# 1844
Delta R.T. 0.029 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

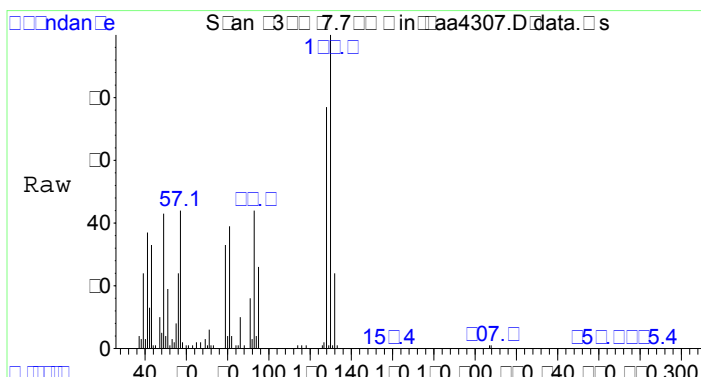
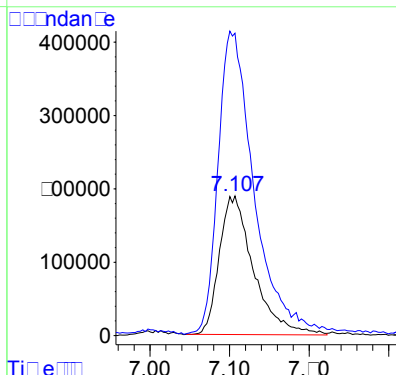
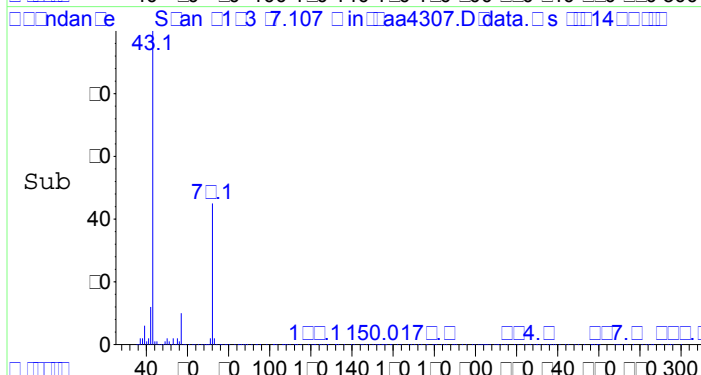
Tgt Ion: 76 Resp: 26712
Ion Ratio Lower Upper
76 100
44 2.7 10.4 15.6#





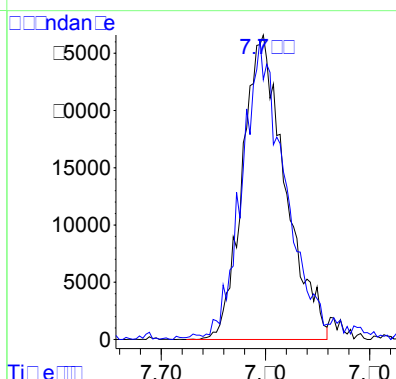
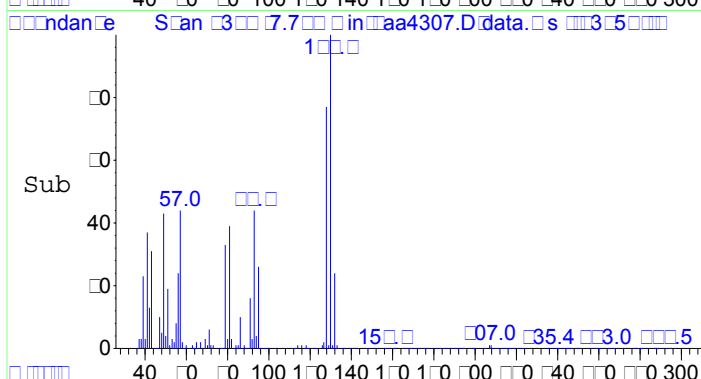
#27
Methyl ethyl ketone
Concen: 33.11 ppbV
RT: 7.107 min Scan# 2183
Delta R.T. 0.013 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

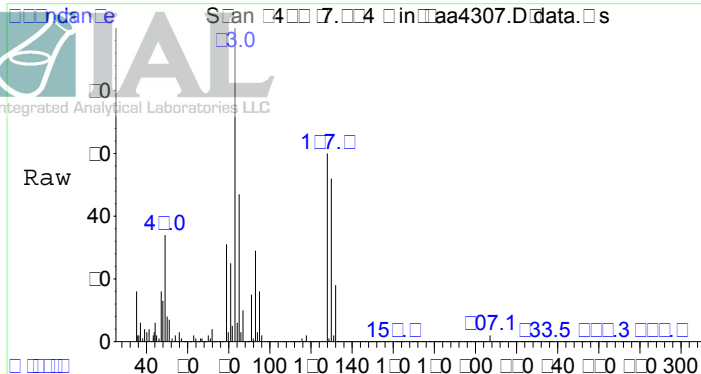
Tgt Ion: 72 Resp: 568057
Ion Ratio Lower Upper
72 100
43 231.9 168.0 252.0



#30
n-Hexane
Concen: 2.13 ppbV
RT: 7.798 min Scan# 2398
Delta R.T. 0.006 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

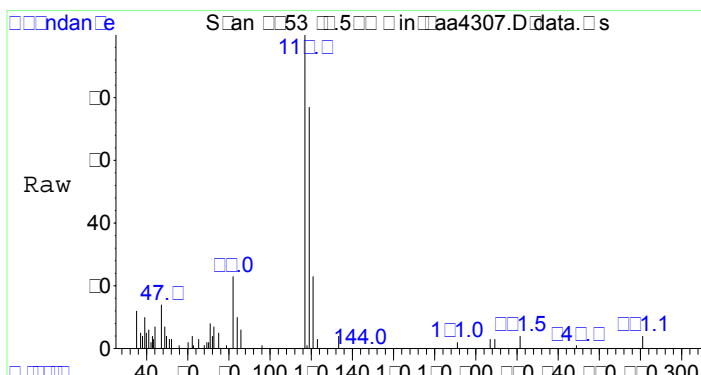
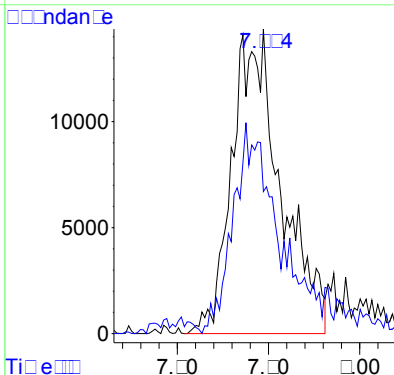
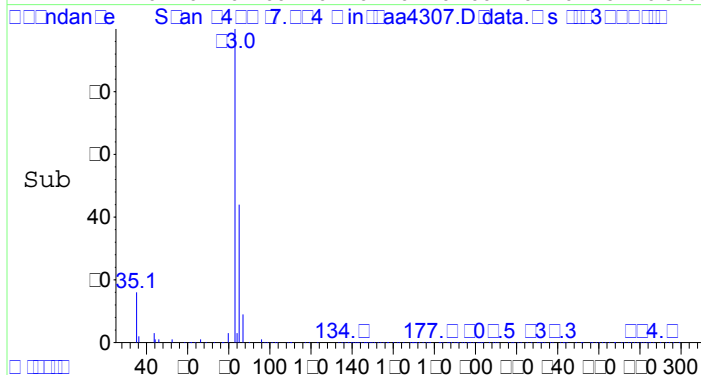
Tgt Ion: 57 Resp: 75717
Ion Ratio Lower Upper
57 100
41 96.9 64.8 97.2





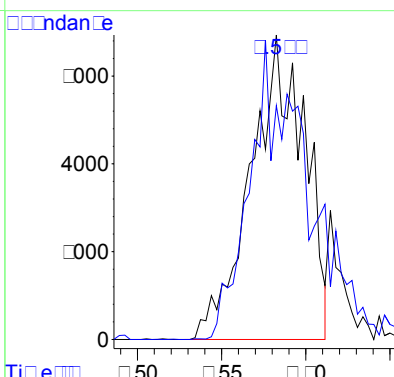
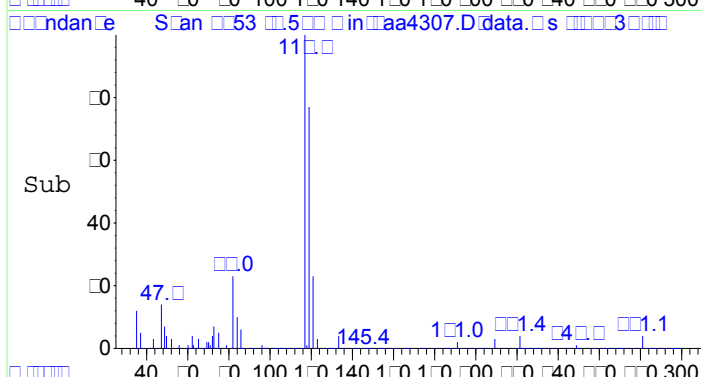
#31
Chloroform
Concen: 0.40 ppbV
RT: 7.894 min Scan# 2428
Delta R.T. 0.026 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

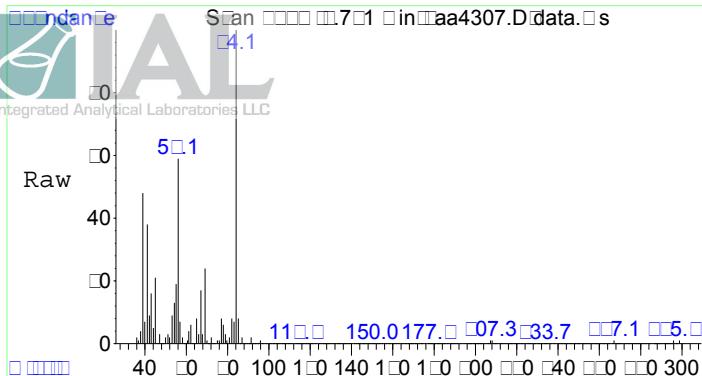
Tgt Ion: 83 Resp: 53239
Ion Ratio Lower Upper
83 100
85 63.7 51.0 76.6



#36
Carbon tetrachloride
Concen: 0.08 ppbV
RT: 9.582 min Scan# 2953
Delta R.T. -0.003 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

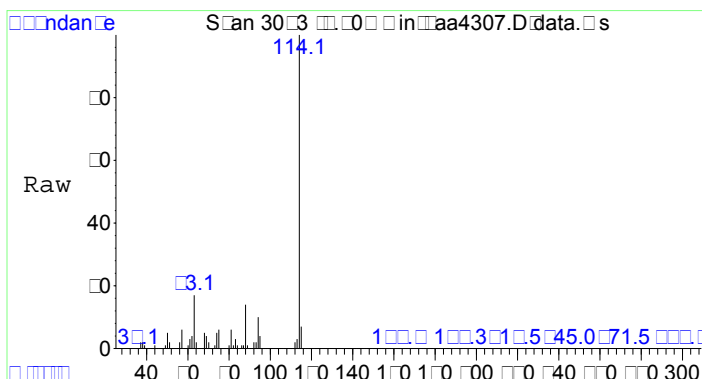
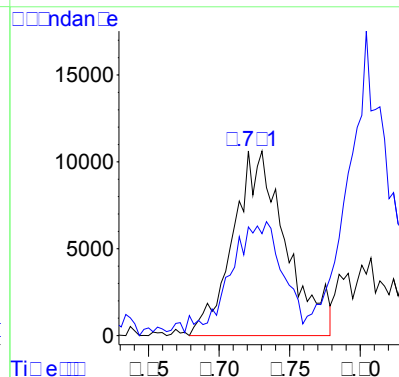
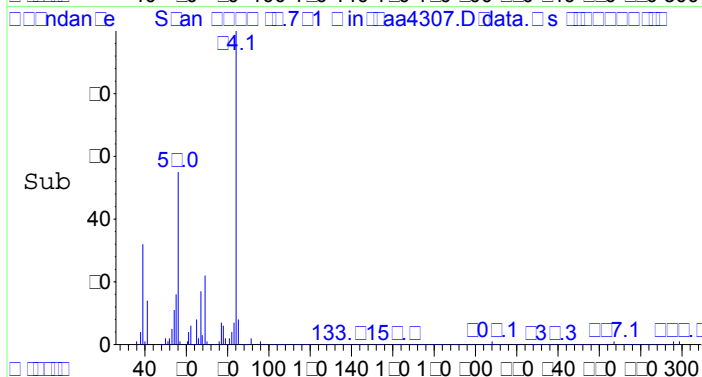
Tgt Ion: 117 Resp: 15288
Ion Ratio Lower Upper
117 100
119 105.6 77.0 115.4





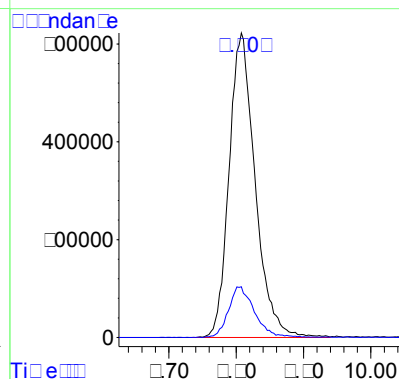
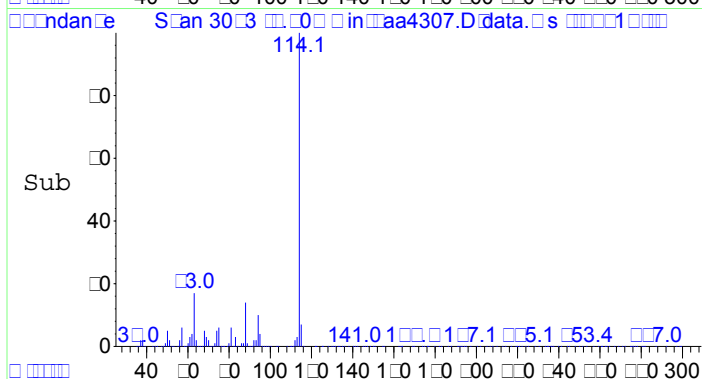
#37
Cyclohexane
Concen: 0.52 ppbV
RT: 9.721 min Scan# 2996
Delta R.T. -0.003 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

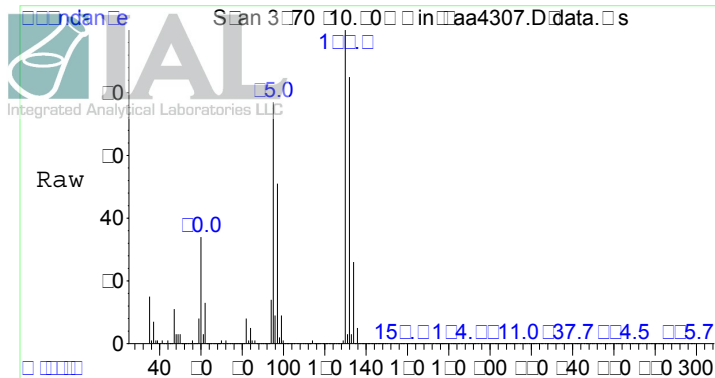
Tgt Ion: 84 Resp: 27558
Ion Ratio Lower Upper
84 100
56 50.6 47.2 70.8



#38
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 9.808 min Scan# 3023
Delta R.T. 0.003 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

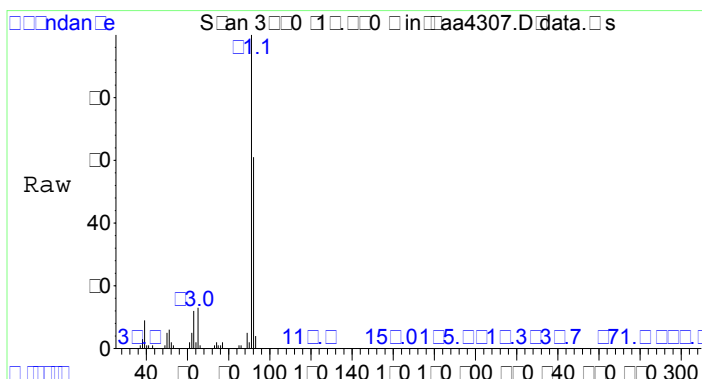
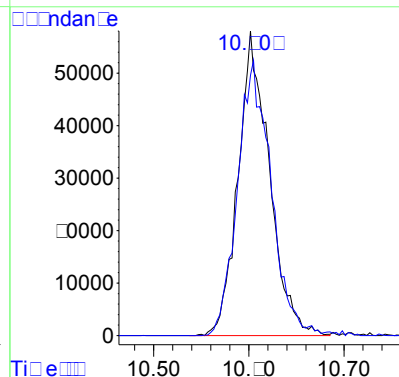
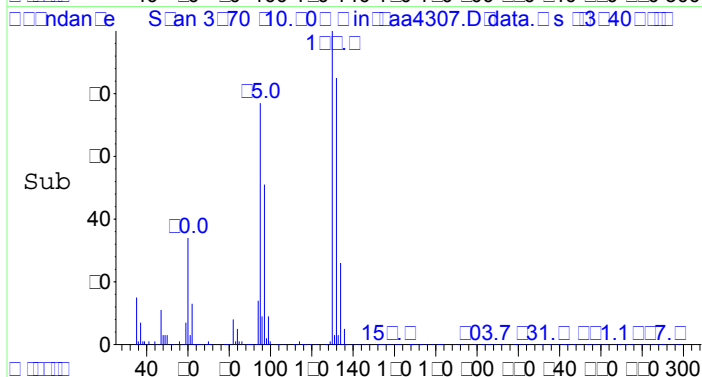
Tgt Ion: 114 Resp: 1672111
Ion Ratio Lower Upper
114 100
63 16.7 14.4 21.6





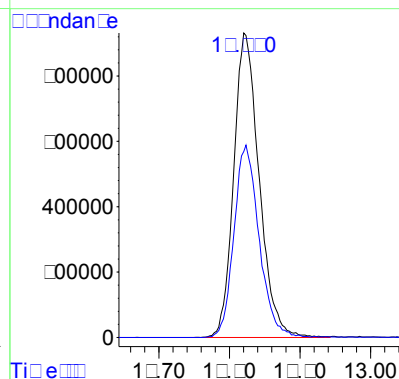
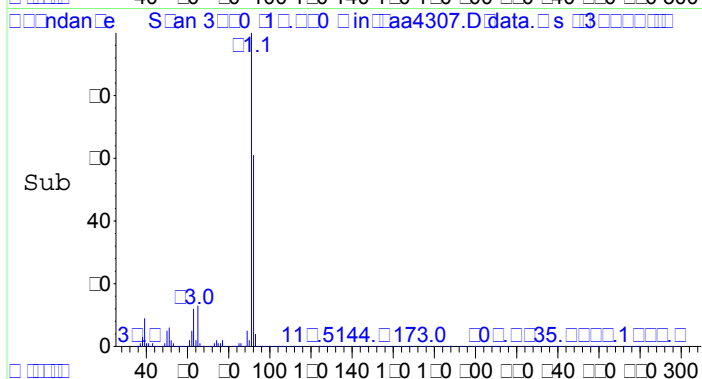
#42
Trichloroethene
Concen: 1.51 ppbV
RT: 10.602 min Scan# 3270
Delta R.T. -0.003 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

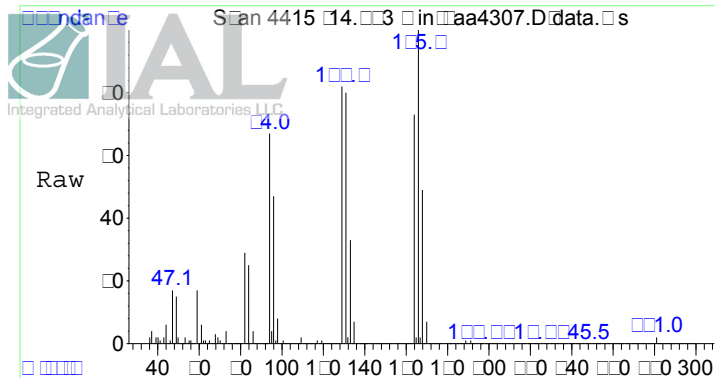
Tgt Ion:130 Resp: 132158
Ion Ratio Lower Upper
130 100
132 97.4 77.8 116.6



#50
Toluene
Concen: 12.14 ppbV
RT: 12.820 min Scan# 3960
Delta R.T. 0.003 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

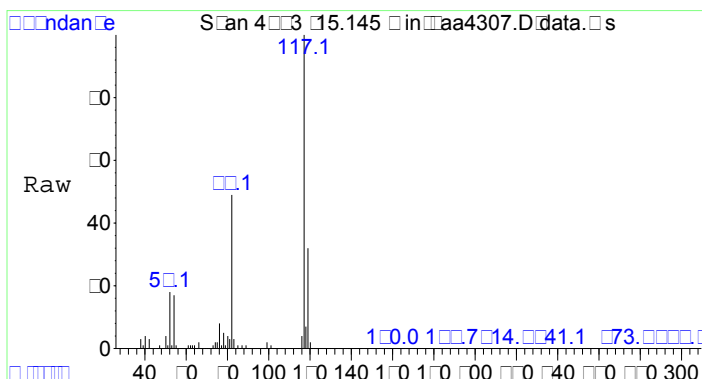
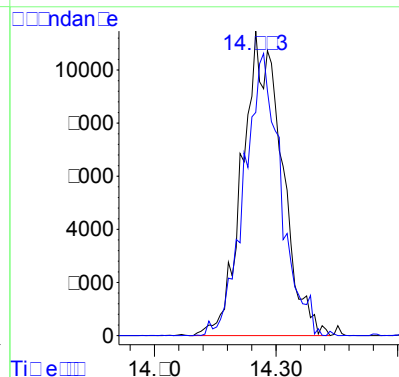
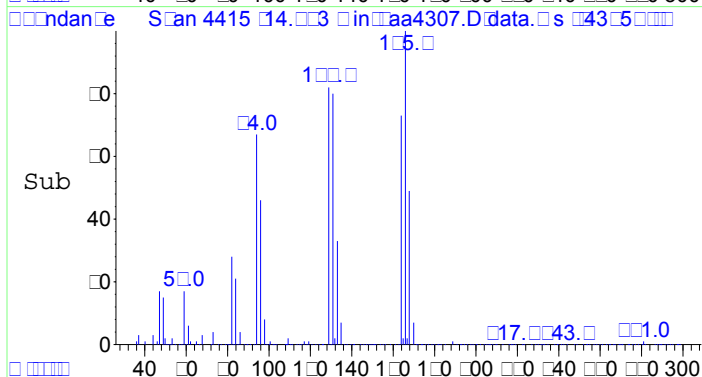
Tgt Ion: 91 Resp: 2332000
Ion Ratio Lower Upper
91 100
92 62.4 50.0 75.0





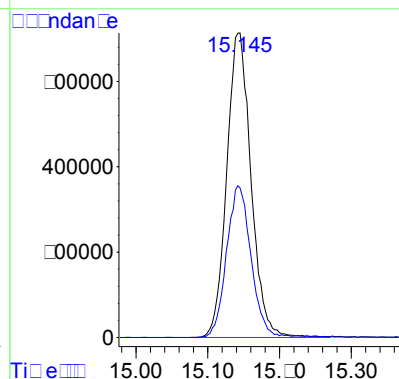
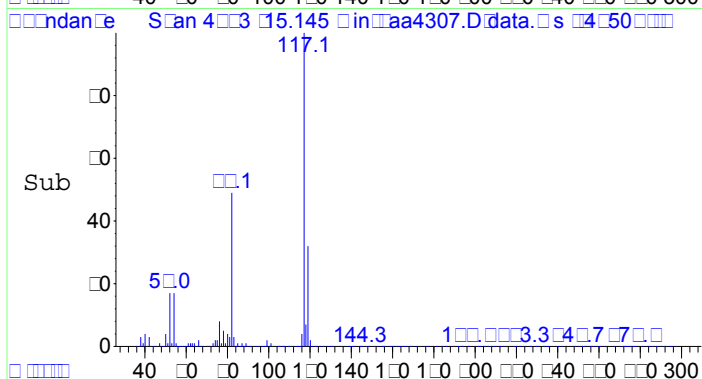
#54
Tetrachloroethene
Concen: 0.24 ppbV
RT: 14.283 min Scan# 4415
Delta R.T. -0.003 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

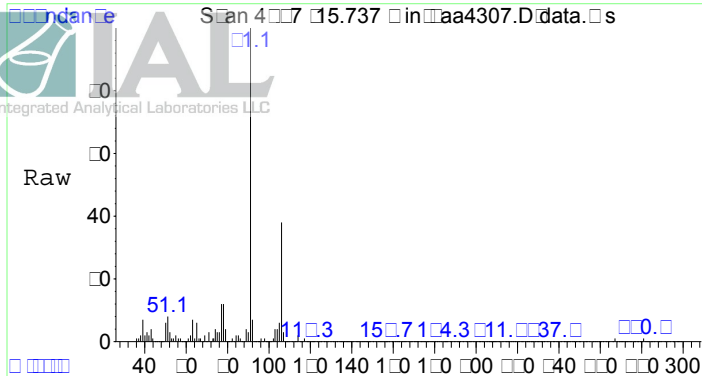
Tgt Ion:166 Resp: 25701
Ion Ratio Lower Upper
166 100
164 86.5 64.6 96.8



#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 15.145 min Scan# 4683
Delta R.T. 0.006 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

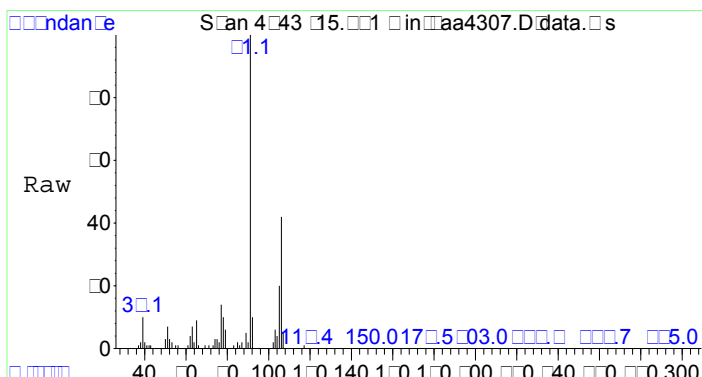
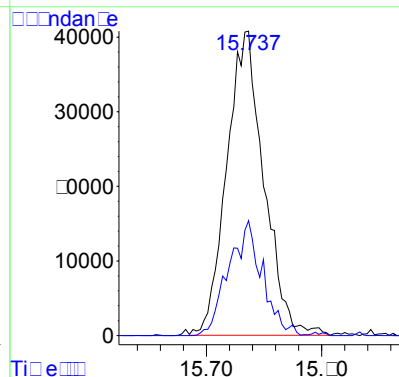
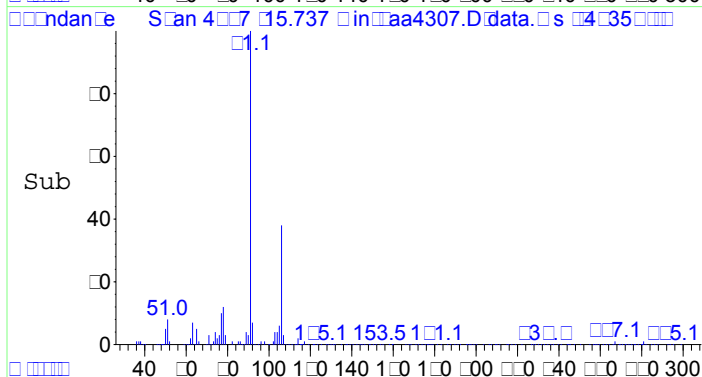
Tgt Ion:117 Resp: 1680778
Ion Ratio Lower Upper
117 100
82 49.9 44.8 67.2





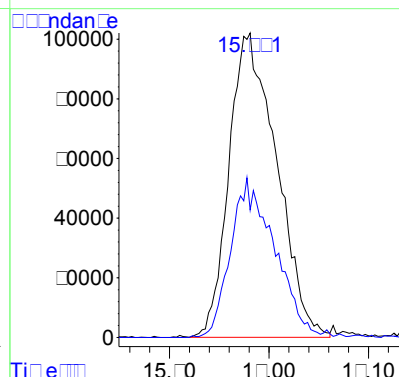
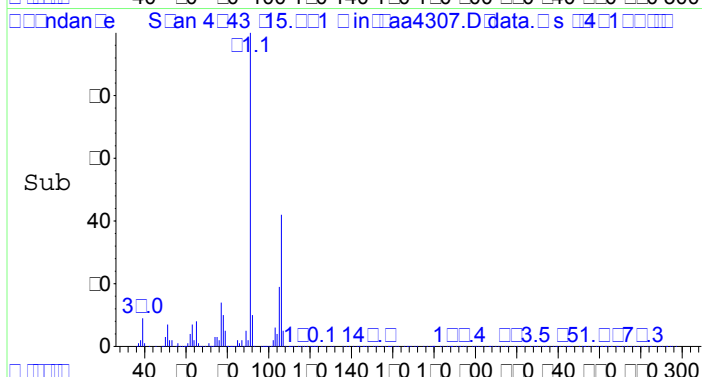
#57
Ethylbenzene
Concen: 0.29 ppbV
RT: 15.737 min Scan# 4867
Delta R.T. 0.003 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

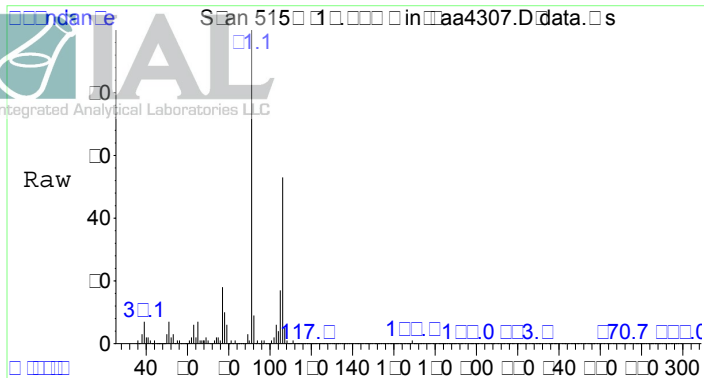
Tgt Ion: 91 Resp: 91382
Ion Ratio Lower Upper
91 100
106 34.3 25.6 38.4



#58
Xylenes (m&p)
Concen: 1.29 ppbV
RT: 15.981 min Scan# 4943
Delta R.T. -0.023 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

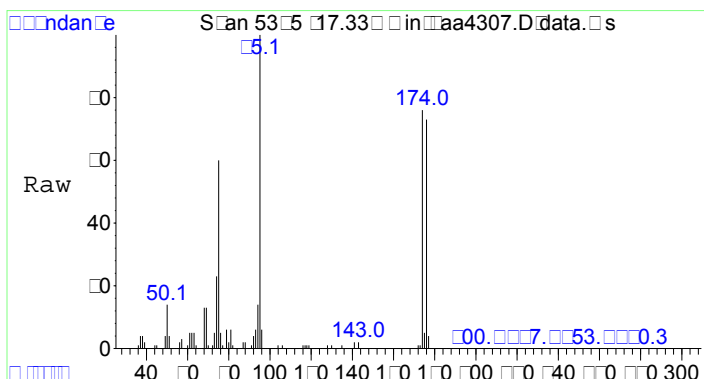
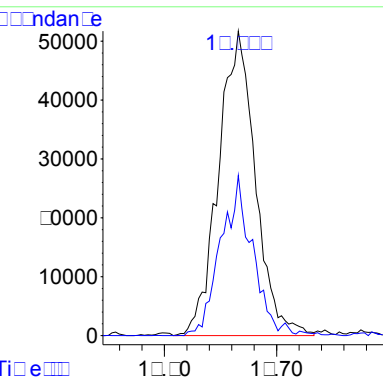
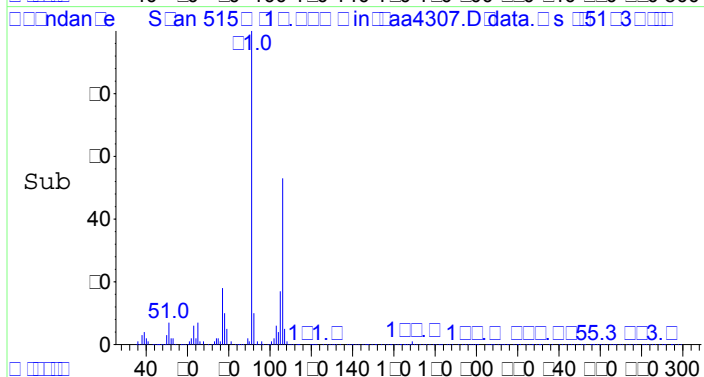
Tgt Ion: 91 Resp: 338199
Ion Ratio Lower Upper
91 100
106 48.2 39.2 58.8





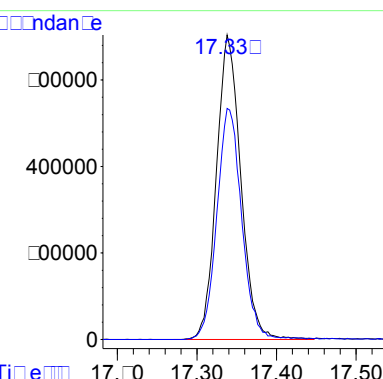
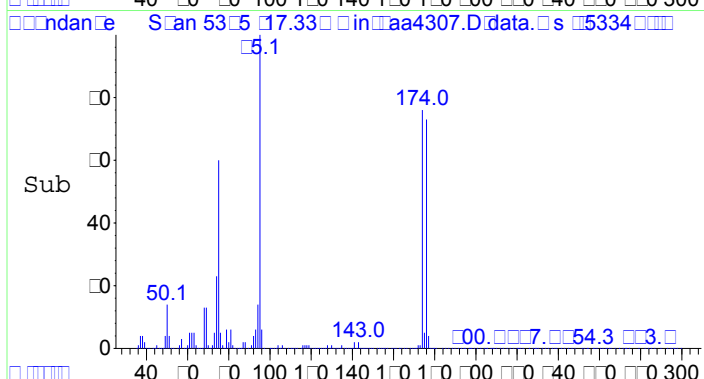
#61
Xylene (o)
Concen: 0.43 ppbV
RT: 16.666 min Scan# 5156
Delta R.T. 0.006 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

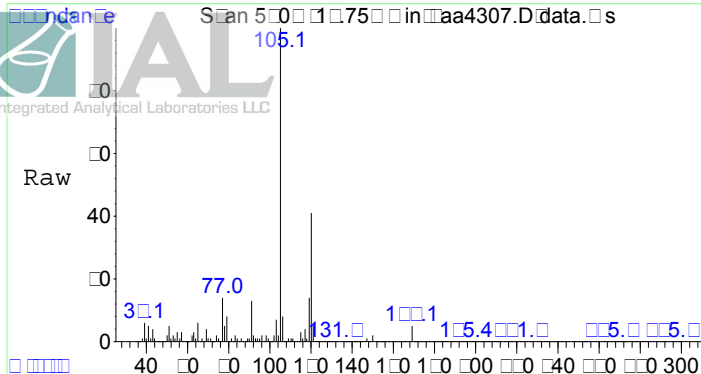
Tgt Ion	91	106	Resp	118320	Lower	Upper
Ion Ratio	100	44.0	30.4	45.6		



#64
Bromofluorobenzene (tune std)
Concen: 10.23 ppbV
RT: 17.338 min Scan# 5365
Delta R.T. 0.000 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

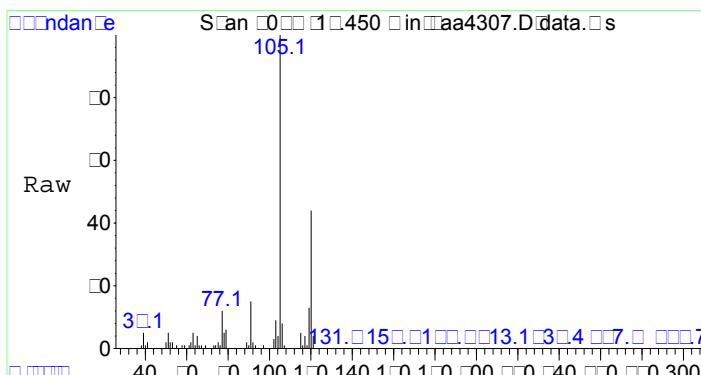
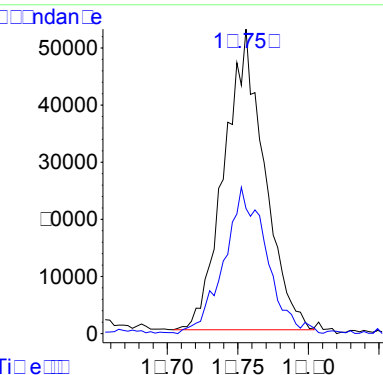
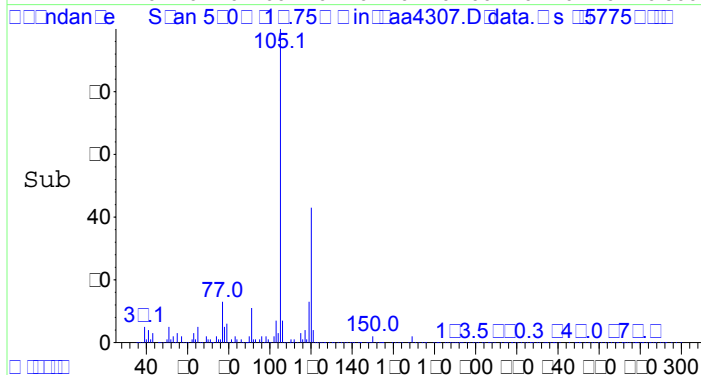
Tgt Ion	95	174	Resp	1506029	Lower	Upper
Ion Ratio	100	77.2	61.5	92.3		





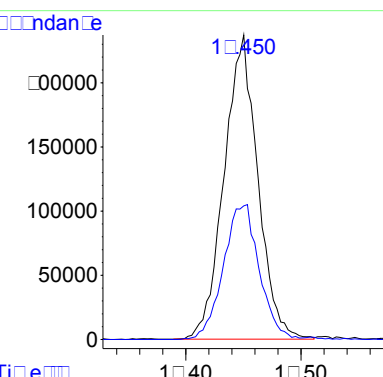
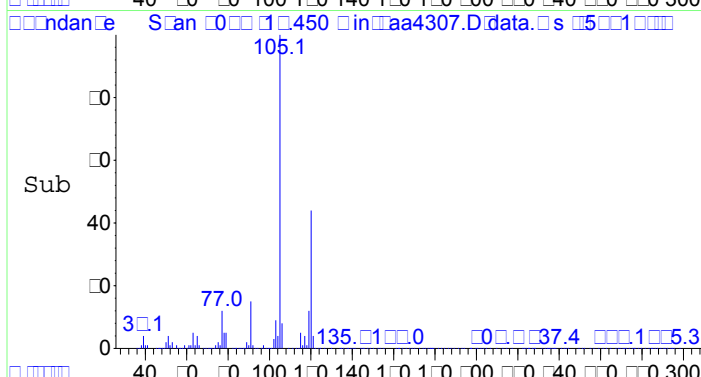
#69
1,3,5-Trimethylbenzene
Concen: 0.31 ppbV
RT: 18.756 min Scan# 5806
Delta R.T. 0.000 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

Tgt Ion	105	120	Resp	104033	50.2	31.2	46.8#
Ion Ratio	100						



#70
1,2,4-Trimethylbenzene
Concen: 1.47 ppbV
RT: 19.450 min Scan# 6022
Delta R.T. 0.000 min
Lab File: aa4307.D
Acq: 29 Nov 2017 3:08 pm

Tgt Ion	105	120	Resp	481403	47.2	36.0	54.0
Ion Ratio	100						



Data Path : C:\DATA\11-28-17\
 Data File : aa4286.D
 Acq On : 28 Nov 2017 8:34 pm
 Operator : jls
 Sample : E17-09837-01 x 10 dil
 Misc : 3027, 50cc
 ALS Vial : 16 Sample Multiplier: 1

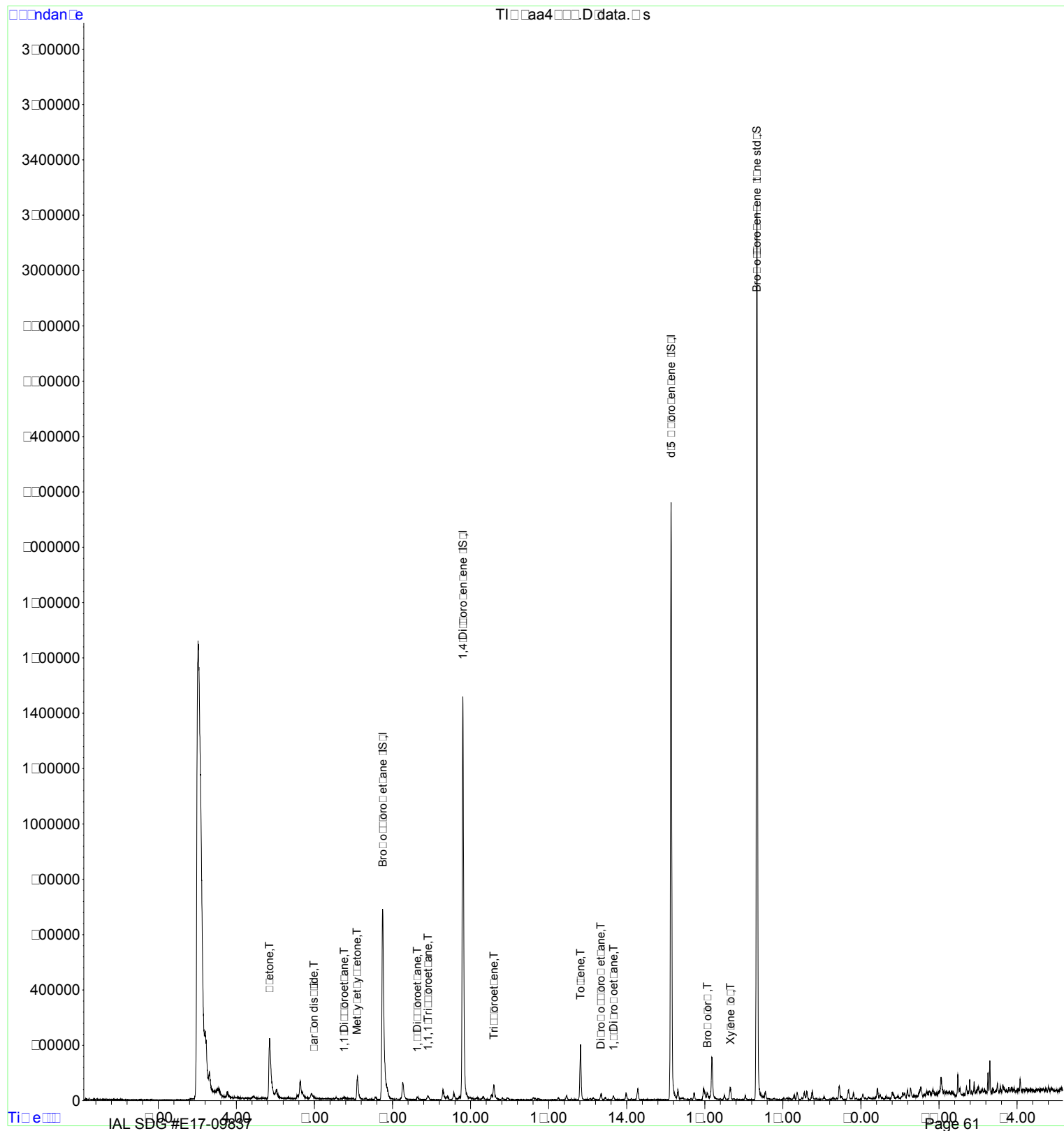
Quant Time: Nov 29 11:33:54 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

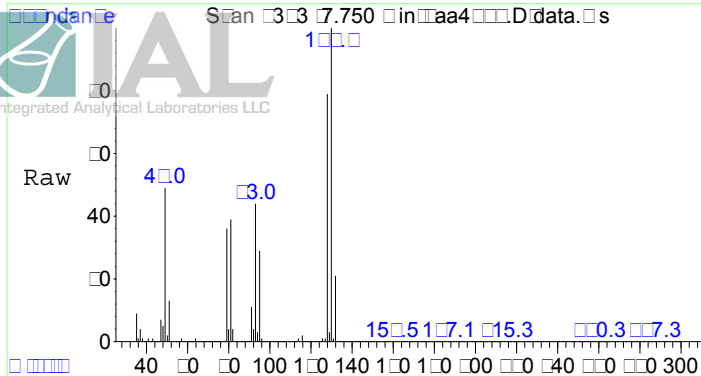
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.750	130	487854	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.804	114	1627288	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.135	117	1563073	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.334	95	1308831	9.56	ppbV	0.00
Target Compounds						
					Qvalue	
14) Acetone	4.849	58	130093	10.78	ppbV #	26
23) Carbon disulfide	5.984	76	10703	0.08	ppbV	94
25) 1,1-Dichloroethane	6.759	63	5488	0.07	ppbV #	61
27) Methyl ethyl ketone	7.090	72	51973	2.71	ppbV	91
33) 1,2-Dichloroethane	8.634	62	7450	0.08	ppbV	90
34) 1,1,1-Trichloroethane	8.907	97	13356	0.07	ppbV	95
42) Trichloroethene	10.595	130	22040	0.26	ppbV	98
50) Toluene	12.817	91	171694	0.92	ppbV	99
52) Dibromochloromethane	13.335	129	14813	0.08	ppbV	97
53) 1,2-Dibromoethane	13.663	107	9021	0.07	ppbV	94
59) Bromoform	16.064	173	11232	0.07	ppbV	99
61) Xylene (o)	16.662	91	19895	0.08	ppbV	89

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\11-28-17\
 Data File : aa4286.D
 Acq On : 28 Nov 2017 8:34 pm
 Operator : jls
 Sample : E17-09837-01 x 10 dil
 Misc : 3027, 50cc
 ALS Vial : 16 Sample Multiplier: 1

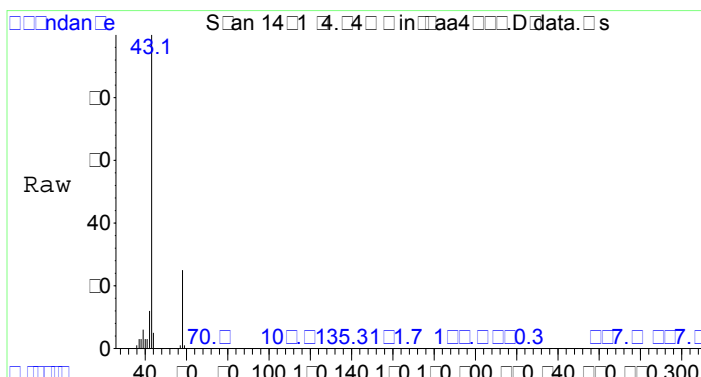
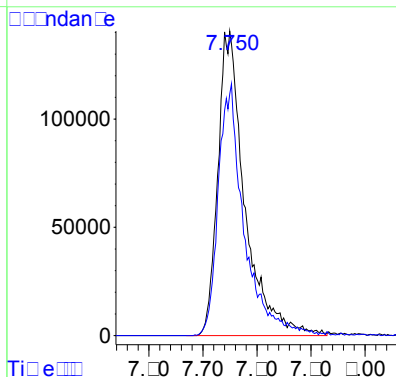
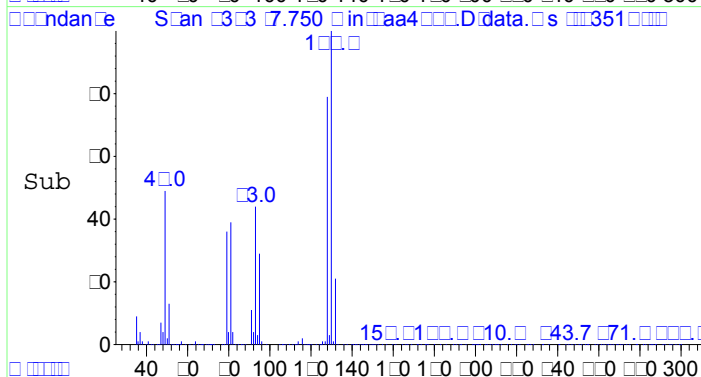
Quant Time: Nov 29 11:33:54 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration





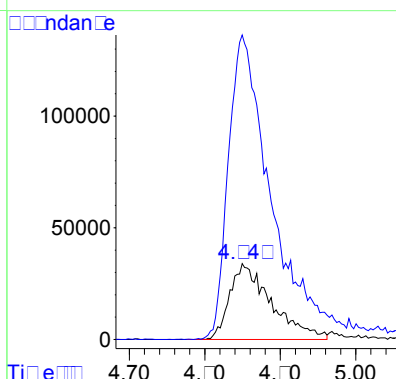
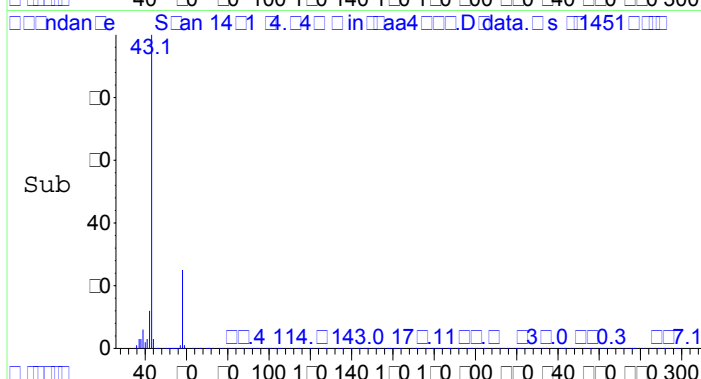
#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 7.750 min Scan# 2383
Delta R.T. 0.003 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

Tgt Ion: 130 Resp: 487854
Ion Ratio Lower Upper
130 100
128 78.9 62.6 94.0



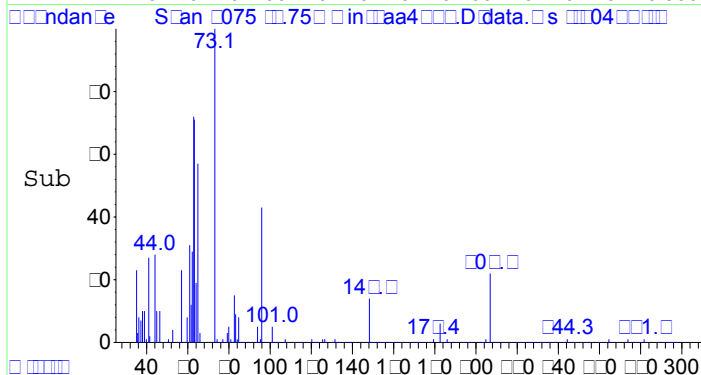
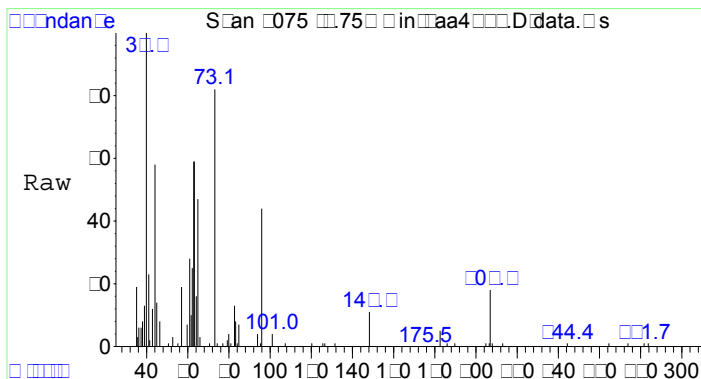
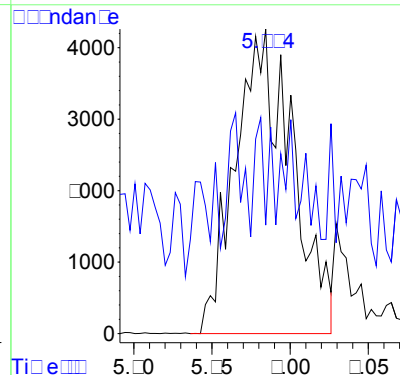
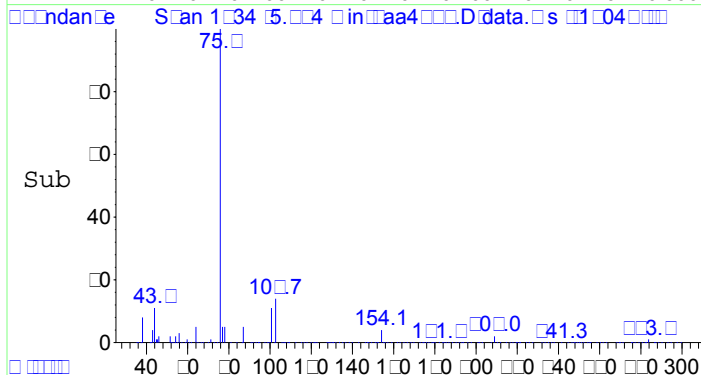
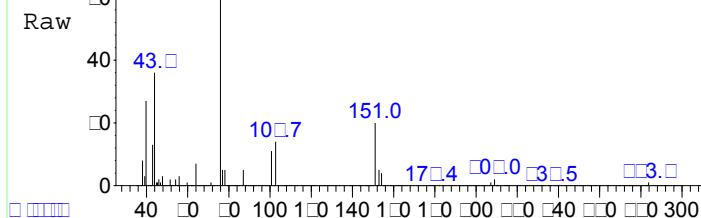
#14
Acetone
Concen: 10.78 ppbV
RT: 4.849 min Scan# 1481
Delta R.T. -0.003 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

Tgt Ion: 58 Resp: 130093
Ion Ratio Lower Upper
58 100
43 427.5 229.6 344.4#



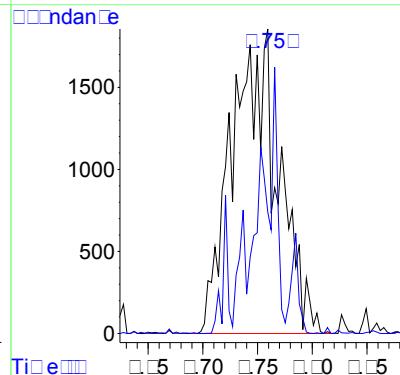
#23
Carbon disulfide
Concen: 0.08 ppbV
RT: 5.984 min Scan# 1834
Delta R.T. -0.003 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

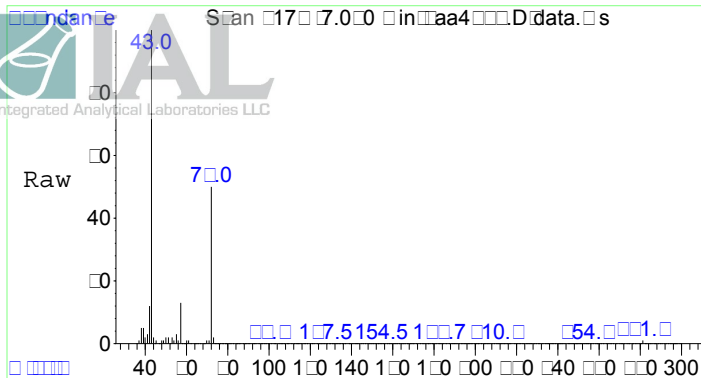
Tgt Ion: 76 Resp: 10703
Ion Ratio Lower Upper
76 100
44 10.6 10.4 15.6



#25
1,1-Dichloroethane
Concen: 0.07 ppbV
RT: 6.759 min Scan# 2075
Delta R.T. 0.006 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

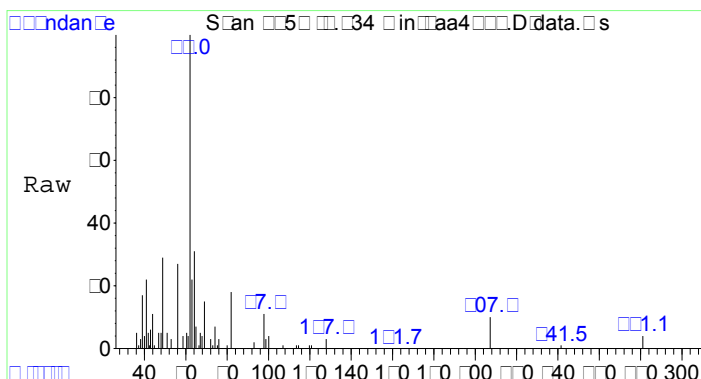
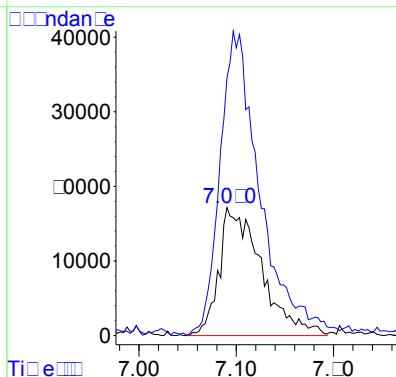
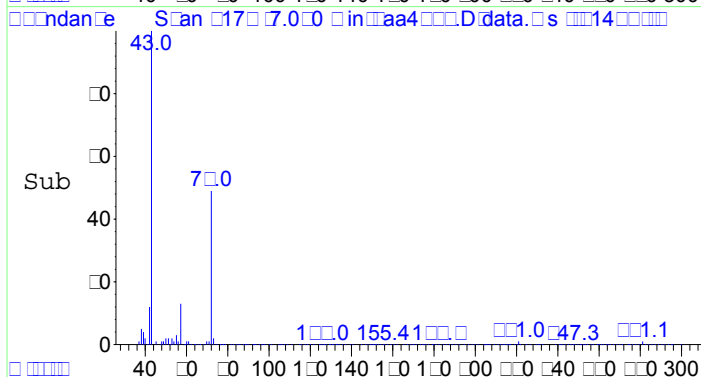
Tgt Ion: 63 Resp: 5488
Ion Ratio Lower Upper
63 100
65 9.1 24.4 36.6#





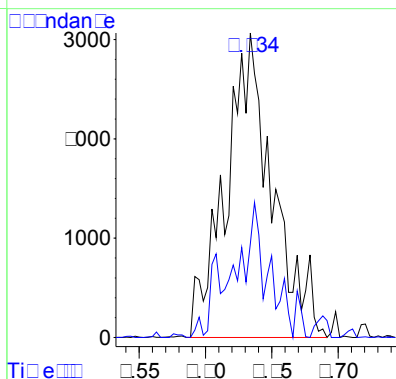
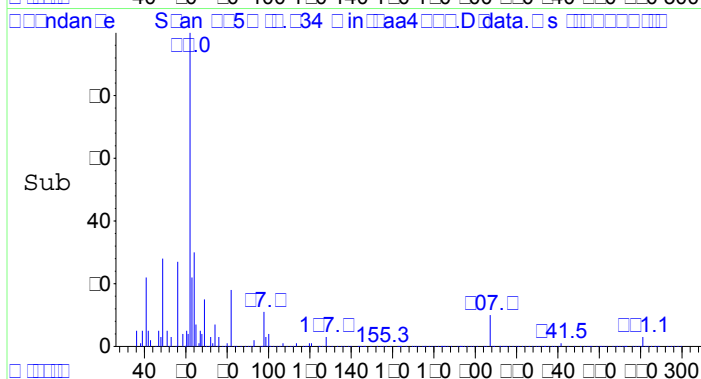
#27
Methyl ethyl ketone
Concen: 2.71 ppbV
RT: 7.090 min Scan# 2178
Delta R.T. -0.004 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

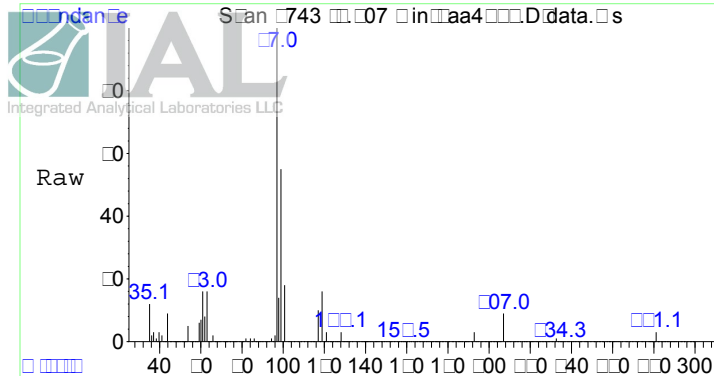
Tgt Ion: 72 Resp: 51973
Ion Ratio Lower Upper
72 100
43 223.8 168.0 252.0



#33
1,2-Dichloroethane
Concen: 0.08 ppbV
RT: 8.634 min Scan# 2658
Delta R.T. -0.007 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

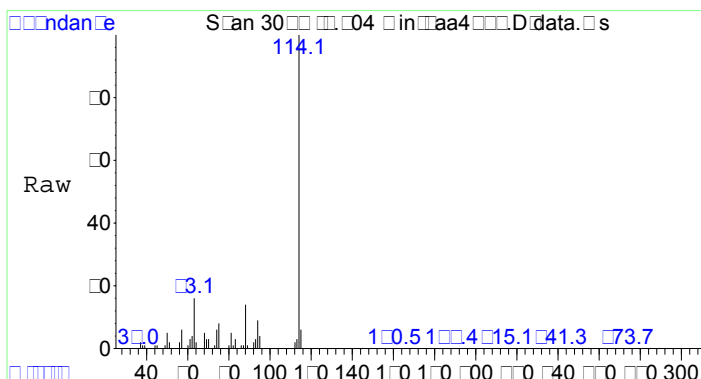
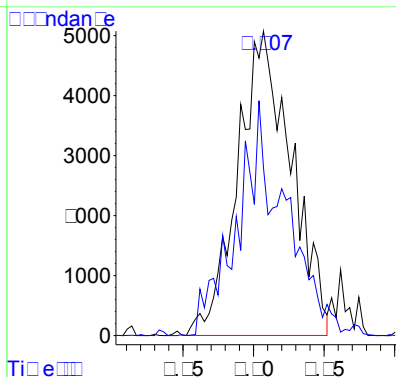
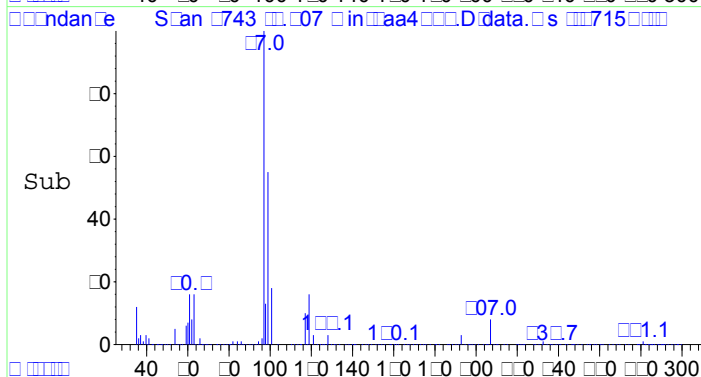
Tgt Ion: 62 Resp: 7450
Ion Ratio Lower Upper
62 100
64 25.9 25.1 37.7





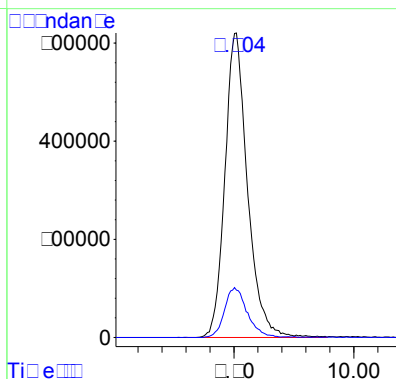
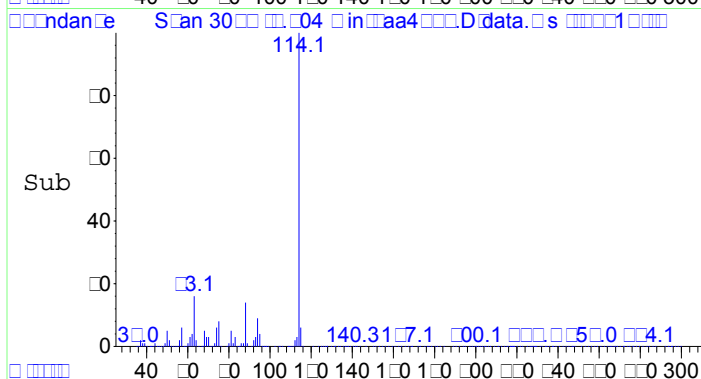
#34
1,1,1-Trichloroethane
Concen: 0.07 ppbV
RT: 8.907 min Scan# 2743
Delta R.T. -0.010 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

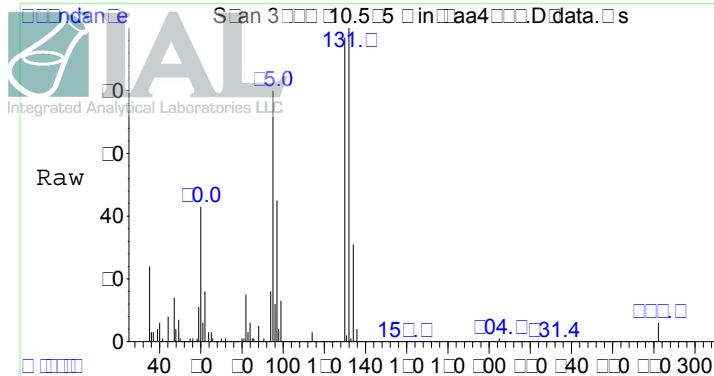
Tgt Ion: 97 Resp: 13356
Ion Ratio Lower Upper
97 100
99 68.9 51.9 77.9



#38
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 9.804 min Scan# 3022
Delta R.T. -0.000 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

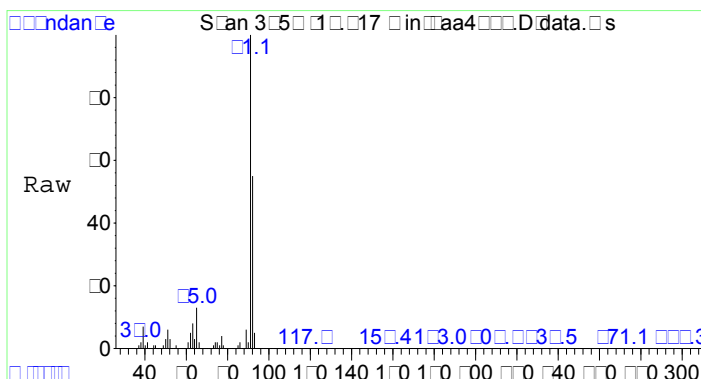
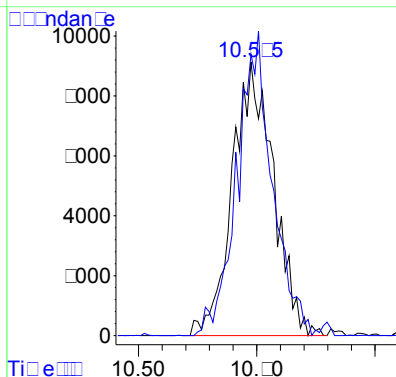
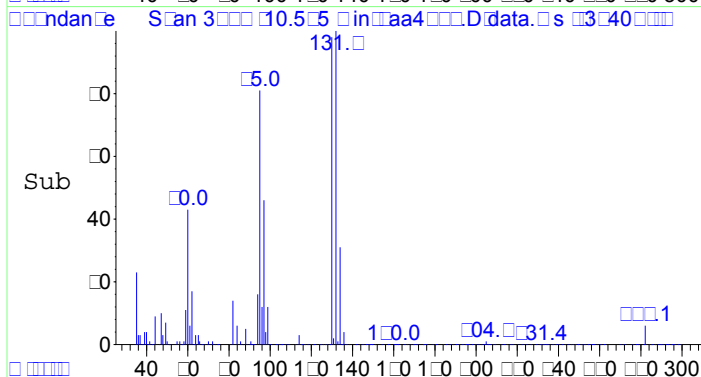
Tgt Ion: 114 Resp: 1627288
Ion Ratio Lower Upper
114 100
63 16.5 14.4 21.6





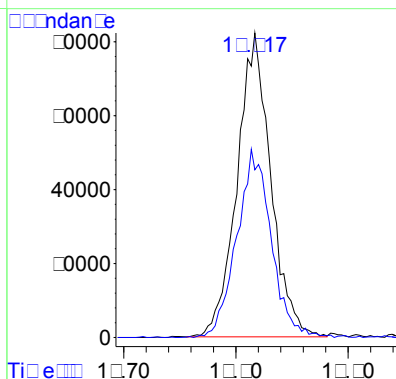
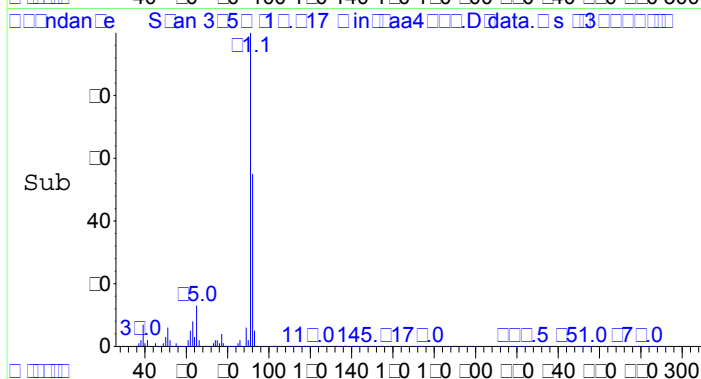
#42
Trichloroethene
Concen: 0.26 ppbV
RT: 10.595 min Scan# 3268
Delta R.T. -0.010 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

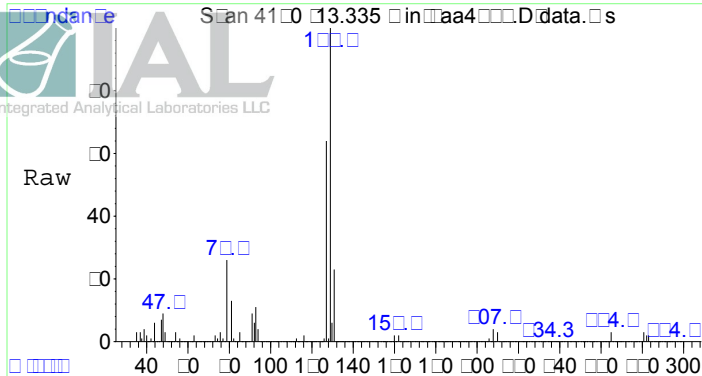
Tgt Ion: 130 Resp: 22040
Ion Ratio Lower Upper
130 100
132 95.6 77.8 116.6



#50
Toluene
Concen: 0.92 ppbV
RT: 12.817 min Scan# 3959
Delta R.T. -0.000 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

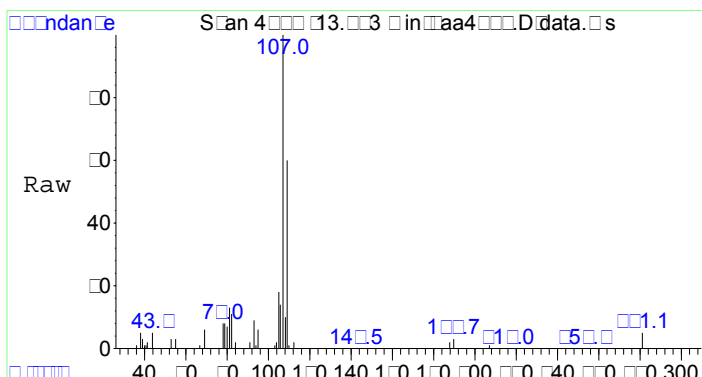
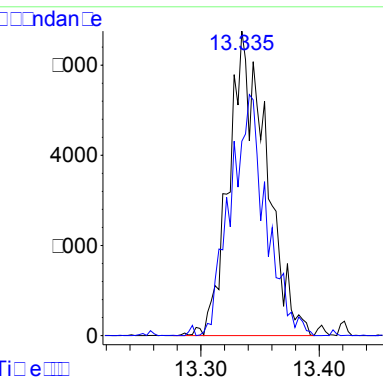
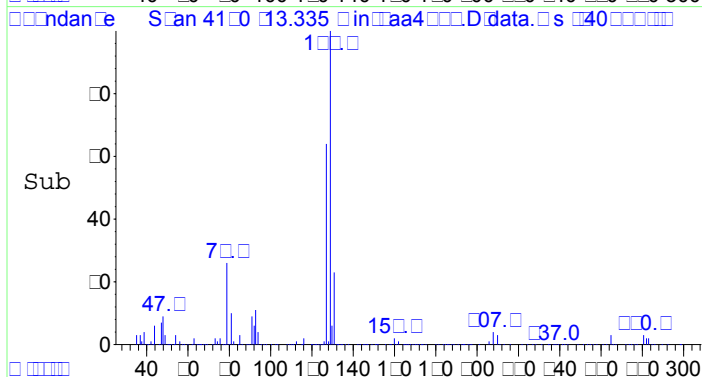
Tgt Ion: 91 Resp: 171694
Ion Ratio Lower Upper
91 100
92 63.0 50.0 75.0





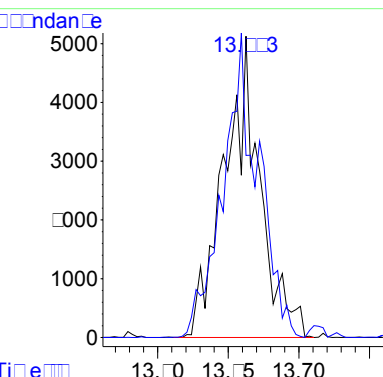
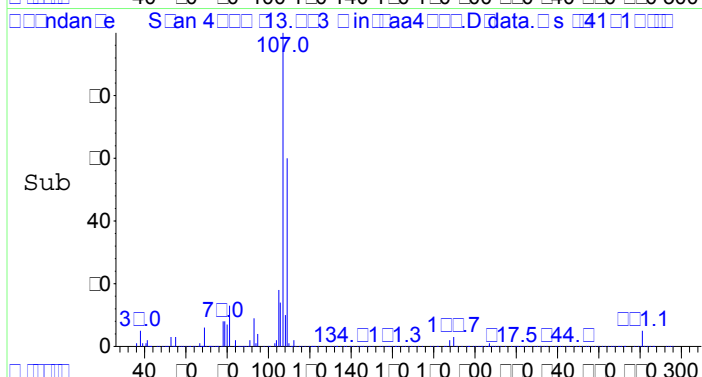
#52
Dibromochloromethane
Concen: 0.08 ppbV
RT: 13.335 min Scan# 4120
Delta R.T. -0.010 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

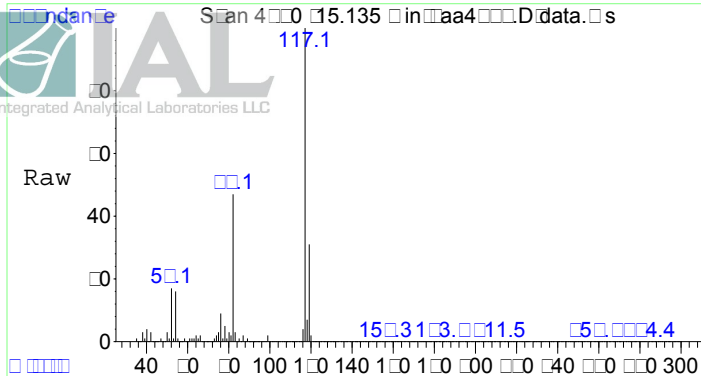
Tgt Ion:129 Resp: 14813
Ion Ratio Lower Upper
129 100
127 75.8 62.6 93.8



#53
1,2-Dibromoethane
Concen: 0.07 ppbV
RT: 13.663 min Scan# 4222
Delta R.T. -0.000 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

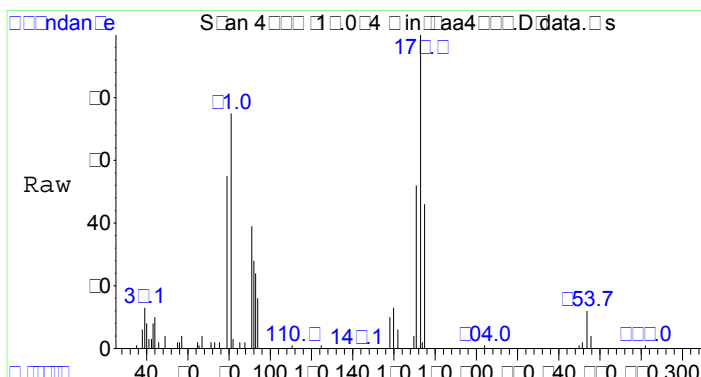
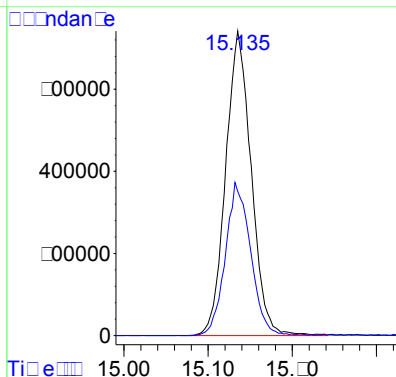
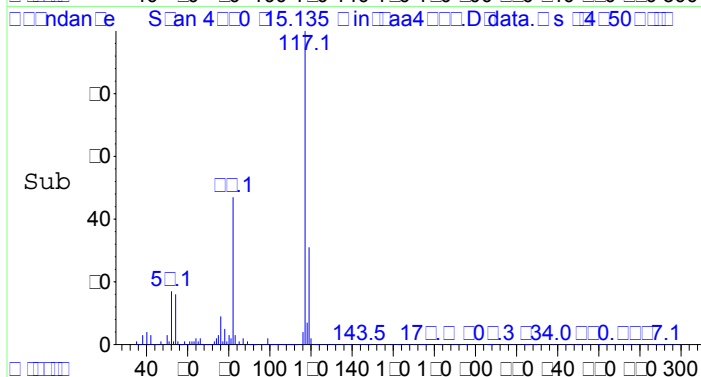
Tgt Ion:107 Resp: 9021
Ion Ratio Lower Upper
107 100
109 99.7 75.0 112.6





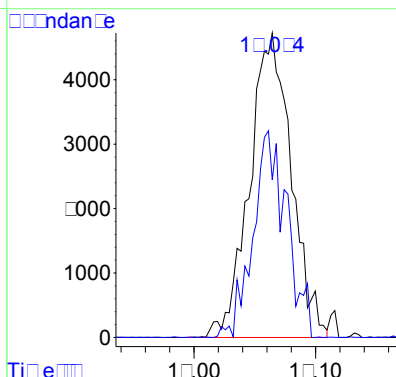
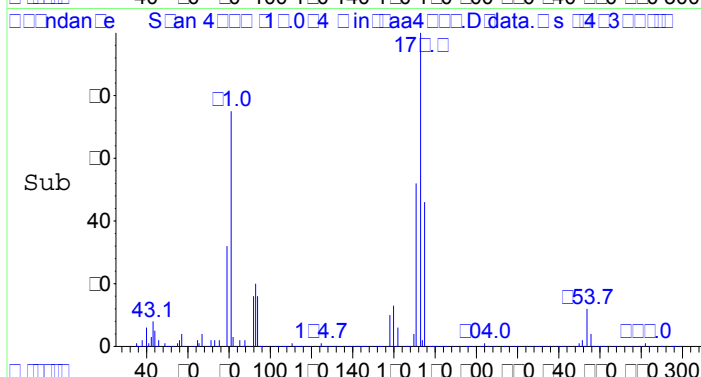
#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 15.135 min Scan# 4680
Delta R.T. -0.003 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

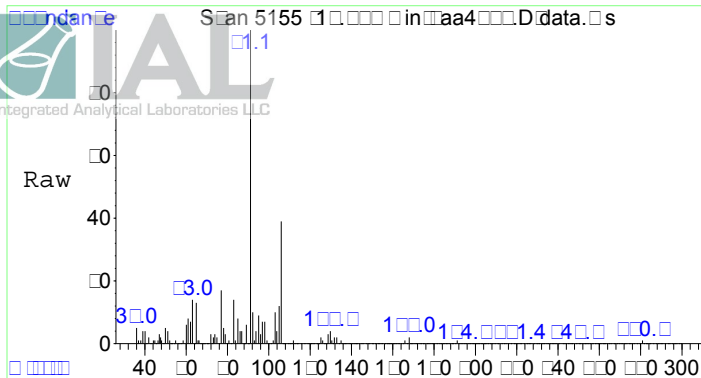
Tgt Ion:117 Resp: 1563073
Ion Ratio Lower Upper
117 100
82 49.8 44.8 67.2



