VIA ELECTRONIC MAIL

July 1, 2021

Mr. Daniel R. Lanners, P.E.
Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7014

Subject: **Indoor Air Sampling Report for Former Manufacturing Building**
Federal-Mogul/Huck Site, Kingston, New York
NYSDEC Site Number V00171

Dear Mr. Lanners:

WSP USA Inc., on behalf of Tenneco Inc. (as successor in interest to Federal-Mogul LLC), has prepared this report to summarize the results of air samples collected on March 31, 2021, at the former Huck manufacturing facility at 85 Grand Street in Kingston, New York. This indoor air sampling event was recommended in WSP's February 3, 2021, letter report to the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH), which included the results of indoor air sampling conducted in November 2020.

Based on the November 2020 indoor air sampling results, WSP recommended in the February 3, 2021 report to perform a sub-slab depressurization (SSD) pilot test in an area of the building that was not influenced by the operation of Cycle Group 1 soil vapor extraction (SVE) wells and to conduct a follow-up indoor air sampling event. The SSD pilot test was conducted on March 9 to 11, 2021, and the results of the pilot test activities were included in the First Quarter 2021 progress report submitted to the NYSDEC and NYSDOH on May 14, 2021. The purpose of the March 31, 2021, indoor air sampling event was to evaluate the potential impact of the SSD pilot test on indoor air quality.

Background information about the site and a summary of historical onsite air sample results from 2003 through November 2020 are provided in the February 3, 2021, letter report to the NYSDEC and NYSDOH.

SCOPE OF WORK

The March 2021 indoor air sampling event consisted of performing a building inspection and material inventory, collecting five indoor air samples within the former manufacturing building, and collecting two ambient outdoor air samples at upwind locations selected on the day of sampling to evaluate potential background sources for volatile organic compounds (VOCs) in outdoor air. The March 2021 indoor air samples were collected from the former Family Services space, the main office complex, and in the self-storage portion of the main building (Figure 1). The former Family Services space had been used for storage during the March and April 2019 sampling events; however, the space was being used as a recording studio during the November 2020 and March 2021 sampling

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events. Air sparge (AS)/SVE system Cycle Group 1 AS and SVE wells were operating at full vacuum during the sampling event. In addition, SVE well SV-12 was operating at a reduced vacuum.

Sampling activities were conducted in accordance with WSP's Indoor Air Sampling Work Plan, dated February 5, 2019, the NYSDEC's conditional approval letter, dated March 4, 2019, and the NYSDOH's Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006, and associated updates. A description of the sampling activities is provided below.

BUILDING INSPECTION AND MATERIAL INVENTORY

WSP performed a pre-sampling site inspection and completed material inventories on March 29, 2021, before the sampling activities on March 31, 2021. During the inspection, WSP completed material inventory forms for the former Family Services space, main office complex, and the self-storage area of the main building. In general, the volatile ingredients of each material, if available, were photographed or recorded on the inventory form, and the containers were scanned with a photoionization detector (RAE Systems ppbRAE) for potential vapor emissions.

Some of the target site-related VOCs (i.e., trichloroethene [TCE], tetrachloroethene [PCE]) are found in many household and commercial products. While WSP attempted to limit the potential for these background sources to affect the indoor air results by performing material inventories in the areas sampled and eliminating potential sources for these VOCs, the interior of the former manufacturing building contains over 400 self-storage units (with wire mesh ceilings) that were not accessible to WSP. Therefore, WSP could not control or eliminate any potential impacts to indoor quality resulting from VOC-containing materials that may be stored in these units.

INDOOR AIR SAMPLING PROCEDURES

On March 31, 2021, indoor air samples were collected from five locations (IA-1, IA-2, IA-3, IA-5, and IA-6) that were sampled in March and April 2019 and November 2020[1] (Figure 1). Samples were collected using evacuated 6-liter SUMMA™-style canisters with flow controllers and particulate filters installed. Each of the indoor air sample canisters were placed approximately 3 to 5 feet above the floor to be representative of the breathing zone. Physical and visual barriers were placed around the canisters, if necessary, so that they would not be disturbed during sample collection. The flow regulators were pre-set by the laboratory to collect the samples over an approximately 8-hour period. The flow regulator was connected to the canister and opened to initiate sample collection. After approximately 8 hours, the flow regulator was closed to complete the sample collection. The sample name, location, time and date of sample collection, final canister vacuum, canister and regulator number, and the analytical method to be used were recorded on the chain-of-custody form and in the field log book.

AMBIENT OUTDOOR AIR SAMPLING PROCEDURES

On March 31, 2021, ambient (outdoor) air samples were collected from two locations (AA-1 and AA-2) upwind of the facility concurrently with indoor air sample collection. The outdoor air samples were collected west of the former manufacturing building (Figure 1). The outdoor air samples were collected with evacuated 6-liter SUMMA™-style canisters and dedicated flow controllers over an approximately 8-hour period using the same procedures described above for the indoor air samples. Site conditions, including temperature, wind direction and velocity, barometric pressure, and the occurrence of precipitation were documented before initiating the sampling activities.

SAMPLE ANALYSIS AND QUALITY ASSURANCE/QUALITY CONTROL

Quality assurance/quality control procedures were followed to ensure that controls were initiated and maintained throughout sampling and analysis. The canisters were submitted under ambient conditions to an offsite laboratory, ALS Environmental of Simi Valley, California, under strict chain-of-custody procedures. ALS Environmental – Simi Valley is accredited under the NYSDOH

[1] The sample collected at location IA-3 in November 2020 could not be analyzed due to an equipment malfunction at the laboratory.

Environmental Laboratory Approval Program (ID 11221). As specified in the work plan, the indoor and outdoor air samples were analyzed for site-related VOCs (i.e., TCE, PCE, and cis-1,2-dichloroethene) using U.S. Environmental Protection Agency (EPA) Method TO-15. The sample results were validated by a third-party contractor (Laboratory Data Consultants, Inc., in Carlsbad, California).

The canisters used for the sampling activities were 100-percent individually certified-clean by the laboratory by analyzing the ambient air inside a cleaned canister by EPA Method TO-15. If no target compounds were detected at concentrations above compound-specific method reporting limits, then the canister was evacuated again, and the canister was available for sampling. If target compounds were detected at concentrations above the method reporting limits, then the canister was re-cleaned and reanalyzed for the target compounds.

A duplicate indoor air sample was collected from sample location IA-2. The duplicate sample was collected at the same time and from the same sample location using a sample tee. The field duplicate identity was not provided to the laboratory. The field duplicate is useful in documenting the precision of the sampling process. In addition, a laboratory-prepared trip blank accompanied the sample canisters from the laboratory to the field and from the field to the laboratory. The trip blank was used to evaluate the potential for contamination during shipment.

SAMPLING RESULTS

The site-related VOCs detected in indoor and outdoor air samples for the March 2021 sampling event are provided on Table 1 and Figure 1, and the analytical data and data validation report are in Enclosure A. For comparison, Table 1 and Figure 1 also include the results from the March and April 2019 and November 2020 sampling events.

The March 2021 indoor air sample from the former Family Services space (IA-6) contained 1.1 $\mu g/m^3$ of TCE and 0.32 $\mu g/m^3$ of PCE. No cis-1,2-DCE was detected. The March 2021 indoor air samples from the main office complex (IA-2 and the duplicate sample) contained maximum concentrations of 3.0 $\mu g/m^3$ of TCE, 1.0 $\mu g/m^3$ of PCE, and 0.10 $\mu g/m^3$ (estimated) of cis-1,2-DCE. Three indoor air samples (IA-1, IA-3, and IA-5) were collected from the self-storage portion of the main building. Indoor air sample IA-1 contained 2.7 $\mu g/m^3$ of TCE, 0.93 $\mu g/m^3$ of PCE, and 0.091 $\mu g/m^3$ (estimated) of cis-1,2-DCE. Indoor air sample IA-3 contained 3.7 $\mu g/m^3$ of TCE, 1.3 $\mu g/m^3$ of PCE, and 0.14 $\mu g/m^3$ (estimated) of cis-1,2-DCE. Indoor air sample IA-5 contained 2.1 $\mu g/m^3$ of TCE and 1.3 $\mu g/m^3$ of PCE. No cis-1,2-DCE was detected.

The March 2021 outdoor air samples contained only PCE at an estimated concentration of 0.13 $\mu g/m^3$ at sample location AA-1 and 0.26 $\mu g/m^3$ at sample location AA-2. TCE and cis-1,2-DCE were not detected in the outdoor air samples.

CONCLUSIONS AND RECOMMENDATIONS

The concentrations of PCE and cis-1,2-DCE detected in the March 2021 indoor air samples were similar to the concentrations detected in the March and April 2019 and November 2020 indoor air samples. However, the TCE concentrations detected in the March 2021 indoor air samples were the lowest concentrations detected to date at each location. Therefore, the March 2021 sample results suggest that the SSD pilot test had a positive effect on indoor air quality within the former manufacturing building. WSP anticipates that indoor air quality will continue to improve as pilot test extraction point SSD-TP1 continues to operate, which will likely result in an increased vacuum radius of influence (as moisture is removed from sub-slab materials) and a reduction in VOC concentrations in sub-slab soil vapor within the footprint of the vacuum field. Field measurements obtained with a photoionization detector indicate a 58 percent reduction in the total VOC concentration in the influent vapor from pilot test suction point SSD-TP1 from March 26 (2,837 parts per billion [ppb]) to May 26, 2021 (1,191 ppb).

The highest TCE concentration detected during the March 2021 sampling event was at location IA-3 in the northwest portion of the building, and the TCE concentrations appeared to decrease toward the southeast (i.e., toward Grand Street). As shown in Figure 2, the operation of Cycle Group 1 SVE wells creates a sub-slab vacuum under a significant portion of the Tenbroeck wing of the building that includes the main office complex (IA-2) and former metal finish area (IA-1). Therefore, TCE detected in samples from the

Tenbroeck wing may potentially originate in the northwest portion of the building where sub-slab vacuum is not present. However, the potential for ongoing impacts on indoor air quality from materials stored in the self-storage units cannot be discounted.

Tenneco is proposing to evaluate alternatives to provide vacuum under the northwest portion of the building. Potential actions that may be considered include attempting to increase vacuum at SVE well SV-12 and adjusting or modifying the AS/SVE system. WSP anticipates submitting a scope of work for proposed actions to the NYSDEC and NYSDOH by mid-summer 2021 and completing the work by fall 2021. Once the proposed actions have been implemented, sub-slab vacuum measurements will be collected in the northwest portion of the former manufacturing building to document the vacuum field, and a follow-up round of indoor air samples will be collected during the upcoming heating season in the fourth quarter of 2021. Based on the results of the follow-up indoor air sampling event, Tenneco will consider the need for further action to address indoor air quality, if warranted.

If you have any questions or comments regarding this report, please feel free to contact Mark Bauer of Tenneco at (248) 354-8912, or me at (315) 655-3900.

Sincerely,

Brian Silfer, P.G.
Practice Leader

BES:rlo
\\uscaz1ser01\es\clients\federal-mogul\kingston\reports\2021 indoor air sampling - main building\text

cc: Kristin Kulow, New York State Department of Health
Mark T. Bauer, Federal-Mogul Powertrain LLC

Enclosures

FIGURES

LEGEND

- STORM SEWER GRATE
- MANHOLE COVER
- PROPERTY LINE AND INSTITUTIONAL CONTROL BOUNDARY
- FENCE LINE
- SELF STORAGE UNITS
- FLOOR DRAIN (SEALED)
- INDOOR AIR SAMPLE LOCATION
- OUTDOOR AIR SAMPLE LOCATION

VOC (µg/m³)	IA-1
	3/19/19
cis-1,2-DCE	0.14 J
TCE	5.2
PCE	0.77

SAMPLE LOCATION
SAMPLE COLLECTION DATE
SAMPLE RESULTS
CONSTITUENT

DCE	DICHLOROETHENE
TCE	TRICHLOROETHENE
PCE	TETRACHLOROETHENE
VOC	VOLATILE ORGANIC COMPOUNDS
(µg/m³)	MICROGRAMS PER CUBIC METER
J	ESTIMATED CONCENTRATION
ND	NOT DETECTED
NS	NOT SAMPLED FOR THIS EVENT
NA	NOT ANALYZED DUE TO CANISTER MALFUNCTION

NOTE:

A BLIND DUPLICATE SAMPLE WAS COLLECTED AT IA-2 ON MARCH 19, APRIL 4, 2019, NOVEMBER 17, 2020, AND MARCH 31, 2021. THE HIGHEST REPORTED RESULT FOR EACH SAMPLING EVENT IS PRESENTED.

VOC (µg/m³)	AA-2	
	11/17/20	3/31/21
cis-1,2-DCE	ND	ND
TCE	ND	ND
PCE	0.093 J	0.26

VOC (µg/m³)	AA-2
	3/19/19
cis-1,2-DCE	ND
TCE	ND
PCE	0.11 J

VOC (µg/m³)	AA-1
	3/19/19
cis-1,2-DCE	ND
TCE	ND
PCE	0.11 J

VOC (µg/m³)	AA-1	
	11/17/20	3/31/21
cis-1,2-DCE	ND	ND
TCE	ND	ND
PCE	0.12 J	0.13 J

VOC (µg/m³)	IA-6			
	3/19/19	4/2/19	11/17/20	3/31/21
cis-1,2-DCE	ND	0.029 J	ND	ND
TCE	2.2	1.6	4.1	1.1
PCE	0.59	0.23	0.44	0.32

VOC (µg/m³)	IA-5			
	3/19/19	4/2/19	11/17/20	3/31/21
cis-1,2-DCE	0.16	0.25	0.11 J	ND
TCE	4.5	4.6	3.8	2.1
PCE	1.2	0.73	1.4	1.3

VOC (µg/m³)	IA-3			
	3/19/19	4/2/19	11/17/20	3/31/21
cis-1,2-DCE	0.14 J	0.35	NA	0.14 J
TCE	4.3	6.8	NA	3.7
PCE	0.92	1.4	NA	1.3

VOC (µg/m³)	IA-4			
	3/19/19	4/2/19	11/17/20	3/31/21
cis-1,2-DCE	ND	0.016 J	NS	NS
TCE	0.81	0.29	NS	NS
PCE	0.81	0.30	NS	NS

VOC (µg/m³)	IA-2			
	3/19/19	4/2/19	11/17/20	3/31/21
cis-1,2-DCE	0.13 J	0.20	0.22	0.10 J
TCE	4.8	5.5	6.3	3.0
PCE	0.79	0.98	1.5	1.0

VOC (µg/m³)	IA-1			
	3/19/19	4/2/19	11/17/20	3/31/21
cis-1,2-DCE	0.14 J	0.23	0.19	0.091 J
TCE	5.2	6.2	6.2	2.7
PCE	0.77	1.1	1.7	0.93

VOC (µg/m³)	AA-1
	4/2/19
cis-1,2-DCE	ND
TCE	ND
PCE	0.078 J

VOC (µg/m³)	AA-2
	4/2/19
cis-1,2-DCE	ND
TCE	0.020 J
PCE	0.070 J

CSX TRANSPORTATION, INC. TRACKS
SUSPECTED ONSITE DISPOSAL AREA
FORMER 3,000-GALLON HEATING OIL UNDERGROUND STORAGE TANK AREA
FORMER FUEL OIL UNDERGROUND STORAGE TANK AREA
FORMER 8,000-GAL. AST
COVERED STORAGE AREAS
FORMER HEAT TREAT TRANSFORMER AREA
FORMER HEAT TREAT AREA
FORMER FAMILY SERVICES
KLOMM CONSTRUCTION (STORAGE)
FORMER MANUFACTURING BUILDING (MAIN BUILDING)
FORMER DEGREASER AREA
WAREHOUSE
SOUTHERN PARKING LOT
OFFICE BUILDING
EASTERN PARKING LOT
FORMER EASTERN PARKING LOT TRANSFORMER AREA
MAIN OFFICE COMPLEX
FORMER METAL FINISH AREA
BOTTLE RETURN CENTER
SMITH AVENUE
TENBROECK AVENUE
GRAND STREET
AA-1
AA-2
IA-1
IA-2
IA-3
IA-4
IA-5
IA-6

0 60 120
SCALE IN FEET

FORMER HUCK MANUFACTURING FACILITY
KINGSTON, NEW YORK
PREPARED FOR
FEDERAL-MOGUL LLC

Drawn By: EGC
Checked: AMR 5/13/2021
Approved: BES 07/01/2021
DWG Name: 314V1678.006-024

FIGURE 1
INDOOR AND OUTDOOR AIR SAMPLING RESULTS

WSP USA Inc.
7000 E. GENESEE STREET
BUILDING D, 2nd FLOOR
FAYETTEVILLE, NY 13066
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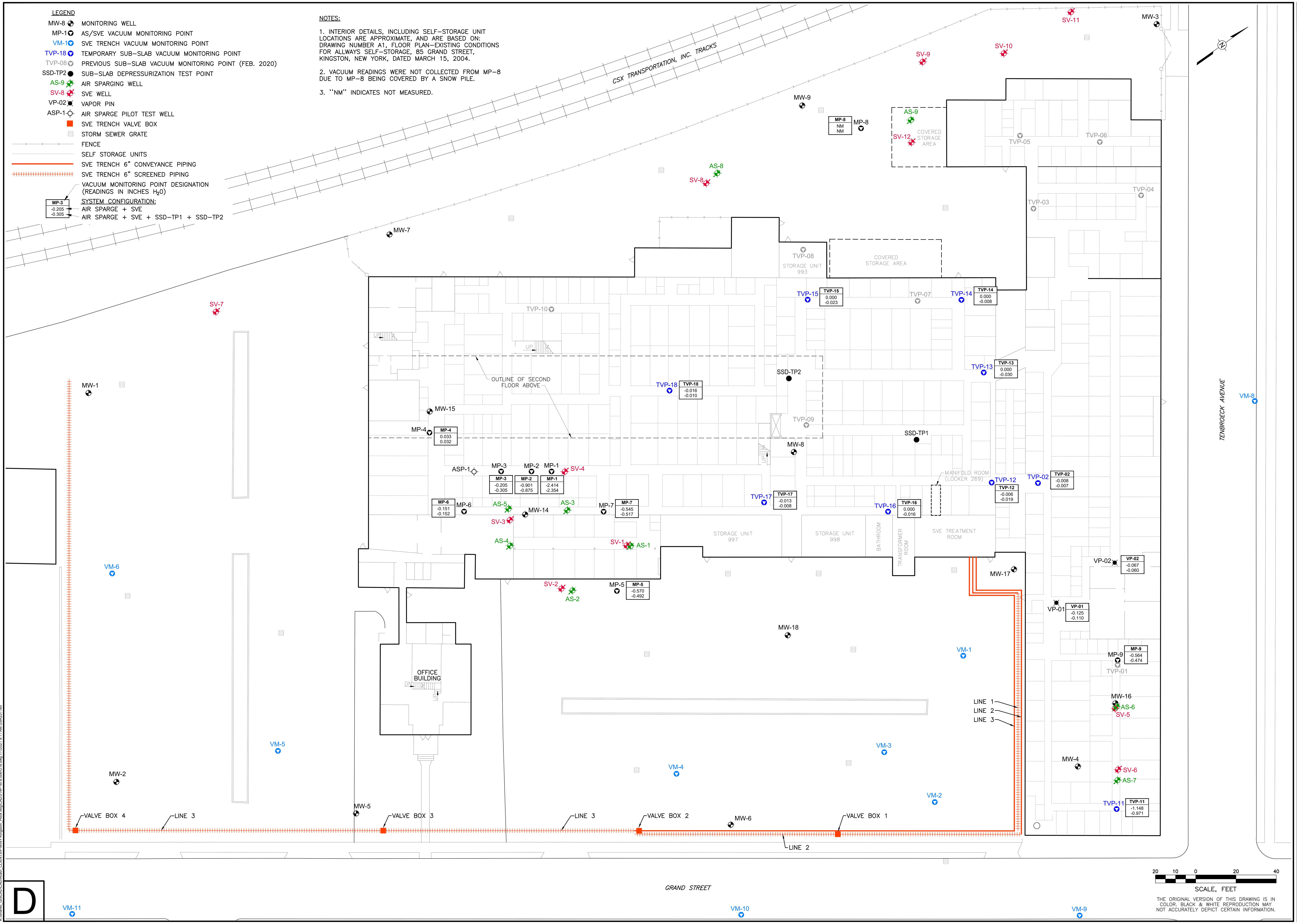
B


LEGEND
MW-8 MONITORING WELL
MP-1 AS/SVE VACUUM MONITORING POINT
VM-1 SVE TRENCH VACUUM MONITORING POINT
TVP-18 TEMPORARY SUB-SLAB VACUUM MONITORING POINT
TVP-08 PREVIOUS SUB-SLAB VACUUM MONITORING POINT (FEB. 2020)
SSD-TP2 SUB-SLAB DEPRESSURIZATION TEST POINT
AS-9 AIR SPARGING WELL
SV-8 SVE WELL
VP-02 VAPOR PIN
ASP-1 AIR SPARGE PILOT TEST WELL
SVE TRENCH VALVE BOX
STORM SEWER GRATE
FENCE
SELF STORAGE UNITS
SVE TRENCH 6" CONVEYANCE PIPING
SVE TRENCH 6" SCREENED PIPING
VACUUM MONITORING POINT DESIGNATION (READINGS IN INCHES H_2O)
MP-3 -0.205 -0.305
SYSTEM CONFIGURATION:
AIR SPARGE + SVE
AIR SPARGE + SVE + SSD-TP1 + SSD-TP2
NOTES:
1. INTERIOR DETAILS, INCLUDING SELF-STORAGE UNIT LOCATIONS ARE APPROXIMATE, AND ARE BASED ON: DRAWING NUMBER A1, FLOOR PLAN-EXISTING CONDITIONS FOR ALLWAYS SELF-STORAGE, 85 GRAND STREET, KINGSTON, NEW YORK, DATED MARCH 15, 2004.
2. VACUUM READINGS WERE NOT COLLECTED FROM MP-8 DUE TO MP-8 BEING COVERED BY A SNOW PILE.
3. "NM" INDICATES NOT MEASURED.
CSX TRANSPORTATION, INC. TRACKS
TENBROECK AVENUE
GRAND STREET
MP-8 NM NM
TVP-15 0.000 -0.023
TVP-14 0.000 -0.008
TVP-13 0.000 -0.030
TVP-18 -0.016 -0.010
MP-4 0.033 0.032
MP-3 -0.205 -0.305
MP-2 -0.901 -0.875
MP-1 -2.414 -2.354
MP-6 -0.151 -0.152
MP-7 -0.545 -0.517
TVP-17 -0.013 -0.008
TVP-16 0.000 -0.016
TVP-12 -0.006 -0.019
TVP-02 -0.008 -0.007
VP-02 -0.067 -0.060
VP-01 -0.125 -0.110
MP-5 -0.570 -0.492
MP-9 -0.564 -0.474
TVP-11 -1.148 -0.971
OUTLINE OF SECOND FLOOR ABOVE
COVERED STORAGE AREA
STORAGE UNIT 993
STORAGE UNIT 997
STORAGE UNIT 998
MANIFOLD ROOM (LOCKER 269)
SVE TREATMENT ROOM
BATHROOM
TRANSFORMER ROOM
OFFICE BUILDING
VALVE BOX 1
VALVE BOX 2
VALVE BOX 3
VALVE BOX 4
LINE 1
LINE 2
LINE 3
SCALE, FEET
THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE REPRODUCTION MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

REVISIONS

REV	DESCRIPTION
1	Revised: Chkd: Appr.:
2	Revised: Chkd: Appr.:
3	Revised: Chkd: Appr.:

SEAL

DATE

DRAWN BY RAL 03/22/2021
CHECKED MDP 07/01/2021
APPROVED

SUB-SLAB DEPRESSURIZATION PILOT TEST BASELINE AND FINAL VACUUM FIELD READINGS

FORMER HUCK MANUFACTURING FACILITY
KINGSTON, NEW YORK

PREPARED FOR
TENNECO INC.
SOUTHFIELD, MICHIGAN

WSP USA Inc.
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TEL: +1 315.655.3900

FIGURE 2

Drawing Number
314P1678.006-D18

TABLE

Table 1

Indoor and Outdoor Air Sampling Results
Former Huck Manufacturing Building
Kingston, NY (a)

Location (b)	Sample ID	Sample Date	Compound (µg/m^3)		
			cis-1,2-Dichloroethene	Trichloroethene	Tetrachloroethene
IA- 1	HUCKIAF031919-1	3/19/2019	0.14 J	5.2	0.77
	HUCKIAF040219-1	4/2/2019	0.23	6.2	1.1
	HUCKIAF111720-1	11/17/2020	0.19	6.2	1.7
	HUCKIAF033121-1	3/31/2021	0.091 J	2.7	0.93
IA-2	HUCKIAF031919-2	3/19/2019	0.13 J	4.8	0.79
	HUCKIAFR031919-2 (c)	3/19/2019	0.12 J	4.8	0.79
	HUCKIAF040219-2	4/2/2019	0.20	5.5	0.98
	HUCKIAFR040219-2 (d)	4/2/2019	0.20	5.4	0.97
	HUCKIAF111720-2	11/17/2020	0.19	5.9	1.5
	HUCKIAFR111720-2 (e)	11/17/2020	0.22	6.3	1.5
	HUCKIAF033121-2	3/31/2021	0.10 J	3.0	1.0
	HUCKIAFR033121-2 (f)	3/31/2021	0.091 J	2.8	0.93
IA- 3	HUCKIAF031919-3	3/19/2019	0.14 J	4.3	0.92
	HUCKIAF040219-3	4/2/2019	0.35	6.8	1.4
	HUCKIAF111720-3	11/17/2020	NA	NA	NA
	HUCKIAF033121-3	3/31/2021	0.14 J	3.7	1.3
IA- 4	HUCKIAF031919-4	3/19/2019	0.11 U	0.81	0.81
	HUCKIAF040219-4	4/2/2019	0.016 J	0.29	0.30
	NS	11/17/2020	NS	NS	NS
	NS	3/31/2021	NS	NS	NS
IA- 5	HUCKIAF031919-5	3/19/2019	0.16	4.5	1.2
	HUCKIAF040219-5	4/2/2019	0.25	4.6	0.73
	HUCKIAF111720-5	11/17/2020	0.11 J	3.8	1.4
	HUCKIAF033121-5	3/31/2021	0.014 U	2.1	1.3
IA - 6	HUCKIAF031919-6	3/19/2019	0.11 U	2.2	0.59
	HUCKIAF040219-6	4/2/2019	0.029 J	1.6	0.23
	HUCKIAF111720-6	11/17/2020	0.11 U	4.1	0.44
	HUCKIAF033121-6	3/31/2021	0.014 U	1.1	0.32
AA-1	HUCKAA031919-1	3/19/2019	0.10 U	0.099 U	0.11 J
	HUCKAA040219-1	4/2/2019	0.014 U	0.16 U	0.078 J
	HUCKAA111720-1	11/17/2020	0.10 U	0.098 U	0.12 J
	HUCKAA033121-1	3/31/2021	0.013 U	0.012 U	0.13 J
AA-2	HUCKAA031919-2	3/19/2019	0.11 U	0.10 U	0.11 J
	HUCKAA040219-2	4/2/2019	0.014 U	0.020 J	0.070 J
	HUCKAA111720-2	11/17/2020	0.10 U	0.096 U	0.093 J
	HUCKAA033121-2	3/31/2021	0.012 U	0.011 U	0.26

a/ U = Compound was analyzed for, but not detected above the laboratory detection limit;
J = The result is an estimated concentration that is less than the method reporting limit but greater than or equal to the method detection limit.
NA = not analyzed due to a canister malfunction.
NS = not sampled for this event.

b/ Location: IA = indoor air; AA = outdoor air. (Outdoor air samples were placed in different locations for each sampling event. See Figure 3.)

c/ Duplicate sample of HUCKIAF031919-2.

d/ Duplicate sample of HUCKIAF040219-2.

e/ Duplicate sample of HUCKIAF111720-2.

f/ Duplicate sample of HUCKIAF033121-2.

ENCLOSURE A – ANALYTICAL RESULTS AND DATA VALIDATION REPORTS

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www.alsglobal.com

LABORATORY REPORT

April 15, 2021

Brian Silfer
WSP Group
7000 East Genesee St., Building D, 2nd Floor
Fayetteville, NY 13066

RE: Federal-Mogul Former Huck Manufacturing / 31401678.006 02

Dear Brian:

Enclosed are the results of the samples submitted to our laboratory on April 6, 2021. For your reference, these analyses have been assigned our service request number P2101759.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 11:52 am, Apr 15, 2021

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: WSP Group
Project: Federal-Mogul Former Huck Manufacturing /31401678.006 02

Service Request No: P2101759
New York Lab ID: 11221

CASE NARRATIVE

The samples were received intact under chain of custody on April 6, 2021 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The response for the #3 internal standard in samples HUCKIAF032121-1 (P2101759-003), HUCKIAFR032121-2 (P2101759-005), and HUCKIAF032121-5 (P2101759-007) was outside control criteria; however, since this compound is not associated with the target analytes included in this report the results were not affected. No corrective action was appropriate.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.3 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-008
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: WSP Group Service Request: P2101759

Project ID: Federal-Mogul Former Huck Manufacturing / 31401678.006 02

Date Received: 4/6/2021

Time Received: 14:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pfl (psig)	TO-15 - VOC SIM
HUCKAA033121-1	P2101759-001	Air	3/31/2021	16:40	SSC00161	-2.01	3.81	X
HUCKAA033121-2	P2101759-002	Air	3/31/2021	16:41	AS01327	-0.63	3.66	X
HUCKIAF033121-1	P2101759-003	Air	3/31/2021	16:46	AS00800	-1.25	3.71	X
HUCKIAF033121-2	P2101759-004	Air	3/31/2021	16:48	SC02309	-1.23	5.05	X
HUCKIAFR033121-2	P2101759-005	Air	3/31/2021	16:48	AS01186	-1.56	3.65	X
HUCKIAF033121-3	P2101759-006	Air	3/31/2021	16:50	AC02403	-1.98	3.89	X
HUCKIAF033121-5	P2101759-007	Air	3/31/2021	16:54	SC01717	-2.17	4.28	X
HUCKIAF033121-6	P2101759-008	Air	3/31/2021	16:38	SSC00237	-2.29	4.12	X
TRIP BLANK	P2101759-009	Air	3/31/2021	00:00	AS00684	-14.27	3.86	X

ALS Environmental
Sample Acceptance Check Form

Client: WSP Group Work order: P2101759

Project: Federal-Mogul Former Huck Manufacturing / 31401678.006 02

Sample(s) received on: 4/6/21 Date opened: 4/6/21 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2101759-001.01	6.0 L Silonite Can					
P2101759-002.01	6.0 L Silonite Can					
P2101759-003.01	6.0 L Silonite Can					
P2101759-004.01	6.0 L Source Can					
P2101759-005.01	6.0 L Silonite Can					
P2101759-006.01	6.0 L Ambient Can					
P2101759-007.01	6.0 L Source Can					
P2101759-008.01	6.0 L Silonite Can					
P2101759-009.01	6.0 L Silonite Can					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND
ANALYTICAL REQUIREMENT SUMMARY

Customer Sample Code	Laboratory Sample Code	Analytical					
		*VOA GC/MS Method #	*BNA GC/MS Method #	*VOA GC Method #	*Pest PCBs Method #	*Metals	*Other
HUCKAA033121-1	P2101759-001	EPA TO-15					
HUCKAA033121-2	P2101759-002	EPA TO-15					
HUCKIAF033121-1	P2101759-003	EPA TO-15					
HUCKIAF033121-2	P2101759-004	EPA TO-15					
HUCKIAFR033121-2	P2101759-005	EPA TO-15					
HUCKIAF033121-3	P2101759-006	EPA TO-15					
HUCKIAF033121-5	P2101759-007	EPA TO-15					
HUCKIAF033121-6	P2101759-008	EPA TO-15					
TRIP BLANK	P2101759-009	EPA TO-15					

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY
VOLATILE (VOA)
ANALYSES

Laboratory Sample ID	Matrix	Date Collected	Date Rec'd at Lab	Date Extracted	Date Analyzed
P2101759-001	Air	3/31/2021	4/6/21	NA	4/8/21
P2101759-002	Air	3/31/2021	4/621	NA	4/8/21
P2101759-003	Air	3/31/2021	4/7/21	NA	4/8/21
P2101759-004	Air	3/31/2021	4/622	NA	4/8/21
P2101759-005	Air	3/31/2021	4/8/21	NA	4/8/21
P2101759-006	Air	3/31/2021	4/623	NA	4/8/21
P2101759-007	Air	3/31/2021	4/9/21	NA	4/8/21
P2101759-008	Air	3/31/2021	4/624	NA	4/8/21
P2101759-009	Air	3/31/2021	4/10/21	NA	4/8/21

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

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Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

ALS Project No. R10 1759

Company Name & Address (Reporting Information)	WSP 7000 EAST GENESEE ST BUILDING D 2ND FLOOR FAYETTEVILLE NY
Project Manager	BRIAN SILFER
Phone	315-655-3900
Fax	
Email Address for Result Reporting	BRIAN.SILFER@WSP.COM
Project Name	FEDERAL-MOGUL FORMER HULK MANUFACTURING
Project Number	31401678.0006 02
P.O. # / Billing Information	WSP ENVIRONMENT ACCOUNTS PAYABLE 15530 DULLES TECHNOLOGY DRIVE HERNDON VA 20171
Sampler (Print & Sign)	NATE WINSTN
ALS Contact:	SUE ANDERSON

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	Analysis Method: D-15: TCE/TETRACHLOROETHENE/CIS-1,2-DICHLOROETHENE		Comments e.g. Actual Preservative or specific instructions
HULKAAO33121-1	1	3/31/21	1640	SSL00161	SFL00214	29	5	6L	X		1-WEEK TAT
HULKAAO33121-2	2	"	1641	AS01387	SFL00391	27	4	"	X		
HULKIAF033121-1	3	"	1646	AS00800	SFL00114	>30	5	"	X		
HULKIAF033121-2	4	"	1648	SL02309	SFL0030	>30	4	"	X		
HULKIAFR033121-2	F	"	1648	AS01186	SFL00084	>30	5	"	X		
HULKIAF033121-3	6	"	1650	AL02403	SFL00204	>30	5	"	X		
HULKIAF033121-5	7	"	1654	SL01717	SFF00194	30	5	"	X		
HULKIAF033121-6	8	"	1638	SSL00237	SLF00237	27	4	"	X		
TRIP BLANK	9	—	—		—	—	—	"	X		

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Report Tier Levels - please select
Tier I - Results (Default if not specified) ____ Tier III (Results + QC & Calibration Summaries) ____
Tier II (Results + QC Summaries) ____ Tier IV (Data Validation Package) 10% Surcharge X

EDD required: Yes / No
Type: EQUIS Units: µg/m3

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)
TCE: 0.2 µg/m3
cis-1,2: 0.2 µg/m3
PCE: 1 µg/m3

Relinquished by: (Signature)		Date:	Time:	Received by: (Signature)		Date:	Time:
Relinquished by: (Signature)		Date:	Time:	Received by: (Signature)		4-6-21	1458

Cooler / Blank Temperature ___ °C

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **WSP Group**

Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006 02** ALS Project ID: P2101759

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date(s) Collected: 3/31/21
Analyst: Topacio Zavala Date(s) Received: 4/6/21
Sample Type: 6.0 L Summa Canister(s) Date(s) Analyzed: 4/8/21
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P210408-MB	**99**	**99**	**100**	70-130	
Lab Control Sample	P210408-LCS	**100**	**98**	**106**	70-130	
HUCKAA033121-1	P2101759-001	**96**	**101**	**112**	70-130	
HUCKAA033121-2	P2101759-002	**96**	**99**	**105**	70-130	
HUCKIAF033121-1	P2101759-003	**97**	**100**	**100**	70-130	
HUCKIAF033121-2	P2101759-004	**97**	**101**	**105**	70-130	
HUCKIAFR033121-2	P2101759-005	**97**	**101**	**103**	70-130	
HUCKIAF033121-3	P2101759-006	**98**	**100**	**107**	70-130	
HUCKIAF033121-5	P2101759-007	**98**	**100**	**104**	70-130	
HUCKIAF033121-6	P2101759-008	**94**	**98**	**105**	70-130	
TRIP BLANK	P2101759-009	**95**	**99**	**102**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **WSP Group**
Client Sample ID: **Lab Control Sample** ALS Project ID: P2101759
Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006 02** ALS Sample ID: P210408-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Topacio Zavala Date Analyzed: 4/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.050 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	20.8	**22.1**	**106**	69-123	
79-01-6	Trichloroethene	20.6	**20.6**	**100**	71-119	
127-18-4	Tetrachloroethene	20.6	**20.6**	**100**	72-122	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **WSP Group**

Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006** ALS Project ID: P2101759

Method Blank Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Lab File ID: 04082105.D

Analyst: Topacio Zavala Date Analyzed: 4/8/21

Sample Type: 6.0 L Silonite Canister(s) Time Analyzed: 05:27

Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P210408-LCS	04082106.D	05:59
TRIP BLANK	P2101759-009	04082119.D	14:58
HUCKAA033121-1	P2101759-001	04082120.D	15:30
HUCKAA033121-2	P2101759-002	04082122.D	16:32
HUCKIAF033121-1	P2101759-003	04082123.D	17:04
HUCKIAF033121-2	P2101759-004	04082124.D	17:35
HUCKIAFR033121-2	P2101759-005	04082125.D	18:06
HUCKIAF033121-3	P2101759-006	04082126.D	18:38
HUCKIAF033121-5	P2101759-007	04082127.D	19:09
HUCKIAF033121-6	P2101759-008	04082128.D	19:41

Client: **WSP Group**

Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006.02** ALS Project ID: P2101759

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 04082102.D
Analyst: Topacio Zavala Date Analyzed: 4/8/21
Sample Type: 6.0 L Silonite Canister(s) Time Analyzed: 03:54
Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	13692		9.60	62775		11.56		10174		15.90	
	Upper Limit	19169		9.93	87885		11.89		14244		16.23	
	Lower Limit	8215		9.27	37665		11.23		6104		15.57	
	Client Sample ID											
01	Method Blank	12682		9.62	57547		11.57		9254		15.90	
02	Lab Control Sample	12822		9.61	58741		11.56		9420		15.90	
03	HUCKAA033121-1	15943		9.61	77391		11.56		13313		15.90	
04	HUCKAA033121-2	18713		9.62	86035		11.57		14067		15.90	
05	HUCKIAF033121-1	16914		9.61	81527		11.56		14362	I	15.90	
06	HUCKIAF033121-2	16905		9.61	82116		11.56		14145		15.90	
07	HUCKIAFR033121-2	17526		9.61	83356		11.56		14440	I	15.90	
08	HUCKIAF033121-3	16857		9.61	81071		11.56		13284		15.90	
09	HUCKIAF033121-5	17553		9.61	83614		11.56		14617	I	15.90	
10	HUCKIAF033121-6	18486		9.62	86773		11.57		14031		15.90	
11	TRIP BLANK	14125		9.62	66487		11.57		10703		15.90	
12												
13												
14												
15												
16												
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

ALS Environmental - Simi Valley
Method Detection Limit (MDL) Study

Analytical Method: EPA TO-15 Scan
Matrix: Air
Instrument(s): MS08, MS09, MS13, MS16
Units: ug/m3
Data Date Range: 11/14/17 - 03/20/18

	Spike Level (ug/m3)	Number of Results (n)	Mean	Mean % Rec.	Std Dev	%RSD	MW	MDL_R (ug/m3)	MDL_R (ppbv)
Propene	0.1659	8	0.1684	101.4796	0.0411	24.3989	42.08	0.13	0.076
Dichlorodifluoromethane	0.3144	8	0.2830	90.0127	0.0290	10.2465	120.90	0.087	0.018
Chloromethane	0.3018	8	0.2810	93.1080	0.0285	10.1301	50.49	0.086	0.042
Freon 114	0.3063	8	0.2660	86.8430	0.0277	10.4222	170.90	0.084	0.012
Vinyl Chloride	0.1651	8	0.1508	91.2972	0.0188	12.4796	62.50	0.057	0.022
1,3-Butadiene	0.3177	8	0.2651	83.4514	0.0291	10.9697	54.09	0.088	0.040
Bromomethane	0.2979	8	0.2589	86.9000	0.0245	9.4675	94.94	0.074	0.019
Chloroethane	0.1619	8	0.1513	93.4103	0.0217	14.3716	64.52	0.066	0.025
Ethanol	0.8434	8	0.7743	91.8054	0.1203	15.5431	46.07	0.37	0.20
Acetonitrile	0.3177	8	0.3016	94.9402	0.0432	14.3181	41.05	0.13	0.077
Acrolein	0.3162	8	0.2734	86.4564	0.0491	17.9597	56.06	0.15	0.065
Acetone	NA (MB)	8	0.4159	NA	0.2379	57.2154	58.08	1.2	0.51
Trichlorofluoromethane	0.1682	8	0.1590	94.5528	0.0267	16.8223	137.40	0.081	0.014
Isopropanol	0.6321	8	0.5943	94.0120	0.0712	11.9784	60.10	0.22	0.090
Acrylonitrile	0.3168	8	0.2550	80.4924	0.0357	13.9926	53.06	0.11	0.051
1,1-Dichloroethene	0.1061	8	0.1045	98.4920	0.0245	23.4010	96.94	0.074	0.019
tert-Butanol	0.6360	8	0.5920	93.0818	0.0502	8.4777	74.12	0.16	0.053
Methylene Chloride	NA (MB)	8	0.0930	NA	0.0186	20.0259	84.94	0.15	0.043
Allyl Chloride	0.1686	8	0.1510	89.5398	0.0237	15.7196	76.53	0.072	0.023
Trichlorotrifluoroethane	0.1685	8	0.1606	95.3377	0.0253	15.7496	187.38	0.076	0.0099
Carbon Disulfide	0.3189	8	0.3373	105.7542	0.0515	15.2812	76.14	0.16	0.051
trans-1,2-Dichloroethene	0.1730	8	0.1524	88.0984	0.0245	16.0713	96.94	0.074	0.019
1,1-Dichloroethane	0.3066	8	0.2759	89.9788	0.0257	9.3314	98.96	0.078	0.019
Methyl tert-Butyl Ether	0.3210	8	0.2894	90.1480	0.0209	7.2392	88.15	0.063	0.017
Vinyl Acetate	1.5843	8	1.1704	73.8733	0.3777	32.2735	86.09	1.2	0.34
2-Butanone	0.3156	8	0.2799	88.6803	0.0362	12.9427	72.11	0.11	0.037
cis-1,2-Dichloroethene	0.1707	8	0.1555	91.0848	0.0249	15.9869	96.94	0.075	0.019
Diisopropyl Ether	0.1065	8	0.1039	97.5352	0.0233	22.4032	102.18	0.070	0.017
Ethyl Acetate	0.6408	8	0.5554	86.6690	0.0930	16.7486	88.11	0.28	0.078
n-Hexane	0.1706	8	0.1750	102.6032	0.0341	19.4789	86.17	0.11	0.031
Chloroform	0.1698	8	0.1585	93.3671	0.0234	14.7346	119.40	0.071	0.015
Tetrahydrofuran	0.3192	8	0.3033	95.0031	0.0222	7.3139	72.11	0.067	0.023
Ethyl tert-Butyl Ether	0.3177	8	0.2834	89.1958	0.0212	7.4881	102.18	0.064	0.015
1,2-Dichloroethane	0.1055	8	0.0993	94.0758	0.0195	19.6095	98.96	0.059	0.015
1,1,1-Trichloroethane	0.3231	8	0.2744	84.9195	0.0220	8.0039	133.40	0.066	0.012
Isopropyl Acetate	0.6339	8	0.5565	87.7899	0.0553	9.9425	102.13	0.17	0.041
1-Butanol	0.3382	8	0.2546	75.2794	0.0446	17.5321	74.12	0.14	0.046
Benzene	0.3171	8	0.2785	87.8272	0.0254	9.1343	78.11	0.077	0.024
Carbon Tetrachloride	0.1696	8	0.1463	86.2323	0.0244	16.7077	153.80	0.074	0.012
Cyclohexane	0.6405	8	0.5643	88.0952	0.0471	8.3508	84.16	0.15	0.044
tert-Amyl Methyl Ether	0.3171	8	0.2843	89.6405	0.0217	7.6217	102.18	0.065	0.016
1,2-Dichloropropane	0.3198	8	0.2866	89.6263	0.0219	7.6550	113.00	0.066	0.014
Bromodichloromethane	0.3201	8	0.2633	82.2399	0.0255	9.6714	163.80	0.077	0.011
Trichloroethene	0.1061	8	0.1088	102.4976	0.0239	21.9578	131.40	0.072	0.013
1,4-Dioxane	0.1063	8	0.0878	82.5494	0.0208	23.7155	88.11	0.063	0.017
Isooctane	0.3180	8	0.2870	90.2516	0.0264	9.1979	114.23	0.080	0.017
Methyl Methacrylate	0.6336	8	0.5145	81.2027	0.0624	12.1269	100.12	0.19	0.046
n-Heptane	0.3195	8	0.2828	88.4977	0.0280	9.9095	100.20	0.085	0.021
cis-1,3-Dichloropropene	0.3360	8	0.2754	81.9568	0.0276	10.0148	111.00	0.083	0.018
4-Methyl-2-Pentanone	0.3177	8	0.2708	85.2219	0.0242	8.9447	100.20	0.073	0.018
trans-1,3-Dichloropropene	0.3201	8	0.2346	73.2974	0.0366	15.5902	111.00	0.11	0.024
1,1,2-Trichloroethane	0.3192	8	0.2798	87.6410	0.0178	6.3651	133.40	0.054	0.0099
Toluene	0.3162	8	0.2891	91.4374	0.0214	7.3868	92.14	0.065	0.017
2-Hexanone	0.3180	8	0.2736	86.0456	0.0219	8.0210	100.16	0.066	0.016
Dibromochloromethane	0.3183	8	0.2563	80.5058	0.0231	9.0246	208.30	0.070	0.0082
1,2-Dibromoethane	0.1702	8	0.1443	84.7333	0.0206	14.2542	187.90	0.062	0.0081
Butyl Acetate	0.1709	8	0.1516	88.7319	0.0242	15.9807	116.16	0.073	0.015
n-Octane	0.1696	8	0.1666	98.2459	0.0397	23.8489	114.23	0.12	0.026
Tetrachloroethene	0.1701	8	0.1575	92.6035	0.0228	14.4943	165.80	0.069	0.010
Chlorobenzene	0.1706	8	0.1624	95.2011	0.0234	14.3903	112.60	0.071	0.015
Ethylbenzene	0.1683	8	0.1584	94.0916	0.0250	15.7761	106.20	0.075	0.017
m- & p-Xylene	0.3397	8	0.3140	92.4399	0.0467	14.8637	106.20	0.14	0.032
Bromoform	0.3189	8	0.2293	71.8877	0.0350	15.2890	252.80	0.11	0.011
Styrene	0.1693	8	0.1423	84.0324	0.0286	20.1331	104.10	0.086	0.020
o-Xylene	0.1688	8	0.1553	91.9727	0.0255	16.4319	106.20	0.077	0.018

n-Nonane	0.3162	8	0.2833	89.5794	0.0294	10.3821	128.26	0.089	0.017
1,1,2,2-Tetrachloroethane	0.1691	8	0.1439	85.0727	0.0246	17.0714	167.90	0.074	0.011
Cumene	0.1683	8	0.1565	92.9777	0.0254	16.2190	120.20	0.077	0.016
alpha-Pinene	0.1674	8	0.1505	89.9259	0.0271	17.9876	136.24	0.082	0.015
n-Propylbenzene	0.1702	8	0.1554	91.2682	0.0256	16.4697	120.19	0.077	0.016
3-Ethyltoluene	0.1680	8	0.1544	91.8899	0.0237	15.3835	120.20	0.072	0.015
4-Ethyltoluene	0.3147	8	0.2720	86.4315	0.0282	10.3596	120.20	0.085	0.017
1,3,5-Trimethylbenzene	0.1678	8	0.1541	91.8285	0.0257	16.6521	120.20	0.077	0.016
alpha-Methylstyrene	0.1678	8	0.1346	80.2103	0.0282	20.9832	118.19	0.085	0.018
2-Ethyltoluene	0.1696	8	0.1563	92.1285	0.0226	14.4401	120.20	0.068	0.014
1,2,4-Trimethylbenzene	0.1682	8	0.1545	91.8768	0.0246	15.9071	120.20	0.074	0.015
n-Decane	0.1694	8	0.1566	92.4369	0.0240	15.3306	142.28	0.072	0.012
Benzyl Chloride	0.3222	8	0.1845	57.2626	0.0400	21.6860	126.59	0.12	0.023
1,3-Dichlorobenzene	0.1714	8	0.1545	90.1611	0.0267	17.2638	147.00	0.080	0.013
1,4-Dichlorobenzene	0.1702	8	0.1546	90.8277	0.0271	17.4973	147.00	0.082	0.014
sec-Butylbenzene	0.1688	8	0.1568	92.8614	0.0240	15.3328	134.22	0.073	0.013
p-Isopropyltoluene	0.1642	8	0.1514	92.2119	0.0269	17.7680	134.22	0.081	0.015
1,2,3-Trimethylbenzene	0.1642	8	0.1481	90.2321	0.0241	16.2524	120.19	0.073	0.015
1,2-Dichlorobenzene	0.1733	8	0.1550	89.4506	0.0262	16.9189	147.00	0.079	0.013
d-Limonene	0.1005	8	0.0905	90.0498	0.0345	38.0992	136.24	0.11	0.020
1,2-Dibromo-3-Chloropropane	0.3153	8	0.2146	68.0701	0.0332	15.4650	236.33	0.10	0.010
n-Undecane	0.1685	8	0.1431	84.9507	0.0437	30.5431	156.31	0.14	0.022
1,2,4-Trichlorobenzene	0.3291	8	0.2576	78.2817	0.0426	16.5412	181.50	0.13	0.018
Naphthalene	0.1690	8	0.1259	74.4999	0.0431	34.2029	128.17	0.13	0.025
n-Dodecane	0.1690	8	0.1171	69.3211	0.0494	42.2196	170.34	0.15	0.022
Hexachloro-1,3-butadiene	0.3171	8	0.2688	84.7524	0.0352	13.1114	260.80	0.11	0.010
Cyclohexanone	0.3117	8	0.2625	84.2156	0.0274	10.4566	98.14	0.083	0.021
tert-Butylbenzene	0.3150	8	0.2748	87.2222	0.0265	9.6429	134.22	0.080	0.015
n-Butylbenzene	0.1686	8	0.1515	89.8363	0.0254	16.7543	134.22	0.077	0.014

Note: Method blanks evaluated per 2016 EPA MUR which ammended the MDL procedure in 40 CFR Appendix B. Any compounds with the spike level indicated as "NA (MB)" had a method blank MDL value higher than the calculated spike sample MDL.

ALS Environmental

MDLs for TO-15 (SCAN)

	06/25/12	01/20/12	05/07/12	05/07/12	05/14/12					FINAL	
	MS3	MS08	MS09	MS13	MS16	MAX			MW	MDL_R	MDL_R
COMPOUND	MDL_R	MDL_R	MDL_R	MDL_R	MDL_R	MDL_R	µg/m³	ppbV		µg/m³	ppbV
Chloropentafluoroethane	0.058	0.140	0.054	0.160	0.230	0.230	0.23	0.036420	154.47	**0.23**	**0.036**
Norfluorane (R134a)	0.100	0.140	0.055	0.150	0.230	0.230	0.23	0.055139	102.03	**0.23**	**0.055**
1,1-Difluoroethane	0.063	0.140	0.098	0.170	0.260	0.260	0.26	0.096285	66.05	**0.26**	**0.096**
Chlorodifluoromethane	0.180	0.160	0.091	0.200	0.250	0.250	0.25	0.070718	86.47	**0.25**	**0.071**
1-Chloro-1,1-Difluoroethane	0.140	0.130	0.068	0.150	0.230	0.230	0.23	0.055978	100.5	**0.23**	**0.056**
Fluorodichloromethane	0.110	0.140	0.063	0.140	0.240	0.240	0.24	0.057038	102.92	**0.24**	**0.057**
Vinylbromide	0.078	0.120	0.052	0.160	0.210	0.210	0.21	0.048028	106.95	**0.21**	**0.048**
2,2-Dichloro-1,1,1-trifluoroethane	0.072	0.130	0.060	0.160	0.240	0.240	0.24	0.038386	152.93	**0.24**	**0.038**
2-Methylbutane	0.140	0.140	0.110	0.190	0.260	0.260	0.26	0.088144	72.15	**0.26**	**0.088**
Methyl Acetate	0.099	0.110	0.120	0.160	0.240	0.240	0.24	0.079244	74.08	**0.24**	**0.079**
2-Methylpentane	0.062	0.140	0.066	0.130	0.240	0.240	0.24	0.068118	86.18	**0.24**	**0.068**
2,2-Dichloropropane	0.061	0.140	0.130	0.140	0.110	0.140	0.14	0.030307	112.99	**0.14**	**0.030**
1,1-Dichloropropene	0.077	0.120	0.049	0.120	0.240	0.240	0.24	0.051955	112.99	**0.24**	**0.052**
Thiophene	0.087	0.110	0.065	0.110	0.220	0.220	0.22	0.063955	84.14	**0.22**	**0.064**
2,3-Dimethylpentane	0.083	0.130	0.063	0.130	0.240	0.240	0.24	0.058587	100.2	**0.24**	**0.059**
Dibromomethane	0.054	0.092	0.032	0.140	0.200	0.200	0.20	0.028142	173.83	**0.20**	**0.028**
Methylcyclohexane	0.092	0.120	0.053	0.150	0.260	0.260	0.26	0.064768	98.19	**0.26**	**0.065**
1,3-Dichloropropane	0.061	0.120	0.081	0.140	0.260	0.260	0.26	0.056285	112.99	**0.26**	**0.056**
1,1,1,2-Tetrachloroethane	0.055	0.120	0.065	0.130	0.230	0.230	0.23	0.033517	167.85	**0.23**	**0.034**
1-Chlorohexane	0.090	0.110	0.056	0.180	0.250	0.250	0.25	0.050696	120.62	**0.25**	**0.051**
1,2,3-Trichloropropane	0.081	0.092	0.078	0.130	0.250	0.250	0.25	0.041477	147.43	**0.25**	**0.041**
Bromobenzene	0.059	0.130	0.076	0.140	0.250	0.250	0.25	0.038947	157.01	**0.25**	**0.039**
2-Chlorotoluene	0.070	0.110	0.065	0.130	0.260	0.260	0.26	0.050238	126.59	**0.26**	**0.050**
4-Chlorotoluene	0.059	0.140	0.067	0.140	0.260	0.260	0.26	0.050238	126.59	**0.26**	**0.050**
Indane	0.063	0.110	0.056	0.140	0.240	0.240	0.24	0.049673	118.18	**0.24**	**0.050**
Indene	0.066	0.130	0.070	0.180	0.200	0.200	0.20	0.042114	116.16	**0.20**	**0.042**
1,2,4,5-Tetramethylbenzene	0.073	0.091	0.053	0.190	0.220	0.220	0.22	0.040092	134.22	**0.22**	**0.040**
1,2,3,4-Tetramethylbenzene	0.075	0.086	0.056	0.180	0.250	0.250	0.25	0.045560	134.22	**0.25**	**0.046**
1,2,3,5-Tetramethylbenzene	0.075	0.078	0.063	0.200	0.240	0.240	0.24	0.043737	134.22	**0.24**	**0.044**
1,2,3-Trichlorobenzene	0.066	0.160	0.096	0.270	0.250	0.270	0.27	0.036397	181.45	**0.27**	**0.036**

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP Group**
Client Sample ID: **HUCKAA033121-1** ALS Project ID: P2101759
Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006 02** ALS Sample ID: P2101759-001

Test Code: EPA TO-15 SIM Date Collected: 3/31/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 4/6/21
Analyst: Topacio Zavala Date Analyzed: 4/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SSC00161
Initial Pressure (psig): -2.01 Final Pressure (psig): 3.81

Container Dilution Factor: 1.46

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.16	0.013	ND	0.041	0.0034	
79-01-6	Trichloroethene	ND	0.16	0.012	ND	0.030	0.0023	
127-18-4	Tetrachloroethene	**0.13**	0.15	0.012	**0.020**	0.022	0.0018	**J**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082120.D Vial: 2
Acq On : 8 Apr 2021 15:30 Operator: TZ
Sample : P2101759-001 (1000mL) Inst : MS19
Misc : S34-01272101

TZ 4/9/21

Quant Time: Apr 09 10:41:46 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	15943	1000.000 pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.56	114	77391	1000.000 pg	-0.01
38) Chlorobenzene-d5 (IS3)	15.90	54	13313	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.39	65	23001	954.068 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.41%		
33) Toluene-d8 (SS2)	14.00	98	85165	1007.538 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.75%		
45) Bromofluorobenzene (SS3)	17.42	174	29861	1122.583 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 112.26%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.30	85	51995	1409.569 pg	100
3) Chloromethane	4.51	52	1098	162.400 pg	97
4) 1,2-Dichloro,1,1,2,2-t...	4.68	85	3522	73.935 pg	99
5) Vinyl Chloride	4.80	62	242	N.D.	
6) 1,3-Butadiene	4.99	54	1503	88.889 pg	93
7) Bromomethane	5.31	94	317	N.D.	
8) Chloroethane	5.54	64	953	99.272 pg	86
9) Acrolein	6.13	56	1408	181.211 pg	97
10) Acetone	6.25	58	302155	29035.049 pg	98
11) Trichlorofluoromethane	6.45	101	21669	735.019 pg	100
12) 1,1-Dichloroethene	0.00	96	0	N.D.	
13) Methylene Chloride	7.33	84	3750	204.976 pg	99
14) Trichlorotrifluoroethane	7.65	151	4228	300.248 pg	100
15) trans-1,2-Dichloroethene	8.36	96	133	N.D.	
16) 1,1-Dichloroethane	8.57	63	177	N.D.	
17) Methyl tert-Butyl Ether	8.58	73	66	N.D.	
18) cis-1,2-Dichloroethene	9.45	96	58	N.D.	
19) Chloroform	9.75	83	1746	54.558 pg	96
21) 1,2-Dichloroethane	10.50	62	1033	N.D.	
22) 1,1,1-Trichloroethane	10.77	97	201	N.D.	
23) Benzene	11.22	78	1845665	25388.777 pg	100
24) Carbon Tetrachloride	11.37	117	6230	274.650 pg	99
26) 1,2-Dichloropropane	12.03	63	246	N.D.	
27) Bromodichloromethane	12.23	83	488	N.D.	
28) Trichloroethene	12.27	130	265	N.D.	
29) 1,4-Dioxane	12.23	88	73923	4158.315 pg	99
30) cis-1,3-Dichloropropene	13.11	75	62	N.D.	
31) trans-1,3-Dichloropropene	13.59	75	332	N.D.	
32) 1,1,2-Trichloroethane	0.00	83	0	N.D. d	
34) Toluene	14.10	91	6228090	73155.667 pg	98
35) Dibromochloromethane	14.51	129	78	N.D.	
36) 1,2-Dibromoethane	14.77	107	51	N.D.	
37) Tetrachloroethene	15.25	166	2057	92.247 pg	99
39) Chlorobenzene	15.97	112	659	N.D.	
40) Ethylbenzene	16.34	91	860560	9358.123 pg	99
41) m,p-Xylene	16.51	91	2766202	39307.778 pg	99
42) Styrene	16.87	104	144827	2907.046 pg	100
43) o-Xylene	16.98	106	693039	19672.986 pg	98
44) 1,1,2,2-Tetrachloroethane	16.98	83	273	N.D.	
46) 1,3,5-Trimethylbenzene	18.25	105	116730	1560.609 pg	99
47) 1,2,4-Trimethylbenzene	18.65	105	540815	6855.347 pg	89
48) 1,3-Dichlorobenzene	18.79	146	116	N.D.	
49) 1,4-Dichlorobenzene	18.86	146	565	N.D.	
50) 1,2-Dichlorobenzene	19.18	146	145	N.D.	
51) 1,2-Dibromo-3-chloropr...	19.60	157	66	N.D.	
52) 1,2,4-Trichlorobenzene	20.81	182	128	N.D.	
53) Naphthalene	20.92	128	6372068	64880.625 pg	97

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082120.D Vial: 2
Acq On : 8 Apr 2021 15:30 Operator: TZ
Sample : P2101759-001 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 10:41:46 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

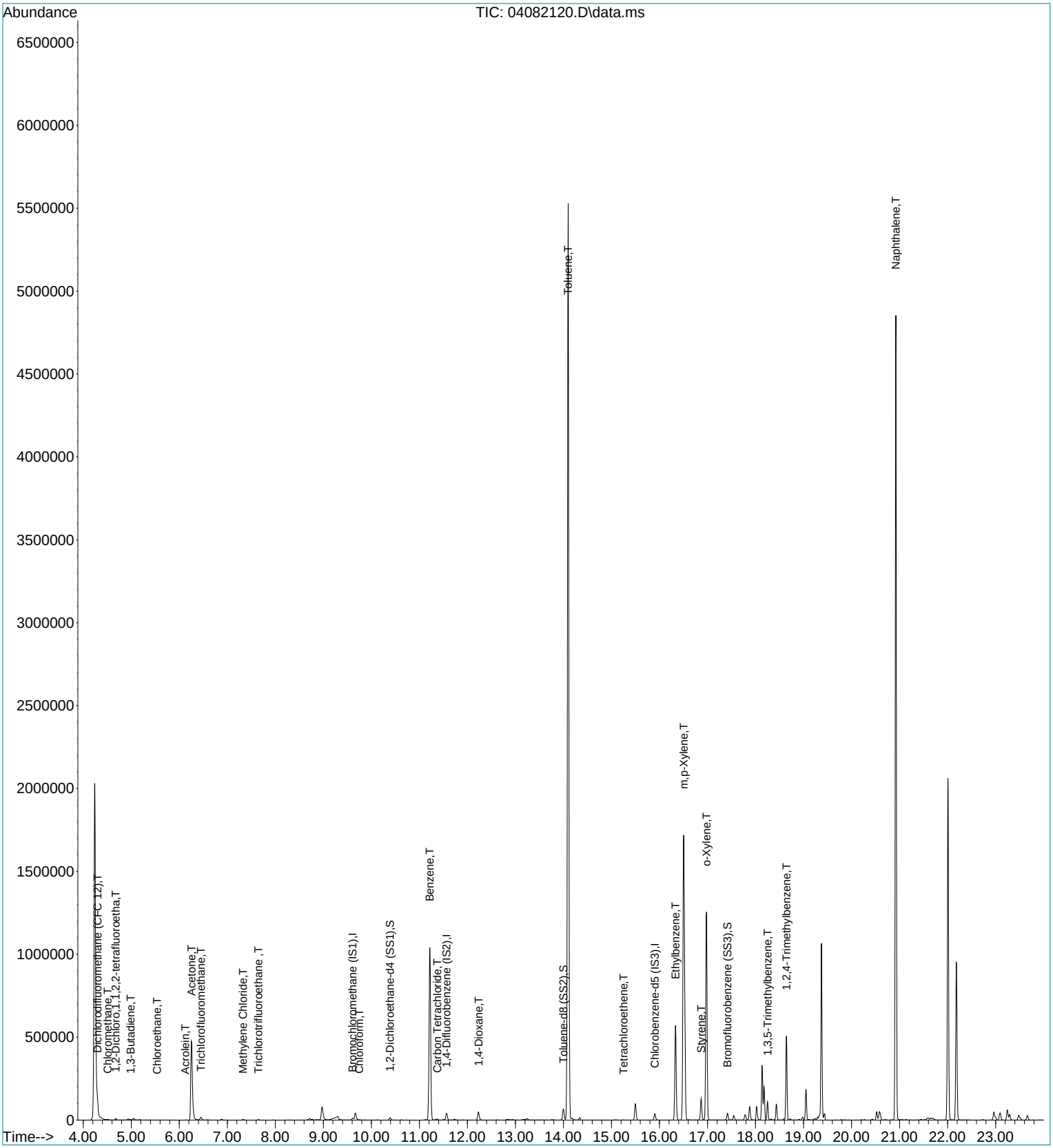
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.27	225	55	N.D.		

