



VIA ELECTRONIC MAIL

October 28, 2019

Mr. Christopher Mannes III, P.E.
Environmental Engineer II
New York State Department of Environmental Conservation
615 Erie Boulevard West
Syracuse, NY 13204-2400

**Subject: Sub-slab Soil Vapor Sampling Report
Former Rollway Bearing Corporation Facility, Liverpool, New York
Agreement Index Number: V7-1007-96-10**

Dear Mr. Mannes:

On behalf of Emerson Electric Co., WSP USA Inc. (WSP) has prepared this report to summarize the results of the sub-slab soil vapor samples collected on March 29, 2019, at the former Rollway Bearing Corporation facility in Liverpool, New York (Figure 1). The purpose of the sampling activities was to evaluate current sub-slab soil vapor conditions at select locations that were sampled in 2006 and 2007, and to further delineate the extent of volatile organic compounds (VOCs) in sub-slab soil vapor. The historical sub-slab soil vapor sampling results were provided to the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH) in WSP Environment & Energy LLC's *Indoor Air and Soil Gas Assessment Report*, dated December 10, 2008.

SCOPE OF WORK

The March 2019 sampling was conducted in accordance with WSP's *Notification of Sub-slab Soil Vapor Sampling* work plan, dated February 22, 2019, which was approved by the NYSDEC and NYSDOH on March 14, 2019. As described in the approved work plan, sub-slab soil vapor samples were collected at 13 locations within the former manufacturing building (Figure 2). Sample locations SS-1, SS-3, SS-12, and SS-14 through SS-16 were selected to assess current sub-slab conditions at representative locations that were sampled in 2006 and 2007. Additional sample locations were selected to further delineate the extent of VOCs in sub-slab soil vapor in the former heat treat area (SS-17) and in the western portion of the former manufacturing building (SS-18 through SS-23).

SUB-SLAB SOIL VAPOR SAMPLING PROCEDURES

The sub-slab soil vapor samples were collected using Colvin Cox® Vapor Pin™ sub-slab soil vapor probes installed at each location on March 28, 2019, in accordance with the manufacturer's instructions. Specifically, WSP used an electric hammer drill to drill a 1.5-inch diameter "outer" hole approximately 2 inches into the slab. Then, a 5/8-inch diameter "inner" hole was advanced through the remaining floor slab and approximately 1 inch into the material beneath the slab. The assembled Vapor Pin™ probe was then tapped into place with a hammer. The new sampling probes were completed with flush-mount stainless steel covers.

A short piece of Tygon™ tubing was connected to the Vapor Pin® barb fitting at each soil vapor probe location, and a section of 0.25-inch outer-diameter Teflon™-lined tubing was inserted into the Tygon™ tubing. Next, a leak test was performed at each location to evaluate the integrity of the sub-slab probe seal and ensure that the soil gas samples were not diluted by indoor air. To perform the test, an enclosure was placed over the sub-slab sample probe, and the tubing attached to the Vapor Pin® was passed through an

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wsp.com



opening in the enclosure to allow monitoring of the sub-slab soil vapor from outside of the enclosure using an electronic helium detector. After the monitoring equipment was in place, the dome was charged with a greater than 99 percent helium gas mixture through an opening in the enclosure. The sample probe was then monitored for a minimum of 2 minutes to verify that the system was not short-circuiting to the helium-enriched atmosphere above the concrete slab. All probes passed the leak test. After leak testing, the tubing was connected to a pump equipped with a 1-liter Tedlar® bag on the exhaust port. The sample train (i.e., probe and tubing) was purged of approximately 1 to 3 volumes of air at a rate less than 0.2 liters per minute. After purging, air in the Tedlar® bag was monitored with a portable landfill gas meter for organic vapors, oxygen, carbon dioxide, and methane, and these measurements were recorded in the field log book.

On March 29, 2019, a batch certified-clean 6-liter SUMMA-style canister equipped with a flow controller was connected to the sample train at each sub-slab soil vapor sampling location. The canister was opened, and the initial vacuum recorded in the field log book. The ambient temperature, barometric pressure, dew point, and humidity for March 29, 2019, which were obtained from an on-line weather service, were also recorded in the field log book. After approximately 1 hour, the final vacuum reading for each canister was recorded in the field log book. The sample canister was then closed, disassembled, and prepared for shipment. Each canister was equipped with a sample label that included the sample identification number; name of sampler; date; start and end times; initial and final vacuum; and place of collection. At the conclusion of the sub-slab sampling event, the above-grade tubing was removed and the Vapor Pin™ probes were closed and secured.

SAMPLE ANALYSIS

The sample canisters were submitted under ambient conditions to ALS Environmental in Simi Valley, California, under strict chain-of-custody procedures. The samples were analyzed for the following VOCs assigned to the NYSDOH's May 2017 soil vapor/indoor air matrices: trichloroethene (TCE); tetrachloroethene (PCE); cis-1,2-dichloroethene (cis-1,2-DCE); 1,1,1-trichloroethane; vinyl chloride; methylene chloride; 1,1-dichloroethene; and carbon tetrachloride using U.S. Environmental Protection Agency (EPA) Method TO-15. As specified in the work plan, samples SS-19 through SS-23 were archived at the laboratory pending the results of samples SS-15, SS-16, and SS-18.

QUALITY ASSURANCE/QUALITY CONTROL

Quality assurance/quality control procedures were followed to ensure that controls were initiated and maintained throughout sampling and analysis. As described above, a leak test of the sampling equipment was conducted to evaluate whether ambient air was introduced in the sub-slab soil vapor sample during the collection process. All probes passed the leak test prior to sampling.

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

A duplicate sub-slab soil vapor sample (SS-100) was collected from sample location SS-12. The duplicate sample was collected at the same time and from the same sample location using a T-splitter. The field duplicate identity was not provided to the laboratory. The field duplicate is useful in documenting the precision of the sampling process. The relative percent difference between the results for the primary sample (SS-12) and field duplicate (SS-100) were less than the control limit of 50 percent and, therefore, confirmed that the sampling process was sufficiently precise.



SAMPLING RESULTS

The VOCs detected in the March 2019 sub-slab soil vapor samples are provided in Table 1, and the analytical data are in Enclosure A. For comparison, Figure 2 shows the March 2019 and the corresponding historical (2006 and 2007) sampling results for each applicable sub-slab soil vapor sampling location.

As indicated in Table 1, TCE and PCE were the compounds detected at the highest concentrations in sub-slab soil vapor and were the only VOCs detected at all locations sampled in March 2019. TCE concentrations ranged from 0.20 microgram per cubic meter ($\mu\text{g}/\text{m}^3$) at SS-14 to 62,000 $\mu\text{g}/\text{m}^3$ at SS-12. PCE concentrations ranged from 0.34 $\mu\text{g}/\text{m}^3$ at SS-14 to 3,300 $\mu\text{g}/\text{m}^3$ at SS-12. Based on the relatively low VOC concentrations detected in samples SS-15, SS-16, and SS-18, the archived sub-slab soil vapor samples collected from SS-19 through SS-23 were not analyzed for VOCs. Consistent with the historical sub-slab soil vapor results, the highest VOC concentrations were detected at SS-12 during the March 2019 sample event.

A comparison of the 2006 and 2007 sub-slab soil vapor sampling results to the March 2019 results indicate a decrease in TCE concentrations at each of the six locations that were re-sampled. The decrease in TCE concentrations ranged from 58 percent at location SS-3 to greater than 99 percent at locations SS-14 and SS-15. The March 2019 sub-slab soil vapor sample from SS-12 contained a significantly lower concentration of TCE (46,000 $\mu\text{g}/\text{m}^3$ and 62,000 $\mu\text{g}/\text{m}^3$), as compared to the 2007 sample, which contained 1,600,000 $\mu\text{g}/\text{m}^3$ of TCE (i.e., a decrease of approximately 96 percent). The 2007 sample from SS-12 also contained a significantly higher concentration of cis-1,2-DCE (22,000 $\mu\text{g}/\text{m}^3$) as compared to the March 2019 samples, which contained 620 $\mu\text{g}/\text{m}^3$ and 810 $\mu\text{g}/\text{m}^3$ of cis-1,2-DCE. In general, the concentrations of the remaining VOCs detected in the March 2019 samples were similar to historic concentrations.

CONCLUSIONS AND RECOMMENDATIONS

The results of the March 2019 sub-slab soil vapor sampling indicate that TCE concentrations have decreased from 58 percent to greater than 99 percent at the six locations previously sampled in 2006 and 2007, while the concentrations of the remaining VOCs were generally similar to historical levels. In addition, the sampling activities were effective in delineating the extent of elevated VOC concentrations in sub-slab soil vapor.

Emerson is proposing to install a sub-slab depressurization (SSD) system in approximately the eastern two-thirds of the former Rollway Bearing facility building to mitigate the potential for vapor intrusion to indoor air. The system has been designed to address an area that is larger than the area that exhibits elevated concentrations of TCE in sub-slab soil vapor as a conservative measure. Design drawings for the proposed SSD system are included as Enclosure B. The system design is based on the results of sub-slab communication testing performed in August 2018 and reported to the NYSDEC in the quarterly progress report for the site, dated November 15, 2018, and the results of the March 2019 sub-slab soil vapor sampling summarized in this document. The SSD system will be comprised of 23 sub-slab extraction points connected via 3-inch diameter polyvinyl chloride (PVC) pipe to 19 inline extraction fans mounted on the exterior of the building. During the installation of the SSD system, WSP will install Colvin Cox® Vapor Pin™ sub-slab soil vapor probes within the area to be mitigated. The Vapor Pin™ sub-slab soil vapor probes will be used to further assess the sub-slab vacuum field within the mitigation area. Soil and concrete cores generated during installation of the extraction points will be placed in 55-gallon Department of Transportation-compliant steel drums. These materials will be characterized and properly disposed of in accordance with state and federal requirements.

WSP will prepare a Final Report for submission to the NYSDEC documenting the installation and startup of the SSD systems. The report will describe the activities completed, any changes made to the technical approach (resulting from unanticipated site conditions) and will contain record drawings of the system. Following the completion and successful startup of the SSD system, WSP will prepare an operations and maintenance plan (O&M) for the SSD system. The O&M Plan will include recommended maintenance procedures on the SSD systems, SSD systems inspection procedures, and information on performance monitoring.



SCHEDULE

WSP anticipates beginning the SSD system installation in December 2019. In accordance with the approved Site Management Plan, dated March 6, 2018, WSP will provide notice to the New York State Department of Environmental Conservation at least 7 days before beginning the work. The work is expected to take approximately 5 weeks to complete.

Please contact us at (315) 655-3900 with any questions regarding this report, or other aspects of the project.

Sincerely,

A handwritten signature in black ink, reading "Brian E. Silfer". The signature is written in a cursive, flowing style.

Brian E. Silfer, PG
Practice Leader

BES:rlo
\\uscaz1ser01\es\clients\emerson\liperollway\reports\2019_subslab sampling report\text\

Encl.

cc: Ms. Melissa Doroski, New York State Department of Health
Mr. Stephen L. Clarke, Emerson
Ms. Sheila M. Harvey, Esquire, Pillsbury Winthrop Shaw Pittman

FIGURES

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B

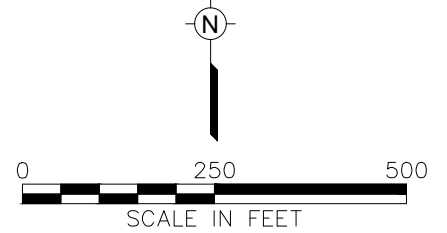
NOTES:

1. GOOGLE EARTH AERIAL PHOTOGRAPH, DATED 04/13/2017.
2. AERIAL PHOTOGRAPHS USED FOR THIS ILLUSTRATION CONTAIN INHERENT DISTORTIONS RESULTING FROM THE PHOTOGRAPHIC PROCESS THAT MAY RESULT IN SLIGHT MISALIGNMENTS WITH THE SURVEYED SITE FEATURES.

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR.
BLACK AND WHITE COPIES MAY NOT ACCURATELY
DEPICT CERTAIN INFORMATION.

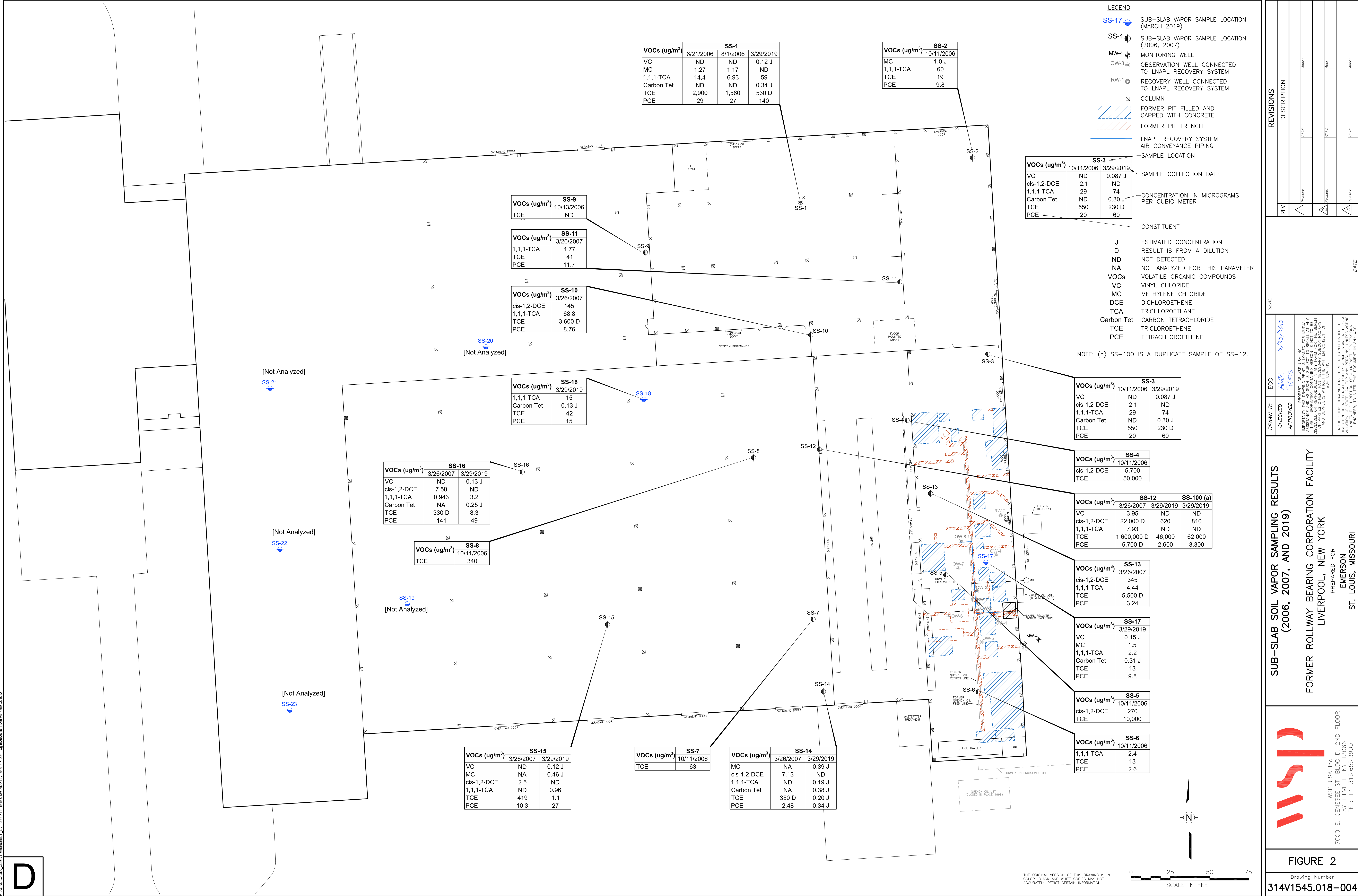


LEGEND	
	PROPERTY LINE AND INSTITUTIONAL CONTROL BOUNDARY
	RAILROAD
	EXISTING SANITARY SEWER



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TABLE

Table 1

**March 2019 Sub-slab Soil Vapor Sampling Results
Former Rollway Bearing Corporation Facility
Liverpool, New York (a)**

Volatile Organic Compounds ($\mu\text{g}/\text{m}^3$)	<i>Sample ID:</i>	SS-1	SS-3	SS-12	SS-100 (b)	SS-14	SS-15	SS-16	SS-17	SS-18
	<i>Sample Date:</i>	3/29/2019	3/29/2019	3/29/2019	3/29/2019	3/29/2019	3/29/2019	3/29/2019	3/29/2019	3/29/2019
Vinyl Chloride		0.12 J	0.087 J	ND	ND	ND	0.12 J	0.13 J	0.15 J	ND
1,1-Dichloroethene		ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride		ND	ND	ND	ND	0.39 J	0.46 J	ND	1.5	ND
cis-1,2-Dichloroethene		ND	ND	620	810	ND	ND	ND	ND	ND
1,1,1-Trichloroethane		59	74	ND	ND	0.19 J	0.96	3.2	2.2	15
Carbon Tetrachloride		0.34 J	0.30 J	ND	ND	0.38 J	ND	0.25 J	0.31 J	0.13 J
Trichloroethene		530 D	230 D	46,000	62,000	0.20 J	1.1	8.3	13	42
Tetrachloroethene		140	60	2,600	3,300	0.34 J	27	49	9.8	15

a/ $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter.

Data Qualifiers:

ND = compound was analyzed for, but not detected above the laboratory detection limit;

J = the result is an estimated concentration that is less than method reporting limit but greater than the method detection limit;

D = the reported result is from a dilution.

b/ SS-100 is a duplicate sample of SS-12.

ENCLOSURE A – ALS ENVIRONMENTAL ANALYTICAL REPORT



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LABORATORY REPORT

April 17, 2019

Brian Silber
WSP Group
5 Sullivan Street
Cazenovia, NY 13035

RE: Former Rollway Bearing Corporation / 31401545.018..05

Dear Brian:

Enclosed are the results of the samples submitted to our laboratory on April 1, 2019. For your reference, these analyses have been assigned our service request number P1901724.

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 10:37 am, Apr 17, 2019

Sue Anderson
Project Manager



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Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: WSP Group
Project: Former Rollway Bearing Corporation / 31401545.018.05
Service Request No: P1901724
New York Lab ID: 11221

CASE NARRATIVE

The samples were received intact under chain of custody on April 1, 2019 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 containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 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.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.



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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	1521096
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	4068-006
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	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
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
Project ID: Former Rollway Bearing Corporation / 31401545.018..05

Service Request: P1901724

Date Received: 4/1/2019

Time Received: 09:50

TO-15 - VOC Cans

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	
SS-17	P1901724-001	Air	3/29/2019	12:06	SC00561	-0.92	4.17	X
SS-3	P1901724-002	Air	3/29/2019	12:02	SC01058	-2.62	3.73	X
SS-12	P1901724-003	Air	3/29/2019	12:04	SC00788	-1.31	3.81	X
SS-100	P1901724-004	Air	3/29/2019	11:00	SC00851	-0.97	3.60	X
SS-1	P1901724-005	Air	3/29/2019	12:01	SC01756	-2.09	3.71	X
SS-14	P1901724-007	Air	3/29/2019	12:08	SC01519	-2.78	3.60	X
SS-15	P1901724-008	Air	3/29/2019	12:09	SSC00241	-2.38	3.71	X
SS-18	P1901724-009	Air	3/29/2019	12:10	SC00250	-2.37	3.80	X
SS-16	P1901724-014	Air	3/29/2019	12:12	SC02161	-1.65	3.75	X
WSP USA TRIP BLANK	P1901724-015	Air	3/29/2019	00:00	SC02032	-14.30	3.66	X

ALS Environmental
Sample Acceptance Check Form

Client: WSP USA Corp.

Work order: P1901724

Project: Former Rollway Bearing Corporation / 31401545.018.

Sample(s) received on: 4/1/19

Date opened: 4/1/19

by: CHRIS.GLEASON

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 <u>if necessary</u> 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
P1901724-001.01	6.0 L Source Can					
P1901724-002.01	6.0 L Source Can					
P1901724-003.01	6.0 L Source Can					
P1901724-004.01	6.0 L Source Can					
P1901724-005.01	6.0 L Source Can					
P1901724-006.01	6.0 L Source Can					
P1901724-007.01	6.0 L Source Can					
P1901724-008.01	6.0 L Silonite Can					
P1901724-009.01	6.0 L Source Can					
P1901724-010.01	6.0 L Source Can					
P1901724-011.01	6.0 L Source Can					
P1901724-012.01	6.0 L Source Can					
P1901724-013.01	6.0 L Source Can					
P1901724-014.01	6.0 L Source Can					
P1901724-015.01	6.0 L Source Can					

Explain any discrepancies: (include lab sample ID numbers): SAMPLE 15 TRIP BLANK IS NOT LISTED ON CHAIN.

Client: <u>WSP USA Corp.</u>	Work order: <u>P1901724</u>
Project: <u>Former Rollway Bearing Corporation / 31401545.018.</u>	
Sample(s) received on: 4/1/19	Date opened: 4/1/19 by: CHRIS.GLEASON

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

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE IDENTIFICATION AND ANALYTICAL REQUIREMENT SUMMARY

[illegible]

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SAMPLE PREPARATION AND ANALYSIS SUMMARY

VOLATILE (VOA) ANALYSES

[illegible]

Air - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Page 1 of 1

Page _____ of _____

Company Name & Address (Reporting Information)						Requested Turnaround Time in Business Days (Surcharges) please circle						ALS Project No.	
WBO USA 7000 E GENESSEE ST DD D. 2ND FLOOR FAYETTEVILLE NY 13066						1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard						97690	
Project Manager: BRIAN SILVER						Project Name: FORMER RAILWAY BEARING CORPORATION						ALS Contact: Sue Anderson	
Phone: 315-655-3100						P.O. # / Billing Information: 31401545.018							
Email Address for Result Reporting: BRIAN.SILVER@WSP.COM						Sampler (Print & Sign): NATE WINSTON							
Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume		Analysis Method	Comments e.g. Actual Preservative or specific instructions			
SS-17		3/29/19	1200	SL00561	26	4	6L	X	10-15:11-TL				
SS-3			1202	SL01058	29	5		X	10-15:11-TL				
SS-12			1204	SL00788	29	3		X	10-15:11-TL				
SS-10B			1100	SL00451	230	3		X	10-15:11-TL				
SS-1			1201	SL01756	29	5		X	10-15:11-TL				
SS-20			1159	SL01765	230	4			HOLD				
SS-14			1208	SL01514	230	5		X					
SS-15			1209	SL00241	29	4		X					
SS-18			1210	SL00250	29	4		X					
SS-19			1214	SL00860	230	7			HOLD				
SS-23			1220	SL01583	230	5			HOLD				
SS-22			1218	SL01647	230	5			HOLD				
SS-21			1216	SL02061	28	4			HOLD				
SS-16			1212	SL02161	230	5		X					

Report Tier Levels - please select				Chain of Custody Seal: (Circle)	
Tier I - Results (Default if not specified)	Tier II (Results + QC Summaries)	Tier III (Results + QC & Calibration Summaries)	Tier IV (Data Validation Package)	INTACT	BROKEN

Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:
[Signature]	3/29/19	[Signature]	3-1-19

Project Requirements (MRLs, QAPP)
Cooler / Blank Temperature °C

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

Client: WSP Group
Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

ALS Project ID: P1901724

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
 Analyst: Raneem Sahtah
 Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s)
 Test Notes:

Date(s) Collected: 3/29/19
 Date(s) Received: 4/1/19
 Date(s) Analyzed: 4/4 - 4/8/19

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P190404-MB	106	104	92	70-130	
Method Blank	P190405-MB	107	103	93	70-130	
Method Blank	P190408-MB	107	103	92	70-130	
Lab Control Sample	P190404-LCS	102	102	96	70-130	
Lab Control Sample	P190405-LCS	104	102	96	70-130	
Lab Control Sample	P190408-LCS	105	103	95	70-130	
SS-17	P1901724-001	102	105	93	70-130	
SS-3	P1901724-002	104	105	92	70-130	
SS-12	P1901724-003	106	103	92	70-130	
SS-100	P1901724-004	106	102	92	70-130	
SS-1	P1901724-005	104	104	91	70-130	
SS-14	P1901724-007	102	103	94	70-130	
SS-15	P1901724-008	105	100	95	70-130	
SS-18	P1901724-009	103	102	96	70-130	
SS-16	P1901724-014	104	100	99	70-130	
WSP USA TRIP BLANK	P1901724-015	107	102	94	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

Page 1 of 1

Client:	WSP Group	
Client Sample ID:	Lab Control Sample	ALS Project ID: P1901724
Client Project ID:	Former Rollway Bearing Corporation / 31401545.018..05	ALS Sample ID: P190404-LCS
Test Code:	EPA TO-15	Date Collected: NA
Instrument ID:	Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8	Date Received: NA
Analyst:	Raneem Sahtah	Date Analyzed: 4/4/19
Sample Type:	6.0 L Summa Canister	Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:		

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	214	174	81	57-117	
75-35-4	1,1-Dichloroethene	218	193	89	68-107	
75-09-2	Methylene Chloride	217	198	91	66-105	
156-59-2	cis-1,2-Dichloroethene	211	190	90	67-110	
71-55-6	1,1,1-Trichloroethane	215	196	91	64-108	
56-23-5	Carbon Tetrachloride	212	192	91	64-112	
79-01-6	Trichloroethene	213	185	87	66-108	
127-18-4	Tetrachloroethene	213	195	92	55-120	

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.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client:	WSP Group	
Client Sample ID:	Lab Control Sample	ALS Project ID: P1901724
Client Project ID:	Former Rollway Bearing Corporation / 31401545.018..05	ALS Sample ID: P190405-LCS
Test Code:	EPA TO-15	Date Collected: NA
Instrument ID:	Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8	Date Received: NA
Analyst:	Raneem Sahtah	Date Analyzed: 4/5/19
Sample Type:	6.0 L Summa Canister	Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:		

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	214	177	83	57-117	
75-35-4	1,1-Dichloroethene	218	195	89	68-107	
75-09-2	Methylene Chloride	217	199	92	66-105	
156-59-2	cis-1,2-Dichloroethene	211	192	91	67-110	
71-55-6	1,1,1-Trichloroethane	215	196	91	64-108	
56-23-5	Carbon Tetrachloride	212	192	91	64-112	
79-01-6	Trichloroethene	213	185	87	66-108	
127-18-4	Tetrachloroethene	213	193	91	55-120	

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.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client:	WSP Group	
Client Sample ID:	Lab Control Sample	ALS Project ID: P1901724
Client Project ID:	Former Rollway Bearing Corporation / 31401545.018..05	ALS Sample ID: P190408-LCS
Test Code:	EPA TO-15	Date Collected: NA
Instrument ID:	Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8	Date Received: NA
Analyst:	Raneem Sahtah	Date Analyzed: 4/8/19
Sample Type:	6.0 L Summa Canister	Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:		

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	214	178	83	57-117	
75-35-4	1,1-Dichloroethene	218	195	89	68-107	
75-09-2	Methylene Chloride	217	198	91	66-105	
156-59-2	cis-1,2-Dichloroethene	211	195	92	67-110	
71-55-6	1,1,1-Trichloroethane	215	197	92	64-108	
56-23-5	Carbon Tetrachloride	212	192	91	64-112	
79-01-6	Trichloroethene	213	186	87	66-108	
127-18-4	Tetrachloroethene	213	195	92	55-120	

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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group
Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05
ALS Project ID: P1901724

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Summa Canister(s)
Test Notes:
Lab File ID: 04041906.D
Date Analyzed: 4/4/19
Time Analyzed: 09:03

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
SS-17	P1901724-001	04041919.D	16:25
SS-3	P1901724-002	04041920.D	16:58
SS-1	P1901724-005	04041922.D	18:04
SS-14	P1901724-007	04041923.D	18:36
Lab Control Sample	P190404-LCS	04041925.D	19:42
SS-15	P1901724-008	04041926.D	20:15
SS-18	P1901724-009	04041928.D	21:21
SS-16	P1901724-014	04041929.D	21:54
WSP USA TRIP BLANK	P1901724-015	04041931.D	23:00

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group
Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05
ALS Project ID: P1901724

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Summa Canister(s)
Test Notes:
Lab File ID: 04051903.D
Date Analyzed: 4/5/19
Time Analyzed: 05:36

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
SS-12	P1901724-003	04051907.D	07:47
SS-100	P1901724-004	04051909.D	08:54
Lab Control Sample	P190405-LCS	04051913.D	11:13
SS-1 (Dilution)	P1901724-005	04051922.D	16:32

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group ALS Project ID: P1901724
Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

Method Blank Summary

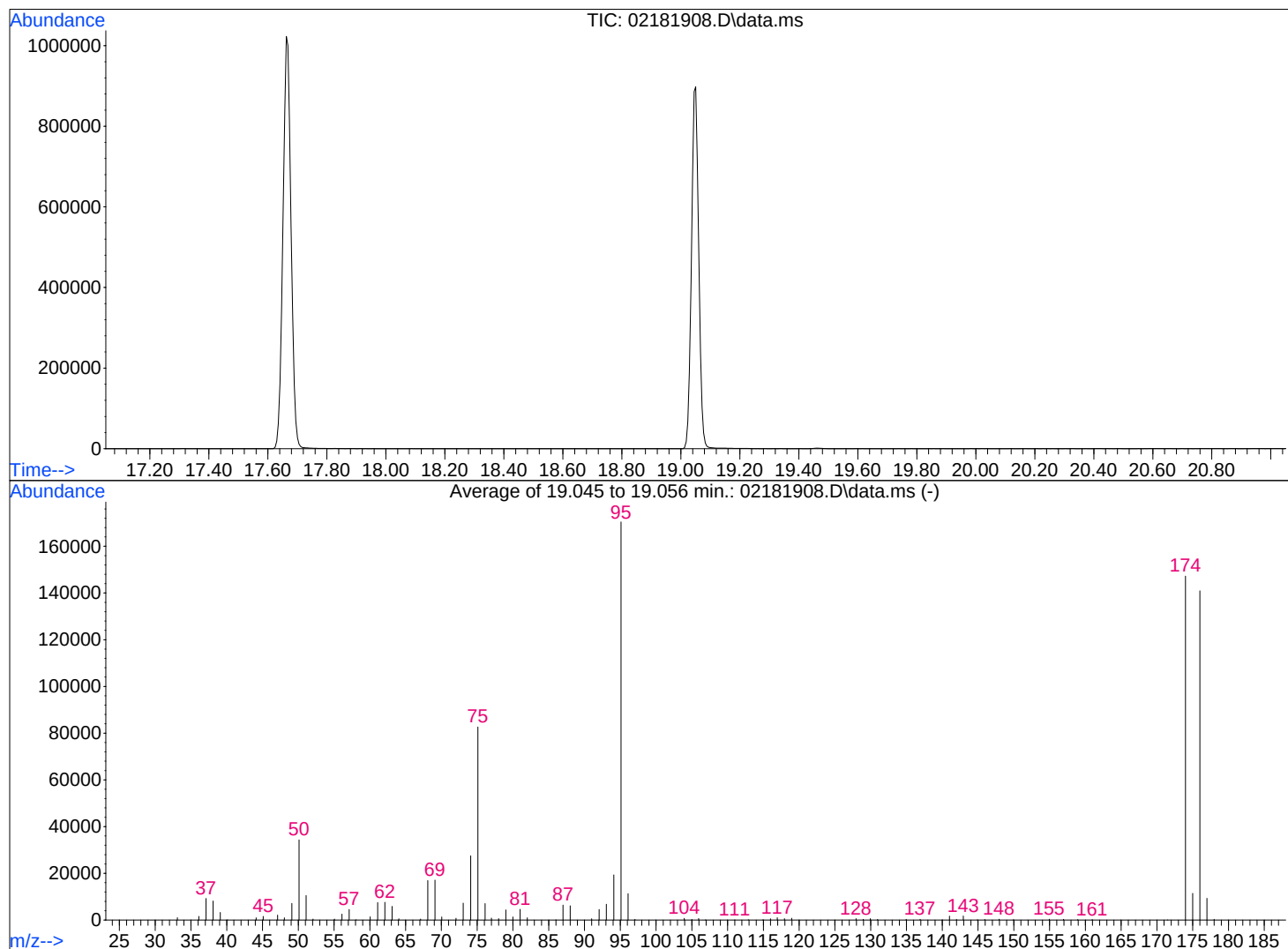
Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8 Lab File ID: 04081903.D
Analyst: Raneem Sahtah Date Analyzed: 4/8/19
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 08:56
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P190408-LCS	04081904.D	09:29
SS-3 (Dilution)	P1901724-002	04081905.D	10:02

Data Path : I:\MS08\Data\2019 02\18\
 Data File : 02181908.D
 Acq On : 18 Feb 2019 12:01
 Operator : RS
 Sample : BFB Check
 Misc : S31-02071907
 ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS08\Methods\R8021819A.M
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 Last Update : Tue Feb 19 08:36:45 2019



AutoFind: Scans 2852, 2853, 2854; Background Corrected with Scan 2844

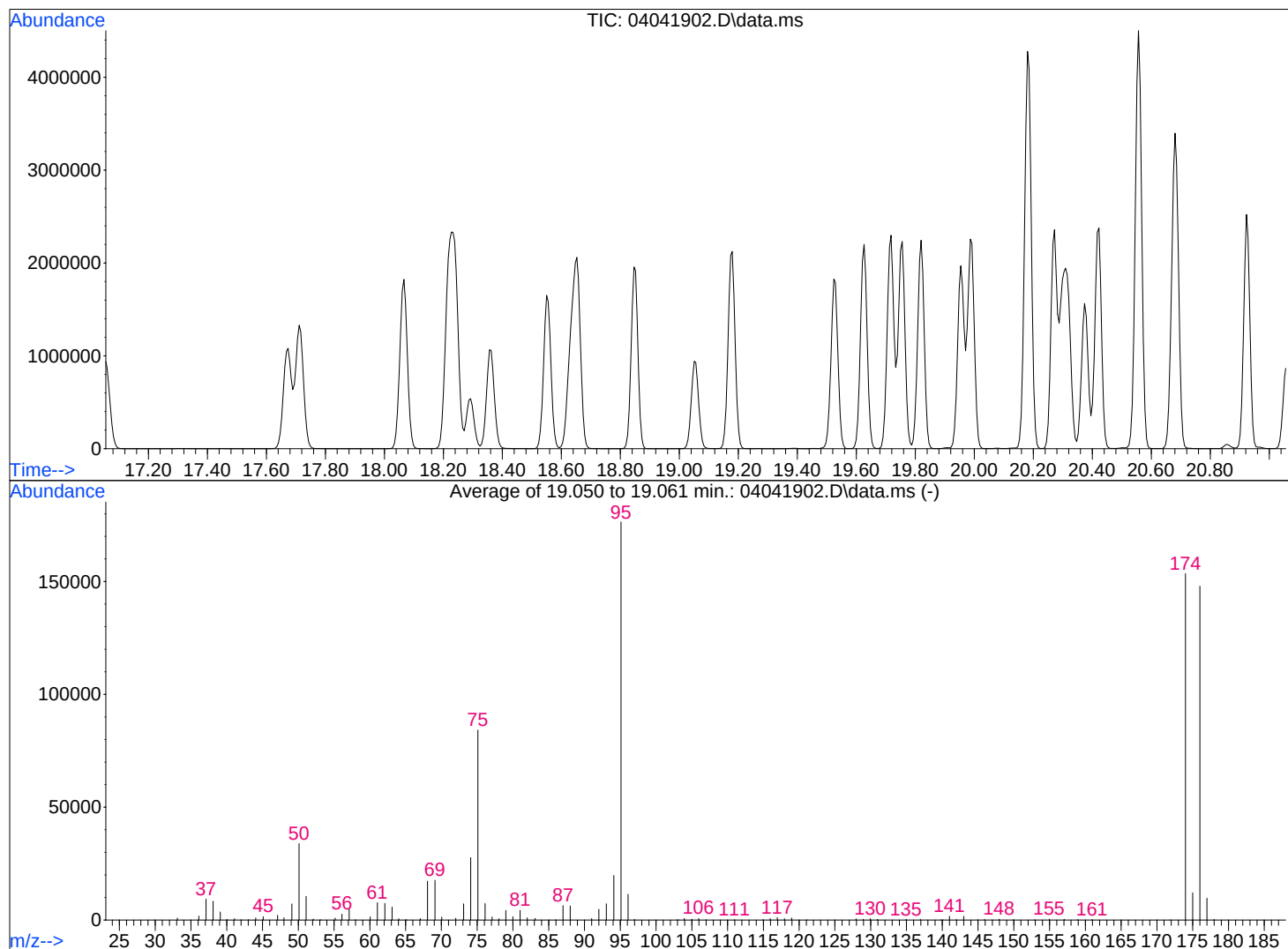
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	20.1	34328	PASS
75	95	30	66	48.5	82621	PASS
95	95	100	100	100.0	170411	PASS
96	95	5	9	6.7	11333	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	86.4	147200	PASS
175	174	4	9	7.8	11415	PASS
176	174	93	101	95.7	140936	PASS
177	176	5	9	6.6	9330	PASS

RS 2/21/19

Data Path : I:\MS08\Data\2019 04\04\
 Data File : 04041902.D
 Acq On : 4 Apr 2019 1:24
 Operator : RS
 Sample : CCV R8040419 25ng
 Misc : S31-04021901/S31-03131901 (4/11)
 ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS08\Methods\R8021819A.M
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 Last Update : Tue Feb 19 08:36:45 2019



AutoFind: Scans 2853, 2854, 2855; Background Corrected with Scan 2845

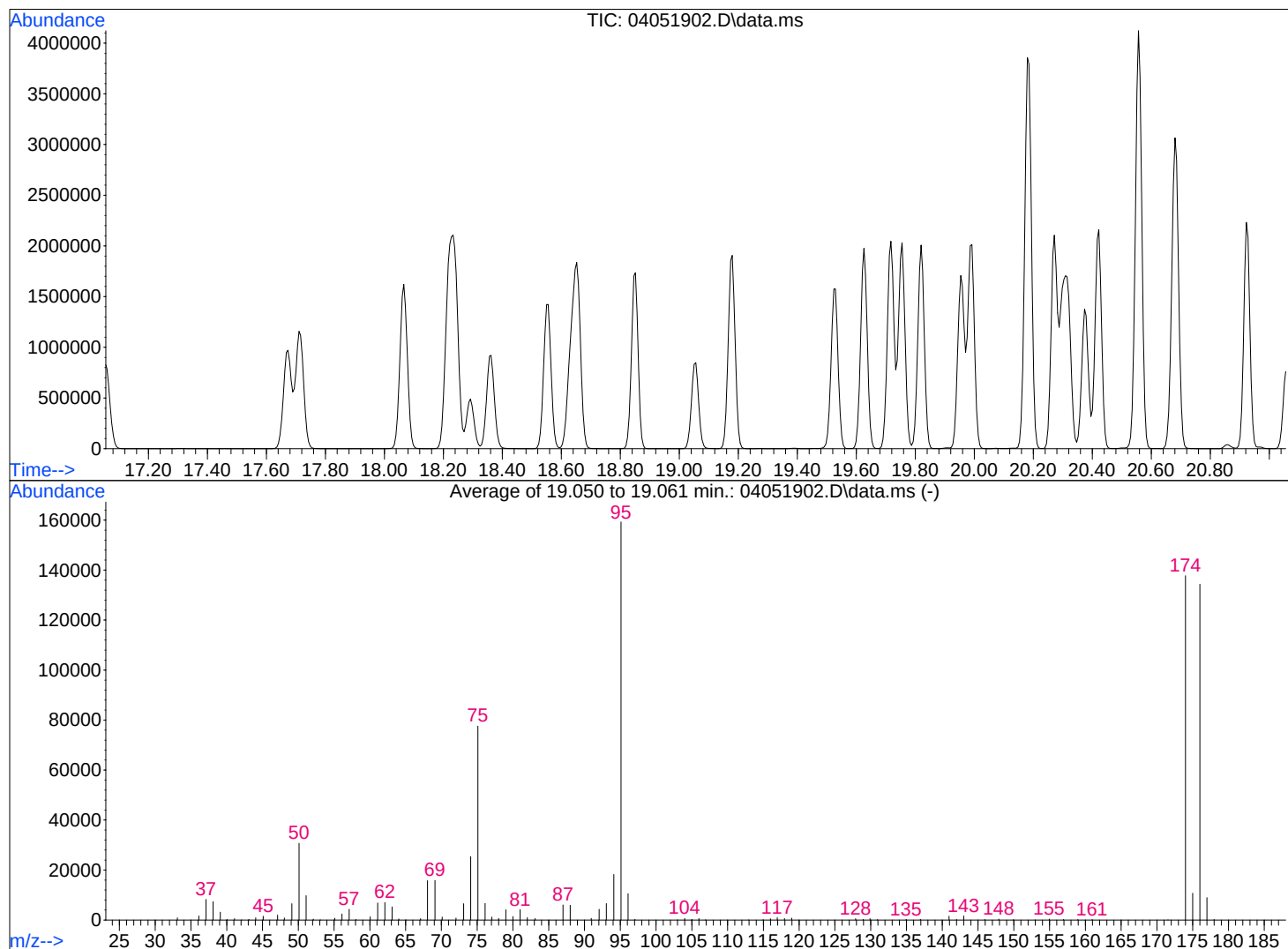
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	19.2	33864	PASS
75	95	30	66	47.7	84152	PASS
95	95	100	100	100.0	176405	PASS
96	95	5	9	6.5	11473	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	87.0	153515	PASS
175	174	4	9	7.8	12040	PASS
176	174	93	101	96.4	147989	PASS
177	176	5	9	6.6	9706	PASS

RS 4/4/19

Data Path : I:\MS08\Data\2019 04\05\
 Data File : 04051902.D
 Acq On : 5 Apr 2019 5:03
 Operator : RS
 Sample : CCV R8040519 25ng
 Misc : S31-04021901/S31-03131901 (4/11)
 ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS08\Methods\R8021819A.M
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 Last Update : Tue Feb 19 08:36:45 2019



AutoFind: Scans 2853, 2854, 2855; Background Corrected with Scan 2845

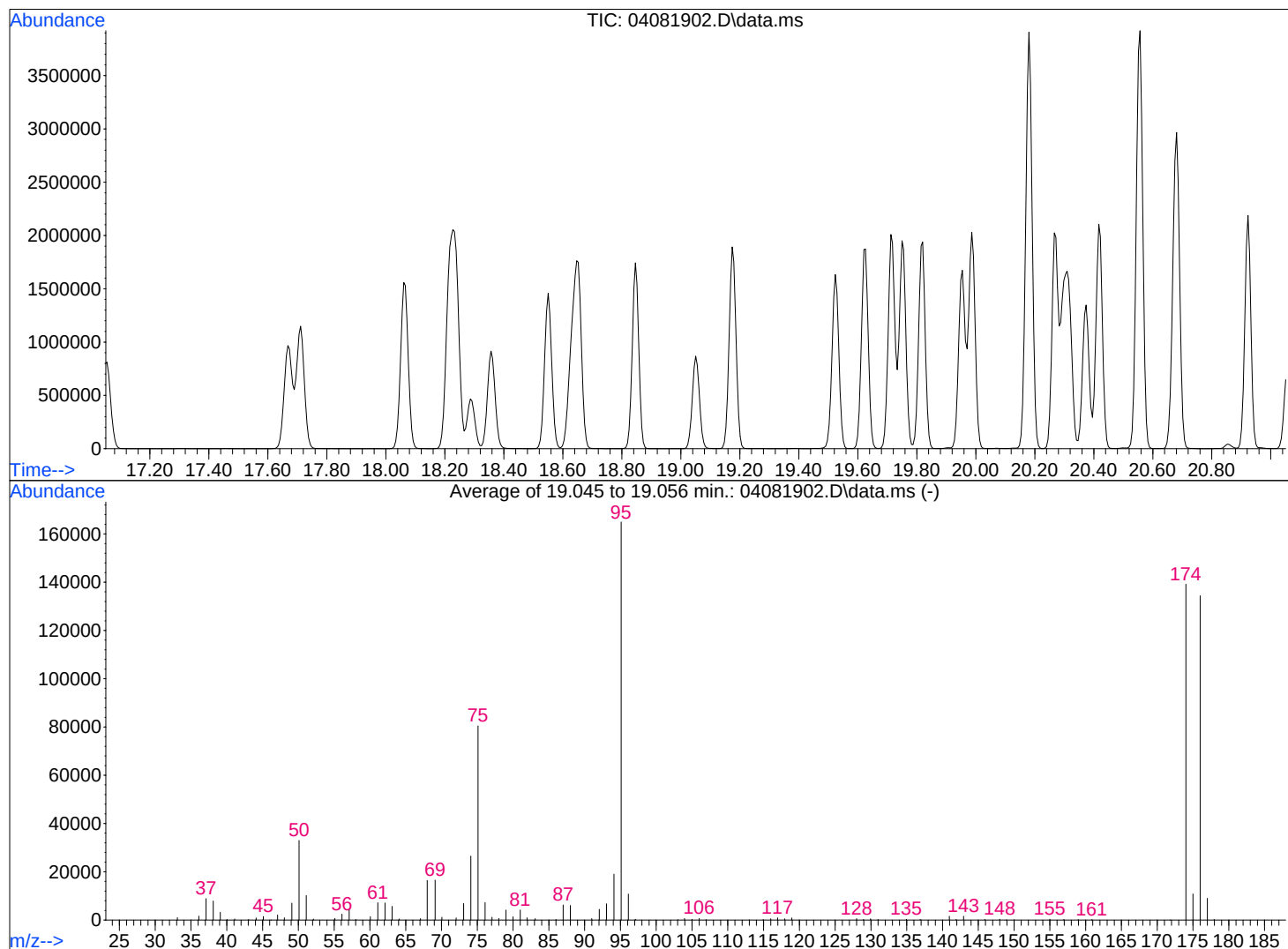
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	19.3	30720	PASS
75	95	30	66	48.7	77579	PASS
95	95	100	100	100.0	159253	PASS
96	95	5	9	6.6	10578	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	86.5	137744	PASS
175	174	4	9	7.8	10721	PASS
176	174	93	101	97.6	134371	PASS
177	176	5	9	6.7	8952	PASS

RS 4/5/19

Data Path : I:\MS08\Data\2019 04\08\
 Data File : 04081902.D
 Acq On : 8 Apr 2019 8:07
 Operator : RS
 Sample : CCV R8040819 25ng
 Misc : S31-04021901/S31-03131901 (4/11)
 ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS08\Methods\R8021819A.M
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 Last Update : Tue Feb 19 08:36:45 2019



AutoFind: Scans 2852, 2853, 2854; Background Corrected with Scan 2844

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	20.0	33011	PASS
75	95	30	66	48.8	80501	PASS
95	95	100	100	100.0	164971	PASS
96	95	5	9	6.5	10783	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	84.4	139173	PASS
175	174	4	9	7.8	10853	PASS
176	174	93	101	96.6	134389	PASS
177	176	5	9	6.7	9008	PASS

RS 4/8/19

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

ALS Project ID: P1901724

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

Internal Standard Area and RT Summary

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Lab File ID: 04041902.D

Analyst: Raneem Sahtah

Date Analyzed: 4/4/19

Sample Type: 6.0 L Summa Canister(s)

Time Analyzed: 01:24

Test Notes:

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	# RT	AREA	# RT	AREA	# RT
24 Hour Standard	175251	11.24	753235	13.36	379256	17.67
Upper Limit	245351	11.57	1054529	13.69	530958	18.00
Lower Limit	105151	10.91	451941	13.03	227554	17.34

Client Sample ID		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA	# RT	AREA	# RT	AREA	# RT
01	Method Blank	156615	11.22	696508	13.35	341237	17.67
02	SS-17	156758	11.25	685783	13.36	331952	17.67
03	SS-3	150283	11.23	658473	13.36	320545	17.67
04	SS-1	149101	11.23	651052	13.36	316913	17.67
05	SS-14	155968	11.23	677965	13.36	337730	17.67
06	Lab Control Sample	162353	11.24	697801	13.36	348634	17.67
07	SS-15	152862	11.23	659848	13.35	340773	17.67
08	SS-18	151809	11.23	649918	13.36	332610	17.67
09	SS-16	149498	11.23	640186	13.36	317757	17.67
10	WSP USA TRIP BLANK	140331	11.23	619603	13.35	315047	17.67
11							
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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

ALS Project ID: P1901724

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

Internal Standard Area and RT Summary

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Lab File ID: 04051902.D

Analyst: Raneem Sahtah

Date Analyzed: 4/5/19

Sample Type: 6.0 L Summa Canister(s)

Time Analyzed: 05:03

Test Notes:

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	#	RT	#	AREA	#
24 Hour Standard	153028		11.24		663638	13.36
Upper Limit	214239		11.57		929093	13.69
Lower Limit	91817		10.91		398183	13.03

Client Sample ID		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA	#	RT	#	AREA	#
01	Method Blank	137688		11.23		606868	13.35
02	SS-12	144867		11.22		633308	13.35
03	SS-100	139266		11.22		604001	13.35
04	Lab Control Sample	154062		11.25		664950	13.36
05	SS-1 (Dilution)	132656		11.23		585472	13.35
06							
07							
08							
09							
10							
11							
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

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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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

ALS Project ID: P1901724

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

Internal Standard Area and RT Summary

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Lab File ID: 04081902.D

Analyst: Raneem Sahtah

Date Analyzed: 4/8/19

Sample Type: 6.0 L Summa Canister(s)

Time Analyzed: 08:07

Test Notes:

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	#	RT	#	AREA	#
24 Hour Standard	152680	11.24	667080	13.36	335822	17.67
Upper Limit	213752	11.57	933912	13.69	470151	18.00
Lower Limit	91608	10.91	400248	13.03	201493	17.34

Client Sample ID		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA	#	RT	#	AREA	#
01	Method Blank	141267	11.22	630505	13.35	314297	17.67
02	Lab Control Sample	148184	11.24	645518	13.36	321532	17.67
03	SS-3 (Dilution)	146177	11.23	642051	13.35	316577	17.67
04							
05							
06							
07							
08							
09							
10							
11							
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.

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

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

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

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

Client Sample ID: SS-17

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

ALS Project ID: P1901724

ALS Sample ID: P1901724-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Analyst: Raneem Sahtah

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC00561

Date Collected: 3/29/19

Date Received: 4/1/19

Date Analyzed: 4/4/19

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -0.92 Final Pressure (psig): 4.17

Container Dilution Factor: 1.37

CAS #	Compound	Result µg/m ³	MRL µg/m ³	MDL µg/m ³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	0.15	0.15	0.078	0.058	0.059	0.031	J
75-35-4	1,1-Dichloroethene	ND	0.15	0.10	ND	0.038	0.026	
75-09-2	Methylene Chloride	1.5	0.74	0.21	0.44	0.21	0.059	
156-59-2	cis-1,2-Dichloroethene	ND	0.15	0.10	ND	0.038	0.026	
71-55-6	1,1,1-Trichloroethane	2.2	0.15	0.090	0.40	0.028	0.017	
56-23-5	Carbon Tetrachloride	0.31	0.14	0.10	0.049	0.022	0.016	
79-01-6	Trichloroethene	13	0.15	0.099	2.3	0.028	0.018	
127-18-4	Tetrachloroethene	9.8	0.15	0.095	1.5	0.022	0.014	

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.

Data File: I:\MS08\Data\2019 04\04\04041919.D

Sample : P1901724-001 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 16:25

Operator: RS

Misc : S31-04021901

ALS Vial : 5 Sample Multiplier: 1

RS 4/8/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:30:44 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.25	130	156758	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.36	114	685783	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.67	82	331952	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.10	65	266761	12.734	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.84%
57) Toluene-d8 (SS2)	15.81	98	767316	13.080	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	104.64%
73) Bromofluorobenzene (SS3)	19.05	174	242781	11.642	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	93.12%

Target Compounds

						Qvalue
2) Propene	4.16	42	342899	22.717	ng	97
3) Dichlorodifluoromethan...	4.32	85	345977	16.377	ng	100
4) Chloromethane	4.60	50	1435	0.077	ng	86
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.	d	
6) Vinyl Chloride	5.03	62	1878	0.109	ng	92
7) 1,3-Butadiene	5.29	54	749	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.52	45	2746642	278.961	ng	100
11) Acetonitrile	6.76	41	12465	0.480	ng	96
12) Acrolein	6.95	56	7454	1.071	ng	98
13) Acetone	7.16	58	8599290	917.953	ng	# 71
14) Trichlorofluoromethane	7.33	101	26101	1.435	ng	100
15) 2-Propanol (Isopropanol)	7.63	45	4275117	130.554	ng	100
16) Acrylonitrile	0.00	53	0	N.D.	d	
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.55	84	11720	1.124	ng	99
20) 3-Chloro-1-propene (Al...	8.68	41	261	N.D.		
21) Trichlorotrifluoroethane	8.94	151	12799	1.357	ng	99
22) Carbon Disulfide	8.79	76	117934	2.905	ng	100
23) trans-1,2-Dichloroethene	9.81	61	1872	0.125	ng	96
24) 1,1-Dichloroethane	10.07	63	463	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.	d	
26) Vinyl Acetate	0.00	86	0	N.D.	d	
27) 2-Butanone (MEK)	10.55	72	282444	36.991	ng	94
28) cis-1,2-Dichloroethene	11.08	61	409	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.	d	
30) Ethyl Acetate	11.37	61	834152	217.135	ng	94
31) n-Hexane	11.35	57	153058	7.782	ng	99
32) Chloroform	11.42	83	5667	0.307	ng	98
34) Tetrahydrofuran (THF)	11.84	72	17399	2.373	ng	# 75
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.	d	
38) 1,1,1-Trichloroethane	12.49	97	27367	1.599	ng	99
39) Isopropyl Acetate	0.00	61	0	N.D.	d	
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.97	78	104364	2.268	ng	99
42) Carbon Tetrachloride	13.13	117	3452	0.226	ng	99
43) Cyclohexane	13.26	84	106685	5.586	ng	99
44) tert-Amyl Methyl Ether	13.61	73	288	N.D.		
45) 1,2-Dichloropropane	13.82	63	363	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.07	130	109934	9.154	ng	99
48) 1,4-Dioxane	14.05	88	13827	1.532	ng	95
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	
50) Methyl Methacrylate	14.28	100	27 of 211	0.160	ng	# 77

Data File: I:\MS08\Data\2019 04\04\04041919.D

Sample : P1901724-001 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 16:25

Operator: RS

Misc : S31-04021901

ALS Vial : 5 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:30:44 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	105857	8.557	ng	98
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	14.96	58	43134	4.175	ng	96
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	15.53	97	179	N.D.		
58) Toluene	15.91	91	969332	22.502	ng	100
59) 2-Hexanone	16.16	43	104454	4.131	ng	87
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.79	43	20968	0.750	ng	84
63) n-Octane	16.91	57	84358	8.601	ng	97
64) Tetrachloroethene	17.05	166	84425	7.188	ng	100
65) Chlorobenzene	0.00	112	0	N.D.	d	
66) Ethylbenzene	18.07	91	68061	1.377	ng	99
67) m- & p-Xylenes	18.22	91	191753	5.048	ng	100
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.56	104	4332	0.156	ng	99
70) o-Xylene	18.65	91	55802	1.459	ng	99
71) n-Nonane	18.85	43	247579	9.786	ng	99
72) 1,1,2,2-Tetrachloroethane	18.66	83	591	N.D.		
74) Cumene	19.18	105	13876	0.280	ng	100
75) alpha-Pinene	19.52	93	35421	1.695	ng	93
76) n-Propylbenzene	19.63	91	13198	0.229	ng	88
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.76	105	11190	0.243	ng	96
79) 1,3,5-Trimethylbenzene	19.82	105	21196	0.508	ng	98
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.18	105	29453	0.736	ng	88
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.27	91	1077	N.D.		
85) 1,3-Dichlorobenzene	20.32	146	1773	0.076	ng	96
86) 1,4-Dichlorobenzene	20.38	146	258	N.D.		
87) sec-Butylbenzene	0.00	105	0	N.D.	d	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.68	68	9483	0.731	ng	84
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.30	128	1163	N.D.		
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS08\Data\2019 04\04\04041919.D

Sample : P1901724-001 (1000mL)

Acq On : 4 Apr 2019 16:25

Misc : S31-04021901

ALS Vial : 5 Sample Multiplier: 1

Inst : MS08

Operator: RS

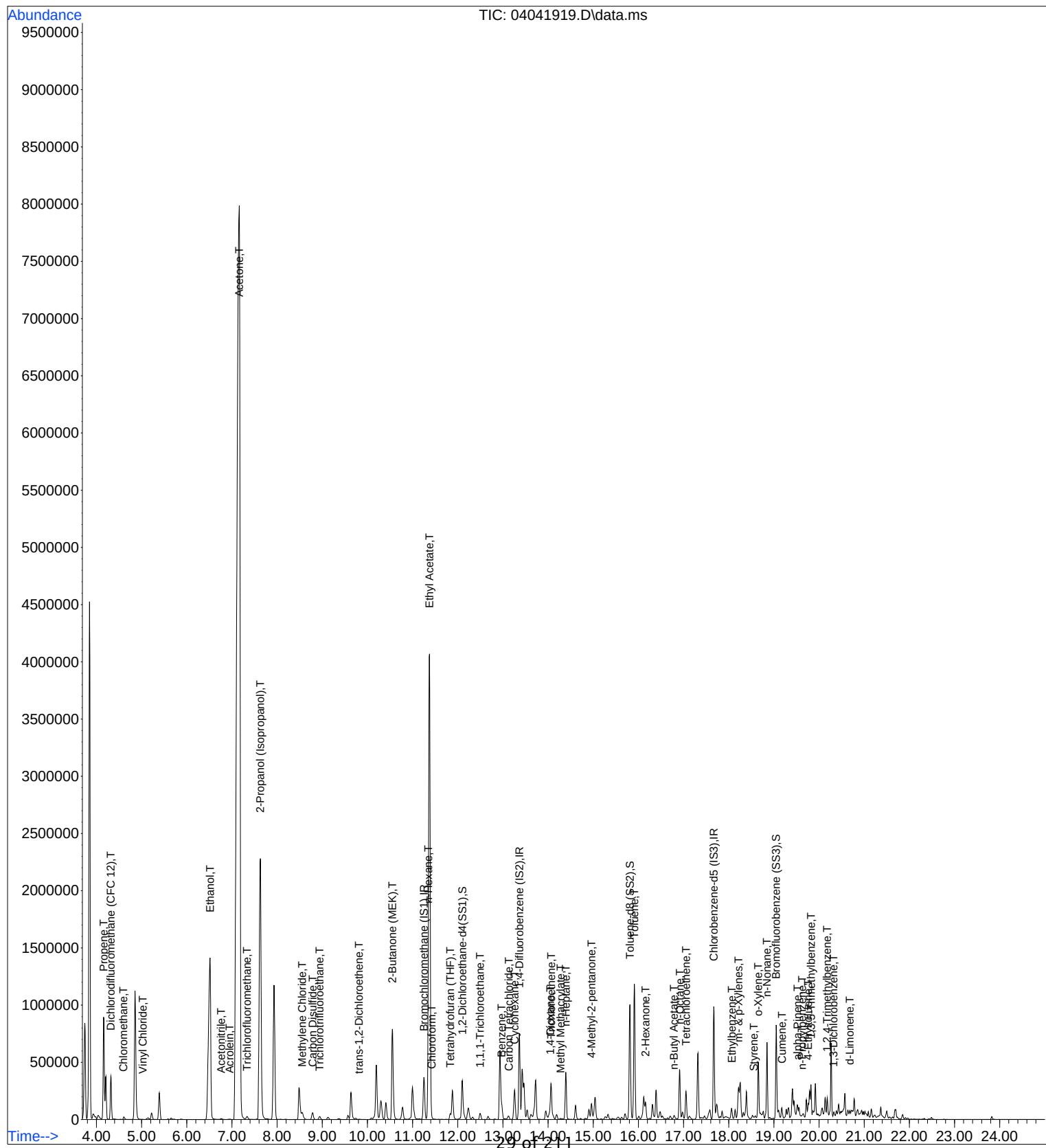
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:30:44 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 04\04\04041919.D

Sample : P1901724-001 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 16:25

Operator: RS

Misc : S31-04021901

ALS Vial : 5 Sample Multiplier: 1

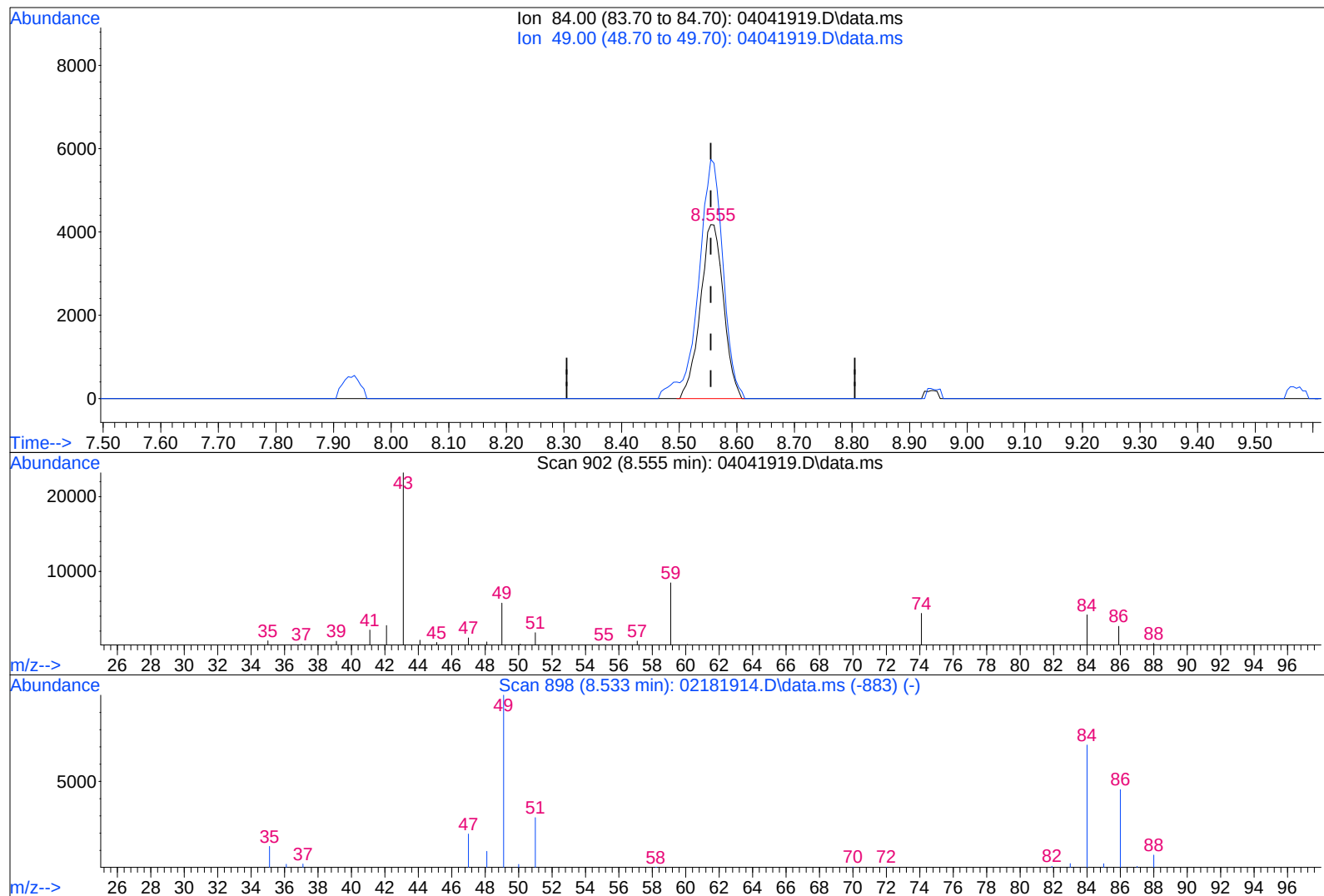
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:28 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041919.D\data.ms

(19) Methylene Chloride (T)

8.555min (+0.000) 1.12ng

response 11720

Ion	Exp%	Act%
84.00	100	100
49.00	143.70	145.11
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041919.D

Sample : P1901724-001 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 16:25