#59
Bromoform
Concen: 0.07 ppbV
RT: 16.064 min Scan# 4969
Delta R.T. -0.003 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

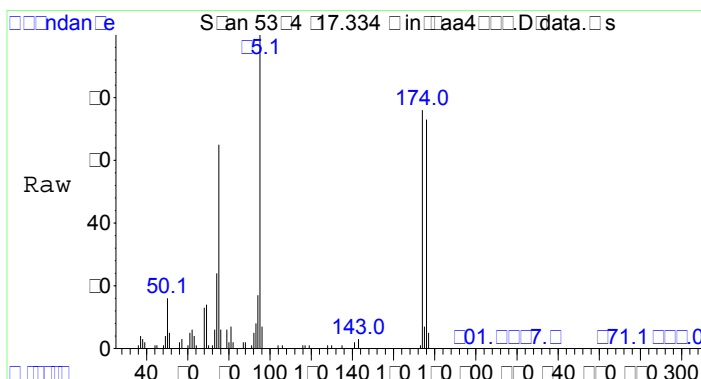
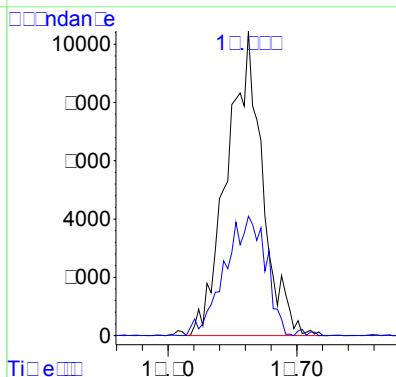
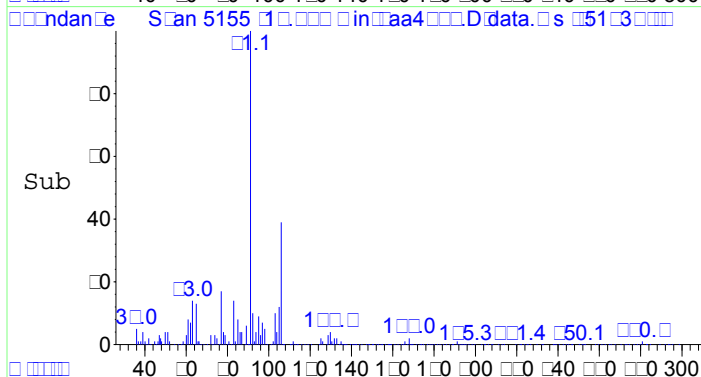
Tgt Ion:173 Resp: 11232
Ion Ratio Lower Upper
173 100
171 54.9 43.1 64.7





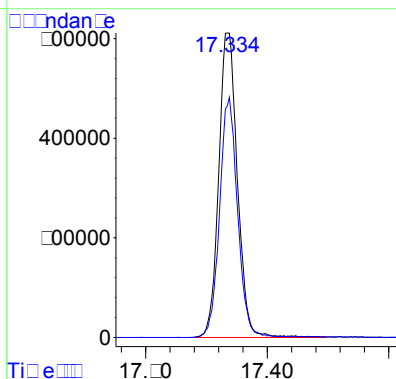
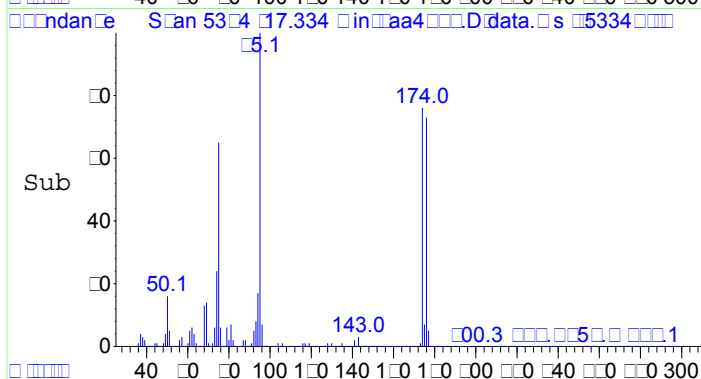
#61
Xylene (o)
Concen: 0.08 ppbV
RT: 16.662 min Scan# 5155
Delta R.T. 0.003 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

Tgt Ion	91	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300
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#64
Bromofluorobenzene (tune std)
Concen: 9.56 ppbV
RT: 17.334 min Scan# 5364
Delta R.T. -0.003 min
Lab File: aa4286.D
Acq: 28 Nov 2017 8:34 pm

Tgt Ion	95	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300
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Integrated Analytical Laboratories LLC

Summary of Results

Iron Pentamethylenes
100 Misty Lane
Parsippany, NJ 07054
Attention: Seise
Project: Sider 175 Nya Rd
Site: NY

Report Date: 11/30/17
SD: N/A
Date Sampled: 11/15/17
Date Received: 11/11/17
Date Analyzed: 11/01/17, 11/01/17
Data File: 407, 0430
Sample ID: 314
D: 10, 0

Analysis of Organic Compounds by GC/MS Method TO-15

Sample Name:		SS-2		Reporting Limits	
IAL ID:		E17-09837-02			
Compound	CAS #	ppbv	ug/m3	ppbv	ug/m3
Acetone	75-06-6	D	54	130	0.0
Benzene	71-43-2	ND	ND	0.0	0.4
Bromodichloroethane	75-74-4	ND	ND	0.0	13
Bromochloroethane	75-55-8	ND	ND	0.0	1
Bromochloroethane	74-33-3	ND	ND	0.0	7.0
1,3-Butadiene	106-99-0	ND	ND	0.0	4.4
Chlorobenzene	108-90-7	ND	ND	0.0	0.0
Chloroethane	75-00-3	ND	ND	0.0	5.3
Chloroform	77-06-3	ND	ND	0.0	0.0
Chloroethane	74-47-3	ND	ND	0.0	4.1
Carbon disulfide	75-15-0	ND	ND	0.0	0.0
Carbon tetrachloride	56-23-5	ND	ND	0.40	0.5
Cyclohexane	110-82-7	ND	ND	0.0	0.0
Dichlorodichloroethane	1464-1	ND	ND	0.0	17
1,1-Dichloroethane	107-06-4	ND	ND	0.0	15
1,1-Dichloroethene	75-50-1	ND	ND	0.0	1.0
1,3-Dichloroethene	541-73-1	ND	ND	0.0	1.0
1,4-Dichloroethene	106-47-7	ND	ND	0.0	1.0
Dichlorodichloroethane	75-71-1	ND	ND	0.0	0.0
1,1-Dichloroethane	75-34-3	ND	ND	0.0	0.1
1,1-Dichloroethane	107-06-4	ND	ND	0.0	0.1
1,1-Dichloroethene	75-35-4	ND	ND	0.0	7.0
1,1-Dichloroethene cis	1555-000	D	10	0.0	7.0
1,1-Dichloroethene trans	1555-005	D	15	57	7.0
1,1-Dichloropropane	77-71-5	ND	ND	0.0	0.0
1,3-Dichloropropene cis	100-101-5	ND	ND	0.0	0.1
1,3-Dichloropropene trans	100-100-0	ND	ND	0.0	0.1
1,1-Dichlorotetrahydroethane	77-14-0	ND	ND	0.0	14
1,4-Dioxane	146-01-1	ND	ND	0.0	7.0
1,4-Dioxane	100-41-4	ND	ND	0.0	0.7
Nonane	14-00-5	ND	ND	0.0	0.0
1,3-Hexadiene	77-06-3	ND	ND	0.0	0.1
Nonane	110-54-3	ND	ND	0.0	7.1
Methylene chloride	75-07-0	ND	ND	0.0	7.0
Methylcyclopentane	77-33-3	D	5.0	17	0.0
Methylisocyclopentane	10-10-1	ND	ND	0.0	0.0
Methyltertbutyl ether	134-04-4	ND	ND	0.0	7.0
Styrene	100-42-5	ND	ND	0.0	0.5
Tertbutyl alcohol	75-55-0	ND	ND	0.0	0.1
1,1,1-Tetrahydroethane	77-34-5	ND	ND	0.0	14
Tetrahydroethane	147-10-4	D	0.0	5.0	0.0
Toluene	108-88-3	D	0.0	31	0.0
1,4-Trihydrobenzene	100-00-1	ND	ND	0.0	15
1,1,1-Trihydroethane	71-55-0	D	0.4	13	0.0
1,1,1-Trihydroethane	77-00-5	ND	ND	0.0	11
Trihydroethane	77-01-0	D	500	700	0.0

IAL SDG #E17-09837

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Integrated Analytical Laboratories LLC

Summary of Results

Iron Pentastate Management Associates
100 Misty Lane
Parsippany, NJ 07054
Attention: Seise
Project: Site 175 - Nya Rd
Site: NY

Report Date: 11/30/17
SD Number: 17-0037
Date Sampled: 11/15/17
Date Received: 11/17/17
Date Analyzed: 11/17/17, 11/17/17
Data File: 407, 430
Sample ID: 314
D010, 0

Analysis of Volatile Organic Compounds by EPA Method TO-15

Sample Name:	SS-2	Reporting
IAL ID:	E17-09837-02	Limits
Trichloroethane	75004	ND ND 0.0 11
1,1,1-Trichloroethane	70131	ND ND 0.0 15
1,4-Dichlorobenzene	5030	ND ND 0.0 0.0
1,3,5-Trichlorobenzene	100070	ND ND 0.0 0.0
1,4-Dichloropentane	540041	ND ND 0.0 0.3
vinyl chloride	503000	ND ND 0.0 0.7
vinyl bromide	75014	ND ND 0.0 5.1
Xylenes (m+p)	17001031	ND ND 0.0 0.7
Xylenes (o)	5470	ND ND 0.0 0.7

Data Path : C:\DATA\11-28-17\
 Data File : aa4287.D
 Acq On : 28 Nov 2017 9:07 pm
 Operator : jls
 Sample : E17-09837-02 x 10 dil
 Misc : 3814, 50cc
 ALS Vial : 17 Sample Multiplier: 1

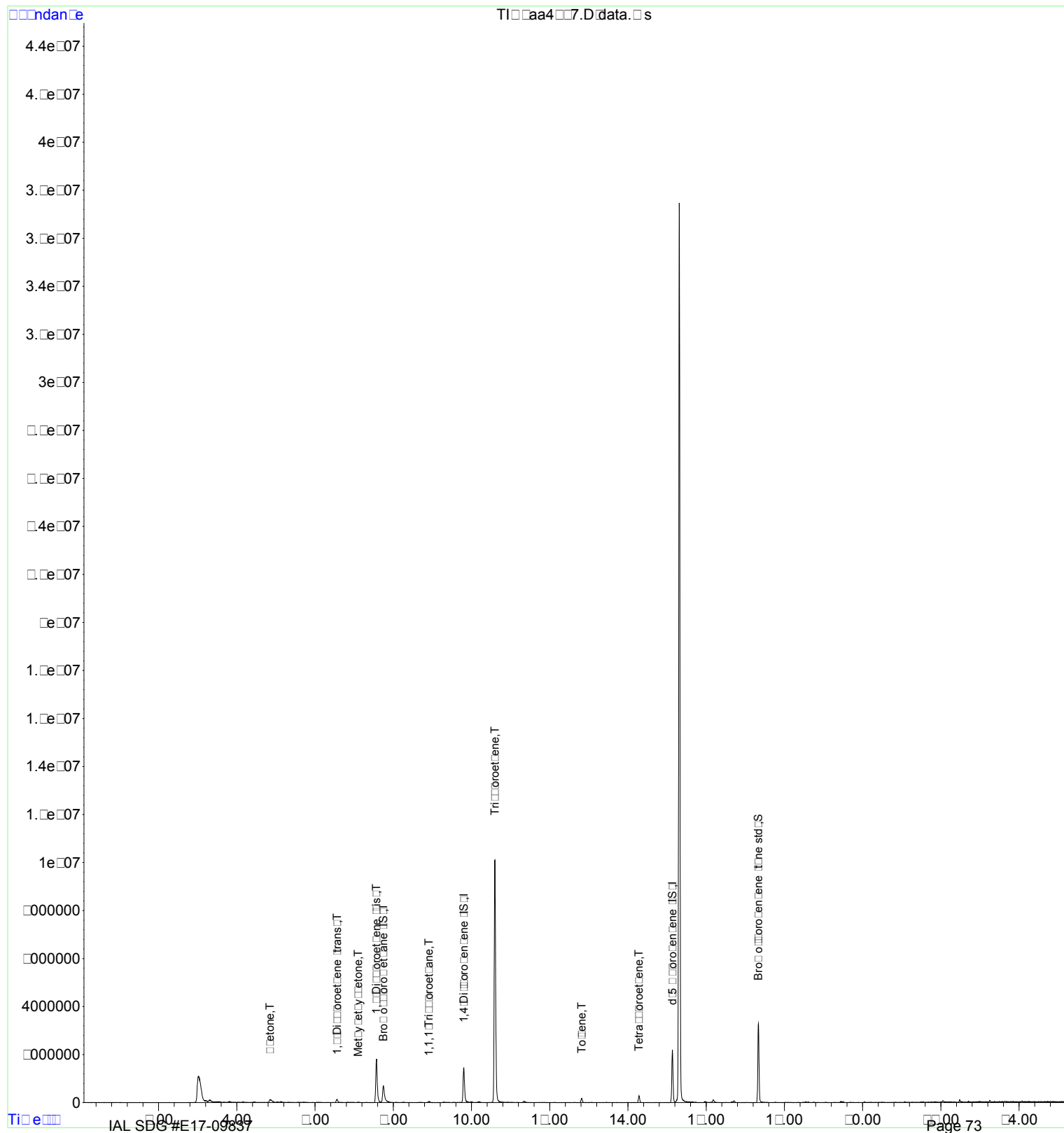
Quant Time: Nov 29 11:36:15 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

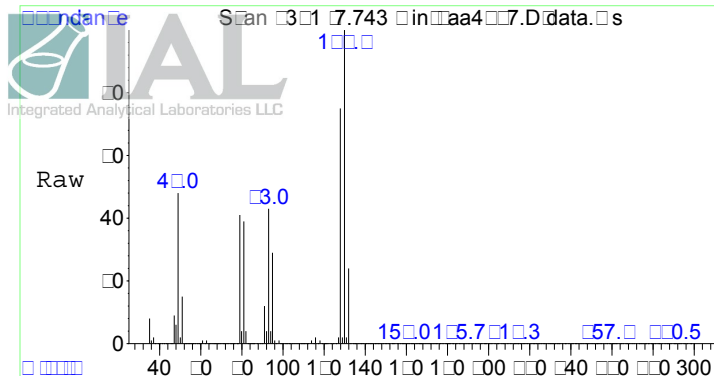
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.743	130	508077	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.804	114	1632670	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.135	117	1591956	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.331	95	1337889	9.60	ppbV	0.00
Target Compounds						
14) Acetone	4.846	58	68248	5.43	ppbV	Qvalue # 1
24) 1,2-Dichloroethene (tr...	6.563	61	83647	1.45	ppbV	97
27) Methyl ethyl ketone	7.103	72	11715	0.59	ppbV	80
28) 1,2-Dichloroethene (cis)	7.570	61	1185871	20.79	ppbV	98
34) 1,1,1-Trichloroethane	8.910	97	44902	0.24	ppbV	92
42) Trichloroethene	10.595	130	4399880	51.52	ppbV	99
50) Toluene	12.817	91	153199	0.82	ppbV	99
54) Tetrachloroethene	14.277	166	87030	0.82	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\11-28-17\
Data File : aa4287.D
Acq On : 28 Nov 2017 9:07 pm
Operator : jls
Sample : E17-09837-02 x 10 dil
Misc : 3814, 50cc
ALS Vial : 17 Sample Multiplier: 1

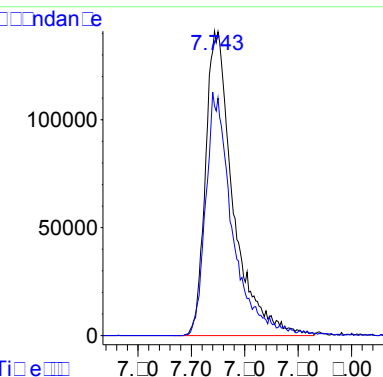
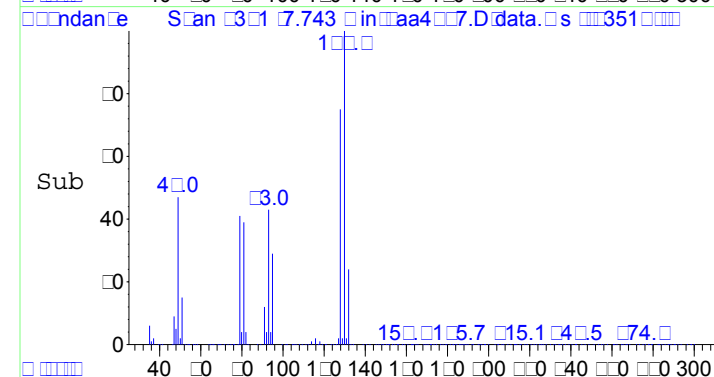
Quant Time: Nov 29 11:36:15 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
Response via : Initial Calibration





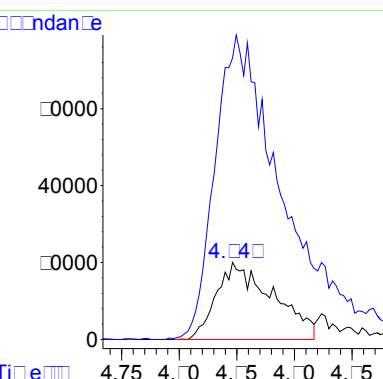
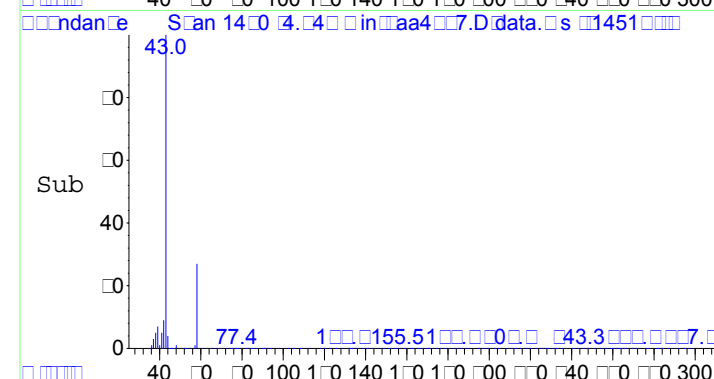
#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 7.743 min Scan# 2381
Delta R.T. -0.004 min
Lab File: aa4287.D
Acq: 28 Nov 2017 9:07 pm

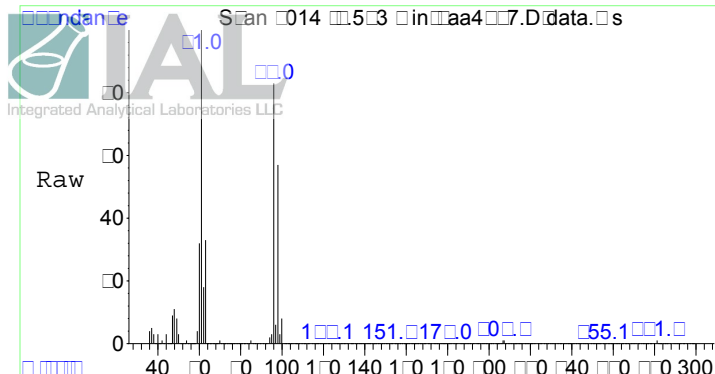
Tgt Ion:130 Resp: 508077
Ion Ratio Lower Upper
130 100
128 76.5 62.6 94.0



#14
Acetone
Concen: 5.43 ppbV
RT: 4.846 min Scan# 1480
Delta R.T. -0.006 min
Lab File: aa4287.D
Acq: 28 Nov 2017 9:07 pm

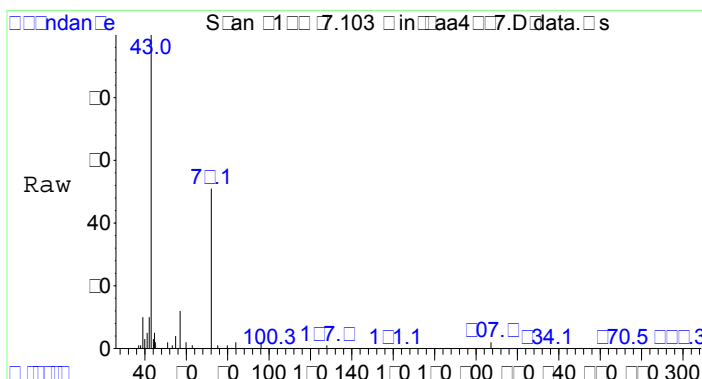
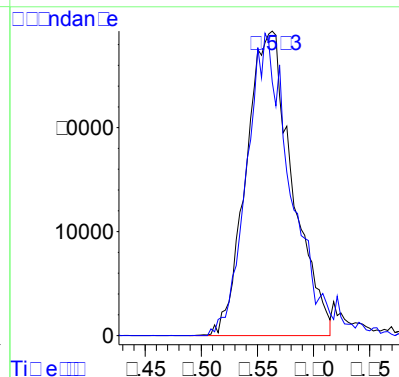
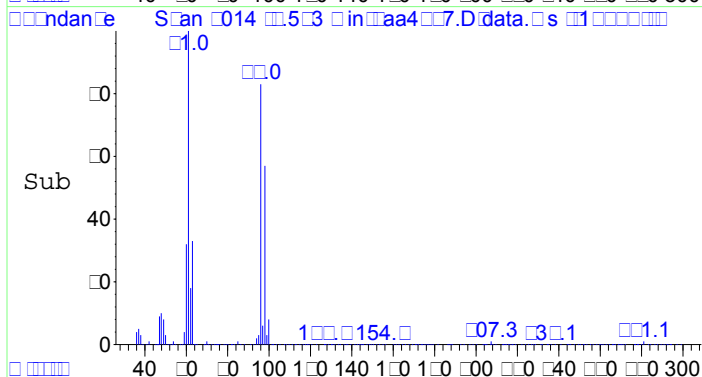
Tgt Ion: 58 Resp: 68248
Ion Ratio Lower Upper
58 100
43 489.8 229.6 344.4#





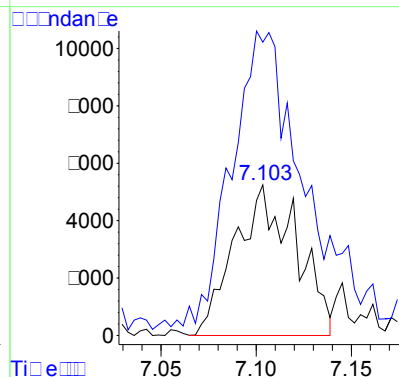
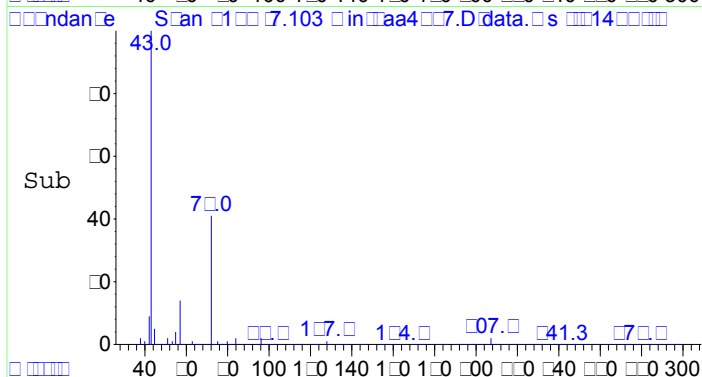
#24
1,2-Dichloroethene (trans)
Concen: 1.45 ppbV
RT: 6.563 min Scan# 2014
Delta R.T. 0.003 min
Lab File: aa4287.D
Acq: 28 Nov 2017 9:07 pm

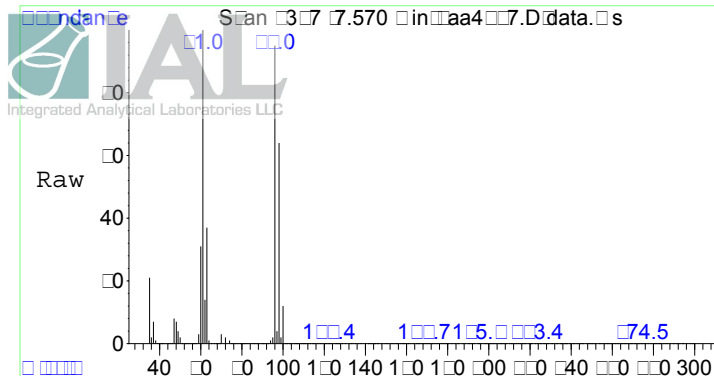
Tgt Ion: 61 Resp: 83647
Ion Ratio Lower Upper
61 100
96 94.3 72.8 109.2



#27
Methyl ethyl ketone
Concen: 0.59 ppbV
RT: 7.103 min Scan# 2182
Delta R.T. 0.009 min
Lab File: aa4287.D
Acq: 28 Nov 2017 9:07 pm

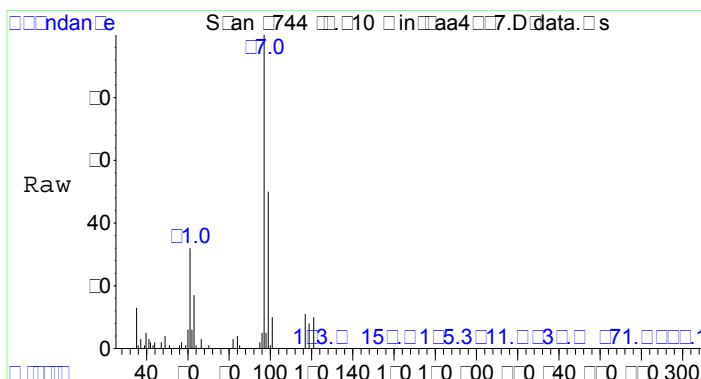
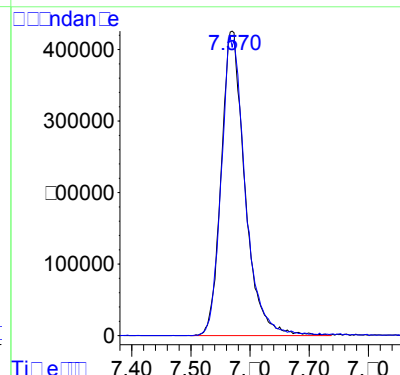
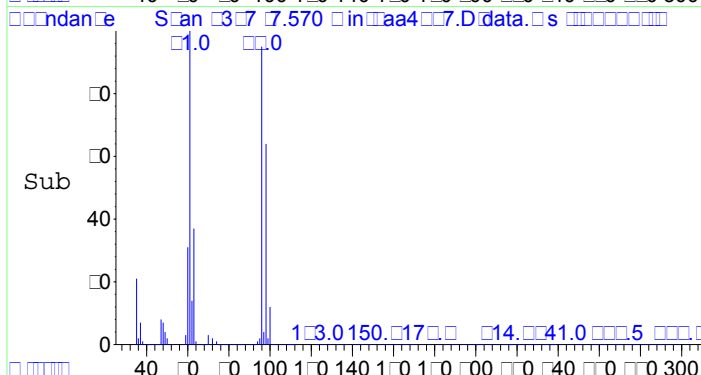
Tgt Ion: 72 Resp: 11715
Ion Ratio Lower Upper
72 100
43 240.9 168.0 252.0





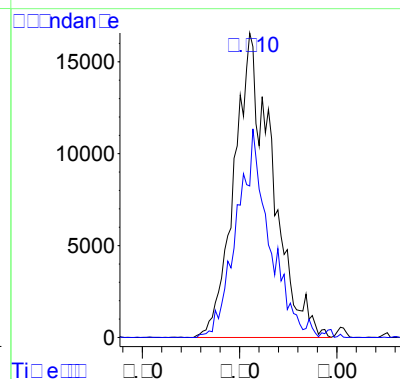
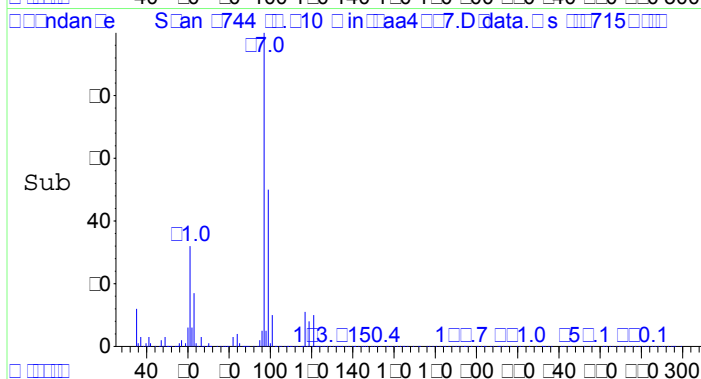
#28
1,2-Dichloroethene (cis)
Concen: 20.79 ppbV
RT: 7.570 min Scan# 2327
Delta R.T. -0.000 min
Lab File: aa4287.D
Acq: 28 Nov 2017 9:07 pm

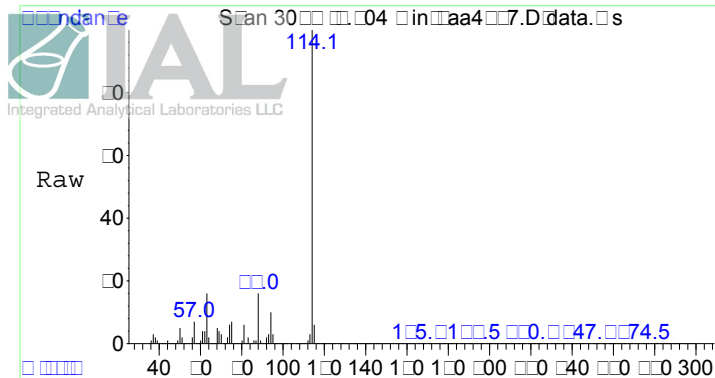
Tgt Ion: 61 Resp: 1185871
Ion Ratio Lower Upper
61 100
96 99.5 78.4 117.6



#34
1,1,1-Trichloroethane
Concen: 0.24 ppbV
RT: 8.910 min Scan# 2744
Delta R.T. -0.006 min
Lab File: aa4287.D
Acq: 28 Nov 2017 9:07 pm

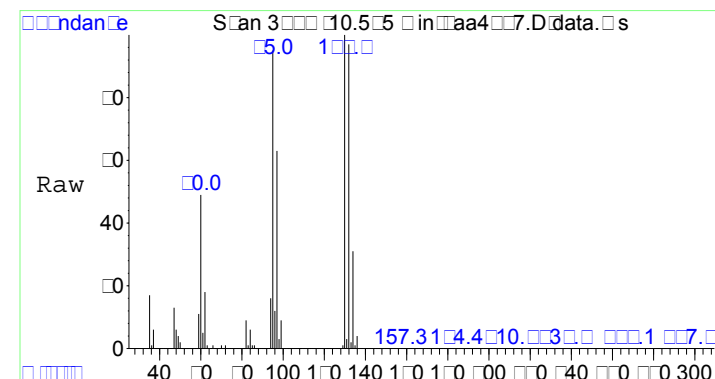
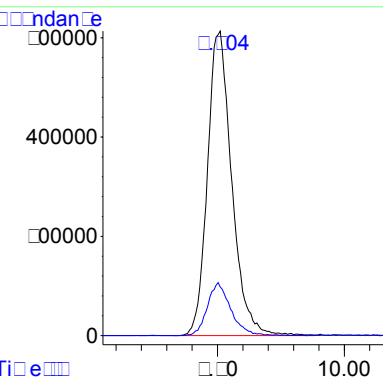
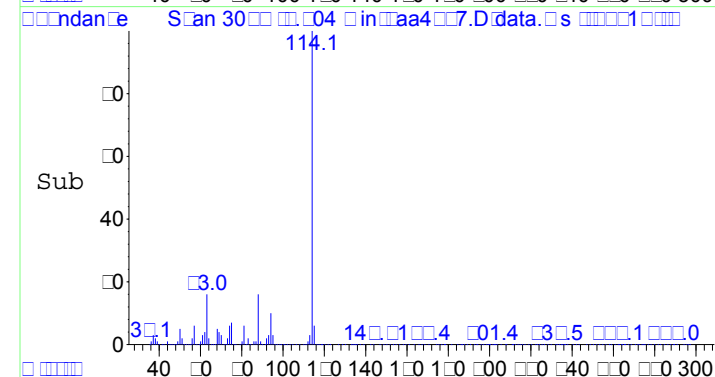
Tgt Ion: 97 Resp: 44902
Ion Ratio Lower Upper
97 100
99 58.2 51.9 77.9





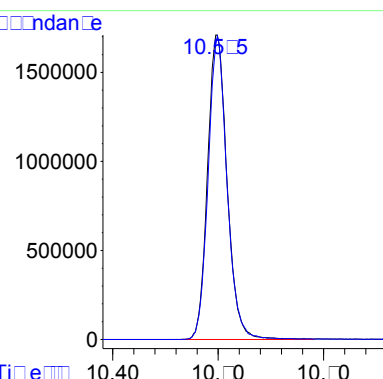
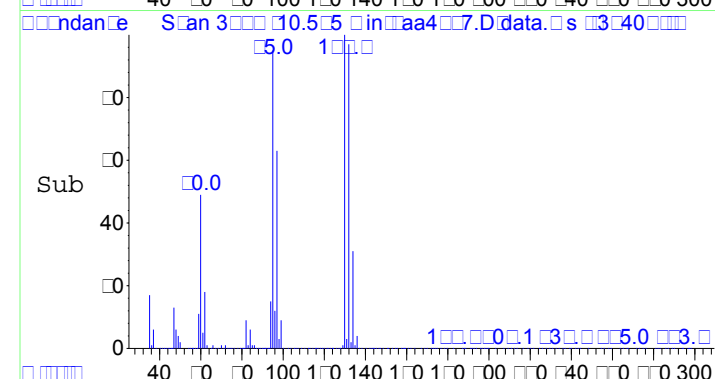
#38
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 9.804 min Scan# 3022
Delta R.T. -0.000 min
Lab File: aa4287.D
Acq: 28 Nov 2017 9:07 pm

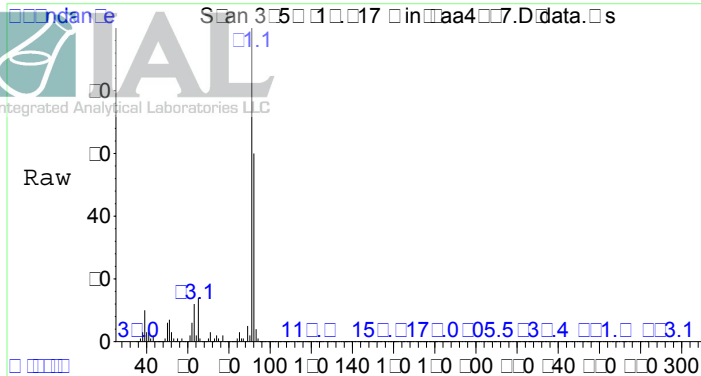
Tgt Ion:114 Resp: 1632670
Ion Ratio Lower Upper
114 100
63 16.7 14.4 21.6



#42
Trichloroethene
Concen: 51.52 ppbV
RT: 10.595 min Scan# 3268
Delta R.T. -0.010 min
Lab File: aa4287.D
Acq: 28 Nov 2017 9:07 pm

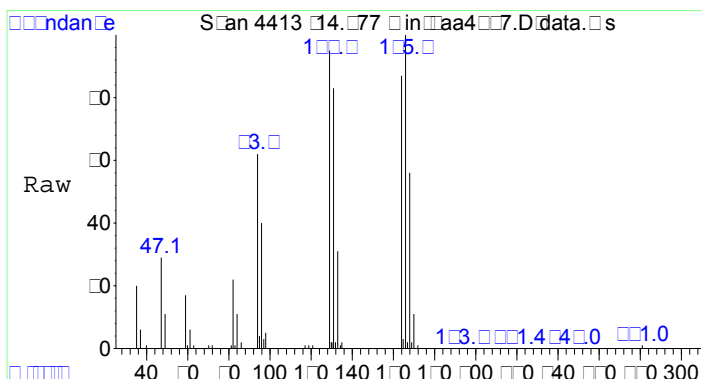
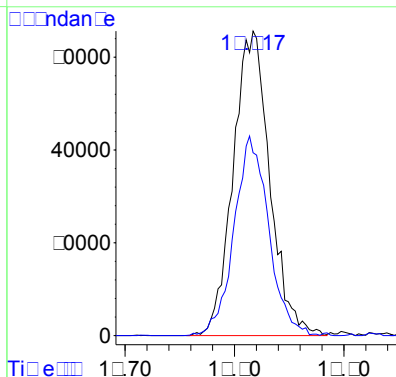
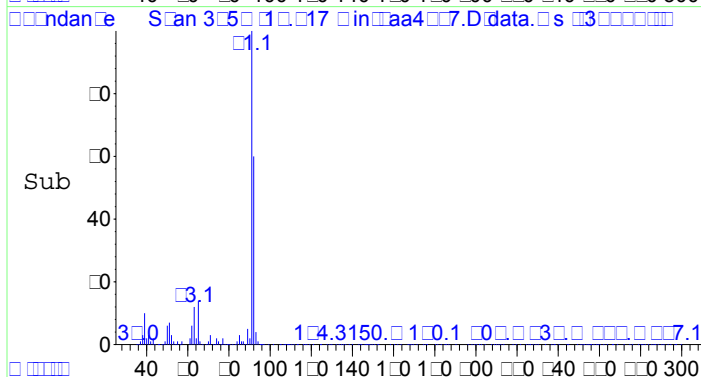
Tgt Ion:130 Resp: 4399880
Ion Ratio Lower Upper
130 100
132 96.6 77.8 116.6





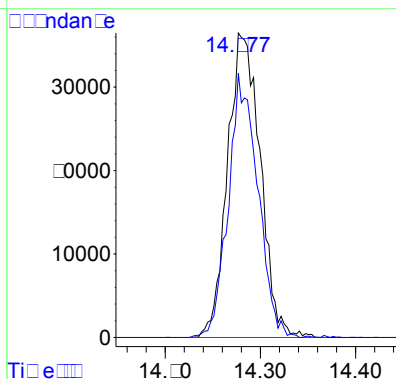
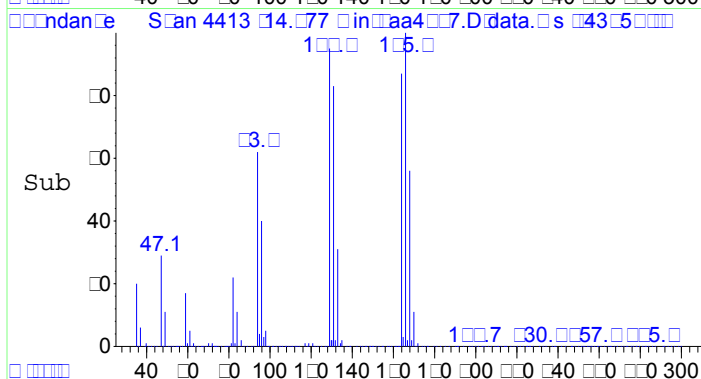
#50
Toluene
Concen: 0.82 ppbV
RT: 12.817 min Scan# 3959
Delta R.T. -0.000 min
Lab File: aa4287.D
Acq: 28 Nov 2017 9:07 pm

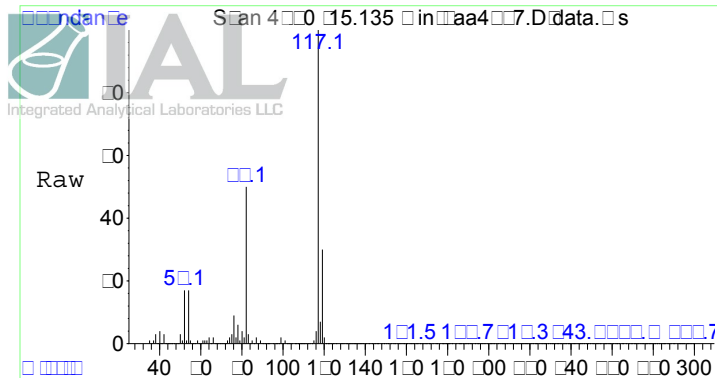
Tgt Ion: 91 Resp: 153199
Ion Ratio Lower Upper
91 100
92 61.7 50.0 75.0



#54
Tetrachloroethene
Concen: 0.82 ppbV
RT: 14.277 min Scan# 4413
Delta R.T. -0.010 min
Lab File: aa4287.D
Acq: 28 Nov 2017 9:07 pm

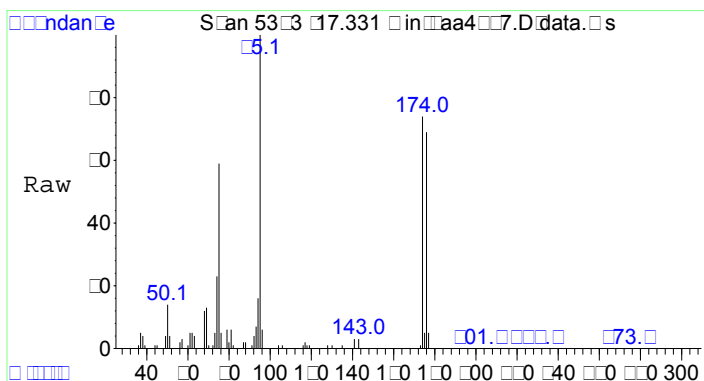
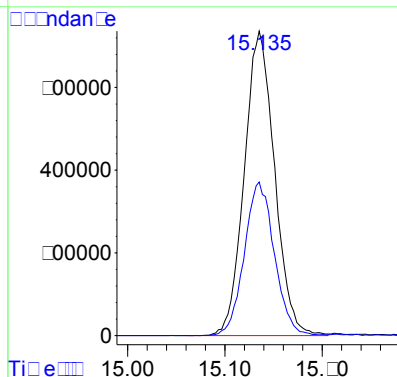
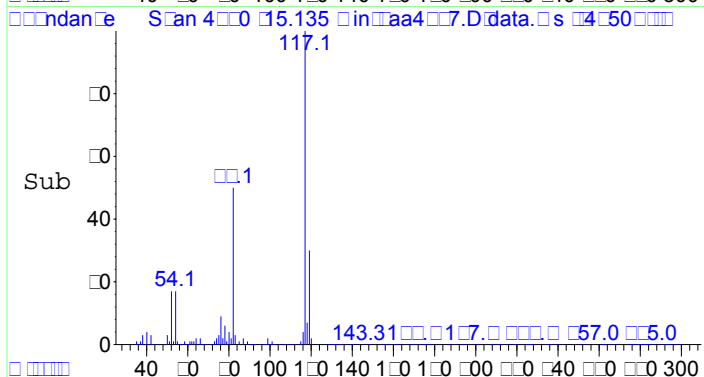
Tgt Ion: 166 Resp: 87030
Ion Ratio Lower Upper
166 100
164 77.8 64.6 96.8





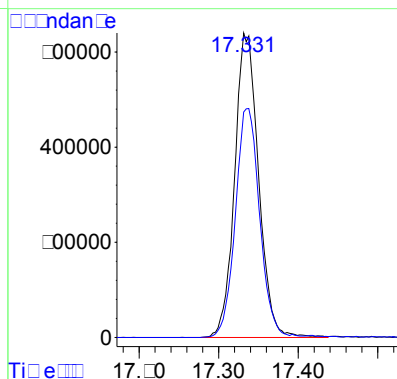
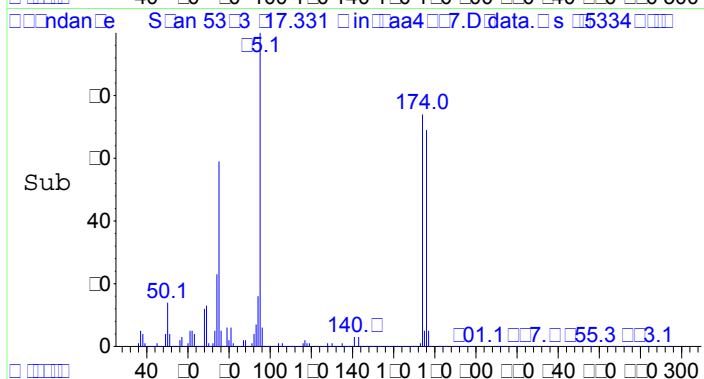
#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 15.135 min Scan# 4680
Delta R.T. -0.003 min
Lab File: aa4287.D
Acq: 28 Nov 2017 9:07 pm

Tgt Ion: 117 Resp: 1591956
Ion Ratio Lower Upper
117 100
82 50.0 44.8 67.2



#64
Bromofluorobenzene (tune std)
Concen: 9.60 ppbV
RT: 17.331 min Scan# 5363
Delta R.T. -0.006 min
Lab File: aa4287.D
Acq: 28 Nov 2017 9:07 pm

Tgt Ion: 95 Resp: 1337889
Ion Ratio Lower Upper
95 100
174 76.9 61.5 92.3



Data Path : C:\DATA\11-29-17\
 Data File : aa4308.D
 Acq On : 29 Nov 2017 3:55 pm
 Operator : jls
 Sample : E17-09837-02 x 20 dil
 Misc : 3814, 25cc
 ALS Vial : 8 Sample Multiplier: 1

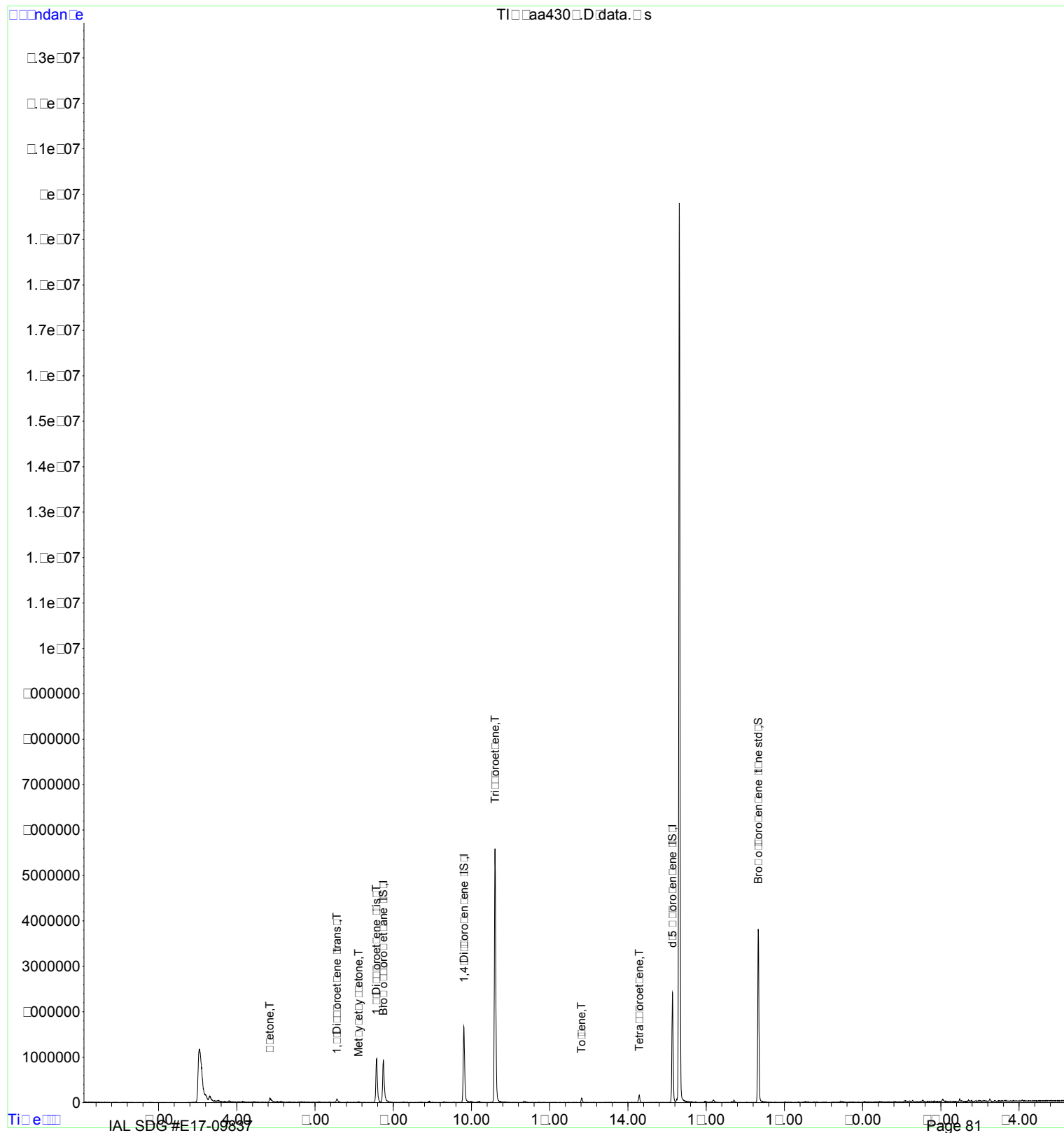
Quant Time: Nov 30 10:06:08 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

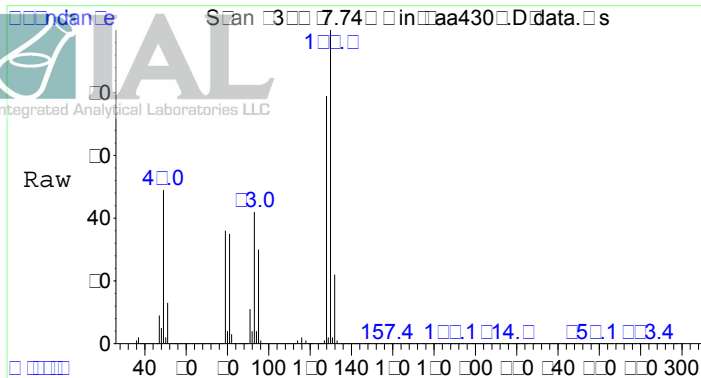
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.746	130	595493	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.807	114	1864530	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.135	117	1801295	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.331	95	1568758	9.94	ppbV	0.00
Target Compounds						
14) Acetone	4.840	58	50956	3.46	ppbV #	33
24) 1,2-Dichloroethene (tr...	6.560	61	52552	0.78	ppbV	99
27) Methyl ethyl ketone	7.110	72	5122	0.22	ppbV #	17
28) 1,2-Dichloroethene (cis)	7.570	61	670601	10.03	ppbV	98
42) Trichloroethene	10.602	130	2447850	25.10	ppbV	100
50) Toluene	12.814	91	84059	0.39	ppbV	99
54) Tetrachloroethene	14.293	166	50501	0.42	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\11-29-17\
Data File : aa4308.D
Acq On : 29 Nov 2017 3:55 pm
Operator : jls
Sample : E17-09837-02 x 20 dil
Misc : 3814, 25cc
ALS Vial : 8 Sample Multiplier: 1

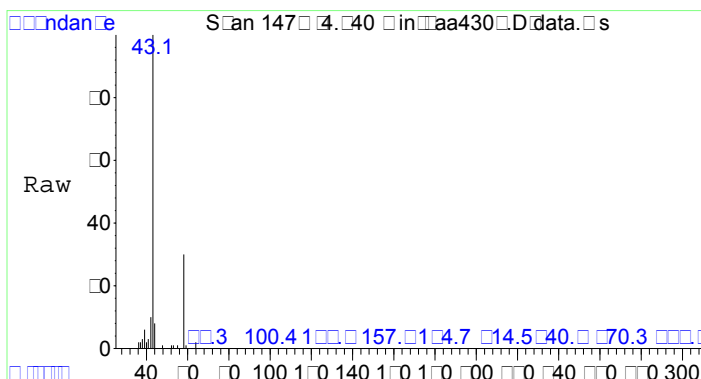
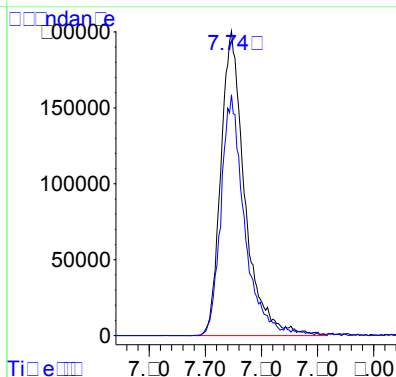
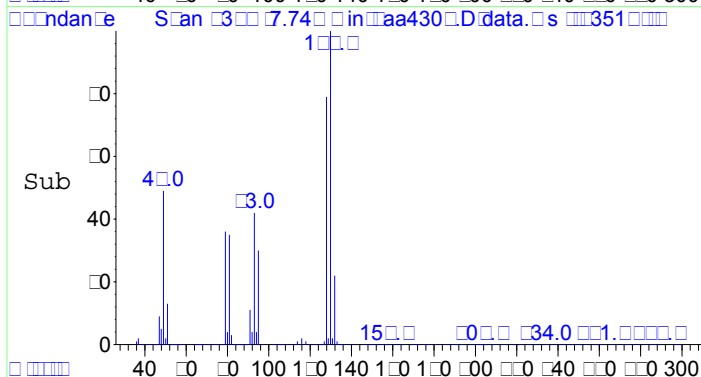
Quant Time: Nov 30 10:06:08 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
Response via : Initial Calibration





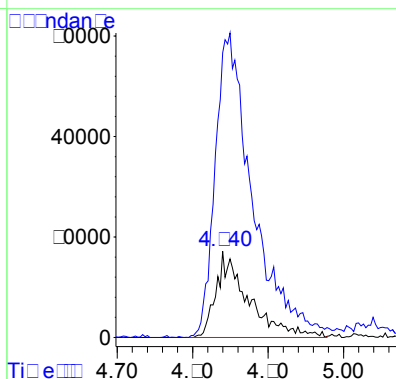
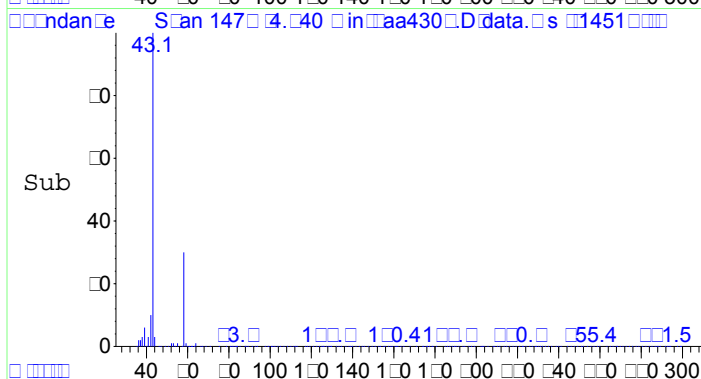
#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 7.746 min Scan# 2382
Delta R.T. -0.001 min
Lab File: aa4308.D
Acq: 29 Nov 2017 3:55 pm

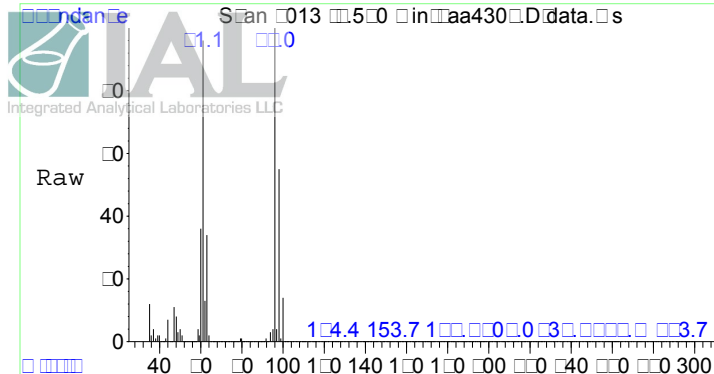
Tgt Ion: 130 Resp: 595493
Ion Ratio Lower Upper
130 100
128 77.6 62.6 94.0



#14
Acetone
Concen: 3.46 ppbV
RT: 4.840 min Scan# 1478
Delta R.T. -0.013 min
Lab File: aa4308.D
Acq: 29 Nov 2017 3:55 pm

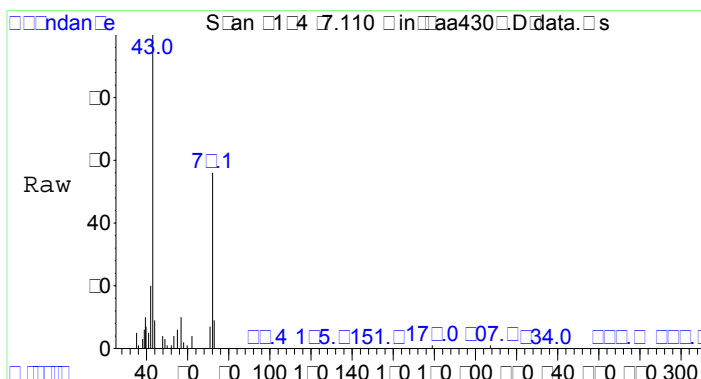
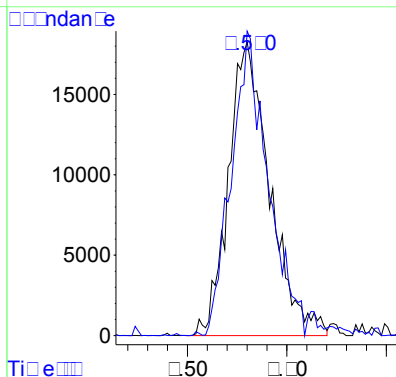
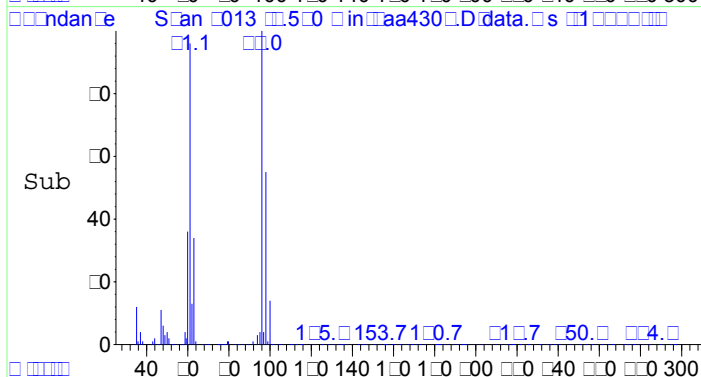
Tgt Ion: 58 Resp: 50956
Ion Ratio Lower Upper
58 100
43 414.8 229.6 344.4#





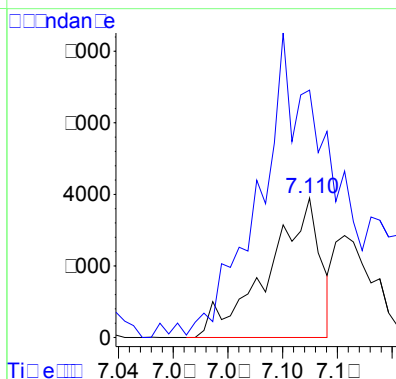
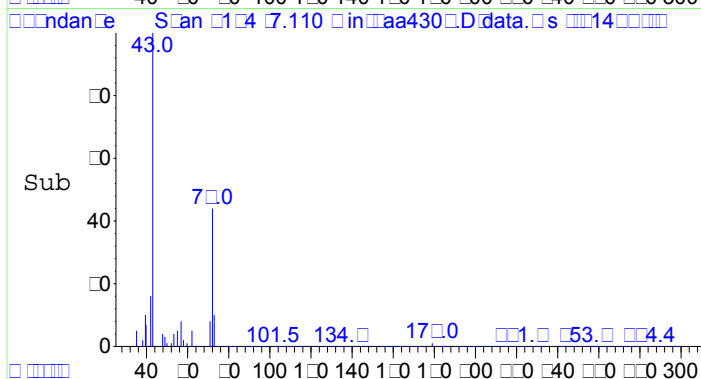
#24
1,2-Dichloroethene (trans)
Concen: 0.78 ppbV
RT: 6.560 min Scan# 2013
Delta R.T. -0.000 min
Lab File: aa4308.D
Acq: 29 Nov 2017 3:55 pm

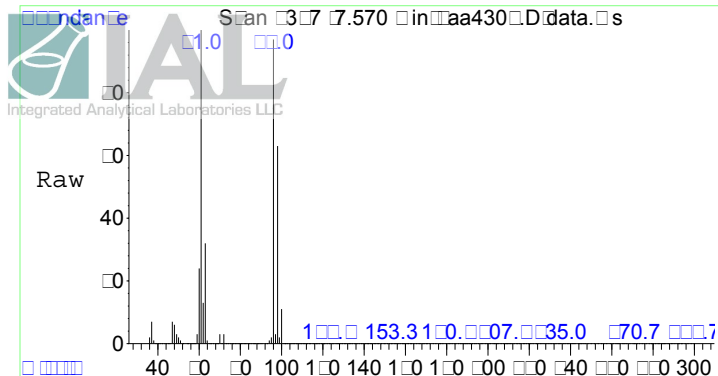
Tgt Ion: 61 Resp: 52552
Ion Ratio Lower Upper
61 100
96 91.6 72.8 109.2



#27
Methyl ethyl ketone
Concen: 0.22 ppbV
RT: 7.110 min Scan# 2184
Delta R.T. 0.016 min
Lab File: aa4308.D
Acq: 29 Nov 2017 3:55 pm

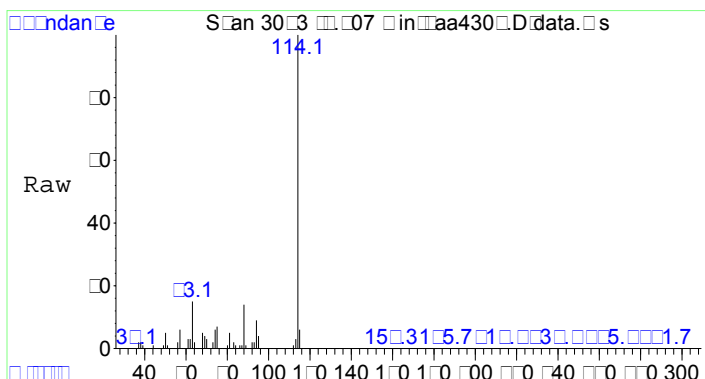
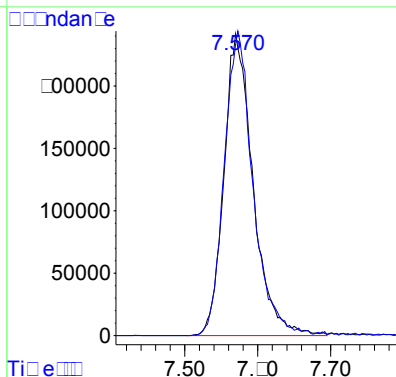
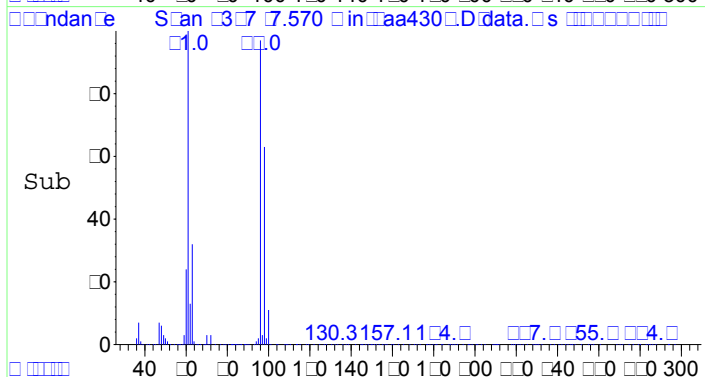
Tgt Ion: 72 Resp: 5122
Ion Ratio Lower Upper
72 100
43 339.2 168.0 252.0#





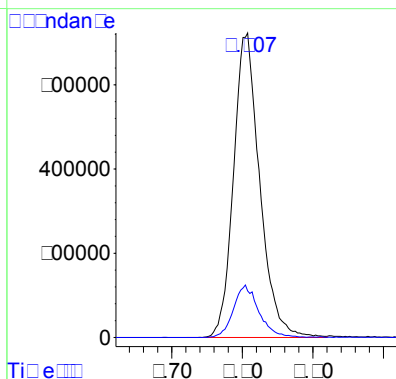
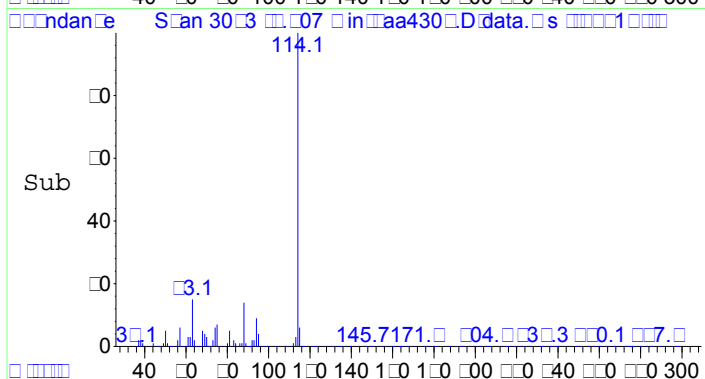
#28
1,2-Dichloroethene (cis)
Concen: 10.03 ppbV
RT: 7.570 min Scan# 2327
Delta R.T. -0.000 min
Lab File: aa4308.D
Acq: 29 Nov 2017 3:55 pm

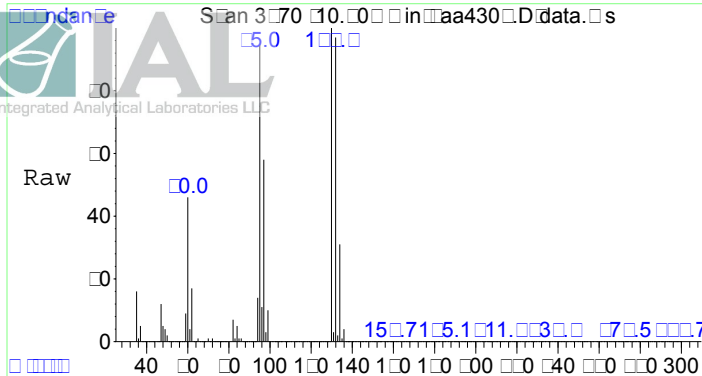
Tgt Ion	61	96	Resp	100	99.7	670601	Lower	Upper



#38
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 9.807 min Scan# 3023
Delta R.T. 0.003 min
Lab File: aa4308.D
Acq: 29 Nov 2017 3:55 pm

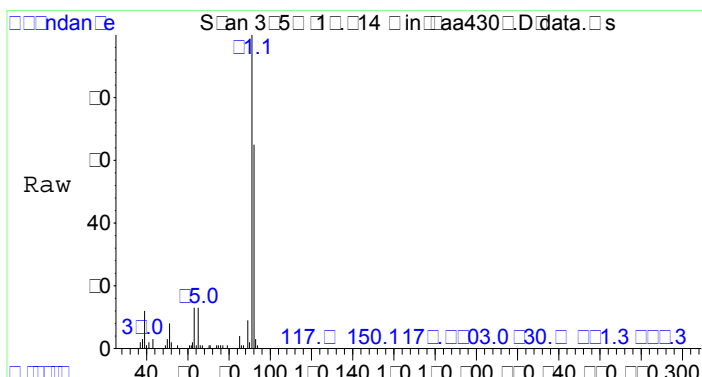
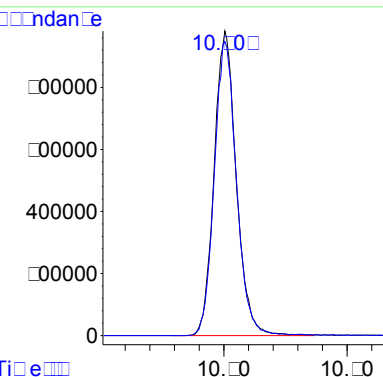
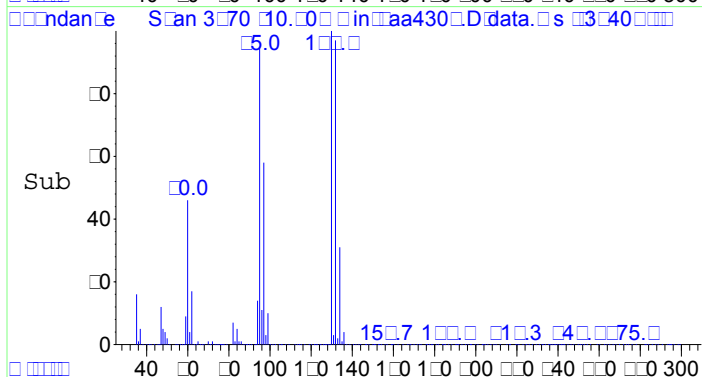
Tgt Ion	114	63	Resp	1864530	100	16.6	Lower	Upper





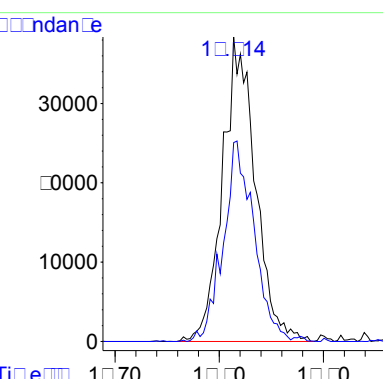
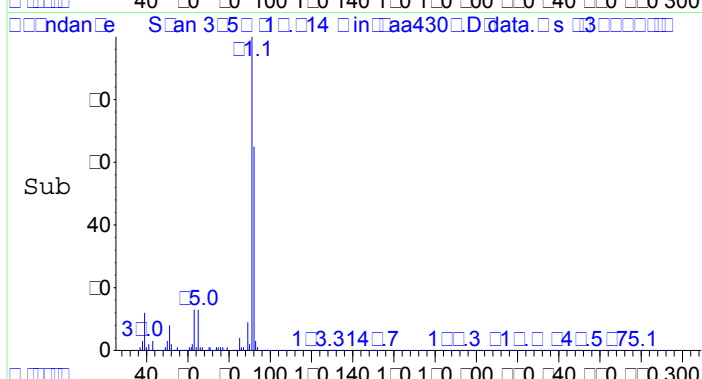
#42
Trichloroethene
Concen: 25.10 ppbV
RT: 10.602 min Scan# 3270
Delta R.T. -0.003 min
Lab File: aa4308.D
Acq: 29 Nov 2017 3:55 pm

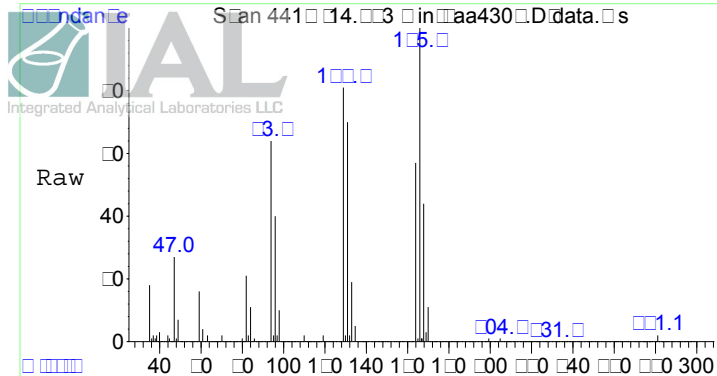
Tgt Ion:130 Resp: 2447850
Ion Ratio Lower Upper
130 100
132 97.0 77.8 116.6



#50
Toluene
Concen: 0.39 ppbV
RT: 12.814 min Scan# 3958
Delta R.T. -0.003 min
Lab File: aa4308.D
Acq: 29 Nov 2017 3:55 pm

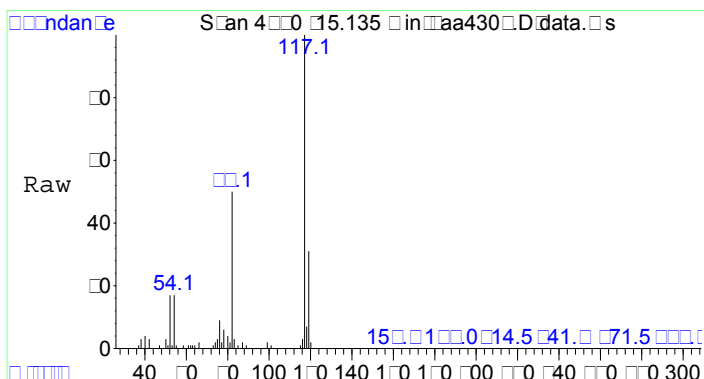
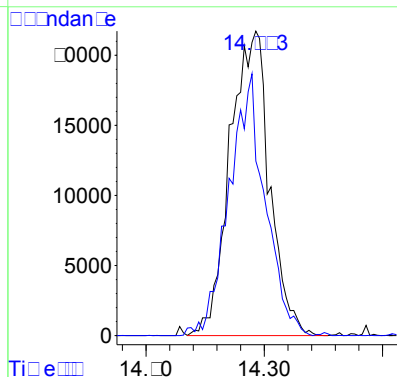
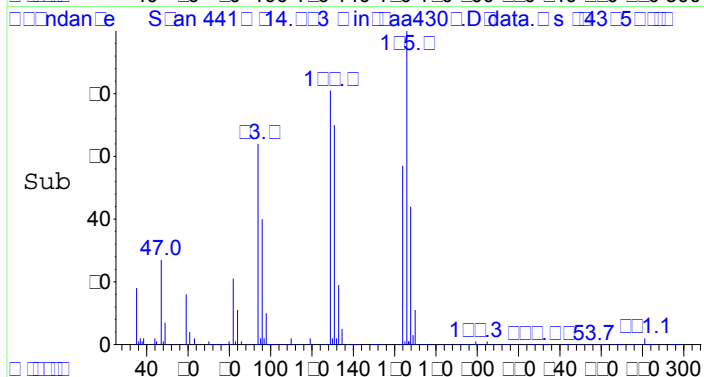
Tgt Ion: 91 Resp: 84059
Ion Ratio Lower Upper
91 100
92 61.4 50.0 75.0





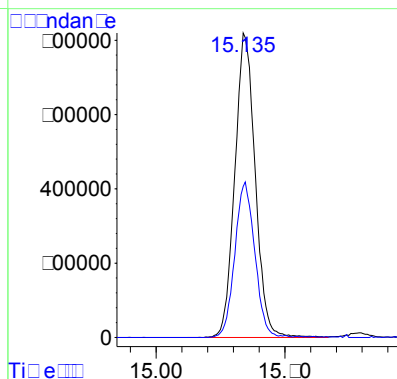
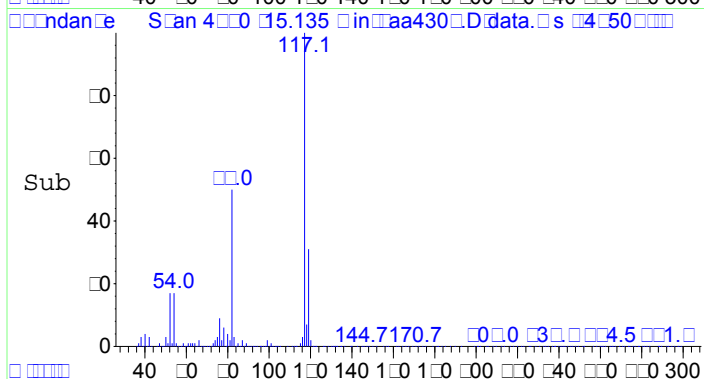
#54
Tetrachloroethene
Concen: 0.42 ppbV
RT: 14.293 min Scan# 4418
Delta R.T. 0.006 min
Lab File: aa4308.D
Acq: 29 Nov 2017 3:55 pm

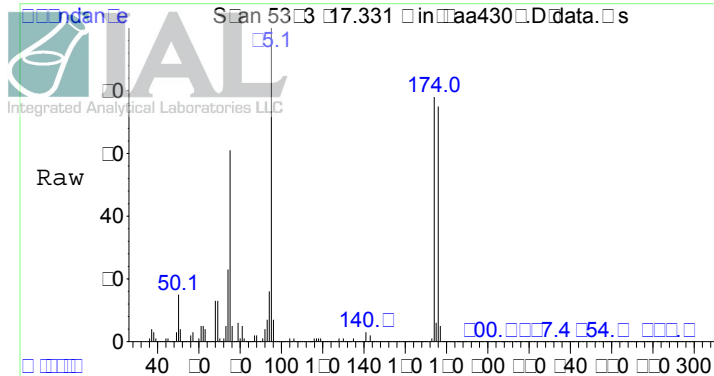
Tgt Ion:166 Resp: 50501
Ion Ratio Lower Upper
166 100
164 78.0 64.6 96.8



#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 15.135 min Scan# 4680
Delta R.T. -0.003 min
Lab File: aa4308.D
Acq: 29 Nov 2017 3:55 pm

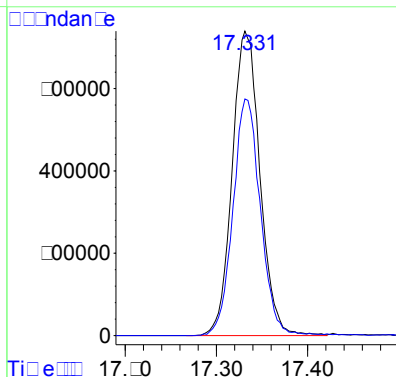
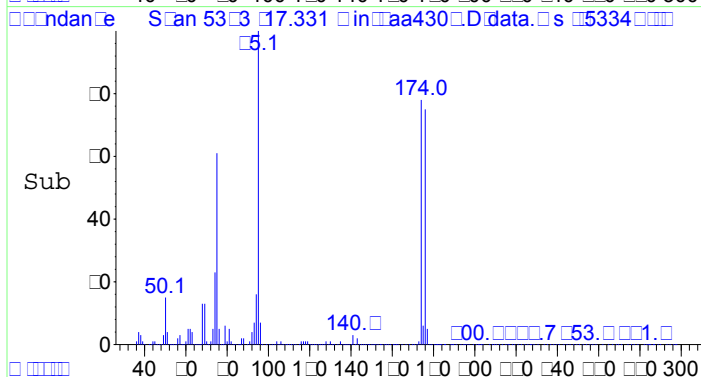
Tgt Ion:117 Resp: 1801295
Ion Ratio Lower Upper
117 100
82 50.0 44.8 67.2





#64
Bromofluorobenzene (tune std)
Concen: 9.94 ppbV
RT: 17.331 min Scan# 5363
Delta R.T. -0.007 min
Lab File: aa4308.D
Acq: 29 Nov 2017 3:55 pm

Tgt Ion: 95 Resp: 1568758
Ion Ratio Lower Upper
95 100
174 77.0 61.5 92.3





Integrated Analytical Laboratories LLC

Summary of Results

Iron Entaste Management Associates
100 Misty Lane
Parsippany, NJ 07054
Attention: Seise
Project: Site #175 - Nya Rd
Site: NY

Report Date: 11/30/17
SD: N/A
Date Sampled: 11/15/17
Date Received: 11/15/17
Date Analyzed: 11/15/17
Data File: 430
Sample ID: 471
D01