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082120.D Vial: 2
Acq On : 8 Apr 2021 15:30 Operator: TZ
Sample : P2101759-001 (1000mL) Inst : MS19
Misc : S34-01272101

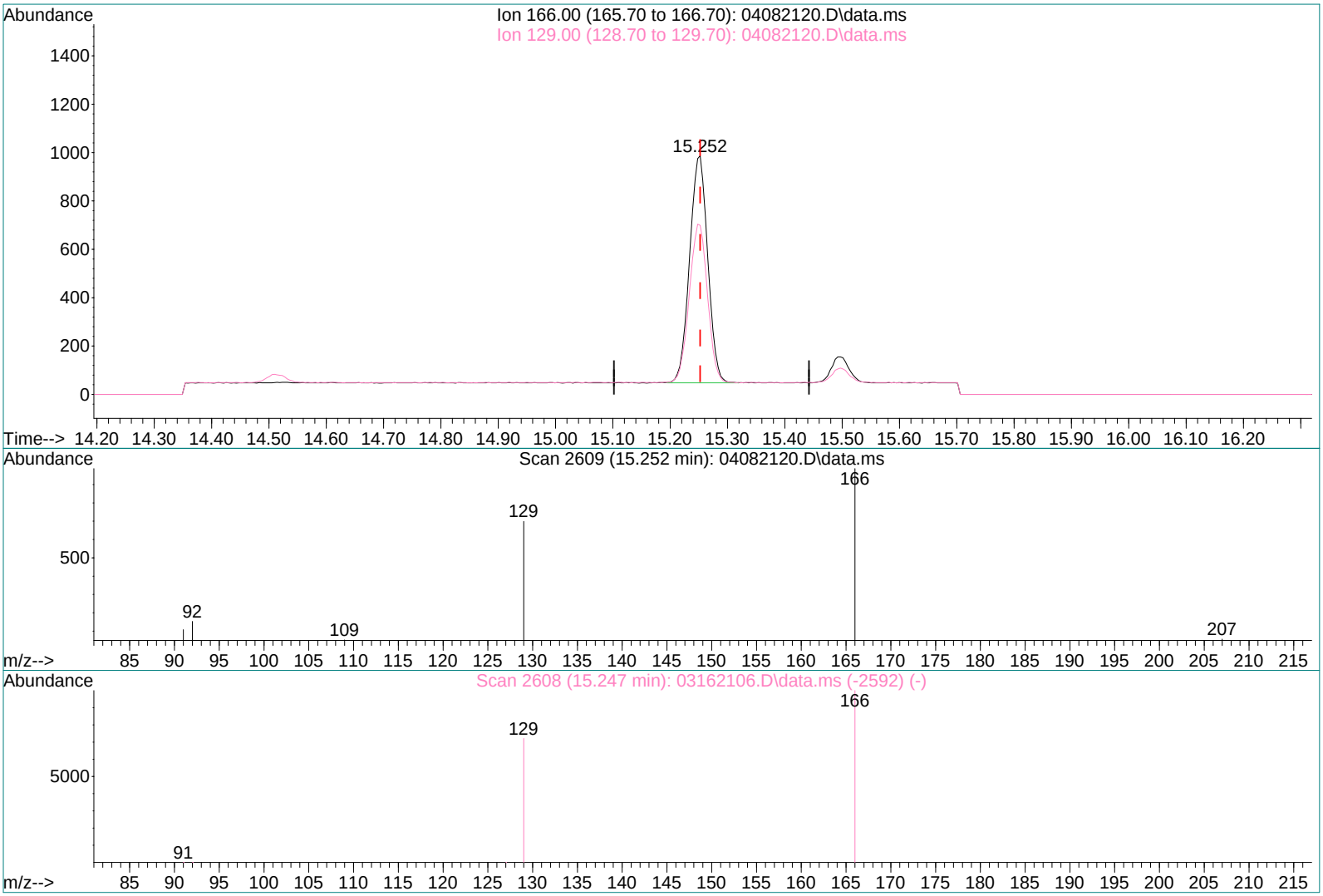
Quant Time: Apr 09 10:41:46 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082120.D Vial: 2
Acq On : 8 Apr 2021 15:30 Operator: TZ
Sample : P2101759-001 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:41 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 04082120.D\data.ms

(37) Tetrachloroethene (T)

15.252min (+0.000) 92.25pg

response 2057

Ion	Exp%	Act%
166.00	100	100
129.00	71.50	70.78
0.00	0.00	0.00
0.00	0.00	0.00

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP Group**
Client Sample ID: **HUCKAA033121-2** ALS Project ID: P2101759
Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006 02** ALS Sample ID: P2101759-002

Test Code: EPA TO-15 SIM Date Collected: 3/31/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 4/6/21
Analyst: Topacio Zavala Date Analyzed: 4/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01327

Initial Pressure (psig): -0.63 Final Pressure (psig): 3.66

Container Dilution Factor: 1.30

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.14	0.012	ND	0.036	0.0030	
79-01-6	Trichloroethene	ND	0.14	0.011	ND	0.027	0.0021	
127-18-4	Tetrachloroethene	**0.26**	0.13	0.011	**0.039**	0.019	0.0016	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082122.D Vial: 3
Acq On : 8 Apr 2021 16:32 Operator: TZ
Sample : P2101759-002 (1000mL) Inst : MS19
Misc : S34-01272101

TZ 4/9/21

Quant Time: Apr 09 08:02:43 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18713	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.57	114	86035	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	15.90	54	14067	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.39	65	27047	955.825	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.58%				
33) Toluene-d8 (SS2)	14.00	98	92608	985.517	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.55%				
45) Bromofluorobenzene (SS3)	17.41	174	29372	1045.014	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.50%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.29	85	69785	1611.809	pg		100
3) Chloromethane	4.52	52	1239	156.129	pg		97
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	4820	86.205	pg		98
5) Vinyl Chloride	4.82	62	154	N.D.			
6) 1,3-Butadiene	5.00	54	602	N.D.			
7) Bromomethane	5.32	94	352	N.D.			
8) Chloroethane	5.55	64	1253	111.202	pg		96
9) Acrolein	6.13	56	2672	292.984	pg		98
10) Acetone	6.26	58	61139	5005.388	pg	#	81
11) Trichlorofluoromethane	6.45	101	28346	819.178	pg		100
12) 1,1-Dichloroethene	7.19	96	53	N.D.			
13) Methylene Chloride	7.33	84	5400	251.474	pg		98
14) Trichlorotrifluoroethane	7.65	151	5382	325.623	pg		100
15) trans-1,2-Dichloroethene	8.37	96	194	N.D.			
16) 1,1-Dichloroethane	8.57	63	218	N.D.			
17) Methyl tert-Butyl Ether	8.66	73	167	N.D.			
18) cis-1,2-Dichloroethene	9.45	96	131	N.D.			
19) Chloroform	9.76	83	4353	115.886	pg		99
21) 1,2-Dichloroethane	10.51	62	1393	51.350	pg		99
22) 1,1,1-Trichloroethane	10.76	97	306	N.D.			
23) Benzene	11.22	78	47223	553.438	pg		100
24) Carbon Tetrachloride	11.38	117	7449	279.780	pg		100
26) 1,2-Dichloropropane	12.03	63	411	N.D.			
27) Bromodichloromethane	12.22	83	390	N.D.			
28) Trichloroethene	12.27	130	459	N.D.			
29) 1,4-Dioxane	12.25	88	528	N.D.			
30) cis-1,3-Dichloropropene	13.11	75	72	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	13.80	83	102	N.D.			
34) Toluene	14.10	91	205731	2173.743	pg		100
35) Dibromochloromethane	14.51	129	95	N.D.			
36) 1,2-Dibromoethane	14.77	107	50	N.D.			
37) Tetrachloroethene	15.25	166	5045	203.514	pg		100
39) Chlorobenzene	15.95	112	947	N.D.			
40) Ethylbenzene	16.34	91	30062	309.385	pg		99
41) m,p-Xylene	16.50	91	53622	721.127	pg		100
42) Styrene	16.87	104	4815	91.469	pg		99
43) o-Xylene	16.98	106	9739	261.638	pg		95
44) 1,1,2,2-Tetrachloroethane	16.97	83	164	N.D.			
46) 1,3,5-Trimethylbenzene	18.25	105	3193	N.D.			
47) 1,2,4-Trimethylbenzene	18.64	105	12036	144.390	pg		88
48) 1,3-Dichlorobenzene	18.80	146	112	N.D.			
49) 1,4-Dichlorobenzene	18.86	146	854	N.D.			
50) 1,2-Dichlorobenzene	19.19	146	156	N.D.			
51) 1,2-Dibromo-3-chloropr...	19.60	157	73	N.D.			
52) 1,2,4-Trichlorobenzene	20.81	182	129	N.D.			
53) Naphthalene	20.92	128	19348	186.443	pg		100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082122.D Vial: 3
Acq On : 8 Apr 2021 16:32 Operator: TZ
Sample : P2101759-002 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:43 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

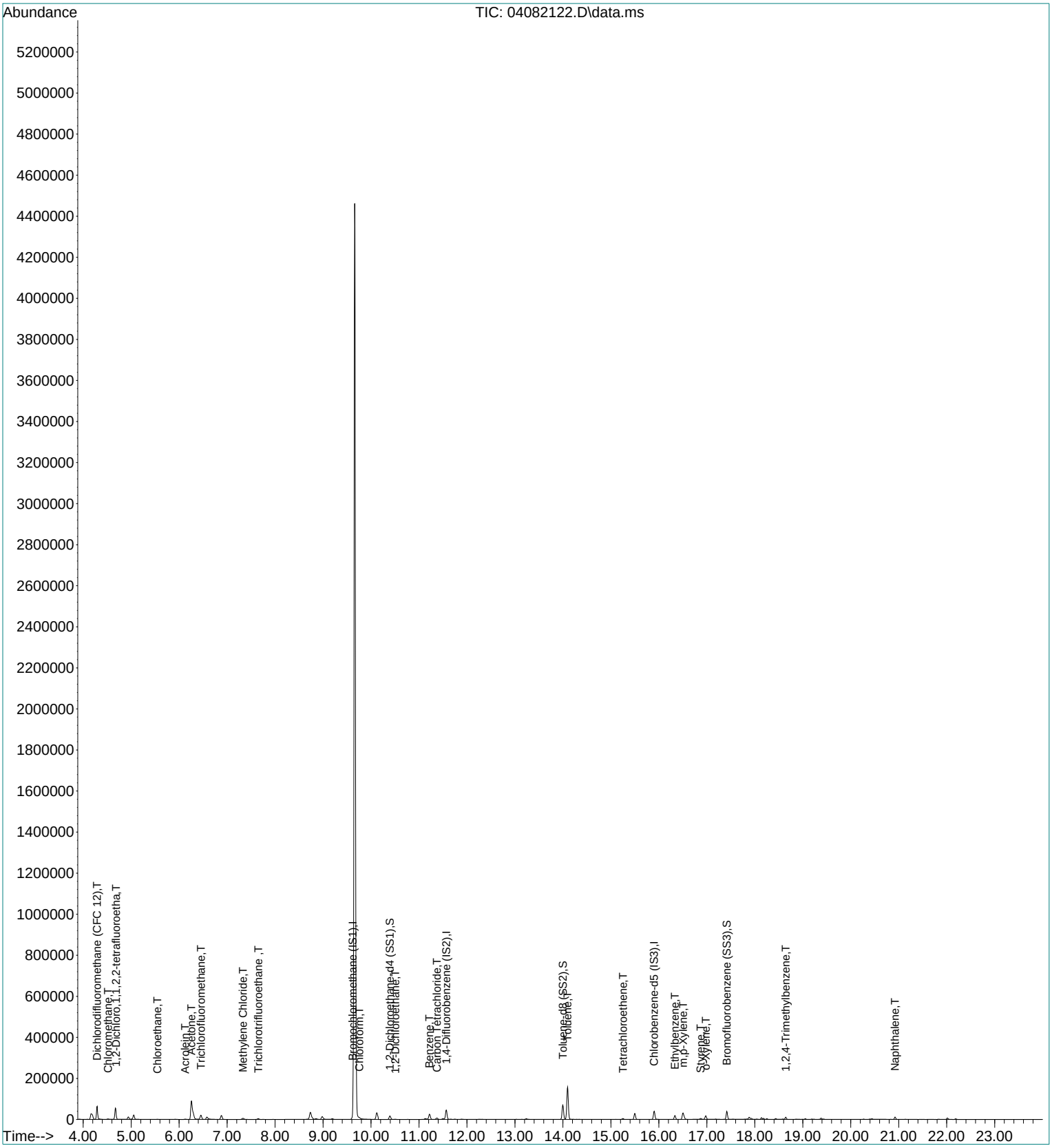
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.27	225	61	N.D.		

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082122.D Vial: 3
Acq On : 8 Apr 2021 16:32 Operator: TZ
Sample : P2101759-002 (1000mL) Inst : MS19
Misc : S34-01272101

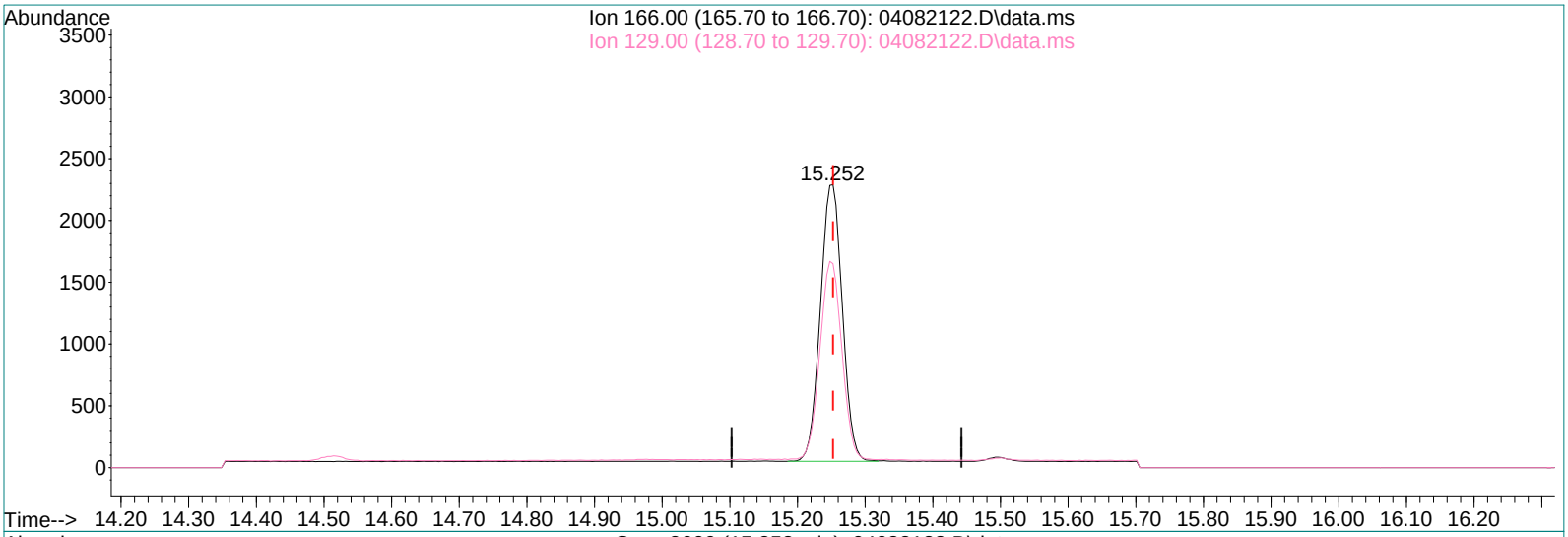
Quant Time: Apr 09 08:02:43 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

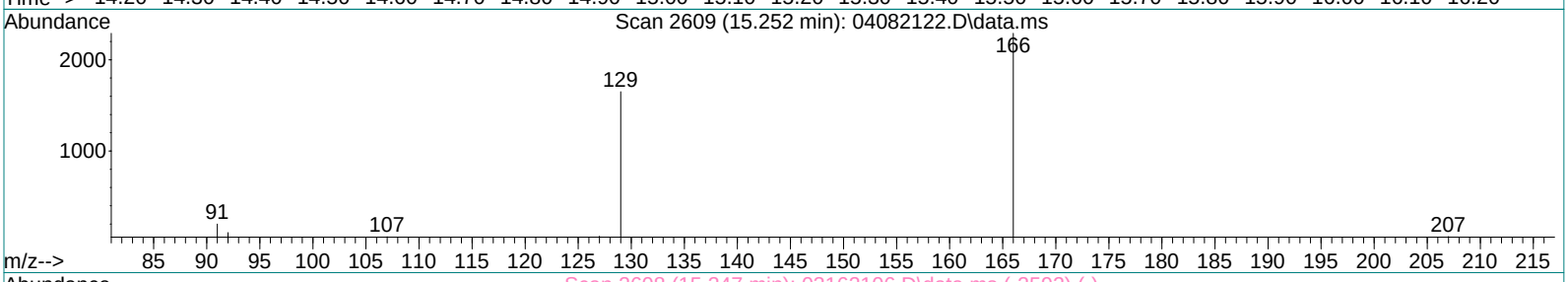


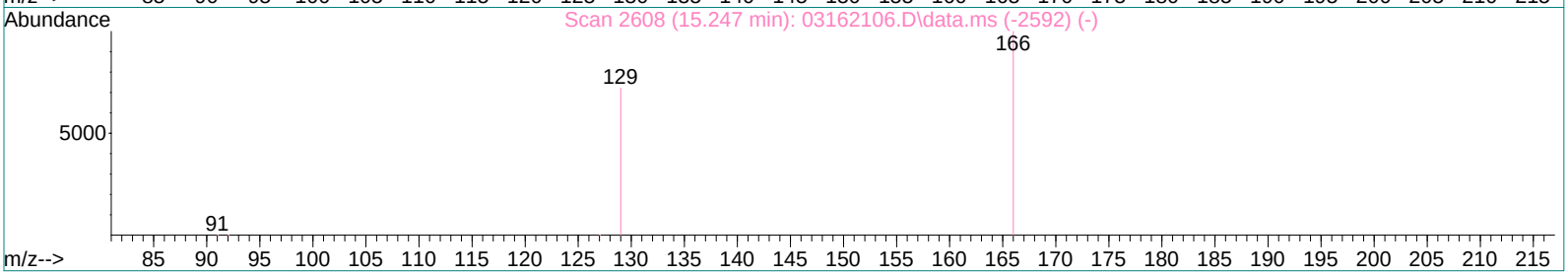
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082122.D Vial: 3
Acq On : 8 Apr 2021 16:32 Operator: TZ
Sample : P2101759-002 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:43 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 04082122.D\data.ms

(37) Tetrachloroethene (T)

15.252min (-0.000) 203.51pg

response 5045

Ion	Exp%	Act%
166.00	100	100
129.00	71.50	71.40
0.00	0.00	0.00
0.00	0.00	0.00

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP Group**
Client Sample ID: **HUCKIAF033121-1** ALS Project ID: P2101759
Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006 02** ALS Sample ID: P2101759-003

Test Code: EPA TO-15 SIM Date Collected: 3/31/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 4/6/21
Analyst: Topacio Zavala Date Analyzed: 4/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00800
Initial Pressure (psig): -1.25 Final Pressure (psig): 3.71

Container Dilution Factor: 1.37

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**0.091**	0.15	0.013	**0.023**	0.038	0.0032	**J**
79-01-6	Trichloroethene	**2.7**	0.15	0.012	**0.51**	0.028	0.0022	
127-18-4	Tetrachloroethene	**0.93**	0.14	0.011	**0.14**	0.020	0.0017	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082123.D Vial: 4
Acq On : 8 Apr 2021 17:04 Operator: TZ
Sample : P2101759-003 (1000mL) Inst : MS19
Misc : S34-01272101

TZ 4/9/21

Quant Time: Apr 09 08:02:44 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	16914	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.56	114	81527	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.90	54	14362	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.39	65	24652	963.848	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.39%			
33) Toluene-d8 (SS2)	14.00	98	88781	997.033	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.70%			
45) Bromofluorobenzene (SS3)	17.42	174	28782	1002.989	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.30%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.29	85	63431	1620.877	pg	100
3) Chloromethane	4.52	52	1109	154.611	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	4722	93.435	pg	99
5) Vinyl Chloride	4.82	62	578	N.D.		
6) 1,3-Butadiene	5.00	54	686	N.D.		
7) Bromomethane	5.32	94	319	N.D.		
8) Chloroethane	5.54	64	260	N.D.		
9) Acrolein	6.12	56	5149	624.636	pg	100
10) Acetone	6.25	58	144734	13109.528	pg	90
11) Trichlorofluoromethane	6.45	101	27600	882.455	pg	100
12) 1,1-Dichloroethene	7.18	96	141	N.D.		
13) Methylene Chloride	7.32	84	9898	509.969	pg	97
14) Trichlorotrifluoroethane	7.65	151	5034	336.963	pg	100
15) trans-1,2-Dichloroethene	8.36	96	330	N.D.		
16) 1,1-Dichloroethane	8.57	63	233	N.D.		
17) Methyl tert-Butyl Ether	8.58	73	527	N.D.		
18) cis-1,2-Dichloroethene	9.45	96	1348	66.308	pg	99
19) Chloroform	9.74	83	8316	244.937	pg	99
21) 1,2-Dichloroethane	10.50	62	5451	222.310	pg	100
22) 1,1,1-Trichloroethane	10.76	97	2343	82.709	pg	100
23) Benzene	11.22	78	45077	584.477	pg	99
24) Carbon Tetrachloride	11.37	117	6617	274.965	pg	100
26) 1,2-Dichloropropane	12.03	63	399	N.D.		
27) Bromodichloromethane	12.15	83	1052	N.D.		
28) Trichloroethene	12.27	130	47658	2004.313	pg	99
29) 1,4-Dioxane	12.26	88	254	N.D.		
30) cis-1,3-Dichloropropene	13.11	75	57	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	13.77	83	266	N.D.		
34) Toluene	14.10	91	571675	6374.282	pg	100
35) Dibromochloromethane	14.51	129	79	N.D.		
36) 1,2-Dibromoethane	14.77	107	56	N.D.		
37) Tetrachloroethene	15.25	166	15955	679.209	pg	100
39) Chlorobenzene	15.89	112	690	N.D.		
40) Ethylbenzene	16.34	91	66527	670.605	pg	100
41) m,p-Xylene	16.50	91	160215	2110.371	pg	100
42) Styrene	16.87	104	10070	187.367	pg	99
43) o-Xylene	16.98	106	30660	806.763	pg	98
44) 1,1,2,2-Tetrachloroethane	16.98	83	308	N.D.		
46) 1,3,5-Trimethylbenzene	18.25	105	26181	324.458	pg	99
47) 1,2,4-Trimethylbenzene	18.65	105	89224	1048.391	pg	89
48) 1,3-Dichlorobenzene	18.79	146	124	N.D.		
49) 1,4-Dichlorobenzene	18.85	146	144740	2852.762	pg	99
50) 1,2-Dichlorobenzene	19.19	146	362	N.D.		
51) 1,2-Dibromo-3-chloropr...	19.60	157	51	N.D.		
52) 1,2,4-Trichlorobenzene	20.82	182	195	N.D.		
53) Naphthalene	20.92	128	51913	489.973	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082123.D Vial: 4
Acq On : 8 Apr 2021 17:04 Operator: TZ
Sample : P2101759-003 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:44 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

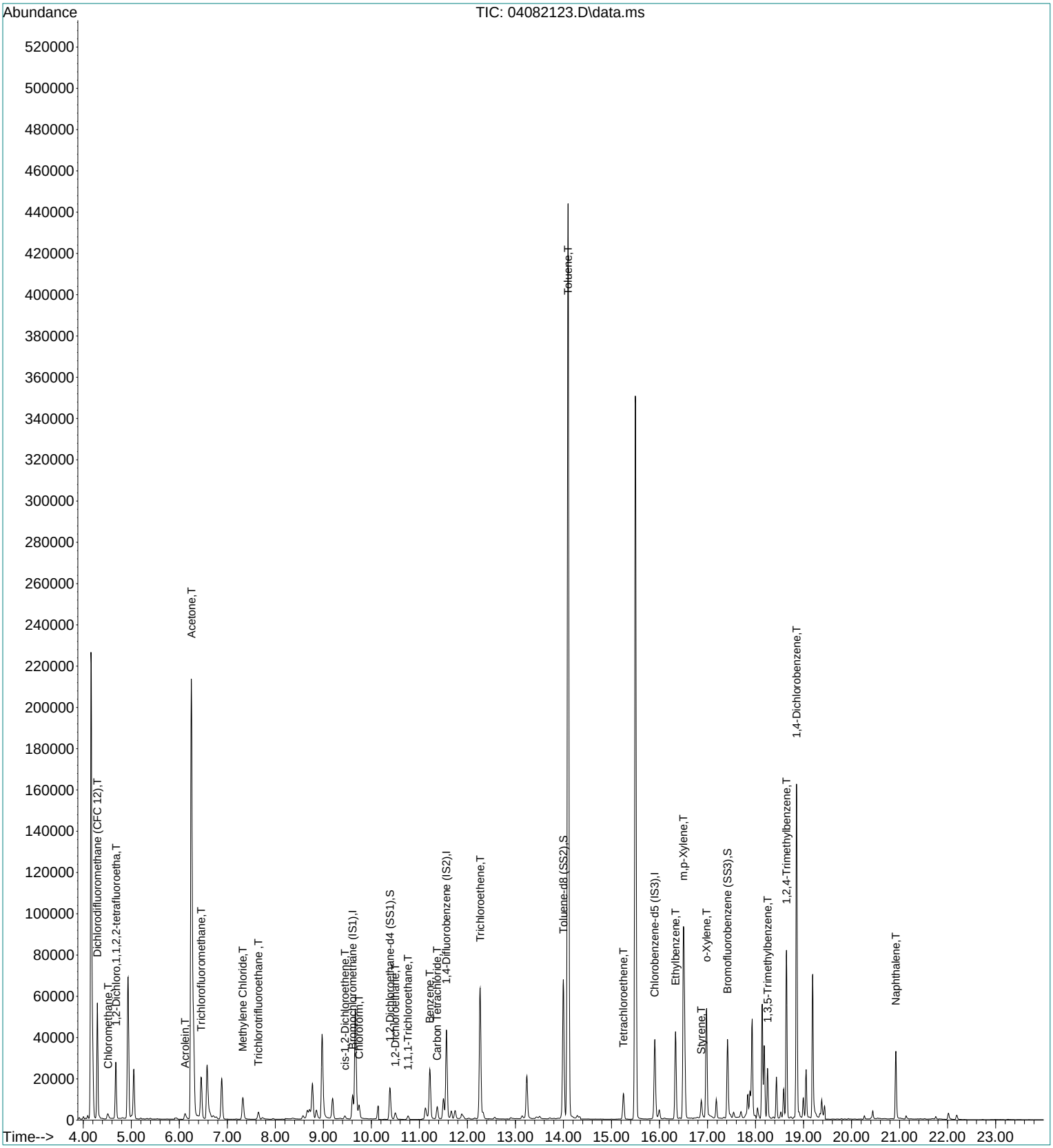
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.26	225	57	N.D.		

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082123.D Vial: 4
Acq On : 8 Apr 2021 17:04 Operator: TZ
Sample : P2101759-003 (1000mL) Inst : MS19
Misc : S34-01272101

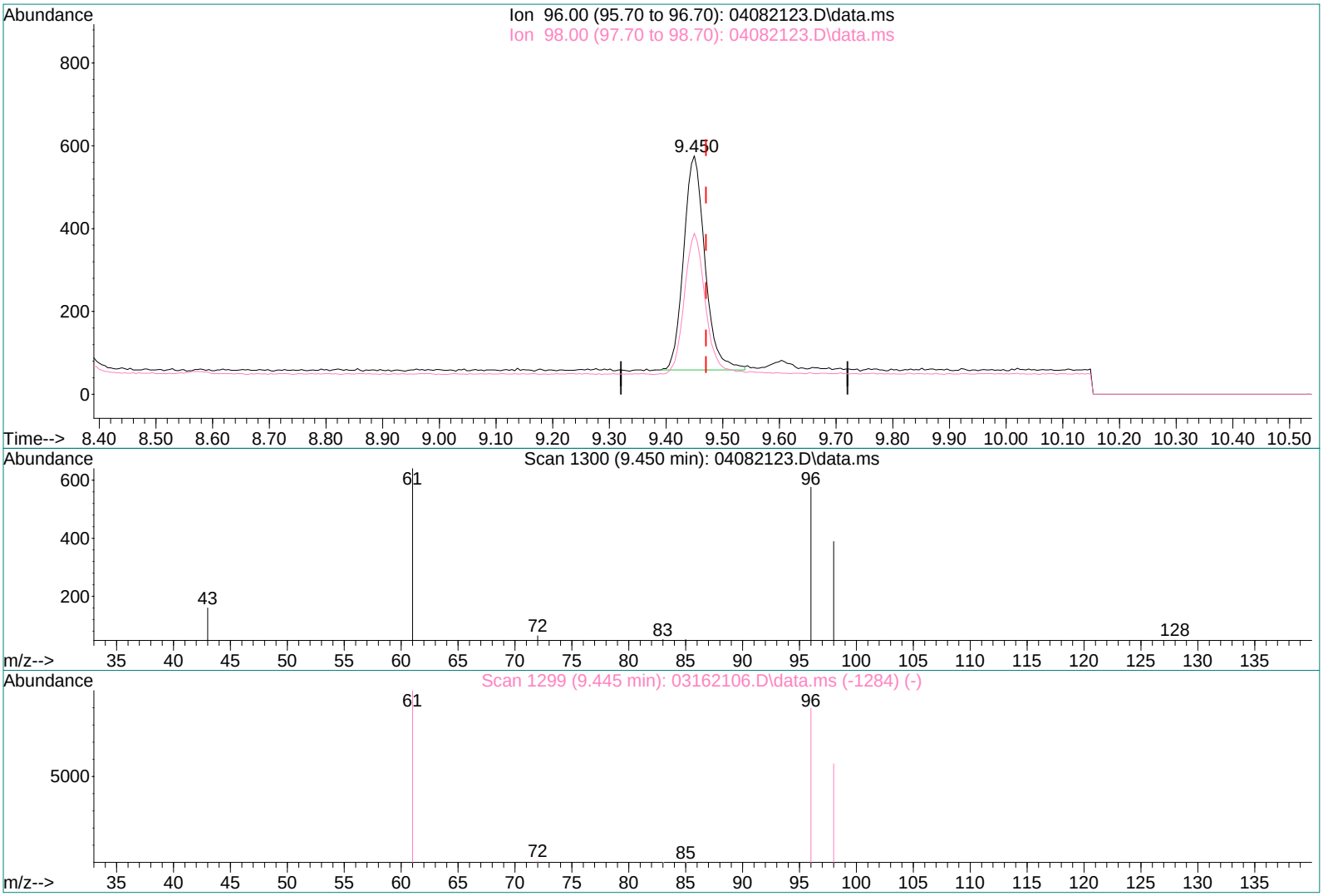
Quant Time: Apr 09 08:02:44 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082123.D Vial: 4
Acq On : 8 Apr 2021 17:04 Operator: TZ
Sample : P2101759-003 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:44 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 04082123.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.450min (-0.021) 66.31pg

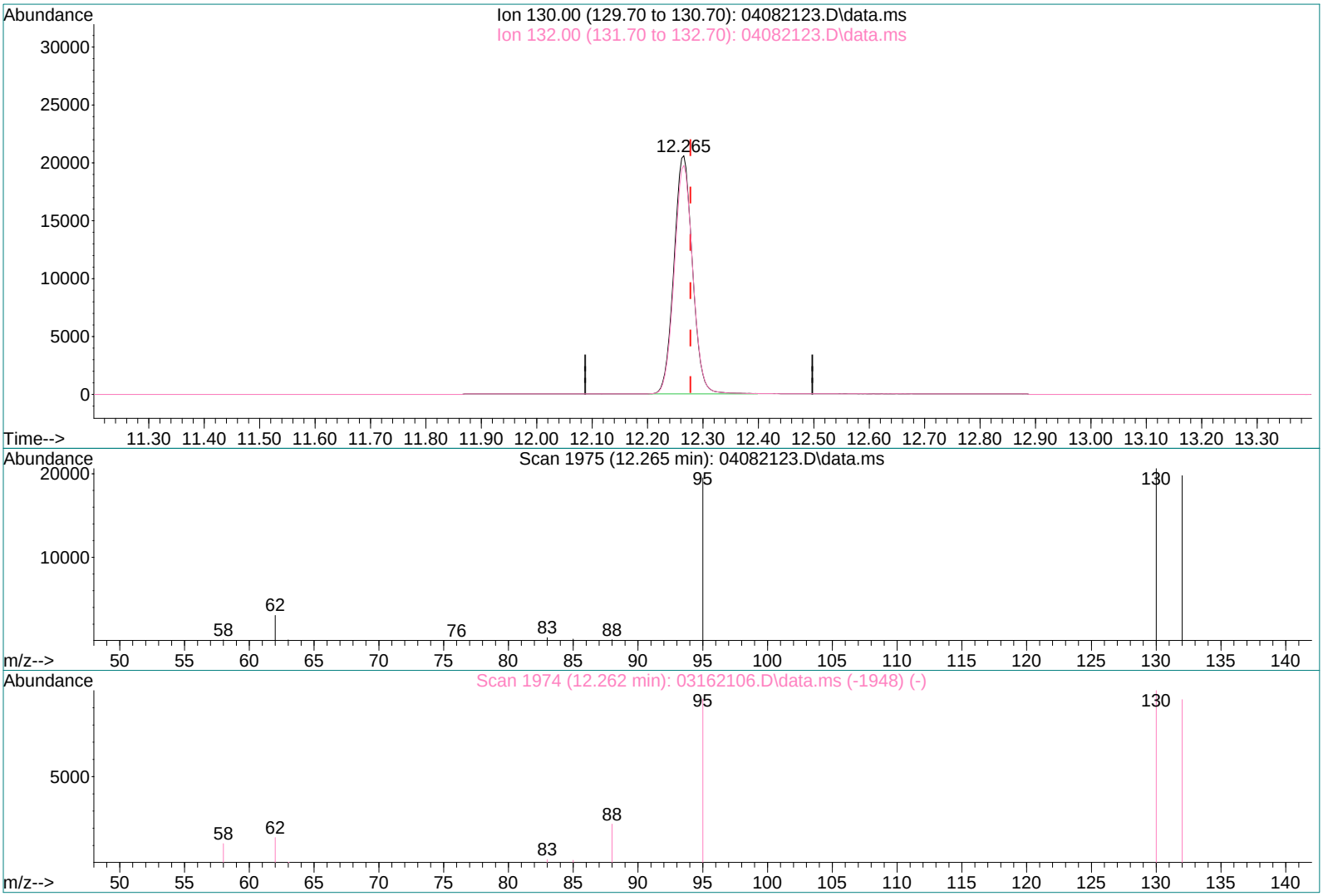
response 1348

Ion	Exp%	Act%
96.00	100	100
98.00	63.90	64.32
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082123.D Vial: 4
Acq On : 8 Apr 2021 17:04 Operator: TZ
Sample : P2101759-003 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:44 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 04082123.D\data.ms

(28) Trichloroethene (T)

12.265min (-0.012) 2004.31pg

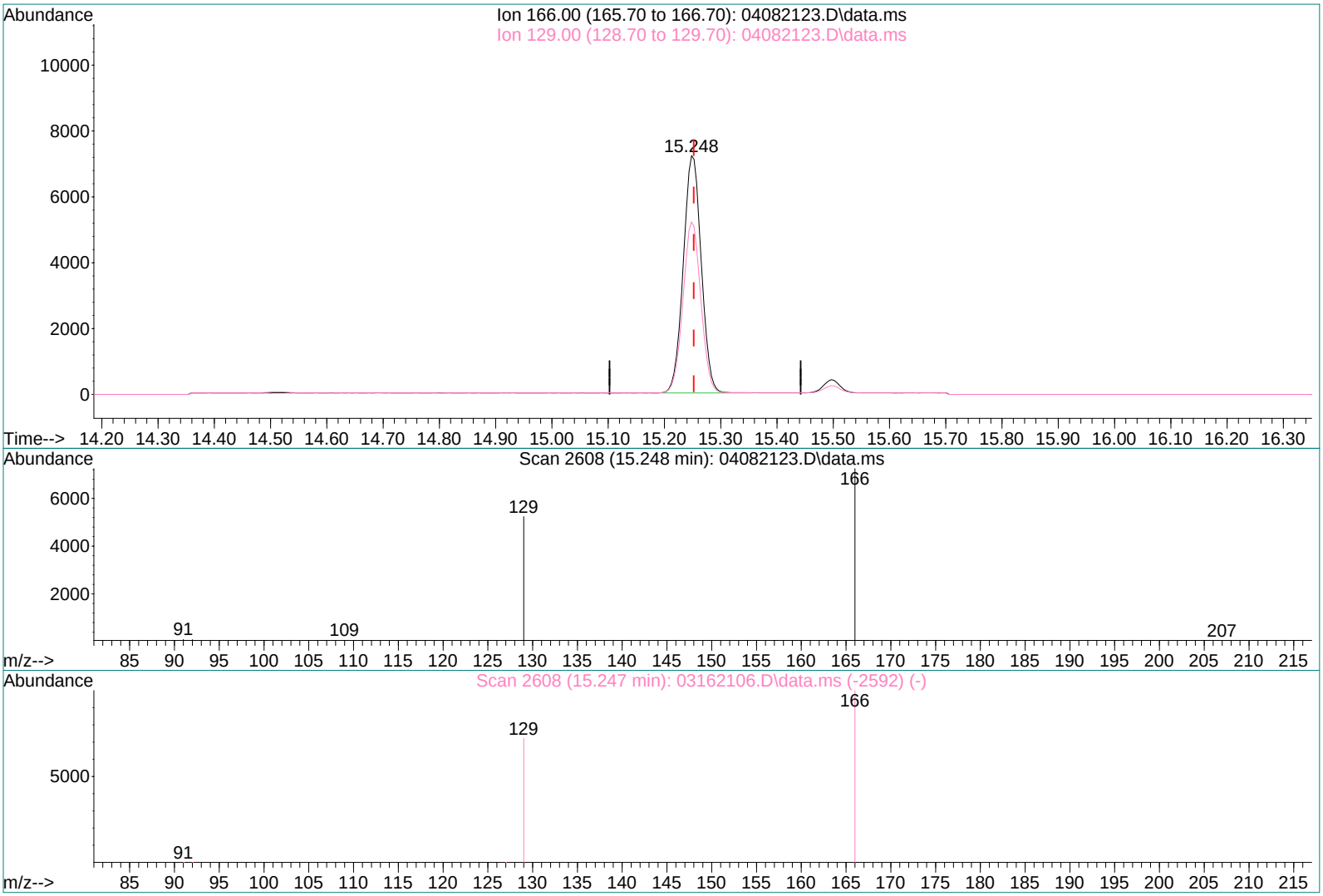
response 47658

Ion	Exp%	Act%
130.00	100	100
132.00	95.00	96.12
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082123.D Vial: 4
Acq On : 8 Apr 2021 17:04 Operator: TZ
Sample : P2101759-003 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:44 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 04082123.D\data.ms

(37) Tetrachloroethene (T)

15.248min (-0.004) 679.21pg

response 15955

Ion	Exp%	Act%
166.00	100	100
129.00	71.50	71.66
0.00	0.00	0.00
0.00	0.00	0.00

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP Group**
Client Sample ID: **HUCKIAF033121-2** ALS Project ID: P2101759
Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006 02** ALS Sample ID: P2101759-004

Test Code: EPA TO-15 SIM Date Collected: 3/31/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 4/6/21
Analyst: Topacio Zavala Date Analyzed: 4/8/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SC02309
Initial Pressure (psig): -1.23 Final Pressure (psig): 5.05

Container Dilution Factor: 1.47

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**0.10**	0.16	0.014	**0.026**	0.041	0.0034	**J**
79-01-6	Trichloroethene	**3.0**	0.16	0.012	**0.56**	0.030	0.0023	
127-18-4	Tetrachloroethene	**1.0**	0.15	0.012	**0.15**	0.022	0.0018	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082124.D Vial: 5
Acq On : 8 Apr 2021 17:35 Operator: TZ
Sample : P2101759-004 (1000mL) Inst : MS19
Misc : S34-01272101

TZ 4/9/21

Quant Time: Apr 09 10:49:26 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	16905	1000.000 pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.56	114	82116	1000.000 pg	-0.01
38) Chlorobenzene-d5 (IS3)	15.90	54	14145	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.39	65	24806	970.385 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.04%		
33) Toluene-d8 (SS2)	14.00	98	90345	1007.319 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.73%		
45) Bromofluorobenzene (SS3)	17.42	174	29559	1045.868 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.59%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.29	85	60249	1540.386 pg	100
3) Chloromethane	4.50	52	1178	164.318 pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.68	85	4360	86.318 pg	100
5) Vinyl Chloride	4.81	62	601	N.D.	
6) 1,3-Butadiene	4.99	54	761	N.D.	
7) Bromomethane	5.32	94	304	N.D.	
8) Chloroethane	5.54	64	322	N.D.	
9) Acrolein	6.12	56	7137	866.266 pg	100
10) Acetone	6.25	58	288311	26128.162 pg	97
11) Trichlorofluoromethane	6.45	101	25957	830.366 pg	100
12) 1,1-Dichloroethene	7.18	96	122	N.D.	
13) Methylene Chloride	7.32	84	10762	554.780 pg	97
14) Trichlorotrifluoroethane	7.65	151	4523	302.919 pg	100
15) trans-1,2-Dichloroethene	8.36	96	345	N.D.	
16) 1,1-Dichloroethane	8.57	63	261	N.D.	
17) Methyl tert-Butyl Ether	8.58	73	680	N.D.	
18) cis-1,2-Dichloroethene	9.45	96	1451	71.413 pg	99
19) Chloroform	9.74	83	47947	1412.969 pg	100
21) 1,2-Dichloroethane	10.50	62	6034	246.218 pg	100
22) 1,1,1-Trichloroethane	10.76	97	2400	84.767 pg	100
23) Benzene	11.22	78	35465	460.091 pg	99
24) Carbon Tetrachloride	11.37	117	6556	272.575 pg	99
26) 1,2-Dichloropropane	12.03	63	382	N.D.	
27) Bromodichloromethane	0.00	83	0	N.D. d	
28) Trichloroethene	12.27	130	49425	2063.717 pg	99
29) 1,4-Dioxane	12.25	88	877	N.D.	
30) cis-1,3-Dichloropropene	13.11	75	56	N.D.	
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
32) 1,1,2-Trichloroethane	13.77	83	322	N.D.	
34) Toluene	14.10	91	1791417	19831.358 pg	99
35) Dibromochloromethane	14.51	129	106	N.D.	
36) 1,2-Dibromoethane	0.00	107	0	N.D.	
37) Tetrachloroethene	15.25	166	16415	693.779 pg	100
39) Chlorobenzene	15.90	112	1380	N.D.	
40) Ethylbenzene	16.34	91	131975	1350.742 pg	100
41) m,p-Xylene	16.50	91	332062	4441.061 pg	100
42) Styrene	16.87	104	7858	148.452 pg	98
43) o-Xylene	16.98	106	65368	1746.428 pg	99
44) 1,1,2,2-Tetrachloroethane	16.98	83	652	N.D.	
46) 1,3,5-Trimethylbenzene	18.25	105	42243	531.544 pg	99
47) 1,2,4-Trimethylbenzene	18.65	105	145557	1736.548 pg	88
48) 1,3-Dichlorobenzene	18.80	146	260	N.D.	
49) 1,4-Dichlorobenzene	18.85	146	175895	3519.998 pg	99
50) 1,2-Dichlorobenzene	19.18	146	589	N.D.	
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	
52) 1,2,4-Trichlorobenzene	20.81	182	574	N.D.	
53) Naphthalene	20.92	128	91937	881.045 pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082124.D Vial: 5
Acq On : 8 Apr 2021 17:35 Operator: TZ
Sample : P2101759-004 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 10:49:26 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

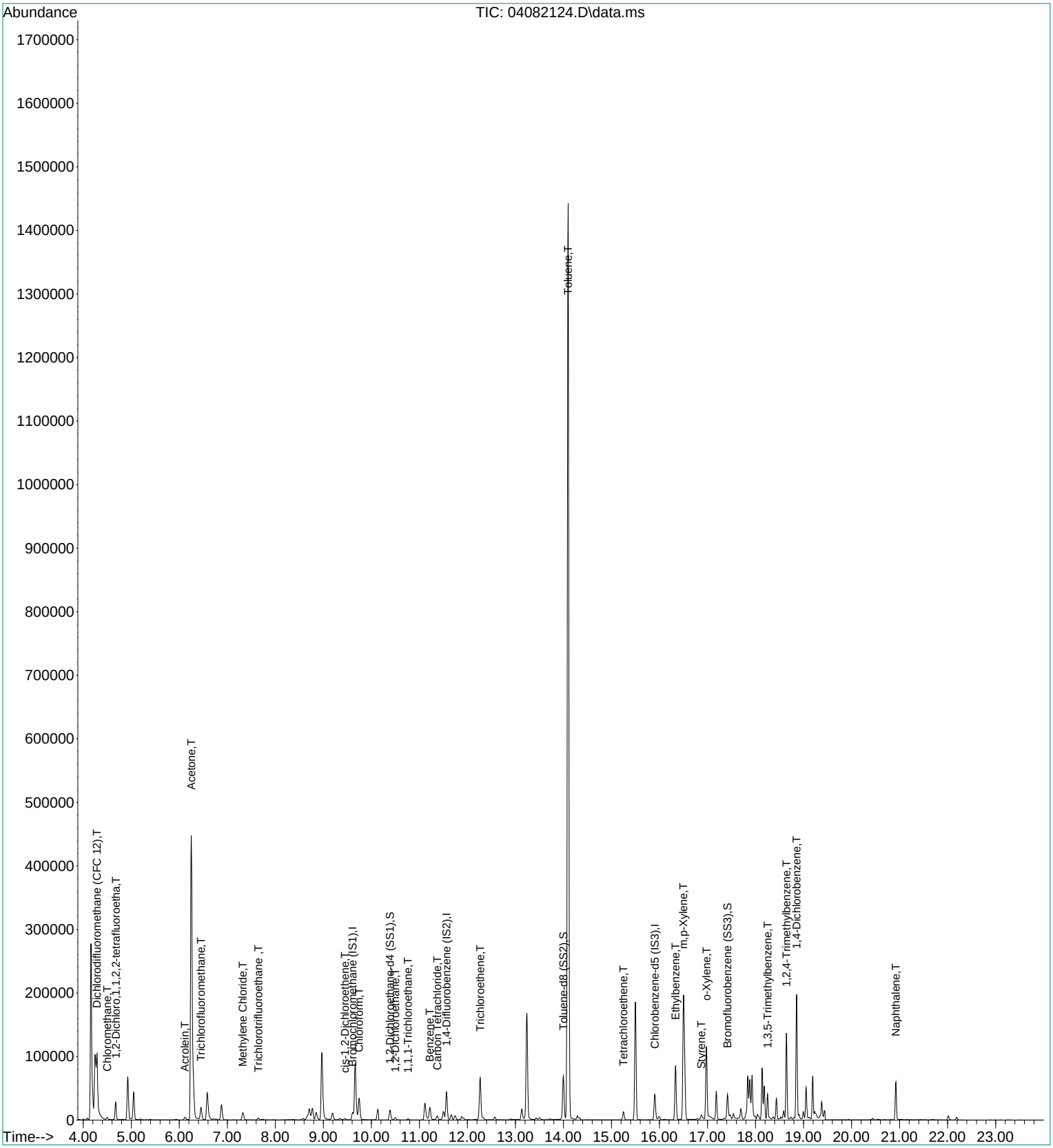
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.26	225	82	N.D.		

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

Quantitation Report (QT Reviewed)

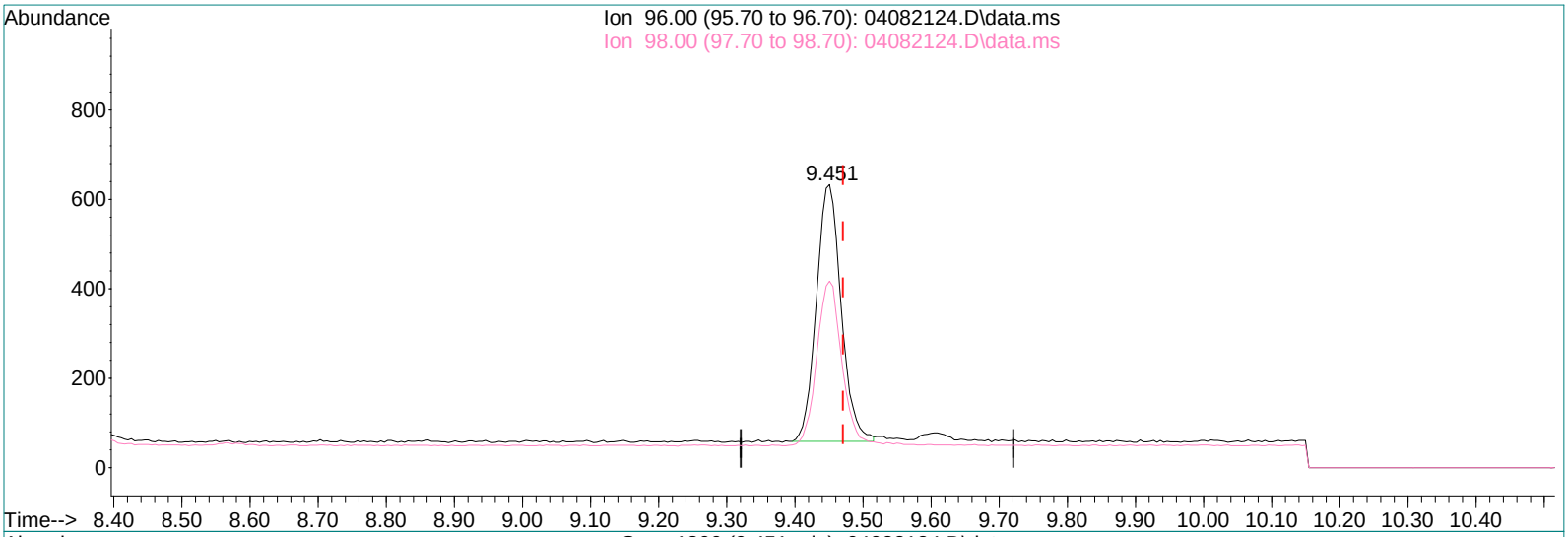
Data File : I:\MS19\DATA\2021 04\08\04082124.D Vial: 5
Acq On : 8 Apr 2021 17:35 Operator: TZ
Sample : P2101759-004 (1000mL) Inst : MS19
Misc : S34-01272101

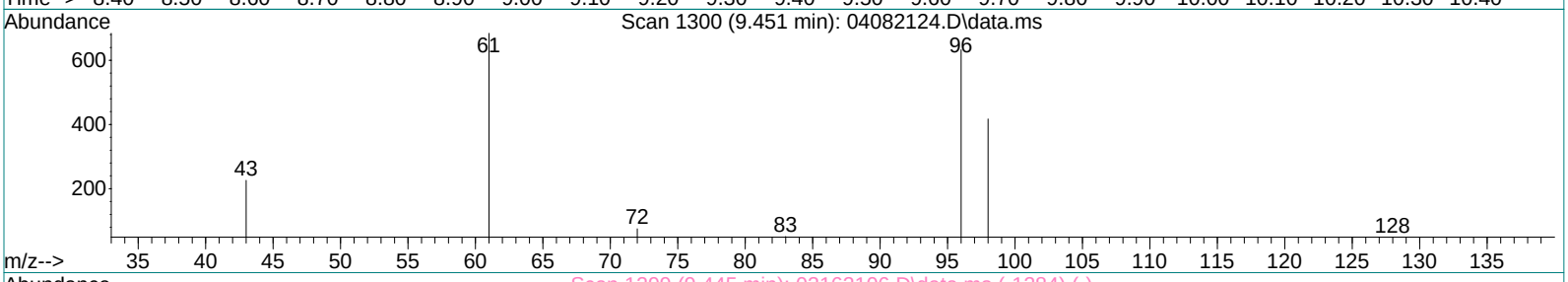
Quant Time: Apr 09 10:49:26 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

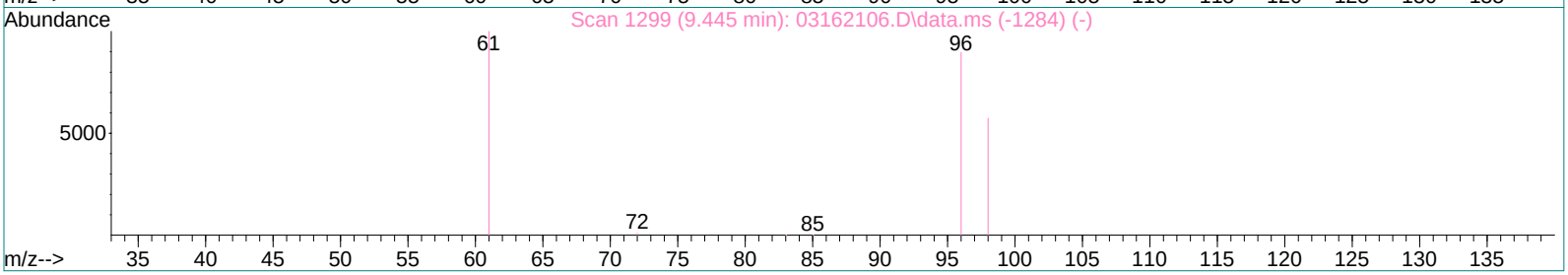


Data File : I:\MS19\DATA\2021 04\08\04082124.D Vial: 5
Acq On : 8 Apr 2021 17:35 Operator: TZ
Sample : P2101759-004 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:45 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 04082124.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.451min (-0.020) 71.41pg

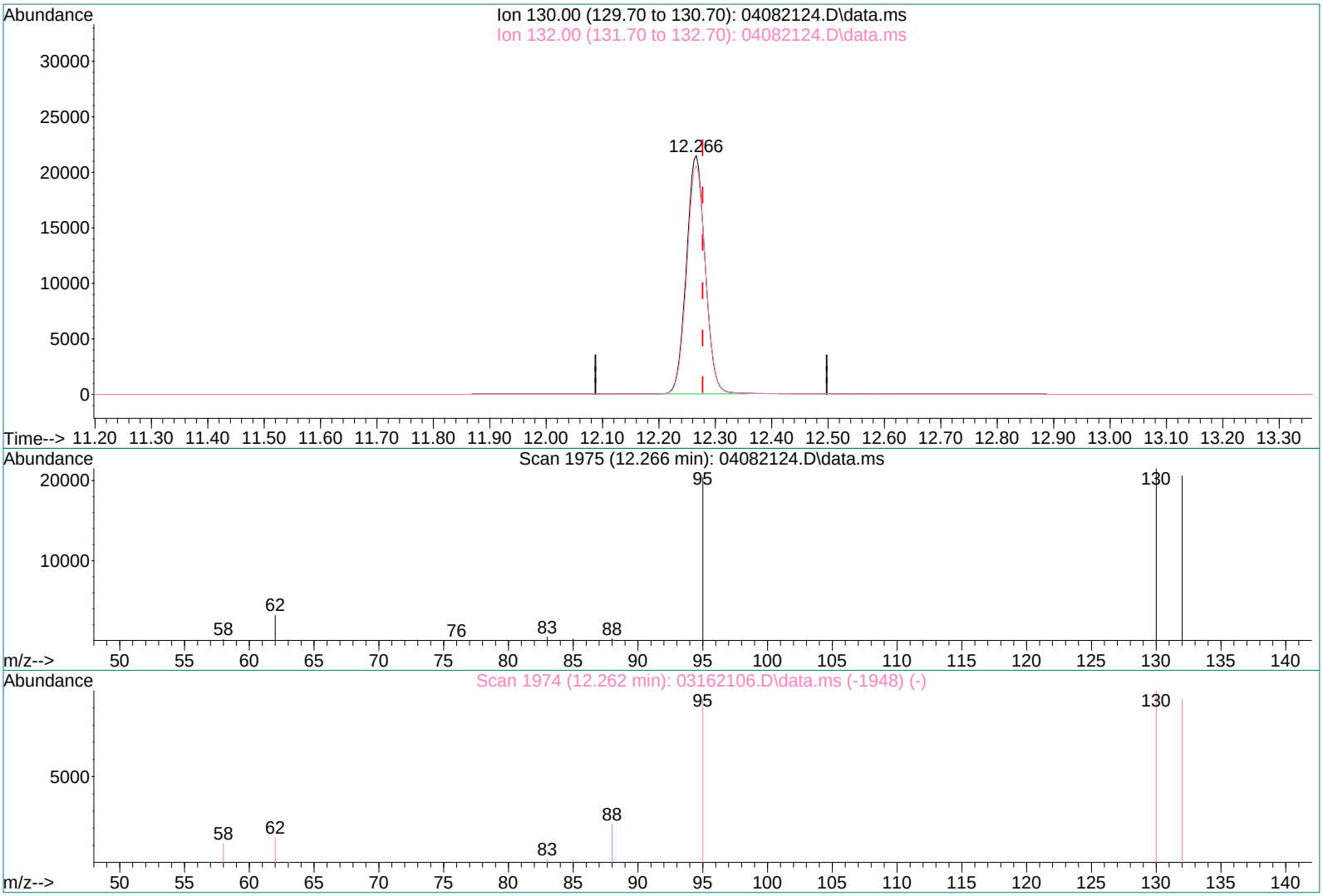
response 1451

Ion	Exp%	Act%
96.00	100	100
98.00	63.90	64.85
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082124.D Vial: 5
Acq On : 8 Apr 2021 17:35 Operator: TZ
Sample : P2101759-004 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:45 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 04082124.D\data.ms

(28) Trichloroethene (T)

12.266min (-0.011) 2063.72pg

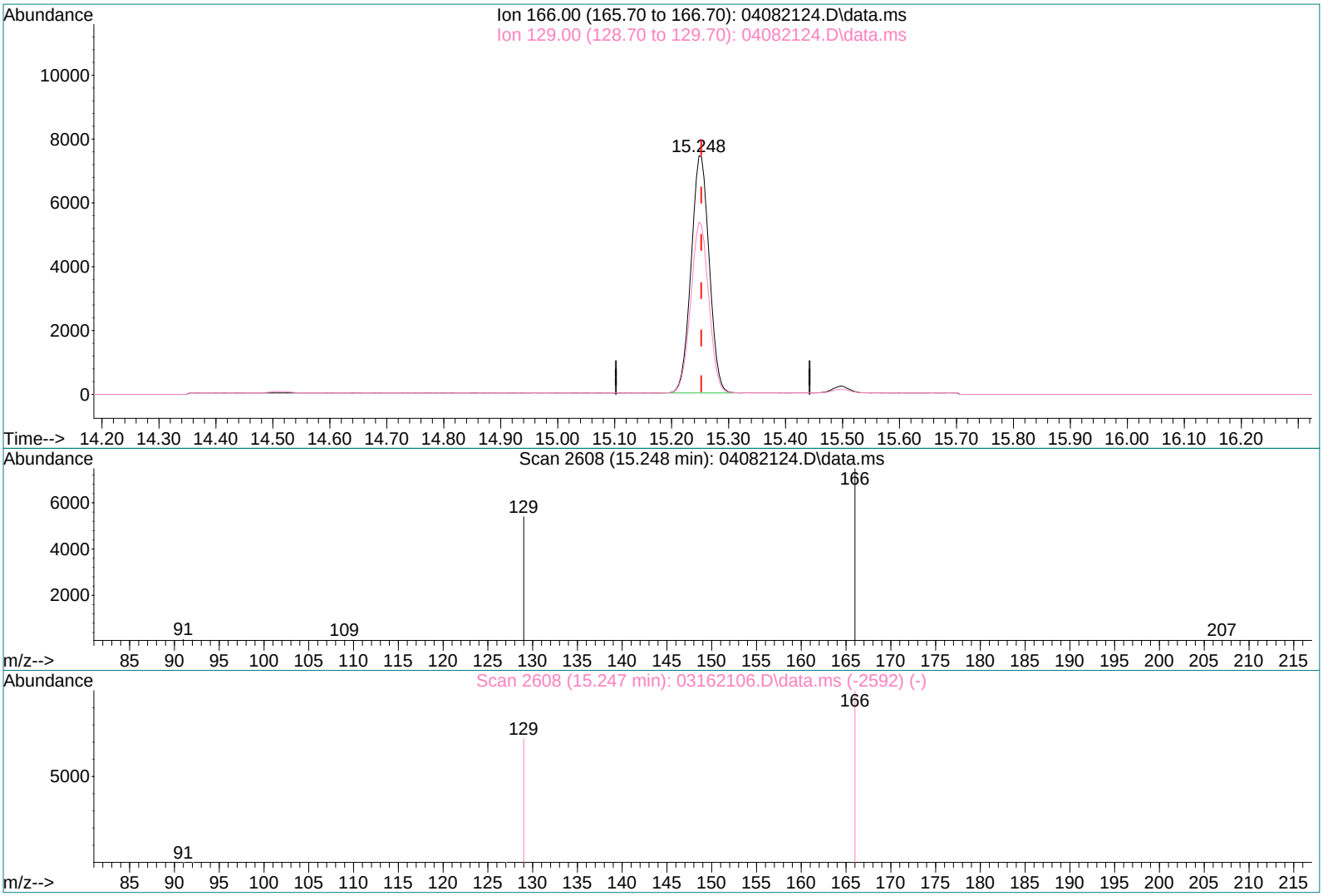
response 49425

Ion	Exp%	Act%
130.00	100	100
132.00	95.00	96.16
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082124.D Vial: 5
Acq On : 8 Apr 2021 17:35 Operator: TZ
Sample : P2101759-004 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:45 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 04082124.D\data.ms

(37) Tetrachloroethene (T)

15.248min (-0.004) 693.78pg

response 16415

Ion	Exp%	Act%
166.00	100	100
129.00	71.50	71.72
0.00	0.00	0.00
0.00	0.00	0.00

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP Group**
Client Sample ID: **HUCKIAFR033121-2** ALS Project ID: P2101759
Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006 02** ALS Sample ID: P2101759-005

Test Code: EPA TO-15 SIM Date Collected: 3/31/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 4/6/21
Analyst: Topacio Zavala Date Analyzed: 4/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01186
Initial Pressure (psig): -1.56 Final Pressure (psig): 3.65

Container Dilution Factor: 1.40

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**0.091**	0.15	0.013	**0.023**	0.039	0.0032	**J**
79-01-6	Trichloroethene	**2.8**	0.15	0.012	**0.51**	0.029	0.0022	
127-18-4	Tetrachloroethene	**0.93**	0.14	0.011	**0.14**	0.021	0.0017	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082125.D Vial: 6
Acq On : 8 Apr 2021 18:06 Operator: TZ
Sample : P2101759-005 (1000mL) Inst : MS19
Misc : S34-01272101

TZ 4/9/21

Quant Time: Apr 09 10:50:23 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	17526	1000.000 pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.56	114	83356	1000.000 pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.90	54	14440	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.39	65	25597	965.848 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 96.58%		
33) Toluene-d8 (SS2)	14.00	98	91391	1003.823 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.38%		
45) Bromofluorobenzene (SS3)	17.42	174	29763	1031.572 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.16%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.29	85	62729	1546.965 pg	100
3) Chloromethane	4.51	52	1264	170.067 pg	94
4) 1,2-Dichloro,1,1,2,2-t...	4.68	85	4719	90.115 pg	99
5) Vinyl Chloride	4.81	62	602	N.D.	
6) 1,3-Butadiene	5.00	54	902	N.D.	
7) Bromomethane	5.32	94	294	N.D.	
8) Chloroethane	5.54	64	287	N.D.	
9) Acrolein	6.11	56	6261	733.013 pg	100
10) Acetone	6.25	58	260436	22765.701 pg	93
11) Trichlorofluoromethane	6.45	101	27535	849.635 pg	100
12) 1,1-Dichloroethene	7.18	96	163	N.D.	
13) Methylene Chloride	7.32	84	11298	561.774 pg	96
14) Trichlorotrifluoroethane	7.64	151	5122	330.881 pg	100
15) trans-1,2-Dichloroethene	8.36	96	334	N.D.	
16) 1,1-Dichloroethane	8.57	63	247	N.D.	
17) Methyl tert-Butyl Ether	8.58	73	575	N.D.	
18) cis-1,2-Dichloroethene	9.45	96	1366	64.847 pg	98
19) Chloroform	9.74	83	47829	1359.549 pg	100
21) 1,2-Dichloroethane	10.49	62	6032	237.415 pg	99
22) 1,1,1-Trichloroethane	10.76	97	2387	81.320 pg	99
23) Benzene	11.22	78	41304	516.854 pg	99
24) Carbon Tetrachloride	11.37	117	6870	275.509 pg	99
26) 1,2-Dichloropropane	12.03	63	418	N.D.	
27) Bromodichloromethane	0.00	83	0	N.D. d	
28) Trichloroethene	12.27	130	47781	1965.394 pg	99
29) 1,4-Dioxane	12.25	88	596	N.D.	
30) cis-1,3-Dichloropropene	13.11	75	87	N.D.	
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	
32) 1,1,2-Trichloroethane	13.77	83	267	N.D.	
34) Toluene	14.10	91	1680428	18325.954 pg	99
35) Dibromochloromethane	14.51	129	116	N.D.	
36) 1,2-Dibromoethane	0.00	107	0	N.D.	
37) Tetrachloroethene	15.25	166	15900	662.016 pg	100
39) Chlorobenzene	15.90	112	1337	N.D.	
40) Ethylbenzene	16.34	91	122263	1225.777 pg	99
41) m,p-Xylene	16.50	91	311471	4080.571 pg	100
42) Styrene	16.87	104	17825	329.868 pg	100
43) o-Xylene	16.98	106	62521	1636.241 pg	99
44) 1,1,2,2-Tetrachloroethane	16.98	83	586	N.D.	
46) 1,3,5-Trimethylbenzene	18.25	105	40358	497.451 pg	99
47) 1,2,4-Trimethylbenzene	18.65	105	140068	1636.924 pg	88
48) 1,3-Dichlorobenzene	18.80	146	151	N.D.	
49) 1,4-Dichlorobenzene	18.85	146	166523	3264.367 pg	99
50) 1,2-Dichlorobenzene	19.18	146	379	N.D.	
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	
52) 1,2,4-Trichlorobenzene	20.81	182	232	N.D.	
53) Naphthalene	20.92	128	89889	843.820 pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082125.D Vial: 6
Acq On : 8 Apr 2021 18:06 Operator: TZ
Sample : P2101759-005 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 10:50:23 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

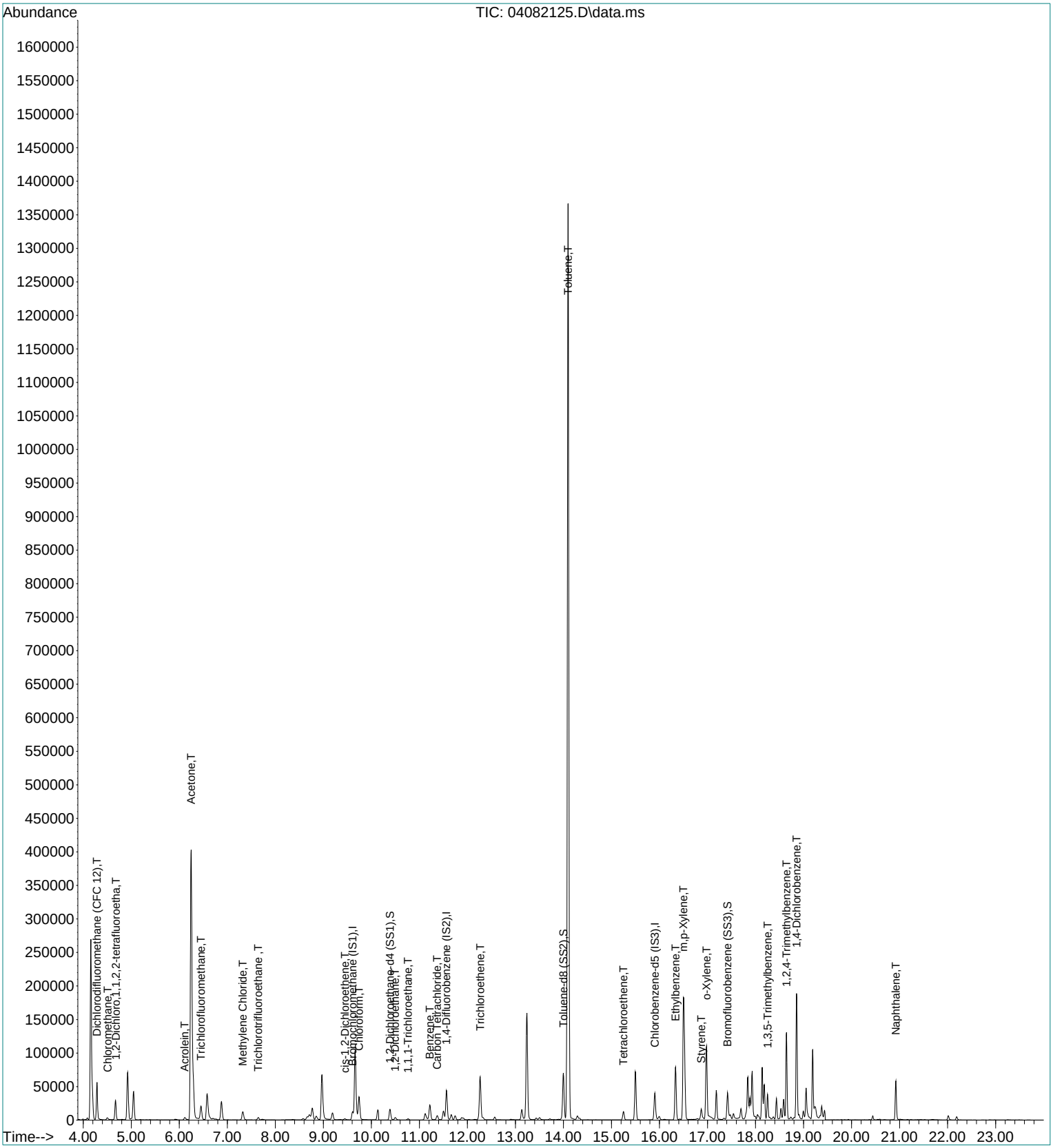
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.26	225	61	N.D.		