Operator: RS

Misc : S31-04021901

ALS Vial : 5 Sample Multiplier: 1

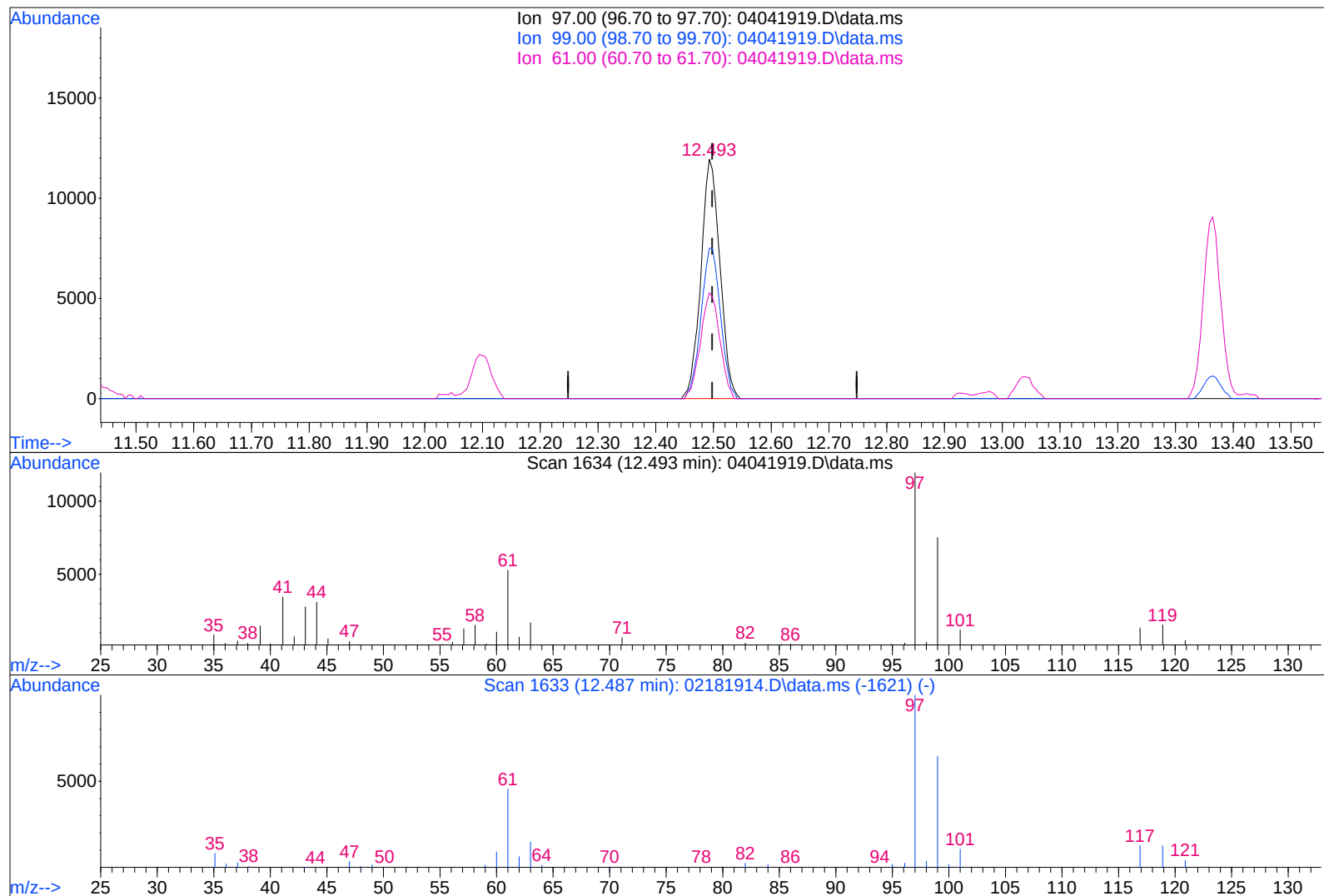
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:28 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041919.D\data.ms

(38) 1,1,1-Trichloroethane (T)

12.493min (-0.005) 1.60ng

response 27367

Ion	Exp%	Act%
97.00	100	100
99.00	64.90	64.44
61.00	45.60	44.73
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041919.D

Sample : P1901724-001 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 16:25

Operator: RS

Misc : S31-04021901

ALS Vial : 5 Sample Multiplier: 1

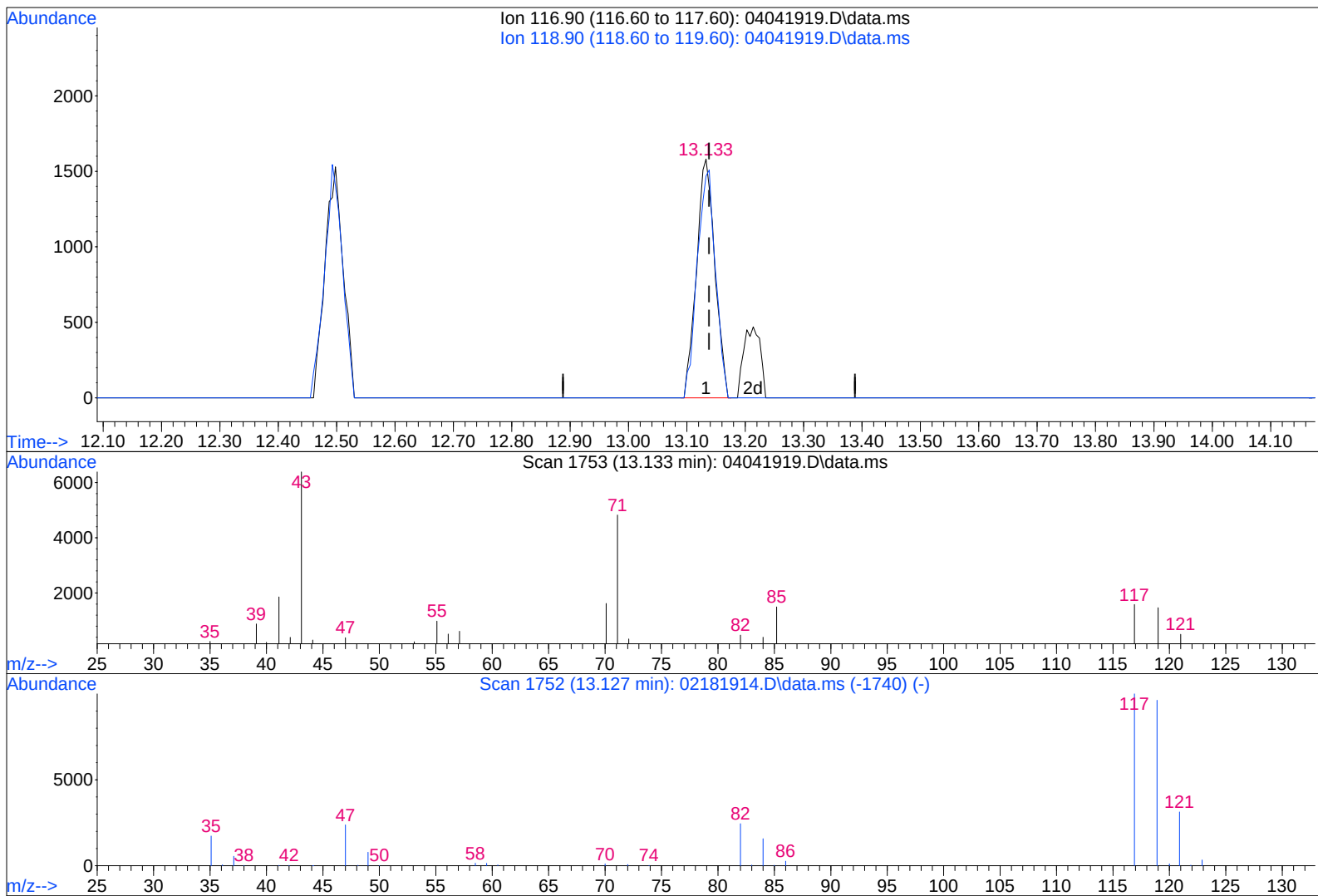
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:28 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041919.D\data.ms

(42) Carbon Tetrachloride (T)

13.133min (-0.005) 0.23ng

response 3452

Ion	Exp%	Act%
116.90	100	100
118.90	95.90	95.10
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041919.D

Sample : P1901724-001 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 16:25

Operator: RS

Misc : S31-04021901

ALS Vial : 5 Sample Multiplier: 1

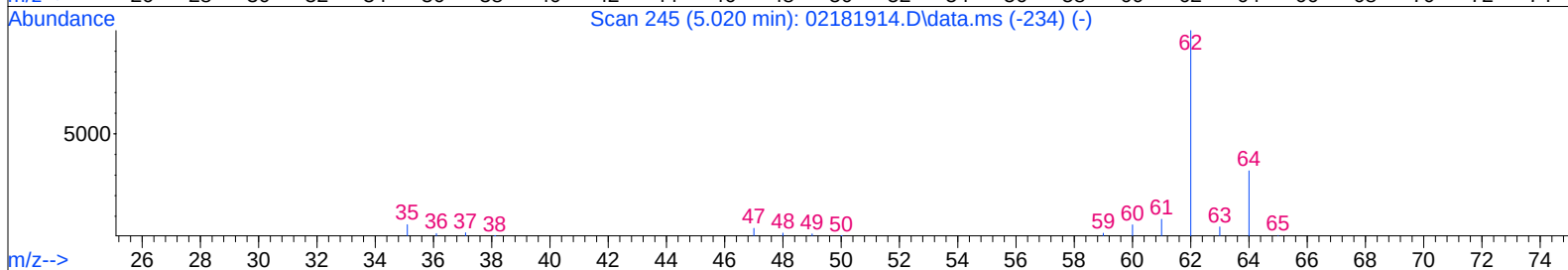
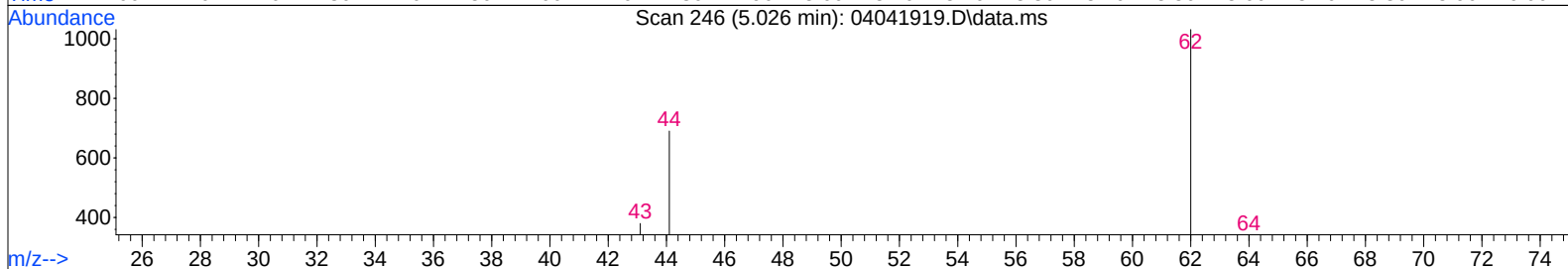
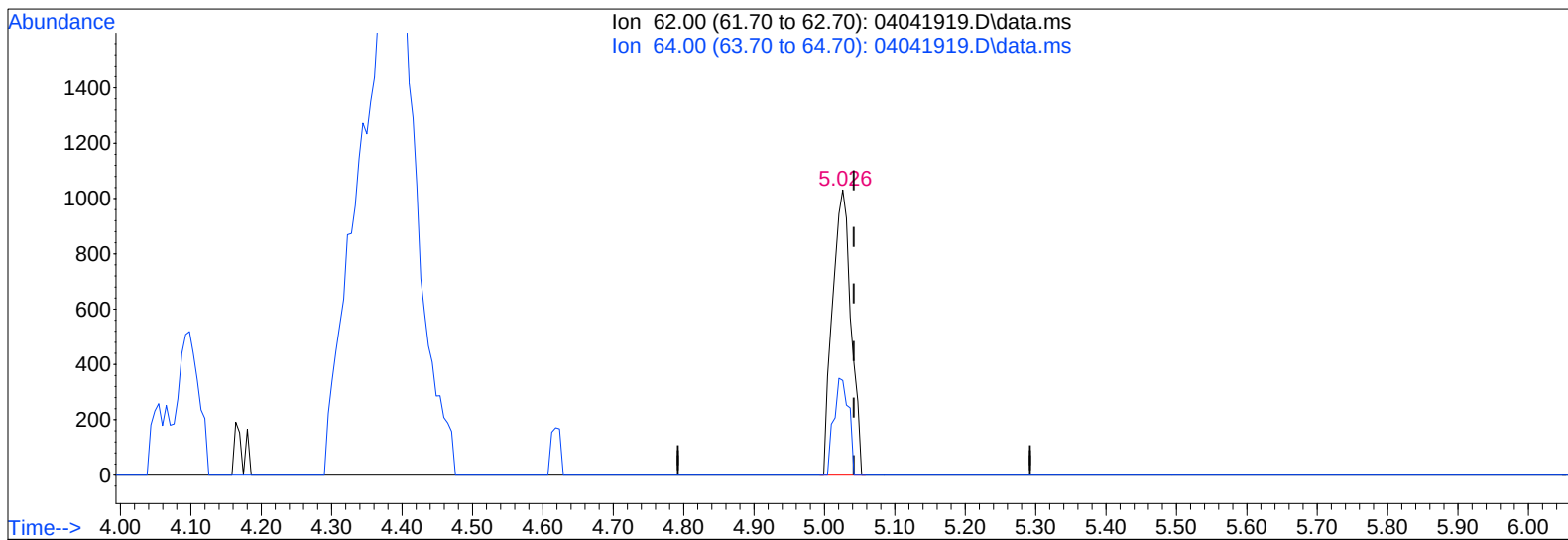
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:28 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041919.D\data.ms

(6) Vinyl Chloride (T)

5.026min (-0.016) 0.11ng

response 1878

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	27.16
0.00	0.00	0.00
0.00	0.00	0.00

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

Client Sample ID: SS-3

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

ALS Project ID: P1901724

ALS Sample ID: P1901724-002

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Analyst: Raneem Sahtah

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC01058

Date Collected: 3/29/19

Date Received: 4/1/19

Date Analyzed: 4/4/19 & 4/8/19

Volume(s) Analyzed: 1.00 Liter(s)

0.10 Liter(s)

Initial Pressure (psig): -2.62 Final Pressure (psig): 3.73

Container Dilution Factor: 1.53

CAS #	Compound	Result µg/m ³	MRL µg/m ³	MDL µg/m ³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	0.087	0.17	0.087	0.034	0.066	0.034	J
75-35-4	1,1-Dichloroethene	ND	0.17	0.11	ND	0.042	0.029	
75-09-2	Methylene Chloride	ND	0.83	0.23	ND	0.24	0.066	
156-59-2	cis-1,2-Dichloroethene	ND	0.17	0.11	ND	0.042	0.029	
71-55-6	1,1,1-Trichloroethane	74	0.17	0.10	14	0.031	0.019	
56-23-5	Carbon Tetrachloride	0.30	0.15	0.11	0.048	0.024	0.018	
79-01-6	Trichloroethene	230	1.7	1.1	43	0.31	0.21	D
127-18-4	Tetrachloroethene	60	0.17	0.11	8.8	0.025	0.016	

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.

D = The reported result is from a dilution.

Data File: I:\MS08\Data\2019 04\04\04041920.D

Sample : P1901724-002 (1000mL)

Acq On : 4 Apr 2019 16:58

Misc : S31-04021901

ALS Vial : 6 Sample Multiplier: 1

Inst : MS08

Operator: RS

RS 4/8/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:36:58 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.23	130	150283	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.36	114	658473	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.67	82	320545	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.09	65	260791	12.985	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	103.92%	
57) Toluene-d8 (SS2)	15.81	98	740152	13.066	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	104.56%	
73) Bromofluorobenzene (SS3)	19.05	174	230663	11.454	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	91.60%	

Target Compounds

						Qvalue
2) Propene	4.16	42	25747	1.779	ng	94
3) Dichlorodifluoromethan...	4.32	85	35648	1.760	ng	99
4) Chloromethane	0.00	50	0	N.D.	d	
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	596	0.056	ng	# 42
6) Vinyl Chloride	5.02	62	940	0.057	ng	99
7) 1,3-Butadiene	5.21	54	249	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.48	45	886240	93.889	ng	100
11) Acetonitrile	6.70	41	16049	0.644	ng	97
12) Acrolein	6.89	56	2589	0.388	ng	92
13) Acetone	7.10	58	539702	60.094	ng	99
14) Trichlorofluoromethane	7.33	101	66679	3.823	ng	99
15) 2-Propanol (Isopropanol)	7.61	45	298563	9.510	ng	99
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	8.29	96	264	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	0.00	84	0	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	8.93	151	226583	25.056	ng	98
22) Carbon Disulfide	8.78	76	42618	1.095	ng	99
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	10.14	73	306	N.D.		
26) Vinyl Acetate	10.28	86	2413	0.850	ng	# 70
27) 2-Butanone (MEK)	10.57	72	19664	2.686	ng	99
28) cis-1,2-Dichloroethene	11.06	61	630	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	11.37	61	6896	1.872	ng	85
31) n-Hexane	11.35	57	4746	0.252	ng	# 97
32) Chloroform	11.40	83	505	N.D.		
34) Tetrahydrofuran (THF)	11.86	72	2058	0.293	ng	# 1
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	12.48	97	796701	48.487	ng	99
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.97	78	17405	0.394	ng	100
42) Carbon Tetrachloride	13.13	117	2875	0.196	ng	96
43) Cyclohexane	13.26	84	1557	0.085	ng	# 34
44) tert-Amyl Methyl Ether	13.67	73	836	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.06	130	2106404	182.662	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.	d	
49) 2,2,4-Trimethylpentane...	14.12	57	518	N.D.		
50) Methyl Methacrylate	0.00	100	0	N.D.	d	

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Data File: I:\MS08\Data\2019 04\04\04041920.D

Sample : P1901724-002 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 16:58

Operator: RS

Misc : S31-04021901

ALS Vial : 6 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:36:58 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	2954	0.249	ng	96
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	14.97	58	2878	0.290	ng #	51
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.91	91	63978	1.538	ng	100
59) 2-Hexanone	16.16	43	8383	0.343	ng	93
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.79	43	4057	0.150	ng	96
63) n-Octane	16.91	57	1928	0.204	ng	92
64) Tetrachloroethene	17.05	166	443247	39.081	ng	99
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	18.07	91	8737	0.183	ng	96
67) m- & p-Xylenes	18.22	91	32502	0.886	ng	98
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.56	104	1955	0.073	ng	95
70) o-Xylene	18.65	91	10721	0.290	ng	99
71) n-Nonane	18.85	43	6293	0.258	ng	97
72) 1,1,2,2-Tetrachloroethane	18.66	83	111	N.D.		
74) Cumene	19.17	105	8466	0.177	ng	99
75) alpha-Pinene	19.52	93	5169	0.256	ng #	1
76) n-Propylbenzene	19.63	91	3599	0.065	ng #	14
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.76	105	3885	0.087	ng	96
79) 1,3,5-Trimethylbenzene	19.82	105	5804	0.144	ng	94
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.18	105	17908	0.464	ng	87
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.38	91	582	N.D.		
85) 1,3-Dichlorobenzene	20.31	146	6463	0.287	ng	100
86) 1,4-Dichlorobenzene	20.37	146	247	N.D.		
87) sec-Butylbenzene	20.42	105	1456	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.68	68	15643	1.249	ng	99
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.30	128	7243	0.139	ng	99
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS08\Data\2019 04\04\04041920.D

Sample : P1901724-002 (1000mL)

Acq On : 4 Apr 2019 16:58

Misc : S31-04021901

ALS Vial : 6 Sample Multiplier: 1

Inst : MS08

Operator: RS

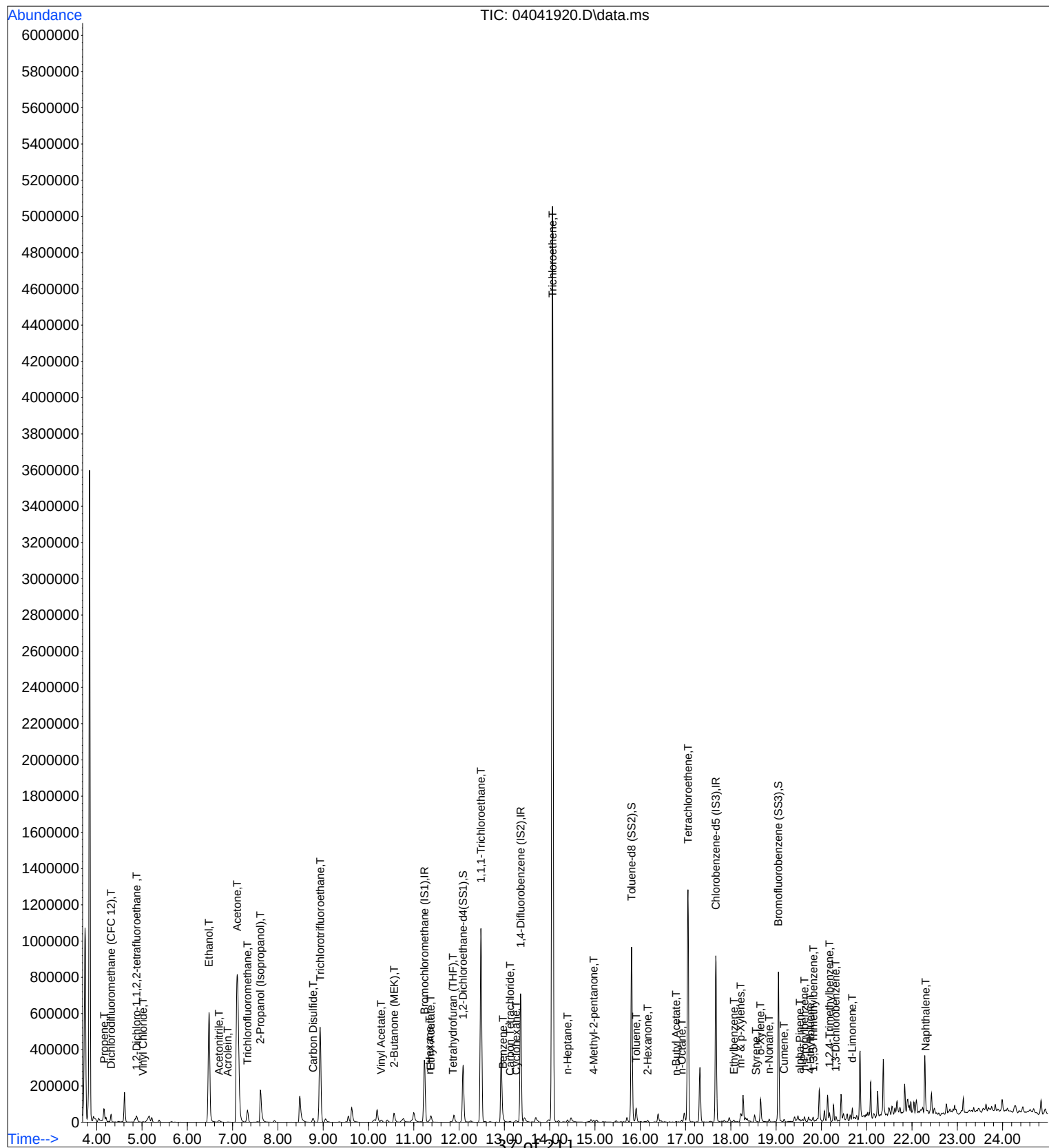
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:36:58 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 04\04\04041920.D

Sample : P1901724-002 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 16:58

Operator: RS

Misc : S31-04021901

ALS Vial : 6 Sample Multiplier: 1

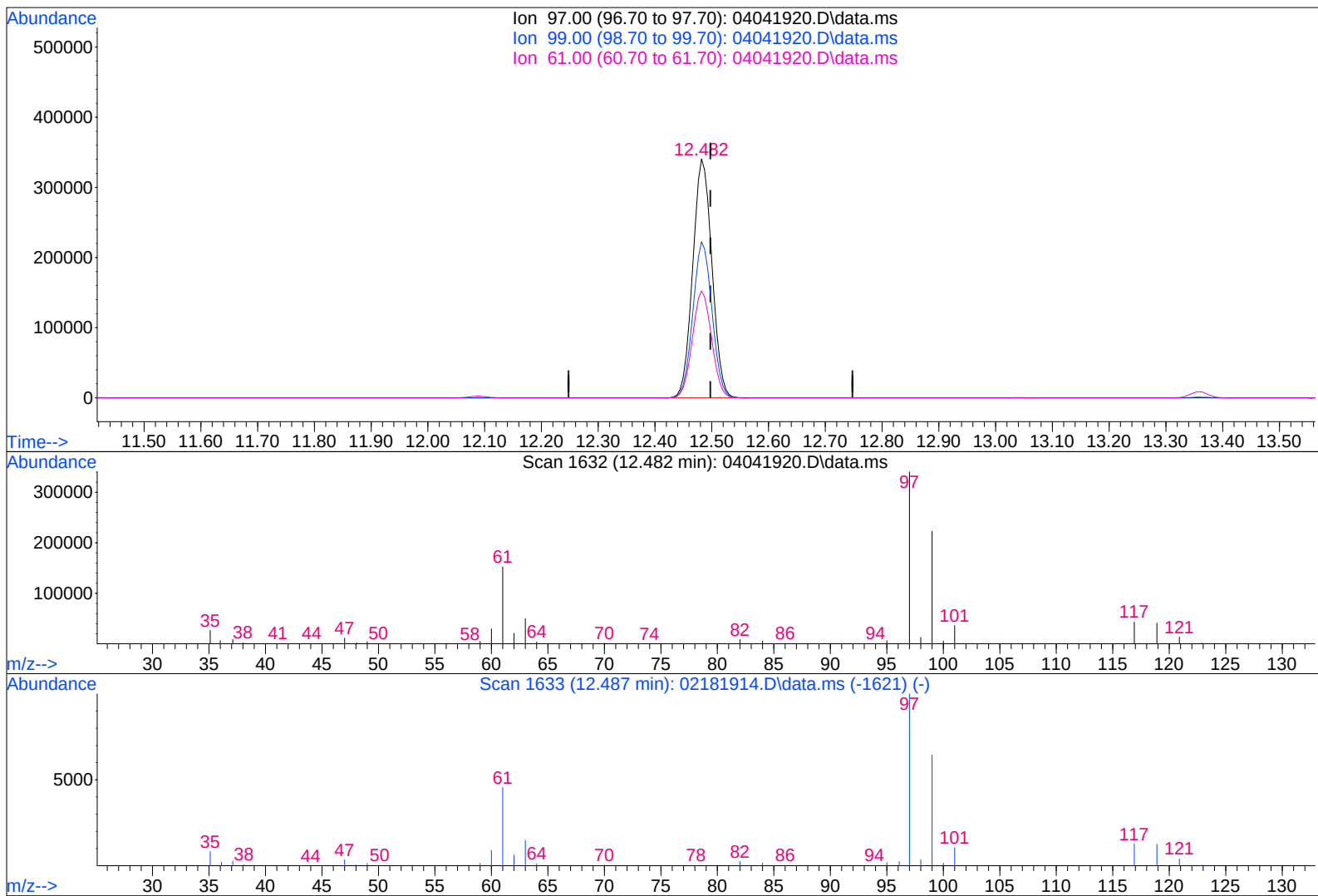
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:31 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041920.D\data.ms

(38) 1,1,1-Trichloroethane (T)

12.482min (-0.016) 48.49ng

response 796701

Ion	Exp%	Act%
97.00	100	100
99.00	64.90	65.01
61.00	45.60	44.81
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041920.D

Sample : P1901724-002 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 16:58

Operator: RS

Misc : S31-04021901

ALS Vial : 6 Sample Multiplier: 1

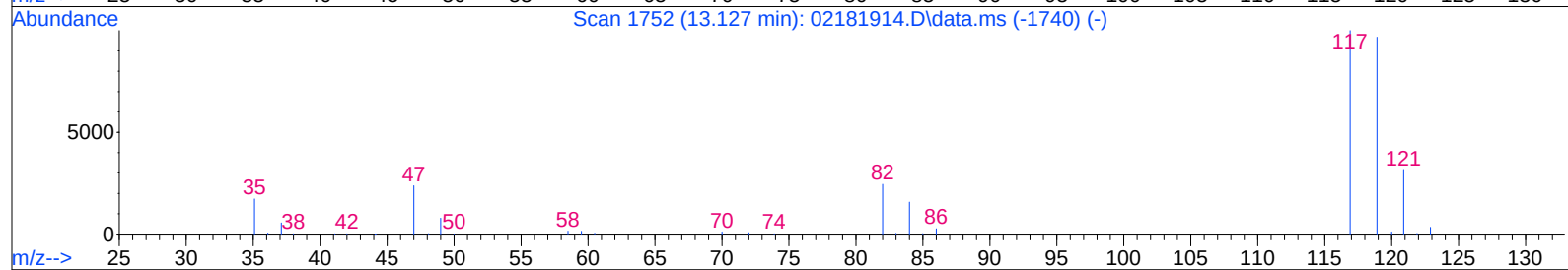
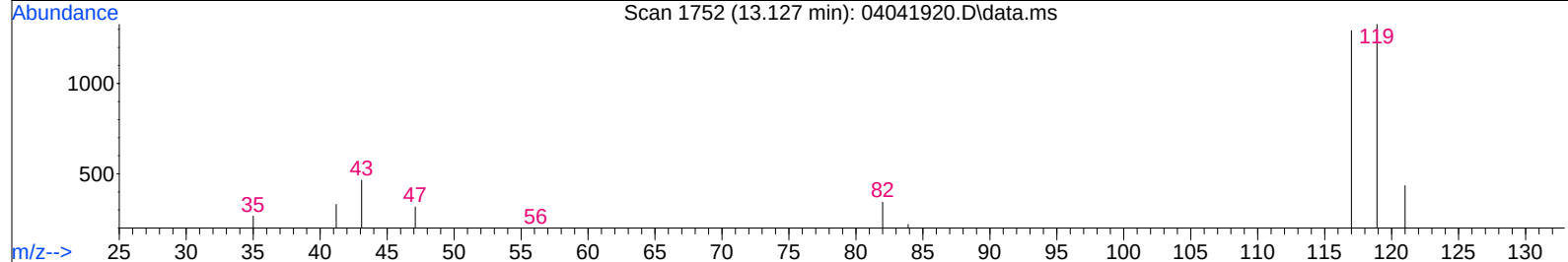
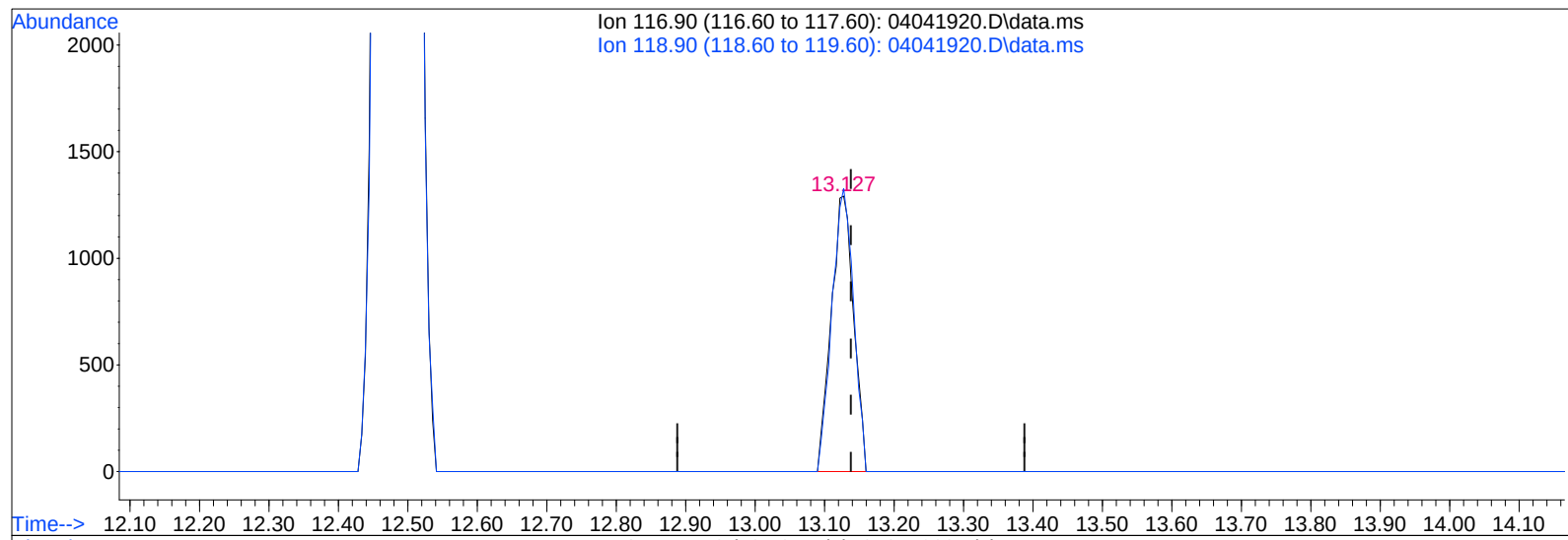
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:31 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041920.D\data.ms

(42) Carbon Tetrachloride (T)

13.127min (-0.011) 0.20ng

response 2875

Ion	Exp%	Act%
116.90	100	100
118.90	95.90	99.37
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041920.D

Sample : P1901724-002 (1000mL)

Acq On : 4 Apr 2019 16:58

Misc : S31-04021901

ALS Vial : 6 Sample Multiplier: 1

Inst : MS08

Operator: RS

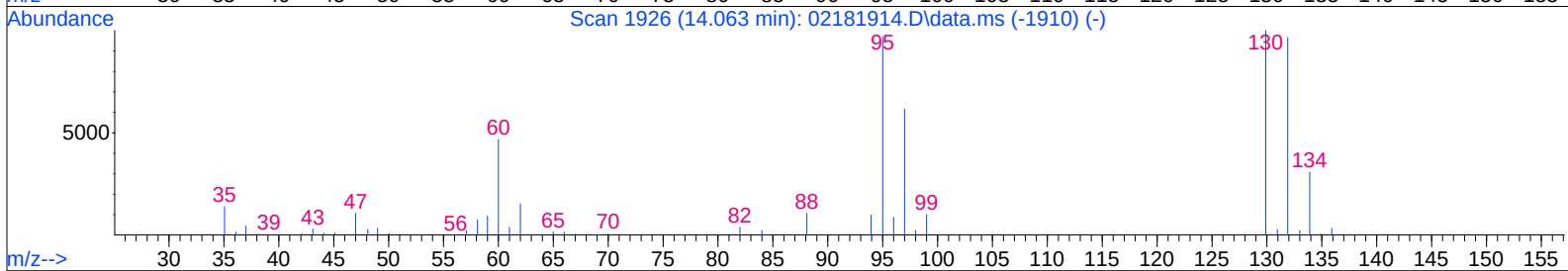
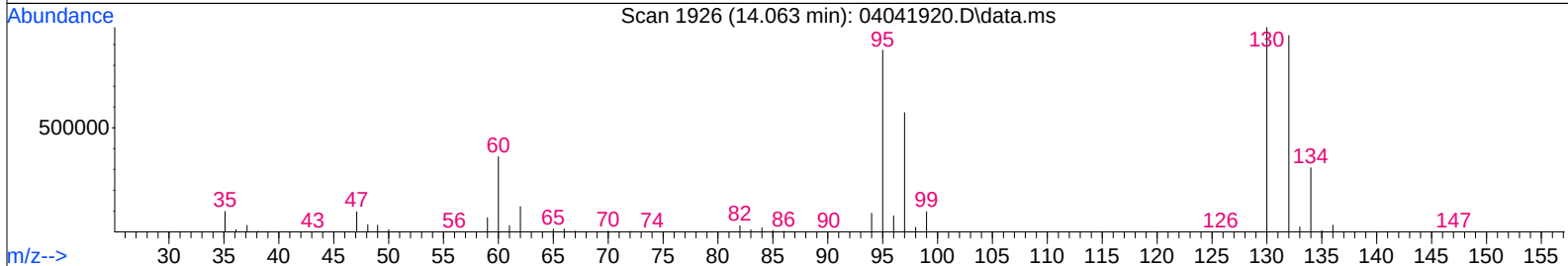
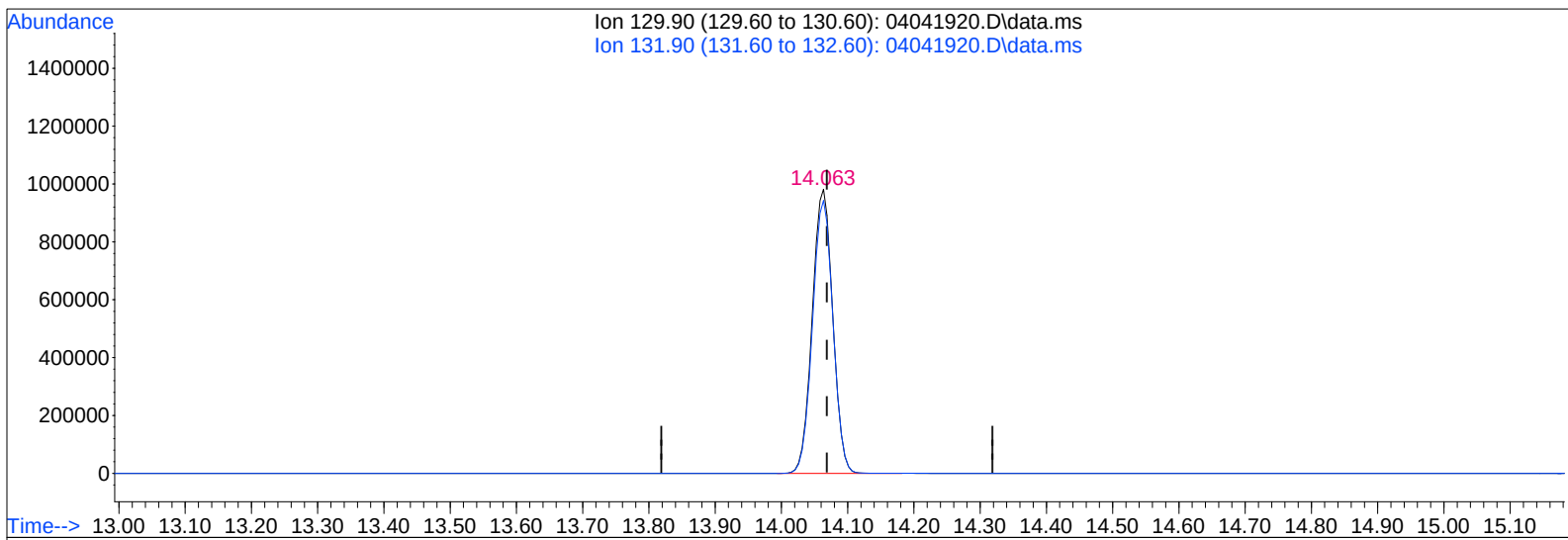
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:31 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041920.D\data.ms

(47) Trichloroethene (T)

14.063min (-0.005) 182.66ng

response 2106404

Ion	Exp%	Act%
129.90	100	100
131.90	96.00	95.89
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041920.D

Sample : P1901724-002 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 16:58

Operator: RS

Misc : S31-04021901

ALS Vial : 6 Sample Multiplier: 1

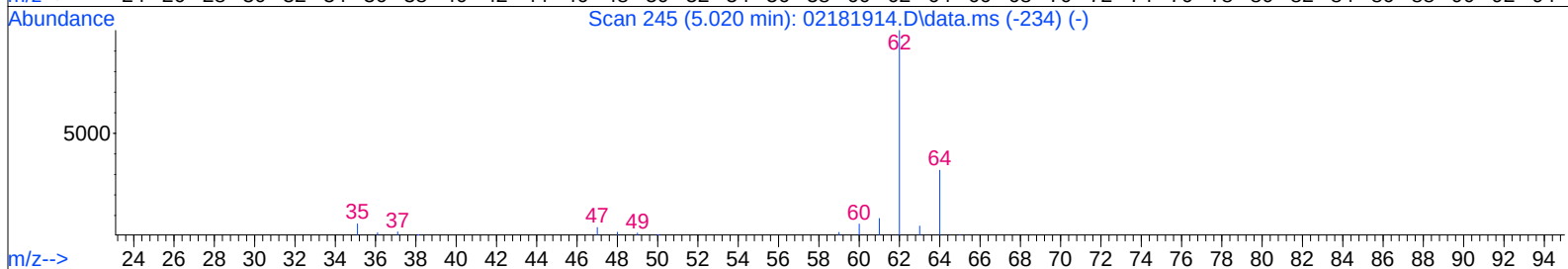
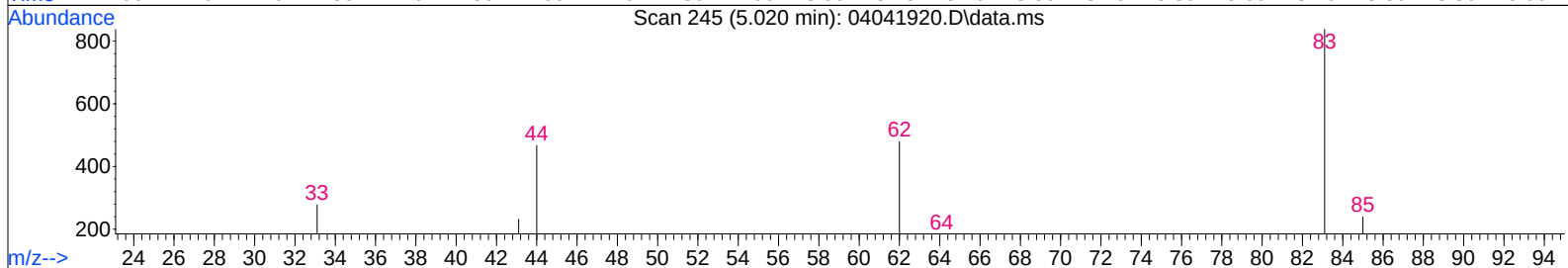
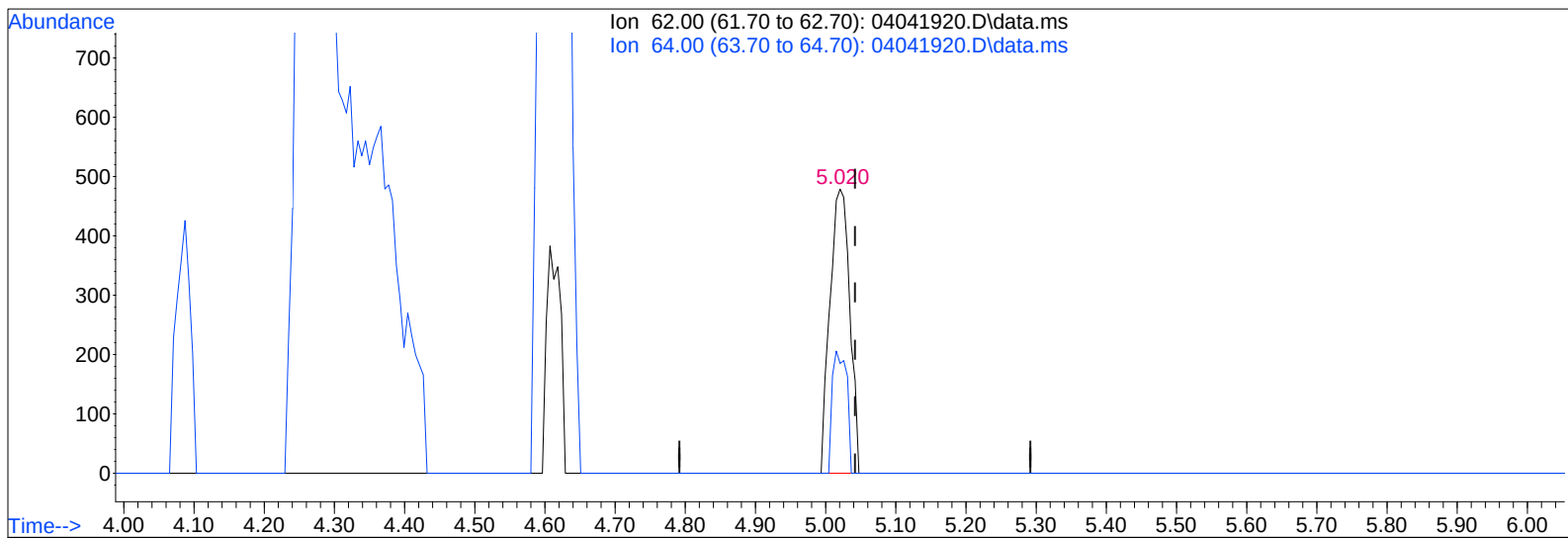
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:31 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041920.D\data.ms

(6) Vinyl Chloride (T)

5.020min (-0.021) 0.06ng

response 940

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	31.17
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041920.D

Sample : P1901724-002 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 16:58

Operator: RS

Misc : S31-04021901

ALS Vial : 6 Sample Multiplier: 1

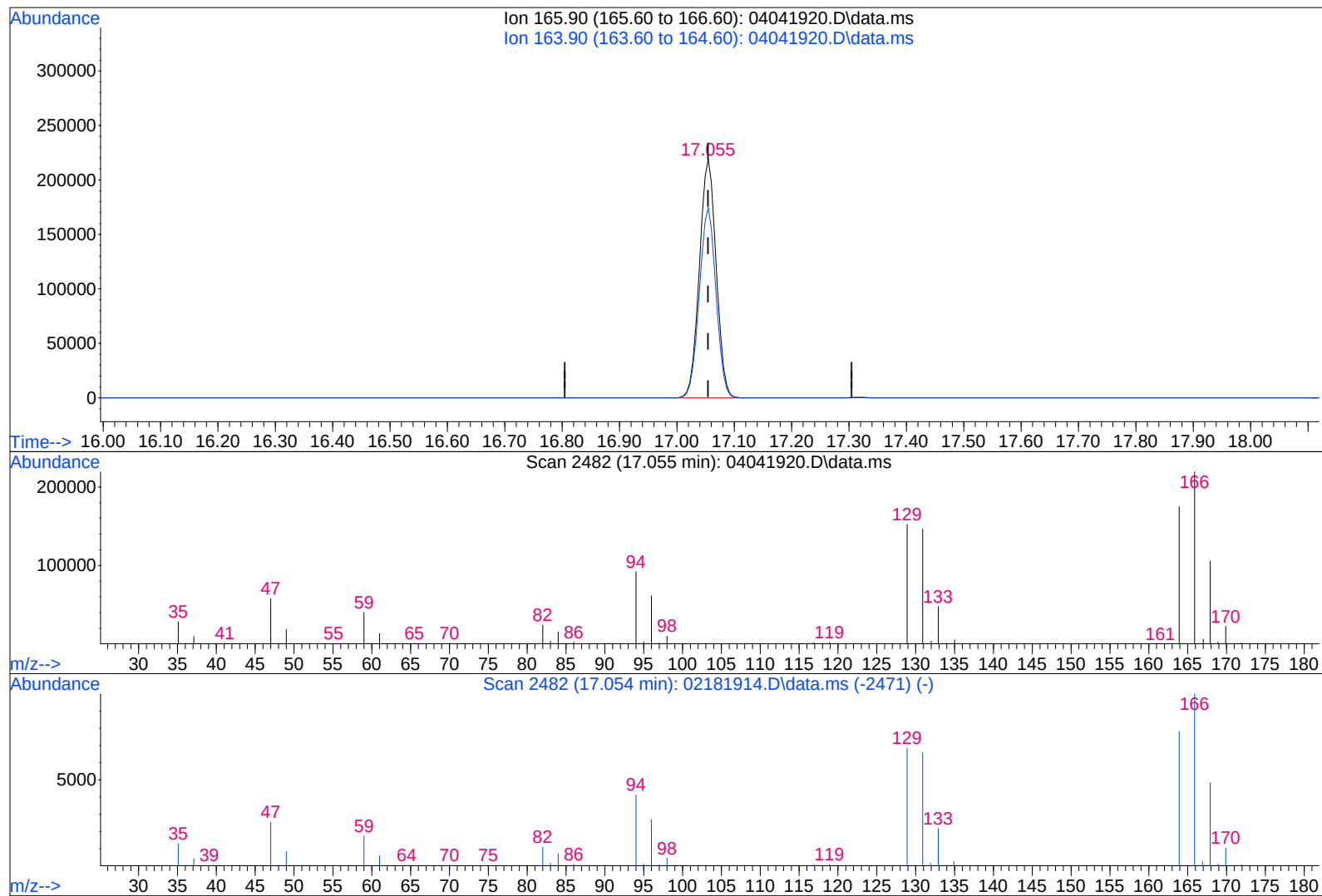
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:31 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041920.D\data.ms

(64) Tetrachloroethene (T)

17.055min (+0.000) 39.08ng

response 443247

Ion	Exp%	Act%
-----	------	------

165.90	100	100
--------	-----	-----

163.90	78.80	79.26
--------	-------	-------

0.00	0.00	0.00
------	------	------

0.00	0.00	0.00
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Data File: I:\MS08\Data\2019 04\08\04081905.D

Sample : P1901724-002dil (100mL)

Inst : MS08

Acq On : 8 Apr 2019 10:02

Operator: RS

Misc : S31-04021901

ALS Vial : 16 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

RS 4/8/19

Quant Time: Apr 08 10:41:38 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.23	130	146177	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.35	114	642051	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.67	82	316577	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	257239	13.168	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	105.36%	
57) Toluene-d8 (SS2)	15.81	98	728075	13.014	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	104.08%	
73) Bromofluorobenzene (SS3)	19.05	174	232350	11.683	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	93.44%	

Target Compounds

						Qvalue
2) Propene	4.17	42	307	N.D.		
3) Dichlorodifluoromethan...	4.33	85	3612	0.183 ng	#	92
4) Chloromethane	4.62	50	399	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.44	45	78349	8.533 ng		99
11) Acetonitrile	6.70	41	3545	0.146 ng		86
12) Acrolein	6.92	56	263	N.D.		
13) Acetone	7.10	58	51204	5.862 ng		97
14) Trichlorofluoromethane	7.34	101	5888	0.347 ng		97
15) 2-Propanol (Isopropanol)	7.61	45	31547	1.033 ng		95
16) Acrylonitrile	7.93	53	50	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D. d		
19) Methylene Chloride	8.51	84	301	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	8.94	151	19061	2.167 ng		99
22) Carbon Disulfide	8.79	76	5976	0.158 ng		92
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	10.59	72	1419	0.199 ng	#	34
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	11.39	61	773	0.216 ng		85
31) n-Hexane	11.35	57	550	N.D.		
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	12.48	97	64801	4.045 ng		100
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D. d		
41) Benzene	12.96	78	2000	N.D.		
42) Carbon Tetrachloride	13.11	117	114	N.D.		
43) Cyclohexane	0.00	84	0	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D. d		
47) Trichloroethene	14.06	130	167970	14.939 ng		100
48) 1,4-Dioxane	14.08	88	257	N.D.		
49) 2,2,4-Trimethylpentane...	14.12	57	484	N.D.		
50) Methyl Methacrylate	0.00	100	43 of 211	N.D.		

Data File: I:\MS08\Data\2019 04\08\04081905.D

Sample : P1901724-002dil (100mL)

Inst : MS08

Acq On : 8 Apr 2019 10:02

Operator: RS

Misc : S31-04021901

ALS Vial : 16 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 10:41:38 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	185	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.91	91	7946	0.193	ng	95
59) 2-Hexanone	16.19	43	1407	0.058	ng	# 55
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.80	43	1254	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	17.05	166	36962	3.300	ng	98
65) Chlorobenzene	17.71	112	273	N.D.		
66) Ethylbenzene	18.07	91	1335	N.D.		
67) m- & p-Xylenes	18.23	91	4341	0.120	ng	91
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.56	104	341	N.D.		
70) o-Xylene	18.65	91	1822	N.D.		
71) n-Nonane	18.85	43	680	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	19.18	105	978	N.D.		
75) alpha-Pinene	19.52	93	587	N.D.		
76) n-Propylbenzene	19.63	91	1438	N.D.		
77) 3-Ethyltoluene	19.72	105	1215	N.D.		
78) 4-Ethyltoluene	19.75	105	869	N.D.		
79) 1,3,5-Trimethylbenzene	19.82	105	1086	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	19.99	105	1430	N.D.		
82) 1,2,4-Trimethylbenzene	20.18	105	3041	0.080	ng	# 64
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.30	91	1162	N.D.		
85) 1,3-Dichlorobenzene	20.32	146	1230	0.055	ng	82
86) 1,4-Dichlorobenzene	20.38	146	926	N.D.		
87) sec-Butylbenzene	20.42	105	242	N.D.		
88) 4-Isopropyltoluene (p-...	20.56	119	1125	N.D.		
89) 1,2,3-Trimethylbenzene	20.55	105	870	N.D.		
90) 1,2-Dichlorobenzene	20.68	146	462	N.D.		
91) d-Limonene	20.69	68	1279	0.103	ng	98
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.19	180	995	0.067	ng	# 86
95) Naphthalene	22.30	128	4998	0.097	ng	86
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.18	119	677	N.D.		
100) n-Butylbenzene	20.92	91	822	N.D.		

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

Data File: I:\MS08\Data\2019 04\08\04081905.D

Sample : P1901724-002dil (100mL)

Acq On : 8 Apr 2019 10:02

Misc : S31-04021901

ALS Vial : 16 Sample Multiplier: 1

Inst : MS08

Operator: RS

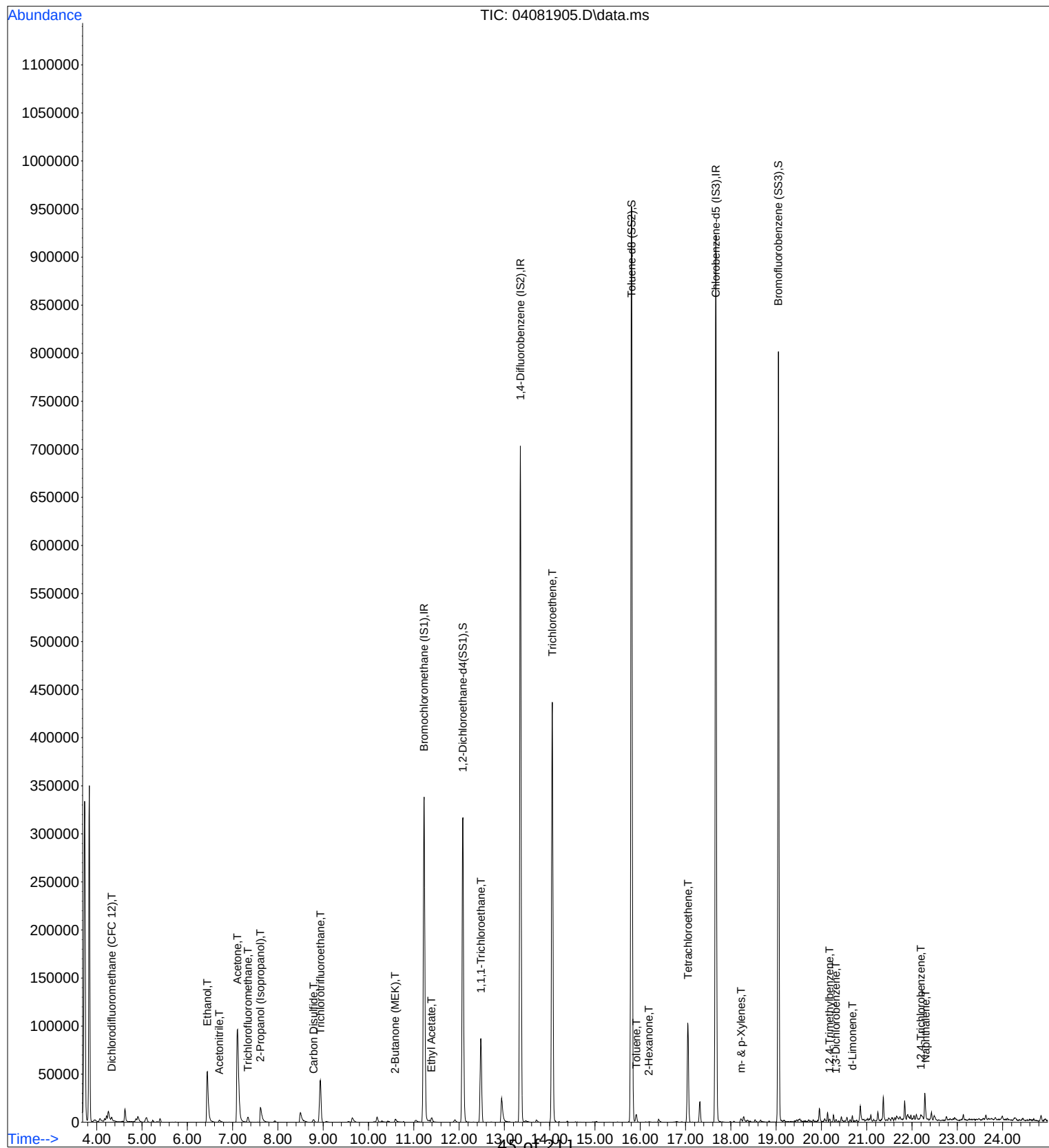
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 10:41:38 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 04\08\04081905.D

Sample : P1901724-002dil (100mL)

Inst : MS08

Acq On : 8 Apr 2019 10:02

Operator: RS

Misc : S31-04021901

ALS Vial : 16 Sample Multiplier: 1

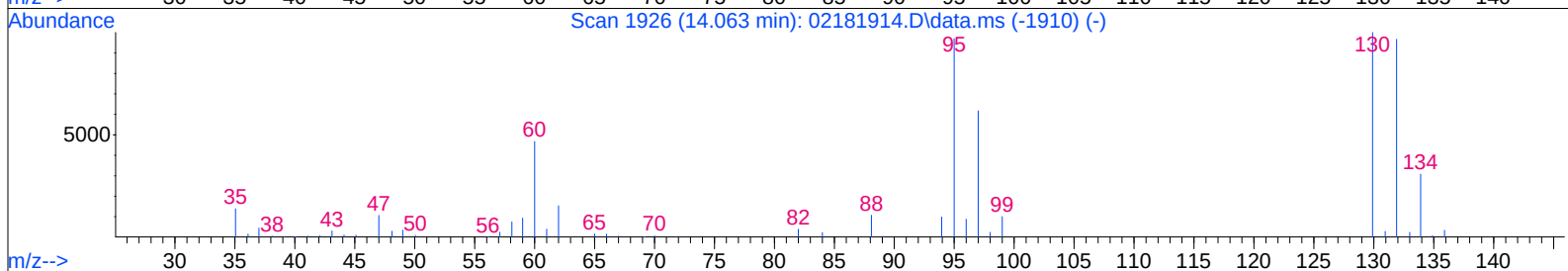
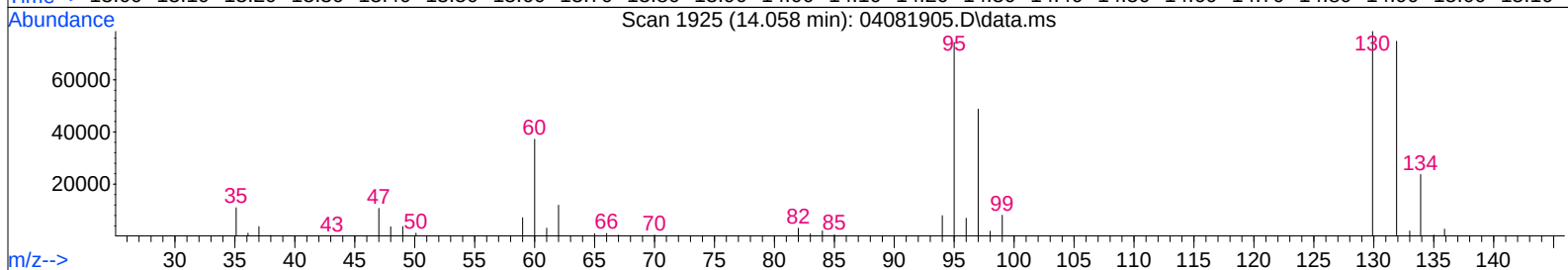
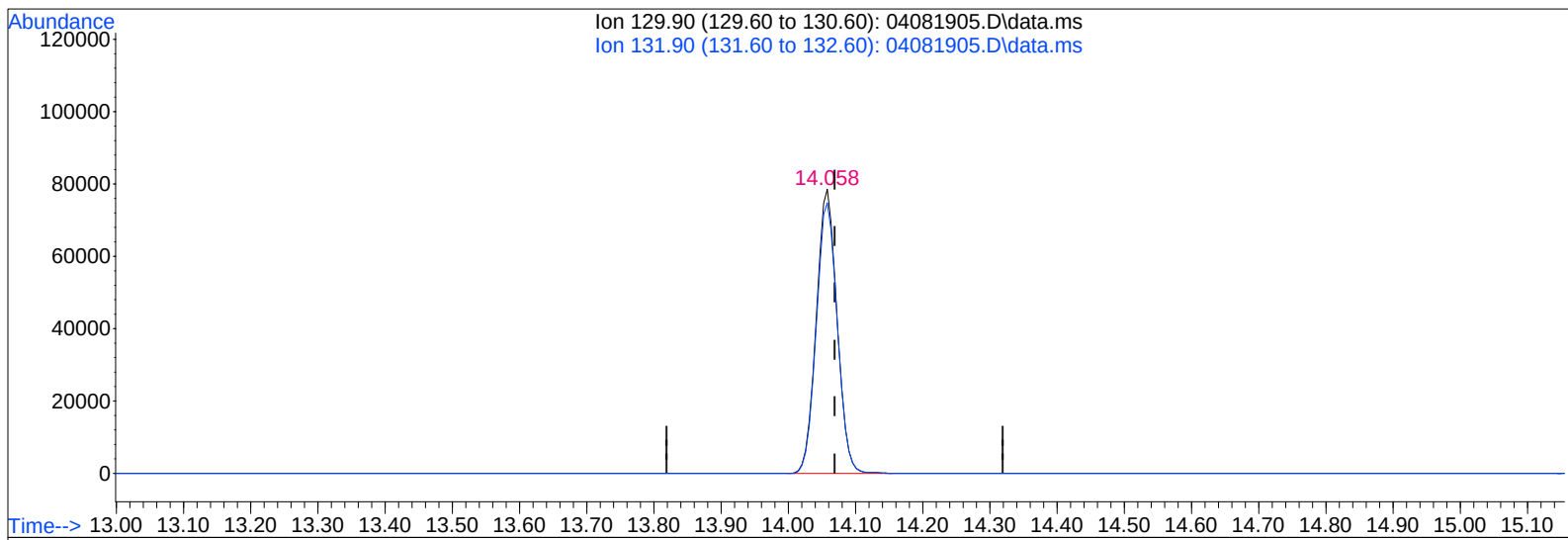
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 10:41:38 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04081905.D\data.ms

(47) Trichloroethene (T)

14.058min (-0.011) 14.94ng

response 167970

Ion	Exp%	Act%
129.90	100	100
131.90	96.00	96.16
0.00	0.00	0.00
0.00	0.00	0.00

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

Client Sample ID: SS-12

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

ALS Project ID: P1901724

ALS Sample ID: P1901724-003

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Analyst: Raneem Sahtah

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC00788

Date Collected: 3/29/19

Date Received: 4/1/19

Date Analyzed: 4/5/19

Volume(s) Analyzed: 0.0020 Liter(s)

Initial Pressure (psig): -1.31 Final Pressure (psig): 3.81

Container Dilution Factor: 1.38

CAS #	Compound	Result µg/m ³	MRL µg/m ³	MDL µg/m ³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	76	39	ND	30	15	
75-35-4	1,1-Dichloroethene	ND	76	51	ND	19	13	
75-09-2	Methylene Chloride	ND	370	100	ND	110	30	
156-59-2	cis-1,2-Dichloroethene	620	76	52	160	19	13	
71-55-6	1,1,1-Trichloroethane	ND	76	46	ND	14	8.4	
56-23-5	Carbon Tetrachloride	ND	69	51	ND	11	8.1	
79-01-6	Trichloroethene	46,000	76	50	8,600	14	9.2	
127-18-4	Tetrachloroethene	2,600	76	48	380	11	7.0	

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.