Analysis of Organic Compounds by EPA Method TO15

Sample Name:		SS-3		Reporting Limits	
IAL ID:		E17-09837-03			
Compound	CAS #	ppbv	ug/m3	ppbv	ug/m3
Acetone	75-06-6	3		0.0	0.4
Benzene	71-43-2	ND	ND	0.0	0.4
Bromodichloroethane	75-74-4	ND	ND	0.0	1.3
Bromochloroethane	75-55-8	ND	ND	0.0	1.1
Bromoethane	74-83-9	ND	ND	0.0	0.7
1,3-Butadiene	106-99-0	ND	ND	0.0	0.44
Chlorobenzene	108-90-7	ND	ND	0.0	0.0
Chloroethane	75-00-3	ND	ND	0.0	0.53
Chloroform	77-42-3	0.3	1.0	0.0	0.0
Chloroethane	74-87-3	ND	ND	0.0	0.41
Carbon disulfide	75-15-0	ND	ND	0.0	0.0
Carbon tetrachloride	56-23-5	0.0	0.50	0.04	0.5
Cyclohexane	110-82-7	0.31	1.1	0.0	0.0
Dichlorodichloroethane	1464-1	ND	ND	0.0	1.7
1,1-Dichloroethane	107-06-4	ND	ND	0.0	1.5
1,1-Dichlorobenzene	55-50-1	ND	ND	0.0	1.0
1,3-Dichlorobenzene	541-73-1	ND	ND	0.0	1.0
1,4-Dichlorobenzene	106-46-7	ND	ND	0.0	1.0
Dichlorodichloroethane	75-71-1	ND	ND	0.0	0.0
1,1-Dichloroethane	75-34-3	ND	ND	0.0	0.1
1,1-Dichloroethane	107-06-4	ND	ND	0.0	0.1
1,1-Dichloroethane	75-35-4	ND	ND	0.0	0.7
1,1-Dichloroethane cis	1515-000	ND	ND	0.0	0.7
1,1-Dichloroethane trans	1515-005	ND	ND	0.0	0.7
1,1-Dichloropropane	77-47-5	ND	ND	0.0	0.0
1,3-Dichloropropene cis	100-101-5	ND	ND	0.0	0.1
1,3-Dichloropropene trans	100-100-0	ND	ND	0.0	0.1
1,1-Dichlorotetrahydroethane	77-14-0	ND	ND	0.0	1.4
1,4-Dioxane	123-11-1	ND	ND	0.0	0.7
Diethylbenzene	100-41-4	0.4	1.0	0.0	0.7
Heptane	14-00-5	ND	ND	0.0	0.0
1,3-Hexadiene	77-47-3	ND	ND	0.0	1.1
Hexane	110-54-3	1.5	5.0	0.0	0.71
Methylene chloride	75-07-0	1.0	3.0	0.0	0.70
Methylcyclopentane	77-33-3	14	41	0.0	0.5
Methylisocyclopentane	10-10-1	0.0	0.0	0.0	0.0
Methyltertbutyl ether	134-04-4	ND	ND	0.0	0.7
Styrene	100-42-5	ND	ND	0.0	0.5
Tertbutyl alcohol	75-55-0	1.0	4.0	0.0	0.1
1,1,1-Tetrahydroethane	77-34-5	ND	ND	0.0	1.4
Tetrahydroethane	171-04-4	0.3	1.0	0.0	1.4
Toluene	106-98-3	1.7	5.0	0.0	0.75
1,4-Trihydrobenzene	100-00-1	ND	ND	0.0	1.5
1,1,1-Trihydroethane	71-55-0	ND	ND	0.0	1.1
1,1,1-Trihydroethane	77-00-5	ND	ND	0.0	1.1
Trihydroethane	77-01-0	0.5	3.0	0.05	0.5

IAL SDG #E17-09837

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Integrated Analytical Laboratories LLC

Summary of Results

Iron Pentachloride
100 Misty Lane
Parsippany, NJ 07054
John Seise
Project Site 175 Nya Rd
Site NY

Report Date 11/30/17
SD Number 17-0037
Date Sampled 11/15/17
Date Received 11/16/17
Date Analyzed 11/16/17
Data File 430
Sample ID 471
D01

Analysis of Volatile Organic Compounds by EPA Method TO-15

Sample Name:	SS-3	Reporting
IAL ID:	E17-09837-03	Limits
Trichloroethane	75004	ND ND 0.0 1.1
1,1,1-Trichloroethane	70131	ND ND 0.0 1.5
1,4-Dichlorobenzene	5030	1.0 5.1 0.0 0.0
1,3,5-Trichlorobenzene	100070	0.01 1.0 0.0 0.0
1,4-Dichloropentane	540041	ND ND 0.0 0.3
Chloroform	503000	ND ND 0.0 0.7
Chloroform	75014	ND ND 0.0 0.51
Xylenes (m+p)	17001031	1.1 4.0 0.0 0.7
Xylenes (o)	5470	0.34 1.5 0.0 0.7

Data Path : C:\DATA\11-29-17\
 Data File : aa4309.D
 Acq On : 29 Nov 2017 4:29 pm
 Operator : jls
 Sample : E17-09837-03
 Misc : 4871, 500cc
 ALS Vial : 9 Sample Multiplier: 1

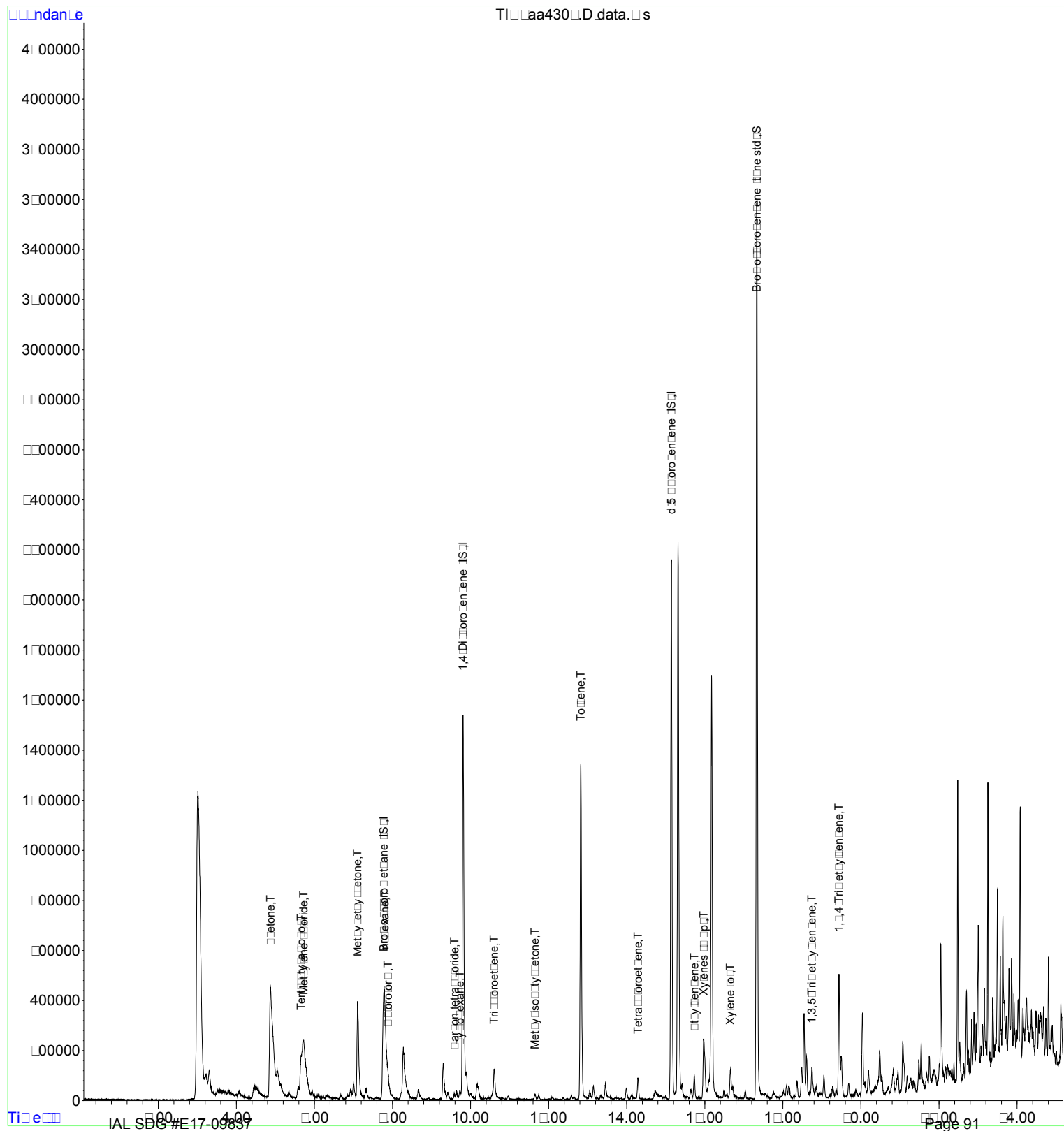
Quant Time: Nov 30 10:09:01 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

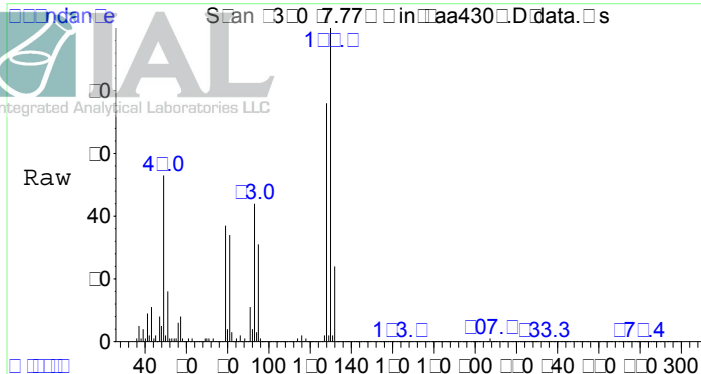
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.772	130	479904	10.00	ppbV	0.03
38) 1,4-Difluorobenzene (IS)	9.804	114	1785995	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.142	117	1723154	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.331	95	1542691	10.22	ppbV	0.00
Target Compounds						
					Qvalue	
14) Acetone	4.878	58	428191	36.06	ppbV #	35
19) Methylene chloride	5.724	84	279552	6.57	ppbV	86
20) Tert-butyl alcohol	5.656	59	166125	2.10	ppbV	100
27) Methyl ethyl ketone	7.103	72	263608	13.99	ppbV	84
30) n-Hexane	7.798	57	57186	1.46	ppbV #	78
31) Chloroform	7.885	83	52330	0.36	ppbV	99
36) Carbon tetrachloride	9.592	117	16915	0.08	ppbV	97
37) Cyclohexane	9.727	84	18199	0.31	ppbV	93
42) Trichloroethene	10.602	130	55061	0.59	ppbV	96
47) Methyl isobutyl ketone	11.650	43	12556	0.20	ppbV #	60
50) Toluene	12.820	91	1373848	6.70	ppbV	100
54) Tetrachloroethene	14.293	166	26823	0.23	ppbV	97
57) Ethylbenzene	15.733	91	78403	0.24	ppbV	100
58) Xylenes (m&p)	15.971	91	281285	1.05	ppbV	99
61) Xylene (o)	16.656	91	94709	0.34	ppbV #	82
69) 1,3,5-Trimethylbenzene	18.740	105	74382	0.21	ppbV #	79
70) 1,2,4-Trimethylbenzene	19.434	105	350718	1.04	ppbV	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\11-29-17\
 Data File : aa4309.D
 Acq On : 29 Nov 2017 4:29 pm
 Operator : jls
 Sample : E17-09837-03
 Misc : 4871, 500cc
 ALS Vial : 9 Sample Multiplier: 1

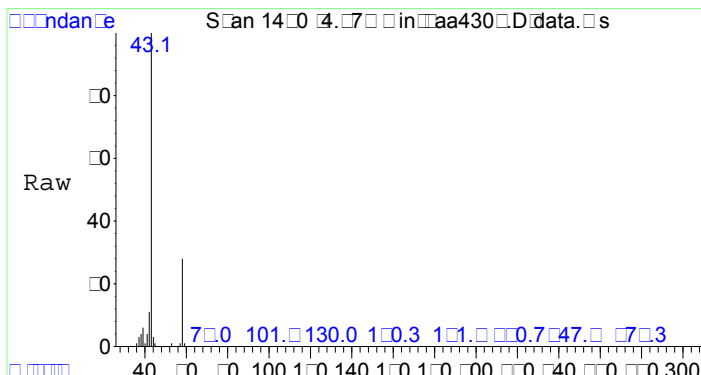
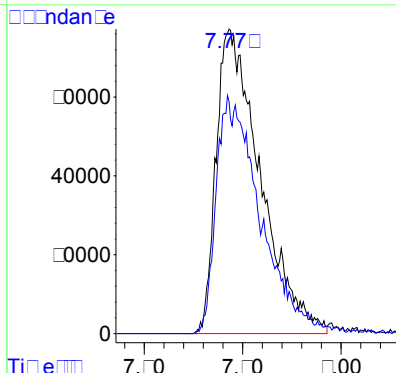
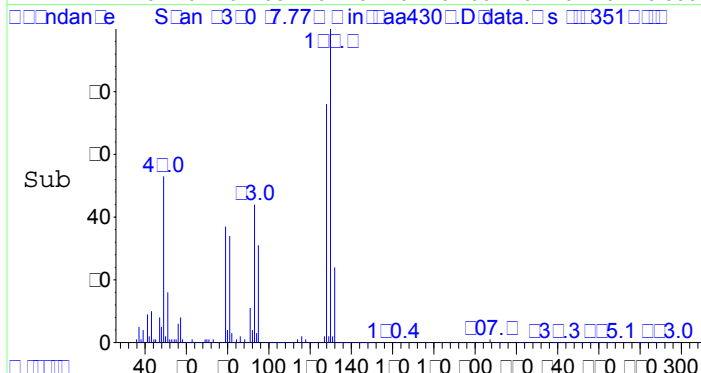
Quant Time: Nov 30 10:09:01 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration





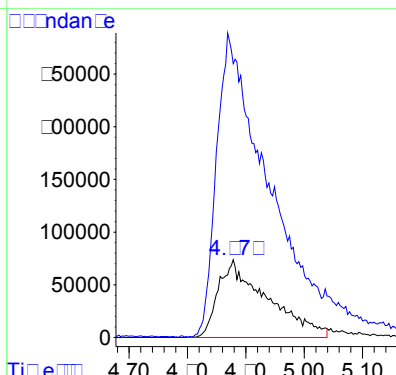
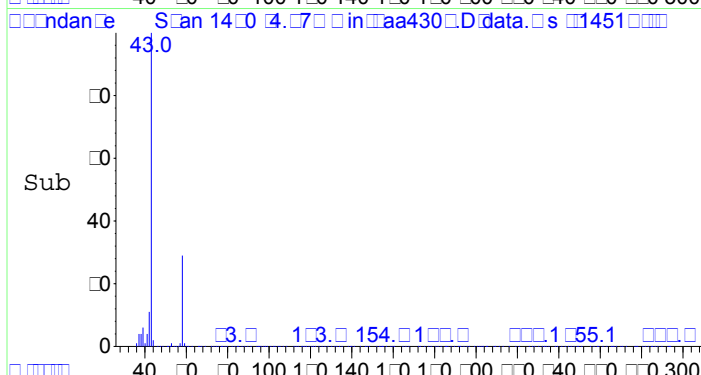
#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 7.772 min Scan# 2390
Delta R.T. 0.025 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

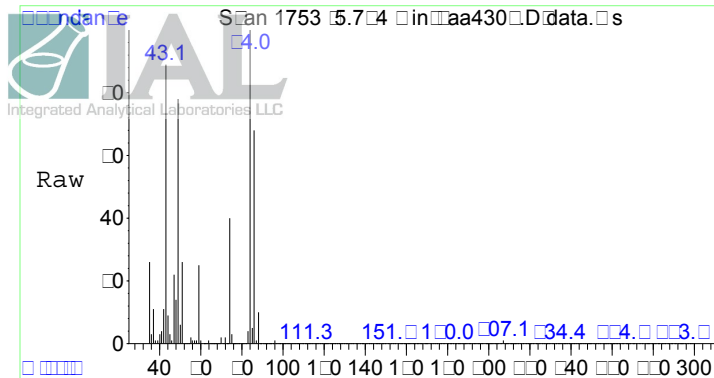
Tgt Ion:130 Resp: 479904
Ion Ratio Lower Upper
130 100
128 77.8 62.6 94.0



#14
Acetone
Concen: 36.06 ppbV
RT: 4.878 min Scan# 1490
Delta R.T. 0.026 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

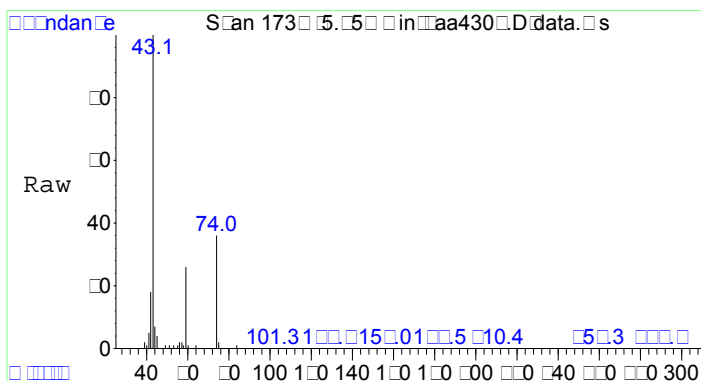
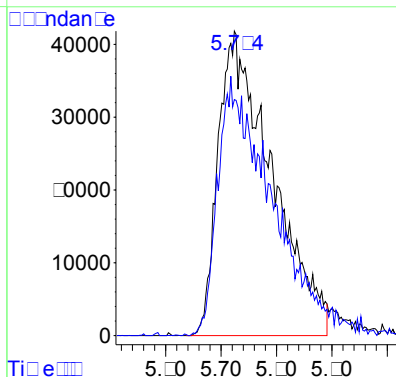
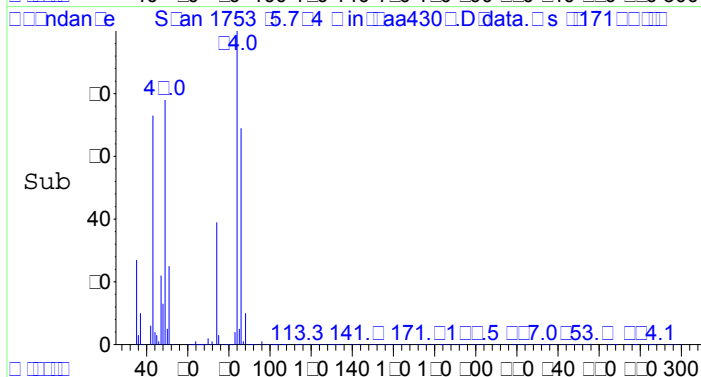
Tgt Ion: 58 Resp: 428191
Ion Ratio Lower Upper
58 100
43 410.2 229.6 344.4#





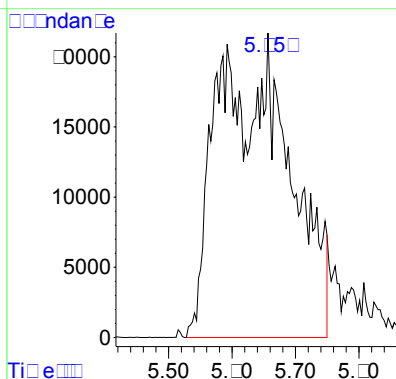
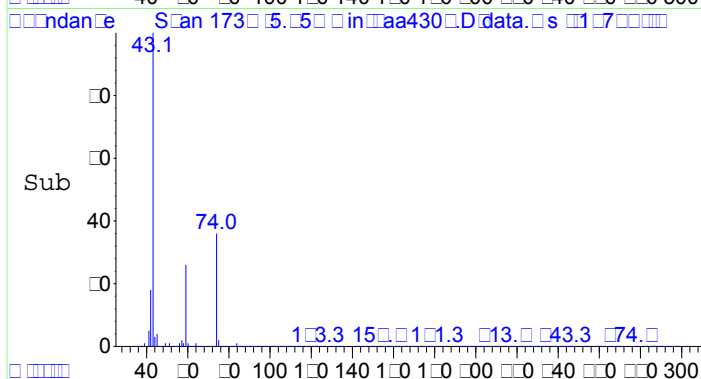
#19
Methylene chloride
Concen: 6.57 ppbV
RT: 5.724 min Scan# 1753
Delta R.T. 0.019 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

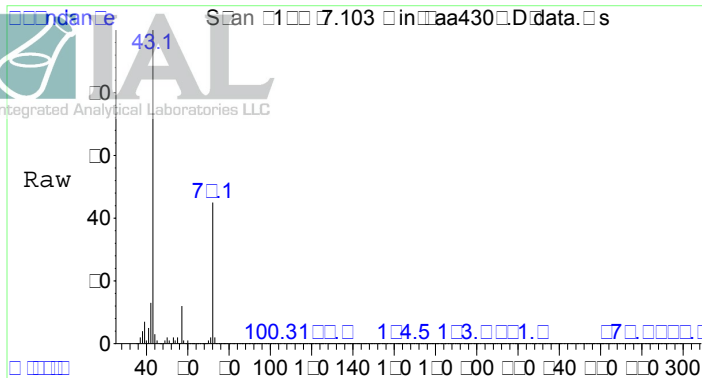
Tgt Ion: 84 Resp: 279552
Ion Ratio Lower Upper
84 100
49 83.4 57.6 86.4



#20
Tert-butyl alcohol
Concen: 2.10 ppbV
RT: 5.656 min Scan# 1732
Delta R.T. 0.093 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

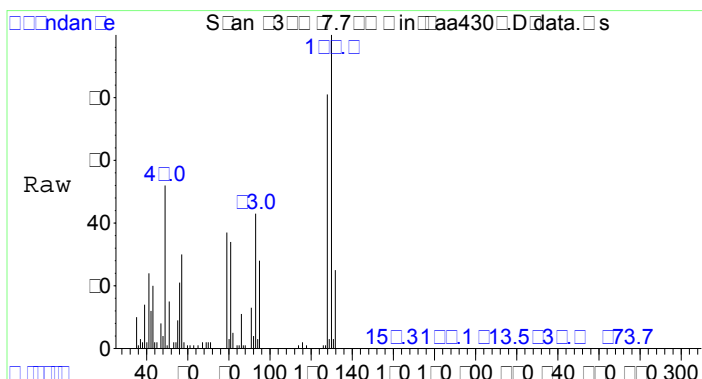
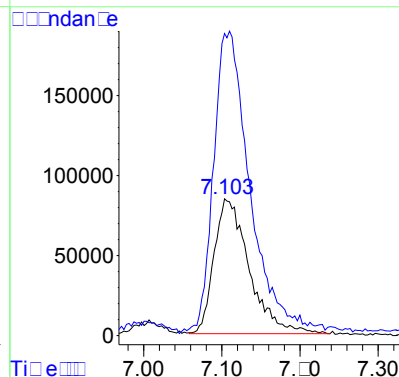
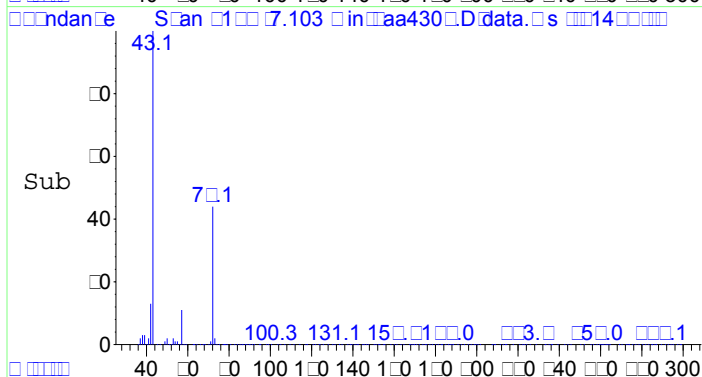
Tgt Ion: 59 Resp: 166125





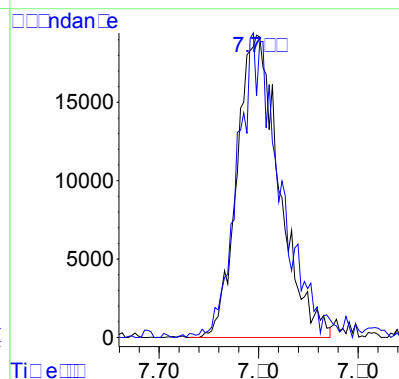
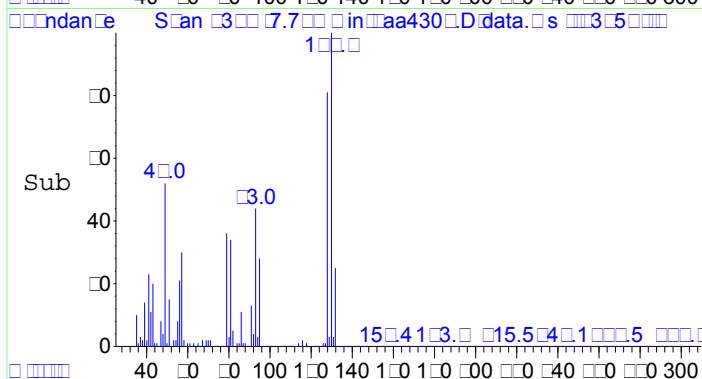
#27
Methyl ethyl ketone
Concen: 13.99 ppbV
RT: 7.103 min Scan# 2182
Delta R.T. 0.009 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

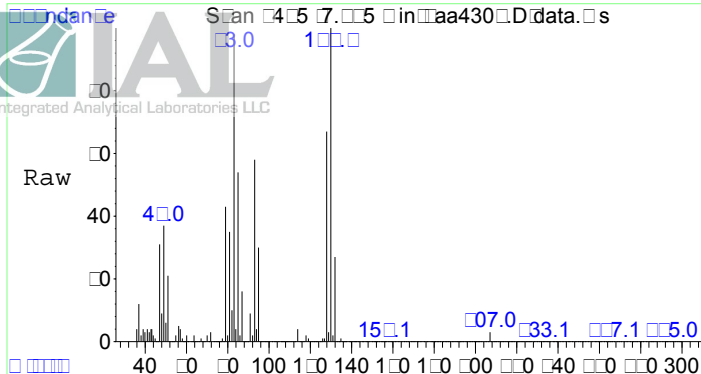
Tgt Ion: 72 Resp: 263608
Ion Ratio Lower Upper
72 100
43 234.3 168.0 252.0



#30
n-Hexane
Concen: 1.46 ppbV
RT: 7.798 min Scan# 2398
Delta R.T. 0.006 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

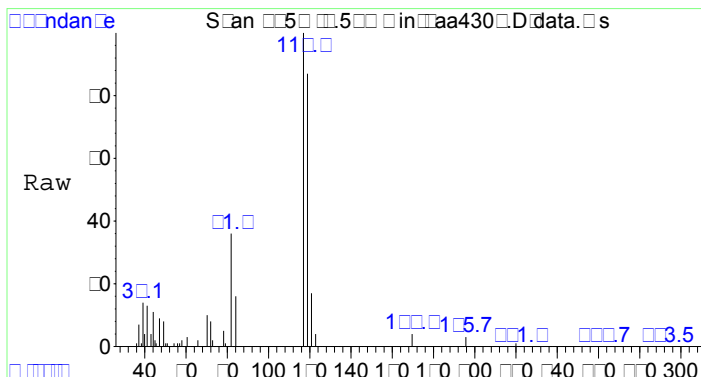
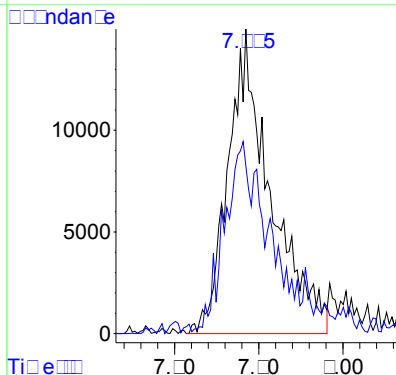
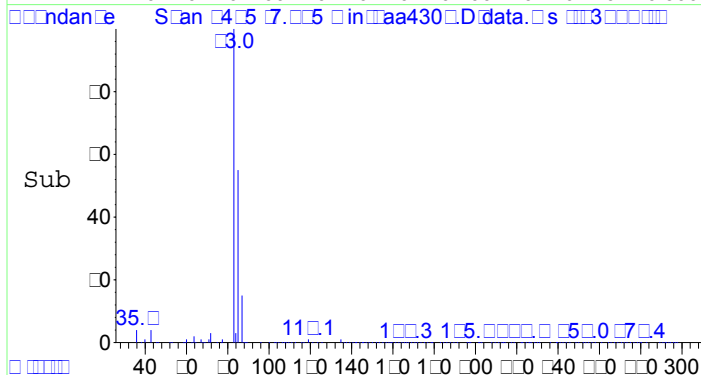
Tgt Ion: 57 Resp: 57186
Ion Ratio Lower Upper
57 100
41 100.1 64.8 97.2#





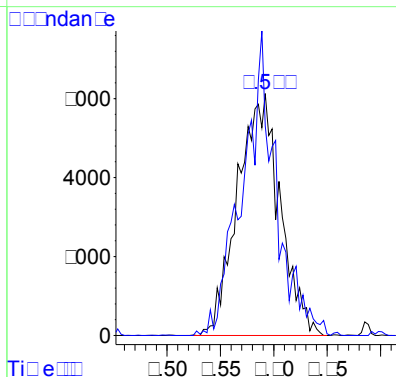
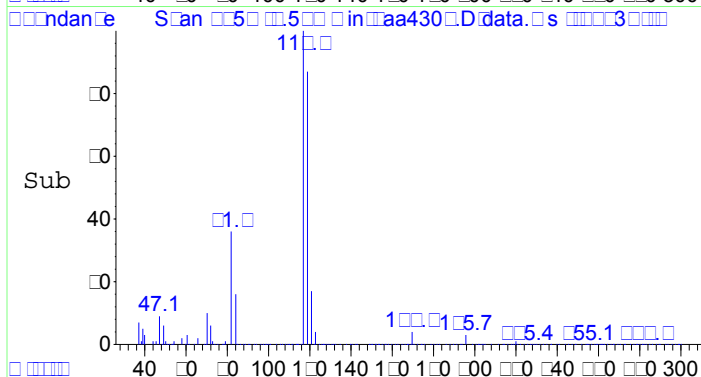
#31
Chloroform
Concen: 0.36 ppbV
RT: 7.885 min Scan# 2425
Delta R.T. 0.016 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

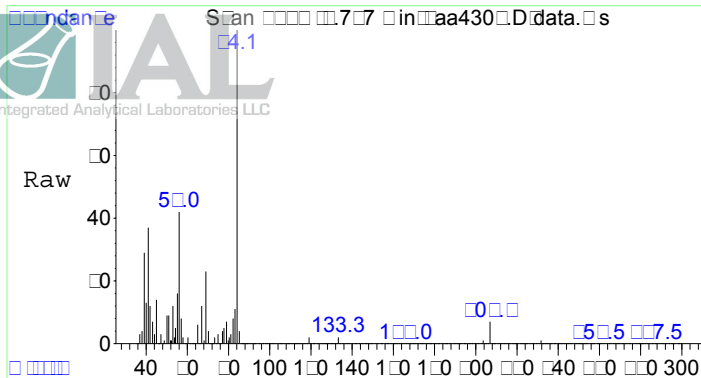
Tgt Ion: 83 Resp: 52330
Ion Ratio Lower Upper
83 100
85 62.7 51.0 76.6



#36
Carbon tetrachloride
Concen: 0.08 ppbV
RT: 9.592 min Scan# 2956
Delta R.T. 0.006 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

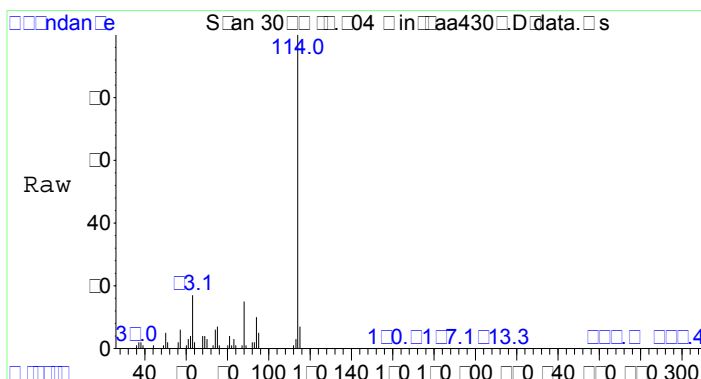
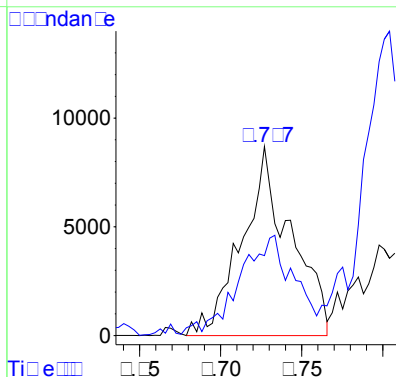
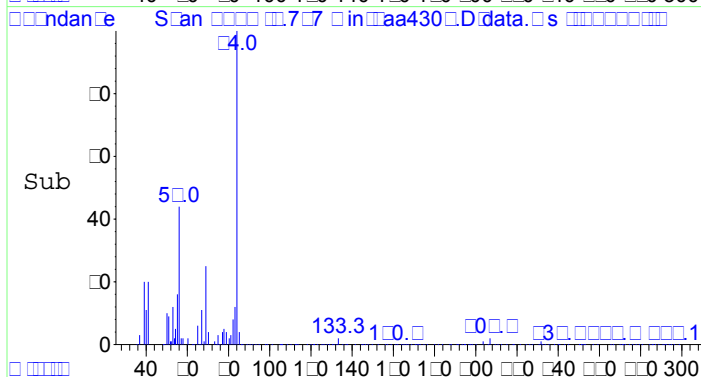
Tgt Ion: 117 Resp: 16915
Ion Ratio Lower Upper
117 100
119 98.8 77.0 115.4





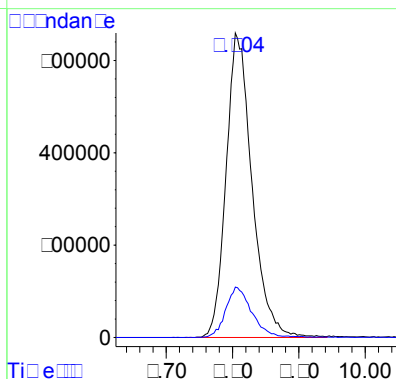
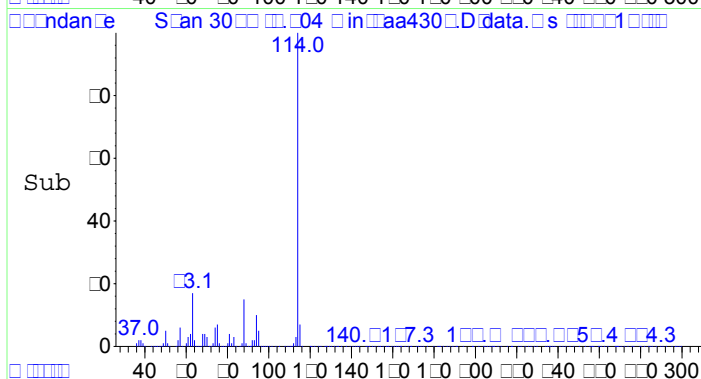
#37
Cyclohexane
Concen: 0.31 ppbV
RT: 9.727 min Scan# 2998
Delta R.T. 0.003 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

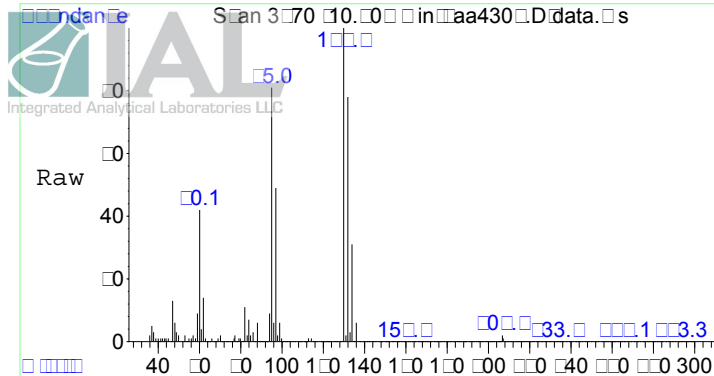
Tgt Ion: 84 Resp: 18199
Ion Ratio Lower Upper
84 100
56 53.5 47.2 70.8



#38
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 9.804 min Scan# 3022
Delta R.T. -0.000 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

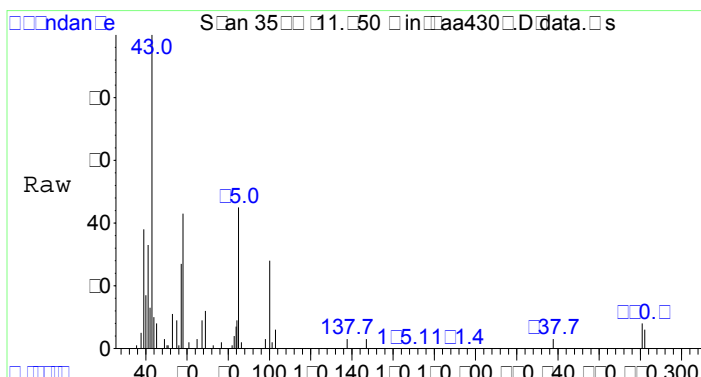
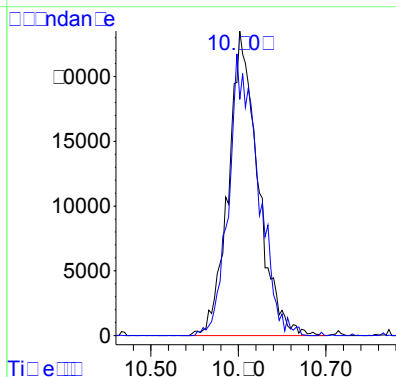
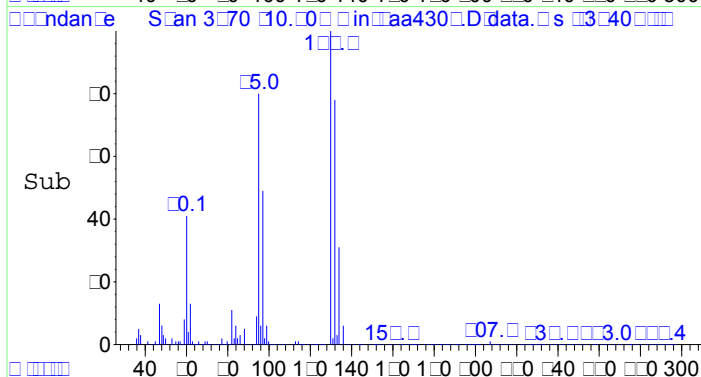
Tgt Ion: 114 Resp: 1785995
Ion Ratio Lower Upper
114 100
63 16.8 14.4 21.6





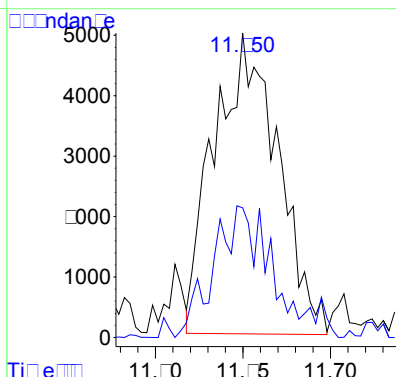
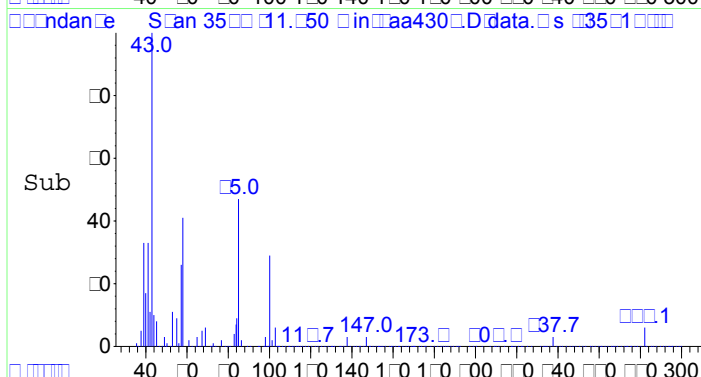
#42
Trichloroethene
Concen: 0.59 ppbV
RT: 10.602 min Scan# 3270
Delta R.T. -0.003 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

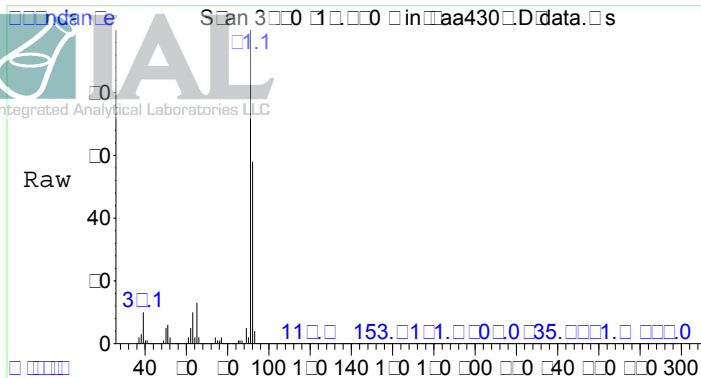
Tgt Ion:130 Resp: 55061
Ion Ratio Lower Upper
130 100
132 93.2 77.8 116.6



#47
Methyl isobutyl ketone
Concen: 0.20 ppbV
RT: 11.650 min Scan# 3596
Delta R.T. 0.013 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

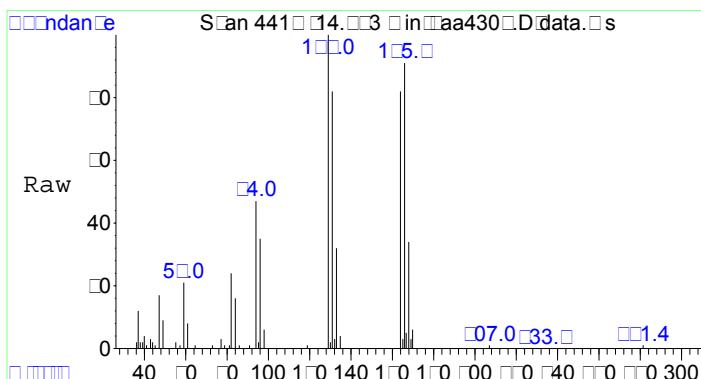
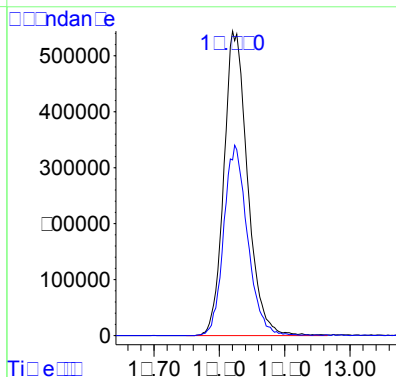
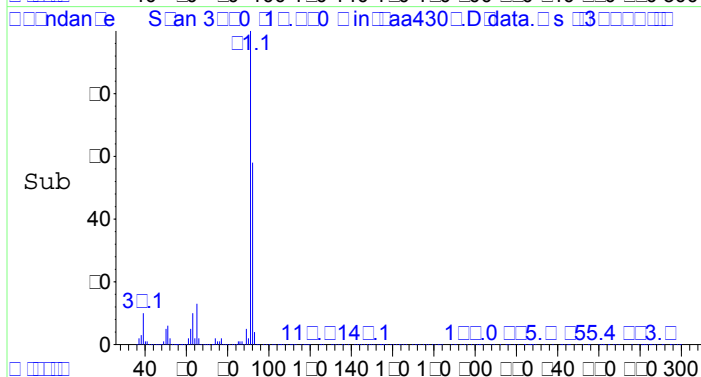
Tgt Ion: 43 Resp: 12556
Ion Ratio Lower Upper
43 100
58 20.7 38.4 57.6#





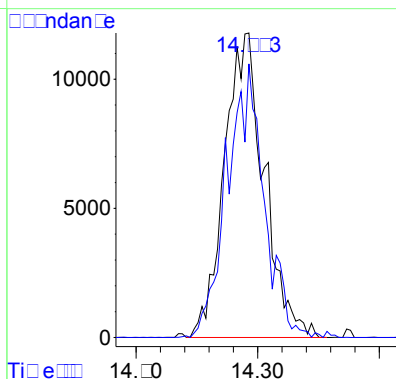
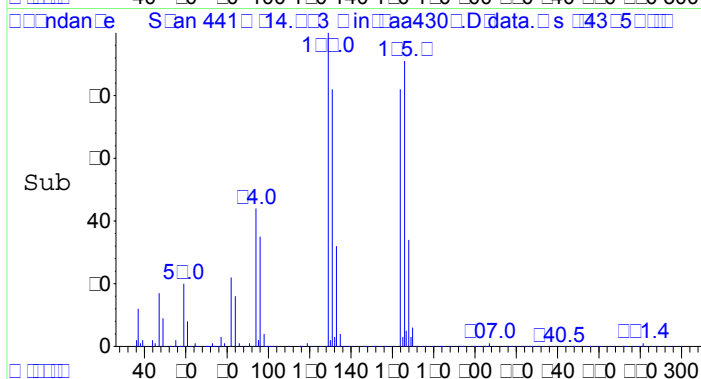
#50
Toluene
Concen: 6.70 ppbV
RT: 12.820 min Scan# 3960
Delta R.T. 0.003 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

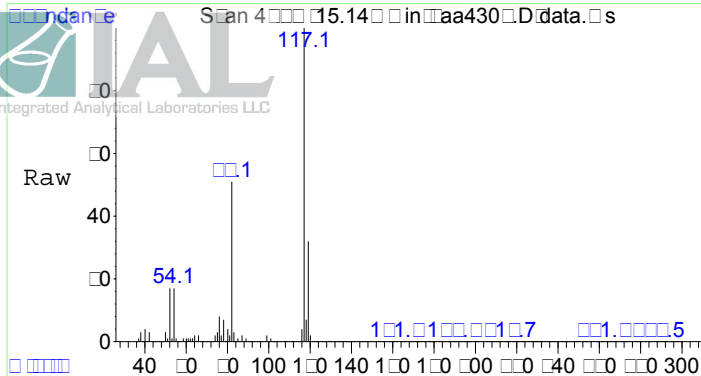
Tgt Ion: 91 Resp: 1373848
Ion Ratio Lower Upper
91 100
92 62.5 50.0 75.0



#54
Tetrachloroethene
Concen: 0.23 ppbV
RT: 14.293 min Scan# 4418
Delta R.T. 0.006 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

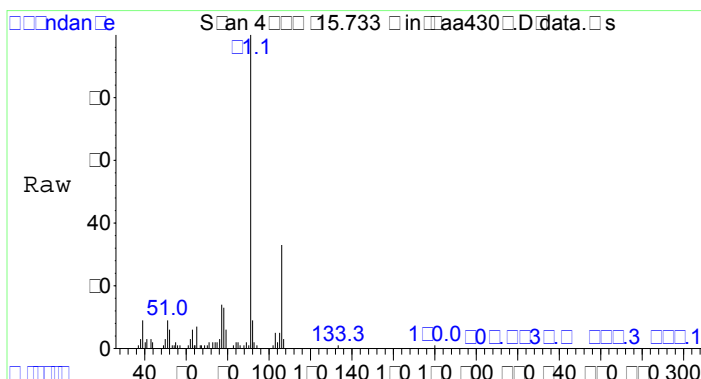
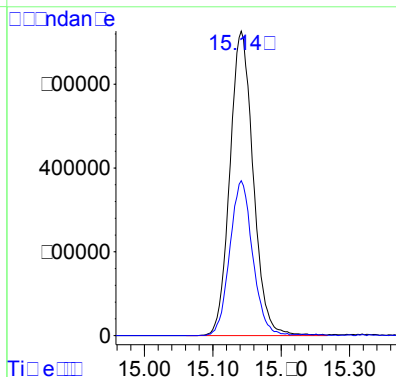
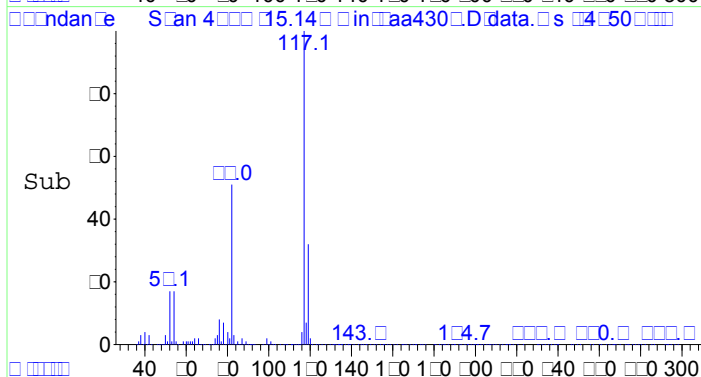
Tgt Ion: 166 Resp: 26823
Ion Ratio Lower Upper
166 100
164 83.4 64.6 96.8





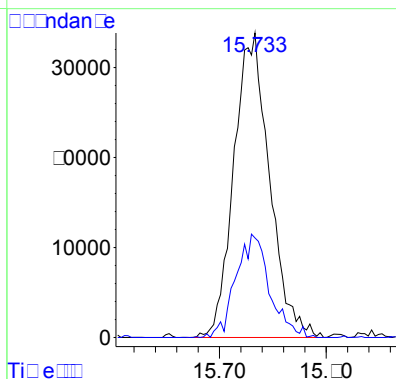
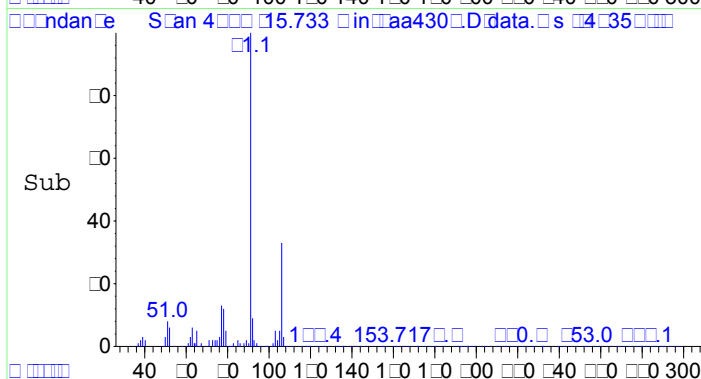
#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 15.142 min Scan# 4682
Delta R.T. 0.003 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

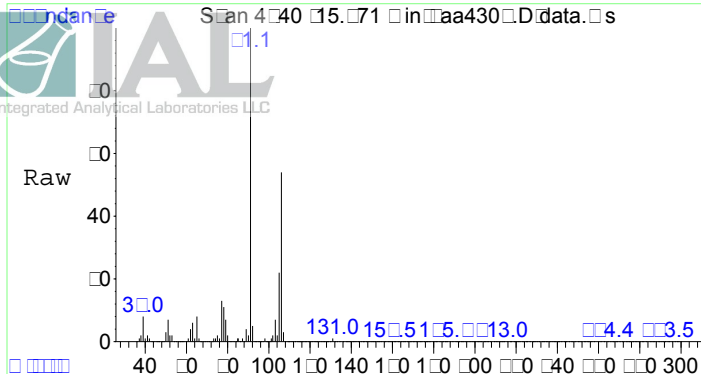
Tgt Ion: 117 Resp: 1723154
Ion Ratio Lower Upper
117 100
82 50.0 44.8 67.2



#57
Ethylbenzene
Concen: 0.24 ppbV
RT: 15.733 min Scan# 4866
Delta R.T. -0.000 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

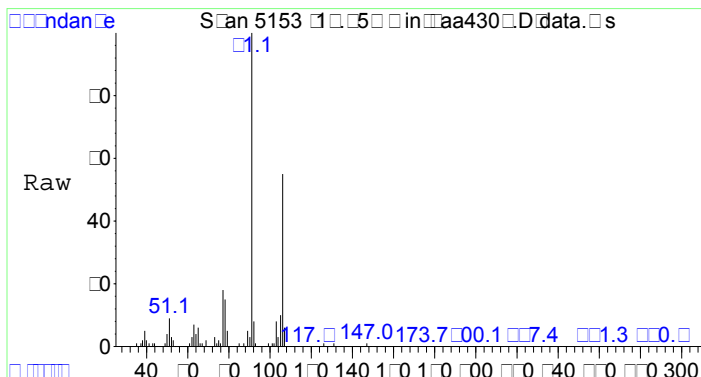
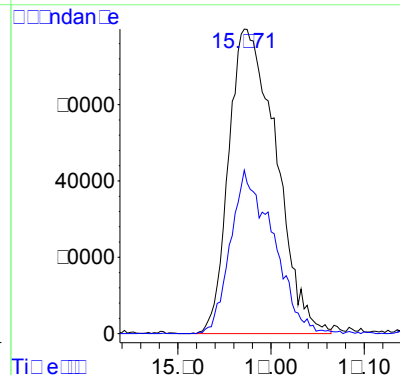
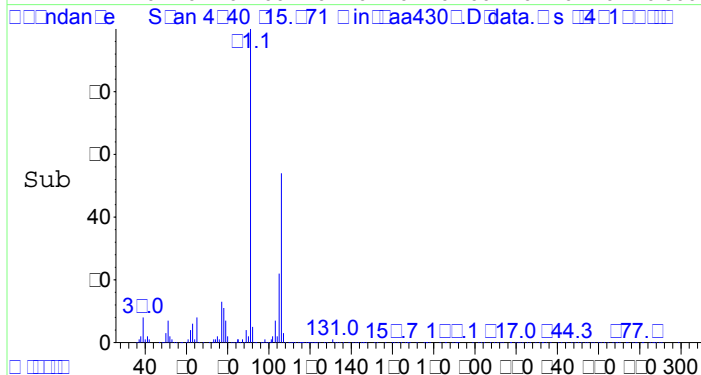
Tgt Ion: 91 Resp: 78403
Ion Ratio Lower Upper
91 100
106 32.1 25.6 38.4





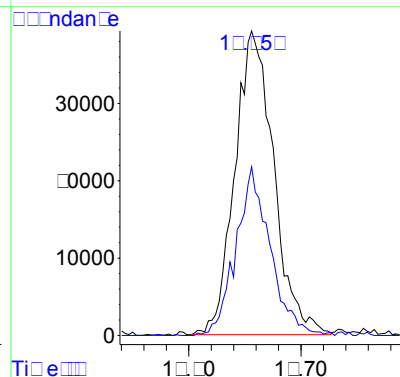
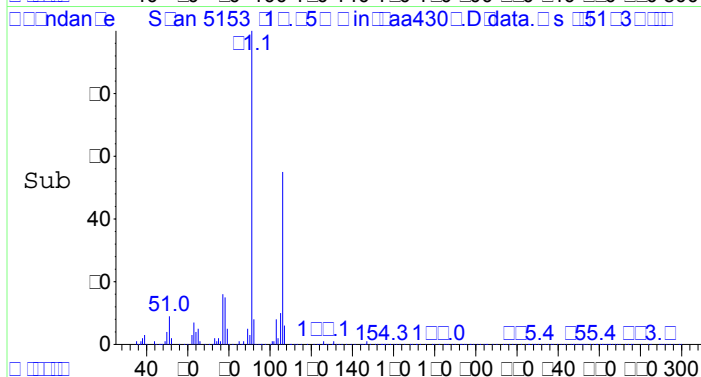
#58
Xylenes (m&p)
Concen: 1.05 ppbV
RT: 15.971 min Scan# 4940
Delta R.T. -0.032 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

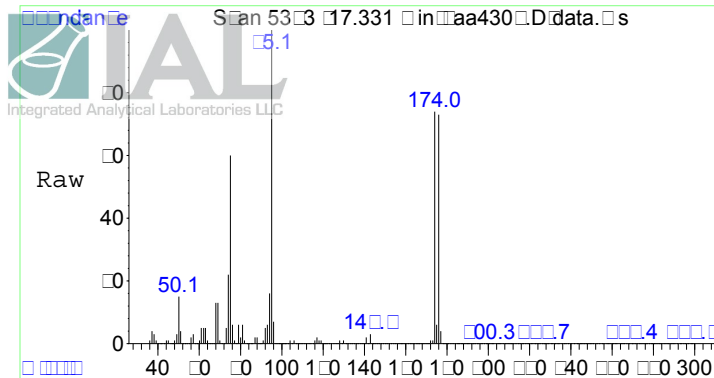
Tgt Ion	91	106	Resp	281285	Lower	Upper
Ion Ratio	100	48.4	39.2	58.8		



#61
Xylene (o)
Concen: 0.34 ppbV
RT: 16.656 min Scan# 5153
Delta R.T. -0.003 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

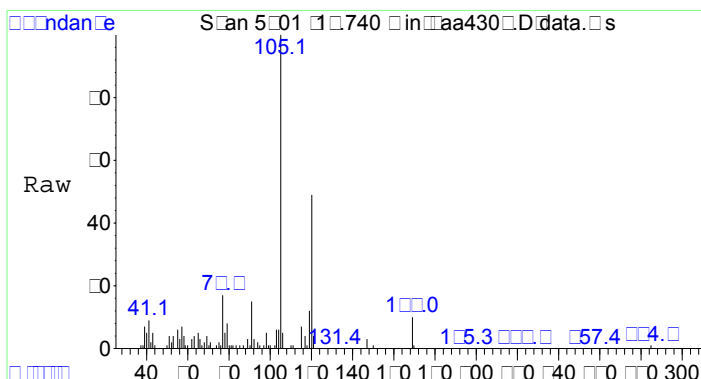
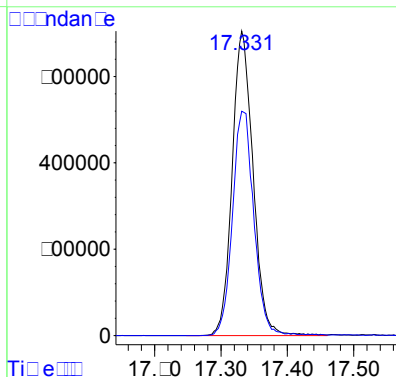
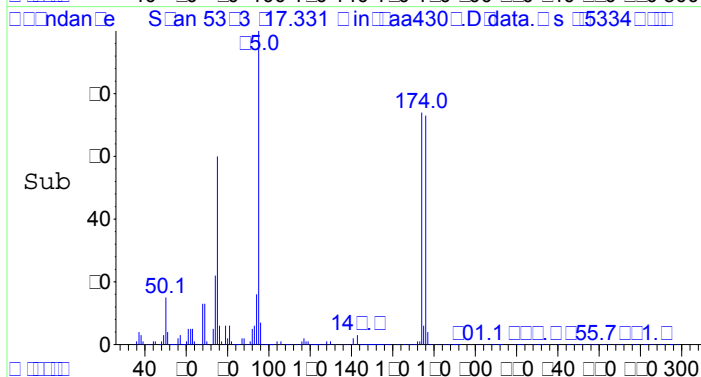
Tgt Ion	91	106	Resp	94709	Lower	Upper
Ion Ratio	100	48.7	30.4	45.6#		





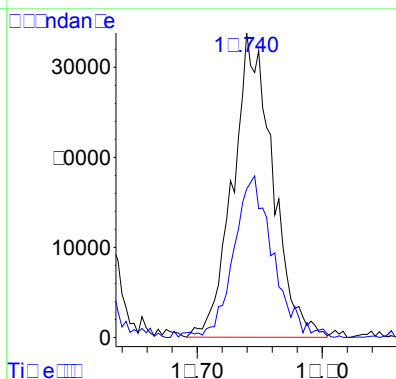
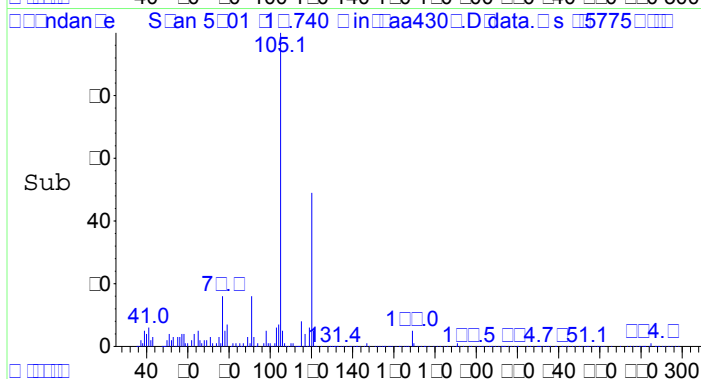
#64
Bromofluorobenzene (tune std)
Concen: 10.22 ppbV
RT: 17.331 min Scan# 5363
Delta R.T. -0.007 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

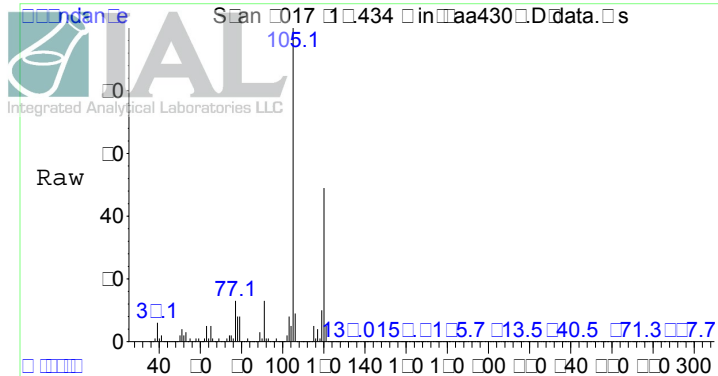
Tgt Ion: 95 Resp: 1542691
Ion Ratio Lower Upper
95 100
174 75.2 61.5 92.3



#69
1,3,5-Trimethylbenzene
Concen: 0.21 ppbV
RT: 18.740 min Scan# 5801
Delta R.T. -0.016 min
Lab File: aa4309.D
Acq: 29 Nov 2017 4:29 pm

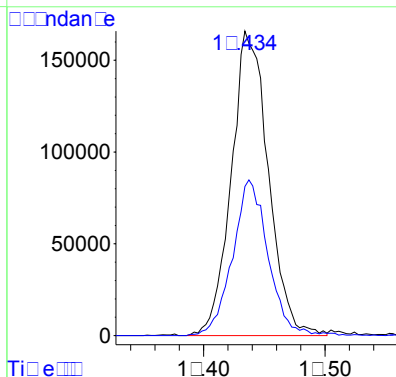
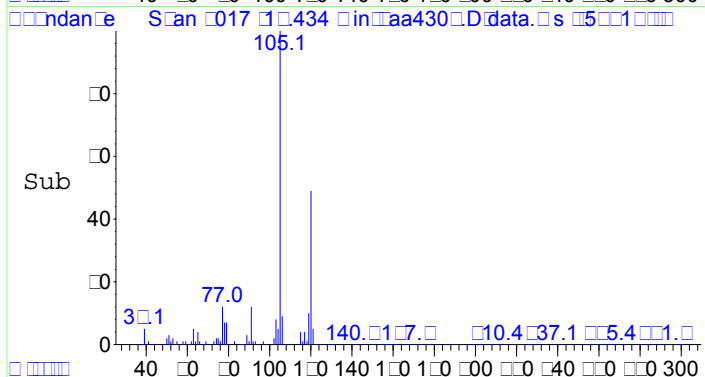
Tgt Ion: 105 Resp: 74382
Ion Ratio Lower Upper
105 100
120 51.7 31.2 46.8#





#70
 1,2,4-Trimethylbenzene
 Concen: 1.04 ppbV
 RT: 19.434 min Scan# 6017
 Delta R.T. -0.016 min
 Lab File: aa4309.D
 Acq: 29 Nov 2017 4:29 pm

Tgt Ion:105 Resp: 350718
 Ion Ratio Lower Upper
 105 100
 120 49.2 36.0 54.0





Integrated Analytical Laboratories LLC

Summary of Results

Iron Entaste Management Associates
100 Misty Lane
Parsippany, NJ 07054
Attention: Seise
Project: Site #175 - Nya Rd
Site: NY

Report Date: 11/30/17
SD: N/A
Date Sampled: 11/15/17
Date Received: 11/16/17
Date Analyzed: 11/16/17
Data File: 4310
Sample ID: 753
D: 1

Analysis of Organic Compounds by EPA Method TO-15

Sample Name:		SS-4		Reporting Limits	
IAL ID:		E17-09837-04			
Compound	CAS #	ppbv	ug/m3	ppbv	ug/m3
Acetone	75-06-6	1	45	0.0	0.4
Benzene	71-43-2	ND	ND	0.0	0.4
Bromodichloroethane	75-74-4	ND	ND	0.0	1.3
Bromochloroethane	75-55-8	ND	ND	0.0	1.1
Bromochloroethane	74-33-3	ND	ND	0.0	0.7
1,3-Butadiene	106-99-0	ND	ND	0.0	0.44
Chlorobenzene	106-89-7	ND	ND	0.0	0.0
Chloroethane	75-00-3	ND	ND	0.0	0.53
Chloroform	75-07-0	ND	ND	0.0	0.0
Chloroethane	74-71-3	ND	ND	0.0	0.41
Carbon disulfide	75-15-0	0.45	1.4	0.0	0.0
Carbon tetrachloride	50-49-8	0.0	0.3	0.04	0.5
Cyclohexane	110-82-7	ND	ND	0.0	0.0
Dichlorodichloroethane	1464-1	ND	ND	0.0	1.7
1,1-Dichloroethane	106-63-4	ND	ND	0.0	1.5
1,1-Dichloroethene	5550-1	ND	ND	0.0	1.0
1,3-Dichloroethene	541-73-1	ND	ND	0.0	1.0
1,4-Dichloroethene	106-47-7	ND	ND	0.0	1.0
Dichlorodichloroethane	75-71-1	ND	ND	0.0	0.0
1,1-Dichloroethane	75-34-3	ND	ND	0.0	0.1
1,1-Dichloroethane	107-06-6	ND	ND	0.0	0.1
1,1-Dichloroethene	75-35-4	ND	ND	0.0	0.7
1,1-Dichloroethene cis	1555-0	ND	ND	0.0	0.7
1,1-Dichloroethene trans	1555-0-5	ND	ND	0.0	0.7
1,1-Dichloropropane	75-71-5	ND	ND	0.0	0.0
1,3-Dichloropropene cis	100-101-5	ND	ND	0.0	0.1
1,3-Dichloropropene trans	100-100-0	ND	ND	0.0	0.1
1,1-Dichlorotetrahydroethane	75-14-0	ND	ND	0.0	1.4
1,4-Dioxane	1464-1	ND	ND	0.0	0.7
Diethylbenzene	100-41-4	0.4	1.0	0.0	0.7
n-Heptane	142-95-5	ND	ND	0.0	0.0
1,3-Hexadiene	75-00-3	ND	ND	0.0	1.1
n-Hexane	110-54-3	1	7.5	0.0	0.71
Methyl ethyl ether	75-00-0	0.4	1.0	0.0	0.70
Methyl ethyl ketone	75-00-3	10	30	0.0	0.5
Methyl isobutyl ketone	100-10-1	ND	ND	0.0	0.0
Methyl tert-butyl ether	1634-04-4	ND	ND	0.0	0.7
Styrene	100-42-5	ND	ND	0.0	0.5
Tetrahydrofuran	75-00-5	ND	ND	0.0	0.1
1,1,1-Tetrahydroethane	75-34-5	ND	ND	0.0	1.4
Tetrahydroethene	1464-1	0.3	1.0	0.0	1.4
Toluene	106-98-3	10	30	0.0	0.75
1,4-Trihydrobenzene	100-00-1	ND	ND	0.0	1.5
1,1,1-Trihydroethane	71-55-0	0.35	1.0	0.0	1.1
1,1,1-Trihydroethane	75-00-5	ND	ND	0.0	1.1
Trihydroethene	75-01-0	ND	ND	0.05	0.5

IAL SDG #E17-09837

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Integrated Analytical Laboratories LLC

Summary of Results

Integrated Analytical Laboratories LLC
100 Misty Lane
Parsippany, NJ 07054
Attn: Sean Seise
Project: Site #175 - Nya Rd
Site: NY

Report Date: 11/30/17
SD: N/A
Date Sampled: 11/15/17
Date Received: 11/16/17
Date Analyzed: 11/16/17
Data File: 4310
Sample ID: 753
D01

Analysis of Volatile Organic Compounds by EPA Method TO-15

Sample Name:	SS-4	Reporting
IAL ID:	E17-09837-04	Limits
Triisobutylbenzene	75004	0.41 0.3 0.0 1.1
1,1,1-Trichloroethane	70131	ND ND 0.0 1.5
1,4-Dichlorobenzene	5030	1.4 7.0 0.0 0.0
1,3,5-Trichlorobenzene	100070	0.30 1.5 0.0 0.0
1,4-Dichloropentane	540041	ND ND 0.0 0.3
Dichloromethane	503000	ND ND 0.0 0.7
Dichloroethane	75014	ND ND 0.0 0.51
Xylenes (m+p)	17001031	1.3 5.5 0.0 0.7
Xylenes (o)	5470	0.41 1.0 0.0 0.7

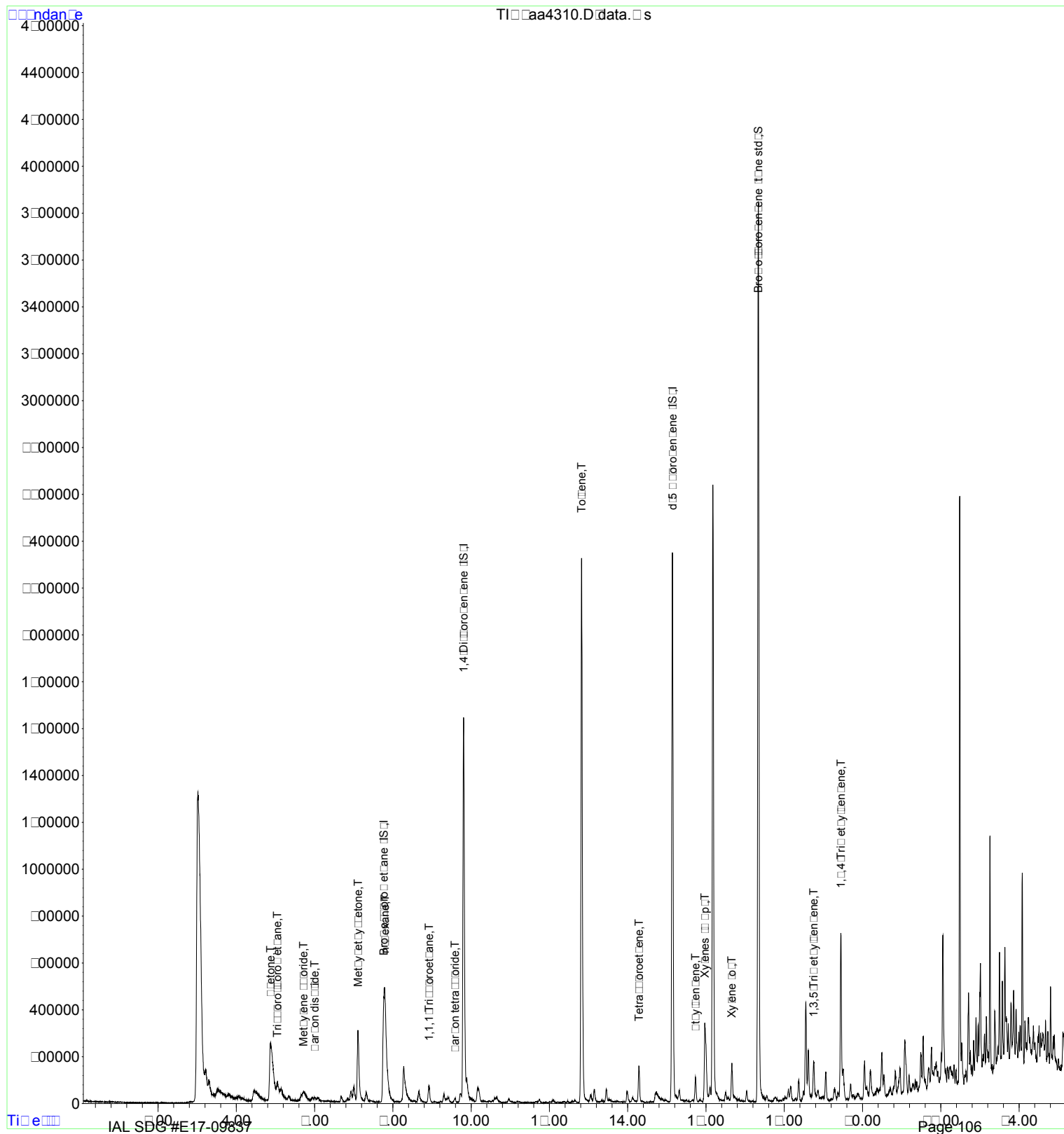
Data Path : C:\DATA\11-29-17\
 Data File : aa4310.D
 Acq On : 29 Nov 2017 5:03 pm
 Operator : jls
 Sample : E17-09837-04
 Misc : 2753, 500cc
 ALS Vial : 10 Sample Multiplier: 1

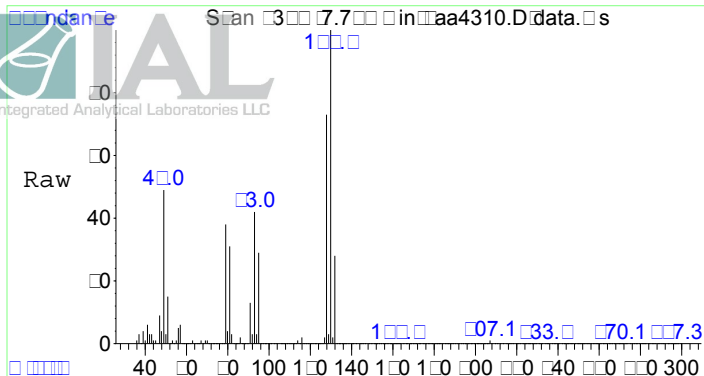
Quant Time: Nov 30 10:11:55 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.766	130	520418	10.00	ppbV	0.02
38) 1,4-Difluorobenzene (IS)	9.807	114	1944157	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.145	117	1912210	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.338	95	1699842	10.15	ppbV	0.00
Target Compounds						
					Qvalue	
14) Acetone	4.875	58	243874	18.94	ppbV #	42
15) Trichlorofluoromethane	5.045	101	104374	0.41	ppbV	88
19) Methylene chloride	5.717	84	29676	0.64	ppbV #	39
23) Carbon disulfide	6.007	76	62240	0.45	ppbV #	74
27) Methyl ethyl ketone	7.110	72	210162	10.29	ppbV	90
30) n-Hexane	7.801	57	90567	2.14	ppbV	92
34) 1,1,1-Trichloroethane	8.923	97	67601	0.35	ppbV	97
36) Carbon tetrachloride	9.589	117	14665	0.06	ppbV	94
50) Toluene	12.823	91	2319745	10.39	ppbV	100
54) Tetrachloroethene	14.289	166	49860	0.39	ppbV	99
57) Ethylbenzene	15.733	91	87580	0.24	ppbV	97
58) Xylenes (m&p)	15.971	91	375687	1.26	ppbV	97
61) Xylene (o)	16.662	91	127211	0.41	ppbV #	87
69) 1,3,5-Trimethylbenzene	18.752	105	115763	0.30	ppbV #	81
70) 1,2,4-Trimethylbenzene	19.447	105	528126	1.42	ppbV	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

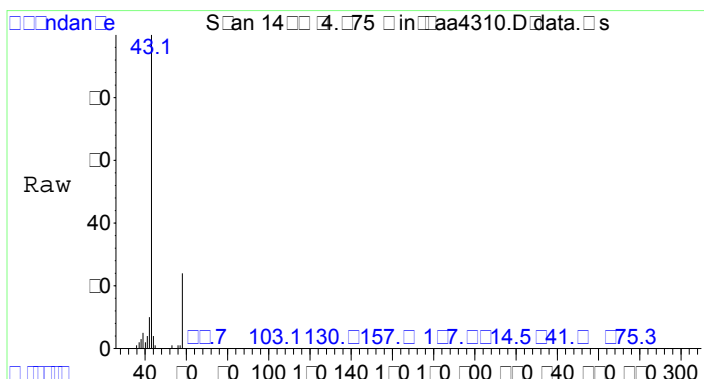
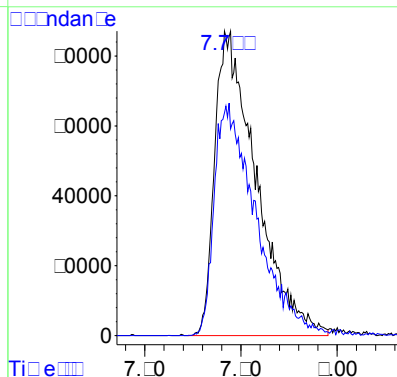
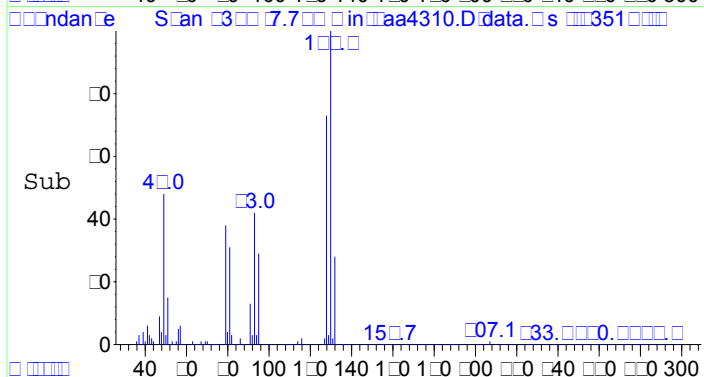
Quant Time: Nov 30 10:11:55 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
Response via : Initial Calibration





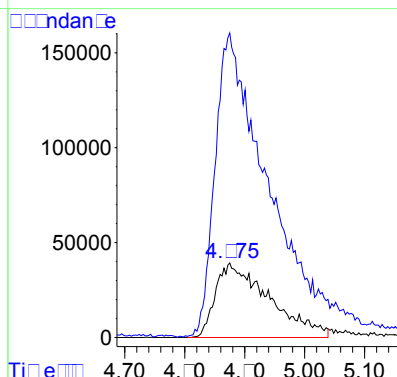
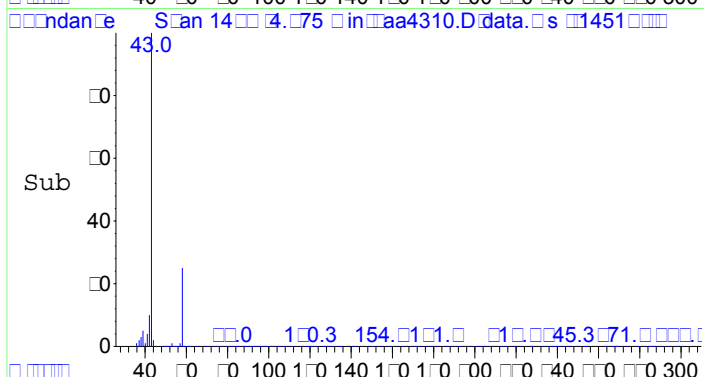
#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 7.766 min Scan# 2388
Delta R.T. 0.019 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

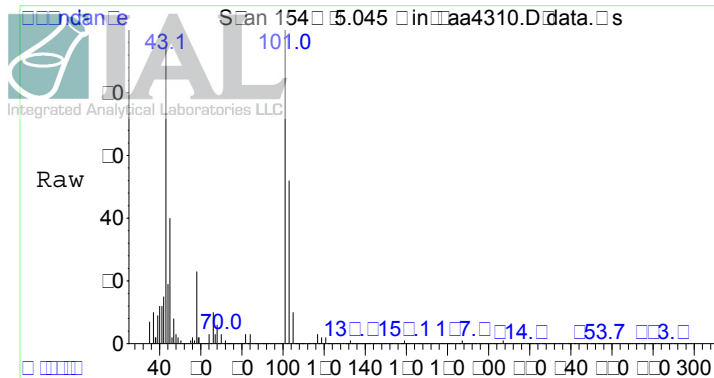
Tgt Ion: 130 Resp: 520418
Ion Ratio Lower Upper
130 100
128 76.6 62.6 94.0



#14
Acetone
Concen: 18.94 ppbV
RT: 4.875 min Scan# 1489
Delta R.T. 0.022 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

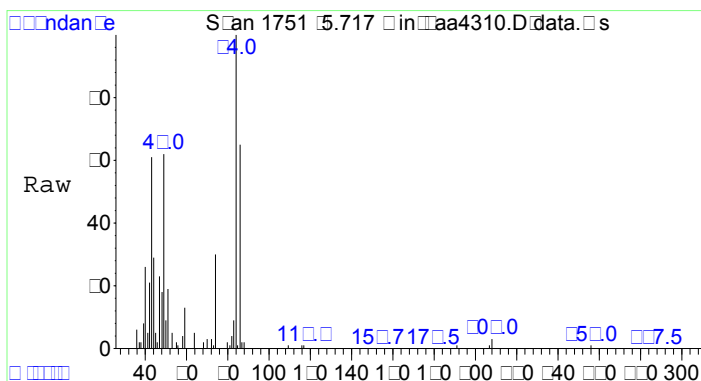
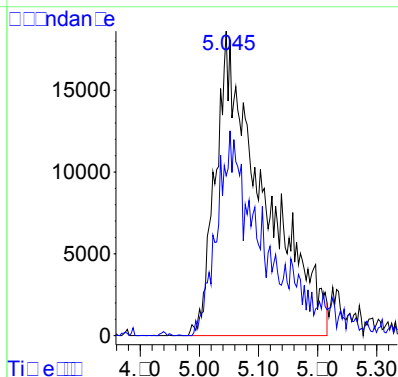
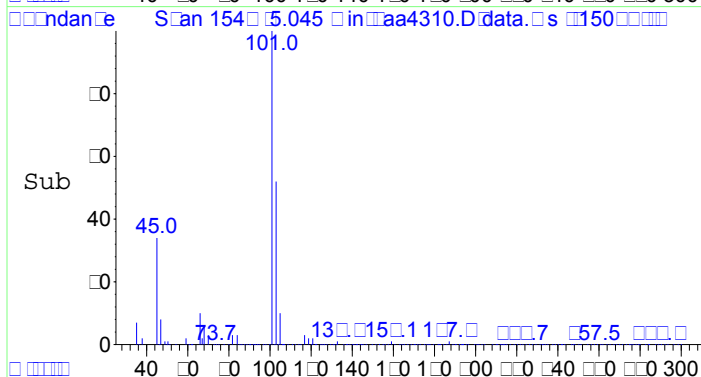
Tgt Ion: 58 Resp: 243874
Ion Ratio Lower Upper
58 100
43 397.6 229.6 344.4#