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082125.D Vial: 6
Acq On : 8 Apr 2021 18:06 Operator: TZ
Sample : P2101759-005 (1000mL) Inst : MS19
Misc : S34-01272101

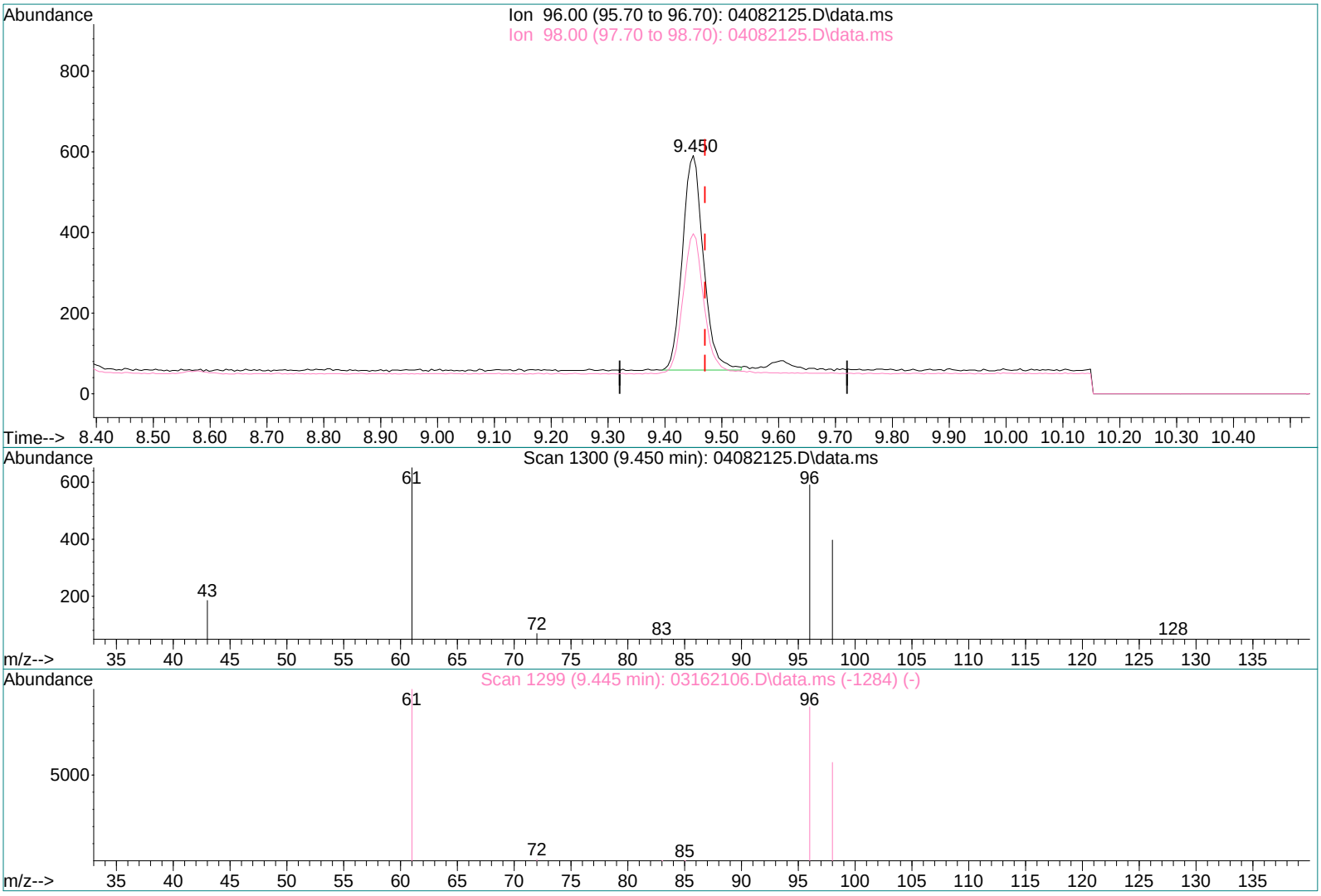
Quant Time: Apr 09 10:50:23 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082125.D Vial: 6
Acq On : 8 Apr 2021 18:06 Operator: TZ
Sample : P2101759-005 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:46 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 04082125.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.450min (-0.021) 64.85pg

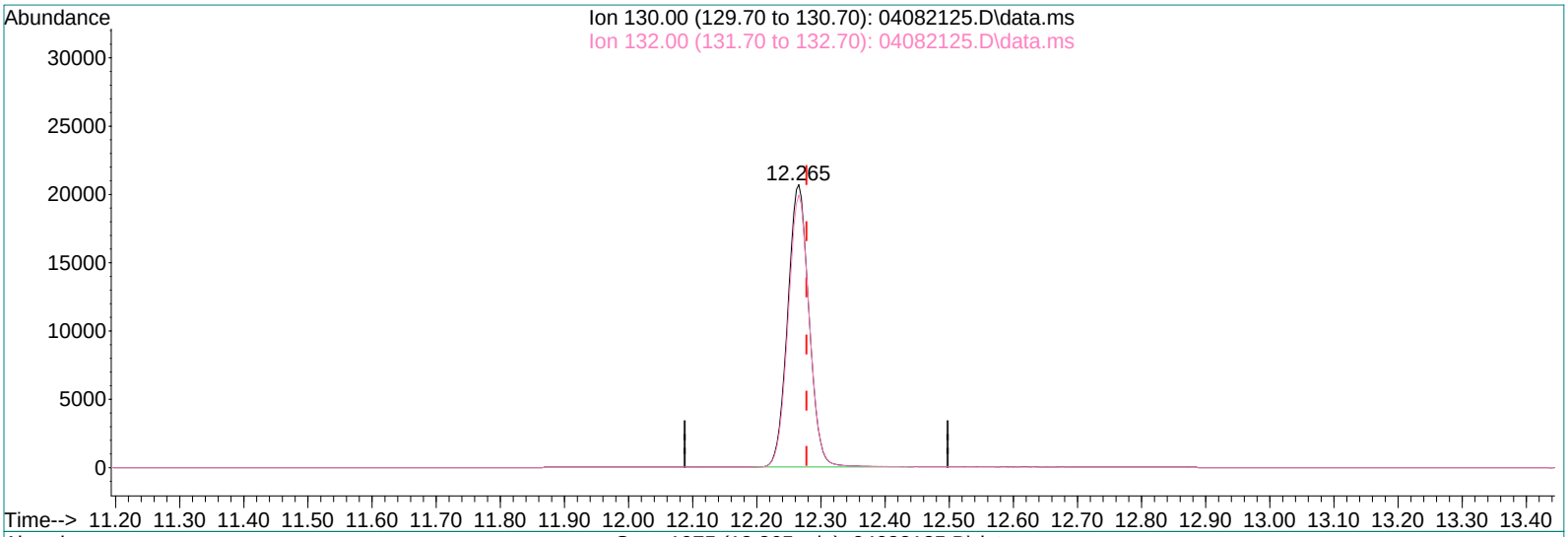
response 1366

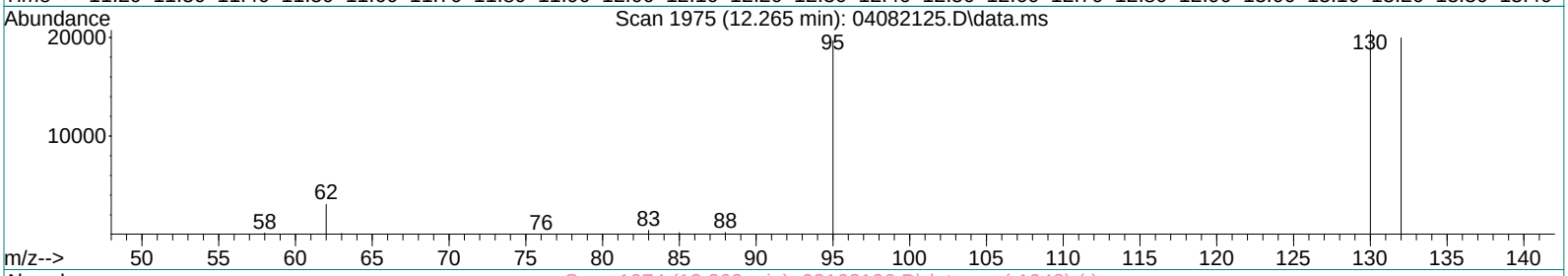
Ion	Exp%	Act%
96.00	100	100
98.00	63.90	65.30
0.00	0.00	0.00
0.00	0.00	0.00

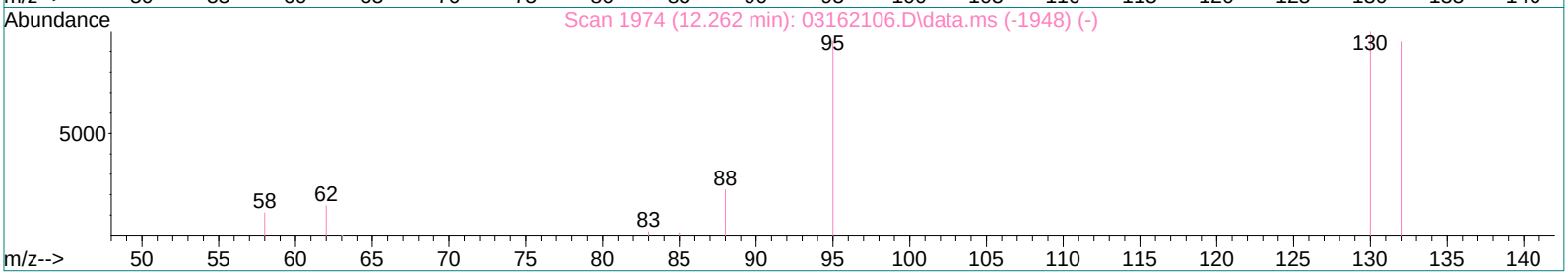
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082125.D Vial: 6
Acq On : 8 Apr 2021 18:06 Operator: TZ
Sample : P2101759-005 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:46 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 04082125.D\data.ms

(28) Trichloroethene (T)

12.265min (-0.012) 1965.39pg

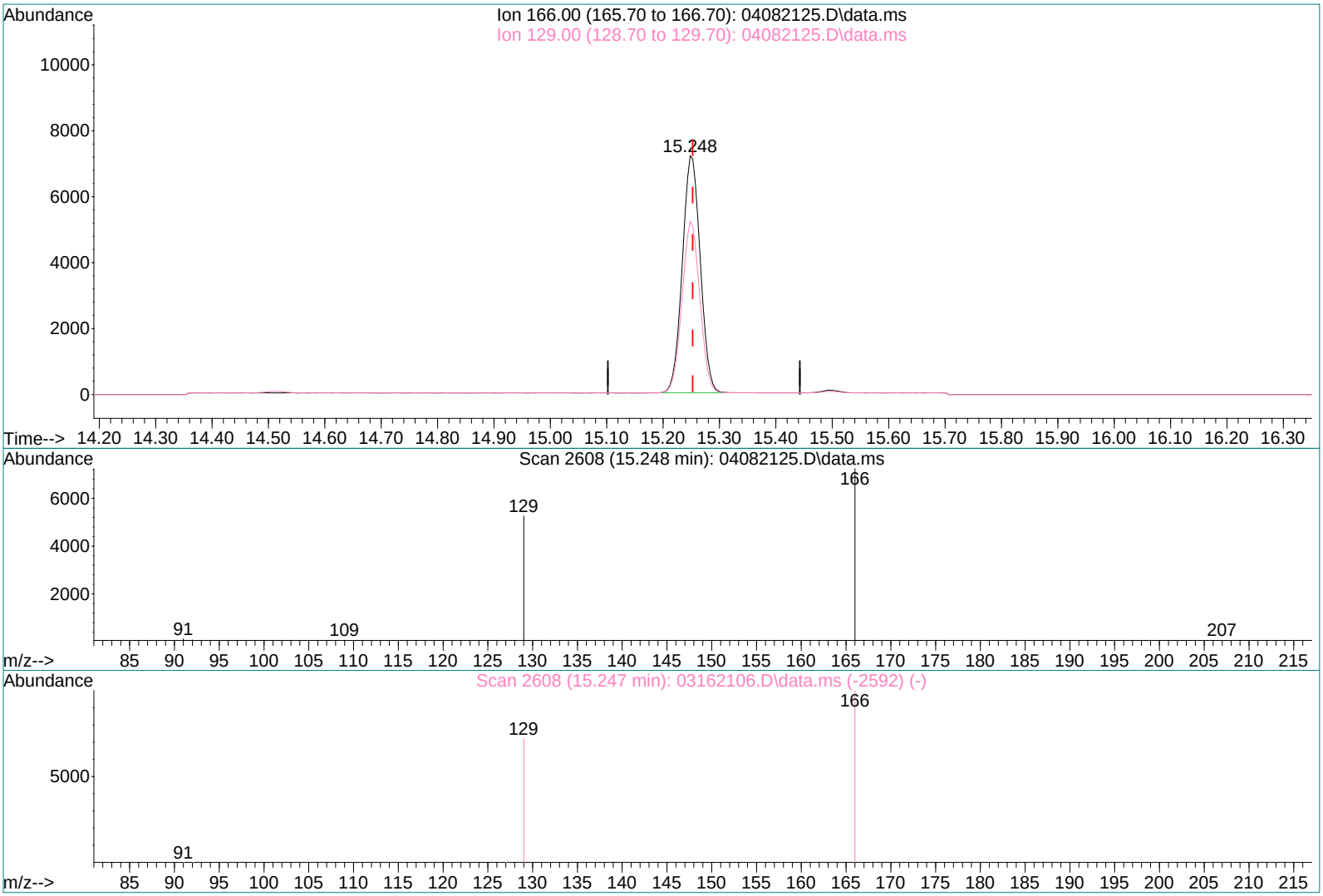
response 47781

Ion	Exp%	Act%
130.00	100	100
132.00	95.00	95.94
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082125.D Vial: 6
Acq On : 8 Apr 2021 18:06 Operator: TZ
Sample : P2101759-005 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:46 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 04082125.D\data.ms

(37) Tetrachloroethene (T)

15.248min (-0.004) 662.02pg

response 15900

Ion	Exp%	Act%
166.00	100	100
129.00	71.50	71.75
0.00	0.00	0.00
0.00	0.00	0.00

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP Group**
Client Sample ID: **HUCKIAF033121-3** ALS Project ID: P2101759
Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006 02** ALS Sample ID: P2101759-006

Test Code: EPA TO-15 SIM Date Collected: 3/31/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 4/6/21
Analyst: Topacio Zavala Date Analyzed: 4/8/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02403
Initial Pressure (psig): -1.98 Final Pressure (psig): 3.89

Container Dilution Factor: 1.46

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	**0.14**	0.16	0.013	**0.036**	0.041	0.0034	**J**
79-01-6	Trichloroethene	**3.7**	0.16	0.012	**0.69**	0.030	0.0023	
127-18-4	Tetrachloroethene	**1.3**	0.15	0.012	**0.19**	0.022	0.0018	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082126.D Vial: 7 TZ 4/9/21
Acq On : 8 Apr 2021 18:38 Operator: TZ
Sample : P2101759-006 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:47 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	16857	1000.000	pg		-0.03
25) 1,4-Difluorobenzene (IS2)	11.56	114	81071	1000.000	pg		-0.02
38) Chlorobenzene-d5 (IS3)	15.90	54	13284	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.39	65	25009	981.112	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.11%				
33) Toluene-d8 (SS2)	14.00	98	88177	995.819	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.58%				
45) Bromofluorobenzene (SS3)	17.41	174	28263	1064.828	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.48%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.29	85	61228	1569.873	pg		100
3) Chloromethane	4.52	52	1176	164.506	pg		95
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	4291	85.194	pg		100
5) Vinyl Chloride	4.82	62	423	N.D.			
6) 1,3-Butadiene	5.00	54	645	N.D.			
7) Bromomethane	5.33	94	293	N.D.			
8) Chloroethane	5.54	64	233	N.D.			
9) Acrolein	6.12	56	3507	426.880	pg		99
10) Acetone	6.25	58	112893	10260.052	pg	#	88
11) Trichlorofluoromethane	6.45	101	25704	824.614	pg		100
12) 1,1-Dichloroethene	7.18	96	127	N.D.			
13) Methylene Chloride	7.32	84	8100	418.743	pg		97
14) Trichlorotrifluoroethane	7.65	151	4707	316.140	pg		100
15) trans-1,2-Dichloroethene	8.36	96	473	N.D.			
16) 1,1-Dichloroethane	8.56	63	195	N.D.			
17) Methyl tert-Butyl Ether	8.58	73	200	N.D.			
18) cis-1,2-Dichloroethene	9.45	96	1970	97.232	pg		99
19) Chloroform	9.74	83	8352	246.829	pg		100
21) 1,2-Dichloroethane	10.49	62	3362	137.577	pg		99
22) 1,1,1-Trichloroethane	10.76	97	979	N.D.			
23) Benzene	11.22	78	27453	357.165	pg		99
24) Carbon Tetrachloride	11.37	117	6290	262.260	pg		100
26) 1,2-Dichloropropane	12.03	63	319	N.D.			
27) Bromodichloromethane	12.15	83	679	N.D.			
28) Trichloroethene	12.26	130	60029	2538.791	pg		99
29) 1,4-Dioxane	12.25	88	635	N.D.			
30) cis-1,3-Dichloropropene	13.10	75	66	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	13.80	83	65	N.D.			
34) Toluene	14.10	91	303272	3400.559	pg		100
35) Dibromochloromethane	14.52	129	85	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.25	166	20160	863.045	pg		100
39) Chlorobenzene	15.89	112	439	N.D.			
40) Ethylbenzene	16.34	91	47095	513.251	pg		99
41) m,p-Xylene	16.50	91	114022	1623.792	pg		100
42) Styrene	16.88	104	5436	109.353	pg		99
43) o-Xylene	16.98	106	20962	596.338	pg		99
44) 1,1,2,2-Tetrachloroethane	16.98	83	202	N.D.			
46) 1,3,5-Trimethylbenzene	18.25	105	17199	230.442	pg		99
47) 1,2,4-Trimethylbenzene	18.64	105	56648	719.635	pg		89
48) 1,3-Dichlorobenzene	18.80	146	120	N.D.			
49) 1,4-Dichlorobenzene	18.85	146	167997	3579.848	pg		99
50) 1,2-Dichlorobenzene	19.19	146	298	N.D.			
51) 1,2-Dibromo-3-chloropr...	19.60	157	50	N.D.			
52) 1,2,4-Trichlorobenzene	20.82	182	171	N.D.			
53) Naphthalene	20.92	128	36041	367.772	pg		98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082126.D Vial: 7
Acq On : 8 Apr 2021 18:38 Operator: TZ
Sample : P2101759-006 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:47 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

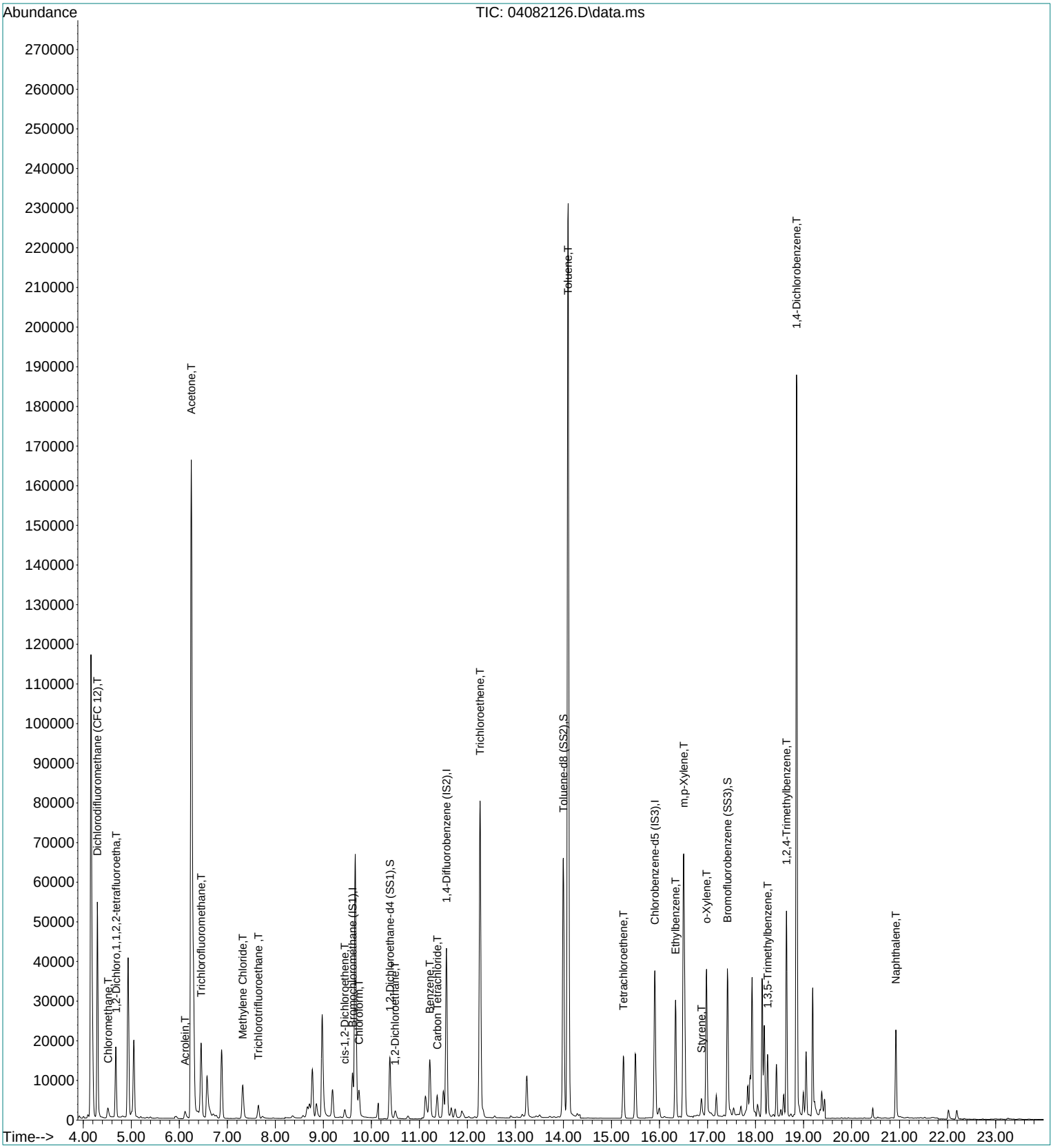
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.27	225	58	N.D.		

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082126.D Vial: 7
Acq On : 8 Apr 2021 18:38 Operator: TZ
Sample : P2101759-006 (1000mL) Inst : MS19
Misc : S34-01272101

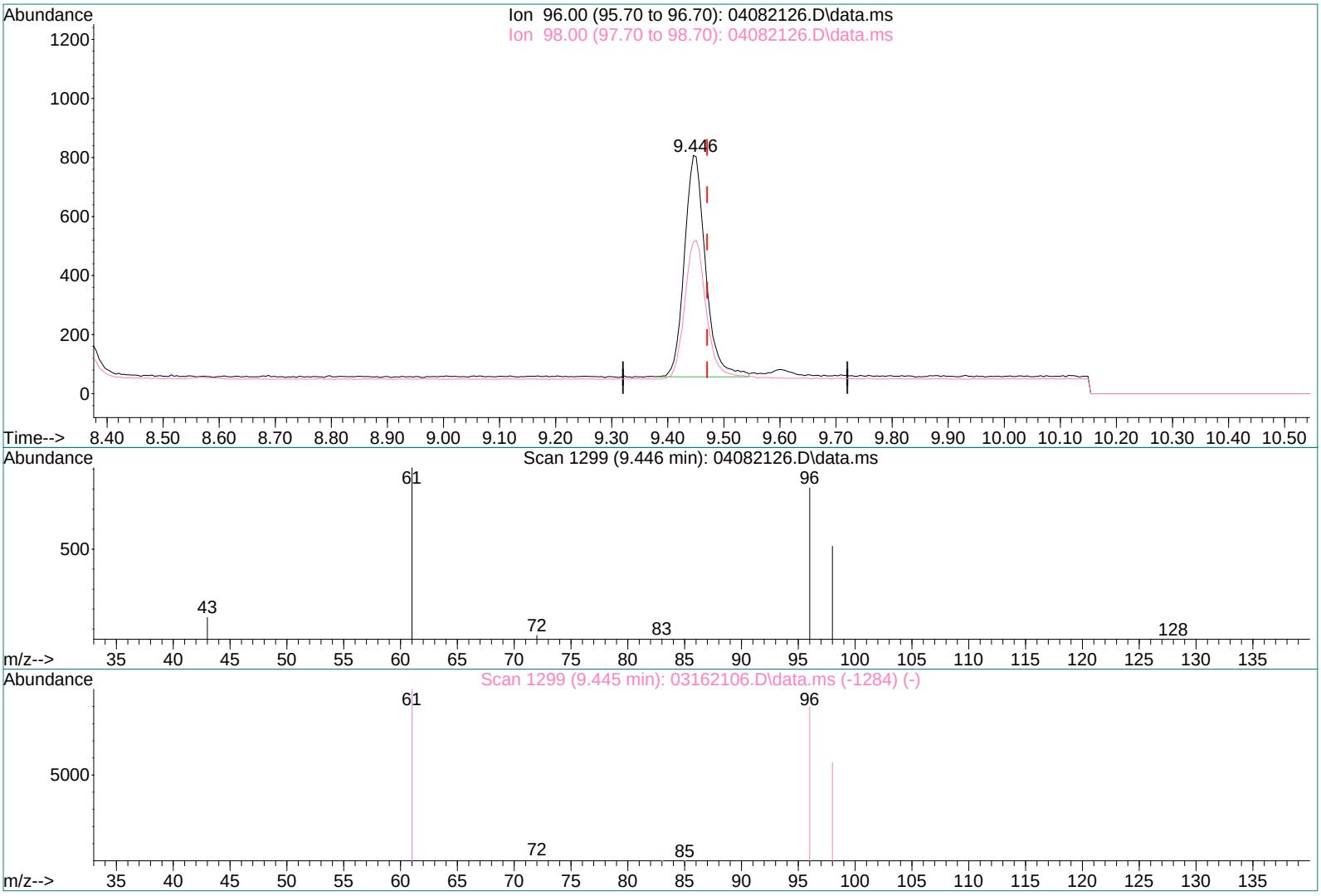
Quant Time: Apr 09 08:02:47 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082126.D Vial: 7
Acq On : 8 Apr 2021 18:38 Operator: TZ
Sample : P2101759-006 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:47 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 04082126.D\data.ms

(18) cis-1,2-Dichloroethene (T)

9.446min (-0.025) 97.23pg

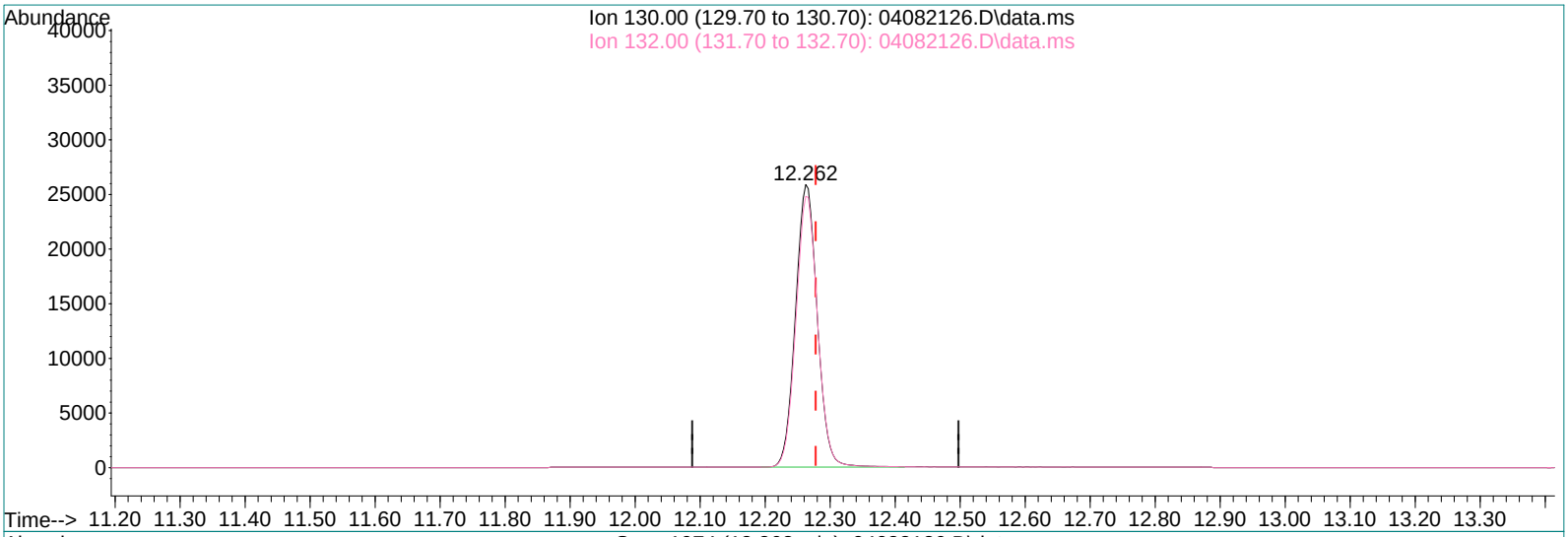
response 1970

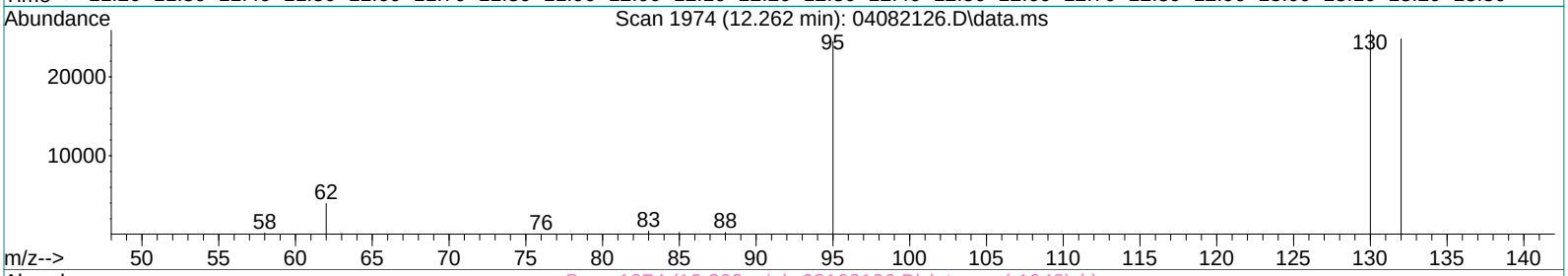
Ion	Exp%	Act%
96.00	100	100
98.00	63.90	64.67
0.00	0.00	0.00
0.00	0.00	0.00

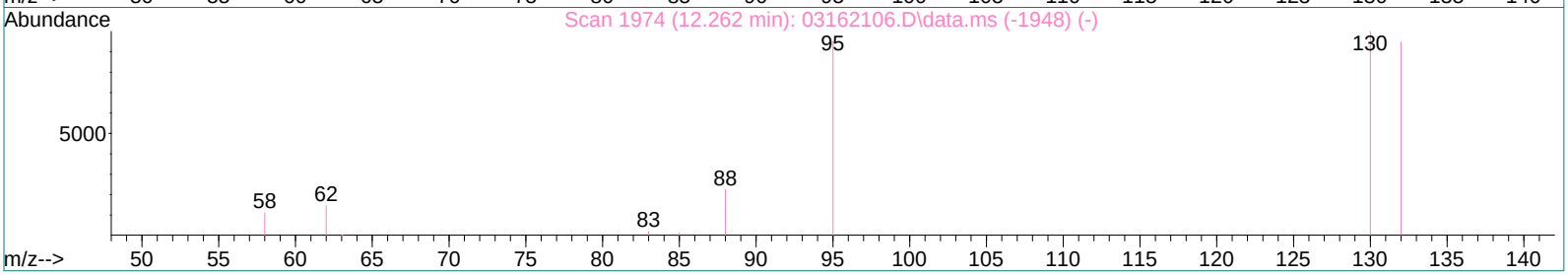
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082126.D Vial: 7
Acq On : 8 Apr 2021 18:38 Operator: TZ
Sample : P2101759-006 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:47 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 04082126.D\data.ms

(28) Trichloroethene (T)

12.262min (-0.015) 2538.79pg

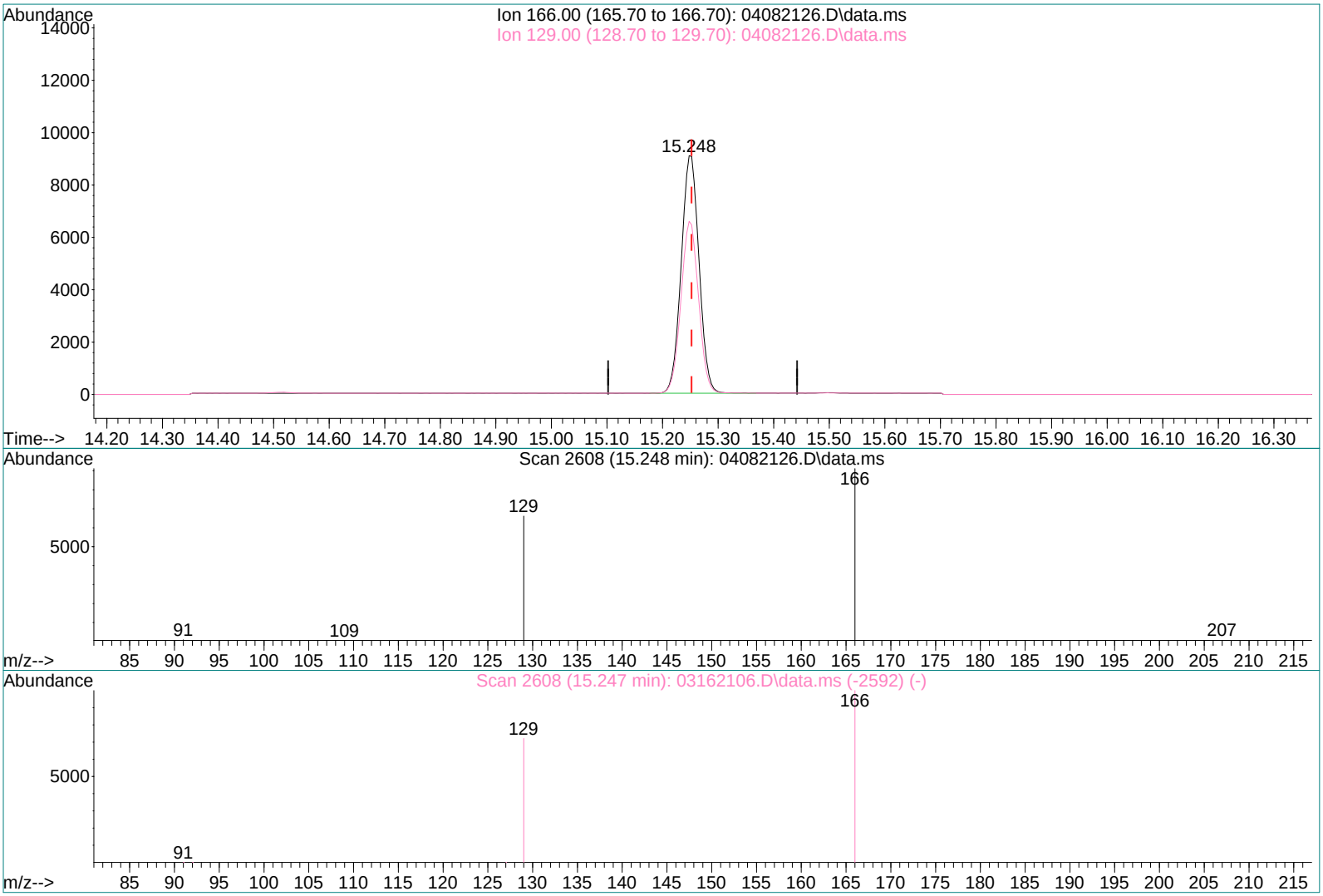
response 60029

Ion	Exp%	Act%
130.00	100	100
132.00	95.00	95.92
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082126.D Vial: 7
Acq On : 8 Apr 2021 18:38 Operator: TZ
Sample : P2101759-006 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:47 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 04082126.D\data.ms

(37) Tetrachloroethene (T)

15.248min (-0.005) 863.04pg

response 20160

Ion	Exp%	Act%
166.00	100	100
129.00	71.50	71.65
0.00	0.00	0.00
0.00	0.00	0.00

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP Group**
Client Sample ID: **HUCKIAF033121-5** ALS Project ID: P2101759
Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006 02** ALS Sample ID: P2101759-007

Test Code: EPA TO-15 SIM Date Collected: 3/31/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 4/6/21
Analyst: Topacio Zavala Date Analyzed: 4/8/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SC01717

Initial Pressure (psig): -2.17 Final Pressure (psig): 4.28

Container Dilution Factor: 1.51

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.17	0.014	ND	0.042	0.0035	
79-01-6	Trichloroethene	**2.1**	0.17	0.013	**0.40**	0.031	0.0024	
127-18-4	Tetrachloroethene	**1.3**	0.15	0.012	**0.19**	0.022	0.0018	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082127.D Vial: 8
Acq On : 8 Apr 2021 19:09 Operator: TZ
Sample : P2101759-007 (1000mL) Inst : MS19
Misc : S34-01272101

TZ 4/9/21

Quant Time: Apr 09 10:52:46 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	17553	1000.000 pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.56	114	83614	1000.000 pg	-0.01
38) Chlorobenzene-d5 (IS3)	15.90	54	14617	1000.000 pg	0.00
System Monitoring Compounds					
20) 1,2-Dichloroethane-d4 ...	10.39	65	26038	980.977 pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.10%		
33) Toluene-d8 (SS2)	14.00	98	91628	1003.321 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.33%		
45) Bromofluorobenzene (SS3)	17.41	174	30336	1038.700 pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.87%		
Target Compounds					Qvalue
2) Dichlorodifluoromethan...	4.29	85	62669	1543.108 pg	100
3) Chloromethane	4.50	52	1389	186.597 pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.68	85	4284	81.682 pg	99
5) Vinyl Chloride	4.80	62	659	N.D.	
6) 1,3-Butadiene	0.00	54	0	N.D. d	
7) Bromomethane	5.32	94	374	N.D.	
8) Chloroethane	5.54	64	995	94.140 pg	99
9) Acrolein	6.12	56	10785	1260.723 pg	99
10) Acetone	6.25	58	307523	26840.406 pg #	87
11) Trichlorofluoromethane	6.45	101	26872	827.901 pg	100
12) 1,1-Dichloroethene	7.19	96	103	N.D.	
13) Methylene Chloride	7.33	84	52064	2584.811 pg	97
14) Trichlorotrifluoroethane	7.64	151	4951	319.343 pg	99
15) trans-1,2-Dichloroethene	8.36	96	415	N.D.	
16) 1,1-Dichloroethane	8.57	63	272	N.D.	
17) Methyl tert-Butyl Ether	8.65	73	390	N.D.	
18) cis-1,2-Dichloroethene	9.45	96	1033	N.D.	
19) Chloroform	9.75	83	6236	176.987 pg	99
21) 1,2-Dichloroethane	10.50	62	6628	260.472 pg	100
22) 1,1,1-Trichloroethane	10.76	97	1738	59.119 pg	99
23) Benzene	11.22	78	70646	882.664 pg	98
24) Carbon Tetrachloride	11.37	117	6476	259.309 pg	100
26) 1,2-Dichloropropane	12.03	63	397	N.D.	
27) Bromodichloromethane	0.00	83	0	N.D. d	
28) Trichloroethene	12.27	130	34568	1417.511 pg	99
29) 1,4-Dioxane	12.23	88	64052	3334.893 pg	99
30) cis-1,3-Dichloropropene	13.11	75	94	N.D.	
31) trans-1,3-Dichloropropene	13.62	75	57	N.D.	
32) 1,1,2-Trichloroethane	13.77	83	775	N.D.	
34) Toluene	14.10	91	1810332	19681.708 pg	99
35) Dibromochloromethane	14.51	129	100	N.D.	
36) 1,2-Dibromoethane	14.77	107	61	N.D.	
37) Tetrachloroethene	15.25	166	20283	841.902 pg	100
39) Chlorobenzene	0.00	112	0	N.D. d	
40) Ethylbenzene	16.34	91	190577	1887.538 pg	99
41) m,p-Xylene	16.50	91	445811	5769.831 pg	100
42) Styrene	16.87	104	11449	209.309 pg	99
43) o-Xylene	16.98	106	85585	2212.728 pg	99
44) 1,1,2,2-Tetrachloroethane	16.98	83	820	N.D.	
46) 1,3,5-Trimethylbenzene	18.25	105	104028	1266.717 pg	100
47) 1,2,4-Trimethylbenzene	18.64	105	351613	4059.414 pg	88
48) 1,3-Dichlorobenzene	18.80	146	121	N.D.	
49) 1,4-Dichlorobenzene	18.86	146	21972	425.504 pg	99
50) 1,2-Dichlorobenzene	19.19	146	768	N.D.	
51) 1,2-Dibromo-3-chloropr...	19.60	157	61	N.D.	
52) 1,2,4-Trichlorobenzene	20.81	182	371	N.D.	
53) Naphthalene	20.92	128	171354	1589.083 pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082127.D Vial: 8
Acq On : 8 Apr 2021 19:09 Operator: TZ
Sample : P2101759-007 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 10:52:46 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

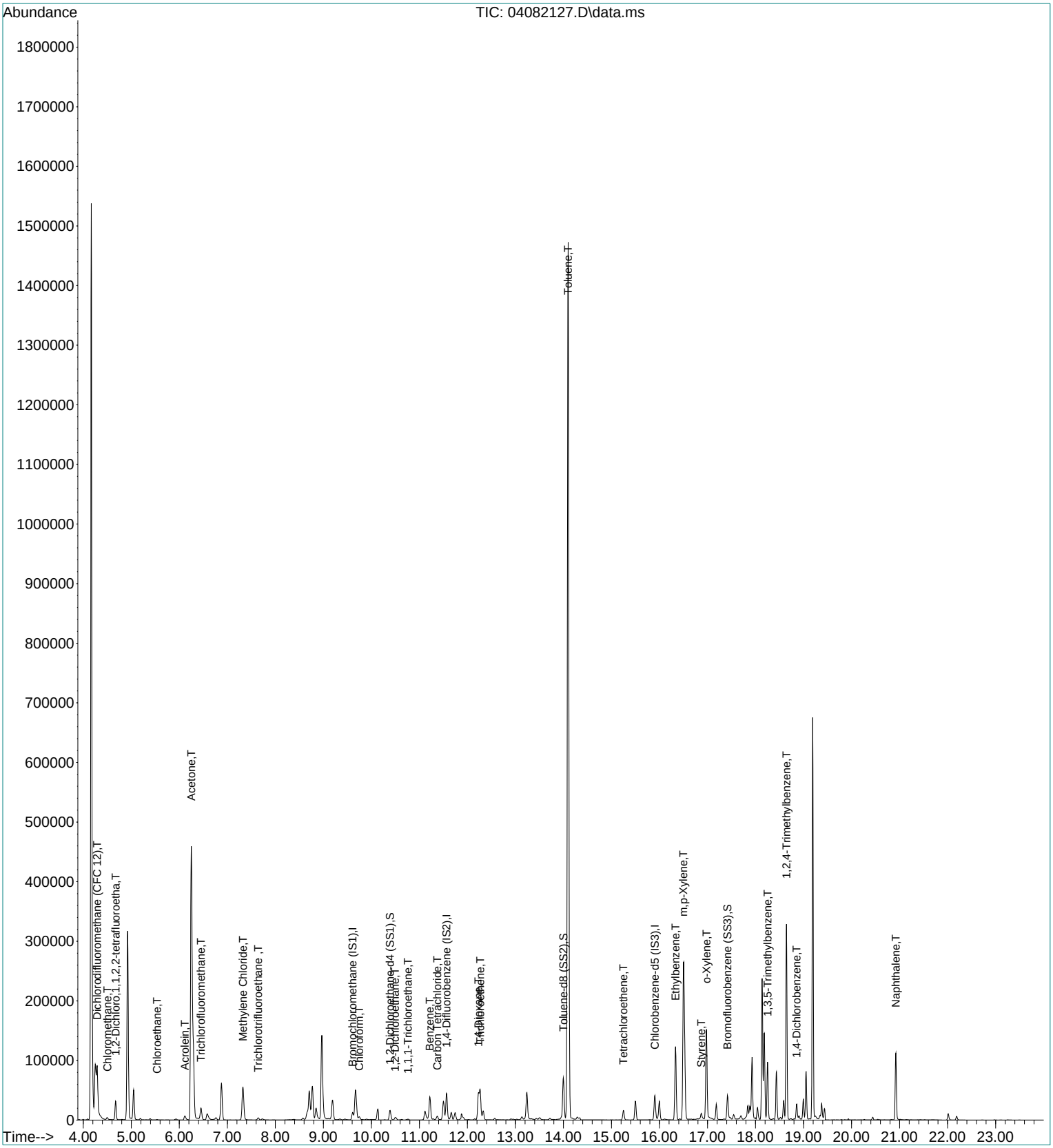
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.27	225	56	N.D.		

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082127.D Vial: 8
Acq On : 8 Apr 2021 19:09 Operator: TZ
Sample : P2101759-007 (1000mL) Inst : MS19
Misc : S34-01272101

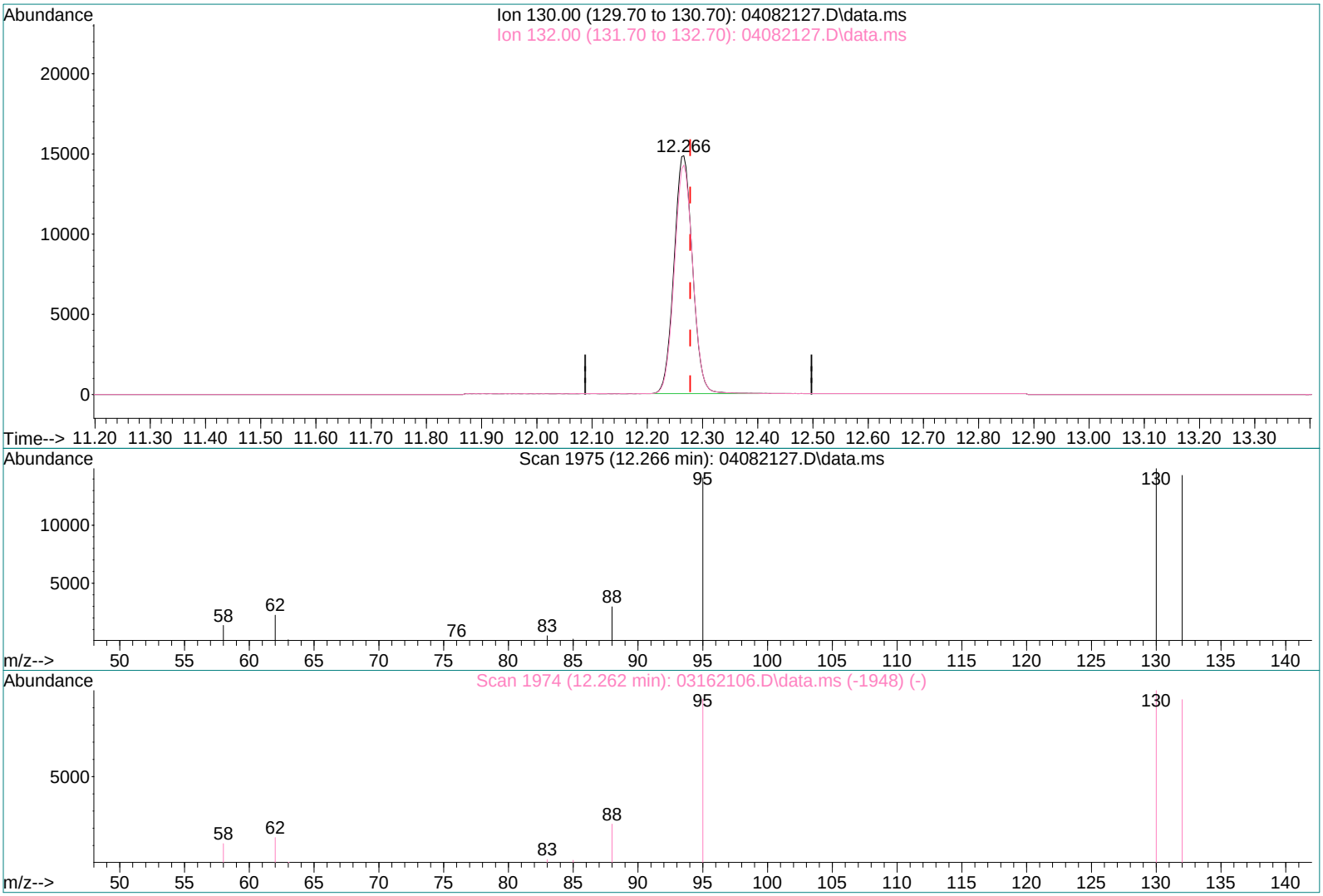
Quant Time: Apr 09 10:52:46 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082127.D Vial: 8
Acq On : 8 Apr 2021 19:09 Operator: TZ
Sample : P2101759-007 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:48 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 04082127.D\data.ms

(28) Trichloroethene (T)

12.266min (-0.011) 1417.51pg

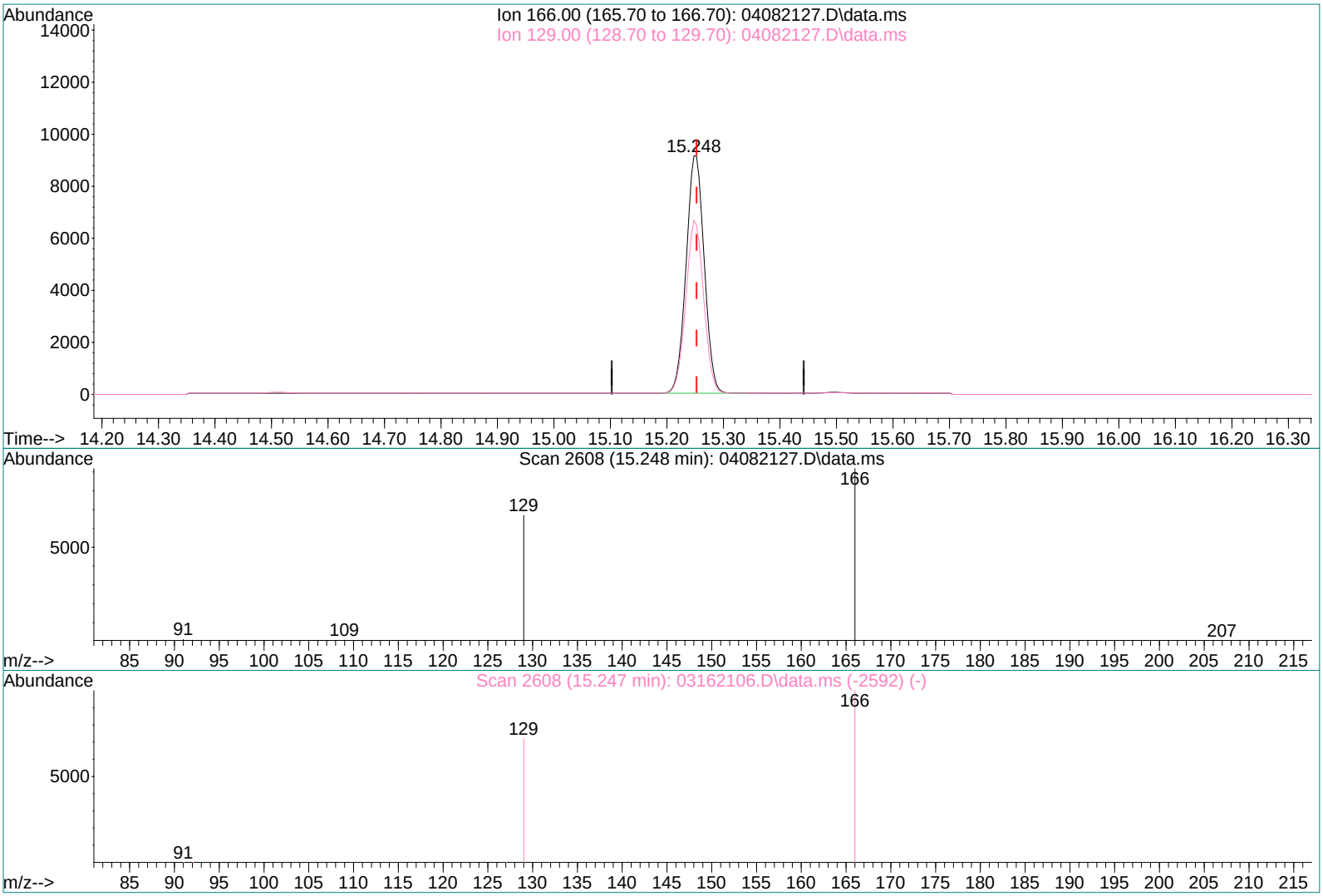
response 34568

Ion	Exp%	Act%
130.00	100	100
132.00	95.00	95.79
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082127.D Vial: 8
Acq On : 8 Apr 2021 19:09 Operator: TZ
Sample : P2101759-007 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:48 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 04082127.D\data.ms

(37) Tetrachloroethene (T)

15.248min (-0.005) 841.90pg

response 20283

Ion	Exp%	Act%
166.00	100	100
129.00	71.50	71.75
0.00	0.00	0.00
0.00	0.00	0.00

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP Group**
Client Sample ID: **HUCKIAF033121-6** ALS Project ID: P2101759
Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006 02** ALS Sample ID: P2101759-008

Test Code: EPA TO-15 SIM Date Collected: 3/31/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 4/6/21
Analyst: Topacio Zavala Date Analyzed: 4/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SSC00237

Initial Pressure (psig): -2.29 Final Pressure (psig): 4.12

Container Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.17	0.014	ND	0.042	0.0035	
79-01-6	Trichloroethene	**1.1**	0.17	0.013	**0.21**	0.031	0.0024	
127-18-4	Tetrachloroethene	**0.32**	0.15	0.012	**0.047**	0.022	0.0018	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082128.D Vial: 9
Acq On : 8 Apr 2021 19:41 Operator: TZ
Sample : P2101759-008 (1000mL) Inst : MS19
Misc : S34-01272101

TZ 4/9/21

Quant Time: Apr 09 08:02:49 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18486	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.57	114	86773	1000.000	pg		-0.01
38) Chlorobenzene-d5 (IS3)	15.90	54	14031	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.39	65	26224	938.120	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 93.81%				
33) Toluene-d8 (SS2)	14.00	98	92607	977.125	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.71%				
45) Bromofluorobenzene (SS3)	17.41	174	29445	1050.299	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 105.03%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.30	85	56746	1326.744	pg		100
3) Chloromethane	4.51	52	981	125.136	pg		98
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	4013	72.653	pg		99
5) Vinyl Chloride	4.81	62	453	N.D.			
6) 1,3-Butadiene	5.00	54	787	N.D.			
7) Bromomethane	5.31	94	455	N.D.			
8) Chloroethane	5.55	64	232	N.D.			
9) Acrolein	6.13	56	2927	324.886	pg		100
10) Acetone	6.26	58	108693	9007.856	pg	#	88
11) Trichlorofluoromethane	6.45	101	23886	698.764	pg		100
12) 1,1-Dichloroethene	7.18	96	70	N.D.			
13) Methylene Chloride	7.33	84	7176	338.285	pg		96
14) Trichlorotrifluoroethane	7.65	151	4657	285.219	pg		99
15) trans-1,2-Dichloroethene	8.36	96	246	N.D.			
16) 1,1-Dichloroethane	8.58	63	237	N.D.			
17) Methyl tert-Butyl Ether	8.66	73	161	N.D.			
18) cis-1,2-Dichloroethene	9.46	96	250	N.D.			
19) Chloroform	9.76	83	3749	101.032	pg		100
21) 1,2-Dichloroethane	10.51	62	1842	68.735	pg		100
22) 1,1,1-Trichloroethane	10.77	97	303	N.D.			
23) Benzene	11.22	78	41006	486.478	pg		100
24) Carbon Tetrachloride	11.37	117	6166	234.435	pg		100
26) 1,2-Dichloropropane	12.03	63	346	N.D.			
27) Bromodichloromethane	12.23	83	753	N.D.			
28) Trichloroethene	12.27	130	18659	737.284	pg		99
29) 1,4-Dioxane	12.24	88	6527	327.459	pg		98
30) cis-1,3-Dichloropropene	13.11	75	92	N.D.			
31) trans-1,3-Dichloropropene	13.62	75	57	N.D.			
32) 1,1,2-Trichloroethane	13.80	83	102	N.D.			
34) Toluene	14.10	91	241569	2530.697	pg		100
35) Dibromochloromethane	14.51	129	102	N.D.			
36) 1,2-Dibromoethane	14.77	107	70	N.D.			
37) Tetrachloroethene	15.25	166	5295	211.782	pg		100
39) Chlorobenzene	15.89	112	180	N.D.			
40) Ethylbenzene	16.34	91	32278	333.044	pg		99
41) m,p-Xylene	16.50	91	63822	860.503	pg		100
42) Styrene	16.88	104	4189	79.781	pg		98
43) o-Xylene	16.98	106	14066	378.853	pg		99
44) 1,1,2,2-Tetrachloroethane	16.97	83	147	N.D.			
46) 1,3,5-Trimethylbenzene	18.25	105	7753	98.349	pg		100
47) 1,2,4-Trimethylbenzene	18.64	105	26490	318.603	pg		89
48) 1,3-Dichlorobenzene	18.80	146	195	N.D.			
49) 1,4-Dichlorobenzene	18.86	146	2052	N.D.			
50) 1,2-Dichlorobenzene	19.18	146	289	N.D.			
51) 1,2-Dibromo-3-chloropr...	19.60	157	66	N.D.			
52) 1,2,4-Trichlorobenzene	20.82	182	114	N.D.			
53) Naphthalene	20.93	128	10409	100.561	pg		99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082128.D Vial: 9
Acq On : 8 Apr 2021 19:41 Operator: TZ
Sample : P2101759-008 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:49 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.26	225	59	N.D.		

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082128.D Vial: 9
Acq On : 8 Apr 2021 19:41 Operator: TZ
Sample : P2101759-008 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:49 2021
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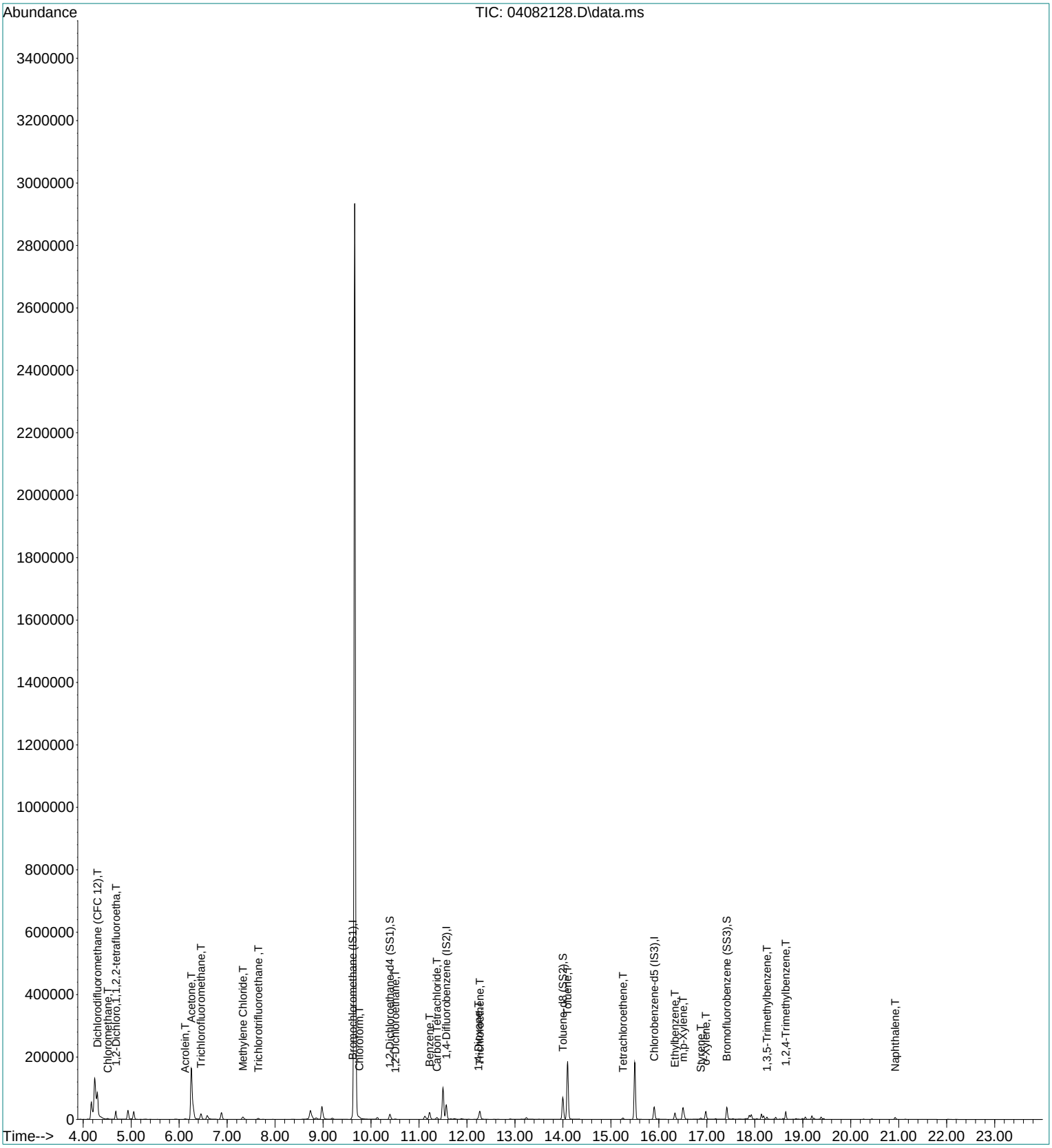
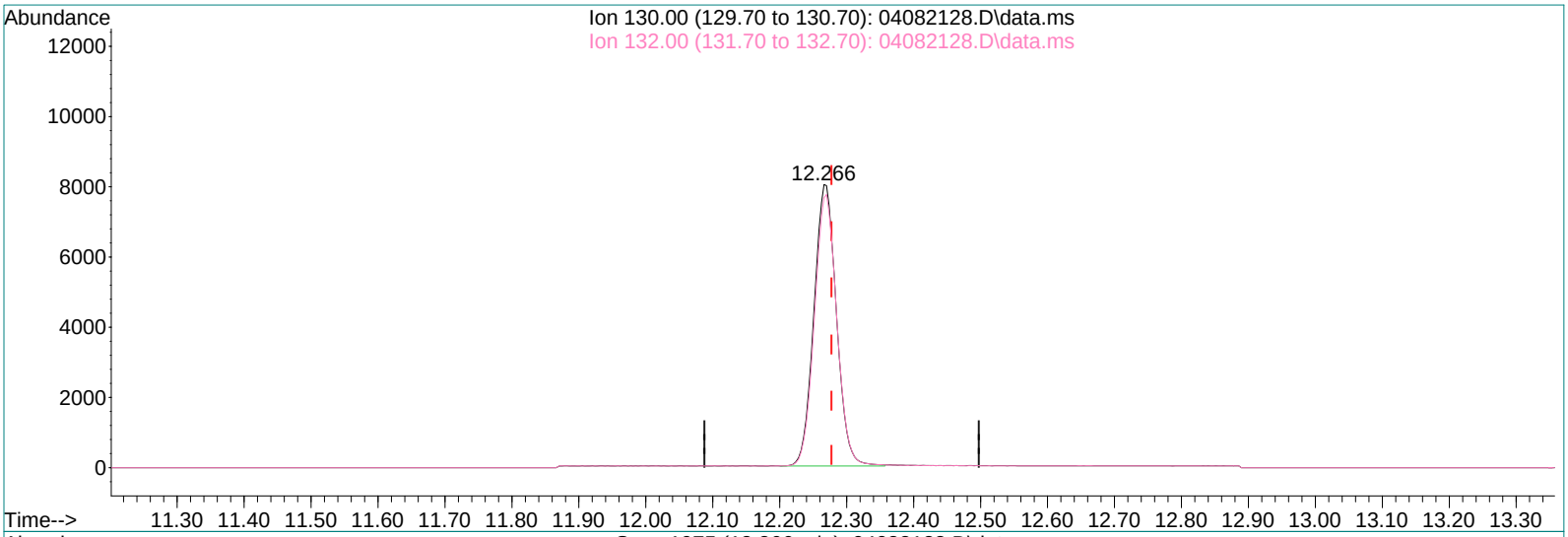
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

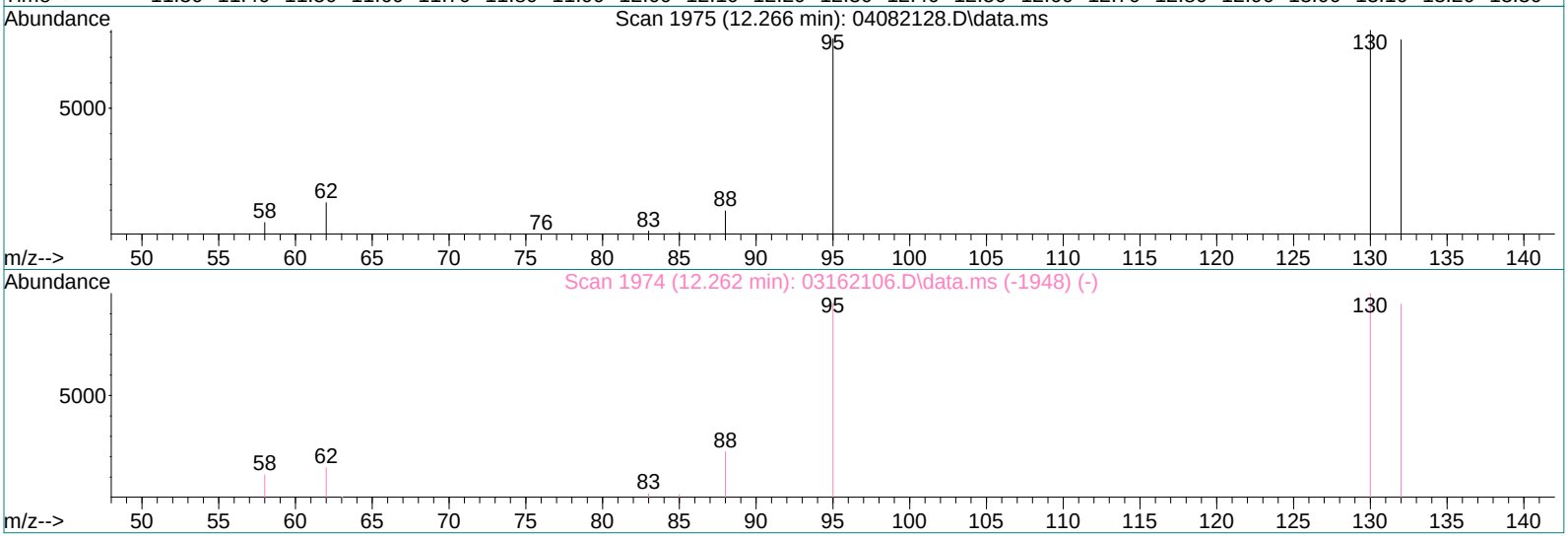


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 04\08\04082128.D Vial: 9
Acq On : 8 Apr 2021 19:41 Operator: TZ
Sample : P2101759-008 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:49 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 04082128.D\data.ms

(28) Trichloroethene (T)

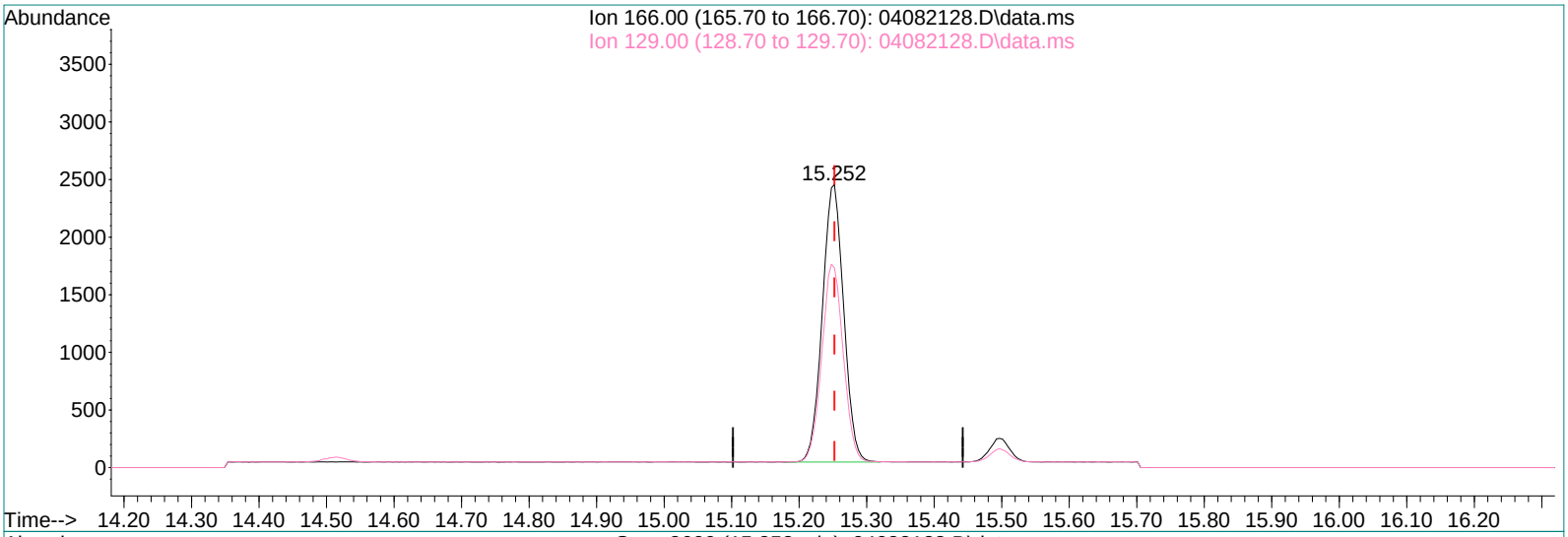
12.266min (-0.012) 737.28pg

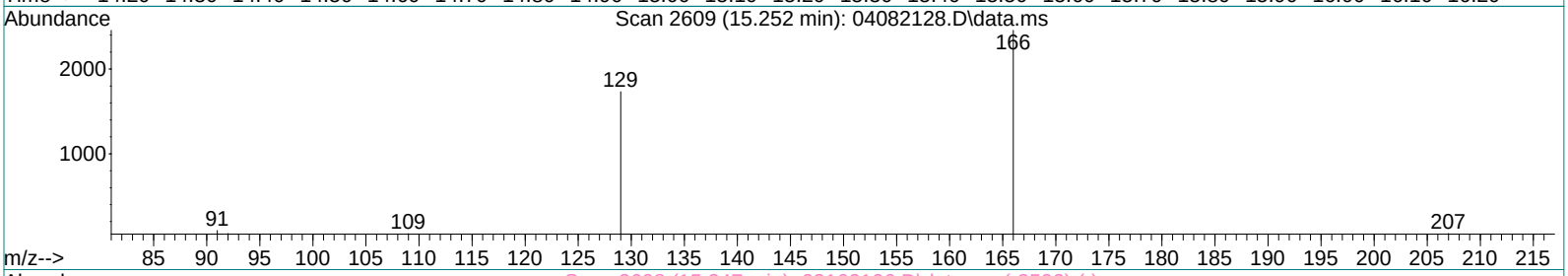
response 18659

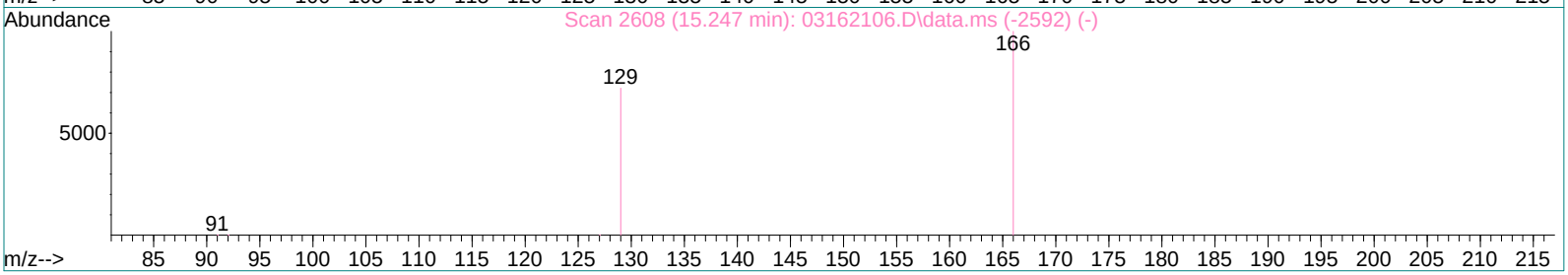
Ion	Exp%	Act%
130.00	100	100
132.00	95.00	96.17
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2021 04\08\04082128.D Vial: 9
Acq On : 8 Apr 2021 19:41 Operator: TZ
Sample : P2101759-008 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 09 08:02:49 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 04082128.D\data.ms

(37) Tetrachloroethene (T)

15.252min (-0.000) 211.78pg

response 5295

Ion	Exp%	Act%
166.00	100	100
129.00	71.50	71.54
0.00	0.00	0.00
0.00	0.00	0.00

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP Group**
Client Sample ID: **TRIP BLANK** ALS Project ID: P2101759
Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006 02** ALS Sample ID: P2101759-009

Test Code: EPA TO-15 SIM Date Collected: 3/31/21
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: 4/6/21
Analyst: Topacio Zavala Date Analyzed: 4/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00684

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.11	0.0092	ND	0.028	0.0023	
79-01-6	Trichloroethene	ND	0.11	0.0085	ND	0.020	0.0016	
127-18-4	Tetrachloroethene	ND	0.10	0.0082	ND	0.015	0.0012	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082119.D Vial: 10
Acq On : 8 Apr 2021 14:58 Operator: TZ
Sample : P2101759-009 (1000mL) Inst : MS19
Misc : S34-01272101

TZ 4/8/21

Quant Time: Apr 08 15:31:11 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	14125	1000.000	pg	-0.02
25) 1,4-Difluorobenzene (IS2)	11.57	114	66487	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	15.90	54	10703	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.39	65	20234	947.318	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 94.73%			
33) Toluene-d8 (SS2)	14.00	98	71959	990.921	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.09%			
45) Bromofluorobenzene (SS3)	17.42	174	21849	1021.683	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.17%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.34	85	106	N.D.		
3) Chloromethane	0.00	52	0	N.D.		
4) 1,2-Dichloro,1,1,2,2-t...	4.73	85	113	N.D.		
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	5.07	54	62	N.D.		
7) Bromomethane	0.00	94	0	N.D.		
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	0.00	56	0	N.D.		
10) Acetone	6.34	58	969	105.099	pg	99
11) Trichlorofluoromethane	6.49	101	74	N.D.		
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.36	84	136	N.D.		
14) Trichlorotrifluoroethane	0.00	151	0	N.D.		
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	8.58	63	52	N.D.		
17) Methyl tert-Butyl Ether	8.70	73	53	N.D.		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.75	83	51	N.D.		
21) 1,2-Dichloroethane	0.00	62	0	N.D.		
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.23	78	3211	N.D.		
24) Carbon Tetrachloride	0.00	117	0	N.D.		
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	0.00	130	0	N.D.		
29) 1,4-Dioxane	0.00	88	0	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.		
34) Toluene	14.11	91	574	N.D.		
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	0.00	166	0	N.D.		
39) Chlorobenzene	15.95	112	120	N.D.		
40) Ethylbenzene	16.37	91	184	N.D.		
41) m,p-Xylene	16.55	91	289	N.D.		
42) Styrene	16.92	104	133	N.D.		
43) o-Xylene	17.00	106	88	N.D.		
44) 1,1,2,2-Tetrachloroethane	16.97	83	79	N.D.		
46) 1,3,5-Trimethylbenzene	18.26	105	118	N.D.		
47) 1,2,4-Trimethylbenzene	18.66	105	127	N.D.		
48) 1,3-Dichlorobenzene	18.82	146	64	N.D.		
49) 1,4-Dichlorobenzene	18.88	146	71	N.D.		
50) 1,2-Dichlorobenzene	19.20	146	62	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.84	182	63	N.D.		
53) Naphthalene	20.98	128	85	N.D.		