Data File: I:\MS08\Data\2019 04\05\04051907.D

RS 4/8/19

Sample : P1901724-003 (2.0mL)

Inst : MS08

Acq On : 5 Apr 2019 7:47

Operator: RS

Misc : S31-04021901

ALS Vial : 4 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:52:20 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	144867	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	13.35	114	633308	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.67	82	317676	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	255614	13.203	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	105.60%	
57) Toluene-d8 (SS2)	15.81	98	721669	12.855	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	102.88%	
73) Bromofluorobenzene (SS3)	19.05	174	230217	11.535	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	92.32%	

Target Compounds

						Qvalue
2) Propene	0.00	42	0	N.D.		
3) Dichlorodifluoromethan...	4.22	85	112	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.45	45	1812	0.199	ng	77
11) Acetonitrile	0.00	41	0	N.D.		
12) Acrolein	0.00	56	0	N.D.		
13) Acetone	7.15	58	3187	0.368	ng	92
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	7.69	45	453	N.D.		
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.		
19) Methylene Chloride	0.00	84	0	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	8.93	151	162001	18.584	ng	98
22) Carbon Disulfide	8.79	76	1264	N.D.		
23) trans-1,2-Dichloroethene	9.80	61	657	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	11.06	61	12864	0.904	ng	100
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	11.40	83	2127	0.125	ng	91
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	12.49	97	303	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.		
41) Benzene	12.97	78	360	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	0.00	84	0	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.06	130	738427	66.579	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		
50) Methyl Methacrylate	0.00	100	0	N.D.		

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Data File: I:\MS08\Data\2019 04\05\04051907.D

Sample : P1901724-003 (2.0mL)

Inst : MS08

Acq On : 5 Apr 2019 7:47

Operator: RS

Misc : S31-04021901

ALS Vial : 4 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:52:20 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.92	91	1084	N.D.		
59) 2-Hexanone	0.00	43	0	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	17.05	166	41922	3.730 ng		100
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	18.07	91	1753	N.D.		
67) m- & p-Xylenes	18.22	91	5215	0.143 ng		92
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	0.00	104	0	N.D.		
70) o-Xylene	18.66	91	2449	0.067 ng		98
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	19.18	105	237	N.D.		
75) alpha-Pinene	19.52	93	678	N.D.		
76) n-Propylbenzene	19.64	91	220	N.D.		
77) 3-Ethyltoluene	19.73	105	475	N.D.		
78) 4-Ethyltoluene	19.76	105	335	N.D.		
79) 1,3,5-Trimethylbenzene	19.83	105	111	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.		
82) 1,2,4-Trimethylbenzene	20.19	105	382	N.D.		
83) n-Decane	20.27	57	289	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D.		
85) 1,3-Dichlorobenzene	20.38	146	101	N.D.		
86) 1,4-Dichlorobenzene	20.38	146	101	N.D.		
87) sec-Butylbenzene	0.00	105	0	N.D.		
88) 4-Isopropyltoluene (p-...	20.56	119	645	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.69	68	247	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	21.37	57	445	N.D.		
94) 1,2,4-Trichlorobenzene	22.20	180	188	N.D.		
95) Naphthalene	22.30	128	2023	N.D.		
96) n-Dodecane	22.28	57	320	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	20.94	91	100	N.D.		

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

Data File: I:\MS08\Data\2019 04\05\04051907.D

Sample : P1901724-003 (2.0mL)

Acq On : 5 Apr 2019 7:47

Misc : S31-04021901

ALS Vial : 4 Sample Multiplier: 1

Inst : MS08

Operator: RS

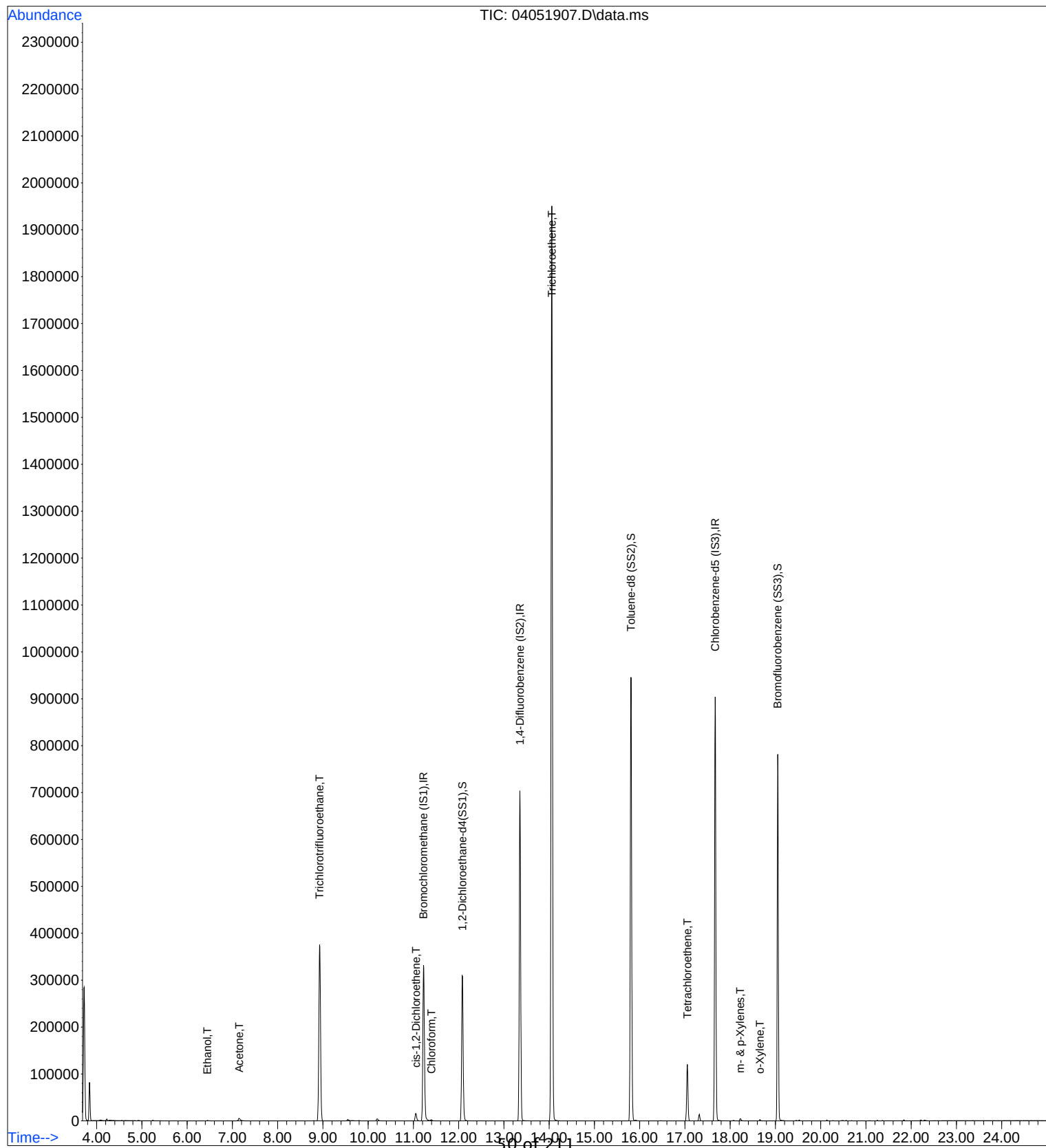
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:52:20 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



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Data File: I:\MS08\Data\2019 04\05\04051907.D

Sample : P1901724-003 (2.0mL)

Inst : MS08

Acq On : 5 Apr 2019 7:47

Operator: RS

Misc : S31-04021901

ALS Vial : 4 Sample Multiplier: 1

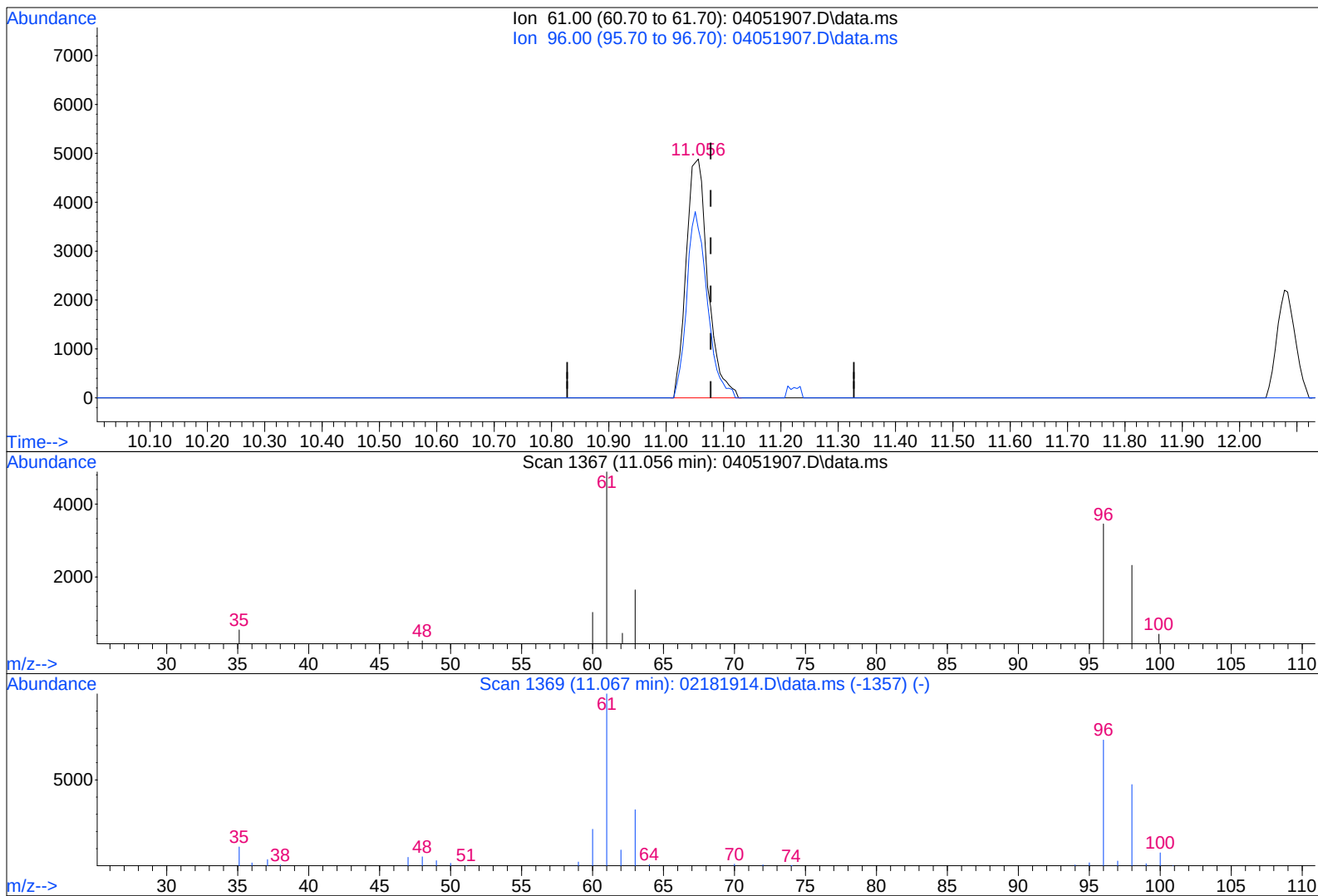
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 15:23:13 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04051907.D\data.ms

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

11.056min (-0.022) 0.90ng

response 12864

Ion	Exp%	Act%
61.00	100	100
96.00	73.40	73.37
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\05\04051907.D

Sample : P1901724-003 (2.0mL)

Inst : MS08

Acq On : 5 Apr 2019 7:47

Operator: RS

Misc : S31-04021901

ALS Vial : 4 Sample Multiplier: 1

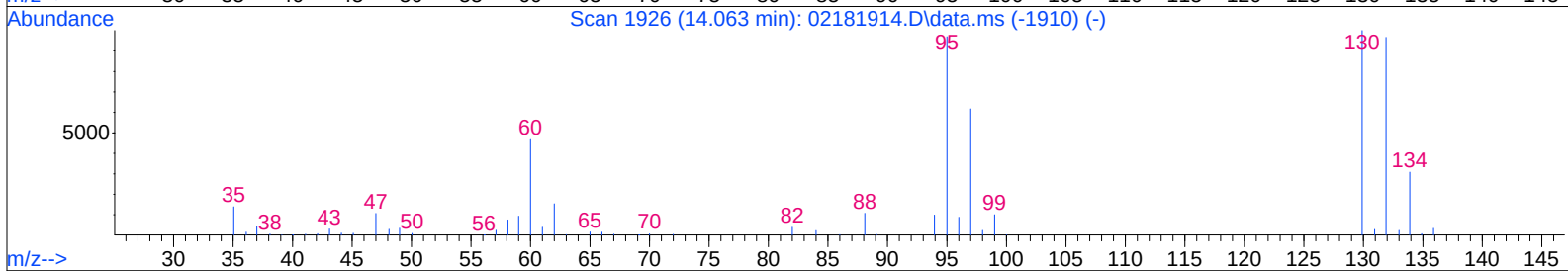
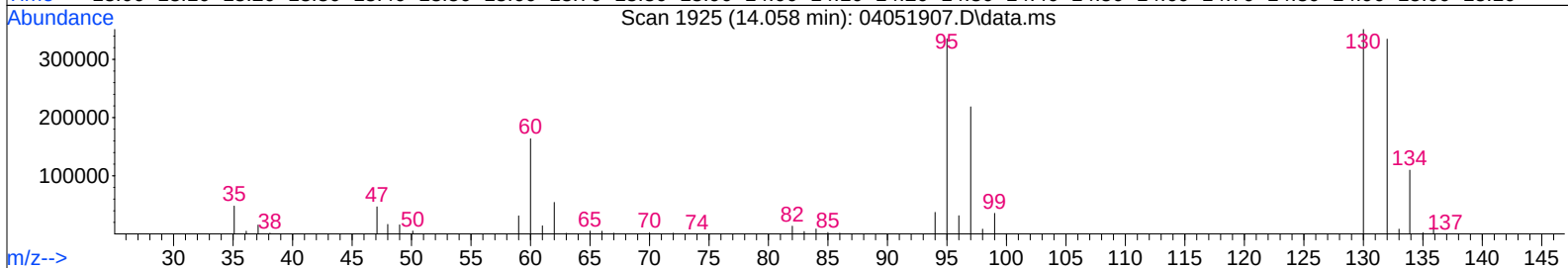
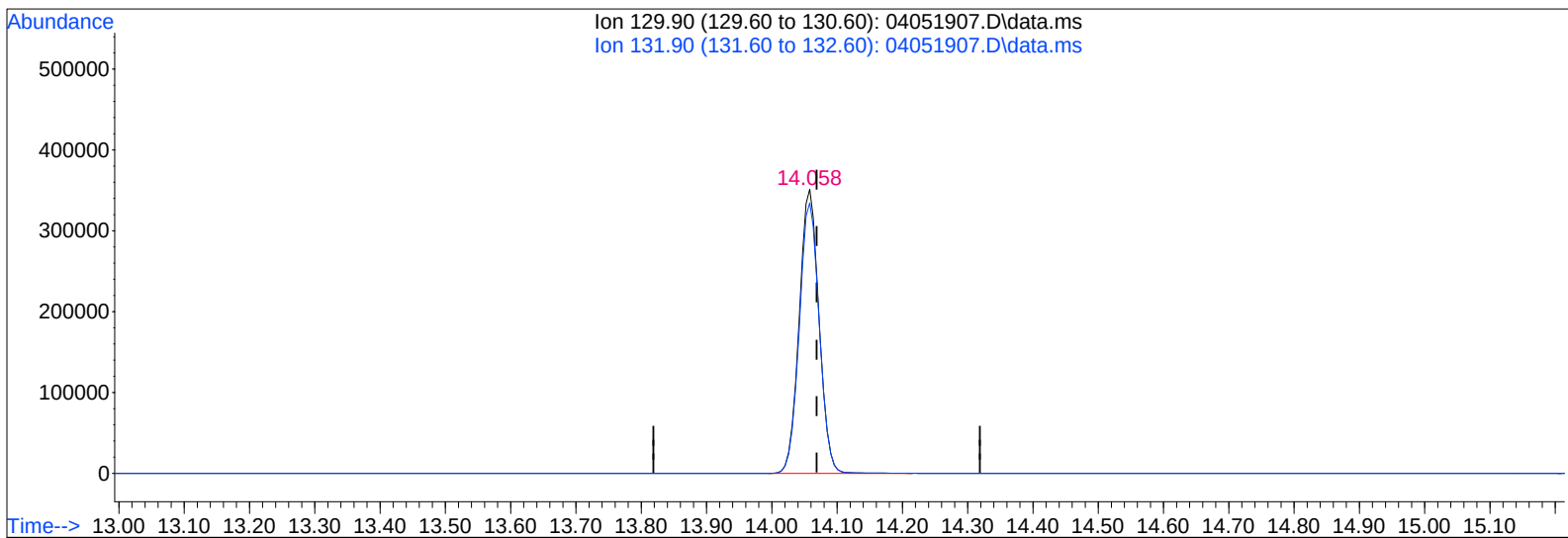
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 15:23:13 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04051907.D\data.ms

(47) Trichloroethene (T)

14.058min (-0.011) 66.58ng

response 738427

Ion	Exp%	Act%
129.90	100	100
131.90	96.00	95.98
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\05\04051907.D

Sample : P1901724-003 (2.0mL)

Acq On : 5 Apr 2019 7:47

Misc : S31-04021901

ALS Vial : 4 Sample Multiplier: 1

Inst : MS08

Operator: RS

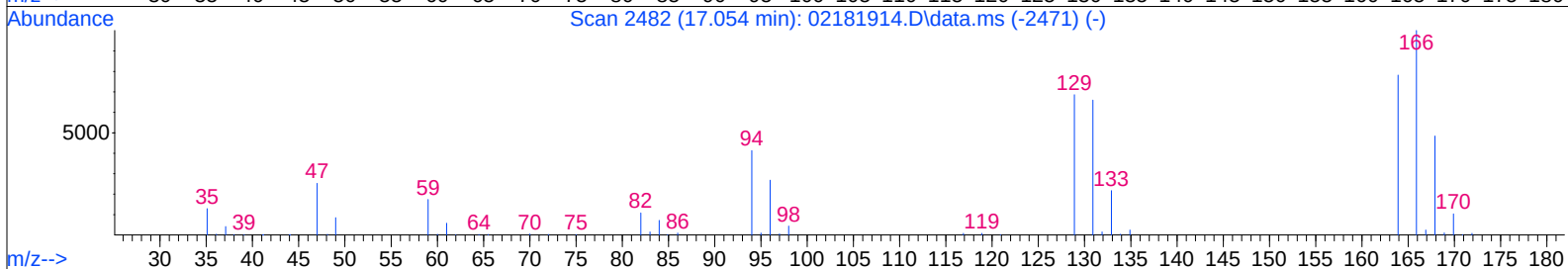
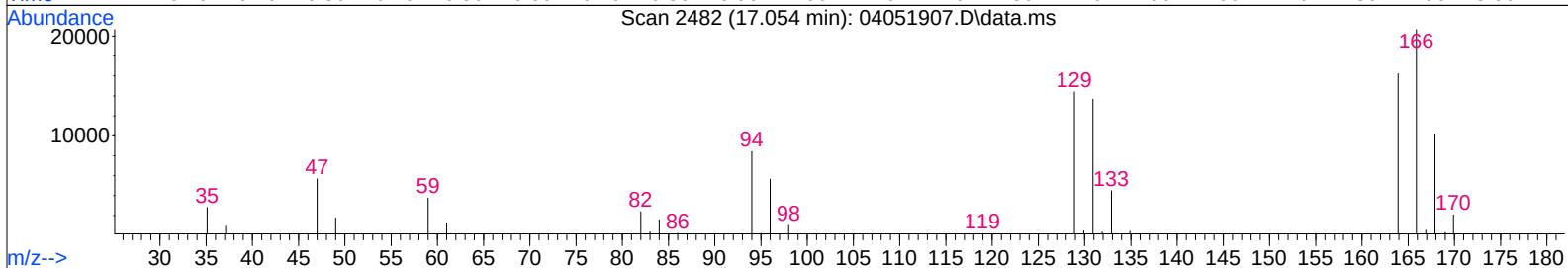
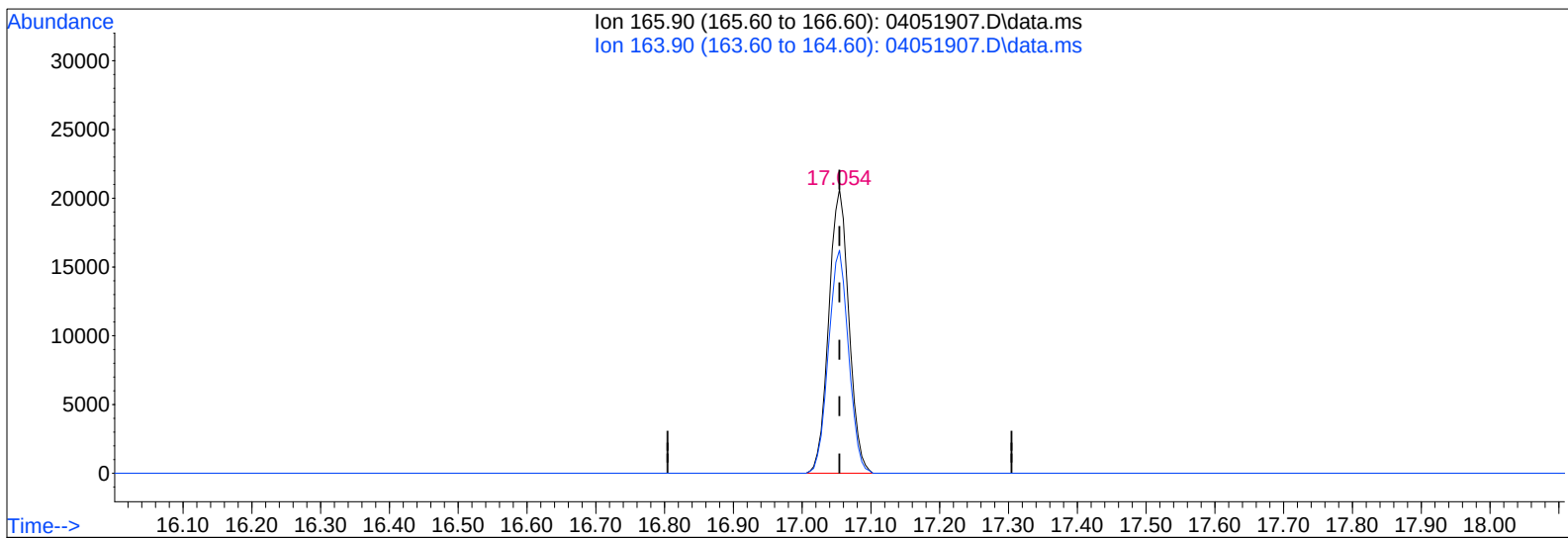
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 15:23:13 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04051907.D\data.ms

(64) Tetrachloroethene (T)

17.054min (-0.000) 3.73ng

response 41922

Ion	Exp%	Act%
-----	------	------

165.90	100	100
--------	-----	-----

163.90	78.80	78.58
--------	-------	-------

0.00	0.00	0.00
------	------	------

0.00	0.00	0.00
------	------	------

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

Client Sample ID: SS-100

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

ALS Project ID: P1901724

ALS Sample ID: P1901724-004

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Analyst: Raneem Sahtah

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC00851

Date Collected: 3/29/19

Date Received: 4/1/19

Date Analyzed: 4/5/19

Volume(s) Analyzed: 0.0020 Liter(s)

Initial Pressure (psig): -0.97 Final Pressure (psig): 3.60

Container Dilution Factor: 1.33

CAS #	Compound	Result µg/m ³	MRL µg/m ³	MDL µg/m ³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	73	38	ND	29	15	
75-35-4	1,1-Dichloroethene	ND	73	49	ND	18	12	
75-09-2	Methylene Chloride	ND	360	100	ND	100	29	
156-59-2	cis-1,2-Dichloroethene	810	73	50	200	18	13	
71-55-6	1,1,1-Trichloroethane	ND	73	44	ND	13	8.0	
56-23-5	Carbon Tetrachloride	ND	67	49	ND	11	7.8	
79-01-6	Trichloroethene	62,000	73	48	12,000	14	8.9	
127-18-4	Tetrachloroethene	3,300	73	46	480	11	6.8	

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.

Data File: I:\MS08\Data\2019 04\05\04051909.D

Sample : P1901724-004 (2.0mL)

Inst : MS08

Acq On : 5 Apr 2019 8:54

Operator: RS

Misc : S31-04021901

ALS Vial : 4 Sample Multiplier: 1

RS 4/8/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:54:14 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	139266	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	13.35	114	604001	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.67	82	305535	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	246557	13.248	ng	-0.03
Spiked Amount	12.500	Range 70 - 130	Recovery	=	106.00%	
57) Toluene-d8 (SS2)	15.81	98	688778	12.757	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	102.08%	
73) Bromofluorobenzene (SS3)	19.06	174	221727	11.551	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	92.40%	

Target Compounds

						Qvalue
2) Propene	0.00	42	0	N.D.		
3) Dichlorodifluoromethan...	4.22	85	140	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.46	45	1187	0.136	ng	# 56
11) Acetonitrile	0.00	41	0	N.D.		
12) Acrolein	0.00	56	0	N.D.		
13) Acetone	7.15	58	2968	0.357	ng	94
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	7.71	45	105	N.D.		
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.		
19) Methylene Chloride	0.00	84	0	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	8.93	151	212349	25.340	ng	98
22) Carbon Disulfide	8.80	76	1092	N.D.		
23) trans-1,2-Dichloroethene	9.80	61	812	0.061	ng	88
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	11.05	61	16651	1.217	ng	99
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	11.40	83	2737	0.167	ng	99
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	12.49	97	466	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.		
41) Benzene	12.98	78	420	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	0.00	84	0	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.06	130	989851	93.579	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		
50) Methyl Methacrylate	0.00	100	0	N.D.		

55 of 211

Data File: I:\MS08\Data\2019 04\05\04051909.D

Sample : P1901724-004 (2.0mL)

Acq On : 5 Apr 2019 8:54

Misc : S31-04021901

ALS Vial : 4 Sample Multiplier: 1

Inst : MS08

Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:54:14 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.91	91	1578	N.D.		
59) 2-Hexanone	0.00	43	0	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	17.05	166	52851	4.889 ng		99
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	18.08	91	2079	N.D.		
67) m- & p-Xylenes	18.22	91	6062	0.173 ng		97
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	0.00	104	0	N.D.		
70) o-Xylene	18.66	91	3168	0.090 ng		97
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	0.00	105	0	N.D.		
75) alpha-Pinene	19.52	93	372	N.D.		
76) n-Propylbenzene	0.00	91	0	N.D.		
77) 3-Ethyltoluene	19.72	105	423	N.D.		
78) 4-Ethyltoluene	19.72	105	423	N.D.		
79) 1,3,5-Trimethylbenzene	19.82	105	116	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.		
82) 1,2,4-Trimethylbenzene	20.19	105	656	N.D.		
83) n-Decane	20.28	57	162	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.		
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.		
87) sec-Butylbenzene	0.00	105	0	N.D.		
88) 4-Isopropyltoluene (p-...	20.56	119	252	N.D.		
89) 1,2,3-Trimethylbenzene	20.56	105	191	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.31	128	877	N.D.		
96) n-Dodecane	22.29	57	116	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	0.00	91	0	N.D.		

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

Data File: I:\MS08\Data\2019 04\05\04051909.D

Sample : P1901724-004 (2.0mL)

Acq On : 5 Apr 2019 8:54

Misc : S31-04021901

ALS Vial : 4 Sample Multiplier: 1

Inst : MS08

Operator: RS

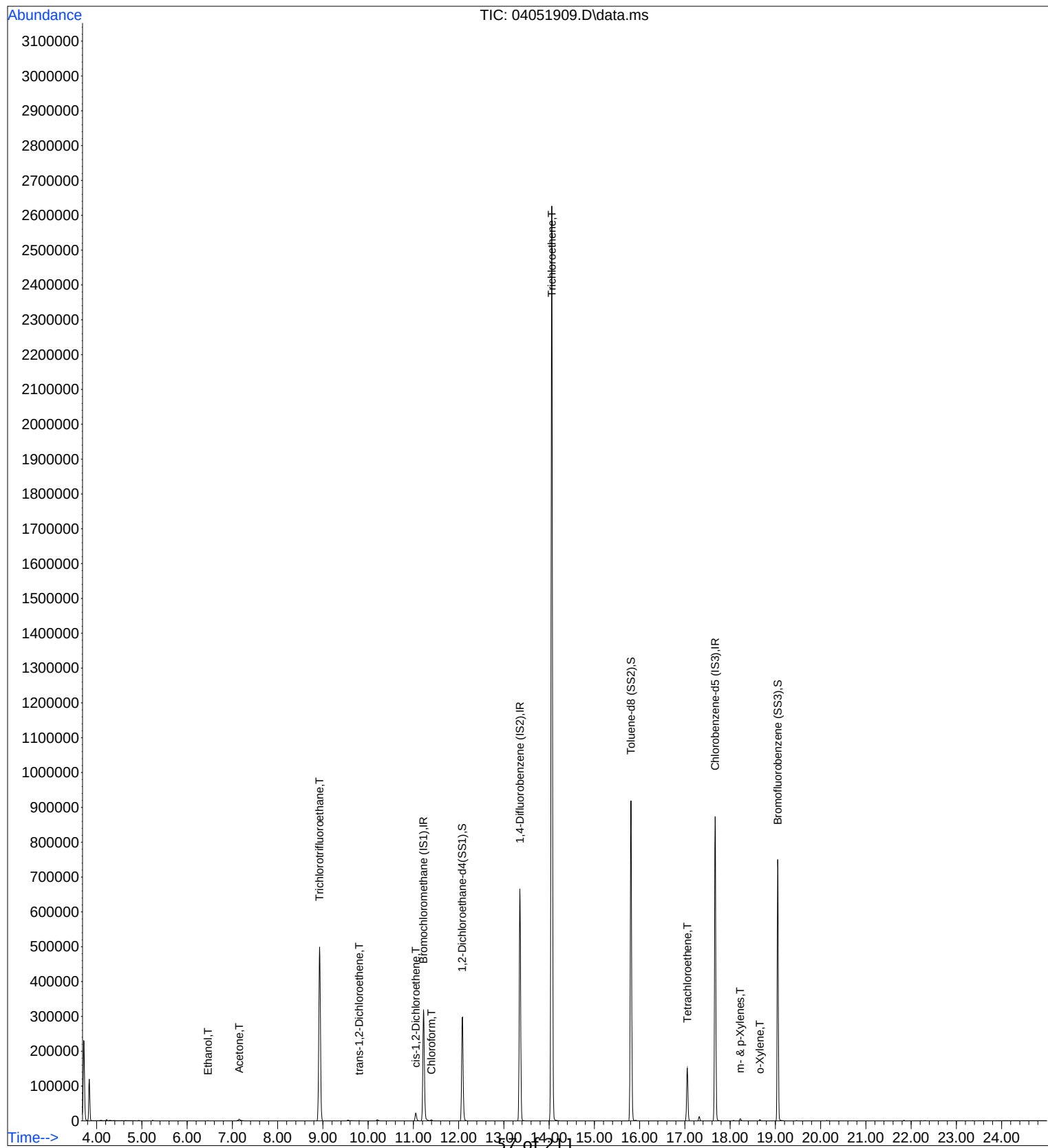
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:54:14 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 04\05\04051909.D

Sample : P1901724-004 (2.0mL)

Inst : MS08

Acq On : 5 Apr 2019 8:54

Operator: RS

Misc : S31-04021901

ALS Vial : 4 Sample Multiplier: 1

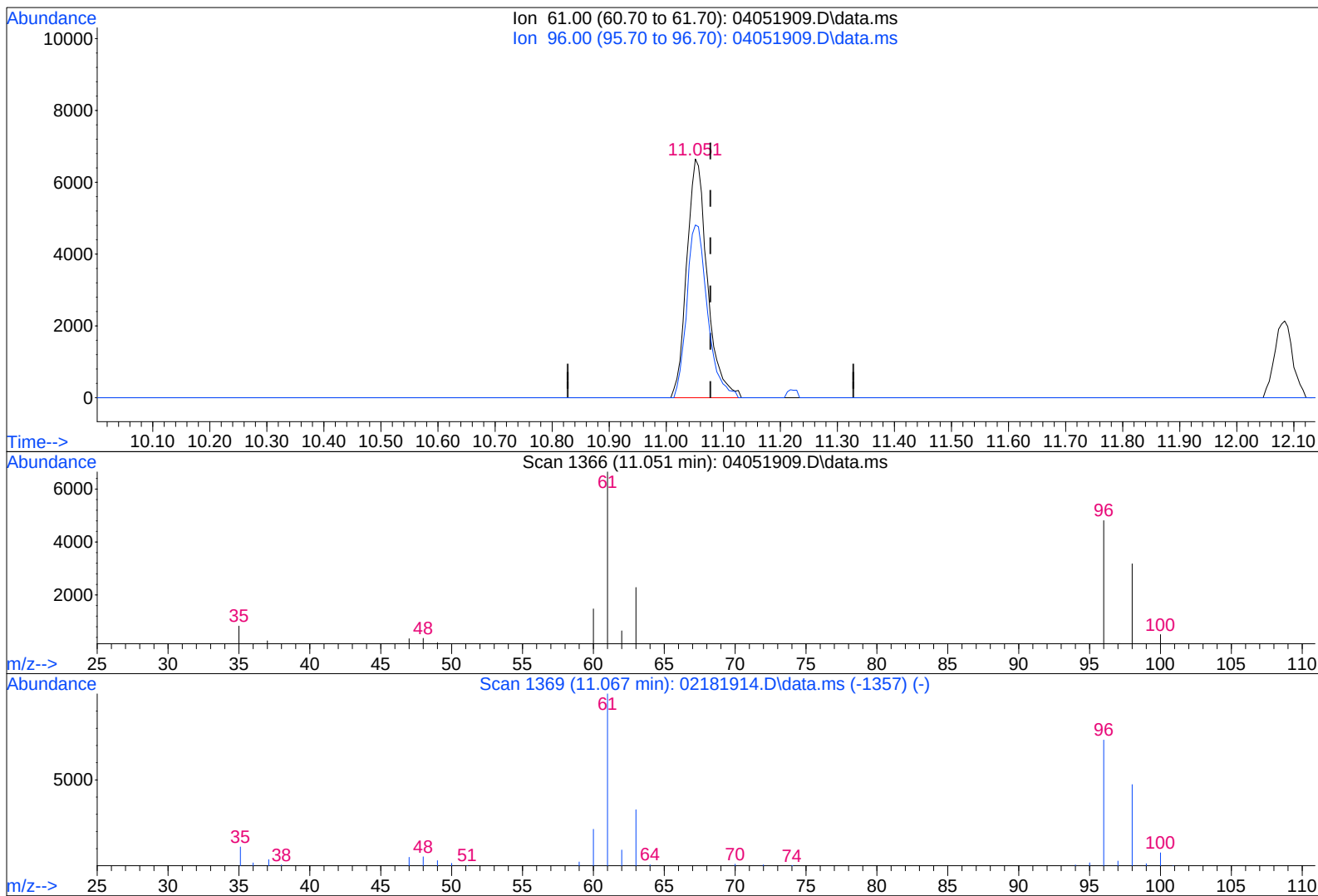
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 09:24:01 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04051909.D\data.ms

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

11.051min (-0.027) 1.22ng

response 16651

Ion	Exp%	Act%
61.00	100	100
96.00	73.40	72.96
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\05\04051909.D

Sample : P1901724-004 (2.0mL)

Inst : MS08

Acq On : 5 Apr 2019 8:54

Operator: RS

Misc : S31-04021901

ALS Vial : 4 Sample Multiplier: 1

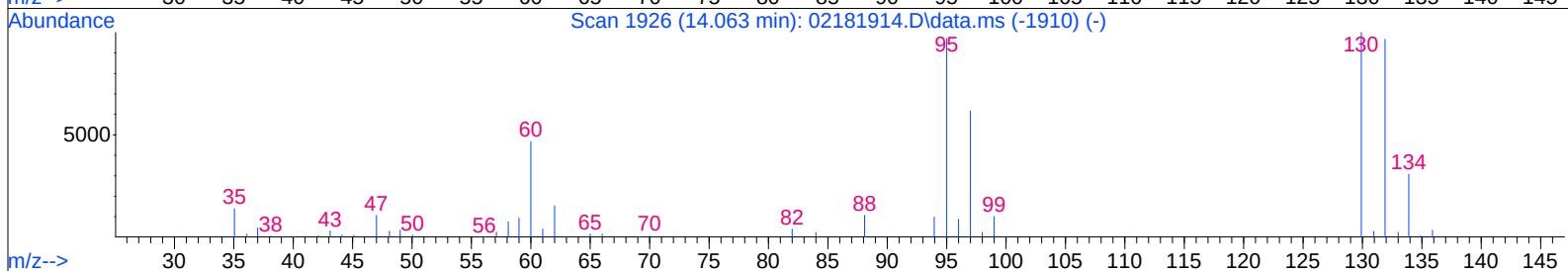
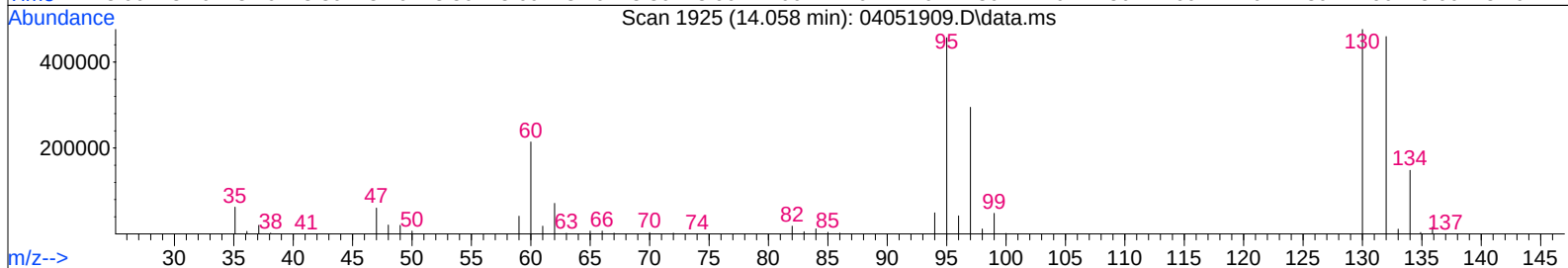
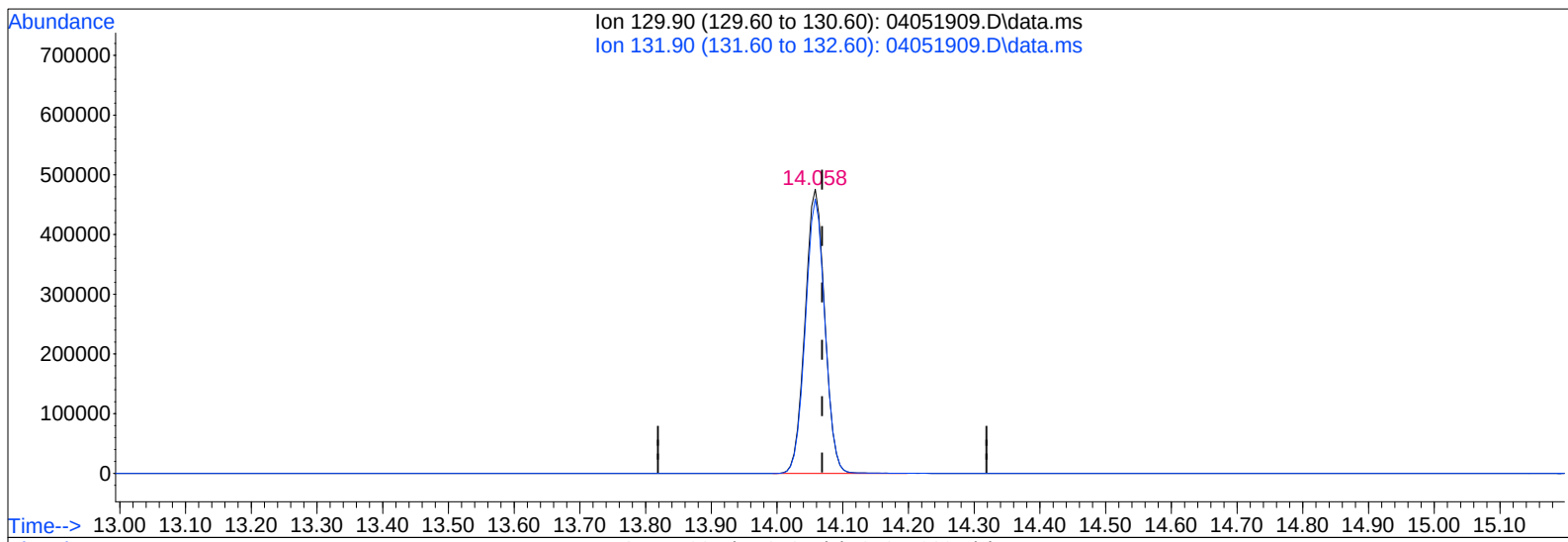
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 09:24:01 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04051909.D\data.ms

(47) Trichloroethene (T)

14.058min (-0.011) 93.58ng

response 989851

Ion	Exp%	Act%
129.90	100	100
131.90	96.00	96.04
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\05\04051909.D

Sample : P1901724-004 (2.0mL)

Inst : MS08

Acq On : 5 Apr 2019 8:54

Operator: RS

Misc : S31-04021901

ALS Vial : 4 Sample Multiplier: 1

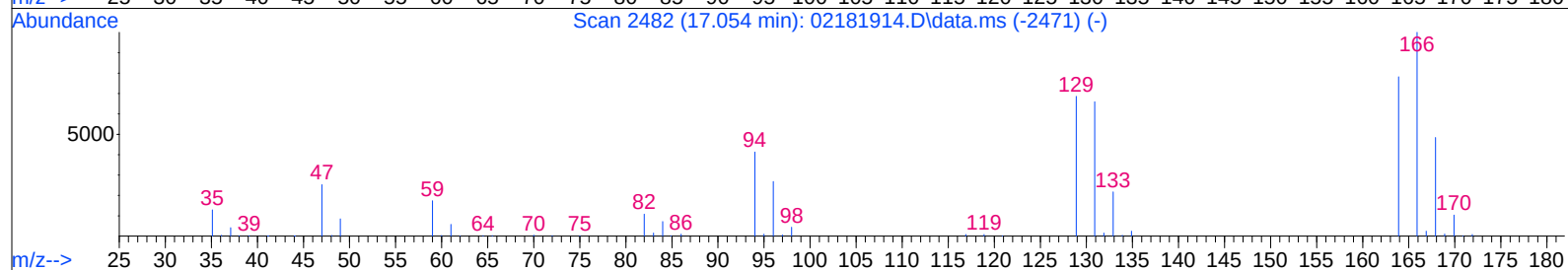
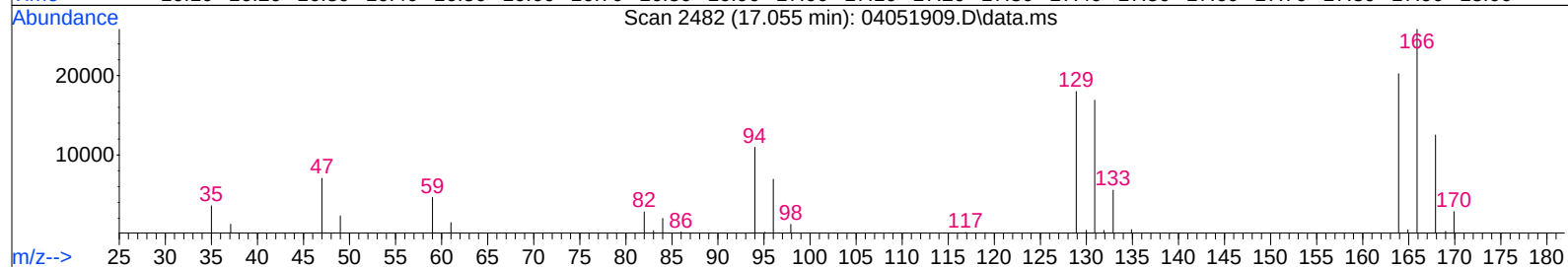
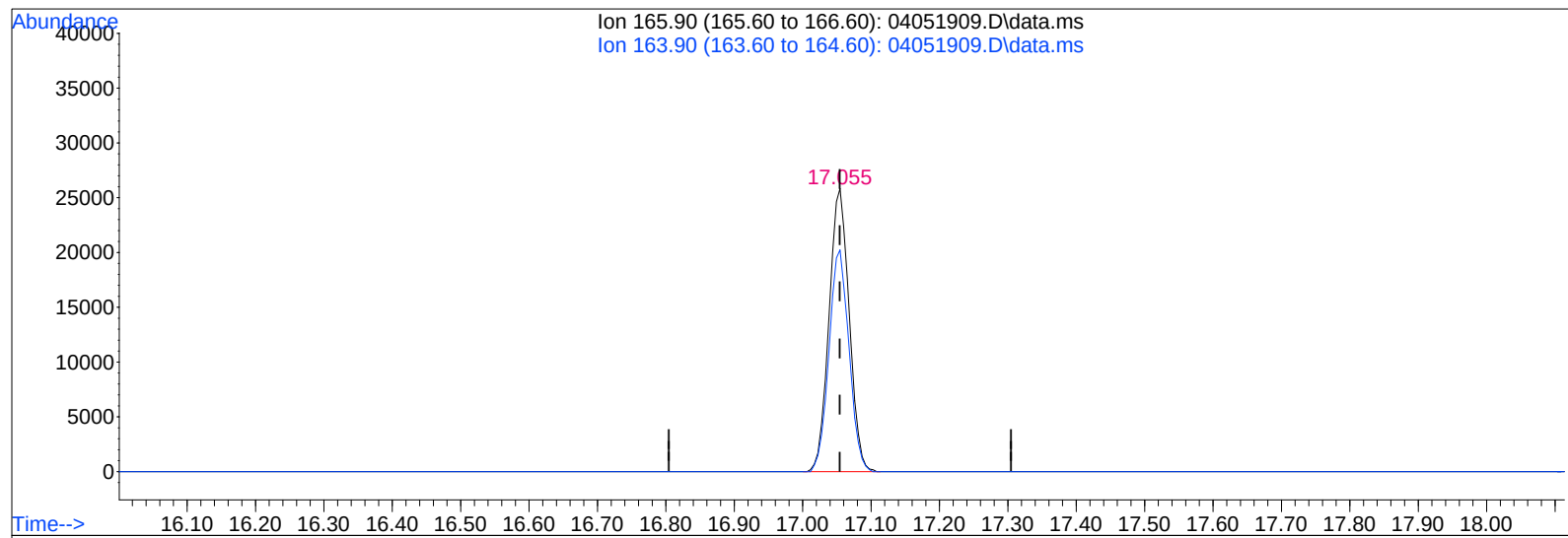
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 09:24:01 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04051909.D\data.ms

(64) Tetrachloroethene (T)

17.055min (+0.000) 4.89ng

response 52851

Ion	Exp%	Act%
-----	------	------

165.90	100	100
--------	-----	-----

163.90	78.80	78.00
--------	-------	-------

0.00	0.00	0.00
------	------	------

0.00	0.00	0.00
------	------	------

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

Client Sample ID: SS-1

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

ALS Project ID: P1901724

ALS Sample ID: P1901724-005

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Analyst: Raneem Sahtah

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC01756

Date Collected: 3/29/19

Date Received: 4/1/19

Date Analyzed: 4/4 - 4/5/19

Volume(s) Analyzed: 1.00 Liter(s)

0.10 Liter(s)

Initial Pressure (psig): -2.09 Final Pressure (psig): 3.71

Container Dilution Factor: 1.46

CAS #	Compound	Result µg/m ³	MRL µg/m ³	MDL µg/m ³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	0.12	0.16	0.083	0.048	0.063	0.033	J
75-35-4	1,1-Dichloroethene	ND	0.16	0.11	ND	0.041	0.027	
75-09-2	Methylene Chloride	ND	0.79	0.22	ND	0.23	0.063	
156-59-2	cis-1,2-Dichloroethene	ND	0.16	0.11	ND	0.041	0.028	
71-55-6	1,1,1-Trichloroethane	59	0.16	0.096	11	0.029	0.018	
56-23-5	Carbon Tetrachloride	0.34	0.15	0.11	0.054	0.023	0.017	
79-01-6	Trichloroethene	530	1.6	1.1	99	0.30	0.20	D
127-18-4	Tetrachloroethene	140	0.16	0.10	21	0.024	0.015	

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.

D = The reported result is from a dilution.

Data File: I:\MS08\Data\2019 04\04\04041922.D

Sample : P1901724-005 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 18:04

Operator: RS

Misc : S31-04021901

ALS Vial : 7 Sample Multiplier: 1

RS 4/8/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:41:30 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.23	130	149101	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.36	114	651052	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.67	82	316913	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.09	65	258242	12.960	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	103.68%	
57) Toluene-d8 (SS2)	15.81	98	731051	13.053	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	104.40%	
73) Bromofluorobenzene (SS3)	19.06	174	227191	11.411	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	91.28%	

Target Compounds

						Qvalue
2) Propene	4.16	42	13461	0.938	ng	97
3) Dichlorodifluoromethan...	4.33	85	40831	2.032	ng	99
4) Chloromethane	0.00	50	0	N.D.	d	
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.	d	
6) Vinyl Chloride	5.03	62	1369	0.084	ng	88
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.45	45	522178	55.758	ng	99
11) Acetonitrile	6.71	41	3408	0.138	ng	86
12) Acrolein	6.90	56	1506	0.228	ng	95
13) Acetone	7.10	58	279819	31.404	ng	96
14) Trichlorofluoromethane	7.34	101	659083	38.091	ng	100
15) 2-Propanol (Isopropanol)	7.61	45	113721	3.651	ng	98
16) Acrylonitrile	7.92	53	171	N.D.		
17) 1,1-Dichloroethene	8.30	96	238	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	0.00	84	0	N.D.	d	
20) 3-Chloro-1-propene (Al...	8.64	41	102	N.D.		
21) Trichlorotrifluoroethane	8.93	151	217190	24.208	ng	98
22) Carbon Disulfide	8.78	76	187461	4.856	ng	99
23) trans-1,2-Dichloroethene	9.79	61	514	N.D.		
24) 1,1-Dichloroethane	10.04	63	365	N.D.		
25) Methyl tert-Butyl Ether	10.18	73	836	N.D.		
26) Vinyl Acetate	10.28	86	6443	2.286	ng	# 62
27) 2-Butanone (MEK)	10.57	72	22081	3.040	ng	93
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	11.40	87	155	N.D.		
30) Ethyl Acetate	11.38	61	6099	1.669	ng	89
31) n-Hexane	11.35	57	18854	1.008	ng	99
32) Chloroform	11.41	83	3538	0.202	ng	93
34) Tetrahydrofuran (THF)	11.87	72	1399	0.201	ng	# 1
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	12.49	97	660685	40.668	ng	99
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.97	78	19746	0.452	ng	100
42) Carbon Tetrachloride	13.13	117	3343	0.231	ng	100
43) Cyclohexane	13.26	84	4450	0.245	ng	94
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d	
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.06	130	3893406	341.476	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.	d	
49) 2,2,4-Trimethylpentane...	14.12	57	934	N.D.		
50) Methyl Methacrylate	0.00	100	0	N.D.	d	

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Data File: I:\MS08\Data\2019 04\04\04041922.D

Sample : P1901724-005 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 18:04

Operator: RS

Misc : S31-04021901

ALS Vial : 7 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:41:30 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	13622	1.160	ng	99
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	14.97	58	3053	0.311	ng	# 71
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	15.53	97	103	N.D.		
58) Toluene	15.91	91	128730	3.130	ng	100
59) 2-Hexanone	16.16	43	15578	0.645	ng	94
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.79	43	5245	0.196	ng	# 41
63) n-Octane	16.91	57	17163	1.833	ng	99
64) Tetrachloroethene	17.05	166	1112817	99.241	ng	100
65) Chlorobenzene	0.00	112	0	N.D.	d	
66) Ethylbenzene	18.07	91	895556	18.980	ng	100
67) m- & p-Xylenes	18.22	91	3000372	82.730	ng	98
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.56	104	30899	1.163	ng	100
70) o-Xylene	18.65	91	1402027	38.394	ng	99
71) n-Nonane	18.85	43	76829	3.181	ng	99
72) 1,1,2,2-Tetrachloroethane	18.66	83	581	N.D.		
74) Cumene	19.18	105	38628	0.818	ng	99
75) alpha-Pinene	19.52	93	4500	0.226	ng	# 1
76) n-Propylbenzene	19.63	91	29570	0.538	ng	# 53
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.75	105	23044	0.525	ng	100
79) 1,3,5-Trimethylbenzene	19.82	105	31404	0.789	ng	99
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.18	105	90589	2.372	ng	88
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.27	91	642	N.D.		
85) 1,3-Dichlorobenzene	20.31	146	4558	0.205	ng	95
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	d	
87) sec-Butylbenzene	0.00	105	0	N.D.	d	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.68	68	8937	0.722	ng	88
92) 1,2-Dibromo-3-Chloropr...	21.09	157	103	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.19	180	364	N.D.		
95) Naphthalene	22.29	128	7238	0.140	ng	93
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS08\Data\2019 04\04\04041922.D

Sample : P1901724-005 (1000mL)

Acq On : 4 Apr 2019 18:04

Misc : S31-04021901

ALS Vial : 7 Sample Multiplier: 1

Inst : MS08

Operator: RS

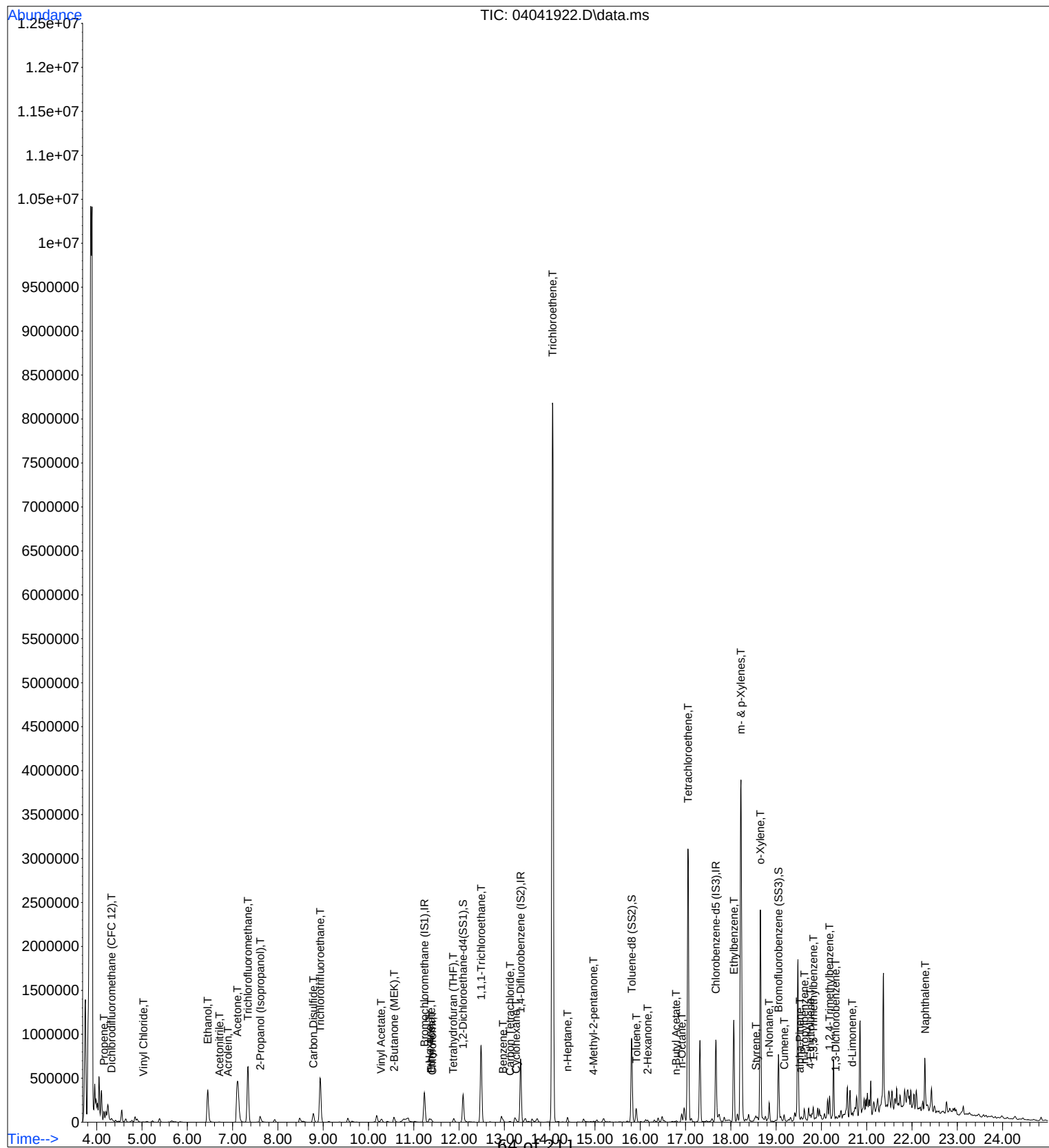
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:41:30 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 04\04\04041922.D

Sample : P1901724-005 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 18:04

Operator: RS

Misc : S31-04021901

ALS Vial : 7 Sample Multiplier: 1

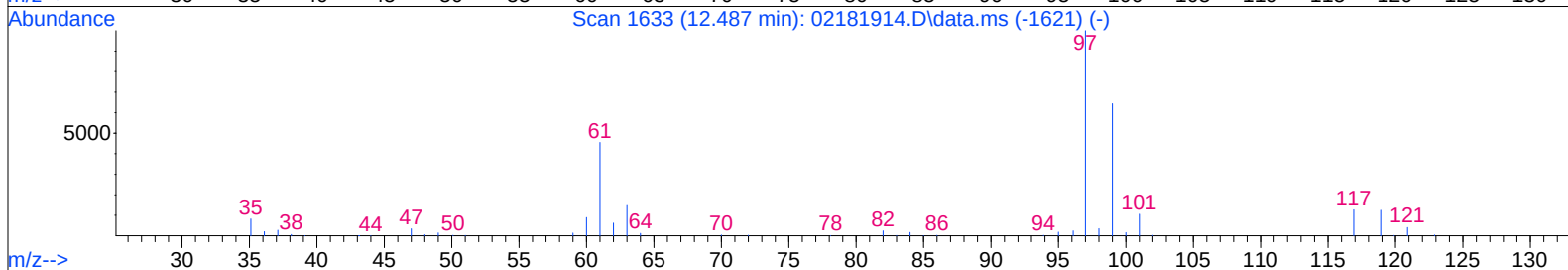
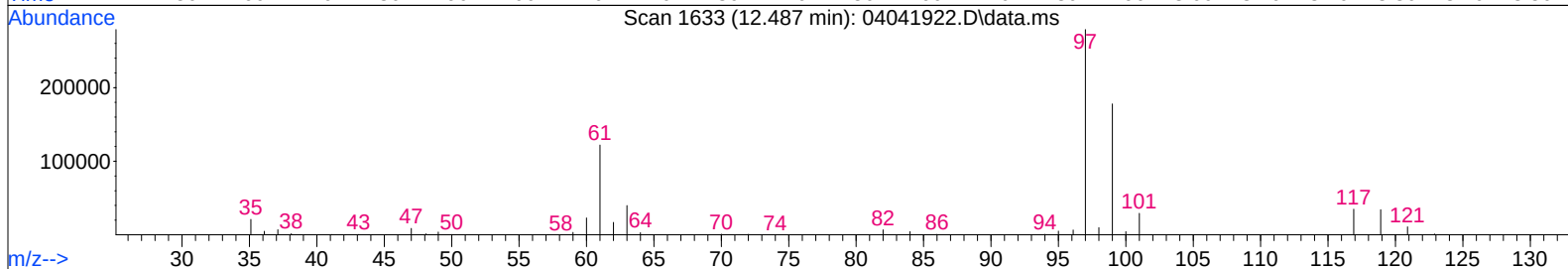
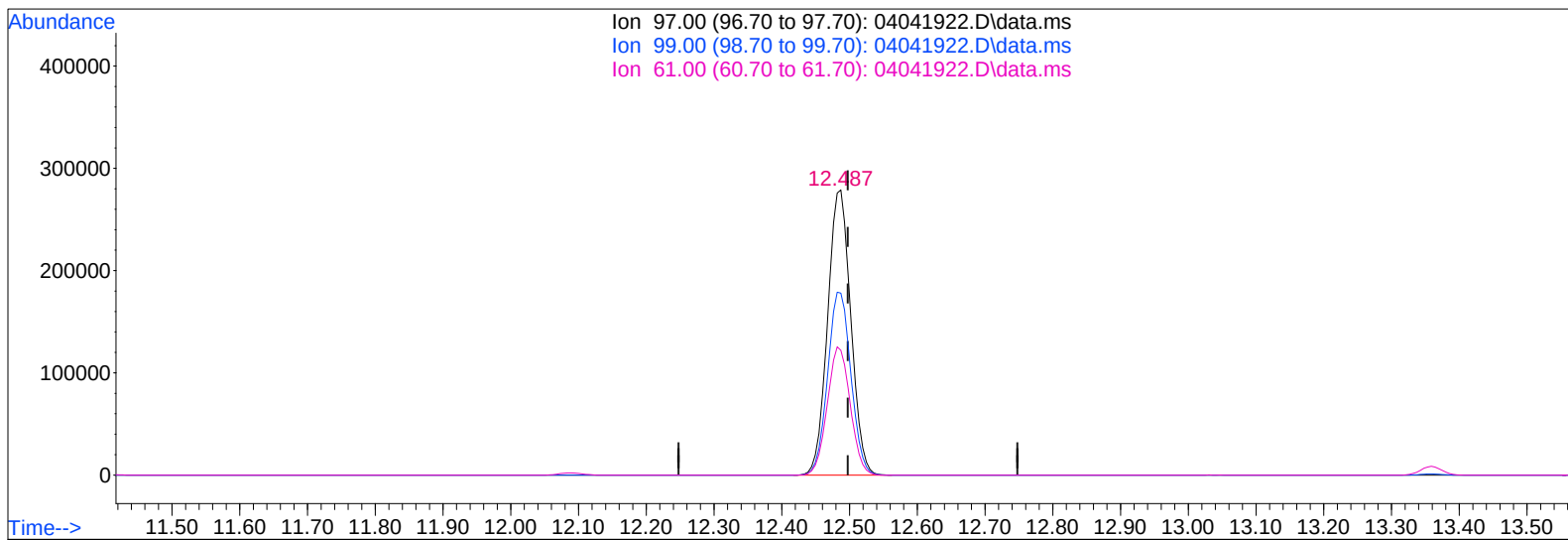
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:35 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041922.D\data.ms

(38) 1,1,1-Trichloroethane (T)

12.487min (-0.011) 40.67ng

response 660685

Ion	Exp%	Act%
97.00	100	100
99.00	64.90	64.45
61.00	45.60	44.58
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041922.D

Sample : P1901724-005 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 18:04