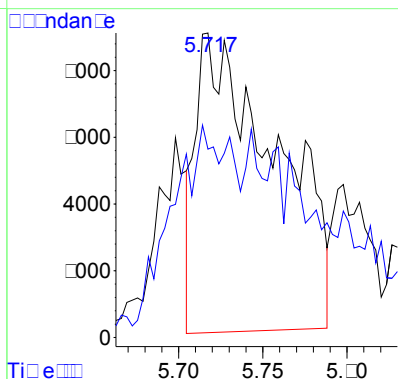
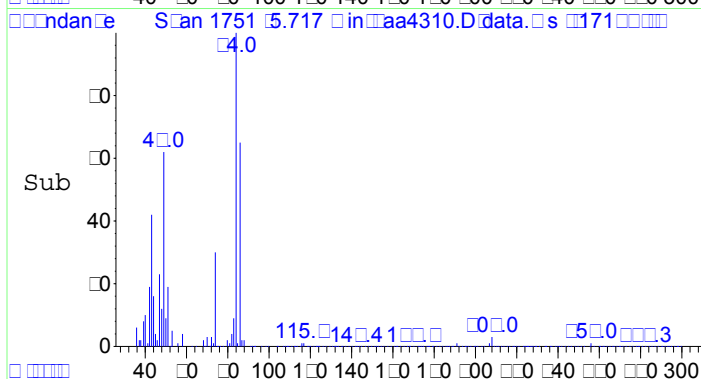
#15
Trichlorofluoromethane
Concen: 0.41 ppbV
RT: 5.045 min Scan# 1542
Delta R.T. 0.016 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

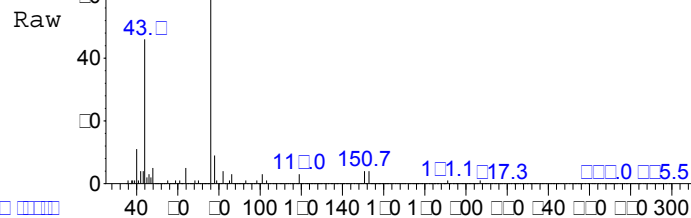
Tgt Ion: 101 Resp: 104374
Ion Ratio Lower Upper
101 100
103 55.7 52.0 78.0



#19
Methylene chloride
Concen: 0.64 ppbV
RT: 5.717 min Scan# 1751
Delta R.T. 0.012 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

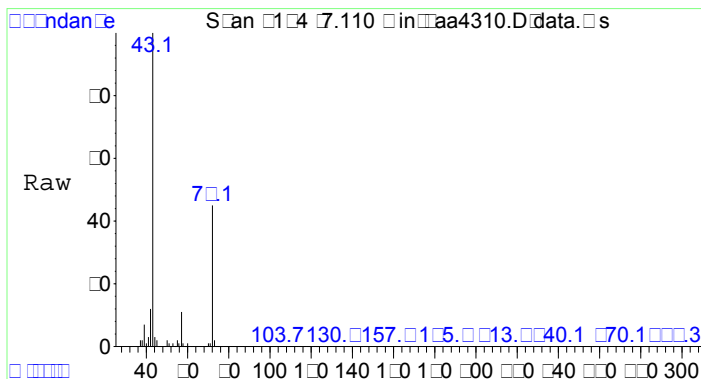
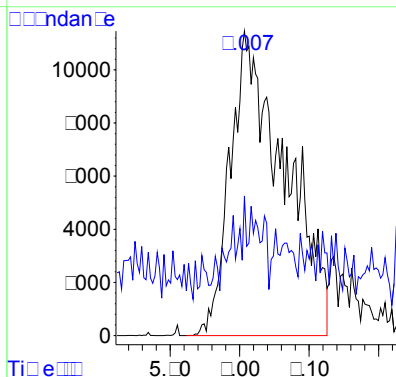
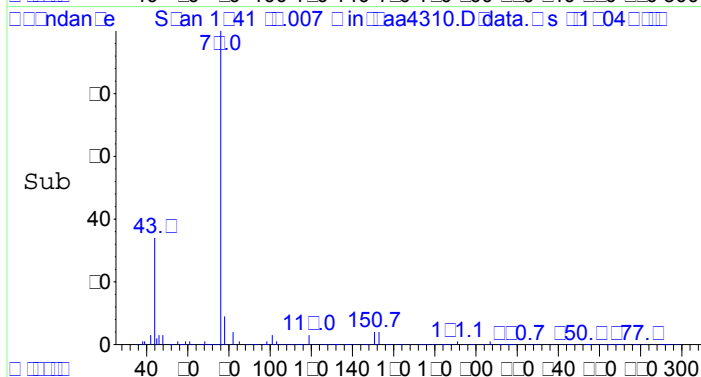
Tgt Ion: 84 Resp: 29676
Ion Ratio Lower Upper
84 100
49 122.5 57.6 86.4#





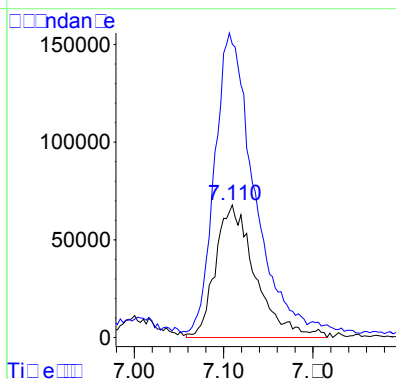
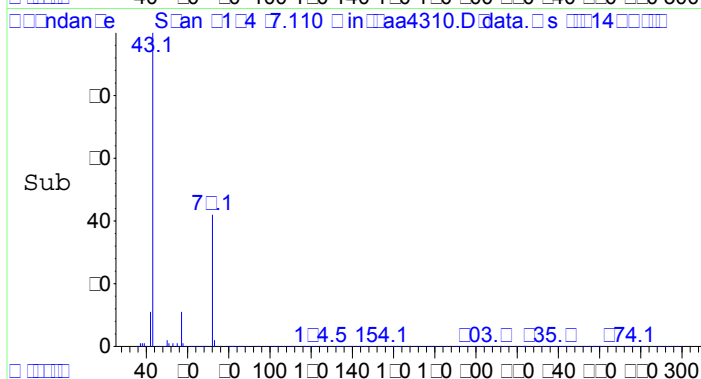
#23
Carbon disulfide
Concen: 0.45 ppbV
RT: 6.007 min Scan# 1841
Delta R.T. 0.019 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

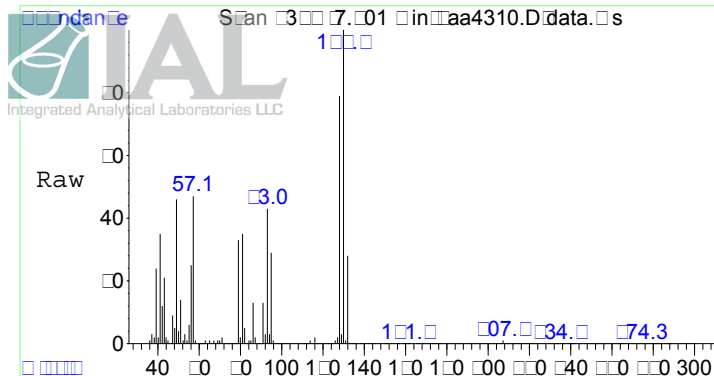
Tgt Ion: 76 Resp: 62240
Ion Ratio Lower Upper
76 100
44 2.8 10.4 15.6#



#27
Methyl ethyl ketone
Concen: 10.29 ppbV
RT: 7.110 min Scan# 2184
Delta R.T. 0.016 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

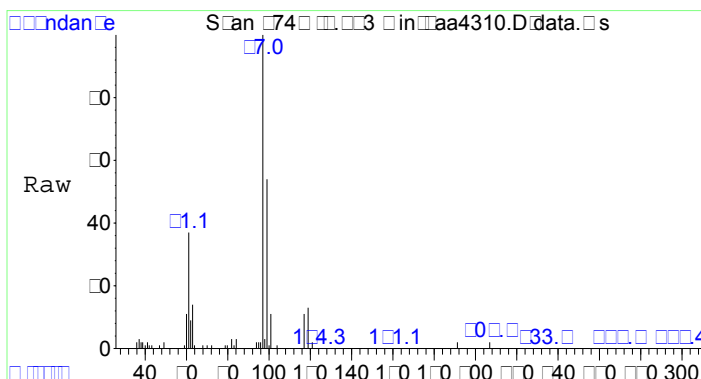
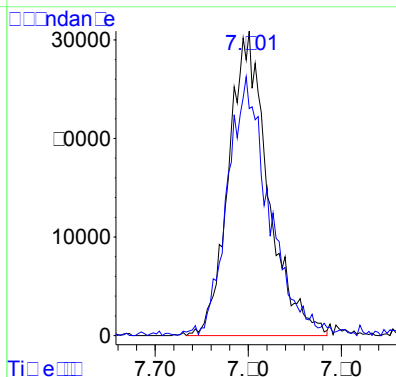
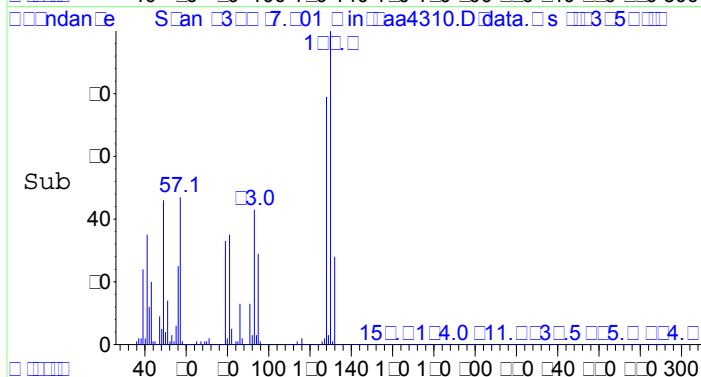
Tgt Ion: 72 Resp: 210162
Ion Ratio Lower Upper
72 100
43 225.7 168.0 252.0





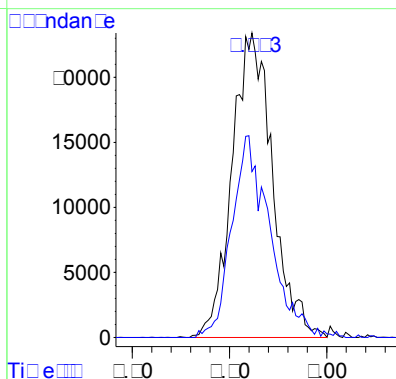
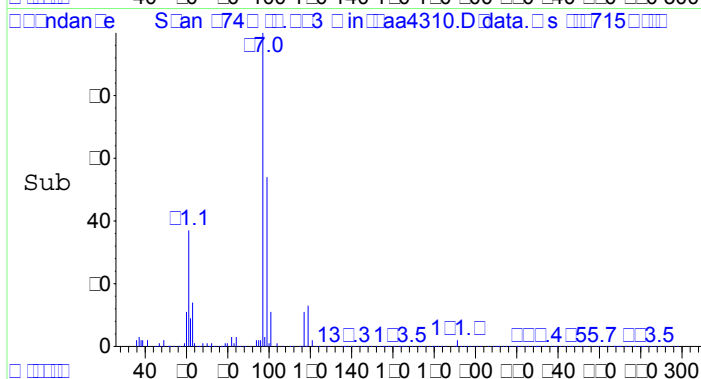
#30
n-Hexane
Concen: 2.14 ppbV
RT: 7.801 min Scan# 2399
Delta R.T. 0.009 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

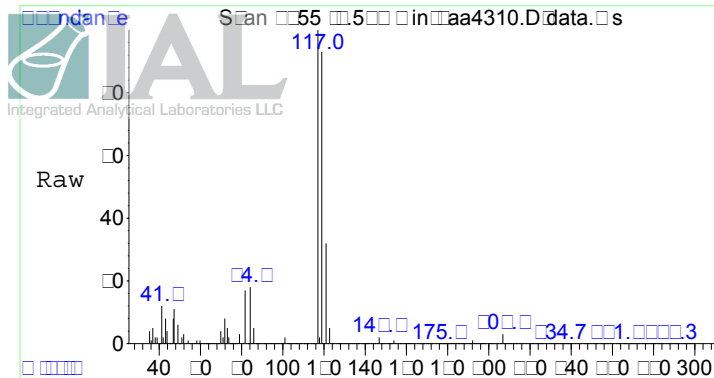
Tgt Ion: 57 Resp: 90567
Ion Ratio Lower Upper
57 100
41 88.3 64.8 97.2



#34
1,1,1-Trichloroethane
Concen: 0.35 ppbV
RT: 8.923 min Scan# 2748
Delta R.T. 0.006 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

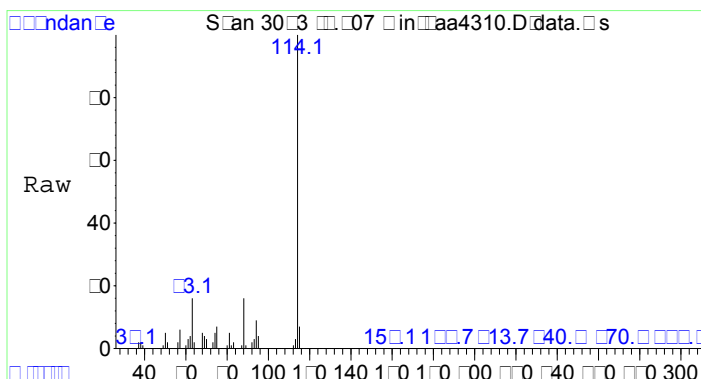
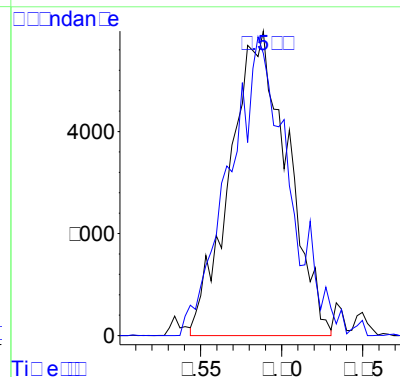
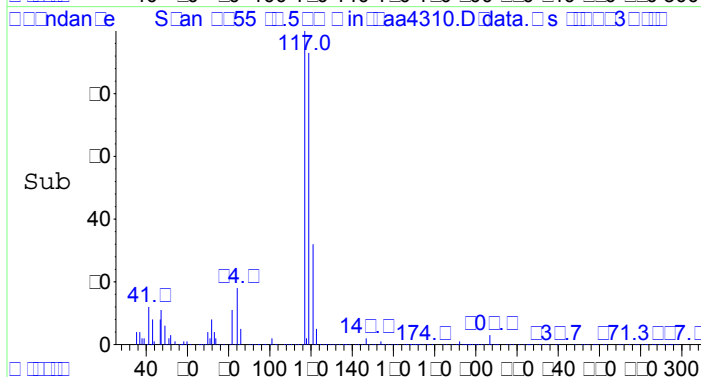
Tgt Ion: 97 Resp: 67601
Ion Ratio Lower Upper
97 100
99 62.2 51.9 77.9





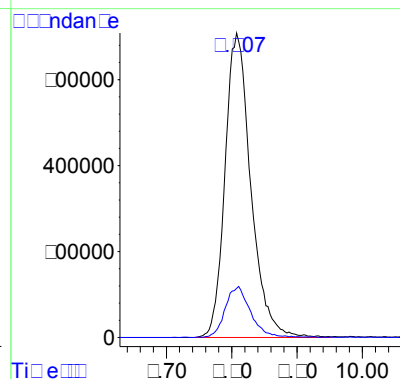
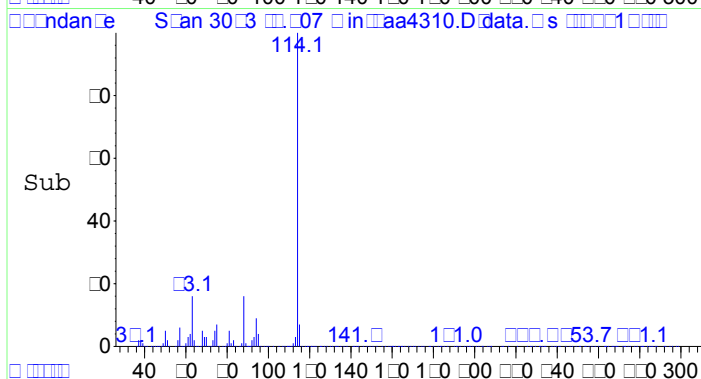
#36
Carbon tetrachloride
Concen: 0.06 ppbV
RT: 9.589 min Scan# 2955
Delta R.T. 0.003 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

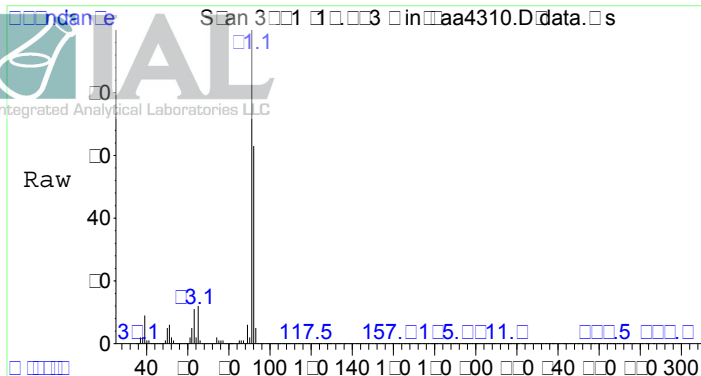
Tgt Ion:117 Resp: 14665
Ion Ratio Lower Upper
117 100
119 102.2 77.0 115.4



#38
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 9.807 min Scan# 3023
Delta R.T. 0.003 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

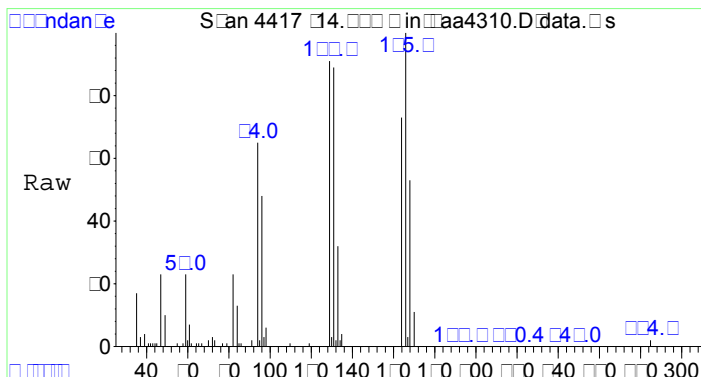
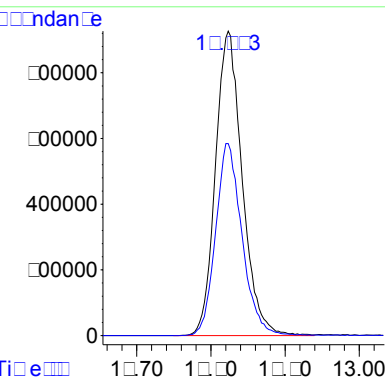
Tgt Ion:114 Resp: 1944157
Ion Ratio Lower Upper
114 100
63 16.3 14.4 21.6





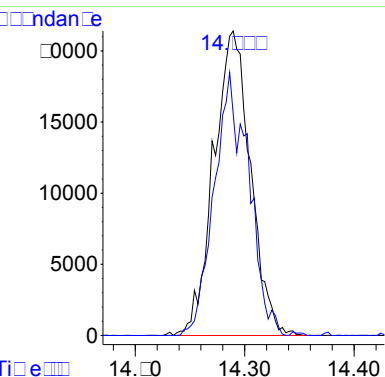
#50
Toluene
Concen: 10.39 ppbV
RT: 12.823 min Scan# 3961
Delta R.T. 0.006 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

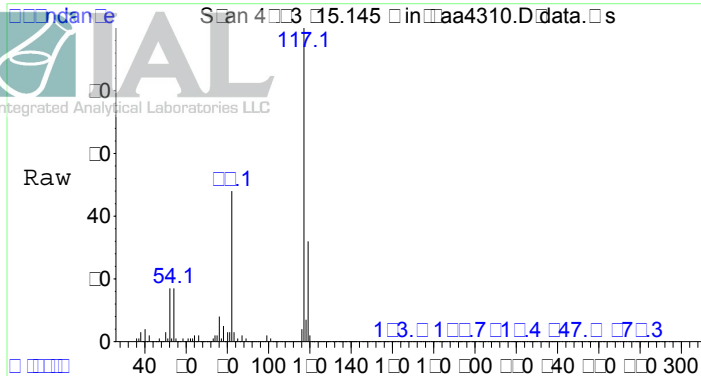
Tgt Ion	Ratio	Lower	Upper
91	100		
92	62.4	50.0	75.0



#54
Tetrachloroethene
Concen: 0.39 ppbV
RT: 14.289 min Scan# 4417
Delta R.T. 0.003 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

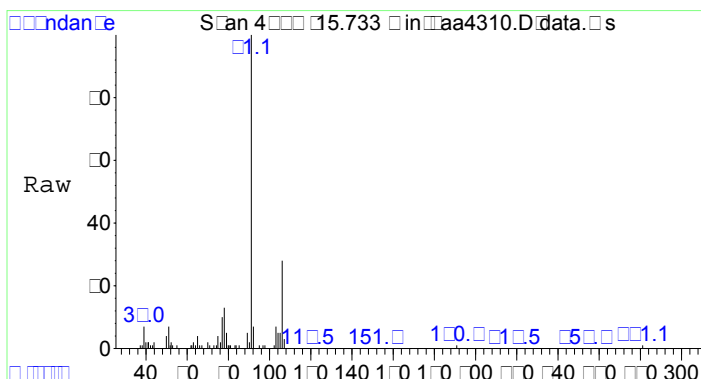
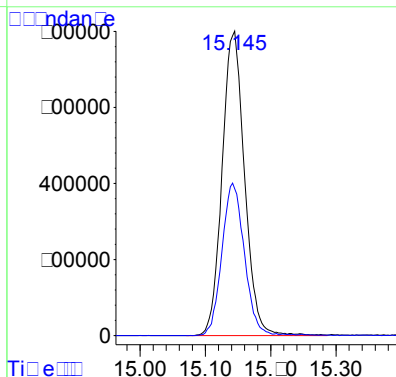
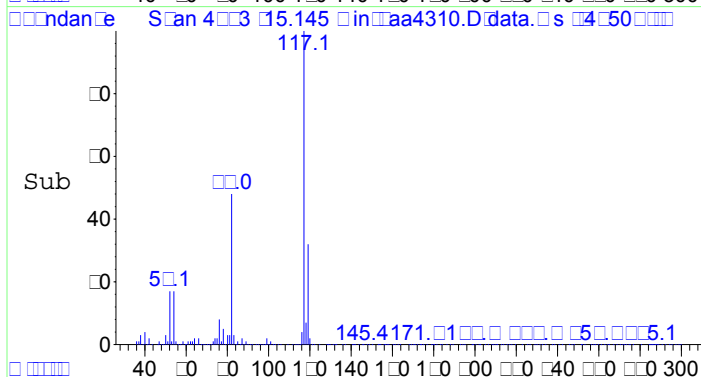
Tgt Ion	Ratio	Lower	Upper
166	100		
164	81.5	64.6	96.8





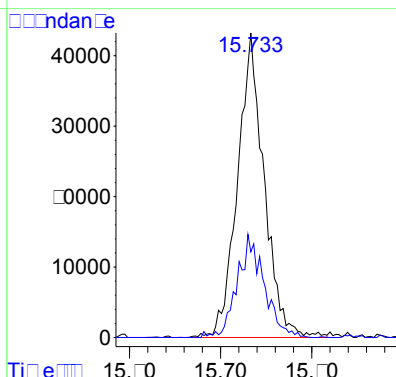
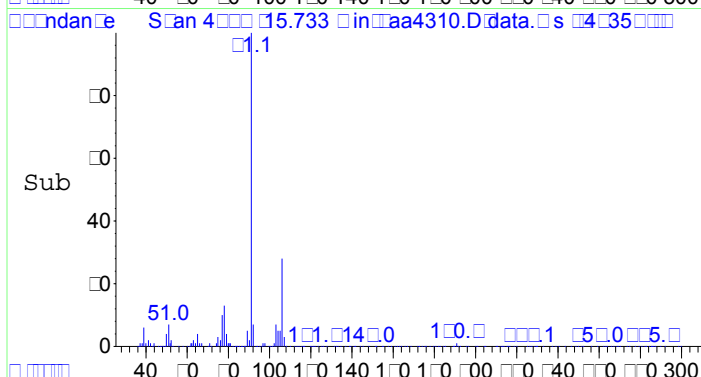
#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 15.145 min Scan# 4683
Delta R.T. 0.006 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

Tgt Ion: 117 Resp: 1912210
Ion Ratio Lower Upper
117 100
82 50.2 44.8 67.2

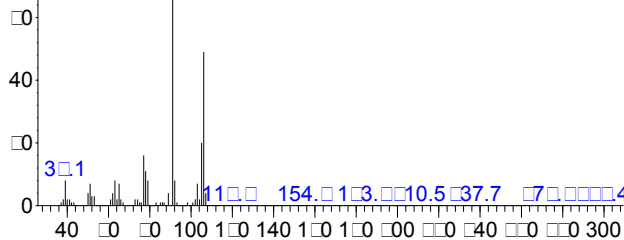


#57
Ethylbenzene
Concen: 0.24 ppbV
RT: 15.733 min Scan# 4866
Delta R.T. -0.000 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

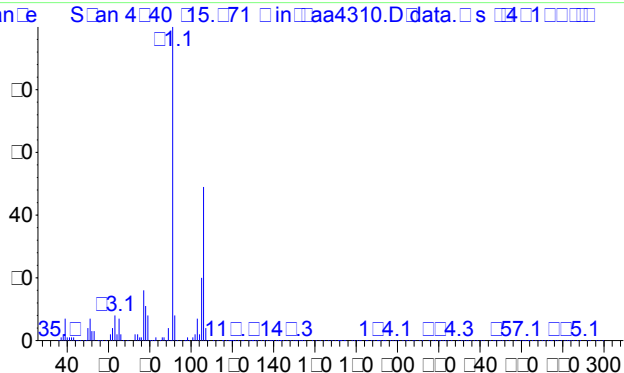
Tgt Ion: 91 Resp: 87580
Ion Ratio Lower Upper
91 100
106 33.7 25.6 38.4



Raw



Sub



#58

Xylenes (m&p)

Concen: 1.26 ppbV

RT: 15.971 min Scan# 4940

Delta R.T. -0.032 min

Lab File: aa4310.D

Acq: 29 Nov 2017 5:03 pm

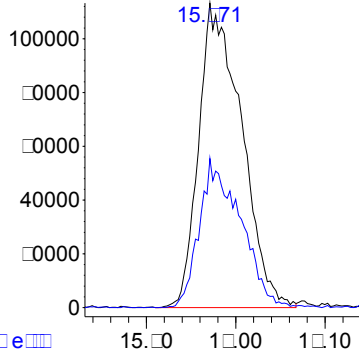
Tgt Ion: 91 Resp: 375687

Ion Ratio Lower Upper

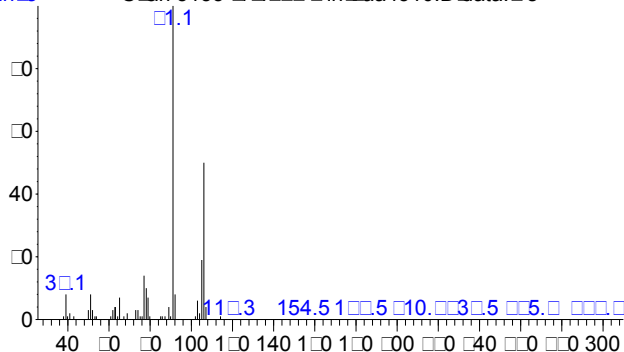
91 100

106 47.1 39.2 58.8

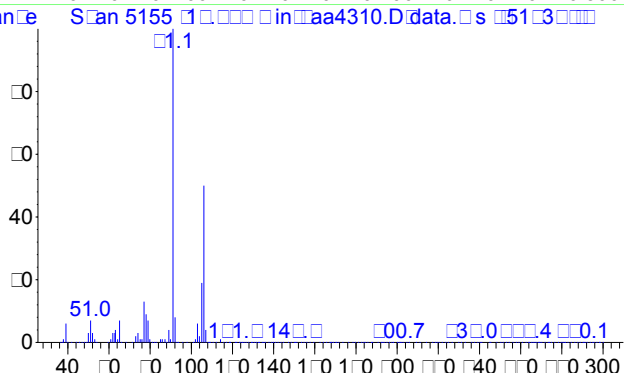
Scan 15.71



Raw



Sub



#61

Xylene (o)

Concen: 0.41 ppbV

RT: 16.662 min Scan# 5155

Delta R.T. 0.003 min

Lab File: aa4310.D

Acq: 29 Nov 2017 5:03 pm

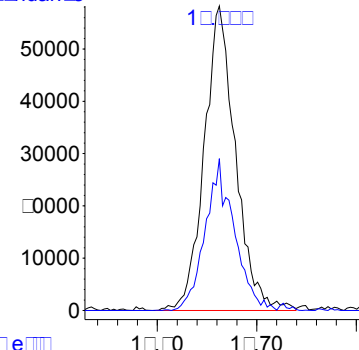
Tgt Ion: 91 Resp: 127211

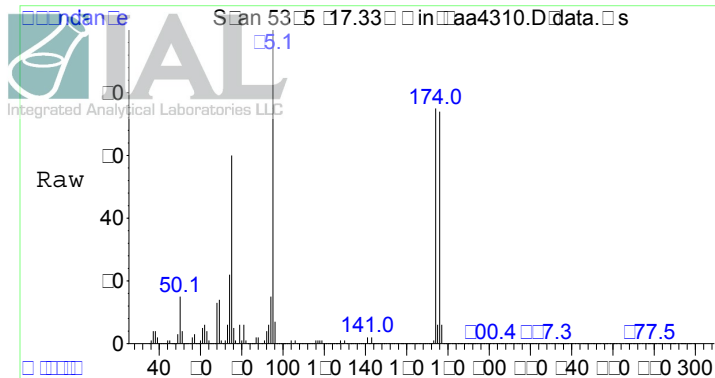
Ion Ratio Lower Upper

91 100

106 46.0 30.4 45.6#

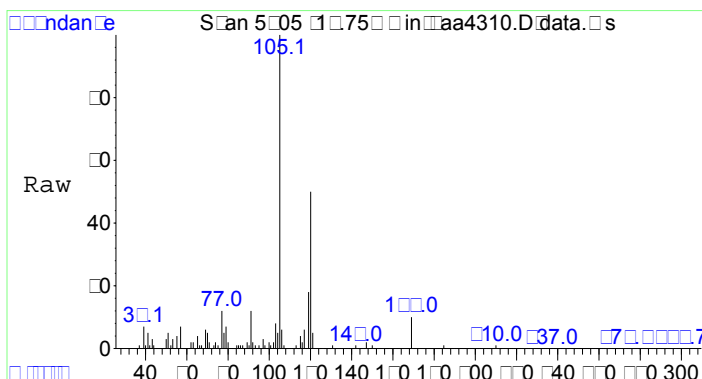
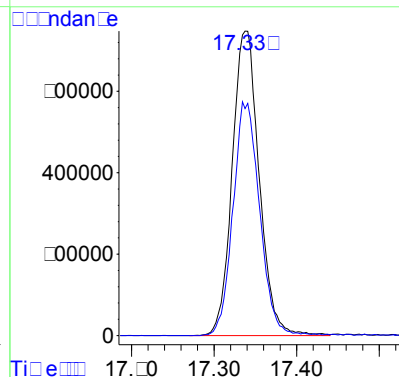
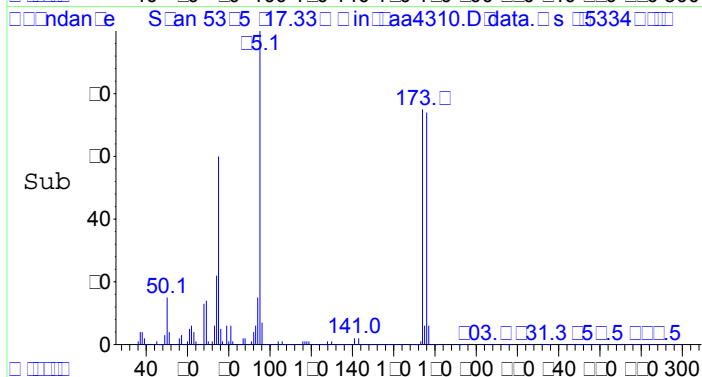
Scan 51.3





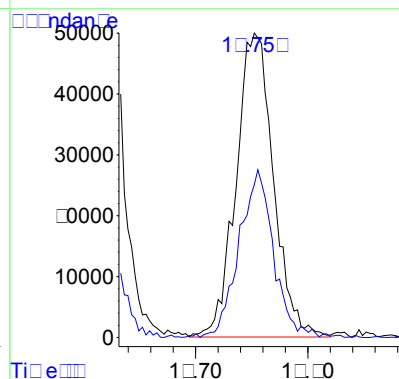
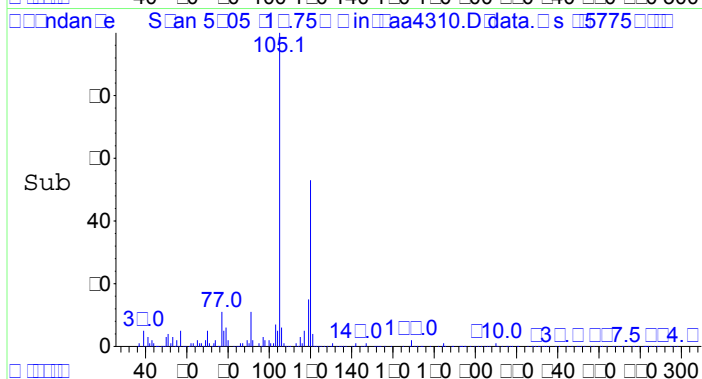
#64
Bromofluorobenzene (tune std)
Concen: 10.15 ppbV
RT: 17.338 min Scan# 5365
Delta R.T. -0.000 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

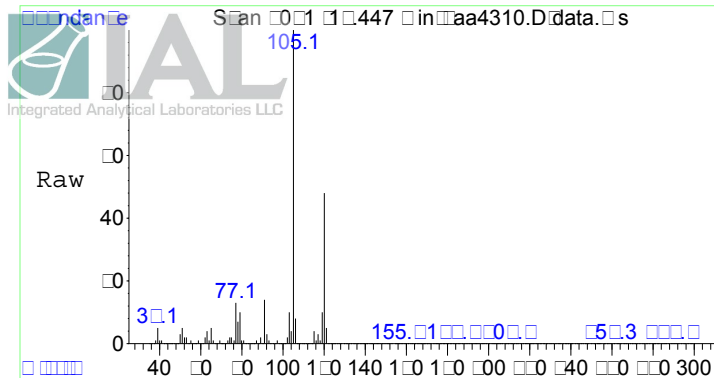
Tgt Ion: 95 Resp: 1699842
Ion Ratio Lower Upper
95 100
174 75.7 61.5 92.3



#69
1,3,5-Trimethylbenzene
Concen: 0.30 ppbV
RT: 18.752 min Scan# 5805
Delta R.T. -0.003 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

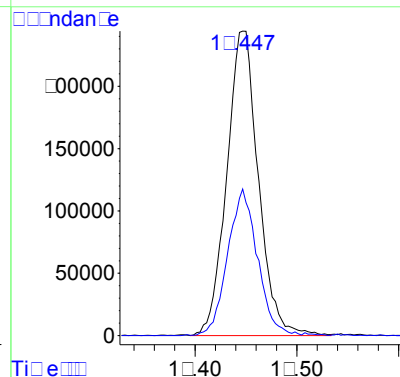
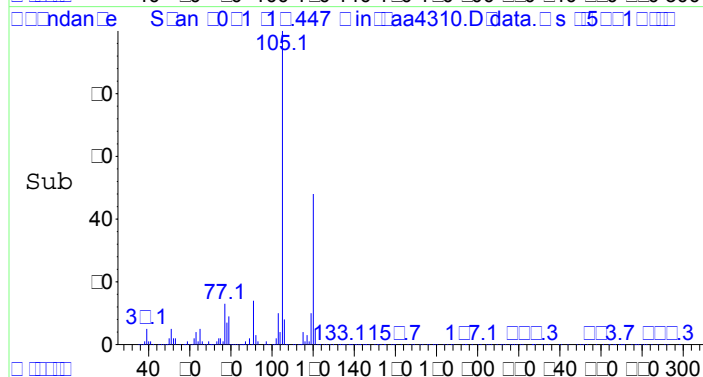
Tgt Ion: 105 Resp: 115763
Ion Ratio Lower Upper
105 100
120 50.6 31.2 46.8#





#70
1,2,4-Trimethylbenzene
Concen: 1.42 ppbV
RT: 19.447 min Scan# 6021
Delta R.T. -0.003 min
Lab File: aa4310.D
Acq: 29 Nov 2017 5:03 pm

Tgt Ion:105 Resp: 528126
Ion Ratio Lower Upper
105 100
120 45.1 36.0 54.0





Integrated Analytical Laboratories LLC

Summary of Results

Iron Entaste Management Associates
100 Misty Lane
Parsippany, NJ 07054
Attention: Seise
Project: Site #175 - Nya Rd
Site: NY

Report Date: 11/30/17
SD Number: 17-0037
Date Sampled: 11/15/17
Date Received: 11/16/17
Date Analyzed: 11/16/17
Data File: 400
Sample ID: 00001
D001

Analysis of Organic Compounds by EPA Method TO15

Compound	CAS #	Sample Name: IAL ID:		Ambient E17-09837-05		Reporting Limits	
		ppbv	ug/m3	ppbv	ug/m3	ppbv	ug/m3
Acetone	75-06-6	0.7	1.0	0.0	0.4	0.0	0.4
Benzene	71-43-2	ND	ND	0.0	0.4	0.0	0.4
Bromodichloroethane	75-74-4	ND	ND	0.0	1.3	0.0	1.3
Bromochloroethane	75-55-5	ND	ND	0.0	1.1	0.0	1.1
Bromochloroethane	74-33-3	ND	ND	0.0	0.7	0.0	0.7
1,3-Butadiene	106-99-0	ND	ND	0.0	0.44	0.0	0.44
Chlorobenzene	108-90-7	ND	ND	0.0	0.0	0.0	0.0
Chloroethane	75-00-3	ND	ND	0.0	0.53	0.0	0.53
Chloroform	77-42-3	ND	ND	0.0	0.0	0.0	0.0
Chloroethane	74-71-3	ND	ND	0.0	0.41	0.0	0.41
Carbon disulfide	75-15-0	ND	ND	0.0	0.0	0.0	0.0
Carbon tetrachloride	56-23-5	0.0	0.57	0.04	0.5	0.04	0.5
Cyclohexane	110-82-7	ND	ND	0.0	0.0	0.0	0.0
Dichlorodichloroethane	1464-1	ND	ND	0.0	1.7	0.0	1.7
1,1-Dichloroethane	107-06-4	ND	ND	0.0	1.5	0.0	1.5
1,1-Dichloroethene	5550-1	ND	ND	0.0	1.0	0.0	1.0
1,3-Dichloroethene	54173-1	ND	ND	0.0	1.0	0.0	1.0
1,4-Dichloroethene	1064-17	ND	ND	0.0	1.0	0.0	1.0
Dichlorodichloroethane	7571-1	ND	ND	0.0	0.0	0.0	0.0
1,1-Dichloroethane	7534-3	ND	ND	0.0	0.1	0.0	0.1
1,1-Dichloroethane	1070-00	ND	ND	0.0	0.1	0.0	0.1
1,1-Dichloroethene	7535-4	ND	ND	0.0	0.7	0.0	0.7
1,1-Dichloroethene cis	1515-00	ND	ND	0.0	0.7	0.0	0.7
1,1-Dichloroethene trans	1510-05	ND	ND	0.0	0.7	0.0	0.7
1,1-Dichloropropane	7775-5	ND	ND	0.0	0.0	0.0	0.0
1,3-Dichloropropene cis	100101-5	ND	ND	0.0	0.1	0.0	0.1
1,3-Dichloropropene trans	100100-0	ND	ND	0.0	0.1	0.0	0.1
1,1-Dichlorotetrahydroethane	714-1	ND	ND	0.0	1.4	0.0	1.4
1,4-Dioxane	1301-1	ND	ND	0.0	0.7	0.0	0.7
1,4-Dioxane	10041-4	ND	ND	0.0	0.7	0.0	0.7
1,4-Dioxane	1400-5	ND	ND	0.0	0.0	0.0	0.0
1,3-Hexachlorobutadiene	700-3	ND	ND	0.0	1.1	0.0	1.1
1,3-Hexachlorobutadiene	11054-3	ND	ND	0.0	0.71	0.0	0.71
Methylene chloride	7500-0	ND	ND	0.0	0.70	0.0	0.70
Methylcyclopentane	7003-3	0.1	1.7	0.0	0.5	0.0	0.5
Methylisobutylcyclopentane	1010-1	ND	ND	0.0	0.0	0.0	0.0
Methyltert-butylcyclopentane	13404-4	ND	ND	0.0	0.7	0.0	0.7
Styrene	1004-5	ND	ND	0.0	0.5	0.0	0.5
Tetrahydrofuran	7555-0	ND	ND	0.0	0.1	0.0	0.1
1,1,1-Tetrahydroethane	734-5	ND	ND	0.0	1.4	0.0	1.4
Tetrahydroethane	171-4	ND	ND	0.0	1.4	0.0	1.4
Toluene	1000-3	ND	ND	0.0	0.75	0.0	0.75
1,4-Trihydrobenzene	1000-1	ND	ND	0.0	1.5	0.0	1.5
1,1,1-Trihydroethane	7155-0	ND	ND	0.0	1.1	0.0	1.1
1,1,1-Trihydroethane	7000-5	ND	ND	0.0	1.1	0.0	1.1
Trihydroethane	7001-0	ND	ND	0.05	0.5	0.05	0.5

IAL SDG #E17-09837

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Integrated Analytical Laboratories LLC

Summary of Results

Iron Pentastate Management Associates
100 Misty Lane
Parsippany, NJ 07054
Attention: Seise
Project: Site 175 - Nya Rd
Site: NY

Report Date: 11/30/17
SD Number: 17-0037
Date Sampled: 11/15/17
Date Received: 11/16/17
Date Analyzed: 11/16/17
Data File: 400
Sample ID: 000001
D01

Analysis of Volatile Organic Compounds by EPA Method TO-15

Sample Name:		Ambient		Reporting	
IAL ID:		E17-09837-05		Limits	
Trichloroethane	75004	ND	ND	0.0	1.1
1,1,1-Trichloroethane	70131	ND	ND	0.0	1.5
1,4-Dichlorobenzene	5030	ND	ND	0.0	0.0
1,3,5-Trichlorobenzene	100070	ND	ND	0.0	0.0
1,4-Dichloropentane	540041	ND	ND	0.0	0.03
Dichloromethane	503000	ND	ND	0.0	0.07
Dichloroethane	75014	ND	ND	0.0	0.51
Xylenes (m+p)	17001031	ND	ND	0.0	0.07
Xylenes (o)	5470	ND	ND	0.0	0.07

Data Path : C:\DATA\11-28-17\
 Data File : aa4290.D
 Acq On : 28 Nov 2017 10:48 pm
 Operator : jls
 Sample : E17-09837-05
 Misc : 2892, 500cc
 ALS Vial : 20 Sample Multiplier: 1

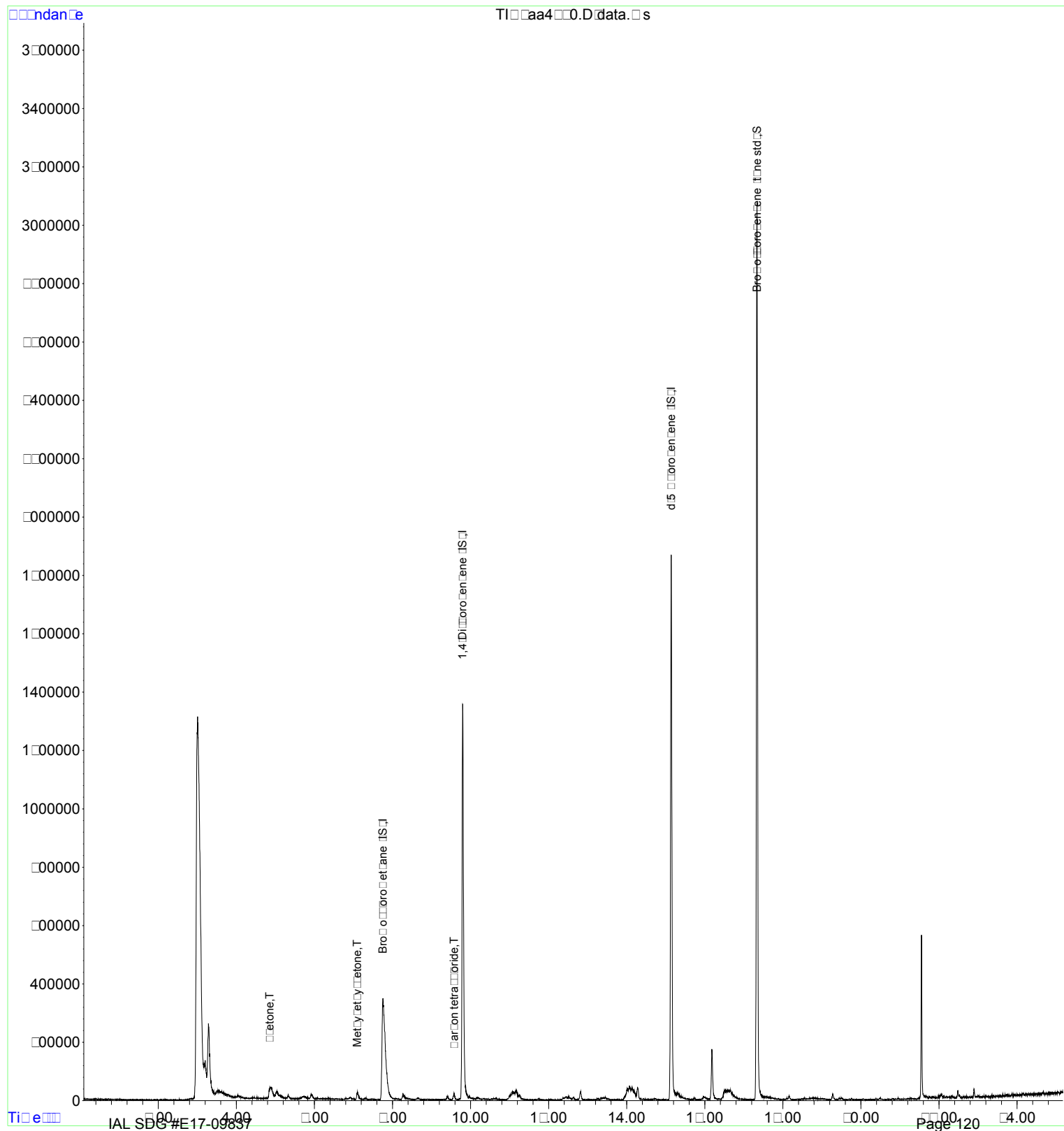
Quant Time: Nov 29 11:39:50 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

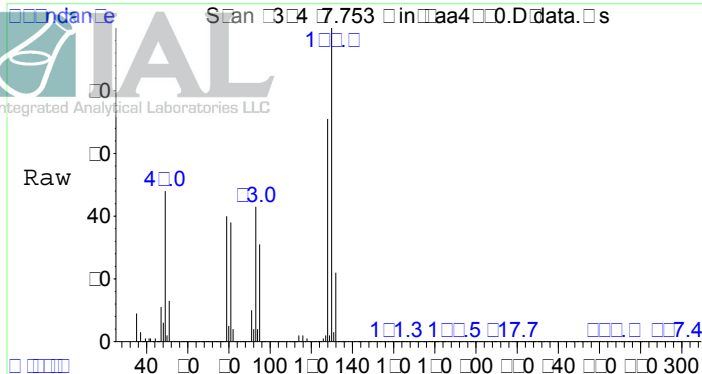
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.753	130	421726	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.795	114	1509290	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.139	117	1458218	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.338	95	1257889	9.85	ppbV	0.00
Target Compounds						
14) Acetone	4.853	58	8219	0.79	ppbV	Qvalue # 1
27) Methyl ethyl ketone	7.097	72	15052	0.91	ppbV	74
36) Carbon tetrachloride	9.576	117	17055m	0.09	ppbV	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\11-28-17\
Data File : aa4290.D
Acq On : 28 Nov 2017 10:48 pm
Operator : jls
Sample : E17-09837-05
Misc : 2892, 500cc
ALS Vial : 20 Sample Multiplier: 1

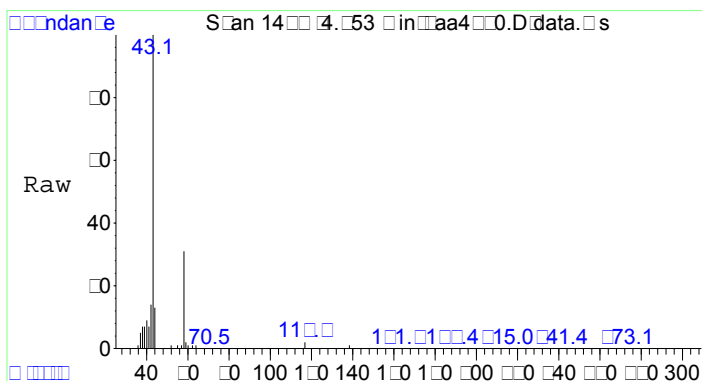
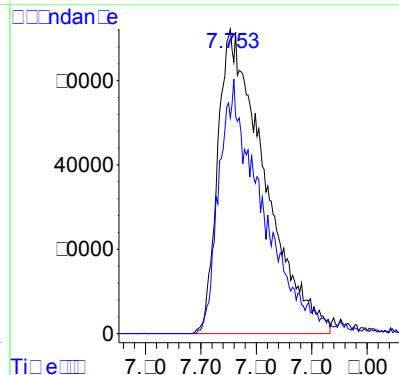
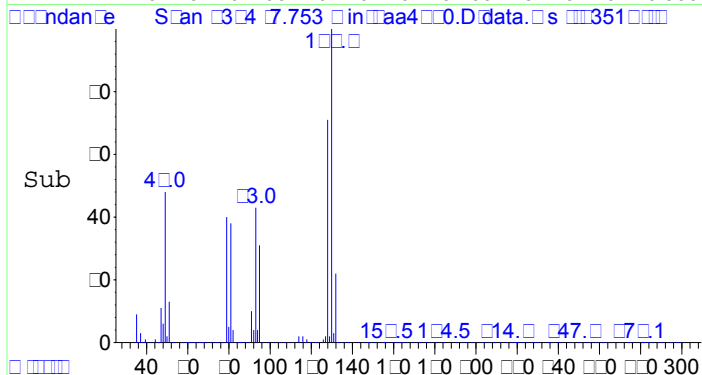
Quant Time: Nov 29 11:39:50 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
Response via : Initial Calibration





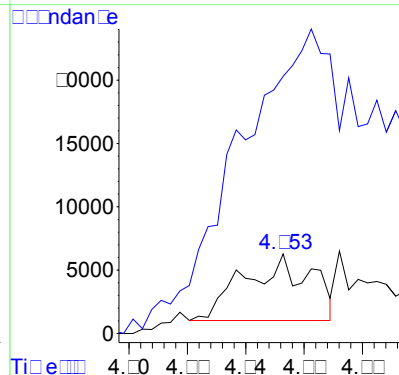
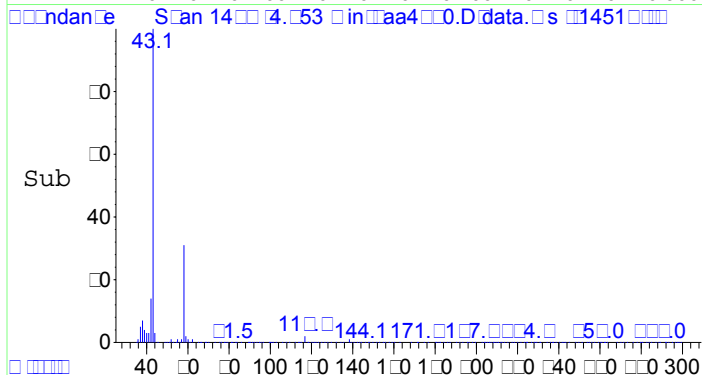
#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 7.753 min Scan# 2384
Delta R.T. 0.006 min
Lab File: aa4290.D
Acq: 28 Nov 2017 10:48 pm

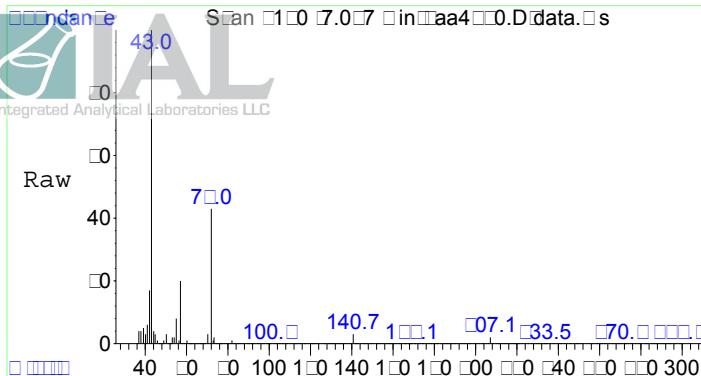
Tgt Ion:130 Resp: 421726
Ion Ratio Lower Upper
130 100
128 77.3 62.6 94.0



#14
Acetone
Concen: 0.79 ppbV
RT: 4.853 min Scan# 1482
Delta R.T. 0.000 min
Lab File: aa4290.D
Acq: 28 Nov 2017 10:48 pm

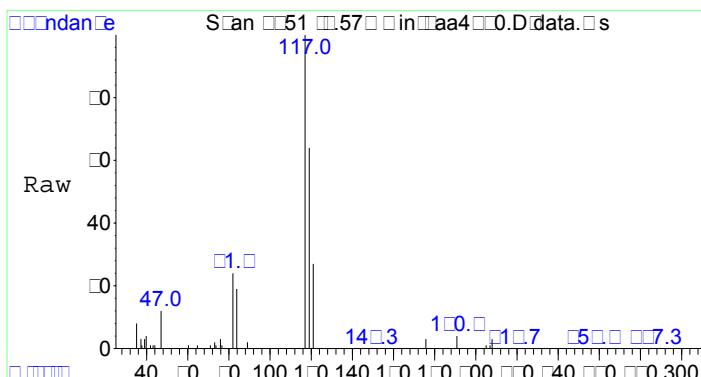
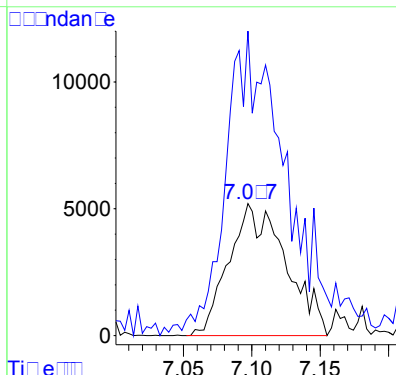
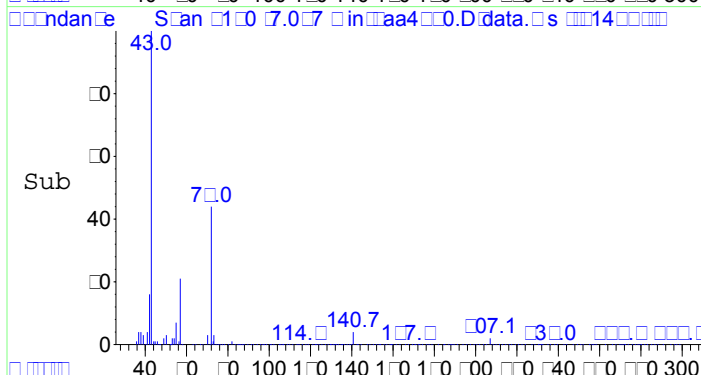
Tgt Ion: 58 Resp: 8219
Ion Ratio Lower Upper
58 100
43 1604.5 229.6 344.4#





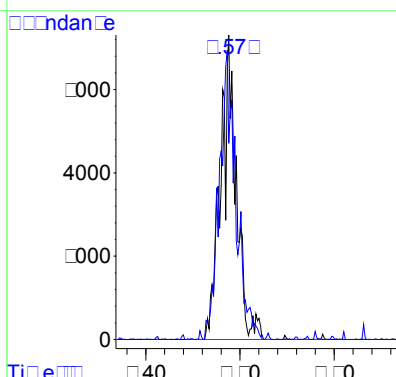
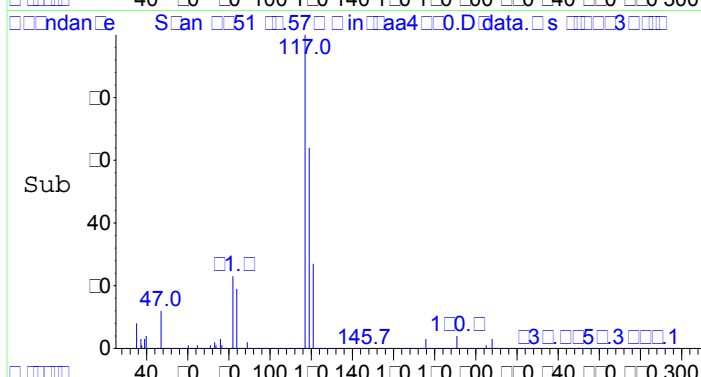
#27
Methyl ethyl ketone
Concen: 0.91 ppbV
RT: 7.097 min Scan# 2180
Delta R.T. 0.003 min
Lab File: aa4290.D
Acq: 28 Nov 2017 10:48 pm

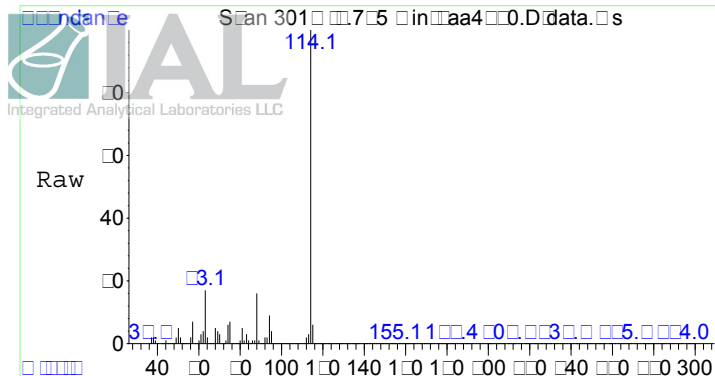
Tgt Ion: 72 Resp: 15052
Ion Ratio Lower Upper
72 100
43 250.9 168.0 252.0



#36
Carbon tetrachloride
Concen: 0.09 ppbV m
RT: 9.576 min Scan# 2951
Delta R.T. -0.010 min
Lab File: aa4290.D
Acq: 28 Nov 2017 10:48 pm

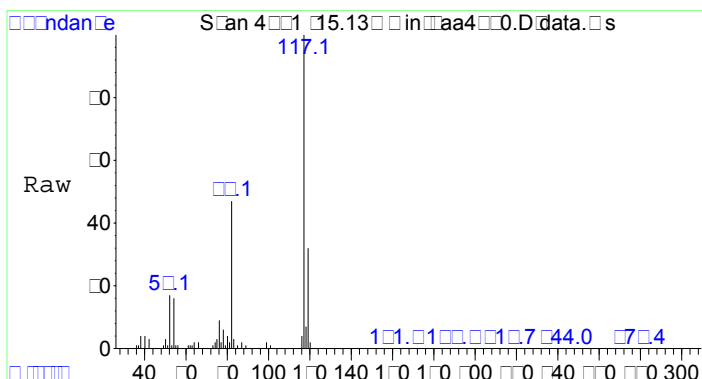
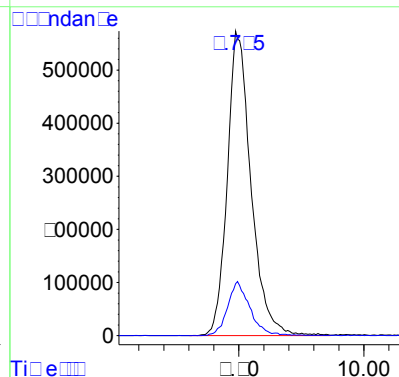
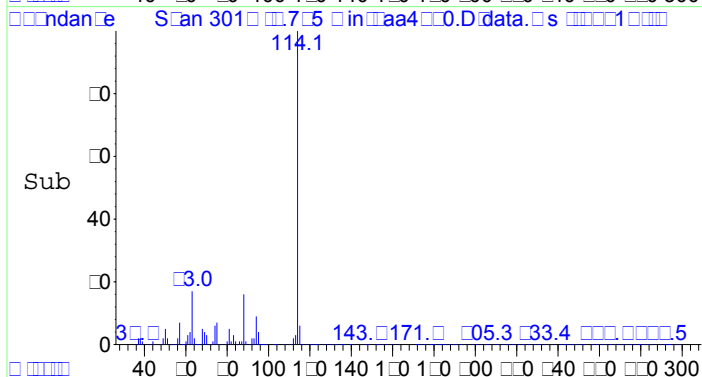
Tgt Ion: 117 Resp: 17055
Ion Ratio Lower Upper
117 100
119 98.3 77.0 115.4





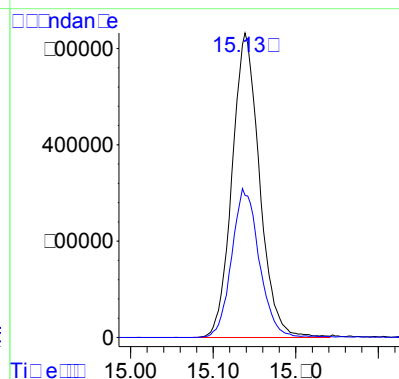
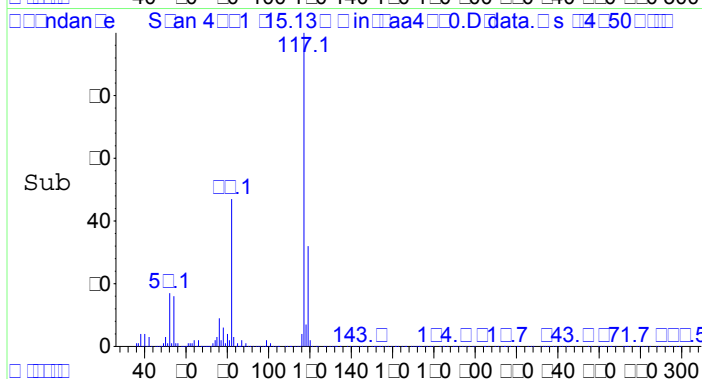
#38
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 9.795 min Scan# 3019
Delta R.T. -0.010 min
Lab File: aa4290.D
Acq: 28 Nov 2017 10:48 pm

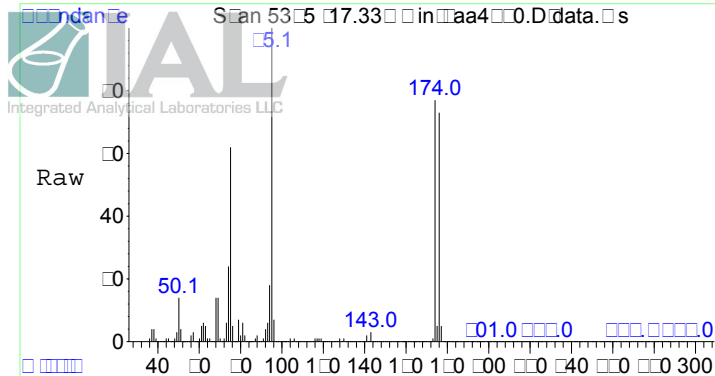
Tgt Ion:114 Resp: 1509290
Ion Ratio Lower Upper
114 100
63 16.8 14.4 21.6



#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 15.139 min Scan# 4681
Delta R.T. 0.000 min
Lab File: aa4290.D
Acq: 28 Nov 2017 10:48 pm

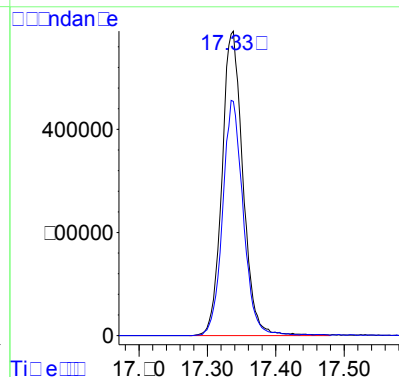
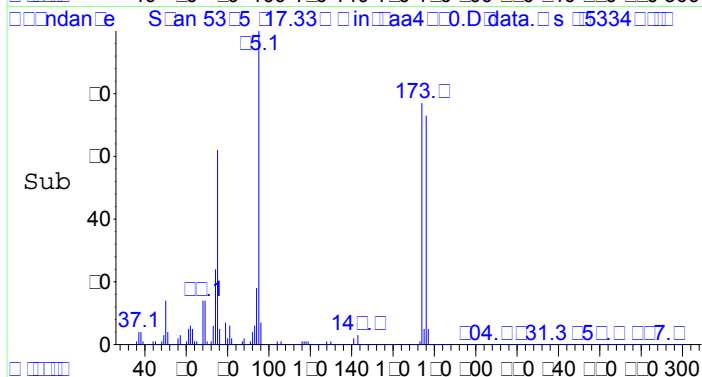
Tgt Ion:117 Resp: 1458218
Ion Ratio Lower Upper
117 100
82 49.3 44.8 67.2





#64
 Bromofluorobenzene (tune std)
 Concen: 9.85 ppbV
 RT: 17.338 min Scan# 5365
 Delta R.T. 0.000 min
 Lab File: aa4290.D
 Acq: 28 Nov 2017 10:48 pm

Tgt Ion: 95 Resp: 1257889
 Ion Ratio Lower Upper
 95 100
 174 75.7 61.5 92.3



Section VII: Standards Data

Initial Calibration Data

Continuing Calibration Data

Initial Calibration Data Summary Report

Initial Calibration Curve: 9/12/2017
Instrument: AA

Method ID: 0912.M

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3441BFB]	09/12/2017 08:18
40 PPBV STD [AA3443STD01]	09/12/2017 09:44
20 PPBV STD [AA3444STD02]	09/12/2017 10:17
10 PPBV STD [AA3445STD03]	09/12/2017 10:51
2 PPBV STD [AA3446STD04]	09/12/2017 11:24
0.2 PPBV STD [AA3447STD05]	09/12/2017 12:06
10 PPBV ICVSS [AA3448ICVSS]	09/12/2017 13:28

RParameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
Bromochloromethane	-----ISTD-----						
1,4-Difluorobenzene	-----ISTD-----						
d-5 Chlorobenzene	-----ISTD-----						
Acetone	0.13	0.27	0.28	0.28	0.28	0.25	27
Acrolein	0.085	0.17	0.18	0.20	0.19	0.17	28
Allyl Chloride	0.39	0.36	0.41	0.42	0.37	0.39	6.2
Benzene	3.4	2.6	2.8	3.0	3.0	2.9	9.5
Benzyl chloride	1.5	1.6	1.7	1.7	1.7	1.6	6.0
Bromodichloromethane	1.2	0.85	0.86	0.89	0.90	0.94	15
Bromoform	1.2	1.0	0.96	0.95	0.96	1.0	11
Bromomethane	0.49	0.65	0.66	0.61	0.51	0.58	14
1,3-Butadiene	0.24	0.32	0.34	0.34	0.33	0.31	14
Chlorobenzene	1.7	1.3	1.2	1.1	1.1	1.3	20
Chloroethane	0.16	0.33	0.33	0.34	0.33	0.30	26
Chloroform	3.5	2.8	2.9	3.0	3.1	3.0	9.9
Chloromethane	0.050	0.083	0.10	0.098	0.087	0.084	25
Carbon disulfide	2.9	2.6	2.6	2.6	2.7	2.7	5.1
Carbon tetrachloride	5.5	4.1	3.9	4.1	4.3	4.4	15
2-Chlorotoluene	1.8	1.7	1.6	1.6	1.6	1.7	4.9
Cumene	2.5	2.3	2.2	2.1	2.0	2.2	9.1
Cyclohexane	1.2	1.1	1.2	1.3	1.3	1.2	5.0
Dibromochloromethane	1.4	1.0	1.0	1.0	1.0	1.1	15
1,2-Dibromoethane	0.96	0.75	0.74	0.74	0.75	0.79	12
1,2-Dichlorobenzene	1.7	1.4	1.4	1.3	1.3	1.4	11
1,3-Dichlorobenzene	1.9	1.6	1.4	1.3	1.3	1.5	16
1,4-Dichlorobenzene	1.8	1.6	1.4	1.4	1.4	1.5	12
Dichlorodifluoromethane	4.3	3.5	3.5	3.6	3.7	3.7	8.8
1,1-Dichloroethane	2.0	1.4	1.5	1.5	1.6	1.6	15
1,2-Dichloroethane	2.2	1.8	1.8	1.9	2.0	1.9	9.4
1,1-Dichloroethene	1.4	1.3	1.4	1.4	1.4	1.4	4.2
1,2-Dichloroethene (trans)	1.1	1.0	1.1	1.2	1.2	1.1	6.1
1,2-Dichloroethene (trans)	1.1	1.0	1.1	1.2	1.2	1.1	5.6
1,2-Dichloropropane	0.35	0.24	0.23	0.24	0.24	0.26	20
1,3-Dichloropropene (cis)	0.63	0.51	0.56	0.57	0.58	0.57	7.1
1,3-Dichloropropene (trans)	0.62	0.54	0.60	0.62	0.63	0.60	6.1
1,2-Dichlorotetrafluoroethane	3.9	2.7	2.7	2.7	2.6	2.9	19
1,4-Dioxane	0.26	0.16	0.16	0.17	0.17	0.18	25
Ethanol	0.045	0.14	0.13	0.14	0.14	0.12	34
Ethylbenzene	2.1	1.9	1.8	1.8	1.8	1.9	7.0
4-Ethyltoluene	2.2	2.3	2.2	2.1	2.1	2.2	4.3
n-Heptane	0.15	0.26	0.27	0.27	0.27	0.24	22
1,3-Hexachlorobutadiene	1.6	1.1	0.94	0.94	0.93	1.1	26

*% RSD (Relative Standard Deviation) must be within 30%

**An exception is made for 2 compounds that must be within 40%

RRF - Relative Response Factor

Initial Calibration Data Summary Report

Initial Calibration Curve: 9/12/2017
Instrument: AA

Method ID: 0912.M

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3441BFB]	09/12/2017 08:18
40 PPBV STD [AA3443STD01]	09/12/2017 09:44
20 PPBV STD [AA3444STD02]	09/12/2017 10:17
10 PPBV STD [AA3445STD03]	09/12/2017 10:51
2 PPBV STD [AA3446STD04]	09/12/2017 11:24
0.2 PPBV STD [AA3447STD05]	09/12/2017 12:06
10 PPBV ICVSS [AA3448ICVSS]	09/12/2017 13:28

RParameter	RRF 0.2ppbv	RRF 2ppbv	RRF 10ppbv	RRF 20ppbv	RRF 40ppbv	Avg ppbv	% RSD
n-Hexane	0.90	0.73	0.77	0.83	0.84	0.82	7.9
Isopropanol	0.51	0.67	0.72	0.74	0.71	0.67	14
Methylene chloride	1.2	0.77	0.80	0.82	0.83	0.89	21
Methyl ethyl ketone	0.18	0.38	0.43	0.48	0.49	0.39	32
Methyl isobutyl ketone	0.39	0.35	0.34	0.35	0.35	0.36	6.0
Methyl methacrylate	0.34	0.28	0.31	0.32	0.32	0.32	6.5
Methyl n-butyl ketone	0.36	0.31	0.34	0.35	0.36	0.35	5.4
Methyl tert-butyl ether	3.4	2.9	3.1	3.2	3.2	3.2	6.4
Naphthalene	0.25	0.47	0.45	0.44	0.43	0.41	22
Propene	0.23	0.25	0.26	0.27	0.24	0.25	5.0
Styrene	0.96	1.0	1.1	1.1	1.1	1.0	4.8
Tert-butyl alcohol	1.7	1.5	1.6	1.7	1.7	1.6	6.5
1,1,2,2-Tetrachloroethane	1.6	1.2	1.0	0.98	0.98	1.1	23
Tetrachloroethene	0.86	0.62	0.59	0.59	0.59	0.65	18
Tetrahydrofuran	0.28	0.39	0.44	0.48	0.48	0.41	20
Toluene	1.3	1.1	1.1	1.1	1.1	1.1	6.0
1,2,4-Trichlorobenzene	1.6	1.3	1.3	1.2	1.2	1.3	12
1,1,1-Trichloroethane	4.6	3.4	3.3	3.5	3.6	3.7	15
1,1,2-Trichloroethane	0.60	0.44	0.42	0.42	0.42	0.46	18
Trichloroethene	0.64	0.50	0.49	0.50	0.49	0.52	13
Trichlorofluoromethane	6.2	4.6	4.5	4.6	4.7	4.9	14
1,1,2-Trichloro-1,2,2-trifluoroethane	4.1	2.9	2.6	2.7	2.7	3.0	21
1,2,4-Trimethylbenzene	1.7	2.0	2.0	2.0	2.0	1.9	6.2
1,3,5-Trimethylbenzene	2.0	2.1	2.0	2.0	1.9	2.0	4.2
2,2,4-Trimethylpentane	0.72	0.72	0.75	0.74	0.74	0.73	2.0
Vinyl bromide	0.69	0.92	1.0	1.0	1.0	0.94	16
Vinyl chloride	0.41	0.58	0.61	0.62	0.62	0.57	16
Xylenes (m&p)	1.7	1.7	1.5	1.5	1.4	1.6	6.7
Xylenes (o)	1.7	1.7	1.6	1.5	1.5	1.6	5.9

*% RSD (Relative Standard Deviation) must be within 30%

**An exception is made for 2 compounds that must be within 40%

RRF - Relative Response Factor

Method Path : C:\msdchem\1\METHODS\
 Method File : 0912.M
 Title : TO-15 on the Agilent 7890A / 5975C
 Last Update : Tue Sep 12 13:00:02 2017
 Response Via : Initial Calibration

Calibration Files

0.2 =aa3447std05.D 2 =aa3446std04.D 10 =aa3445std03.D 20 =aa3444std02.D 40 =aa3443std01.D

Compound		0.2	2	10	20	40	Avg	%RSD

1) I	Bromochloromethane...	-----ISTD-----						
2) T	Propene	0.232	0.249	0.258	0.265	0.242	0.249	5.09
3) T	Dichlorodifluoro...	4.313	3.527	3.518	3.632	3.674	3.733	8.87
4) T	Chloromethane	0.050	0.083	0.103	0.098	0.087	0.084	24.63
5) T	1,2-Dichlorotetr...	3.891	2.711	2.713	2.686	2.554	2.911	18.96
6) T	Vinyl chloride	0.406	0.582	0.606	0.619	0.621	0.567	16.10
7) T	1,3-Butadiene	0.235	0.320	0.342	0.344	0.331	0.314	14.43
8) T	n-Butane	0.299	0.552	0.585	0.589	0.570	0.519	23.84
9) T	Bromomethane	0.487	0.645	0.659	0.605	0.508	0.581	13.63
10) T	Chloroethane	0.158	0.334	0.329	0.340	0.332	0.298	26.36
11) T	Ethanol	0.045	0.138	0.130	0.136	0.137	0.117	34.45
12) T	Vinyl bromide	0.691	0.922	1.001	1.044	1.047	0.941	15.81
13) T	Acrolein	0.085	0.174	0.178	0.196	0.194	0.165	27.70
14) T	Acetone	0.129	0.266	0.281	0.279	0.282	0.247	26.85
15) T	Trichlorofluorom...	6.192	4.572	4.536	4.648	4.657	4.921	14.48
16) T	Isopropanol	0.506	0.665	0.720	0.739	0.709	0.668	14.14
17) T	n-Pentane	0.498	0.565	0.639	0.671	0.677	0.610	12.61
18) T	1,1-Dichloroethene	1.401	1.289	1.406	1.441	1.418	1.391	4.26
19) T	Methylene chloride	1.213	0.774	0.804	0.816	0.828	0.887	20.69
20) T	Tert-butyl alcohol	1.702	1.480	1.596	1.719	1.736	1.646	6.54
21) T	Allyl chloride	0.390	0.362	0.408	0.416	0.366	0.388	6.21
22) T	1,1,2-Trichloro-...	4.098	2.869	2.572	2.662	2.714	2.983	21.21
23) T	Carbon disulfide	2.916	2.566	2.603	2.630	2.662	2.675	5.19
24) T	1,2-Dichloroethe...	1.124	1.039	1.114	1.180	1.204	1.132	5.69
25) T	1,1-Dichloroethane	1.994	1.389	1.491	1.547	1.556	1.595	14.58
26) T	Methyl tert-buty...	3.383	2.853	3.062	3.235	3.245	3.156	6.46
27) T	Methyl ethyl ketone	0.182	0.383	0.431	0.475	0.492	0.393	31.82
28) T	1,2-Dichloroethe...	1.141	1.010	1.110	1.168	1.185	1.123	6.18
29) T	Ethyl acetate	0.078	0.131	0.145	0.150	0.151	0.131	23.56
30) T	n-Hexane	0.901	0.734	0.772	0.830	0.839	0.815	7.90
31) T	Chloroform	3.534	2.757	2.852	2.979	3.051	3.034	9.93
32) T	Tetrahydrofuran	0.279	0.385	0.436	0.476	0.476	0.411	20.05
33) T	1,2-Dichloroethane	2.240	1.761	1.830	1.923	1.988	1.948	9.46
34) T	1,1,1-Trichloroe...	4.621	3.447	3.308	3.460	3.561	3.679	14.51
35) T	Benzene	3.385	2.639	2.773	2.959	2.976	2.946	9.58
36) T	Carbon tetrachlo...	5.534	4.090	3.942	4.139	4.288	4.399	14.70
37) T	Cyclohexane	1.208	1.117	1.189	1.259	1.269	1.208	5.08

38) I	1,4-Difluorobenzen...	-----ISTD-----						
39) T	1,2-Dichloropropane	0.349	0.240	0.231	0.235	0.237	0.258	19.57
40) T	Bromodichloromet...	1.185	0.853	0.864	0.888	0.901	0.938	14.85
41) T	2,2,4-Trimethylp...	0.723	0.716	0.753	0.736	0.744	0.734	2.02
42) T	Trichloroethene	0.640	0.495	0.491	0.498	0.491	0.523	12.50
43) T	1,4-Dioxane	0.264	0.156	0.164	0.168	0.166	0.183	24.64
44) T	Methyl methacrylate	0.340	0.284	0.314	0.321	0.323	0.317	6.53
45) T	n-Heptane	0.149	0.259	0.267	0.269	0.270	0.243	21.71
46) T	cis-1,3-Dichloro...	0.626	0.513	0.558	0.572	0.578	0.569	7.12
47) T	Methyl isobutyl ...	0.394	0.347	0.344	0.346	0.348	0.356	6.08
48) T	trans-1,3-Dichlo...	0.624	0.540	0.596	0.617	0.630	0.601	6.10
49) T	1,1,2-Trichloroe...	0.603	0.436	0.415	0.415	0.422	0.458	17.79
50) T	Toluene	1.268	1.091	1.120	1.133	1.131	1.148	6.00
51) T	Methyl n-butyl k...	0.363	0.314	0.342	0.351	0.355	0.345	5.48
52) T	Dibromochloromet...	1.381	1.020	1.005	1.021	1.036	1.092	14.79
53) T	1,2-Dibromoethane	0.956	0.753	0.737	0.742	0.748	0.787	12.00
54) T	Tetrachloroethene	0.858	0.621	0.593	0.594	0.594	0.652	17.77