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082119.D Vial: 10
Acq On : 8 Apr 2021 14:58 Operator: TZ
Sample : P2101759-009 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 08 15:31:11 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

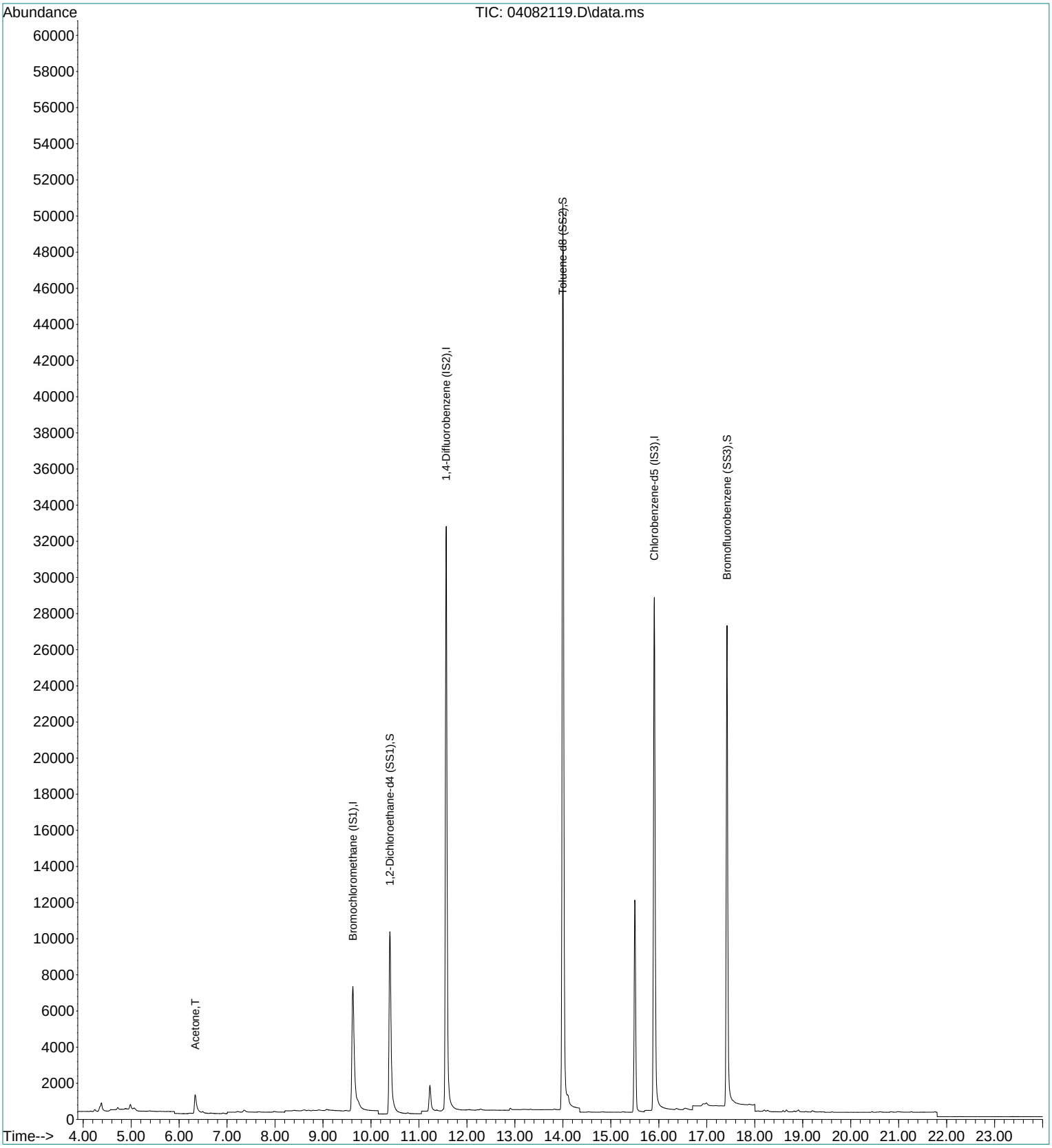
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082119.D Vial: 10
Acq On : 8 Apr 2021 14:58 Operator: TZ
Sample : P2101759-009 (1000mL) Inst : MS19
Misc : S34-01272101

Quant Time: Apr 08 15:31:11 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19031621.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

TR 3/17/21

Last Update : Tue Mar 16 14:07:28 2021
Response Via : Initial Calibration

Calibration Files
20 =03162102.D 50 =03162103.D 100 =03162104.D 500 =03162105.D 1000=03162106.D 5000=03162111.D 10K =03162108.D
25K =03162109.D 50K =03162112.D

		Compound	20	50	100	500	1000	5000	10K	25K	50K	Avg	%RSD
1)	I	Bromochloromethane...	----------ISTD----------										
2)	T	Dichlorodifluo...	2.636	2.729	2.155	2.457	2.322	2.565	1.970	2.070	1.920	2.314	12.95
3)	T	Chloromethane	0.459	0.566	0.250	0.498	0.349	0.422				0.424	26.40
4)	T	1,2-Dichloro,1...	3.335	3.480	2.736	3.168	3.055	3.360	2.539	2.689	2.529	2.988	12.43
5)	T	Vinyl Chloride	2.543	3.143	2.414	2.845	2.708	3.067	2.352	2.443	2.191	2.634	12.49
6)	T	1,3-Butadiene	0.914	1.065	0.820	1.067	1.087	1.411				1.061	18.99
7)	T	Bromomethane	0.965	0.968	0.773	0.893	0.871	0.984	0.732	0.771	0.702	0.851	12.82
8)	T	Chloroethane	0.612	0.686	0.543	0.644	0.621	0.705	0.538	0.564	0.507	0.602	11.42
9)	T	Acrolein	0.551	0.514	0.395	0.472	0.474	0.590	0.449	0.492	0.451	0.487	11.94
10)	T	Acetone			0.681	0.644	0.623	0.743	0.573			0.653	9.77
11)	T	Trichlorofluor...	1.966	2.098	1.661	1.954	1.874	2.143	1.629	1.721	1.597	1.849	11.11
12)	T	1,1-Dichloroet...	1.178	1.191	1.000	1.154	1.109	1.298	0.993	1.061	0.980	1.107	9.76
13)	T	Methylene Chlo...	1.246	1.287	1.025	1.195	1.143	1.338	1.016	1.084	0.993	1.148	11.01
14)	T	Trichlorotrifl...	0.914	0.981	0.769	0.905	0.893	1.024	0.751	0.844	0.868	0.883	10.06
15)	T	trans-1,2-Dich...	0.937	1.241	0.967	1.187	1.133	1.334	1.011	1.097	1.016	1.103	12.11
16)	T	1,1-Dichloroet...	1.786	1.927	1.526	1.890	1.810	2.092	1.544	1.658	1.508	1.749	11.66
17)	T	Methyl tert-Bu...	3.133	3.326	2.134	3.224	3.053	2.579				2.908	15.79
18)	T	cis-1,2-Dichlo...	1.178	1.295	1.035	1.266	1.217	1.440	1.085	1.188	1.113	1.202	10.19
19)	T	Chloroform	2.117	2.212	1.774	2.095	2.003	2.350	1.763	1.936	1.817	2.007	10.19
20)	S	1,2-Dichloroet...	1.553	1.559	1.581	1.552	1.560	1.574	1.493	1.396	1.344	1.512	5.65
21)	T	1,2-Dichloroet...	1.387	1.526	1.291	1.528	1.475	1.734	1.321	1.437	1.348	1.450	9.43
22)	T	1,1,1-Trichlor...	1.747	1.933	1.366	1.804	1.717	2.031	1.401	1.584	1.490	1.675	13.84
23)	T	Benzene	5.039	5.122	3.924	4.589	4.433	5.220	4.031	4.454	4.226	4.560	10.42
24)	T	Carbon Tetrach...	1.495	1.511	1.152	1.476	1.422	1.738	1.243	1.412	1.355	1.423	11.81
25)	I	1,4-Difluorobenzen...	----------ISTD----------										
26)	T	1,2-Dichloropr...	0.208	0.238	0.191	0.233	0.225	0.265	0.201	0.231	0.242	0.226	10.12
27)	T	Bromodichlorom...	0.321	0.359	0.279	0.345	0.332	0.411	0.319	0.389	0.436	0.355	13.98
28)	T	Trichloroethene	0.281	0.308	0.239	0.292	0.281	0.332	0.255	0.305	0.333	0.292	10.93
29)	T	1,4-Dioxane	0.233	0.268	0.218	0.207	0.201	0.251	0.191	0.234	0.264	0.230	12.06
30)	T	cis-1,3-Dichlo...	0.259	0.314	0.259	0.334	0.336	0.451	0.355	0.452		0.345	21.60
31)	T	trans-1,3-Dich...		0.203	0.184	0.257	0.273	0.396	0.313	0.380		0.287	28.47
32)	T	1,1,2-Trichlor...	0.205	0.221	0.178	0.211	0.204	0.241	0.184	0.215	0.230	0.210	9.64
33)	S	Toluene-d8 (SS2)	1.086	1.084	1.094	1.091	1.088	1.089	1.099	1.104	1.096	1.092	0.60
34)	T	Toluene	1.147	1.187	0.929	1.065	1.022	1.227	0.951	1.135	1.237	1.100	10.41
35)	T	Dibromochlorom...	0.230	0.260	0.205	0.258	0.253	0.317	0.246	0.296	0.319	0.265	14.62
36)	T	1,2-Dibromoethane	0.228	0.271	0.222	0.269	0.264	0.320	0.248	0.289	0.307	0.269	12.37
37)	T	Tetrachloroethene	0.297	0.307	0.243	0.285	0.271	0.317	0.247	0.297	0.330	0.288	10.36

38)	I	Chlorobenzene-d5 (...	----------	----------	ISTD	----------	----------	----------			
39)	T	Chlorobenzene	4.632	4.872	3.758	4.292	4.067	4.716	3.577	4.273	11.61
40)	T	Ethylbenzene	7.045	7.494	5.921	7.029	6.765	8.024	6.075	6.907	10.75
41)	T	m,p-Xylene	5.231	5.781	4.553	5.258	5.094	6.285	4.802	5.286	11.07
42)	T	Styrene		3.330	2.851	3.775	3.818	4.937	3.742	3.742	18.51
43)	T	o-Xylene	2.646	2.947	2.293	2.665	2.568	3.066	2.338	2.646	10.83
44)	T	1,1,2,2-Tetrac...	2.517	2.773	2.217	2.555	2.463	2.924	2.237	2.527	10.26
45)	S	Bromofluoroben...	1.935	1.974	1.996	2.029	2.038	2.030	1.984	1.998	1.86
46)	T	1,3,5-Trimethy...	5.653	6.049	4.842	5.604	5.434	6.678	5.068	5.618	10.90
47)	T	1,2,4-Trimethy...	5.586	6.347	5.113	5.678	5.588	7.366	5.802	5.926	12.36
48)	T	1,3-Dichlorobe...	3.125	3.734	2.960	3.208	3.145	3.968	3.089	3.318	11.38
49)	T	1,4-Dichlorobe...	3.886	4.194	3.252	3.314	3.202	3.907	2.973	3.533	12.93
50)	T	1,2-Dichlorobe...	3.555	4.042	3.120	3.164	3.058	3.875	3.028	3.406	12.29
51)	T	1,2-Dibromo-3-...	1.016	1.288	1.057	1.031	1.039	1.396	1.110	1.134	13.10
52)	T	1,2,4-Trichlor...	2.594	3.076	2.291	1.974	1.954	2.761	2.088	2.391	18.03
53)	T	Naphthalene	7.510	9.869	7.026	5.872	6.047	8.981	6.335	7.377	20.74
54)	T	Hexachlorobuta...	1.677	1.792	1.404	1.251	1.191	1.444	1.119	1.411	17.76

(#) = Out of Range

S19031621.M Wed Mar 17 12:34:01 2021

Primary Source Standards Concentrations (Working & Initial Calibration)

TZ 3/19/21

0.2ng/L Std. ID:			4ng/L Std. ID:				
1ng/L Std. ID:	S34-03152102		20ng/L Std. ID:	S34-03102102			
2ng/L Std. ID:			200ng/L Std. ID:	S34-03152101			
Dilution Factors:	5	50	250	500	1000	5000	

	Source Std.	Primary Working Standards						Working STD Conc.(ng/L):	NA	1	1	1	20	20	20	200	200	200
								Injection (L):	NA	0.020	0.050	0.100	0.025	0.050	0.250	0.050	0.125	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	2ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	5ng	10ng	25ng	50ng
Propene	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Dichlorodifluoromethane	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Chloromethane	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Freon-114	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Vinyl Chloride	1.05	210	21.0	4.20	2.10	1.05	0.210		NA	0.0210	0.0525	0.105	0.525	1.05	5.25	10.5	26.25	52.5
1,3-Butadiene	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Bromomethane	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Chloroethane	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Ethanol	5.28	1056	105.6	21.12	10.56	5.28	1.056		NA	0.1056	0.2640	0.528	2.640	5.28	26.40	52.8	132.00	264.0
Acetonitrile	1.06	212	21.2	4.24	2.12	1.06	0.212		NA	0.0212	0.0530	0.106	0.530	1.06	5.30	10.6	26.50	53.0
Acrolein	2.18	436	43.6	8.72	4.36	2.18	0.436		NA	0.0436	0.1090	0.218	1.090	2.18	10.90	21.8	54.50	109.0
Acetone	5.16	1032	103.2	20.64	10.32	5.16	1.032		NA	0.1032	0.2580	0.516	2.580	5.16	25.80	51.6	129.00	258.0
Trichlorofluoromethane	1.02	204	20.4	4.08	2.04	1.02	0.204		NA	0.0204	0.0510	0.102	0.510	1.02	5.10	10.2	25.50	51.0
Isopropanol	2.05	410	41.0	8.20	4.10	2.05	0.410		NA	0.0410	0.1025	0.205	1.025	2.05	10.25	20.5	51.25	102.5
Acrylonitrile	2.05	410	41.0	8.20	4.10	2.05	0.410		NA	0.0410	0.1025	0.205	1.025	2.05	10.25	20.5	51.25	102.5
1,1-Dichloroethene	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
tert-Butanol	2.07	414	41.4	8.28	4.14	2.07	0.414		NA	0.0414	0.1035	0.207	1.035	2.07	10.35	20.7	51.75	103.5
Methylene Chloride	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Allyl Chloride	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Trichlorotrifluoroethane	1.05	210	21.0	4.20	2.10	1.05	0.210		NA	0.0210	0.0525	0.105	0.525	1.05	5.25	10.5	26.25	52.5
Carbon Disulfide	2.08	416	41.6	8.32	4.16	2.08	0.416		NA	0.0416	0.1040	0.208	1.040	2.08	10.40	20.8	52.00	104.0
trans-1,2-Dichloroethene	1.05	210	21.0	4.20	2.10	1.05	0.210		NA	0.0210	0.0525	0.105	0.525	1.05	5.25	10.5	26.25	52.5
1,1-Dichloroethane	1.07	214	21.4	4.28	2.14	1.07	0.214		NA	0.0214	0.0535	0.107	0.535	1.07	5.35	10.7	26.75	53.5
Methyl tert-Butyl Ether	1.03	206	20.6	4.12	2.06	1.03	0.206		NA	0.0206	0.0515	0.103	0.515	1.03	5.15	10.3	25.75	51.5
Vinyl Acetate	5.49	1098	109.8	21.96	10.98	5.49	1.098		NA	0.1098	0.2745	0.549	2.745	5.49	27.45	54.9	137.25	274.5
2-Butanone	2.06	412	41.2	8.24	4.12	2.06	0.412		NA	0.0412	0.1030	0.206	1.030	2.06	10.30	20.6	51.50	103.0
cis-1,2-Dichloroethene	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Diisopropyl Ether	2.09	418	41.8	8.36	4.18	2.09	0.418		NA	0.0418	0.1045	0.209	1.045	2.09	10.45	20.9	52.25	104.5
Ethyl Acetate	2.08	416	41.6	8.32	4.16	2.08	0.416		NA	0.0416	0.1040	0.208	1.040	2.08	10.40	20.8	52.00	104.0
n-Hexane	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Chloroform	1.05	210	21.0	4.20	2.10	1.05	0.210		NA	0.0210	0.0525	0.105	0.525	1.05	5.25	10.5	26.25	52.5
Tetrahydrofuran	2.04	408	40.8	8.16	4.08	2.04	0.408		NA	0.0408	0.1020	0.204	1.020	2.04	10.20	20.4	51.00	102.0
Ethyl tert-Butyl Ether	2.08	416	41.6	8.32	4.16	2.08	0.416		NA	0.0416	0.1040	0.208	1.040	2.08	10.40	20.8	52.00	104.0
1,2-Dichloroethane	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
1,1,1-Trichloroethane	1.03	206	20.6	4.12	2.06	1.03	0.206		NA	0.0206	0.0515	0.103	0.515	1.03	5.15	10.3	25.75	51.5
Benzene	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Carbon Tetrachloride	1.02	204	20.4	4.08	2.04	1.02	0.204		NA	0.0204	0.0510	0.102	0.510	1.02	5.10	10.2	25.50	51.0
Cyclohexane	2.07	414	41.4	8.28	4.14	2.07	0.414		NA	0.0414	0.1035	0.207	1.035	2.07	10.35	20.7	51.75	103.5
tert-Amyl Methyl Ether	2.07	414	41.4	8.28	4.14	2.07	0.414		NA	0.0414	0.1035	0.207	1.035	2.07	10.35	20.7	51.75	103.5
1,2-Dichloropropane	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Bromodichloromethane	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Trichloroethene	1.02	204	20.4	4.08	2.04	1.02	0.204		NA	0.0204	0.0510	0.102	0.510	1.02	5.10	10.2	25.50	51.0
1,4-Dioxane	1.03	206	20.6	4.12	2.06	1.03	0.206		NA	0.0206	0.0515	0.103	0.515	1.03	5.15	10.3	25.75	51.5
Isooctane	1.05	210	21.0	4.20	2.10	1.05	0.210		NA	0.0210	0.0525	0.105	0.525	1.05	5.25	10.5	26.25	52.5
Methyl Methacrylate	2.08	416	41.6	8.32	4.16	2.08	0.416		NA	0.0416	0.1040	0.208	1.040	2.08	10.40	20.8	52.00	104.0
n-Heptane	1.03	206	20.6	4.12	2.06	1.03	0.206		NA	0.0206	0.0515	0.103	0.515	1.03	5.15	10.3	25.75	51.5
cis-1,3-Dichloropropene	1.05	210	21.0	4.20	2.10	1.05	0.210		NA	0.0210	0.0525	0.105	0.525	1.05	5.25	10.5	26.25	52.5
4-Methyl-2-pentanone	2.08	416	41.6	8.32	4.16	2.08	0.416		NA	0.0416	0.1040	0.208	1.040	2.08	10.40	20.8	52.00	104.0

Primary Source Standards Concentrations (Working & Initial Calibration)

0.2ng/L Std. ID:		4ng/L Std. ID:					
1ng/L Std. ID:	S34-03152102	20ng/L Std. ID:	S34-03102102				
2ng/L Std. ID:		200ng/L Std. ID:	S34-03152101				
Dilution Factors:	5	50	250	500	1000	5000	

	Source Std.	Primary Working Standards						Working STD Conc.(ng/L):	NA	1	1	1	20	20	20	200	200	200
								Injection (L):	NA	0.020	0.050	0.100	0.025	0.050	0.250	0.050	0.125	0.250
Compounds	mg/m^3	200ng/L	20ng/L	4ng/L	2ng/L	1ng/L	0.2ng/L	ICAL Points:	0.01ng	0.02ng	0.05ng	0.1ng	0.5ng	1ng	5ng	10ng	25ng	50ng
trans-1,3-Dichloropropene	1.02	204	20.4	4.08	2.04	1.02	0.204		NA	0.0204	0.0510	0.102	0.510	1.02	5.10	10.2	25.50	51.0
1,1,2-Trichloroethane	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Toluene	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
2-Hexanone	2.06	412	41.2	8.24	4.12	2.06	0.412		NA	0.0412	0.1030	0.206	1.030	2.06	10.30	20.6	51.50	103.0
Dibromochloromethane	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
1,2-Dibromoethane	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
n-Butyl Acetate	2.07	414	41.4	8.28	4.14	2.07	0.414		NA	0.0414	0.1035	0.207	1.035	2.07	10.35	20.7	51.75	103.5
n-Octane	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Tetrachloroethene	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
Chlorobenzene	1.03	206	20.6	4.12	2.06	1.03	0.206		NA	0.0206	0.0515	0.103	0.515	1.03	5.15	10.3	25.75	51.5
Ethylbenzene	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
m-&p-Xylene	2.09	418	41.8	8.36	4.18	2.09	0.418		NA	0.0418	0.1045	0.209	1.045	2.09	10.45	20.9	52.25	104.5
Bromoform	1.06	212	21.2	4.24	2.12	1.06	0.212		NA	0.0212	0.0530	0.106	0.530	1.06	5.30	10.6	26.50	53.0
Styrene	1.03	206	20.6	4.12	2.06	1.03	0.206		NA	0.0206	0.0515	0.103	0.515	1.03	5.15	10.3	25.75	51.5
o-Xylene	1.05	210	21.0	4.20	2.10	1.05	0.210		NA	0.0210	0.0525	0.105	0.525	1.05	5.25	10.5	26.25	52.5
n-Nonane	1.05	210	21.0	4.20	2.10	1.05	0.210		NA	0.0210	0.0525	0.105	0.525	1.05	5.25	10.5	26.25	52.5
1,1,2,2-Tetrachloroethane	1.05	210	21.0	4.20	2.10	1.05	0.210		NA	0.0210	0.0525	0.105	0.525	1.05	5.25	10.5	26.25	52.5
Cumene	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
alpha-Pinene	1.06	212	21.2	4.24	2.12	1.06	0.212		NA	0.0212	0.0530	0.106	0.530	1.06	5.30	10.6	26.50	53.0
n-Propylbenzene	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
4-Ethyltoluene	1.05	210	21.0	4.20	2.10	1.05	0.210		NA	0.0210	0.0525	0.105	0.525	1.05	5.25	10.5	26.25	52.5
1,3,5-Trimethylbenzene	1.05	210	21.0	4.20	2.10	1.05	0.210		NA	0.0210	0.0525	0.105	0.525	1.05	5.25	10.5	26.25	52.5
1,2,4-Trimethylbenzene	1.03	206	20.6	4.12	2.06	1.03	0.206		NA	0.0206	0.0515	0.103	0.515	1.03	5.15	10.3	25.75	51.5
Benzyl Chloride	2.10	420	42.0	8.40	4.20	2.10	0.420		NA	0.0420	0.1050	0.210	1.050	2.10	10.50	21.0	52.50	105.0
1,3-Dichlorobenzene	1.05	210	21.0	4.20	2.10	1.05	0.210		NA	0.0210	0.0525	0.105	0.525	1.05	5.25	10.5	26.25	52.5
1,4-Dichlorobenzene	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
sec-Butylbenzene	1.03	206	20.6	4.12	2.06	1.03	0.206		NA	0.0206	0.0515	0.103	0.515	1.03	5.15	10.3	25.75	51.5
p-Isopropyltoluene	1.02	204	20.4	4.08	2.04	1.02	0.204		NA	0.0204	0.0510	0.102	0.510	1.02	5.10	10.2	25.50	51.0
1,2-Dichlorobenzene	1.05	210	21.0	4.20	2.10	1.05	0.210		NA	0.0210	0.0525	0.105	0.525	1.05	5.25	10.5	26.25	52.5
d-Limonene	1.03	206	20.6	4.12	2.06	1.03	0.206		NA	0.0206	0.0515	0.103	0.515	1.03	5.15	10.3	25.75	51.5
1,2-Dibromo-3-chloropropane	2.00	400	40.0	8.00	4.00	2.00	0.400		NA	0.0400	0.1000	0.200	1.000	2.00	10.00	20.0	50.00	100.0
1,2,4-Trichlorobenzene	2.00	400	40.0	8.00	4.00	2.00	0.400		NA	0.0400	0.1000	0.200	1.000	2.00	10.00	20.0	50.00	100.0
Naphthalene	1.03	206	20.6	4.12	2.06	1.03	0.206		NA	0.0206	0.0515	0.103	0.515	1.03	5.15	10.3	25.75	51.5
Hexachloro-1,3-butadiene	1.03	206	20.6	4.12	2.06	1.03	0.206		NA	0.0206	0.0515	0.103	0.515	1.03	5.15	10.3	25.75	51.5
tert-Butylbenzene	1.04	208	20.8	4.16	2.08	1.04	0.208		NA	0.0208	0.0520	0.104	0.520	1.04	5.20	10.4	26.00	52.0
n-Butylbenzene	1.03	206	20.6	4.12	2.06	1.03	0.206		NA	0.0206	0.0515	0.103	0.515	1.03	5.15	10.3	25.75	51.5
1,1,1,2-Tetrachloroethane	1.03	206	20.6	4.12	2.06	1.03	0.206		NA	0.0206	0.0515	0.103	0.515	1.03	5.15	10.3	25.75	51.5

Calibration Status Report MS19

Method   : I:\MS19\METHODS\S19031621.M (RTE Integrator)
Title   : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration

TZ 3/17/21

#	ID	Conc	ISTD Conc	Path\File
1	20	21	1000	I:\MS19\DATA\2021_03\16\03162102.D
2	50	52	1000	I:\MS19\DATA\2021_03\16\03162103.D
3	100	104	1000	I:\MS19\DATA\2021_03\16\03162104.D
4	500	520	1000	I:\MS19\DATA\2021_03\16\03162105.D
5	1000	1040	1000	I:\MS19\DATA\2021_03\16\03162106.D
6	5000	5200	1000	I:\MS19\DATA\2021_03\16\03162111.D
7	10K	10400	1000	I:\MS19\DATA\2021_03\16\03162108.D
8	25K	26000	1000	I:\MS19\DATA\2021_03\16\03162109.D
9	50K	52000	1000	I:\MS19\DATA\2021_03\16\03162112.D

#	ID	Update Time	Quant Time	Acquisition Time
1	20	Mar 16 11:16 2021	Mar 16 11:15 2021	16 Mar 2021 8:17
2	50	Mar 16 11:20 2021	Mar 16 11:10 2021	16 Mar 2021 8:56
3	100	Mar 16 11:20 2021	Mar 16 11:18 2021	16 Mar 2021 9:29
4	500	Mar 16 11:11 2021	Mar 16 11:10 2021	16 Mar 2021 10:01
5	1000	Mar 16 11:11 2021	Mar 16 11:10 2021	16 Mar 2021 10:32
6	5000	Mar 16 13:35 2021	Mar 16 13:35 2021	16 Mar 2021 13:10
7	10K	Mar 16 12:25 2021	Mar 16 12:25 2021	16 Mar 2021 11:36
8	25K	Mar 16 12:31 2021	Mar 16 12:31 2021	16 Mar 2021 12:07
9	50K	Mar 16 14:07 2021	Mar 16 14:07 2021	16 Mar 2021 13:41

74-0157

S19031621.M Wed Mar 17 12:34:42 2021

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162102.D Vial: 14
Acq On : 16 Mar 2021 8:17 Operator: TZ
Sample : 20pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152102 (4/9)

TZ 3/17/21

Quant Time: Mar 16 11:15:33 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	16982	1000.000	pg		0.01
25) 1,4-Difluorobenzene (IS2)	11.56	114	78411	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	15.90	54	12618	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.39	65	26369	1003.173	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.32%				
33) Toluene-d8 (SS2)	14.00	98	85131	996.427	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.64%				
45) Bromofluorobenzene (SS3)	17.42	174	24420	989.848	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.98%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.34	85	931	22.481	pg		99
3) Chloromethane	4.57	52	162	21.294	pg	#	90
4) 1,2-Dichloro,1,1,2,2-t...	4.72	85	1178	22.047	pg		100
5) Vinyl Chloride	4.88	62	907	18.884	pg		92
6) 1,3-Butadiene	5.06	54	323	12.243	pg		86
7) Bromomethane	5.38	94	341	23.148	pg		98
8) Chloroethane	5.60	64	216	20.071	pg		99
9) Acrolein	6.24	56	408m	45.697	pg		
10) Acetone	6.33	58	1464	112.392	pg		98
11) Trichlorofluoromethane	6.49	101	681	20.715	pg		99
12) 1,1-Dichloroethene	7.22	96	416	21.254	pg		99
13) Methylene Chloride	7.35	84	440	21.804	pg		96
14) Trichlorotrifluoroethane	7.67	151	326	20.592	pg		98
15) trans-1,2-Dichloroethene	8.40	96	334	17.018	pg		89
16) 1,1-Dichloroethane	8.58	63	649	20.471	pg		98
17) Methyl tert-Butyl Ether	8.69	73	1096	21.464	pg		100
18) cis-1,2-Dichloroethene	9.47	96	416	19.636	pg		98
19) Chloroform	9.75	83	755	21.302	pg		95
21) 1,2-Dichloroethane	10.51	62	490	18.565	pg		86
22) 1,1,1-Trichloroethane	10.77	97	611	19.887	pg		100
23) Benzene	11.23	78	1780	22.384	pg		98
24) Carbon Tetrachloride	11.37	117	518	19.426	pg		99
26) 1,2-Dichloropropane	12.04	63	339	17.484	pg		95
27) Bromodichloromethane	12.22	83	524	17.327	pg		98
28) Trichloroethene	12.28	130	449	18.148	pg		97
29) 1,4-Dioxane	12.29	88	377	21.027	pg		92
30) cis-1,3-Dichloropropene	13.14	75	426	14.047	pg		97
31) trans-1,3-Dichloropropene	13.70	75	252m	11.541	pg		
32) 1,1,2-Trichloroethane	13.81	83	334	19.264	pg		98
34) Toluene	14.10	91	1871	20.682	pg		100
35) Dibromochloromethane	14.52	129	375	16.318	pg		100
36) 1,2-Dibromoethane	14.80	107	372	16.511	pg		99
37) Tetrachloroethene	15.25	166	485	19.397	pg		100
39) Chlorobenzene	15.95	112	1204	22.971	pg		98
40) Ethylbenzene	16.35	91	1849	21.481	pg		100
41) m,p-Xylene	16.52	91	2759	40.709	pg		100
42) Styrene	16.90	104	558	10.926	pg		98
43) o-Xylene	16.99	106	701	21.241	pg		99
44) 1,1,2,2-Tetrachloroethane	16.97	83	667	21.089	pg		99
46) 1,3,5-Trimethylbenzene	18.26	105	1498	20.891	pg		94
47) 1,2,4-Trimethylbenzene	18.65	105	1452	19.287	pg		100
48) 1,3-Dichlorobenzene	18.81	146	828	18.896	pg		99
49) 1,4-Dichlorobenzene	18.87	146	1020	23.061	pg		100
50) 1,2-Dichlorobenzene	19.19	146	942	21.338	pg		100
51) 1,2-Dibromo-3-chloropr...	19.61	157	513	33.487	pg		96
52) 1,2,4-Trichlorobenzene	20.84	182	1309	45.630	pg		93
53) Naphthalene	20.96	128	1952	21.936	pg		99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162102.D Vial: 14
Acq On : 16 Mar 2021 8:17 Operator: TZ
Sample : 20pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152102 (4/9)

Quant Time: Mar 16 11:15:33 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

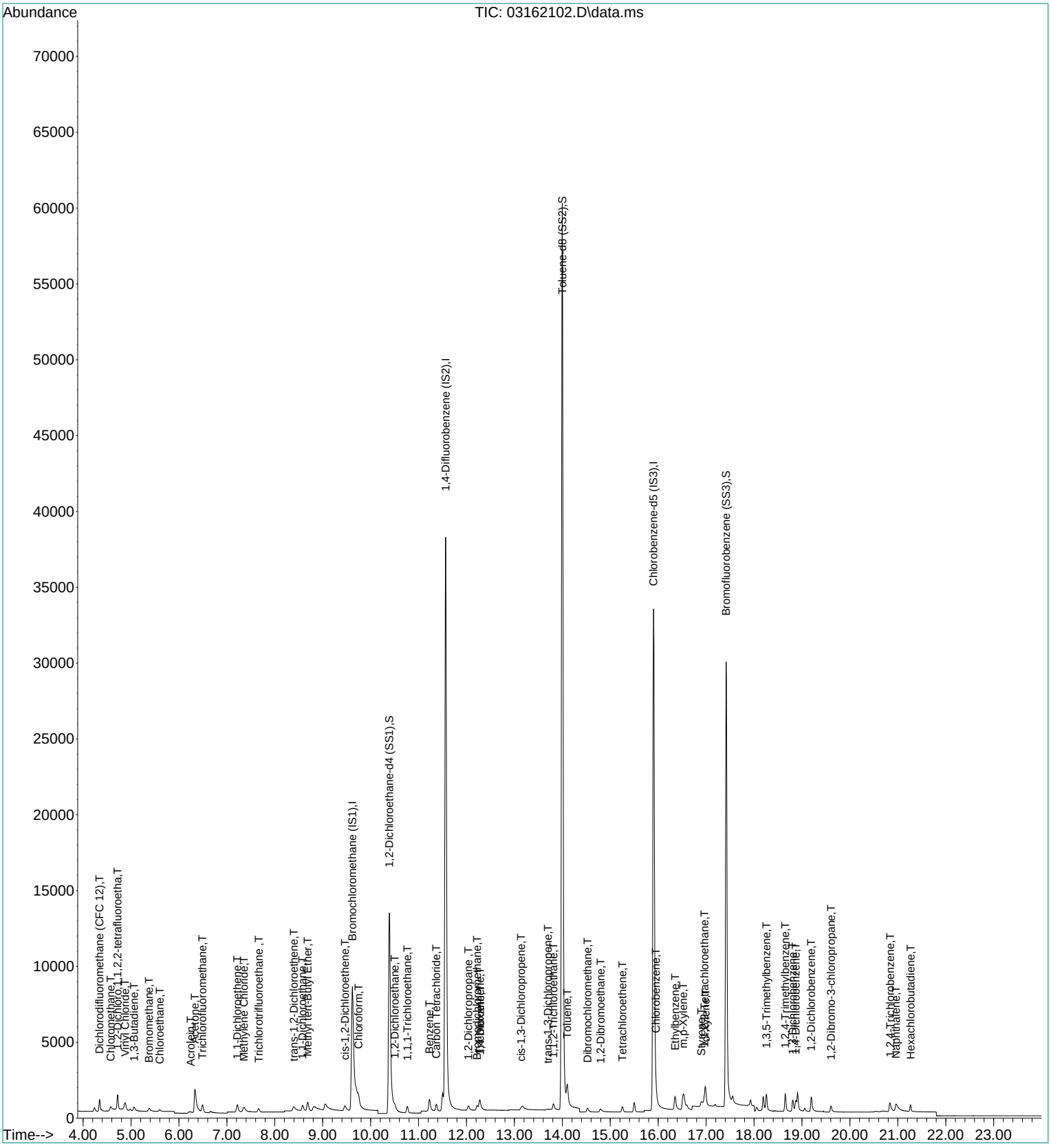
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.27	225	436	22.563	pg	99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162102.D Vial: 14
Acq On : 16 Mar 2021 8:17 Operator: TZ
Sample : 20pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152102 (4/9)

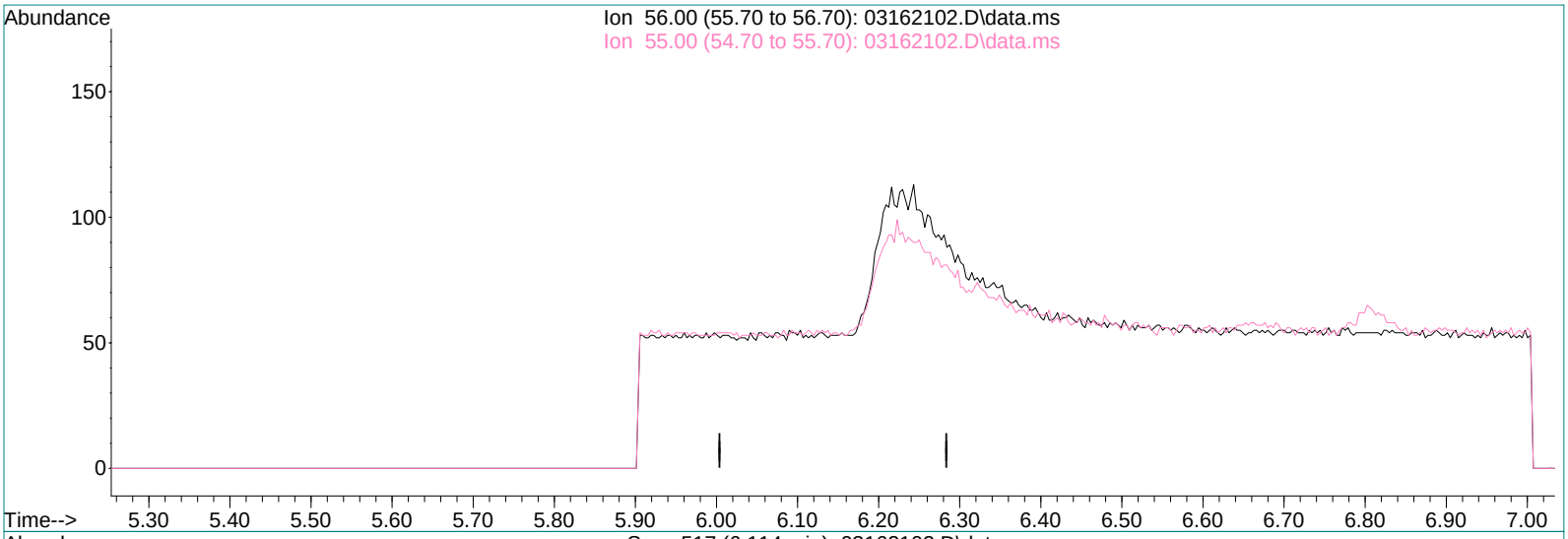
Quant Time: Mar 16 11:15:33 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

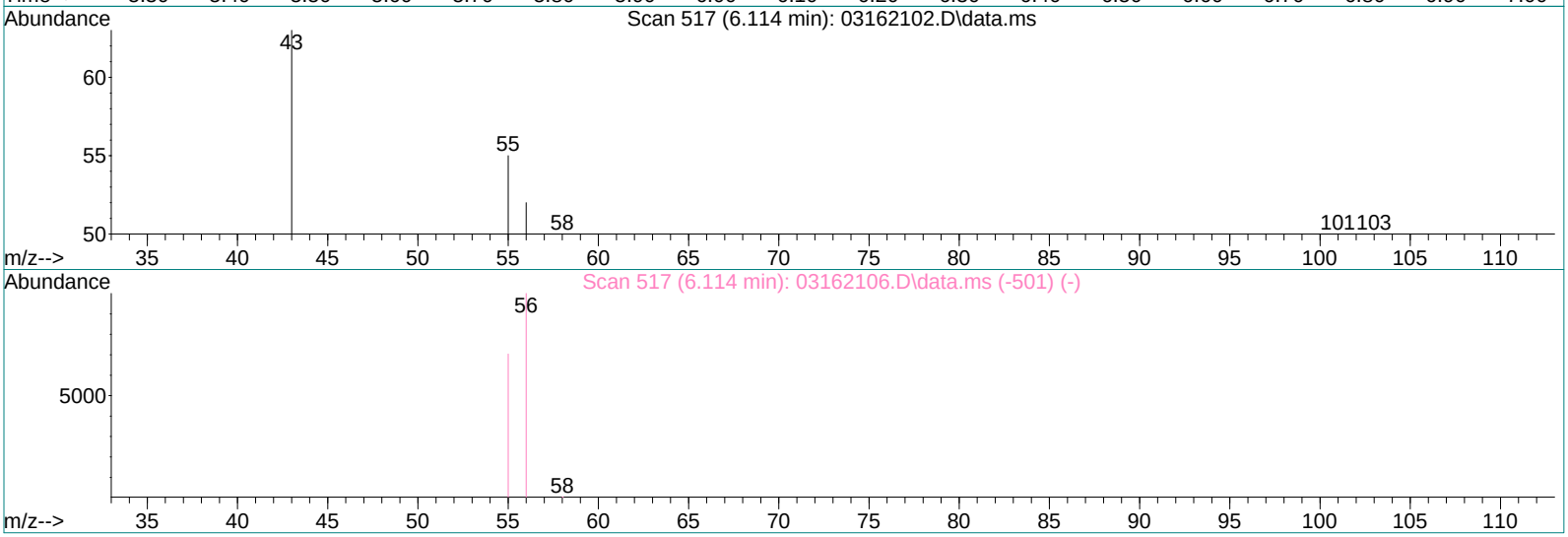


Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 03\16\03162102.D Vial: 14
Acq On : 16 Mar 2021 8:17 Operator: TZ
Sample : 20pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152102 (4/9)

Quant Time: Mar 16 11:10:38 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M





TIC: 03162102.D\data.ms

(9) Acrolein (T)

6.114min (-6.114) 0.00pg

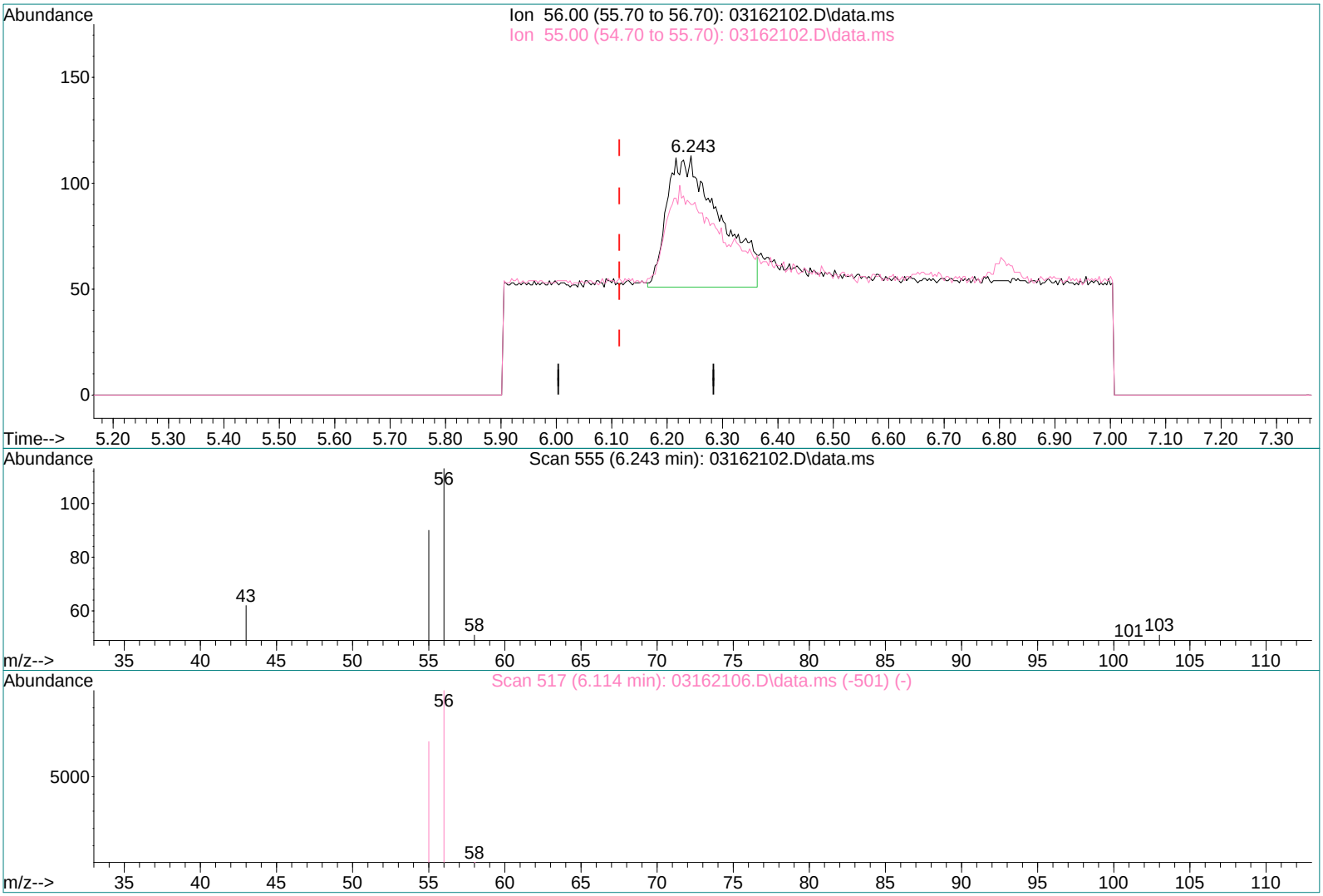
response 0

Ion	Exp%	Act%
56.00	100	0.00
55.00	68.40	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 03\16\03162102.D Vial: 14
Acq On : 16 Mar 2021 8:17 Operator: TZ
Sample : 20pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152102 (4/9)

Quant Time: Mar 16 11:10:38 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 03162102.D\data.ms

(9) Acrolein (T)

6.243min (+0.130) 45.70pg m

response 408

Ion	Exp%	Act%
56.00	100	100
55.00	68.40	61.27
0.00	0.00	0.00
0.00	0.00	0.00

MP

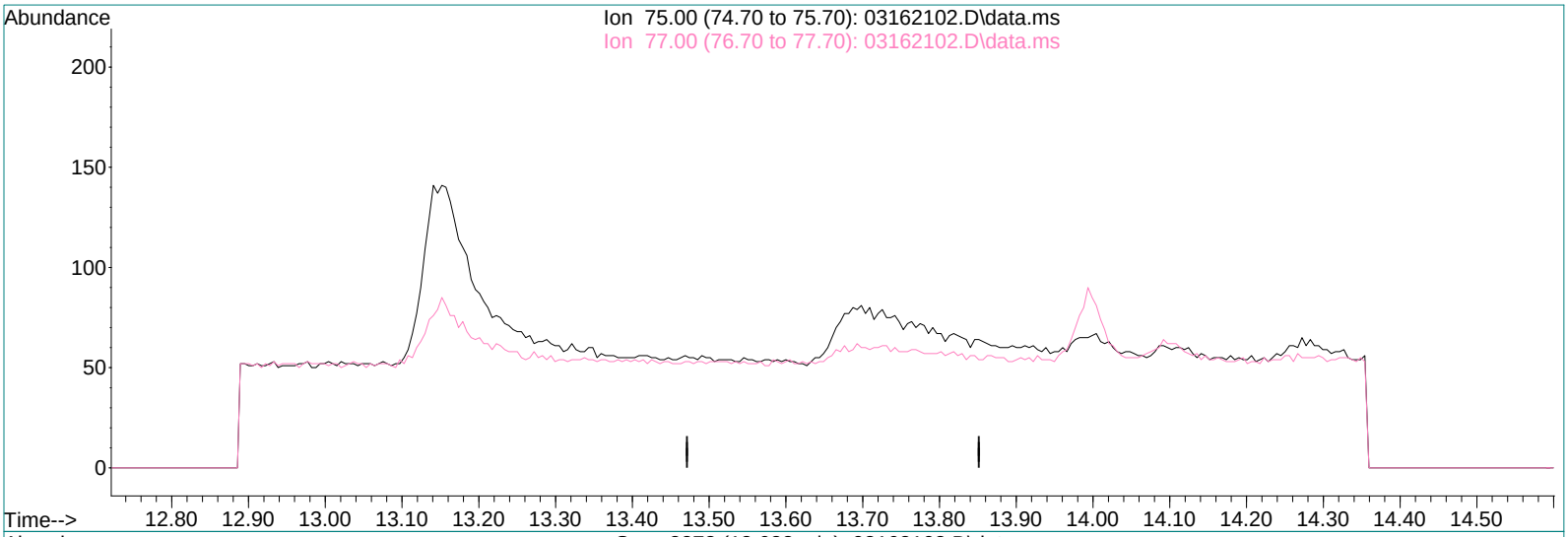
TZ 3/16/21

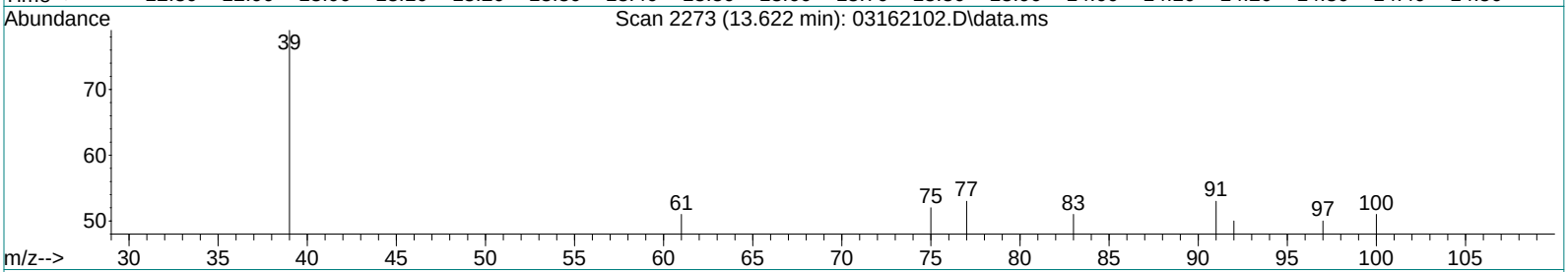
3/26/21

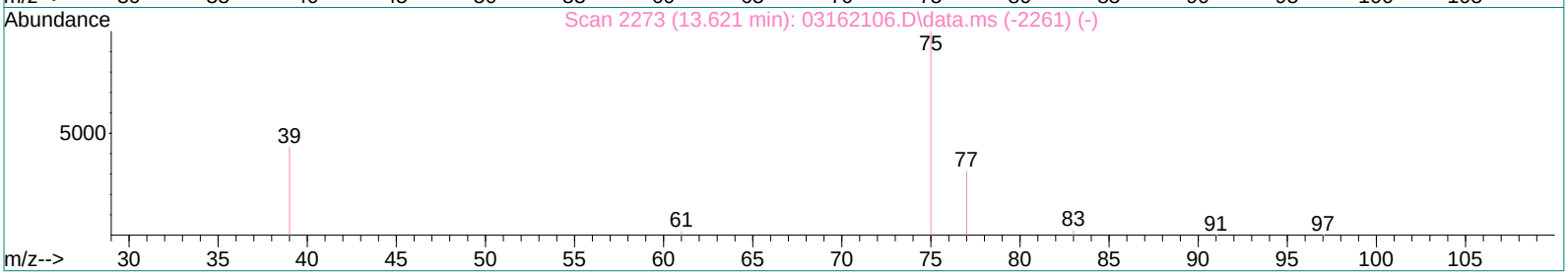
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 03\16\03162102.D Vial: 14
Acq On : 16 Mar 2021 8:17 Operator: TZ
Sample : 20pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152102 (4/9)

Quant Time: Mar 16 11:14:24 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 03162102.D\data.ms

(31) trans-1,3-Dichloropropene (T)

13.621min (-13.621) 0.00pg

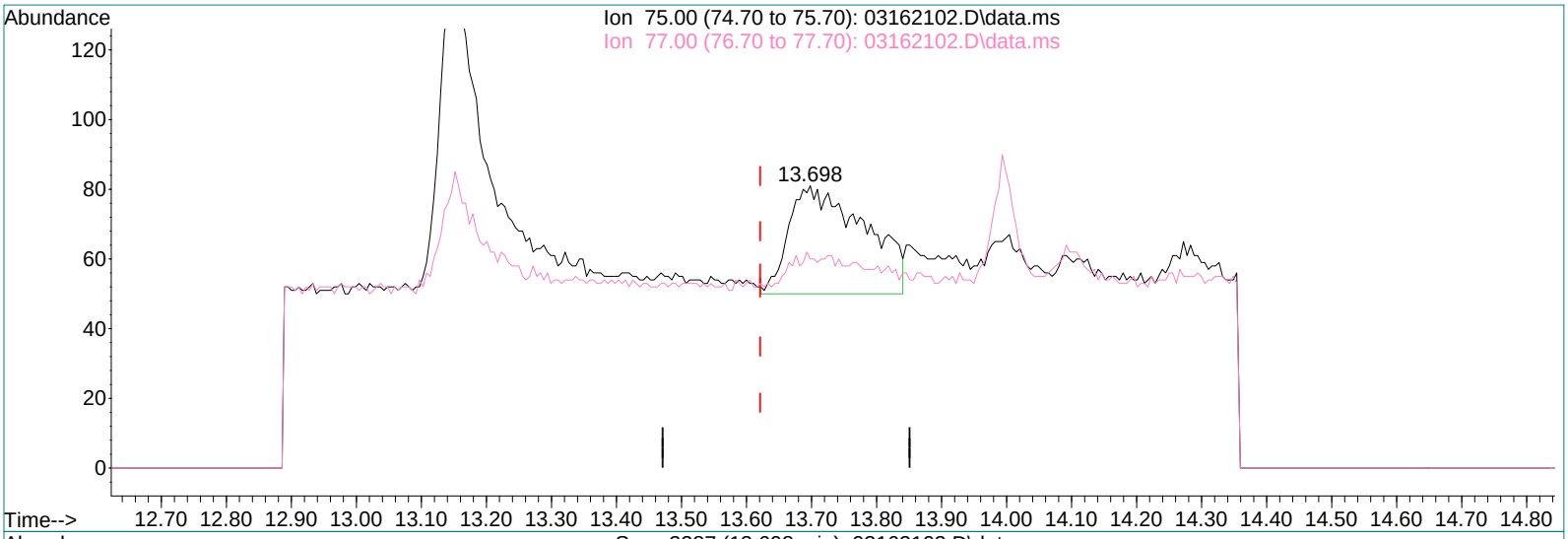
response 0

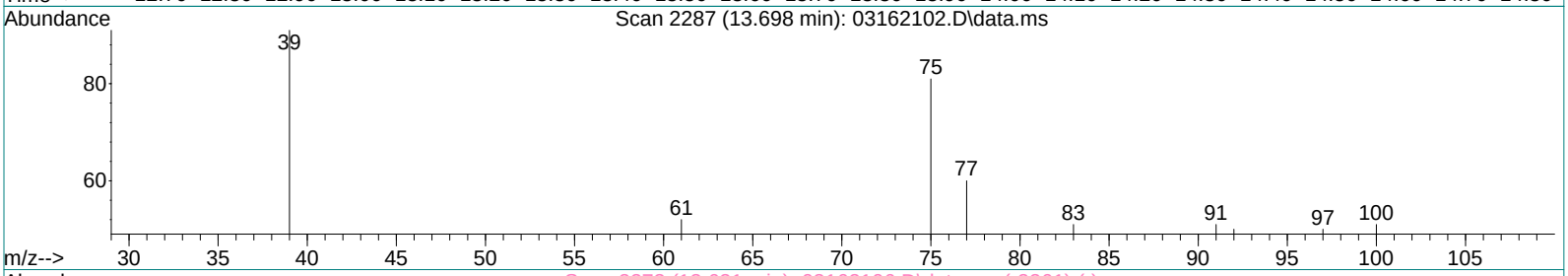
Ion	Exp%	Act%
75.00	100	0.00
77.00	31.30	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

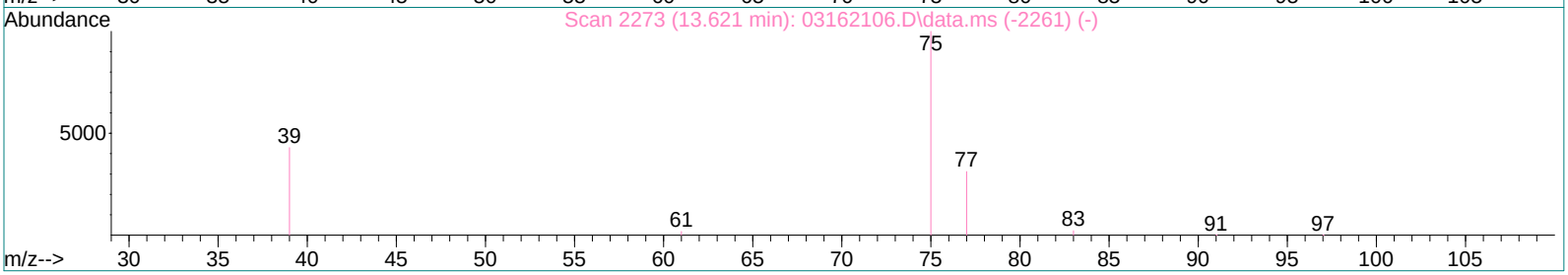
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 03\16\03162102.D Vial: 14
Acq On : 16 Mar 2021 8:17 Operator: TZ
Sample : 20pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152102 (4/9)

Quant Time: Mar 16 11:14:24 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 03162102.D\data.ms

(31) trans-1,3-Dichloropropene (T)

13.698min (+0.077) 11.54pg m

response 252

Ion	Exp%	Act%
75.00	100	100
77.00	31.30	21.43#
0.00	0.00	0.00
0.00	0.00	0.00

MP

Tz 3/16/21

3/26/21

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162103.D Vial: 14
Acq On : 16 Mar 2021 8:56 Operator: TZ
Sample : 50pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152102 (4/9)

TZ 3/17/21

Quant Time: Mar 16 11:10:39 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	16854	1000.000	pg		0.00
25) 1,4-Difluorobenzene (IS2)	11.56	114	77618	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	15.90	54	12675	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.39	65	26267	1006.882	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.69%				
33) Toluene-d8 (SS2)	14.00	98	84165	995.185	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.52%				
45) Bromofluorobenzene (SS3)	17.42	174	25023	1009.729	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.97%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.33	85	2392	58.199	pg		100
3) Chloromethane	4.56	52	496	65.693	pg		97
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	3050	57.515	pg		100
5) Vinyl Chloride	4.85	62	2781	58.342	pg		97
6) 1,3-Butadiene	5.04	54	933	35.634	pg		97
7) Bromomethane	5.36	94	848	58.003	pg		98
8) Chloroethane	5.58	64	601	56.270	pg		100
9) Acrolein	6.17	56	944	106.534	pg		96
10) Acetone	6.30	58	4026	311.426	pg		98
11) Trichlorofluoromethane	6.48	101	1803	55.261	pg		97
12) 1,1-Dichloroethene	7.21	96	1044	53.745	pg		98
13) Methylene Chloride	7.34	84	1128	56.321	pg		98
14) Trichlorotrifluoroethane	7.65	151	868	55.244	pg		100
15) trans-1,2-Dichloroethene	8.38	96	1098	56.369	pg		92
16) 1,1-Dichloroethane	8.57	63	1738	55.238	pg		99
17) Methyl tert-Butyl Ether	8.67	73	2887	56.969	pg		100
18) cis-1,2-Dichloroethene	9.45	96	1135	53.980	pg		98
19) Chloroform	9.74	83	1957	55.636	pg		99
21) 1,2-Dichloroethane	10.50	62	1337	51.039	pg		99
22) 1,1,1-Trichloroethane	10.76	97	1678	55.030	pg		98
23) Benzene	11.22	78	4489	56.879	pg		98
24) Carbon Tetrachloride	11.37	117	1299	49.084	pg		100
26) 1,2-Dichloropropane	12.04	63	959	49.967	pg		99
27) Bromodichloromethane	12.22	83	1449	48.405	pg		96
28) Trichloroethene	12.27	130	1218	49.734	pg		98
29) 1,4-Dioxane	12.26	88	1071	60.344	pg		96
30) cis-1,3-Dichloropropene	13.13	75	1279	42.605	pg		98
31) trans-1,3-Dichloropropene	13.66	75	803	37.151	pg	#	85
32) 1,1,2-Trichloroethane	13.81	83	891	51.914	pg		99
34) Toluene	14.10	91	4791	53.501	pg		100
35) Dibromochloromethane	14.52	129	1048	46.069	pg		100
36) 1,2-Dibromoethane	14.78	107	1093	49.008	pg		100
37) Tetrachloroethene	15.25	166	1239	50.060	pg		98
39) Chlorobenzene	15.95	112	3180	60.399	pg		99
40) Ethylbenzene	16.34	91	4939	57.121	pg		99
41) m,p-Xylene	16.52	91	7657	112.470	pg		98
42) Styrene	16.88	104	2174	42.377	pg		99
43) o-Xylene	16.98	106	1961	59.154	pg		98
44) 1,1,2,2-Tetrachloroethane	16.96	83	1845	58.073	pg		99
46) 1,3,5-Trimethylbenzene	18.25	105	4025	55.880	pg		100
47) 1,2,4-Trimethylbenzene	18.65	105	4143	54.783	pg		100
48) 1,3-Dichlorobenzene	18.80	146	2485	56.456	pg		99
49) 1,4-Dichlorobenzene	18.86	146	2764	62.209	pg		100
50) 1,2-Dichlorobenzene	19.19	146	2690	60.658	pg		100
51) 1,2-Dibromo-3-chloropr...	19.60	157	1633	106.116	pg		98
52) 1,2,4-Trichlorobenzene	20.82	182	3899	135.304	pg		99
53) Naphthalene	20.94	128	6442	72.068	pg		96

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162103.D Vial: 14
Acq On : 16 Mar 2021 8:56 Operator: TZ
Sample : 50pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152102 (4/9)

Quant Time: Mar 16 11:10:39 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

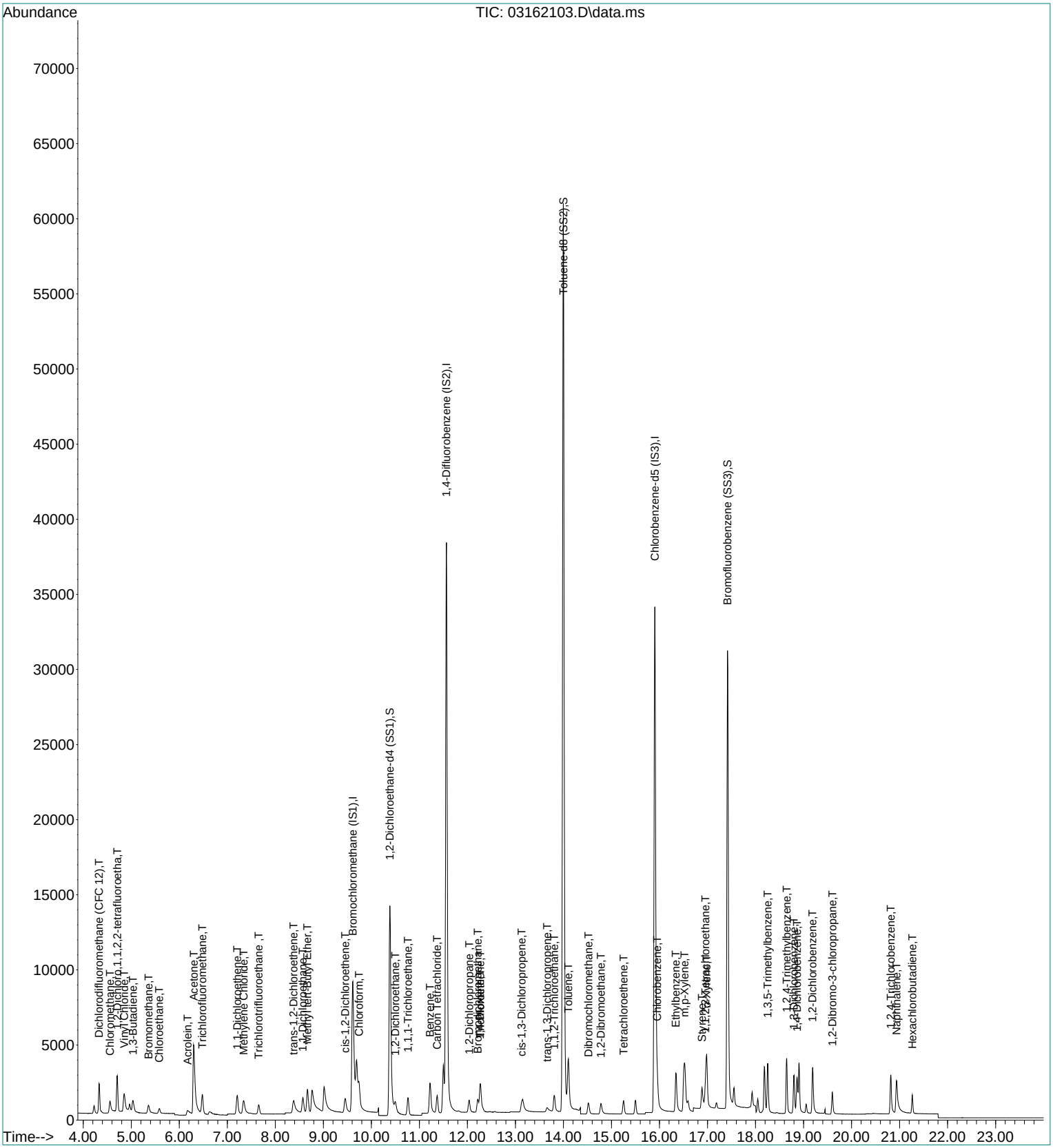
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.27	225	1170	60.274	pg	99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162103.D Vial: 14
Acq On : 16 Mar 2021 8:56 Operator: TZ
Sample : 50pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152102 (4/9)

Quant Time: Mar 16 11:10:39 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162104.D Vial: 14
Acq On : 16 Mar 2021 9:29 Operator: TZ
Sample : 100pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152102 (4/9)