Operator: RS

Misc : S31-04021901

ALS Vial : 7 Sample Multiplier: 1

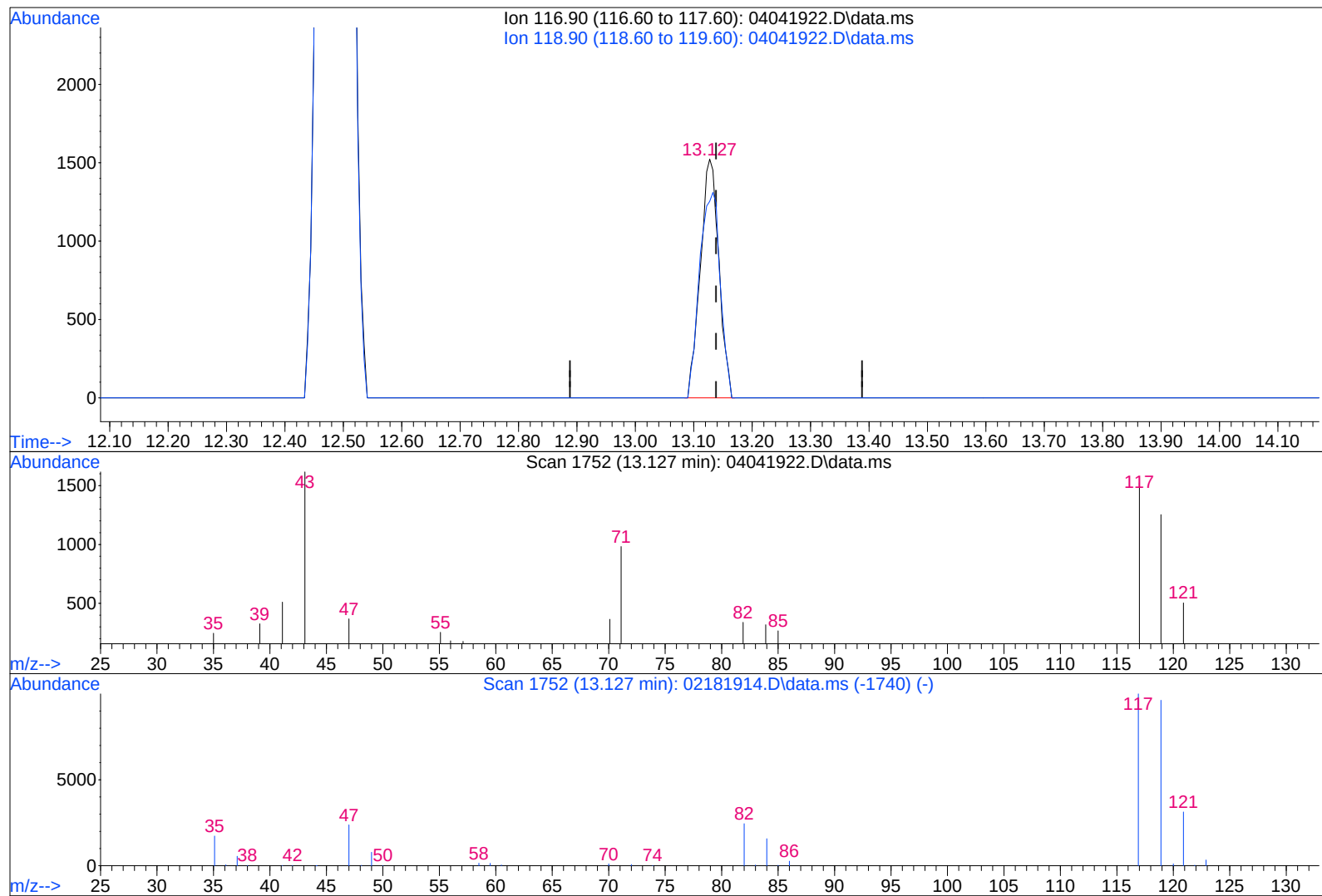
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:35 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041922.D\data.ms

(42) Carbon Tetrachloride (T)

13.127min (-0.011) 0.23ng

response 3343

Ion	Exp%	Act%
116.90	100	100
118.90	95.90	96.29
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041922.D

Sample : P1901724-005 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 18:04

Operator: RS

Misc : S31-04021901

ALS Vial : 7 Sample Multiplier: 1

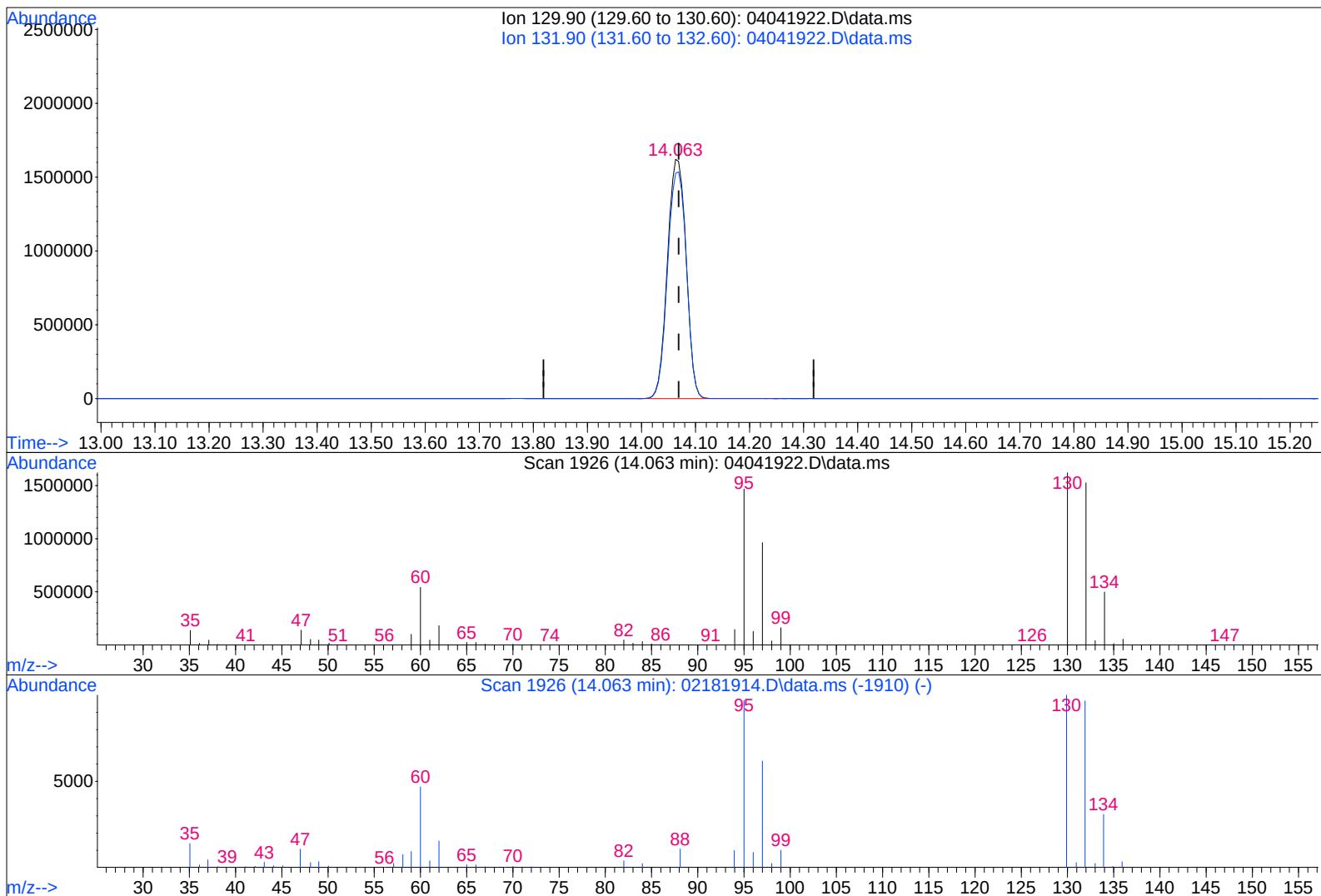
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:35 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041922.D\data.ms

(47) Trichloroethene (T)

14.063min (-0.005) 341.48ng

response 3893406

Ion	Exp%	Act%
129.90	100	100
131.90	96.00	95.58
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041922.D

Sample : P1901724-005 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 18:04

Operator: RS

Misc : S31-04021901

ALS Vial : 7 Sample Multiplier: 1

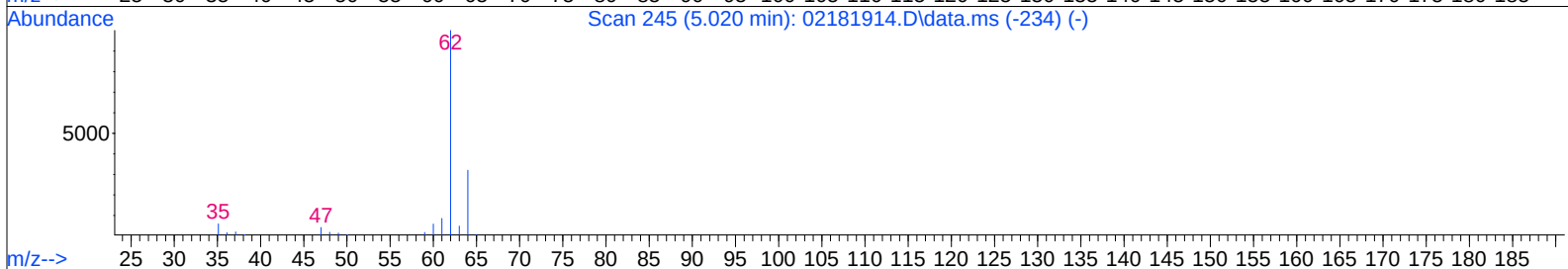
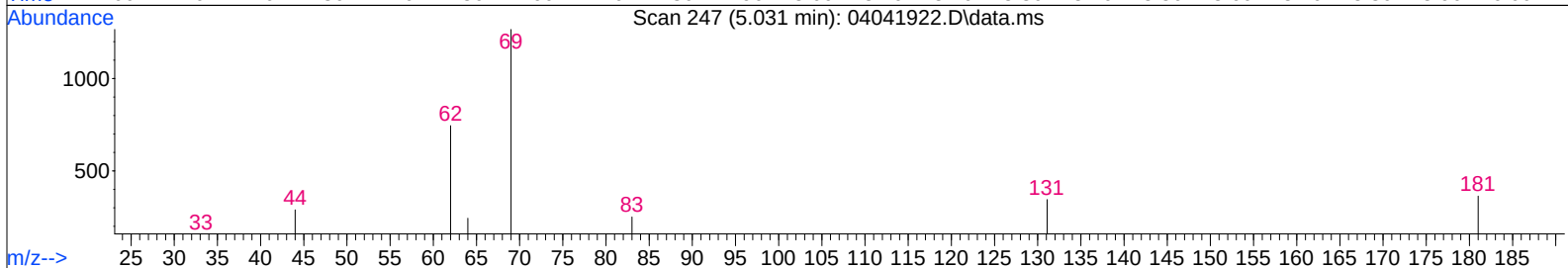
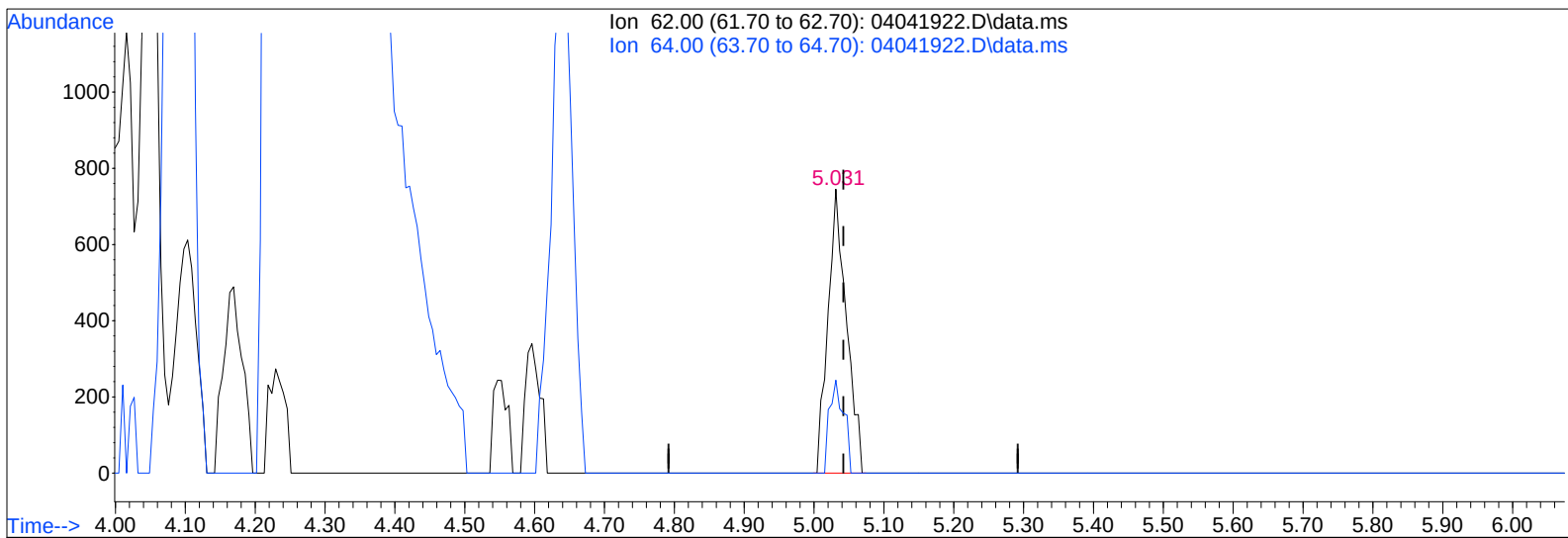
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:35 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041922.D\data.ms

(6) Vinyl Chloride (T)

5.031min (-0.011) 0.08ng

response 1369

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	25.27
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041922.D

Sample : P1901724-005 (1000mL)

Acq On : 4 Apr 2019 18:04

Misc : S31-04021901

ALS Vial : 7 Sample Multiplier: 1

Inst : MS08

Operator: RS

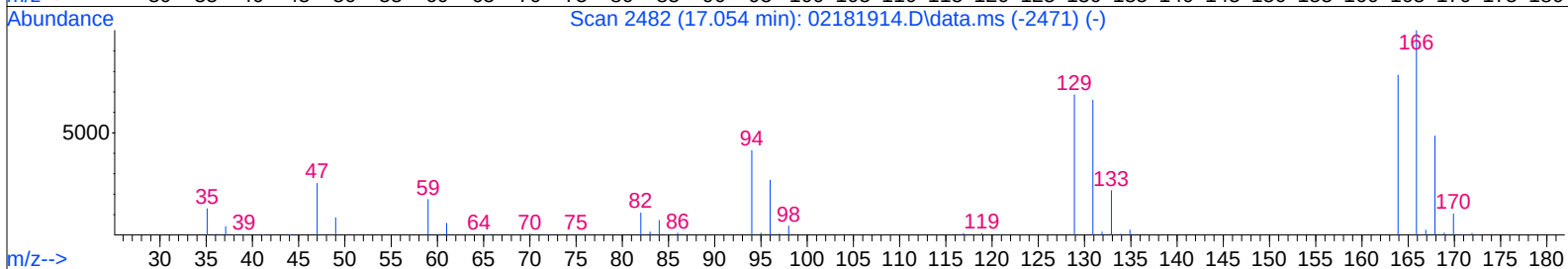
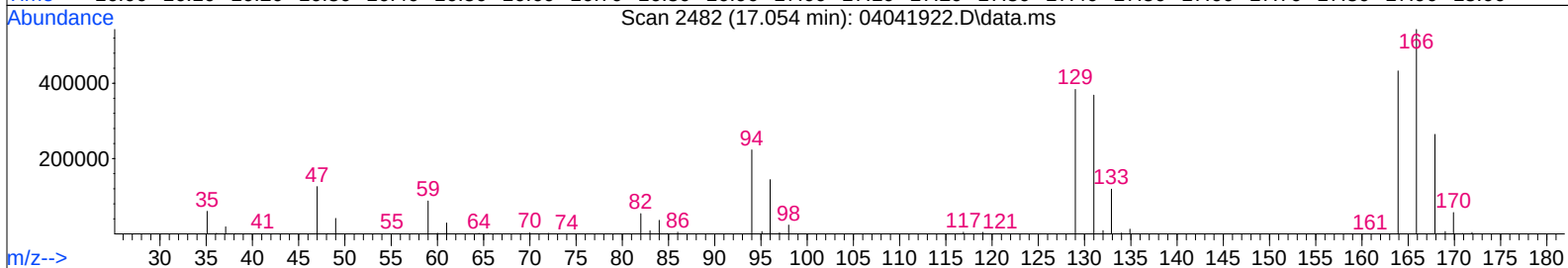
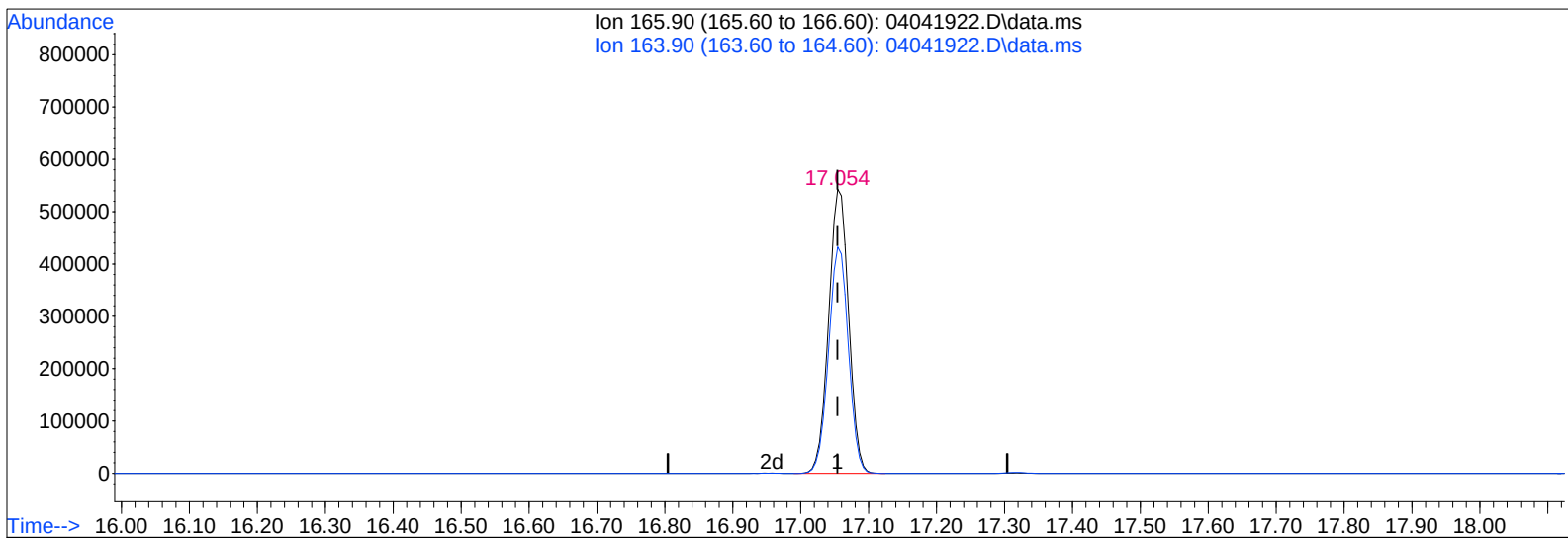
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:35 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041922.D\data.ms

(64) Tetrachloroethene (T)

17.054min (-0.000) 99.24ng

response 1112817

Ion	Exp%	Act%
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165.90	100	100
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163.90	78.80	79.13
--------	-------	-------

0.00	0.00	0.00
------	------	------

0.00	0.00	0.00
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Data File: I:\MS08\Data\2019 04\05\04051922.D

Sample : P1901724-005dil (100mL)

Inst : MS08

Acq On : 5 Apr 2019 16:32

Operator: RS

RS 4/8/19

Misc : S31-04021901

ALS Vial : 7 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:55:40 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.23	130	132656	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.35	114	585472	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.67	82	297025	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	239313	13.499	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	108.00%	
57) Toluene-d8 (SS2)	15.81	98	671456	12.792	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	102.32%	
73) Bromofluorobenzene (SS3)	19.05	174	219525	11.764	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	94.08%	

Target Compounds

						Qvalue
2) Propene	4.18	42	450	N.D.		
3) Dichlorodifluoromethan...	4.32	85	3448	0.193 ng	#	95
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.42	45	45034	5.405 ng		98
11) Acetonitrile	0.00	41	0	N.D.		
12) Acrolein	0.00	56	0	N.D.		
13) Acetone	7.11	58	25646	3.235 ng		91
14) Trichlorofluoromethane	7.33	101	59111	3.840 ng		99
15) 2-Propanol (Isopropanol)	7.62	45	11940	0.431 ng		99
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D. d		
19) Methylene Chloride	0.00	84	0	N.D.		
20) 3-Chloro-1-propene (Al...	8.58	41	230	N.D.		
21) Trichlorotrifluoroethane	8.94	151	19190	2.404 ng		96
22) Carbon Disulfide	8.78	76	19963	0.581 ng		97
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	10.60	72	1258	0.195 ng	#	36
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	11.35	57	1535	0.092 ng	#	86
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	12.48	97	58218	3.985 ng		99
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D. d		
41) Benzene	12.97	78	1881	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	13.25	84	228	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D. d		
47) Trichloroethene	14.06	130	374165	36.492 ng		100
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	14.21	57	115	N.D.		
50) Methyl Methacrylate	0.00	100	0	N.D.		

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Data File: I:\MS08\Data\2019 04\05\04051922.D

Sample : P1901724-005dil (100mL)

Inst : MS08

Acq On : 5 Apr 2019 16:32

Operator: RS

Misc : S31-04021901

ALS Vial : 7 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:55:40 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	1044	0.099	ng	94
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.91	91	11406	0.296	ng	99
59) 2-Hexanone	0.00	43	0	N.D.	d	
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.82	43	109	N.D.		
63) n-Octane	16.91	57	1368	0.156	ng	95
64) Tetrachloroethene	17.05	166	97786	9.304	ng	100
65) Chlorobenzene	17.74	112	649	N.D.		
66) Ethylbenzene	18.07	91	79577	1.799	ng	99
67) m- & p-Xylenes	18.22	91	273271	8.039	ng	99
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.56	104	2219	0.089	ng	91
70) o-Xylene	18.65	91	124427	3.636	ng	99
71) n-Nonane	18.85	43	6925	0.306	ng	96
72) 1,1,2,2-Tetrachloroethane	18.71	83	606	N.D.		
74) Cumene	19.18	105	3180	0.072	ng	96
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	19.63	91	2532	N.D.		
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.76	105	2035	N.D.		
79) 1,3,5-Trimethylbenzene	19.82	105	2914	0.078	ng	89
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.18	105	7518	0.210	ng	86
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.38	91	234	N.D.		
85) 1,3-Dichlorobenzene	20.33	146	273	N.D.		
86) 1,4-Dichlorobenzene	20.33	146	273	N.D.		
87) sec-Butylbenzene	20.42	105	729	N.D.		
88) 4-Isopropyltoluene (p-...	20.56	119	1136	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.69	68	476	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.31	128	856	N.D.		
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.18	119	883	N.D.		
100) n-Butylbenzene	20.92	91	1260	N.D.		

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

Data File: I:\MS08\Data\2019 04\05\04051922.D

Sample : P1901724-005dil (100mL)

Acq On : 5 Apr 2019 16:32

Misc : S31-04021901

ALS Vial : 7 Sample Multiplier: 1

Inst : MS08

Operator: RS

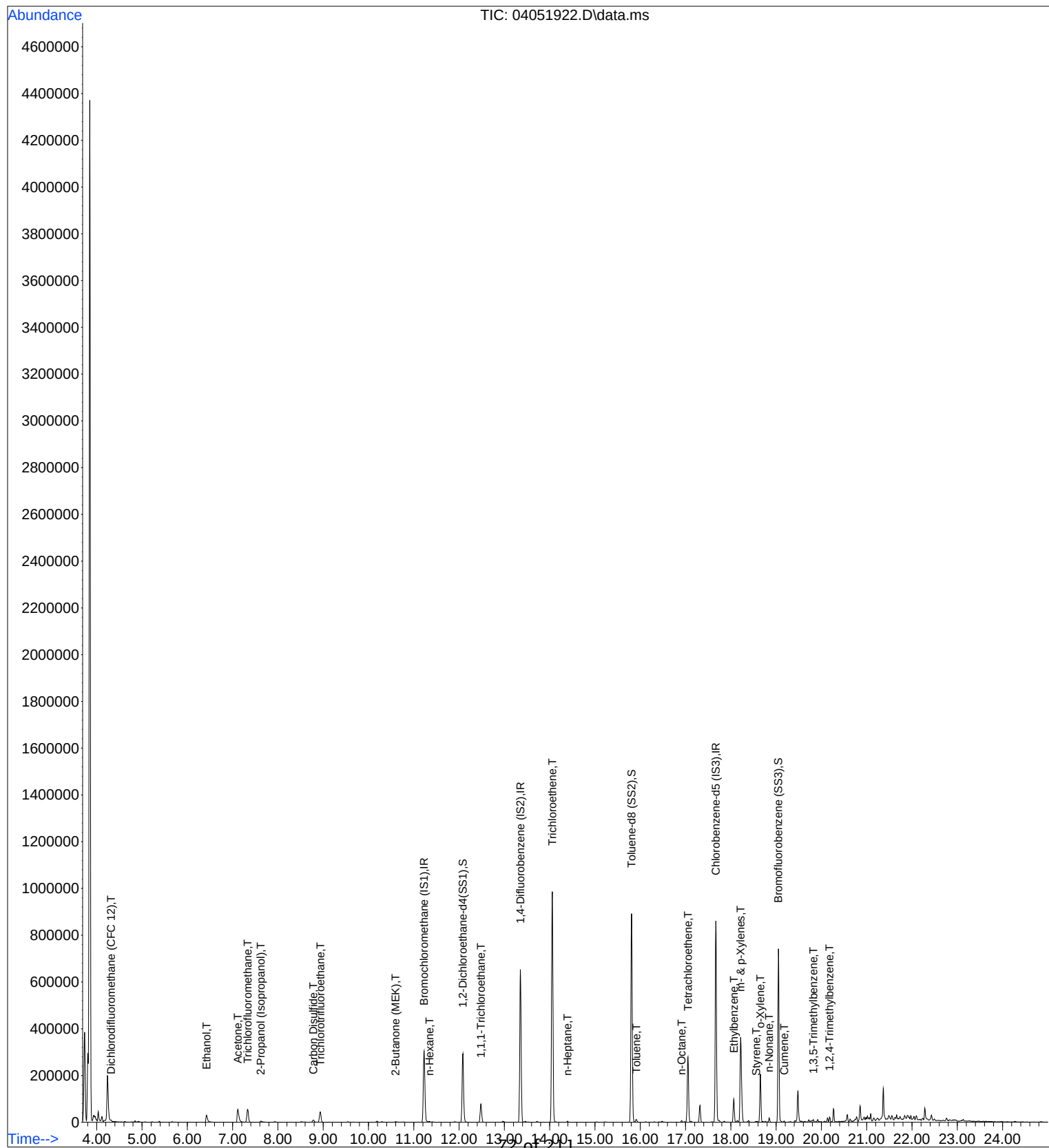
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:55:40 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 04\05\04051922.D

Sample : P1901724-005dil (100mL)

Acq On : 5 Apr 2019 16:32

Misc : S31-04021901

ALS Vial : 7 Sample Multiplier: 1

Inst : MS08

Operator: RS

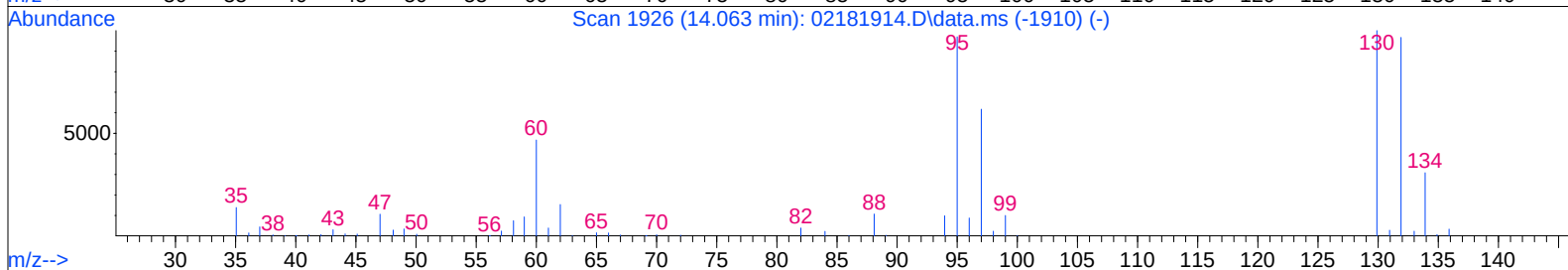
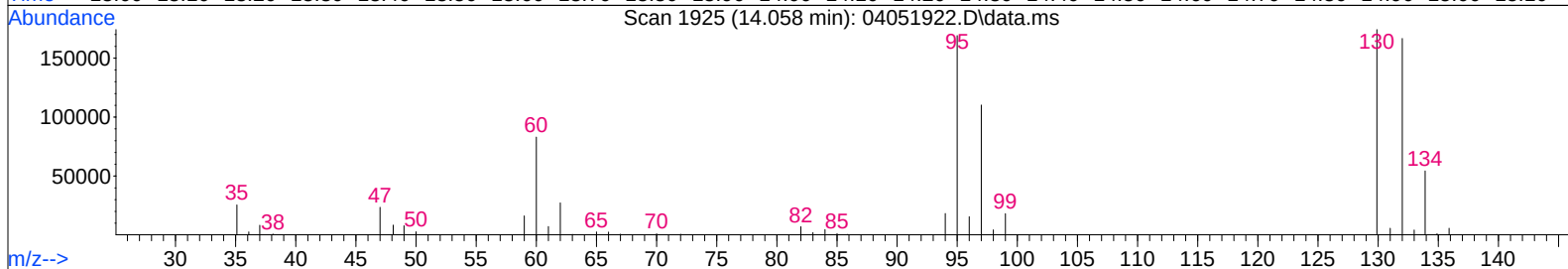
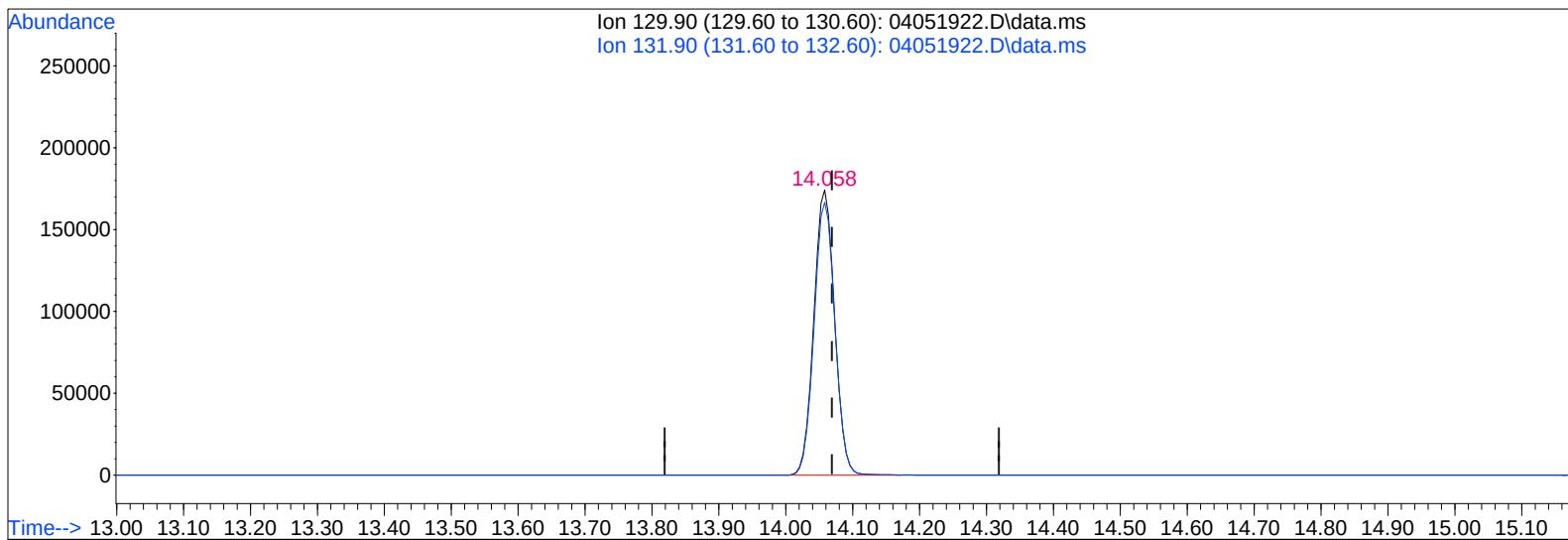
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 06 08:52:03 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04051922.D\data.ms

(47) Trichloroethene (T)

14.058min (-0.011) 36.49ng

response 374165

Ion	Exp%	Act%
-----	------	------

129.90	100	100
--------	-----	-----

131.90	96.00	95.87
--------	-------	-------

0.00	0.00	0.00
------	------	------

0.00	0.00	0.00
------	------	------

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

Client Sample ID: SS-14

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

ALS Project ID: P1901724

ALS Sample ID: P1901724-007

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Analyst: Raneem Sahtah

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC01519

Date Collected: 3/29/19

Date Received: 4/1/19

Date Analyzed: 4/4/19

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.78 Final Pressure (psig): 3.60

Container Dilution Factor: 1.54

CAS #	Compound	Result µg/m ³	MRL µg/m ³	MDL µg/m ³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.17	0.088	ND	0.066	0.034	
75-35-4	1,1-Dichloroethene	ND	0.17	0.11	ND	0.043	0.029	
75-09-2	Methylene Chloride	0.39	0.83	0.23	0.11	0.24	0.067	J
156-59-2	cis-1,2-Dichloroethene	ND	0.17	0.12	ND	0.043	0.029	
71-55-6	1,1,1-Trichloroethane	0.19	0.17	0.10	0.035	0.031	0.019	
56-23-5	Carbon Tetrachloride	0.38	0.15	0.11	0.060	0.024	0.018	
79-01-6	Trichloroethene	0.20	0.17	0.11	0.037	0.032	0.021	
127-18-4	Tetrachloroethene	0.34	0.17	0.11	0.050	0.025	0.016	

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.

Data File: I:\MS08\Data\2019 04\04\04041923.D

Sample : P1901724-007 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 18:36

Operator: RS

Misc : S31-04021901

ALS Vial : 8 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:43:32 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.23	130	155968	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.36	114	677965	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.67	82	337730	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	265303	12.728	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	101.84%	
57) Toluene-d8 (SS2)	15.81	98	770980	12.918	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	103.36%	
73) Bromofluorobenzene (SS3)	19.05	174	249432	11.756	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	94.08%	

Target Compounds

						Qvalue
2) Propene	4.15	42	46240	3.079	ng	98
3) Dichlorodifluoromethan...	4.31	85	32762	1.559	ng	99
4) Chloromethane	4.60	50	129	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	595	0.054	ng	# 42
6) Vinyl Chloride	5.02	62	608	N.D.		
7) 1,3-Butadiene	5.29	54	649	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.44	45	214959	21.943	ng	100
11) Acetonitrile	6.70	41	7743	0.299	ng	94
12) Acrolein	6.88	56	11633	1.680	ng	100
13) Acetone	7.08	58	457622	49.097	ng	92
14) Trichlorofluoromethane	7.33	101	16012	0.885	ng	99
15) 2-Propanol (Isopropanol)	7.59	45	318285	9.769	ng	99
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.51	84	2601	0.251	ng	100
20) 3-Chloro-1-propene (Al...	8.68	41	413	N.D.		
21) Trichlorotrifluoroethane	8.93	151	36116	3.848	ng	98
22) Carbon Disulfide	8.78	76	580700	14.379	ng	100
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.	d	
26) Vinyl Acetate	10.26	86	34858	11.825	ng	# 16
27) 2-Butanone (MEK)	10.55	72	55788	7.344	ng	95
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	11.40	87	264	N.D.		
30) Ethyl Acetate	11.37	61	8102	2.120	ng	85
31) n-Hexane	11.34	57	4752	0.243	ng	96
32) Chloroform	11.41	83	3619	0.197	ng	98
34) Tetrahydrofuran (THF)	11.82	72	26742	3.666	ng	99
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	12.48	97	2089	0.123	ng	95
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.96	78	16750	0.368	ng	98
42) Carbon Tetrachloride	13.12	117	3684	0.244	ng	98
43) Cyclohexane	13.25	84	1953	0.103	ng	# 42
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d	
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	14.02	83	595	N.D.		
47) Trichloroethene	14.06	130	1515	0.128	ng	98
48) 1,4-Dioxane	14.04	88	22717	2.546	ng	99
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	
50) Methyl Methacrylate	0.00	100	0	N.D.	d	

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Data File: I:\MS08\Data\2019 04\04\04041923.D

Sample : P1901724-007 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 18:36

Operator: RS

Misc : S31-04021901

ALS Vial : 8 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:43:32 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	4711	0.385	ng	86
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	14.96	58	9912	0.971	ng #	73
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	15.58	97	411	N.D.		
58) Toluene	15.91	91	153795	3.509	ng	99
59) 2-Hexanone	16.15	43	67285	2.615	ng	84
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.79	43	18216	0.640	ng	86
63) n-Octane	16.91	57	3195	0.320	ng #	78
64) Tetrachloroethene	17.05	166	2617	0.219	ng	96
65) Chlorobenzene	17.74	112	796	N.D.		
66) Ethylbenzene	18.07	91	78284	1.557	ng	99
67) m- & p-Xylenes	18.22	91	270531	7.000	ng	100
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.56	104	2714	0.096	ng	97
70) o-Xylene	18.65	91	105362	2.707	ng	100
71) n-Nonane	18.85	43	8418	0.327	ng	84
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D. d		
74) Cumene	19.17	105	23350	0.464	ng	98
75) alpha-Pinene	19.52	93	7095	0.334	ng #	44
76) n-Propylbenzene	19.63	91	12921	0.220	ng #	82
77) 3-Ethyltoluene	0.00	105	0	N.D. d		
78) 4-Ethyltoluene	19.75	105	15133	0.323	ng	99
79) 1,3,5-Trimethylbenzene	19.82	105	18316	0.432	ng	97
80) alpha-Methylstyrene	0.00	118	0	N.D. d		
81) 2-Ethyltoluene	0.00	105	0	N.D. d		
82) 1,2,4-Trimethylbenzene	20.18	105	129917	3.192	ng	88
83) n-Decane	0.00	57	0	N.D. d		
84) Benzyl Chloride	0.00	91	0	N.D. d		
85) 1,3-Dichlorobenzene	20.31	146	16069	0.677	ng	99
86) 1,4-Dichlorobenzene	20.37	146	484	N.D.		
87) sec-Butylbenzene	20.42	105	2713	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D. d		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D. d		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.68	68	13432	1.018	ng	93
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	22.19	180	163	N.D.		
95) Naphthalene	22.29	128	14358	0.261	ng	100
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	0.00	119	0	N.D. d		
100) n-Butylbenzene	0.00	91	0	N.D. d		

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

Data File: I:\MS08\Data\2019 04\04\04041923.D

Sample : P1901724-007 (1000mL)

Acq On : 4 Apr 2019 18:36

Misc : S31-04021901

ALS Vial : 8 Sample Multiplier: 1

Inst : MS08

Operator: RS

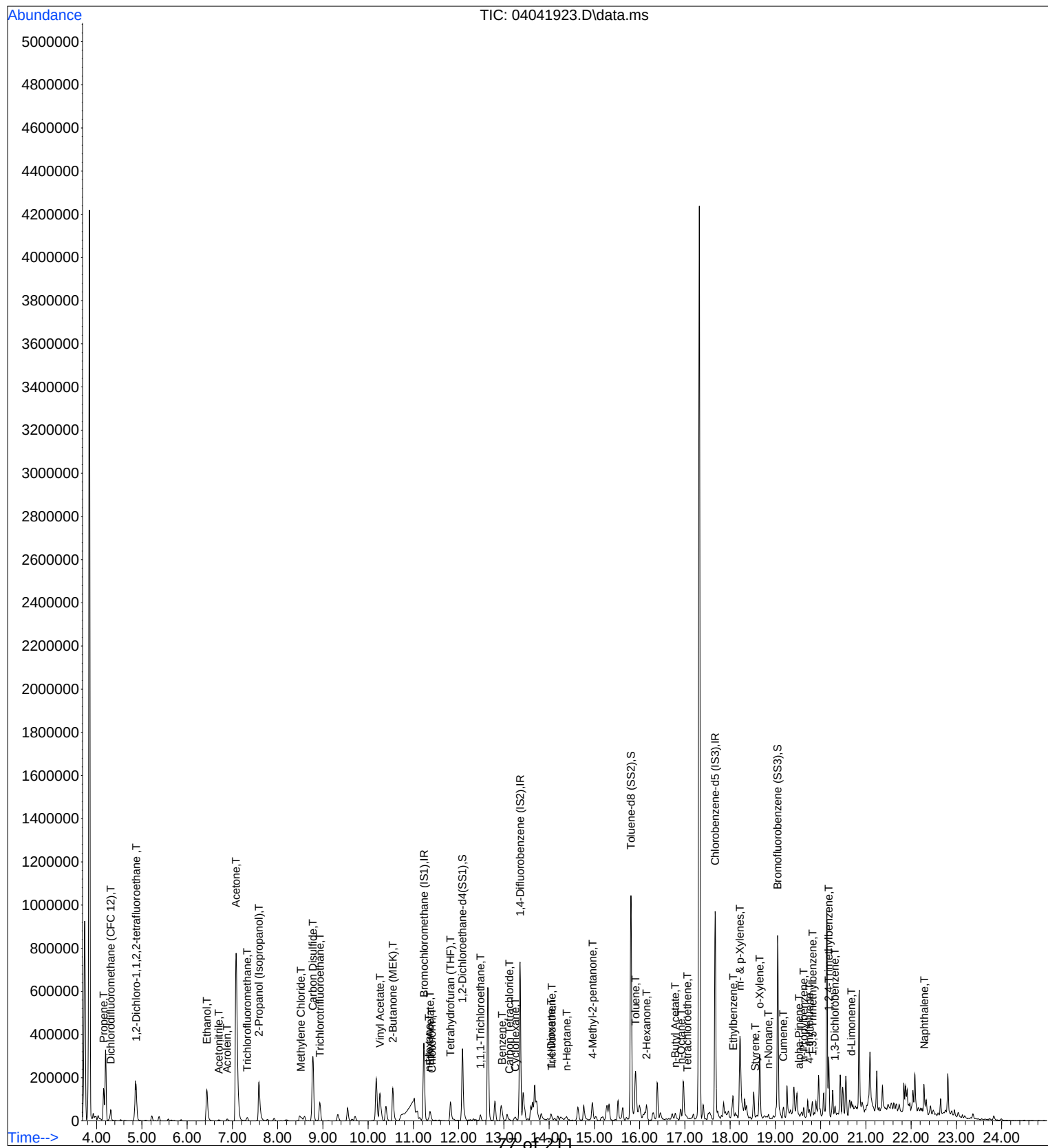
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:43:32 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 04\04\04041923.D

Sample : P1901724-007 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 18:36

Operator: RS

Misc : S31-04021901

ALS Vial : 8 Sample Multiplier: 1

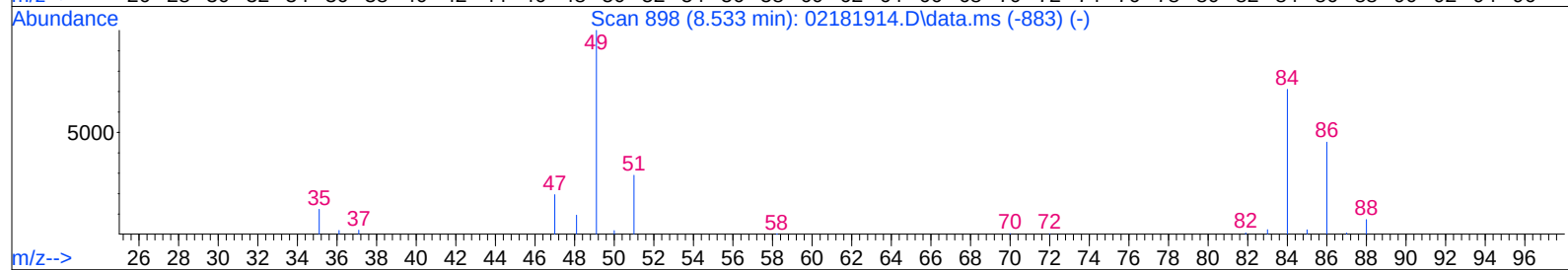
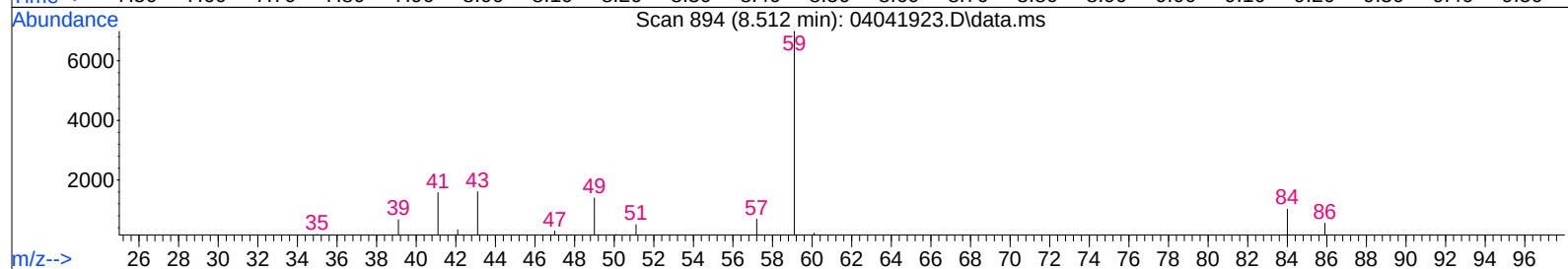
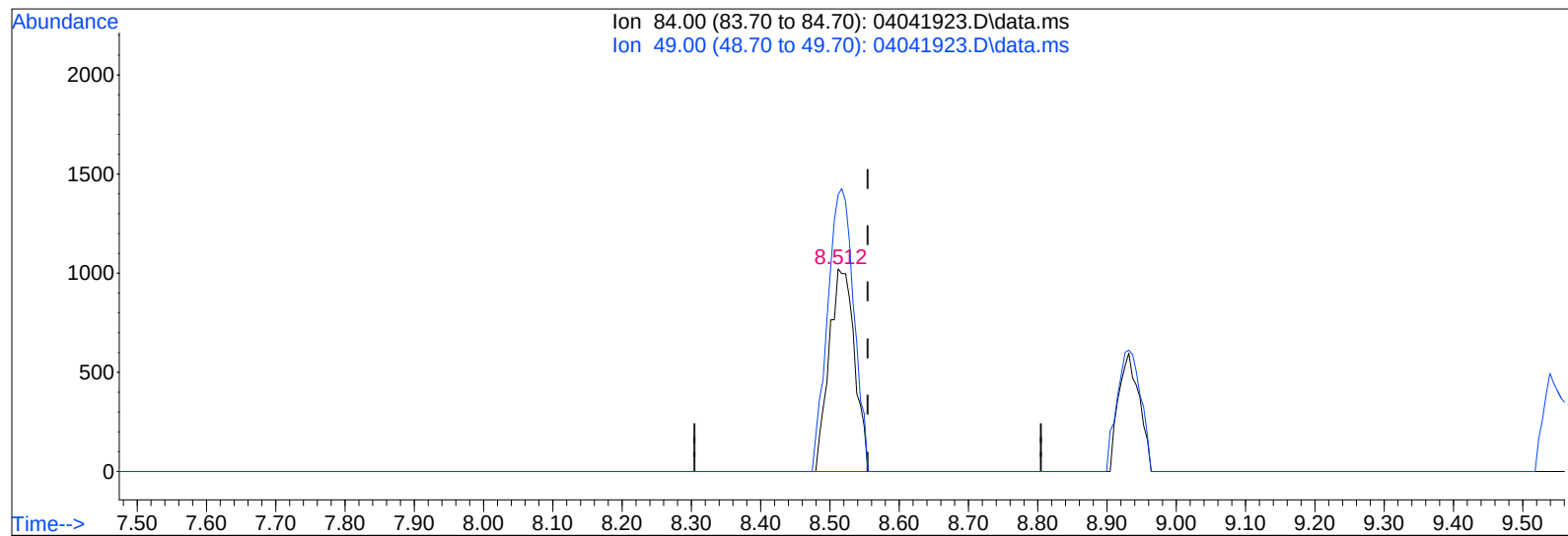
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:37 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041923.D\data.ms

(19) Methylene Chloride (T)

8.512min (-0.043) 0.25ng

response 2601

Ion	Exp%	Act%
84.00	100	100
49.00	143.70	143.68
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041923.D

Sample : P1901724-007 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 18:36

Operator: RS

Misc : S31-04021901

ALS Vial : 8 Sample Multiplier: 1

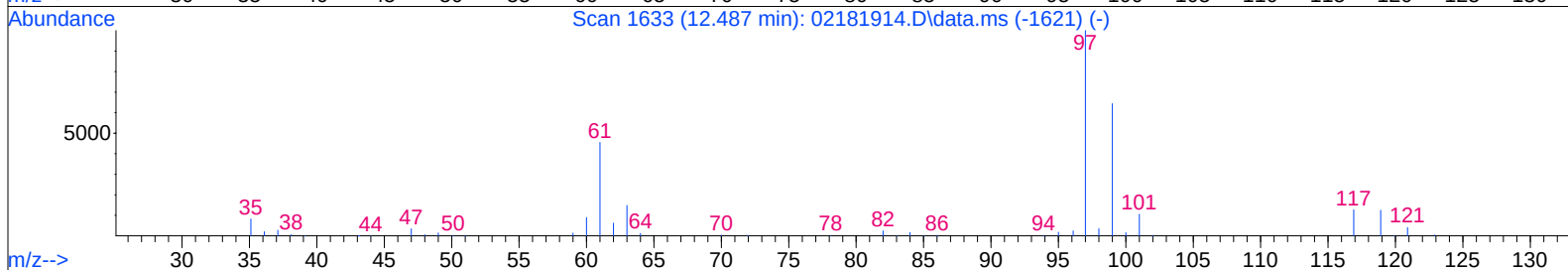
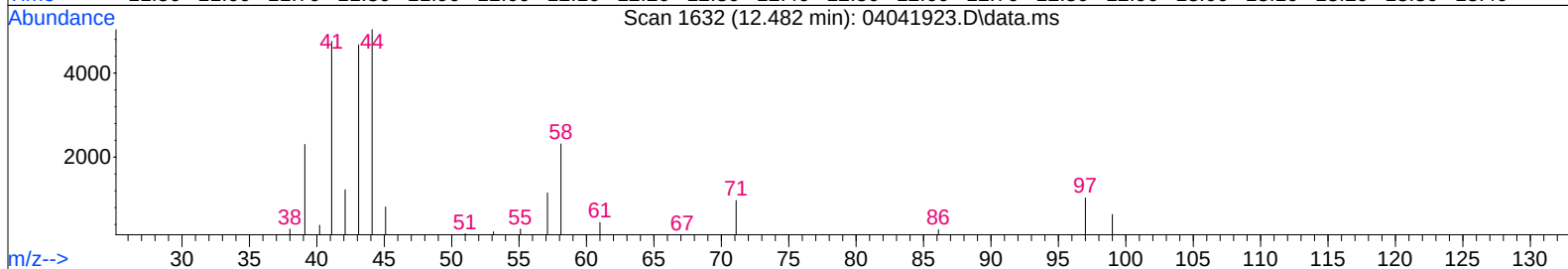
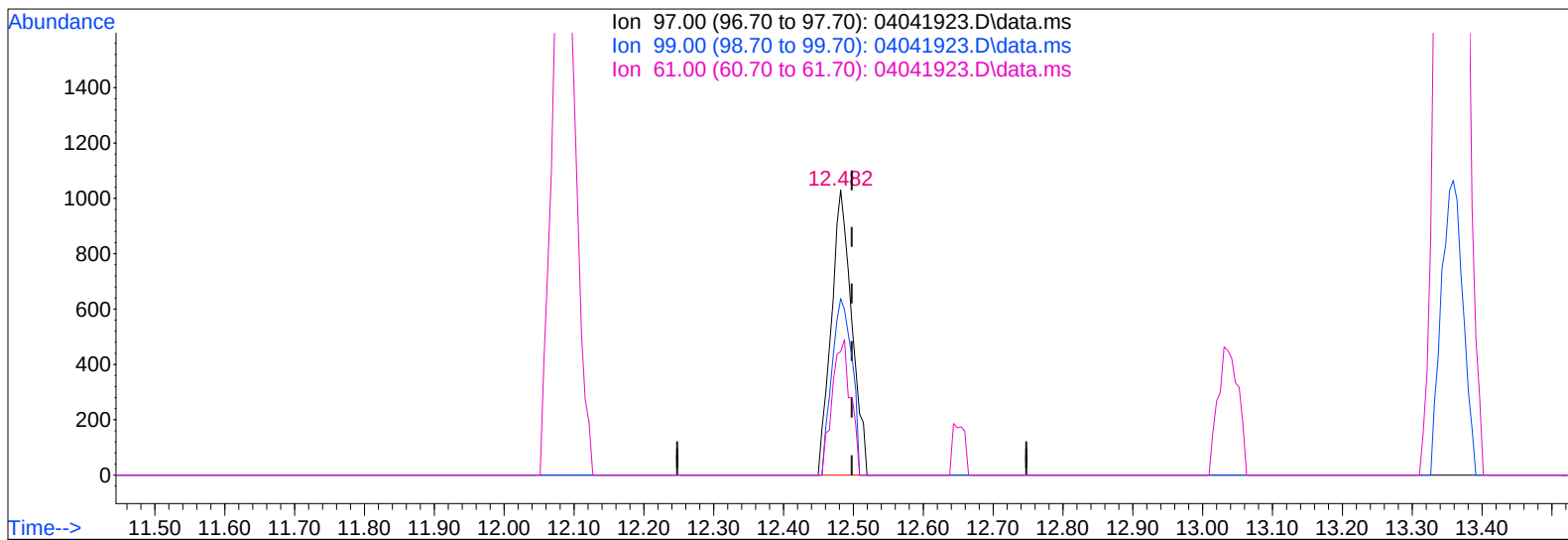
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:37 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041923.D\data.ms

(38) 1,1,1-Trichloroethane (T)

12.482min (-0.016) 0.12ng

response 2089

Ion	Exp%	Act%
97.00	100	100
99.00	64.90	60.70
61.00	45.60	42.75
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041923.D

Sample : P1901724-007 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 18:36

Operator: RS

Misc : S31-04021901

ALS Vial : 8 Sample Multiplier: 1

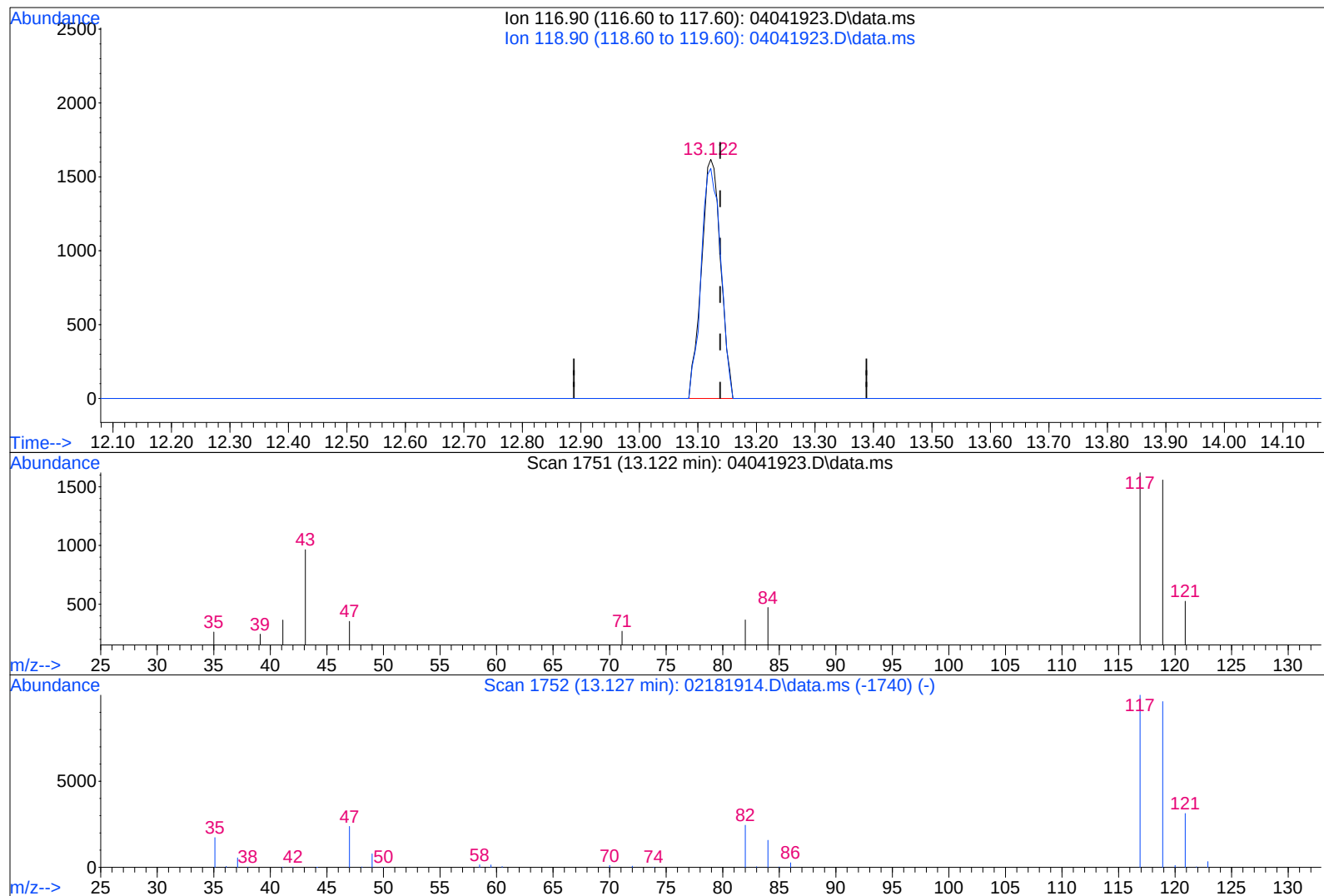
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:37 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041923.D\data.ms

(42) Carbon Tetrachloride (T)

13.122min (-0.016) 0.24ng

response 3684

Ion	Exp%	Act%
116.90	100	100
118.90	95.90	98.21
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041923.D

Sample : P1901724-007 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 18:36

Operator: RS

Misc : S31-04021901

ALS Vial : 8 Sample Multiplier: 1

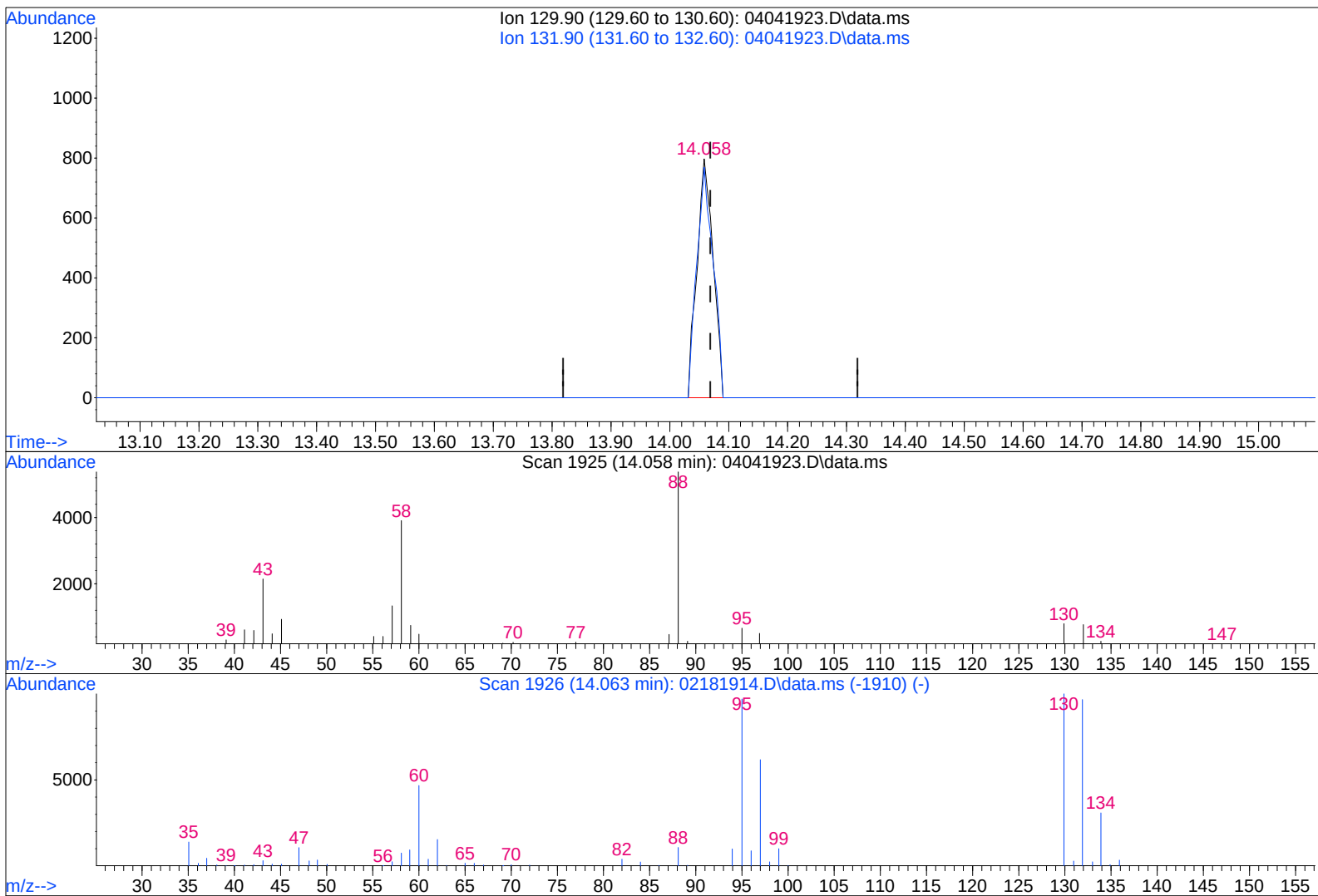
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:37 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041923.D\data.ms

(47) Trichloroethene (T)

14.058min (-0.011) 0.13ng

response 1515

Ion	Exp%	Act%
129.90	100	100
131.90	96.00	98.42
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041923.D

Sample : P1901724-007 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 18:36

Operator: RS

Misc : S31-04021901

ALS Vial : 8 Sample Multiplier: 1

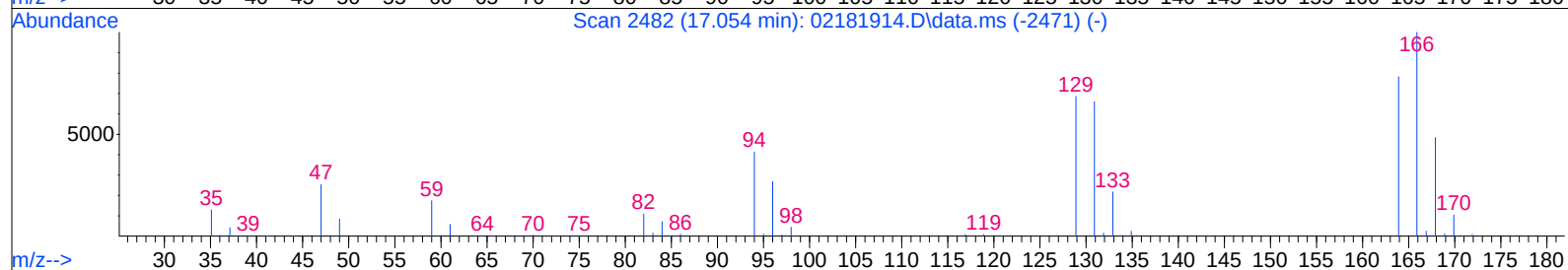
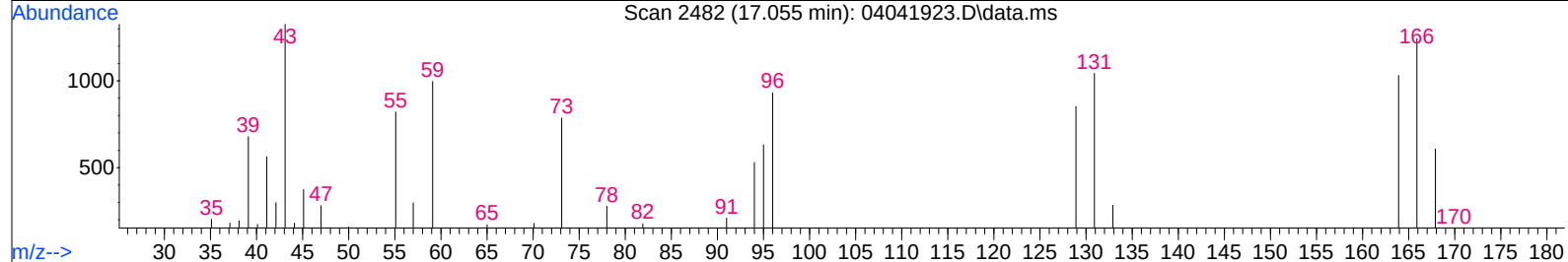
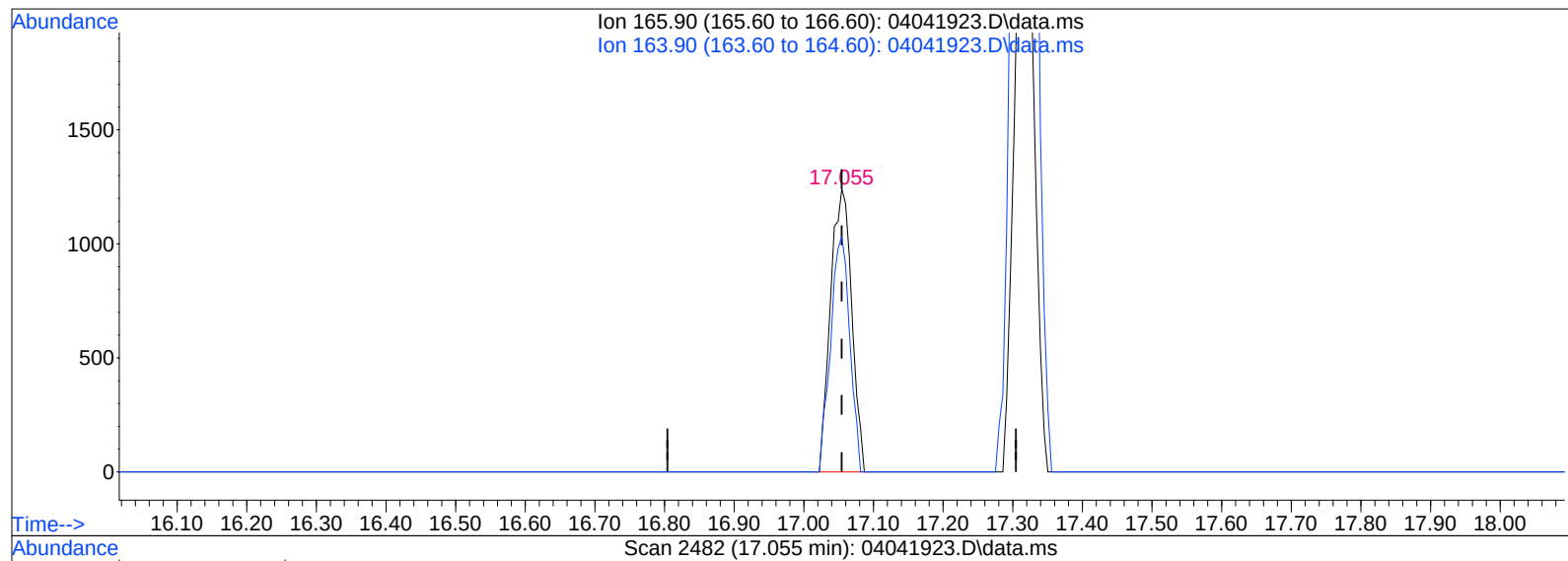
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:37 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041923.D\data.ms

(64) Tetrachloroethene (T)

17.055min (+0.000) 0.22ng

response 2617

Ion	Exp%	Act%
-----	------	------

165.90	100	100
--------	-----	-----

163.90	78.80	75.28
--------	-------	-------

0.00	0.00	0.00
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0.00	0.00	0.00
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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

Client Sample ID: SS-15

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

ALS Project ID: P1901724

ALS Sample ID: P1901724-008

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Analyst: Raneem Sahtah

Sample Type: 6.0 L Silonite Canister

Test Notes:

Container ID: SSC00241

Date Collected: 3/29/19

Date Received: 4/1/19

Date Analyzed: 4/4/19

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.38 Final Pressure (psig): 3.71

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m ³	MRL µg/m ³	MDL µg/m ³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	0.12	0.16	0.085	0.047	0.064	0.033	J
75-35-4	1,1-Dichloroethene	ND	0.16	0.11	ND	0.041	0.028	
75-09-2	Methylene Chloride	0.46	0.80	0.22	0.13	0.23	0.064	J
156-59-2	cis-1,2-Dichloroethene	ND	0.16	0.11	ND	0.041	0.028	
71-55-6	1,1,1-Trichloroethane	0.96	0.16	0.098	0.18	0.030	0.018	
56-23-5	Carbon Tetrachloride	ND	0.15	0.11	ND	0.024	0.018	
79-01-6	Trichloroethene	1.1	0.16	0.11	0.20	0.031	0.020	
127-18-4	Tetrachloroethene	27	0.16	0.10	4.0	0.024	0.015	

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.