55) I	d-5 Chlorobenzene ...	-----ISTD-----						
56) T	Chlorobenzene	1.747	1.280	1.152	1.136	1.130	1.289	20.42
57) T	Ethylbenzene	2.119	1.929	1.839	1.820	1.789	1.899	7.02
58) T	Xylenes (m&p)	1.674	1.657	1.524	1.476	1.443	1.555	6.77
59) T	Bromoform	1.215	1.002	0.957	0.947	0.964	1.017	11.08
60) T	Styrene	0.963	1.035	1.079	1.080	1.076	1.047	4.80

AL SDG #E17-09837

Method Path : C:\msdchem\1\METHODS\

Method File : 0912.M

61)	T	Xylene (o)	1.739	1.721	1.597	1.543	1.536	1.627	5.95
62)	T	1,1,2,2-Tetrachl...	1.580	1.164	1.000	0.979	0.978	1.140	22.60
63)	T	n-Nonane	0.430	0.454	0.447	0.441	0.441	0.443	2.02
64)	S	Bromofluorobenze...	0.879	0.874	0.868	0.869	0.889	0.876	1.01
65)	T	Cumene	2.544	2.295	2.158	2.080	2.041	2.224	9.17
66)	T	2-Chlorotoluene	1.806	1.704	1.632	1.627	1.603	1.674	4.94
67)	T	n-Propyl benzene	0.676	0.684	0.626	0.610	0.601	0.639	5.99
68)	T	4-Ethyltoluene	2.155	2.311	2.172	2.116	2.057	2.162	4.37
69)	T	1,3,5-Trimethylb...	2.023	2.149	2.028	1.956	1.925	2.016	4.29
70)	T	1,2,4-Trimethylb...	1.736	2.011	2.036	2.003	1.960	1.949	6.28
71)	T	Benzyl chloride	1.526	1.561	1.663	1.732	1.749	1.646	6.08
72)	T	1,3-Dichlorobenzene	1.874	1.561	1.379	1.328	1.281	1.485	16.31
73)	T	1,4-Dichlorobenzene	1.804	1.560	1.429	1.397	1.362	1.510	11.95
74)	T	1,2-Dichlorobenzene	1.672	1.446	1.351	1.332	1.301	1.420	10.62
75)	T	1,2,4-Trichlorob...	1.596	1.317	1.257	1.237	1.187	1.319	12.29
76)	T	Naphthalene	0.245	0.467	0.445	0.443	0.429	0.406	22.36
77)	T	1,3-Hexachlorobu...	1.591	1.066	0.943	0.935	0.930	1.093	25.99

(#) = Out of Range

Data Path : C:\DATA\09-12-17\
 Data File : aa3443std01.D
 Acq On : 12 Sep 2017 9:44 am
 Operator : jls
 Sample : 40 ppbv Std
 Misc : CC483586
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 12 11:51:51 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 11:51:33 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.762	130	507733	10.00	ppbV	0.02
38) 1,4-Difluorobenzene (IS)	9.811	114	1906808	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.145	117	1755772	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.341	95	1561727	10.24	ppbV	0.00
Target Compounds						
					Qvalue	
2) Propene	3.518	41	492432	37.12	ppbV	91
3) Dichlorodifluoromethane	3.573	85	7460967	41.10	ppbV	97
4) Chloromethane	3.801	52	176957	34.74	ppbV #	1
5) 1,2-Dichlorotetrafluor...	3.788	85	5186871	37.84	ppbV	94
6) Vinyl chloride	3.904	62	1261033	40.53	ppbV	87
7) 1,3-Butadiene	4.007	54	671693	38.57	ppbV	88
8) n-Butane	4.052	43	1158072	38.85	ppbV	98
9) Bromomethane	4.255	94	1031392	32.15	ppbV	99
10) Chloroethane	4.396	64	673911	39.68	ppbV	100
11) Ethanol	4.438	45	278522	41.26	ppbV	96
12) Vinyl bromide	4.695	106	2125768	40.94	ppbV	100
13) Acrolein	4.766	56	393474	41.39	ppbV	98
14) Acetone	4.862	58	573042	40.29	ppbV	79
15) Trichlorofluoromethane	5.039	101	9457088	40.56	ppbV	99
16) Isopropanol	5.042	45	1440637	38.88	ppbV	99
17) n-Pentane	5.338	43	1374915	41.34	ppbV	92
18) 1,1-Dichloroethene	5.602	61	2880621	39.86	ppbV	97
19) Methylene chloride	5.714	84	1682116	40.92	ppbV	99
20) Tert-butyl alcohol	5.563	59	3524873	41.88	ppbV	100
21) Allyl chloride	5.811	76	742595	35.52	ppbV	100
22) 1,1,2-Trichloro-1,2,2-...	5.936	101	5510941	41.48	ppbV	97
23) Carbon disulfide	6.000	76	5405476	40.68	ppbV	100
24) 1,2-Dichloroethene (tr...	6.570	61	2446220	42.01	ppbV	100
25) 1,1-Dichloroethane	6.759	63	3160526	40.99	ppbV	93
26) Methyl tert-butyl ether	6.785	73	6590613	41.22	ppbV	99
27) Methyl ethyl ketone	7.100	72	998273	43.42	ppbV	97
28) 1,2-Dichloroethene (cis)	7.576	61	2407103	41.63	ppbV	100
29) Ethyl acetate	7.766	45	307654	41.07	ppbV	100
30) n-Hexane	7.798	57	1703258	41.90	ppbV	96
31) Chloroform	7.875	83	6196559	41.86	ppbV	100
32) Tetrahydrofuran	8.264	42	967589	41.77	ppbV	84
33) 1,2-Dichloroethane	8.643	62	4037399	42.37	ppbV	96
34) 1,1,1-Trichloroethane	8.923	97	7233141	42.10	ppbV	99
35) Benzene	9.418	78	6043342	41.53	ppbV	98
36) Carbon tetrachloride	9.586	117	8708585	42.45	ppbV	100
37) Cyclohexane	9.730	84	2578071	41.47	ppbV	89
39) 1,2-Dichloropropane	10.328	63	1805213	40.61	ppbV	96
40) Bromodichloromethane	10.553	83	6868949	41.14	ppbV	100
41) 2,2,4-Trimethylpentane	10.656	57	5675000	39.99	ppbV	94
42) Trichloroethene	10.608	130	3743603	39.68	ppbV	99
43) 1,4-Dioxane	10.573	88	1263305	39.99	ppbV	95
44) Methyl methacrylate	10.823	69	2461365	40.60	ppbV	99
45) n-Heptane	10.962	71	2055547	40.22	ppbV	99
46) cis-1,3-Dichloropropene	11.618	75	4412336	40.96	ppbV	100
47) Methyl isobutyl ketone	11.640	43	2651290	40.33	ppbV	99
48) trans-1,3-Dichloropropene	12.257	75	4804821	41.55	ppbV	99
49) 1,1,2-Trichloroethane	12.466	97	3219746	40.69	ppbV	97
50) Toluene	12.827	91	8622801	40.14	ppbV	97
51) Methyl n-butyl ketone	13.142	43	2711307	41.05	ppbV	99

AL SDG #E17-09837

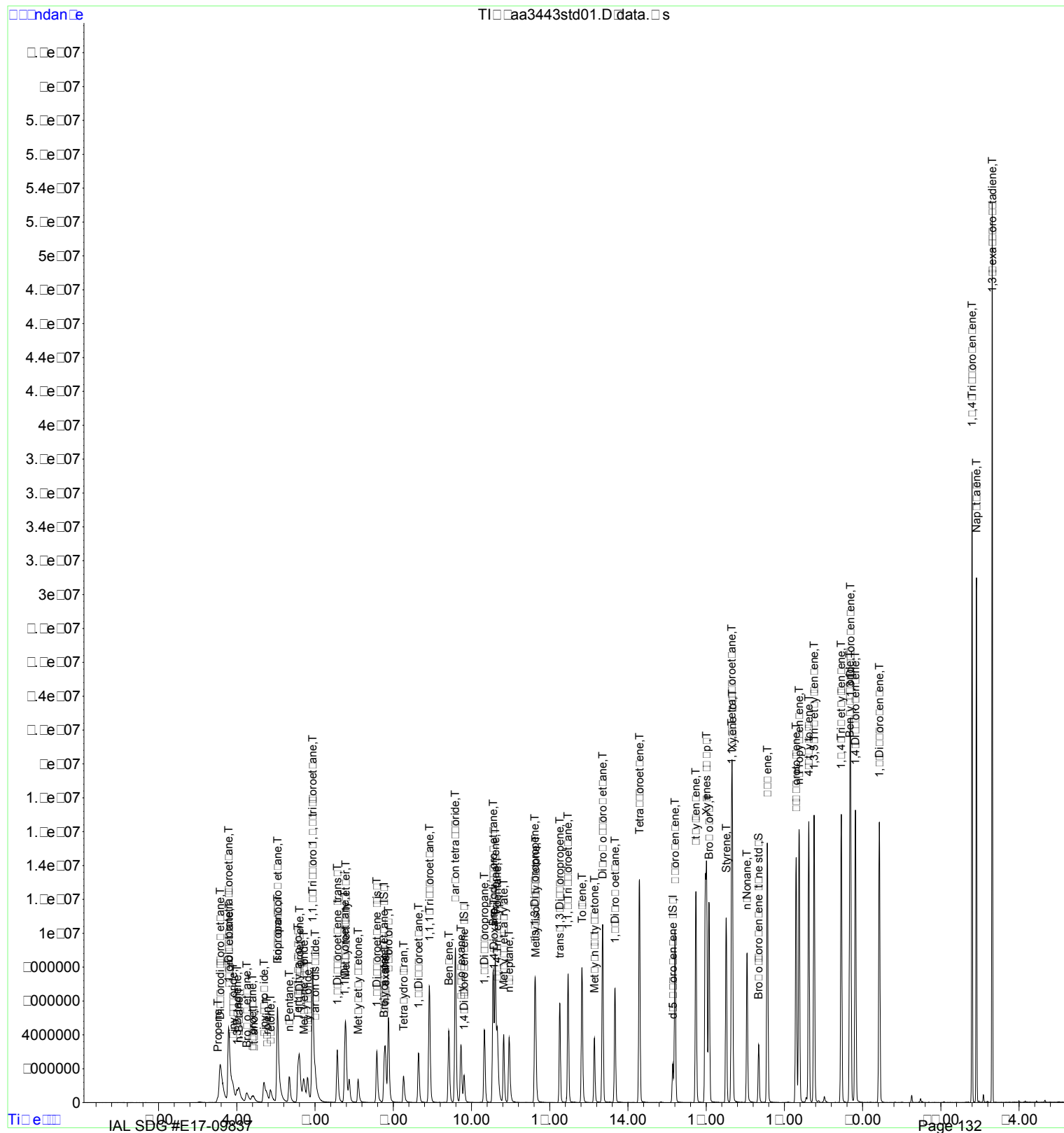
Data Path : C:\DATA\09-12-17\
 Data File : aa3443std01.D
 Acq On : 12 Sep 2017 9:44 am
 Operator : jls
 Sample : 40 ppbv Std
 Misc : CC483586
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Sep 12 11:51:51 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 11:51:33 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	13.351	129	7900815	40.91	ppbV	100
53) 1,2-Dibromoethane	13.669	107	5702953	40.44	ppbV	100
54) Tetrachloroethene	14.293	166	4530332	40.01	ppbV	98
56) Chlorobenzene	15.203	112	7933943	39.49	ppbV	99
57) Ethylbenzene	15.736	91	12566983	39.12	ppbV	99
58) Xylenes (m&p)	16.007	91	20265038	76.94	ppbV	98
59) Bromoform	16.074	173	6772595	40.54	ppbV	98
60) Styrene	16.511	104	7555611	39.87	ppbV	100
61) Xylene (o)	16.669	91	10787232	39.12	ppbV	89
62) 1,1,2,2-Tetrachloroethane	16.650	83	6871754	39.55	ppbV	99
63) n-Nonane	17.042	57	3100414	39.74	ppbV	98
65) Cumene	17.563	105	14336619	38.54	ppbV	93
66) 2-Chlorotoluene	18.299	91	11254947	39.34	ppbV	90
67) n-Propyl benzene	18.376	120	4220680	38.92	ppbV	78
68) 4-Ethyltoluene	18.624	105	14443758	38.37	ppbV	90
69) 1,3,5-Trimethylbenzene	18.759	105	13516198	38.64	ppbV	89
70) 1,2,4-Trimethylbenzene	19.453	105	13763803	38.82	ppbV	97
71) Benzyl chloride	19.672	91	12286327	41.21	ppbV	98
72) 1,3-Dichlorobenzene	19.691	146	8998162	37.86	ppbV	99
73) 1,4-Dichlorobenzene	19.813	146	9562690	38.55	ppbV	98
74) 1,2-Dichlorobenzene	20.428	146	9139233	38.81	ppbV	99
75) 1,2,4-Trichlorobenzene	22.797	180	8334126	38.07	ppbV	99
76) Naphthalene	22.910	127	3010750	38.64	ppbV	100
77) 1,3-Hexachlorobutadiene	23.315	225	6529476	39.61	ppbV	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quant Time: Sep 12 11:51:51 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 11:51:33 2017
Response via : Initial Calibration



Data Path : C:\DATA\09-12-17\
 Data File : aa3444std02.D
 Acq On : 12 Sep 2017 10:17 am
 Operator : jls
 Sample : 20 ppbv Std
 Misc : CC483586
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 12 11:51:12 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 11:51:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.756	130	536726	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.804	114	1995834	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.141	117	1812496	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.341	95	1575408	10.02	ppbV	0.00
Target Compounds						Qvalue
2) Propene	3.512	41	284157	20.53	ppbV	91
3) Dichlorodifluoromethane	3.573	85	3898861	20.65	ppbV	97
4) Chloromethane	3.740	52	105038	19.04	ppbV #	37
5) 1,2-Dichlorotetrafluor...	3.785	85	2883051	19.80	ppbV	97
6) Vinyl chloride	3.901	62	664979	20.45	ppbV	87
7) 1,3-Butadiene	3.994	54	369678	20.17	ppbV	86
8) n-Butane	4.045	43	632383	20.13	ppbV	99
9) Bromomethane	4.248	94	648986	18.34	ppbV	97
10) Chloroethane	4.389	64	365222	20.70	ppbV	96
11) Ethanol	4.428	45	145944	20.93	ppbV	90
12) Vinyl bromide	4.692	106	1121183	20.88	ppbV	100
13) Acrolein	4.756	56	210610	22.01	ppbV	97
14) Acetone	4.849	58	299330	19.82	ppbV	74
15) Trichlorofluoromethane	5.032	101	4989557	20.49	ppbV	99
16) Isopropanol	5.026	45	793737	20.53	ppbV	97
17) n-Pentane	5.341	43	720477	21.01	ppbV	92
18) 1,1-Dichloroethene	5.592	61	1546934	20.50	ppbV	98
19) Methylene chloride	5.708	84	875809	20.31	ppbV	99
20) Tert-butyl alcohol	5.563	59	1845060	21.54	ppbV	100
21) Allyl chloride	5.807	76	446165	20.39	ppbV	100
22) 1,1,2-Trichloro-1,2,2-...	5.936	101	2857551	20.70	ppbV	96
23) Carbon disulfide	5.994	76	2823312	20.20	ppbV	100
24) 1,2-Dichloroethene (tr...	6.566	61	1266294	21.17	ppbV	99
25) 1,1-Dichloroethane	6.756	63	1660587	20.76	ppbV	93
26) Methyl tert-butyl ether	6.782	73	3472754	21.13	ppbV	99
27) Methyl ethyl ketone	7.097	72	509854	22.06	ppbV	98
28) 1,2-Dichloroethene (cis)	7.572	61	1253582	21.05	ppbV	100
29) Ethyl acetate	7.765	45	160817	20.63	ppbV	100
30) n-Hexane	7.794	57	890645	21.51	ppbV	97
31) Chloroform	7.871	83	3197684	20.89	ppbV	100
32) Tetrahydrofuran	8.257	42	511090	21.82	ppbV	85
33) 1,2-Dichloroethane	8.640	62	2064604	21.02	ppbV	95
34) 1,1,1-Trichloroethane	8.920	97	3713894	20.92	ppbV	99
35) Benzene	9.415	78	3176455	21.35	ppbV	98
36) Carbon tetrachloride	9.582	117	4442760	21.00	ppbV	99
37) Cyclohexane	9.727	84	1351600	21.17	ppbV	89
39) 1,2-Dichloropropane	10.328	63	939339	20.38	ppbV	96
40) Bromodichloromethane	10.547	83	3543255	20.55	ppbV	100
41) 2,2,4-Trimethylpentane	10.656	57	2936211	19.54	ppbV	93
42) Trichloroethene	10.605	130	1988500	20.27	ppbV	98
43) 1,4-Dioxane	10.569	88	668684	20.45	ppbV	94
44) Methyl methacrylate	10.820	69	1283086	20.44	ppbV	99
45) n-Heptane	10.961	71	1075322	20.21	ppbV	99
46) cis-1,3-Dichloropropene	11.614	75	2283836	20.52	ppbV	99
47) Methyl isobutyl ketone	11.640	43	1380338	20.12	ppbV	99
48) trans-1,3-Dichloropropene	12.254	75	2463442	20.72	ppbV	100
49) 1,1,2-Trichloroethane	12.466	97	1655459	19.98	ppbV	98
50) Toluene	12.820	91	4522808	20.23	ppbV	96
51) Methyl n-butyl ketone	13.138	43	1400833	20.54	ppbV	99

AL SDG #E17-09837

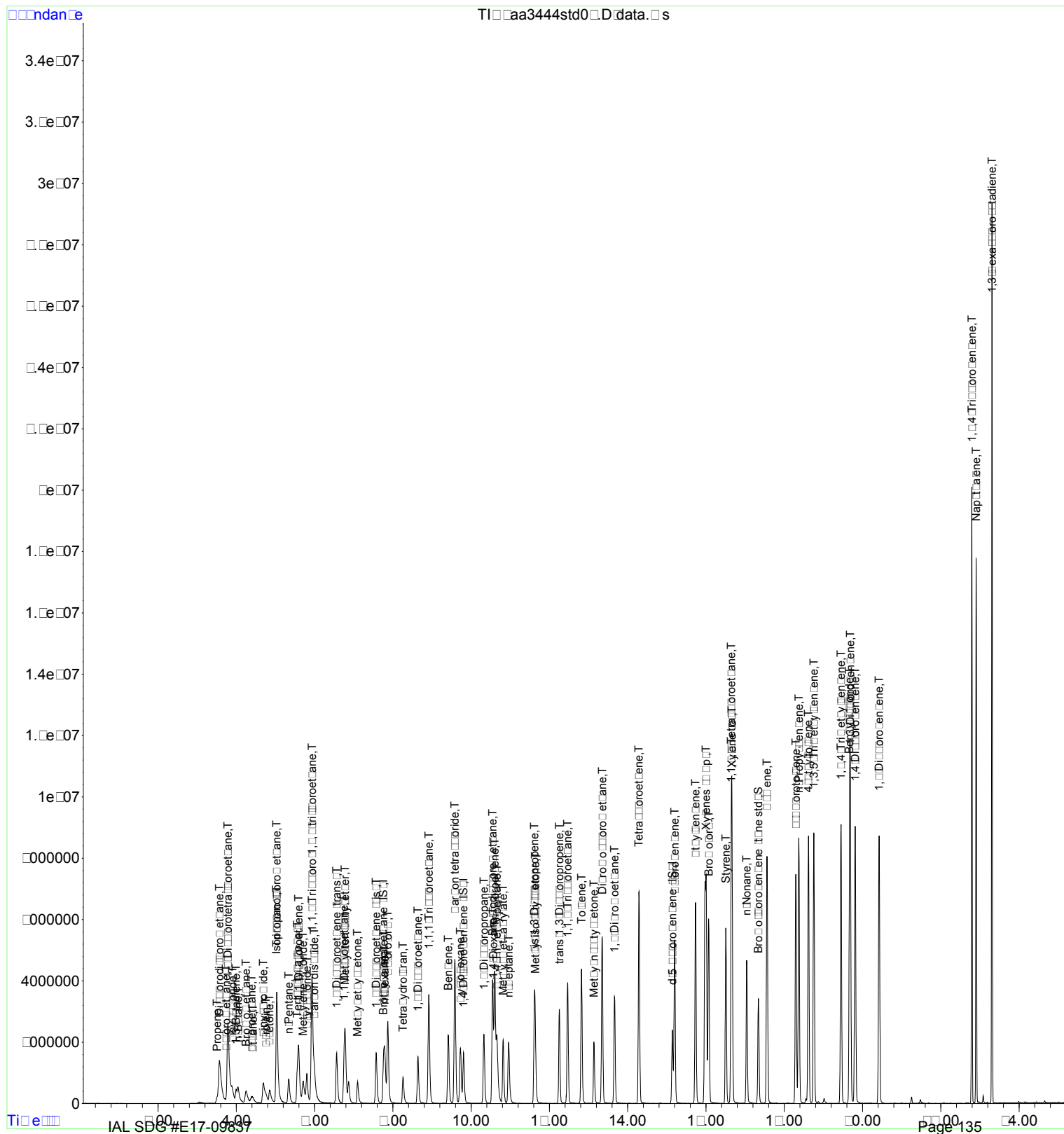
Data Path : C:\DATA\09-12-17\
 Data File : aa3444std02.D
 Acq On : 12 Sep 2017 10:17 am
 Operator : jls
 Sample : 20 ppbv Std
 Misc : CC483586
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 12 11:51:12 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 11:51:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	13.350	129	4074164	20.31	ppbV	99
53) 1,2-Dibromoethane	13.665	107	2962274	20.14	ppbV	100
54) Tetrachloroethene	14.286	166	2371415	20.02	ppbV	97
56) Chlorobenzene	15.199	112	4119514	19.73	ppbV	98
57) Ethylbenzene	15.733	91	6596793	19.79	ppbV	98
58) Xylenes (m&p)	16.003	91	10704404	38.76	ppbV	97
59) Bromoform	16.071	173	3431127	19.79	ppbV	97
60) Styrene	16.505	104	3914430	20.02	ppbV	99
61) Xylene (o)	16.665	91	5595101	19.33	ppbV	90
62) 1,1,2,2-Tetrachloroethane	16.646	83	3550423	19.60	ppbV	99
63) n-Nonane	17.042	57	1600156	19.74	ppbV	100
65) Cumene	17.559	105	7538238	19.28	ppbV	93
66) 2-Chlorotoluene	18.296	91	5898107	19.94	ppbV	90
67) n-Propyl benzene	18.373	120	2209626	19.49	ppbV	80
68) 4-Ethyltoluene	18.617	105	7669686	19.48	ppbV	91
69) 1,3,5-Trimethylbenzene	18.755	105	7091872	19.29	ppbV	88
70) 1,2,4-Trimethylbenzene	19.450	105	7260050	19.67	ppbV	98
71) Benzyl chloride	19.668	91	6279617	20.83	ppbV	99
72) 1,3-Dichlorobenzene	19.691	146	4815398	19.26	ppbV	98
73) 1,4-Dichlorobenzene	19.813	146	5063095	19.55	ppbV	97
74) 1,2-Dichlorobenzene	20.424	146	4827586	19.72	ppbV	99
75) 1,2,4-Trichlorobenzene	22.794	180	4482857	19.68	ppbV	99
76) Naphthalene	22.906	127	1604537	19.90	ppbV	100
77) 1,3-Hexachlorobutadiene	23.308	225	3389411	19.84	ppbV	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quant Time: Sep 12 11:51:12 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 11:51:02 2017
Response via : Initial Calibration



Data Path : C:\DATA\09-12-17\
 Data File : aa3445std03.D
 Acq On : 12 Sep 2017 10:51 am
 Operator : jls
 Sample : 10 ppbv Std
 Misc : CC483586
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 12 11:50:40 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 11:50:23 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.747	130	570548	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.804	114	2010687	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.139	117	1794220	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.338	95	1556791	10.00	ppbV	0.00
Target Compounds						Qvalue
2) Propene	3.506	41	147143	10.00	ppbV	91
3) Dichlorodifluoromethane	3.563	85	2007436	10.00	ppbV	97
4) Chloromethane	3.731	52	58646	10.00	ppbV #	1
5) 1,2-Dichlorotetrafluor...	3.776	85	1547891	10.00	ppbV	99
6) Vinyl chloride	3.891	62	345730	10.00	ppbV	91
7) 1,3-Butadiene	3.994	54	194863	10.00	ppbV	85
8) n-Butane	4.043	43	333874	10.00	ppbV	99
9) Bromomethane	4.248	94	376116	10.00	ppbV	100
10) Chloroethane	4.387	64	187557	10.00	ppbV	97
11) Ethanol	4.422	45	74127	10.00	ppbV	98
12) Vinyl bromide	4.686	106	570899	10.00	ppbV	99
13) Acrolein	4.753	56	101704	10.00	ppbV	93
14) Acetone	4.853	58	160554	10.00	ppbV	76
15) Trichlorofluoromethane	5.030	101	2588011	10.00	ppbV	98
16) Isopropanol	5.023	45	410895	10.00	ppbV	98
17) n-Pentane	5.335	43	364542	10.00	ppbV	93
18) 1,1-Dichloroethene	5.589	61	802065	10.00	ppbV	98
19) Methylene chloride	5.705	84	458466	10.00	ppbV	100
20) Tert-butyl alcohol	5.563	59	910734	10.00	ppbV	100
21) Allyl chloride	5.801	76	232657	10.00	ppbV	100
22) 1,1,2-Trichloro-1,2,2-...	5.933	101	1467207	10.00	ppbV	94
23) Carbon disulfide	5.988	76	1485399	10.00	ppbV	99
24) 1,2-Dichloroethene (tr...	6.560	61	635713	10.00	ppbV	99
25) 1,1-Dichloroethane	6.753	63	850442	10.00	ppbV	92
26) Methyl tert-butyl ether	6.785	73	1747277	10.00	ppbV	99
27) Methyl ethyl ketone	7.094	72	245732	10.00	ppbV	99
28) 1,2-Dichloroethene (cis)	7.570	61	633188	10.00	ppbV	99
29) Ethyl acetate	7.769	45	82877	10.00	ppbV	100
30) n-Hexane	7.792	57	440238	10.00	ppbV	98
31) Chloroform	7.869	83	1627065	10.00	ppbV	99
32) Tetrahydrofuran	8.258	42	248981	10.00	ppbV	84
33) 1,2-Dichloroethane	8.640	62	1044255	10.00	ppbV	95
34) 1,1,1-Trichloroethane	8.917	97	1887264	10.00	ppbV	98
35) Benzene	9.415	78	1581888	10.00	ppbV	98
36) Carbon tetrachloride	9.586	117	2249151	10.00	ppbV	100
37) Cyclohexane	9.724	84	678629	10.00	ppbV	89
39) 1,2-Dichloropropane	10.325	63	464264	10.00	ppbV	96
40) Bromodichloromethane	10.547	83	1736726	10.00	ppbV	99
41) 2,2,4-Trimethylpentane	10.653	57	1513568	10.00	ppbV	95
42) Trichloroethene	10.605	130	988236	10.00	ppbV	100
43) 1,4-Dioxane	10.563	88	329465	10.00	ppbV	93
44) Methyl methacrylate	10.817	69	632275	10.00	ppbV	99
45) n-Heptane	10.952	71	536121	10.00	ppbV	100
46) cis-1,3-Dichloropropene	11.611	75	1121341	10.00	ppbV	99
47) Methyl isobutyl ketone	11.637	43	691185	10.00	ppbV	99
48) trans-1,3-Dichloropropene	12.251	75	1197976	10.00	ppbV	100
49) 1,1,2-Trichloroethane	12.463	97	834801	10.00	ppbV	97
50) Toluene	12.817	91	2252121	10.00	ppbV	96
51) Methyl n-butyl ketone	13.139	43	687207	10.00	ppbV	98

AL SDG #E17-09837

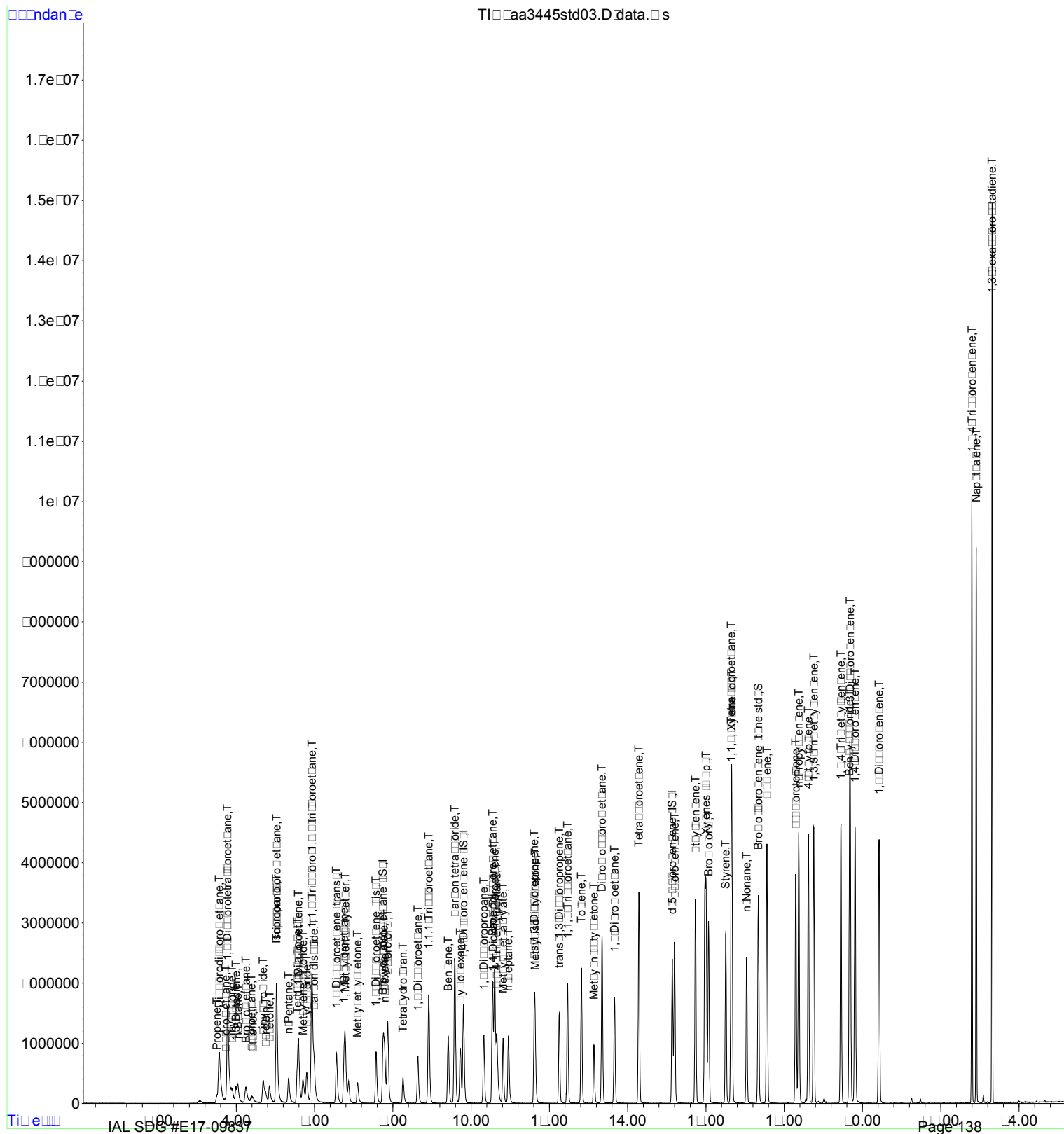
Data Path : C:\DATA\09-12-17\
 Data File : aa3445std03.D
 Acq On : 12 Sep 2017 10:51 am
 Operator : jls
 Sample : 10 ppbv Std
 Misc : CC483586
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Sep 12 11:50:40 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 11:50:23 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	13.344	129	2021003	10.00	ppbV	100
53) 1,2-Dibromoethane	13.663	107	1481958	10.00	ppbV	99
54) Tetrachloroethene	14.286	166	1193178	10.00	ppbV	97
56) Chlorobenzene	15.200	112	2067104	10.00	ppbV	99
57) Ethylbenzene	15.733	91	3300022	10.00	ppbV	98
58) Xylenes (m&p)	16.003	91	5468436	20.00	ppbV	97
59) Bromoform	16.068	173	1716257	10.00	ppbV	96
60) Styrene	16.505	104	1935850	10.00	ppbV	99
61) Xylene (o)	16.659	91	2865975	10.00	ppbV	90
62) 1,1,2,2-Tetrachloroethane	16.647	83	1793518	10.00	ppbV	99
63) n-Nonane	17.042	57	802552	10.00	ppbV	99
65) Cumene	17.560	105	3871150	10.00	ppbV	94
66) 2-Chlorotoluene	18.293	91	2928043	10.00	ppbV	91
67) n-Propyl benzene	18.373	120	1122548	10.00	ppbV	82
68) 4-Ethyltoluene	18.617	105	3897621	10.00	ppbV	92
69) 1,3,5-Trimethylbenzene	18.756	105	3638674	10.00	ppbV	89
70) 1,2,4-Trimethylbenzene	19.450	105	3653697	10.00	ppbV	97
71) Benzyl chloride	19.666	91	2984625	10.00	ppbV	98
72) 1,3-Dichlorobenzene	19.685	146	2474639	10.00	ppbV	99
73) 1,4-Dichlorobenzene	19.810	146	2563799	10.00	ppbV	97
74) 1,2-Dichlorobenzene	20.424	146	2423252	10.00	ppbV	99
75) 1,2,4-Trichlorobenzene	22.794	180	2255037	10.00	ppbV	99
76) Naphthalene	22.907	127	798205	10.00	ppbV	100
77) 1,3-Hexachlorobutadiene	23.312	225	1691282	10.00	ppbV	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quant Time: Sep 12 11:50:40 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 11:50:23 2017
Response via : Initial Calibration



Data Path : C:\DATA\09-12-17\
 Data File : aa3446std04.D
 Acq On : 12 Sep 2017 11:24 am
 Operator : jls
 Sample : 2 ppbv Std
 Misc : CC483586
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 12 11:52:39 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 11:52:15 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.740	130	558591	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.801	114	1941470	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.138	117	1681997	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.337	95	1469868	9.98	ppbV	0.00
Target Compounds						
						Qvalue
2) Propene	3.505	41	27834	1.95	ppbV	84
3) Dichlorodifluoromethane	3.563	85	394053	1.96	ppbV	96
4) Chloromethane	3.724	52	9280	1.73	ppbV	81
5) 1,2-Dichlorotetrafluor...	3.769	85	302888	2.05	ppbV	96
6) Vinyl chloride	3.891	62	64970	1.89	ppbV	85
7) 1,3-Butadiene	3.984	54	35718	1.89	ppbV	87
8) n-Butane	4.033	43	61720	1.90	ppbV	93
9) Bromomethane	4.245	94	72076	2.18	ppbV	97
10) Chloroethane	4.373	64	37286	2.00	ppbV	90
11) Ethanol	4.415	45	15408	2.05	ppbV	98
12) Vinyl bromide	4.679	106	102959	1.79	ppbV	95
13) Acrolein	4.750	56	19384	1.83	ppbV	91
14) Acetone	4.849	58	29669	1.89	ppbV	75
15) Trichlorofluoromethane	5.023	101	510797	1.98	ppbV	99
16) Isopropanol	5.020	45	74323	1.84	ppbV	92
17) n-Pentane	5.338	43	63142	1.71	ppbV	93
18) 1,1-Dichloroethene	5.589	61	143956	1.81	ppbV	97
19) Methylene chloride	5.698	84	86495	1.90	ppbV	95
20) Tert-butyl alcohol	5.553	59	165357	1.76	ppbV	100
21) Allyl chloride	5.798	76	40464	1.83	ppbV	100
22) 1,1,2-Trichloro-1,2,2-...	5.926	101	320550	2.17	ppbV	97
23) Carbon disulfide	5.981	76	286701	1.95	ppbV	98
24) 1,2-Dichloroethene (tr...	6.563	61	116060	1.78	ppbV	100
25) 1,1-Dichloroethane	6.753	63	155224	1.81	ppbV	90
26) Methyl tert-butyl ether	6.782	73	318717	1.79	ppbV	99
27) Methyl ethyl ketone	7.094	72	42822	1.65	ppbV	99
28) 1,2-Dichloroethene (cis)	7.576	61	112786	1.75	ppbV	98
29) Ethyl acetate	7.778	45	14639	1.76	ppbV	100
30) n-Hexane	7.788	57	82043	1.81	ppbV	96
31) Chloroform	7.865	83	307969	1.86	ppbV	100
32) Tetrahydrofuran	8.277	42	43025	1.66	ppbV #	77
33) 1,2-Dichloroethane	8.634	62	196757	1.84	ppbV	95
34) 1,1,1-Trichloroethane	8.920	97	385057	2.00	ppbV	98
35) Benzene	9.415	78	294781	1.82	ppbV	97
36) Carbon tetrachloride	9.582	117	456955	1.98	ppbV	100
37) Cyclohexane	9.720	84	124758	1.80	ppbV	91
39) 1,2-Dichloropropane	10.325	63	93202	2.05	ppbV	93
40) Bromodichloromethane	10.544	83	331208	1.93	ppbV	98
41) 2,2,4-Trimethylpentane	10.656	57	278128	1.93	ppbV	95
42) Trichloroethene	10.601	130	192180	2.01	ppbV	98
43) 1,4-Dioxane	10.566	88	60551	1.88	ppbV	95
44) Methyl methacrylate	10.817	69	110169	1.78	ppbV	93
45) n-Heptane	10.952	71	100545	1.93	ppbV	99
46) cis-1,3-Dichloropropene	11.611	75	199150	1.80	ppbV	98
47) Methyl isobutyl ketone	11.643	43	134611	2.01	ppbV	96
48) trans-1,3-Dichloropropene	12.248	75	209618	1.76	ppbV	99
49) 1,1,2-Trichloroethane	12.463	97	169444	2.09	ppbV	98
50) Toluene	12.820	91	423556	1.93	ppbV	97
51) Methyl n-butyl ketone	13.142	43	121934	1.80	ppbV	96

AL SDG #E17-09837

Data Path : C:\DATA\09-12-17\
 Data File : aa3446std04.D
 Acq On : 12 Sep 2017 11:24 am
 Operator : jls
 Sample : 2 ppbv Std
 Misc : CC483586
 ALS Vial : 6 Sample Multiplier: 1

Quant Time: Sep 12 11:52:39 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 11:52:15 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	13.341	129	396000	2.00	ppbV	99
53) 1,2-Dibromoethane	13.666	107	292260	2.03	ppbV	99
54) Tetrachloroethene	14.289	166	241029	2.09	ppbV	97
56) Chlorobenzene	15.199	112	430581	2.25	ppbV	98
57) Ethylbenzene	15.733	91	648836	2.12	ppbV	97
58) Xylenes (m&p)	16.000	91	1114763	4.47	ppbV	97
59) Bromoform	16.064	173	337047	2.10	ppbV	98
60) Styrene	16.508	104	348108	1.92	ppbV	99
61) Xylene (o)	16.662	91	578894	2.21	ppbV	89
62) 1,1,2,2-Tetrachloroethane	16.646	83	391692	2.36	ppbV	100
63) n-Nonane	17.042	57	152751	2.05	ppbV	99
65) Cumene	17.559	105	772189	2.19	ppbV	94
66) 2-Chlorotoluene	18.296	91	573326	2.10	ppbV	89
67) n-Propyl benzene	18.373	120	229992	2.23	ppbV	82
68) 4-Ethyltoluene	18.617	105	777516	2.19	ppbV	92
69) 1,3,5-Trimethylbenzene	18.755	105	723062	2.18	ppbV	89
70) 1,2,4-Trimethylbenzene	19.450	105	676515	2.01	ppbV	98
71) Benzyl chloride	19.669	91	525084	1.82	ppbV	99
72) 1,3-Dichlorobenzene	19.685	146	525042	2.35	ppbV	98
73) 1,4-Dichlorobenzene	19.810	146	524634	2.23	ppbV	96
74) 1,2-Dichlorobenzene	20.424	146	486418	2.18	ppbV	98
75) 1,2,4-Trichlorobenzene	22.794	180	442983	2.15	ppbV	99
76) Naphthalene	22.906	127	157227	2.13	ppbV	100
77) 1,3-Hexachlorobutadiene	23.312	225	358706	2.28	ppbV	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\
Data File : aa3446st
Acq On : 12 Sep 2

Quant Time: Sep 12 11:52:39 2017



Data Path : C:\DATA\09-12-17\
 Data File : aa3447std05.D
 Acq On : 12 Sep 2017 12:06 pm
 Operator : jls
 Sample : 0.2 ppbv Std
 Misc : CC483586
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 12 12:55:11 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 12:52:29 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.743	130	540977	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.801	114	1832450	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.141	117	1639395	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.341	95	1441128	10.04	ppbV	0.00
Target Compounds						Qvalue
2) Propene	3.502	41	2514	0.19	ppbV #	41
3) Dichlorodifluoromethane	3.563	85	46664	0.23	ppbV	98
4) Chloromethane	3.711	52	540	0.12	ppbV #	62
5) 1,2-Dichlorotetrafluor...	3.772	85	42103	0.27	ppbV	98
6) Vinyl chloride	3.897	62	4393	0.14	ppbV	86
7) 1,3-Butadiene	3.991	54	2543	0.15	ppbV	84
8) n-Butane	4.026	43	3238	0.12	ppbV #	62
9) Bromomethane	4.238	94	5265	0.17	ppbV	89
10) Chloroethane	4.367	64	1709	0.11	ppbV #	82
11) Ethanol	4.399	45	489	0.08	ppbV	100
12) Vinyl bromide	4.679	106	7473	0.16	ppbV	69
13) Acrolein	4.730	56	923	0.10	ppbV	84
14) Acetone	4.833	58	1398	0.10	ppbV #	1
15) Trichlorofluoromethane	5.029	101	66999	0.25	ppbV	96
16) Isopropanol	5.020	45	5477	0.16	ppbV	73
17) n-Pentane	5.335	43	5385	0.16	ppbV #	28
18) 1,1-Dichloroethene	5.585	61	15158	0.20	ppbV	95
19) Methylene chloride	5.695	84	13128	0.37	ppbV #	46
20) Tert-butyl alcohol	5.566	59	18411	0.21	ppbV	100
21) Allyl chloride	5.788	76	4219	0.20	ppbV	100
22) 1,1,2-Trichloro-1,2,2-...	5.926	101	44337	0.27	ppbV	99
23) Carbon disulfide	5.981	76	31545	0.22	ppbV	100
24) 1,2-Dichloroethene (tr...	6.556	61	12162	0.20	ppbV	86
25) 1,1-Dichloroethane	6.740	63	21576	0.25	ppbV #	80
26) Methyl tert-butyl ether	6.791	73	36602	0.21	ppbV	94
27) Methyl ethyl ketone	7.116	72	1971	0.09	ppbV #	37
28) 1,2-Dichloroethene (cis)	7.573	61	12342	0.20	ppbV	96
29) Ethyl acetate	7.765	45	841	0.12	ppbV	100
30) n-Hexane	7.791	57	9749	0.22	ppbV #	64
31) Chloroform	7.872	83	38234	0.23	ppbV	99
32) Tetrahydrofuran	8.277	42	3024	0.14	ppbV #	13
33) 1,2-Dichloroethane	8.643	62	24232	0.23	ppbV #	88
34) 1,1,1-Trichloroethane	8.910	97	49996	0.25	ppbV	100
35) Benzene	9.408	78	36629	0.23	ppbV	96
36) Carbon tetrachloride	9.576	117	59878	0.25	ppbV	99
37) Cyclohexane	9.714	84	13068	0.20	ppbV	85
39) 1,2-Dichloropropane	10.334	63	12774	0.27	ppbV	86
40) Bromodichloromethane	10.537	83	43420	0.25	ppbV	97
41) 2,2,4-Trimethylpentane	10.653	57	26508	0.20	ppbV	98
42) Trichloroethene	10.605	130	23453	0.24	ppbV	98
43) 1,4-Dioxane	10.582	88	9667	0.29	ppbV	91
44) Methyl methacrylate	10.823	69	12474	0.22	ppbV #	63
45) n-Heptane	10.955	71	5450	0.12	ppbV #	70
46) cis-1,3-Dichloropropene	11.614	75	22926	0.22	ppbV	98
47) Methyl isobutyl ketone	11.650	43	14448	0.22	ppbV	95
48) trans-1,3-Dichloropropene	12.257	75	22856	0.21	ppbV	89
49) 1,1,2-Trichloroethane	12.466	97	22115	0.26	ppbV	95
50) Toluene	12.820	91	46471	0.22	ppbV	96
51) Methyl n-butyl ketone	13.154	43	13295	0.21	ppbV	95

AL SDG #E17-09837

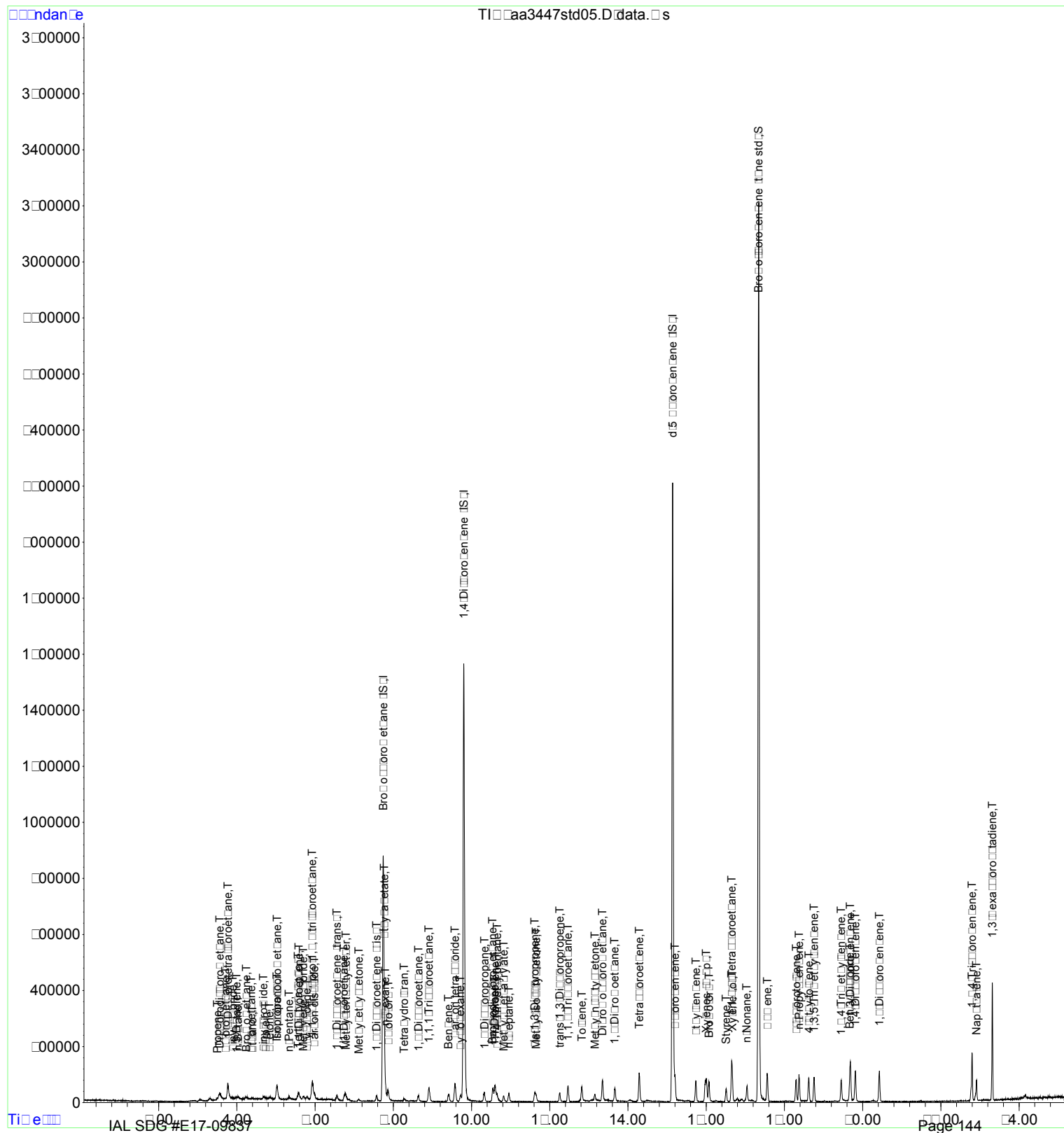
Data Path : C:\DATA\09-12-17\
 Data File : aa3447std05.D
 Acq On : 12 Sep 2017 12:06 pm
 Operator : jls
 Sample : 0.2 ppbv Std
 Misc : CC483586
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 12 12:55:11 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 12:52:29 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	13.344	129	50607	0.25	ppbV	99
53) 1,2-Dibromoethane	13.659	107	35027	0.24	ppbV	95
54) Tetrachloroethene	14.289	166	31459	0.26	ppbV	99
56) Chlorobenzene	15.202	112	57275	0.27	ppbV	99
57) Ethylbenzene	15.739	91	69474	0.22	ppbV	100
58) Xylenes (m&p)	16.003	91	109780	0.43	ppbV #	28
59) Bromoform	16.071	173	39834	0.24	ppbV	100
60) Styrene	16.508	104	31584	0.18	ppbV	96
61) Xylene (o)	16.672	91	57018	0.21	ppbV	90
62) 1,1,2,2-Tetrachloroethane	16.653	83	51800	0.28	ppbV	99
63) n-Nonane	17.035	57	14093	0.19	ppbV	99
65) Cumene	17.566	105	83411	0.23	ppbV	93
66) 2-Chlorotoluene	18.302	91	59214	0.22	ppbV	90
67) n-Propyl benzene	18.373	120	22169	0.21	ppbV	79
68) 4-Ethyltoluene	18.627	105	70651	0.20	ppbV #	89
69) 1,3,5-Trimethylbenzene	18.755	105	66346	0.20	ppbV	88
70) 1,2,4-Trimethylbenzene	19.453	105	56911	0.18	ppbV	98
71) Benzyl chloride	19.669	91	50044	0.19	ppbV #	80
72) 1,3-Dichlorobenzene	19.685	146	61456	0.25	ppbV	98
73) 1,4-Dichlorobenzene	19.813	146	59144	0.24	ppbV	94
74) 1,2-Dichlorobenzene	20.427	146	54832	0.24	ppbV	98
75) 1,2,4-Trichlorobenzene	22.797	180	52344	0.24	ppbV	99
76) Naphthalene	22.913	127	8045	0.12	ppbV	100
77) 1,3-Hexachlorobutadiene	23.315	225	52156	0.29	ppbV	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quant Time: Sep 12 12:55:11 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 12:52:29 2017
Response via : Initial Calibration



Continuing Calibration Data Summary Report

Initial Calibration Curve: 9/12/2017
Instrument: AA
Amount of standard injected (ml): 50

Date/Time of Calibration: 10/4/2017 09:02
Sample ID: DCS
Laboratory ID: AA3702DCVS

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3701BFB]	10/04/2017 08:23
10 PPBV DCVS [AA3702DCVS]	10/04/2017 09:02
10 PPBV LCS [AA3703LCS]	10/04/2017 09:55
METHOD BLANK [AA3704BLK]	10/04/2017 10:33
02 PPBV RLLCS [AA3705RLLCS]	10/04/2017 11:14
CLEAN CAN CERTIFICATION, BATCH MASTER 2162 [AA3717]	10/04/2017 18:34
10 PPBV CCCVS [AA3728CCCVS]	10/04/2017 19:08

Compound Name	Average RRF	Standard RRF	% Difference	Pass/Fail	*
Acetone	0.25	0.24	4.9	PASS	
Benzene	2.9	2.6	12	PASS	
Bromodichloromethane	0.94	0.92	1.5	PASS	
Bromoform	1.0	1.0	-0.90	PASS	
Bromomethane	0.58	0.61	-4.5	PASS	
1,3-Butadiene	0.31	0.30	6.1	PASS	
Chlorobenzene	1.3	1.2	9.9	PASS	
Chloroethane	0.30	0.29	3.7	PASS	
Chloroform	3.0	3.0	2.6	PASS	
Chloromethane	0.084	0.084	0.00	PASS	
Carbon disulfide	2.7	2.5	7.8	PASS	
Carbon tetrachloride	4.4	4.2	3.4	PASS	
Cyclohexane	1.2	1.1	8.8	PASS	
Dibromochloromethane	1.1	1.1	0.30	PASS	
1,2-Dibromoethane	0.79	0.74	5.6	PASS	
1,2-Dichlorobenzene	1.4	1.3	6.0	PASS	
1,3-Dichlorobenzene	1.5	1.4	6.0	PASS	
1,4-Dichlorobenzene	1.5	1.4	5.4	PASS	
Dichlorodifluoromethane	3.7	3.7	-0.20	PASS	
1,1-Dichloroethane	1.6	1.4	11	PASS	
1,2-Dichloroethane	1.9	1.9	2.4	PASS	
1,1-Dichloroethene	1.4	1.4	1.6	PASS	
1,2-Dichloroethene (cis)	1.1	1.0	8.1	PASS	
1,2-Dichloroethene (trans)	1.1	1.0	8.5	PASS	
1,2-Dichloropropane	0.26	0.22	17	PASS	
1,3-Dichloropropene (cis)	0.57	0.55	3.5	PASS	
1,3-Dichloropropene (trans)	0.60	0.59	2.0	PASS	
1,2-Dichlorotetrafluoroethane	2.9	2.7	8.6	PASS	
1,4-Dioxane	0.18	0.16	14	PASS	
Ethylbenzene	1.9	1.9	1.8	PASS	
n-Heptane	0.24	0.26	-8.6	PASS	
1,3-Hexachlorobutadiene	1.1	0.95	13	PASS	
n-Hexane	0.82	0.68	16	PASS	
Methylene chloride	0.89	0.77	13	PASS	
Methyl ethyl ketone	0.39	0.40	-2.5	PASS	
Methyl isobutyl ketone	0.36	0.32	9.6	PASS	
Methyl tert-butyl ether	3.2	2.8	11	PASS	
Styrene	1.0	1.1	-1.5	PASS	
Tert-butyl alcohol	1.6	1.4	16	PASS	
1,1,2,2-Tetrachloroethane	1.1	1.0	9.7	PASS	
Tetrachloroethene	0.65	0.59	9.2	PASS	
Toluene	1.1	1.1	4.2	PASS	
1,2,4-Trichlorobenzene	1.3	1.2	12	PASS	

*%Difference must be within +/- 30%

RRF - Relative Response Factor

IAL SDG #E17-09837

Continuing Calibration Data Summary Report

Initial Calibration Curve: 9/12/2017
Instrument: AA
Amount of standard injected (ml): 50

Date/Time of Calibration: 10/4/2017 09:02
Sample ID: DCS
Laboratory ID: AA3702DCVS

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3701BFB]	10/04/2017 08:23
10 PPBV DCVS [AA3702DCVS]	10/04/2017 09:02
10 PPBV LCS [AA3703LCS]	10/04/2017 09:55
METHOD BLANK [AA3704BLK]	10/04/2017 10:33
02 PPBV RLLCS [AA3705RLLCS]	10/04/2017 11:14
CLEAN CAN CERTIFICATION, BATCH MASTER 2162 [AA3717]	10/04/2017 18:34
10 PPBV CCCVS [AA3728CCCVS]	10/04/2017 19:08

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
1,1,1-Trichloroethane	3.7	3.4	6.4	PASS	
1,1,2-Trichloroethane	0.46	0.42	9.2	PASS	
Trichloroethene	0.52	0.51	2.9	PASS	
Trichlorofluoromethane	4.9	4.9	0.70	PASS	
1,1,2-Trichloro-1,2,2-trifluoroethane	3.0	2.6	12	PASS	
1,2,4-Trimethylbenzene	1.9	2.1	-6.6	PASS	
1,3,5-Trimethylbenzene	2.0	2.1	-4.2	PASS	
2,2,4-Trimethylpentane	0.73	0.69	6.0	PASS	
Vinyl bromide	0.94	0.93	0.70	PASS	
Vinyl chloride	0.57	0.51	9.9	PASS	
Xylenes (m&p)	1.6	1.6	-0.60	PASS	
Xylenes (o)	1.6	1.6	-0.90	PASS	

*%Difference must be within +/- 30%

RRF - Relative Response Factor

IAL SDG #E17-09837

Data Path : C:\DATA\10-04-17\
 Data File : aa3702dcvs.D
 Acq On : 4 Oct 2017 9:02 am
 Operator : jls
 Sample : 10 ppbv DCVS
 Misc : CC483586
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 04 09:42:45 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 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	84	0.00
2 T	Propene	0.249	0.196	21.3	64	0.00
3 T	Dichlorodifluoromethane	3.733	3.741	-0.2	90	0.00
4 T	Chloromethane	0.084	0.084	0.0	69	0.00
5 T	1,2-Dichlorotetrafluoroetha	2.911	2.661	8.6	83	0.00
6 T	Vinyl chloride	0.567	0.511	9.9	71	0.00
7 T	1,3-Butadiene	0.314	0.295	6.1	73	0.00
8 T	n-Butane	0.519	0.491	5.4	71	0.00
9 T	Bromomethane	0.581	0.607	-4.5	78	0.00
10 T	Chloroethane	0.298	0.287	3.7	74	0.01
11 T	Ethanol	0.117	0.087	25.6	57	0.00
12 T	Vinyl bromide	0.941	0.934	0.7	79	0.00
13 T	Acrolein	0.165	0.155	6.1	73	0.00
14 T	Acetone	0.247	0.235	4.9	70	0.00
15 T	Trichlorofluoromethane	4.921	4.887	0.7	91	0.00
16 T	Isopropanol	0.668	0.567	15.1	67	0.00
17 T	n-Pentane	0.610	0.531	13.0	70	0.00
18 T	1,1-Dichloroethene	1.391	1.369	1.6	82	0.00
19 T	Methylene chloride	0.887	0.769	13.3	81	0.00
20 T	Tert-butyl alcohol	1.646	1.380	16.2	73	0.00
21 T	Allyl chloride	0.388	0.368	5.2	76	0.00
22 T	1,1,2-Trichloro-1,2,2-trifl	2.983	2.625	12.0	86	0.00
23 T	Carbon disulfide	2.675	2.466	7.8	80	0.00
24 T	1,2-Dichloroethene (trans)	1.132	1.036	8.5	79	0.00
25 T	1,1-Dichloroethane	1.595	1.416	11.2	80	0.00
26 T	Methyl tert-butyl ether	3.156	2.811	10.9	78	0.00
27 T	Methyl ethyl ketone	0.393	0.403	-2.5	79	0.00
28 T	1,2-Dichloroethene (cis)	1.123	1.032	8.1	79	0.00
29 T	Ethyl acetate	0.131	0.121	7.6	71	0.00
30 T	n-Hexane	0.815	0.683	16.2	75	0.00
31 T	Chloroform	3.034	2.956	2.6	88	0.00
32 T	Tetrahydrofuran	0.411	0.369	10.2	72	0.00
33 T	1,2-Dichloroethane	1.948	1.901	2.4	88	0.00
34 T	1,1,1-Trichloroethane	3.679	3.443	6.4	88	0.00
35 T	Benzene	2.946	2.584	12.3	79	0.00
36 T	Carbon tetrachloride	4.399	4.249	3.4	91	0.00
37 T	Cyclohexane	1.208	1.102	8.8	78	0.00
38 I	1,4-Difluorobenzene (IS)	1.000	1.000	0.0	83	0.00
39 T	1,2-Dichloropropane	0.258	0.215	16.7	77	0.00
40 T	Bromodichloromethane	0.938	0.924	1.5	89	0.00
41 T	2,2,4-Trimethylpentane	0.734	0.690	6.0	76	0.00
42 T	Trichloroethene	0.523	0.508	2.9	86	0.00
43 T	1,4-Dioxane	0.183	0.158	13.7	80	0.00
44 T	Methyl methacrylate	0.317	0.299	5.7	79	0.00
45 T	n-Heptane	0.243	0.264	-8.6	82	0.00
46 T	cis-1,3-Dichloropropene	0.569	0.549	3.5	81	0.00
47 T	Methyl isobutyl ketone	0.356	0.322	9.6	78	0.00
48 T	trans-1,3-Dichloropropene	0.601	0.589	2.0	82	0.00
49 T	1,1,2-Trichloroethane	0.458	0.416	9.2	83	0.00
50 T	Toluene	1.148	1.100	4.2	81	0.00
51 T	Methyl n-butyl ketone	0.345	0.314	9.0	76	0.00
52 T	Dibromochloromethane	1.092	1.089	0.3	90	0.00
53 T	1,2-Dibromoethane	0.787	0.743	5.6	83	0.00

AL SDG #E17-09837

Data Path : C:\DATA\10-04-17\
 Data File : aa3702dcvs.D
 Acq On : 4 Oct 2017 9:02 am
 Operator : jls
 Sample : 10 ppbv DCVS
 Misc : CC483586
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 04 09:42:45 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 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	Tetrachloroethene	0.652	0.592	9.2	83	0.00
55 I	d-5 Chlorobenzene (IS)	1.000	1.000	0.0	83	0.00
56 T	Chlorobenzene	1.289	1.161	9.9	84	0.00
57 T	Ethylbenzene	1.899	1.865	1.8	84	0.00
58 T	Xylenes (m&p)	1.555	1.564	-0.6	85	0.00
59 T	Bromoform	1.017	1.026	-0.9	89	0.00
60 T	Styrene	1.047	1.063	-1.5	82	0.00
61 T	Xylene (o)	1.627	1.641	-0.9	85	0.00
62 T	1,1,2,2-Tetrachloroethane	1.140	1.029	9.7	86	0.00
63 T	n-Nonane	0.443	0.422	4.7	79	0.00
64 S	Bromofluorobenzene (tune st	0.876	0.905	-3.3	87	0.00
65 T	Cumene	2.224	2.209	0.7	85	0.00
66 T	2-Chlorotoluene	1.674	1.670	0.2	85	0.00
67 T	n-Propyl benzene	0.639	0.638	0.2	85	0.00
68 T	4-Ethyltoluene	2.162	2.223	-2.8	85	0.00
69 T	1,3,5-Trimethylbenzene	2.016	2.100	-4.2	86	0.00
70 T	1,2,4-Trimethylbenzene	1.949	2.077	-6.6	85	0.00
71 T	Benzyl chloride	1.646	1.699	-3.2	85	0.00
72 T	1,3-Dichlorobenzene	1.485	1.396	6.0	84	0.00
73 T	1,4-Dichlorobenzene	1.510	1.429	5.4	83	0.00
74 T	1,2-Dichlorobenzene	1.420	1.335	6.0	82	0.00
75 T	1,2,4-Trichlorobenzene	1.319	1.156	12.4	76	0.00
76 T	Naphthalene	0.406	0.406	0.0	76	0.00
77 T	1,3-Hexachlorobutadiene	1.093	0.946	13.4	83	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data Path : C:\DATA\10-04-17\
 Data File : aa3702dcvs.D
 Acq On : 4 Oct 2017 9:02 am
 Operator : jls
 Sample : 10 ppbv DCVS
 Misc : CC483586
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 04 09:42:45 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.746	130	481943	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.804	114	1664213	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.138	117	1491654	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.341	95	1349754	10.33	ppbV	0.00
Target Compounds						
					Qvalue	
2) Propene	3.508	41	94276	7.85	ppbV #	80
3) Dichlorodifluoromethane	3.563	85	1802889	10.02	ppbV	96
4) Chloromethane	3.724	52	40589	10.01	ppbV #	1
5) 1,2-Dichlorotetrafluor...	3.775	85	1282502	9.14	ppbV	100
6) Vinyl chloride	3.897	62	246364	9.02	ppbV	90
7) 1,3-Butadiene	3.997	54	142341	9.40	ppbV	78
8) n-Butane	4.042	43	236807	9.46	ppbV	92
9) Bromomethane	4.245	94	292681	10.46	ppbV	99
10) Chloroethane	4.399	64	138236	9.61	ppbV	95
11) Ethanol	4.428	45	42017	7.44	ppbV	97
12) Vinyl bromide	4.688	106	449932	9.92	ppbV	100
13) Acrolein	4.753	56	74481	9.34	ppbV	97
14) Acetone	4.846	58	113026	9.48	ppbV #	55
15) Trichlorofluoromethane	5.029	101	2355485	9.93	ppbV	99
16) Isopropanol	5.026	45	273384	8.49	ppbV #	89
17) n-Pentane	5.335	43	255824	8.70	ppbV	94
18) 1,1-Dichloroethene	5.589	61	659833	9.84	ppbV	95
19) Methylene chloride	5.704	84	370640	8.67	ppbV	99
20) Tert-butyl alcohol	5.560	59	664874	8.38	ppbV	100
21) Allyl chloride	5.801	76	177119	9.47	ppbV	100
22) 1,1,2-Trichloro-1,2,2-...	5.933	101	1264930	8.80	ppbV	97
23) Carbon disulfide	5.987	76	1188567	9.22	ppbV	97
24) 1,2-Dichloroethene (tr...	6.560	61	499237	9.15	ppbV	99
25) 1,1-Dichloroethane	6.753	63	682267	8.87	ppbV	93
26) Methyl tert-butyl ether	6.782	73	1354616	8.91	ppbV	100
27) Methyl ethyl ketone	7.100	72	194118	10.26	ppbV	97
28) 1,2-Dichloroethene (cis)	7.569	61	497567	9.20	ppbV	100
29) Ethyl acetate	7.765	45	58499	9.26	ppbV	100
30) n-Hexane	7.794	57	329337	8.38	ppbV	91
31) Chloroform	7.868	83	1424801	9.74	ppbV	99
32) Tetrahydrofuran	8.261	42	178047	9.00	ppbV #	74
33) 1,2-Dichloroethane	8.637	62	916014	9.75	ppbV	96
34) 1,1,1-Trichloroethane	8.916	97	1659473	9.36	ppbV	99
35) Benzene	9.415	78	1245256	8.77	ppbV	97
36) Carbon tetrachloride	9.582	117	2047727	9.66	ppbV	99
37) Cyclohexane	9.723	84	531148	9.12	ppbV	93
39) 1,2-Dichloropropane	10.328	63	358470	8.34	ppbV	98
40) Bromodichloromethane	10.543	83	1538094	9.85	ppbV	99
41) 2,2,4-Trimethylpentane	10.656	57	1148546	9.40	ppbV	94
42) Trichloroethene	10.605	130	844998	9.71	ppbV	98
43) 1,4-Dioxane	10.566	88	262807	8.61	ppbV	96
44) Methyl methacrylate	10.817	69	497729	9.45	ppbV	97
45) n-Heptane	10.955	71	438545	10.86	ppbV	91
46) cis-1,3-Dichloropropene	11.614	75	913482	9.64	ppbV	99
47) Methyl isobutyl ketone	11.640	43	535768	9.05	ppbV	98
48) trans-1,3-Dichloropropene	12.254	75	980764	9.80	ppbV	98
49) 1,1,2-Trichloroethane	12.463	97	692552	9.08	ppbV	98
50) Toluene	12.820	91	1830741	9.58	ppbV	97
51) Methyl n-butyl ketone	13.138	43	521956	9.09	ppbV	97

AL SDG #E17-09837

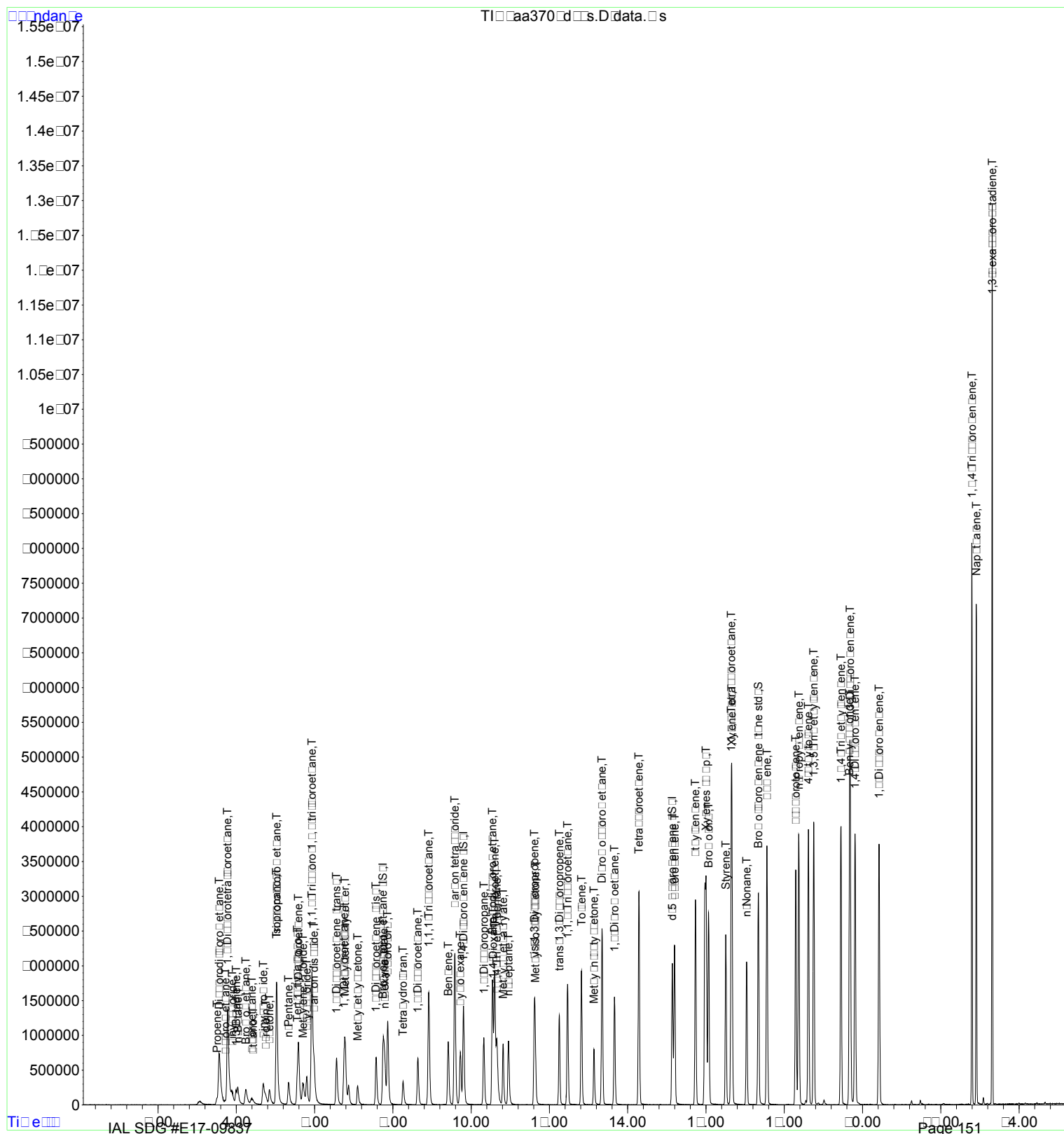
Data Path : C:\DATA\10-04-17\
 Data File : aa3702dcvs.D
 Acq On : 4 Oct 2017 9:02 am
 Operator : jls
 Sample : 10 ppbv DCVS
 Misc : CC483586
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 04 09:42:45 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	13.344	129	1811760	9.97	ppbV	99
53) 1,2-Dibromoethane	13.662	107	1235791	9.43	ppbV	100
54) Tetrachloroethene	14.283	166	984654	9.07	ppbV	98
56) Chlorobenzene	15.199	112	1732288	9.01	ppbV	99
57) Ethylbenzene	15.730	91	2781959	9.82	ppbV	97
58) Xylenes (m&p)	16.000	91	4665123	20.11	ppbV	95
59) Bromoform	16.067	173	1530894	10.09	ppbV	97
60) Styrene	16.505	104	1585795	10.16	ppbV	99
61) Xylene (o)	16.662	91	2447073	10.08	ppbV	90
62) 1,1,2,2-Tetrachloroethane	16.646	83	1534917	9.02	ppbV	99
63) n-Nonane	17.038	57	630147	9.54	ppbV	100
65) Cumene	17.559	105	3295320	9.94	ppbV	95
66) 2-Chlorotoluene	18.292	91	2491313	9.97	ppbV	91
67) n-Propyl benzene	18.373	120	951874	9.98	ppbV	84
68) 4-Ethyltoluene	18.617	105	3316608	10.28	ppbV	92
69) 1,3,5-Trimethylbenzene	18.752	105	3132028	10.41	ppbV	90
70) 1,2,4-Trimethylbenzene	19.447	105	3098552	10.66	ppbV	96
71) Benzyl chloride	19.665	91	2533645	10.32	ppbV	100
72) 1,3-Dichlorobenzene	19.685	146	2081693	9.40	ppbV	98
73) 1,4-Dichlorobenzene	19.810	146	2131803	9.46	ppbV	96
74) 1,2-Dichlorobenzene	20.421	146	1990665	9.40	ppbV	99
75) 1,2,4-Trichlorobenzene	22.794	180	1723668	8.76	ppbV	99
76) Naphthalene	22.909	127	606303	10.02	ppbV	100
77) 1,3-Hexachlorobutadiene	23.315	225	1411768	8.66	ppbV	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quant Time: Oct 04 09:42:45 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
Response via : Initial Calibration



Continuing Calibration Data Summary Report

Initial Calibration Curve: 9/12/2017
Instrument: AA
Amount of standard injected (ml): 50

Date/Time of Calibration: 11/28/2017 09:29
Sample ID: DCS
Laboratory ID: AA4272DCVS

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4271BFB]	11/28/2017 08:37
10 PPBV DCVS [AA4272DCVS]	11/28/2017 09:29
10 PPBV LCS [AA4273LCS]	11/28/2017 10:09
METHOD BLANK [AA4274BLK]	11/28/2017 13:04
02 PPBV RLLCS [AA4275RLLCS]	11/28/2017 13:44
E17-09837-01 [AA4286]	11/28/2017 20:34
E17-09837-02 [AA4287]	11/28/2017 21:07
E17-09837-05 [AA4290]	11/28/2017 22:48
10 PPBV CCCVS [AA4292CCCVS]	11/28/2017 23:56

Compound Name	Average RRF	Standard RRF	% Difference	Pass/Fail	*
Acetone	0.25	0.26	-5.7	PASS	
Benzene	2.9	2.9	0.40	PASS	
Bromodichloromethane	0.94	0.97	-2.9	PASS	
Bromoform	1.0	1.1	-5.9	PASS	
Bromomethane	0.58	0.76	-30	PASS	
1,3-Butadiene	0.31	0.33	-4.1	PASS	
Chlorobenzene	1.3	1.2	9.1	PASS	
Chloroethane	0.30	0.32	-6.7	PASS	
Chloroform	3.0	3.0	1.5	PASS	
Chloromethane	0.084	0.097	-16	PASS	
Carbon disulfide	2.7	2.5	4.9	PASS	
Carbon tetrachloride	4.4	4.7	-7.7	PASS	
Cyclohexane	1.2	1.2	2.8	PASS	
Dibromochloromethane	1.1	1.2	-9.3	PASS	
1,2-Dibromoethane	0.79	0.80	-2.2	PASS	
1,2-Dichlorobenzene	1.4	1.4	-1.5	PASS	
1,3-Dichlorobenzene	1.5	1.5	2.0	PASS	
1,4-Dichlorobenzene	1.5	1.5	1.1	PASS	
Dichlorodifluoromethane	3.7	4.0	-8.2	PASS	
1,1-Dichloroethane	1.6	1.5	3.3	PASS	
1,2-Dichloroethane	1.9	2.0	-4.7	PASS	
1,1-Dichloroethene	1.4	1.5	-7.5	PASS	
1,2-Dichloroethene (cis)	1.1	1.2	-2.7	PASS	
1,2-Dichloroethene (trans)	1.1	1.2	-2.0	PASS	
1,2-Dichloropropane	0.26	0.24	8.1	PASS	
1,3-Dichloropropene (cis)	0.57	0.58	-2.1	PASS	
1,3-Dichloropropene (trans)	0.60	0.62	-3.0	PASS	
1,2-Dichlorotetrafluoroethane	2.9	2.9	-1.0	PASS	
1,4-Dioxane	0.18	0.18	2.2	PASS	
Ethylbenzene	1.9	1.8	2.7	PASS	
n-Heptane	0.24	0.28	-16	PASS	
1,3-Hexachlorobutadiene	1.1	1.1	-4.8	PASS	
n-Hexane	0.82	0.86	-5.3	PASS	
Methylene chloride	0.89	0.77	13	PASS	
Methyl ethyl ketone	0.39	0.43	-8.4	PASS	
Methyl isobutyl ketone	0.36	0.40	-13	PASS	
Methyl tert-butyl ether	3.2	3.2	-0.10	PASS	
Styrene	1.0	1.1	-5.2	PASS	
Tert-butyl alcohol	1.6	1.7	-1.8	PASS	
1,1,2,2-Tetrachloroethane	1.1	0.97	15	PASS	
Tetrachloroethene	0.65	0.71	-8.1	PASS	

*%Difference must be within +/- 30%

RRF - Relative Response Factor

IAL SDG #E17-09837

Continuing Calibration Data Summary Report

Initial Calibration Curve: 9/12/2017
 Instrument: AA
 Amount of standard injected (ml): 50

Date/Time of Calibration: 11/28/2017 09:29
 Sample ID: DCS
 Laboratory ID: AA4272DCVS

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4271BFB]	11/28/2017 08:37
10 PPBV DCVS [AA4272DCVS]	11/28/2017 09:29
10 PPBV LCS [AA4273LCS]	11/28/2017 10:09
METHOD BLANK [AA4274BLK]	11/28/2017 13:04
02 PPBV RLLCS [AA4275RLLCS]	11/28/2017 13:44
E17-09837-01 [AA4286]	11/28/2017 20:34
E17-09837-02 [AA4287]	11/28/2017 21:07
E17-09837-05 [AA4290]	11/28/2017 22:48
10 PPBV CCCVS [AA4292CCCVS]	11/28/2017 23:56

Compound Name	Average RRF	Standard RRF	% Difference	PassFail	*
Toluene	1.1	1.2	-2.6	PASS	
1,2,4-Trichlorobenzene	1.3	1.4	-4.9	PASS	
1,1,1-Trichloroethane	3.7	3.7	-1.2	PASS	
1,1,2-Trichloroethane	0.46	0.46	-0.70	PASS	
Trichloroethene	0.52	0.58	-10	PASS	
Trichlorofluoromethane	4.9	5.1	-3.5	PASS	
1,1,2-Trichloro-1,2,2-trifluoroethane	3.0	2.8	5.3	PASS	
1,2,4-Trimethylbenzene	1.9	2.1	-8.8	PASS	
1,3,5-Trimethylbenzene	2.0	2.1	-5.5	PASS	
2,2,4-Trimethylpentane	0.73	0.86	-17	PASS	
Vinyl bromide	0.94	1.1	-13	PASS	
Vinyl chloride	0.57	0.62	-9.7	PASS	
Xylenes (m&p)	1.6	1.5	1.8	PASS	
Xylenes (o)	1.6	1.6	1.1	PASS	