TZ 3/17/21

Quant Time: Mar 16 11:18:58 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	18448	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.56	114	86417	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.90	54	14339	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.39	65	29162	1021.266	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.13%			
33) Toluene-d8 (SS2)	14.00	98	94548	1004.125	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.41%			
45) Bromofluorobenzene (SS3)	17.42	174	28615	1020.677	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.07%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.33	85	4134	91.893	pg	100
3) Chloromethane	4.56	52	480m	58.080	pg	
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	5249	90.430	pg	99
5) Vinyl Chloride	4.85	62	4676	89.621	pg	95
6) 1,3-Butadiene	5.04	54	1573	54.887	pg	95
7) Bromomethane	5.35	94	1484	92.734	pg	97
8) Chloroethane	5.58	64	1042	89.130	pg	100
9) Acrolein	6.16	56	1587	163.624	pg	99
10) Acetone	6.29	58	6482	458.082	pg	98
11) Trichlorofluoromethane	6.48	101	3126	87.531	pg	100
12) 1,1-Dichloroethene	7.20	96	1919	90.254	pg	97
13) Methylene Chloride	7.34	84	1967	89.726	pg	98
14) Trichlorotrifluoroethane	7.66	151	1490	86.638	pg	99
15) trans-1,2-Dichloroethene	8.38	96	1873	87.847	pg	99
16) 1,1-Dichloroethane	8.57	63	3012	87.457	pg	98
17) Methyl tert-Butyl Ether	8.66	73	4054	73.085	pg	100
18) cis-1,2-Dichloroethene	9.45	96	1986	86.292	pg	99
19) Chloroform	9.74	83	3436	89.243	pg	99
21) 1,2-Dichloroethane	10.50	62	2476	86.353	pg	97
22) 1,1,1-Trichloroethane	10.76	97	2596	77.780	pg	99
23) Benzene	11.22	78	7529	87.156	pg	100
24) Carbon Tetrachloride	11.37	117	2167	74.807	pg	100
26) 1,2-Dichloropropane	12.04	63	1720	80.492	pg	98
27) Bromodichloromethane	12.22	83	2508	75.250	pg	98
28) Trichloroethene	12.26	130	2109	77.348	pg	98
29) 1,4-Dioxane	12.26	88	1936	97.975	pg	95
30) cis-1,3-Dichloropropene	13.12	75	2348	70.251	pg	100
31) trans-1,3-Dichloropropene	13.65	75	1625	67.526	pg	98
32) 1,1,2-Trichloroethane	13.81	83	1596	83.523	pg	99
34) Toluene	14.10	91	8352	83.770	pg	100
35) Dibromochloromethane	14.52	129	1843	72.768	pg	97
36) 1,2-Dibromoethane	14.78	107	1991	80.183	pg	99
37) Tetrachloroethene	15.25	166	2186	79.329	pg	99
39) Chlorobenzene	15.95	112	5550	93.181	pg	100
40) Ethylbenzene	16.34	91	8829	90.261	pg	100
41) m,p-Xylene	16.52	91	13644	177.153	pg	98
42) Styrene	16.88	104	4210	72.541	pg	99
43) o-Xylene	16.98	106	3453	92.074	pg	99
44) 1,1,2,2-Tetrachloroethane	16.96	83	3338	92.874	pg	99
46) 1,3,5-Trimethylbenzene	18.25	105	7290	89.464	pg	100
47) 1,2,4-Trimethylbenzene	18.65	105	7552	88.272	pg	99
48) 1,3-Dichlorobenzene	18.80	146	4456	89.486	pg	99
49) 1,4-Dichlorobenzene	18.86	146	4849	96.470	pg	99
50) 1,2-Dichlorobenzene	19.19	146	4697	93.624	pg	100
51) 1,2-Dibromo-3-chloropr...	19.60	157	3030	174.047	pg	98
52) 1,2,4-Trichlorobenzene	20.81	182	6571	201.566	pg	98
53) Naphthalene	20.93	128	10377	102.617	pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162104.D Vial: 14
Acq On : 16 Mar 2021 9:29 Operator: TZ
Sample : 100pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152102 (4/9)

Quant Time: Mar 16 11:18:58 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

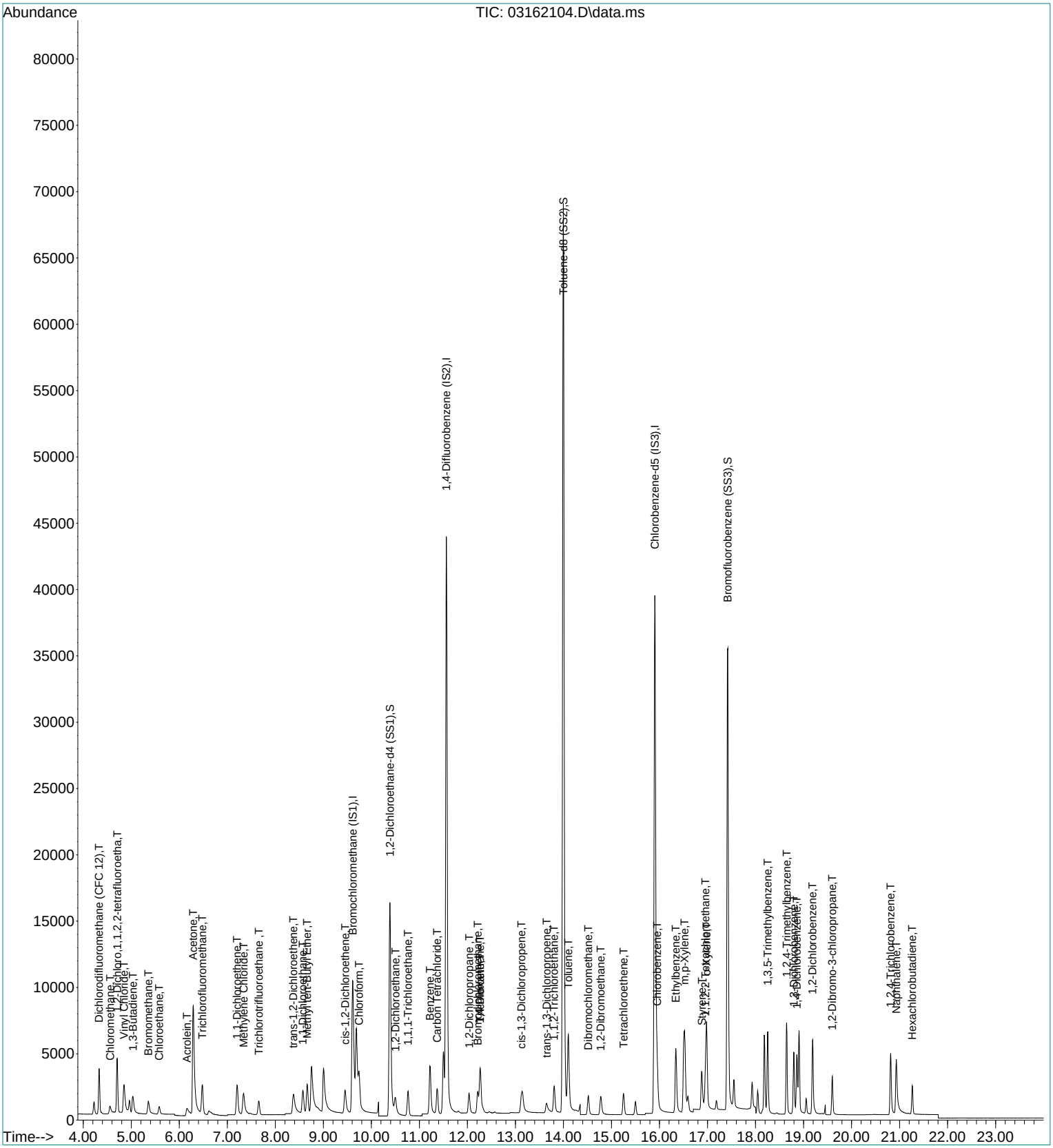
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.26	225	2073	94.401	pg	99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162104.D Vial: 14
Acq On : 16 Mar 2021 9:29 Operator: TZ
Sample : 100pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152102 (4/9)

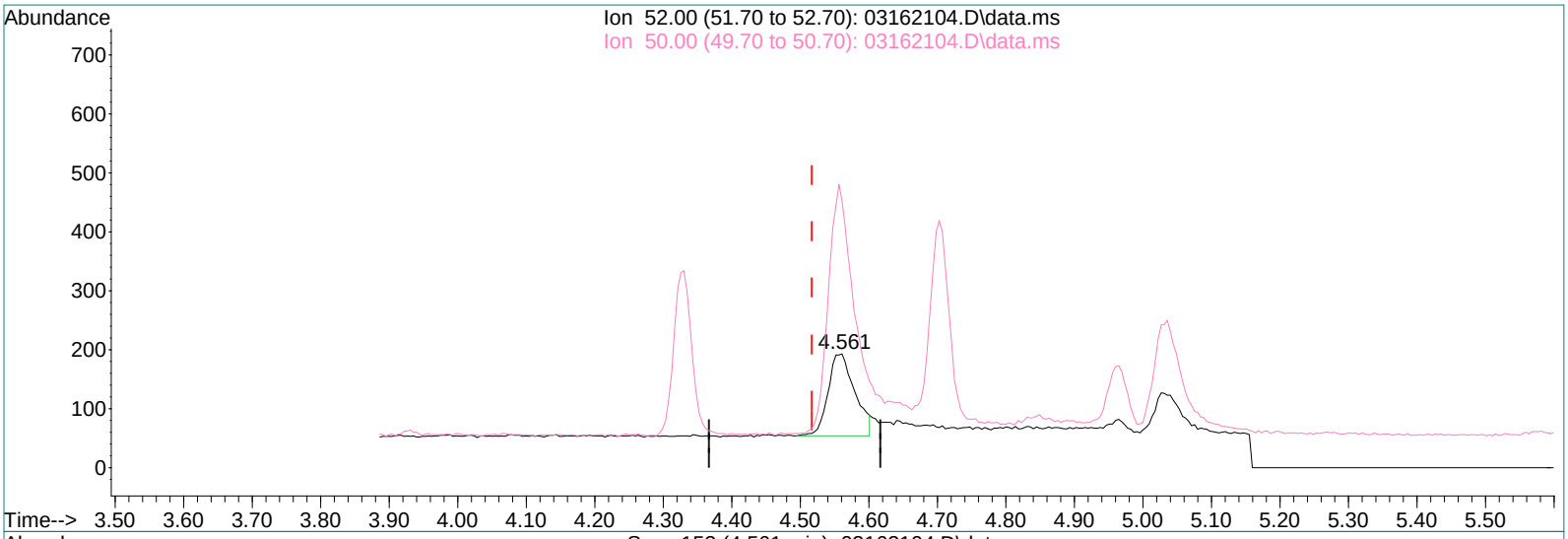
Quant Time: Mar 16 11:18:58 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

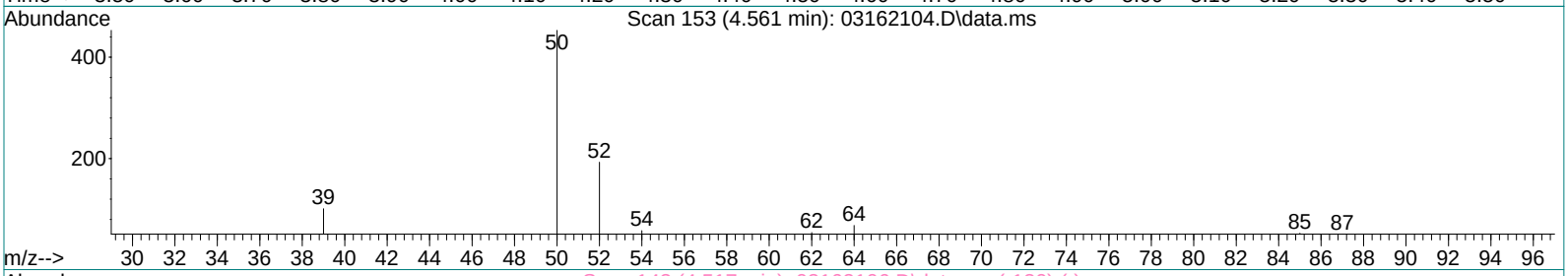


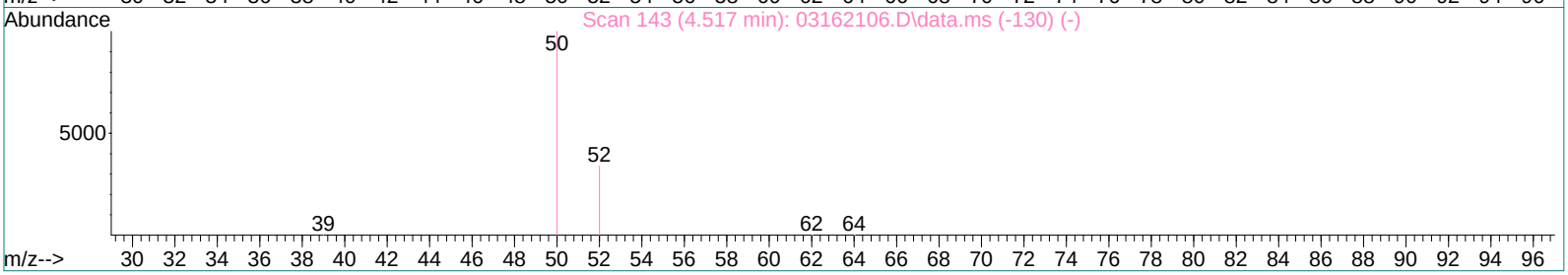
Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 03\16\03162104.D Vial: 14
Acq On : 16 Mar 2021 9:29 Operator: TZ
Sample : 100pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152102 (4/9)

Quant Time: Mar 16 11:10:40 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M







TIC: 03162104.D\data.ms

(3) Chloromethane (T)

4.561min (+0.044) 45.74pg

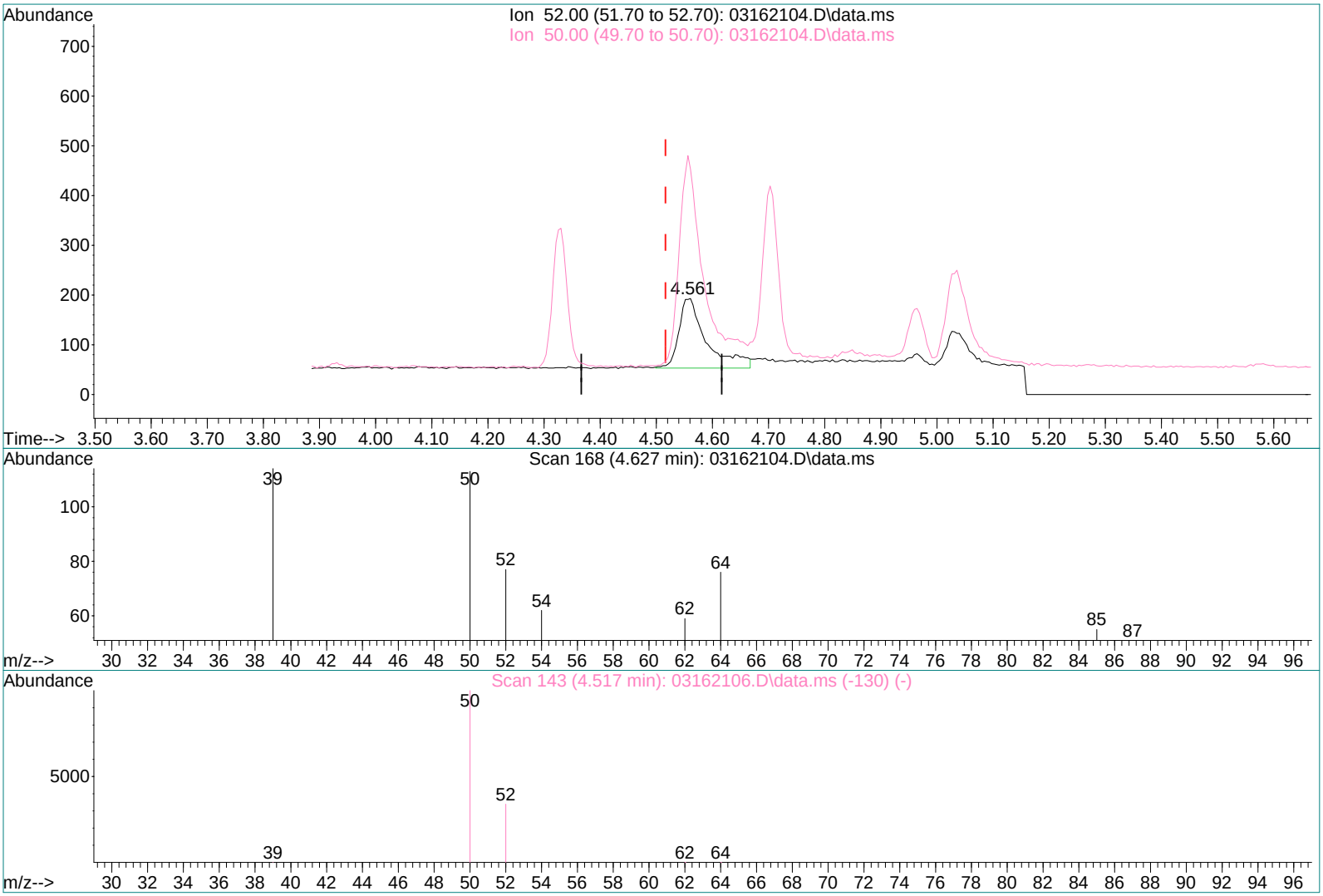
response 378

Ion	Exp%	Act%
52.00	100	100
50.00	298.50	286.24
0.00	0.00	0.00
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : I:\MS19\DATA\2021 03\16\03162104.D Vial: 14
Acq On : 16 Mar 2021 9:29 Operator: TZ
Sample : 100pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152102 (4/9)

Quant Time: Mar 16 11:12:39 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



TIC: 03162104.D\data.ms

(3) Chloromethane (T)

4.561min (+0.044) 58.08pg m

response 480

Ion	Exp%	Act%
52.00	100	100
50.00	298.50	225.42#
0.00	0.00	0.00
0.00	0.00	0.00

BLC

TZ 3/16/21

3/26/21

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162105.D Vial: 15
Acq On : 16 Mar 2021 10:01 Operator: TZ
Sample : 500pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03102102 (4/9)

TZ 3/17/21

Quant Time: Mar 16 11:10:41 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.60	130	17242	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.56	114	79829	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.90	54	13369	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.39	65	26751	1002.359	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.24%			
33) Toluene-d8 (SS2)	14.00	98	87061	1000.916	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.09%			
45) Bromofluorobenzene (SS3)	17.42	174	27120	1037.539	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 103.75%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	22027	523.875	pg	100
3) Chloromethane	4.53	52	4467	578.318	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	28404	523.573	pg	100
5) Vinyl Chloride	4.82	62	25753	528.110	pg	99
6) 1,3-Butadiene	5.00	54	9563	357.021	pg	99
7) Bromomethane	5.33	94	8009	535.483	pg	98
8) Chloroethane	5.56	64	5776	528.624	pg	100
9) Acrolein	6.12	56	8879	979.479	pg	99
10) Acetone	6.26	58	28650	2166.310	pg	100
11) Trichlorofluoromethane	6.46	101	17184	514.825	pg	100
12) 1,1-Dichloroethene	7.19	96	10345	520.576	pg	100
13) Methylene Chloride	7.32	84	10713	522.864	pg	100
14) Trichlorotrifluoroethane	7.65	151	8196	509.898	pg	100
15) trans-1,2-Dichloroethene	8.36	96	10748	539.361	pg	99
16) 1,1-Dichloroethane	8.56	63	17435	541.657	pg	100
17) Methyl tert-Butyl Ether	8.64	73	28624	552.126	pg	100
18) cis-1,2-Dichloroethene	9.45	96	11354	527.838	pg	100
19) Chloroform	9.74	83	18960	526.889	pg	100
21) 1,2-Dichloroethane	10.49	62	13703	511.335	pg	100
22) 1,1,1-Trichloroethane	10.76	97	16021	513.587	pg	100
23) Benzene	11.22	78	41143	509.583	pg	100
24) Carbon Tetrachloride	11.37	117	12979	479.386	pg	100
26) 1,2-Dichloropropane	12.03	63	9677	490.234	pg	99
27) Bromodichloromethane	12.21	83	14328	465.377	pg	100
28) Trichloroethene	12.26	130	11888	471.974	pg	99
29) 1,4-Dioxane	12.24	88	8519	466.700	pg	99
30) cis-1,3-Dichloropropene	13.11	75	14006	453.633	pg	100
31) trans-1,3-Dichloropropene	13.63	75	10449	470.034	pg	100
32) 1,1,2-Trichloroethane	13.80	83	8755	495.984	pg	99
34) Toluene	14.10	91	44199	479.899	pg	100
35) Dibromochloromethane	14.51	129	10695	457.121	pg	100
36) 1,2-Dibromoethane	14.77	107	11185	487.626	pg	98
37) Tetrachloroethene	15.25	166	11845	465.321	pg	100
39) Chlorobenzene	15.95	112	29553	532.174	pg	100
40) Ethylbenzene	16.34	91	48863	535.780	pg	100
41) m,p-Xylene	16.51	91	73451	1022.878	pg	100
42) Styrene	16.87	104	25988	480.277	pg	99
43) o-Xylene	16.98	106	18708	535.039	pg	99
44) 1,1,2,2-Tetrachloroethane	16.95	83	17930	535.067	pg	100
46) 1,3,5-Trimethylbenzene	18.25	105	39335	517.748	pg	100
47) 1,2,4-Trimethylbenzene	18.65	105	39090	490.057	pg	100
48) 1,3-Dichlorobenzene	18.79	146	22513	484.914	pg	99
49) 1,4-Dichlorobenzene	18.86	146	23042	491.679	pg	100
50) 1,2-Dichlorobenzene	19.18	146	22210	474.828	pg	100
51) 1,2-Dibromo-3-chloropr...	19.60	157	13788	849.466	pg	100
52) 1,2,4-Trichlorobenzene	20.81	182	26385	868.086	pg	99
53) Naphthalene	20.92	128	40431	428.827	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162105.D Vial: 15
Acq On : 16 Mar 2021 10:01 Operator: TZ
Sample : 500pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03102102 (4/9)

Quant Time: Mar 16 11:10:41 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

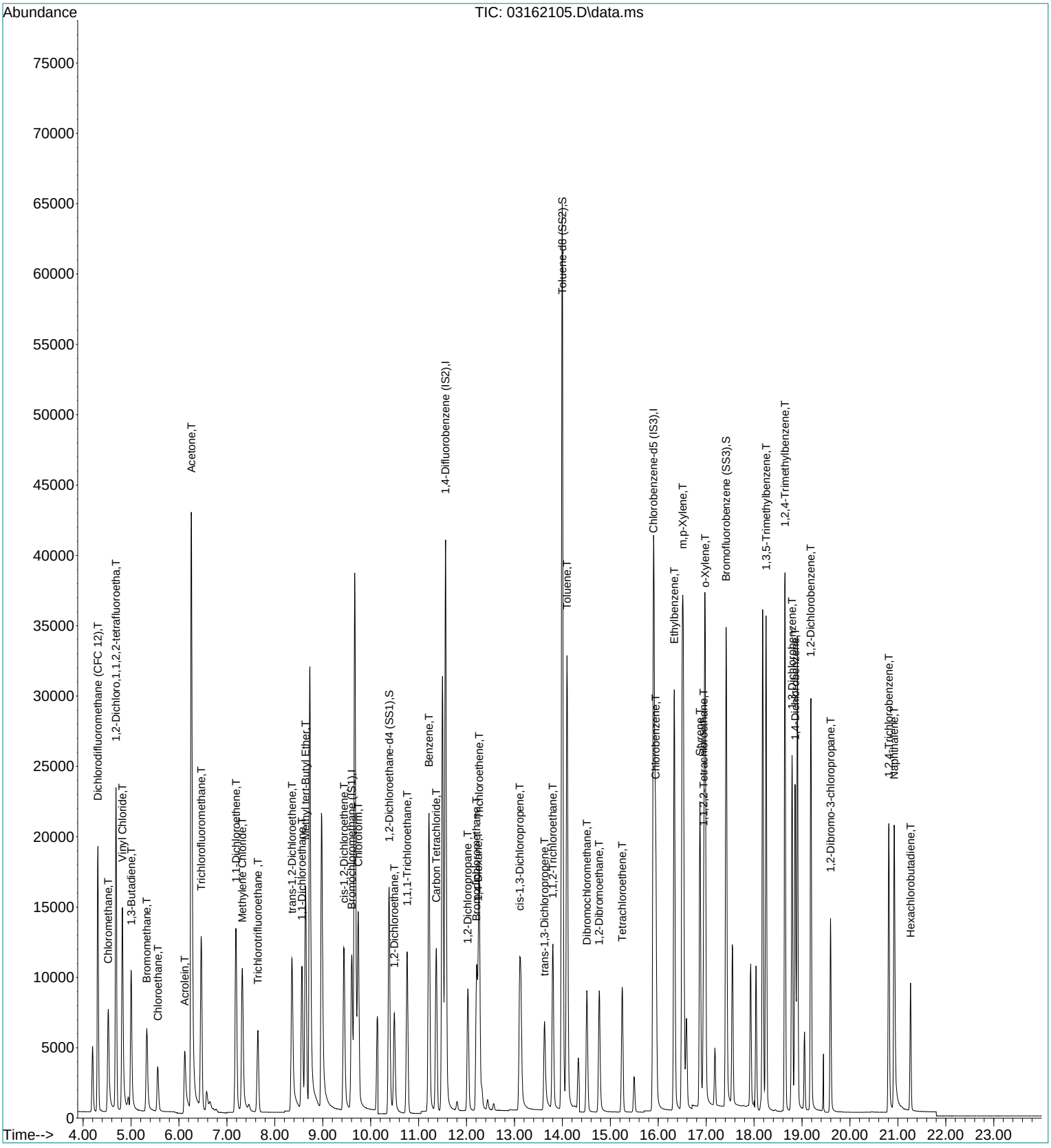
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.27	225	8615	420.776	pg	99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162105.D Vial: 15
Acq On : 16 Mar 2021 10:01 Operator: TZ
Sample : 500pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03102102 (4/9)

Quant Time: Mar 16 11:10:41 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162106.D Vial: 15
Acq On : 16 Mar 2021 10:32 Operator: TZ
Sample : 1000pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03102102 (4/9)

TZ 3/17/21

Quant Time: Mar 16 11:10:43 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	17693	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.56	114	82360	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.90	54	13971	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.39	65	27598	1007.737	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.77%			
33) Toluene-d8 (SS2)	14.00	98	89567	998.083	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.81%			
45) Bromofluorobenzene (SS3)	17.41	174	28477	1042.510	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 104.25%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	42732	990.402	pg	100
3) Chloromethane	4.52	52	6428	810.985	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.68	85	56210	1009.712	pg	100
5) Vinyl Chloride	4.81	62	50313	1005.456	pg	100
6) 1,3-Butadiene	5.00	54	20004	727.783	pg	100
7) Bromomethane	5.32	94	16019	1043.731	pg	100
8) Chloroethane	5.55	64	11418	1018.347	pg	100
9) Acrolein	6.11	56	18283	1965.462	pg	99
10) Acetone	6.25	58	56857	4189.537	pg	100
11) Trichlorofluoromethane	6.46	101	33815	987.259	pg	100
12) 1,1-Dichloroethene	7.18	96	20411	1000.931	pg	100
13) Methylene Chloride	7.32	84	21041	1000.760	pg	100
14) Trichlorotrifluoroethane	7.64	151	16590	1005.806	pg	100
15) trans-1,2-Dichloroethene	8.36	96	21051	1029.463	pg	100
16) 1,1-Dichloroethane	8.56	63	34265	1037.383	pg	100
17) Methyl tert-Butyl Ether	8.64	73	55646	1045.991	pg	100
18) cis-1,2-Dichloroethene	9.45	96	22392	1014.450	pg	100
19) Chloroform	9.74	83	37218	1007.906	pg	100
21) 1,2-Dichloroethane	10.49	62	27145	987.110	pg	100
22) 1,1,1-Trichloroethane	10.76	97	31290	977.499	pg	100
23) Benzene	11.22	78	81570	984.546	pg	100
24) Carbon Tetrachloride	11.37	117	25659	923.571	pg	100
26) 1,2-Dichloropropane	12.03	63	19290	947.194	pg	100
27) Bromodichloromethane	12.21	83	28468	896.233	pg	100
28) Trichloroethene	12.26	130	23590	907.783	pg	100
29) 1,4-Dioxane	12.24	88	17055	905.619	pg	100
30) cis-1,3-Dichloropropene	13.11	75	29071	912.631	pg	100
31) trans-1,3-Dichloropropene	13.62	75	22938	1000.125	pg	100
32) 1,1,2-Trichloroethane	13.80	83	17442	957.749	pg	100
34) Toluene	14.10	91	87523	921.094	pg	100
35) Dibromochloromethane	14.51	129	21630	896.090	pg	100
36) 1,2-Dibromoethane	14.77	107	22621	955.888	pg	100
37) Tetrachloroethene	15.25	166	23171	882.281	pg	100
39) Chlorobenzene	15.95	112	58525	1008.475	pg	100
40) Ethylbenzene	16.33	91	98295	1031.357	pg	100
41) m,p-Xylene	16.51	91	148728	1981.940	pg	100
42) Styrene	16.87	104	54941	971.598	pg	100
43) o-Xylene	16.98	106	37670	1030.921	pg	100
44) 1,1,2,2-Tetrachloroethane	16.95	83	36130	1031.733	pg	100
46) 1,3,5-Trimethylbenzene	18.25	105	79720	1004.103	pg	100
47) 1,2,4-Trimethylbenzene	18.64	105	80419	964.742	pg	100
48) 1,3-Dichlorobenzene	18.79	146	46141	951.020	pg	100
49) 1,4-Dichlorobenzene	18.85	146	46523	949.950	pg	100
50) 1,2-Dichlorobenzene	19.18	146	44865	917.840	pg	100
51) 1,2-Dibromo-3-chloropr...	19.60	157	29027	1711.269	pg	100
52) 1,2,4-Trichlorobenzene	20.81	182	54595	1718.817	pg	100
53) Naphthalene	20.92	128	87018	883.178	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162106.D Vial: 15
Acq On : 16 Mar 2021 10:32 Operator: TZ
Sample : 1000pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03102102 (4/9)

Quant Time: Mar 16 11:10:43 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

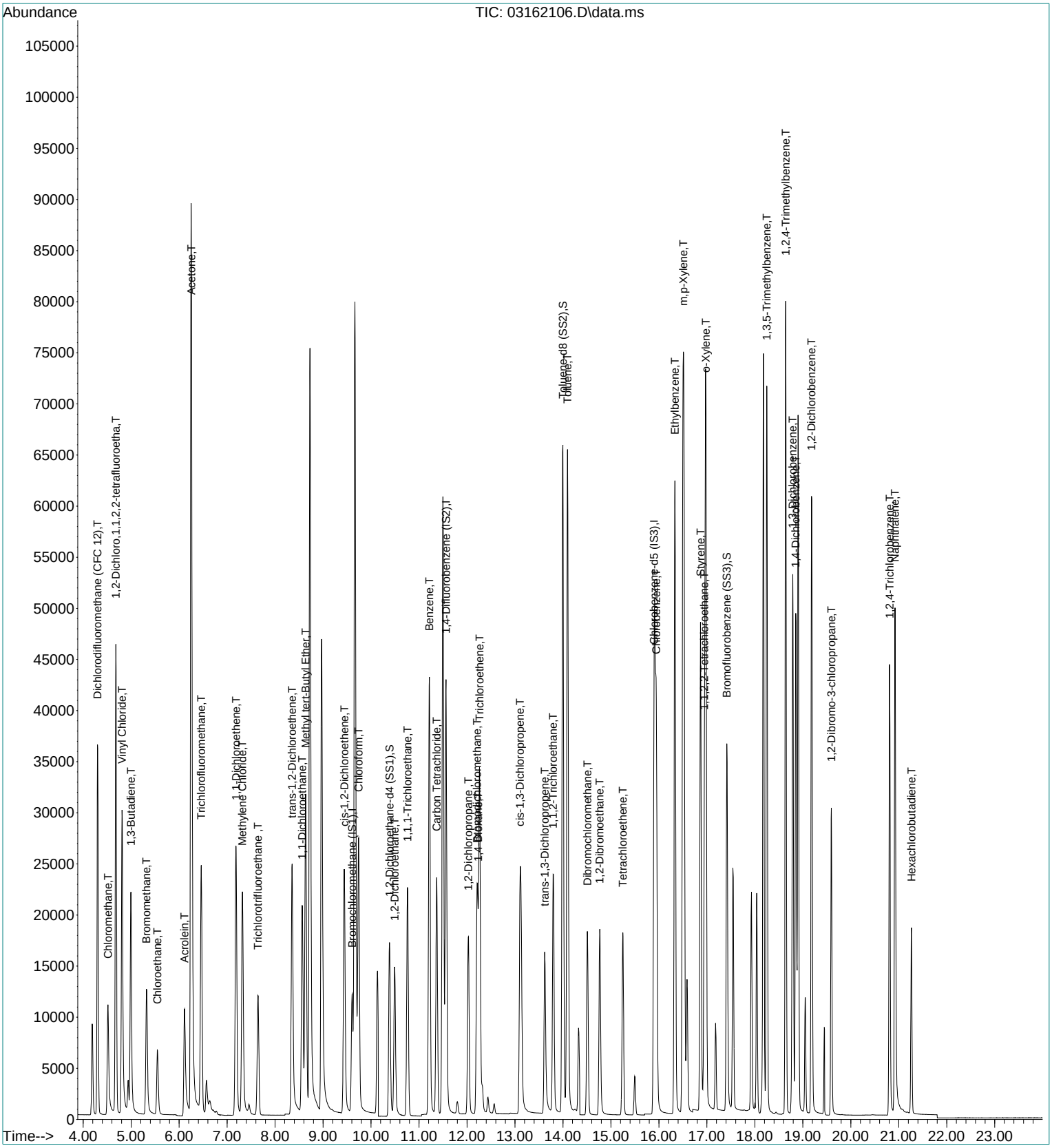
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.26	225	17132	800.709	pg	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162106.D Vial: 15
Acq On : 16 Mar 2021 10:32 Operator: TZ
Sample : 1000pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03102102 (4/9)

Quant Time: Mar 16 11:10:43 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:10:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162115.D Vial: 1
Acq On : 16 Mar 2021 15:16 Operator: TZ
Sample : 1000pg S19031621 ICV Std. Inst : MS19
Misc : S34-01272101/S34-03112101 (4/7)

TZ 3/17/21

Quant Time: Mar 17 07:13:53 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	17908	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.56	114	84852	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.90	54	14572	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.39	65	28770	1062.418	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.24%			
33) Toluene-d8 (SS2)	14.00	98	93071	1004.253	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.43%			
45) Bromofluorobenzene (SS3)	17.42	174	29446	1011.340	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.13%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.31	85	46080	1112.142	pg	100
3) Chloromethane	4.52	52	7255	955.311	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	59334	1108.882	pg	100
5) Vinyl Chloride	4.82	62	53538	1135.038	pg	100
6) 1,3-Butadiene	5.00	54	29572	1557.011	pg	98
7) Bromomethane	5.33	94	16960	1112.892	pg	100
8) Chloroethane	5.55	64	12244	1135.483	pg	100
9) Acrolein	6.12	56	19845	2273.813	pg	99
10) Acetone	6.26	58	62237	5324.323	pg	97
11) Trichlorofluoromethane	6.46	101	36273	1095.384	pg	100
12) 1,1-Dichloroethene	7.19	96	22001	1109.630	pg	99
13) Methylene Chloride	7.32	84	22798	1109.411	pg	98
14) Trichlorotrifluoroethane	7.65	151	17103	1081.286	pg	100
15) trans-1,2-Dichloroethene	8.36	96	22973	1163.505	pg	100
16) 1,1-Dichloroethane	8.57	63	36559	1167.229	pg	100
17) Methyl tert-Butyl Ether	8.64	73	64927	1246.749	pg	100
18) cis-1,2-Dichloroethene	9.44	96	24242	1126.277	pg	99
19) Chloroform	9.74	83	40122	1116.148	pg	100
21) 1,2-Dichloroethane	10.49	62	29614	1140.721	pg	100
22) 1,1,1-Trichloroethane	10.76	97	34354	1145.405	pg	100
23) Benzene	11.22	78	87233	1068.299	pg	100
24) Carbon Tetrachloride	11.37	117	29086	1141.561	pg	100
26) 1,2-Dichloropropane	12.03	63	20836	1086.656	pg	99
27) Bromodichloromethane	12.21	83	31134	1034.746	pg	99
28) Trichloroethene	12.27	130	24503	990.121	pg	99
29) 1,4-Dioxane	12.23	88	17890	917.860	pg	99
30) cis-1,3-Dichloropropene	13.11	75	32424	1107.563	pg	100
31) trans-1,3-Dichloropropene	13.62	75	26206	1077.736	pg	100
32) 1,1,2-Trichloroethane	13.80	83	18694	1051.015	pg	99
34) Toluene	14.10	91	94607	1013.549	pg	100
35) Dibromochloromethane	14.51	129	24133	1074.047	pg	99
36) 1,2-Dibromoethane	14.77	107	24424	1071.555	pg	100
37) Tetrachloroethene	15.25	166	24371	996.826	pg	100
39) Chlorobenzene	15.95	112	62447	1002.814	pg	100
40) Ethylbenzene	16.34	91	105995	1053.052	pg	100
41) m,p-Xylene	16.51	91	159928	2076.232	pg	100
42) Styrene	16.87	104	59824	1097.071	pg	99
43) o-Xylene	16.98	106	40302	1045.192	pg	100
44) 1,1,2,2-Tetrachloroethane	16.95	83	38046	1033.392	pg	100
46) 1,3,5-Trimethylbenzene	18.25	105	85319	1042.111	pg	100
47) 1,2,4-Trimethylbenzene	18.65	105	85934	995.182	pg	99
48) 1,3-Dichlorobenzene	18.79	146	47230	976.697	pg	99
49) 1,4-Dichlorobenzene	18.85	146	47440	921.547	pg	100
50) 1,2-Dichlorobenzene	19.18	146	47157	950.108	pg	100
51) 1,2-Dibromo-3-chloropr...	19.60	157	30086	1820.900	pg	97
52) 1,2,4-Trichlorobenzene	20.81	182	53261	1528.648	pg	100
53) Naphthalene	20.92	128	84173	783.004	pg	100

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162115.D Vial: 1
Acq On : 16 Mar 2021 15:16 Operator: TZ
Sample : 1000pg S19031621 ICV Std. Inst : MS19
Misc : S34-01272101/S34-03112101 (4/7)

Quant Time: Mar 17 07:13:53 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

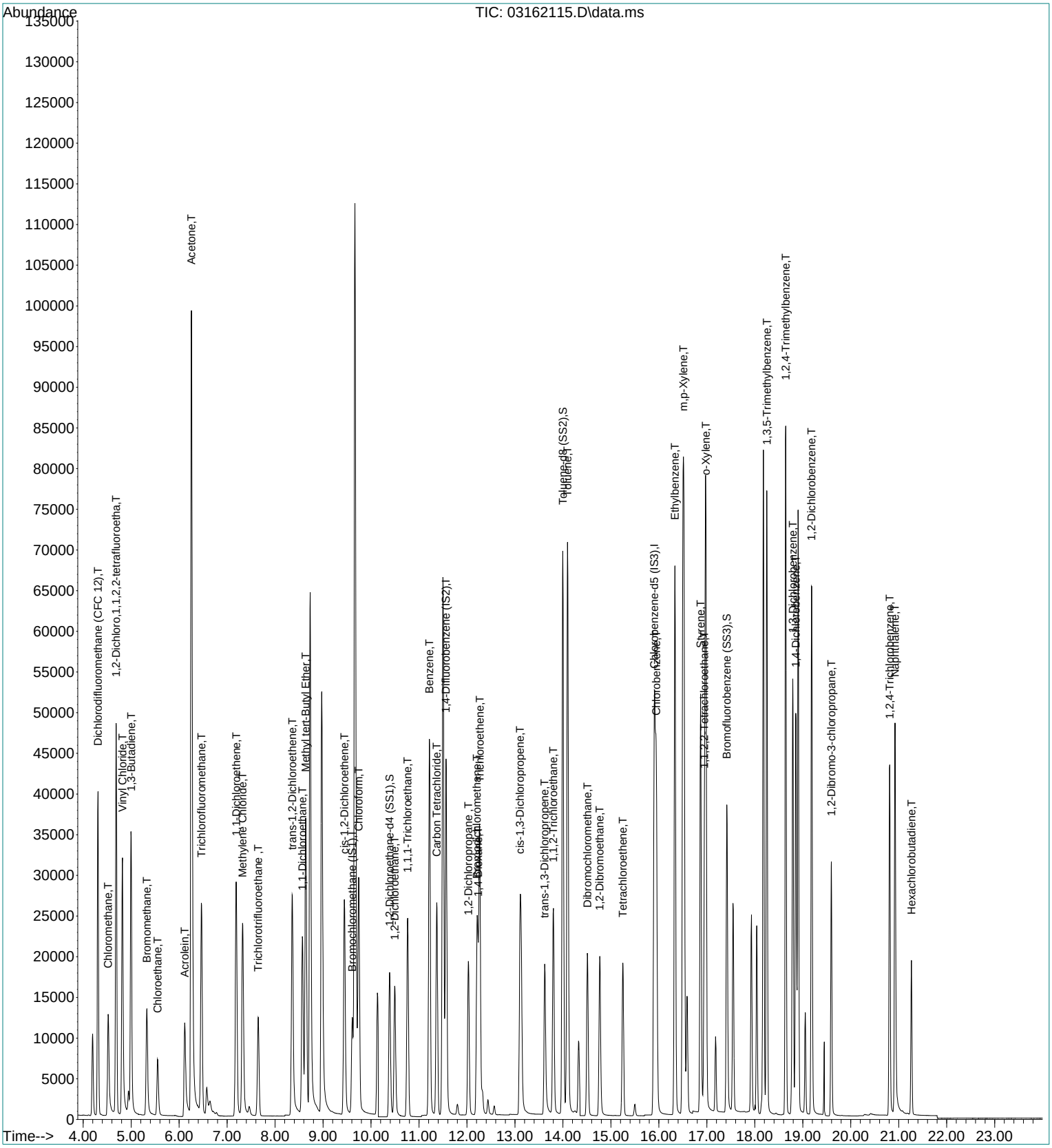
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.27	225	17976	874.226	pg	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162115.D Vial: 1
Acq On : 16 Mar 2021 15:16 Operator: TZ
Sample : 1000pg S19031621 ICV Std. Inst : MS19
Misc : S34-01272101/S34-03112101 (4/7)

Quant Time: Mar 17 07:13:53 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162111.D Vial: 16
Acq On : 16 Mar 2021 13:10 Operator: TZ
Sample : 5000pg S19031621 ICAL Std. Inst : MS19 TZ 3/17/21
Misc : S34-01272101/S34-03152101 (4/14)

Quant Time: Mar 16 13:35:34 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 12:31:53 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	20516	1000.000	pg	-0.01
25) 1,4-Difluorobenzene (IS2)	11.57	114	95453	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.90	54	16827	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.39	65	32284	1025.539	pg	-0.01
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.55%			
33) Toluene-d8 (SS2)	14.00	98	103921	997.924	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.79%			
45) Bromofluorobenzene (SS3)	17.42	174	34165	1028.848	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 102.88%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.29	85	273625	5829.206	pg	100
3) Chloromethane	4.50	52	45036	5638.262	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.67	85	358471	5935.043	pg	100
5) Vinyl Chloride	4.80	62	330293	6191.467	pg	100
6) 1,3-Butadiene	4.98	54	150514	6609.973	pg	99
7) Bromomethane	5.31	94	104949	6093.726	pg	100
8) Chloroethane	5.54	64	75210	6177.623	pg	100
9) Acrolein	6.11	56	131857	13639.183	pg	99
10) Acetone	6.26	58	393248	26932.098	pg	100
11) Trichlorofluoromethane	6.45	101	224238	6010.649	pg	100
12) 1,1-Dichloroethene	7.18	96	138515	6219.791	pg	100
13) Methylene Chloride	7.33	84	142719	6170.395	pg	98
14) Trichlorotrifluoroethane	7.65	151	110291	6298.720	pg	100
15) trans-1,2-Dichloroethene	8.36	96	143677	6523.250	pg	99
16) 1,1-Dichloroethane	8.57	63	229635	6527.643	pg	100
17) Methyl tert-Butyl Ether	8.63	73	272445	4779.234	pg	100
18) cis-1,2-Dichloroethene	9.45	96	153616	6396.196	pg	100
19) Chloroform	9.75	83	253095	6283.610	pg	99
21) 1,2-Dichloroethane	10.50	62	184968	6381.712	pg	98
22) 1,1,1-Trichloroethane	10.77	97	214578	6431.781	pg	100
23) Benzene	11.22	78	556853	6096.630	pg	100
24) Carbon Tetrachloride	11.37	117	181896	6457.838	pg	100
26) 1,2-Dichloropropane	12.03	63	131782	6392.249	pg	100
27) Bromodichloromethane	12.21	83	203891	6435.495	pg	99
28) Trichloroethene	12.27	130	161511	6116.107	pg	100
29) 1,4-Dioxane	12.23	88	123424	5949.627	pg	99
30) cis-1,3-Dichloropropene	13.11	75	225853	7150.884	pg	100
31) trans-1,3-Dichloropropene	13.62	75	192847	7830.383	pg	99
32) 1,1,2-Trichloroethane	13.80	83	119416	6257.555	pg	100
34) Toluene	14.10	91	609190	6099.467	pg	100
35) Dibromochloromethane	14.51	129	157438	6639.086	pg	99
36) 1,2-Dibromoethane	14.77	107	158825	6539.709	pg	99
37) Tetrachloroethene	15.25	166	157316	6020.187	pg	100
39) Chlorobenzene	15.95	112	408698	5919.939	pg	100
40) Ethylbenzene	16.33	91	702070	6277.677	pg	100
41) m,p-Xylene	16.51	91	1105121	12784.137	pg	99
42) Styrene	16.87	104	427856	7354.322	pg	100
43) o-Xylene	16.98	106	270830	6287.234	pg	99
44) 1,1,2,2-Tetrachloroethane	16.95	83	258330	6293.308	pg	100
46) 1,3,5-Trimethylbenzene	18.25	105	589975	6422.701	pg	100
47) 1,2,4-Trimethylbenzene	18.65	105	638347	6354.312	pg	99
48) 1,3-Dichlorobenzene	18.79	146	350553	6364.342	pg	100
49) 1,4-Dichlorobenzene	18.85	146	341906	5959.417	pg	99
50) 1,2-Dichlorobenzene	19.18	146	342284	6058.554	pg	100
51) 1,2-Dibromo-3-chloropr...	19.60	157	234899	12442.547	pg	100
52) 1,2,4-Trichlorobenzene	20.81	182	464589	11588.926	pg	100
53) Naphthalene	20.92	128	778316	6481.291	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162111.D Vial: 16
Acq On : 16 Mar 2021 13:10 Operator: TZ
Sample : 5000pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152101 (4/14)

Quant Time: Mar 16 13:35:34 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 12:31:53 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

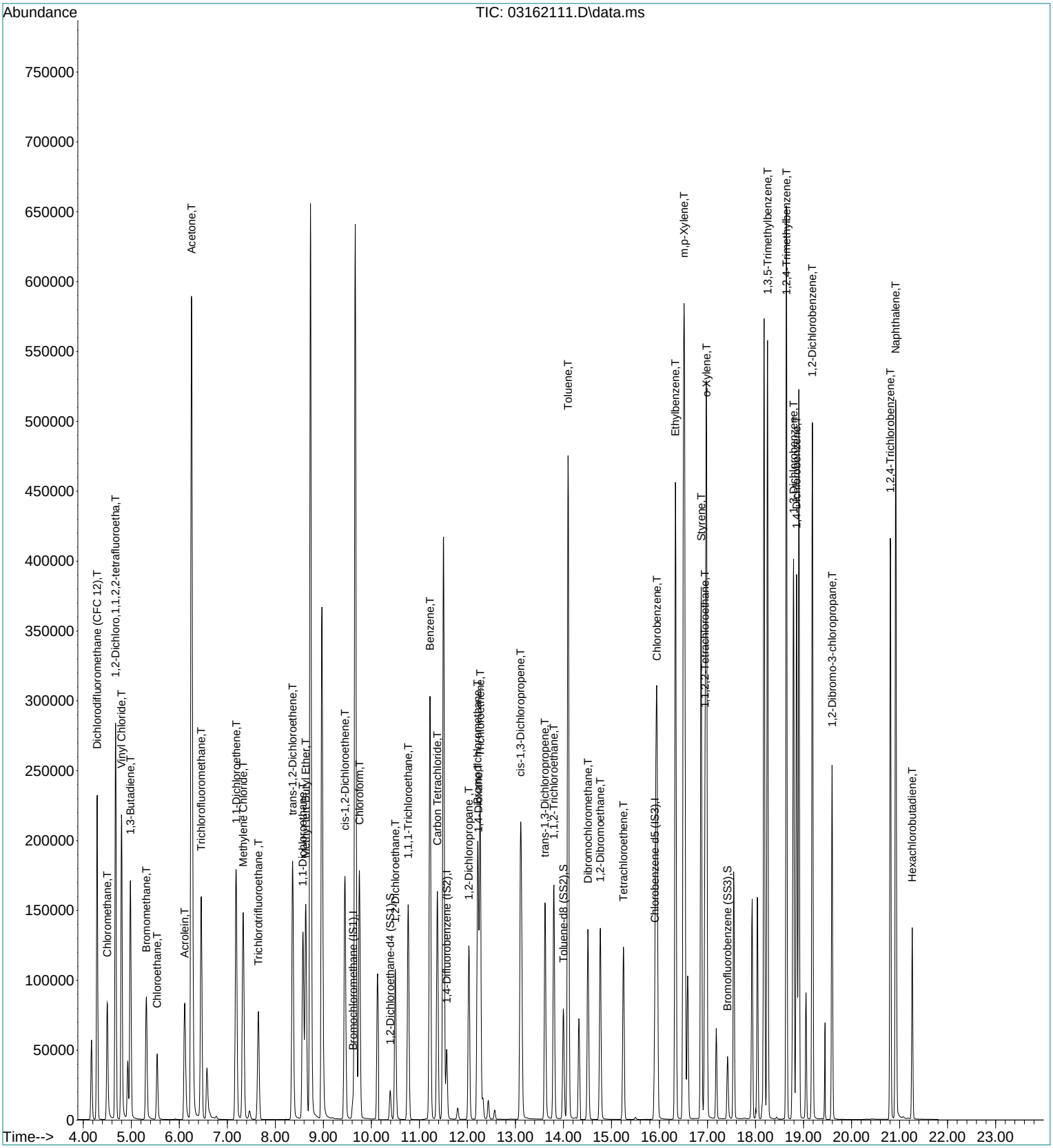
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.26	225	125098	5443.216	pg	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162111.D Vial: 16
Acq On : 16 Mar 2021 13:10 Operator: TZ
Sample : 5000pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152101 (4/14)

Quant Time: Mar 16 13:35:34 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 12:31:53 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162108.D Vial: 15
Acq On : 16 Mar 2021 11:36 Operator: TZ
Sample : 10000pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03102102 (4/9)

TZ 3/17/21

Quant Time: Mar 16 12:25:00 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:32:11 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	21865	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.57	114	102682	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.90	54	18602	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	32646	954.403	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 95.44%			
33) Toluene-d8 (SS2)	14.00	98	112826	1010.352	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.04%			
45) Bromofluorobenzene (SS3)	17.42	174	36908	991.370	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.14%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.29	85	447921	8616.867	pg	100
3) Chloromethane	4.50	52	32298	3794.061	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.67	85	577386	8646.704	pg	100
5) Vinyl Chloride	4.80	62	539896	9255.435	pg	100
6) 1,3-Butadiene	4.99	54	395830	16310.778	pg	98
7) Bromomethane	5.32	94	166371	8757.438	pg	100
8) Chloroethane	5.54	64	122281	9204.934	pg	100
9) Acrolein	6.12	56	213809	20734.439	pg	99
10) Acetone	6.26	58	646445	41521.095	pg	99
11) Trichlorofluoromethane	6.46	101	363253	8902.066	pg	100
12) 1,1-Dichloroethene	7.18	96	225885	9349.164	pg	100
13) Methylene Chloride	7.34	84	231096	9165.859	pg	98
14) Trichlorotrifluoroethane	7.65	151	172391	9039.158	pg	100
15) trans-1,2-Dichloroethene	8.37	96	232121	9828.592	pg	99
16) 1,1-Dichloroethane	8.58	63	361207	9425.731	pg	100
17) Methyl tert-Butyl Ether	8.64	73	322688	5311.357	pg	100
18) cis-1,2-Dichloroethene	9.46	96	246672	9544.536	pg	100
19) Chloroform	9.76	83	404736	9249.463	pg	99
21) 1,2-Dichloroethane	10.50	62	300367	9647.113	pg	98
22) 1,1,1-Trichloroethane	10.77	97	315620	8640.219	pg	100
23) Benzene	11.22	78	916630	9271.021	pg	100
24) Carbon Tetrachloride	11.38	117	277306	9137.434	pg	100
26) 1,2-Dichloropropane	12.03	63	214349	9660.351	pg	100
27) Bromodichloromethane	12.21	83	340611	10218.208	pg	99
28) Trichloroethene	12.27	130	266636	9420.212	pg	100
29) 1,4-Dioxane	12.23	88	201730	8973.190	pg	99
30) cis-1,3-Dichloropropene	13.11	75	383074	12169.489	pg	100
31) trans-1,3-Dichloropropene	13.62	75	327988	13977.204	pg	99
32) 1,1,2-Trichloroethane	13.80	83	196233	9549.383	pg	100
34) Toluene	14.10	91	1015262	9439.382	pg	100
35) Dibromochloromethane	14.51	129	263180	10640.502	pg	99
36) 1,2-Dibromoethane	14.77	107	264544	10315.133	pg	99
37) Tetrachloroethene	15.25	166	263245	9340.631	pg	100
39) Chlorobenzene	15.95	112	685303	8740.407	pg	100
40) Ethylbenzene	16.33	91	1175371	9369.462	pg	100
41) m,p-Xylene	16.51	91	1866824	19598.906	pg	99
42) Styrene	16.87	104	717002	11741.531	pg	99
43) o-Xylene	16.97	106	456658	9508.323	pg	100
44) 1,1,2,2-Tetrachloroethane	16.95	83	436956	9519.374	pg	100
46) 1,3,5-Trimethylbenzene	18.25	105	989865	9772.940	pg	100
47) 1,2,4-Trimethylbenzene	18.64	105	1111613	10593.326	pg	100
48) 1,3-Dichlorobenzene	18.79	146	603440	10129.719	pg	100
49) 1,4-Dichlorobenzene	18.85	146	575255	8901.079	pg	99
50) 1,2-Dichlorobenzene	19.18	146	591441	9585.389	pg	100
51) 1,2-Dibromo-3-chloropr...	19.59	157	412797	20447.735	pg	99
52) 1,2,4-Trichlorobenzene	20.81	182	776716	18079.488	pg	100
53) Naphthalene	20.92	128	1213749	9200.134	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162108.D Vial: 15
Acq On : 16 Mar 2021 11:36 Operator: TZ
Sample : 10000pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03102102 (4/9)

Quant Time: Mar 16 12:25:00 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:32:11 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

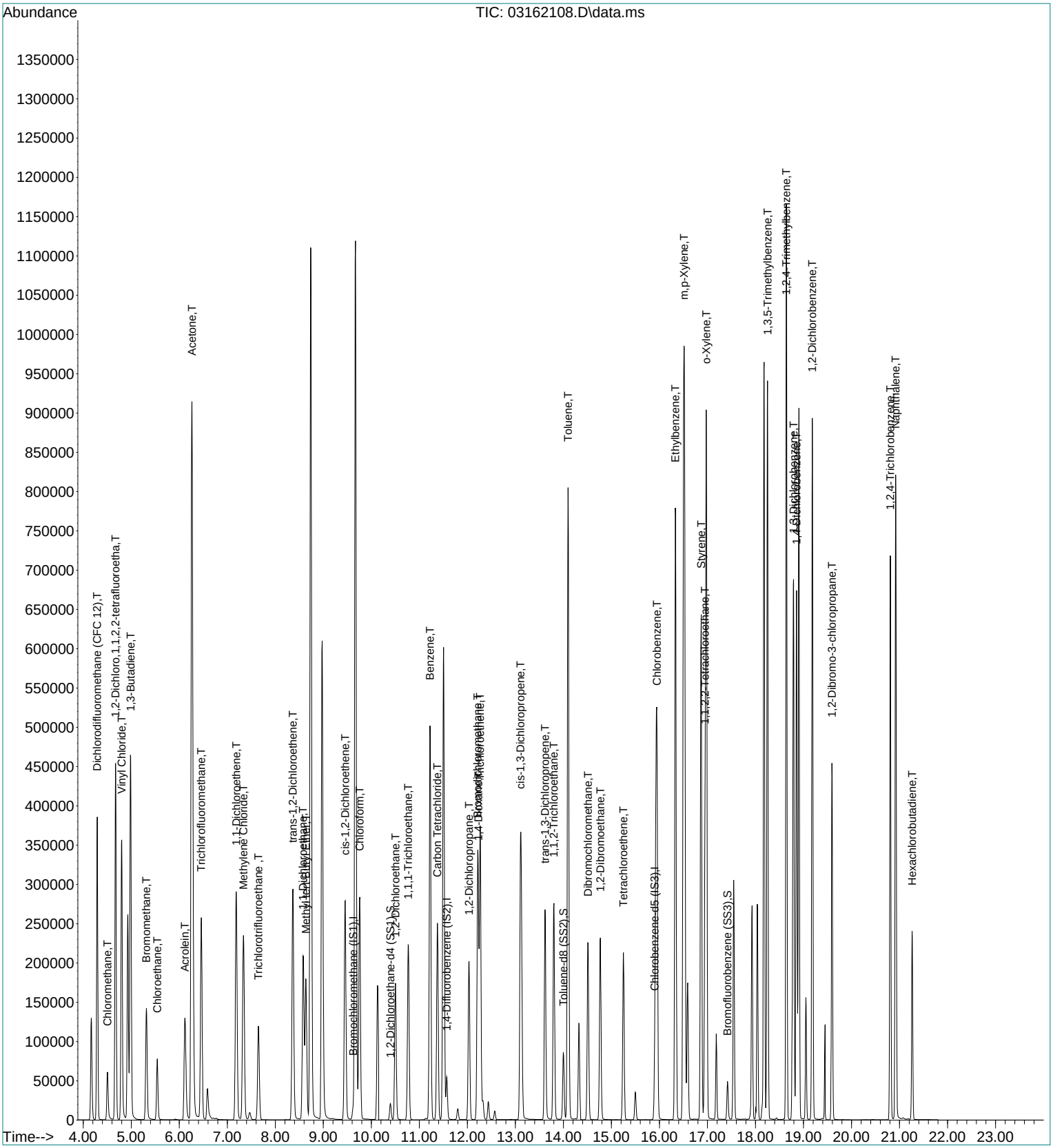
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.26	225	214364	8209.245	pg	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162108.D Vial: 15
Acq On : 16 Mar 2021 11:36 Operator: TZ
Sample : 10000pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03102102 (4/9)

Quant Time: Mar 16 12:25:00 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 11:32:11 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162109.D Vial: 16
Acq On : 16 Mar 2021 12:07 Operator: TZ
Sample : 25000pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152101 (4/14)

TZ 3/17/21

Quant Time: Mar 16 12:31:47 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 12:25:10 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.63	130	24928	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.57	114	110524	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.90	54	22424	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.40	65	34795	898.088	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.81%			
33) Toluene-d8 (SS2)	14.00	98	122001	1013.498	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 101.35%			
45) Bromofluorobenzene (SS3)	17.42	174	40257	898.130	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 89.81%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.29	85	1341436	23203.305	pg	100
3) Chloromethane	4.50	52	104641	10781.833	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.67	85	1742804	23457.535	pg	100
5) Vinyl Chloride	4.80	62	1598651	24452.274	pg	100
6) 1,3-Butadiene	4.99	54	1142094	41279.067	pg	100
7) Bromomethane	5.32	94	499649	23601.390	pg	100
8) Chloroethane	5.55	64	365707	24549.659	pg	100
9) Acrolein	6.13	56	667766	57199.976	pg	99
10) Acetone	6.28	58	2114865	122566.768	pg	98
11) Trichlorofluoromethane	6.46	101	1094071	23952.814	pg	100
12) 1,1-Dichloroethene	7.19	96	687386	25319.940	pg	99
13) Methylene Chloride	7.35	84	702729	24868.876	pg	98
14) Trichlorotrifluoroethane	7.65	151	551969	25900.541	pg	100
15) trans-1,2-Dichloroethene	8.38	96	717677	26900.067	pg	99
16) 1,1-Dichloroethane	8.59	63	1105527	25742.010	pg	100
17) Methyl tert-Butyl Ether	8.64	73	590817	8529.777	pg	100
18) cis-1,2-Dichloroethene	9.46	96	770205	26450.684	pg	100
19) Chloroform	9.77	83	1266626	25829.014	pg	99
21) 1,2-Dichloroethane	10.51	62	931509	26516.064	pg	98
22) 1,1,1-Trichloroethane	10.77	97	1016608	24985.634	pg	100
23) Benzene	11.23	78	2886825	26013.799	pg	100
24) Carbon Tetrachloride	11.38	117	897552	26332.879	pg	100
26) 1,2-Dichloropropane	12.04	63	662592	28027.887	pg	100
27) Bromodichloromethane	12.22	83	1116625	31199.455	pg	99
28) Trichloroethene	12.27	130	858846	28501.264	pg	100
29) 1,4-Dioxane	12.23	88	666677	28067.004	pg	100
30) cis-1,3-Dichloropropene	13.11	75	1312561	37878.486	pg	99
31) trans-1,3-Dichloropropene	13.62	75	1070300	40245.530	pg	99
32) 1,1,2-Trichloroethane	13.80	83	617525	28248.789	pg	99
34) Toluene	14.10	91	3262066	28553.852	pg	99
35) Dibromochloromethane	14.51	129	849907	31818.962	pg	99
36) 1,2-Dibromoethane	14.77	107	830898	30134.842	pg	99
37) Tetrachloroethene	15.25	166	852857	28529.636	pg	100
39) Chlorobenzene	15.95	112	2284209	24701.806	pg	100
40) Ethylbenzene	16.33	91	3866524	25935.740	pg	99
41) m,p-Xylene	16.52	91	6530098	57381.819	pg	100
42) Styrene	16.87	104	2437007	32457.142	pg	99
43) o-Xylene	16.98	106	1560216	27317.668	pg	99
44) 1,1,2,2-Tetrachloroethane	16.95	83	1455641	26662.741	pg	100
46) 1,3,5-Trimethylbenzene	18.25	105	3493069	28894.848	pg	99
47) 1,2,4-Trimethylbenzene	18.64	105	4684388	36882.034	pg	100
48) 1,3-Dichlorobenzene	18.79	146	2285603	31989.254	pg	100
49) 1,4-Dichlorobenzene	18.86	146	2015803	26418.746	pg	99
50) 1,2-Dichlorobenzene	19.19	146	2313196	31491.650	pg	100
51) 1,2-Dibromo-3-chloropr...	19.60	157	1518497	62198.866	pg	99
52) 1,2,4-Trichlorobenzene	20.81	182	3492221	68370.857	pg	99
53) Naphthalene	20.92	128	4737666	30251.880	pg	98

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162109.D Vial: 16
Acq On : 16 Mar 2021 12:07 Operator: TZ
Sample : 25000pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152101 (4/14)

Quant Time: Mar 16 12:31:47 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 12:25:10 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

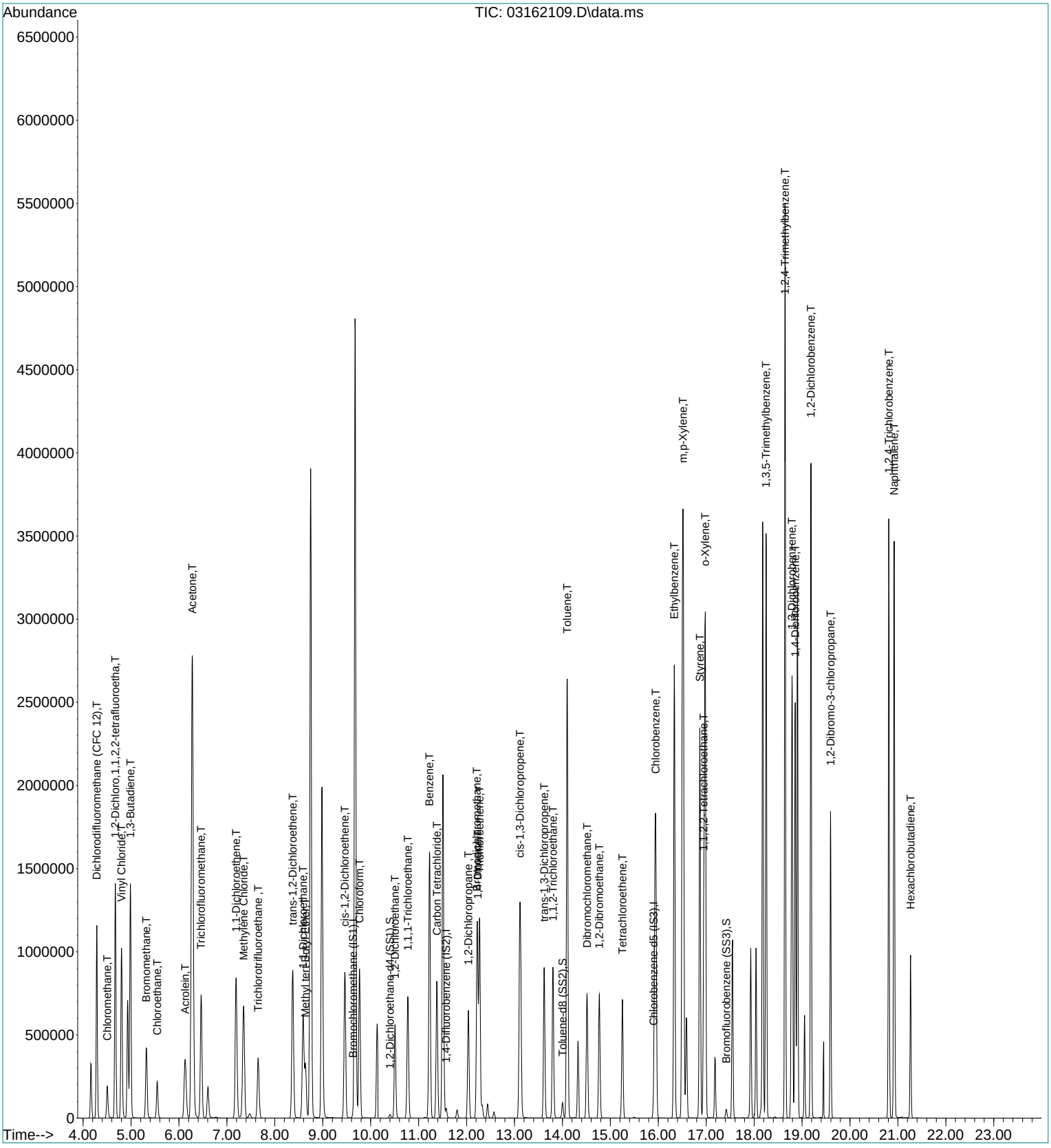
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.26	225	799801	26167.348	pg	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162109.D Vial: 16
Acq On : 16 Mar 2021 12:07 Operator: TZ
Sample : 25000pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152101 (4/14)

Quant Time: Mar 16 12:31:47 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 12:25:10 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162112.D Vial: 16
Acq On : 16 Mar 2021 13:41 Operator: TZ
Sample : 50000pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152101 (4/14)

TZ 3/17/21

Quant Time: Mar 16 14:07:18 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 13:35:39 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.64	130	28174	1000.000	pg	0.02
25) 1,4-Difluorobenzene (IS2)	11.58	114	111650	1000.000	pg	0.01
38) Chlorobenzene-d5 (IS3)	15.90	54	26496	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.41	65	37854	876.305	pg	0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 87.63%			
33) Toluene-d8 (SS2)	14.00	98	122410	1004.282	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 100.43%			
45) Bromofluorobenzene (SS3)	17.42	174	40421	763.514	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 76.35%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.29	85	2813000	42254.927	pg	99
3) Chloromethane	4.51	52	290383	24303.974	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.68	85	3705711	43191.684	pg	99
5) Vinyl Chloride	4.81	62	3240252	42764.545	pg	100
6) 1,3-Butadiene	5.00	54	2603285	87122.664	pg	98
7) Bromomethane	5.33	94	1028960	41999.431	pg	100
8) Chloroethane	5.56	64	742994	42949.733	pg	100
9) Acrolein	6.14	56	1383627	99825.261	pg	98
10) Acetone	6.29	58	5043265	243821.130	pg	94
11) Trichlorofluoromethane	6.47	101	2294248	43298.526	pg	100
12) 1,1-Dichloroethene	7.20	96	1435842	45378.757	pg	98
13) Methylene Chloride	7.36	84	1454778	44252.879	pg	98
14) Trichlorotrifluoroethane	7.66	151	1284071	51490.477	pg	100
15) trans-1,2-Dichloroethene	8.38	96	1503371	47928.376	pg	99
16) 1,1-Dichloroethane	8.60	63	2272783	45341.603	pg	99
17) Methyl tert-Butyl Ether	8.64	73	1142775	13948.030	pg	100
18) cis-1,2-Dichloroethene	9.47	96	1630689	47714.627	pg	100
19) Chloroform	9.78	83	2687280	46960.065	pg	99
21) 1,2-Dichloroethane	10.51	62	1975294	47943.758	pg	98
22) 1,1,1-Trichloroethane	10.78	97	2162169	45198.612	pg	100
23) Benzene	11.23	78	6190697	47751.799	pg	99
24) Carbon Tetrachloride	11.39	117	1947386	48294.577	pg	100
26) 1,2-Dichloropropane	12.04	63	1403921	56136.497	pg	99
27) Bromodichloromethane	12.22	83	2532616	65864.390	pg	100
28) Trichloroethene	12.28	130	1898120	59350.793	pg	100
29) 1,4-Dioxane	12.24	88	1519103	60364.916	pg	100
30) cis-1,3-Dichloropropene	13.11	75	3104304	80587.844	pg	99
31) trans-1,3-Dichloropropene	13.62	75	2330620	72842.772	pg	99
32) 1,1,2-Trichloroethane	13.81	83	1333419	57663.447	pg	99
34) Toluene	14.10	91	7183183	59410.729	pg	97
35) Dibromochloromethane	14.52	129	1852224	64293.968	pg	99
36) 1,2-Dibromoethane	14.77	107	1781039	60457.930	pg	99
37) Tetrachloroethene	15.25	166	1913056	60554.104	pg	99
39) Chlorobenzene	15.95	112	5324505	47024.790	pg	99
40) Ethylbenzene	16.34	91	8674563	47396.996	pg	97
41) m,p-Xylene	16.52	91	15767127	112575.214	pg	96
42) Styrene	16.87	104	5571491	59835.680	pg	98
43) o-Xylene	16.98	106	3797666	54165.778	pg	97
44) 1,1,2,2-Tetrachloroethane	16.96	83	3424718	51158.749	pg	99
46) 1,3,5-Trimethylbenzene	18.25	105	8332500	55973.506	pg	96
47) 1,2,4-Trimethylbenzene	18.65	105	11719662	74643.402	pg	93
48) 1,3-Dichlorobenzene	18.80	146	6232282	70880.672	pg	99
49) 1,4-Dichlorobenzene	18.86	146	4812163	51410.510	pg	98
50) 1,2-Dichlorobenzene	19.19	146	6403709	70957.310	pg	98
51) 1,2-Dibromo-3-chloropr...	19.60	157	3917716	130404.793	pg	95
52) 1,2,4-Trichlorobenzene	20.81	182	9619927	151847.945	pg	91
53) Naphthalene	20.92	128	10643352	54451.352	pg	95