Data File: I:\MS08\Data\2019 04\04\04041926.D

Sample : P1901724-008 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 20:15

Operator: RS

Misc : S31-04021901

ALS Vial : 9 Sample Multiplier: 1

RS 4/8/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:45:45 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.23	130	152862	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.35	114	659848	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.67	82	340773	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	267142	13.077	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	104.64%	
57) Toluene-d8 (SS2)	15.81	98	754198	12.524	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.16%	
73) Bromofluorobenzene (SS3)	19.05	174	254187	11.873	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	94.96%	

Target Compounds

						Qvalue
2) Propene	4.15	42	23445	1.593	ng	97
3) Dichlorodifluoromethan...	4.31	85	44483	2.159	ng	99
4) Chloromethane	4.60	50	166	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	768	0.071	ng	# 42
6) Vinyl Chloride	5.02	62	1361	0.081	ng	87
7) 1,3-Butadiene	5.29	54	111	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.43	45	262502	27.340	ng	99
11) Acetonitrile	6.70	41	5153	0.203	ng	86
12) Acrolein	6.89	56	2351	0.346	ng	99
13) Acetone	7.08	58	244467	26.761	ng	95
14) Trichlorofluoromethane	7.33	101	67505	3.805	ng	100
15) 2-Propanol (Isopropanol)	7.59	45	154472	4.837	ng	98
16) Acrylonitrile	7.88	53	1601	0.111	ng	# 65
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.51	84	3166	0.311	ng	95
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	8.93	151	37355	4.061	ng	98
22) Carbon Disulfide	8.78	76	116464	2.942	ng	99
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	10.18	73	706	N.D.		
26) Vinyl Acetate	10.27	86	2210	0.765	ng	# 70
27) 2-Butanone (MEK)	10.56	72	14868	1.997	ng	100
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	11.37	61	6554	1.750	ng	84
31) n-Hexane	11.35	57	17800	0.928	ng	99
32) Chloroform	11.39	83	304	N.D.		
34) Tetrahydrofuran (THF)	11.85	72	2439	0.341	ng	99
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	12.48	97	10624	0.645	ng	98
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.96	78	38362	0.866	ng	99
42) Carbon Tetrachloride	13.13	117	765	0.052	ng	81
43) Cyclohexane	13.26	84	5402	0.294	ng	97
44) tert-Amyl Methyl Ether	13.62	73	522	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	14.06	130	8485	0.734	ng	99
48) 1,4-Dioxane	0.00	88	0	N.D.	d	
49) 2,2,4-Trimethylpentane...	14.12	57	2092	N.D.		
50) Methyl Methacrylate	0.00	100	0	N.D.		

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Data File: I:\MS08\Data\2019 04\04\04041926.D

Sample : P1901724-008 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 20:15

Operator: RS

Misc : S31-04021901

ALS Vial : 9 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:45:45 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	12286	1.032	ng	100
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	14.97	58	5669	0.570	ng	77
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.91	91	170160	3.848	ng	100
59) 2-Hexanone	16.16	43	8257	0.318	ng	81
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.79	43	13220	0.460	ng	94
63) n-Octane	16.91	57	9211	0.915	ng	98
64) Tetrachloroethene	17.05	166	216742	17.976	ng	99
65) Chlorobenzene	17.67	112	497	N.D.		
66) Ethylbenzene	18.06	91	75159	1.481	ng	99
67) m- & p-Xylenes	18.22	91	317045	8.130	ng	100
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.56	104	2827	0.099	ng	92
70) o-Xylene	18.65	91	220067	5.605	ng	100
71) n-Nonane	18.85	43	20530	0.790	ng	99
72) 1,1,2,2-Tetrachloroethane	18.67	83	313	N.D.		
74) Cumene	19.18	105	24561	0.483	ng	96
75) alpha-Pinene	19.52	93	9015	0.420	ng	# 1
76) n-Propylbenzene	19.63	91	23312	0.394	ng	92
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.75	105	25278	0.535	ng	99
79) 1,3,5-Trimethylbenzene	19.82	105	70872	1.656	ng	98
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.18	105	150148	3.656	ng	87
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.29	91	856	N.D.		
85) 1,3-Dichlorobenzene	20.31	146	8590	0.359	ng	97
86) 1,4-Dichlorobenzene	20.38	146	1170	N.D.		
87) sec-Butylbenzene	0.00	105	0	N.D.	d	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.67	146	368	N.D.		
91) d-Limonene	20.68	68	15952	1.198	ng	95
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.19	180	933	0.058	ng	# 93
95) Naphthalene	22.30	128	11536	0.208	ng	98
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS08\Data\2019 04\04\04041926.D

Sample : P1901724-008 (1000mL)

Acq On : 4 Apr 2019 20:15

Misc : S31-04021901

ALS Vial : 9 Sample Multiplier: 1

Inst : MS08

Operator: RS

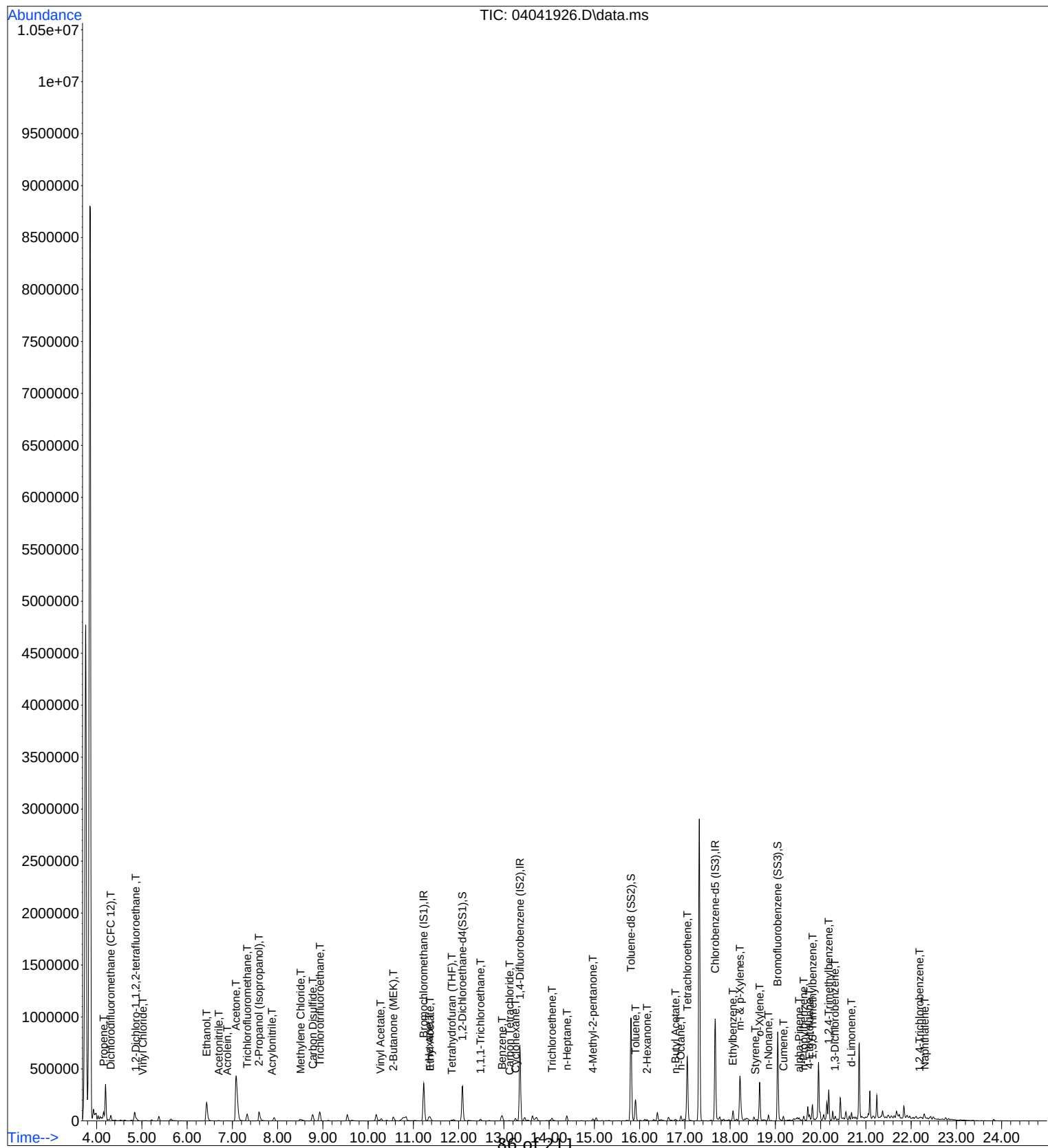
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:45:45 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 04\04\04041926.D

Sample : P1901724-008 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 20:15

Operator: RS

Misc : S31-04021901

ALS Vial : 9 Sample Multiplier: 1

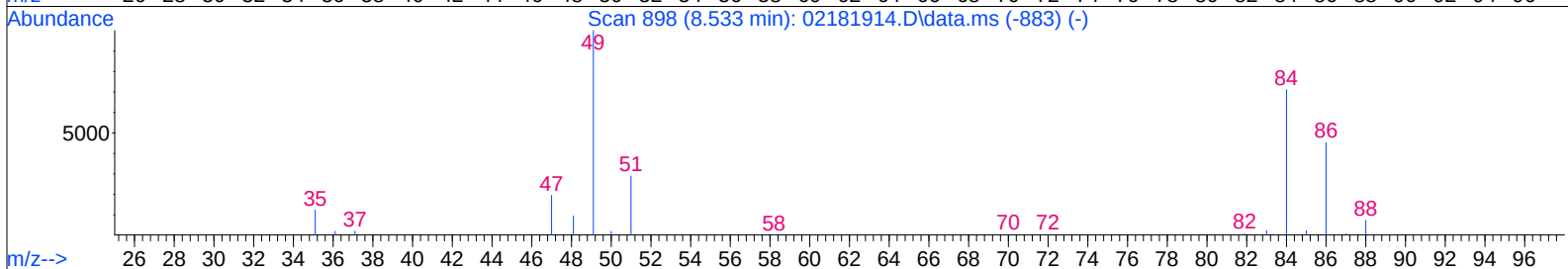
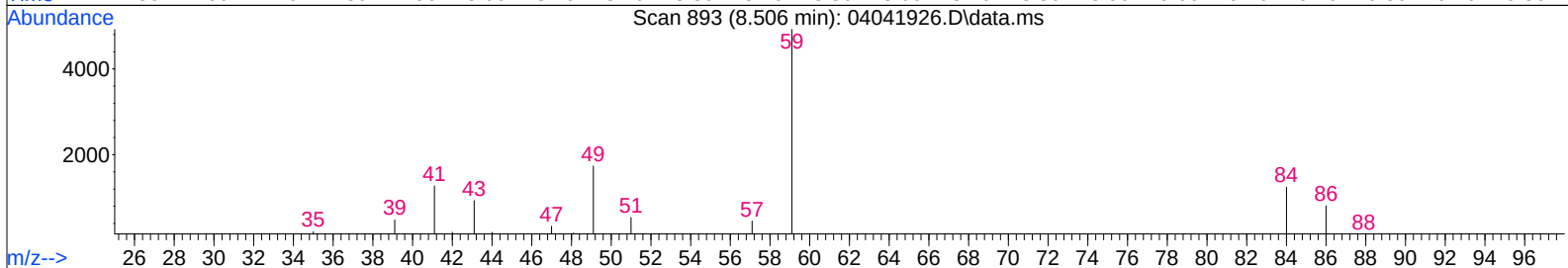
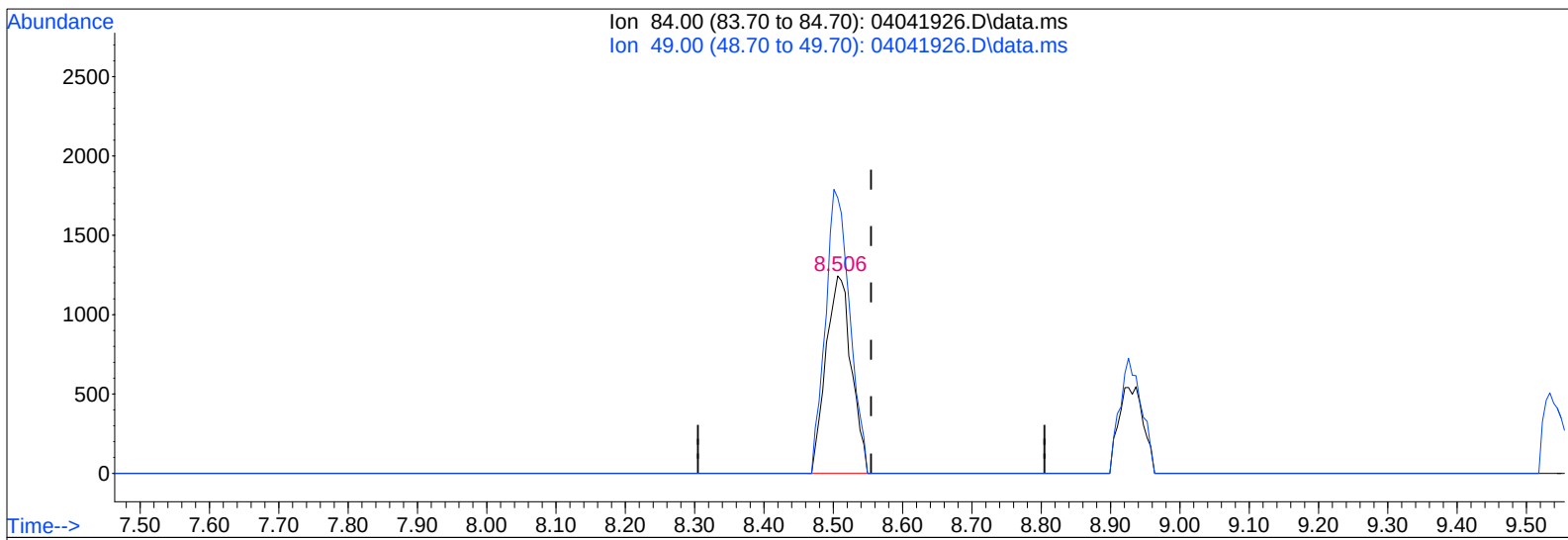
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:44 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041926.D\data.ms

(19) Methylene Chloride (T)

8.506min (-0.048) 0.31ng

response 3166

Ion	Exp%	Act%
84.00	100	100
49.00	143.70	137.68
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041926.D

Sample : P1901724-008 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 20:15

Operator: RS

Misc : S31-04021901

ALS Vial : 9 Sample Multiplier: 1

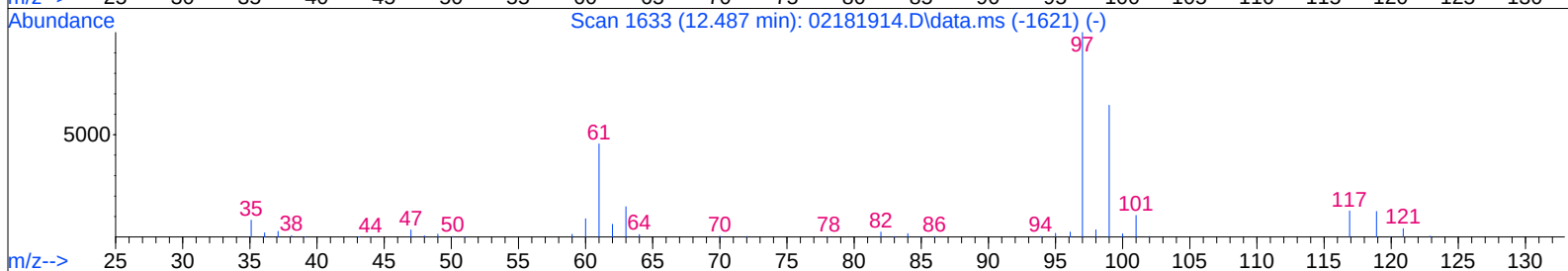
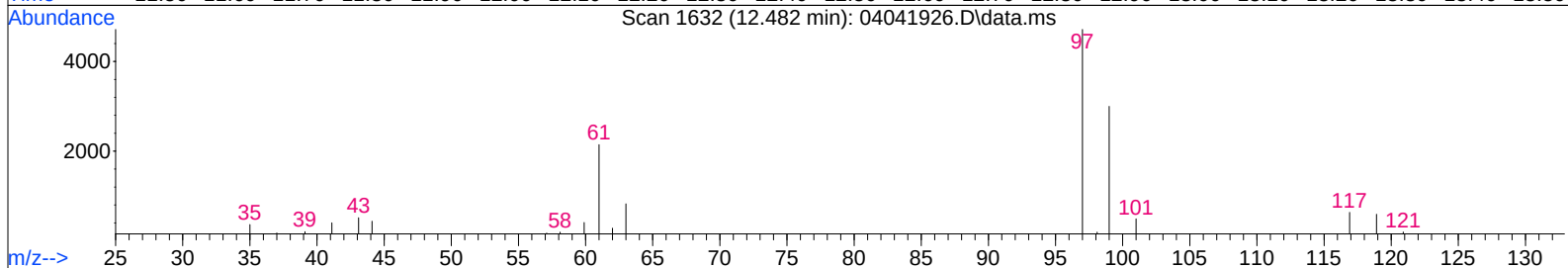
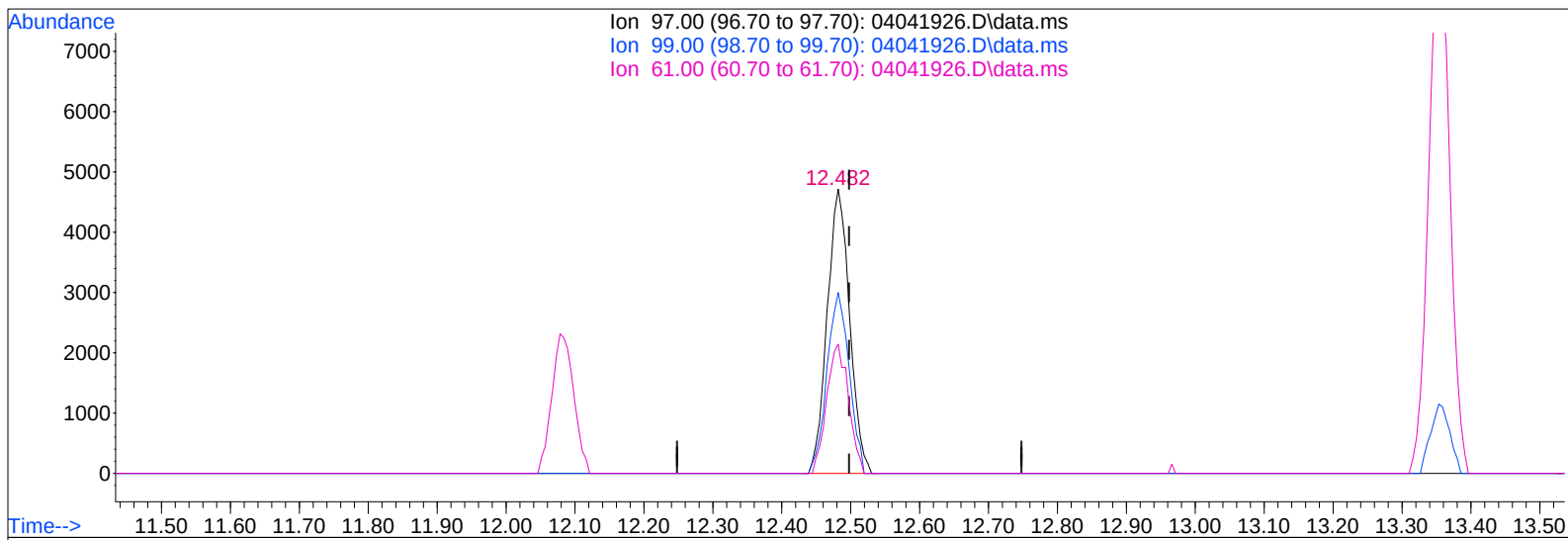
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:44 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041926.D\data.ms

(38) 1,1,1-Trichloroethane (T)

12.482min (-0.016) 0.65ng

response 10624

Ion	Exp%	Act%
97.00	100	100
99.00	64.90	63.03
61.00	45.60	44.42
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041926.D

Sample : P1901724-008 (1000mL)

Acq On : 4 Apr 2019 20:15

Misc : S31-04021901

ALS Vial : 9 Sample Multiplier: 1

Inst : MS08

Operator: RS

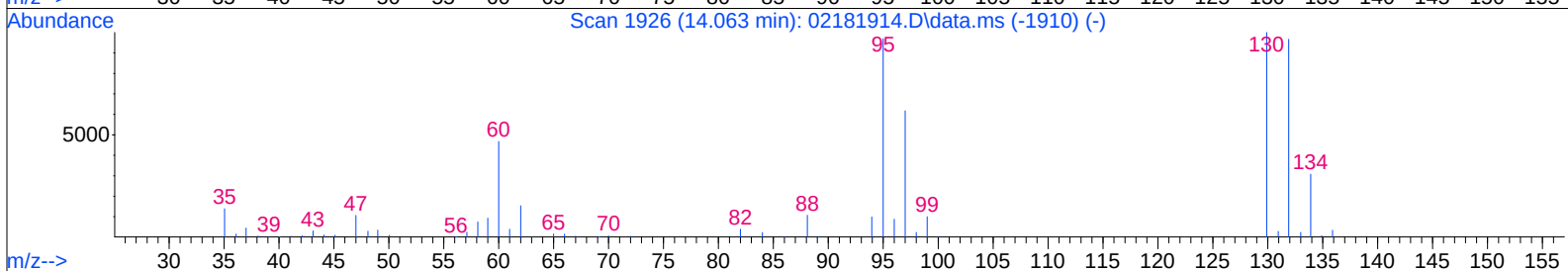
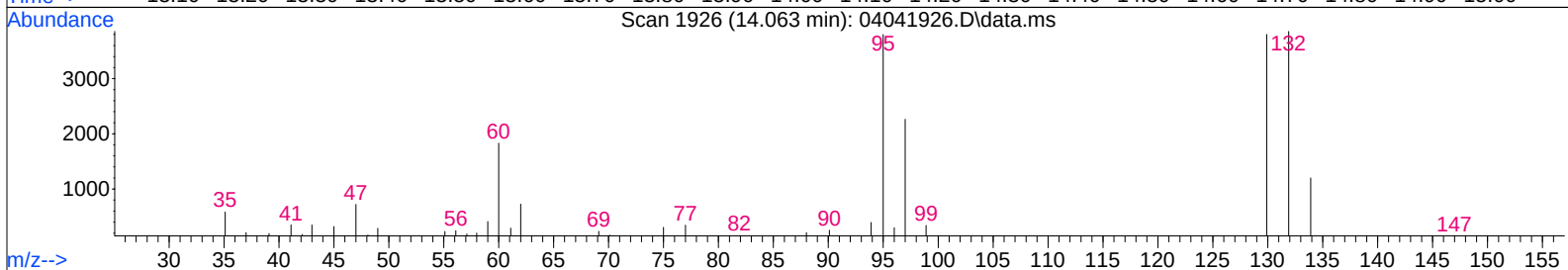
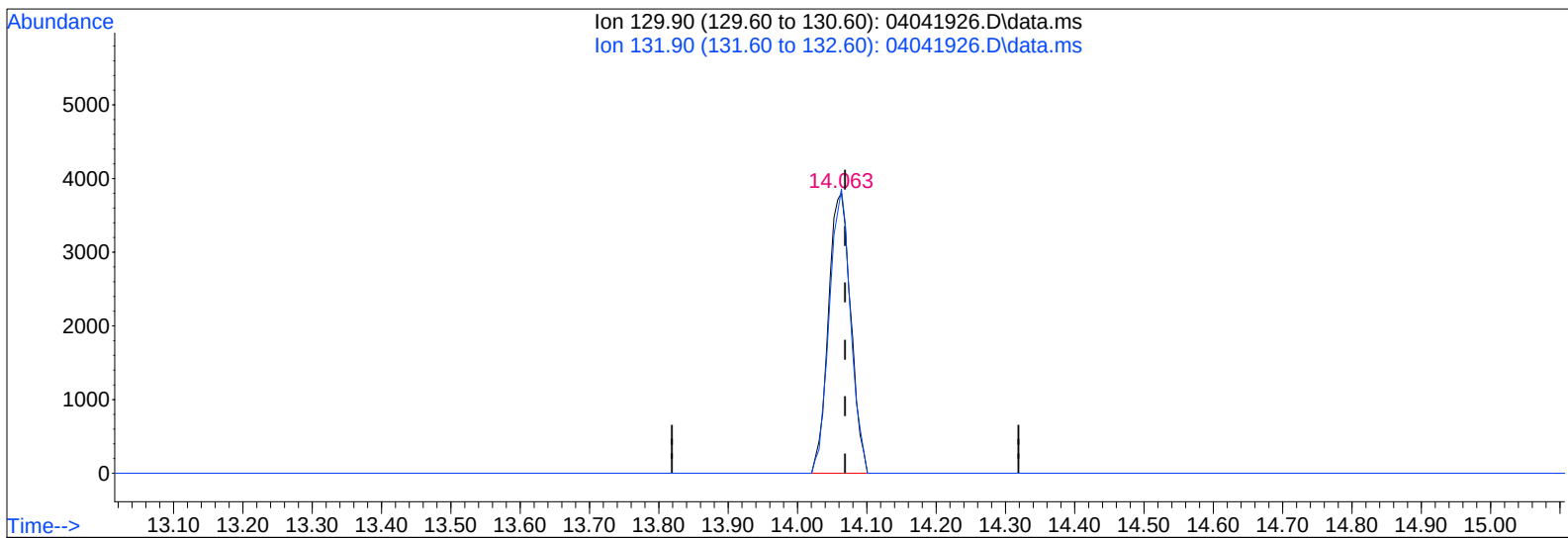
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:44 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041926.D\data.ms

(47) Trichloroethene (T)

14.063min (-0.005) 0.73ng

response 8485

Ion	Exp%	Act%
129.90	100	100
131.90	96.00	96.66
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041926.D

Sample : P1901724-008 (1000mL)

Acq On : 4 Apr 2019 20:15

Misc : S31-04021901

ALS Vial : 9 Sample Multiplier: 1

Inst : MS08

Operator: RS

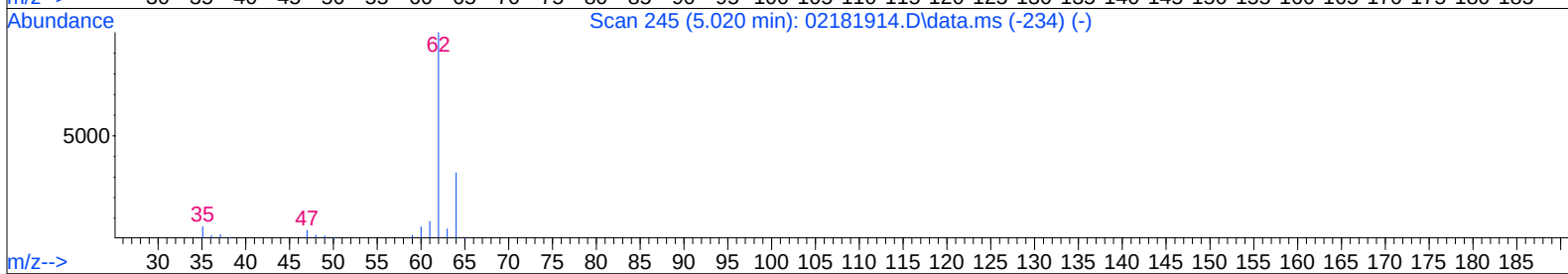
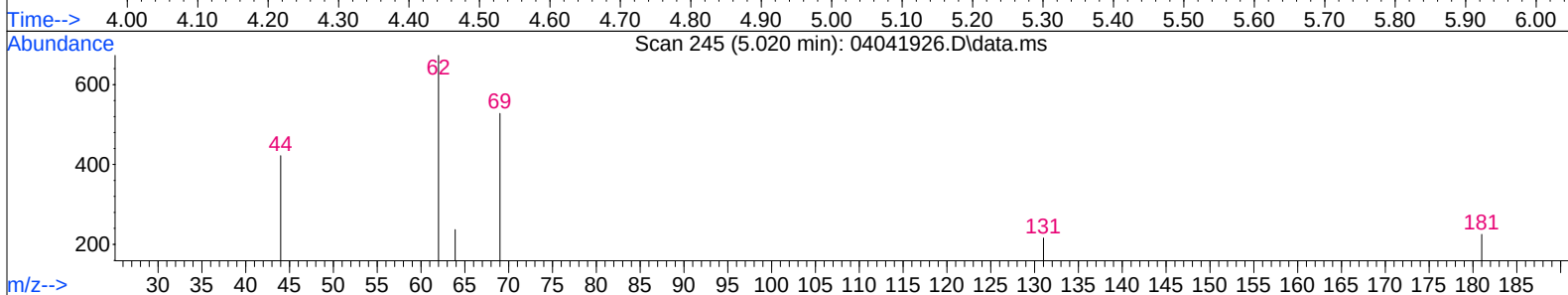
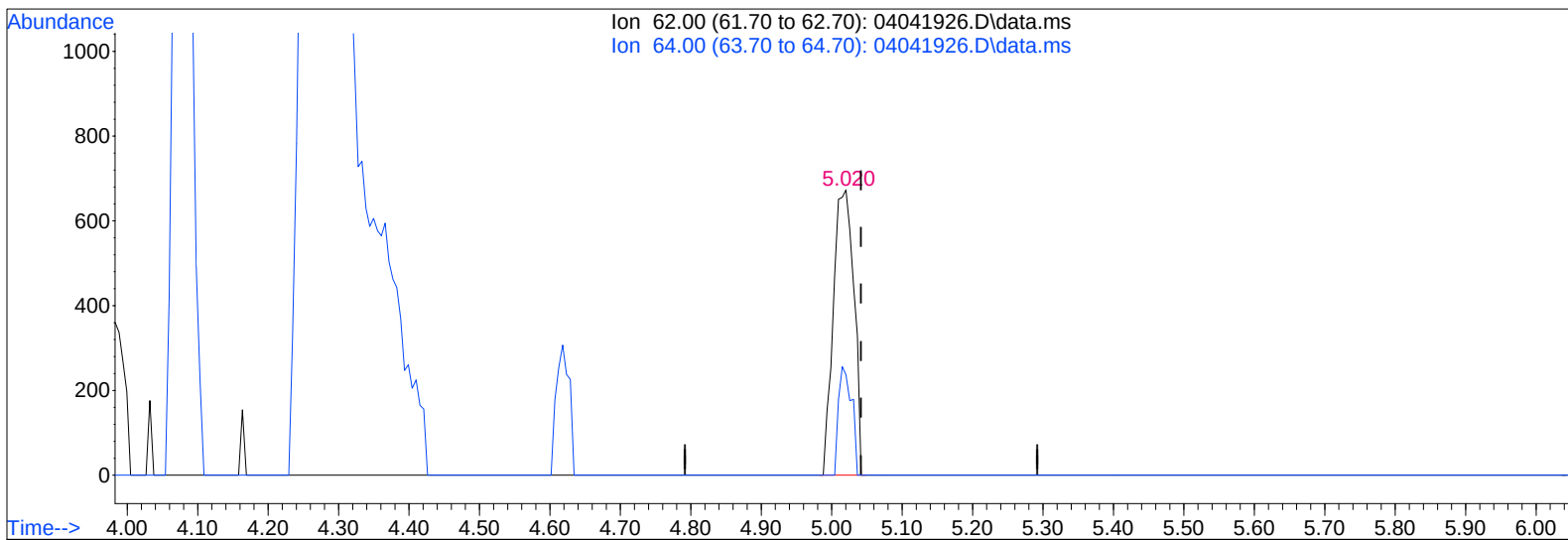
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:44 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041926.D\data.ms

(6) Vinyl Chloride (T)

5.020min (-0.022) 0.08ng

response 1361

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	24.32
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041926.D

Sample : P1901724-008 (1000mL)

Acq On : 4 Apr 2019 20:15

Misc : S31-04021901

ALS Vial : 9 Sample Multiplier: 1

Inst : MS08

Operator: RS

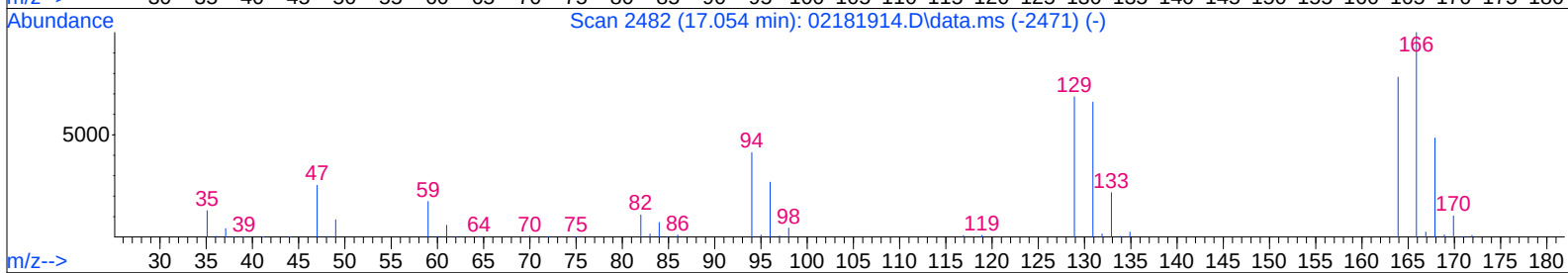
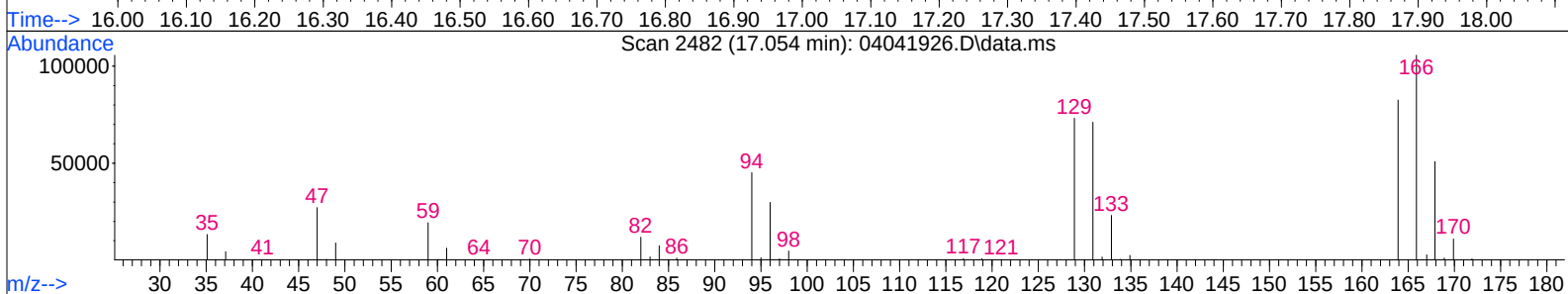
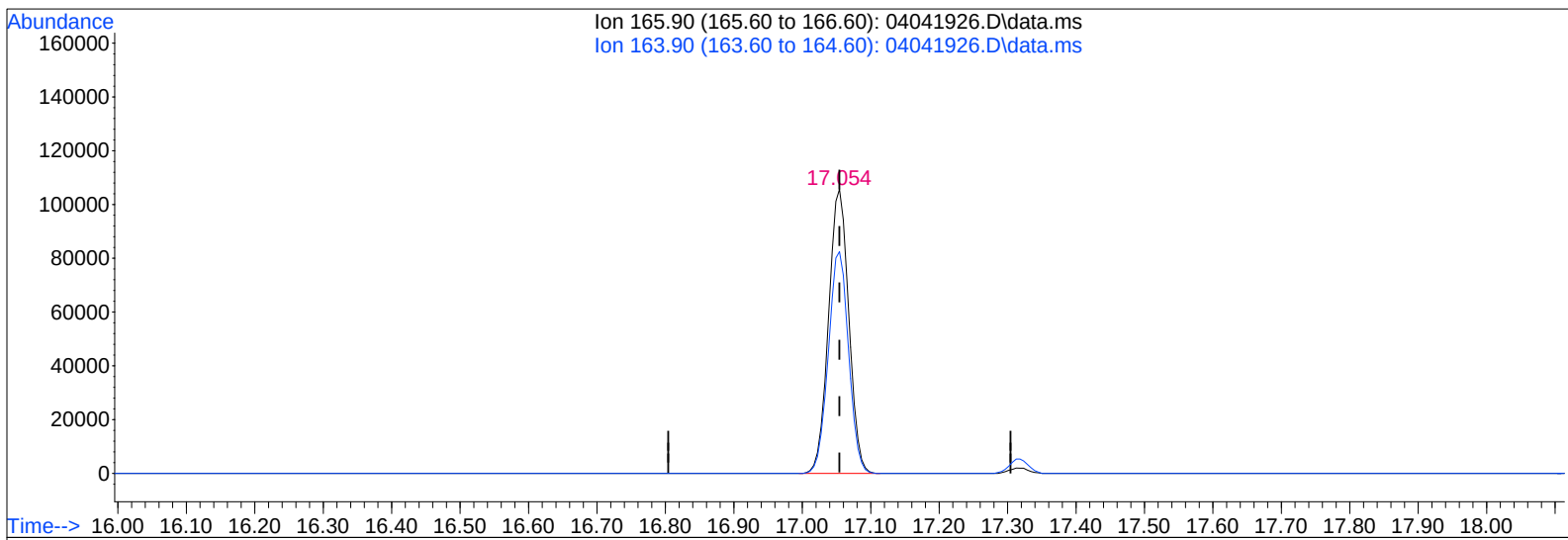
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:44 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041926.D\data.ms

(64) Tetrachloroethene (T)

17.054min (-0.000) 17.98ng

response 216742

Ion	Exp%	Act%
-----	------	------

165.90	100	100
--------	-----	-----

163.90	78.80	78.23
--------	-------	-------

0.00	0.00	0.00
------	------	------

0.00	0.00	0.00
------	------	------

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

Client Sample ID: SS-18

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

ALS Project ID: P1901724

ALS Sample ID: P1901724-009

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Analyst: Raneem Sahtah

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC00250

Date Collected: 3/29/19

Date Received: 4/1/19

Date Analyzed: 4/4/19

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.37 Final Pressure (psig): 3.80

Container Dilution Factor: 1.50

CAS #	Compound	Result µg/m ³	MRL µg/m ³	MDL µg/m ³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.17	0.086	ND	0.065	0.033	
75-35-4	1,1-Dichloroethene	ND	0.17	0.11	ND	0.042	0.028	
75-09-2	Methylene Chloride	ND	0.81	0.23	ND	0.23	0.065	
156-59-2	cis-1,2-Dichloroethene	ND	0.17	0.11	ND	0.042	0.028	
71-55-6	1,1,1-Trichloroethane	15	0.17	0.099	2.8	0.030	0.018	
56-23-5	Carbon Tetrachloride	0.13	0.15	0.11	0.021	0.024	0.018	J
79-01-6	Trichloroethene	42	0.17	0.11	7.9	0.031	0.020	
127-18-4	Tetrachloroethene	15	0.17	0.10	2.2	0.024	0.015	

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.

Data File: I:\MS08\Data\2019 04\04\04041928.D

Sample : P1901724-009 (1000mL)

Acq On : 4 Apr 2019 21:21

Misc : S31-04021901

ALS Vial : 10 Sample Multiplier: 1

Inst : MS08

Operator: RS

RS 4/8/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:48:10 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.23	130	151809	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.36	114	649918	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.67	82	332610	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	262411	12.935	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	103.44%	
57) Toluene-d8 (SS2)	15.81	98	746858	12.706	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	101.68%	
73) Bromofluorobenzene (SS3)	19.06	174	250091	11.968	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	95.76%	

Target Compounds

						Qvalue
2) Propene	4.16	42	43494m	2.975	ng	
3) Dichlorodifluoromethan...	4.32	85	35206	1.721	ng	100
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	4.89	135	703	0.065	ng	# 42
6) Vinyl Chloride	5.03	62	939	0.056	ng	73
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.47	45	1227858	128.772	ng	100
11) Acetonitrile	6.69	41	5201	0.207	ng	86
12) Acrolein	6.89	56	4464	0.662	ng	97
13) Acetone	7.09	58	122396	13.491	ng	98
14) Trichlorofluoromethane	7.33	101	140266	7.962	ng	99
15) 2-Propanol (Isopropanol)	7.60	45	434464	13.700	ng	100
16) Acrylonitrile	7.88	53	438	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.51	84	399	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	8.93	151	280259	30.681	ng	98
22) Carbon Disulfide	8.78	76	466884	11.877	ng	100
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.	d	
26) Vinyl Acetate	10.27	86	8397	2.927	ng	# 39
27) 2-Butanone (MEK)	10.56	72	24819	3.356	ng	100
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.	d	
29) Diisopropyl Ether	0.00	87	0	N.D.	d	
30) Ethyl Acetate	11.36	61	102568	27.570	ng	94
31) n-Hexane	11.34	57	15786	0.829	ng	99
32) Chloroform	11.40	83	1211	0.068	ng	93
34) Tetrahydrofuran (THF)	11.85	72	1826	0.257	ng	# 89
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	12.48	97	162169	10.000	ng	100
39) Isopropyl Acetate	0.00	61	0	N.D.	d	
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.96	78	75618	1.734	ng	99
42) Carbon Tetrachloride	13.12	117	1287	0.089	ng	97
43) Cyclohexane	13.26	84	6443	0.356	ng	99
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d	
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.06	130	320416	28.151	ng	99
48) 1,4-Dioxane	0.00	88	0	N.D.	d	
49) 2,2,4-Trimethylpentane...	14.12	57	923	N.D.		
50) Methyl Methacrylate	0.00	100	0	N.D.	d	

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Data File: I:\MS08\Data\2019 04\04\04041928.D

Sample : P1901724-009 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 21:21

Operator: RS

Misc : S31-04021901

ALS Vial : 10 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:48:10 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	12542	1.070	ng	99
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	14.97	58	1420	0.145	ng #	1
54) trans-1,3-Dichloropropene	15.46	75	157	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.91	91	161290	3.737	ng	100
59) 2-Hexanone	16.16	43	7844	0.310	ng	82
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.79	43	3513	0.125	ng	86
63) n-Octane	16.91	57	3686	0.375	ng	99
64) Tetrachloroethene	17.05	166	116141	9.869	ng	100
65) Chlorobenzene	17.74	112	391	N.D.		
66) Ethylbenzene	18.07	91	32263	0.652	ng	98
67) m- & p-Xylenes	18.22	91	99540	2.615	ng	99
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.56	104	3124	0.112	ng	97
70) o-Xylene	18.65	91	40539	1.058	ng	99
71) n-Nonane	18.83	43	21276	0.839	ng #	72
72) 1,1,2,2-Tetrachloroethane	18.66	83	135	N.D.		
74) Cumene	19.18	105	6230	0.126	ng	99
75) alpha-Pinene	19.52	93	5021	0.240	ng #	1
76) n-Propylbenzene	19.63	91	3552	0.062	ng #	1
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.75	105	3593	0.078	ng	87
79) 1,3,5-Trimethylbenzene	19.82	105	3982	0.095	ng	93
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.18	105	10118	0.252	ng	89
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.38	91	268	N.D.		
85) 1,3-Dichlorobenzene	20.32	146	3832	0.164	ng	96
86) 1,4-Dichlorobenzene	20.37	146	256	N.D.		
87) sec-Butylbenzene	20.43	105	1188	N.D.		
88) 4-Isopropyltoluene (p-...	20.56	119	2246	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.68	68	8847	0.681	ng	96
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.30	128	6184	0.114	ng	97
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.18	119	1252	N.D.		
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS08\Data\2019 04\04\04041928.D

Sample : P1901724-009 (1000mL)

Acq On : 4 Apr 2019 21:21

Misc : S31-04021901

ALS Vial : 10 Sample Multiplier: 1

Inst : MS08

Operator: RS

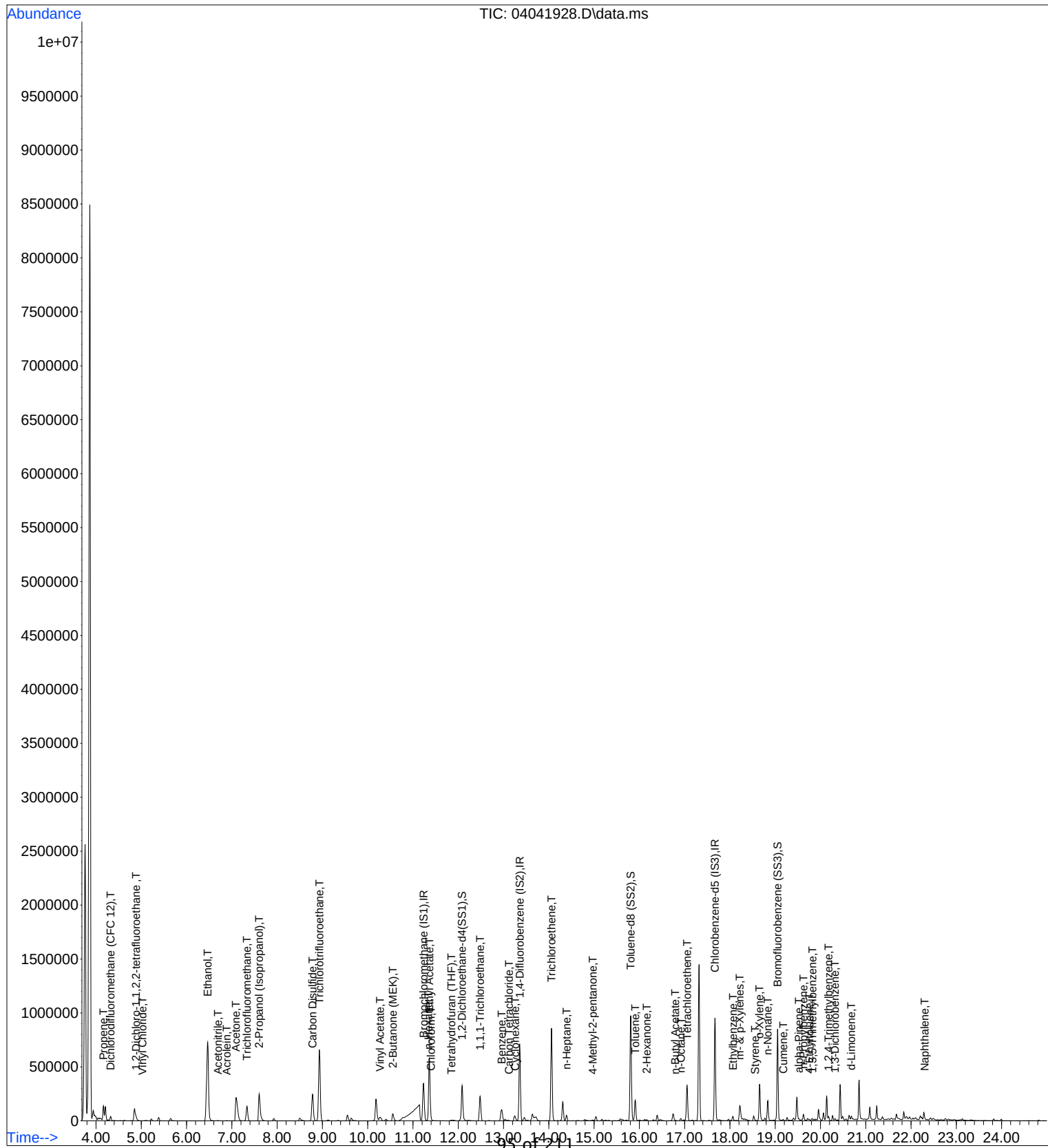
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:48:10 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



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Data File: I:\MS08\Data\2019 04\04\04041928.D

Sample : P1901724-009 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 21:21

Operator: RS

Misc : S31-04021901

ALS Vial : 10 Sample Multiplier: 1

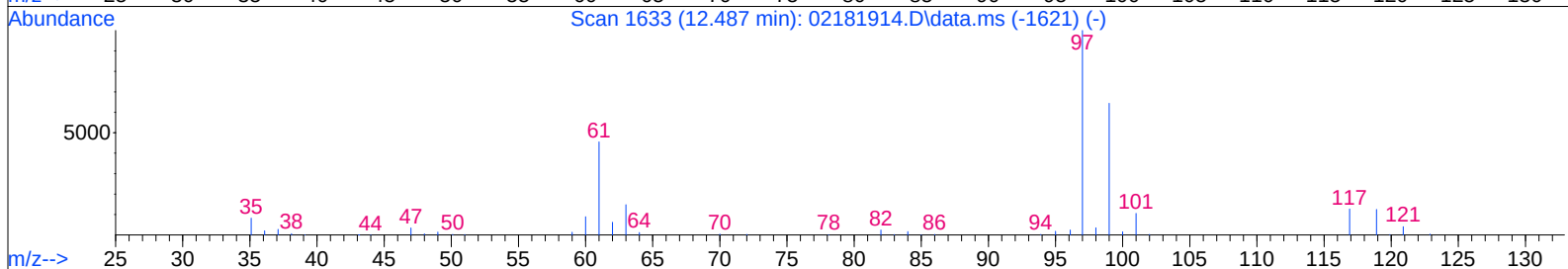
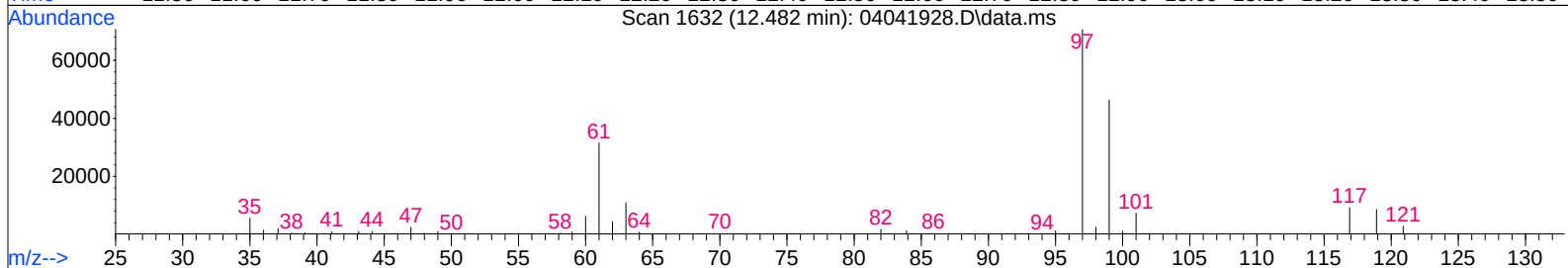
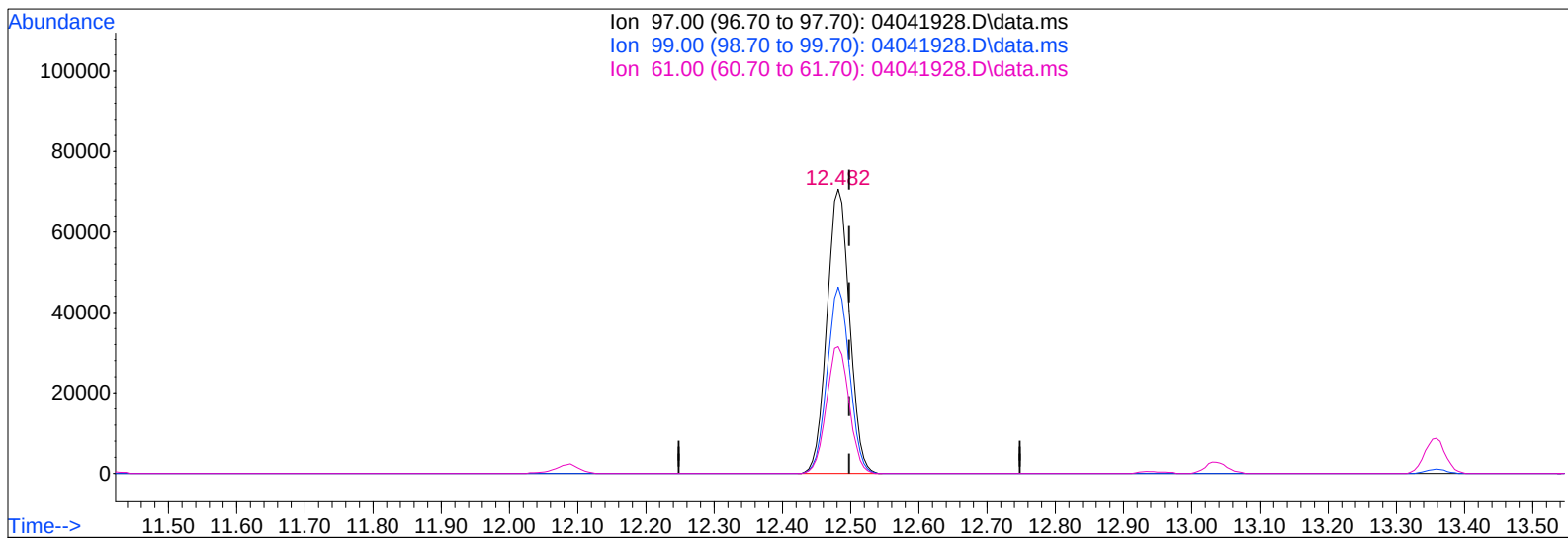
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:48 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041928.D\data.ms

(38) 1,1,1-Trichloroethane (T)

12.482min (-0.016) 10.00ng

response 162169

Ion	Exp%	Act%
97.00	100	100
99.00	64.90	64.86
61.00	45.60	45.06
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041928.D

Sample : P1901724-009 (1000mL)

Acq On : 4 Apr 2019 21:21

Misc : S31-04021901

ALS Vial : 10 Sample Multiplier: 1

Inst : MS08

Operator: RS

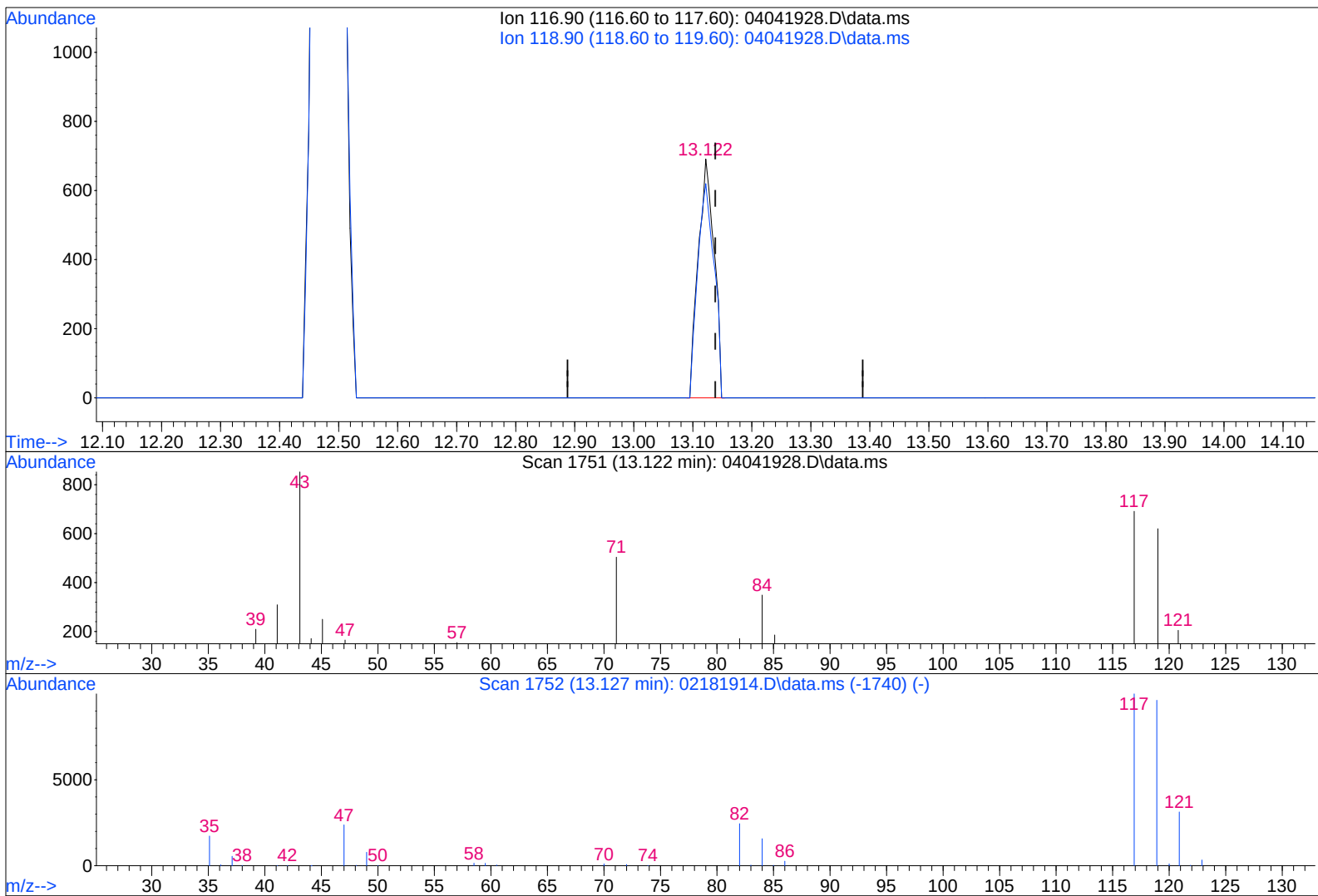
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:48 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041928.D\data.ms

(42) Carbon Tetrachloride (T)

13.122min (-0.016) 0.09ng

response 1287

Ion	Exp%	Act%
116.90	100	100
118.90	95.90	92.77
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041928.D

Sample : P1901724-009 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 21:21

Operator: RS

Misc : S31-04021901

ALS Vial : 10 Sample Multiplier: 1

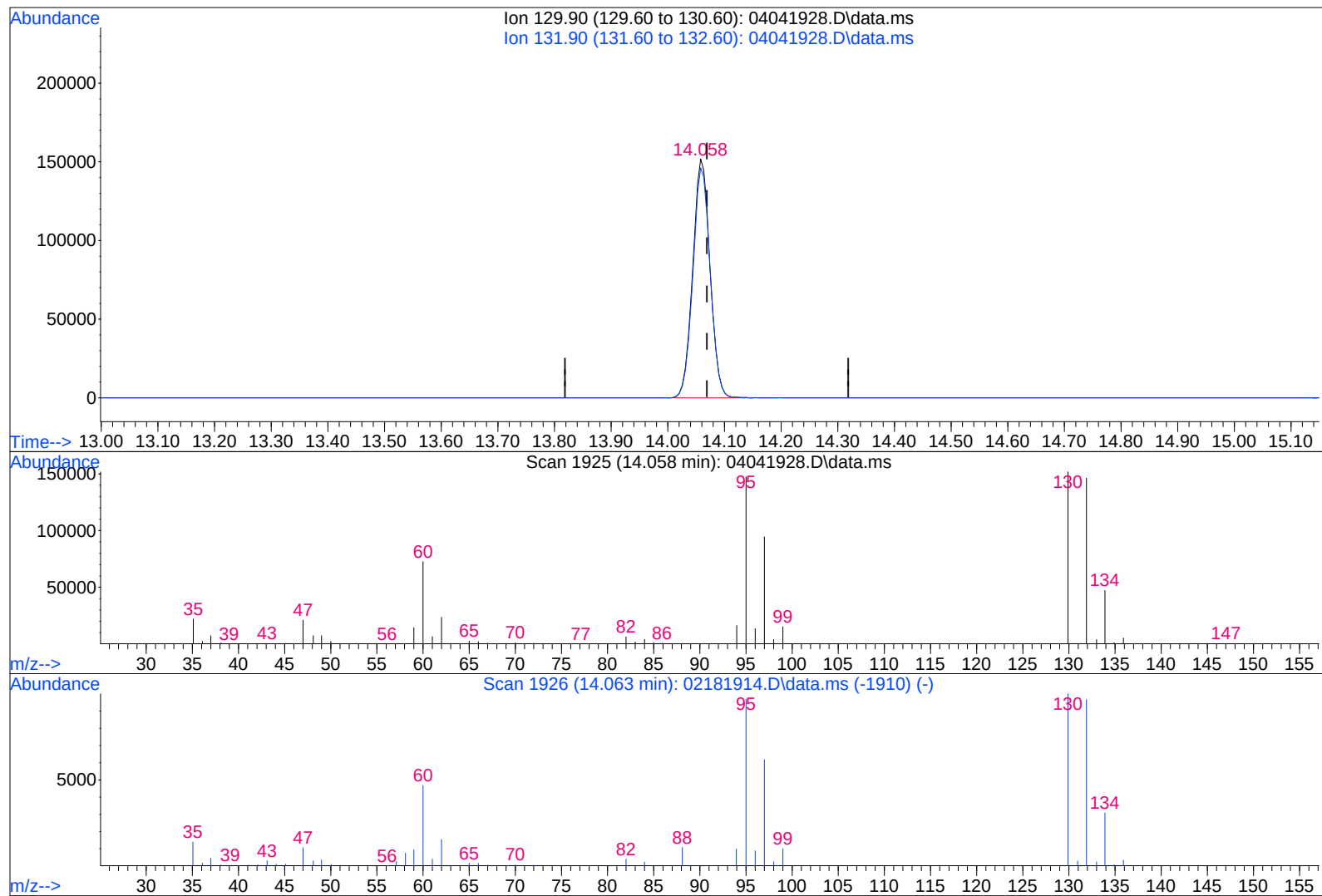
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:48 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041928.D\data.ms