*%Difference must be within +/- 30%

RRF - Relative Response Factor

IAL SDG #E17-09837

Data Path : C:\DATA\11-28-17\
 Data File : aa4272dcvs.D
 Acq On : 28 Nov 2017 9:29 am
 Operator : jls
 Sample : 10 ppbv DCVS
 Misc : CC483586
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 28 09:56:39 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 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	95	0.00
2 T	Propene	0.249	0.296	-18.9	109	0.00
3 T	Dichlorodifluoromethane	3.733	4.040	-8.2	109	0.00
4 T	Chloromethane	0.084	0.097	-15.5	89	0.00
5 T	1,2-Dichlorotetrafluoroetha	2.911	2.939	-1.0	103	0.00
6 T	Vinyl chloride	0.567	0.622	-9.7	97	0.00
7 T	1,3-Butadiene	0.314	0.327	-4.1	91	0.00
8 T	n-Butane	0.519	0.626	-20.6	101	0.00
9 T	Bromomethane	0.581	0.755	-29.9	109	0.00
10 T	Chloroethane	0.298	0.318	-6.7	92	0.00
11 T	Ethanol	0.117	0.122	-4.3	89	0.00
12 T	Vinyl bromide	0.941	1.067	-13.4	101	0.00
13 T	Acrolein	0.165	0.176	-6.7	94	0.00
14 T	Acetone	0.247	0.261	-5.7	88	-0.01
15 T	Trichlorofluoromethane	4.921	5.095	-3.5	106	0.00
16 T	Isopropanol	0.668	0.765	-14.5	101	0.00
17 T	n-Pentane	0.610	0.692	-13.4	103	0.00
18 T	1,1-Dichloroethene	1.391	1.495	-7.5	101	0.00
19 T	Methylene chloride	0.887	0.768	13.4	91	0.00
20 T	Tert-butyl alcohol	1.646	1.676	-1.8	100	0.00
21 T	Allyl chloride	0.388	0.384	1.0	89	0.00
22 T	1,1,2-Trichloro-1,2,2-trifl	2.983	2.825	5.3	104	0.00
23 T	Carbon disulfide	2.675	2.544	4.9	93	0.00
24 T	1,2-Dichloroethene (trans)	1.132	1.155	-2.0	98	0.00
25 T	1,1-Dichloroethane	1.595	1.542	3.3	98	0.00
26 T	Methyl tert-butyl ether	3.156	3.160	-0.1	98	0.00
27 T	Methyl ethyl ketone	0.393	0.426	-8.4	94	0.00
28 T	1,2-Dichloroethene (cis)	1.123	1.153	-2.7	98	0.00
29 T	Ethyl acetate	0.131	0.151	-15.3	99	0.00
30 T	n-Hexane	0.815	0.858	-5.3	105	0.00
31 T	Chloroform	3.034	2.989	1.5	99	0.00
32 T	Tetrahydrofuran	0.411	0.471	-14.6	102	0.00
33 T	1,2-Dichloroethane	1.948	2.039	-4.7	106	0.00
34 T	1,1,1-Trichloroethane	3.679	3.724	-1.2	107	0.00
35 T	Benzene	2.946	2.934	0.4	100	0.00
36 T	Carbon tetrachloride	4.399	4.736	-7.7	114	0.00
37 T	Cyclohexane	1.208	1.174	2.8	94	0.00
38 I	1,4-Difluorobenzene (IS)	1.000	1.000	0.0	91	0.00
39 T	1,2-Dichloropropane	0.258	0.237	8.1	94	0.00
40 T	Bromodichloromethane	0.938	0.965	-2.9	102	0.00
41 T	2,2,4-Trimethylpentane	0.734	0.860	-17.2	104	0.00
42 T	Trichloroethene	0.523	0.577	-10.3	107	0.00
43 T	1,4-Dioxane	0.183	0.179	2.2	100	0.00
44 T	Methyl methacrylate	0.317	0.323	-1.9	94	0.00
45 T	n-Heptane	0.243	0.282	-16.0	96	0.00
46 T	cis-1,3-Dichloropropene	0.569	0.581	-2.1	95	0.00
47 T	Methyl isobutyl ketone	0.356	0.401	-12.6	107	0.00
48 T	trans-1,3-Dichloropropene	0.601	0.619	-3.0	95	0.00
49 T	1,1,2-Trichloroethane	0.458	0.461	-0.7	101	0.00
50 T	Toluene	1.148	1.178	-2.6	96	0.00
51 T	Methyl n-butyl ketone	0.345	0.392	-13.6	105	0.00
52 T	Dibromochloromethane	1.092	1.194	-9.3	108	0.00
53 T	1,2-Dibromoethane	0.787	0.804	-2.2	100	0.00

AL SDG #E17-09837

Data Path : C:\DATA\11-28-17\
 Data File : aa4272dcvs.D
 Acq On : 28 Nov 2017 9:29 am
 Operator : jls
 Sample : 10 ppbv DCVS
 Misc : CC483586
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 28 09:56:39 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 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	Tetrachloroethene	0.652	0.705	-8.1	108	0.00
55 I	d-5 Chlorobenzene (IS)	1.000	1.000	0.0	99	0.00
56 T	Chlorobenzene	1.289	1.172	9.1	101	0.00
57 T	Ethylbenzene	1.899	1.847	2.7	100	0.00
58 T	Xylenes (m&p)	1.555	1.527	1.8	99	-0.03
59 T	Bromoform	1.017	1.077	-5.9	112	0.00
60 T	Styrene	1.047	1.101	-5.2	101	0.00
61 T	Xylene (o)	1.627	1.609	1.1	100	0.00
62 T	1,1,2,2-Tetrachloroethane	1.140	0.973	14.6	97	0.00
63 T	n-Nonane	0.443	0.483	-9.0	107	0.00
64 S	Bromofluorobenzene (tune st	0.876	0.804	8.2	92	0.00
65 T	Cumene	2.224	2.306	-3.7	106	0.00
66 T	2-Chlorotoluene	1.674	1.640	2.0	100	0.00
67 T	n-Propyl benzene	0.639	0.690	-8.0	109	0.00
68 T	4-Ethyltoluene	2.162	2.269	-4.9	104	0.00
69 T	1,3,5-Trimethylbenzene	2.016	2.126	-5.5	104	0.00
70 T	1,2,4-Trimethylbenzene	1.949	2.121	-8.8	103	0.00
71 T	Benzyl chloride	1.646	1.690	-2.7	101	0.00
72 T	1,3-Dichlorobenzene	1.485	1.456	2.0	105	0.00
73 T	1,4-Dichlorobenzene	1.510	1.493	1.1	104	0.00
74 T	1,2-Dichlorobenzene	1.420	1.441	-1.5	106	0.00
75 T	1,2,4-Trichlorobenzene	1.319	1.383	-4.9	109	0.00
76 T	Naphthalene	0.406	0.460	-13.3	103	0.00
77 T	1,3-Hexachlorobutadiene	1.093	1.145	-4.8	121	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data Path : C:\DATA\11-28-17\
 Data File : aa4272dcvs.D
 Acq On : 28 Nov 2017 9:29 am
 Operator : jls
 Sample : 10 ppbv DCVS
 Misc : CC483586
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 28 09:56:39 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.743	130	540836	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.801	114	1834939	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.135	117	1780782	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.338	95	1431677	9.18	ppbV	0.00
Target Compounds						
					Qvalue	
2) Propene	3.512	41	160297	11.89	ppbV	85
3) Dichlorodifluoromethane	3.557	85	2185186	10.82	ppbV	96
4) Chloromethane	3.727	52	52397	11.51	ppbV	89
5) 1,2-Dichlorotetrafluor...	3.776	85	1589559	10.10	ppbV	94
6) Vinyl chloride	3.888	62	336467	10.98	ppbV	84
7) 1,3-Butadiene	3.991	54	176944	10.41	ppbV #	58
8) n-Butane	4.033	43	338343	12.05	ppbV	91
9) Bromomethane	4.242	94	408496	13.01	ppbV	98
10) Chloroethane	4.386	64	172255	10.67	ppbV	93
11) Ethanol	4.422	45	65790	10.38	ppbV #	87
12) Vinyl bromide	4.682	106	577122	11.34	ppbV	93
13) Acrolein	4.747	56	95173	10.64	ppbV	96
14) Acetone	4.840	58	141160	10.55	ppbV #	31
15) Trichlorofluoromethane	5.030	101	2755748	10.35	ppbV	99
16) Isopropanol	5.026	45	413759	11.45	ppbV	97
17) n-Pentane	5.338	43	374233	11.34	ppbV	92
18) 1,1-Dichloroethene	5.589	61	808304	10.74	ppbV	97
19) Methylene chloride	5.698	84	415397	8.66	ppbV	86
20) Tert-butyl alcohol	5.554	59	906288	10.18	ppbV	100
21) Allyl chloride	5.798	76	207890	9.90	ppbV	100
22) 1,1,2-Trichloro-1,2,2-...	5.933	101	1527915	9.47	ppbV	89
23) Carbon disulfide	5.981	76	1375791	9.51	ppbV #	93
24) 1,2-Dichloroethene (tr...	6.560	61	624631	10.20	ppbV	99
25) 1,1-Dichloroethane	6.747	63	833802	9.66	ppbV	94
26) Methyl tert-butyl ether	6.779	73	1709271	10.01	ppbV	96
27) Methyl ethyl ketone	7.097	72	230327	10.85	ppbV	80
28) 1,2-Dichloroethene (cis)	7.566	61	623425	10.27	ppbV	99
29) Ethyl acetate	7.759	45	81678	11.52	ppbV	100
30) n-Hexane	7.795	57	463846	10.52	ppbV	92
31) Chloroform	7.869	83	1616554	9.85	ppbV	94
32) Tetrahydrofuran	8.258	42	254666	11.46	ppbV #	78
33) 1,2-Dichloroethane	8.637	62	1102853	10.47	ppbV	98
34) 1,1,1-Trichloroethane	8.914	97	2013928	10.12	ppbV	99
35) Benzene	9.412	78	1586585	9.96	ppbV #	94
36) Carbon tetrachloride	9.579	117	2561231	10.77	ppbV	98
37) Cyclohexane	9.724	84	634989	9.72	ppbV	86
39) 1,2-Dichloropropane	10.322	63	434193	9.16	ppbV	97
40) Bromodichloromethane	10.544	83	1771293	10.29	ppbV	95
41) 2,2,4-Trimethylpentane	10.656	57	1578391	11.71	ppbV	99
42) Trichloroethene	10.598	130	1058721	11.03	ppbV	100
43) 1,4-Dioxane	10.563	88	328907	9.78	ppbV	94
44) Methyl methacrylate	10.814	69	592180	10.20	ppbV	87
45) n-Heptane	10.955	71	516795	11.61	ppbV	91
46) cis-1,3-Dichloropropene	11.611	75	1066923	10.21	ppbV	98
47) Methyl isobutyl ketone	11.637	43	736255	11.28	ppbV	93
48) trans-1,3-Dichloropropene	12.251	75	1135038	10.29	ppbV #	87
49) 1,1,2-Trichloroethane	12.460	97	846789	10.07	ppbV	92
50) Toluene	12.814	91	2162395	10.26	ppbV	99
51) Methyl n-butyl ketone	13.135	43	719173	11.36	ppbV	90

AL SDG #E17-09837

Data Path : C:\DATA\11-28-17\
 Data File : aa4272dcvs.D
 Acq On : 28 Nov 2017 9:29 am
 Operator : jls
 Sample : 10 ppbv DCVS
 Misc : CC483586
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 28 09:56:39 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	13.344	129	2191620	10.93	ppbV	100
53) 1,2-Dibromoethane	13.659	107	1475575	10.22	ppbV	94
54) Tetrachloroethene	14.286	166	1292995	10.81	ppbV	98
56) Chlorobenzene	15.196	112	2087168	9.09	ppbV	98
57) Ethylbenzene	15.730	91	3289781	9.73	ppbV	100
58) Xylenes (m&p)	15.974	91	5437451	19.64	ppbV #	28
59) Bromoform	16.064	173	1917933	10.59	ppbV	97
60) Styrene	16.505	104	1960414	10.52	ppbV	99
61) Xylene (o)	16.663	91	2864437	9.88	ppbV	88
62) 1,1,2,2-Tetrachloroethane	16.643	83	1732588	8.53	ppbV	94
63) n-Nonane	17.039	57	860149	10.91	ppbV	99
65) Cumene	17.556	105	4106373	10.37	ppbV	92
66) 2-Chlorotoluene	18.289	91	2920101	9.79	ppbV #	85
67) n-Propyl benzene	18.370	120	1228457	10.79	ppbV	66
68) 4-Ethyltoluene	18.617	105	4039955	10.49	ppbV #	89
69) 1,3,5-Trimethylbenzene	18.752	105	3785592	10.54	ppbV #	85
70) 1,2,4-Trimethylbenzene	19.447	105	3777023	10.88	ppbV	100
71) Benzyl chloride	19.666	91	3009381	10.26	ppbV	94
72) 1,3-Dichlorobenzene	19.685	146	2592244	9.80	ppbV	98
73) 1,4-Dichlorobenzene	19.810	146	2659558	9.89	ppbV	99
74) 1,2-Dichlorobenzene	20.421	146	2566429	10.15	ppbV	99
75) 1,2,4-Trichlorobenzene	22.794	180	2462854	10.49	ppbV	99
76) Naphthalene	22.903	127	818472	11.33	ppbV	100
77) 1,3-Hexachlorobutadiene	23.312	225	2039432	10.48	ppbV	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\11-28-17\

Data File : aa4272dcvs.D

Acq On : 28 Nov 2017 9:29 am

Operator : jls

Sample : 10 ppbv DCVS

Misc : CC483586

ALS Vial : 2 Sample Multiplier: 1

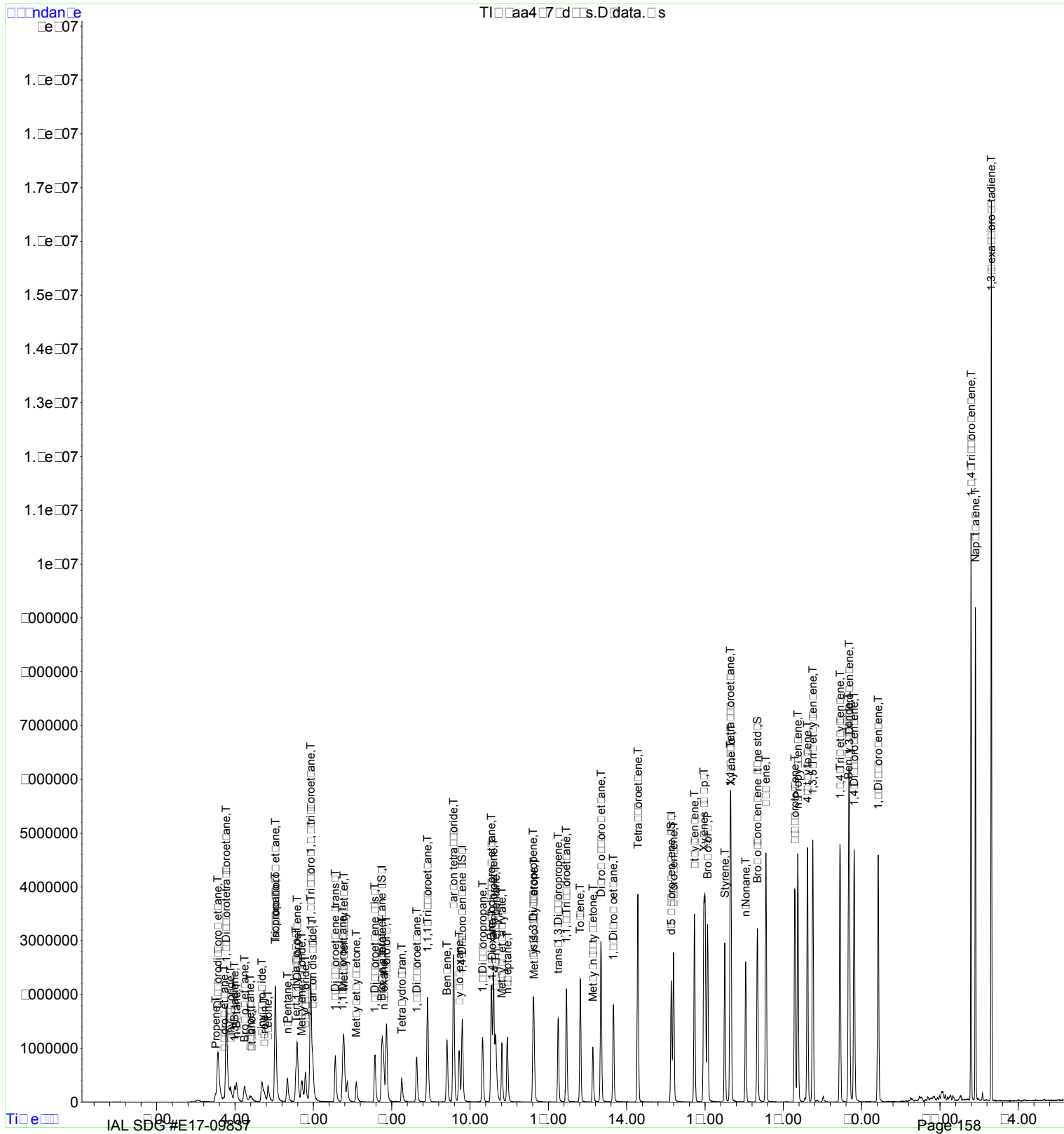
Quant Time: Nov 28 09:56:39 2017

Quant Method : C:\msdchem\1\METHODS\0912.M

Quant Title : T0-15 on the Agilent 7890A / 5975C

QLast Update : Tue Sep 12 13:00:02 2017

Response via : Initial Calibration



Continuing Calibration Data Summary Report

Initial Calibration Curve: 9/12/2017
Instrument: AA
Amount of standard injected (ml): 50

Date/Time of Calibration: 11/29/2017 10:04
Sample ID: DCS
Laboratory ID: AA4302DCVS

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4301BFB]	11/29/2017 08:42
10 PPBV DCVS [AA4302DCVS]	11/29/2017 10:04
10 PPBV LCS [AA4303LCS]	11/29/2017 10:45
METHOD BLANK [AA4304BLK]	11/29/2017 11:19
02 PPBV RLLCS [AA4305RLLCS]	11/29/2017 11:59
CLEAN CAN CERTIFICATION, BATCH MASTER 3059 [AA4306]	11/29/2017 14:35
E17-09837-01 [AA4307]	11/29/2017 15:08
E17-09837-02 [AA4308]	11/29/2017 15:55
E17-09837-03 [AA4309]	11/29/2017 16:29
E17-09837-04 [AA4310]	11/29/2017 17:03
10 PPBV CCCVS [AA4319CCCVS]	11/29/2017 22:05

Compound Name	Average RRF	Standard RRF	% Difference	Pass/Fail	*
Acetone	0.25	0.23	5.7	PASS	
Benzene	2.9	2.7	7.4	PASS	
Bromodichloromethane	0.94	1.0	-12	PASS	
Bromoform	1.0	1.3	-24	PASS	
Bromomethane	0.58	0.69	-19	PASS	
1,3-Butadiene	0.31	0.28	12	PASS	
Chlorobenzene	1.3	1.2	5.1	PASS	
Chloroethane	0.30	0.26	12	PASS	
Chloroform	3.0	3.1	-1.3	PASS	
Chloromethane	0.084	0.081	3.6	PASS	
Carbon disulfide	2.7	2.3	13	PASS	
Carbon tetrachloride	4.4	5.3	-22	PASS	
Cyclohexane	1.2	1.1	10	PASS	
Dibromochloromethane	1.1	1.3	-22	PASS	
1,2-Dibromoethane	0.79	0.83	-5.0	PASS	
1,2-Dichlorobenzene	1.4	1.6	-10	PASS	
1,3-Dichlorobenzene	1.5	1.7	-11	PASS	
1,4-Dichlorobenzene	1.5	1.7	-11	PASS	
Dichlorodifluoromethane	3.7	4.5	-19	PASS	
1,1-Dichloroethane	1.6	1.4	9.7	PASS	
1,2-Dichloroethane	1.9	2.1	-8.7	PASS	
1,1-Dichloroethene	1.4	1.5	-4.7	PASS	
1,2-Dichloroethene (cis)	1.1	1.1	4.3	PASS	
1,2-Dichloroethene (trans)	1.1	1.1	4.7	PASS	
1,2-Dichloropropane	0.26	0.22	13	PASS	
1,3-Dichloropropene (cis)	0.57	0.58	-1.9	PASS	
1,3-Dichloropropene (trans)	0.60	0.64	-6.3	PASS	
1,2-Dichlorotetrafluoroethane	2.9	3.0	-3.2	PASS	
1,4-Dioxane	0.18	0.17	5.5	PASS	
Ethylbenzene	1.9	1.9	1.0	PASS	
n-Heptane	0.24	0.27	-9.9	PASS	
1,3-Hexachlorobutadiene	1.1	1.3	-16	PASS	
n-Hexane	0.82	0.75	8.3	PASS	
Methylene chloride	0.89	0.72	18	PASS	
Methyl ethyl ketone	0.39	0.38	3.6	PASS	
Methyl isobutyl ketone	0.36	0.38	-6.5	PASS	
Methyl tert-butyl ether	3.2	3.1	3.0	PASS	
Styrene	1.0	1.2	-15	PASS	
Tert-butyl alcohol	1.6	1.6	5.3	PASS	

*%Difference must be within +/- 30%

RRF - Relative Response Factor

IAL SDG #E17-09837

Continuing Calibration Data Summary Report

Initial Calibration Curve: 9/12/2017
Instrument: AA
Amount of standard injected (ml): 50

Date/Time of Calibration: 11/29/2017 10:04
Sample ID: DCS
Laboratory ID: AA4302DCVS

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4301BFB]	11/29/2017 08:42
10 PPBV DCVS [AA4302DCVS]	11/29/2017 10:04
10 PPBV LCS [AA4303LCS]	11/29/2017 10:45
METHOD BLANK [AA4304BLK]	11/29/2017 11:19
02 PPBV RLLCS [AA4305RLLCS]	11/29/2017 11:59
CLEAN CAN CERTIFICATION, BATCH MASTER 3059 [AA4306]	11/29/2017 14:35
E17-09837-01 [AA4307]	11/29/2017 15:08
E17-09837-02 [AA4308]	11/29/2017 15:55
E17-09837-03 [AA4309]	11/29/2017 16:29
E17-09837-04 [AA4310]	11/29/2017 17:03
10 PPBV CCCVS [AA4319CCCVS]	11/29/2017 22:05

Compound Name	Average RRF	Standard RRF	% Difference	Pass/Fail	*
1,1,2,2-Tetrachloroethane	1.1	1.1	4.6	PASS	
Tetrachloroethene	0.65	0.74	-14	PASS	
Toluene	1.1	1.2	-2.5	PASS	
1,2,4-Trichlorobenzene	1.3	1.5	-13	PASS	
1,1,1-Trichloroethane	3.7	4.0	-8.3	PASS	
1,1,2-Trichloroethane	0.46	0.47	-1.7	PASS	
Trichloroethene	0.52	0.61	-16	PASS	
Trichlorofluoromethane	4.9	5.7	-15	PASS	
1,1,2-Trichloro-1,2,2-trifluoroethane	3.0	2.9	3.0	PASS	
1,2,4-Trimethylbenzene	1.9	2.3	-19	PASS	
1,3,5-Trimethylbenzene	2.0	2.4	-17	PASS	
2,2,4-Trimethylpentane	0.73	0.78	-6.3	PASS	
Vinyl bromide	0.94	1.0	-6.8	PASS	
Vinyl chloride	0.57	0.54	4.1	PASS	
Xylenes (m&p)	1.6	1.6	-5.3	PASS	
Xylenes (o)	1.6	1.8	-10	PASS	

*%Difference must be within +/- 30%

RRF - Relative Response Factor

IAL SDG #E17-09837

Data Path : C:\DATA\11-29-17\
 Data File : aa4302dcvs.D
 Acq On : 29 Nov 2017 10:04 am
 Operator : jls
 Sample : 10 ppbv DCVS
 Misc : CC483586
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 29 10:33:00 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 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	99	0.00
2 T	Propene	0.249	0.255	-2.4	98	0.00
3 T	Dichlorodifluoromethane	3.733	4.450	-19.2	125	0.00
4 T	Chloromethane	0.084	0.081	3.6	78	-0.01
5 T	1,2-Dichlorotetrafluoroetha	2.911	3.003	-3.2	110	0.00
6 T	Vinyl chloride	0.567	0.544	4.1	89	0.00
7 T	1,3-Butadiene	0.314	0.278	11.5	81	0.00
8 T	n-Butane	0.519	0.509	1.9	86	0.00
9 T	Bromomethane	0.581	0.690	-18.8	104	0.00
10 T	Chloroethane	0.298	0.262	12.1	79	-0.01
11 T	Ethanol	0.117	0.094	19.7	71	0.00
12 T	Vinyl bromide	0.941	1.005	-6.8	100	0.00
13 T	Acrolein	0.165	0.141	14.5	78	0.00
14 T	Acetone	0.247	0.233	5.7	82	0.00
15 T	Trichlorofluoromethane	4.921	5.669	-15.2	124	0.00
16 T	Isopropanol	0.668	0.646	3.3	89	0.00
17 T	n-Pentane	0.610	0.562	7.9	87	0.00
18 T	1,1-Dichloroethene	1.391	1.456	-4.7	103	0.00
19 T	Methylene chloride	0.887	0.724	18.4	89	0.00
20 T	Tert-butyl alcohol	1.646	1.559	5.3	97	0.00
21 T	Allyl chloride	0.388	0.352	9.3	86	0.00
22 T	1,1,2-Trichloro-1,2,2-trifl	2.983	2.894	3.0	112	0.00
23 T	Carbon disulfide	2.675	2.322	13.2	88	0.00
24 T	1,2-Dichloroethene (trans)	1.132	1.079	4.7	96	0.00
25 T	1,1-Dichloroethane	1.595	1.440	9.7	96	0.00
26 T	Methyl tert-butyl ether	3.156	3.060	3.0	99	0.00
27 T	Methyl ethyl ketone	0.393	0.379	3.6	87	0.00
28 T	1,2-Dichloroethene (cis)	1.123	1.075	4.3	96	0.00
29 T	Ethyl acetate	0.131	0.130	0.8	89	0.00
30 T	n-Hexane	0.815	0.747	8.3	96	0.00
31 T	Chloroform	3.034	3.072	-1.3	107	0.00
32 T	Tetrahydrofuran	0.411	0.401	2.4	91	0.00
33 T	1,2-Dichloroethane	1.948	2.117	-8.7	115	0.00
34 T	1,1,1-Trichloroethane	3.679	3.986	-8.3	119	0.00
35 T	Benzene	2.946	2.728	7.4	98	0.00
36 T	Carbon tetrachloride	4.399	5.343	-21.5	134	0.00
37 T	Cyclohexane	1.208	1.085	10.2	90	0.00
38 I	1,4-Difluorobenzene (IS)	1.000	1.000	0.0	93	0.00
39 T	1,2-Dichloropropane	0.258	0.224	13.2	90	0.00
40 T	Bromodichloromethane	0.938	1.048	-11.7	112	0.00
41 T	2,2,4-Trimethylpentane	0.734	0.780	-6.3	96	0.00
42 T	Trichloroethene	0.523	0.607	-16.1	114	0.00
43 T	1,4-Dioxane	0.183	0.173	5.5	98	0.00
44 T	Methyl methacrylate	0.317	0.311	1.9	92	0.00
45 T	n-Heptane	0.243	0.267	-9.9	93	0.00
46 T	cis-1,3-Dichloropropene	0.569	0.580	-1.9	96	0.00
47 T	Methyl isobutyl ketone	0.356	0.379	-6.5	102	0.00
48 T	trans-1,3-Dichloropropene	0.601	0.639	-6.3	99	0.00
49 T	1,1,2-Trichloroethane	0.458	0.466	-1.7	104	0.00
50 T	Toluene	1.148	1.177	-2.5	97	0.00
51 T	Methyl n-butyl ketone	0.345	0.371	-7.5	101	0.00
52 T	Dibromochloromethane	1.092	1.329	-21.7	122	0.00
53 T	1,2-Dibromoethane	0.787	0.826	-5.0	104	0.00

AL SDG #E17-09837

Data Path : C:\DATA\11-29-17\
 Data File : aa4302dcvs.D
 Acq On : 29 Nov 2017 10:04 am
 Operator : jls
 Sample : 10 ppbv DCVS
 Misc : CC483586
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 29 10:33:00 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 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	Tetrachloroethene	0.652	0.742	-13.8	116	0.00
55 I	d-5 Chlorobenzene (IS)	1.000	1.000	0.0	101	0.00
56 T	Chlorobenzene	1.289	1.223	5.1	107	0.00
57 T	Ethylbenzene	1.899	1.880	1.0	103	0.00
58 T	Xylenes (m&p)	1.555	1.637	-5.3	109	0.00
59 T	Bromoform	1.017	1.257	-23.6	133	0.00
60 T	Styrene	1.047	1.199	-14.5	112	0.00
61 T	Xylene (o)	1.627	1.794	-10.3	114	0.00
62 T	1,1,2,2-Tetrachloroethane	1.140	1.088	4.6	110	0.00
63 T	n-Nonane	0.443	0.486	-9.7	110	0.00
64 S	Bromofluorobenzene (tune st	0.876	0.934	-6.6	109	0.00
65 T	Cumene	2.224	2.416	-8.6	113	0.00
66 T	2-Chlorotoluene	1.674	1.714	-2.4	106	0.00
67 T	n-Propyl benzene	0.639	0.758	-18.6	122	0.00
68 T	4-Ethyltoluene	2.162	2.461	-13.8	115	0.00
69 T	1,3,5-Trimethylbenzene	2.016	2.356	-16.9	117	0.00
70 T	1,2,4-Trimethylbenzene	1.949	2.315	-18.8	115	0.00
71 T	Benzyl chloride	1.646	1.867	-13.4	113	0.00
72 T	1,3-Dichlorobenzene	1.485	1.653	-11.3	121	0.00
73 T	1,4-Dichlorobenzene	1.510	1.680	-11.3	119	0.00
74 T	1,2-Dichlorobenzene	1.420	1.565	-10.2	117	0.00
75 T	1,2,4-Trichlorobenzene	1.319	1.490	-13.0	120	0.00
76 T	Naphthalene	0.406	0.510	-25.6	116	0.00
77 T	1,3-Hexachlorobutadiene	1.093	1.266	-15.8	136	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data Path : C:\DATA\11-29-17\
 Data File : aa4302dcvs.D
 Acq On : 29 Nov 2017 10:04 am
 Operator : jls
 Sample : 10 ppbv DCVS
 Misc : CC483586
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 29 10:33:00 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.746	130	565734	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.801	114	1860863	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.138	117	1814288	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.337	95	1695438	10.67	ppbV	0.00
Target Compounds						
					Qvalue	
2) Propene	3.499	41	144478	10.24	ppbV #	79
3) Dichlorodifluoromethane	3.563	85	2517460	11.92	ppbV	97
4) Chloromethane	3.717	52	45884	9.64	ppbV #	59
5) 1,2-Dichlorotetrafluor...	3.772	85	1698647	10.31	ppbV	95
6) Vinyl chloride	3.888	62	307906	9.60	ppbV	81
7) 1,3-Butadiene	3.994	54	157111	8.84	ppbV #	44
8) n-Butane	4.039	43	287831	9.80	ppbV	88
9) Bromomethane	4.241	94	390111	11.88	ppbV	98
10) Chloroethane	4.377	64	148403	8.79	ppbV	93
11) Ethanol	4.425	45	52946	7.98	ppbV #	76
12) Vinyl bromide	4.685	106	568500	10.68	ppbV	94
13) Acrolein	4.759	56	79698	8.52	ppbV	96
14) Acetone	4.846	58	131702	9.41	ppbV #	33
15) Trichlorofluoromethane	5.029	101	3207217	11.52	ppbV	98
16) Isopropanol	5.026	45	365659	9.67	ppbV #	84
17) n-Pentane	5.338	43	318186	9.22	ppbV	95
18) 1,1-Dichloroethene	5.592	61	823898	10.47	ppbV	95
19) Methylene chloride	5.704	84	409715	8.16	ppbV #	81
20) Tert-butyl alcohol	5.557	59	881871	9.47	ppbV	100
21) Allyl chloride	5.798	76	199144	9.07	ppbV	100
22) 1,1,2-Trichloro-1,2,2-...	5.930	101	1637408	9.70	ppbV	90
23) Carbon disulfide	5.984	76	1313769	8.68	ppbV #	85
24) 1,2-Dichloroethene (tr...	6.556	61	610301	9.53	ppbV	98
25) 1,1-Dichloroethane	6.756	63	814841	9.03	ppbV	93
26) Methyl tert-butyl ether	6.778	73	1731229	9.70	ppbV	99
27) Methyl ethyl ketone	7.093	72	214666	9.67	ppbV	86
28) 1,2-Dichloroethene (cis)	7.569	61	608443	9.58	ppbV	98
29) Ethyl acetate	7.765	45	73823	9.96	ppbV	100
30) n-Hexane	7.788	57	422607	9.16	ppbV	85
31) Chloroform	7.865	83	1737762	10.12	ppbV	95
32) Tetrahydrofuran	8.261	42	226892	9.76	ppbV #	75
33) 1,2-Dichloroethane	8.640	62	1197410	10.86	ppbV	98
34) 1,1,1-Trichloroethane	8.913	97	2255003	10.83	ppbV	99
35) Benzene	9.412	78	1543534	9.26	ppbV #	93
36) Carbon tetrachloride	9.579	117	3022835	12.15	ppbV	99
37) Cyclohexane	9.720	84	613620	8.98	ppbV	90
39) 1,2-Dichloropropane	10.322	63	417456	8.69	ppbV	97
40) Bromodichloromethane	10.540	83	1949638	11.17	ppbV	96
41) 2,2,4-Trimethylpentane	10.656	57	1452148	10.63	ppbV	97
42) Trichloroethene	10.601	130	1130269	11.61	ppbV	99
43) 1,4-Dioxane	10.563	88	321798	9.43	ppbV	98
44) Methyl methacrylate	10.817	69	578932	9.83	ppbV	92
45) n-Heptane	10.952	71	496945	11.01	ppbV	98
46) cis-1,3-Dichloropropene	11.611	75	1079631	10.19	ppbV	97
47) Methyl isobutyl ketone	11.637	43	705896	10.67	ppbV	91
48) trans-1,3-Dichloropropene	12.254	75	1189863	10.63	ppbV #	84
49) 1,1,2-Trichloroethane	12.463	97	867140	10.17	ppbV	91
50) Toluene	12.817	91	2191044	10.25	ppbV	100
51) Methyl n-butyl ketone	13.138	43	691112	10.77	ppbV	89

AL SDG #E17-09837

Data Path : C:\DATA\11-29-17\
 Data File : aa4302dcvs.D
 Acq On : 29 Nov 2017 10:04 am
 Operator : jls
 Sample : 10 ppbv DCVS
 Misc : CC483586
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 29 10:33:00 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	13.344	129	2473606	12.17	ppbV	100
53) 1,2-Dibromoethane	13.659	107	1536176	10.49	ppbV	92
54) Tetrachloroethene	14.283	166	1380186	11.37	ppbV	99
56) Chlorobenzene	15.199	112	2219699	9.49	ppbV	100
57) Ethylbenzene	15.733	91	3410484	9.90	ppbV	99
58) Xylenes (m&p)	16.000	91	5940512	21.06	ppbV	98
59) Bromoform	16.064	173	2281043	12.36	ppbV	97
60) Styrene	16.508	104	2175463	11.46	ppbV	99
61) Xylene (o)	16.662	91	3255184	11.03	ppbV	88
62) 1,1,2,2-Tetrachloroethane	16.646	83	1973958	9.54	ppbV	94
63) n-Nonane	17.038	57	881851	10.98	ppbV	100
65) Cumene	17.556	105	4383477	10.87	ppbV	91
66) 2-Chlorotoluene	18.289	91	3110467	10.24	ppbV #	82
67) n-Propyl benzene	18.370	120	1374419	11.85	ppbV #	64
68) 4-Ethyltoluene	18.617	105	4464188	11.38	ppbV #	88
69) 1,3,5-Trimethylbenzene	18.752	105	4274027	11.68	ppbV #	85
70) 1,2,4-Trimethylbenzene	19.450	105	4199983	11.88	ppbV	100
71) Benzyl chloride	19.665	91	3386553	11.34	ppbV	95
72) 1,3-Dichlorobenzene	19.685	146	2999728	11.14	ppbV	98
73) 1,4-Dichlorobenzene	19.807	146	3047623	11.12	ppbV	98
74) 1,2-Dichlorobenzene	20.421	146	2838989	11.02	ppbV	100
75) 1,2,4-Trichlorobenzene	22.794	180	2703810	11.30	ppbV	98
76) Naphthalene	22.903	127	924912	12.56	ppbV	100
77) 1,3-Hexachlorobutadiene	23.311	225	2295999	11.58	ppbV	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Integrated Analytical Laboratories LLC

QLast Update : Tue Sep 12 13:00:02 2017



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

Data Path: C:\DATA\09-12-17\
Data File: AA3441BFB.D
Acq On: 9/12/2017 8:18:00AM
Operator: jls
Sample: BFB
Misc: ALM029426
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\0816.M
Last Update: Thu Aug 17 08:51:27 2017
Spectrum Information:

Pass/Fail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	77682	13.2
PASS	75	95	30	66	348928	59.5
PASS	95	95	100	100	586303	100.0
PASS	96	95	5	9	39699	6.8
PASS	173	174	0.00	2	3809	0.9
PASS	174	95	50	100	410368	70.0
PASS	175	174	4	9	30821	7.5
PASS	176	174	93	101	385131	93.9
PASS	177	176	5	9	25240	6.6

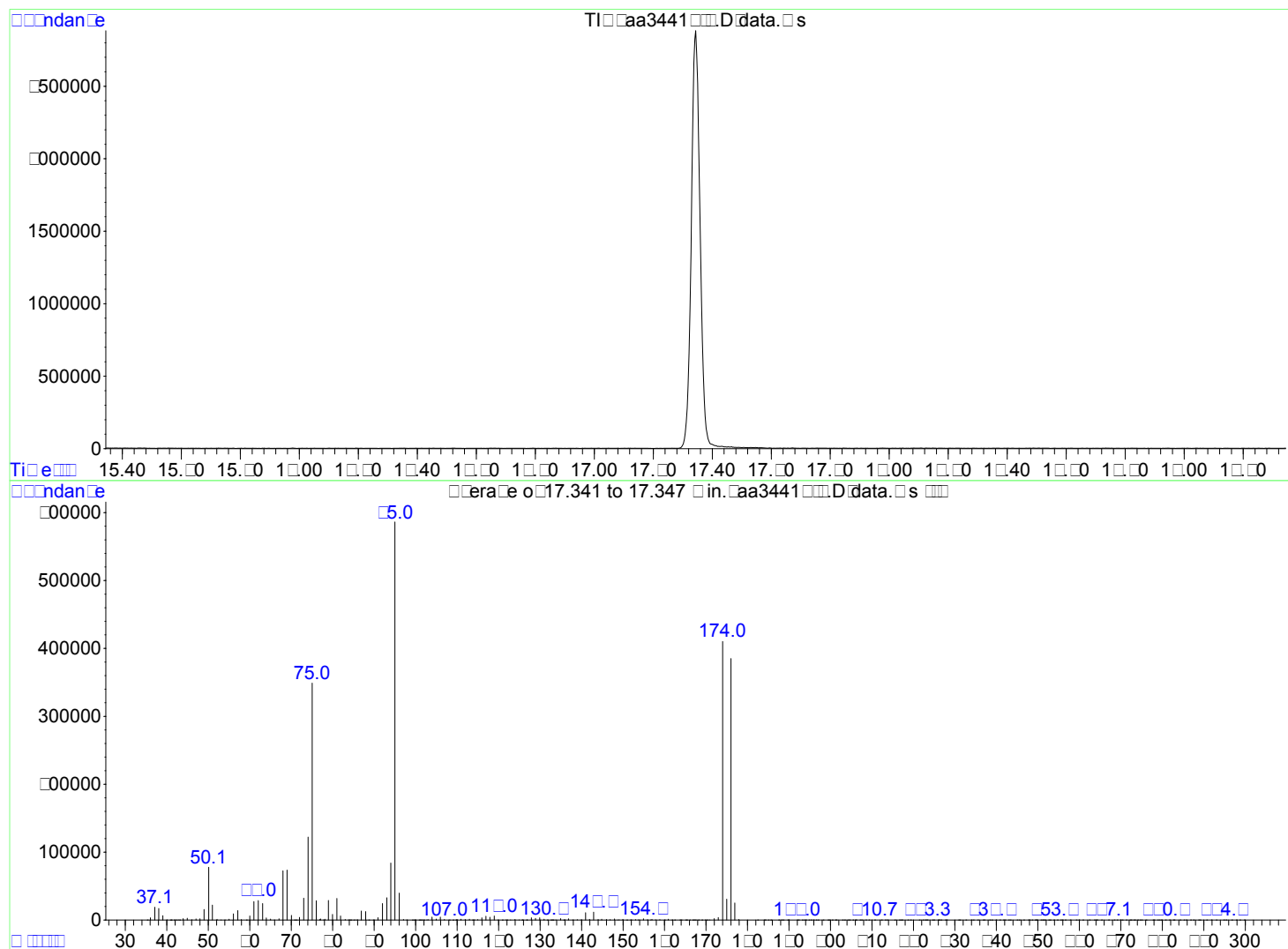
Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA3441BFB	NA	9/12/2017 8:18:00 AM
40 PPBV STD	AA3443STD01	NA	9/12/2017 9:44:00 AM
20 PPBV STD	AA3444STD02	NA	9/12/2017 10:17:00 AM
10 PPBV STD	AA3445STD03	NA	9/12/2017 10:51:00 AM
2 PPBV STD	AA3446STD04	NA	9/12/2017 11:24:00 AM
0.2 PPBV STD	AA3447STD05	NA	9/12/2017 12:06:00 PM
10 PPBV ICVSS	AA3448ICVSS	NA	9/12/2017 1:28:00 PM

Data Path : C:\DATA\09-12-17\
 Data File : aa3441bfb.D
 Acq On : 12 Sep 2017 8:18 am
 Operator : jls
 Sample : BFB
 Misc : ALM029426
 ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\0912.M
 Title : TO-15 on the Agilent 7890A / 5975C
 Last Update : Tue Sep 12 13:00:02 2017



AutoFind: Scans 5366, 5367, 5368; Background Corrected with Scan 5345

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	13.2	77682	PASS
75	95	30	66	59.5	348928	PASS
95	95	100	100	100.0	586303	PASS
96	95	5	9	6.8	39699	PASS
173	174	0.00	2	0.9	3809	PASS
174	95	50	100	70.0	410368	PASS
175	174	4	9	7.5	30821	PASS
176	174	93	101	93.9	385131	PASS
177	176	5	9	6.6	25240	PASS

Data Path: C:\DATA\10-04-17\
Data File: AA3701BFB.D
Acq On: 10/4/2017 8:23:00AM
Operator: jls
Sample: BFB
Misc: ALM029426
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\0912.M
Last Update: Tue Sep 12 13:00:02 2017
Spectrum Information:

Pass/Fail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	72509	13.5
PASS	75	95	30	66	338679	62.9
PASS	95	95	100	100	538731	100.0
PASS	96	95	5	9	36859	6.8
PASS	173	174	0.00	2	2769	0.7
PASS	174	95	50	100	379947	70.5
PASS	175	174	4	9	27965	7.4
PASS	176	174	93	101	366379	96.4
PASS	177	176	5	9	22832	6.2

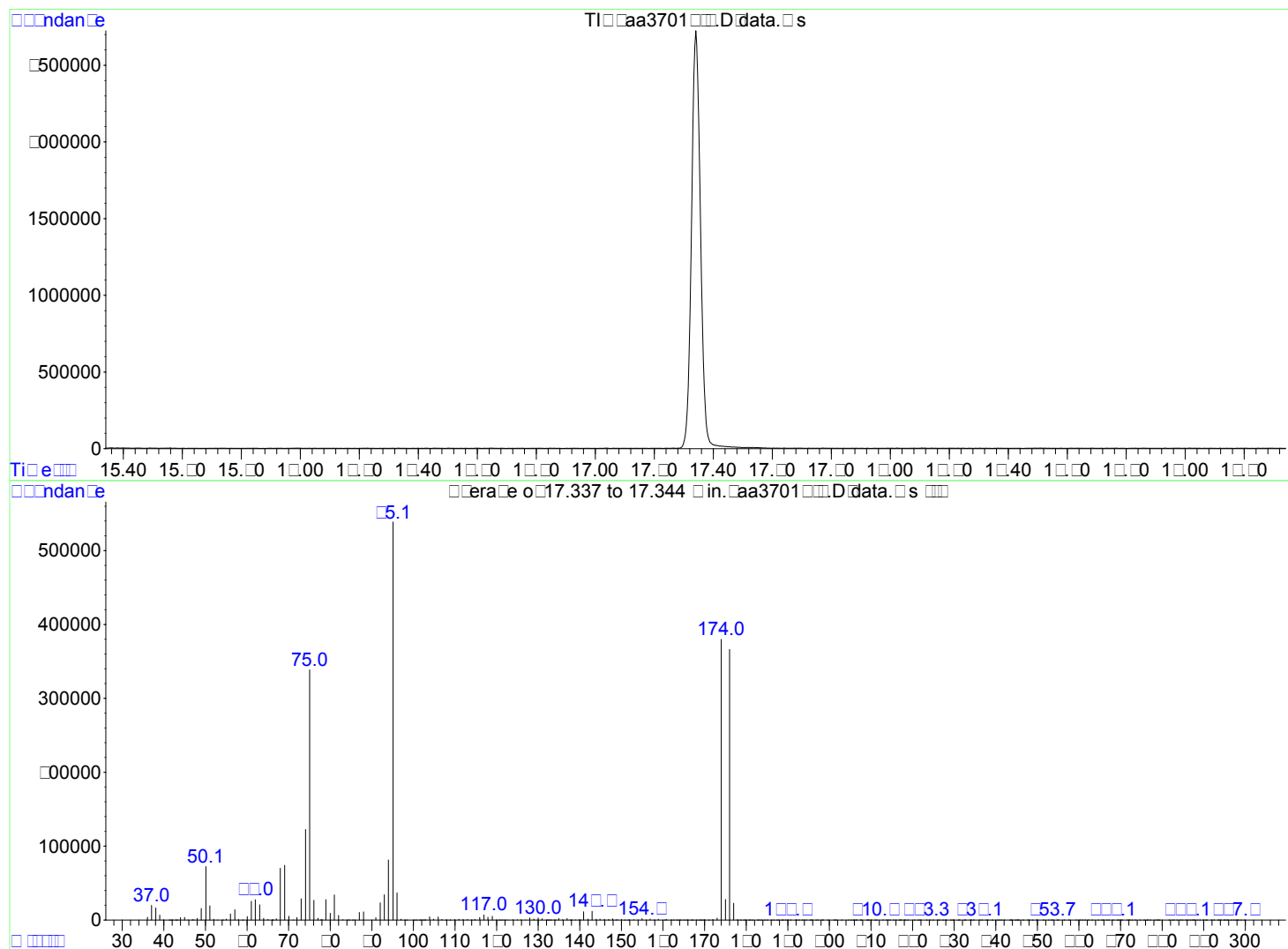
Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA3701BFB	NA	10/4/2017 8:23:00 AM
10 PPBV DCVS	AA3702DCVS	NA	10/4/2017 9:02:00 AM
10 PPBV LCS	AA3703LCS	NA	10/4/2017 9:55:00 AM
METHOD BLANK	AA3704BLK	NA	10/4/2017 10:33:00 AM
02 PPBV RLLCS	AA3705RLLCS	NA	10/4/2017 11:14:00 AM
2162	AA3717	NA	10/4/2017 6:34:00 PM
10 PPBV CCCVS	AA3728CCCVS	NA	10/4/2017 7:08:00 PM

Data Path : C:\DATA\10-04-17\
 Data File : aa3701bfb.D
 Acq On : 4 Oct 2017 8:23 am
 Operator : jls
 Sample : BFB
 Misc : ALM029426
 ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\0912.M
 Title : TO-15 on the Agilent 7890A / 5975C
 Last Update : Tue Sep 12 13:00:02 2017



AutoFind: Scans 5365, 5366, 5367; Background Corrected with Scan 5340

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	13.5	72509	PASS
75	95	30	66	62.9	338679	PASS
95	95	100	100	100.0	538731	PASS
96	95	5	9	6.8	36859	PASS
173	174	0.00	2	0.7	2769	PASS
174	95	50	100	70.5	379947	PASS
175	174	4	9	7.4	27965	PASS
176	174	93	101	96.4	366379	PASS
177	176	5	9	6.2	22832	PASS

Data Path: C:\DATA\11-28-17\
Data File: AA4271BFB.D
Acq On: 11/28/2017 8:37:00AM
Operator: jls
Sample: BFB
Misc: ALM029426
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\0912.M
Last Update: Tue Sep 12 13:00:02 2017
Spectrum Information:

PassFail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	97275	13.9
PASS	75	95	30	66	399829	57.1
PASS	95	95	100	100	700502	100.0
PASS	96	95	5	9	45515	6.5
PASS	173	174	0.00	2	4963	0.9
PASS	174	95	50	100	541242	77.3
PASS	175	174	4	9	39455	7.3
PASS	176	174	93	101	523454	96.7
PASS	177	176	5	9	33592	6.4

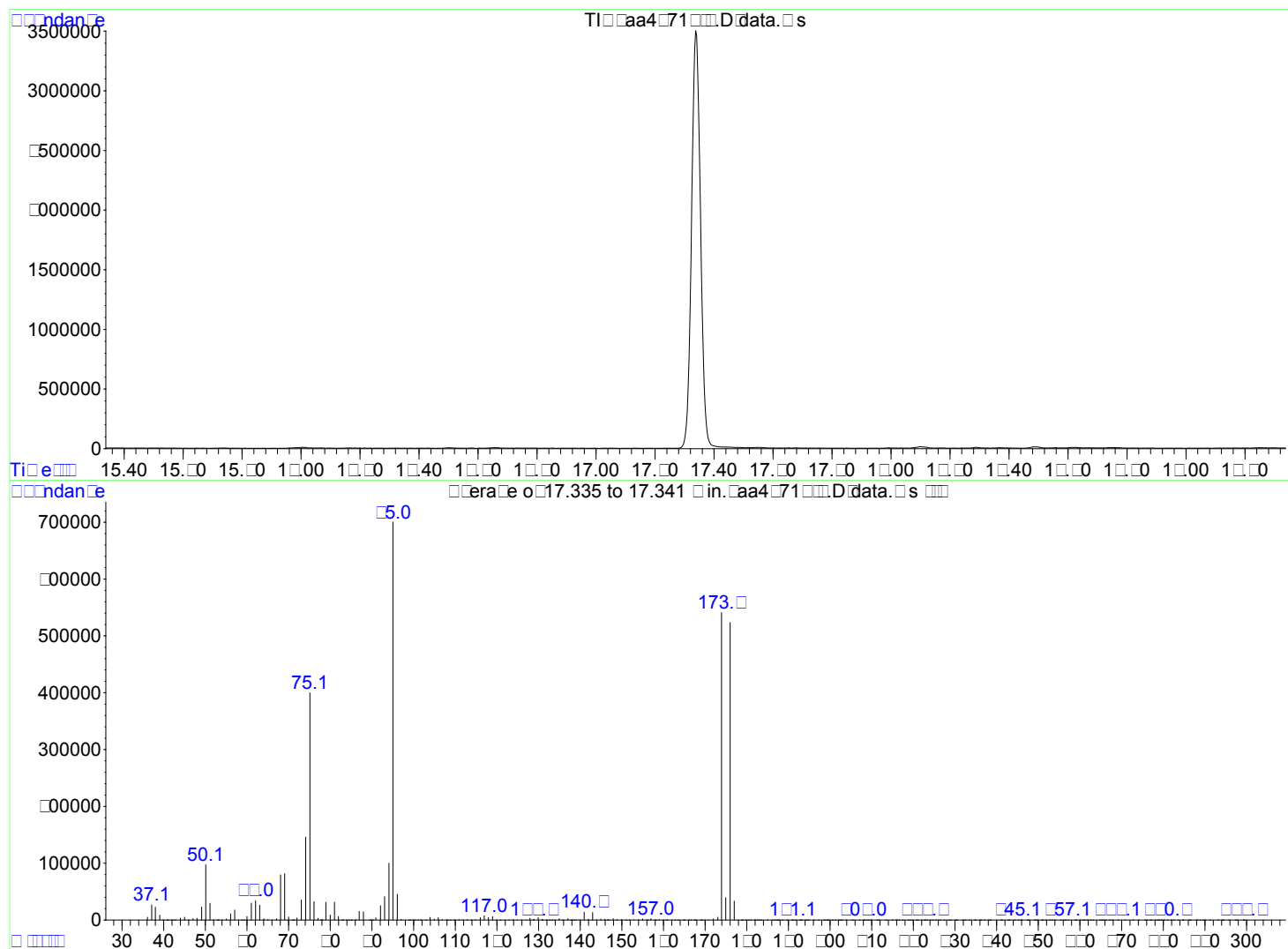
Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4271BFB	NA	11/28/2017 8:37:00 AM
10 PPBV DCVS	AA4272DCVS	NA	11/28/2017 9:29:00 AM
10 PPBV LCS	AA4273LCS	NA	11/28/2017 10:09:00 AM
METHOD BLANK	AA4274BLK	NA	11/28/2017 1:04:00 PM
02 PPBV RLLCS	AA4275RLLCS	NA	11/28/2017 1:44:00 PM
E17-09837-01	AA4286	SS-1	11/28/2017 8:34:00 PM
E17-09837-02	AA4287	SS-2	11/28/2017 9:07:00 PM
E17-09837-05	AA4290	Ambient	11/28/2017 10:48:00 PM
10 PPBV CCCVS	AA4292CCCVS	NA	11/28/2017 11:56:00 PM

Data Path : C:\DATA\11-28-17\
 Data File : aa4271bfb.D
 Acq On : 28 Nov 2017 8:37 am
 Operator : jls
 Sample : BFB
 Misc : ALM029426
 ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\0912.M
 Title : TO-15 on the Agilent 7890A / 5975C
 Last Update : Tue Sep 12 13:00:02 2017



AutoFind: Scans 5364, 5365, 5366; Background Corrected with Scan 5343

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	13.9	97275	PASS
75	95	30	66	57.1	399829	PASS
95	95	100	100	100.0	700502	PASS
96	95	5	9	6.5	45515	PASS
173	174	0.00	2	0.9	4963	PASS
174	95	50	100	77.3	541242	PASS
175	174	4	9	7.3	39455	PASS
176	174	93	101	96.7	523454	PASS
177	176	5	9	6.4	33592	PASS

Data Path: C:\DATA\11-29-17\
Data File: AA4301BFB.D
Acq On: 11/29/2017 8:42:00AM
Operator: jls
Sample: BFB
Misc: ALM029426
ALS Vial: 1 **Multiplier:** 1
Integration File: rteint.p
Method: C:\msdchem\1\METHODS\0912.M
Last Update: Tue Sep 12 13:00:02 2017
Spectrum Information:

Pass/Fail	Target Mass	Rel. to Mass	Lower Limit %	Higher Limit %	Raw Abundance	% Relative Abundance
PASS	50	95	8	40	97565	15.2
PASS	75	95	30	66	400064	62.3
PASS	95	95	100	100	641984	100.0
PASS	96	95	5	9	39141	6.1
PASS	173	174	0.00	2	5077	1.1
PASS	174	95	50	100	482837	75.2
PASS	175	174	4	9	36367	7.5
PASS	176	174	93	101	469473	97.2
PASS	177	176	5	9	28931	6.2

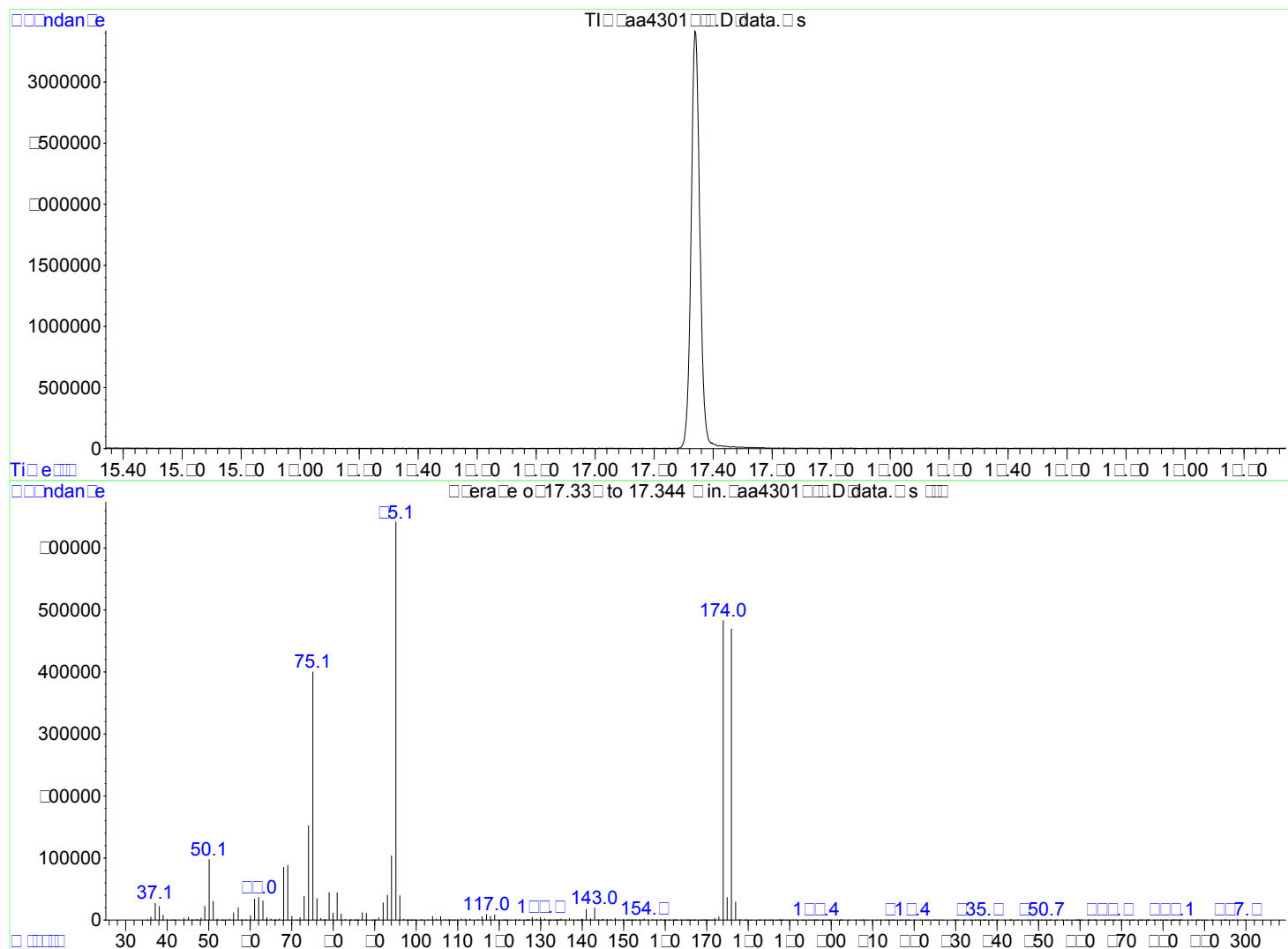
Runs with this BFB:

Lab Sample Number	Date File	Field Sample	Date/Time of Sample/Standard Analysis
BFB	AA4301BFB	NA	11/29/2017 8:42:00 AM
10 PPBV DCVS	AA4302DCVS	NA	11/29/2017 10:04:00 AM
10 PPBV LCS	AA4303LCS	NA	11/29/2017 10:45:00 AM
METHOD BLANK	AA4304BLK	NA	11/29/2017 11:19:00 AM
02 PPBV RLLCS	AA4305RLLCS	NA	11/29/2017 11:59:00 AM
3059	AA4306	NA	11/29/2017 2:35:00 PM
E17-09837-01	AA4307	SS-1	11/29/2017 3:08:00 PM
E17-09837-02	AA4308	SS-2	11/29/2017 3:55:00 PM
E17-09837-03	AA4309	SS-3	11/29/2017 4:29:00 PM
E17-09837-04	AA4310	SS-4	11/29/2017 5:03:00 PM
10 PPBV CCCVS	AA4319CCCVS	NA	11/29/2017 10:05:00 PM

Data Path : C:\DATA\11-29-17\
 Data File : aa4301bfb.D
 Acq On : 29 Nov 2017 8:42 am
 Operator : jls
 Sample : BFB
 Misc : ALM029426
 ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\msdchem\1\METHODS\0912.M
 Title : TO-15 on the Agilent 7890A / 5975C
 Last Update : Tue Sep 12 13:00:02 2017



AutoFind: Scans 5365, 5366, 5367; Background Corrected with Scan 5343

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	15.2	97565	PASS
75	95	30	66	62.3	400064	PASS
95	95	100	100	100.0	641984	PASS
96	95	5	9	6.1	39141	PASS
173	174	0.00	2	1.1	5077	PASS
174	95	50	100	75.2	482837	PASS
175	174	4	9	7.5	36367	PASS
176	174	93	101	97.2	469473	PASS
177	176	5	9	6.2	28931	PASS

Method Blank Report

Lab Sample Name: METHOD BLANK
Field Sample Name: METHOD BLANK
Matrix: Air
Dilution Factor: 1

Data File: AA3704BLK
Date Analyzed: 10/4/2017
Sample Volume: 500ml
GC/MS Column: RTX-1, 0.32 mmID

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3701BFB]	10/04/2017 8:23
10 PPBV DCVS [AA3702DCVS]	10/04/2017 9:02
10 PPBV LCS [AA3703LCS]	10/04/2017 9:55
METHOD BLANK [AA3704BLK]	10/04/2017 10:33
02 PPBV RLLCS [AA3705RLLCS]	10/04/2017 11:14
2162 [AA3717]	10/04/2017 18:34
10 PPBV CCCVS [AA3728CCCVS]	10/04/2017 19:08

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	0.14	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	0.16	ND
Carbon tetrachloride	56-23-5	0.15	ND
Cyclohexane	110-82-7	0.18	ND
Dibromochloromethane	124-48-1	0.15	ND
1,2-Dibromoethane	106-93-4	0.20	ND
1,2-Dichlorobenzene	95-50-1	0.19	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.15	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	0.16	ND
1,2-Dichloroethene (cis)	156-59-2	0.17	ND
1,2-Dichloroethene (trans)	156-60-5	0.17	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.19	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.18	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	0.14	ND
Methyl ethyl ketone	78-93-3	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Method Blank Report

Lab Sample Name: METHOD BLANK
Field Sample Name: METHOD BLANK
Matrix: Air
Dilution Factor: 1

Data File: AA3704BLK
Date Analyzed: 10/4/2017
Sample Volume: 500ml
GC/MS Column: RTX-1, 0.32 mmID

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3701BFB]	10/04/2017 8:23
10 PPBV DCVS [AA3702DCVS]	10/04/2017 9:02
10 PPBV LCS [AA3703LCS]	10/04/2017 9:55
METHOD BLANK [AA3704BLK]	10/04/2017 10:33
02 PPBV RLLCS [AA3705RLLCS]	10/04/2017 11:14
2162 [AA3717]	10/04/2017 18:34
10 PPBV CCCVS [AA3728CCCVS]	10/04/2017 19:08

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methyl isobutyl ketone	108-10-1	0.20	ND
Methyl tert-butyl ether	1634-04-4	0.19	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	0.19	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	0.14	ND
Vinyl chloride	75-01-4	0.14	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\10-04-17\
 Data File : aa3704blk.D
 Acq On : 4 Oct 2017 10:33 am
 Operator : jls
 Sample : Method Blank
 Misc : 1127, 500cc
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 05 10:51:39 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.746	130	499560	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.804	114	1674182	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.141	117	1477054	10.00	ppbV	0.00

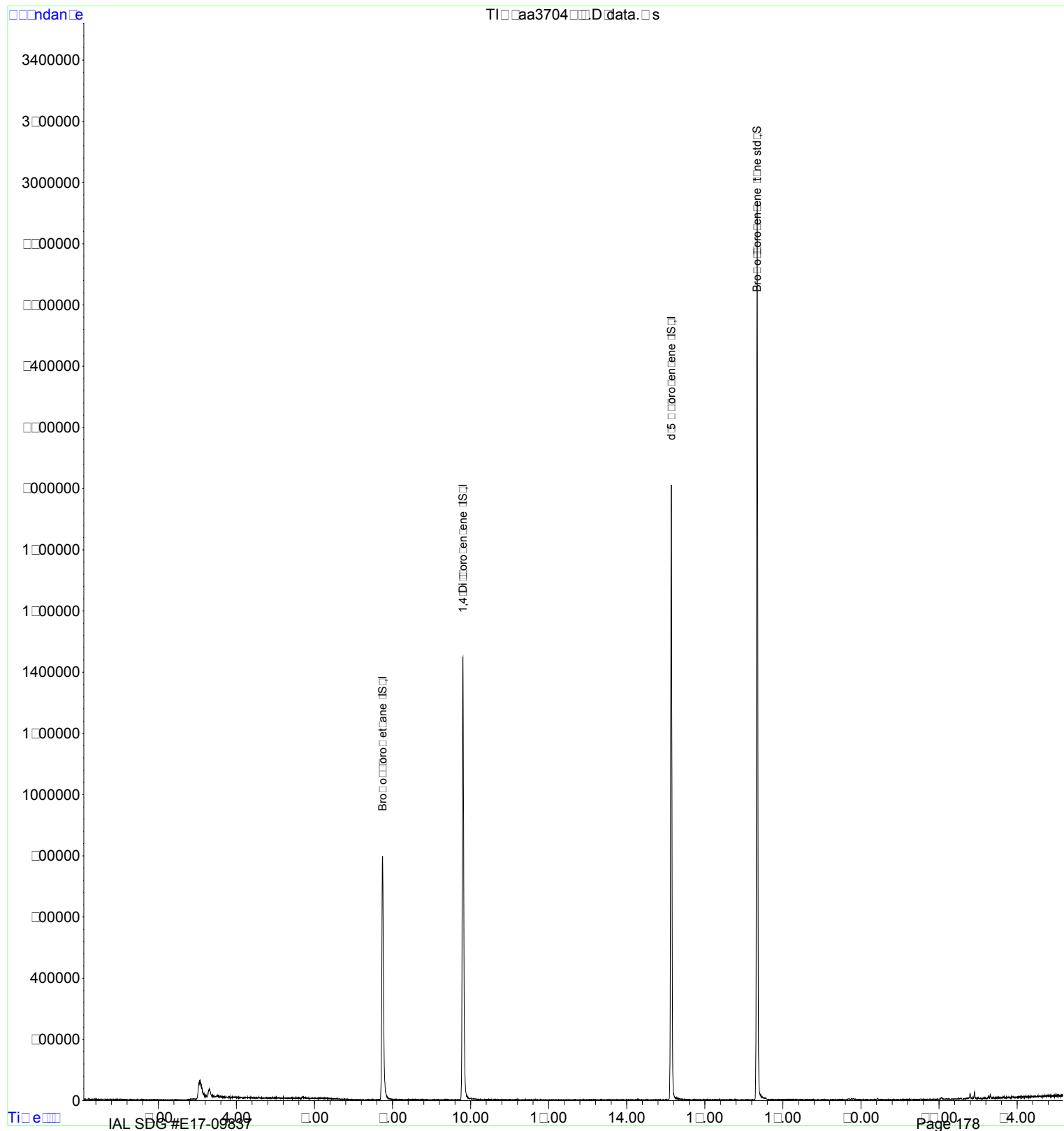
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.341	95	1252212	9.68	ppbV	0.00

Target Compounds	Qvalue
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(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\10-04-17\
Data File : aa3704blk.D
Acq On : 4 Oct 2017 10:33 am
Operator : jls
Sample : Method Blank
Misc : 1127, 500cc
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Oct 05 10:51:39 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
Response via : Initial Calibration



Method Blank Report

Lab Sample Name: METHOD BLANK
Field Sample Name: METHOD BLANK
Matrix: Air
Dilution Factor: 1

Data File: AA4274BLK
Date Analyzed: 11/28/2017
Sample Volume: 500ml
GC/MS Column: RTX-1, 0.32 mmID

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4271BFB]	11/28/2017 8:37
10 PPBV DCVS [AA4272DCVS]	11/28/2017 9:29
10 PPBV LCS [AA4273LCS]	11/28/2017 10:09
METHOD BLANK [AA4274BLK]	11/28/2017 13:04
02 PPBV RLLCS [AA4275RLLCS]	11/28/2017 13:44
E17-09837-01 [AA4286]	11/28/2017 20:34
E17-09837-02 [AA4287]	11/28/2017 21:07
E17-09837-05 [AA4290]	11/28/2017 22:48
10 PPBV CCCVS [AA4292CCCVS]	11/28/2017 23:56

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	0.14	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	0.16	ND
Carbon tetrachloride	56-23-5	0.15	ND
Cyclohexane	110-82-7	0.18	ND
Dibromochloromethane	124-48-1	0.15	ND
1,2-Dibromoethane	106-93-4	0.20	ND
1,2-Dichlorobenzene	95-50-1	0.19	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.15	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	0.16	ND
1,2-Dichloroethene (cis)	156-59-2	0.17	ND
1,2-Dichloroethene (trans)	156-60-5	0.17	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.19	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.18	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

Method Blank must be less than the Practical Quantitation Limit (PQL).

Method Blank Report

Lab Sample Name: METHOD BLANK
Field Sample Name: METHOD BLANK
Matrix: Air
Dilution Factor: 1

Data File: AA4274BLK
Date Analyzed: 11/28/2017
Sample Volume: 500ml
GC/MS Column: RTX-1, 0.32 mmID

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4271BFB]	11/28/2017 8:37
10 PPBV DCVS [AA4272DCVS]	11/28/2017 9:29
10 PPBV LCS [AA4273LCS]	11/28/2017 10:09
METHOD BLANK [AA4274BLK]	11/28/2017 13:04
02 PPBV RLLCS [AA4275RLLCS]	11/28/2017 13:44
E17-09837-01 [AA4286]	11/28/2017 20:34
E17-09837-02 [AA4287]	11/28/2017 21:07
E17-09837-05 [AA4290]	11/28/2017 22:48
10 PPBV CCCVS [AA4292CCCVS]	11/28/2017 23:56

Compound	CAS #	Reporting Limit (ppbv)	Concentration (ppbv)
Methylene chloride	75-09-2	0.14	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	0.19	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	0.19	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	0.14	ND
Vinyl chloride	75-01-4	0.14	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\11-28-17\
 Data File : aa4274blk.D
 Acq On : 28 Nov 2017 1:04 pm
 Operator : jls
 Sample : Method Blank
 Misc : 1127, 500cc
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 30 11:35:55 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.743	130	523990	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.804	114	1666080	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.135	117	1556624	10.00	ppbV	0.00

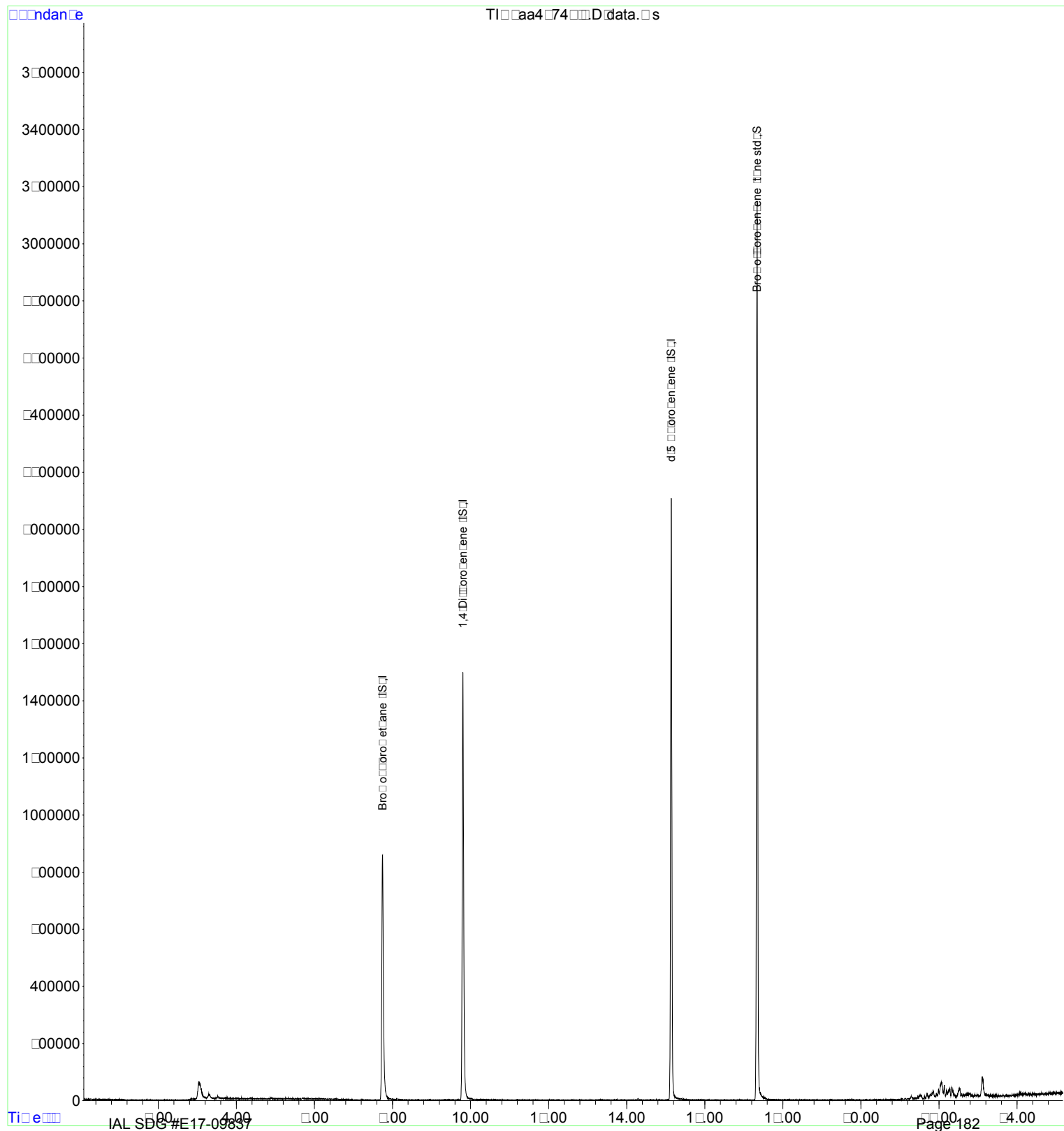
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.338	95	1276322	9.36	ppbV	0.00

Target Compounds	Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\11-28-17\
Data File : aa4274blk.D
Acq On : 28 Nov 2017 1:04 pm
Operator : jls
Sample : Method Blank
Misc : 1127, 500cc
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 30 11:35:55 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
Response via : Initial Calibration



Method Blank Report

Lab Sample Name: METHOD BLANK
Field Sample Name: METHOD BLANK
Matrix: Air
Dilution Factor: 1

Data File: AA4304BLK
Date Analyzed: 11/29/2017
Sample Volume: 500ml
GC/MS Column: RTX-1, 0.32 mmID

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4301BFB]	11/29/2017 8:42
10 PPBV DCVS [AA4302DCVS]	11/29/2017 10:04
10 PPBV LCS [AA4303LCS]	11/29/2017 10:45
METHOD BLANK [AA4304BLK]	11/29/2017 11:19
02 PPBV RLLCS [AA4305RLLCS]	11/29/2017 11:59
3059 [AA4306]	11/29/2017 14:35
E17-09837-01 [AA4307]	11/29/2017 15:08
E17-09837-02 [AA4308]	11/29/2017 15:55
E17-09837-03 [AA4309]	11/29/2017 16:29
E17-09837-04 [AA4310]	11/29/2017 17:03
10 PPBV CCCVS [AA4319CCCVS]	11/29/2017 22:05

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	0.14	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	0.16	ND
Carbon tetrachloride	56-23-5	0.15	ND
Cyclohexane	110-82-7	0.18	ND
Dibromochloromethane	124-48-1	0.15	ND
1,2-Dibromoethane	106-93-4	0.20	ND
1,2-Dichlorobenzene	95-50-1	0.19	ND
1,3-Dichlorobenzene	541-73-1	0.20	ND
1,4-Dichlorobenzene	106-46-7	0.20	ND
Dichlorodifluoromethane	75-71-8	0.15	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	0.16	ND
1,2-Dichloroethene (cis)	156-59-2	0.17	ND
1,2-Dichloroethene (trans)	156-60-5	0.17	ND
1,2-Dichloropropane	78-87-5	0.20	ND
1,3-Dichloropropene (cis)	10061-01-5	0.19	ND
1,3-Dichloropropene (trans)	10061-02-6	0.19	ND
1,2-Dichlorotetrafluoroethane	76-14-2	0.18	ND
1,4-Dioxane	123-91-1	0.20	ND
Ethylbenzene	100-41-4	0.20	ND

Method Blank must be less than the Practical Quantitation Limit (PQL).