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162112.D Vial: 16
Acq On : 16 Mar 2021 13:41 Operator: TZ
Sample : 50000pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152101 (4/14)

Quant Time: Mar 16 14:07:18 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 13:35:39 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

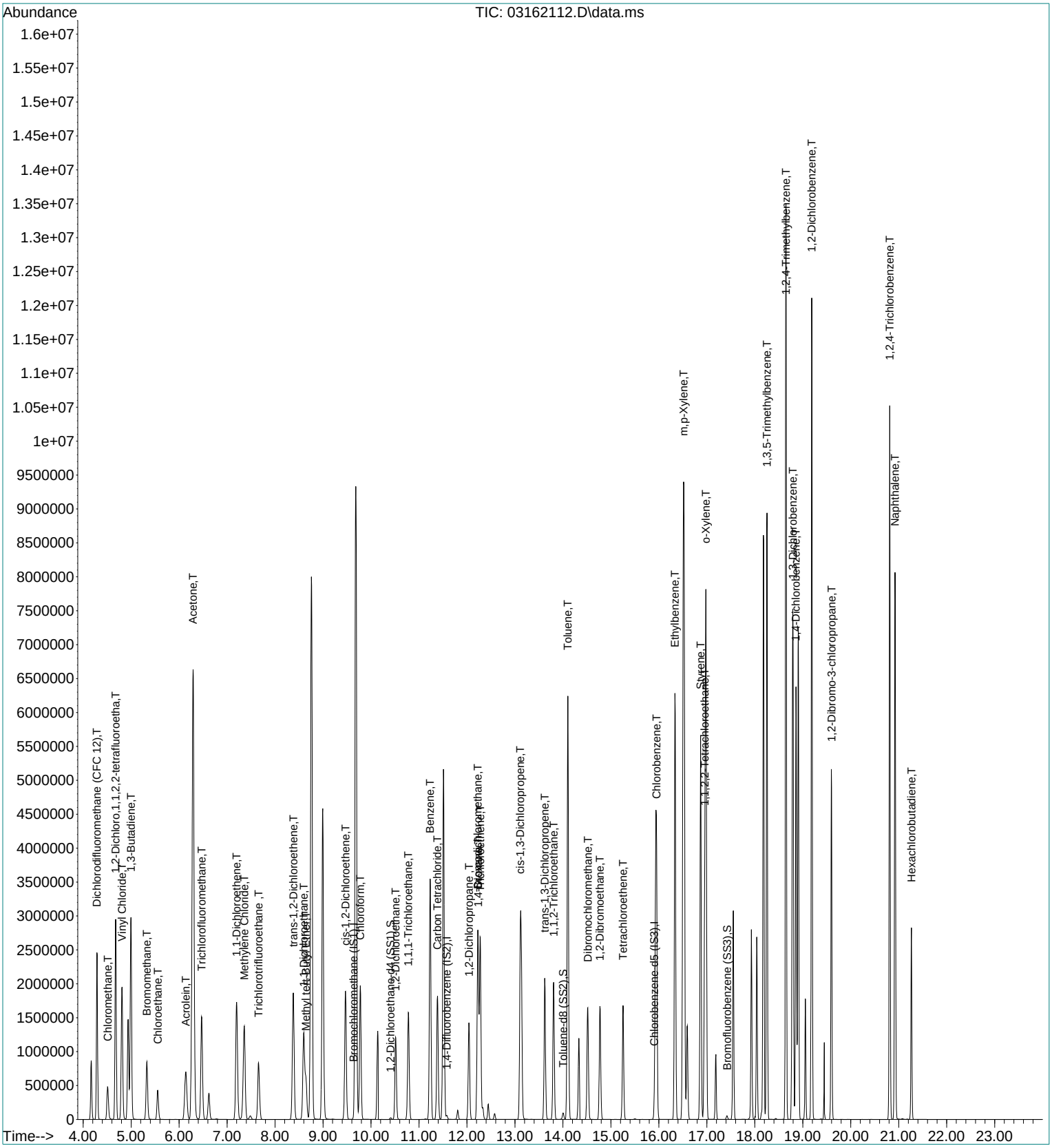
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
54) Hexachlorobutadiene	21.27	225	2094378	56017.614 pg	99

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 03\16\03162112.D Vial: 16
Acq On : 16 Mar 2021 13:41 Operator: TZ
Sample : 50000pg S19031621 ICAL Std. Inst : MS19
Misc : S34-01272101/S34-03152101 (4/14)

Quant Time: Mar 16 14:07:18 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 13:35:39 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Laboratory Control Sample Recovery Check Sheet - MS19

TZ 3/17/21

Data File Name: 03162115.D
Data File Path: I:\MS19\DATA\2021_03\16\
Operator: TZ
Instrument Name: MS19
Sample Name: 1000pg S19031621 ICV Std.
Misc Info: S34-01272101/S34-03112101 (4/7)
Date Acquired: 3/16/2021 15:16
Acq. Method File: TO15SIM.M

#	Compound Name		Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag	70-130% Method
2)	Dichlorodifluoromethane (CFC 12)		4.31	1050.0	1112.1	106	65	122	*	*
3)	Chloromethane		4.52	1030.0	955.3	93	48	162	*	*
4)	*1,2-Dichloro,1,1,2,2-tetrafluoroetha*	*	4.69	1080.0	1108.9	103	49	133	*	*
5)	Vinyl Chloride		4.82	1040.0	1135.0	109	43	138	*	*
6)	*1,3-Butadiene*	*	5.00	1050.0	1557.0	148	45	150	*	Fail
7)	Bromomethane		5.33	1020.0	1112.9	109	60	126	*	*
8)	Chloroethane		5.55	1020.0	1135.5	111	57	130	*	*
9)	*Acrolein*	*	6.12	2180.0	2273.8	104	54	130	*	*
10)	Acetone		6.26	5160.0	5324.3	103	54	123	*	*
11)	Trichlorofluoromethane		6.46	1020.0	1095.4	107	69	117	*	*
12)	1,1-Dichloroethene		7.19	1060.0	1109.6	105	65	135	*	*
13)	Methylene Chloride		7.32	1040.0	1109.4	107	63	120	*	*
14)	Trichlorotrifluoroethane		7.65	1070.0	1081.3	101	67	123	*	*
15)	trans-1,2-Dichloroethene		8.36	1060.0	1163.5	110	67	123	*	*
16)	1,1-Dichloroethane		8.57	1060.0	1167.2	110	62	123	*	*
17)	Methyl tert-Butyl Ether		8.64	1060.0	1246.7	118	75	131	*	*
18)	cis-1,2-Dichloroethene		9.44	1040.0	1126.3	108	69	123	*	*
19)	Chloroform		9.74	1070.0	1116.1	104	67	117	*	*
21)	1,2-Dichloroethane		10.49	1040.0	1140.7	110	68	118	*	*
22)	1,1,1-Trichloroethane		10.76	1030.0	1145.4	111	73	124	*	*
25)	Benzene		11.22	1020.0	1068.3	105	60	122	*	*
24)	Carbon Tetrachloride		11.37	1050.0	1141.6	109	73	118	*	*
26)	1,2-Dichloropropane		12.03	1030.0	1086.7	106	66	126	*	*
27)	Bromodichloromethane		12.21	1050.0	1034.7	99	69	117	*	*
28)	Trichloroethene		12.27	1030.0	990.1	96	71	119	*	*
29)	1,4-Dioxane		12.23	1040.0	917.9	88	69	119	*	*
30)	cis-1,3-Dichloropropene		13.11	1050.0	1107.6	105	73	125	*	*
31)	trans-1,3-Dichloropropene		13.62	1010.0	1077.7	107	77	128	*	*
32)	1,1,2-Trichloroethane		13.80	1030.0	1051.0	102	68	123	*	*
34)	Toluene		14.00	1030.0	1013.5	98	69	120	*	*
35)	*Dibromochloromethane*	*	14.51	1050.0	1074.0	102	74	122	*	*
36)	1,2-Dibromoethane		14.77	1040.0	1071.6	103	72	124	*	*
37)	Tetrachloroethene		15.25	1030.0	996.8	97	72	122	*	*
39)	Chlorobenzene		15.95	1030.0	1002.8	97	65	133	*	*
40)	Ethylbenzene		16.34	1030.0	1053.1	102	70	134	*	*
41)	m,p-Xylene		16.51	2060.0	2076.2	101	73	132	*	*
42)	*Styrene*	*	16.87	1030.0	1097.1	107	71	142	*	*
43)	o-Xylene		16.98	1030.0	1045.2	101	69	136	*	*
44)	1,1,2,2-Tetrachloroethane		16.95	1030.0	1033.4	100	66	136	*	*
46)	*1,3,5-Trimethylbenzene*	*	18.25	1030.0	1042.1	101	76	139	*	*
47)	*1,2,4-Trimethylbenzene*	*	18.65	1020.0	995.2	98	75	139	*	*
48)	1,3-Dichlorobenzene		18.79	1030.0	976.7	95	64	138	*	*
49)	1,4-Dichlorobenzene		18.85	1020.0	921.5	90	55	137	*	*
50)	1,2-Dichlorobenzene		19.18	1030.0	950.1	92	62	138	*	*
51)	*1,2-Dibromo-3-chloropropane*	*	19.60	1930.0	1820.9	94	66	149	*	*
52)	1,2,4-Trichlorobenzene		20.81	1940.0	1528.6	79	53	145	*	*
53)	Naphthalene		19.18	990.0	783.0	79	43	144	*	*
54)	Hexachlorobutadiene		21.27	1050.0	874.2	83	54	146	*	*

* ***Compounds with 70 - 130 as advisory limits***

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2021 04\08\04082102.D Vial: 16
Acq On : 8 Apr 2021 3:54 Operator: TZ
Sample : CCV S19040821 1000pg Inst : MS19
Misc : S34-01272101/S34-04012105 (5/1)

Quant Time: Apr 08 07:19:46 2021
Quant Method : I:\MS19\METHODS\S19031621.M TZ 4/8/21
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1.000	1.000	0.0	77	-0.04
2	T	Dichlorodifluoromethane (CF	2.314	2.357	-1.9	79	0.01
3	T	Chloromethane	0.424	0.410	3.3	91	0.00
4	T	1,2-Dichloro,1,1,2,2-tetraf	2.988	3.165	-5.9	80	0.00
5	T	Vinyl Chloride	2.634	2.930	-11.2	84	0.00
6	T	1,3-Butadiene	1.061	2.061	-94.3#	147	0.00
7	T	Bromomethane	0.851	0.908	-6.7	81	0.00
8	T	Chloroethane	0.602	0.636	-5.6	79	0.00
9	T	Acrolein	0.487	0.485	0.4	79	-0.03
10	T	Acetone	0.653	0.625	4.3	78	-0.04
11	T	Trichlorofluoromethane	1.849	1.910	-3.3	79	-0.01
12	T	1,1-Dichloroethene	1.107	1.135	-2.5	79	-0.01
13	T	Methylene Chloride	1.148	1.170	-1.9	79	-0.04
14	T	Trichlorotrifluoroethane	0.883	0.924	-4.6	80	-0.01
15	T	trans-1,2-Dichloroethene	1.103	1.170	-6.1	80	-0.03
16	T	1,1-Dichloroethane	1.749	1.804	-3.1	77	-0.04
17	T	Methyl tert-Butyl Ether	2.908	3.017	-3.7	76	0.00
18	T	cis-1,2-Dichloroethene	1.202	1.240	-3.2	79	-0.03
19	T	Chloroform	2.007	2.025	-0.9	78	-0.04
20	S	1,2-Dichloroethane-d4 (SS1)	1.512	1.497	1.0	74	-0.02
21	T	1,2-Dichloroethane	1.450	1.455	-0.3	76	-0.02
22	T	1,1,1-Trichloroethane	1.675	1.783	-6.4	80	-0.02
23	T	Benzene	4.560	4.465	2.1	78	-0.02
24	T	Carbon Tetrachloride	1.423	1.501	-5.5	82	-0.02
25	I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	76	-0.02
26	T	1,2-Dichloropropane	0.226	0.228	-0.9	77	-0.01
27	T	Bromodichloromethane	0.355	0.348	2.0	80	-0.02
28	T	Trichloroethene	0.292	0.290	0.7	79	-0.02
29	T	1,4-Dioxane	0.230	0.201	12.6	76	0.00
30	T	cis-1,3-Dichloropropene	0.345	0.348	-0.9	79	0.00
31	T	trans-1,3-Dichloropropene	0.287	0.287	0.0	80	0.00
32	T	1,1,2-Trichloroethane	0.210	0.209	0.5	78	-0.01
33	S	Toluene-d8 (SS2)	1.092	1.075	1.6	75	0.00
34	T	Toluene	1.100	1.050	4.5	78	0.00
35	T	Dibromochloromethane	0.265	0.267	-0.8	81	0.00
36	T	1,2-Dibromoethane	0.269	0.273	-1.5	79	0.00
37	T	Tetrachloroethene	0.288	0.279	3.1	79	0.00
38	I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	73	0.00
39	T	Chlorobenzene	4.273	4.421	-3.5	79	0.00
40	T	Ethylbenzene	6.907	7.161	-3.7	77	0.00
41	T	m,p-Xylene	5.286	5.473	-3.5	78	0.00
42	T	Styrene	3.742	4.067	-8.7	78	0.00
43	T	o-Xylene	2.646	2.782	-5.1	79	0.00
44	T	1,1,2,2-Tetrachloroethane	2.527	2.671	-5.7	79	0.00
45	S	Bromofluorobenzene (SS3)	1.998	2.132	-6.7	76	0.00
46	T	1,3,5-Trimethylbenzene	5.618	5.837	-3.9	78	0.00
47	T	1,2,4-Trimethylbenzene	5.926	6.027	-1.7	79	0.00
48	T	1,3-Dichlorobenzene	3.318	3.536	-6.6	82	0.00
49	T	1,4-Dichlorobenzene	3.533	3.546	-0.4	81	0.00
50	T	1,2-Dichlorobenzene	3.406	3.401	0.1	81	0.00
51	T	1,2-Dibromo-3-chloropropane	1.134	1.177	-3.8	83	0.00
52	T	1,2,4-Trichlorobenzene	2.391	2.288	4.3	85	0.00
53	T	Naphthalene	7.377	7.484	-1.5	90	0.00
54	T	Hexachlorobutadiene	1.411	1.294	8.3	79	0.00

Evaluate Continuing Calibration Report

Data File : I:\MS19\DATA\2021 04\08\04082102.D Vial: 16
Acq On : 8 Apr 2021 3:54 Operator: TZ
Sample : CCV S19040821 1000pg Inst : MS19
Misc : S34-01272101/S34-04012105 (5/1)

Quant Time: Apr 08 07:19:46 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082102.D Vial: 16
Acq On : 8 Apr 2021 3:54 Operator: TZ
Sample : CCV S19040821 1000pg Inst : MS19
Misc : S34-01272101/S34-04012105 (5/1)

TZ 4/8/21

Quant Time: Apr 08 07:19:46 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.60	130	13692	1000.000	pg	-0.04
25) 1,4-Difluorobenzene (IS2)	11.56	114	62775	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.90	54	10174	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.39	65	20495	989.882	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.99%			
33) Toluene-d8 (SS2)	14.00	98	67488	984.307	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.43%			
45) Bromofluorobenzene (SS3)	17.42	174	21693	1067.132	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.71%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.30	85	33563	1059.470	pg	100
3) Chloromethane	4.51	52	5840	1005.774	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.68	85	45068	1101.616	pg	100
5) Vinyl Chloride	4.81	62	42128	1168.152	pg	100
6) 1,3-Butadiene	4.99	54	29348	2021.015	pg	99
7) Bromomethane	5.32	94	12925	1109.272	pg	100
8) Chloroethane	5.55	64	9056	1098.434	pg	100
9) Acrolein	6.11	56	14474	2169.064	pg	98
10) Acetone	6.25	58	44149	4939.885	pg	98
11) Trichlorofluoromethane	6.46	101	26676	1053.620	pg	100
12) 1,1-Dichloroethene	7.18	96	16155	1065.670	pg	98
13) Methylene Chloride	7.32	84	16658	1060.226	pg	99
14) Trichlorotrifluoroethane	7.64	151	13277	1097.863	pg	100
15) trans-1,2-Dichloroethene	8.35	96	16825	1114.514	pg	100
16) 1,1-Dichloroethane	8.56	63	26424	1103.420	pg	99
17) Methyl tert-Butyl Ether	8.64	73	42550	1068.645	pg	100
18) cis-1,2-Dichloroethene	9.44	96	17655	1072.815	pg	99
19) Chloroform	9.74	83	29118	1059.451	pg	100
21) 1,2-Dichloroethane	10.49	62	20721	1043.934	pg	99
22) 1,1,1-Trichloroethane	10.76	97	25144	1096.469	pg	100
23) Benzene	11.22	78	63581	1018.402	pg	100
24) Carbon Tetrachloride	11.37	117	20967	1076.296	pg	100
26) 1,2-Dichloropropane	12.03	63	14916	1051.490	pg	100
27) Bromodichloromethane	12.21	83	22697	1019.630	pg	100
28) Trichloroethene	12.26	130	18578	1014.714	pg	100
29) 1,4-Dioxane	12.24	88	12997	901.332	pg	98
30) cis-1,3-Dichloropropene	13.11	75	22906	1057.612	pg	100
31) trans-1,3-Dichloropropene	13.62	75	18391	1022.333	pg	99
32) 1,1,2-Trichloroethane	13.80	83	13656	1037.780	pg	99
34) Toluene	14.10	91	68544	992.582	pg	100
35) Dibromochloromethane	14.51	129	17429	1048.479	pg	99
36) 1,2-Dibromoethane	14.77	107	17851	1058.609	pg	99
37) Tetrachloroethene	15.25	166	18227	1007.713	pg	100
39) Chlorobenzene	15.95	112	46333	1065.680	pg	100
40) Ethylbenzene	16.33	91	75766	1078.118	pg	99
41) m,p-Xylene	16.51	91	116384	2164.074	pg	99
42) Styrene	16.87	104	42617	1119.359	pg	100
43) o-Xylene	16.98	106	29721	1103.977	pg	98
44) 1,1,2,2-Tetrachloroethane	16.95	83	28530	1109.904	pg	100
46) 1,3,5-Trimethylbenzene	18.25	105	62360	1090.943	pg	99
47) 1,2,4-Trimethylbenzene	18.64	105	63154	1047.528	pg	99
48) 1,3-Dichlorobenzene	18.79	146	37770	1118.707	pg	100
49) 1,4-Dichlorobenzene	18.86	146	37524	1044.021	pg	99
50) 1,2-Dichlorobenzene	19.18	146	36328	1048.324	pg	100
51) 1,2-Dibromo-3-chloropr...	19.60	157	23954	2076.478	pg	98
52) 1,2,4-Trichlorobenzene	20.81	182	46547	1913.451	pg	99
53) Naphthalene	20.92	128	78424	1044.883	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082102.D Vial: 16
Acq On : 8 Apr 2021 3:54 Operator: TZ
Sample : CCV S19040821 1000pg Inst : MS19
Misc : S34-01272101/S34-04012105 (5/1)

Quant Time: Apr 08 07:19:46 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

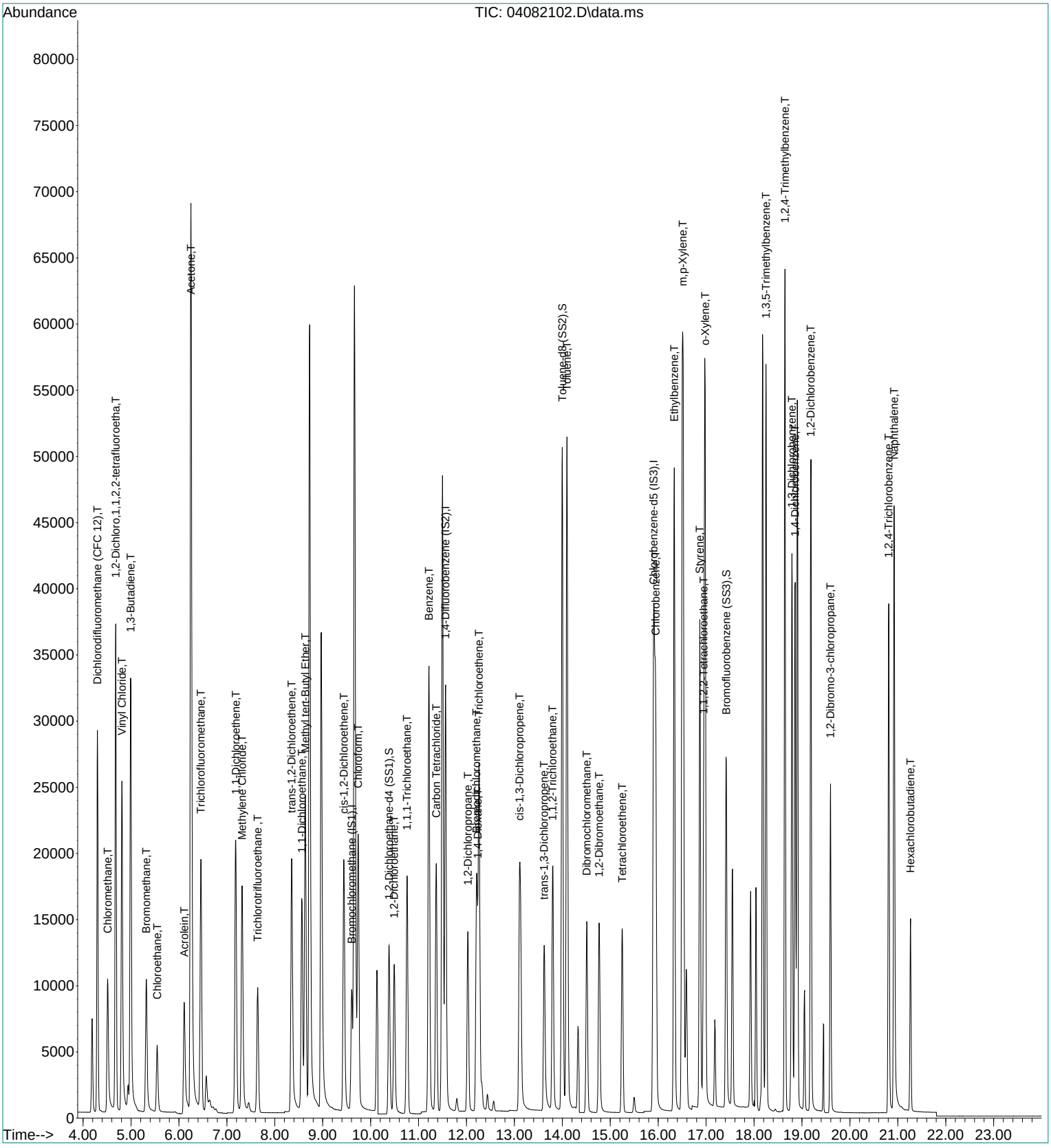
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.26	225	13561	944.604	pg	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082102.D Vial: 16
Acq On : 8 Apr 2021 3:54 Operator: TZ
Sample : CCV S19040821 1000pg Inst : MS19
Misc : S34-01272101/S34-04012105 (5/1)

Quant Time: Apr 08 07:19:46 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



Client: **WSP Group**

Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006.02** ALS Project ID: P2101759

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19 Lab File ID: 04082102.D
Analyst: Topacio Zavala Date Analyzed: 4/8/21
Sample Type: 6.0 L Silonite Canister(s) Time Analyzed: 03:54
Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	13692		9.60	62775		11.56		10174		15.90	
	Upper Limit	19169		9.93	87885		11.89		14244		16.23	
	Lower Limit	8215		9.27	37665		11.23		6104		15.57	
	Client Sample ID											
01	Method Blank	12682		9.62	57547		11.57		9254		15.90	
02	Lab Control Sample	12822		9.61	58741		11.56		9420		15.90	
03	HUCKAA033121-1	15943		9.61	77391		11.56		13313		15.90	
04	HUCKAA033121-2	18713		9.62	86035		11.57		14067		15.90	
05	HUCKIAF033121-1	16914		9.61	81527		11.56		14362	I	15.90	
06	HUCKIAF033121-2	16905		9.61	82116		11.56		14145		15.90	
07	HUCKIAFR033121-2	17526		9.61	83356		11.56		14440	I	15.90	
08	HUCKIAF033121-3	16857		9.61	81071		11.56		13284		15.90	
09	HUCKIAF033121-5	17553		9.61	83614		11.56		14617	I	15.90	
10	HUCKIAF033121-6	18486		9.62	86773		11.57		14031		15.90	
11	TRIP BLANK	14125		9.62	66487		11.57		10703		15.90	
12												
13												
14												
15												
16												
17												
18												
19												
20												

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

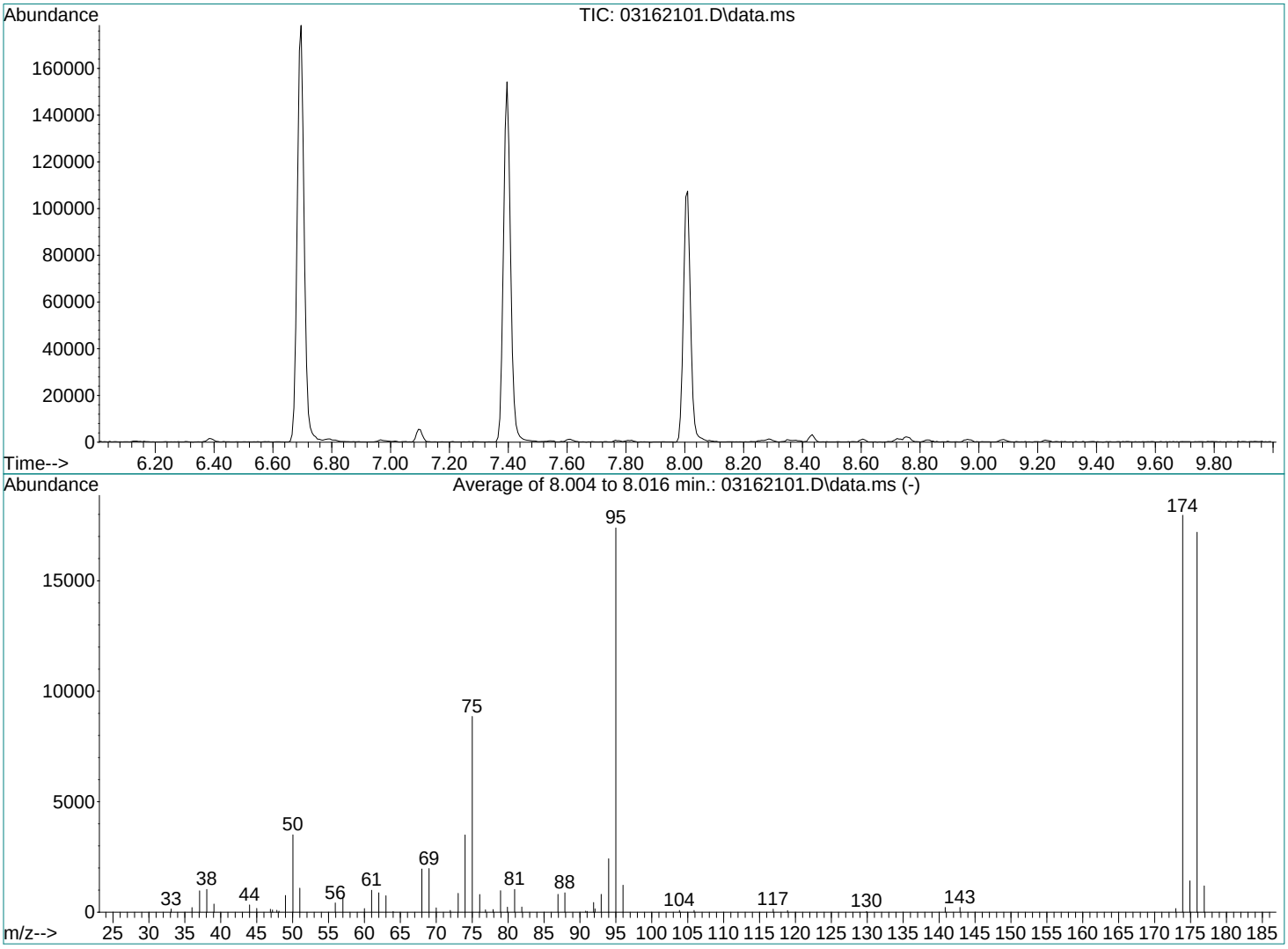
# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

BFB

Data Path : I:\MS19\DATA\2021 03\16\
Data File : 03162101.D
Acq On : 16 Mar 2021 7:55
Operator : TZ
Sample : BFB S19031621
Misc : S34-01272101
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19031621.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Mar 16 14:07:28 2021



AutoFind: Scans 638, 639, 640; Background Corrected with Scan 632

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	20.1	3501	PASS
75	95	30	66	50.9	8855	PASS
95	95	100	100	100.0	17392	PASS
96	95	5	9	7.0	1220	PASS
173	174	0.00	2	0.9	164	PASS
174	95	50	120	103.3	17964	PASS
175	174	4	9	7.9	1420	PASS
176	174	93	101	95.7	17195	PASS
177	176	5	9	6.9	1188	PASS

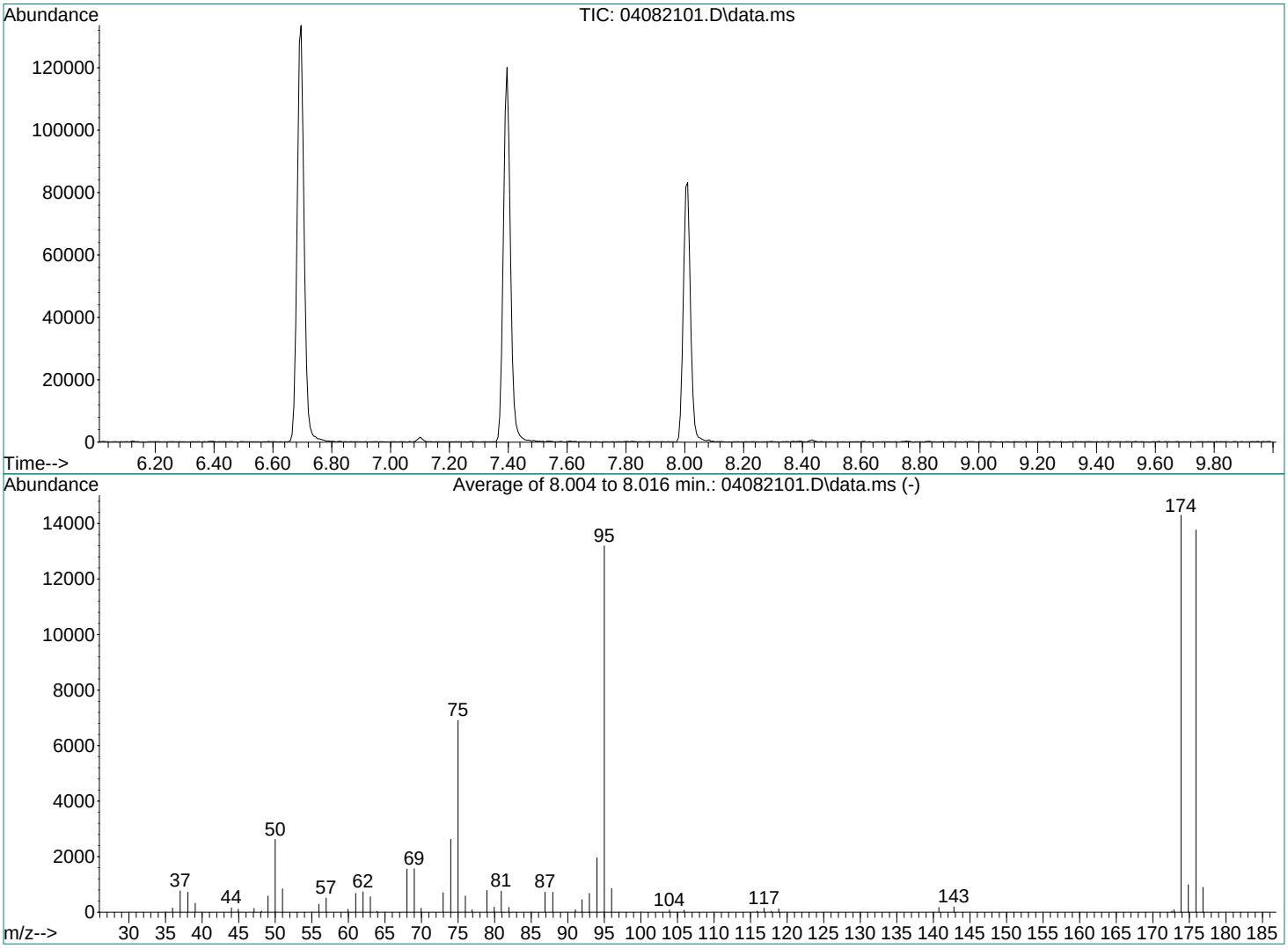
TZ 3/26/21

BFB

Data Path : I:\MS19\DATA\2021 04\08\
Data File : 04082101.D
Acq On : 8 Apr 2021 3:32
Operator : TZ
Sample : BFB S19040821
Misc : S34-01272101
ALS Vial : 1 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19031621.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Mar 16 14:07:28 2021



AutoFind: Scans 638, 639, 640; Background Corrected with Scan 632

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	19.9	2620	PASS
75	95	30	66	52.3	6906	PASS
95	95	100	100	100.0	13196	PASS
96	95	5	9	6.5	856	PASS
173	174	0.00	2	0.6	91	PASS
174	95	50	120	108.4	14298	PASS
175	174	4	9	6.9	991	PASS
176	174	93	101	96.3	13766	PASS
177	176	5	9	6.5	898	PASS

TZ 4/8/21

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP Group**
Client Sample ID: **Method Blank** ALS Project ID: P2101759
Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006 02** ALS Sample ID: P210408-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Topacio Zavala Date Analyzed: 4/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.11	0.0092	ND	0.028	0.0023	
79-01-6	Trichloroethene	ND	0.11	0.0085	ND	0.020	0.0016	
127-18-4	Tetrachloroethene	ND	0.10	0.0082	ND	0.015	0.0012	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082105.D Vial: 1
Acq On : 8 Apr 2021 5:27 Operator: TZ
Sample : MB S19040821 1000mL Inst : MS19
Misc : S34-01272101_AS01329

TZ 4/8/21

Quant Time: Apr 08 07:19:50 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	12682	1000.000	pg		-0.02
25) 1,4-Difluorobenzene (IS2)	11.57	114	57547	1000.000	pg		0.00
38) Chlorobenzene-d5 (IS3)	15.90	54	9254	1000.000	pg		0.00
System Monitoring Compounds							
20) 1,2-Dichloroethane-d4 ...	10.39	65	18972	989.300	pg		-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 98.93%				
33) Toluene-d8 (SS2)	14.00	98	62387	992.572	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.26%				
45) Bromofluorobenzene (SS3)	17.42	174	18396	994.911	pg		0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.49%				
Target Compounds							Qvalue
2) Dichlorodifluoromethan...	4.34	85	169	5.760	pg		96
3) Chloromethane	0.00	52	0	N.D.			
4) 1,2-Dichloro,1,1,2,2-t...	4.72	85	208	5.489	pg		97
5) Vinyl Chloride	0.00	62	0	N.D.			
6) 1,3-Butadiene	0.00	54	0	N.D.			
7) Bromomethane	5.38	94	58	5.374	pg		95
8) Chloroethane	0.00	64	0	N.D.			
9) Acrolein	0.00	56	0	N.D.			
10) Acetone	6.35	58	540	65.233	pg		97
11) Trichlorofluoromethane	6.49	101	126	5.373	pg		99
12) 1,1-Dichloroethene	7.22	96	79	5.626	pg	#	55
13) Methylene Chloride	7.35	84	95	6.528	pg		92
14) Trichlorotrifluoroethane	7.67	151	57	5.089	pg	#	18
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.			
16) 1,1-Dichloroethane	8.58	63	106	N.D.			
17) Methyl tert-Butyl Ether	8.70	73	100	N.D.			
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.			
19) Chloroform	9.76	83	120	N.D.			
21) 1,2-Dichloroethane	0.00	62	0	N.D.			
22) 1,1,1-Trichloroethane	10.76	97	100	N.D.			
23) Benzene	11.24	78	428	7.401	pg		99
24) Carbon Tetrachloride	11.38	117	82	N.D.			
26) 1,2-Dichloropropane	0.00	63	0	N.D.			
27) Bromodichloromethane	12.22	83	67	N.D.			
28) Trichloroethene	12.28	130	75	N.D.			
29) 1,4-Dioxane	0.00	88	0	N.D.			
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.			
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.			
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.			
34) Toluene	14.11	91	374	5.908	pg		94
35) Dibromochloromethane	14.53	129	52	N.D.			
36) 1,2-Dibromoethane	0.00	107	0	N.D.			
37) Tetrachloroethene	15.26	166	78	N.D.			
39) Chlorobenzene	15.95	112	178	N.D.			
40) Ethylbenzene	16.37	91	241	N.D.			
41) m,p-Xylene	16.55	91	330	6.746	pg		98
42) Styrene	0.00	104	0	N.D.			
43) o-Xylene	17.01	106	98	N.D.			
44) 1,1,2,2-Tetrachloroethane	16.97	83	93	N.D.			
46) 1,3,5-Trimethylbenzene	18.26	105	154	N.D.			
47) 1,2,4-Trimethylbenzene	18.66	105	147	N.D.			
48) 1,3-Dichlorobenzene	18.83	146	90	N.D.			
49) 1,4-Dichlorobenzene	18.83	146	90	N.D.			
50) 1,2-Dichlorobenzene	19.21	146	100	N.D.			
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.			
52) 1,2,4-Trichlorobenzene	0.00	182	0	N.D.			
53) Naphthalene	0.00	128	0	N.D.			

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082105.D Vial: 1
Acq On : 8 Apr 2021 5:27 Operator: TZ
Sample : MB S19040821 1000mL Inst : MS19
Misc : S34-01272101_AS01329

Quant Time: Apr 08 07:19:50 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

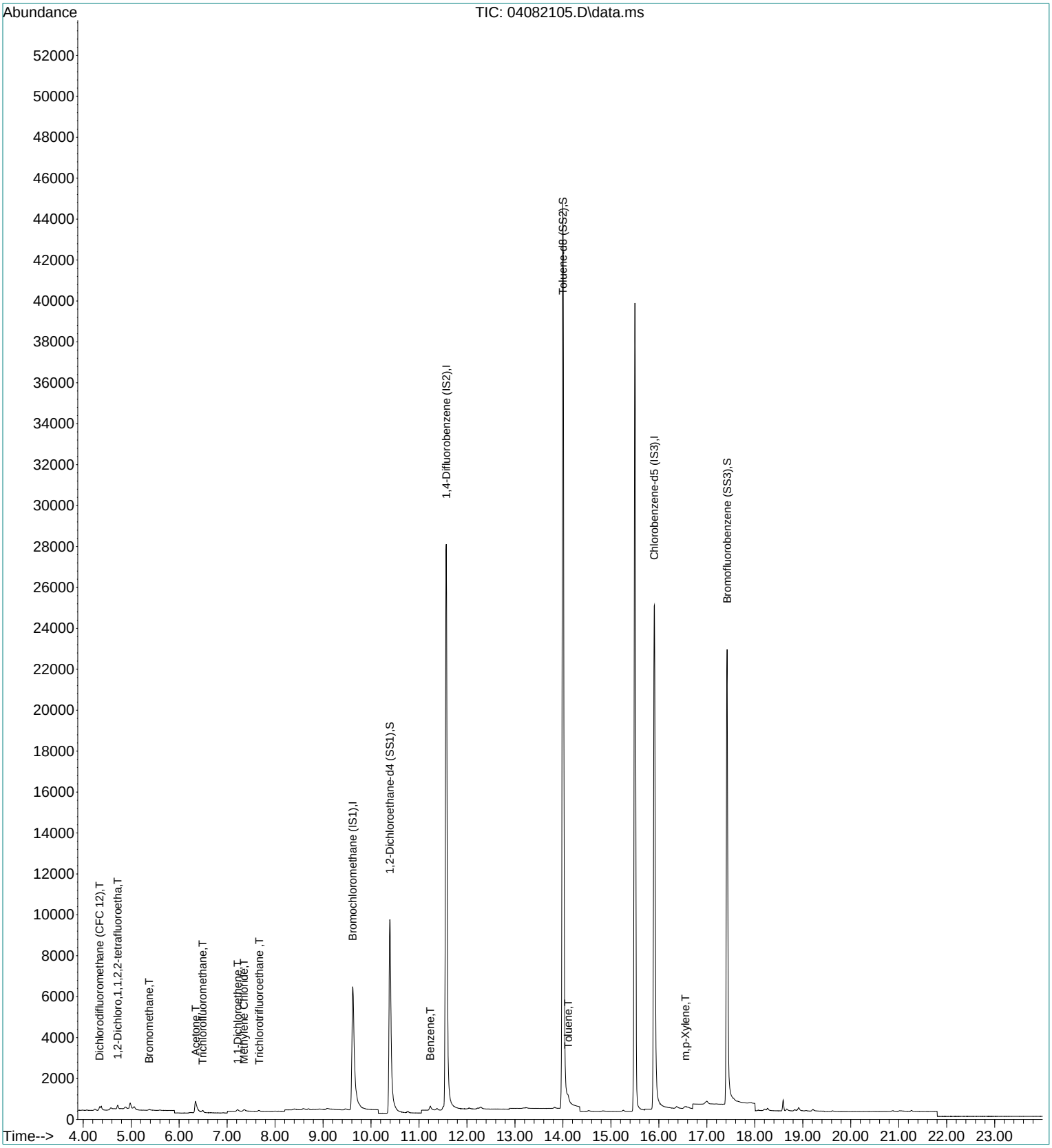
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082105.D Vial: 1
Acq On : 8 Apr 2021 5:27 Operator: TZ
Sample : MB S19040821 1000mL Inst : MS19
Misc : S34-01272101_AS01329

Quant Time: Apr 08 07:19:50 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **WSP Group**
Client Sample ID: **Lab Control Sample** ALS Project ID: P2101759
Client Project ID: **Federal-Mogul Former Huck Manufacturing / 31401678.006 02** ALS Sample ID: P210408-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 Date Received: NA
Analyst: Topacio Zavala Date Analyzed: 4/8/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.050 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg/m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	20.8	**22.1**	**106**	69-123	
79-01-6	Trichloroethene	20.6	**20.6**	**100**	71-119	
127-18-4	Tetrachloroethene	20.6	**20.6**	**100**	72-122	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082106.D Vial: 14
Acq On : 8 Apr 2021 5:59 Operator: TZ
Sample : LCS S19040821 1000pg Inst : MS19
Misc : S34-01272101/S34-04072104(4/7),S34-03222106(4

TZ 4/8/21

Quant Time: Apr 08 07:19:51 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	12822	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.56	114	58741	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.90	54	9420	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4 ...	10.39	65	19269	993.816	pg	-0.02
Spiked Amount 1000.000	Range 70 - 130		Recovery = 99.38%			
33) Toluene-d8 (SS2)	14.00	98	62824	979.208	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 97.92%			
45) Bromofluorobenzene (SS3)	17.42	174	19966	1060.792	pg	0.00
Spiked Amount 1000.000	Range 70 - 130		Recovery = 106.08%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan...	4.29	85	31780	1071.255	pg	100
3) Chloromethane	4.51	52	4978	915.490	pg	94
4) 1,2-Dichloro,1,1,2,2-t...	4.68	85	42787	1116.825	pg	100
5) Vinyl Chloride	4.81	62	38975	1154.053	pg	99
6) 1,3-Butadiene	5.00	54	27249	2003.792	pg	99
7) Bromomethane	5.32	94	12175	1115.803	pg	99
8) Chloroethane	5.55	64	8433	1092.272	pg	100
9) Acrolein	6.12	56	13241	2118.926	pg	100
10) Acetone	6.26	58	43787	5231.813	pg	91
11) Trichlorofluoromethane	6.46	101	25532	1076.860	pg	100
12) 1,1-Dichloroethene	7.18	96	18014	1268.928	pg	98
13) Methylene Chloride	7.32	84	16026	1089.211	pg	99
14) Trichlorotrifluoroethane	7.65	151	12796	1129.884	pg	100
15) trans-1,2-Dichloroethene	8.36	96	16215	1146.987	pg	100
16) 1,1-Dichloroethane	8.57	63	24779	1104.936	pg	100
17) Methyl tert-Butyl Ether	8.64	73	40807	1094.409	pg	100
18) cis-1,2-Dichloroethene	9.44	96	17025	1104.728	pg	100
19) Chloroform	9.74	83	27975	1086.928	pg	99
21) 1,2-Dichloroethane	10.49	62	20071	1079.798	pg	99
22) 1,1,1-Trichloroethane	10.76	97	23952	1115.359	pg	100
23) Benzene	11.22	78	60471	1034.309	pg	100
24) Carbon Tetrachloride	11.37	117	20836	1142.144	pg	100
26) 1,2-Dichloropropane	12.03	63	14286	1076.240	pg	100
27) Bromodichloromethane	12.21	83	21796	1046.397	pg	99
28) Trichloroethene	12.27	130	17619	1028.422	pg	100
29) 1,4-Dioxane	12.24	88	12425	920.838	pg	97
30) cis-1,3-Dichloropropene	13.11	75	21753	1073.351	pg	99
31) trans-1,3-Dichloropropene	13.62	75	17514	1040.442	pg	100
32) 1,1,2-Trichloroethane	13.80	83	13134	1066.656	pg	99
34) Toluene	14.10	91	65830	1018.746	pg	100
35) Dibromochloromethane	14.51	129	17225	1107.368	pg	99
36) 1,2-Dibromoethane	14.77	107	17276	1094.868	pg	99
37) Tetrachloroethene	15.25	166	17410	1028.645	pg	100
39) Chlorobenzene	15.95	112	44612	1108.227	pg	100
40) Ethylbenzene	16.34	91	73042	1122.549	pg	99
41) m,p-Xylene	16.51	91	109311	2195.248	pg	99
42) Styrene	16.87	104	41190	1168.474	pg	99
43) o-Xylene	16.98	106	28000	1123.300	pg	98
44) 1,1,2,2-Tetrachloroethane	16.95	83	27475	1154.416	pg	100
46) 1,3,5-Trimethylbenzene	18.25	105	57564	1087.646	pg	99
47) 1,2,4-Trimethylbenzene	18.65	105	56797	1017.492	pg	98
48) 1,3-Dichlorobenzene	18.79	146	34623	1107.579	pg	100
49) 1,4-Dichlorobenzene	18.85	146	34696	1042.606	pg	99
50) 1,2-Dichlorobenzene	19.18	146	34250	1067.470	pg	100
51) 1,2-Dibromo-3-chloropr...	19.60	157	22639	2119.568	pg	98
52) 1,2,4-Trichlorobenzene	20.81	182	31135	1382.342	pg	99
53) Naphthalene	20.92	128	45968	661.478	pg	99

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082106.D Vial: 14
Acq On : 8 Apr 2021 5:59 Operator: TZ
Sample : LCS S19040821 1000pg Inst : MS19
Misc : S34-01272101/S34-04072104(4/7),S34-03222106(4

Quant Time: Apr 08 07:19:51 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M

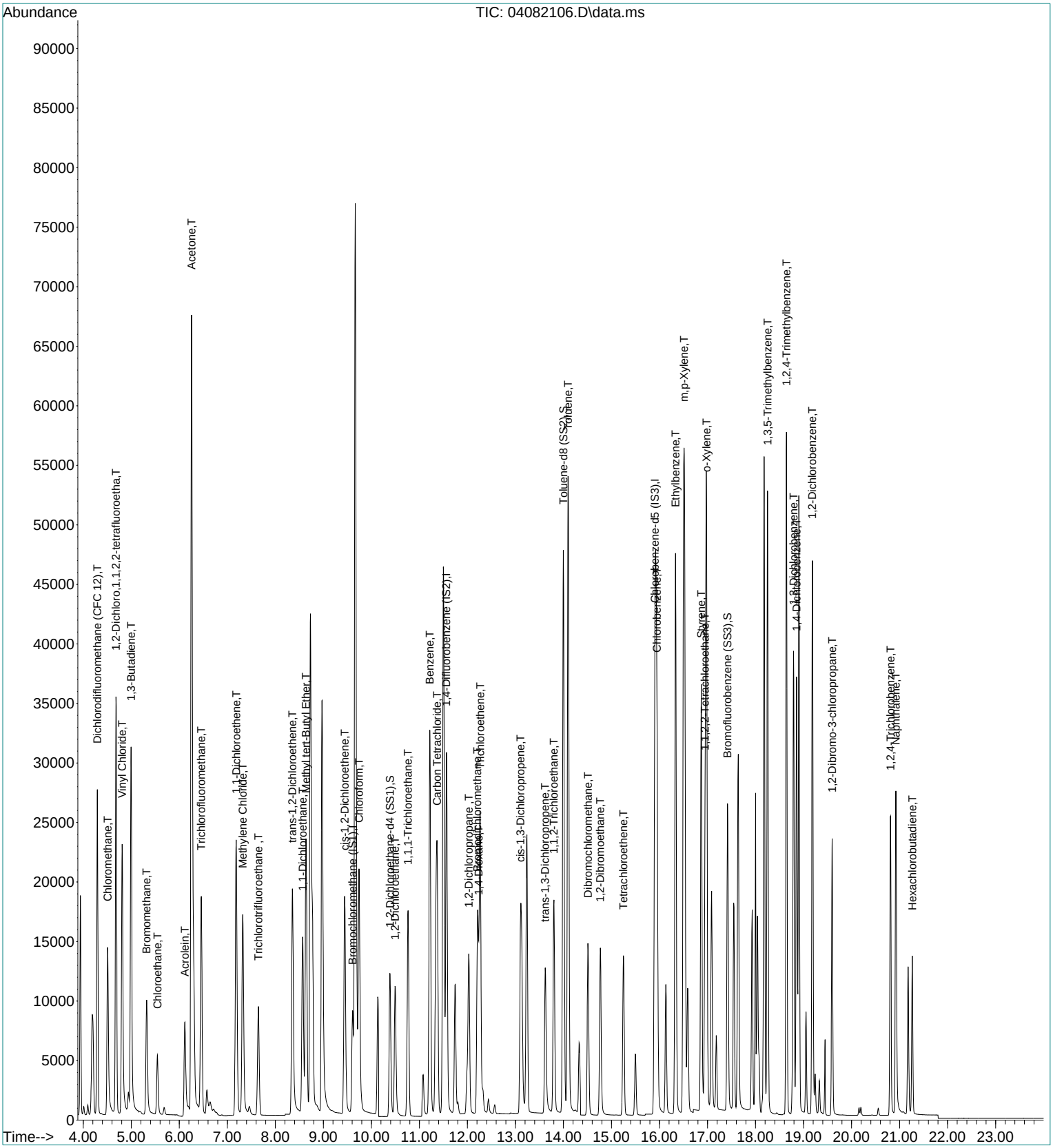
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.27	225	12462	937.533	pg	100

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

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2021 04\08\04082106.D Vial: 14
Acq On : 8 Apr 2021 5:59 Operator: TZ
Sample : LCS S19040821 1000pg Inst : MS19
Misc : S34-01272101/S34-04072104(4/7),S34-03222106(4

Quant Time: Apr 08 07:19:51 2021
Quant Method : I:\MS19\METHODS\S19031621.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Mar 16 14:07:28 2021
Response via : Initial Calibration
DataAcq Meth:TO15SIM.M



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Instructions for Data Validation-Method TO-15 (SCAN)

1. Determination of Pressure Dilution Factor

Upon receipt at the laboratory the pressure or vacuum of the sample canisters is measured using a digital pressure gauge. The canisters are then pressurized with humidified zero air to approximately +3.5 psig (pounds per square inch gauge).

Pressure Dilution factor is calculated as:

$$\text{PDF} = \frac{P_f + 14.7}{P_i + 14.7}$$

P_f final pressure in psig

P_i initial pressure in psig

2. Validating Initial and Continuing Calibration Results

GC/MS target compound analysis is performed using internal standard quantitation. Three internal standard compounds (Bromochloromethane, 1,4-Difluorobenzene and Chlorobenzene-d5) are added to each aliquot of sample, blank, standard and duplicate at an amount of 25 nanograms(ng). Internal standard responses are used to calculate RRFs (relative response factors) as follows:

$$\text{RRF} = \frac{A_x C_{is}}{A_{is} C_x}$$

A_x area response of the analyte quantitation ion

A_{is} area response of the corresponding internal standard quantitation ion

C_{is} internal standard concentration, ng

C_x analyte concentration, ng

The percent relative standard deviation (%RSD) for the five or six initial calibration points should be less than 30% (with a maximum of two analytes ≤40%) for the calibration to be considered valid and linear.

$$\%\text{RSD} = \frac{SD}{\overline{RRF}}(100)$$

SD standard deviation

$\overline{RRF}$ average or mean RRF (ICAL)

The initial calibration is verified once per twenty-four hour analytical sequence with the analysis of a continuing calibration standard at one of the initial calibration levels (actual analyte concentrations of the CCV are the same as the corresponding concentrations in the initial calibration). The relative response factor of each target analyte from the daily continuing calibration standard is compared to the average relative response factor from the initial multipoint calibration. The percent difference (%D) of the initial and continuing calibration relative response factors is calculated as follows:

$$\%D = \left(\frac{\overline{RRF} - RRF\ cont}{\overline{RRF}} \right)(100)$$

$\overline{RRF}$	average relative response factor from the initial calibration
$RRF\ cont$	relative response factor from the daily continuing calibration standard

Note: the percent difference (%D) should be less than 30% for an acceptable continuing calibration standard.

3. Validating GC/MS Target Analyte Quantitation Results

Target analytes are measured in nanograms using internal standard quantitation as follows:

$$ng_x = \frac{A_x ng_{is}}{A_{is}\ \overline{RRF}}$$

ng_x	nanogram concentration of analyte *x*
A_x	area response of the analyte's quantitation ion
A_{is}	area response of the corresponding internal standard's quantitation ion
ng_{is}	internal standard amount, in nanograms
$\overline{RRF}$	average or mean RRFs (ICAL)

4. Calculation of μg/m³ (microgram per cubic meter) Results

Target compound results reported on the "Results of Analysis" form in units of μg/m³ are calculated as follows:

$$\mu g/m^3 = \frac{(ng)(PDF)}{L}$$

ng nanograms of analyte (measured on the GC/MS quantitation report)

PDF pressure dilution factor (see equation 1)

L sample aliquot in Liters

5. Conversion to ppb (parts per billion) Volume

$$C_{ppbv} = C_x\left(\frac{24.46}{FW}\right)$$

FW formula weight of the target analytes (i.e. formula weight of Dichloromethane is 84.94; 1,2-Dichloropropane is 113)

24.46 molar volume of ideal gas at 25°C and 1 atmosphere

C_x final analyte concentration calculated in equation 4 (μg/m³)

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021 03\11\
Data File : 03112124.D
Acq On : 11 Mar 2021 23:32
Operator : WA\RVT
Sample : SSC00161
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

RVT 3/12/21

Quant Time: Mar 12 06:48:02 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS1)	7.483	130	45337	1000.00	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.730	114	111224	1000.00	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.661	54	17461	1000.00	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.301	65	64896	893.17	pg		0.00
Spiked Amount 1000.000			Recovery = 89.32%				
57) Toluene-d8 (SS2)	12.572	98	103056	1042.06	pg		0.00
Spiked Amount 1000.000			Recovery = 104.21%				
74) Bromofluorobenzene (SS3)	16.107	174	45562	924.85	pg		-0.03
Spiked Amount 1000.000			Recovery = 92.48%				
Target Compounds							Qvalue
2] * Propene	3.483	42	4108	93.99	pg		91
3] * Dichlorodifluoromethane	3.534	85	193	1.35	pg		98
4] * Chloromethane	3.668	50	1401	23.67	pg	#	86
5) * 1,2-Dichloro-1,1,2,2...	0.000		0	N.D.			
6] * Vinyl Chloride	3.839	62	53	0.85	pg	#	1
7] * 1,3-Butadiene	3.949	54	77	1.74	pg	#	79
8] * Bromomethane	4.160	94	105	1.96	pg	#	2
9] * Chloroethane	4.306	64	207	7.33	pg	#	59
10] * Ethanol	4.389	45	2089	90.02	pg		94
11] * Acetonitrile	4.566	41	1138	21.73	pg	#	78
12] * Acrolein	4.670	56	192	8.27	pg	#	77
13] * Acetone	4.785	58	5856	189.62	pg	#	58
14) * Trichlorofluoromethane	0.000		0	N.D.			
15] * 2-Propanol (Isopropa...	4.977	45	2294	26.07	pg	#	61
16] * Acrylonitrile	5.138	53	73	1.58	pg		88
17] * 1,1-Dichloroethene	5.381	96	58	1.11	pg	#	60
18] tert-Butanol	5.493	59	174	2.51	pg	#	69
19] * Methylene Chloride	5.517	84	230	4.20	pg	#	1
20) * 3-Chloro-1-propene (...	0.000		0	N.D.			
21) * Trichlorotrifluoroet...	0.000		0	N.D.			
22] * Carbon Disulfide	5.785	76	35649	228.15	pg		97
23) * trans-1,2-Dichloroet...	0.000		0	N.D.			
24) * 1,1-Dichloroethane	0.000		0	N.D.			
25) * Methyl tert-Butyl Ether	0.000		0	N.D.			
26] * Vinyl Acetate	6.645	86	157	17.72	pg	#	21
27] * 2-Butanone (MEK)	6.921	72	335	12.11	pg		94
28) * cis-1,2-Dichloroethene	0.000		0	N.D.			
29] DIPE	7.574	45	61	0.55	pg	#	50
30] * Ethyl Acetate	7.587	61	120	7.76	pg	#	11
31) * n-Hexane	0.000		0	N.D.			
32) * Chloroform	0.000		0	N.D.			
34) * Tetrahydrofuran	0.000		0	N.D.			
35) ETBE	0.000		0	N.D.			
36] * 1,2-Dichloroethane	8.411	62	71	0.93	pg	#	1
38) * 1,1,1-Trichloroethane	0.000		0	N.D.			
39] * Benzene	9.292	78	3660	30.19	pg		97
40] Isopropyl Acetate	9.188	61	65	226.14	pg	#	34
41] 1-Butanol	9.245	56	158	92.32	pg	#	100
42) * Carbon Tetrachloride	0.000		0	N.D.			
43) * Cyclohexane	0.000		0	N.D.			
44) TAME	0.000		0	N.D.			
45) * 1,2-Dichloropropane	0.000		0	N.D.			
46) * Bromodichloromethane	0.000		0	N.D.			
47) * Trichloroethene	0.000		0	N.D.			

Data Path : I:\MS21\DATA\2021 03\11\
Data File : 03112124.D
Acq On : 11 Mar 2021 23:32
Operator : WA\RVT
Sample : SSC00161
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

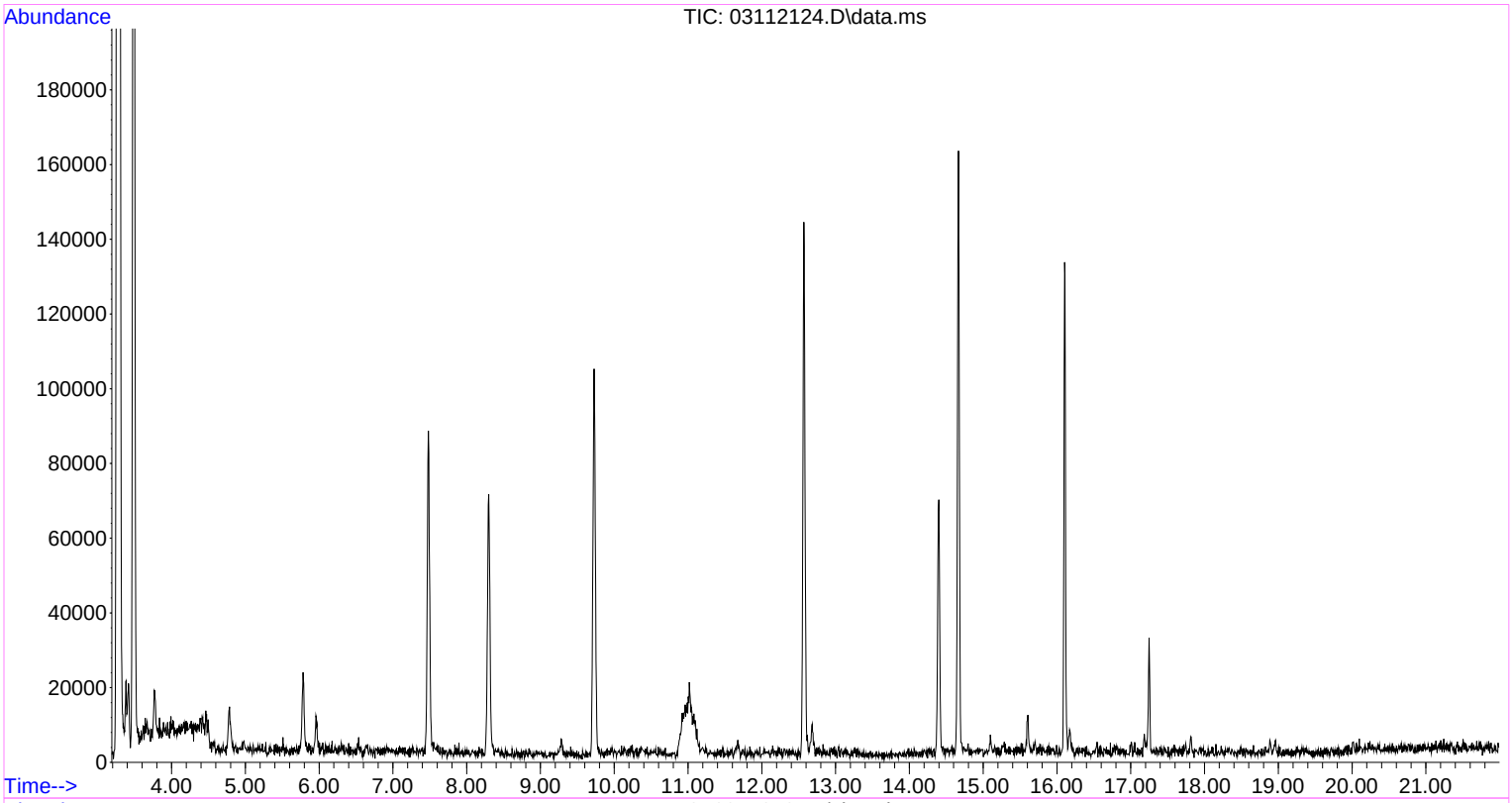
Quant Time: Mar 12 06:48:02 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

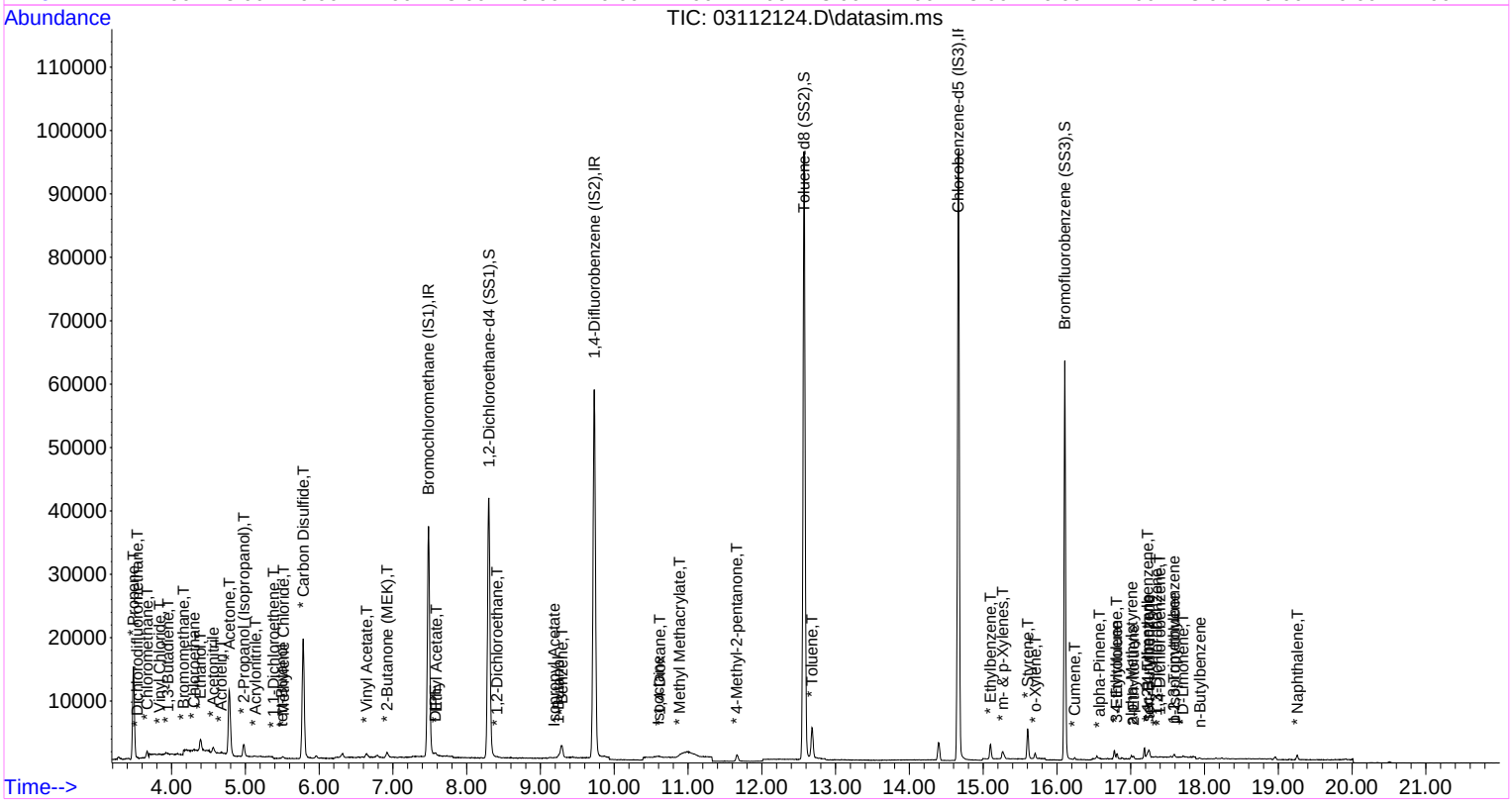
	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
48]	* 1,4-Dioxane	10.613	88	238	7.80	pg		88
49]	Isooctane	10.600	56	59	1.19	pg	#	1
50]	* Methyl Methacrylate	10.882	69	119	3.37	pg	#	37
51)	* n-Heptane	0.000		0	N.D.			
52)	* cis-1,3-Dichloropropene	0.000		0	N.D.			
53]	* 4-Methyl-2-pentanone	11.661	58	571	27.39	pg		98
54)	* trans-1,3-Dichloropr...	0.000		0	N.D.			
55)	* 1,1,2-Trichloroethane	0.000		0	N.D.			
58]	* Toluene	12.680	91	5704	47.16	pg		96
59)	* 2-Hexanone	0.000		0	N.D.			
60)	* Dibromochloromethane	0.000		0	N.D.			
61)	* 1,2-Dibromoethane	0.000		0	N.D.			
62)	* n-Butyl Acetate	0.000		0	N.D.			
63)	* n-Octane	0.000		0	N.D.			
64)	* Tetrachloroethene	0.000		0	N.D.			
65)	* Chlorobenzene	0.000		0	N.D.			
66]	* Ethylbenzene	15.101	91	2452	21.70	pg		100
67]	* m- & p-Xylenes	15.267	91	1498	16.51	pg		95
68)	* Bromoform	0.000		0	N.D.			
69)	Cyclohexanone	0.000		0	N.D.			
70]	* Styrene	15.603	104	4881	74.84	pg		99
71]	* o-Xylene	15.705	91	864	9.15	pg		96
72)	* n-Nonane	0.000		0	N.D.			
73)	* 1,1,2,2-Tetrachloroe...	0.000		0	N.D.			
75]	* Cumene	16.241	105	266	2.05	pg	#	72
76]	* alpha-Pinene	16.576	93	74	1.35	pg	#	26
77)	* n-Propylbenzene	0.000		0	N.D.			
78]	3-Ethyltoluene	16.809	105	688	230.48	pg		97
79]	* 4-Ethyltoluene	16.809	105	688	6.26	pg		93
80)	* 1,3,5-Trimethylbenzene	0.000		0	N.D.			
81]	alpha-Methylstyrene	17.013	118	394	277.84	pg		95
82]	2-Ethyltoluene	17.037	105	279	170.96	pg		92
83]	tert-Butylbenzene	17.246	134	424	17.64	pg	#	1
84]	* 1,2,4-Trimethylbenzene	17.230	105	540	5.40	pg	#	78
85)	* Benzyl Chloride	0.000		0	N.D.			
86]	* 1,3-Dichlorobenzene	17.348	146	59	0.76	pg	#	18
87]	* 1,4-Dichlorobenzene	17.397	146	55	0.84	pg	#	18
88)	n-Decane	0.000		0	N.D.			
89]	sec-Butylbenzene	17.230	105	540	5.40	pg	#	1
90]	1,2,3-Trimethylbenzene	17.586	105	176	24.33	pg	#	3
91]	p-Isopropyltoluene	17.591	134	87	2.71	pg	#	66
92)	* 1,2-Dichlorobenzene	0.000		0	N.D.			
93]	* D-Limonene	17.710	68	108	3.67	pg		86
94]	n-Butylbenzene	17.941	134	97	3.36	pg	#	1
95)	* 1,2-Dibromo-3-chloro...	0.000		0	N.D.			
96)	n-Undecane	0.000		0	N.D.			
97)	* 1,2,4-Trichlorobenzene	0.000		0	N.D.			
98]	* Naphthalene	19.258	128	930	10.05	pg	#	83
99)	n-Dodecane	0.000		0	N.D.			
100)	* Hexachlorobutadiene	0.000		0	N.D.			