(47) Trichloroethene (T)

14.058min (-0.011) 28.15ng

response 320416

Ion	Exp%	Act%
129.90	100	100
131.90	96.00	96.63
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041928.D

Sample : P1901724-009 (1000mL)

Acq On : 4 Apr 2019 21:21

Misc : S31-04021901

ALS Vial : 10 Sample Multiplier: 1

Inst : MS08

Operator: RS

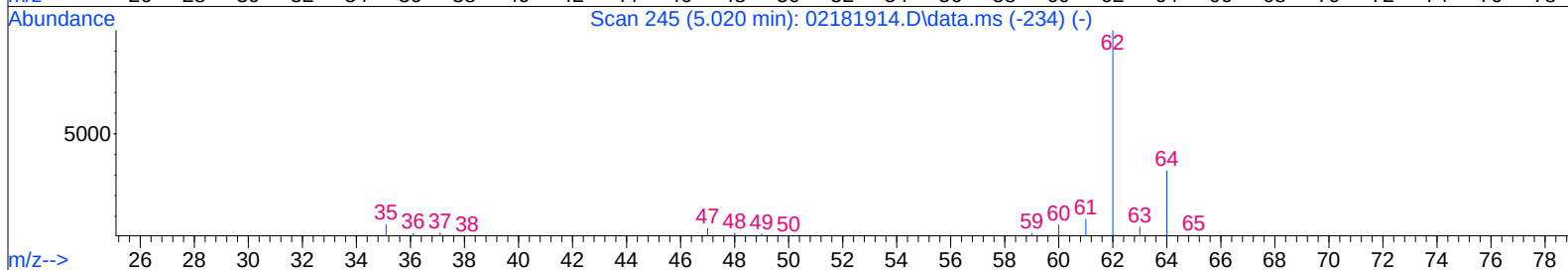
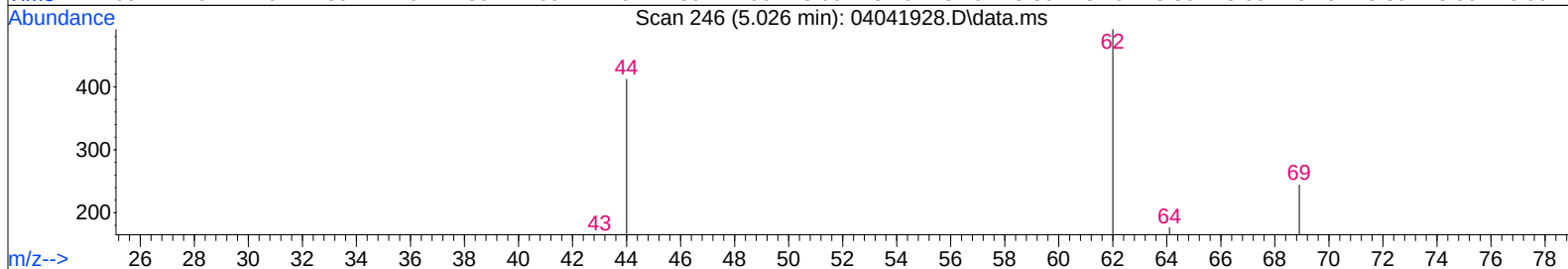
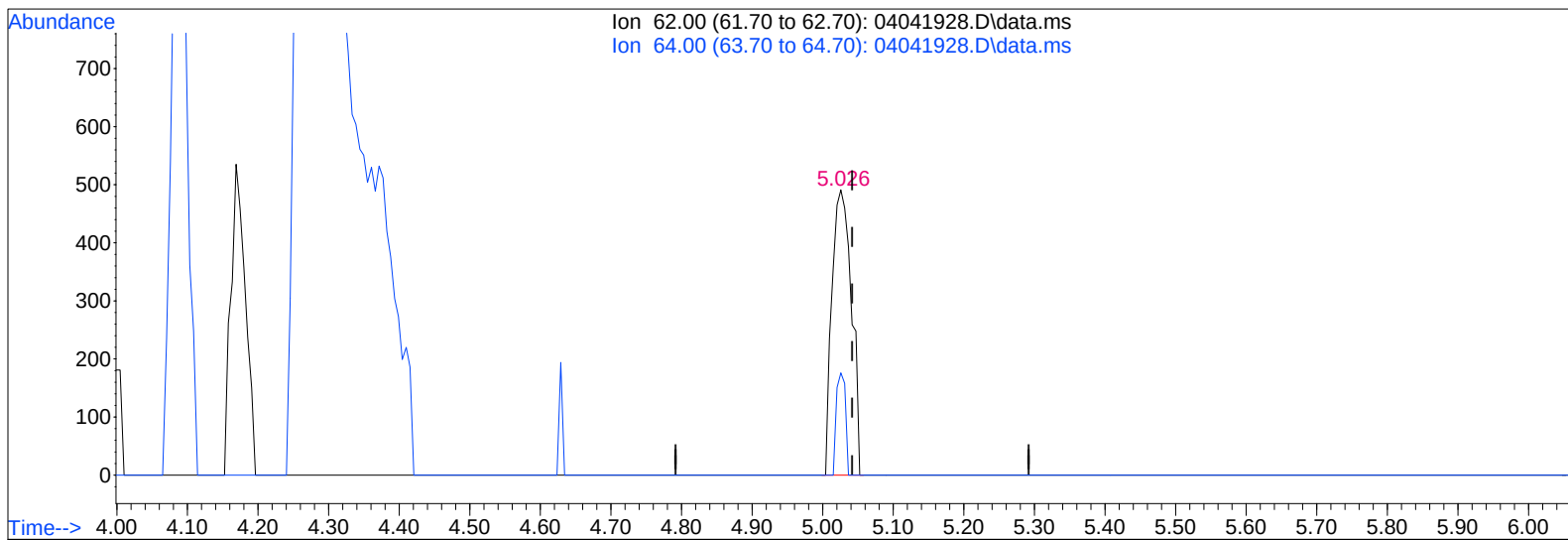
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:48 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041928.D\data.ms

(6) Vinyl Chloride (T)

5.026min (-0.016) 0.06ng

response 939

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	16.72
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041928.D

Sample : P1901724-009 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 21:21

Operator: RS

Misc : S31-04021901

ALS Vial : 10 Sample Multiplier: 1

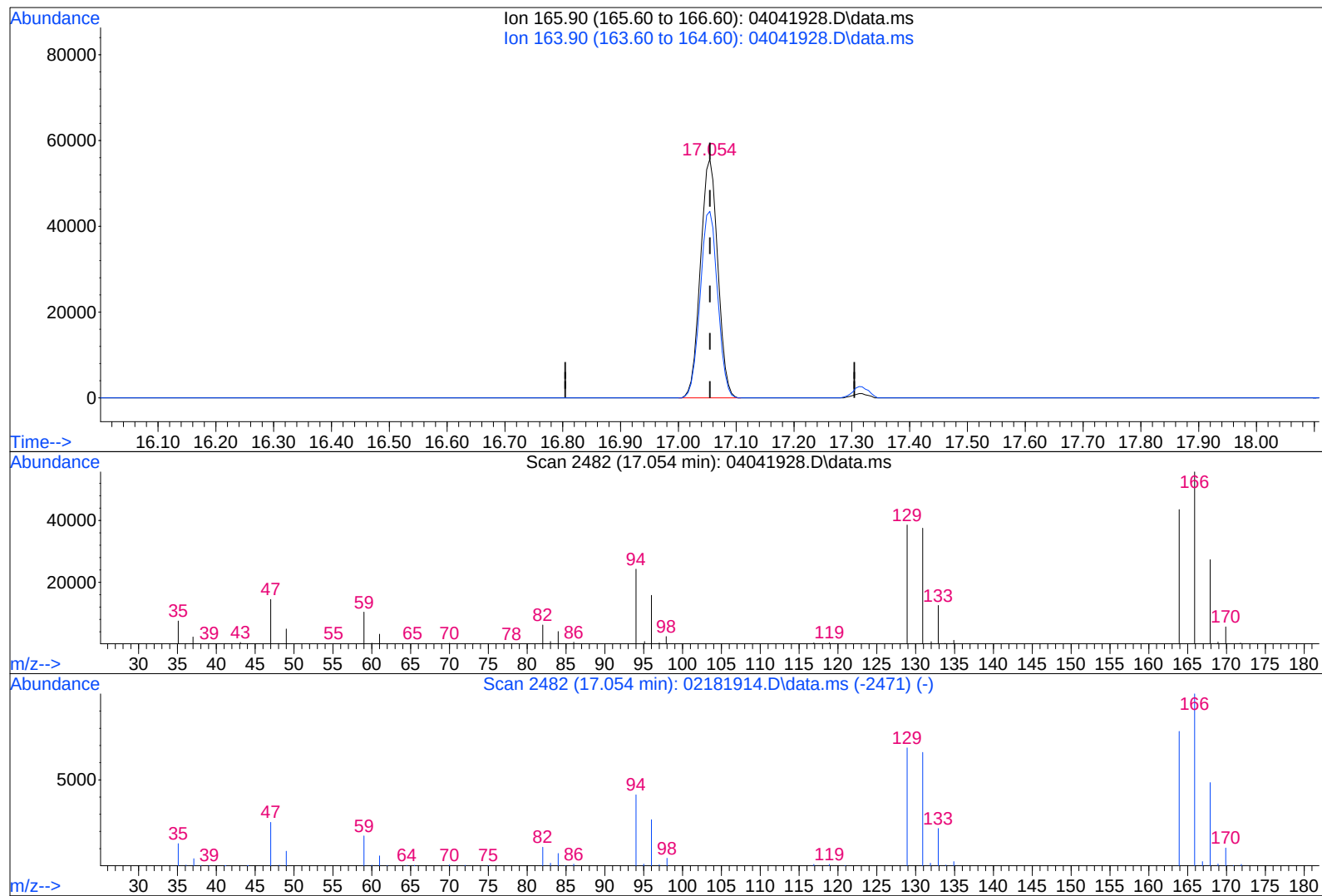
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:48 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041928.D\data.ms

(64) Tetrachloroethene (T)

17.054min (-0.000) 9.87ng

response 116141

Ion	Exp%	Act%
165.90	100	100
163.90	78.80	78.56
0.00	0.00	0.00
0.00	0.00	0.00

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

Client Sample ID: SS-16

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

ALS Project ID: P1901724

ALS Sample ID: P1901724-014

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Analyst: Raneem Sahtah

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC02161

Date Collected: 3/29/19

Date Received: 4/1/19

Date Analyzed: 4/4/19

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.65 Final Pressure (psig): 3.75

Container Dilution Factor: 1.41

CAS #	Compound	Result µg/m ³	MRL µg/m ³	MDL µg/m ³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	0.13	0.16	0.080	0.052	0.061	0.031	J
75-35-4	1,1-Dichloroethene	ND	0.16	0.10	ND	0.039	0.026	
75-09-2	Methylene Chloride	ND	0.76	0.21	ND	0.22	0.061	
156-59-2	cis-1,2-Dichloroethene	ND	0.16	0.11	ND	0.039	0.027	
71-55-6	1,1,1-Trichloroethane	3.2	0.16	0.093	0.59	0.028	0.017	
56-23-5	Carbon Tetrachloride	0.25	0.14	0.10	0.040	0.022	0.017	
79-01-6	Trichloroethene	8.3	0.16	0.10	1.5	0.029	0.019	
127-18-4	Tetrachloroethene	49	0.16	0.097	7.2	0.023	0.014	

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.

Data File: I:\MS08\Data\2019 04\04\04041929.D

Sample : P1901724-014 (1000mL)

Acq On : 4 Apr 2019 21:54

Misc : S31-04021901

ALS Vial : 11 Sample Multiplier: 1

Inst : MS08

Operator: RS

RS 4/8/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:50:18 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.23	130	149498	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.36	114	640186	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.67	82	317757	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	258747	12.951	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	103.60%	
57) Toluene-d8 (SS2)	15.81	98	700529	12.475	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.84%	
73) Bromofluorobenzene (SS3)	19.06	174	246045	12.325	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.64%	

Target Compounds

						Qvalue
2) Propene	4.16	42	38386	2.667	ng	97
3) Dichlorodifluoromethan...	4.34	85	38205	1.896	ng	98
4) Chloromethane	4.62	50	746	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.	d	
6) Vinyl Chloride	5.04	62	1548	0.094	ng	84
7) 1,3-Butadiene	0.00	54	0	N.D.	d	
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.43	45	220444	23.477	ng	99
11) Acetonitrile	6.70	41	4466	0.180	ng	94
12) Acrolein	6.89	56	6588	0.993	ng	99
13) Acetone	7.09	58	332157	37.179	ng	99
14) Trichlorofluoromethane	7.34	101	35510	2.047	ng	100
15) 2-Propanol (Isopropanol)	7.59	45	94778	3.035	ng	96
16) Acrylonitrile	0.00	53	0	N.D.	d	
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	0.00	84	0	N.D.	d	
20) 3-Chloro-1-propene (Al...	8.59	41	964	N.D.		
21) Trichlorotrifluoroethane	8.94	151	14946	1.661	ng	99
22) Carbon Disulfide	8.78	76	10385	0.268	ng	98
23) trans-1,2-Dichloroethene	9.80	61	108	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	10.18	73	617	N.D.		
26) Vinyl Acetate	10.26	86	6703	2.372	ng	# 91
27) 2-Butanone (MEK)	10.56	72	15125	2.077	ng	96
28) cis-1,2-Dichloroethene	11.06	61	608	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.	d	
30) Ethyl Acetate	11.37	61	8780	2.396	ng	98
31) n-Hexane	11.34	57	93434	4.981	ng	99
32) Chloroform	11.41	83	399	N.D.		
34) Tetrahydrofuran (THF)	11.85	72	2560	0.366	ng	94
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.21	62	237	N.D.		
38) 1,1,1-Trichloroethane	12.48	97	36609	2.292	ng	99
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.96	78	28312	0.659	ng	100
42) Carbon Tetrachloride	13.12	117	2562	0.180	ng	99
43) Cyclohexane	13.25	84	5305	0.298	ng	86
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.06	130	65748	5.864	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.	d	
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	
50) Methyl Methacrylate	0.00	100	0	N.D.		

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Data File: I:\MS08\Data\2019 04\04\04041929.D

Sample : P1901724-014 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 21:54

Operator: RS

Misc : S31-04021901

ALS Vial : 11 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:50:18 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	10672	0.924	ng	99
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	14.97	58	3678	0.381	ng	92
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.91	91	1091817	26.478	ng	99
59) 2-Hexanone	16.16	43	6519	0.269	ng	78
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.79	43	43440	1.622	ng	94
63) n-Octane	16.91	57	7961	0.848	ng	97
64) Tetrachloroethene	17.05	166	388501	34.555	ng	100
65) Chlorobenzene	17.74	112	2229	0.083	ng	# 42
66) Ethylbenzene	18.06	91	49821	1.053	ng	99
67) m- & p-Xylenes	18.22	91	155417	4.274	ng	100
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.56	104	3354	0.126	ng	98
70) o-Xylene	18.65	91	54299	1.483	ng	100
71) n-Nonane	18.85	43	40187	1.659	ng	87
72) 1,1,2,2-Tetrachloroethane	18.66	83	788	N.D.		
74) Cumene	19.17	105	14428	0.305	ng	100
75) alpha-Pinene	19.52	93	13919	0.696	ng	# 50
76) n-Propylbenzene	19.63	91	30538	0.554	ng	85
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.75	105	30630	0.695	ng	99
79) 1,3,5-Trimethylbenzene	19.82	105	53277	1.335	ng	99
80) alpha-Methylstyrene	0.00	118	0	N.D.	d	
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.18	105	166593	4.350	ng	87
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	0.00	91	0	N.D.	d	
85) 1,3-Dichlorobenzene	20.31	146	6317	0.283	ng	99
86) 1,4-Dichlorobenzene	20.38	146	175	N.D.		
87) sec-Butylbenzene	0.00	105	0	N.D.	d	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.68	68	15072	1.214	ng	99
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.18	180	105	N.D.		
95) Naphthalene	22.29	128	153010	2.953	ng	99
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS08\Data\2019 04\04\04041929.D

Sample : P1901724-014 (1000mL)

Acq On : 4 Apr 2019 21:54

Misc : S31-04021901

ALS Vial : 11 Sample Multiplier: 1

Inst : MS08

Operator: RS

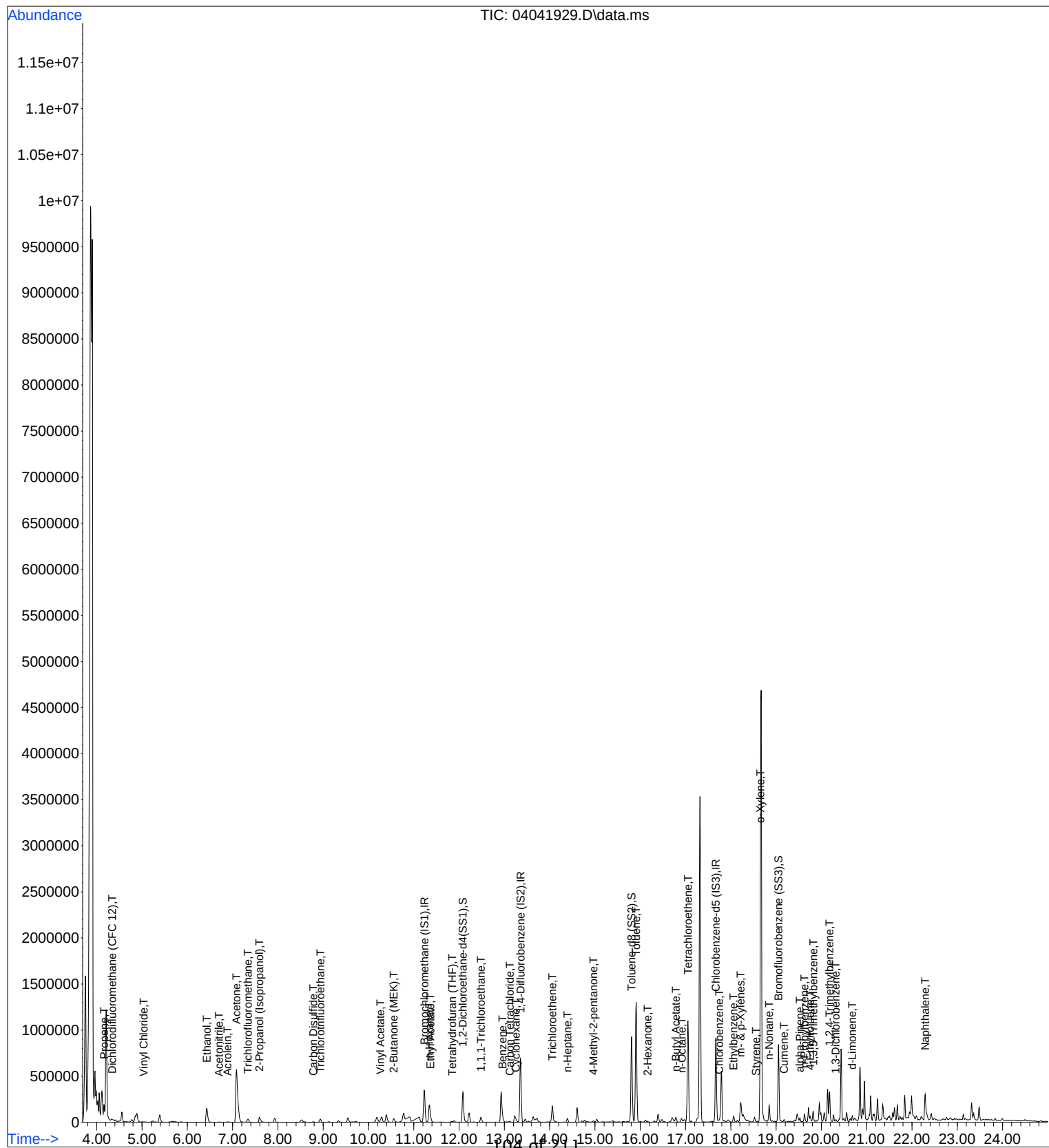
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:50:18 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 04\04\04041929.D

Sample : P1901724-014 (1000mL)

Inst : MS08

Acq On : 4 Apr 2019 21:54

Operator: RS

Misc : S31-04021901

ALS Vial : 11 Sample Multiplier: 1

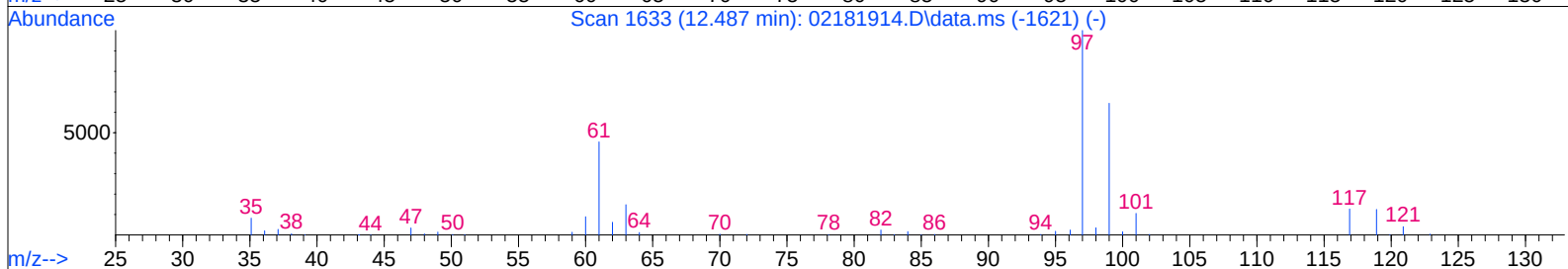
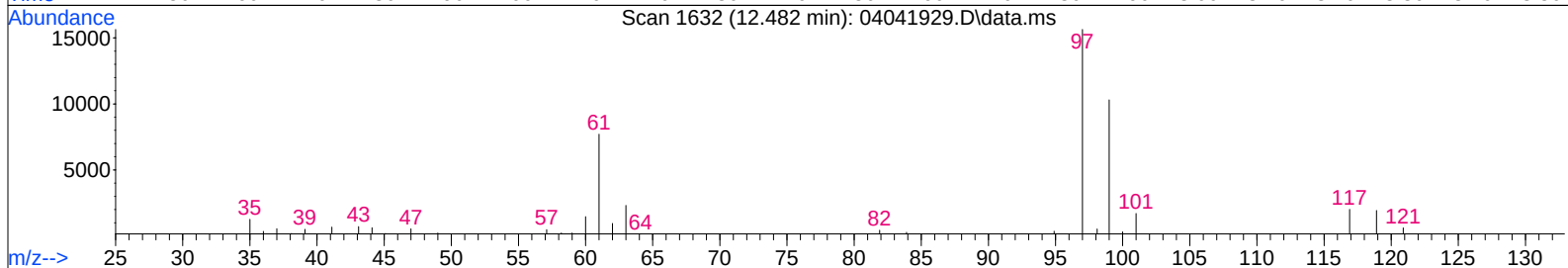
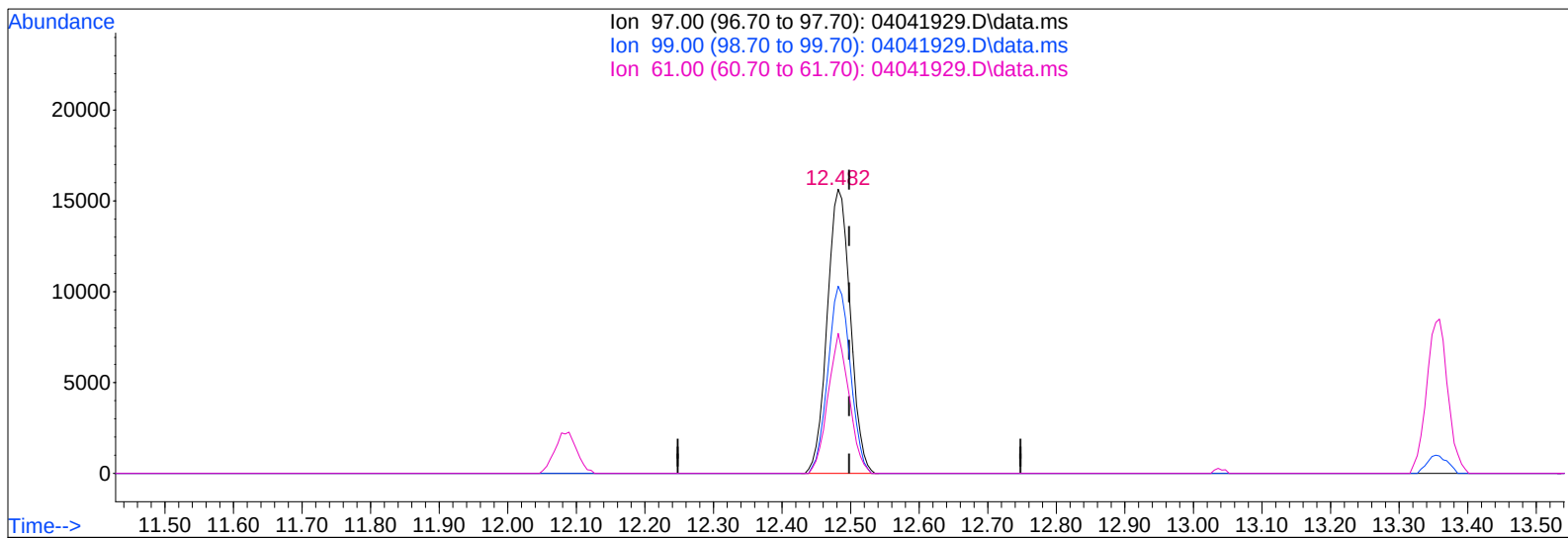
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:50 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041929.D\data.ms

(38) 1,1,1-Trichloroethane (T)

12.482min (-0.016) 2.29ng

response 36609

Ion	Exp%	Act%
97.00	100	100
99.00	64.90	64.26
61.00	45.60	45.19
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041929.D

Sample : P1901724-014 (1000mL)

Acq On : 4 Apr 2019 21:54

Misc : S31-04021901

ALS Vial : 11 Sample Multiplier: 1

Inst : MS08

Operator: RS

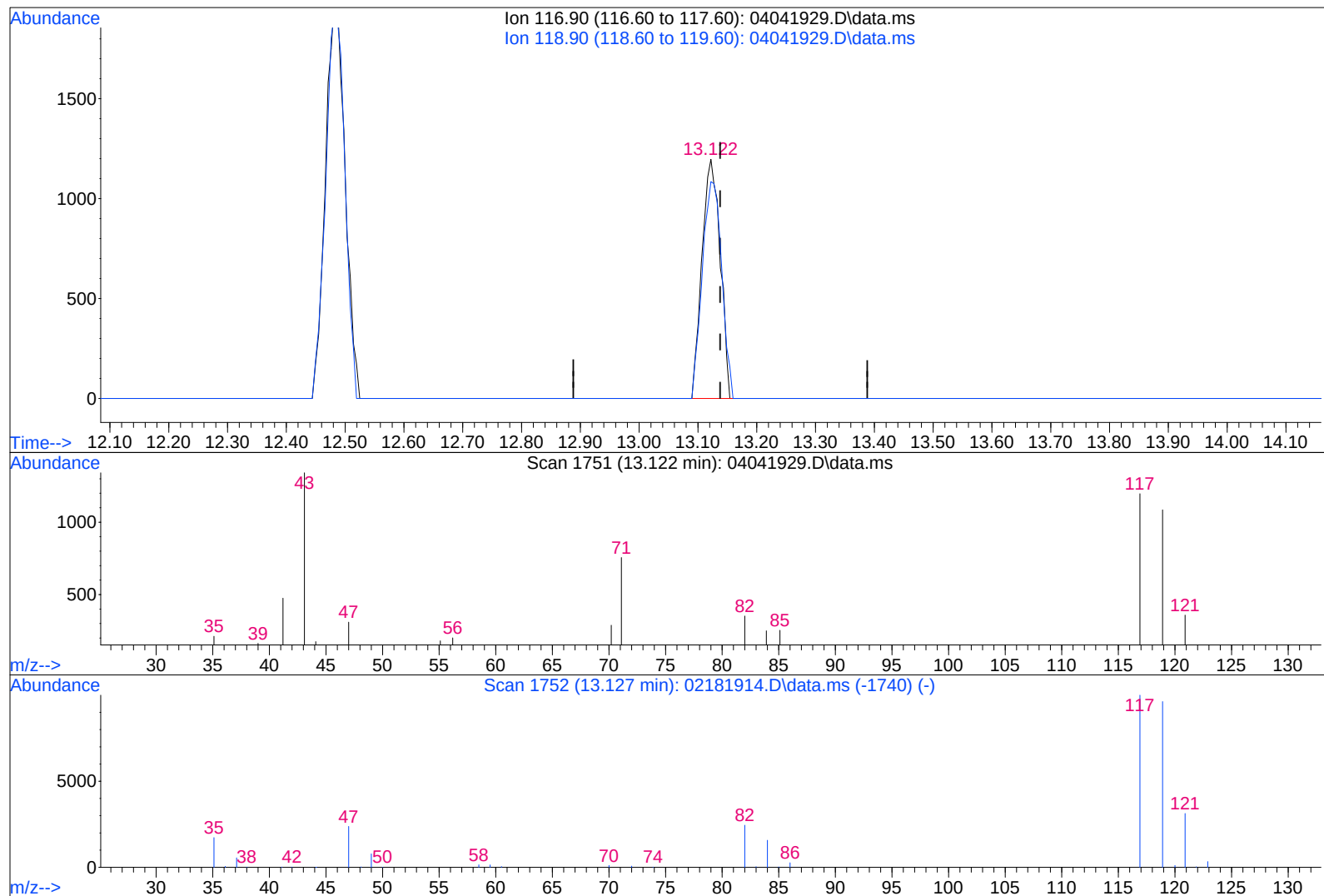
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:50 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041929.D\data.ms

(42) Carbon Tetrachloride (T)

13.122min (-0.016) 0.18ng

response 2562

Ion	Exp%	Act%
-----	------	------

116.90	100	100
--------	-----	-----

118.90	95.90	96.99
--------	-------	-------

0.00	0.00	0.00
------	------	------

0.00	0.00	0.00
------	------	------

Data File: I:\MS08\Data\2019 04\04\04041929.D

Sample : P1901724-014 (1000mL)

Acq On : 4 Apr 2019 21:54

Misc : S31-04021901

ALS Vial : 11 Sample Multiplier: 1

Inst : MS08

Operator: RS

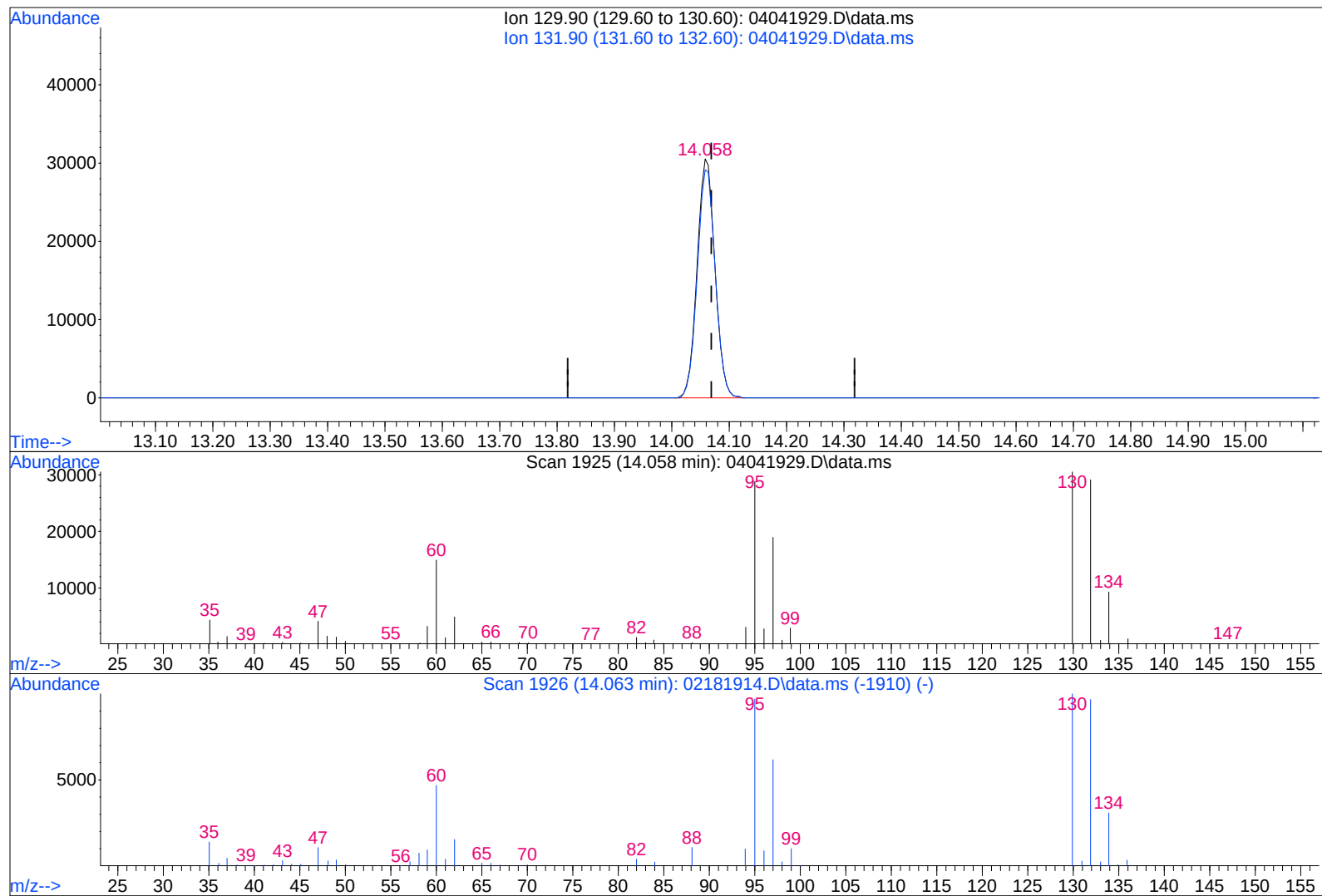
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:50 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041929.D\data.ms

(47) Trichloroethene (T)

14.058min (-0.011) 5.86ng

response 65748

Ion	Exp%	Act%
-----	------	------

129.90	100	100
--------	-----	-----

131.90	96.00	96.13
--------	-------	-------

0.00	0.00	0.00
------	------	------

0.00	0.00	0.00
------	------	------

Data File: I:\MS08\Data\2019 04\04\04041929.D

Sample : P1901724-014 (1000mL)

Acq On : 4 Apr 2019 21:54

Misc : S31-04021901

ALS Vial : 11 Sample Multiplier: 1

Inst : MS08

Operator: RS

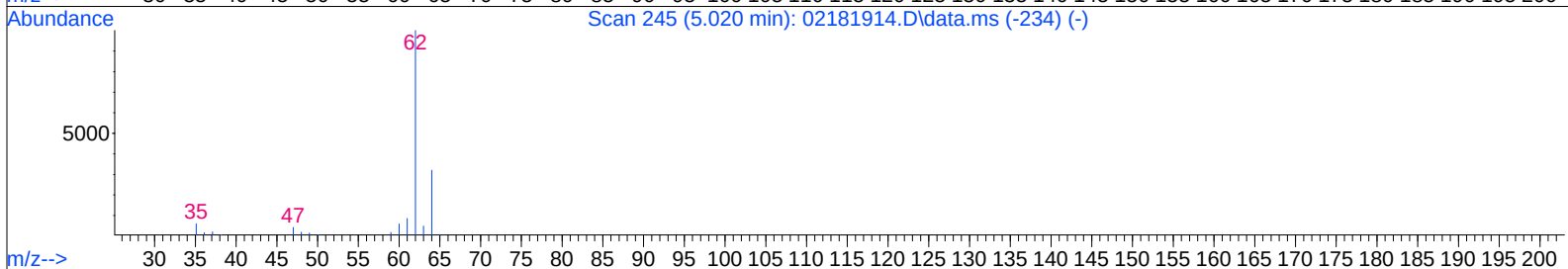
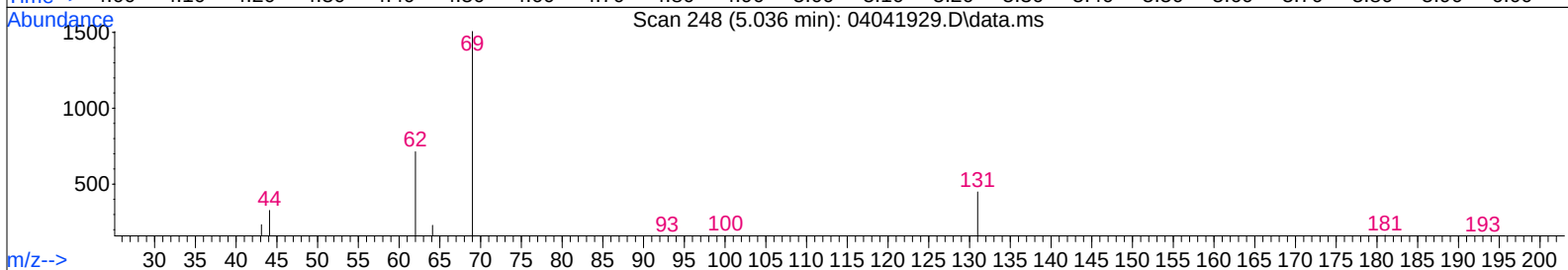
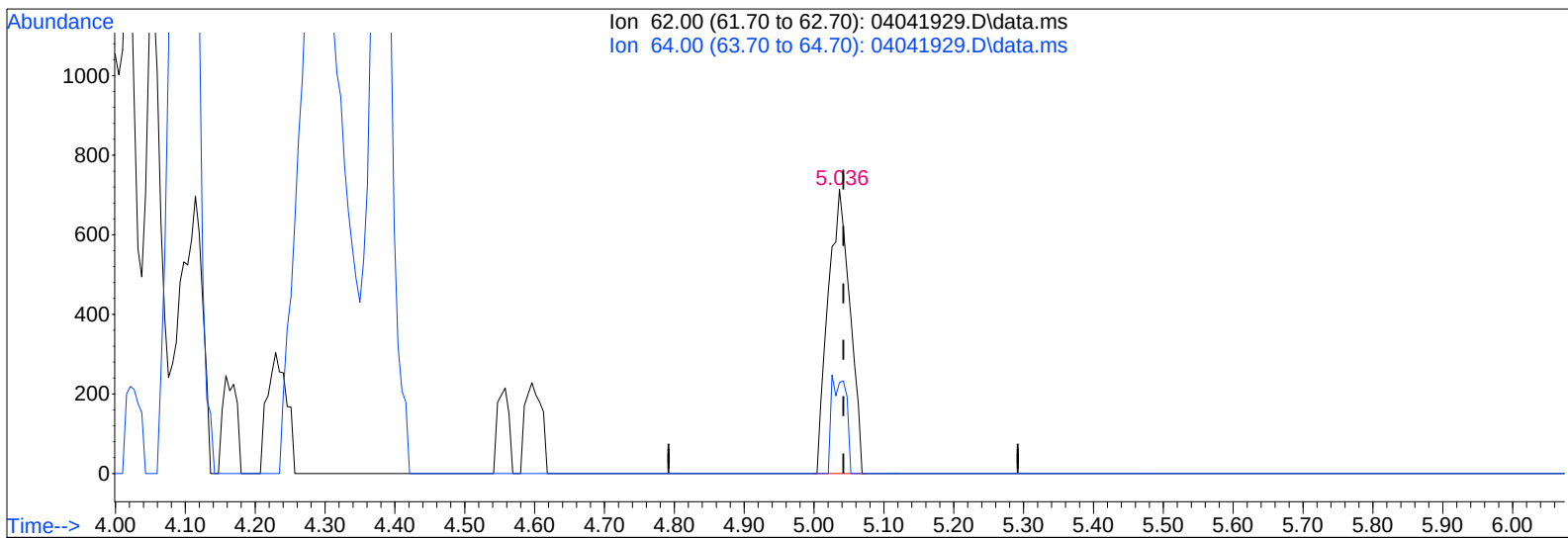
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:50 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041929.D\data.ms

(6) Vinyl Chloride (T)

5.036min (-0.005) 0.09ng

response 1548

Ion	Exp%	Act%
62.00	100	100
64.00	31.80	22.87
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 04\04\04041929.D

Sample : P1901724-014 (1000mL)

Acq On : 4 Apr 2019 21:54

Misc : S31-04021901

ALS Vial : 11 Sample Multiplier: 1

Inst : MS08

Operator: RS

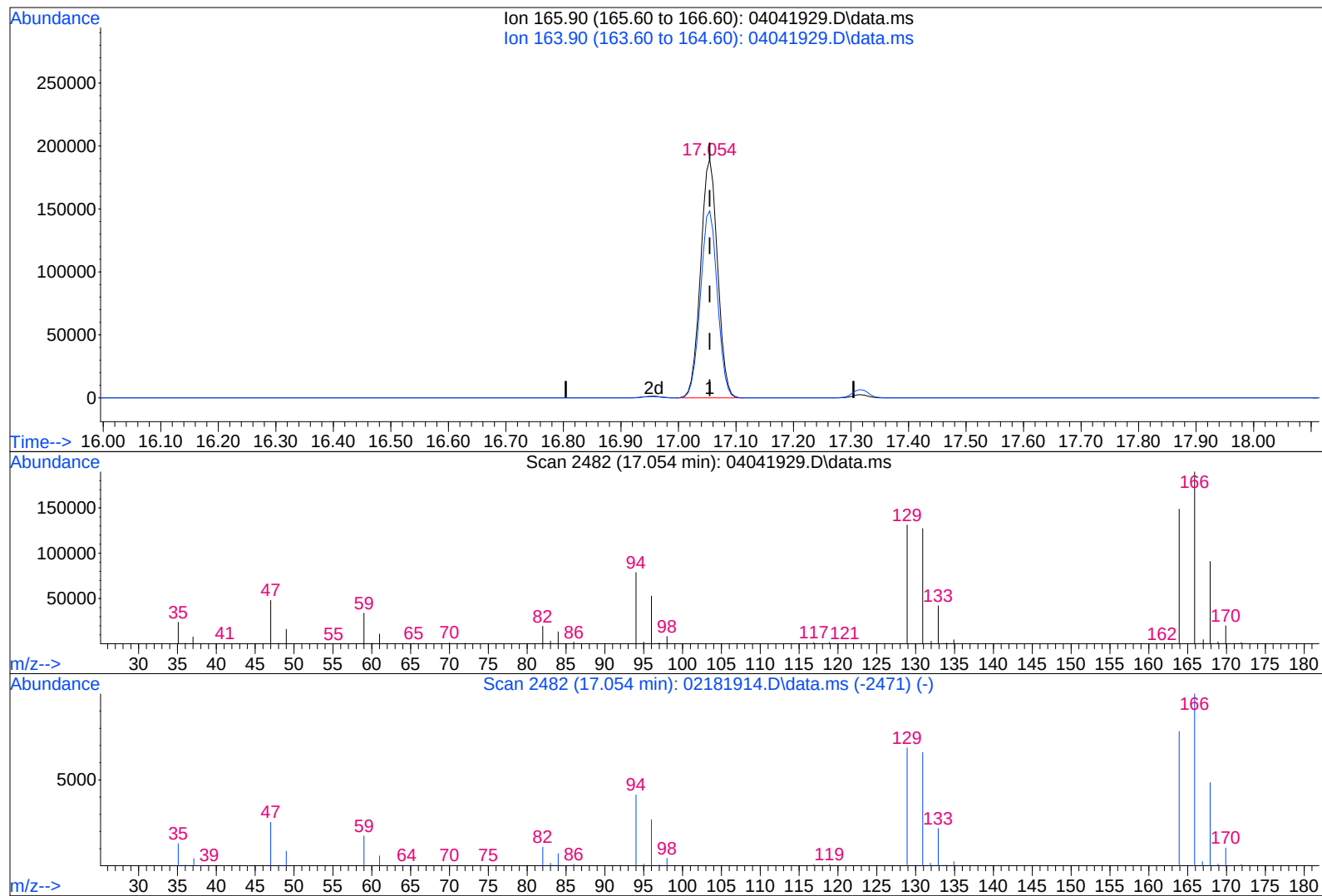
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:50 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 04041929.D\data.ms

(64) Tetrachloroethene (T)

17.054min (-0.000) 34.55ng

response 388501

Ion Exp% Act%

165.90 100 100

163.90 78.80 78.38

0.00 0.00 0.00

0.00 0.00 0.00

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group
Client Sample ID: WSP USA TRIP BLANK
Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

ALS Project ID: P1901724
 ALS Sample ID: P1901724-015

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SC02032

Date Collected: 3/29/19
Date Received: 4/1/19
Date Analyzed: 4/4/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	MDL µg/m ³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.11	0.057	ND	0.043	0.022	
75-35-4	1,1-Dichloroethene	ND	0.11	0.074	ND	0.028	0.019	
75-09-2	Methylene Chloride	ND	0.54	0.15	ND	0.16	0.043	
156-59-2	cis-1,2-Dichloroethene	ND	0.11	0.075	ND	0.028	0.019	
71-55-6	1,1,1-Trichloroethane	ND	0.11	0.066	ND	0.020	0.012	
56-23-5	Carbon Tetrachloride	ND	0.10	0.074	ND	0.016	0.012	
79-01-6	Trichloroethene	ND	0.11	0.072	ND	0.020	0.013	
127-18-4	Tetrachloroethene	ND	0.11	0.069	ND	0.016	0.010	

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.

Data File: I:\MS08\Data\2019 04\04\04041931.D

Sample : P1901724-015 (1000mL)

Acq On : 4 Apr 2019 23:00

Misc : S31-04021901

ALS Vial : 12 Sample Multiplier: 1

Inst : MS08

Operator: RS

RS 4/8/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:50:54 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.23	130	140331	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.35	114	619603	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.67	82	315047	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	249835	13.322	ng	-0.03
Spiked Amount	12.500	Range 70 - 130	Recovery	=	106.56%	
57) Toluene-d8 (SS2)	15.81	98	710964	12.770	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	102.16%	
73) Bromofluorobenzene (SS3)	19.05	174	232776	11.761	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	94.08%	

Target Compounds

						Qvalue
2) Propene	4.20	42	191	N.D.		
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.45	45	1530	0.174	ng	73
11) Acetonitrile	6.73	41	239	N.D.		
12) Acrolein	6.94	56	52	N.D.		
13) Acetone	7.13	58	7933	0.946	ng	# 72
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	7.70	45	208	N.D.		
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.		
19) Methylene Chloride	0.00	84	0	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	8.78	76	25426	0.700	ng	98
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	10.27	86	814	0.307	ng	# 70
27) 2-Butanone (MEK)	10.60	72	718	0.105	ng	# 8
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	0.00	78	0	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	0.00	84	0	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	0.00	130	0	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		
50) Methyl Methacrylate	0.00	100	0	N.D.		

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Data File: I:\MS08\Data\2019 04\04\04041931.D

Sample : P1901724-015 (1000mL)

Acq On : 4 Apr 2019 23:00

Misc : S31-04021901

ALS Vial : 12 Sample Multiplier: 1

Inst : MS08

Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:50:54 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	0.00	91	0	N.D.		
59) 2-Hexanone	16.18	43	1156	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	0.00	91	0	N.D.		
67) m- & p-Xylenes	0.00	91	0	N.D.		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	0.00	104	0	N.D.		
70) o-Xylene	0.00	91	0	N.D.		
71) n-Nonane	18.87	43	102	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	0.00	105	0	N.D.		
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	0.00	91	0	N.D.		
77) 3-Ethyltoluene	0.00	105	0	N.D.		
78) 4-Ethyltoluene	0.00	105	0	N.D.		
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.		
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.		
83) n-Decane	0.00	57	0	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.		
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.		
87) sec-Butylbenzene	20.43	105	321	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.31	128	625	N.D.		
96) n-Dodecane	22.21	57	778	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	18.36	55	418	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	0.00	91	0	N.D.		

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

Data File: I:\MS08\Data\2019 04\04\04041931.D

Sample : P1901724-015 (1000mL)

Acq On : 4 Apr 2019 23:00

Misc : S31-04021901

ALS Vial : 12 Sample Multiplier: 1

Inst : MS08

Operator: RS

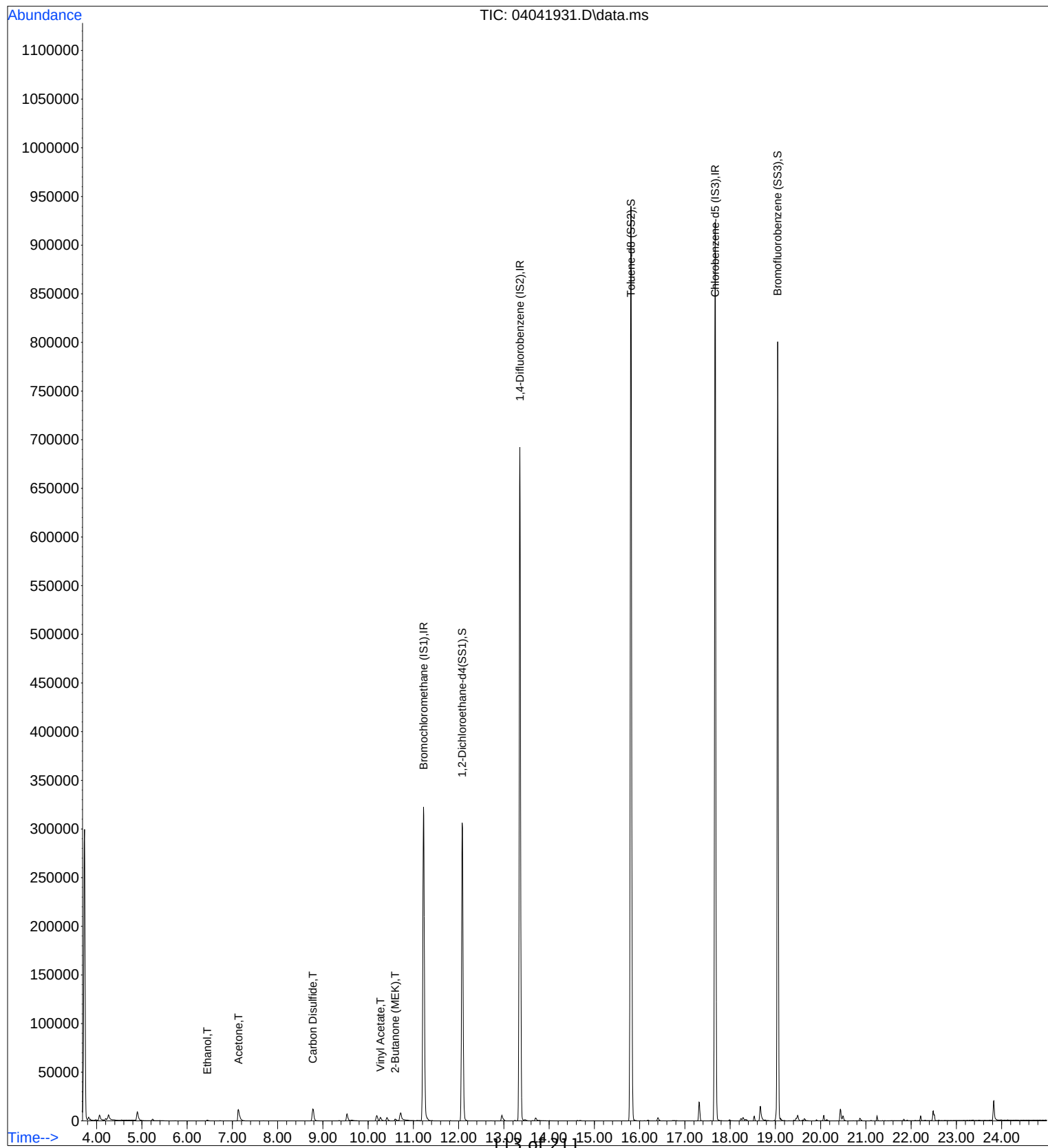
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 08:50:54 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Method Path : I:\MS08\Methods\
Method File : R8021819A.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Tue Feb 19 08:36:45 2019
Response Via : Initial Calibration

RS 2/21/19

Calibration Files

0.1 =02181909.D 0.2 =02181910.D 0.5 =02181911.D 1.0 =02181912.D 5.0 =02181913.D 25 =02181914.D 50 =02181915.D
100 =02181916.D

Compound		0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD

1) IR	Bromochloromethane...	-----ISTD-----									
2) T	Propene	1.446	1.256	1.469	1.293	1.018	1.093	1.054	1.000	1.204	15.70
3) T	Dichlorodifluo...	1.944	1.744	2.043	1.842	1.461	1.529	1.495	1.417	1.685	14.29
4) T	Chloromethane	1.812	1.699	1.947	1.757	1.298	1.364	1.180	0.840	1.487	25.41
5) T	1,2-Dichloro-1...	0.977	0.969	1.113	0.981	0.799	0.784	0.744	0.705	0.884	16.38
6) T	Vinyl Chloride	1.520	1.447	1.707	1.553	1.266	1.251	1.165	1.067	1.372	15.92
7) T	1,3-Butadiene	1.258	1.316	1.551	1.453	1.162	1.176	1.070	0.963	1.244	15.61
8) T	Bromomethane	0.709	0.743	0.857	0.785	0.656	0.680	0.677	0.663	0.721	9.72
9) T	Chloroethane	0.711	0.809	0.740	0.602	0.602	0.625	0.620	0.607	0.674	11.98
10) T	Ethanol	0.904	0.905	0.927	0.847	0.682	0.735	0.679	0.601	0.785	16.02
11) T	Acetonitrile	2.169	2.257	2.376	2.188	1.820	1.950	1.968	1.854	2.073	9.75
12) T	Acrolein	0.409	0.629	0.606	0.552	0.552	0.576	0.573	0.539	0.555	12.85
13) T	Acetone	0.926	0.906	0.820	0.679	0.706	0.706	0.636	0.556	0.747	18.78
14) T	Trichlorofluor...	1.585	1.504	1.732	1.555	1.274	1.329	1.326	1.301	1.451	11.51
15) T	2-Propanol (Is...	2.698	2.717	3.079	2.853	2.426	2.602	2.452	2.062	2.611	11.73
16) T	Acrylonitrile	0.790	1.255	1.293	1.164	1.290	1.278	1.184	1.179	1.179	15.18
17) T	1,1-Dichloroet...	0.811	0.832	0.970	0.867	0.729	0.769	0.755	0.724	0.807	10.24
18) T	2-Methyl-2-Pro...	2.253	2.372	2.502	2.351	2.042	2.121	2.038	1.809	2.186	10.30
19) T	Methylene Chlo...	0.816	0.831	1.004	0.900	0.756	0.812	0.801	0.734	0.832	10.27
20) T	3-Chloro-1-pro...	1.674	1.618	1.851	1.668	1.438	1.631	1.592	1.455	1.616	8.09
21) T	Trichlorotrifl...	0.782	0.779	0.921	0.831	0.682	0.697	0.674	0.652	0.752	12.35
22) T	Carbon Disulfide	3.800	3.527	3.799	3.486	2.831	2.954	2.869	2.628	3.237	14.44
23) T	trans-1,2-Dich...	0.977	1.090	1.409	1.339	1.136	1.238	1.219	1.139	1.193	11.59
24) T	1,1-Dichloroet...	1.677	1.600	1.811	1.707	1.375	1.454	1.429	1.367	1.553	10.88
25) T	Methyl tert-Bu...	2.551	2.637	2.919	2.706	2.260	2.418	2.387	2.273	2.519	9.07
26) T	Vinyl Acetate	0.246 0.238 0.237 0.252 0.232 0.213 0.236									5.70
27) T	2-Butanone (MEK)	0.423	0.666	0.657	0.615	0.672	0.640	0.590	0.609	0.609	14.31
28) T	cis-1,2-Dichlo...	1.225	1.215	1.444	1.331	1.126	1.211	1.185	1.085	1.228	9.25
29) T	Diisopropyl Ether	0.816	0.908	1.062	0.986	0.833	0.876	0.696	0.625	0.850	16.82
30) T	Ethyl Acetate	0.342 0.330 0.308 0.322 0.285 0.251 0.306									10.95
31) T	n-Hexane	1.830	1.654	1.936	1.755	1.459	1.471	1.294	1.147	1.568	17.37
32) T	Chloroform	1.543	1.465	1.754	1.602	1.325	1.413	1.380	1.284	1.471	10.60
33) S	1,2-Dichloroet...	1.651	1.671	1.650	1.638	1.656	1.677	1.700	1.721	1.670	1.69
34) T	Tetrahydrofura...	0.460	0.540	0.717	0.669	0.567	0.596	0.584	0.545	0.585	13.60
35) T	Ethyl tert-But...	0.881	0.960	1.120	1.050	0.917	0.978	0.972	0.925	0.975	7.89
36) T	1,2-Dichloroet...	1.173	1.171	1.401	1.275	1.076	1.159	1.150	1.096	1.188	8.82

37) IR	1,4-Difluorobenzen...	-----ISTD-----									
38) T	1,1,1-Trichlor...	0.326	0.319	0.364	0.333	0.279	0.300	0.297	0.278	0.312	9.42
39) T	Isopropyl Acetate	0.130	0.134	0.166	0.154	0.134	0.141	0.126	0.110	0.137	12.60
40) T	1-Butanol	0.180	0.226	0.260	0.254	0.245	0.220	0.194	0.163	0.218	16.41
41) T	Benzene	0.965	0.867	0.993	0.920	0.765	0.811	0.747	0.644	0.839	14.23
42) T	Carbon Tetrach...	0.278	0.260	0.327	0.299	0.254	0.275	0.272	0.256	0.278	8.89

IR	Chlorobenzene-d5	(...)	ISTD	...
566) S	Toluene-d8 (SS2)	2.209	2.232	2.234
567) S	Toluene-d8 (SS2)	2.209	2.232	2.234
568) T	Toluene	1.836	1.696	1.969
569) T	Toluene	0.739	0.869	1.159
570) T	Hexanone	0.345	0.354	0.457
571) T	Dibromochloromethane	0.364	0.348	0.454
572) T	1,2-Dibromoethane	0.882	0.974	1.250
573) T	n-Butyl Acetate	0.405	0.368	0.437
574) T	n-Octane	0.458	0.454	0.538
575) T	Tetrachloroethene	1.174	1.085	1.284
576) T	Chlorobenzene	1.989	1.892	2.239
577) T	Ethylbenzene	1.599	1.482	1.744
578) T	m- & p-Xylenes	0.270	0.282	0.360
579) T	Bromoform	0.934	1.003	1.180
580) T	Styrene	1.559	1.457	1.742
581) T	o-Xylene	1.043	0.997	1.152
582) T	n-Nonane	0.619	0.603	0.757
583) T	1,1,2,2-Tetrachloroethene	0.770	0.780	0.785
584) T	Bromofluorobenzene	2.038	1.927	2.249
585) T	Cumene	0.843	0.804	0.751
586) T	alpha-Pinene	2.365	2.201	2.608
587) T	n-Propylbenzene	1.881	1.873	2.260
588) T	3-Ethyltoluene	1.968	1.831	2.063
589) T	4-Ethyltoluene	1.730	1.647	1.879
590) T	1,3,5-Trimethylbenzene	0.688	0.744	0.692
591) T	alpha-Methylstyrene	2.011	1.909	2.194
592) T	2-Ethyltoluene	1.603	1.558	1.832
593) T	1,2,4-Trimethylbenzene	0.931	0.914	1.085
594) T	n-Decane	0.861	0.870	1.067
595) T	Benzyl Chloride	0.922	0.885	1.070
596) T	1,3-Dichlorobenzene	2.251	2.133	2.461
597) T	1,4-Dichlorobenzene	2.223	2.112	2.506
598) T	sec-Butylbenzene	1.645	1.595	1.888
599) T	4-Isopropyltoluene	0.848	0.820	1.004
600) T	1,2,3-Trimethylbenzene	0.540	0.524	0.460
601) T	1,2-Dichlorobenzene	0.215	0.227	0.321
602) T	d-Limonene	0.932	0.916	1.084
603) T	1,2-Dibromobenzene	0.491	0.521	0.720
604) T	1,2,4-Trichlorobenzene	0.861	0.870	1.067
605) T	1,3-Dichlorobenzene	0.922	0.885	1.070
606) T	1,4-Dichlorobenzene	2.251	2.133	2.461
607) T	sec-Butylbenzene	2.223	2.112	2.506
608) T	4-Isopropyltoluene	1.645	1.595	1.888
609) T	1,2,3-Trimethylbenzene	0.848	0.820	1.004
610) T	1,2-Dichlorobenzene	0.540	0.524	0.460
611) T	1,2-Dibromobenzene	0.215	0.227	0.321
612) T	1,2,4-Trichlorobenzene	0.932	0.916	1.084
613) T	1,2,4-Trichlorobenzene	0.491	0.521	0.720
614) T	1,2,4-Trichlorobenzene	0.861	0.870	1.067
615) T	1,3-Dichlorobenzene	0.922	0.885	1.070
616) T	1,4-Dichlorobenzene	2.251	2.133	2.461
617) T	sec-Butylbenzene	2.223	2.112	2.506
618) T	4-Isopropyltoluene	1.645	1.595	1.888
619) T	1,2,3-Trimethylbenzene	0.848	0.820	1.004
620) T	1,2-Dichlorobenzene	0.540	0.524	0.460
621) T	1,2-Dibromobenzene	0.215	0.227	0.321
622) T	1,2,4-Trichlorobenzene	0.932	0.916	1.084
623) T	1,2,4-Trichlorobenzene	0.491	0.521	0.720
624) T	1,2,4-Trichlorobenzene	0.861	0.870	1.067
625) T	1,3-Dichlorobenzene	0.922	0.885	1.070
626) T	1,4-Dichlorobenzene	2.251	2.133	2.461
627) T	sec-Butylbenzene	2.223	2.112	2.506
628) T	4-Isopropyltoluene	1.645	1.595	1.888
629) T	1,2,3-Trimethylbenzene	0.848	0.820	1.004
630) T	1,2-Dichlorobenzene	0.540	0.524	0.460
631) T	1,2-Dibromobenzene	0.215	0.227	0.321
632) T	1,2,4-Trichlorobenzene	0.932	0.916	1.084
633) T	1,2,4-Trichlorobenzene	0.491	0.521	0.720
634) T	1,2,4-Trichlorobenzene	0.861	0.870	1.067
635) T	1,3-Dichlorobenzene	0.922	0.885	1.070
636) T				

Method Path : I:\MS08\Methods\
 Method File : R8021819A.M
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

95) T	Naphthalene	2.430	2.318	2.106	1.998	1.821	1.559	2.039	15.74
96) T	n-Dodecane	0.768	0.793	0.960	0.936	0.909	0.821	0.687	0.801
97) T	Hexachlorobuta...	0.426	0.414	0.482	0.438	0.369	0.374	0.357	0.400
98) T	Cyclohexanone	0.612	0.613	0.683	0.655	0.626	0.583	0.548	0.602
99) T	tert-Butylbenzene	1.637	1.635	1.841	1.690	1.492	1.470	1.304	1.516
100) T	n-Butylbenzene	1.652	1.598	1.936	1.829	1.649	1.636	1.445	1.623