Method Blank Report

Lab Sample Name: METHOD BLANK
Field Sample Name: METHOD BLANK
Matrix: Air
Dilution Factor: 1

Data File: AA4304BLK
Date Analyzed: 11/29/2017
Sample Volume: 500ml
GC/MS Column: RTX-1, 0.32 mmID

Runs with this Method Blank:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4301BFB]	11/29/2017 8:42
10 PPBV DCVS [AA4302DCVS]	11/29/2017 10:04
10 PPBV LCS [AA4303LCS]	11/29/2017 10:45
METHOD BLANK [AA4304BLK]	11/29/2017 11:19
02 PPBV RLLCS [AA4305RLLCS]	11/29/2017 11:59
3059 [AA4306]	11/29/2017 14:35
E17-09837-01 [AA4307]	11/29/2017 15:08
E17-09837-02 [AA4308]	11/29/2017 15:55
E17-09837-03 [AA4309]	11/29/2017 16:29
E17-09837-04 [AA4310]	11/29/2017 17:03
10 PPBV CCCVS [AA4319CCCVS]	11/29/2017 22:05

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	0.14	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	0.19	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	0.19	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	0.14	ND
Vinyl chloride	75-01-4	0.14	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\11-29-17\
 Data File : aa4304blk.D
 Acq On : 29 Nov 2017 11:19 am
 Operator : jls
 Sample : Method Blank
 Misc : 1127, 500cc
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 04 10:34:57 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.740	130	573088	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.798	114	1791275	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.135	117	1711339	10.00	ppbV	0.00

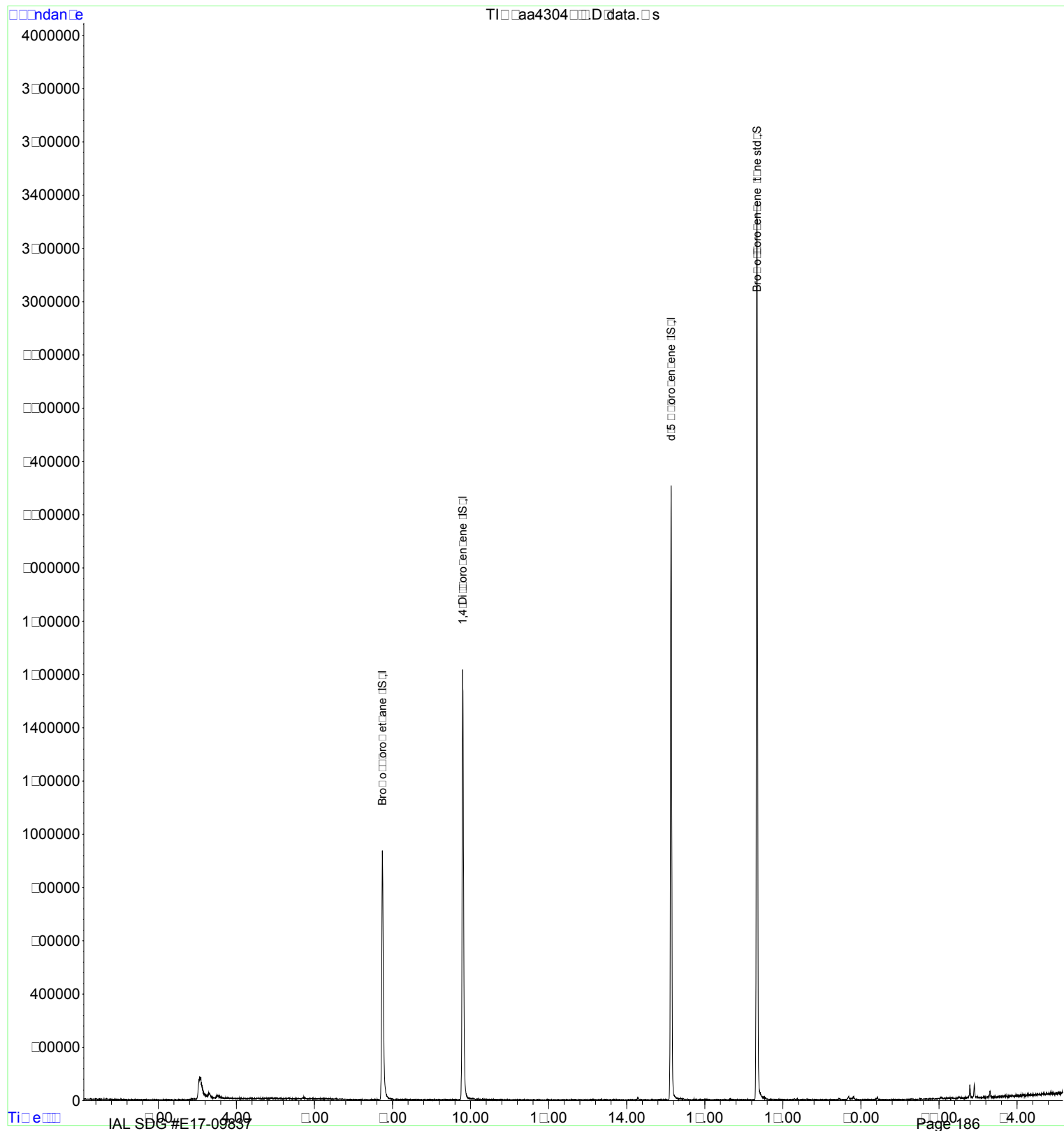
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.338	95	1397735	9.33	ppbV	0.00

Target Compounds	Qvalue
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(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\11-29-17\
Data File : aa4304blk.D
Acq On : 29 Nov 2017 11:19 am
Operator : jls
Sample : Method Blank
Misc : 1127, 500cc
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 04 10:34:57 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
Response via : Initial Calibration



Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS
Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv

Data File: AA3703LCS
Date Analyzed: 10/4/2017

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3701BFB]	10/04/2017 8:23
10 PPBV DCVS [AA3702DCVS]	10/04/2017 9:02
10 PPBV LCS [AA3703LCS]	10/04/2017 9:55
METHOD BLANK [AA3704BLK]	10/04/2017 10:33
02 PPBV RLLCS [AA3705RLLCS]	10/04/2017 11:14
2162 [AA3717]	10/04/2017 18:34
10 PPBV CCCVS [AA3728CCCVS]	10/04/2017 19:08

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	10	100
Benzene	71-43-2	9.0	90
Bromodichloromethane	75-27-4	9.9	99
Bromoform	75-25-2	9.8	98
Bromomethane	74-83-9	11	110
1,3-Butadiene	106-99-0	9.8	98
Chlorobenzene	108-90-7	8.9	89
Chloroethane	75-00-3	10	100
Chloroform	67-66-3	9.8	98
Chloromethane	74-87-3	11	110
Carbon disulfide	75-15-0	9.5	95
Carbon tetrachloride	56-23-5	9.7	97
Cyclohexane	110-82-7	9.5	95
Dibromochloromethane	124-48-1	9.8	98
1,2-Dibromoethane	106-93-4	9.3	93
1,2-Dichlorobenzene	95-50-1	9.3	93
1,3-Dichlorobenzene	541-73-1	9.4	94
1,4-Dichlorobenzene	106-46-7	9.4	94
Dichlorodifluoromethane	75-71-8	10	100
1,1-Dichloroethane	75-34-3	9.1	91
1,2-Dichloroethane	107-06-2	9.8	98
1,1-Dichloroethene	75-35-4	10	100
1,2-Dichloroethene (cis)	156-59-2	9.6	96
1,2-Dichloroethene (trans)	156-60-5	9.6	96
1,2-Dichloropropane	78-87-5	8.5	85
1,3-Dichloropropene (cis)	10061-01-5	9.6	96
1,3-Dichloropropene (trans)	10061-02-6	9.8	98
1,2-Dichlorotetrafluoroethane	76-14-2	9.5	95
1,4-Dioxane	123-91-1	8.4	84
Ethylbenzene	100-41-4	9.7	97
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	8.8	88
n-Hexane	110-54-3	8.9	89

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

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS
Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv

Data File: AA3703LCS
Date Analyzed: 10/4/2017

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3701BFB]	10/04/2017 8:23
10 PPBV DCVS [AA3702DCVS]	10/04/2017 9:02
10 PPBV LCS [AA3703LCS]	10/04/2017 9:55
METHOD BLANK [AA3704BLK]	10/04/2017 10:33
02 PPBV RLLCS [AA3705RLLCS]	10/04/2017 11:14
2162 [AA3717]	10/04/2017 18:34
10 PPBV CCCVS [AA3728CCCVS]	10/04/2017 19:08

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Methylene chloride	75-09-2	8.8	88
Methyl ethyl ketone	78-93-3	11	110
Methyl isobutyl ketone	108-10-1	9.1	91
Methyl tert-butyl ether	1634-04-4	9.4	94
Styrene	100-42-5	10	100
Tert-butyl alcohol	75-65-0	9.1	91
1,1,2,2-Tetrachloroethane	79-34-5	8.9	89
Tetrachloroethene	127-18-4	9.1	91
Toluene	108-88-3	9.6	96
1,2,4-Trichlorobenzene	120-82-1	9.0	90
1,1,1-Trichloroethane	71-55-6	9.5	95
1,1,2-Trichloroethane	79-00-5	9.0	90
Trichloroethene	79-01-6	9.6	96
Trichlorofluoromethane	75-69-4	10.0	100
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	8.9	89
1,2,4-Trimethylbenzene	95-63-6	11	110
1,3,5-Trimethylbenzene	108-67-8	10	100
2,2,4-Trimethylpentane	540-84-1	9.4	94
Vinyl bromide	593-60-2	10	100
Vinyl chloride	75-01-4	10	100
Xylenes (m&p)	179601-23-1	20	99
Xylenes (o)	95-47-6	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

Data Path : C:\DATA\10-04-17\
 Data File : aa37031cs.D
 Acq On : 4 Oct 2017 9:55 am
 Operator : jls
 Sample : 10 ppbv LCS
 Misc : AAL073030
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 05 10:50:05 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.753	130	494372	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.807	114	1754044	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.141	117	1574064	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.341	95	1400636	10.16	ppbV	0.00
Target Compounds						
					Qvalue	
2) Propene	3.505	41	107432	8.72	ppbV	83
3) Dichlorodifluoromethane	3.566	85	1861633	10.09	ppbV	97
4) Chloromethane	3.727	52	46867	11.27	ppbV #	1
5) 1,2-Dichlorotetrafluor...	3.772	85	1372675	9.54	ppbV	98
6) Vinyl chloride	3.888	62	282344	10.08	ppbV	87
7) 1,3-Butadiene	3.994	54	151456	9.75	ppbV #	73
8) n-Butane	4.039	43	260945	10.17	ppbV	95
9) Bromomethane	4.245	94	311146	10.84	ppbV	97
10) Chloroethane	4.386	64	152459	10.33	ppbV #	82
11) Ethanol	4.425	45	49817	8.60	ppbV	88
12) Vinyl bromide	4.692	106	482362	10.37	ppbV	99
13) Acrolein	4.750	56	79776	9.76	ppbV	98
14) Acetone	4.843	58	126321	10.33	ppbV #	65
15) Trichlorofluoromethane	5.032	101	2425917	9.97	ppbV	99
16) Isopropanol	5.026	45	310741	9.41	ppbV #	87
17) n-Pentane	5.332	43	278054	9.22	ppbV	92
18) 1,1-Dichloroethene	5.595	61	692791	10.07	ppbV	96
19) Methylene chloride	5.708	84	384384	8.77	ppbV	97
20) Tert-butyl alcohol	5.563	59	739718	9.09	ppbV	100
21) Allyl chloride	5.798	76	191274	9.97	ppbV	100
22) 1,1,2-Trichloro-1,2,2-...	5.930	101	1308883	8.88	ppbV	96
23) Carbon disulfide	5.987	76	1256124	9.50	ppbV	98
24) 1,2-Dichloroethene (tr...	6.563	61	537073	9.59	ppbV	100
25) 1,1-Dichloroethane	6.749	63	720820	9.14	ppbV	92
26) Methyl tert-butyl ether	6.785	73	1467123	9.40	ppbV	99
27) Methyl ethyl ketone	7.097	72	204796	10.55	ppbV	96
28) 1,2-Dichloroethene (cis)	7.576	61	532320	9.59	ppbV	100
29) Ethyl acetate	7.765	45	63285	9.77	ppbV	100
30) n-Hexane	7.794	57	356418	8.85	ppbV	93
31) Chloroform	7.868	83	1474006	9.83	ppbV	100
32) Tetrahydrofuran	8.264	42	189588	9.34	ppbV #	78
33) 1,2-Dichloroethane	8.640	62	944041	9.80	ppbV	96
34) 1,1,1-Trichloroethane	8.917	97	1723943	9.48	ppbV	99
35) Benzene	9.418	78	1316298	9.04	ppbV	97
36) Carbon tetrachloride	9.582	117	2099030	9.65	ppbV	100
37) Cyclohexane	9.727	84	565103	9.46	ppbV	92
39) 1,2-Dichloropropane	10.325	63	383969	8.47	ppbV	95
40) Bromodichloromethane	10.547	83	1625112	9.88	ppbV	99
41) 2,2,4-Trimethylpentane	10.656	57	1214983	9.43	ppbV	94
42) Trichloroethene	10.605	130	884009	9.64	ppbV	97
43) 1,4-Dioxane	10.566	88	271020	8.43	ppbV	95
44) Methyl methacrylate	10.817	69	521849	9.40	ppbV	98
45) n-Heptane	10.958	71	455600	10.71	ppbV	94
46) cis-1,3-Dichloropropene	11.614	75	961691	9.63	ppbV	100
47) Methyl isobutyl ketone	11.640	43	565499	9.07	ppbV	98
48) trans-1,3-Dichloropropene	12.254	75	1032608	9.79	ppbV	98
49) 1,1,2-Trichloroethane	12.466	97	724017	9.01	ppbV	98
50) Toluene	12.820	91	1936834	9.61	ppbV	95
51) Methyl n-butyl ketone	13.141	43	558008	9.22	ppbV	98

AL SDG #E17-09837

Data Path : C:\DATA\10-04-17\
 Data File : aa3703lcs.D
 Acq On : 4 Oct 2017 9:55 am
 Operator : jls
 Sample : 10 ppbv LCS
 Misc : AAL073030
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Oct 05 10:50:05 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	13.347	129	1868366	9.75	ppbV	99
53) 1,2-Dibromoethane	13.666	107	1286230	9.32	ppbV	100
54) Tetrachloroethene	14.289	166	1042157	9.11	ppbV	98
56) Chlorobenzene	15.199	112	1797234	8.86	ppbV	99
57) Ethylbenzene	15.733	91	2903146	9.71	ppbV	98
58) Xylenes (m&p)	16.003	91	4837359	19.77	ppbV	96
59) Bromoform	16.071	173	1573344	9.83	ppbV	98
60) Styrene	16.508	104	1663905	10.10	ppbV	99
61) Xylene (o)	16.662	91	2559574	9.99	ppbV	92
62) 1,1,2,2-Tetrachloroethane	16.649	83	1594285	8.88	ppbV	100
63) n-Nonane	17.042	57	660128	9.47	ppbV	99
65) Cumene	17.559	105	3418857	9.77	ppbV	95
66) 2-Chlorotoluene	18.296	91	2595916	9.85	ppbV	90
67) n-Propyl benzene	18.373	120	990975	9.85	ppbV	84
68) 4-Ethyltoluene	18.620	105	3466731	10.19	ppbV	92
69) 1,3,5-Trimethylbenzene	18.755	105	3242923	10.22	ppbV	90
70) 1,2,4-Trimethylbenzene	19.453	105	3229560	10.53	ppbV	96
71) Benzyl chloride	19.669	91	2663332	10.28	ppbV	99
72) 1,3-Dichlorobenzene	19.688	146	2191350	9.38	ppbV	98
73) 1,4-Dichlorobenzene	19.810	146	2230320	9.38	ppbV	99
74) 1,2-Dichlorobenzene	20.424	146	2088837	9.34	ppbV	99
75) 1,2,4-Trichlorobenzene	22.797	180	1865890	8.99	ppbV	99
76) Naphthalene	22.906	127	647100	10.13	ppbV	100
77) 1,3-Hexachlorobutadiene	23.315	225	1511265	8.79	ppbV	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

ACQ OH : 4 OCL

Integrated Analytical Laboratories LLC

QLast Update : Tue Sep 12 13:00:02 2017



Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS
Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv

Data File: AA4273LCS
Date Analyzed: 11/28/2017

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4271BFB]	11/28/2017 8:37
10 PPBV DCVS [AA4272DCVS]	11/28/2017 9:29
10 PPBV LCS [AA4273LCS]	11/28/2017 10:09
METHOD BLANK [AA4274BLK]	11/28/2017 13:04
02 PPBV RLLCS [AA4275RLLCS]	11/28/2017 13:44
E17-09837-01 [AA4286]	11/28/2017 20:34
E17-09837-02 [AA4287]	11/28/2017 21:07
E17-09837-05 [AA4290]	11/28/2017 22:48
10 PPBV CCCVS [AA4292CCCVS]	11/28/2017 23:56

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	11	110
Benzene	71-43-2	9.7	97
Bromodichloromethane	75-27-4	9.4	94
Bromoform	75-25-2	9.4	94
Bromomethane	74-83-9	13	130
1,3-Butadiene	106-99-0	11	110
Chlorobenzene	108-90-7	8.5	85
Chloroethane	75-00-3	10	100
Chloroform	67-66-3	9.4	94
Chloromethane	74-87-3	12	120
Carbon disulfide	75-15-0	9.3	93
Carbon tetrachloride	56-23-5	10	100
Cyclohexane	110-82-7	9.6	96
Dibromochloromethane	124-48-1	10	100
1,2-Dibromoethane	106-93-4	9.6	96
1,2-Dichlorobenzene	95-50-1	8.9	89
1,3-Dichlorobenzene	541-73-1	8.6	86
1,4-Dichlorobenzene	106-46-7	8.7	87
Dichlorodifluoromethane	75-71-8	10	100
1,1-Dichloroethane	75-34-3	9.3	93
1,2-Dichloroethane	107-06-2	10	100
1,1-Dichloroethene	75-35-4	10	100
1,2-Dichloroethene (cis)	156-59-2	10.0	100
1,2-Dichloroethene (trans)	156-60-5	10	100
1,2-Dichloropropane	78-87-5	8.7	87
1,3-Dichloropropene (cis)	10061-01-5	9.6	96
1,3-Dichloropropene (trans)	10061-02-6	9.8	98
1,2-Dichlorotetrafluoroethane	76-14-2	9.8	98
1,4-Dioxane	123-91-1	9.3	93
Ethylbenzene	100-41-4	9.0	90
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

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS
Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv

Data File: AA4273LCS
Date Analyzed: 11/28/2017

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4271BFB]	11/28/2017 8:37
10 PPBV DCVS [AA4272DCVS]	11/28/2017 9:29
10 PPBV LCS [AA4273LCS]	11/28/2017 10:09
METHOD BLANK [AA4274BLK]	11/28/2017 13:04
02 PPBV RLLCS [AA4275RLLCS]	11/28/2017 13:44
E17-09837-01 [AA4286]	11/28/2017 20:34
E17-09837-02 [AA4287]	11/28/2017 21:07
E17-09837-05 [AA4290]	11/28/2017 22:48
10 PPBV CCCVS [AA4292CCCVS]	11/28/2017 23:56

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
1,3-Hexachlorobutadiene	87-68-3	9.2	92
n-Hexane	110-54-3	10	100
Methylene chloride	75-09-2	8.6	86
Methyl ethyl ketone	78-93-3	10	100
Methyl isobutyl ketone	108-10-1	11	110
Methyl tert-butyl ether	1634-04-4	9.8	98
Styrene	100-42-5	9.2	92
Tert-butyl alcohol	75-65-0	9.9	99
1,1,2,2-Tetrachloroethane	79-34-5	7.5	75
Tetrachloroethene	127-18-4	11	110
Toluene	108-88-3	9.7	97
1,2,4-Trichlorobenzene	120-82-1	9.3	93
1,1,1-Trichloroethane	71-55-6	9.7	97
1,1,2-Trichloroethane	79-00-5	9.4	94
Trichloroethene	79-01-6	10	100
Trichlorofluoromethane	75-69-4	9.9	99
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.1	91
1,2,4-Trimethylbenzene	95-63-6	9.6	96
1,3,5-Trimethylbenzene	108-67-8	9.3	93
2,2,4-Trimethylpentane	540-84-1	11	110
Vinyl bromide	593-60-2	11	110
Vinyl chloride	75-01-4	11	110
Xylenes (m&p)	179601-23-1	17	86
Xylenes (o)	95-47-6	8.7	87

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

Data Path : C:\DATA\11-28-17\
 Data File : aa42731cs.D
 Acq On : 28 Nov 2017 10:09 am
 Operator : jls
 Sample : 10 ppbv LCS
 Misc : AAL073030
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 30 11:35:13 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.740	130	554286	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.801	114	1924406	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.135	117	1969221	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.338	95	1523248	8.83	ppbV	0.00
Target Compounds						Qvalue
2) Propene	3.496	41	162371	11.75	ppbV	89
3) Dichlorodifluoromethane	3.560	85	2120837	10.25	ppbV	96
4) Chloromethane	3.708	52	53960	11.57	ppbV #	1
5) 1,2-Dichlorotetrafluor...	3.769	85	1577341	9.78	ppbV	95
6) Vinyl chloride	3.888	62	335451	10.68	ppbV	82
7) 1,3-Butadiene	3.991	54	182997	10.50	ppbV #	63
8) n-Butane	4.039	43	342375	11.90	ppbV	96
9) Bromomethane	4.239	94	404974	12.58	ppbV	97
10) Chloroethane	4.383	64	169336	10.23	ppbV	94
11) Ethanol	4.422	45	66769	10.28	ppbV #	84
12) Vinyl bromide	4.682	106	574915	11.02	ppbV	94
13) Acrolein	4.743	56	95370	10.40	ppbV	93
14) Acetone	4.846	58	148083	10.80	ppbV #	45
15) Trichlorofluoromethane	5.026	101	2706249	9.92	ppbV	99
16) Isopropanol	5.026	45	408237	11.02	ppbV	90
17) n-Pentane	5.332	43	377540	11.17	ppbV	92
18) 1,1-Dichloroethene	5.589	61	798701	10.36	ppbV	96
19) Methylene chloride	5.701	84	420773	8.56	ppbV	86
20) Tert-butyl alcohol	5.557	59	902436	9.89	ppbV	100
21) Allyl chloride	5.795	76	208834	9.70	ppbV	100
22) 1,1,2-Trichloro-1,2,2-...	5.930	101	1510851	9.14	ppbV	89
23) Carbon disulfide	5.984	76	1373728	9.26	ppbV	95
24) 1,2-Dichloroethene (tr...	6.554	61	632566	10.08	ppbV	99
25) 1,1-Dichloroethane	6.753	63	825906	9.34	ppbV	95
26) Methyl tert-butyl ether	6.775	73	1718693	9.83	ppbV	97
27) Methyl ethyl ketone	7.097	72	225702	10.37	ppbV	81
28) 1,2-Dichloroethene (cis)	7.566	61	619236	9.95	ppbV	99
29) Ethyl acetate	7.762	45	80184	11.04	ppbV	100
30) n-Hexane	7.791	57	465342	10.30	ppbV	93
31) Chloroform	7.869	83	1572955	9.35	ppbV	94
32) Tetrahydrofuran	8.254	42	254890	11.20	ppbV #	79
33) 1,2-Dichloroethane	8.634	62	1085012	10.05	ppbV	98
34) 1,1,1-Trichloroethane	8.914	97	1979989	9.71	ppbV	99
35) Benzene	9.409	78	1579239	9.67	ppbV	94
36) Carbon tetrachloride	9.579	117	2487401	10.20	ppbV	99
37) Cyclohexane	9.724	84	645925	9.64	ppbV	87
39) 1,2-Dichloropropane	10.322	63	433987	8.73	ppbV	96
40) Bromodichloromethane	10.541	83	1700754	9.42	ppbV	93
41) 2,2,4-Trimethylpentane	10.647	57	1575843	11.15	ppbV	100
42) Trichloroethene	10.595	130	1050921	10.44	ppbV	97
43) 1,4-Dioxane	10.563	88	327830	9.29	ppbV	96
44) Methyl methacrylate	10.814	69	583664	9.58	ppbV	87
45) n-Heptane	10.952	71	507297	10.86	ppbV	89
46) cis-1,3-Dichloropropene	11.611	75	1053678	9.62	ppbV	97
47) Methyl isobutyl ketone	11.634	43	726570	10.62	ppbV	92
48) trans-1,3-Dichloropropene	12.248	75	1133500	9.80	ppbV #	88
49) 1,1,2-Trichloroethane	12.457	97	830061	9.41	ppbV	92
50) Toluene	12.814	91	2135418	9.66	ppbV	99
51) Methyl n-butyl ketone	13.135	43	704579	10.61	ppbV	91

AL SDG #E17-09837

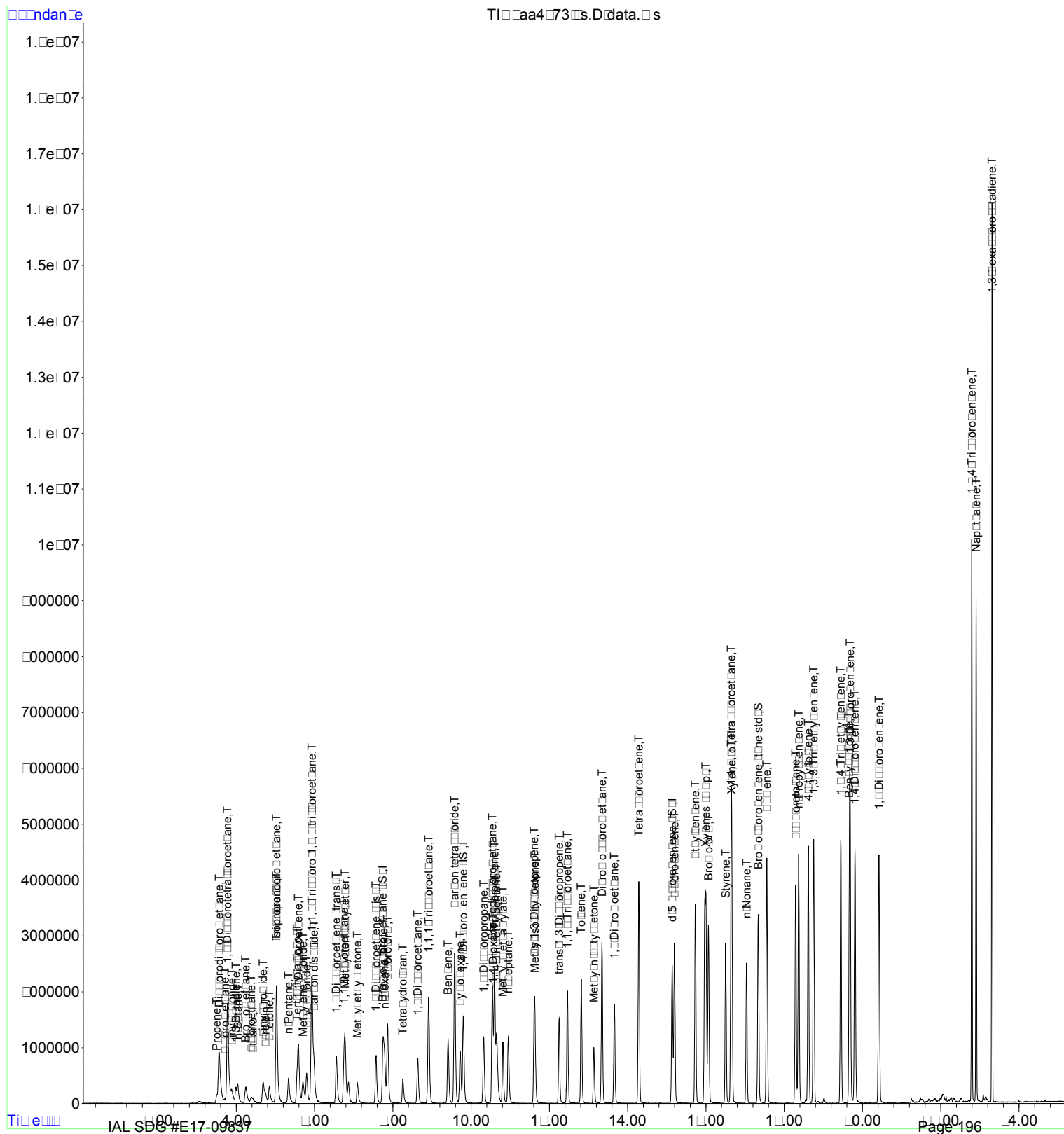
Data Path : C:\DATA\11-28-17\
 Data File : aa4273lcs.D
 Acq On : 28 Nov 2017 10:09 am
 Operator : jls
 Sample : 10 ppbv LCS
 Misc : AAL073030
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Nov 30 11:35:13 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	13.344	129	2149513	10.22	ppbV	99
53) 1,2-Dibromoethane	13.659	107	1448328	9.56	ppbV	93
54) Tetrachloroethene	14.283	166	1320234	10.52	ppbV	97
56) Chlorobenzene	15.196	112	2146422	8.46	ppbV	99
57) Ethylbenzene	15.730	91	3353728	8.97	ppbV	100
58) Xylenes (m&p)	15.997	91	5266917	17.20	ppbV	99
59) Bromoform	16.064	173	1885375	9.42	ppbV	97
60) Styrene	16.505	104	1894217	9.19	ppbV	100
61) Xylene (o)	16.662	91	2783075	8.68	ppbV	88
62) 1,1,2,2-Tetrachloroethane	16.643	83	1681055	7.49	ppbV	94
63) n-Nonane	17.039	57	832692	9.55	ppbV	99
65) Cumene	17.556	105	3927113	8.97	ppbV	92
66) 2-Chlorotoluene	18.289	91	2838461	8.61	ppbV #	84
67) n-Propyl benzene	18.370	120	1180916	9.38	ppbV	68
68) 4-Ethyltoluene	18.614	105	3899139	9.16	ppbV #	89
69) 1,3,5-Trimethylbenzene	18.752	105	3681063	9.27	ppbV #	86
70) 1,2,4-Trimethylbenzene	19.447	105	3686425	9.60	ppbV	99
71) Benzyl chloride	19.662	91	2930807	9.04	ppbV	94
72) 1,3-Dichlorobenzene	19.685	146	2526089	8.64	ppbV	99
73) 1,4-Dichlorobenzene	19.807	146	2591531	8.71	ppbV	98
74) 1,2-Dichlorobenzene	20.421	146	2493708	8.92	ppbV	99
75) 1,2,4-Trichlorobenzene	22.791	180	2404076	9.26	ppbV	99
76) Naphthalene	22.903	127	794028	9.94	ppbV	100
77) 1,3-Hexachlorobutadiene	23.308	225	1981223	9.21	ppbV	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quant Time: Nov 30 11:35:13 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
Response via : Initial Calibration



Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS
Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv

Data File: AA4303LCS
Date Analyzed: 11/29/2017

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4301BFB]	11/29/2017 8:42
10 PPBV DCVS [AA4302DCVS]	11/29/2017 10:04
10 PPBV LCS [AA4303LCS]	11/29/2017 10:45
METHOD BLANK [AA4304BLK]	11/29/2017 11:19
02 PPBV RLLCS [AA4305RLLCS]	11/29/2017 11:59
3059 [AA4306]	11/29/2017 14:35
E17-09837-01 [AA4307]	11/29/2017 15:08
E17-09837-02 [AA4308]	11/29/2017 15:55
E17-09837-03 [AA4309]	11/29/2017 16:29
E17-09837-04 [AA4310]	11/29/2017 17:03
10 PPBV CCCVS [AA4319CCCVS]	11/29/2017 22:05

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Acetone	67-64-1	9.3	93
Benzene	71-43-2	9.5	95
Bromodichloromethane	75-27-4	11	110
Bromoform	75-25-2	12	120
Bromomethane	74-83-9	12	120
1,3-Butadiene	106-99-0	8.9	89
Chlorobenzene	108-90-7	9.5	95
Chloroethane	75-00-3	9.2	92
Chloroform	67-66-3	10	100
Chloromethane	74-87-3	10	100
Carbon disulfide	75-15-0	8.9	89
Carbon tetrachloride	56-23-5	12	120
Cyclohexane	110-82-7	9.4	94
Dibromochloromethane	124-48-1	12	120
1,2-Dibromoethane	106-93-4	11	110
1,2-Dichlorobenzene	95-50-1	10	100
1,3-Dichlorobenzene	541-73-1	10	100
1,4-Dichlorobenzene	106-46-7	10	100
Dichlorodifluoromethane	75-71-8	12	120
1,1-Dichloroethane	75-34-3	9.1	91
1,2-Dichloroethane	107-06-2	11	110
1,1-Dichloroethene	75-35-4	11	110
1,2-Dichloroethene (cis)	156-59-2	9.7	97
1,2-Dichloroethene (trans)	156-60-5	9.7	97
1,2-Dichloropropane	78-87-5	9.0	90
1,3-Dichloropropene (cis)	10061-01-5	10	100
1,3-Dichloropropene (trans)	10061-02-6	11	110
1,2-Dichlorotetrafluoroethane	76-14-2	10	100
1,4-Dioxane	123-91-1	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

Laboratory Control Spike

Lab Sample Name: 10 PPBV LCS
Spike Amount: 10 ppbv, except m&p-Xylenes at 20 ppbv

Data File: AA4303LCS
Date Analyzed: 11/29/2017

Runs with this LCS:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA4301BFB]	11/29/2017 8:42
10 PPBV DCVS [AA4302DCVS]	11/29/2017 10:04
10 PPBV LCS [AA4303LCS]	11/29/2017 10:45
METHOD BLANK [AA4304BLK]	11/29/2017 11:19
02 PPBV RLLCS [AA4305RLLCS]	11/29/2017 11:59
3059 [AA4306]	11/29/2017 14:35
E17-09837-01 [AA4307]	11/29/2017 15:08
E17-09837-02 [AA4308]	11/29/2017 15:55
E17-09837-03 [AA4309]	11/29/2017 16:29
E17-09837-04 [AA4310]	11/29/2017 17:03
10 PPBV CCCVS [AA4319CCCVS]	11/29/2017 22:05

Compound	CAS #	Calculated Amount (ppbv)	% Recovery
Ethylbenzene	100-41-4	9.9	99
n-Heptane	142-82-5	11	110
1,3-Hexachlorobutadiene	87-68-3	11	110
n-Hexane	110-54-3	9.5	95
Methylene chloride	75-09-2	8.1	81
Methyl ethyl ketone	78-93-3	10	100
Methyl isobutyl ketone	108-10-1	11	110
Methyl tert-butyl ether	1634-04-4	9.8	98
Styrene	100-42-5	11	110
Tert-butyl alcohol	75-65-0	9.7	97
1,1,2,2-Tetrachloroethane	79-34-5	9.0	90
Tetrachloroethene	127-18-4	12	120
Toluene	108-88-3	10	100
1,2,4-Trichlorobenzene	120-82-1	10	100
1,1,1-Trichloroethane	71-55-6	11	110
1,1,2-Trichloroethane	79-00-5	10	100
Trichloroethene	79-01-6	11	110
Trichlorofluoromethane	75-69-4	11	110
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	9.6	96
1,2,4-Trimethylbenzene	95-63-6	11	110
1,3,5-Trimethylbenzene	108-67-8	11	110
2,2,4-Trimethylpentane	540-84-1	11	110
Vinyl bromide	593-60-2	11	110
Vinyl chloride	75-01-4	9.6	96
Xylenes (m&p)	179601-23-1	21	100
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

Data Path : C:\DATA\11-29-17\
 Data File : aa43031cs.D
 Acq On : 29 Nov 2017 10:45 am
 Operator : jls
 Sample : 10 ppbv LCS
 Misc : AAL073030
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 04 10:34:13 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.743	130	586373	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.801	114	1943560	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.135	117	2047984	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.338	95	1814847	10.12	ppbV	0.00
Target Compounds						
					Qvalue	
2) Propene	3.496	41	157593	10.78	ppbV	83
3) Dichlorodifluoromethane	3.567	85	2584458	11.81	ppbV	96
4) Chloromethane	3.711	52	49886	10.11	ppbV #	49
5) 1,2-Dichlorotetrafluor...	3.776	85	1721452	10.08	ppbV	94
6) Vinyl chloride	3.891	62	317607	9.56	ppbV	83
7) 1,3-Butadiene	3.994	54	163764	8.89	ppbV #	39
8) n-Butane	4.033	43	300415	9.87	ppbV	88
9) Bromomethane	4.242	94	408128	11.99	ppbV	99
10) Chloroethane	4.380	64	161203	9.21	ppbV	98
11) Ethanol	4.422	45	59233	8.62	ppbV #	66
12) Vinyl bromide	4.689	106	593389	10.76	ppbV	94
13) Acrolein	4.750	56	85661	8.83	ppbV	99
14) Acetone	4.846	58	135181	9.32	ppbV #	25
15) Trichlorofluoromethane	5.030	101	3255900	11.28	ppbV	99
16) Isopropanol	5.026	45	400990	10.24	ppbV	94
17) n-Pentane	5.335	43	336307	9.40	ppbV	96
18) 1,1-Dichloroethene	5.586	61	870819	10.68	ppbV	94
19) Methylene chloride	5.702	84	423605	8.14	ppbV #	80
20) Tert-butyl alcohol	5.560	59	939028	9.73	ppbV	100
21) Allyl chloride	5.798	76	211315	9.28	ppbV	100
22) 1,1,2-Trichloro-1,2,2-...	5.930	101	1679547	9.60	ppbV	89
23) Carbon disulfide	5.988	76	1388517	8.85	ppbV #	86
24) 1,2-Dichloroethene (tr...	6.557	61	646350	9.74	ppbV	98
25) 1,1-Dichloroethane	6.753	63	850333	9.09	ppbV	94
26) Methyl tert-butyl ether	6.782	73	1815931	9.81	ppbV	98
27) Methyl ethyl ketone	7.094	72	234582	10.19	ppbV	93
28) 1,2-Dichloroethene (cis)	7.570	61	641385	9.74	ppbV	98
29) Ethyl acetate	7.756	45	78063	10.16	ppbV	100
30) n-Hexane	7.792	57	451937	9.46	ppbV	87
31) Chloroform	7.866	83	1799762	10.11	ppbV	95
32) Tetrahydrofuran	8.258	42	241684	10.04	ppbV #	73
33) 1,2-Dichloroethane	8.634	62	1260254	11.03	ppbV	99
34) 1,1,1-Trichloroethane	8.914	97	2340537	10.85	ppbV	99
35) Benzene	9.412	78	1632037	9.45	ppbV #	93
36) Carbon tetrachloride	9.579	117	3082716	11.95	ppbV	99
37) Cyclohexane	9.727	84	669016	9.44	ppbV	93
39) 1,2-Dichloropropane	10.322	63	449675	8.96	ppbV	96
40) Bromodichloromethane	10.544	83	2017557	11.07	ppbV	96
41) 2,2,4-Trimethylpentane	10.653	57	1552155	10.87	ppbV	98
42) Trichloroethene	10.595	130	1168237	11.49	ppbV	99
43) 1,4-Dioxane	10.563	88	336916	9.45	ppbV	96
44) Methyl methacrylate	10.811	69	609690	9.91	ppbV	89
45) n-Heptane	10.952	71	520303	11.03	ppbV	96
46) cis-1,3-Dichloropropene	11.611	75	1142633	10.33	ppbV	97
47) Methyl isobutyl ketone	11.634	43	754372	10.91	ppbV	90
48) trans-1,3-Dichloropropene	12.248	75	1245909	10.66	ppbV #	83
49) 1,1,2-Trichloroethane	12.460	97	904366	10.15	ppbV	92
50) Toluene	12.817	91	2300990	10.31	ppbV	100
51) Methyl n-butyl ketone	13.139	43	735341	10.97	ppbV	89

AL SDG #E17-09837

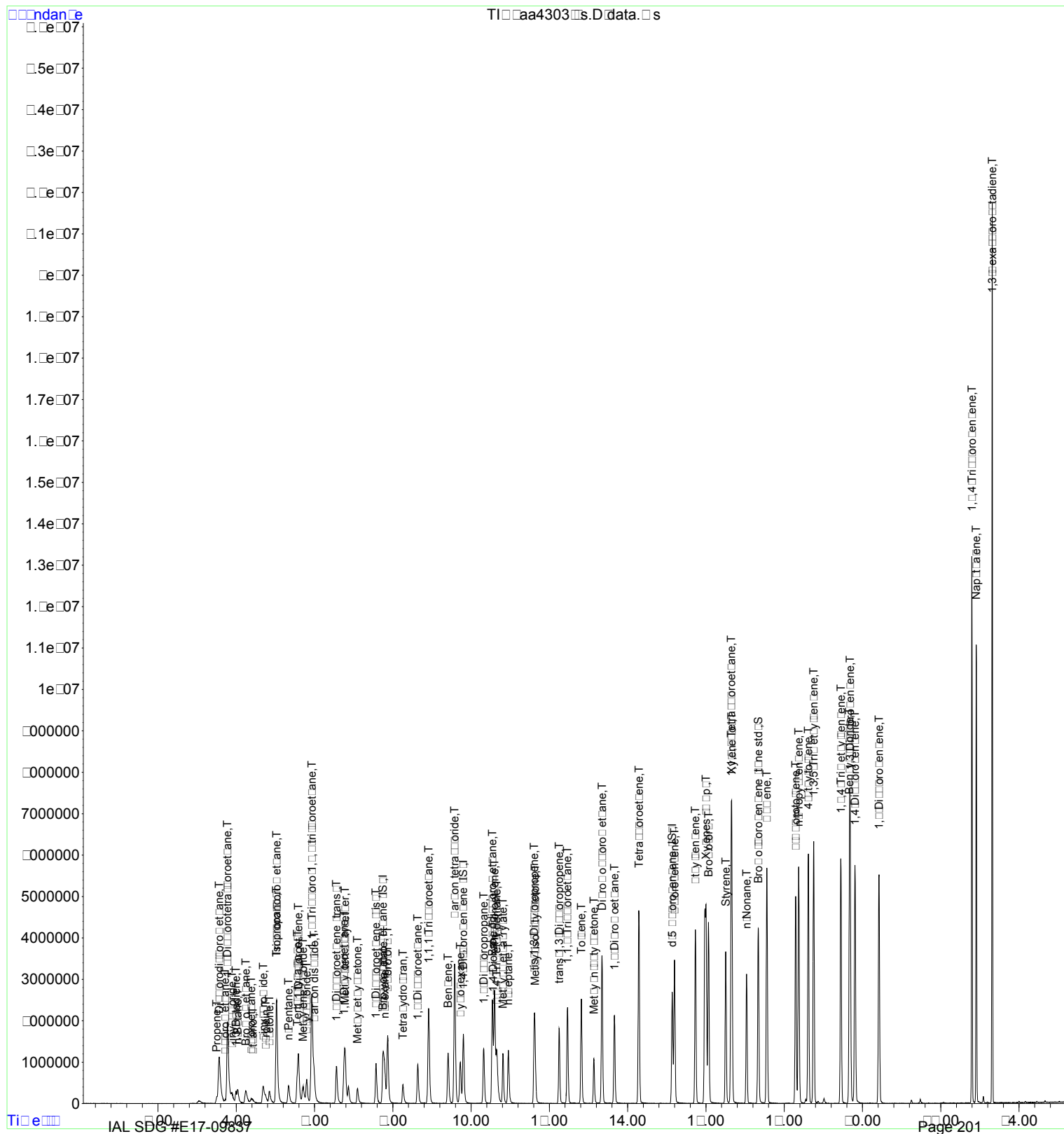
Data Path : C:\DATA\11-29-17\
 Data File : aa4303lcs.D
 Acq On : 29 Nov 2017 10:45 am
 Operator : jls
 Sample : 10 ppbv LCS
 Misc : AAL073030
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 04 10:34:13 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
52) Dibromochloromethane	13.344	129	2558584	12.05	ppbV	100
53) 1,2-Dibromoethane	13.663	107	1633141	10.68	ppbV	93
54) Tetrachloroethene	14.287	166	1528758	12.06	ppbV	98
56) Chlorobenzene	15.196	112	2517090	9.53	ppbV	100
57) Ethylbenzene	15.730	91	3846289	9.89	ppbV	99
58) Xylenes (m&p)	16.000	91	6570137	20.63	ppbV	99
59) Bromoform	16.065	173	2430509	11.67	ppbV	97
60) Styrene	16.505	104	2324367	10.84	ppbV	100
61) Xylene (o)	16.659	91	3448473	10.35	ppbV #	87
62) 1,1,2,2-Tetrachloroethane	16.647	83	2094442	8.97	ppbV	94
63) n-Nonane	17.039	57	960106	10.59	ppbV	99
65) Cumene	17.556	105	4890998	10.74	ppbV	91
66) 2-Chlorotoluene	18.293	91	3458555	10.09	ppbV #	83
67) n-Propyl benzene	18.367	120	1505558	11.50	ppbV	66
68) 4-Ethyltoluene	18.618	105	4932392	11.14	ppbV #	87
69) 1,3,5-Trimethylbenzene	18.753	105	4707551	11.40	ppbV #	85
70) 1,2,4-Trimethylbenzene	19.447	105	4448595	11.14	ppbV	100
71) Benzyl chloride	19.666	91	3489451	10.35	ppbV	94
72) 1,3-Dichlorobenzene	19.685	146	3086301	10.15	ppbV	98
73) 1,4-Dichlorobenzene	19.810	146	3137651	10.15	ppbV	98
74) 1,2-Dichlorobenzene	20.421	146	2960655	10.18	ppbV	99
75) 1,2,4-Trichlorobenzene	22.794	180	2832483	10.49	ppbV	100
76) Naphthalene	22.907	127	956285	11.51	ppbV	100
77) 1,3-Hexachlorobutadiene	23.315	225	2370715	10.59	ppbV	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quant Time: Dec 04 10:34:13 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
Response via : Initial Calibration



Integrated Analytical Laboratories, LLC

Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SD# N# Ser# 01700040
 IOL Sample ID# 0170004001
 Matrix# Air
 Sample ID# 4050

Date Received 10/4/17
 Date Analyzed 10/4/17, 10/4/17
 Lab Data File# 3711, 3711
 Dilution Factor 1
 Injection Volume 500 µl
 MS Ionization RTX 1, 0.3 min ID

Compound	CAS #	Sample E17-08248-01 Concentration Reported		Sample Dup E17-08248-21 Concentration Reported		Reporting Limits ppbv	RPD
		ppbv	Q	ppbv	Q		
Acetone	75066	8.8		8.5		0.40	3.47%
Acrylonitrile	107051	0.40		0.40		0.40	0.00%
Benzene	71432	0.40		0.40		0.40	0.00%
Bromodichloroethane	75007	0.40		0.40		0.40	0.00%
Bromochloroethane	75005	0.40		0.40		0.40	0.00%
Bromochloroethane	74483	0.40		0.40		0.40	0.00%
1,3-Butadiene	106600	0.40		0.40		0.40	0.00%
Chlorobenzene	108907	0.40		0.40		0.40	0.00%
Chloroethane	75003	0.40		0.40		0.40	0.00%
Chloroform	75003	0.40		0.40		0.40	0.00%
Chloroethane	74473	0.40		0.40		0.40	0.00%
Carbon disulfide	75150	0.40		0.40		0.40	0.00%
Carbon tetrachloride	5035	0.40		0.40		0.40	0.00%
Cyclohexene	5400	0.40		0.40		0.40	0.00%
Cyclohexane	110007	0.40		0.40		0.40	0.00%
Dichlorodichloroethane	14401	0.40		0.40		0.40	0.00%
1,1-Dichloroethane	10034	0.40		0.40		0.40	0.00%
1,1-Dichlorobenzene	5501	0.40		0.40		0.40	0.00%
1,3-Dichlorobenzene	541731	0.40		0.40		0.40	0.00%
1,4-Dichlorobenzene	10047	0.40		0.40		0.40	0.00%
Dichlorodichloroethane	75710	0.40		0.40		0.40	0.00%
1,1-Dichloroethane	75343	0.40		0.40		0.40	0.00%
1,1-Dichloroethane	107000	0.40		0.40		0.40	0.00%
1,1-Dichloroethene	75354	0.40		0.40		0.40	0.00%
1,1-Dichloroethene cis	155500	0.40		0.40		0.40	0.00%
1,1-Dichloroethene trans	15005	0.40		0.40		0.40	0.00%
1,1-Dichloropropane	70075	0.40		0.40		0.40	0.00%
1,3-Dichloropropene cis	1001015	0.40		0.40		0.40	0.00%
1,3-Dichloropropene trans	1001000	0.40		0.40		0.40	0.00%
1,1-Dichlorotetrahydroethane	70140	0.40		0.40		0.40	0.00%
Diethylbenzene	100414	0.40		0.40		0.40	0.00%
4-Ethyltoluene	000000	0.40		0.40		0.40	0.00%
Heptane	140005	0.40		0.40		0.40	0.00%
1,3-Hexadiene	70003	0.40		0.40		0.40	0.00%
Hexane	110543	0.42		0.40		0.40	NC
Methylchloride	75000	1.5		1.4		0.40	6.90%
Methylcyclopentane	70033	0.76		0.71		0.40	6.80%
Methylisobutylketone	100101	0.40		0.40		0.40	0.00%

Calibration

Concentration exceeds upper detection limit range for instrument.

Additional information required for this compound. Duplicate samples do not meet RPD criteria.

Compound not ND or under reporting limit.

Integrated Analytical Laboratories, LLC

Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SD# N# Ser# 17004
 IOL Sample ID# 17004001
 Matrix# 1
 Sample ID# 45

Date Received 10/4/17
 Date Analyzed 10/4/17, 10/4/17
 Lab Data File# 3711, 3711
 Dilution Factor 1
 Injection Volume 500 µL
 MS Ionization RTX 1, 0.3 min ID

Compound	CAS #	Sample E17-08248-01 Concentration Reported		Sample Dup E17-08248-21 Concentration Reported		Reporting Limits ppbv	RPD
		ppbv	Q	ppbv	Q		
Methyl tert-butyl ether	134044	0.40		0.40		0.40	0.00
Styrene	100405	0.40		0.40		0.40	0.00
Tert-butyl alcohol	75050	0.40		0.40		0.40	0.00
1,1,1-Tetrahydroethane	70345	0.40		0.40		0.40	0.00
Tetrahydroethene	17104	0.40		0.40		0.40	0.00
Toluene	10003	1.3		1.2		0.40	8.00%
1,4-Dichlorobenzene	10001	0.40		0.40		0.40	0.00
1,1,1-Trichloroethane	71550	0.40		0.40		0.40	0.00
1,1,2-Trichloroethane	70005	0.40		0.40		0.40	0.00
Trichloroethene	70010	0.40		0.40		0.40	0.00
Trichloromethane	75004	0.40		0.40		0.40	0.00
1,1,2-Trichloro-1,2,2-trichloroethane	70131	0.40		0.40		0.40	0.00
1,4-Dichlorobenzene	10001	0.40		0.40		0.40	0.00
1,3,5-Trichlorobenzene	10007	0.40		0.40		0.40	0.00
1,4-Dichloropentane	54004	0.40		0.40		0.40	0.00
Chloroform	53000	0.40		0.40		0.40	0.00
Chloroform	75014	0.40		0.40		0.40	0.00
Xylenes m,p	170013	0.40		0.40		0.40	0.00
Xylenes o	15470	0.40		0.40		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.

Data Path : C:\DATA\10-04-17\
 Data File : aa3711.D
 Acq On : 4 Oct 2017 3:12 pm
 Operator : jls
 Sample : E17-08248-01
 Misc : 4859, 500cc
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 05 09:10:54 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

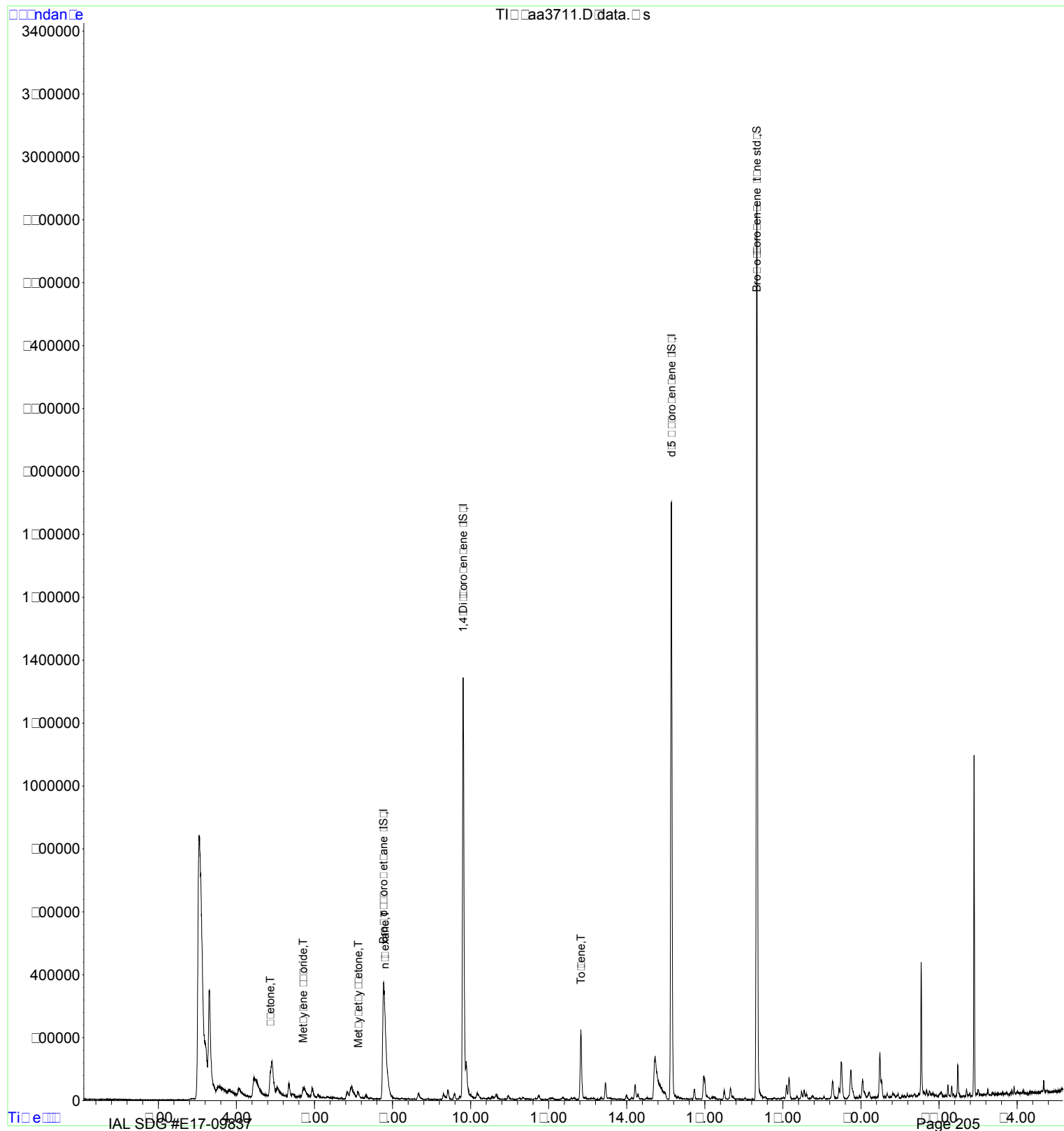
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

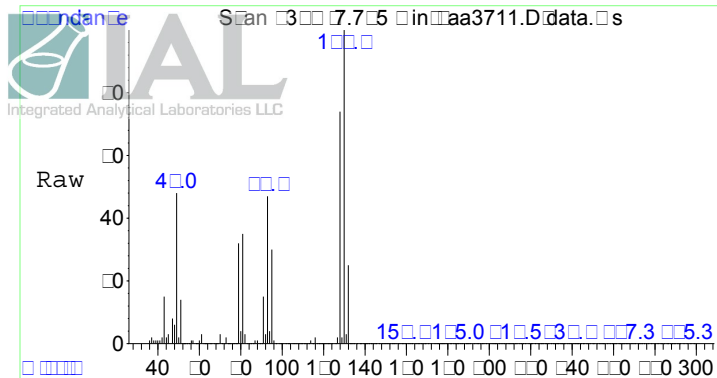
Internal Standards						
1) Bromochloromethane (IS)	7.765	130	403835	10.00	ppbV	0.02
38) 1,4-Difluorobenzene (IS)	9.807	114	1598651	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.145	117	1484107	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.334	95	1276249	9.82	ppbV	0.00
Target Compounds						
					Qvalue	
14) Acetone	4.868	58	87665	8.77	ppbV #	60
19) Methylene chloride	5.711	84	52875	1.48	ppbV #	29
27) Methyl ethyl ketone	7.129	72	12093	0.76	ppbV	83
30) n-Hexane	7.807	57	13953	0.42	ppbV #	75
50) Toluene	12.826	91	231658	1.26	ppbV	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\10-04-17\
Data File : aa3711.D
Acq On : 4 Oct 2017 3:12 pm
Operator : jls
Sample : E17-08248-01
Misc : 4859, 500cc
ALS Vial : 11 Sample Multiplier: 1

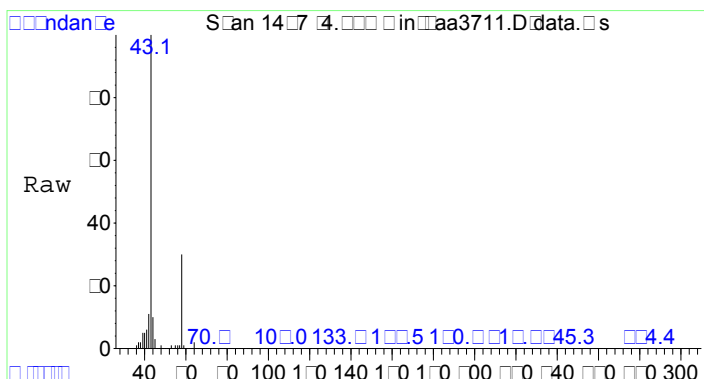
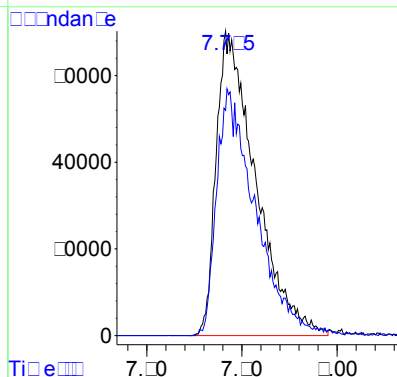
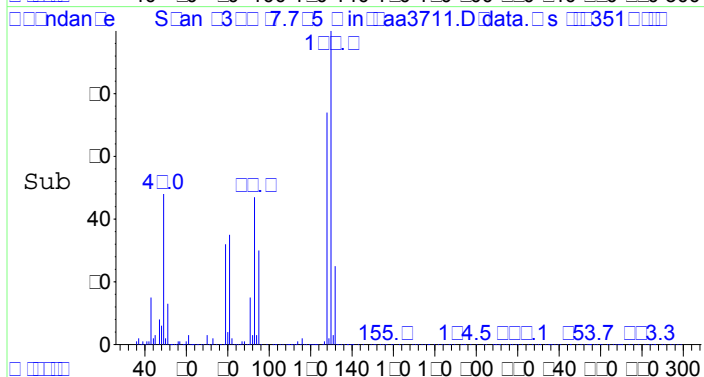
Quant Time: Oct 05 09:10:54 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
Response via : Initial Calibration





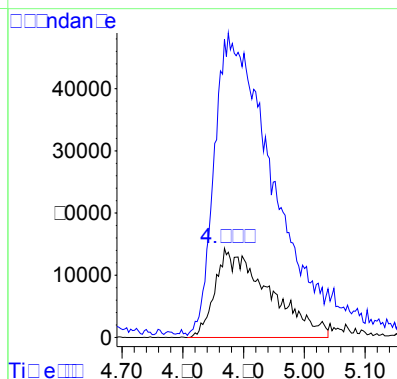
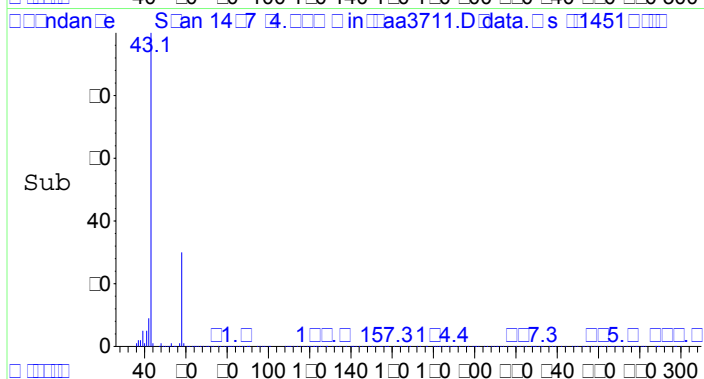
#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 7.765 min Scan# 2388
Delta R.T. 0.018 min
Lab File: aa3711.D
Acq: 4 Oct 2017 3:12 pm

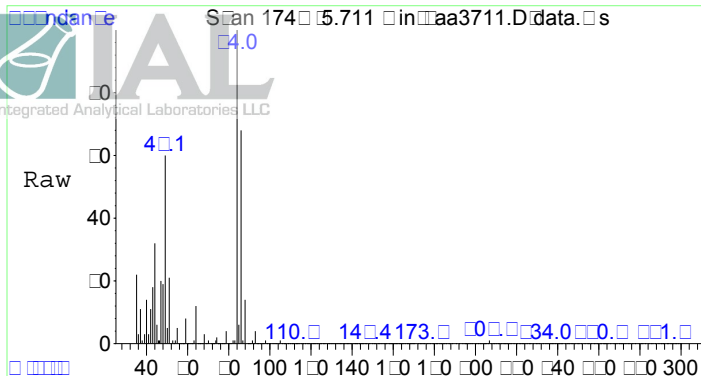
Tgt Ion: 130 Resp: 403835
Ion Ratio Lower Upper
130 100
128 79.2 62.6 94.0



#14
Acetone
Concen: 8.77 ppbV
RT: 4.868 min Scan# 1487
Delta R.T. 0.016 min
Lab File: aa3711.D
Acq: 4 Oct 2017 3:12 pm

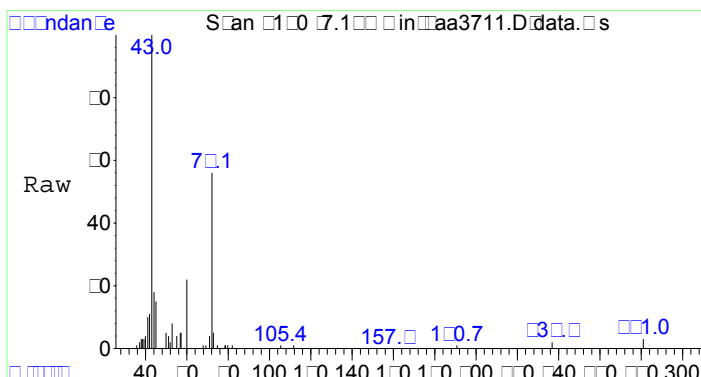
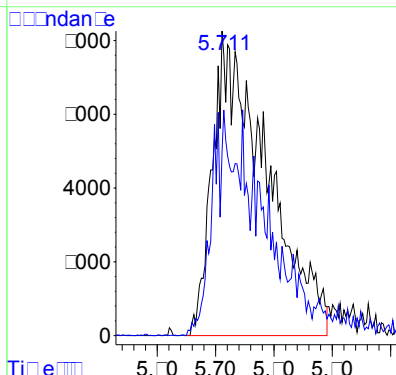
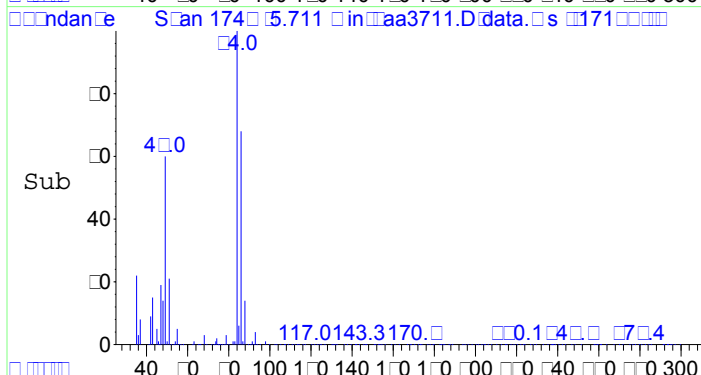
Tgt Ion: 58 Resp: 87665
Ion Ratio Lower Upper
58 100
43 363.7 229.6 344.4#





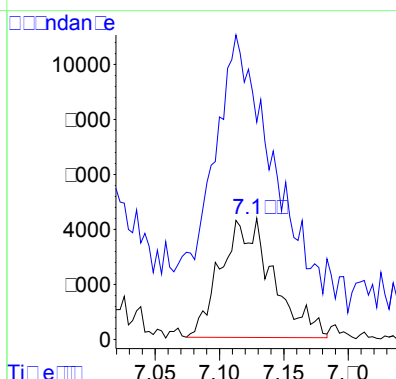
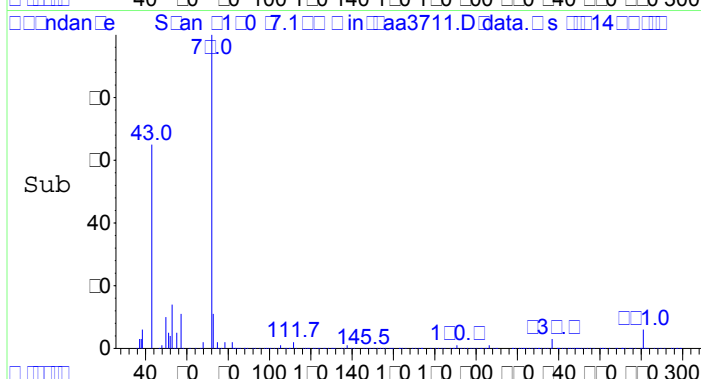
#19
Methylene chloride
Concen: 1.48 ppbV
RT: 5.711 min Scan# 1749
Delta R.T. 0.006 min
Lab File: aa3711.D
Acq: 4 Oct 2017 3:12 pm

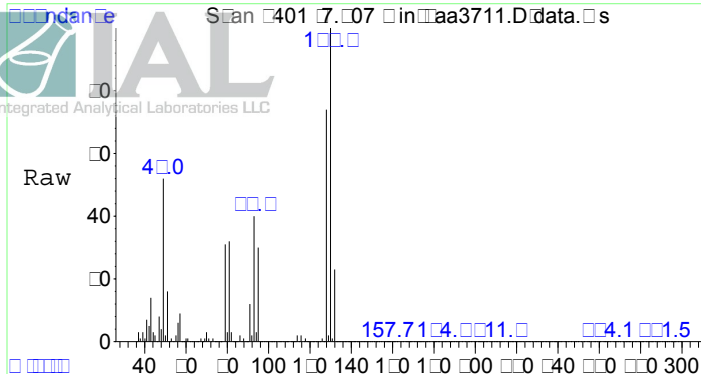
Tgt Ion: 84 Resp: 52875
Ion Ratio Lower Upper
84 100
49 13.2 57.6 86.4#



#27
Methyl ethyl ketone
Concen: 0.76 ppbV
RT: 7.129 min Scan# 2190
Delta R.T. 0.035 min
Lab File: aa3711.D
Acq: 4 Oct 2017 3:12 pm

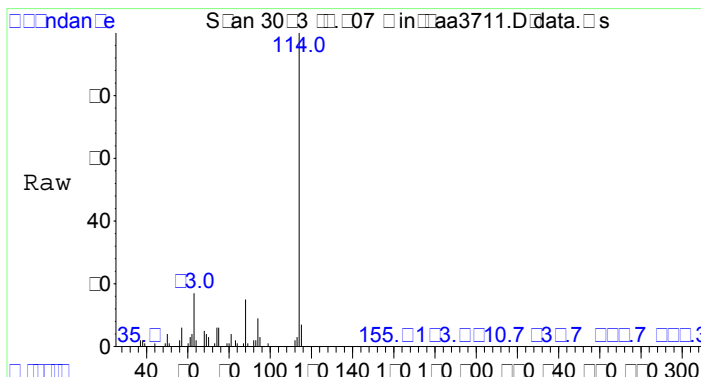
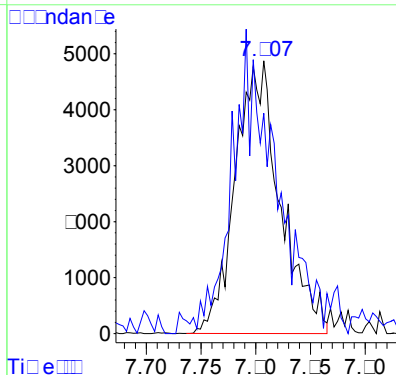
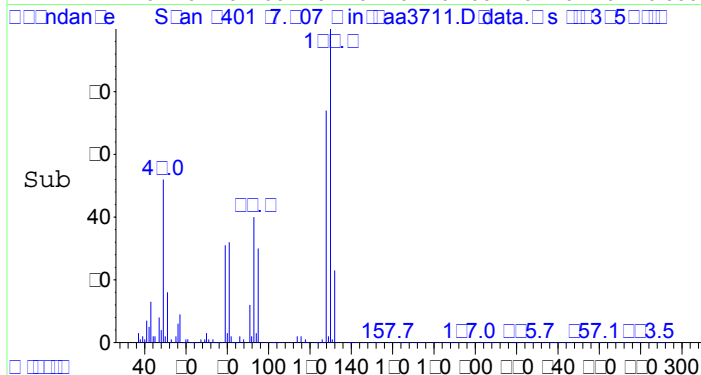
Tgt Ion: 72 Resp: 12093
Ion Ratio Lower Upper
72 100
43 236.5 168.0 252.0





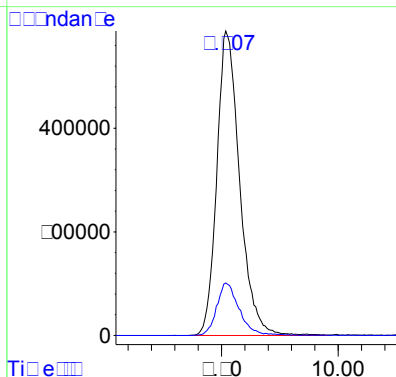
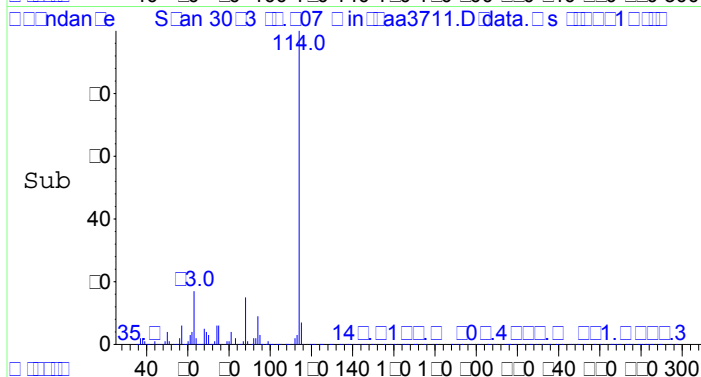
#30
n-Hexane
Concen: 0.42 ppbV
RT: 7.807 min Scan# 2401
Delta R.T. 0.016 min
Lab File: aa3711.D
Acq: 4 Oct 2017 3:12 pm

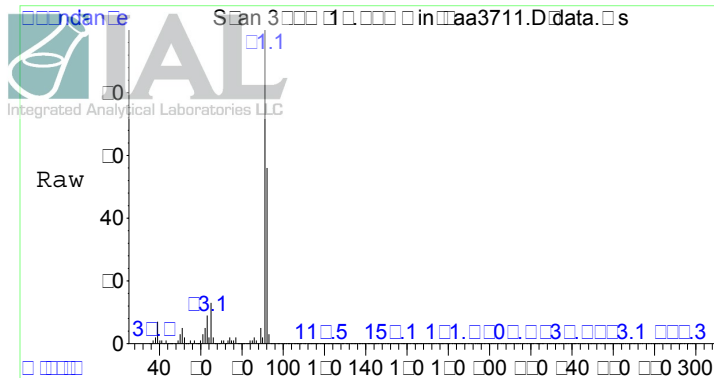
Tgt Ion: 57 Resp: 13953
Ion Ratio Lower Upper
57 100
41 103.6 64.8 97.2#



#38
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 9.807 min Scan# 3023
Delta R.T. 0.003 min
Lab File: aa3711.D
Acq: 4 Oct 2017 3:12 pm

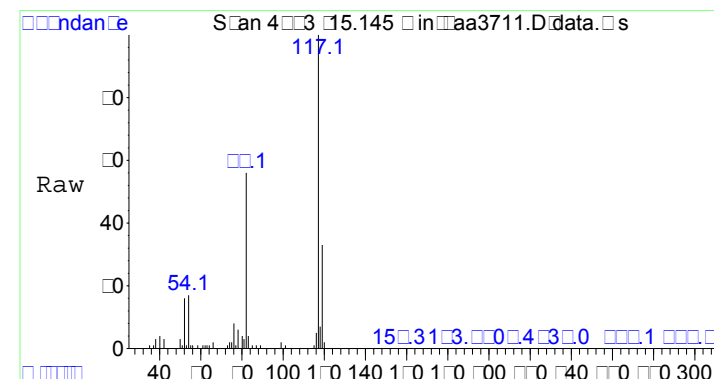
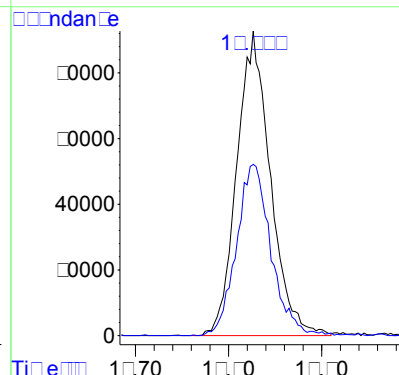
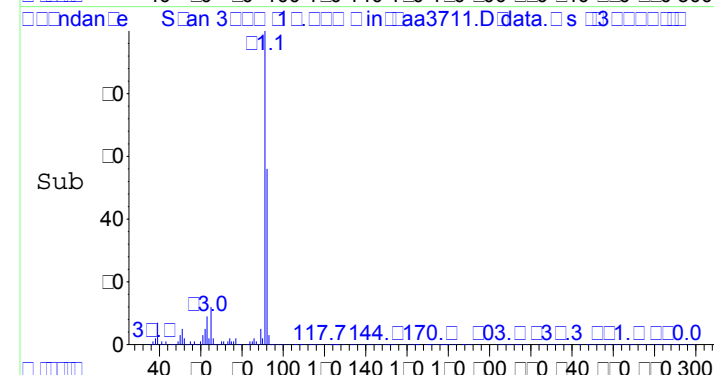
Tgt Ion: 114 Resp: 1598651
Ion Ratio Lower Upper
114 100
63 17.0 14.4 21.6





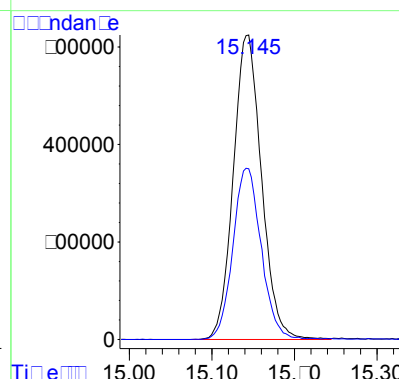
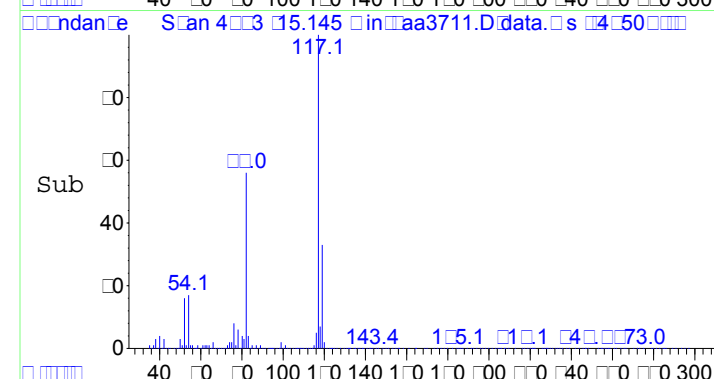
#50
Toluene
Concen: 1.26 ppbV
RT: 12.826 min Scan# 3962
Delta R.T. 0.009 min
Lab File: aa3711.D
Acq: 4 Oct 2017 3:12 pm

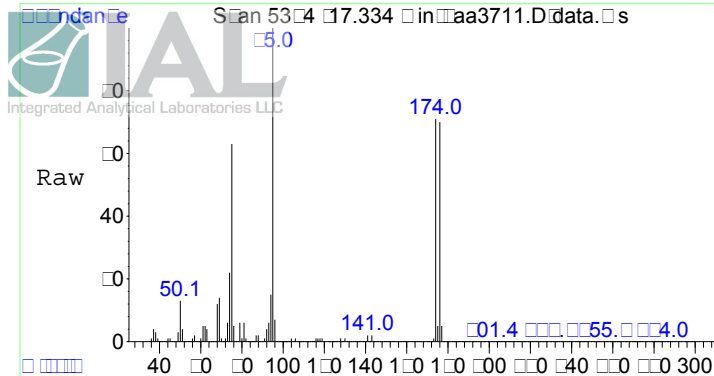
Tgt Ion: 91 Resp: 231658
Ion Ratio Lower Upper
91 100
92 58.0 50.0 75.0



#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 15.145 min Scan# 4683
Delta R.T. 0.006 min
Lab File: aa3711.D
Acq: 4 Oct 2017 3:12 pm

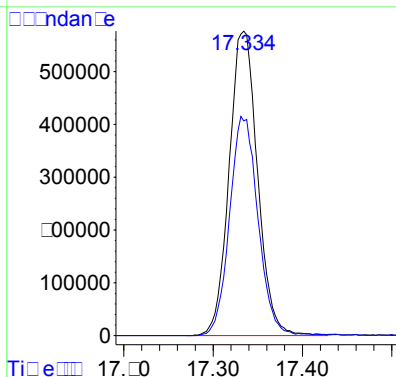
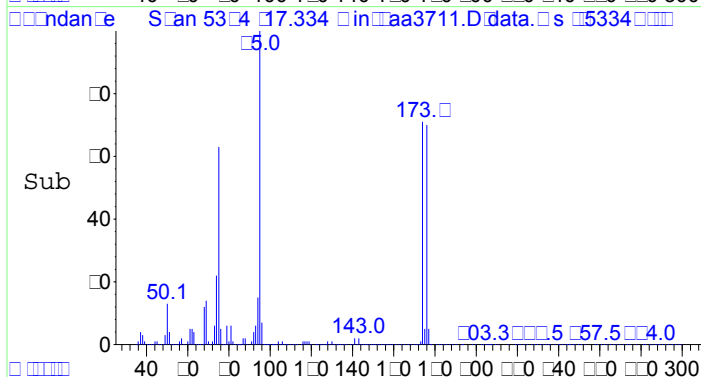
Tgt Ion: 117 Resp: 1484107
Ion Ratio Lower Upper
117 100
82 56.6 44.8 67.2





#64
 Bromofluorobenzene (tune std)
 Concen: 9.82 ppbV
 RT: 17.334 min Scan# 5364
 Delta R.T. -0.004 min
 Lab File: aa3711.D
 Acq: 4 Oct 2017 3:12 pm

Tgt Ion: 95 Resp: 1276249
 Ion Ratio Lower Upper
 95 100
 174 71.9 61.5 92.3



Data Path : C:\DATA\10-04-17\
 Data File : aa3712.D
 Acq On : 4 Oct 2017 3:46 pm
 Operator : jls
 Sample : E17-08248-21
 Misc : dup of E17-08248-01, can 4859
 ALS Vial : 14 Sample Multiplier: 1

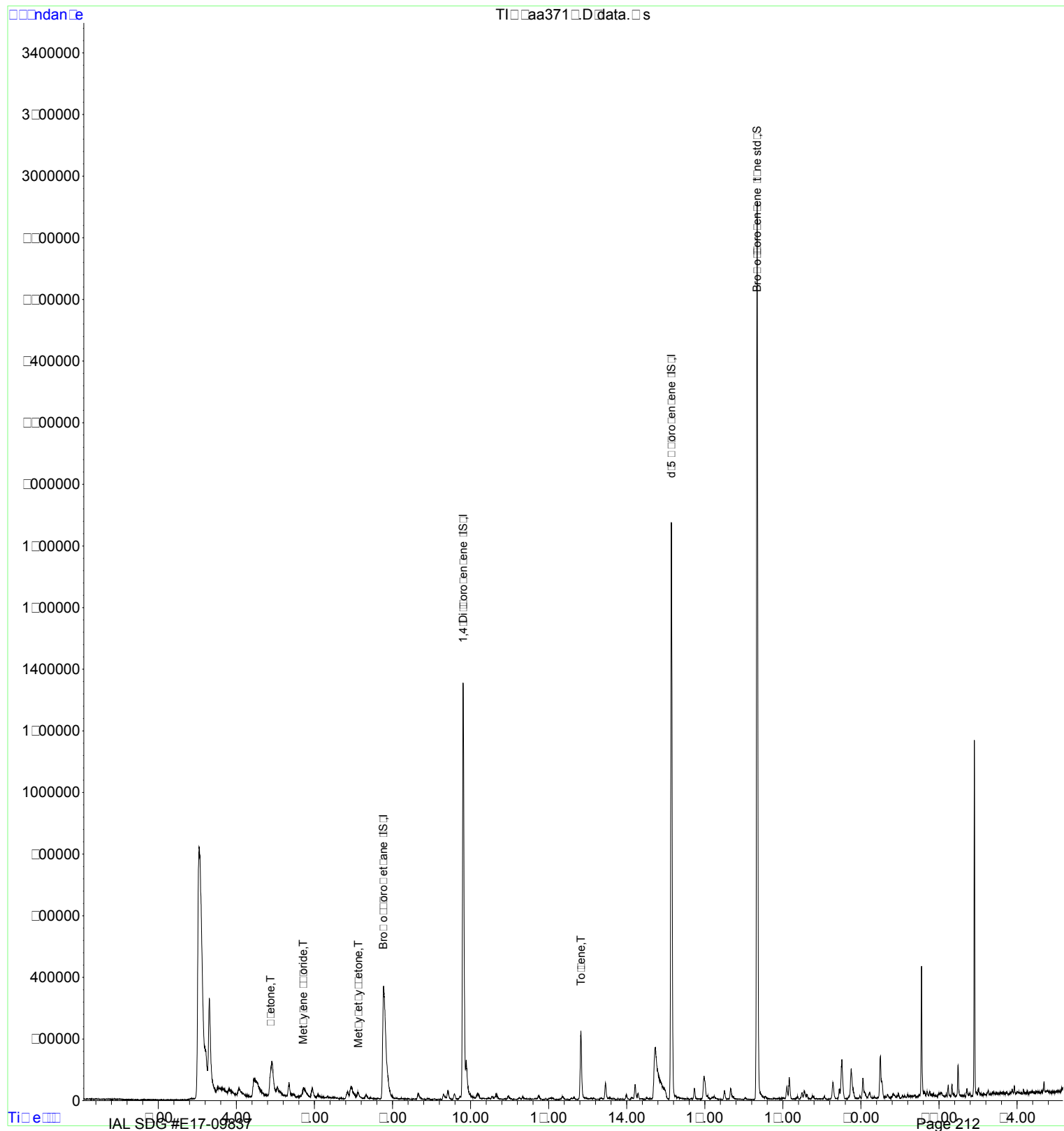
Quant Time: Oct 05 09:13:31 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

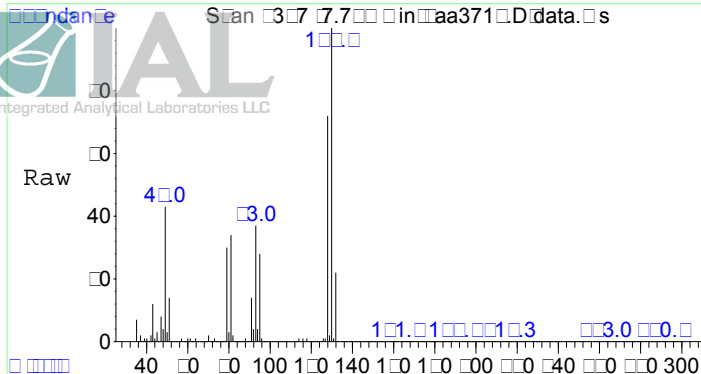
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.762	130	412526	10.00	ppbV	0.02
38) 1,4-Difluorobenzene (IS)	9.811	114	1601828	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.142	117	1483379	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.341	95	1281382	9.86	ppbV	0.00
Target Compounds						
14) Acetone	4.878	58	86591	8.48	ppbV #	55
19) Methylene chloride	5.714	84	50003	1.37	ppbV	97
27) Methyl ethyl ketone	7.123	72	11566	0.71	ppbV #	60
50) Toluene	12.827	91	226379	1.23	ppbV	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\10-04-17\
Data File : aa3712.D
Acq On : 4 Oct 2017 3:46 pm
Operator : jls
Sample : E17-08248-21
Misc : dup of E17-08248-01, can 4859
ALS Vial : 14 Sample Multiplier: 1