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

Data Path : I:\MS21\DATA\2021 03\11\
Data File : 03112124.D
Acq On : 11 Mar 2021 23:32
Operator : WA\RVT
Sample : SSC00161
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 205 Sample Multiplier: 1

Quant Time: Mar 12 06:48:02 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021 03\12\
Data File : 03122119.D
Acq On : 12 Mar 2021 22:20
Operator : WA\RVT
Sample : AS01327
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

RVT 3/16/21

Quant Time: Mar 15 06:38:49 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS1)	7.484	130	49705	1000.00	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.730	114	128040	1000.00	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.661	54	19276	1000.00	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.296	65	72109	905.23	pg		0.00
Spiked Amount 1000.000			Recovery = 90.52%				
57) Toluene-d8 (SS2)	12.573	98	119165	1091.49	pg		0.00
Spiked Amount 1000.000			Recovery = 109.15%				
74) Bromofluorobenzene (SS3)	16.107	174	53224	978.65	pg		-0.03
Spiked Amount 1000.000			Recovery = 97.87%				
Target Compounds							Qvalue
2] * Propene	3.496	42	3675	76.69	pg	#	1
3] * Dichlorodifluoromethane	3.534	85	9426	60.33	pg		99
4] * Chloromethane	3.668	50	2410	37.15	pg		99
5] * 1,2-Dichloro-1,1,2,2...	3.749	85	437	4.80	pg		91
6] * Vinyl Chloride	3.834	62	62	0.91	pg	#	1
7] * 1,3-Butadiene	3.955	54	137	2.83	pg	#	1
8] * Bromomethane	4.166	94	188	3.20	pg		97
9] * Chloroethane	4.296	64	73	2.36	pg	#	1
10] * Ethanol	4.384	45	54003	2122.63	pg		100
11] * Acetonitrile	4.561	41	3700	64.44	pg		92
12] * Acrolein	4.665	56	466	18.30	pg		88
13] * Acetone	4.775	58	15588	460.39	pg		100
14] * Trichlorofluoromethane	4.912	101	4086	26.67	pg		94
15] * 2-Propanol (Isopropa...	4.978	45	11839	122.71	pg	#	76
16] * Acrylonitrile	5.132	53	179	3.54	pg		84
17] * 1,1-Dichloroethene	5.430	96	95	1.66	pg	#	1
18] tert-Butanol	5.499	59	1199	15.76	pg	#	50
19] * Methylene Chloride	5.518	84	10168	169.34	pg		96
20] * 3-Chloro-1-propene (...	5.571	41	96	1.85	pg	#	27
21] * Trichlorotrifluoroet...	5.761	151	957	15.56	pg		94
22] * Carbon Disulfide	5.785	76	6299	36.77	pg		97
23] * trans-1,2-Dichloroet...	6.339	96	55	1.07	pg	#	18
24) * 1,1-Dichloroethane	0.000		0	N.D.			
25) * Methyl tert-Butyl Ether	0.000		0	N.D.			
26] * Vinyl Acetate	6.635	86	307	31.61	pg		70
27] * 2-Butanone (MEK)	6.912	72	1440	47.48	pg		73
28] * cis-1,2-Dichloroethene	7.335	96	69	1.25	pg	#	18
29] DIPE	7.568	45	2405	19.69	pg	#	57
30] * Ethyl Acetate	7.568	61	2509	148.05	pg		100
31] * n-Hexane	7.568	57	924	15.22	pg	#	86
32] * Chloroform	7.620	83	495	4.81	pg		99
34) * Tetrahydrofuran	0.000		0	N.D.			
35) ETBE	0.000		0	N.D.			
36] * 1,2-Dichloroethane	8.422	62	233	2.78	pg		95
38) * 1,1,1-Trichloroethane	0.000		0	N.D.			
39] * Benzene	9.282	78	3742	26.81	pg		96
40) Isopropyl Acetate	0.000		0	N.D.			
41] 1-Butanol	9.246	56	1038	526.85	pg	#	100
42] * Carbon Tetrachloride	9.475	117	1071	17.43	pg		93
43] * Cyclohexane	9.637	84	382	9.07	pg		89
44) TAME	0.000		0	N.D.			
45] * 1,2-Dichloropropane	10.271	63	115	2.57	pg	#	27
46] * Bromodichloromethane	10.497	83	141	2.09	pg		93
47] * Trichloroethene	10.566	130	150	2.58	pg		99

Data Path : I:\MS21\DATA\2021 03\12\
Data File : 03122119.D
Acq On : 12 Mar 2021 22:20
Operator : WA\RVT
Sample : AS01327
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 15 06:38:49 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

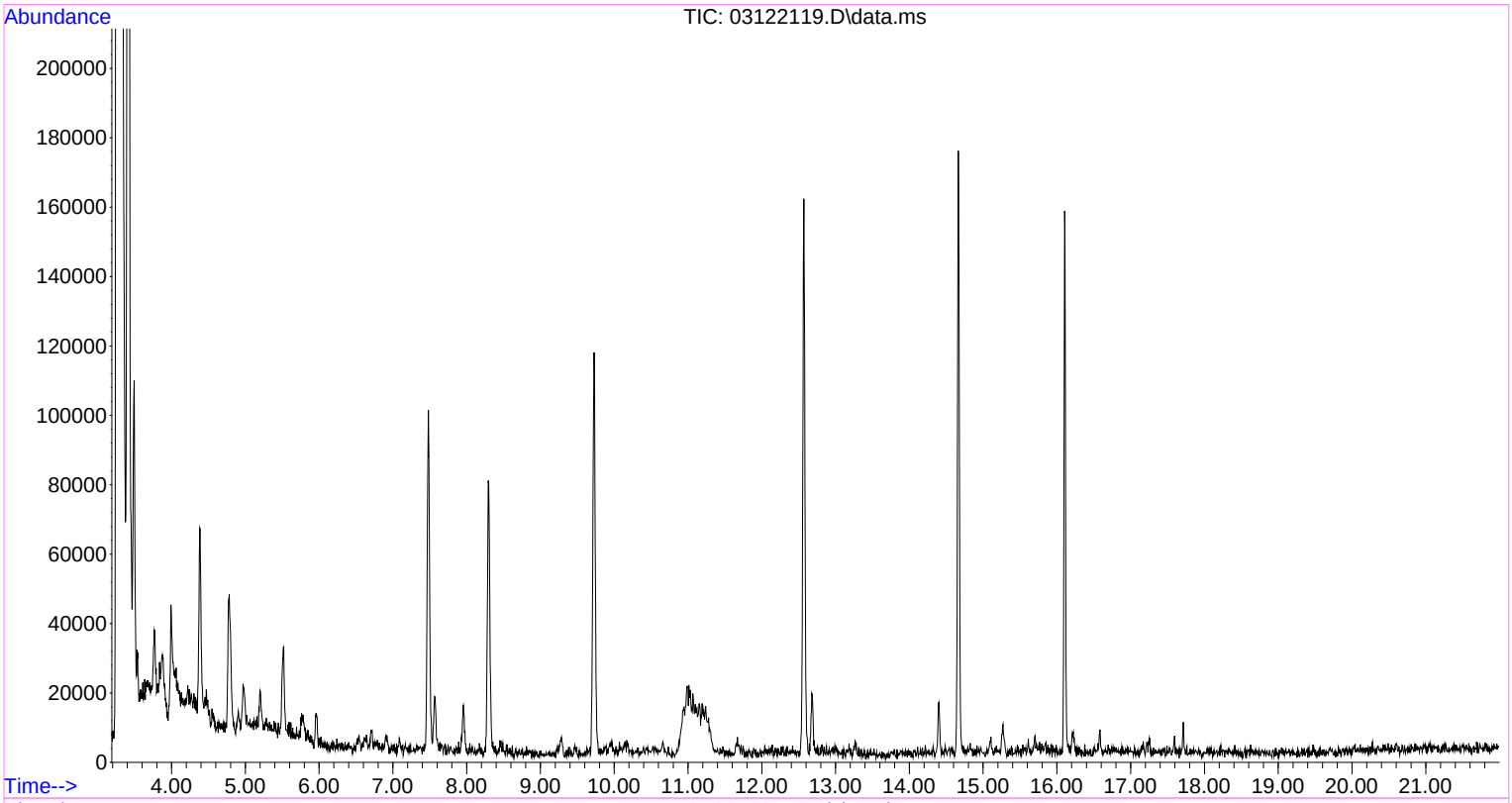
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
48] * 1,4-Dioxane	10.600	88	179	5.09	pg		88
49] Isooctane	10.655	56	742	12.97	pg	#	69
50] * Methyl Methacrylate	10.841	69	157	3.87	pg	#	37
51] * n-Heptane	10.986	71	807	20.48	pg	#	82
52] * cis-1,3-Dichloropropene	11.578	75	63	1.67	pg	#	43
53] * 4-Methyl-2-pentanone	11.662	58	839	34.96	pg		91
54] * trans-1,3-Dichloropr...	12.172	75	64	1.94	pg	#	43
55] * 1,1,2-Trichloroethane	12.351	97	78	2.01	pg	#	19
58] * Toluene	12.681	91	12935	96.88	pg		98
59] * 2-Hexanone	13.019	58	150	5.85	pg	#	55
60] * Dibromochloromethane	13.123	129	102	2.50	pg		84
61] * 1,2-Dibromoethane	13.417	107	63	1.41	pg	#	2
62) * n-Butyl Acetate	0.000		0	N.D.			
63] * n-Octane	13.887	85	151	6.15	pg	#	8
64] * Tetrachloroethene	13.980	166	147	2.78	pg		97
65] * Chlorobenzene	14.708	112	144	1.42	pg	#	74
66] * Ethylbenzene	15.102	91	2093	16.77	pg		90
67] * m- & p-Xylenes	15.262	91	5170	51.62	pg		95
68] * Bromoform	15.307	173	137	4.10	pg	#	27
69) Cyclohexanone	0.000		0	N.D.			
70] * Styrene	15.603	104	304	4.22	pg		93
71] * o-Xylene	15.706	91	1541	14.78	pg		95
72] * n-Nonane	15.952	57	205	5.13	pg	#	80
73] * 1,1,2,2-Tetrachloroe...	15.683	83	117	1.73	pg	#	82
75] * Cumene	16.236	105	220	1.53	pg	#	69
76] * alpha-Pinene	16.577	93	1541	25.41	pg	#	84
77] * n-Propylbenzene	16.683	91	408	2.54	pg	#	85
78] 3-Ethyltoluene	16.814	105	350	106.21	pg		93
79] * 4-Ethyltoluene	16.814	105	350	2.88	pg		97
80] * 1,3,5-Trimethylbenzene	16.882	105	336	3.11	pg		100
81) alpha-Methylstyrene	0.000		0	N.D.			
82] 2-Ethyltoluene	17.038	105	200	111.01	pg		94
83] tert-Butylbenzene	17.258	134	75	2.83	pg		97
84] * 1,2,4-Trimethylbenzene	17.225	105	694	6.29	pg		95
85) * Benzyl Chloride	0.000		0	N.D.			
86] * 1,3-Dichlorobenzene	17.403	146	134	1.57	pg		99
87] * 1,4-Dichlorobenzene	17.403	146	134	1.85	pg		99
88) n-Decane	0.000		0	N.D.			
89] sec-Butylbenzene	17.225	105	694	6.29	pg	#	76
90] 1,2,3-Trimethylbenzene	17.587	105	252	31.56	pg	#	49
91] p-Isopropyltoluene	17.592	134	594	16.79	pg		88
92] * 1,2-Dichlorobenzene	17.689	146	79	0.92	pg		85
93] * D-Limonene	17.711	68	1009	31.07	pg		95
94] n-Butylbenzene	17.944	134	63	1.98	pg	#	60
95] * 1,2-Dibromo-3-chloro...	18.048	157	58	1.95	pg	#	81
96] n-Undecane	18.446	85	55	63.99	pg	#	58
97] * 1,2,4-Trichlorobenzene	19.159	180	57	1.32	pg	#	2
98] * Naphthalene	19.258	128	117	1.14	pg	#	68
99) n-Dodecane	0.000		0	N.D.			
100] * Hexachlorobutadiene	19.583	225	86	1.63	pg	#	41

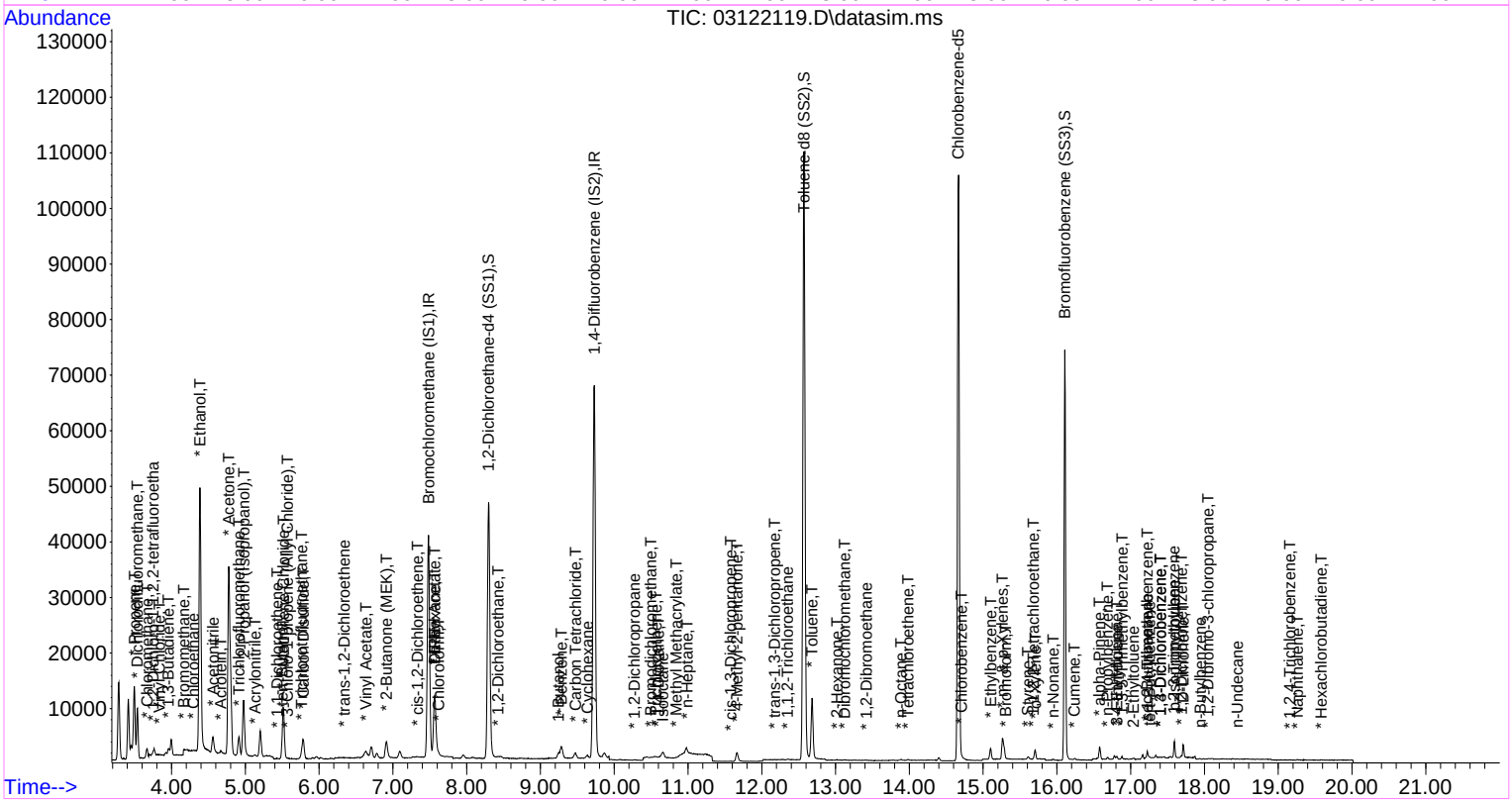
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021 03\12\
Data File : 03122119.D
Acq On : 12 Mar 2021 22:20
Operator : WA\RVT
Sample : AS01327
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 15 06:38:49 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021 03\12\
Data File : 03122120.D
Acq On : 12 Mar 2021 23:02
Operator : WA\RVT
Sample : AS00800
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

RVT 3/16/21

Quant Time: Mar 15 06:38:56 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS1)	7.483	130	48491	1000.00	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.730	114	123258	1000.00	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.667	54	18783	1000.00	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.296	65	69908	899.57	pg		0.00
Spiked Amount 1000.000			Recovery = 89.96%				
57) Toluene-d8 (SS2)	12.572	98	112159	1054.28	pg		0.00
Spiked Amount 1000.000			Recovery = 105.43%				
74) Bromofluorobenzene (SS3)	16.106	174	46227	872.30	pg		-0.04
Spiked Amount 1000.000			Recovery = 87.23%				
Target Compounds							Qvalue
2] * Propene	3.496	42	2694	57.63	pg	#	1
3] * Dichlorodifluoromethane	3.539	85	6739	44.21	pg		99
4] * Chloromethane	3.663	50	1774	28.03	pg		98
5] * 1,2-Dichloro-1,1,2,2...	3.753	85	359	4.04	pg		90
6] * Vinyl Chloride	3.843	62	110	1.66	pg	#	72
7] * 1,3-Butadiene	3.954	54	177	3.75	pg	#	1
8] * Bromomethane	4.170	94	117	2.04	pg	#	35
9] * Chloroethane	4.316	64	50	1.66	pg	#	1
10] * Ethanol	4.389	45	41307	1664.25	pg		100
11] * Acetonitrile	4.561	41	2590	46.24	pg	#	77
12] * Acrolein	4.670	56	422	16.99	pg		94
13] * Acetone	4.779	58	11235	340.13	pg		100
14] * Trichlorofluoromethane	4.912	101	3008	20.13	pg		91
15] * 2-Propanol (Isopropa...	4.977	45	8293	88.11	pg	#	79
16] * Acrylonitrile	5.137	53	85	1.72	pg		98
17] * 1,1-Dichloroethene	5.435	96	70	1.25	pg	#	18
18] tert-Butanol	5.498	59	838	11.29	pg	#	62
19] * Methylene Chloride	5.512	84	7197	122.86	pg		98
20) * 3-Chloro-1-propene (...	0.000		0	N.D.			
21] * Trichlorotrifluoroet...	5.760	151	713	11.88	pg		96
22] * Carbon Disulfide	5.785	76	3937	23.56	pg		98
23] * trans-1,2-Dichloroet...	6.328	96	94	1.87	pg	#	18
24] * 1,1-Dichloroethane	6.524	63	112	1.37	pg	#	43
25] * Methyl tert-Butyl Ether	6.619	73	108	1.16	pg	#	37
26] * Vinyl Acetate	6.644	86	305	32.19	pg	#	22
27] * 2-Butanone (MEK)	6.916	72	998	33.73	pg		85
28] * cis-1,2-Dichloroethene	7.334	96	52	0.97	pg	#	1
29] DIPE	7.567	45	1746	14.65	pg	#	58
30] * Ethyl Acetate	7.574	61	1778	107.54	pg		99
31] * n-Hexane	7.574	57	639	10.79	pg		97
32] * Chloroform	7.619	83	541	5.39	pg		98
34) * Tetrahydrofuran	0.000		0	N.D.			
35) ETBE	0.000		0	N.D.			
36] * 1,2-Dichloroethane	8.416	62	141	1.72	pg	#	1
38] * 1,1,1-Trichloroethane	8.753	97	51	0.82	pg	#	18
39] * Benzene	9.287	78	4639	34.53	pg		92
40) Isopropyl Acetate	0.000		0	N.D.			
41] 1-Butanol	9.250	56	789	416.00	pg	#	100
42] * Carbon Tetrachloride	9.469	117	809	13.68	pg		94
43] * Cyclohexane	9.641	84	244	6.02	pg	#	47
44) TAME	0.000		0	N.D.			
45] * 1,2-Dichloropropane	10.270	63	106	2.46	pg	#	27
46] * Bromodichloromethane	10.496	83	93	1.43	pg	#	52
47) * Trichloroethene	0.000		0	N.D.			

Data Path : I:\MS21\DATA\2021 03\12\
Data File : 03122120.D
Acq On : 12 Mar 2021 23:02
Operator : WA\RVT
Sample : AS00800
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 15 06:38:56 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

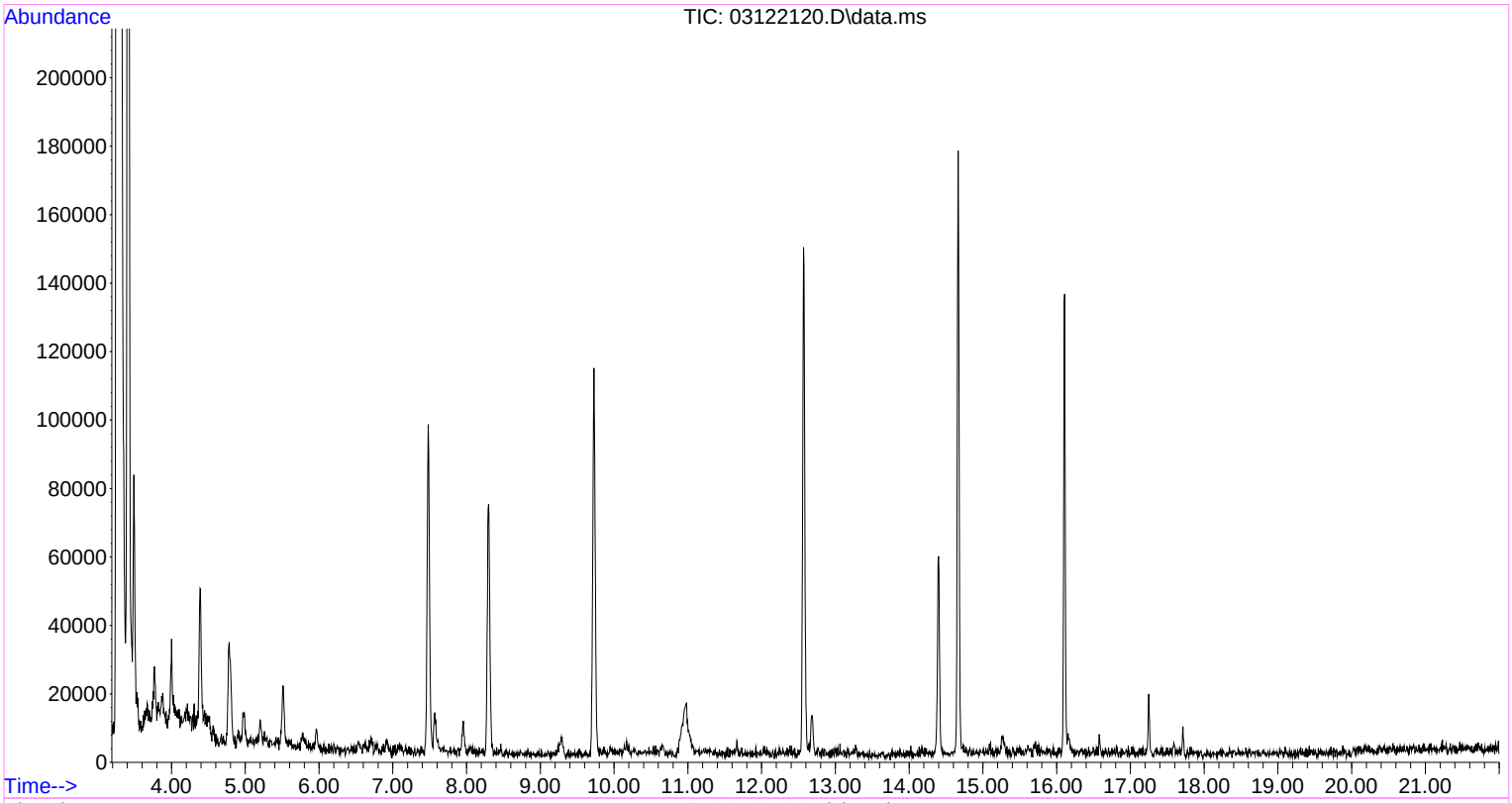
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
48) * 1,4-Dioxane	0.000		0	N.D.			
49] Isooctane	10.661	56	544	9.88	pg	#	65
50] * Methyl Methacrylate	10.840	69	93	2.38	pg	#	38
51] * n-Heptane	10.978	71	738	19.46	pg		90
52] * cis-1,3-Dichloropropene	11.571	75	59	1.63	pg	#	43
53] * 4-Methyl-2-pentanone	11.666	58	655	28.35	pg		87
54) * trans-1,3-Dichloropr...	0.000		0	N.D.			
55] * 1,1,2-Trichloroethane	12.355	97	56	1.50	pg	#	57
58] * Toluene	12.680	91	8741	67.18	pg		98
59] * 2-Hexanone	13.019	58	65	2.60	pg	#	55
60) * Dibromochloromethane	0.000		0	N.D.			
61) * 1,2-Dibromoethane	0.000		0	N.D.			
62) * n-Butyl Acetate	0.000		0	N.D.			
63] * n-Octane	13.886	85	112	4.68	pg		99
64] * Tetrachloroethene	13.989	166	158	3.06	pg		86
65] * Chlorobenzene	14.707	112	222	2.24	pg	#	42
66] * Ethylbenzene	15.101	91	1542	12.68	pg		93
67] * m- & p-Xylenes	15.266	91	3470	35.56	pg		95
68] * Bromoform	15.306	173	87	2.67	pg	#	27
69) Cyclohexanone	0.000		0	N.D.			
70] * Styrene	15.603	104	218	3.11	pg		100
71] * o-Xylene	15.705	91	1050	10.34	pg		91
72] * n-Nonane	15.946	57	159	4.08	pg		88
73] * 1,1,2,2-Tetrachloroe...	15.682	83	118	1.79	pg		94
75] * Cumene	16.241	105	223	1.59	pg	#	83
76] * alpha-Pinene	16.581	93	1145	19.38	pg		91
77] * n-Propylbenzene	16.687	91	266	1.70	pg	#	69
78] 3-Ethyltoluene	16.809	105	289	90.00	pg	#	86
79] * 4-Ethyltoluene	16.809	105	289	2.44	pg		89
80] * 1,3,5-Trimethylbenzene	16.881	105	208	1.97	pg		98
81) alpha-Methylstyrene	0.000		0	N.D.			
82] 2-Ethyltoluene	17.037	105	145	82.60	pg	#	43
83] tert-Butylbenzene	17.251	134	293	11.33	pg	#	1
84] * 1,2,4-Trimethylbenzene	17.224	105	599	5.57	pg		87
85) * Benzyl Chloride	0.000		0	N.D.			
86] * 1,3-Dichlorobenzene	17.343	146	110	1.32	pg		95
87) * 1,4-Dichlorobenzene	0.000		0	N.D.			
88) n-Decane	0.000		0	N.D.			
89] sec-Butylbenzene	17.224	105	599	5.57	pg	#	44
90] 1,2,3-Trimethylbenzene	17.585	105	153	19.66	pg	#	49
91] p-Isopropyltoluene	17.591	134	488	14.15	pg	#	63
92] * 1,2-Dichlorobenzene	17.688	146	91	1.09	pg	#	41
93] * D-Limonene	17.710	68	820	25.91	pg		97
94] n-Butylbenzene	17.941	134	66	2.12	pg	#	32
95] * 1,2-Dibromo-3-chloro...	18.052	157	79	2.72	pg	#	15
96) n-Undecane	0.000		0	N.D.			
97) * 1,2,4-Trichlorobenzene	0.000		0	N.D.			
98] * Naphthalene	19.257	128	55	0.55	pg	#	68
99) n-Dodecane	0.000		0	N.D.			
100) * Hexachlorobutadiene	0.000		0	N.D.			

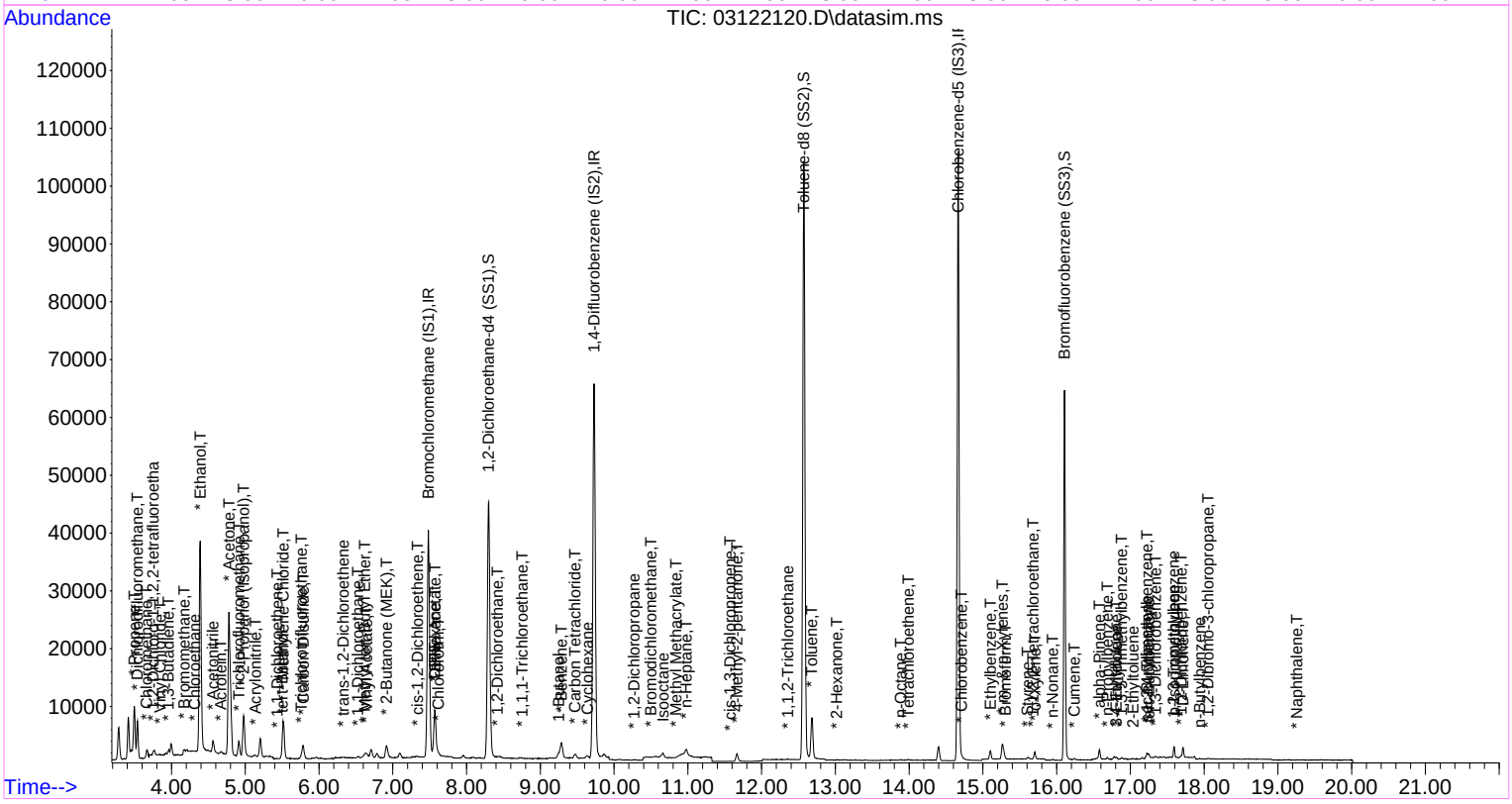
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021 03\12\
Data File : 03122120.D
Acq On : 12 Mar 2021 23:02
Operator : WA\RVT
Sample : AS00800
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 15 06:38:56 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021 03\11\
Data File : 03112130.D
Acq On : 12 Mar 2021 3:42
Operator : WA\RVT
Sample : SC02309
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 211 Sample Multiplier: 1

RVT 3/12/21

Quant Time: Mar 12 06:48:43 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS1)	7.483	130	50773	1000.00	pg	0.00
37) 1,4-Difluorobenzene (IS2)	9.724	114	140793	1000.00	pg	0.00
56) Chlorobenzene-d5 (IS3)	14.660	54	20152	1000.00	pg	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.296	65	70661	868.39	pg	0.00
Spiked Amount 1000.000			Recovery = 86.84%			
57) Toluene-d8 (SS2)	12.572	98	122289	1071.41	pg	0.00
Spiked Amount 1000.000			Recovery = 107.14%			
74) Bromofluorobenzene (SS3)	16.106	174	51929	913.33	pg	-0.04
Spiked Amount 1000.000			Recovery = 91.33%			
Target Compounds						Qvalue
2] * Propene	3.483	42	7989	163.21	pg	# 64
3] * Dichlorodifluoromethane	3.539	85	9195	57.61	pg	100
4] * Chloromethane	3.668	50	2370	35.76	pg	91
5] * 1,2-Dichloro-1,1,2,2...	3.753	85	301	3.24	pg	# 77
6) * Vinyl Chloride	0.000		0	N.D.		
7] * 1,3-Butadiene	3.959	54	55	1.11	pg	# 1
8] * Bromomethane	4.176	94	67	1.12	pg	# 41
9] * Chloroethane	4.264	64	96	3.04	pg	# 38
10] * Ethanol	4.378	45	56134	2159.98	pg	99
11] * Acetonitrile	4.555	41	3841	65.49	pg	94
12] * Acrolein	4.665	56	2541	97.70	pg	99
13] * Acetone	4.764	58	103671	2997.51	pg	# 58
14] * Trichlorofluoromethane	4.912	101	3944	25.20	pg	98
15] * 2-Propanol (Isopropa...	4.965	45	14224	144.33	pg	# 77
16] * Acrylonitrile	5.120	53	206	3.99	pg	# 51
17] * 1,1-Dichloroethene	5.381	96	114	1.95	pg	# 63
18] tert-Butanol	5.473	59	2919	37.55	pg	# 41
19] * Methylene Chloride	5.512	84	7711	125.72	pg	96
20] * 3-Chloro-1-propene (...	5.571	41	145	2.73	pg	# 27
21] * Trichlorotrifluoroet...	5.765	151	965	15.36	pg	94
22] * Carbon Disulfide	5.780	76	236049	1348.96	pg	98
23) * trans-1,2-Dichloroet...	0.000		0	N.D.		
24) * 1,1-Dichloroethane	0.000		0	N.D.		
25) * Methyl tert-Butyl Ether	0.000		0	N.D.		
26] * Vinyl Acetate	6.629	86	4820	485.82	pg	# 4
27] * 2-Butanone (MEK)	6.891	72	30734	992.14	pg	90
28) * cis-1,2-Dichloroethene	0.000		0	N.D.		
29] DIPE	7.561	45	1386	11.11	pg	# 50
30] * Ethyl Acetate	7.561	61	1694	97.86	pg	99
31] * n-Hexane	7.574	57	1519	24.49	pg	100
32] * Chloroform	7.619	83	365	3.47	pg	89
34] * Tetrahydrofuran	8.064	71	243	10.31	pg	# 28
35) ETBE	0.000		0	N.D.		
36] * 1,2-Dichloroethane	8.421	62	206	2.41	pg	# 1
38) * 1,1,1-Trichloroethane	0.000		0	N.D.		
39] * Benzene	9.287	78	5207	33.93	pg	96
40) Isopropyl Acetate	0.000		0	N.D.		
41] 1-Butanol	9.224	56	15105	6972.27	pg	# 100
42] * Carbon Tetrachloride	9.469	117	1109	16.41	pg	98
43] * Cyclohexane	9.636	84	440	9.50	pg	99
44) TAME	0.000		0	N.D.		
45) * 1,2-Dichloropropane	0.000		0	N.D.		
46) * Bromodichloromethane	0.000		0	N.D.		
47) * Trichloroethene	0.000		0	N.D.		

Data Path : I:\MS21\DATA\2021 03\11\
Data File : 03112130.D
Acq On : 12 Mar 2021 3:42
Operator : WA\RVT
Sample : SC02309
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 211 Sample Multiplier: 1

Quant Time: Mar 12 06:48:43 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

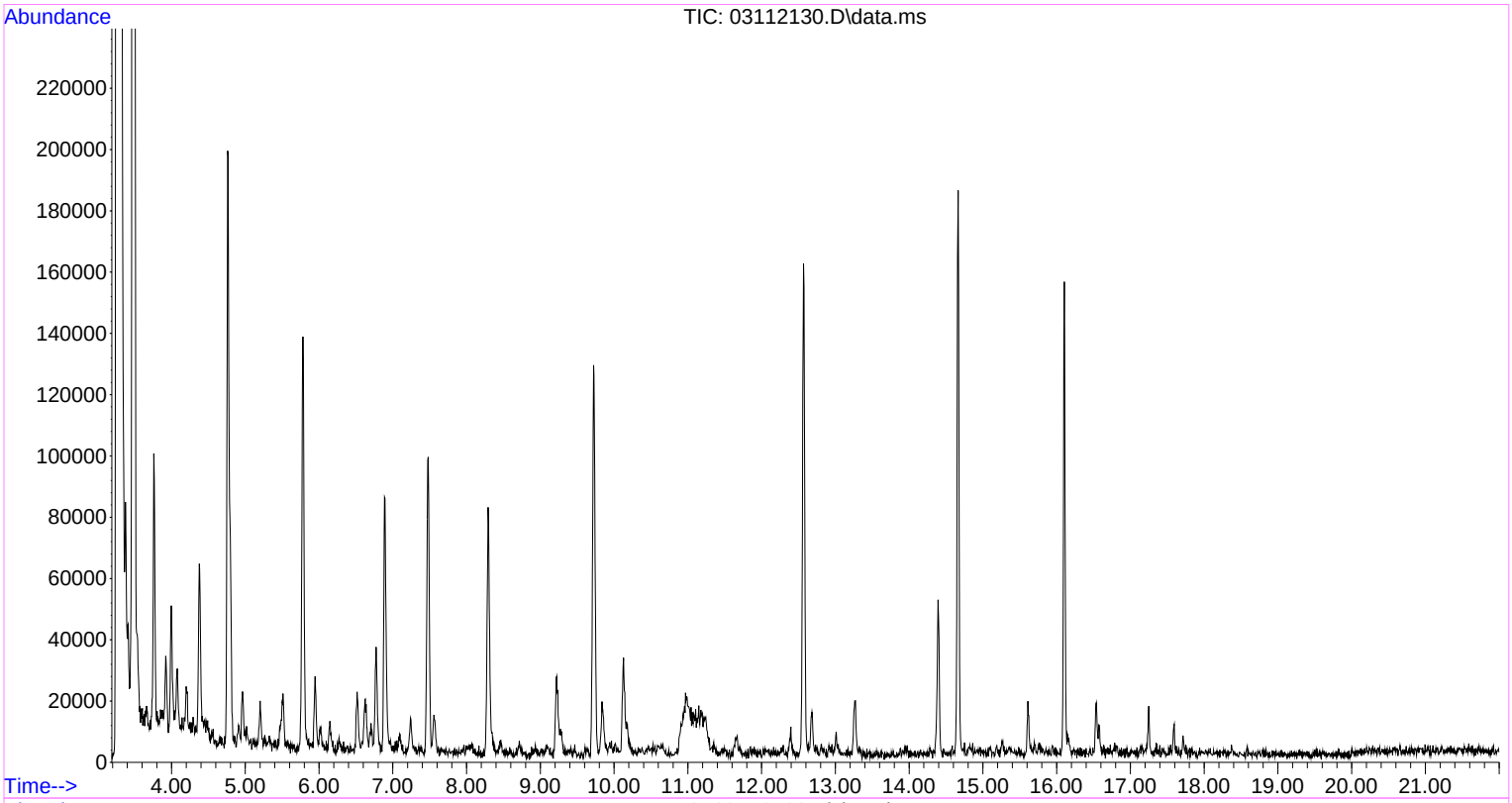
	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
48]	* 1,4-Dioxane	10.599	88	547	14.16	pg		84
49]	Isooctane	10.654	56	857	13.63	pg	#	56
50)	* Methyl Methacrylate	0.000		0	N.D.			
51]	* n-Heptane	10.985	71	1175	27.12	pg		96
52)	* cis-1,3-Dichloropropene	0.000		0	N.D.			
53]	* 4-Methyl-2-pentanone	11.655	58	1382	52.37	pg		94
54)	* trans-1,3-Dichloropr...	0.000		0	N.D.			
55)	* 1,1,2-Trichloroethane	0.000		0	N.D.			
58]	* Toluene	12.680	91	11056	79.20	pg		99
59]	* 2-Hexanone	13.008	58	1826	68.11	pg		99
60)	* Dibromochloromethane	0.000		0	N.D.			
61)	* 1,2-Dibromoethane	0.000		0	N.D.			
62]	* n-Butyl Acetate	13.767	56	115	5.40	pg	#	32
63]	* n-Octane	13.886	85	185	7.21	pg		99
64)	* Tetrachloroethene	0.000		0	N.D.			
65]	* Chlorobenzene	14.700	112	175	1.64	pg	#	42
66]	* Ethylbenzene	15.095	91	1473	11.29	pg		98
67]	* m- & p-Xylenes	15.261	91	3081	29.43	pg		97
68)	* Bromoform	0.000		0	N.D.			
69]	Cyclohexanone	15.466	98	61	17.78	pg	#	1
70]	* Styrene	15.603	104	512	6.80	pg		92
71]	* o-Xylene	15.699	91	1136	10.42	pg		100
72]	* n-Nonane	15.946	57	365	8.73	pg		99
73]	* 1,1,2,2-Tetrachloroe...	15.762	83	79	1.12	pg	#	17
75]	* Cumene	16.236	105	119	0.79	pg	#	48
76]	* alpha-Pinene	16.581	93	1782	28.11	pg	#	84
77]	* n-Propylbenzene	16.687	91	350	2.08	pg	#	83
78]	3-Ethyltoluene	16.813	105	366	106.24	pg		89
79]	* 4-Ethyltoluene	16.813	105	351	2.77	pg	#	82
80]	* 1,3,5-Trimethylbenzene	16.877	105	254	2.25	pg		87
81]	alpha-Methylstyrene	17.012	118	52	31.77	pg	#	21
82]	2-Ethyltoluene	17.037	105	266	141.23	pg	#	84
83]	tert-Butylbenzene	17.251	134	237	8.54	pg	#	1
84]	* 1,2,4-Trimethylbenzene	17.224	105	807	6.99	pg		86
85)	* Benzyl Chloride	0.000		0	N.D.			
86]	* 1,3-Dichlorobenzene	17.402	146	161	1.80	pg		90
87]	* 1,4-Dichlorobenzene	17.402	146	161	2.12	pg		90
88]	n-Decane	17.343	85	100	21.59	pg	#	1
89]	sec-Butylbenzene	17.224	105	807	6.99	pg	#	85
90]	1,2,3-Trimethylbenzene	17.585	105	372	44.56	pg	#	58
91]	p-Isopropyltoluene	17.591	134	1213	32.79	pg		94
92)	* 1,2-Dichlorobenzene	0.000		0	N.D.			
93]	* D-Limonene	17.710	68	742	21.85	pg		96
94]	n-Butylbenzene	17.934	134	83	2.49	pg		88
95)	* 1,2-Dibromo-3-chloro...	0.000		0	N.D.			
96]	n-Undecane	18.378	85	110	122.43	pg	#	62
97)	* 1,2,4-Trichlorobenzene	0.000		0	N.D.			
98]	* Naphthalene	19.257	128	179	1.68	pg	#	68
99]	n-Dodecane	19.276	85	55	40.54	pg	#	71
100)	* Hexachlorobutadiene	0.000		0	N.D.			

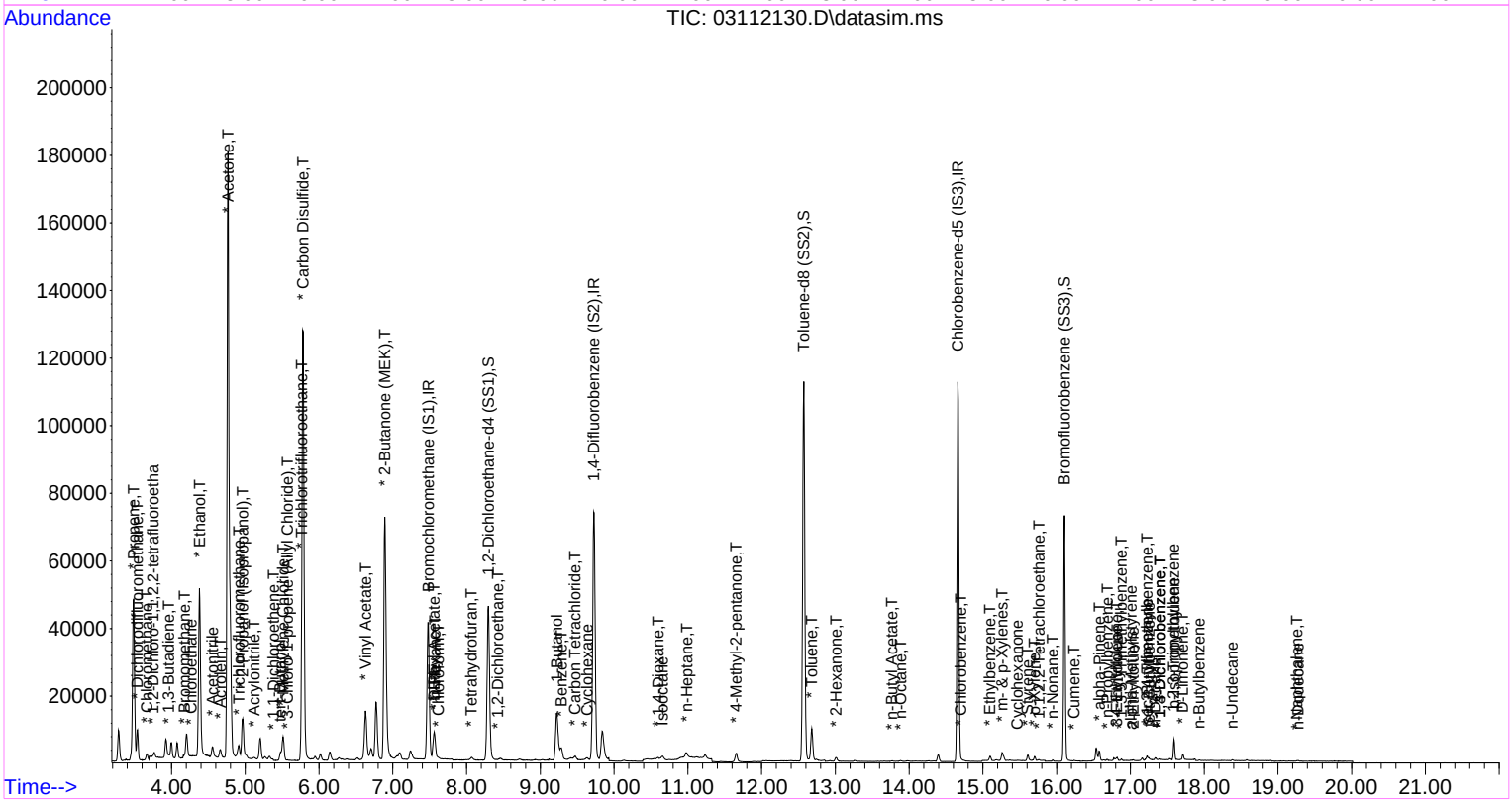
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021 03\11\
Data File : 03112130.D
Acq On : 12 Mar 2021 3:42
Operator : WA\RVT
Sample : SC02309
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 211 Sample Multiplier: 1

Quant Time: Mar 12 06:48:43 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021 03\11\
Data File : 03112126.D
Acq On : 12 Mar 2021 00:55
Operator : WA\RVT
Sample : AS01186
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

RVT 3/12/21

Quant Time: Mar 12 06:48:16 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS1)	7.483	130	49720	1000.00	pg	0.00
37) 1,4-Difluorobenzene (IS2)	9.730	114	128209	1000.00	pg	0.00
56) Chlorobenzene-d5 (IS3)	14.661	54	19015	1000.00	pg	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.301	65	71849	901.70	pg	0.00
Spiked Amount 1000.000			Recovery = 90.17%			
57) Toluene-d8 (SS2)	12.572	98	113243	1051.49	pg	0.00
Spiked Amount 1000.000			Recovery = 105.15%			
74) Bromofluorobenzene (SS3)	16.107	174	48939	912.21	pg	-0.03
Spiked Amount 1000.000			Recovery = 91.22%			
Target Compounds						Qvalue
2] * Propene	3.496	42	16085	335.57	pg	# 1
3] * Dichlorodifluoromethane	3.539	85	30442	194.78	pg	99
4] * Chloromethane	3.668	50	7622	117.45	pg	96
5] * 1,2-Dichloro-1,1,2,2...	3.753	85	1008	11.07	pg	91
6) * Vinyl Chloride	0.000		0	N.D.		
7] * 1,3-Butadiene	3.954	54	78	1.61	pg	# 1
8] * Bromomethane	4.170	94	190	3.23	pg	88
9] * Chloroethane	4.301	64	64	2.07	pg	# 41
10] * Ethanol	4.379	45	207057	8136.07	pg	100
11] * Acetonitrile	4.556	41	12949	225.46	pg	99
12] * Acrolein	4.670	56	683	26.82	pg	95
13] * Acetone	4.769	58	63567	1876.88	pg	97
14] * Trichlorofluoromethane	4.912	101	13883	90.60	pg	99
15] * 2-Propanol (Isopropa...	4.965	45	145986	1512.64	pg	91
16] * Acrylonitrile	5.126	53	141	2.79	pg	# 7
17] * 1,1-Dichloroethene	5.396	96	205	3.57	pg	92
18] tert-Butanol	5.493	59	6562	86.21	pg	99
19] * Methylene Chloride	5.517	84	31473	523.99	pg	100
20] * 3-Chloro-1-propene (...	5.576	41	52	1.00	pg	# 27
21] * Trichlorotrifluoroet...	5.765	151	3144	51.09	pg	97
22] * Carbon Disulfide	5.785	76	6002	35.03	pg	100
23) * trans-1,2-Dichloroet...	0.000		0	N.D.		
24) * 1,1-Dichloroethane	0.000		0	N.D.		
25) * Methyl tert-Butyl Ether	0.000		0	N.D.		
26] * Vinyl Acetate	6.650	86	192	19.76	pg	77
27] * 2-Butanone (MEK)	6.896	72	4020	132.52	pg	97
28) * cis-1,2-Dichloroethene	0.000		0	N.D.		
29] DIPE	7.554	45	21366	174.89	pg	# 56
30] * Ethyl Acetate	7.554	61	23137	1364.84	pg	99
31] * n-Hexane	7.580	57	2063	33.96	pg	# 78
32] * Chloroform	7.612	83	1206	11.71	pg	97
34] * Tetrahydrofuran	8.070	71	178	7.71	pg	91
35) ETBE	0.000		0	N.D.		
36] * 1,2-Dichloroethane	8.421	62	468	5.58	pg	# 87
38) * 1,1,1-Trichloroethane	0.000		0	N.D.		
39] * Benzene	9.287	78	8749	62.61	pg	99
40) Isopropyl Acetate	0.000		0	N.D.		
41] 1-Butanol	9.250	56	1623	822.69	pg	# 100
42] * Carbon Tetrachloride	9.480	117	3711	60.31	pg	100
43] * Cyclohexane	9.636	84	600	14.23	pg	99
44) TAME	0.000		0	N.D.		
45] * 1,2-Dichloropropane	10.282	63	164	3.65	pg	# 84
46) * Bromodichloromethane	0.000		0	N.D.		
47] * Trichloroethene	10.558	130	111	1.91	pg	# 1

Data Path : I:\MS21\DATA\2021 03\11\
Data File : 03112126.D
Acq On : 12 Mar 2021 00:55
Operator : WA\RVT
Sample : AS01186
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

Quant Time: Mar 12 06:48:16 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

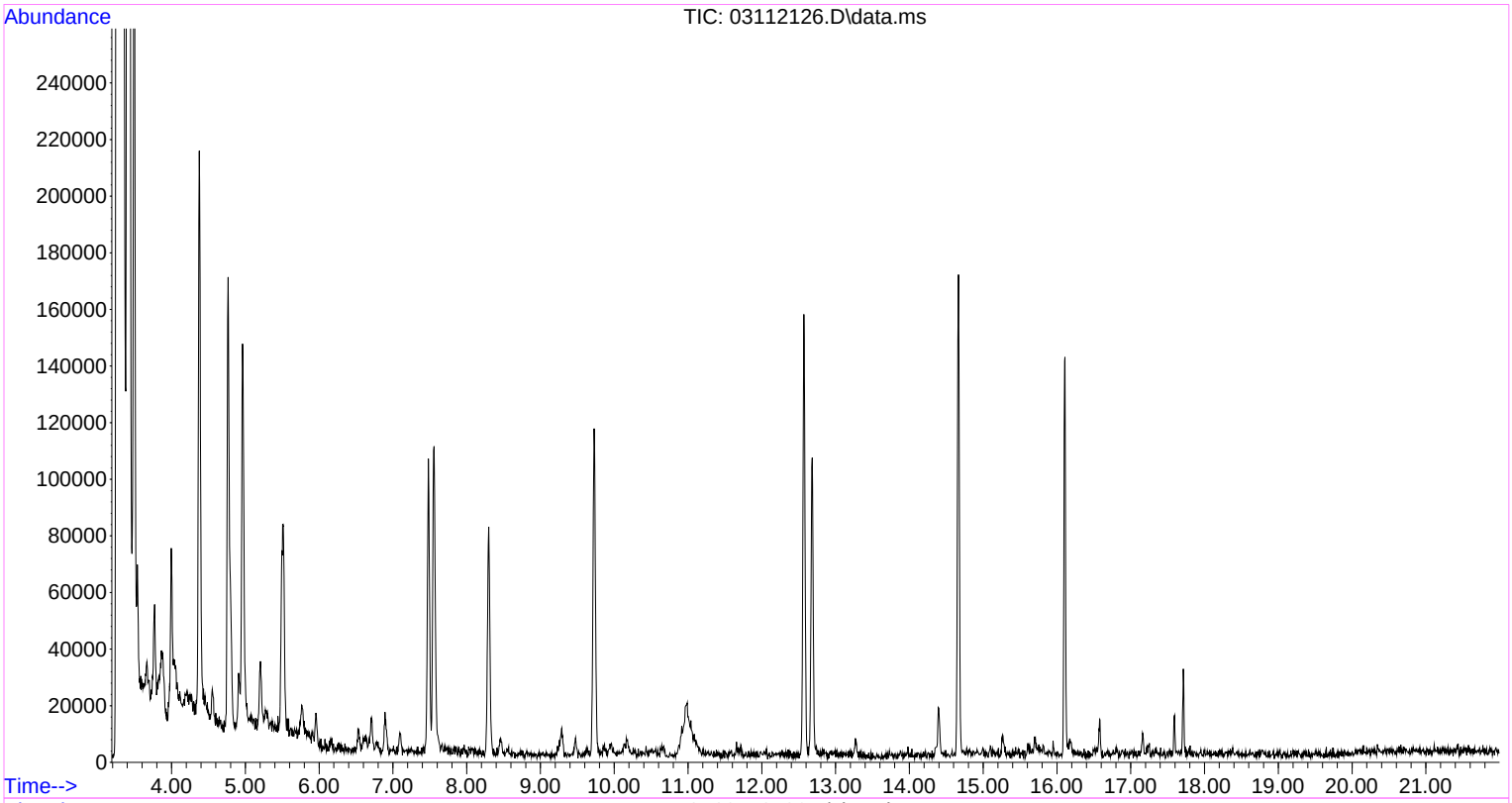
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
48] * 1,4-Dioxane	10.606	88	91	2.59	pg	#	72
49] Isooctane	10.655	56	1240	21.65	pg	#	49
50] * Methyl Methacrylate	10.841	69	91	2.24	pg	#	72
51] * n-Heptane	10.979	71	1217	30.85	pg	#	85
52) * cis-1,3-Dichloropropene	0.000		0	N.D.			
53] * 4-Methyl-2-pentanone	11.661	58	622	25.88	pg	#	85
54) * trans-1,3-Dichloropr...	0.000		0	N.D.			
55) * 1,1,2-Trichloroethane	0.000		0	N.D.			
58] * Toluene	12.685	91	89615	680.38	pg		100
59] * 2-Hexanone	13.019	58	107	4.23	pg	#	55
60) * Dibromochloromethane	0.000		0	N.D.			
61) * 1,2-Dibromoethane	0.000		0	N.D.			
62) * n-Butyl Acetate	0.000		0	N.D.			
63] * n-Octane	13.891	85	188	7.76	pg	#	43
64] * Tetrachloroethene	13.979	166	134	2.57	pg		84
65] * Chlorobenzene	14.707	112	115	1.15	pg	#	78
66] * Ethylbenzene	15.096	91	1785	14.50	pg		99
67] * m- & p-Xylenes	15.261	91	4347	44.00	pg		96
68] * Bromoform	15.301	173	78	2.37	pg	#	22
69) Cyclohexanone	0.000		0	N.D.			
70] * Styrene	15.603	104	736	10.36	pg		100
71] * o-Xylene	15.705	91	1507	14.65	pg		97
72] * n-Nonane	15.951	57	364	9.23	pg		89
73) * 1,1,2,2-Tetrachloroe...	0.000		0	N.D.			
75] * Cumene	16.241	105	127	0.90	pg	#	48
76] * alpha-Pinene	16.581	93	3274	54.73	pg		90
77] * n-Propylbenzene	16.688	91	407	2.56	pg	#	80
78] 3-Ethyltoluene	16.814	105	411	126.43	pg		94
79] * 4-Ethyltoluene	16.814	105	411	3.43	pg		90
80] * 1,3,5-Trimethylbenzene	16.887	105	374	3.51	pg	#	82
81) alpha-Methylstyrene	0.000		0	N.D.			
82] 2-Ethyltoluene	17.037	105	324	182.31	pg	#	84
83] tert-Butylbenzene	17.251	134	75	2.87	pg		99
84] * 1,2,4-Trimethylbenzene	17.224	105	1206	11.07	pg		90
85) * Benzyl Chloride	0.000		0	N.D.			
86] * 1,3-Dichlorobenzene	17.397	146	154	1.83	pg	#	68
87] * 1,4-Dichlorobenzene	17.397	146	154	2.15	pg	#	68
88] n-Decane	17.343	85	135	30.89	pg	#	1
89] sec-Butylbenzene	17.224	105	1206	11.07	pg	#	67
90] 1,2,3-Trimethylbenzene	17.586	105	548	69.57	pg	#	46
91] p-Isopropyltoluene	17.591	134	1588	45.50	pg		98
92) * 1,2-Dichlorobenzene	0.000		0	N.D.			
93] * D-Limonene	17.710	68	3831	119.58	pg		95
94] n-Butylbenzene	17.941	134	56	1.78	pg	#	23
95) * 1,2-Dibromo-3-chloro...	0.000		0	N.D.			
96] n-Undecane	18.379	85	83	97.90	pg	#	63
97) * 1,2,4-Trichlorobenzene	0.000		0	N.D.			
98] * Naphthalene	19.262	128	192	1.90	pg	#	68
99] n-Dodecane	19.276	85	92	71.86	pg		97
100) * Hexachlorobutadiene	0.000		0	N.D.			

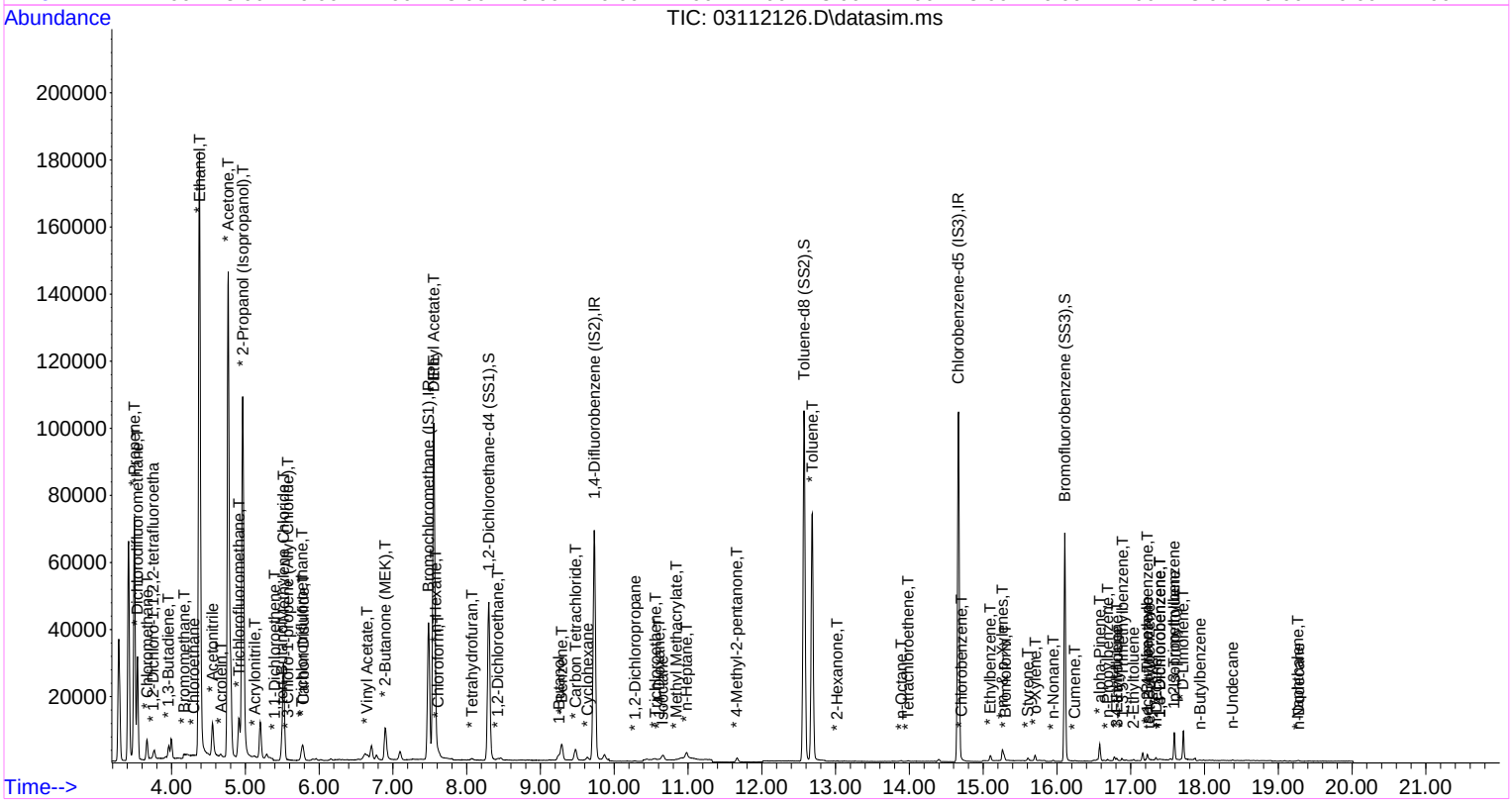
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021 03\11\
Data File : 03112126.D
Acq On : 12 Mar 2021 00:55
Operator : WA\RVT
Sample : AS01186
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 207 Sample Multiplier: 1

Quant Time: Mar 12 06:48:16 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021 03\12\
Data File : 03122123.D
Acq On : 13 Mar 2021 1:08
Operator : WA\RVT
Sample : AC02403
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 203 Sample Multiplier: 1

RVT 3/16/21

Quant Time: Mar 15 06:39:14 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS1)	7.476	130	48999	1000.00	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.725	114	125371	1000.00	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.661	54	18137	1000.00	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.296	65	70610	899.19	pg		0.00
Spiked Amount 1000.000			Recovery = 89.92%				
57) Toluene-d8 (SS2)	12.572	98	110796	1078.57	pg		0.00
Spiked Amount 1000.000			Recovery = 107.86%				
74) Bromofluorobenzene (SS3)	16.107	174	48034	938.68	pg		-0.03
Spiked Amount 1000.000			Recovery = 93.87%				
Target Compounds							Qvalue
2] * Propene	3.478	42	2532	53.60	pg	#	13
3] * Dichlorodifluoromethane	3.526	85	17317	112.43	pg		99
4] * Chloromethane	3.655	50	4241	66.31	pg		96
5] * 1,2-Dichloro-1,1,2,2...	3.743	85	515	5.74	pg		93
6] * Vinyl Chloride	3.864	62	61	0.91	pg	#	1
7] * 1,3-Butadiene	3.949	54	232	4.86	pg	#	1
8] * Bromomethane	4.160	94	155	2.67	pg		88
9] * Chloroethane	4.290	64	70	2.29	pg	#	41
10] * Ethanol	4.379	45	95995	3827.52	pg		100
11] * Acetonitrile	4.556	41	5950	105.12	pg		97
12] * Acrolein	4.660	56	793	31.59	pg		83
13] * Acetone	4.769	58	29803	892.91	pg		97
14] * Trichlorofluoromethane	4.906	101	7213	47.76	pg		99
15] * 2-Propanol (Isopropa...	4.965	45	24087	253.25	pg	#	82
16] * Acrylonitrile	5.138	53	62	1.24	pg	#	7
17] * 1,1-Dichloroethene	5.381	96	260	4.60	pg		88
18] tert-Butanol	5.493	59	1858	24.77	pg	#	82
19] * Methylene Chloride	5.512	84	18852	318.49	pg		99
20) * 3-Chloro-1-propene (...	0.000		0	N.D.			
21] * Trichlorotrifluoroet...	5.751	151	1651	27.22	pg		99
22] * Carbon Disulfide	5.775	76	3711	21.98	pg	#	82
23) * trans-1,2-Dichloroet...	0.000		0	N.D.			
24) * 1,1-Dichloroethane	0.000		0	N.D.			
25) * Methyl tert-Butyl Ether	0.000		0	N.D.			
26] * Vinyl Acetate	6.640	86	454	47.42	pg		61
27] * 2-Butanone (MEK)	6.901	72	2617	87.54	pg		85
28) * cis-1,2-Dichloroethene	0.000		0	N.D.			
29] DIPE	7.554	45	4540	37.71	pg	#	55
30] * Ethyl Acetate	7.554	61	4651	278.40	pg		100
31] * n-Hexane	7.567	57	1716	28.66	pg	#	91
32] * Chloroform	7.619	83	834	8.22	pg		97
34] * Tetrahydrofuran	8.060	71	68	2.99	pg	#	1
35) ETBE	0.000		0	N.D.			
36] * 1,2-Dichloroethane	8.411	62	340	4.11	pg	#	43
38) * 1,1,1-Trichloroethane	0.000		0	N.D.			
39] * Benzene	9.282	78	6474	47.38	pg		99
40) Isopropyl Acetate	0.000		0	N.D.			
41] 1-Butanol	9.235	56	956	495.56	pg	#	100
42] * Carbon Tetrachloride	9.469	117	1865	31.00	pg		100
43] * Cyclohexane	9.636	84	715	17.34	pg		82
44) TAME	0.000		0	N.D.			
45) * 1,2-Dichloropropane	0.000		0	N.D.			
46] * Bromodichloromethane	10.537	83	83	1.25	pg	#	18
47) * Trichloroethene	0.000		0	N.D.			