(#) = Out of Range

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID: S31-02071904
 4ng/L Std. ID: S31-02111903
 20ng/L Std. ID: S31-02111903
 200ng/L Std. ID: S31-02111901

Compounds	Source Std. mg/m ³	Dilution Factors:					Working STD Conc. (ng/L):									
		Primary Working Standards					Injection (L):									
		200ng/L	20ng/L	2ng/L	4ng/L	1ng/L	0.025	0.050	0.125	4	4	20	200	200	200	200
Propene	1.031	206.2	20.62	4.124	1.031	1.031	0.1031	0.2062	0.5155	1.031	5.155	25.775	51.55	103.1	103.1	103.1
Dichlorodifluoromethane	1.045	209.0	20.90	4.180	1.045	1.045	0.1045	0.2090	0.5225	1.045	5.225	26.125	52.25	104.5	104.5	104.5
Chloromethane	1.008	201.6	20.16	4.032	1.008	1.008	0.1008	0.2016	0.5040	1.008	5.040	25.200	50.40	100.8	100.8	100.8
Freon-114	1.028	205.6	20.56	4.112	1.028	1.028	0.1028	0.2056	0.5140	1.028	5.140	25.700	51.40	102.8	102.8	102.8
Vinyl Chloride	1.051	210.2	21.02	4.204	1.051	1.051	0.1051	0.2102	0.5255	1.051	5.255	26.275	52.55	105.1	105.1	105.1
1,3-Butadiene	1.049	209.8	20.98	4.196	1.049	1.049	0.1049	0.2098	0.5245	1.049	5.245	26.225	52.45	104.9	104.9	104.9
Bromomethane	1.009	201.8	20.18	4.036	1.009	1.009	0.1009	0.2018	0.5045	1.009	5.045	25.225	50.45	100.9	100.9	100.9
Chloroethane	1.022	204.4	20.44	4.088	1.022	1.022	0.1022	0.2044	0.5110	1.022	5.110	25.550	51.10	102.2	102.2	102.2
Ethanol	5.140	1028.0	102.80	20.560	5.140	5.140	0.5140	1.0280	2.5700	5.140	25.700	128.500	257.00	514.0	514.0	514.0
Acetonitrile	1.033	206.6	20.66	4.132	1.033	1.033	0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3	103.3	103.3
Acrolein	1.028	205.6	20.56	4.112	1.028	1.028	0.1028	0.2056	0.5140	1.028	5.140	25.700	51.40	102.8	102.8	102.8
Acetone	5.370	1074.0	107.40	21.480	5.370	5.370	0.5370	1.0740	2.6850	5.370	26.850	134.250	268.50	537.0	537.0	537.0
Trichlorofluoromethane	1.060	212.0	21.20	4.240	1.060	1.060	0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0	106.0	106.0
Isopropanol	2.063	412.6	41.26	8.252	2.063	2.063	0.2063	0.4126	1.0315	2.063	10.315	51.575	103.15	206.3	206.3	206.3
Acrylonitrile	1.034	206.8	20.68	4.136	1.034	1.034	0.1034	0.2068	0.5170	1.034	5.170	25.850	51.70	103.4	103.4	103.4
1,1-Dichloroethene	1.074	214.8	21.48	4.296	1.074	1.074	0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4	107.4	107.4
tert-Butanol	2.144	428.8	42.88	8.576	2.144	2.144	0.2144	0.4288	1.0720	2.144	10.720	53.600	107.20	214.4	214.4	214.4
Methylene Chloride	1.070	214.0	21.40	4.280	1.070	1.070	0.1070	0.2140	0.5350	1.070	5.350	26.750	53.50	107.0	107.0	107.0
Allyl Chloride	1.067	213.4	21.34	4.268	1.067	1.067	0.1067	0.2134	0.5335	1.067	5.335	26.675	53.35	106.7	106.7	106.7
Trichlorotrifluoroethane	1.065	213.0	21.30	4.260	1.065	1.065	0.1065	0.2130	0.5325	1.065	5.325	26.625	53.25	106.5	106.5	106.5
Carbon Disulfide	1.075	215.0	21.50	4.300	1.075	1.075	0.1075	0.2150	0.5375	1.075	5.375	26.875	53.75	107.5	107.5	107.5
trans-1,2-Dichloroethene	1.062	212.4	21.24	4.248	1.062	1.062	0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2	106.2	106.2
1,1-Dichloroethane	1.030	206.0	20.60	4.120	1.030	1.030	0.1030	0.2060	0.5150	1.030	5.150	25.750	51.50	103.0	103.0	103.0
Methyl tert-Butyl Ether	1.089	217.8	21.78	4.356	1.089	1.089	0.1089	0.2178	0.5445	1.089	5.445	27.225	54.45	108.9	108.9	108.9
Vinyl Acetate	5.252	1050.4	105.04	21.008	5.252	5.252	0.5252	1.0504	2.6260	5.252	26.260	131.300	262.60	525.2	525.2	525.2
2-Butanone	1.027	205.4	20.54	4.108	1.027	1.027	0.1027	0.2054	0.5135	1.027	5.135	25.675	51.35	102.7	102.7	102.7
cis-1,2-Dichloroethene	1.054	210.8	21.08	4.216	1.054	1.054	0.1054	0.2108	0.5270	1.054	5.270	26.350	52.70	105.4	105.4	105.4
Diisopropyl Ether	1.081	216.2	21.62	4.324	1.081	1.081	0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1	108.1	108.1
Ethyl Acetate	2.166	433.2	43.32	8.664	2.166	2.166	0.2166	0.4332	1.0830	2.166	10.830	54.150	108.30	216.6	216.6	216.6
n-Hexane	1.082	216.4	21.64	4.328	1.082	1.082	0.1082	0.2164	0.5410	1.082	5.410	27.050	54.10	108.2	108.2	108.2
Chloroform	1.077	215.4	21.54	4.308	1.077	1.077	0.1077	0.2154	0.5385	1.077	5.385	26.925	53.85	107.7	107.7	107.7
Tetrahydrofuran	1.068	213.6	21.36	4.272	1.068	1.068	0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8	106.8	106.8
Ethyl tert-Butyl Ether	1.060	212.0	21.20	4.240	1.060	1.060	0.1060	0.2120	0.5300	1.060	5.300	26.500	53.00	106.0	106.0	106.0
1,2-Dichloroethane	1.061	212.2	21.22	4.244	1.061	1.061	0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1	106.1	106.1
1,1,1-Trichloroethane	1.081	216.2	21.62	4.324	1.081	1.081	0.1081	0.2162	0.5405	1.081	5.405	27.025	54.05	108.1	108.1	108.1
Isopropyl Acetate	2.066	413.2	41.32	8.264	2.066	2.066	0.2066	0.4132	1.0330	2.066	10.330	51.650	103.30	206.6	206.6	206.6
1-Butanol	2.067	413.4	41.34	8.268	2.067	2.067	0.2067	0.4134	1.0335	2.067	10.335	51.675	103.35	206.7	206.7	206.7
Benzene	1.033	206.6	20.66	4.132	1.033	1.033	0.1033	0.2066	0.5165	1.033	5.165	25.825	51.65	103.3	103.3	103.3
Carbon Tetrachloride	1.036	207.2	20.72	4.144	1.036	1.036	0.1036	0.2072	0.5180	1.036	5.180	25.900	51.80	103.6	103.6	103.6
Cyclohexane	2.087	417.4	41.74	8.348	2.087	2.087	0.2087	0.4174	1.0435	2.087	10.435	52.175	104.35	208.7	208.7	208.7
tert-Amyl Methyl Ether	1.074	214.8	21.48	4.296	1.074	1.074	0.1074	0.2148	0.5370	1.074	5.370	26.850	53.70	107.4	107.4	107.4
1,2-Dichloropropane	1.073	214.6	21.46	4.292	1.073	1.073	0.1073	0.2146	0.5365	1.073	5.365	26.825	53.65	107.3	107.3	107.3
Bromodichloromethane	1.068	213.6	21.36	4.272	1.068	1.068	0.1068	0.2136	0.5340	1.068	5.340	26.700	53.40	106.8	106.8	106.8
Trichloroethene	1.062	212.4	21.24	4.248	1.062	1.062	0.1062	0.2124	0.5310	1.062	5.310	26.550	53.10	106.2	106.2	106.2
1,4-Dioxane	1.064	212.8	21.28	4.256	1.064	1.064	0.1064	0.2128	0.5320	1.064	5.320	26.600	53.20	106.4	106.4	106.4
Isocutane	1.061	212.2	21.22	4.244	1.061	1.061	0.1061	0.2122	0.5305	1.061	5.305	26.525	53.05	106.1	106.1	106.1
Methyl Methacrylate	2.135	427.0	42.70	8.540	2.135	2.135	0.2135	0.4270	1.0675	2.135	10.675	53.375	106.75	213.5	213.5	213.5
n-Heptane	1.076	215.2	21.52	4.304	1.076	1.076	0.1076	0.2152	0.5380	1.076	5.380	26.900	53.80	107.6	107.6	107.6

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID:
4ng/L Std. ID: S31-02071904
20ng/L Std. ID: S31-02111903
200ng/L Std. ID: S31-02111901

200ng/L Std. ID: S31-02111901													
Dilution Factors:			5		50		250		1000				
Compounds	Source Std. mg/m ³	200ng/L	Primary Working Standards		20ng/L	4ng/L	1ng/L	200	20	200			
			200ng/L	20ng/L									
cis-1,3-Dichloropropene	1.120	224.0	22.40	4.480	1.120			0.1120	1.120	5.600	28.000	56.00	112.0
4-Methyl-2-pentanone	1.060	212.0	21.20	4.240	1.060			0.1060	1.060	5.300	26.500	53.00	106.0
trans-1,3-Dichloropropene	1.055	211.0	21.10	4.220	1.055			0.1055	1.055	5.275	26.375	52.75	105.5
1,1,1,2-Trichloroethane	1.076	215.2	21.52	4.304	1.076			0.1076	1.076	5.380	26.900	53.80	107.6
Toluene	1.052	210.4	21.04	4.208	1.052			0.1052	1.052	5.260	26.300	52.60	105.2
2-Hexanone	1.074	214.8	21.48	4.296	1.074			0.1074	1.074	5.370	26.850	53.70	107.4
Dibromochloromethane	1.075	215.0	21.50	4.300	1.075			0.1075	1.075	5.375	26.875	53.75	107.5
1,1,2-Dibromoethane	1.076	215.2	21.52	4.304	1.076			0.1076	1.076	5.380	26.900	53.80	107.6
n-Butyl Acetate	1.085	217.0	21.70	4.340	1.085			0.1085	1.085	5.425	27.125	54.25	108.5
n-Octane	1.076	215.2	21.52	4.304	1.076			0.1076	1.076	5.380	26.900	53.80	107.6
Tetrachloroethene	1.058	211.6	21.16	4.232	1.058			0.1058	1.058	5.290	26.450	52.90	105.8
Chlorobenzene	1.066	213.2	21.32	4.264	1.066			0.1066	1.066	5.330	26.650	53.30	106.6
Ethylbenzene	1.033	206.6	20.66	4.132	1.033			0.1033	1.033	5.165	25.825	51.65	103.3
m- & p-Xylene	2.123	424.6	42.46	8.492	2.123			0.2123	2.123	10.615	53.075	106.15	212.3
Bromoform	1.063	212.6	21.26	4.252	1.063			0.1063	1.063	5.315	26.575	53.15	106.3
Styrene	1.060	212.0	21.20	4.240	1.060			0.1060	1.060	5.300	26.500	53.00	106.0
o-Xylene	1.062	212.4	21.24	4.248	1.062			0.1062	1.062	5.310	26.550	53.10	106.2
n-Nonane	1.071	214.2	21.42	4.284	1.071			0.1071	1.071	5.355	26.775	53.55	107.1
1,1,1,2,2-Tetrachloroethane	1.064	212.8	21.28	4.256	1.064			0.1064	1.064	5.320	26.600	53.20	106.4
Cumene	1.057	211.4	21.14	4.228	1.057			0.1057	1.057	5.285	26.425	52.85	105.7
alpha-Phene	1.035	207.0	20.70	4.140	1.035			0.1035	1.035	5.175	25.875	51.75	103.5
n-Propylbenzene	1.076	215.2	21.52	4.304	1.076			0.1076	1.076	5.380	26.900	53.80	107.6
3-Ethyltoluene	1.062	212.4	21.24	4.248	1.062			0.1062	1.062	5.310	26.550	53.10	106.2
4-Ethyltoluene	1.061	212.2	21.22	4.244	1.061			0.1061	1.061	5.305	26.525	53.05	106.1
1,3,5-Trimethylbenzene	1.057	211.4	21.14	4.228	1.057			0.1057	1.057	5.285	26.425	52.85	105.7
alpha-Methylstyrene	1.058	211.6	21.16	4.232	1.058			0.1058	1.058	5.290	26.450	52.90	105.8
2-Ethyltoluene	1.072	214.4	21.44	4.288	1.072			0.1072	1.072	5.360	26.800	53.60	107.2
1,2,4-Trimethylbenzene	1.068	213.6	21.36	4.272	1.068			0.1068	1.068	5.340	26.700	53.40	106.8
n-Decane	1.076	215.2	21.52	4.304	1.076			0.1076	1.076	5.380	26.900	53.80	107.6
Benzyl Chloride	1.051	210.2	21.02	4.204	1.051			0.1051	1.051	5.255	26.275	52.55	105.1
1,3-Dichlorobenzene	1.080	216.0	21.60	4.320	1.080			0.1080	1.080	5.400	27.000	54.00	108.0
1,4-Dichlorobenzene	1.081	216.2	21.62	4.324	1.081			0.1081	1.081	5.405	27.025	54.05	108.1
sec-Butylbenzene	1.063	212.6	21.26	4.252	1.063			0.1063	1.063	5.315	26.575	53.15	106.3
p-Isopropyltoluene	1.042	208.4	20.84	4.168	1.042			0.1042	1.042	5.210	26.050	52.10	104.2
1,1,2,3-Trimethylbenzene	1.042	208.4	20.84	4.168	1.042			0.1042	1.042	5.210	26.050	52.10	104.2
1,2-Dichlorobenzene	1.089	217.8	21.78	4.356	1.089			0.1089	1.089	5.445	27.225	54.45	108.9
d-Limonene	1.010	202.0	20.20	4.040	1.010			0.1010	1.010	5.050	25.250	50.50	101.0
1,2-Dibromo-3-chloropropane	1.042	208.4	20.84	4.168	1.042			0.1042	1.042	5.210	26.050	52.10	104.2
n-Undecane	1.057	211.4	21.14	4.228	1.057			0.1057	1.057	5.285	26.425	52.85	105.7
1,2,4-Trichlorobenzene	1.064	212.8	21.28	4.256	1.064			0.1064	1.064	5.320	26.600	53.20	106.4
Naphthalene	1.025	205.0	20.50	4.100	1.025			0.1025	1.025	5.125	25.625	51.25	102.5
n-Dodecane	1.031	206.2	20.62	4.124	1.031			0.1031	1.031	5.155	25.775	51.55	103.1
Hexachloro-1,3-butadiene	1.053	210.6	21.06	4.212	1.053			0.1053	1.053	5.265	26.325	52.65	105.3
Methacrylonitrile	1.041	208.2	20.82	4.164	1.041			0.1041	1.041	5.205	26.025	52.05	104.1
Cyclohexanone	0.982	196.4	19.64	3.928	0.982			0.0982	0.982	4.910	24.550	49.10	98.2
tert-Butylbenzene	1.067	213.4	21.34	4.268	1.067			0.1067	1.067	5.335	26.675	53.35	106.7
n-Butylbenzene	1.064	212.8	21.28	4.256	1.064			0.1064	1.064	5.320	26.600	53.20	106.4

Method : I:\MS08\Methods\R8021819A.M (RTE Integrator)
 Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 Last Update : Tue Feb 19 08:36:45 2019
 Response via : Initial Calibration

RS 2/21/19

#	ID	Conc	ISTD Conc	Path\File
1	0.1	0	13	I:\MS08\Data\2019_02\18\02181909.D
2	0.2	0	13	I:\MS08\Data\2019_02\18\02181910.D
3	0.5	1	13	I:\MS08\Data\2019_02\18\02181911.D
4	1.0	1	13	I:\MS08\Data\2019_02\18\02181912.D
5	5.0	5	13	I:\MS08\Data\2019_02\18\02181913.D
6	25	26	13	I:\MS08\Data\2019_02\18\02181914.D
7	50	52	13	I:\MS08\Data\2019_02\18\02181915.D
8	100	103	13	I:\MS08\Data\2019_02\18\02181916.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	Feb 21 11:41 2019	Feb 21 11:40 2019	18 Feb 2019 12:33
2	0.2	Feb 19 07:32 2019	Feb 19 07:25 2019	18 Feb 2019 13:11
3	0.5	Feb 19 07:32 2019	Feb 19 07:25 2019	18 Feb 2019 13:44
4	1.0	Feb 19 07:32 2019	Feb 19 07:25 2019	18 Feb 2019 14:17
5	5.0	Feb 19 07:32 2019	Feb 19 07:25 2019	18 Feb 2019 14:50
6	25	Feb 19 07:32 2019	Feb 19 07:26 2019	18 Feb 2019 15:22
7	50	Feb 19 07:33 2019	Feb 19 07:26 2019	18 Feb 2019 15:55
8	100	Feb 19 07:33 2019	Feb 19 07:26 2019	18 Feb 2019 16:28

R8021819A.M

Thu Feb 21 13:28:28 2019

Data File: I:\MS08\Data\2019 02\18\02181909.D

Sample : 0.1ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 12:33

Misc : S31-02071907/S31-02071904 (3/8)

ALS Vial : 14 Sample Multiplier: 1

Inst : MS08

Operator: RS

RS 2/21/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 13:13:24 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	131929	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	13.35	114	567583	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.66	82	300724	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	217803	12.354	ng	-0.03
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.80%	
57) Toluene-d8 (SS2)	15.80	98	664299	12.500	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.00%	
73) Bromofluorobenzene (SS3)	19.05	174	231482	12.252	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.00%	

Target Compounds

						Qvalue
2) Propene	4.19	42	1573	0.124	ng	96
3) Dichlorodifluoromethan...	4.34	85	2144	0.121	ng	# 87
4) Chloromethane	4.62	50	1928	0.123	ng	97
5) 1,2-Dichloro-1,1,2,2-t...	4.89	135	1060	0.114	ng	82
6) Vinyl Chloride	5.04	62	1686	0.116	ng	92
7) 1,3-Butadiene	5.31	54	1393	0.106	ng	94
8) Bromomethane	5.74	94	755	0.099	ng	99
9) Chloroethane	0.00	64	0	N.D.	d	
10) Ethanol	6.42	45	4903	0.592	ng	90
11) Acetonitrile	6.73	41	2365	0.108	ng	92
12) Acrolein	6.92	56	216	0.037	ng	# 44
13) Acetone	7.13	58	5960	0.756	ng	96
14) Trichlorofluoromethane	7.34	101	1773	0.116	ng	94
15) 2-Propanol (Isopropanol)	7.66	45	5875	0.213	ng	96
16) Acrylonitrile	0.00	53	0	N.D.	d	
17) 1,1-Dichloroethene	8.31	96	919	0.108	ng	93
18) 2-Methyl-2-Propanol (t...	8.55	59	5099	0.221	ng	# 82
19) Methylene Chloride	8.52	84	921	0.105	ng	90
20) 3-Chloro-1-propene (Al...	8.68	41	1885	0.111	ng	64
21) Trichlorotrifluoroethane	8.94	151	879	0.111	ng	98
22) Carbon Disulfide	8.79	76	4312	0.126	ng	81
23) trans-1,2-Dichloroethene	9.80	61	1095	0.087	ng	96
24) 1,1-Dichloroethane	10.03	63	1823	0.111	ng	84
25) Methyl tert-Butyl Ether	10.19	73	2932	0.110	ng	83
26) Vinyl Acetate	10.32	86	546	0.219	ng	# 1
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	11.06	61	1363	0.105	ng	95
29) Diisopropyl Ether	11.38	87	931	0.104	ng	# 68
30) Ethyl Acetate	11.41	61	113	0.035	ng	# 7
31) n-Hexane	11.34	57	2090	0.126	ng	# 91
32) Chloroform	11.40	83	1754	0.113	ng	95
34) Tetrahydrofuran (THF)	11.87	72	518	0.084	ng	# 42
35) Ethyl tert-Butyl Ether	11.97	87	986	0.096	ng	# 81
36) 1,2-Dichloroethane	12.20	62	1313	0.105	ng	66
38) 1,1,1-Trichloroethane	12.48	97	1600	0.113	ng	93
39) Isopropyl Acetate	12.93	61	1216	0.196	ng	# 62
40) 1-Butanol	12.98	56	1686	0.170	ng	# 71
41) Benzene	12.97	78	4527	0.119	ng	92
42) Carbon Tetrachloride	13.12	117	1307	0.104	ng	96
43) Cyclohexane	13.25	84	3812	0.241	ng	98
44) tert-Amyl Methyl Ether	13.62	73	2910	0.119	ng	93
45) 1,2-Dichloropropane	13.82	63	989	0.108	ng	96
46) Bromodichloromethane	14.01	83	1260	0.105	ng	91
47) Trichloroethene	14.06	130	1095	0.110	ng	99
48) 1,4-Dioxane	14.08	88	712	0.095	ng	88
49) 2,2,4-Trimethylpentane...	14.13	57	5278	0.121	ng	99
50) Methyl Methacrylate	14.28	100	538	0.148	ng	# 68

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Data File: I:\MS08\Data\2019 02\18\02181909.D

Sample : 0.1ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 12:33

Misc : S31-02071907/S31-02071904 (3/8)

ALS Vial : 14 Sample Multiplier: 1

Inst : MS08

Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 13:13:24 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

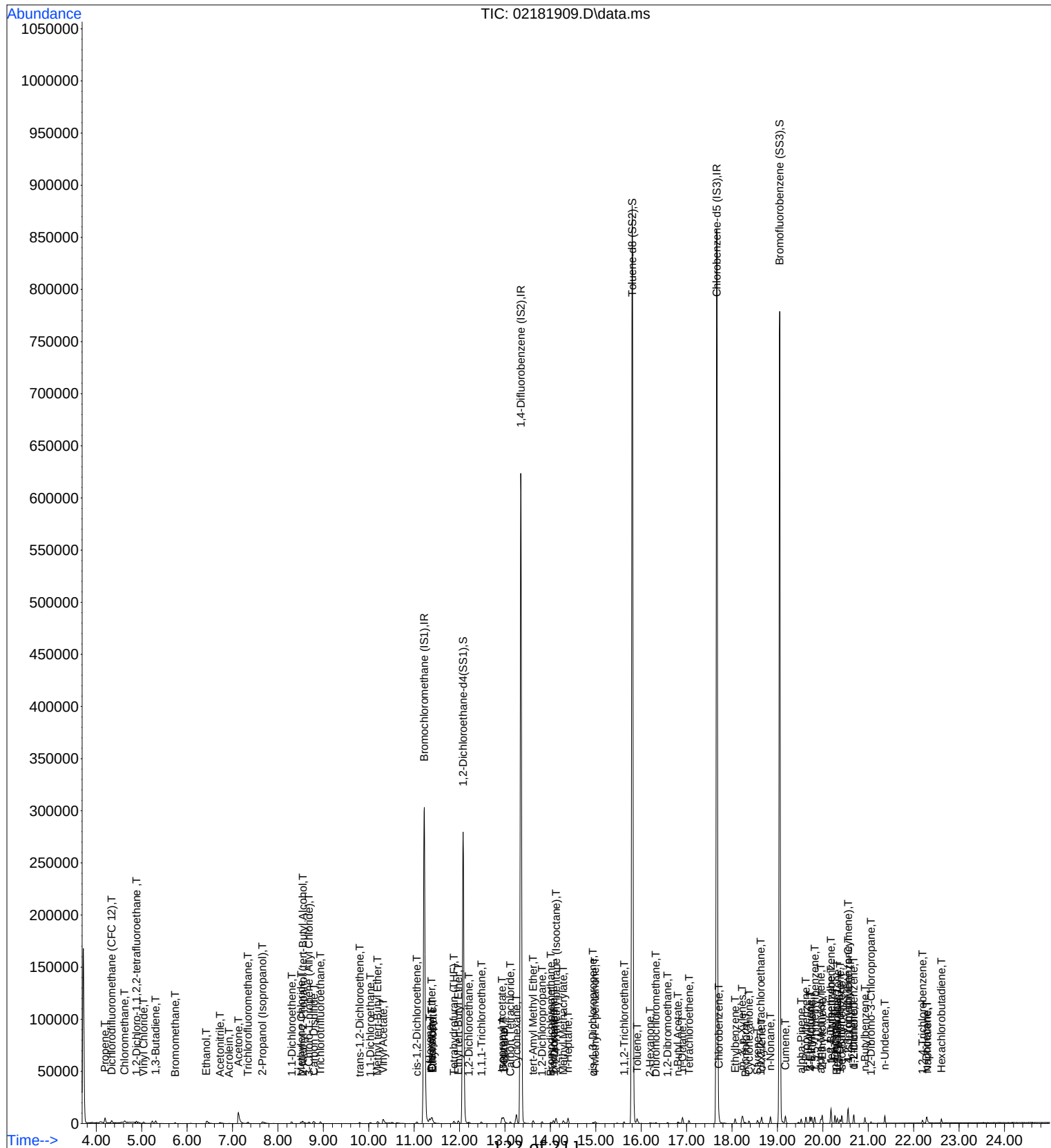
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	1163	0.114	ng	93
52) cis-1,3-Dichloropropene	14.93	75	1313	0.094	ng #	59
53) 4-Methyl-2-pentanone	14.98	58	650	0.076	ng #	29
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
55) 1,1,2-Trichloroethane	15.62	97	859	0.103	ng	94
58) Toluene	15.91	91	4646	0.119	ng	97
59) 2-Hexanone	16.19	43	1909	0.083	ng #	60
60) Dibromochloromethane	16.32	129	892	0.093	ng	97
61) 1,2-Dibromoethane	16.58	107	942	0.100	ng	99
62) n-Butyl Acetate	16.81	43	2301	0.091	ng #	76
63) n-Octane	16.91	57	1049	0.118	ng	92
64) Tetrachloroethene	17.05	166	1165	0.109	ng	100
65) Chlorobenzene	17.71	112	3011	0.118	ng	94
66) Ethylbenzene	18.07	91	4943	0.110	ng	96
67) m- & p-Xylenes	18.22	91	8168	0.237	ng	95
68) Bromoform	18.30	173	691	0.087	ng	76
69) Styrene	18.56	104	2381	0.094	ng	91
70) o-Xylene	18.65	91	3983	0.115	ng	99
71) n-Nonane	18.85	43	2688	0.117	ng	97
72) 1,1,2,2-Tetrachloroethane	18.63	83	1585	0.103	ng	96
74) Cumene	19.17	105	5182	0.116	ng	97
75) alpha-Pinene	19.52	93	2099	0.111	ng	86
76) n-Propylbenzene	19.63	91	6121	0.117	ng	97
77) 3-Ethyltoluene	19.72	105	4805	0.107	ng	100
78) 4-Ethyltoluene	19.75	105	5023	0.120	ng	97
79) 1,3,5-Trimethylbenzene	19.82	105	4398	0.116	ng	96
80) alpha-Methylstyrene	19.95	118	1752	0.104	ng	93
81) 2-Ethyltoluene	19.99	105	5187	0.118	ng	98
82) 1,2,4-Trimethylbenzene	20.18	105	4120	0.114	ng	98
83) n-Decane	20.27	57	2409	0.111	ng	97
84) Benzyl Chloride	20.30	91	1816	0.065	ng	76
85) 1,3-Dichlorobenzene	20.32	146	2238	0.106	ng	99
86) 1,4-Dichlorobenzene	20.38	146	2399	0.111	ng	94
87) sec-Butylbenzene	20.42	105	5756	0.116	ng	99
88) 4-Isopropyltoluene (p-...	20.56	119	5572	0.116	ng	98
89) 1,2,3-Trimethylbenzene	20.56	105	4124	0.112	ng	99
90) 1,2-Dichlorobenzene	20.68	146	2221	0.111	ng	100
91) d-Limonene	20.68	68	1313	0.112	ng	92
92) 1,2-Dibromo-3-Chloropr...	21.06	157	540	0.078	ng #	84
93) n-Undecane	21.36	57	2370	0.107	ng	96
94) 1,2,4-Trichlorobenzene	22.19	180	1257	0.089	ng #	94
95) Naphthalene	22.30	128	4272	0.087	ng	82
96) n-Dodecane	22.28	57	1905	0.099	ng	89
97) Hexachlorobutadiene	22.61	225	1080	0.112	ng	98
98) Cyclohexanone	18.37	55	1447	0.100	ng	92
99) tert-Butylbenzene	20.18	119	4201	0.115	ng	99
100) n-Butylbenzene	20.93	91	4230	0.108	ng	96

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

ALS Vial : 14 Sample Multiplier: 1

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 02\18\02181910.D

Sample : 0.2ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 13:11

Misc : S31-02071907/S31-02071904 (3/8)

ALS Vial : 14 Sample Multiplier: 1

Inst : MS08

Operator: RS

RS 2/21/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:53:47 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	129253	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	13.35	114	563885	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.67	82	294863	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	215930	12.501	ng	-0.03
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.00%	
57) Toluene-d8 (SS2)	15.80	98	658035	12.628	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	101.04%	
73) Bromofluorobenzene (SS3)	19.05	174	230013	12.417	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.36%	

Target Compounds

						Qvalue
2) Propene	4.19	42	2678	0.215	ng	98
3) Dichlorodifluoromethan...	4.34	85	3770	0.216	ng	97
4) Chloromethane	4.62	50	3542	0.230	ng	97
5) 1,2-Dichloro-1,1,2,2-t...	4.89	135	2061	0.225	ng	91
6) Vinyl Chloride	5.04	62	3144	0.222	ng	96
7) 1,3-Butadiene	5.31	54	2855	0.222	ng	92
8) Bromomethane	5.73	94	1550	0.208	ng	98
9) Chloroethane	6.07	64	1503	0.216	ng	85
10) Ethanol	6.42	45	9767m	1.203	ng	
11) Acetonitrile	6.71	41	4821	0.225	ng	95
12) Acrolein	6.91	56	869	0.151	ng	96
13) Acetone	7.12	58	10289	1.332	ng	99
14) Trichlorofluoromethane	7.33	101	3296	0.220	ng	100
15) 2-Propanol (Isopropanol)	7.62	45	11590	0.429	ng	97
16) Acrylonitrile	7.88	53	1690	0.139	ng	88
17) 1,1-Dichloroethene	8.30	96	1847	0.221	ng	96
18) 2-Methyl-2-Propanol (t...	8.53	59	10519	0.465	ng	95
19) Methylene Chloride	8.51	84	1839	0.214	ng	95
20) 3-Chloro-1-propene (Al...	8.68	41	3571	0.214	ng	88
21) Trichlorotrifluoroethane	8.94	151	1715	0.221	ng	96
22) Carbon Disulfide	8.78	76	7840	0.234	ng	95
23) trans-1,2-Dichloroethene	9.79	61	2394	0.194	ng	99
24) 1,1-Dichloroethane	10.03	63	3408	0.212	ng	90
25) Methyl tert-Butyl Ether	10.18	73	5939	0.228	ng	92
26) Vinyl Acetate	10.31	86	1742	0.713	ng	# 14
27) 2-Butanone (MEK)	10.60	72	898	0.143	ng	# 31
28) cis-1,2-Dichloroethene	11.06	61	2649	0.209	ng	99
29) Diisopropyl Ether	11.38	87	2029	0.231	ng	# 91
30) Ethyl Acetate	11.38	61	958	0.302	ng	96
31) n-Hexane	11.34	57	3701	0.228	ng	# 95
32) Chloroform	11.40	83	3262	0.215	ng	98
34) Tetrahydrofuran (THF)	11.86	72	1192	0.197	ng	# 78
35) Ethyl tert-Butyl Ether	11.97	87	2105	0.209	ng	94
36) 1,2-Dichloroethane	12.21	62	2570	0.209	ng	93
38) 1,1,1-Trichloroethane	12.48	97	3109	0.221	ng	98
39) Isopropyl Acetate	12.93	61	2501	0.405	ng	# 81
40) 1-Butanol	12.96	56	4216	0.429	ng	# 72
41) Benzene	12.97	78	8076	0.213	ng	99
42) Carbon Tetrachloride	13.12	117	2434	0.194	ng	99
43) Cyclohexane	13.25	84	6836	0.435	ng	99
44) tert-Amyl Methyl Ether	13.61	73	5268	0.217	ng	95
45) 1,2-Dichloropropane	13.82	63	2031	0.223	ng	92
46) Bromodichloromethane	14.00	83	2390	0.201	ng	97
47) Trichloroethene	14.06	130	2127	0.215	ng	97
48) 1,4-Dioxane	14.06	88	1562	0.210	ng	95
49) 2,2,4-Trimethylpentane...	14.13	57	10144	0.233	ng	97
50) Methyl Methacrylate	14.28	100	1197	0.333	ng	# 77

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Data File: I:\MS08\Data\2019 02\18\02181910.D

Sample : 0.2ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 13:11

Misc : S31-02071907/S31-02071904 (3/8)

ALS Vial : 14 Sample Multiplier: 1

Inst : MS08

Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:53:47 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

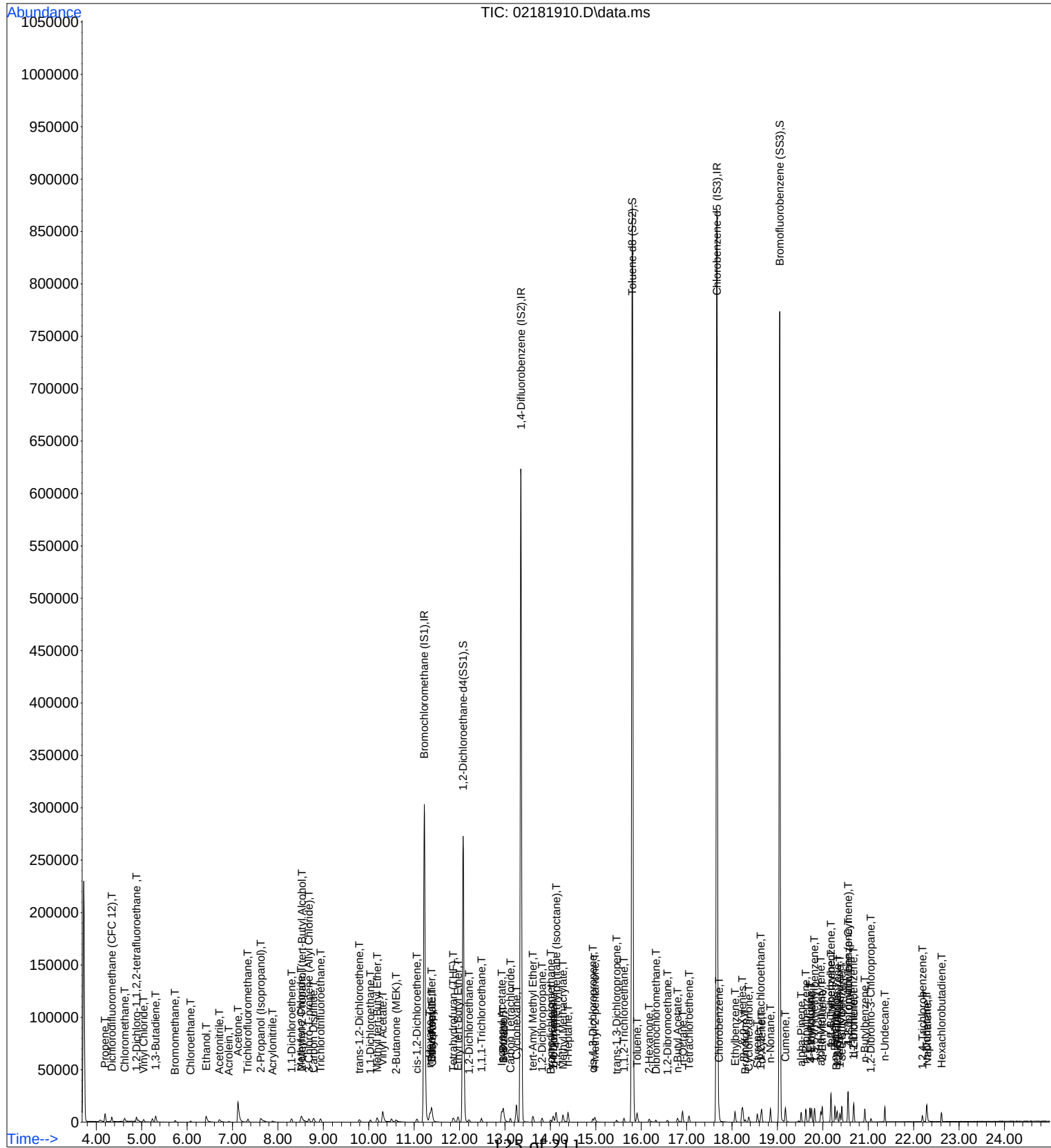
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	2246	0.221	ng	99
52) cis-1,3-Dichloropropene	14.93	75	2858	0.206	ng	89
53) 4-Methyl-2-pentanone	14.98	58	1586	0.187	ng	# 68
54) trans-1,3-Dichloropropene	15.46	75	1775	0.144	ng	77
55) 1,1,2-Trichloroethane	15.62	97	1661	0.201	ng	96
58) Toluene	15.91	91	8415	0.220	ng	99
59) 2-Hexanone	16.17	43	4403	0.196	ng	86
60) Dibromochloromethane	16.32	129	1795	0.190	ng	98
61) 1,2-Dibromoethane	16.58	107	1765	0.192	ng	95
62) n-Butyl Acetate	16.80	43	4985	0.201	ng	92
63) n-Octane	16.91	57	1869	0.215	ng	98
64) Tetrachloroethene	17.05	166	2266	0.217	ng	97
65) Chlorobenzene	17.71	112	5455	0.218	ng	99
66) Ethylbenzene	18.07	91	9223	0.210	ng	97
67) m- & p-Xylenes	18.23	91	14848	0.440	ng	97
68) Bromoform	18.29	173	1415	0.181	ng	92
69) Styrene	18.56	104	5015	0.203	ng	93
70) o-Xylene	18.65	91	7300	0.215	ng	99
71) n-Nonane	18.85	43	5039	0.224	ng	97
72) 1,1,2,2-Tetrachloroethane	18.63	83	3025	0.201	ng	97
74) Cumene	19.17	105	9610	0.219	ng	98
75) alpha-Pinene	19.52	93	3927	0.212	ng	95
76) n-Propylbenzene	19.63	91	11175	0.218	ng	97
77) 3-Ethyltoluene	19.72	105	9385	0.213	ng	100
78) 4-Ethyltoluene	19.75	105	9164	0.224	ng	100
79) 1,3,5-Trimethylbenzene	19.81	105	8213	0.222	ng	98
80) alpha-Methylstyrene	19.95	118	3712	0.224	ng	97
81) 2-Ethyltoluene	19.99	105	9655	0.223	ng	96
82) 1,2,4-Trimethylbenzene	20.18	105	7851	0.221	ng	98
83) n-Decane	20.27	57	4640	0.219	ng	98
84) Benzyl Chloride	20.30	91	3921	0.142	ng	91
85) 1,3-Dichlorobenzene	20.32	146	4434	0.214	ng	98
86) 1,4-Dichlorobenzene	20.37	146	4515	0.213	ng	96
87) sec-Butylbenzene	20.42	105	10696	0.219	ng	98
88) 4-Isopropyltoluene (p-...	20.56	119	10383	0.221	ng	98
89) 1,2,3-Trimethylbenzene	20.56	105	7839	0.217	ng	99
90) 1,2-Dichlorobenzene	20.67	146	4213	0.215	ng	99
91) d-Limonene	20.68	68	2498	0.217	ng	94
92) 1,2-Dibromo-3-Chloropr...	21.06	157	1118	0.164	ng	90
93) n-Undecane	21.36	57	4568	0.210	ng	96
94) 1,2,4-Trichlorobenzene	22.19	180	2613	0.188	ng	99
95) Naphthalene	22.30	128	8234	0.171	ng	94
96) n-Dodecane	22.28	57	3856	0.204	ng	96
97) Hexachlorobutadiene	22.62	225	2059	0.218	ng	99
98) Cyclohexanone	18.37	55	2840	0.200	ng	96
99) tert-Butylbenzene	20.18	119	8232	0.230	ng	97
100) n-Butylbenzene	20.92	91	8021	0.210	ng	96

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

ALS Vial : 14 Sample Multiplier: 1

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 02\18\02181910.D

Sample : 0.2ng TO-15 ICAL Std.

Inst : MS08

Acq On : 18 Feb 2019 13:11

Operator: RS

Misc : S31-02071907/S31-02071904 (3/8)

ALS Vial : 14 Sample Multiplier: 1

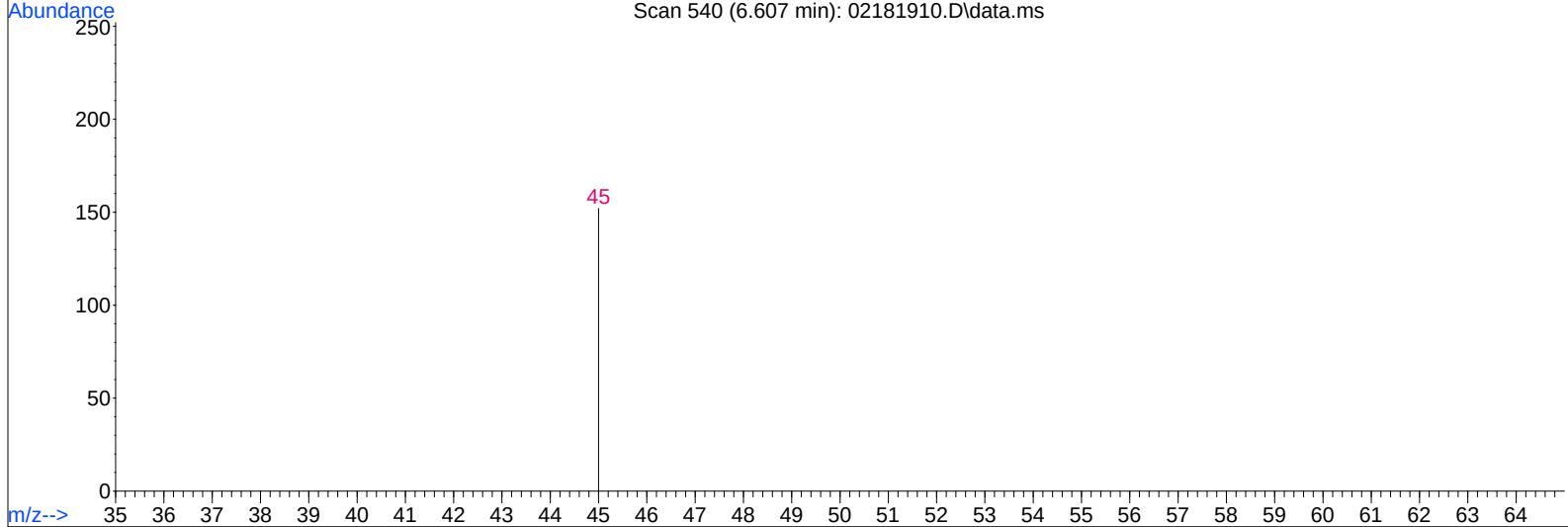
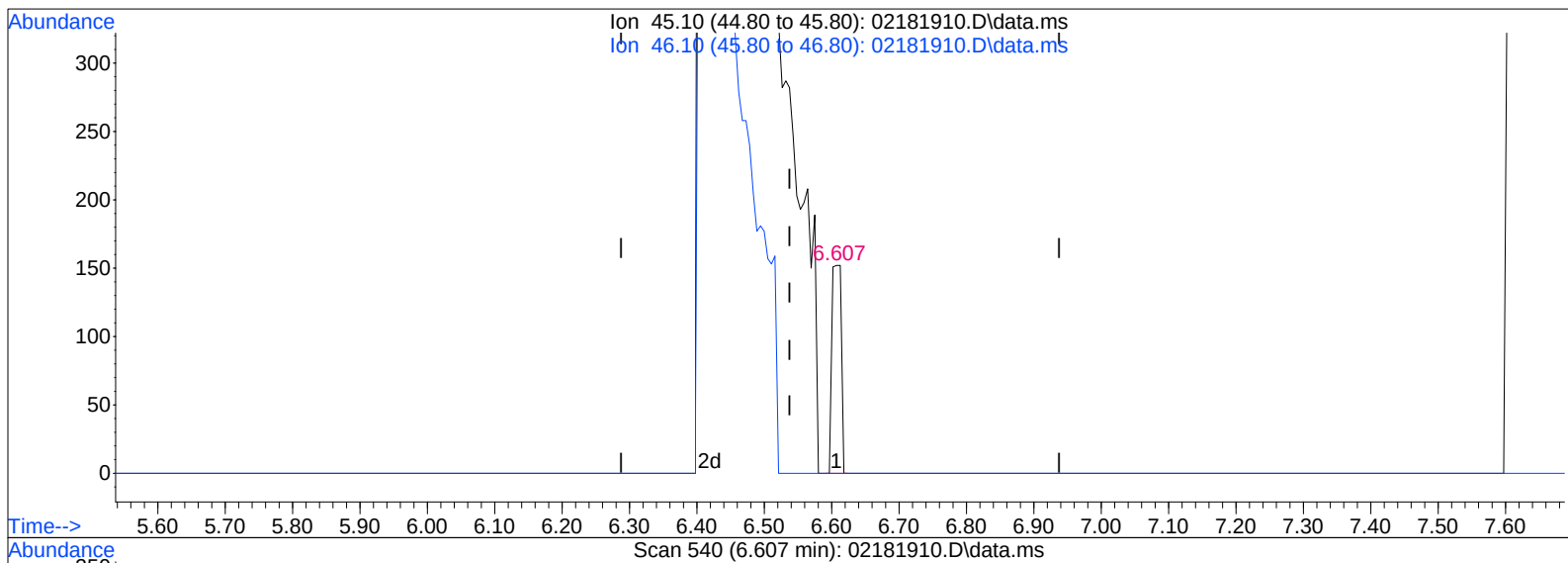
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:46:54 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 02181910.D\data.ms

(10) Ethanol (T)

6.607min (+0.070) 0.02ng

response 147

Ion	Exp%	Act%
45.10	100	100
46.10	41.50	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 02\18\02181910.D

Sample : 0.2ng TO-15 ICAL Std.

Inst : MS08

Acq On : 18 Feb 2019 13:11

Operator: RS

Misc : S31-02071907/S31-02071904 (3/8)

ALS Vial : 14 Sample Multiplier: 1

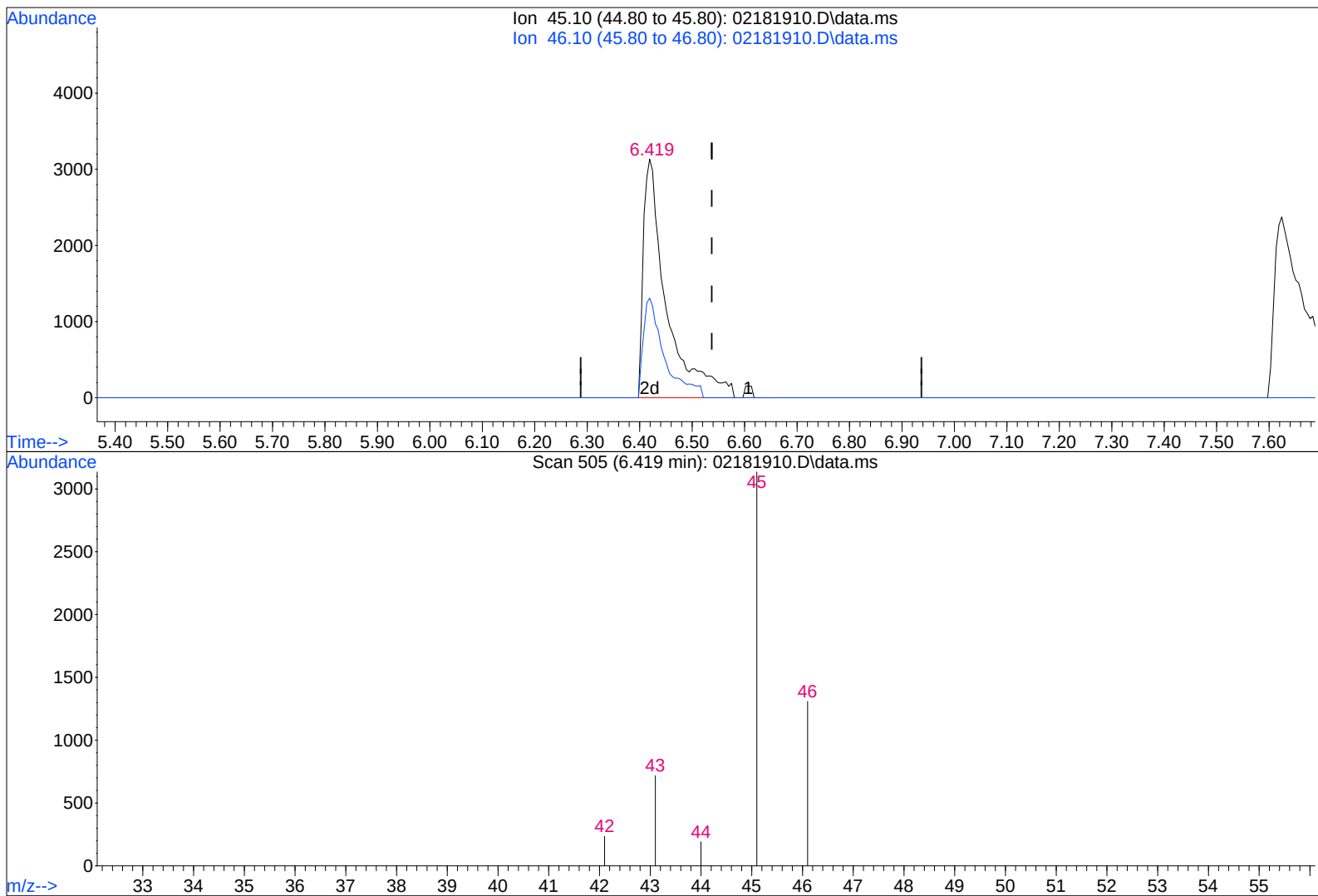
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:46:54 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 02181910.D\data.ms

(10) Ethanol (T)

6.419min (-0.118) 1.20ng m

MP

response 9767

RS 2/21/19

Ion	Exp%	Act%
45.10	100	100
46.10	41.50	37.18
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 02\18\02181911.D

Sample : 0.5ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 13:44

Misc : S31-02071907/S31-02111903 (3/12)

ALS Vial : 7 Sample Multiplier: 1

Inst : MS08

Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 13:14:35 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

RS 2/21/19

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	126488	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	13.35	114	546077	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.67	82	286201	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	208643	12.343	ng	-0.03
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.72%	
57) Toluene-d8 (SS2)	15.81	98	639485	12.644	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	101.12%	
73) Bromofluorobenzene (SS3)	19.05	174	224646	12.494	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.92%	

Target Compounds

						Qvalue
2) Propene	4.18	42	7661	0.629	ng	97
3) Dichlorodifluoromethan...	4.33	85	10804	0.634	ng	99
4) Chloromethane	4.61	50	9931	0.660	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	5788	0.647	ng	95
6) Vinyl Chloride	5.04	62	9078	0.654	ng	98
7) 1,3-Butadiene	5.30	54	8234	0.654	ng	97
8) Bromomethane	5.73	94	4374	0.599	ng	98
9) Chloroethane	6.07	64	4185	0.614	ng	97
10) Ethanol	6.41	45	24255m	3.053	ng	
11) Acetonitrile	6.69	41	12417	0.592	ng	96
12) Acrolein	6.90	56	3271	0.583	ng	93
13) Acetone	7.10	58	24621	3.257	ng	99
14) Trichlorofluoromethane	7.34	101	9290	0.633	ng	100
15) 2-Propanol (Isopropanol)	7.59	45	32133	1.216	ng	99
16) Acrylonitrile	7.86	53	6566	0.550	ng	93
17) 1,1-Dichloroethene	8.30	96	5271	0.645	ng	96
18) 2-Methyl-2-Propanol (t...	8.50	59	27136	1.227	ng	97
19) Methylene Chloride	8.51	84	5434	0.646	ng	98
20) 3-Chloro-1-propene (Al...	8.67	41	9992	0.611	ng	97
21) Trichlorotrifluoroethane	8.94	151	4962	0.652	ng	99
22) Carbon Disulfide	8.78	76	20660	0.631	ng	97
23) trans-1,2-Dichloroethene	9.79	61	7569	0.627	ng	99
24) 1,1-Dichloroethane	10.03	63	9440	0.601	ng	98
25) Methyl tert-Butyl Ether	10.17	73	16083	0.631	ng	97
26) Vinyl Acetate	10.30	86	6538	2.735	ng	# 74
27) 2-Butanone (MEK)	10.57	72	3462	0.562	ng	94
28) cis-1,2-Dichloroethene	11.06	61	7700	0.620	ng	100
29) Diisopropyl Ether	11.37	87	5808	0.675	ng	# 93
30) Ethyl Acetate	11.37	61	3752	1.210	ng	98
31) n-Hexane	11.34	57	10597	0.668	ng	99
32) Chloroform	11.40	83	9556	0.642	ng	98
34) Tetrahydrofuran (THF)	11.84	72	3875	0.655	ng	97
35) Ethyl tert-Butyl Ether	11.96	87	6004	0.608	ng	98
36) 1,2-Dichloroethane	12.21	62	7521	0.626	ng	96
38) 1,1,1-Trichloroethane	12.48	97	8598	0.631	ng	99
39) Isopropyl Acetate	12.92	61	7490	1.252	ng	# 93
40) 1-Butanol	12.94	56	11753	1.235	ng	98
41) Benzene	12.96	78	22399	0.611	ng	99
42) Carbon Tetrachloride	13.12	117	7407	0.610	ng	99
43) Cyclohexane	13.25	84	18986	1.248	ng	99
44) tert-Amyl Methyl Ether	13.61	73	14157	0.602	ng	99
45) 1,2-Dichloropropane	13.82	63	5641	0.638	ng	100
46) Bromodichloromethane	14.00	83	7015	0.609	ng	99
47) Trichloroethene	14.06	130	6170	0.645	ng	99
48) 1,4-Dioxane	14.05	88	4567	0.635	ng	95
49) 2,2,4-Trimethylpentane...	14.12	57	26649	0.633	ng	100
50) Methyl Methacrylate	14.27	100	128011	1.293	ng	99

Data File: I:\MS08\Data\2019 02\18\02181911.D

Sample : 0.5ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 13:44

Misc : S31-02071907/S31-02111903 (3/12)

ALS Vial : 7 Sample Multiplier: 1

Inst : MS08

Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 13:14:35 2019

Quant Method : I:\MS08\Methods\R8021819A.M

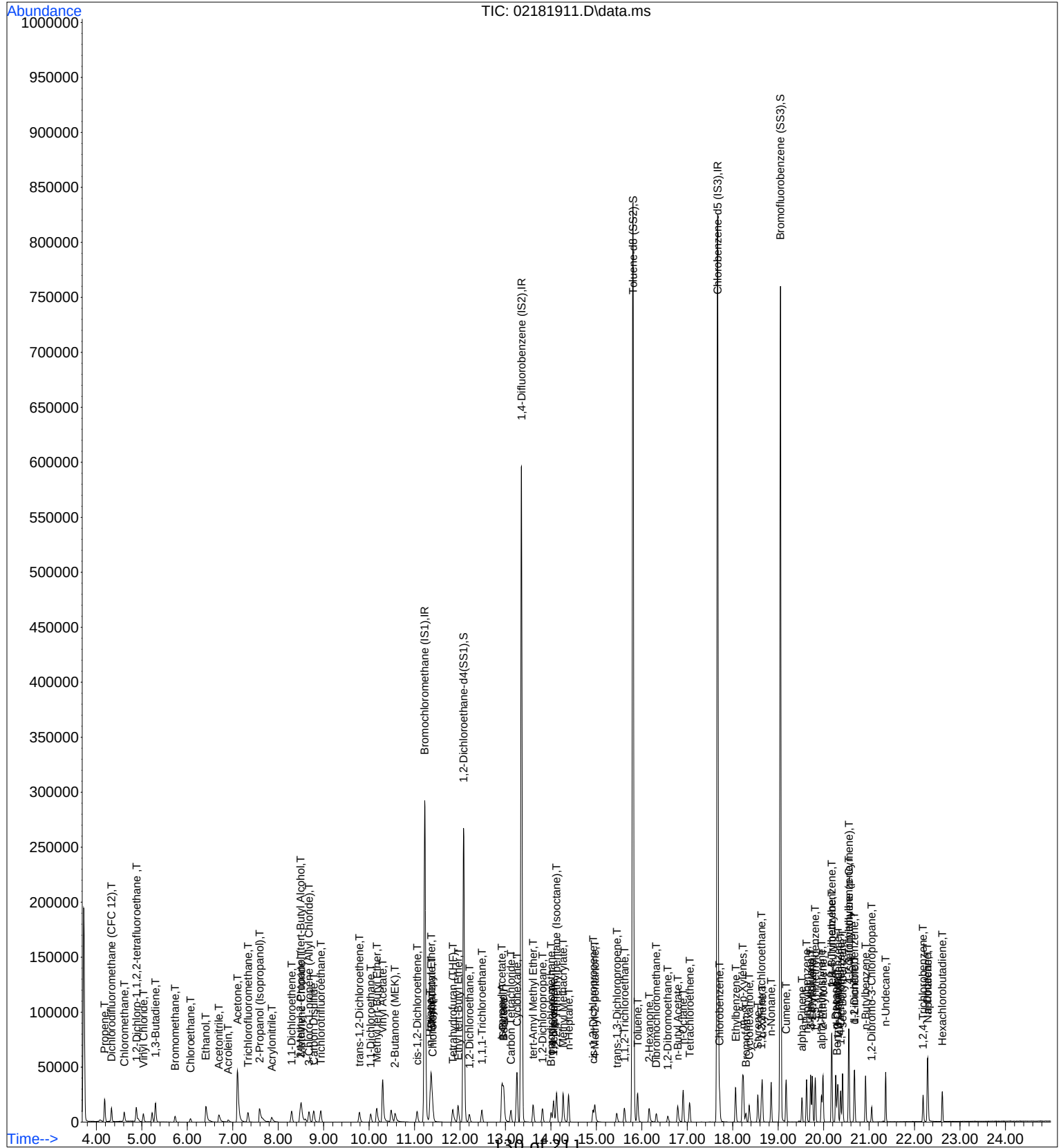
QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	6330	0.643	ng	98
52) cis-1,3-Dichloropropene	14.93	75	8549	0.635	ng	97
53) 4-Methyl-2-pentanone	14.97	58	5221	0.635	ng	90
54) trans-1,3-Dichloropropene	15.45	75	6530	0.546	ng	93
55) 1,1,2-Trichloroethane	15.62	97	5109	0.638	ng	99
58) Toluene	15.91	91	23714	0.639	ng	98
59) 2-Hexanone	16.16	43	14246	0.653	ng	91
60) Dibromochloromethane	16.32	129	5621	0.613	ng	99
61) 1,2-Dibromoethane	16.57	107	5589	0.625	ng	98
62) n-Butyl Acetate	16.79	43	15527	0.644	ng	99
63) n-Octane	16.91	57	5388	0.637	ng	97
64) Tetrachloroethene	17.05	166	6514	0.643	ng	98
65) Chlorobenzene	17.71	112	15664	0.644	ng	100
66) Ethylbenzene	18.07	91	26477	0.621	ng	100
67) m- & p-Xylenes	18.22	91	42393	1.294	ng	98
68) Bromoform	18.29	173	4386	0.579	ng	99
69) Styrene	18.55	104	14314	0.596	ng	97
70) o-Xylene	18.65	91	21177	0.642	ng	99
71) n-Nonane	18.85	43	14125	0.648	ng	98
72) 1,1,2,2-Tetrachloroethane	18.63	83	9221	0.631	ng	98
74) Cumene	19.17	105	27212	0.638	ng	100
75) alpha-Pinene	19.52	93	8898	0.494	ng	97
76) n-Propylbenzene	19.63	91	32130	0.647	ng	99
77) 3-Ethyltoluene	19.71	105	27479	0.642	ng	100
78) 4-Ethyltoluene	19.75	105	25053	0.631	ng	99
79) 1,3,5-Trimethylbenzene	19.81	105	22732	0.632	ng	98
80) alpha-Methylstyrene	19.95	118	8386	0.521	ng	94
81) 2-Ethyltoluene	19.99	105	26923	0.642	ng	98
82) 1,2,4-Trimethylbenzene	20.18	105	22396	0.649	ng	99
83) n-Decane	20.27	57	13367	0.650	ng	96
84) Benzyl Chloride	20.29	91	12592	0.471	ng	96
85) 1,3-Dichlorobenzene	20.31	146	13190	0.656	ng	99
86) 1,4-Dichlorobenzene	20.37	146	13244	0.644	ng	98
87) sec-Butylbenzene	20.42	105	29946	0.632	ng	99
88) 4-Isopropyltoluene (p-...	20.56	119	29895	0.657	ng	99
89) 1,2,3-Trimethylbenzene	20.55	105	22518	0.642	ng	98
90) 1,2-Dichlorobenzene	20.67	146	12521	0.657	ng	100
91) d-Limonene	20.68	68	5316	0.475	ng	97
92) 1,2-Dibromo-3-Chloropr...	21.06	157	3830	0.580	ng	94
93) n-Undecane	21.36	57	13112	0.622	ng	98
94) 1,2,4-Trichlorobenzene	22.19	180	8765	0.649	ng	99
95) Naphthalene	22.29	128	28515	0.611	ng	98
96) n-Dodecane	22.28	57	11327	0.618	ng	98
97) Hexachlorobutadiene	22.61	225	5814	0.635	ng	99
98) Cyclohexanone	18.36	55	7680	0.557	ng	99
99) tert-Butylbenzene	20.18	119	22492	0.648	ng	100
100) n-Butylbenzene	20.92	91	23585	0.635	ng	98

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

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Quant Time: Feb 21 13:14:35 2019
Quant Method : I:\MS08\Methods\R8021819A.M
QLast Update : Tue Feb 19 08:36:45 2019
Response via : Initial Calibration



Data File: I:\MS08\Data\2019 02\18\02181911.D

Sample : 0.5ng TO-15 ICAL Std.