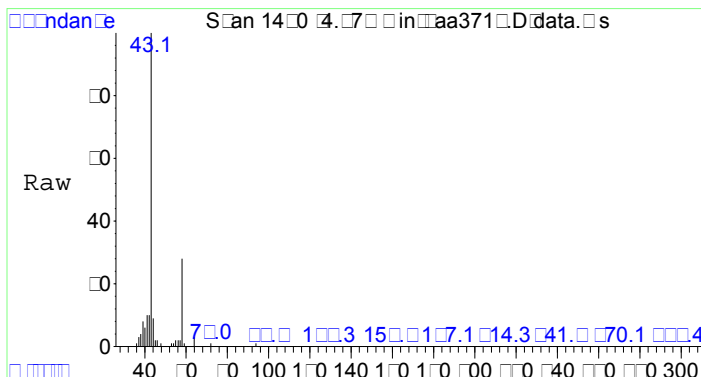
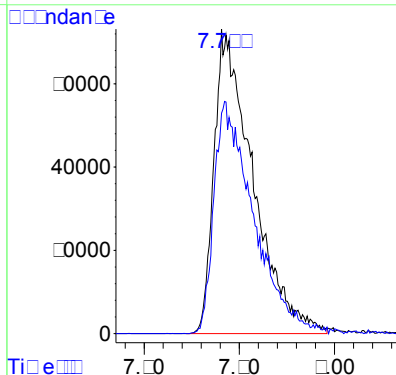
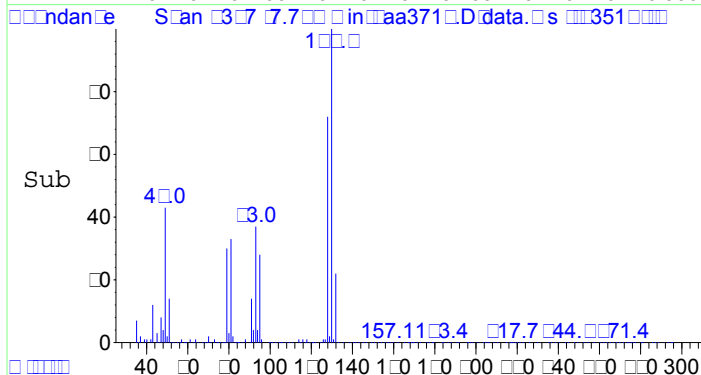
Quant Time: Oct 05 09:13:31 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
Response via : Initial Calibration





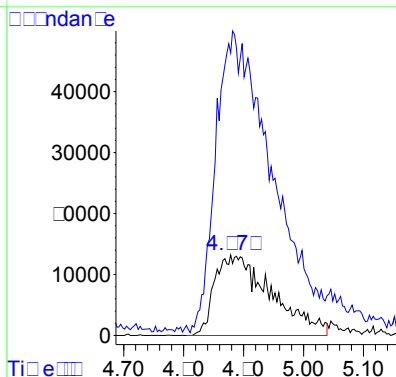
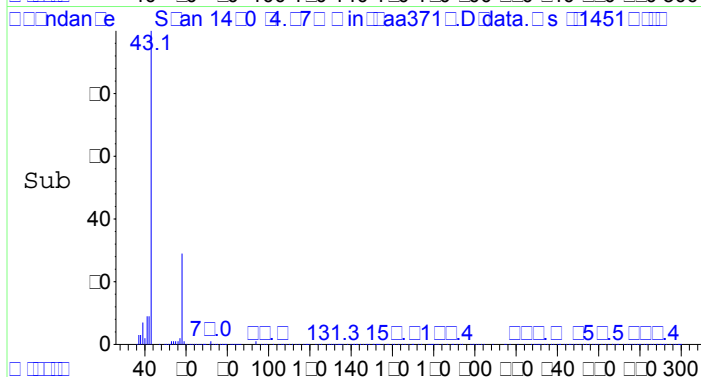
#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 7.762 min Scan# 2387
Delta R.T. 0.015 min
Lab File: aa3712.D
Acq: 4 Oct 2017 3:46 pm

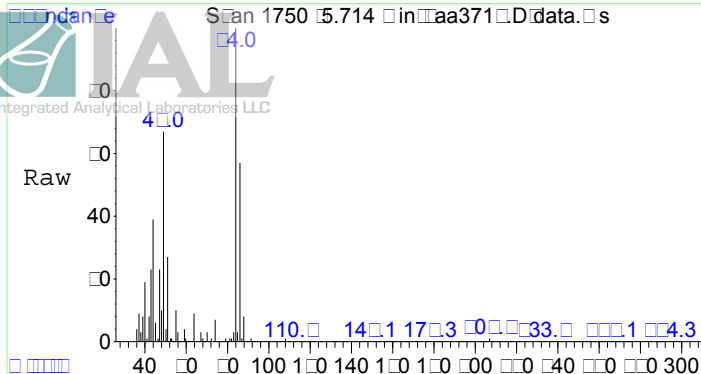
Tgt Ion:130 Resp: 412526
Ion Ratio Lower Upper
130 100
128 77.7 62.6 94.0



#14
Acetone
Concen: 8.48 ppbV
RT: 4.878 min Scan# 1490
Delta R.T. 0.026 min
Lab File: aa3712.D
Acq: 4 Oct 2017 3:46 pm

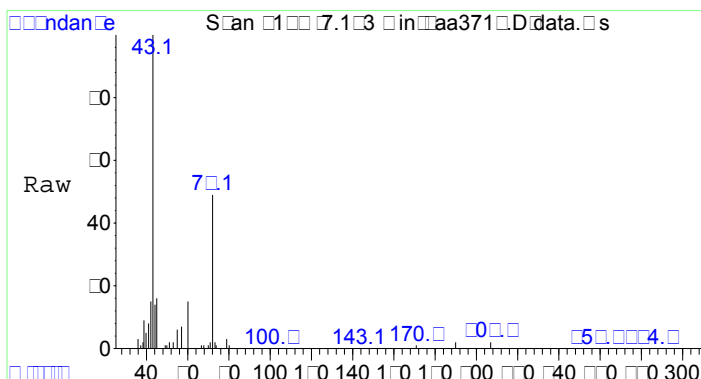
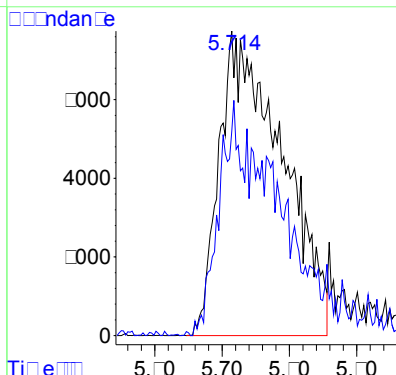
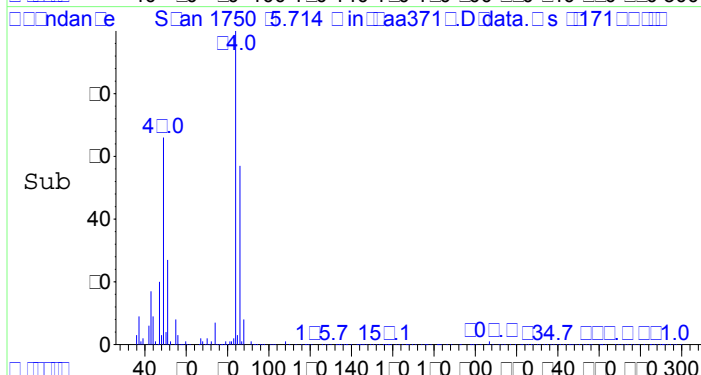
Tgt Ion: 58 Resp: 86591
Ion Ratio Lower Upper
58 100
43 373.1 229.6 344.4#





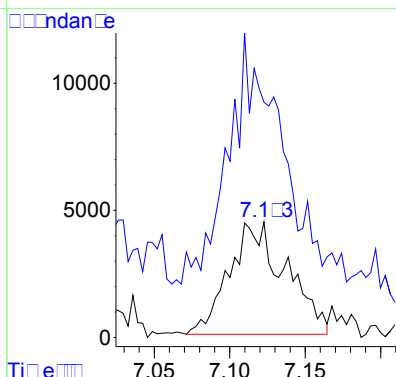
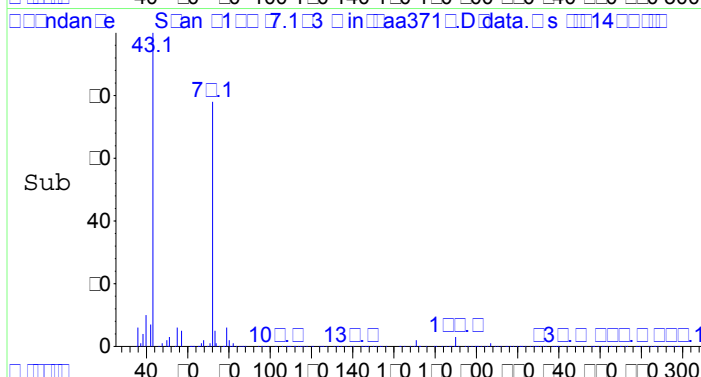
#19
Methylene chloride
Concen: 1.37 ppbV
RT: 5.714 min Scan# 1750
Delta R.T. 0.009 min
Lab File: aa3712.D
Acq: 4 Oct 2017 3:46 pm

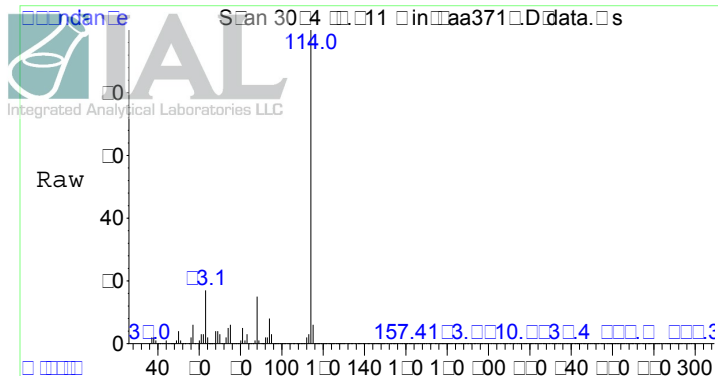
Tgt Ion: 84 Resp: 50003
Ion Ratio Lower Upper
84 100
49 69.5 57.6 86.4



#27
Methyl ethyl ketone
Concen: 0.71 ppbV
RT: 7.123 min Scan# 2188
Delta R.T. 0.029 min
Lab File: aa3712.D
Acq: 4 Oct 2017 3:46 pm

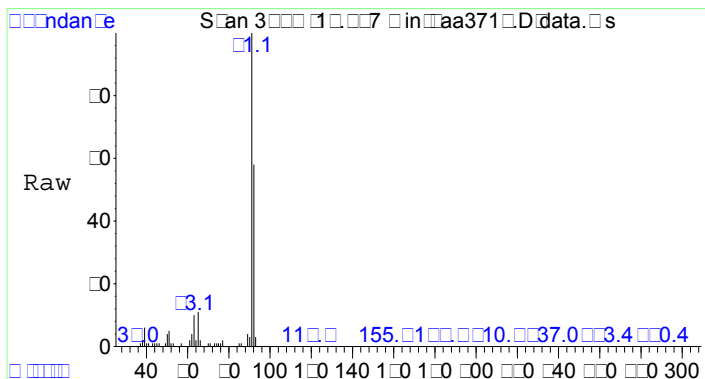
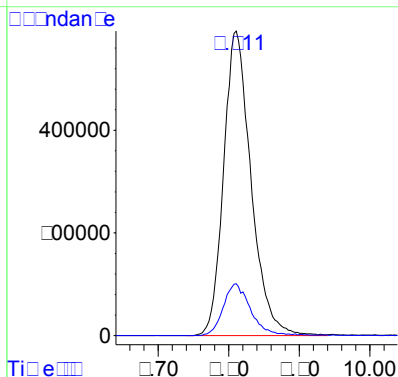
Tgt Ion: 72 Resp: 11566
Ion Ratio Lower Upper
72 100
43 272.7 168.0 252.0#





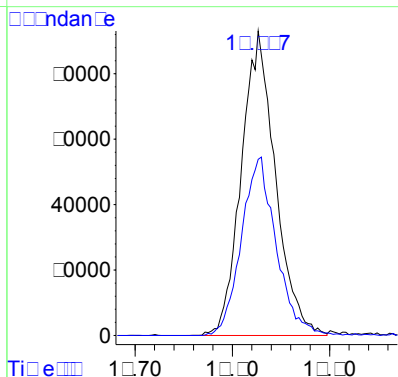
#38
 1,4-Difluorobenzene (IS)
 Concen: 10.00 ppbV
 RT: 9.811 min Scan# 3024
 Delta R.T. 0.006 min
 Lab File: aa3712.D
 Acq: 4 Oct 2017 3:46 pm

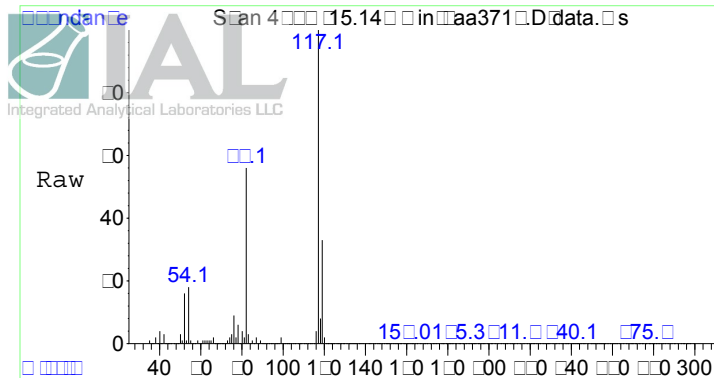
Tgt Ion: 114 Resp: 1601828
 Ion Ratio Lower Upper
 114 100
 63 17.1 14.4 21.6



#50
 Toluene
 Concen: 1.23 ppbV
 RT: 12.827 min Scan# 3962
 Delta R.T. 0.010 min
 Lab File: aa3712.D
 Acq: 4 Oct 2017 3:46 pm

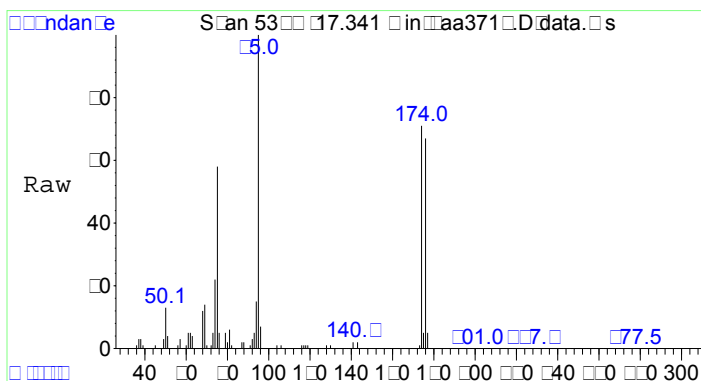
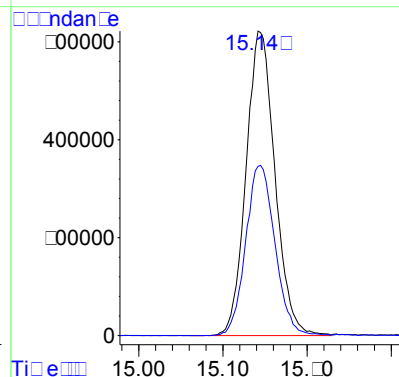
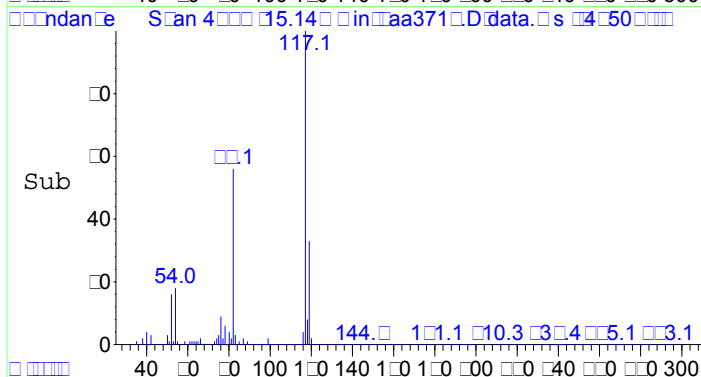
Tgt Ion: 91 Resp: 226379
 Ion Ratio Lower Upper
 91 100
 92 59.9 50.0 75.0





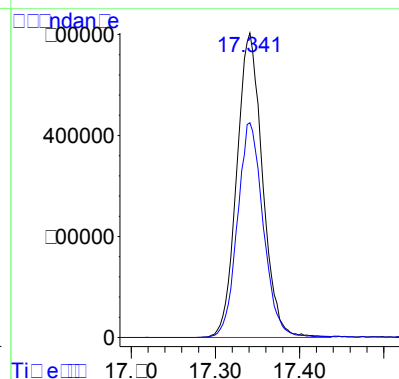
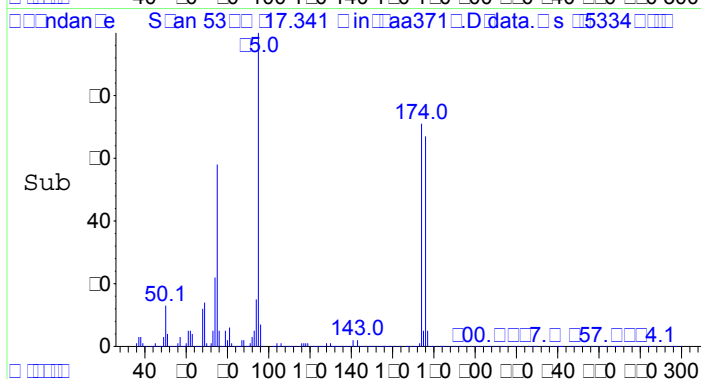
#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 15.142 min Scan# 4682
Delta R.T. 0.003 min
Lab File: aa3712.D
Acq: 4 Oct 2017 3:46 pm

Tgt Ion: 117 Resp: 1483379
Ion Ratio Lower Upper
117 100
82 56.7 44.8 67.2



#64
Bromofluorobenzene (tune std)
Concen: 9.86 ppbV
RT: 17.341 min Scan# 5366
Delta R.T. 0.003 min
Lab File: aa3712.D
Acq: 4 Oct 2017 3:46 pm

Tgt Ion: 95 Resp: 1281382
Ion Ratio Lower Upper
95 100
174 71.0 61.5 92.3



Integrated Analytical Laboratories, LLC

Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SD# N# Ser# 171003
 IOL Sample ID# 17100300
 Matrix# 1
 Sample ID# 000

Date Received 11/11/17
 Date Analyzed 11/11/17, 11/11/17
 Lab Data File 000400, 00401
 Dilution Factor 10
 Injection Volume 50 µl
 MS Scan Rate RTx 1, 0.3 min ID

Compound	CAS #	Sample E17-09836-02 Concentration Reported		Sample Dup E17-09836-22 Concentration Reported		Reporting Limits ppbv	RPD
		ppbv	Q	ppbv	Q		
Acetone	7440	230	D	230	D	4.0	0.00%
Acrylonitrile	107051	4.0		4.0		4.0	0.00
Benzene	7143	4.0		4.0		4.0	0.00
Bromodichloroethane	75274	4.0		4.0		4.0	0.00
Bromochloroethane	7525	4.0		4.0		4.0	0.00
Bromoethane	7433	4.0		4.0		4.0	0.00
1,3-Butadiene	10660	4.0		4.0		4.0	0.00
Chlorobenzene	10807	4.0		4.0		4.0	0.00
Chloroethane	75003	4.0		4.0		4.0	0.00
Chloroform	77003	4.0		4.0		4.0	0.00
Chloroethane	7473	4.0		4.0		4.0	0.00
Carbon disulfide	75150	4.0		4.0		4.0	0.00
Carbon tetrachloride	5035	4.0		4.0		4.0	0.00
Cyclohexene	5400	4.0		4.0		4.0	0.00
Cyclohexane	110007	4.0		4.0		4.0	0.00
Dichlorodichloroethane	14401	4.0		4.0		4.0	0.00
1,1-Dichloroethane	10034	4.0		4.0		4.0	0.00
1,1-Dichlorobenzene	5501	4.0		4.0		4.0	0.00
1,3-Dichlorobenzene	541731	4.0		4.0		4.0	0.00
1,4-Dichlorobenzene	10607	4.0		4.0		4.0	0.00
Dichlorodichloroethane	7571	4.0		4.0		4.0	0.00
1,1-Dichloroethane	75343	4.0		4.0		4.0	0.00
1,1-Dichloroethane	107000	4.0		4.0		4.0	0.00
1,1-Dichloroethane	75354	4.0		4.0		4.0	0.00
1,1-Dichloroethane cis	155500	4.0		4.0		4.0	0.00
1,1-Dichloroethane trans	15005	4.0		4.0		4.0	0.00
1,1-Dichloropropane	7075	4.0		4.0		4.0	0.00
1,3-Dichloropropene cis	1001015	4.0		4.0		4.0	0.00
1,3-Dichloropropene trans	1001000	4.0		4.0		4.0	0.00
1,1-Dichlorotetrahydroethane	7014	4.0		4.0		4.0	0.00
1,1-Dichloroethane	100414	4.0		4.0		4.0	0.00
4-methylpentene	000000	4.0		4.0		4.0	0.00
n-Heptane	140005	4.0		4.0		4.0	0.00
1,3-Hexadiene	7003	4.0		4.0		4.0	0.00
n-Hexane	110543	4.0		4.0		4.0	0.00
Methylchloride	75000	4.0		4.0		4.0	0.00
Methylcyclopentane	70033	130	D	130	D	4.0	0.00%
Methylisobutylcyclopentane	100101	4.0		4.0		4.0	0.00

Caution

Concentration exceeds upper detection limit range for instrument.

Additional information required for this compound. Duplicate samples do not meet RPD criteria.

Compound not ND or under reporting limit.

Integrated Analytical Laboratories, LLC

Volatile Organic Compounds by EPA Method TO-15

Laboratory Sample Duplicate Report

SD# N# Ser# 171003
 IOL Sample ID# 17100300
 Matrix# 1
 Sample ID# 00

Date Received 11/11/17
 Date Analyzed 11/17/17
 Lab Data File 400,00401
 Dilution Factor 10
 Injection Volume 50 µl
 MS Ionization RTX1, 0.3 min ID

Compound	CAS #	Sample E17-09836-02 Concentration Reported		Sample Dup E17-09836-22 Concentration Reported		Reporting Limits ppbv	RPD
		ppbv	Q	ppbv	Q		
Methyl tert-butyl ether	134044	4.0		4.0		4.0	0.00
Styrene	100415	4.0		4.0		4.0	0.00
Tert-butyl alcohol	75050	4.0		4.0		4.0	0.00
1,1,1-Tetrahydroethane	70345	4.0		4.0		4.0	0.00
Tetrahydroethene	17114	4.0		4.0		4.0	0.00
Toluene	10003	4.0		4.0		4.0	0.00
1,1,4-Trihydrobenzene	10001	4.0		4.0		4.0	0.00
1,1,1-Trihydroethane	71550	4.0		4.0		4.0	0.00
1,1,1-Trihydroethane	70005	4.0		4.0		4.0	0.00
Trihydroethene	70010	4.0		4.0		4.0	0.00
Trihydroethene	70004	4.0		4.0		4.0	0.00
1,1,1-Trihydro-1,1,1-trihydroethane	70131	4.0		4.0		4.0	0.00
1,1,4-Triethylenene	5530	4.0		4.0		4.0	0.00
1,3,5-Triethylenene	100070	4.0		4.0		4.0	0.00
1,1,4-Triethylpentane	540041	4.0		4.0		4.0	0.00
vinyl chloride	53000	4.0		4.0		4.0	0.00
vinyl bromide	75014	4.0		4.0		4.0	0.00
Xylenes m,p	1700131	4.0		4.0		4.0	0.00
Xylenes o	5470	4.0		4.0		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.

Data Path : C:\DATA\11-28-17\
 Data File : aa4280.D
 Acq On : 28 Nov 2017 5:06 pm
 Operator : jls
 Sample : E17-09836-02 x 10 dil
 Misc : 2029, 50cc
 ALS Vial : 10 Sample Multiplier: 1

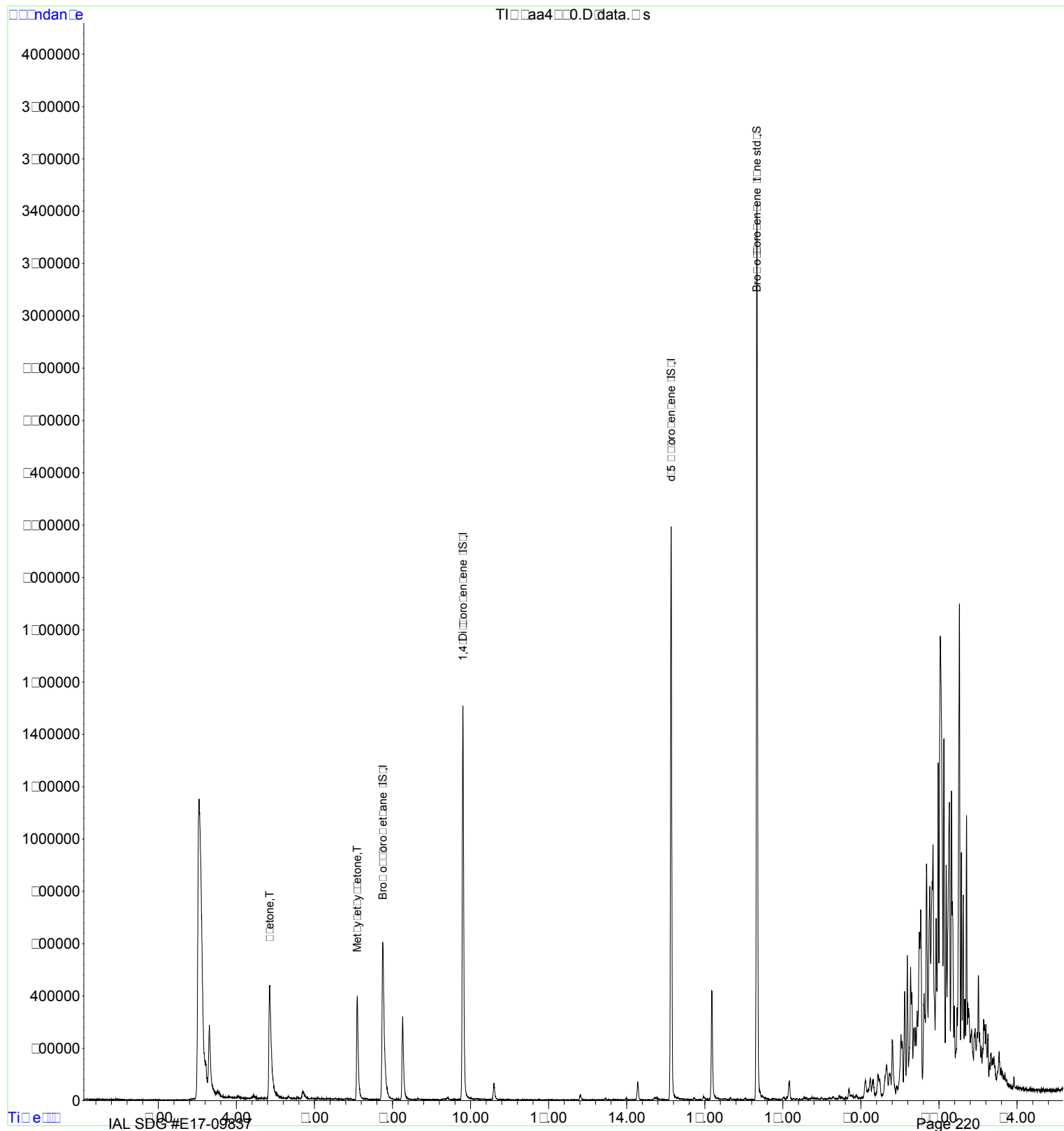
Quant Time: Nov 29 10:50:27 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

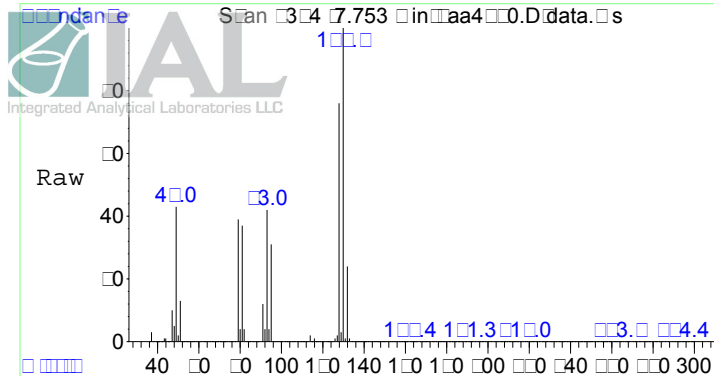
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.753	130	489669	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.804	114	1649850	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.139	117	1633211	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.335	95	1395181	9.75	ppbV	0.00
Target Compounds						
14) Acetone	4.850	58	277574	22.91	ppbV #	22
27) Methyl ethyl ketone	7.094	72	241284	12.55	ppbV	83

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\11-28-17\
Data File : aa4280.D
Acq On : 28 Nov 2017 5:06 pm
Operator : jls
Sample : E17-09836-02 x 10 dil
Misc : 2029, 50cc
ALS Vial : 10 Sample Multiplier: 1

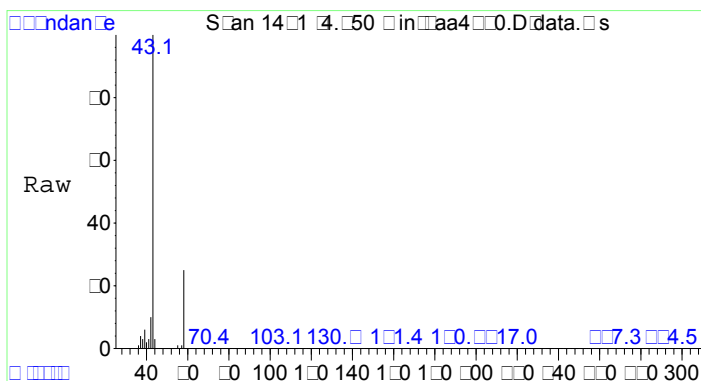
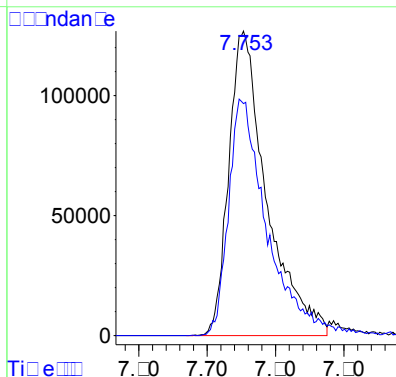
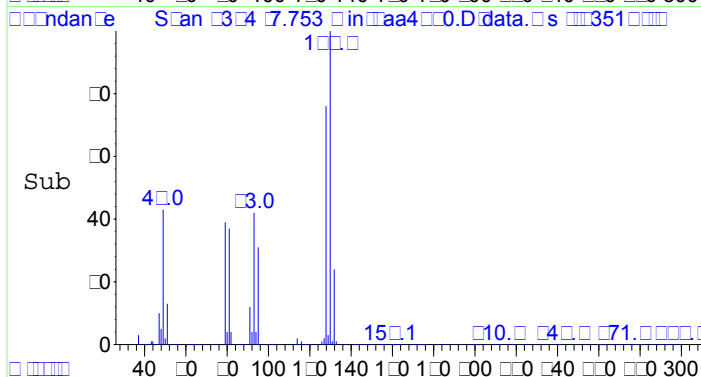
Quant Time: Nov 29 10:50:27 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
Response via : Initial Calibration





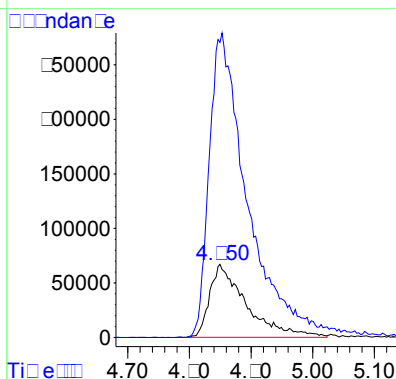
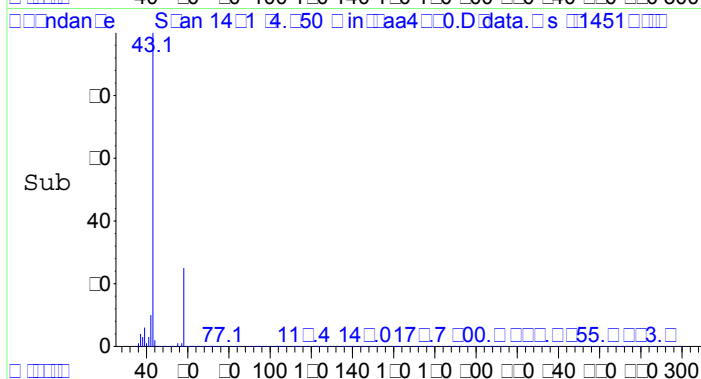
#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 7.753 min Scan# 2384
Delta R.T. 0.006 min
Lab File: aa4280.D
Acq: 28 Nov 2017 5:06 pm

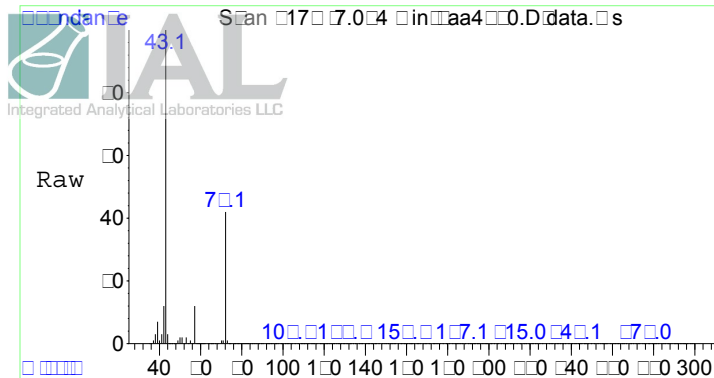
Tgt Ion:130 Resp: 489669
Ion Ratio Lower Upper
130 100
128 79.5 62.6 94.0



#14
Acetone
Concen: 22.91 ppbV
RT: 4.850 min Scan# 1481
Delta R.T. -0.003 min
Lab File: aa4280.D
Acq: 28 Nov 2017 5:06 pm

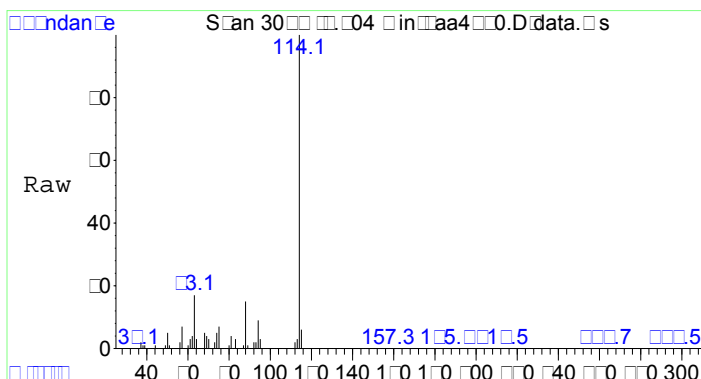
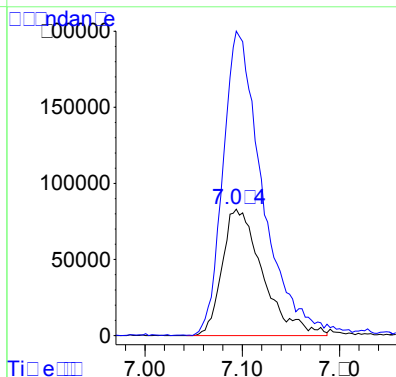
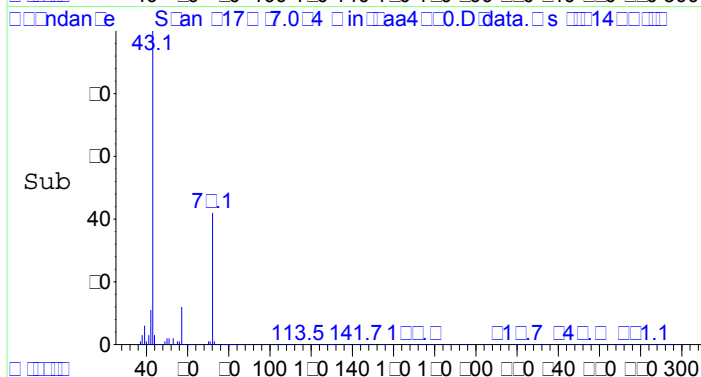
Tgt Ion: 58 Resp: 277574
Ion Ratio Lower Upper
58 100
43 435.3 229.6 344.4#





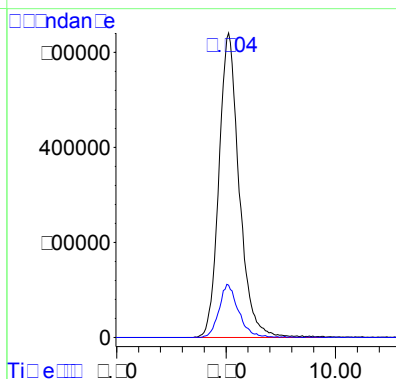
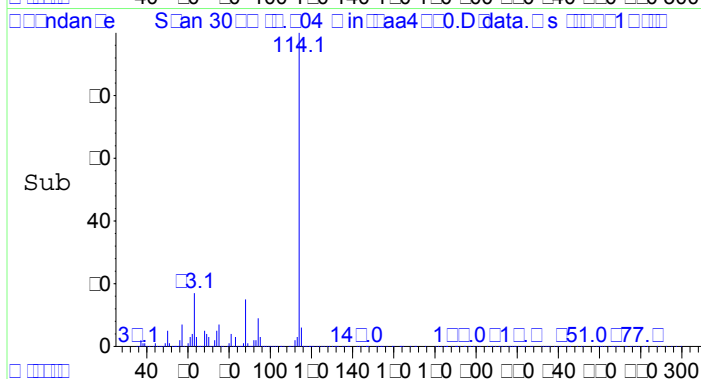
#27
Methyl ethyl ketone
Concen: 12.55 ppbV
RT: 7.094 min Scan# 2179
Delta R.T. -0.000 min
Lab File: aa4280.D
Acq: 28 Nov 2017 5:06 pm

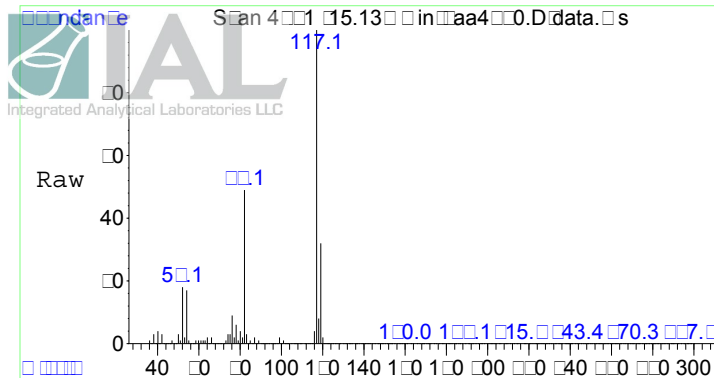
Tgt Ion: 72 Resp: 241284
Ion Ratio Lower Upper
72 100
43 236.6 168.0 252.0



#38
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 9.804 min Scan# 3022
Delta R.T. 0.000 min
Lab File: aa4280.D
Acq: 28 Nov 2017 5:06 pm

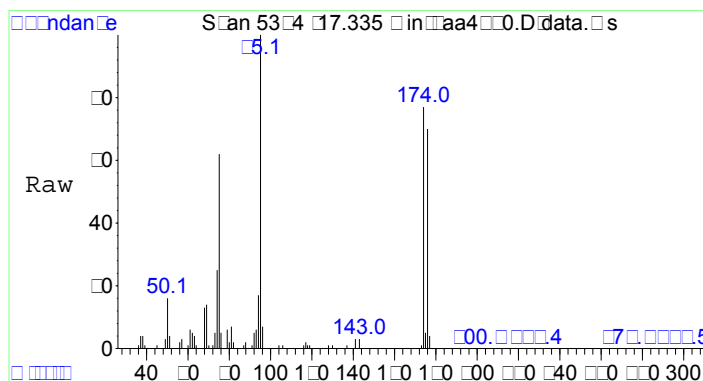
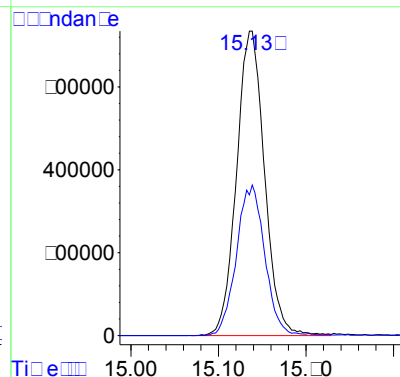
Tgt Ion: 114 Resp: 1649850
Ion Ratio Lower Upper
114 100
63 16.6 14.4 21.6





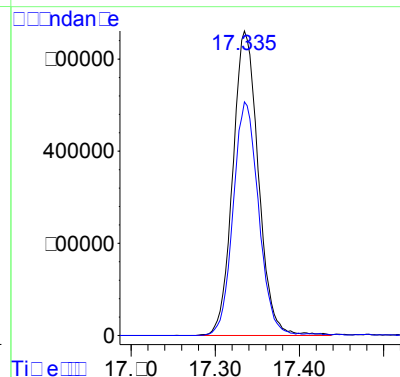
#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 15.139 min Scan# 4681
Delta R.T. 0.000 min
Lab File: aa4280.D
Acq: 28 Nov 2017 5:06 pm

Tgt Ion: 117 Resp: 1633211
Ion Ratio Lower Upper
117 100
82 50.2 44.8 67.2



#64
Bromofluorobenzene (tune std)
Concen: 9.75 ppbV
RT: 17.335 min Scan# 5364
Delta R.T. -0.003 min
Lab File: aa4280.D
Acq: 28 Nov 2017 5:06 pm

Tgt Ion: 95 Resp: 1395181
Ion Ratio Lower Upper
95 100
174 76.8 61.5 92.3



Data Path : C:\DATA\11-28-17\
 Data File : aa4281.D
 Acq On : 28 Nov 2017 5:40 pm
 Operator : jls
 Sample : E17-09836-22 x 10 dil
 Misc : dup of E17-09836-02 x 10 dil, can 2029
 ALS Vial : 11 Sample Multiplier: 1

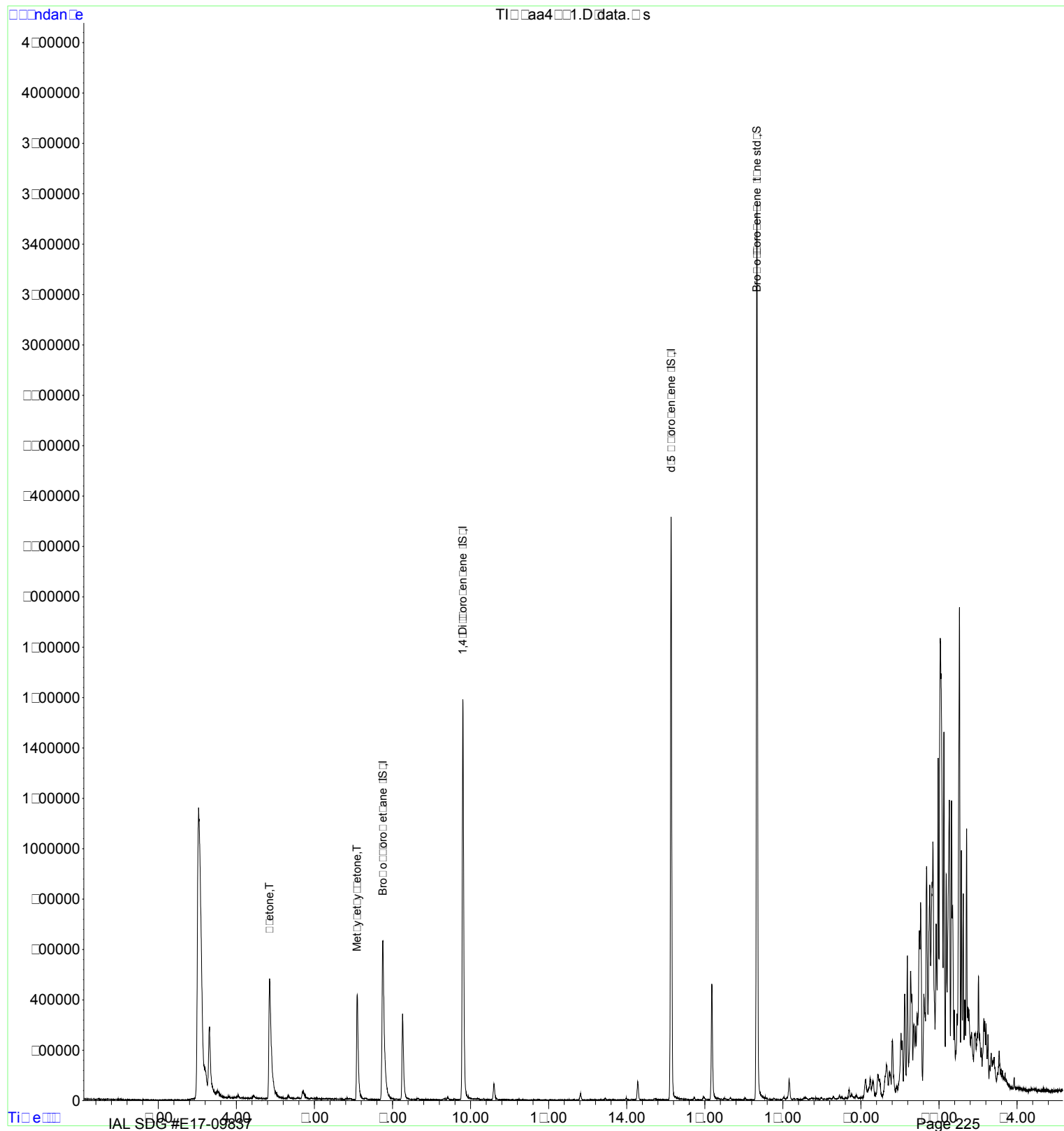
Quant Time: Nov 29 10:51:39 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

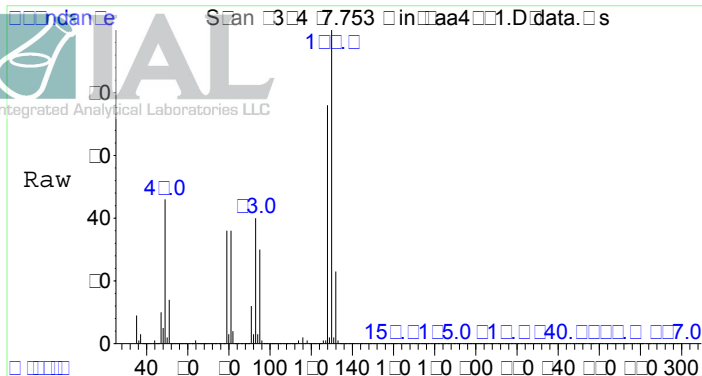
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.753	130	530808	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.801	114	1755311	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.135	117	1722256	10.00	ppbV	0.00
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.335	95	1467924	9.73	ppbV	0.00
Target Compounds						
14) Acetone	4.850	58	308242	23.47	ppbV	Qvalue # 27
27) Methyl ethyl ketone	7.091	72	265138	12.72	ppbV	84

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\11-28-17\
Data File : aa4281.D
Acq On : 28 Nov 2017 5:40 pm
Operator : jls
Sample : E17-09836-22 x 10 dil
Misc : dup of E17-09836-02 x 10 dil, can 2029
ALS Vial : 11 Sample Multiplier: 1

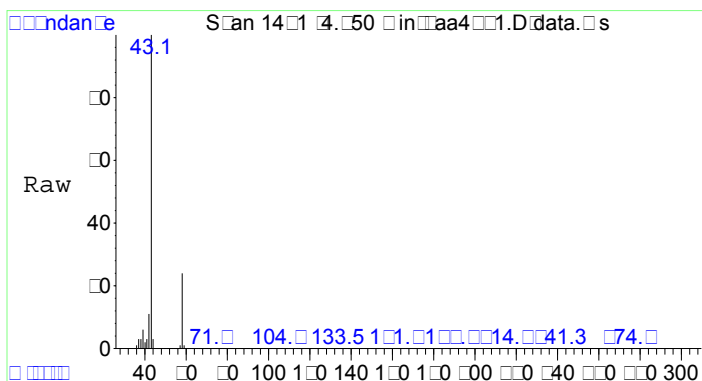
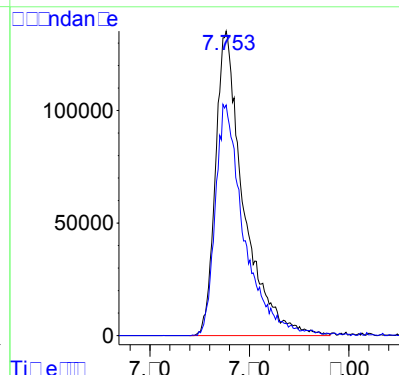
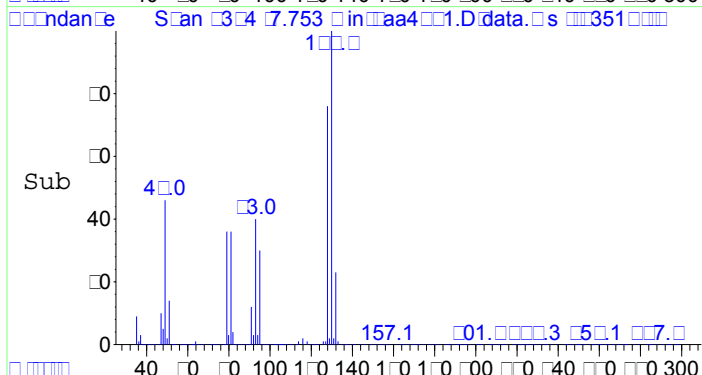
Quant Time: Nov 29 10:51:39 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
Response via : Initial Calibration





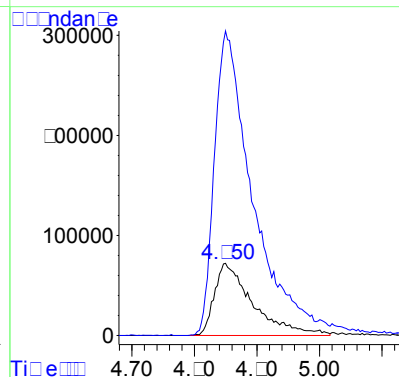
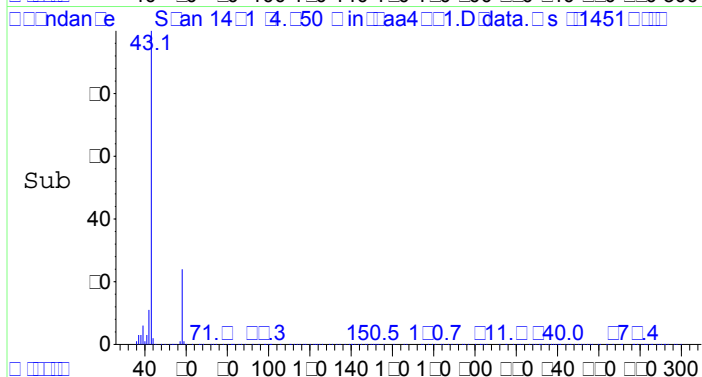
#1
Bromochloromethane (IS)
Concen: 10.00 ppbV
RT: 7.753 min Scan# 2384
Delta R.T. 0.006 min
Lab File: aa4281.D
Acq: 28 Nov 2017 5:40 pm

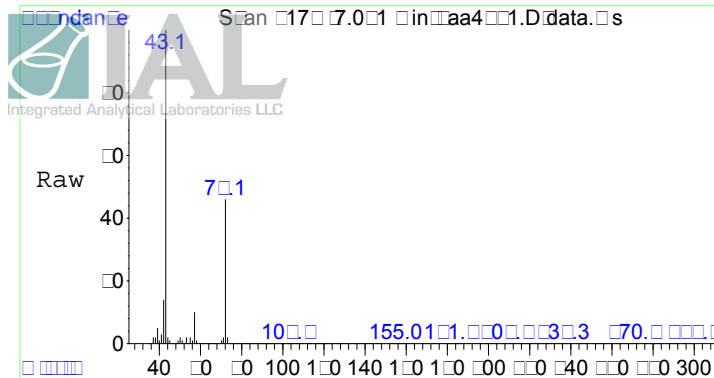
Tgt Ion:130 Resp: 530808
Ion Ratio Lower Upper
130 100
128 77.8 62.6 94.0



#14
Acetone
Concen: 23.47 ppbV
RT: 4.850 min Scan# 1481
Delta R.T. -0.003 min
Lab File: aa4281.D
Acq: 28 Nov 2017 5:40 pm

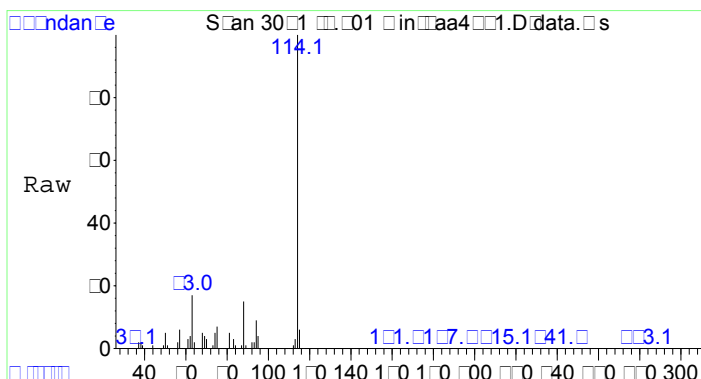
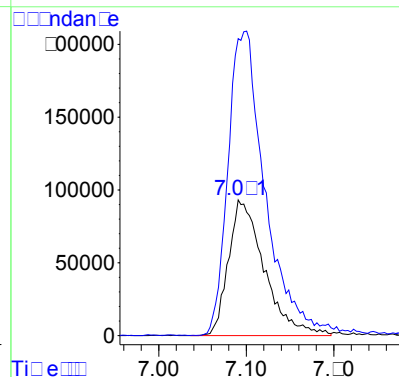
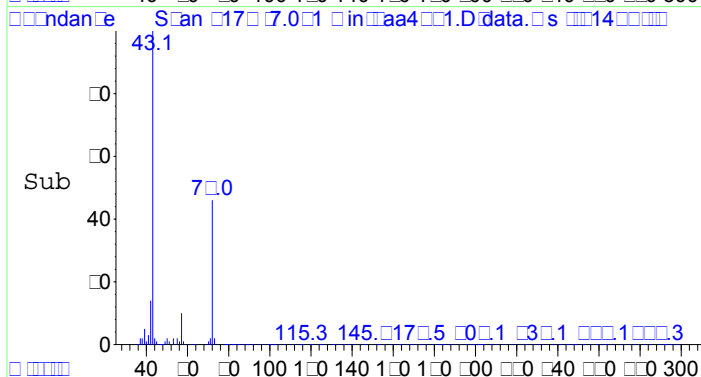
Tgt Ion: 58 Resp: 308242
Ion Ratio Lower Upper
58 100
43 426.1 229.6 344.4#





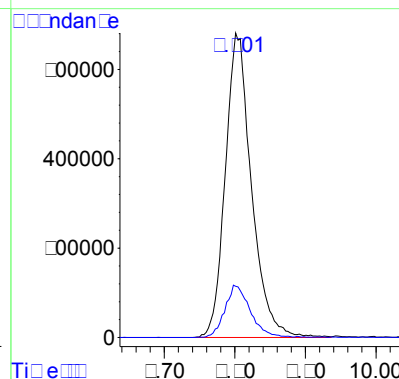
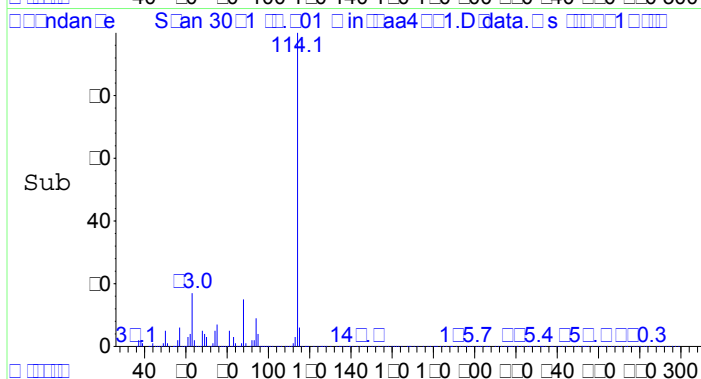
#27
Methyl ethyl ketone
Concen: 12.72 ppbV
RT: 7.091 min Scan# 2178
Delta R.T. -0.003 min
Lab File: aa4281.D
Acq: 28 Nov 2017 5:40 pm

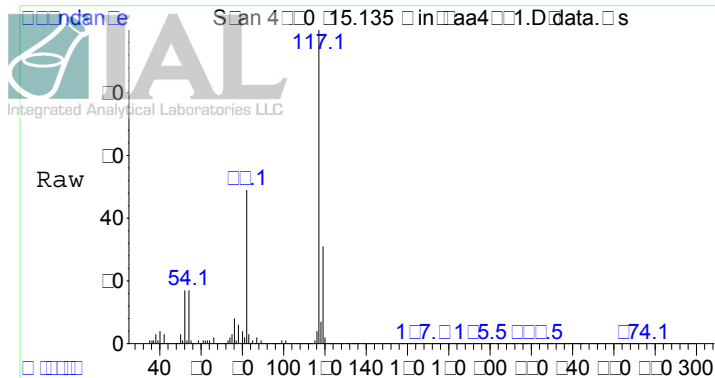
Tgt Ion: 72 Resp: 265138
Ion Ratio Lower Upper
72 100
43 235.3 168.0 252.0



#38
1,4-Difluorobenzene (IS)
Concen: 10.00 ppbV
RT: 9.801 min Scan# 3021
Delta R.T. -0.003 min
Lab File: aa4281.D
Acq: 28 Nov 2017 5:40 pm

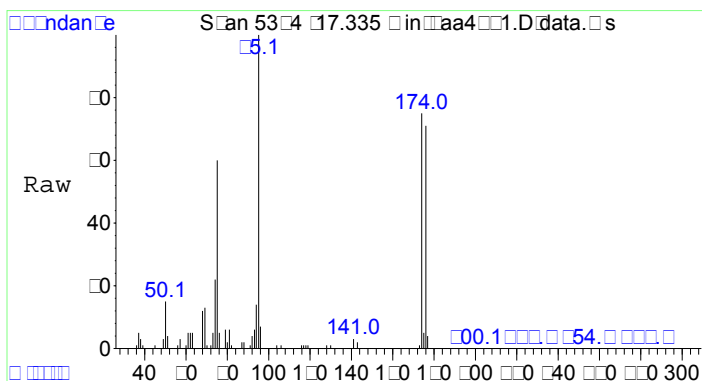
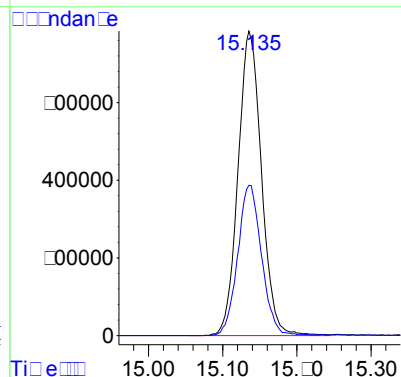
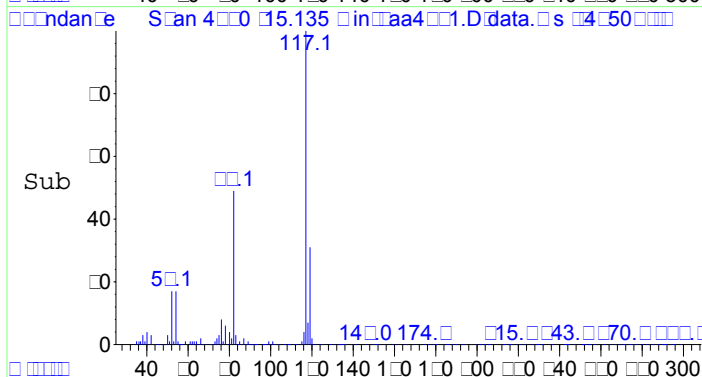
Tgt Ion: 114 Resp: 1755311
Ion Ratio Lower Upper
114 100
63 16.6 14.4 21.6





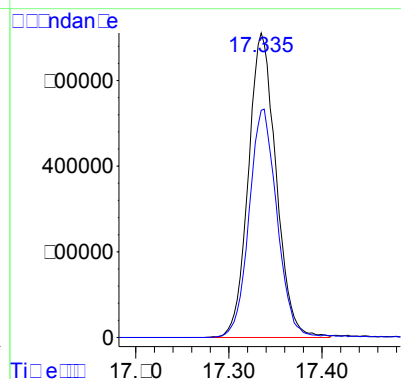
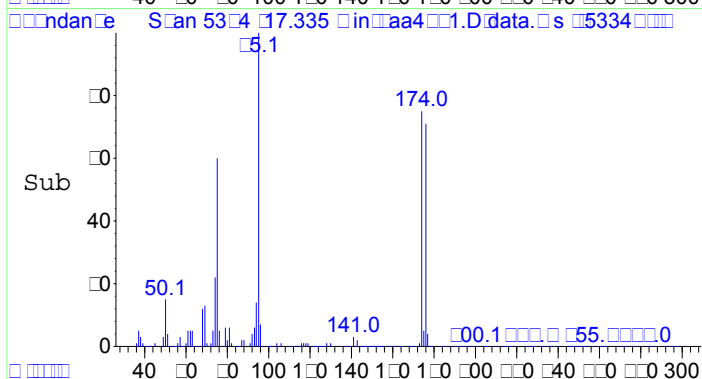
#55
d-5 Chlorobenzene (IS)
Concen: 10.00 ppbV
RT: 15.135 min Scan# 4680
Delta R.T. -0.003 min
Lab File: aa4281.D
Acq: 28 Nov 2017 5:40 pm

Tgt Ion: 117 Resp: 1722256
Ion Ratio Lower Upper
117 100
82 50.2 44.8 67.2



#64
Bromofluorobenzene (tune std)
Concen: 9.73 ppbV
RT: 17.335 min Scan# 5364
Delta R.T. -0.003 min
Lab File: aa4281.D
Acq: 28 Nov 2017 5:40 pm

Tgt Ion: 95 Resp: 1467924
Ion Ratio Lower Upper
95 100
174 75.3 61.5 92.3



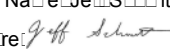
Integrated Analytical Laboratories
GC/MS Run Log

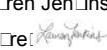
Instrument ID: 700575
 Model: RTE RTX SN: 57

Target Directory: D:\MS

Date of Analysis: 11/01/17
 Date of Initial Calibration: 11/01/17
 SDG #: 17.0037

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	Make-up Air		Acquisition		Room		TO-15 Standard	
								Added to canister (cc)	Added for dilution (cc)	Date	Time	Temp	BP "Hg	Working ID	Vendor ID (Lot#)
aa3441	B-B	✓		LM04	JLS	50				9/12/2017	11	74	30.07		40340003
aa344dts	10 ppDSS	✓		L07115	JLS	50	not used							11/01/17	10:40:53.701
aa3443std01	40 ppStd	✓		435	JLS	100								11/01/17	10:40:53.701
aa3444std0	10 ppStd	✓		435	JLS	100								11/01/17	10:40:53.701
aa3445std03	10 ppStd	✓		435	JLS	50								11/01/17	10:40:53.701
aa344std04	1 ppStd	✓		435	JLS	10								11/01/17	10:40:53.701
aa3447std05	0.1 ppStd	✓		435	JLS	1								11/01/17	10:40:53.701
aa344ss	10 ppIASS	✓		L073030	JLS	50									40340000

Analyst Name: Jeff Schmitt
 Signature: 
 IAL SDG #E17-09837

Supervisor Name: Lauren Jenkins
 Signature: 
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Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: 700 575
 Ion Rest: RTX SN 57

Target Directory: D:\MS

Date of Analysis: 11/01/17
 Date of Initial Calibration: 11/01/17
 SDG #: 17.0037

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	Make-up Air		Acquisition		Room		TO-15 Standard	
								Added to canister (cc)	Added for dilution (cc)	Date	Time	Temp	BP "Hg	Working ID	Vendor ID (Lot#)
aa3701	B	✓		LM04	JLS	50				10/42017	03	74	30.14		4034003
aa3702s	10 pp D S	✓		L07115	JLS	50								11/01/17	1040053701
aa3703s	10 pp L S	✓		L073030	JLS	50									1040054151
aa3704	Method Blank	✓		117	JLS	500									
aa3705r	0. pp RLL S	✓		L07115	JLS	1								11/01/17	1040053701
aa3706	17.0047.01 x 100	✓	100	15	JLS	5	not used								
aa3707	17.0047.01 x 10	✓	10	15	JLS	50									
aa3708	17.0047.00 x 10	✓	10	1351	JLS	50									
aa3709	17.0047.03 x 10	✓	10	1543	JLS	50									
aa3710		✓			JLS	500									
aa3711	17.004.01	✓		45	JLS	500									
aa3712	17.004.01	✓		d p o 17.004.01, 0	JLS	500									
aa3713		✓			JLS	500									
aa3714	17.004.01 x 100	✓	100	134	JLS	5									
aa3715	17.004.00 x 100	✓	100	155	JLS	5	not used								
aa3716		✓			JLS	500									
aa3717	11	✓			JLS	500									
aa3718s	10 pp S	✓		435	JLS	50				10/4/17	100			11/01/17	1040053701

Analyst Name: Jeff Schmitt

Signature: 
 IAL SDG #E17-09837

Supervisor Name: Lauren Jenkins

Signature: 
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Integrated Analytical Laboratories
GC/MS Run Log

Instrument ID: 700575
 Model: RTE RTX SN: 57

Target Directory: D:\MS

Date of Analysis: 11/10, 13, 017
 Date of Initial Calibration: 11/017
 SDG #: 17.055

File #	Laboratory Sample ID	QC Check	Dilution Factor	Can #	Analyst	Injection Volume (cc)	Comments	Make-up Air		Acquisition		Room		TO-15 Standard	
								Added to canister (cc)	Added for dilution (cc)	Date	Time	Temp	BP "Hg	Working ID	Vendor ID (Lot#)
aa471	B-B	✓		LM04	JLS	50				11/28/2017	37	73	30.00		4034003
aa472	10 pp D-S	✓		07115	JLS	50								11/017	10400537
aa473	10 pp L-S	✓		073030	JLS	50									104005415
aa474	Method Blank	✓		117	JLS	500									
aa475	0.0 pp RLL-S	✓		07115	JLS	1								11/017	10400537
aa476	17.0301 x 5	✓	5	31	JLS	100									
aa477	17.05501	✓		33	JLS	500									
aa478	17.0550	✓		3014	JLS	500									
aa479	17.05503	✓		04	JLS	500									
aa480	17.0300 x 10	✓	10	00	JLS	50									
aa481	17.0300 x 10	✓	10	0300 x 10	JLS	50									
aa482		✓			JLS	500									
aa483	17.0303	✓		05	JLS	500									
aa484		✓			JLS	500									
aa485	17.0304	✓		037	JLS	500									
aa486	17.03701 x 10	✓	10	307	JLS	50									
aa487	17.0370 x 10	✓	10	314	JLS	50									
aa488	17.03703 x 10	✓	10	471	JLS	50									
aa489	17.03704 x 10	✓	10	753	JLS	50									
aa490	17.03705	✓			JLS	500									
aa491		✓			JLS	500									
aa492	10 pp D-S	✓		435	JLS	50				11/017	35			11/017	10400537
aa4301	B-B	✓		LM04	JLS	50				11/29/2017	4	73	0.77		4034003
aa4302	10 pp D-S	✓		07115	JLS	50								11/017	10400537
aa4303	10 pp L-S	✓		073030	JLS	50									104005415
aa4304	Method Blank	✓		117	JLS	500									
aa4305	0.0 pp RLL-S	✓		07115	JLS	1								11/017	10400537
aa4306	305	✓			JLS	500									
aa4307	17.03701	✓		307	JLS	500									
aa4308	17.0370 x 10	✓	10	314	JLS	5									
aa4309	17.03703	✓		471	JLS	500									
aa4310	17.03704	✓		753	JLS	500									
aa4311	17.0301 x 100	✓	100	50	JLS	5									
aa4312	17.0301 x 100	✓	100	0301 x 100	JLS	5									
aa4313	17.0300 x 100	✓	100	50	JLS	5									
aa4314	17.0303 x 100	✓	100	035	JLS	5									
aa4315	17.0304 x 100	✓	100	00	JLS	5									
aa4316	17.0305 x 100	✓	100	00B	JLS	5									
aa4317	17.0300 x 100	✓	100	50	JLS	5									
aa4318		✓			JLS	500									
aa4319	10 pp D-S	✓		435	JLS	50				11/017	05			11/017	10400537

Analyst Name: Jeff Schmitt

Signature: 
 IAL SDG #E17-09837

Supervisor Name: Lauren Jenkins

Signature: 
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Client Contact Information				Project Information				Carrier (check one): ☐ IAL Courier ☐ Client Courier ☐ FedEx/UPS				pg <u> </u> of <u> </u>	
Company: EWMA				Project Name: Swiviller/1756 Nyack Rd				Invoice Information				Analysis	
Address: 100 Misty Lane				Project Location (State): NY				Attn:				Report	
Phone: 973-560-1400				Project Manager: Kevin Seise				Address:				Matrix	
Fax: 973-560-0400				PM Signature:				PO #:					
Report to: Proj # 205548				Sampler: Joe Bukowski				Quote #:					
Analysis Turnaround Time - IF NO TAT IS SPECIFIED, 2 WEEK TAT IS ASSUMED								Barometric Pressure					
IAL Standard: 2 weeks (10 business days)													
Rush (**pre-approved by lab):								Start		Stop			
		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)	
SS-1	11/15/17 / 1138	11/15/17 / 1226	30↑	5	68	68	-29.0	-5.0	7316795	3027	6	99.5	
SS-2	11/15/17 / 1312	11/15/17 / 1358	28↑	5	72	72	-29.0	-5.0	A01600034	3814	6	96.5	
SS-3	11/15/17 / 1500	11/15/17 / 1542	27↑	5	72	72	-29.0	-5.0	A0160003-1	4871	6	100.1	
SS-4	11/15/17 / 1635	11/15/17 / 1728	30↑	5	68	68	-29.0	-5.0	7340542	2753	6	105.0	
Ambient	11/15/17 / 1320	11/15/17 / 1405	28↑	4	45	45	-29.0	-4.0	A0160009-6	2892	6	98.2	
Comments/ Special Analysis Instructions / QC Requirements: NY State TO-15 Any Questions Please Call Kevin Seise Log-In For TO-15 ANALYSIS 09291701 100417AA 2162 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)									Laboratory Canister Certification				
Individual Preparing Canisters / Title: P. Jenkins J. Walukiewicz / Air Department Sample Custodians									GC/MS Analyst Signature				
Lab Affixed Seal Number(s): IAL20170320-321									 IAL SDG#: 09837				
Date/Time Shipping Container Sealed: 11/13/17 1330													
External Chain of Custody													
Relinquished			Received			Date / Time			Reason for Change of External Custody				
						11/13/17 1330			shipment from laboratory to client				
						11/16/17 1500							
						11-16-17 16:00			Rec'd at all lab				
Name/Title Resealing Shipping Container Name:									NJDEP Affixed Seal Number:				
Date/Time Sample Shipping Container Resealed:									Individual Opening Sample Shipping Container: Padraic Jenkins / Joseph Walukiewicz				
Date/Time Sample Shipping Container Opened:									Date/Time Internal Chain of Custody Initiated:				

Example Calculation (EPA TO-15)

$$\frac{\text{Area of Sample}}{\text{Area of Internal Standard}} \times \frac{\text{Concentration of Internal Standard (10 ppbv)}}{\text{Response Factor}} = \text{Concentration of Sample (ppbv)}$$

Conversion from ppbv to $\mu\text{g}/\text{m}^3$

$$\frac{\text{Concentration of Compound (ppbv)}}{24.45} \times \text{Molecular Weight of Compound} = \text{Concentration of Compound } (\mu\text{g}/\text{m}^3)$$

Clean Canister Certification Report

Lab Sample Name: Clean Canister, Batch Master 2162
Field Sample Name: Canister 2162
Sample Volume: 500ml

Data File: AA3717
Date Analyzed: 10/4/2017
Matrix: Air

Canisters associated with this run: 2162,2753(used for E17-09837-04),2768,2892(used for E17-09837-05),3027(used for E17-09837-01),3814(used for E17-09837-02),4871(used for E17-09837-03),5079

Runs with this Clean Canister Certification:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3701BFB]	10/04/2017 08:23
10 PPBV DCVS [AA3702DCVS]	10/04/2017 09:02
10 PPBV LCS [AA3703LCS]	10/04/2017 09:55
METHOD BLANK [AA3704BLK]	10/04/2017 10:33
02 PPBV RLLCS [AA3705RLLCS]	10/04/2017 11:14
CLEAN CAN CERTIFICATION, BATCH MASTER 2162 [AA3717]	10/04/2017 18:34
10 PPBV CCCVS [AA3728CCCVS]	10/04/2017 19:08

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 2162
Field Sample Name: Canister 2162
Sample Volume: 500ml

Data File: AA3717
Date Analyzed: 10/4/2017
Matrix: Air

Canisters associated with this run: 2162,2753(used for E17-09837-04),2768,2892(used for E17-09837-05),3027(used for E17-09837-01),3814(used for E17-09837-02),4871(used for E17-09837-03),5079

Runs with this Clean Canister Certification:

Standard/Sample Run	Date/Time of Sample/Standard Injection
BFB [AA3701BFB]	10/04/2017 08:23
10 PPBV DCVS [AA3702DCVS]	10/04/2017 09:02
10 PPBV LCS [AA3703LCS]	10/04/2017 09:55
METHOD BLANK [AA3704BLK]	10/04/2017 10:33
02 PPBV RLLCS [AA3705RLLCS]	10/04/2017 11:14
CLEAN CAN CERTIFICATION, BATCH MASTER 2162 [AA3717]	10/04/2017 18:34
10 PPBV CCCVS [AA3728CCCVS]	10/04/2017 19:08

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

Data Path : C:\DATA\10-04-17\
 Data File : aa3717.D
 Acq On : 4 Oct 2017 6:34 pm
 Operator : jls
 Sample : 2162
 Misc : 2753, 2768, 2892, 3027, 3814, 4871, 5079
 ALS Vial : 19 Sample Multiplier: 1

Quant Time: Oct 13 09:42:38 2017
 Quant Method : C:\msdchem\1\METHODS\0912.M
 Quant Title : TO-15 on the Agilent 7890A / 5975C
 QLast Update : Tue Sep 12 13:00:02 2017
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS)	7.746	130	446352	10.00	ppbV	0.00
38) 1,4-Difluorobenzene (IS)	9.801	114	1451786	10.00	ppbV	0.00
55) d-5 Chlorobenzene (IS)	15.141	117	1314300	10.00	ppbV	0.00

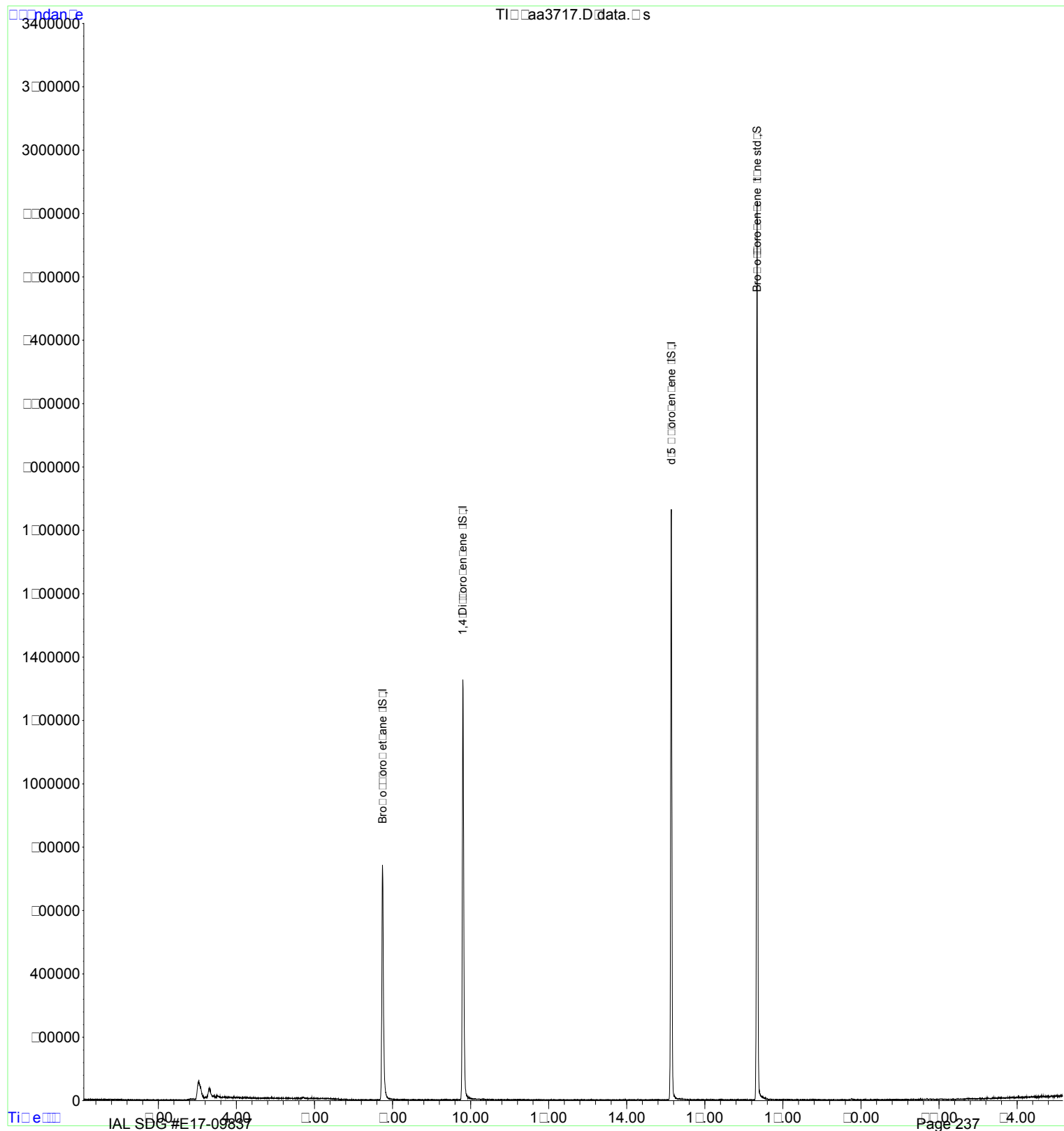
System Monitoring Compounds						
64) Bromofluorobenzene (tu...	17.337	95	1150688	10.00	ppbV	0.00

Target Compounds	Qvalue
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(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\DATA\10-04-17\
Data File : aa3717.D
Acq On : 4 Oct 2017 6:34 pm
Operator : jls
Sample : 2162
Misc : 2753, 2768, 2892, 3027, 3814, 4871, 5079
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Oct 13 09:42:38 2017
Quant Method : C:\msdchem\1\METHODS\0912.M
Quant Title : TO-15 on the Agilent 7890A / 5975C
QLast Update : Tue Sep 12 13:00:02 2017
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