Data Path : I:\MS21\DATA\2021 03\12\
Data File : 03122123.D
Acq On : 13 Mar 2021 1:08
Operator : WA\RVT
Sample : AC02403
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 203 Sample Multiplier: 1

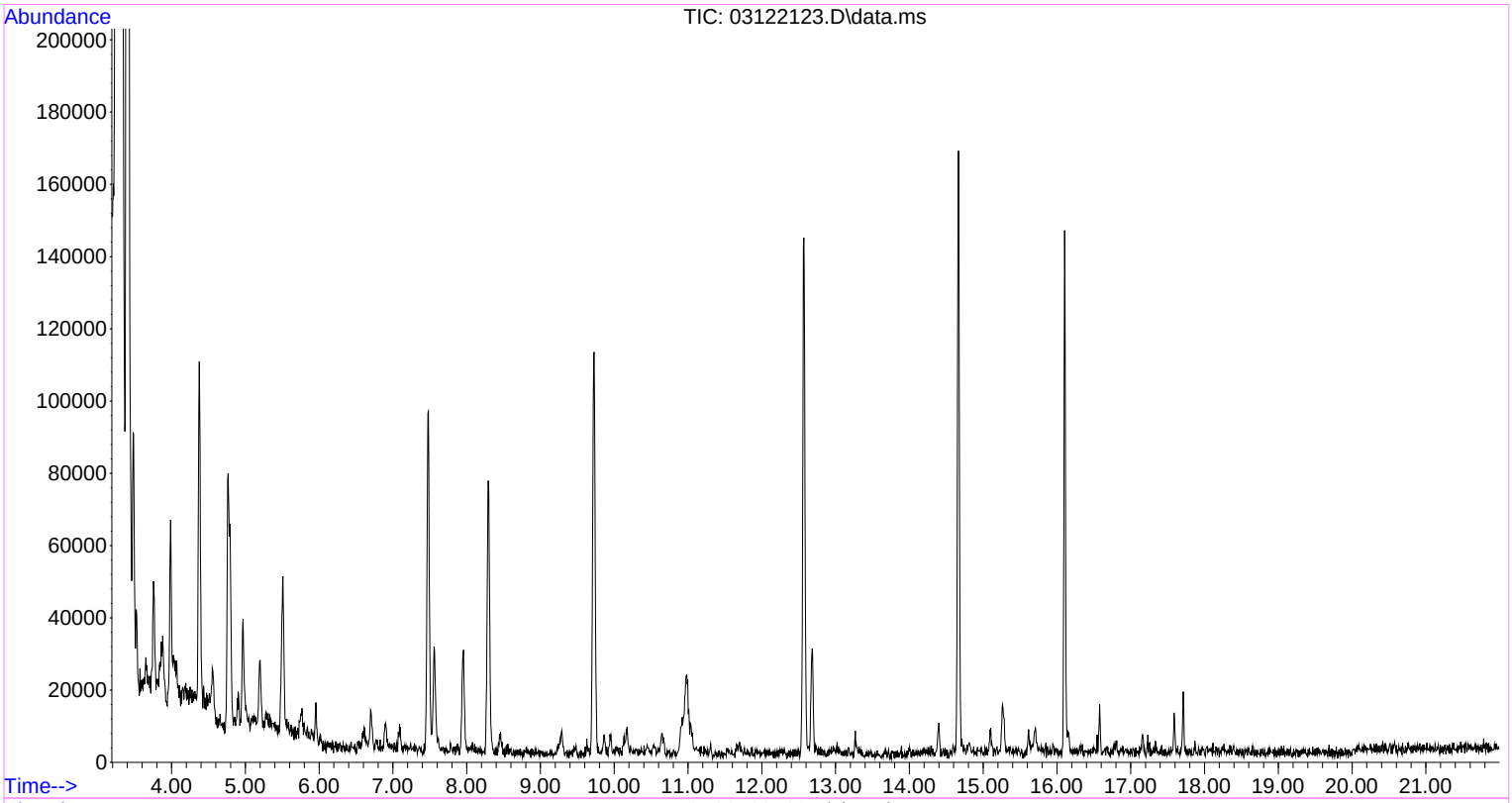
Quant Time: Mar 15 06:39:14 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

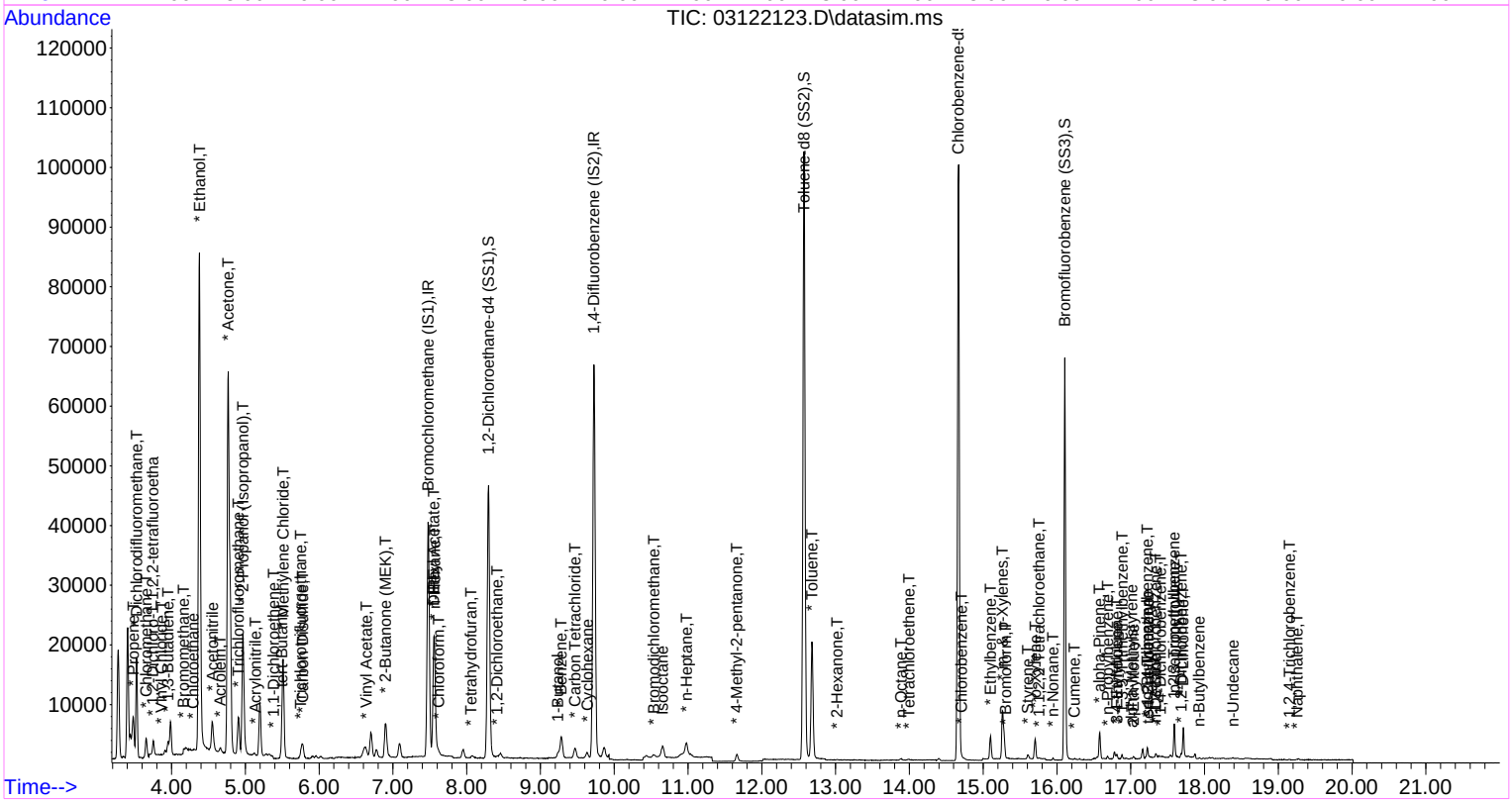
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
48) * 1,4-Dioxane	0.000		0	N.D.			
49] Isooctane	10.655	56	1472	26.28	pg	#	59
50) * Methyl Methacrylate	0.000		0	N.D.			
51] * n-Heptane	10.979	71	1486	38.52	pg	#	77
52) * cis-1,3-Dichloropropene	0.000		0	N.D.			
53] * 4-Methyl-2-pentanone	11.661	58	648	27.58	pg		100
54) * trans-1,3-Dichloropr...	0.000		0	N.D.			
55) * 1,1,2-Trichloroethane	0.000		0	N.D.			
58] * Toluene	12.680	91	23461	186.75	pg		99
59] * 2-Hexanone	13.019	58	134	5.55	pg	#	55
60) * Dibromochloromethane	0.000		0	N.D.			
61) * 1,2-Dibromoethane	0.000		0	N.D.			
62) * n-Butyl Acetate	0.000		0	N.D.			
63] * n-Octane	13.886	85	178	7.71	pg	#	45
64] * Tetrachloroethene	13.995	166	167	3.35	pg		92
65] * Chlorobenzene	14.707	112	59	0.62	pg	#	42
66] * Ethylbenzene	15.101	91	4179	35.60	pg		100
67] * m- & p-Xylenes	15.261	91	10889	115.56	pg		95
68] * Bromoform	15.306	173	54	1.72	pg	#	27
69) Cyclohexanone	0.000		0	N.D.			
70] * Styrene	15.603	104	499	7.37	pg	#	85
71] * o-Xylene	15.705	91	3177	32.39	pg		100
72] * n-Nonane	15.946	57	333	8.85	pg		87
73] * 1,1,2,2-Tetrachloroe...	15.757	83	62	0.98	pg	#	17
75] * Cumene	16.236	105	125	0.93	pg	#	33
76] * alpha-Pinene	16.576	93	3048	53.42	pg		91
77] * n-Propylbenzene	16.688	91	364	2.40	pg		91
78] 3-Ethyltoluene	16.814	105	427	137.71	pg		94
79] * 4-Ethyltoluene	16.814	105	427	3.74	pg		97
80] * 1,3,5-Trimethylbenzene	16.882	105	436	4.29	pg		91
81] alpha-Methylstyrene	17.013	118	96	65.17	pg		100
82] 2-Ethyltoluene	17.037	105	374	220.63	pg		97
83] tert-Butylbenzene	17.240	134	79	3.16	pg	#	1
84] * 1,2,4-Trimethylbenzene	17.224	105	1236	11.90	pg		90
85) * Benzyl Chloride	0.000		0	N.D.			
86] * 1,3-Dichlorobenzene	17.337	146	55	0.68	pg	#	13
87] * 1,4-Dichlorobenzene	17.402	146	149	2.18	pg	#	80
88] n-Decane	17.337	85	164	39.34	pg	#	1
89] sec-Butylbenzene	17.224	105	1236	11.90	pg	#	67
90] 1,2,3-Trimethylbenzene	17.586	105	469	62.43	pg	#	37
91] p-Isopropyltoluene	17.591	134	1134	34.06	pg		90
92] * 1,2-Dichlorobenzene	17.683	146	73	0.91	pg	#	18
93] * D-Limonene	17.710	68	2191	71.70	pg		99
94] n-Butylbenzene	17.928	134	80	2.67	pg	#	28
95) * 1,2-Dibromo-3-chloro...	0.000		0	N.D.			
96] n-Undecane	18.385	85	63	77.91	pg	#	53
97] * 1,2,4-Trichlorobenzene	19.154	180	94	2.31	pg	#	68
98] * Naphthalene	19.253	128	186	1.93	pg	#	64
99) n-Dodecane	0.000		0	N.D.			
100) * Hexachlorobutadiene	0.000		0	N.D.			

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

Data Path : I:\MS21\DATA\2021 03\12\
Data File : 03122123.D
Acq On : 13 Mar 2021 1:08
Operator : WA\RVT
Sample : AC02403
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 203 Sample Multiplier: 1

Quant Time: Mar 15 06:39:14 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021 03\11\
Data File : 03112127.D
Acq On : 12 Mar 2021 1:37
Operator : WA\RVT
Sample : SC01717
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 208 Sample Multiplier: 1

RVT 3/12/21

Quant Time: Mar 12 06:48:23 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS1)	7.483	130	49771	1000.00	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.730	114	142224	1000.00	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.661	54	21314	1000.00	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.296	65	70117	879.06	pg		0.00
Spiked Amount 1000.000			Recovery = 87.91%				
57) Toluene-d8 (SS2)	12.572	98	122408	1013.99	pg		0.00
Spiked Amount 1000.000			Recovery = 101.40%				
74) Bromofluorobenzene (SS3)	16.106	174	56298	936.19	pg		-0.03
Spiked Amount 1000.000			Recovery = 93.62%				
Target Compounds							Qvalue
2] * Propene	3.483	42	6921	144.24	pg		86
3] * Dichlorodifluoromethane	3.534	85	237	1.51	pg	#	42
4] * Chloromethane	3.668	50	1805	27.78	pg		96
5) * 1,2-Dichloro-1,1,2,2...	0.000		0	N.D.			
6] * Vinyl Chloride	3.778	62	56	0.82	pg	#	1
7] * 1,3-Butadiene	3.924	54	641	13.22	pg	#	1
8) * Bromomethane	0.000		0	N.D.			
9] * Chloroethane	4.306	64	727	23.45	pg		95
10] * Ethanol	4.384	45	17005	667.51	pg		99
11] * Acetonitrile	4.555	41	11812	205.45	pg		95
12] * Acrolein	4.660	56	6642	260.52	pg		97
13] * Acetone	4.769	58	158744	4682.28	pg	#	46
14] * Trichlorofluoromethane	4.912	101	213	1.39	pg		95
15] * 2-Propanol (Isopropa...	4.965	45	8274	85.64	pg	#	65
16] * Acrylonitrile	5.126	53	364	7.19	pg		95
17] * 1,1-Dichloroethene	5.449	96	516	8.98	pg	#	52
18] tert-Butanol	5.478	59	3375	44.29	pg	#	64
19] * Methylene Chloride	5.517	84	266	4.42	pg		84
20] * 3-Chloro-1-propene (...	5.571	41	64	1.23	pg	#	27
21) * Trichlorotrifluoroet...	0.000		0	N.D.			
22] * Carbon Disulfide	5.785	76	58439	340.69	pg		99
23) * trans-1,2-Dichloroet...	0.000		0	N.D.			
24) * 1,1-Dichloroethane	0.000		0	N.D.			
25) * Methyl tert-Butyl Ether	0.000		0	N.D.			
26] * Vinyl Acetate	6.634	86	11273	1159.10	pg	#	1
27] * 2-Butanone (MEK)	6.896	72	15891	523.32	pg		89
28) * cis-1,2-Dichloroethene	0.000		0	N.D.			
29] DIPE	7.567	45	307	2.51	pg	#	50
30] * Ethyl Acetate	7.567	61	473	27.87	pg		94
31] * n-Hexane	7.574	57	2046	33.65	pg		98
32] * Chloroform	7.664	83	65	0.63	pg	#	17
34] * Tetrahydrofuran	8.075	71	1019	44.12	pg		84
35) ETBE	0.000		0	N.D.			
36) * 1,2-Dichloroethane	0.000		0	N.D.			
38) * 1,1,1-Trichloroethane	0.000		0	N.D.			
39] * Benzene	9.292	78	1113	7.18	pg		100
40] Isopropyl Acetate	9.167	61	195	530.55	pg	#	34
41] 1-Butanol	9.229	56	10087	4609.18	pg	#	100
42) * Carbon Tetrachloride	0.000		0	N.D.			
43] * Cyclohexane	9.573	84	53	1.13	pg	#	1
44) TAME	0.000		0	N.D.			
45) * 1,2-Dichloropropane	0.000		0	N.D.			
46) * Bromodichloromethane	0.000		0	N.D.			
47) * Trichloroethene	0.000		0	N.D.			

Data Path : I:\MS21\DATA\2021 03\11\
Data File : 03112127.D
Acq On : 12 Mar 2021 1:37
Operator : WA\RVT
Sample : SC01717
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 208 Sample Multiplier: 1

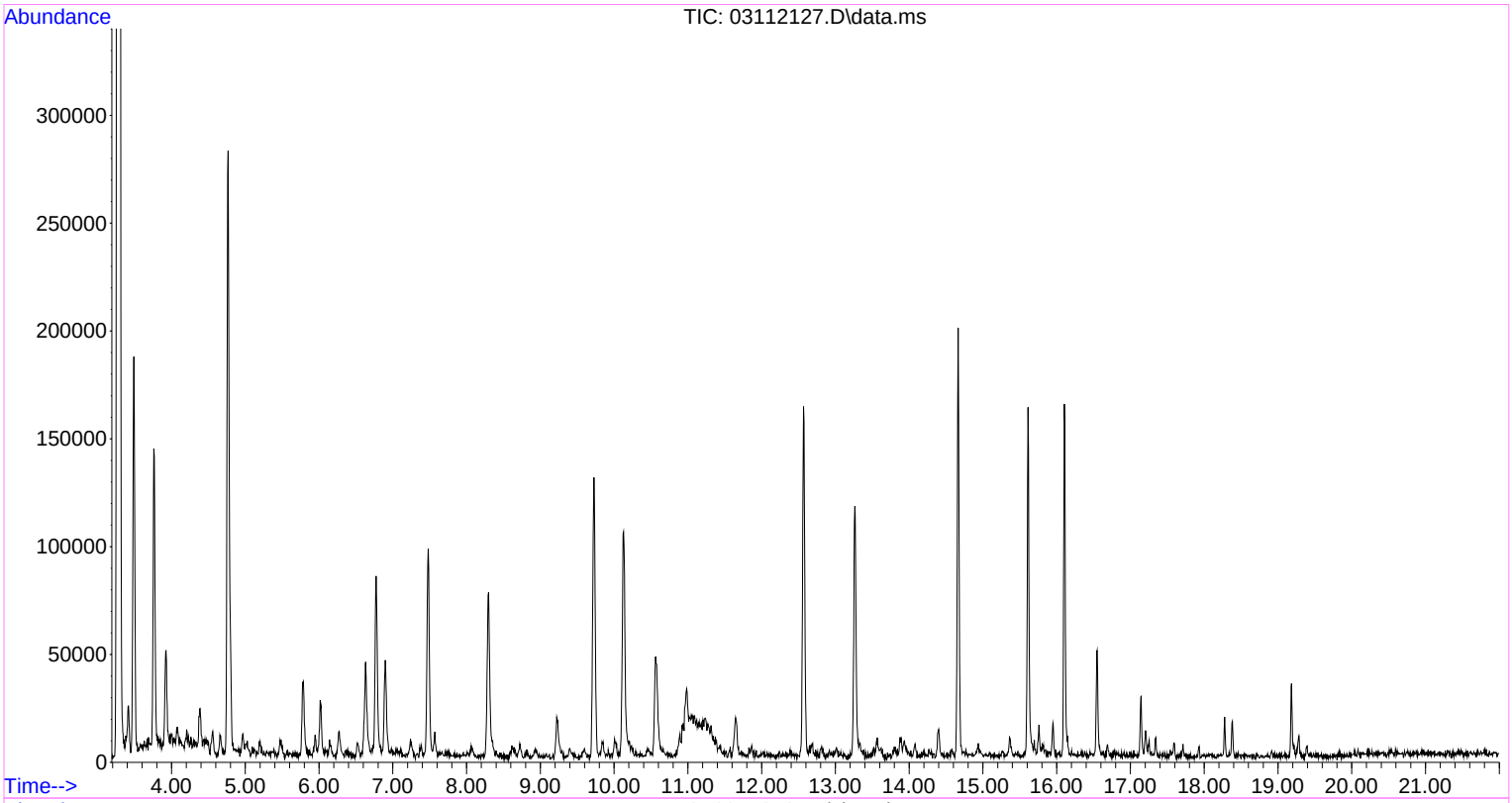
Quant Time: Mar 12 06:48:23 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

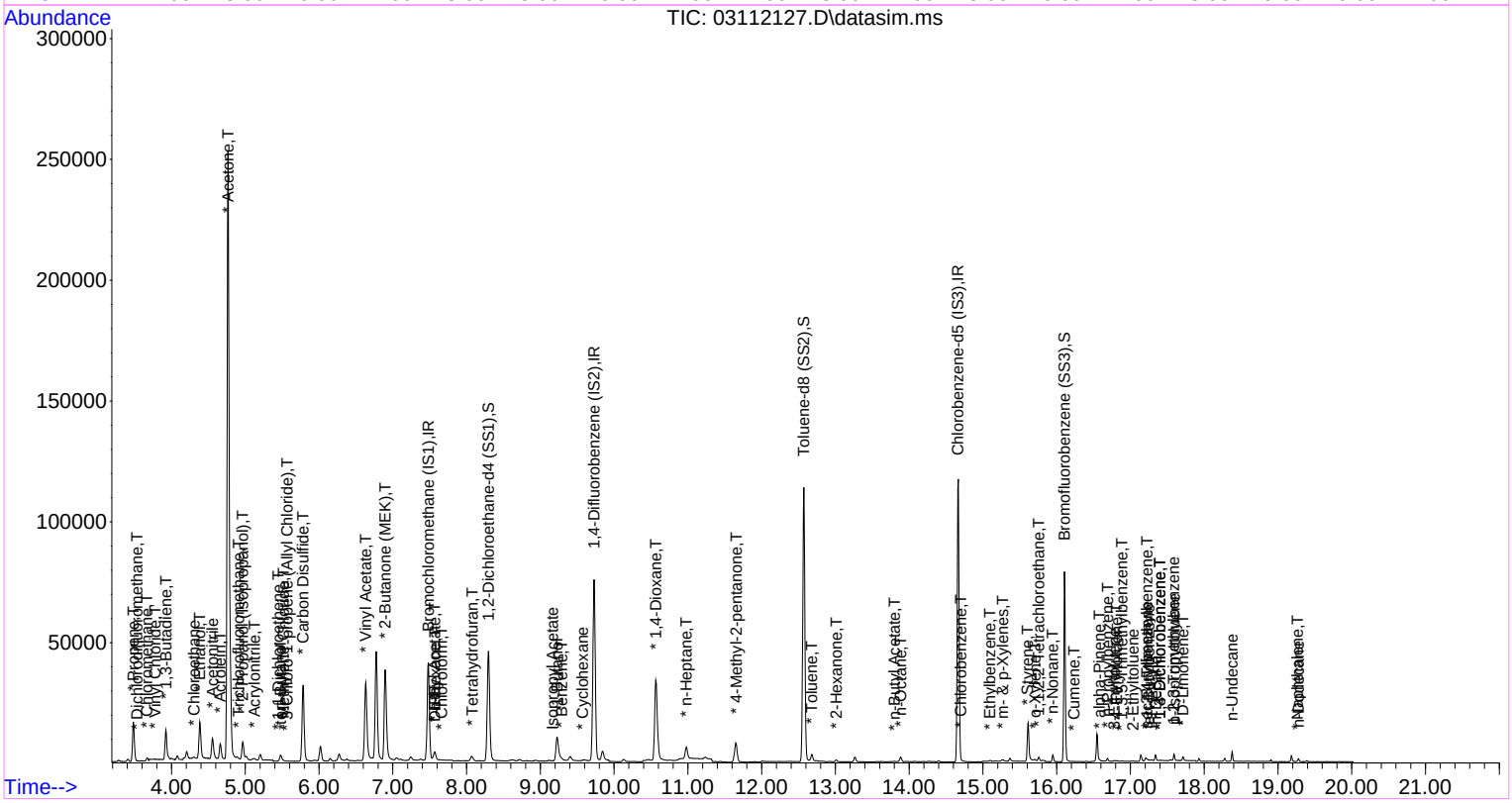
	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
48]	* 1,4-Dioxane	10.565	88	42948	1100.23	pg		98
49)	Isooctane	0.000		0	N.D.			
50)	* Methyl Methacrylate	0.000		0	N.D.			
51]	* n-Heptane	10.979	71	3698	84.50	pg		94
52)	* cis-1,3-Dichloropropene	0.000		0	N.D.			
53]	* 4-Methyl-2-pentanone	11.655	58	3815	143.11	pg		98
54)	* trans-1,3-Dichloropr...	0.000		0	N.D.			
55)	* 1,1,2-Trichloroethane	0.000		0	N.D.			
58]	* Toluene	12.680	91	3198	21.66	pg		98
59]	* 2-Hexanone	13.014	58	1208	42.60	pg		99
60)	* Dibromochloromethane	0.000		0	N.D.			
61)	* 1,2-Dibromoethane	0.000		0	N.D.			
62]	* n-Butyl Acetate	13.803	56	175	7.77	pg	#	32
63]	* n-Octane	13.886	85	1390	51.21	pg		94
64)	* Tetrachloroethene	0.000		0	N.D.			
65]	* Chlorobenzene	14.701	112	69	0.61	pg	#	42
66]	* Ethylbenzene	15.095	91	348	2.52	pg		90
67]	* m- & p-Xylenes	15.266	91	868	7.84	pg		92
68)	* Bromoform	0.000		0	N.D.			
69)	Cyclohexanone	0.000		0	N.D.			
70]	* Styrene	15.603	104	470	5.90	pg		93
71]	* o-Xylene	15.705	91	528	4.58	pg		99
72]	* n-Nonane	15.946	57	2486	56.22	pg		99
73]	* 1,1,2,2-Tetrachloroe...	15.757	83	369	4.95	pg	#	43
75]	* Cumene	16.236	105	56	0.35	pg	#	48
76]	* alpha-Pinene	16.581	93	169	2.52	pg	#	26
77]	* n-Propylbenzene	16.692	91	1070	6.02	pg	#	52
78]	3-Ethyltoluene	16.780	105	260	71.35	pg		89
79]	* 4-Ethyltoluene	16.814	105	102	0.76	pg	#	44
80]	* 1,3,5-Trimethylbenzene	16.882	105	114	0.95	pg	#	27
81)	alpha-Methylstyrene	0.000		0	N.D.			
82]	2-Ethyltoluene	17.037	105	128	64.26	pg	#	70
83]	tert-Butylbenzene	17.251	134	115	3.92	pg	#	1
84]	* 1,2,4-Trimethylbenzene	17.224	105	435	3.56	pg		95
85)	* Benzyl Chloride	0.000		0	N.D.			
86]	* 1,3-Dichlorobenzene	17.397	146	55	0.58	pg	#	20
87]	* 1,4-Dichlorobenzene	17.397	146	55	0.68	pg	#	20
88]	n-Decane	17.343	85	481	98.18	pg	#	1
89]	sec-Butylbenzene	17.224	105	435	3.56	pg		91
90]	1,2,3-Trimethylbenzene	17.586	105	212	24.01	pg	#	51
91]	p-Isopropyltoluene	17.596	134	558	14.26	pg		87
92)	* 1,2-Dichlorobenzene	0.000		0	N.D.			
93]	* D-Limonene	17.710	68	714	19.88	pg		92
94)	n-Butylbenzene	0.000		0	N.D.			
95)	* 1,2-Dibromo-3-chloro...	0.000		0	N.D.			
96]	n-Undecane	18.379	85	1018	1071.22	pg		92
97)	* 1,2,4-Trichlorobenzene	0.000		0	N.D.			
98]	* Naphthalene	19.262	128	103	0.91	pg	#	68
99]	n-Dodecane	19.276	85	237	165.16	pg	#	1
100)	* Hexachlorobutadiene	0.000		0	N.D.			

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

Data Path : I:\MS21\DATA\2021 03\11\
Data File : 03112127.D
Acq On : 12 Mar 2021 1:37
Operator : WA\RVT
Sample : SC01717
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 208 Sample Multiplier: 1

Quant Time: Mar 12 06:48:23 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021 03\12\
Data File : 03122115.D
Acq On : 12 Mar 2021 19:26
Operator : WA\RVT
Sample : SSC00237
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

RVT 3/16/21

Quant Time: Mar 15 06:38:23 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS1)	7.483	130	47838	1000.00	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.730	114	121887	1000.00	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.667	54	18504	1000.00	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.301	65	68784	897.19	pg		0.00
Spiked Amount 1000.000			Recovery = 89.72%				
57) Toluene-d8 (SS2)	12.572	98	115847	1105.37	pg		0.00
Spiked Amount 1000.000			Recovery = 110.54%				
74) Bromofluorobenzene (SS3)	16.107	174	51168	980.10	pg		-0.03
Spiked Amount 1000.000			Recovery = 98.01%				
Target Compounds							Qvalue
2] * Propene	3.500	42	2014	43.67	pg	#	1
3] * Dichlorodifluoromethane	3.534	85	4567	30.37	pg		99
4] * Chloromethane	3.668	50	1223	19.59	pg		94
5] * 1,2-Dichloro-1,1,2,2...	3.753	85	263	3.00	pg	#	86
6] * Vinyl Chloride	3.844	62	125	1.91	pg	#	1
7] * 1,3-Butadiene	3.954	54	181	3.88	pg	#	8
8] * Bromomethane	4.176	94	112	1.98	pg	#	79
9] * Chloroethane	4.306	64	163	5.47	pg		92
10] * Ethanol	4.389	45	25582	1044.76	pg		99
11] * Acetonitrile	4.561	41	2387	43.20	pg		88
12] * Acrolein	4.665	56	198	8.08	pg	#	13
13] * Acetone	4.779	58	8530	261.77	pg		90
14] * Trichlorofluoromethane	4.912	101	1962	13.31	pg		99
15] * 2-Propanol (Isopropa...	4.977	45	5375	57.88	pg	#	72
16] * Acrylonitrile	5.138	53	177	3.64	pg		90
17] * 1,1-Dichloroethene	5.381	96	54	0.98	pg	#	1
18] tert-Butanol	5.503	59	675	9.22	pg	#	57
19] * Methylene Chloride	5.517	84	4896	84.72	pg		99
20] * 3-Chloro-1-propene (...	5.624	41	55	1.10	pg	#	27
21] * Trichlorotrifluoroet...	5.756	151	271	4.58	pg	#	18
22] * Carbon Disulfide	5.785	76	16922	102.64	pg		99
23) * trans-1,2-Dichloroet...	0.000		0	N.D.			
24] * 1,1-Dichloroethane	6.519	63	67	0.83	pg	#	43
25] * Methyl tert-Butyl Ether	6.630	73	59	0.64	pg	#	56
26] * Vinyl Acetate	6.650	86	206	22.04	pg	#	52
27] * 2-Butanone (MEK)	6.916	72	758	25.97	pg		85
28] * cis-1,2-Dichloroethene	7.308	96	78	1.47	pg	#	18
29] DIPE	7.567	45	1139	9.69	pg	#	60
30] * Ethyl Acetate	7.574	61	1157	70.94	pg		98
31] * n-Hexane	7.574	57	473	8.09	pg	#	86
32] * Chloroform	7.613	83	317	3.20	pg		87
34] * Tetrahydrofuran	8.090	71	71	3.20	pg	#	1
35) ETBE	0.000		0	N.D.			
36] * 1,2-Dichloroethane	8.421	62	179	2.22	pg	#	43
38] * 1,1,1-Trichloroethane	8.743	97	100	1.63	pg	#	18
39] * Benzene	9.287	78	2174	16.36	pg		98
40] Isopropyl Acetate	9.261	61	68	215.88	pg	#	34
41] 1-Butanol	9.250	56	713	380.16	pg	#	100
42] * Carbon Tetrachloride	9.469	117	604	10.33	pg		91
43] * Cyclohexane	9.641	84	297	7.41	pg	#	21
44) TAME	0.000		0	N.D.			
45] * 1,2-Dichloropropane	10.282	63	115	2.69	pg	#	27
46] * Bromodichloromethane	10.496	83	139	2.16	pg		84
47) * Trichloroethene	0.000		0	N.D.			

Data Path : I:\MS21\DATA\2021 03\12\
Data File : 03122115.D
Acq On : 12 Mar 2021 19:26
Operator : WA\RVT
Sample : SSC00237
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 15 06:38:23 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

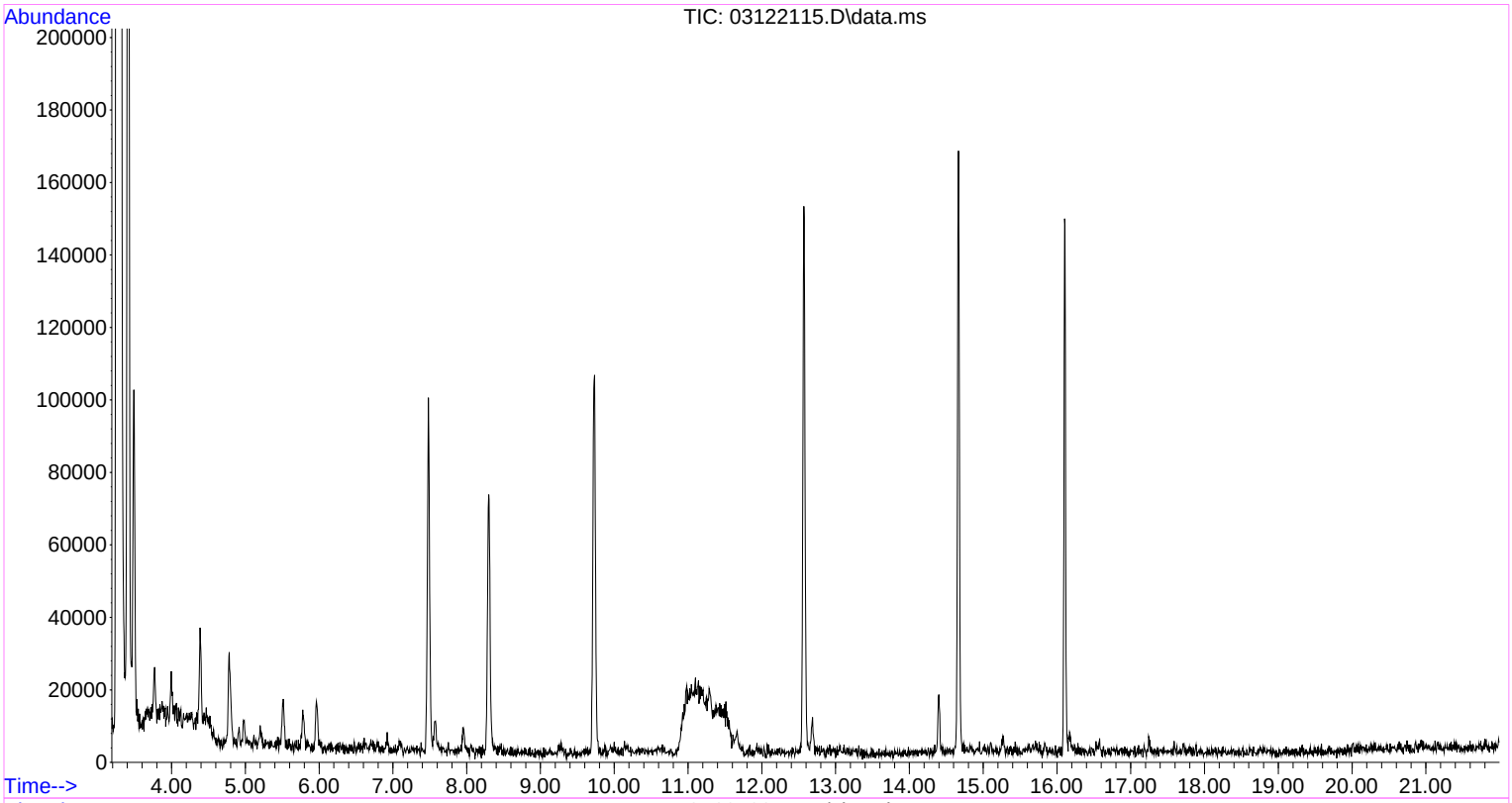
	Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
48]	* 1,4-Dioxane	10.606	88	904	27.02	pg		97
49]	Isooctane	10.655	56	357	6.56	pg	#	54
50]	* Methyl Methacrylate	10.848	69	90	2.33	pg	#	37
51]	* n-Heptane	10.979	71	529	14.10	pg	#	66
52)	* cis-1,3-Dichloropropene	0.000		0	N.D.			
53]	* 4-Methyl-2-pentanone	11.661	58	1118	48.94	pg	#	84
54)	* trans-1,3-Dichloropr...	0.000		0	N.D.			
55]	* 1,1,2-Trichloroethane	12.350	97	106	2.87	pg	#	19
58]	* Toluene	12.680	91	6106	47.64	pg		100
59]	* 2-Hexanone	13.024	58	162	6.58	pg	#	55
60)	* Dibromochloromethane	0.000		0	N.D.			
61)	* 1,2-Dibromoethane	0.000		0	N.D.			
62)	* n-Butyl Acetate	0.000		0	N.D.			
63]	* n-Octane	13.881	85	96	4.07	pg	#	8
64]	* Tetrachloroethene	13.984	166	94	1.85	pg		96
65]	* Chlorobenzene	14.714	112	163	1.67	pg	#	42
66]	* Ethylbenzene	15.101	91	1081	9.03	pg		96
67]	* m- & p-Xylenes	15.267	91	2488	25.88	pg		96
68]	* Bromoform	15.307	173	84	2.62	pg	#	60
69)	Cyclohexanone	0.000		0	N.D.			
70]	* Styrene	15.603	104	174	2.52	pg	#	79
71]	* o-Xylene	15.706	91	939	9.38	pg		89
72]	* n-Nonane	15.946	57	167	4.35	pg		87
73]	* 1,1,2,2-Tetrachloroe...	15.683	83	67	1.03	pg	#	66
75]	* Cumene	16.241	105	202	1.47	pg	#	48
76]	* alpha-Pinene	16.581	93	747	12.83	pg		99
77]	* n-Propylbenzene	16.683	91	284	1.84	pg		97
78]	3-Ethyltoluene	16.775	105	219	69.23	pg		92
79]	* 4-Ethyltoluene	16.814	105	216	1.85	pg		90
80]	* 1,3,5-Trimethylbenzene	16.882	105	213	2.05	pg		96
81)	alpha-Methylstyrene	0.000		0	N.D.			
82]	2-Ethyltoluene	17.047	105	61	35.27	pg	#	43
83]	tert-Butylbenzene	17.251	134	109	4.28	pg	#	6
84]	* 1,2,4-Trimethylbenzene	17.224	105	403	3.80	pg		90
85)	* Benzyl Chloride	0.000		0	N.D.			
86]	* 1,3-Dichlorobenzene	17.348	146	103	1.26	pg		92
87]	* 1,4-Dichlorobenzene	17.408	146	89	1.28	pg	#	72
88)	n-Decane	0.000		0	N.D.			
89]	sec-Butylbenzene	17.224	105	403	3.80	pg	#	90
90]	1,2,3-Trimethylbenzene	17.591	105	141	18.40	pg	#	35
91]	p-Isopropyltoluene	17.591	134	312	9.19	pg		83
92]	* 1,2-Dichlorobenzene	17.694	146	88	1.07	pg		87
93]	* D-Limonene	17.715	68	415	13.31	pg		93
94]	n-Butylbenzene	17.935	134	84	2.74	pg	#	19
95]	* 1,2-Dibromo-3-chloro...	18.052	157	72	2.52	pg	#	76
96)	n-Undecane	0.000		0	N.D.			
97]	* 1,2,4-Trichlorobenzene	19.154	180	89	2.14	pg		83
98]	* Naphthalene	19.253	128	85	0.87	pg	#	68
99)	n-Dodecane	0.000		0	N.D.			
100)	* Hexachlorobutadiene	0.000		0	N.D.			

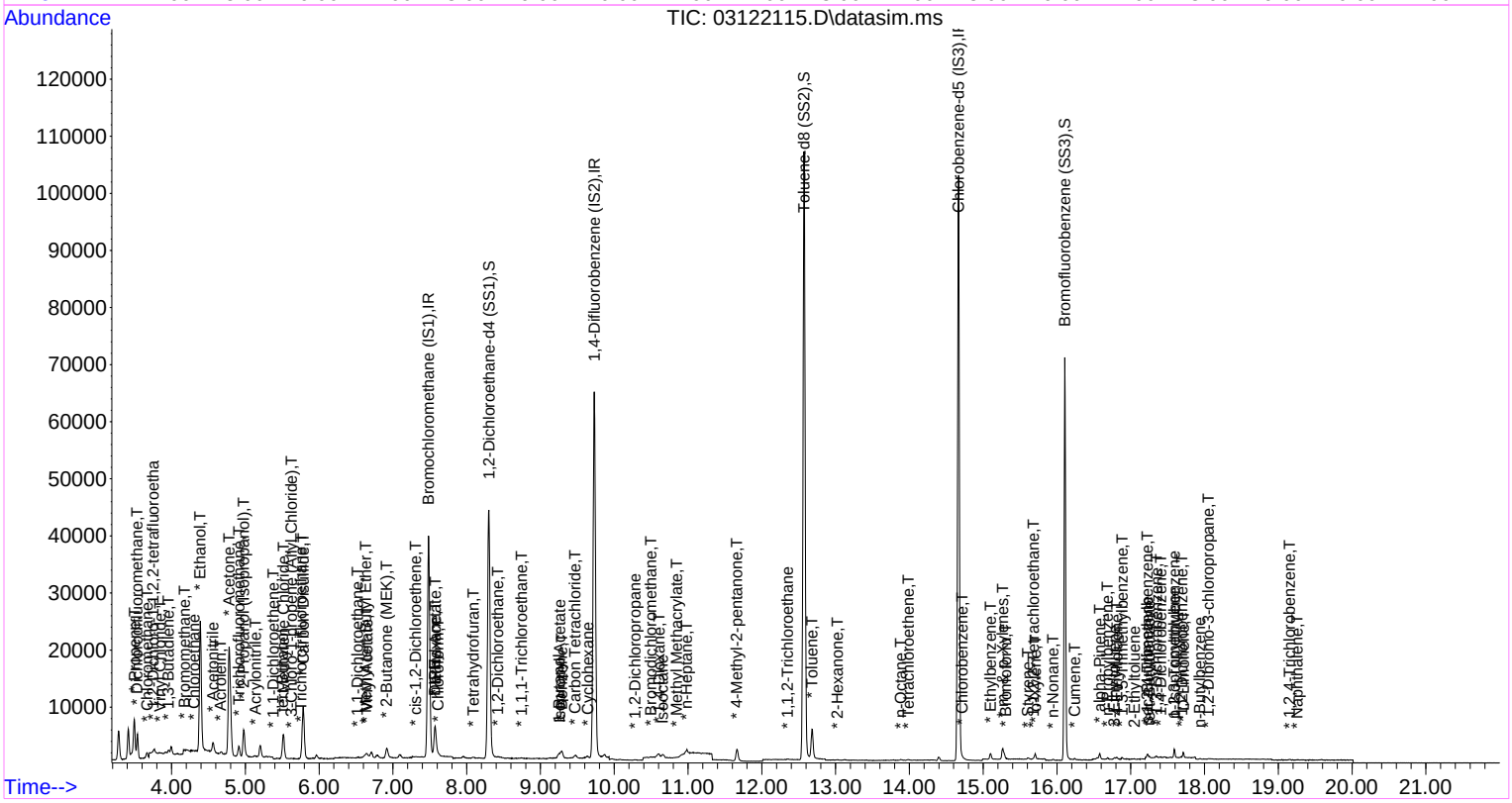
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021 03\12\
Data File : 03122115.D
Acq On : 12 Mar 2021 19:26
Operator : WA\RVT
Sample : SSC00237
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 15 06:38:23 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration





Quantitation Report (QT Reviewed)

Data Path : I:\MS21\DATA\2021 03\11\
Data File : 03112125.D
Acq On : 12 Mar 2021 00:13
Operator : WA\RVT
Sample : AS00684
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

RVT 3/12/21

Quant Time: Mar 12 06:48:09 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Bromochloromethane (IS1)	7.483	130	46630	1000.00	pg		0.00
37) 1,4-Difluorobenzene (IS2)	9.730	114	115731	1000.00	pg		0.00
56) Chlorobenzene-d5 (IS3)	14.667	54	17317	1000.00	pg		0.00
System Monitoring Compounds							
33) 1,2-Dichloroethane-d4 ...	8.296	65	67132	898.33	pg		0.00
Spiked Amount 1000.000			Recovery = 89.83%				
57) Toluene-d8 (SS2)	12.572	98	105385	1074.47	pg		0.00
Spiked Amount 1000.000			Recovery = 107.45%				
74) Bromofluorobenzene (SS3)	16.107	174	44623	913.32	pg		-0.03
Spiked Amount 1000.000			Recovery = 91.33%				
Target Compounds							Qvalue
2] * Propene	3.496	42	5763	128.20	pg	#	1
3] * Dichlorodifluoromethane	3.539	85	7432	50.70	pg		100
4] * Chloromethane	3.668	50	2009	33.01	pg		99
5] * 1,2-Dichloro-1,1,2,2...	3.748	85	263	3.08	pg	#	42
6] * Vinyl Chloride	3.838	62	61	0.95	pg	#	1
7] * 1,3-Butadiene	3.949	54	40	0.88	pg	#	1
8] * Bromomethane	4.170	94	96	1.74	pg	#	2
9] * Chloroethane	4.321	64	82	2.82	pg	#	25
10] * Ethanol	4.384	45	61213	2564.69	pg		100
11] * Acetonitrile	4.561	41	3291	61.10	pg	#	80
12] * Acrolein	4.670	56	205	8.58	pg		85
13] * Acetone	4.774	58	20290	638.78	pg		97
14] * Trichlorofluoromethane	4.912	101	3314	23.06	pg		89
15] * 2-Propanol (Isopropa...	4.971	45	26506	292.84	pg	#	77
16) * Acrylonitrile	0.000		0	N.D.			
17] * 1,1-Dichloroethene	5.386	96	115	2.14	pg	#	34
18] tert-Butanol	5.498	59	2457	34.42	pg	#	87
19] * Methylene Chloride	5.517	84	7884	139.96	pg		99
20) * 3-Chloro-1-propene (...	0.000		0	N.D.			
21] * Trichlorotrifluoroet...	5.760	151	911	15.79	pg		90
22] * Carbon Disulfide	5.780	76	3723	23.17	pg		100
23) * trans-1,2-Dichloroet...	0.000		0	N.D.			
24) * 1,1-Dichloroethane	0.000		0	N.D.			
25) * Methyl tert-Butyl Ether	0.000		0	N.D.			
26] * Vinyl Acetate	6.655	86	106	11.63	pg		72
27] * 2-Butanone (MEK)	6.911	72	1194	41.97	pg		74
28) * cis-1,2-Dichloroethene	0.000		0	N.D.			
29] DIPE	7.561	45	6659	58.12	pg	#	57
30] * Ethyl Acetate	7.561	61	7059	444.00	pg		100
31] * n-Hexane	7.574	57	483	8.48	pg	#	62
32] * Chloroform	7.625	83	353	3.66	pg		89
34) * Tetrahydrofuran	0.000		0	N.D.			
35) ETBE	0.000		0	N.D.			
36] * 1,2-Dichloroethane	8.421	62	119	1.51	pg	#	43
38) * 1,1,1-Trichloroethane	0.000		0	N.D.			
39] * Benzene	9.287	78	2439	19.34	pg		97
40) Isopropyl Acetate	0.000		0	N.D.			
41] 1-Butanol	9.250	56	604	339.17	pg	#	100
42] * Carbon Tetrachloride	9.474	117	841	15.14	pg		83
43] * Cyclohexane	9.641	84	104	2.73	pg	#	43
44) TAME	0.000		0	N.D.			
45) * 1,2-Dichloropropane	0.000		0	N.D.			
46] * Bromodichloromethane	10.537	83	58	0.95	pg	#	18
47) * Trichloroethene	0.000		0	N.D.			

Data Path : I:\MS21\DATA\2021 03\11\
Data File : 03112125.D
Acq On : 12 Mar 2021 00:13
Operator : WA\RVT
Sample : AS00684
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

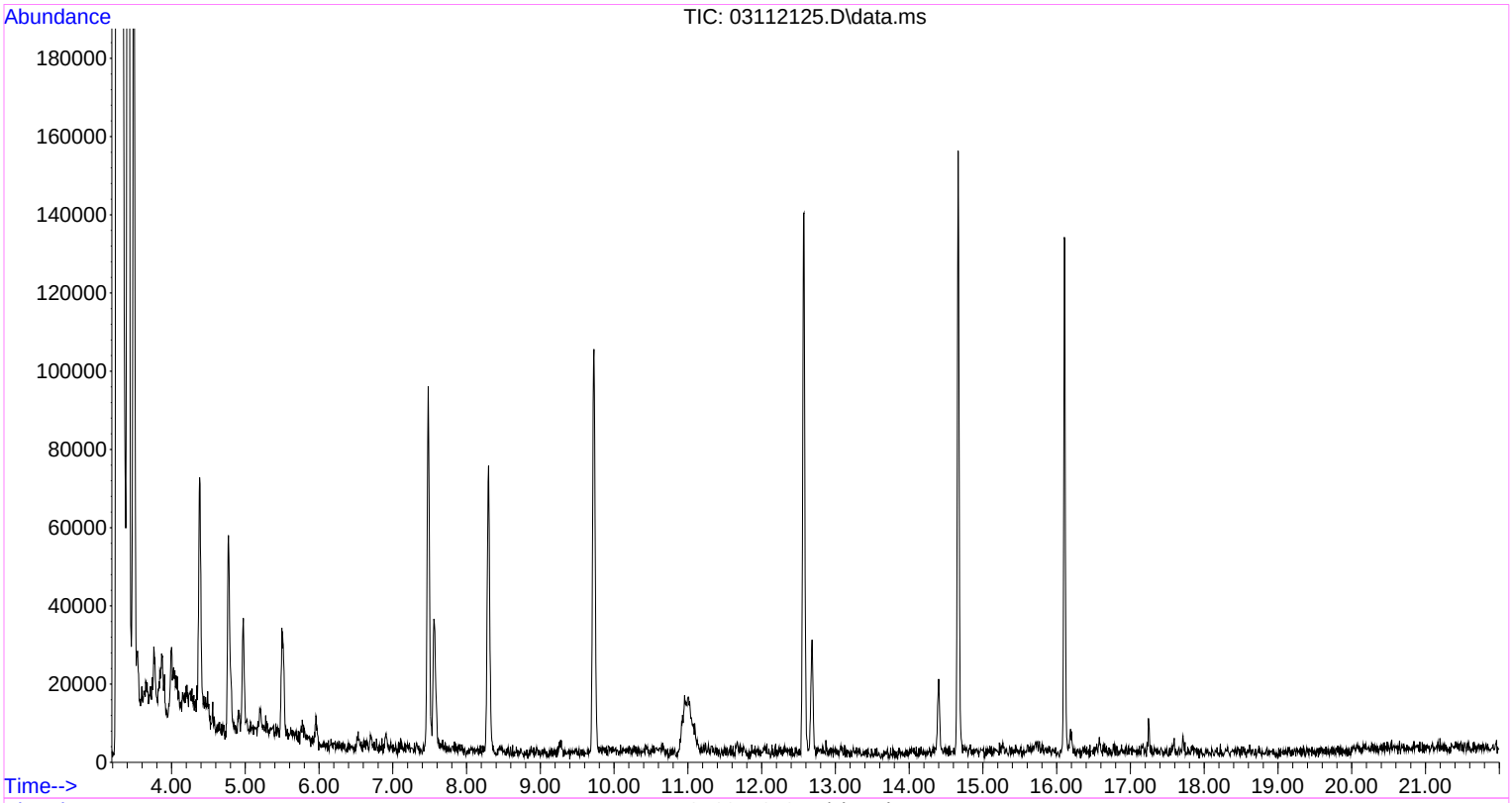
Quant Time: Mar 12 06:48:09 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration

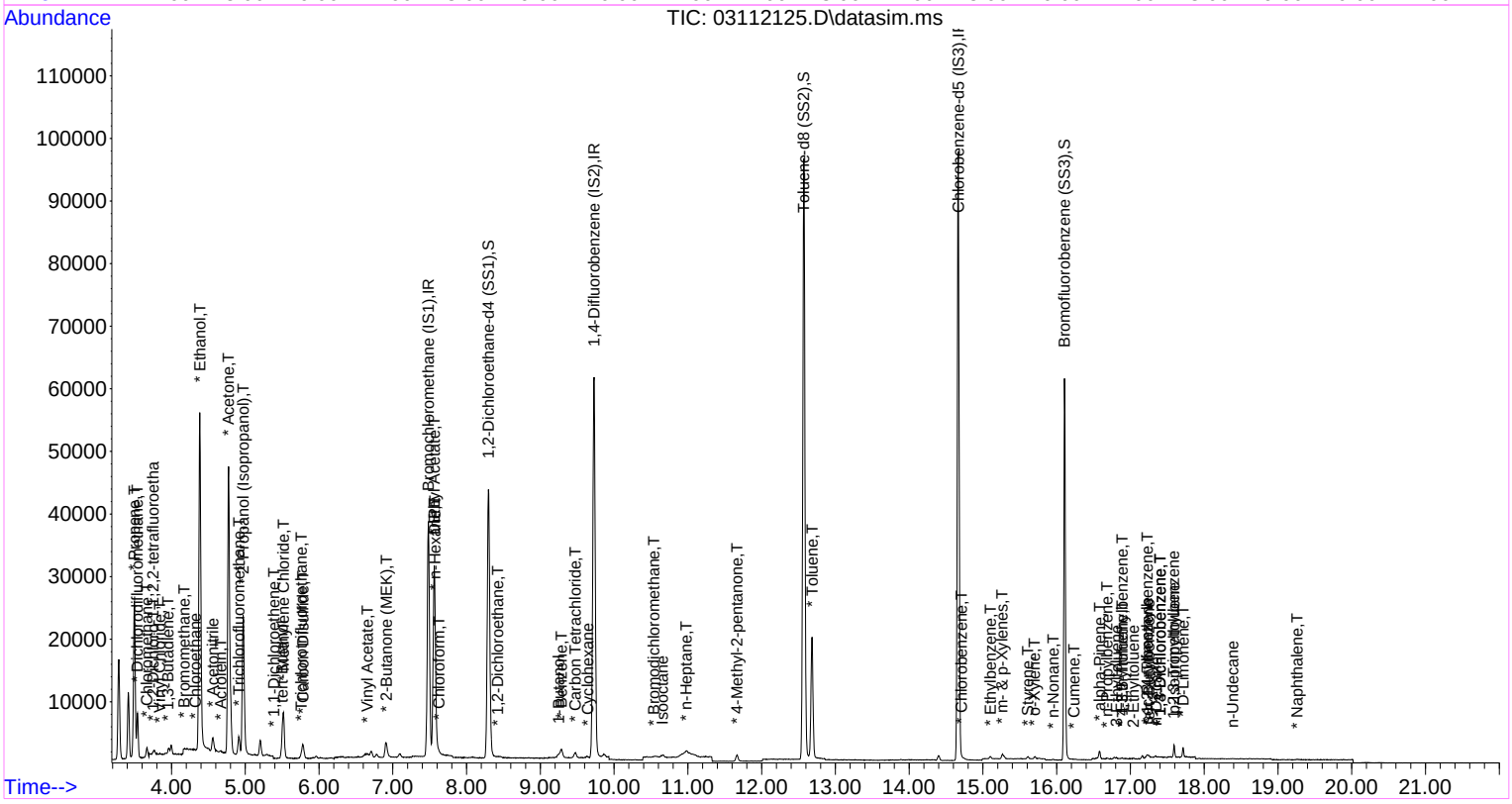
Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
48) * 1,4-Dioxane	0.000		0	N.D.			
49] Isooctane	10.655	56	261	5.05	pg		71
50) * Methyl Methacrylate	0.000		0	N.D.			
51] * n-Heptane	10.979	71	354	9.94	pg	#	62
52) * cis-1,3-Dichloropropene	0.000		0	N.D.			
53] * 4-Methyl-2-pentanone	11.667	58	536	24.71	pg		91
54) * trans-1,3-Dichloropr...	0.000		0	N.D.			
55) * 1,1,2-Trichloroethane	0.000		0	N.D.			
58] * Toluene	12.686	91	23790	198.33	pg		98
59) * 2-Hexanone	0.000		0	N.D.			
60) * Dibromochloromethane	0.000		0	N.D.			
61) * 1,2-Dibromoethane	0.000		0	N.D.			
62) * n-Butyl Acetate	0.000		0	N.D.			
63) * n-Octane	0.000		0	N.D.			
64) * Tetrachloroethene	0.000		0	N.D.			
65] * Chlorobenzene	14.707	112	51	0.56	pg	#	42
66] * Ethylbenzene	15.101	91	436	3.89	pg	#	86
67] * m- & p-Xylenes	15.261	91	1087	12.08	pg		95
68) * Bromoform	0.000		0	N.D.			
69) Cyclohexanone	0.000		0	N.D.			
70] * Styrene	15.609	104	363	5.61	pg		98
71] * o-Xylene	15.700	91	423	4.52	pg		94
72] * n-Nonane	15.951	57	82	2.28	pg	#	47
73) * 1,1,2,2-Tetrachloroe...	0.000		0	N.D.			
75] * Cumene	16.236	105	71	0.55	pg	#	48
76] * alpha-Pinene	16.586	93	862	15.82	pg		89
77] * n-Propylbenzene	16.683	91	105	0.73	pg	#	52
78] 3-Ethyltoluene	16.814	105	129	43.57	pg	#	42
79] * 4-Ethyltoluene	16.887	105	128	1.17	pg	#	44
80] * 1,3,5-Trimethylbenzene	16.887	105	128	1.32	pg	#	27
81) alpha-Methylstyrene	0.000		0	N.D.			
82] 2-Ethyltoluene	17.042	105	57	35.22	pg	#	1
83] tert-Butylbenzene	17.251	134	106	4.45	pg	#	1
84] * 1,2,4-Trimethylbenzene	17.230	105	292	2.94	pg		96
85) * Benzyl Chloride	0.000		0	N.D.			
86] * 1,3-Dichlorobenzene	17.402	146	85	1.11	pg		99
87] * 1,4-Dichlorobenzene	17.402	146	85	1.30	pg		99
88] n-Decane	17.348	85	75	18.84	pg	#	1
89] sec-Butylbenzene	17.230	105	292	2.94	pg	#	71
90] 1,2,3-Trimethylbenzene	17.586	105	163	22.72	pg	#	44
91] p-Isopropyltoluene	17.591	134	413	12.99	pg		85
92) * 1,2-Dichlorobenzene	0.000		0	N.D.			
93] * D-Limonene	17.715	68	728	24.95	pg		89
94) n-Butylbenzene	0.000		0	N.D.			
95) * 1,2-Dibromo-3-chloro...	0.000		0	N.D.			
96] n-Undecane	18.385	85	59	76.41	pg	#	1
97) * 1,2,4-Trichlorobenzene	0.000		0	N.D.			
98] * Naphthalene	19.258	128	124	1.35	pg	#	68
99) n-Dodecane	0.000		0	N.D.			
100) * Hexachlorobutadiene	0.000		0	N.D.			

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

Data Path : I:\MS21\DATA\2021 03\11\
Data File : 03112125.D
Acq On : 12 Mar 2021 00:13
Operator : WA\RVT
Sample : AS00684
Misc : 115141 (Sig #1); S34-03012102 (Sig #2)
ALS Vial : 206 Sample Multiplier: 1

Quant Time: Mar 12 06:48:09 2021
Quant Method : I:\MS21\Methods\F21103120.M
Quant Title : EPA TO-15
QLast Update : Mon Nov 02 07:44:09 2020
Response via : Initial Calibration





LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

WSP Group
5 Sullivan Street
Cazenovia, NY 13035
ATTN: Mr. Erik S. Reinert
erik.reinert@wspgroup.com

May 6, 2021

SUBJECT: Former Huck Manufacturing Site, Kingston, NY, Data Validation

Dear Mr. Reinert,

Enclosed is the final validation report for the fraction listed below. This SDG was received on April 20, 2021. Attachment 1 is a summary of the samples that were reviewed for analysis.

LDC Project #50919:

SDG	Fraction
P2101759	Volatiles

The data validation was performed under Category B guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA Region 2 Analysis of Volatile Organic Compounds in Air Contained Canisters, SOP HW-31, Revision 6; September 2016
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review; EPA 540-R-2017-002; January 2017

Please feel free to contact us if you have any questions.

Sincerely,

Christina Rink

Christina Rink
crink@lab-data.com
Project Manager/Senior Chemist

Category B EDD **LDC #50919 (WSP USA Corp.- Fayetteville, NY / Former Huck Manufacturing Site, Kingston, NY)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	(3) VOA (TO-15)																															
Matrix: Air/Water/Soil				A	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	P2101759	04/20/21	05/11/21	9	0																														
Total	T/CR			9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9

Shaded cells indicate Category B validation (all other cells are Category A validation). These sample counts do not include MS/MSD, and DUPs

Site: Former Huck Manufacturing Site, Kingston, NY
Laboratory: ALS Environmental
Report No.: P2101759
Reviewer: Josephine Go and Christina Rink/Laboratory Data Consultants for WSP Group - Pittsburg, PA
Date: May 5, 2021

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
HUCKAA033121-1	P2101759-001	VOC
HUCKAA033121-2	P2101759-002	VOC
HUCKIAF033121-1	P2101759-003	VOC
HUCKIAF033121-2	P2101759-004	VOC
HUCKIAFR0331121-2	P2101759-005	VOC
HUCKIAF033121-3	P2101759-006	VOC
HUCKIAF033121-5	P2101759-007	VOC
HUCKIAF033121-6	P2101759-008	VOC
TRIP BLANK	P2101759-009	VOC

Associated QC Samples(s):
Field/Trip Blanks: TRIP BLANK
Field Duplicate pair: HUCKIAF033121-2 and HUCKIAFR0331121-2

The above-listed air samples were collected on March 31, 2021 and were analyzed for volatile organic compounds (VOCs) which are cis-1,2-dichloroethene, trichloroethene, and tetrachloroethene by method TO-15. The data validation was performed in accordance with the USEPA Region 2 *Analysis of Volatile Organic Compounds in Air Contained Canisters*, SOP HW-31, Revision 6 (September 2016) and the USEPA *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review,* EPA 540-R-2017-002 (January 2017), modified as necessary to accommodate the non-CLP methodologies used.

The organic data were evaluated based on the following parameters:

- Data Completeness
- Holding Times
- Gas Chromatography/Mass Spectrometry (GC/MS) Tunes
- Initial and Continuing Calibrations
- Blanks
- Surrogate Recoveries
- Laboratory Duplicate Results
- Laboratory Control Sample (LCS) Results
- Internal Standards
- Field Duplicate Results
- Quantitation Limits and Data Assessment
- Sample Quantitation and Compound Identification

Overall Evaluation of Data and Potential Usability Issues

All results are usable as reported.

The validation findings were based on the following information.

Data Completeness

The data package was complete as defined under the requirements for the NYSDEC ASP category B laboratory deliverables.

Holding Times

All criteria were met.

GC/MS Tunes

All criteria were met.

Initial and Continuing Calibrations

All criteria were met.

Blanks

Contamination was not detected in the method blanks.

No positive results were found in the trip blank sample TRIP BLANK for VOC analysis.

Surrogate Recoveries

All criteria were met.

Laboratory Duplicate Results

Laboratory duplicates were not associated with this sample set. Validation action was not required on this basis.

LCS Results

All criteria were met.

Internal Standards

All criteria were met.

Field Duplicate Results

Samples HUCKIAF033121-2 and HUCKIAFR0331121-2 were submitted as the field duplicate pair with this sample group. The following table summarizes the concentrations.

Compound	Concentration (ug/m³)		RPD
	HUCKIAF033121-2	HUCKIAFR0331121-2	
cis-1,2-Dichloroethene	0.10	0.091	9
Trichloroethene	3.0	2.8	7
Tetrachloroethene	1.0	0.93	7

Quantitation Limits and Data Assessment

Results were reported which were below the reporting limit (RL) and above the method detection limit (MDL) in the VOC analysis. These results were qualified as estimated (J) by the laboratory.

No dilutions were required for VOC analysis.

Sample Quantitation and Compound Identification

Calculations were spot-checked; no discrepancies were noted.

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

JN - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

LDC #: 50919A48 **VALIDATION COMPLETENESS WORKSHEET** Date: 05/03/21
SDG #: P2101759 Category B Page: 1 of 1
Laboratory: ALS Environmental Reviewer: JM
2nd Reviewer: KK

METHOD: GC/MS Volatiles (EPA Method TO-15)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	ICAL ≤ 30? ICV ≤ 30?
IV.	Continuing calibration	A	CCV ≤ 30%
V.	Laboratory Blanks /canisters per sample	A / A	
VI.	Field blanks	ND	TB = 9
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	SW	D = 4/5
XI.	Internal standards	SW A	
XII.	Target analyte quantitation	A	
XIII.	Target analyte identification	A	
XIV.	System performance	A	
XV.	Leak Check Compounds	A	
XVI.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	HUCKAA033121-1	P2101759-001	Air	03/31/21
2	HUCKAA033121-2	P2101759-002	Air	03/31/21
3	HUCKIAF033121-1	P2101759-003	Air	03/31/21
4	HUCKIAF033121-2	P2101759-004	Air	03/31/21
5	HUCKIAFR031121-2	P2101759-005	Air	03/31/21
6	HUCKIAF033121-3	P2101759-006	Air	03/31/21
7	HUCKIAF033121-5	P2101759-007	Air	03/31/21
8	HUCKIAF033121-6	P2101759-008	Air	03/31/21
9	TRIP BLANK	P2101759-009	Air	03/31/21
10				
11				
12				
13	P210408-MB			

LDC #: 50919A48 **VALIDATION FINDINGS CHECKLIST** Page: 1 of 2
Reviewer: JVG

Method: Volatiles (EPA Method TO-15)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was canister pressure criteria met?	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 24 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 30%?	✓			
IIIb. Initial calibration verification				
Was an initial calibration verification standard analyzed after every ICAL for each instrument?	✓			
Were all percent differences (%D) ≤ 30%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 24 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 30%?	✓			
V. Laboratory Blanks/Canister Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed at least once every 24 hours for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
Was a canister blank analyzed for every canister?	✓			
Was there contamination in the canister blanks?		✓		
VI. Field Blanks				
Were field blanks identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VII. Surrogate spikes (Optional)				
Were all surrogate percent recoveries (%R) within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VIII. Laboratory Duplicate				
Was a laboratory duplicate analyzed for this SDG?	✓	✓		
Were the relative percent differences (RPD) within the QC limits?			✓	

Validation Area	Yes	No	NA	Findings/Comments
IX. Laboratory control samples				
Was an LCS analyzed per analytical batch for this SDG?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?	✓			
XI. Internal standards				
Were internal standard area counts within ± 40% from the associated calibration standard?	✓			
Were retention times within ± 20.0 seconds from the associated calibration standard?	✓			
XII. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Leak check compounds				
Was a leak check compound used to evaluate sample integrity and included in the laboratory analyte list?	-	✓		
Was the leak check compound detected in the samples? If yes, please see leak check validation findings worksheet.			✓	
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene	A2.
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane	B2.
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane	C2.
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene	D2.
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11	E2.
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12	F2.
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113	G2.
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114	H2.
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane	I2.
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide	J2.
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane	K2.
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane	L2.
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane	M2.
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane	N2.
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane	O2.
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane	P2.
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane	Q2.
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane	R2.
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane	S2.
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane	T2.
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal	U2.
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene	V2.
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol	W2.
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene	X2.
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1. 2-Propanol	Y2.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.	Z2.

LDC #: 50919A48

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JVG

METHOD: GC/MS VOA (EPA Method TO15)

Compound	Concentration (ug/m3)		RPD
	4	5	
QQQ	0.10	0.091	9
S	3.0	2.8	7
AA	1.0	0.93	7

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LDC #: 50919A48

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVG

METHOD: GC/MS VOA (EPA Method TO-15)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of Compound
C_x = Concentration of compound,
S= Standard deviation of the RRFs,

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard
X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (1000 pg)	Recalculated RRF (1000 pg)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL MS19	3/16/2021	cis-1,2-DCE (BCM)	1.217	1.217	1.202	1.202	10.19	10.19
			Trichloroethene (DFB)	0.281	0.281	0.292	0.292	10.93	10.92

LDC # 50919A48

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

METHOD: GC/MS VOA (EPA Method TO-15)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = (Ax)(Cis)/(Ais)(Cx)

Where:
ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
Ax = Area of compound,
Cx = Concentration of compound,
Ais = Area of associated internal standard
Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound	(IS)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported % D	Recalculated %D
1	04082102	04/08/21	cis-1,2-DCE	(BCM)	1.202	1.240	1.240	3.2	3.2
			Trichloroethene	(DFB)	0.292	0.290	0.290	0.7	0.7

LDC #: 50919A48

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: JVG

METHOD: GC/MS VOA (EPA Method TO15)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4	1000	954.068	96	96	0
Toluene-d8	↓	1007.538	101	101	↓
Bromofluorobenzene	↓	1122.583	112	112	↓

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

LDC #: 50919A48

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: JVG

METHOD: GC/MS VOA (EPA Method TO-15)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration; SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboraotry control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: P210408-LCS

Compound	Spike Added (ug/m3)		Spiked Sample Concentration (ug/m3)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
1,1-Dichloroethene										
Trichloroethene	20.6	NA	20.6	NA	100	100				
Benzene										
Toluene										
Chlorobenzene										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 50919A48

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: JVG

METHOD: GC/MS VOA (EPA Method TO-15)

The concentration of the sample was calculated for the compound identified below using the following calculation:

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 6, TCE:

Conc. = $\frac{(60029)(1000)(1.46)}{(8171)(0.292)(1000)}$

= 3.706 ug/m3

ppbv = $\frac{(3.706)(24.45)}{(131.39)}$ = 0.6898 ≈ 0.69 ppbv

#	Sample ID	Compound	Reported Concentration (ug/m3) / ppbv	Calculated Concentration ( )	Qualification
	6	TCE	3.706 / 0.69		