Inst : MS08

Acq On : 18 Feb 2019 13:44

Operator: RS

Misc : S31-02071907/S31-02111903 (3/12)

ALS Vial : 7 Sample Multiplier: 1

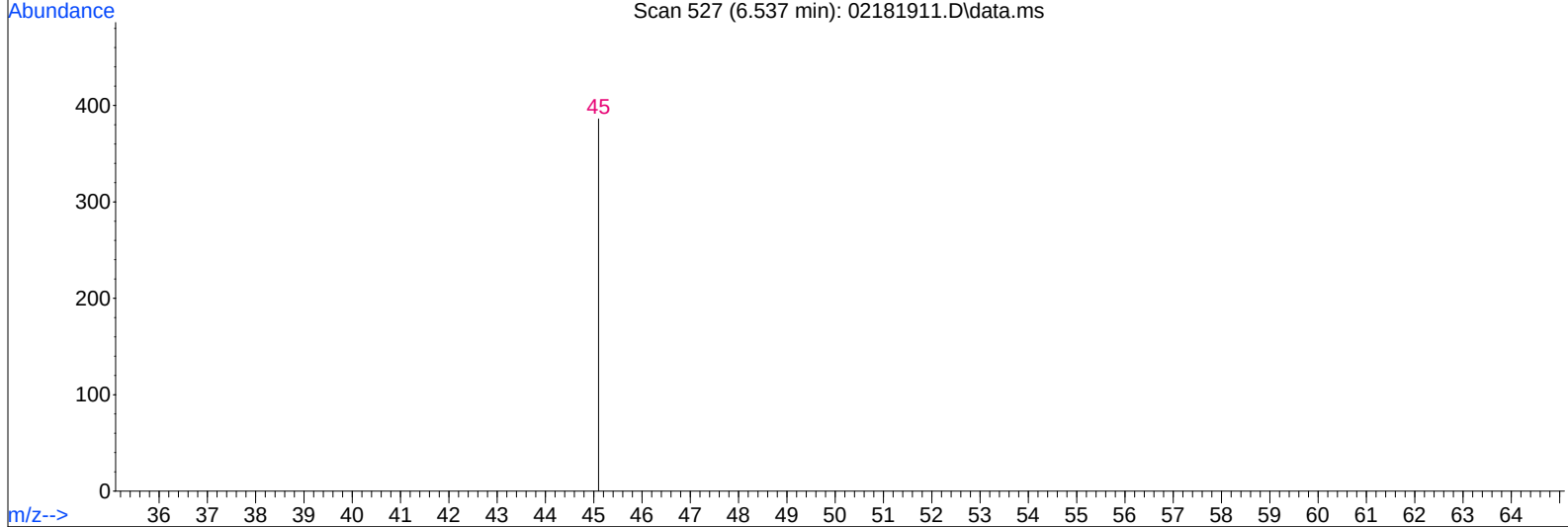
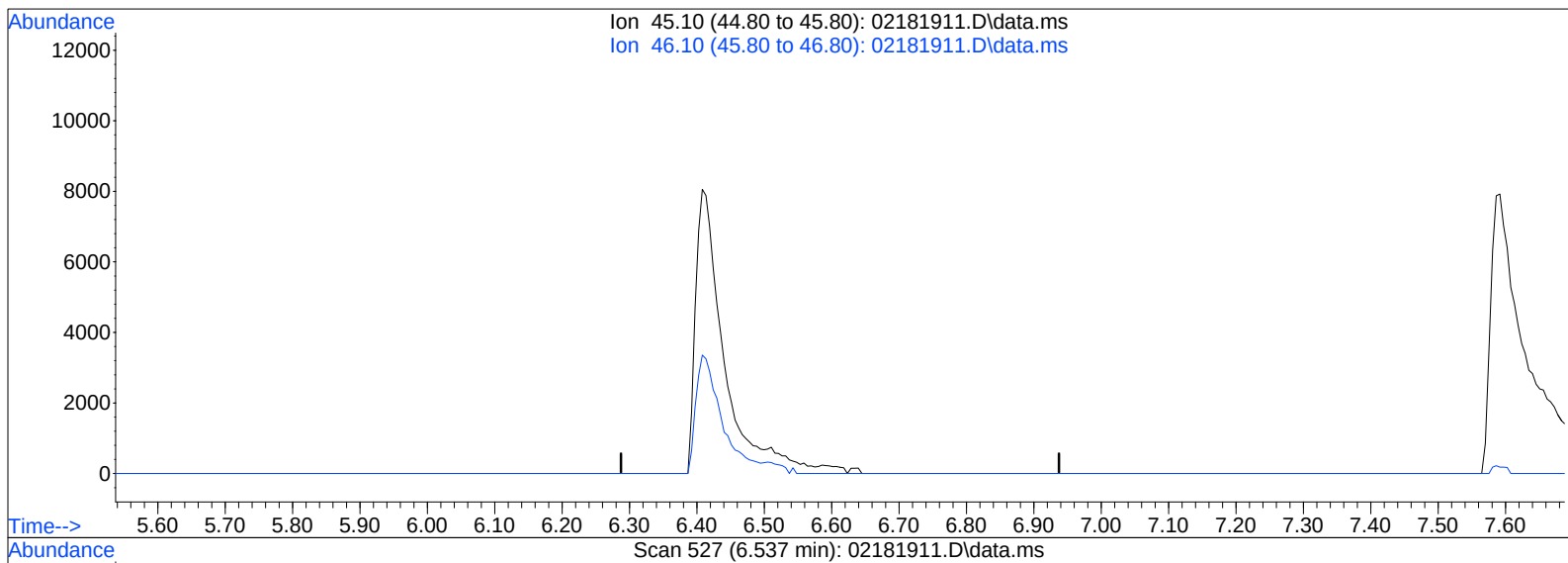
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:46:56 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 02181911.D\data.ms

(10) Ethanol (T)

6.537min (-6.537) 0.00ng

response 0

Ion	Exp%	Act%
45.10	100	0.00
46.10	41.50	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 02\18\02181911.D

Sample : 0.5ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 13:44

Misc : S31-02071907/S31-02111903 (3/12)

ALS Vial : 7 Sample Multiplier: 1

Inst : MS08

Operator: RS

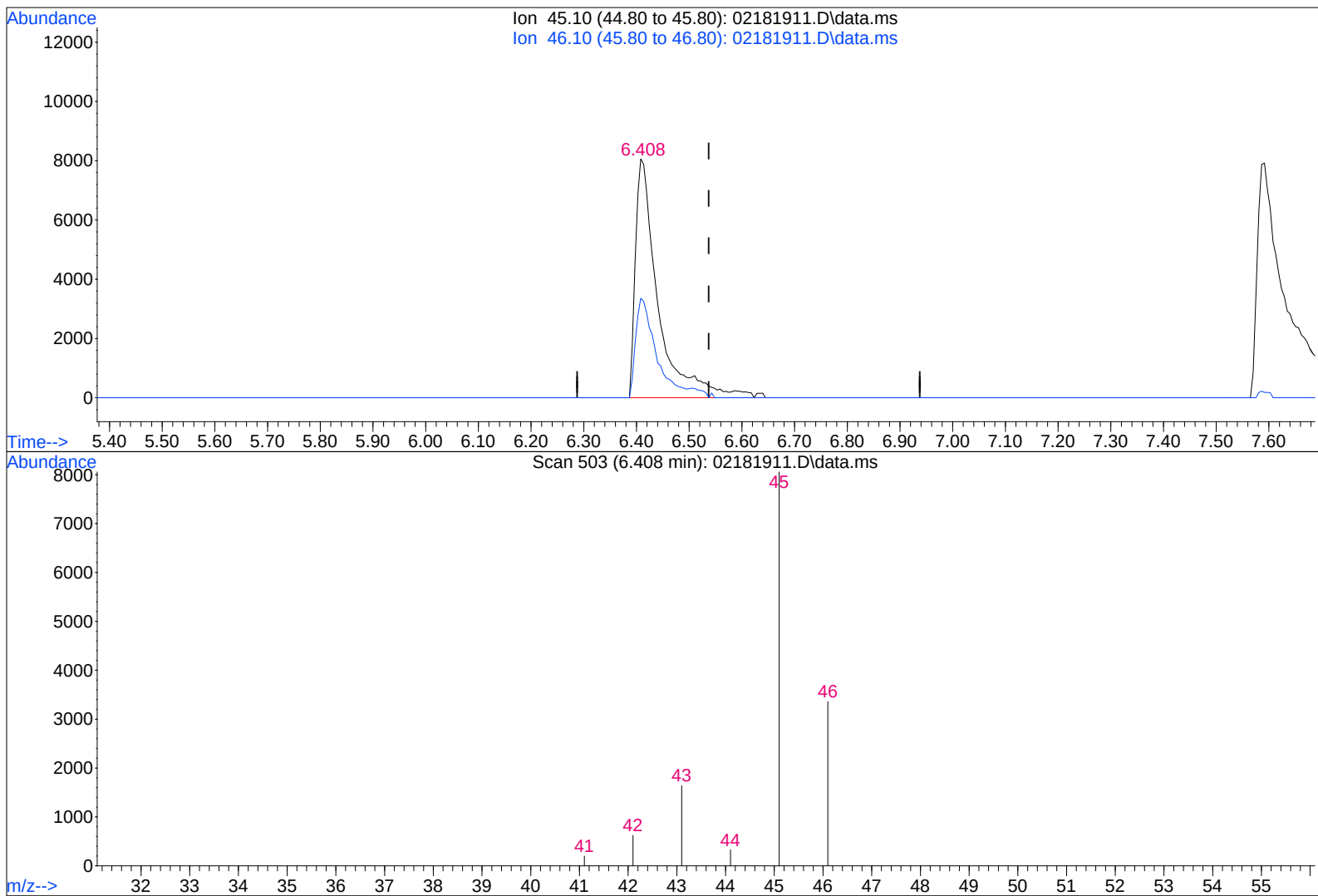
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:46:56 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 02181911.D\data.ms

(10) Ethanol (T)

6.408min (-0.129) 3.05ng m

response 24255

MP

Ion	Exp%	Act%
-----	------	------

45.10	100	100
-------	-----	-----

46.10	41.50	39.55
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0.00	0.00	0.00
------	------	------

0.00	0.00	0.00
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RS 2/21/19

Data File: I:\MS08\Data\2019 02\18\02181912.D

Sample : 1.0ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 14:17

Misc : S31-02071907/S31-02111903 (3/12)

ALS Vial : 7 Sample Multiplier: 1

Inst : MS08

Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 13:15:17 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

RS 2/21/19

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	126360	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	13.35	114	543650	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.66	82	287579	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	206996	12.258	ng	-0.03
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.08%	
57) Toluene-d8 (SS2)	15.80	98	636676	12.528	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.24%	
73) Bromofluorobenzene (SS3)	19.05	174	225746	12.495	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.92%	

Target Compounds

						Qvalue
2) Propene	4.16	42	13479	1.108	ng	99
3) Dichlorodifluoromethan...	4.32	85	19456	1.143	ng	99
4) Chloromethane	4.60	50	17908	1.191	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	10193	1.141	ng	100
6) Vinyl Chloride	5.01	62	16504	1.190	ng	99
7) 1,3-Butadiene	5.28	54	15406	1.225	ng	98
8) Bromomethane	5.71	94	8008	1.098	ng	99
9) Chloroethane	6.05	64	7650	1.123	ng	99
10) Ethanol	6.40	45	44023m	5.547	ng	
11) Acetonitrile	6.68	41	22848	1.090	ng	98
12) Acrolein	6.88	56	6300	1.123	ng	98
13) Acetone	7.09	58	44496	5.892	ng	100
14) Trichlorofluoromethane	7.33	101	16661	1.136	ng	99
15) 2-Propanol (Isopropanol)	7.58	45	59506	2.254	ng	99
16) Acrylonitrile	7.84	53	13517	1.134	ng	96
17) 1,1-Dichloroethene	8.29	96	9410	1.153	ng	99
18) 2-Methyl-2-Propanol (t...	8.46	59	50949	2.306	ng	98
19) Methylene Chloride	8.50	84	9735	1.158	ng	100
20) 3-Chloro-1-propene (Al...	8.67	41	17986	1.101	ng	99
21) Trichlorotrifluoroethane	8.93	151	8946	1.177	ng	97
22) Carbon Disulfide	8.78	76	37881	1.158	ng	98
23) trans-1,2-Dichloroethene	9.78	61	14370	1.191	ng	98
24) 1,1-Dichloroethane	10.03	63	17775	1.133	ng	97
25) Methyl tert-Butyl Ether	10.15	73	29793	1.170	ng	98
26) Vinyl Acetate	10.29	86	12634	5.290	ng	# 77
27) 2-Butanone (MEK)	10.56	72	6820	1.108	ng	98
28) cis-1,2-Dichloroethene	11.05	61	14177	1.142	ng	97
29) Diisopropyl Ether	11.36	87	10777	1.254	ng	96
30) Ethyl Acetate	11.36	61	7225	2.333	ng	99
31) n-Hexane	11.34	57	19198	1.211	ng	99
32) Chloroform	11.40	83	17441	1.173	ng	99
34) Tetrahydrofuran (THF)	11.83	72	7219	1.222	ng	98
35) Ethyl tert-Butyl Ether	11.95	87	11256	1.141	ng	98
36) 1,2-Dichloroethane	12.20	62	13678	1.139	ng	98
38) 1,1,1-Trichloroethane	12.48	97	15662	1.155	ng	99
39) Isopropyl Acetate	12.92	61	13850	2.326	ng	# 93
40) 1-Butanol	12.93	56	22843	2.412	ng	99
41) Benzene	12.96	78	41333	1.133	ng	99
42) Carbon Tetrachloride	13.12	117	13489	1.116	ng	99
43) Cyclohexane	13.25	84	34538	2.281	ng	100
44) tert-Amyl Methyl Ether	13.60	73	26084	1.114	ng	99
45) 1,2-Dichloropropane	13.81	63	10322	1.173	ng	98
46) Bromodichloromethane	14.00	83	13045	1.138	ng	98
47) Trichloroethene	14.06	130	11299	1.187	ng	99
48) 1,4-Dioxane	14.04	88	8610	1.203	ng	97
49) 2,2,4-Trimethylpentane...	14.12	57	48355	1.153	ng	98
50) Methyl Methacrylate	14.26	100	8442	2.432	ng	100

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Data File: I:\MS08\Data\2019 02\18\02181912.D

Sample : 1.0ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 14:17

Misc : S31-02071907/S31-02111903 (3/12)

ALS Vial : 7 Sample Multiplier: 1

Inst : MS08

Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 13:15:17 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	11707	1.194	ng	97
52) cis-1,3-Dichloropropene	14.92	75	16269	1.214	ng	98
53) 4-Methyl-2-pentanone	14.96	58	9952	1.215	ng	94
54) trans-1,3-Dichloropropene	15.45	75	13083	1.098	ng	97
55) 1,1,2-Trichloroethane	15.62	97	9669	1.213	ng	99
58) Toluene	15.91	91	42604	1.142	ng	99
59) 2-Hexanone	16.16	43	26868	1.226	ng	97
60) Dibromochloromethane	16.32	129	10859	1.179	ng	97
61) 1,2-Dibromoethane	16.57	107	10526	1.172	ng	99
62) n-Butyl Acetate	16.79	43	29252	1.207	ng	99
63) n-Octane	16.91	57	10104	1.189	ng	99
64) Tetrachloroethene	17.05	166	11866	1.166	ng	98
65) Chlorobenzene	17.71	112	28907	1.183	ng	99
66) Ethylbenzene	18.06	91	48684	1.137	ng	100
67) m- & p-Xylenes	18.22	91	77426	2.353	ng	98
68) Bromoform	18.29	173	8467	1.112	ng	98
69) Styrene	18.55	104	27368	1.135	ng	98
70) o-Xylene	18.65	91	38661	1.167	ng	99
71) n-Nonane	18.84	43	26184	1.195	ng	98
72) 1,1,2,2-Tetrachloroethane	18.63	83	17226	1.173	ng	99
74) Cumene	19.17	105	49560	1.156	ng	100
75) alpha-Pinene	19.52	93	16919	0.935	ng	95
76) n-Propylbenzene	19.62	91	59262	1.187	ng	99
77) 3-Ethyltoluene	19.71	105	51500	1.197	ng	100
78) 4-Ethyltoluene	19.75	105	45291	1.136	ng	100
79) 1,3,5-Trimethylbenzene	19.81	105	41520	1.149	ng	99
80) alpha-Methylstyrene	19.95	118	16301	1.008	ng	97
81) 2-Ethyltoluene	19.99	105	49565	1.176	ng	98
82) 1,2,4-Trimethylbenzene	20.17	105	41755	1.205	ng	99
83) n-Decane	20.27	57	24844	1.202	ng	97
84) Benzyl Chloride	20.29	91	26350	0.980	ng	97
85) 1,3-Dichlorobenzene	20.31	146	23659	1.171	ng	99
86) 1,4-Dichlorobenzene	20.37	146	24710	1.196	ng	98
87) sec-Butylbenzene	20.42	105	55844	1.173	ng	100
88) 4-Isopropyltoluene (p-...	20.55	119	54249	1.186	ng	100
89) 1,2,3-Trimethylbenzene	20.55	105	41321	1.172	ng	100
90) 1,2-Dichlorobenzene	20.67	146	23122	1.208	ng	99
91) d-Limonene	20.68	68	10539	0.938	ng	98
92) 1,2-Dibromo-3-Chloropr...	21.06	157	7482	1.127	ng	94
93) n-Undecane	21.36	57	25285	1.193	ng	98
94) 1,2,4-Trichlorobenzene	22.19	180	16554	1.220	ng	99
95) Naphthalene	22.29	128	54665	1.166	ng	98
96) n-Dodecane	22.28	57	22194	1.204	ng	97
97) Hexachlorobutadiene	22.61	225	10621	1.155	ng	99
98) Cyclohexanone	18.36	55	14793	1.068	ng	99
99) tert-Butylbenzene	20.17	119	41495	1.189	ng	99
100) n-Butylbenzene	20.92	91	44779	1.199	ng	98

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

ALS Vial : 7 Sample Multiplier: 1

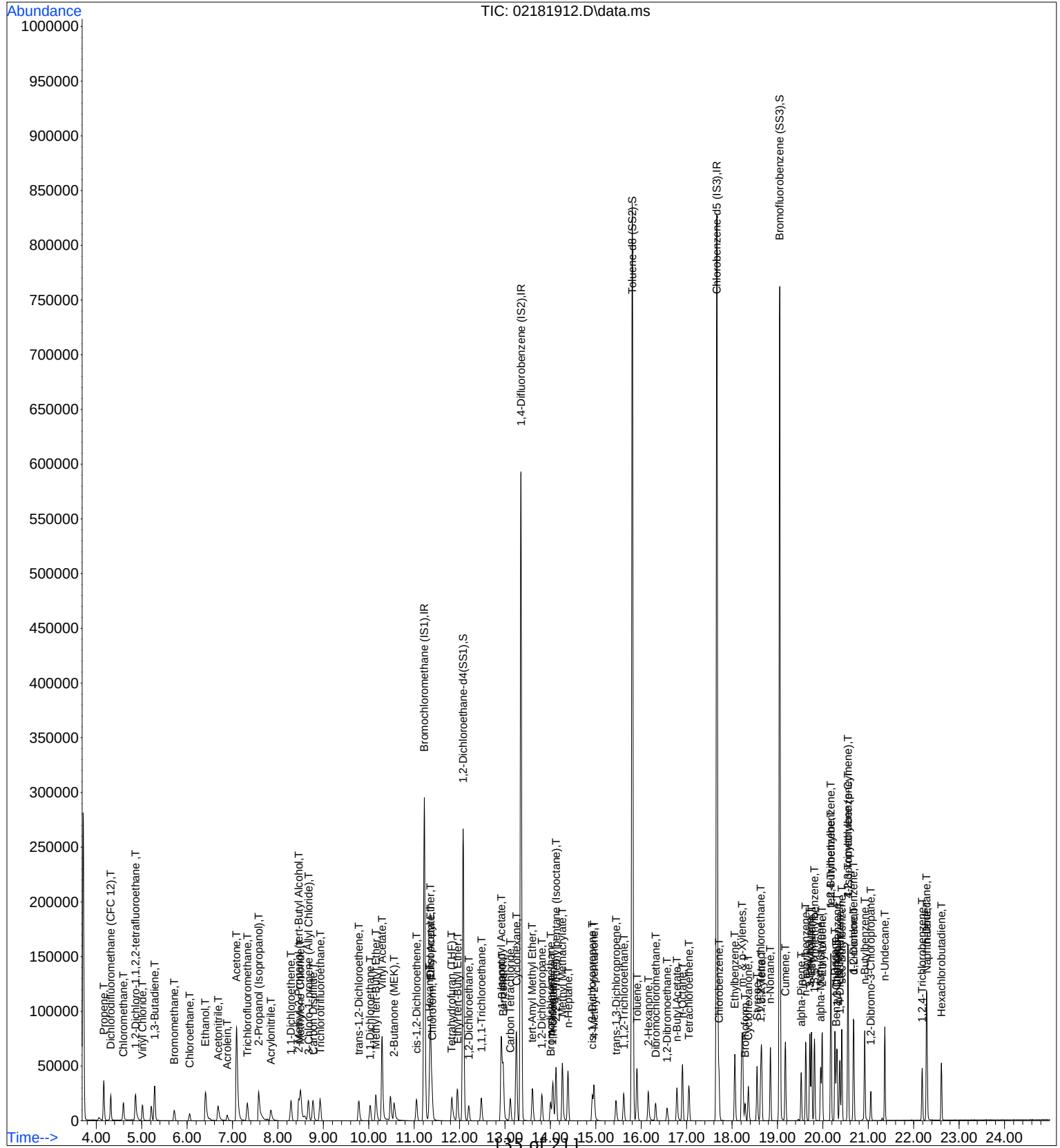
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 13:15:17 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 02\18\02181912.D

Sample : 1.0ng TO-15 ICAL Std.

Inst : MS08

Acq On : 18 Feb 2019 14:17

Operator: RS

Misc : S31-02071907/S31-02111903 (3/12)

ALS Vial : 7 Sample Multiplier: 1

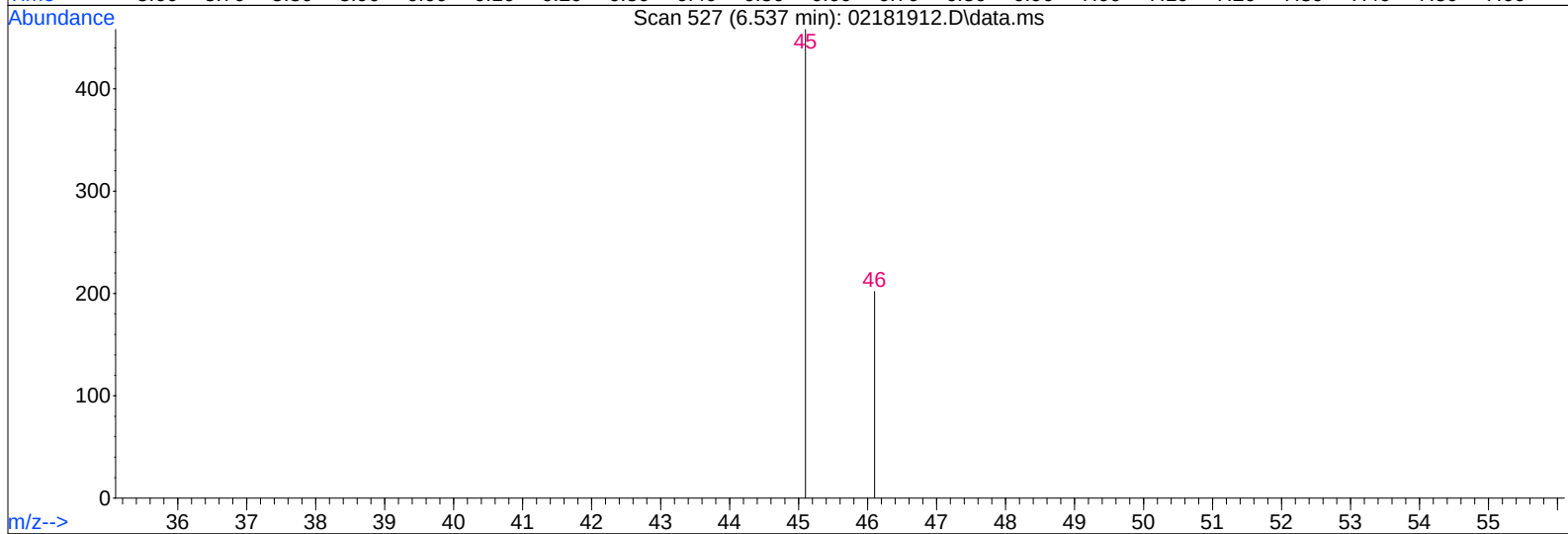
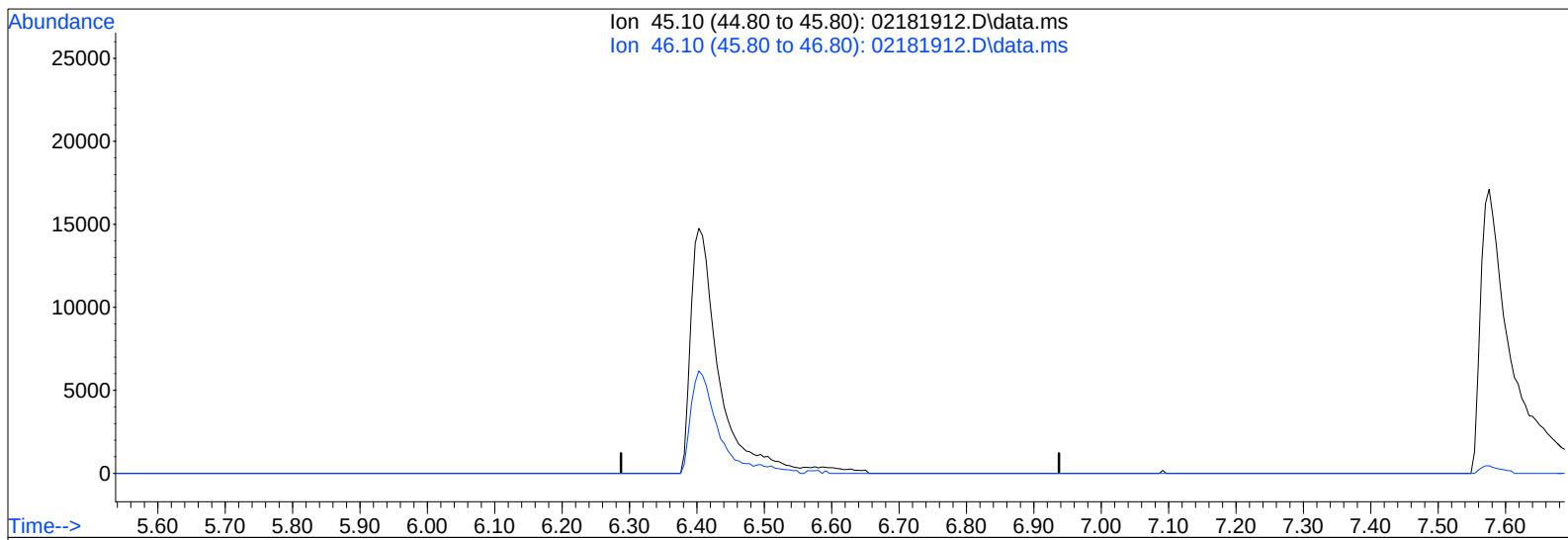
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:46:58 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 02181912.D\data.ms

(10) Ethanol (T)

6.537min (-6.537) 0.00ng

response 0

Ion	Exp%	Act%
45.10	100	0.00
46.10	41.50	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 02\18\02181912.D

Sample : 1.0ng TO-15 ICAL Std.

Inst : MS08

Acq On : 18 Feb 2019 14:17

Operator: RS

Misc : S31-02071907/S31-02111903 (3/12)

ALS Vial : 7 Sample Multiplier: 1

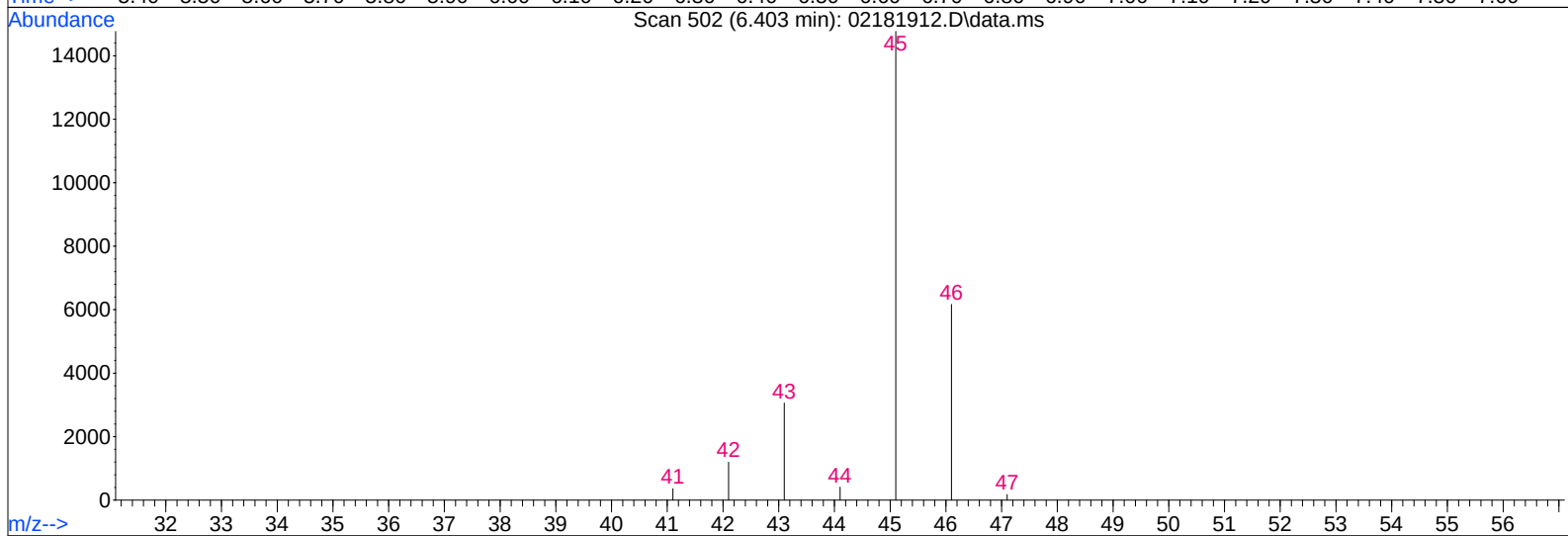
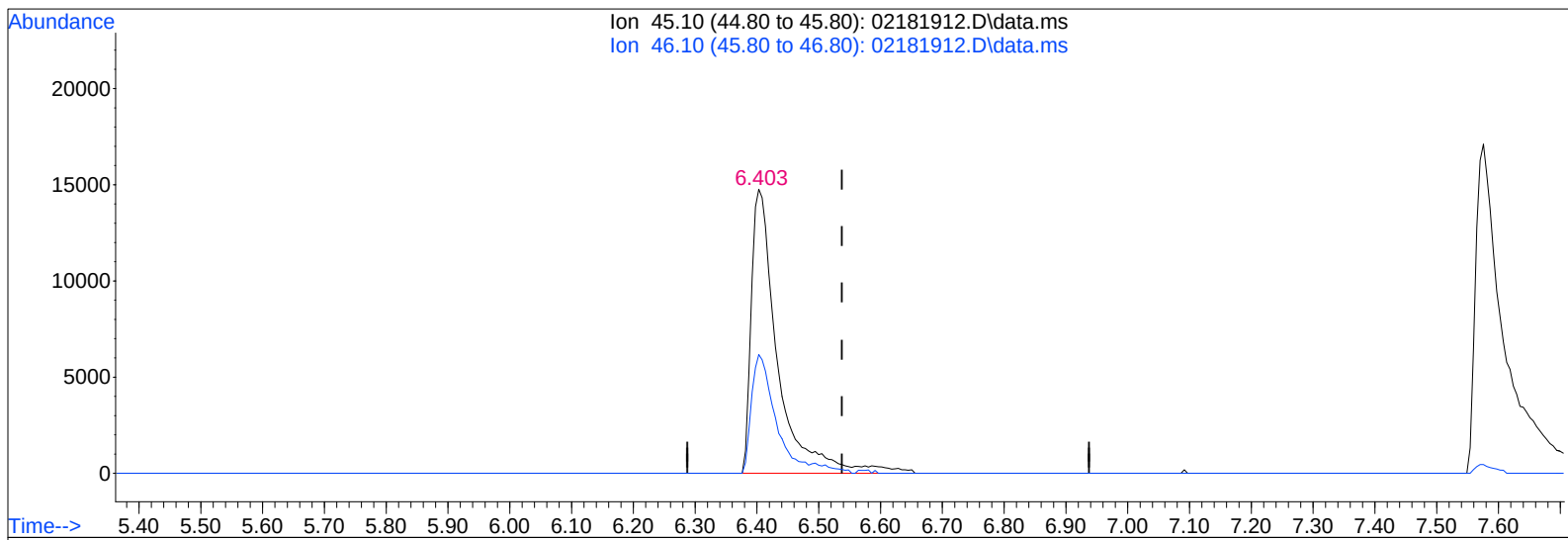
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:46:58 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



TIC: 02181912.D\data.ms

(10) Ethanol (T)

6.403min (-0.135) 5.55ng m

MP

response 44023

RS 2/21/19

Ion	Exp%	Act%
45.10	100	100
46.10	41.50	40.69
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS08\Data\2019 02\18\02181913.D

Sample : 5.0ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 14:50

Misc : S31-02071907/S31-02111903 (3/12)

ALS Vial : 7 Sample Multiplier: 1

Inst : MS08

Operator: RS

RS 2/21/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:47:00 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.23	130	142146	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.35	114	613940	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.67	82	324834	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	235366	12.390	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.12%	
57) Toluene-d8 (SS2)	15.81	98	717467	12.499	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.00%	
73) Bromofluorobenzene (SS3)	19.05	174	255928	12.541	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.32%	

Target Compounds

						Qvalue
2) Propene	4.15	42	59671	4.360	ng	99
3) Dichlorodifluoromethan...	4.31	85	86811	4.532	ng	99
4) Chloromethane	4.59	50	74373	4.398	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	46690	4.645	ng	99
6) Vinyl Chloride	5.02	62	75673	4.850	ng	99
7) 1,3-Butadiene	5.28	54	69304	4.900	ng	99
8) Bromomethane	5.72	94	37645	4.590	ng	100
9) Chloroethane	6.06	64	35007	4.570	ng	100
10) Ethanol	6.42	45	199446	22.339	ng	100
11) Acetonitrile	6.69	41	106878	4.534	ng	99
12) Acrolein	6.88	56	32247	5.111	ng	98
13) Acetone	7.09	58	207321	24.406	ng	98
14) Trichlorofluoromethane	7.33	101	76754	4.653	ng	100
15) 2-Propanol (Isopropanol)	7.58	45	284537	9.582	ng	100
16) Acrylonitrile	7.84	53	68452	5.105	ng	99
17) 1,1-Dichloroethene	8.29	96	44534	4.852	ng	97
18) 2-Methyl-2-Propanol (t...	8.45	59	248883	10.012	ng	100
19) Methylene Chloride	8.52	84	45999	4.864	ng	99
20) 3-Chloro-1-propene (Al...	8.68	41	87228	4.747	ng	99
21) Trichlorotrifluoroethane	8.93	151	41323	4.831	ng	97
22) Carbon Disulfide	8.78	76	173048	4.702	ng	100
23) trans-1,2-Dichloroethene	9.79	61	68576	5.054	ng	98
24) 1,1-Dichloroethane	10.04	63	80519	4.561	ng	99
25) Methyl tert-Butyl Ether	10.15	73	139932	4.885	ng	100
26) Vinyl Acetate	10.29	86	70817	26.360	ng	# 84
27) 2-Butanone (MEK)	10.55	72	35896	5.185	ng	99
28) cis-1,2-Dichloroethene	11.06	61	67505	4.835	ng	98
29) Diisopropyl Ether	11.36	87	51193	5.295	ng	# 92
30) Ethyl Acetate	11.36	61	37891	10.877	ng	98
31) n-Hexane	11.34	57	89774	5.034	ng	99
32) Chloroform	11.40	83	81140	4.852	ng	100
34) Tetrahydrofuran (THF)	11.81	72	34428	5.179	ng	98
35) Ethyl tert-Butyl Ether	11.95	87	55295	4.985	ng	98
36) 1,2-Dichloroethane	12.20	62	64898	4.805	ng	100
38) 1,1,1-Trichloroethane	12.48	97	74039	4.833	ng	99
39) Isopropyl Acetate	12.91	61	68121	10.129	ng	# 90
40) 1-Butanol	12.92	56	124453	11.635	ng	95
41) Benzene	12.96	78	194105	4.711	ng	99
42) Carbon Tetrachloride	13.12	117	64729	4.744	ng	100
43) Cyclohexane	13.26	84	161723	9.458	ng	99
44) tert-Amyl Methyl Ether	13.60	73	128720	4.870	ng	100
45) 1,2-Dichloropropane	13.81	63	48513	4.883	ng	100
46) Bromodichloromethane	14.00	83	63749	4.926	ng	100
47) Trichloroethene	14.06	130	52294	4.864	ng	100
48) 1,4-Dioxane	14.03	88	41227	5.102	ng	98
49) 2,2,4-Trimethylpentane...	14.12	57	224334	4.736	ng	99
50) Methyl Methacrylate	14.26	100	42996	10.970	ng	99

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Data File: I:\MS08\Data\2019 02\18\02181913.D

Sample : 5.0ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 14:50

Misc : S31-02071907/S31-02111903 (3/12)

ALS Vial : 7 Sample Multiplier: 1

Inst : MS08

Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:47:00 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	55010	4.967	ng	99
52) cis-1,3-Dichloropropene	14.92	75	82736	5.468	ng	100
53) 4-Methyl-2-pentanone	14.96	58	50944	5.508	ng	99
54) trans-1,3-Dichloropropene	15.44	75	70657	5.251	ng	99
55) 1,1,2-Trichloroethane	15.61	97	45156	5.017	ng	99
58) Toluene	15.91	91	201150	4.772	ng	99
59) 2-Hexanone	16.15	43	138108	5.581	ng	99
60) Dibromochloromethane	16.32	129	53928	5.182	ng	100
61) 1,2-Dibromoethane	16.57	107	52247	5.150	ng	100
62) n-Butyl Acetate	16.78	43	153683	5.614	ng	99
63) n-Octane	16.91	57	47946	4.996	ng	100
64) Tetrachloroethene	17.05	166	55486	4.828	ng	100
65) Chlorobenzene	17.71	112	133781	4.846	ng	100
66) Ethylbenzene	18.06	91	232714	4.812	ng	100
67) m- & p-Xylenes	18.23	91	368371	9.909	ng	100
68) Bromoform	18.29	173	45266	5.263	ng	99
69) Styrene	18.55	104	139715	5.129	ng	99
70) o-Xylene	18.65	91	188525	5.037	ng	100
71) n-Nonane	18.85	43	129570	5.234	ng	97
72) 1,1,2,2-Tetrachloroethane	18.63	83	86788	5.232	ng	100
74) Cumene	19.17	105	239695	4.949	ng	100
75) alpha-Pinene	19.52	93	95990	4.695	ng	92
76) n-Propylbenzene	19.62	91	291924	5.178	ng	99
77) 3-Ethyltoluene	19.71	105	255056	5.249	ng	100
78) 4-Ethyltoluene	19.75	105	222074	4.932	ng	99
79) 1,3,5-Trimethylbenzene	19.81	105	206268	5.055	ng	98
80) alpha-Methylstyrene	19.95	118	84958	4.652	ng	92
81) 2-Ethyltoluene	19.99	105	246171	5.172	ng	99
82) 1,2,4-Trimethylbenzene	20.18	105	211175	5.394	ng	99
83) n-Decane	20.27	57	130184	5.576	ng	97
84) Benzyl Chloride	20.29	91	170033	5.600	ng	98
85) 1,3-Dichlorobenzene	20.31	146	119585	5.238	ng	100
86) 1,4-Dichlorobenzene	20.37	146	121612	5.210	ng	100
87) sec-Butylbenzene	20.42	105	279479	5.198	ng	99
88) 4-Isopropyltoluene (p-...	20.55	119	266239	5.152	ng	98
89) 1,2,3-Trimethylbenzene	20.55	105	211837	5.318	ng	98
90) 1,2-Dichlorobenzene	20.67	146	115847	5.359	ng	99
91) d-Limonene	20.68	68	61261	4.827	ng	97
92) 1,2-Dibromo-3-Chloropr...	21.06	157	40714	5.430	ng	97
93) n-Undecane	21.36	57	131824	5.509	ng	98
94) 1,2,4-Trichlorobenzene	22.19	180	81981	5.349	ng	99
95) Naphthalene	22.29	128	280436	5.294	ng	99
96) n-Dodecane	22.28	57	121819	5.853	ng	97
97) Hexachlorobutadiene	22.61	225	50477	4.860	ng	99
98) Cyclohexanone	18.36	55	79843	5.102	ng	99
99) tert-Butylbenzene	20.18	119	206866	5.250	ng	99
100) n-Butylbenzene	20.92	91	228041	5.407	ng	99

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

Data File: I:\MS08\Data\2019 02\18\02181913.D

Sample : 5.0ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 14:50

Misc : S31-02071907/S31-02111903 (3/12)

ALS Vial : 7 Sample Multiplier: 1

Inst : MS08

Operator: RS

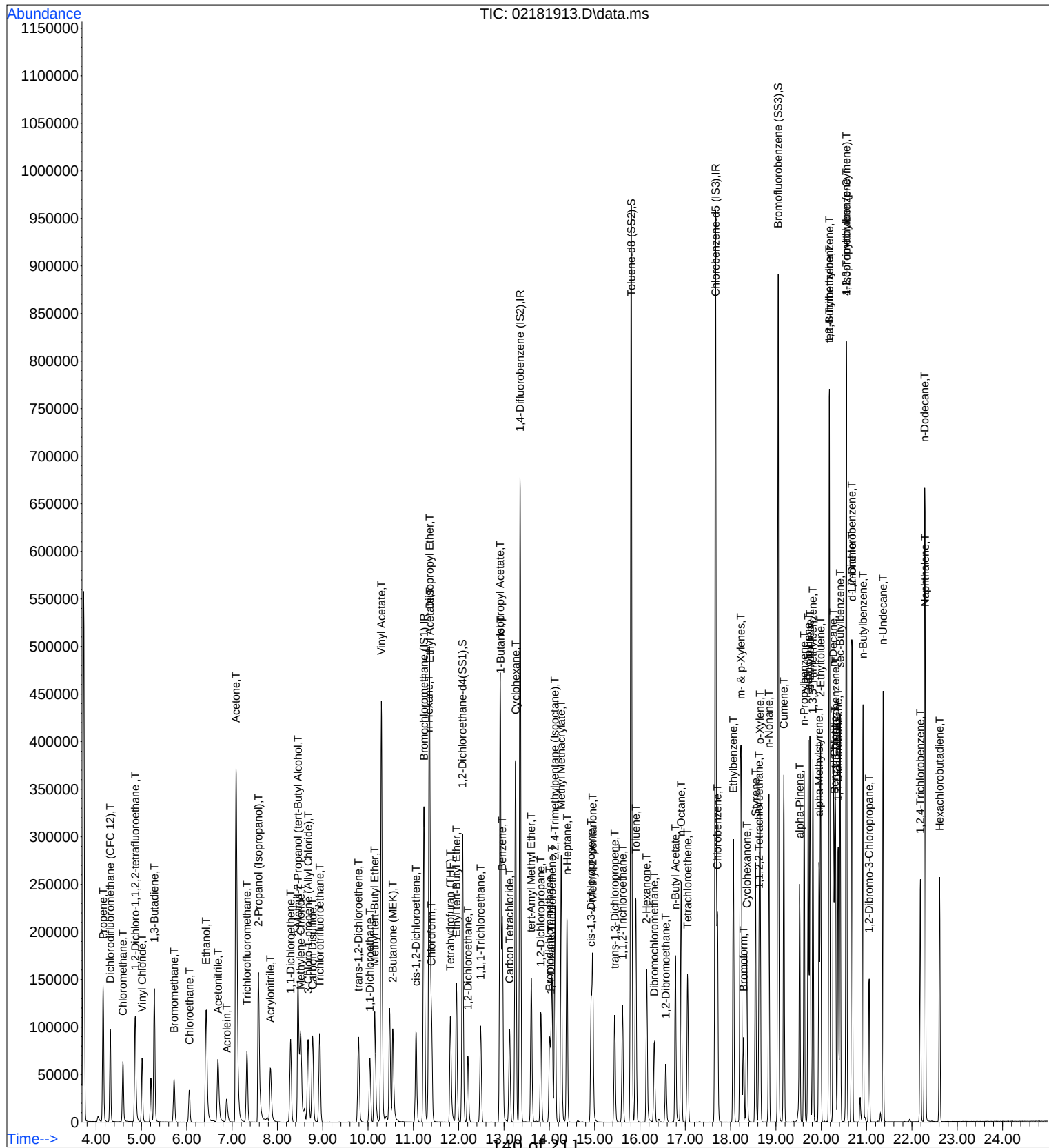
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:47:00 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 02\18\02181914.D

Sample : 25ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 15:22

Misc : S31-02071907/S31-02111901 (3/12)

ALS Vial : 8 Sample Multiplier: 1

Inst : MS08

Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:47:02 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

RS 2/21/19

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.24	130	149969	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.36	114	637264	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.67	82	340692	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.09	65	251521	12.550	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.40%
57) Toluene-d8 (SS2)	15.81	98	742216	12.328	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	98.64%
73) Bromofluorobenzene (SS3)	19.05	174	269215	12.578	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.64%

Target Compounds

						Qvalue
2) Propene	4.15	42	337954	23.403	ng	100
3) Dichlorodifluoromethan...	4.31	85	479267	23.714	ng	100
4) Chloromethane	4.60	50	412247	23.106	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	241695	22.791	ng	100
6) Vinyl Chloride	5.02	62	394449	23.962	ng	100
7) 1,3-Butadiene	5.29	54	369923	24.791	ng	100
8) Bromomethane	5.73	94	205777	23.782	ng	100
9) Chloroethane	6.06	64	191637	23.711	ng	100
10) Ethanol	6.46	45	1133818	120.369	ng	100
11) Acetonitrile	6.71	41	604334	24.301	ng	100
12) Acrolein	6.89	56	177486	26.663	ng	100
13) Acetone	7.10	58	1137787	126.954	ng	100
14) Trichlorofluoromethane	7.33	101	422463	24.274	ng	100
15) 2-Propanol (Isopropanol)	7.60	45	1610871	51.420	ng	100
16) Acrylonitrile	7.86	53	400852	28.334	ng	100
17) 1,1-Dichloroethene	8.30	96	247589	25.570	ng	100
18) 2-Methyl-2-Propanol (t...	8.47	59	1364301	52.021	ng	100
19) Methylene Chloride	8.53	84	260683	26.125	ng	100
20) 3-Chloro-1-propene (Al...	8.69	41	521943	26.924	ng	100
21) Trichlorotrifluoroethane	8.94	151	222595	24.667	ng	100
22) Carbon Disulfide	8.79	76	952454	24.527	ng	100
23) trans-1,2-Dichloroethene	9.80	61	394258	27.543	ng	100
24) 1,1-Dichloroethane	10.05	63	449046	24.108	ng	100
25) Methyl tert-Butyl Ether	10.14	73	789854	26.137	ng	100
26) Vinyl Acetate	10.30	86	396392	139.850	ng	100
27) 2-Butanone (MEK)	10.55	72	206928	28.328	ng	100
28) cis-1,2-Dichloroethene	11.07	61	382733	25.985	ng	100
29) Diisopropyl Ether	11.36	87	284045	27.845	ng	100
30) Ethyl Acetate	11.36	61	209266	56.939	ng	100
31) n-Hexane	11.35	57	477478	25.375	ng	100
32) Chloroform	11.41	83	456293	25.860	ng	100
34) Tetrahydrofuran (THF)	11.81	72	190863	27.211	ng	100
35) Ethyl tert-Butyl Ether	11.95	87	310939	26.568	ng	100
36) 1,2-Dichloroethane	12.21	62	368765	25.881	ng	100
38) 1,1,1-Trichloroethane	12.49	97	412830	25.961	ng	100
39) Isopropyl Acetate	12.91	61	372143	53.310	ng	100
40) 1-Butanol	12.93	56	578608	52.114	ng	100
41) Benzene	12.97	78	1068034	24.973	ng	100
42) Carbon Tetrachloride	13.13	117	362881	25.620	ng	100
43) Cyclohexane	13.26	84	884925	49.861	ng	100
44) tert-Amyl Methyl Ether	13.60	73	722066	26.319	ng	100
45) 1,2-Dichloropropane	13.82	63	268536	26.041	ng	100
46) Bromodichloromethane	14.01	83	366184	27.261	ng	100
47) Trichloroethene	14.06	130	281001	25.179	ng	100
48) 1,4-Dioxane	14.03	88	223658	26.667	ng	100
49) 2,2,4-Trimethylpentane...	14.13	57	1236813	25.157	ng	100
50) Methyl Methacrylate	14.26	100	241207	59.291	ng	100

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Data File: I:\MS08\Data\2019 02\18\02181914.D

Sample : 25ng TO-15 ICAL Std.

Inst : MS08

Acq On : 18 Feb 2019 15:22

Operator: RS

Misc : S31-02071907/S31-02111901 (3/12)

ALS Vial : 8 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:47:02 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	299861	26.086	ng	100
52) cis-1,3-Dichloropropene	14.92	75	474814	30.233	ng	100
53) 4-Methyl-2-pentanone	14.96	58	277847	28.943	ng	100
54) trans-1,3-Dichloropropene	15.44	75	414311	29.666	ng	100
55) 1,1,2-Trichloroethane	15.61	97	252079	26.983	ng	100
58) Toluene	15.91	91	1095272	24.774	ng	100
59) 2-Hexanone	16.15	43	744502	28.687	ng	100
60) Dibromochloromethane	16.32	129	307246	28.149	ng	100
61) 1,2-Dibromoethane	16.57	107	290086	27.262	ng	100
62) n-Butyl Acetate	16.78	43	819557	28.545	ng	100
63) n-Octane	16.91	57	265199	26.347	ng	100
64) Tetrachloroethene	17.05	166	298003	24.721	ng	100
65) Chlorobenzene	17.71	112	724331	25.015	ng	100
66) Ethylbenzene	18.06	91	1287102	25.375	ng	100
67) m- & p-Xylenes	18.23	91	2012032	51.606	ng	100
68) Bromoform	18.29	173	264673	29.340	ng	100
69) Styrene	18.55	104	812013	28.420	ng	100
70) o-Xylene	18.65	91	1030584	26.253	ng	100
71) n-Nonane	18.85	43	682433	26.282	ng	100
72) 1,1,2,2-Tetrachloroethane	18.63	83	480380	27.610	ng	100
74) Cumene	19.17	105	1306679	25.725	ng	100
75) alpha-Pinene	19.52	93	622814	29.043	ng	100
76) n-Propylbenzene	19.62	91	1570002	26.551	ng	100
77) 3-Ethyltoluene	19.71	105	1351106	26.511	ng	100
78) 4-Ethyltoluene	19.75	105	1218486	25.800	ng	100
79) 1,3,5-Trimethylbenzene	19.82	105	1092033	25.516	ng	100
80) alpha-Methylstyrene	19.95	118	576981	30.126	ng	100
81) 2-Ethyltoluene	19.99	105	1295655	25.956	ng	100
82) 1,2,4-Trimethylbenzene	20.18	105	1084525	26.414	ng	100
83) n-Decane	20.27	57	650800	26.576	ng	100
84) Benzyl Chloride	20.29	91	958926	30.115	ng	100
85) 1,3-Dichlorobenzene	20.31	146	644058	26.899	ng	100
86) 1,4-Dichlorobenzene	20.37	146	646126	26.394	ng	100
87) sec-Butylbenzene	20.42	105	1464611	25.970	ng	100
88) 4-Isopropyltoluene (p-...	20.56	119	1347421	24.863	ng	100
89) 1,2,3-Trimethylbenzene	20.56	105	1069543	25.598	ng	100
90) 1,2-Dichlorobenzene	20.67	146	612134	26.997	ng	100
91) d-Limonene	20.68	68	386779	29.060	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.06	157	228665	29.077	ng	100
93) n-Undecane	21.36	57	674595	26.878	ng	100
94) 1,2,4-Trichlorobenzene	22.19	180	432552	26.910	ng	100
95) Naphthalene	22.29	128	1395366	25.113	ng	100
96) n-Dodecane	22.28	57	576873	26.425	ng	100
97) Hexachlorobutadiene	22.61	225	268453	24.643	ng	100
98) Cyclohexanone	18.36	55	389779	23.747	ng	100
99) tert-Butylbenzene	20.18	119	1069032	25.867	ng	100
100) n-Butylbenzene	20.92	91	1186185	26.817	ng	100

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

ALS Vial : 8 Sample Multiplier: 1

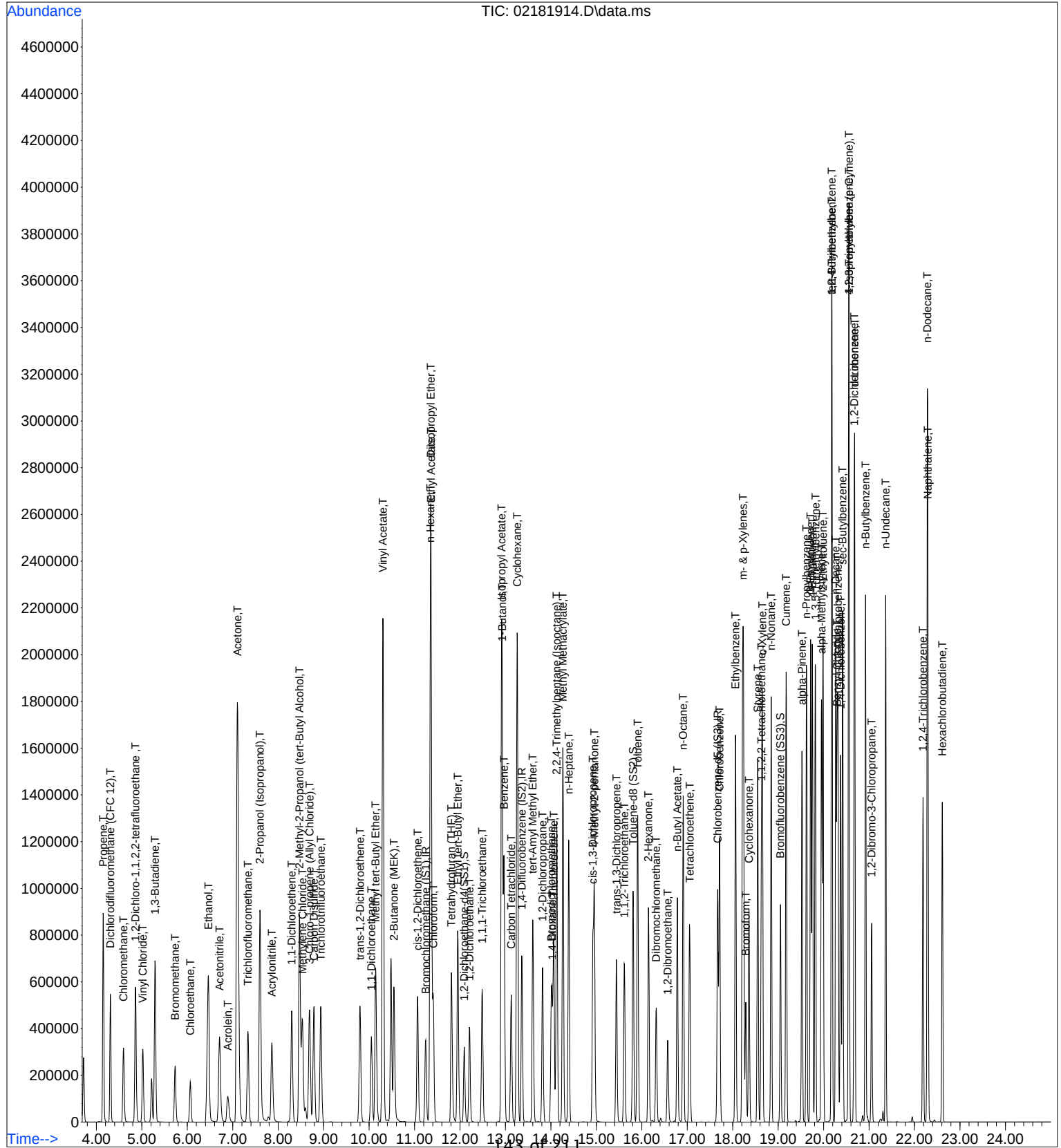
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:47:02 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 02\18\02181915.D

Sample : 50ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 15:55

Misc : S31-02071907/S31-02111901 (3/12)

ALS Vial : 8 Sample Multiplier: 1

Inst : MS08

Operator: RS

RS 2/21/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:47:04 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.25	130	157689	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.36	114	669055	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.67	82	354259	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.10	65	268120	12.723	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.76%
57) Toluene-d8 (SS2)	15.81	98	772897	12.346	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	98.80%
73) Bromofluorobenzene (SS3)	19.05	174	279245	12.547	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.40%

Target Compounds

						Qvalue
2) Propene	4.16	42	685658	45.157	ng	99
3) Dichlorodifluoromethan...	4.32	85	985707	46.384	ng	100
4) Chloromethane	4.61	50	750026	39.979	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	482121	43.236	ng	100
6) Vinyl Chloride	5.04	62	772143	44.609	ng	100
7) 1,3-Butadiene	5.31	54	708168	45.136	ng	98
8) Bromomethane	5.74	94	430829	47.354	ng	100
9) Chloroethane	6.08	64	399572	47.018	ng	100
10) Ethanol	6.49	45	2202466	222.372	ng	100
11) Acetonitrile	6.73	41	1282691	49.054	ng	100
12) Acrolein	6.90	56	371674	53.101	ng	100
13) Acetone	7.12	58	2154749	228.656	ng	96
14) Trichlorofluoromethane	7.34	101	886730	48.456	ng	100
15) 2-Propanol (Isopropanol)	7.62	45	3191899	96.899	ng	100
16) Acrylonitrile	7.88	53	835198	56.146	ng	99
17) 1,1-Dichloroethene	8.31	96	511728	50.261	ng	100
18) 2-Methyl-2-Propanol (t...	8.48	59	2756267	99.951	ng	99
19) Methylene Chloride	8.54	84	540344	51.501	ng	98
20) 3-Chloro-1-propene (Al...	8.69	41	1071772	52.579	ng	99
21) Trichlorotrifluoroethane	8.94	151	452437	47.682	ng	99
22) Carbon Disulfide	8.79	76	1945286	47.642	ng	100
23) trans-1,2-Dichloroethene	9.80	61	816229	54.231	ng	100
24) 1,1-Dichloroethane	10.06	63	928262	47.397	ng	100
25) Methyl tert-Butyl Ether	10.15	73	1639382	51.592	ng	100
26) Vinyl Acetate	10.32	86	768359	257.810	ng	# 81
27) 2-Butanone (MEK)	10.56	72	414477	53.963	ng	94
28) cis-1,2-Dichloroethene	11.07	61	787484	50.847	ng	100
29) Diisopropyl Ether	11.36	87	474892	44.274	ng	# 91
30) Ethyl Acetate	11.37	61	389132	100.696	ng	99
31) n-Hexane	11.35	57	883433	44.651	ng	99
32) Chloroform	11.42	83	937748	50.544	ng	100
34) Tetrahydrofuran (THF)	11.81	72	393266	53.323	ng	98
35) Ethyl tert-Butyl Ether	11.95	87	650113	52.830	ng	97
36) 1,2-Dichloroethane	12.21	62	769557	51.365	ng	100
38) 1,1,1-Trichloroethane	12.49	97	859245	51.467	ng	100
39) Isopropyl Acetate	12.92	61	698203	95.266	ng	# 93
40) 1-Butanol	12.94	56	1073974	92.134	ng	98
41) Benzene	12.97	78	2064354	45.975	ng	100
42) Carbon Tetrachloride	13.13	117	754743	50.754	ng	100
43) Cyclohexane	13.26	84	1712242	91.892	ng	97
44) tert-Amyl Methyl Ether	13.61	73	1484322	51.533	ng	99
45) 1,2-Dichloropropane	13.82	63	544668	50.309	ng	100
46) Bromodichloromethane	14.01	83	756450	53.639	ng	100
47) Trichloroethene	14.06	130	564124	48.146	ng	100
48) 1,4-Dioxane	14.04	88	450630	51.177	ng	100
49) 2,2,4-Trimethylpentane...	14.13	57	2432393	47.124	ng	99
50) Methyl Methacrylate	14.27	100	1440121	112.530	ng	94

Data File: I:\MS08\Data\2019 02\18\02181915.D

Sample : 50ng TO-15 ICAL Std.

Inst : MS08

Acq On : 18 Feb 2019 15:55

Operator: RS

Misc : S31-02071907/S31-02111901 (3/12)

ALS Vial : 8 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:47:04 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

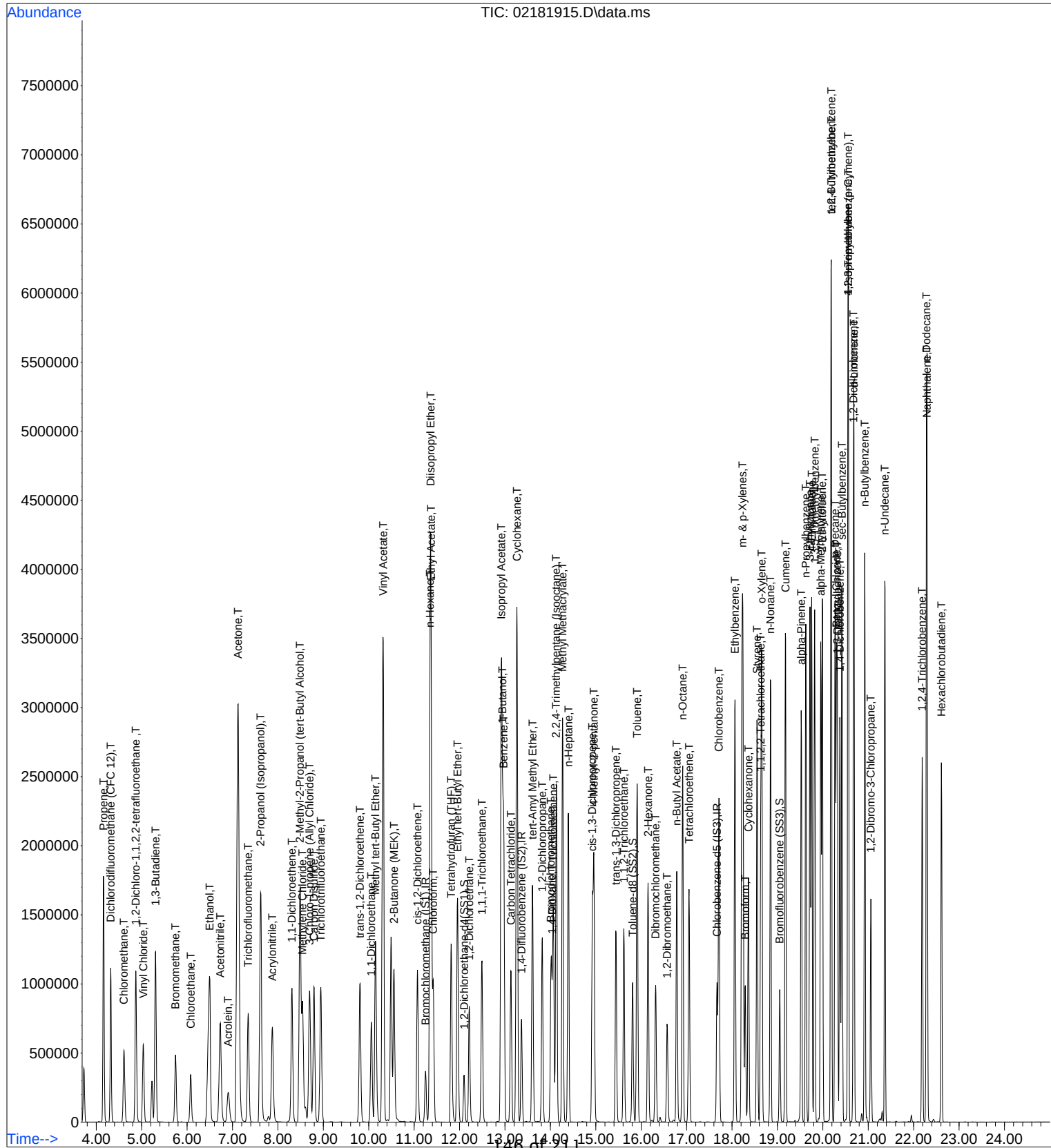
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.40	71	591974	49.051	ng	99
52) cis-1,3-Dichloropropene	14.92	75	959600	58.197	ng	99
53) 4-Methyl-2-pentanone	14.96	58	550616	54.632	ng	97
54) trans-1,3-Dichloropropene	15.44	75	854513	58.278	ng	100
55) 1,1,2-Trichloroethane	15.62	97	510541	52.052	ng	100
58) Toluene	15.91	91	2125823	46.242	ng	99
59) 2-Hexanone	16.15	43	1407527	52.158	ng	98
60) Dibromochloromethane	16.32	129	626083	55.164	ng	100
61) 1,2-Dibromoethane	16.57	107	591708	53.479	ng	99
62) n-Butyl Acetate	16.78	43	1586588	53.145	ng	99
63) n-Octane	16.91	57	507613	48.499	ng	98
64) Tetrachloroethene	17.05	166	596934	47.623	ng	100
65) Chlorobenzene	17.71	112	1417488	47.079	ng	99
66) Ethylbenzene	18.07	91	2440379	46.268	ng	98
67) m- & p-Xylenes	18.23	91	3716732	91.678	ng	98
68) Bromoform	18.29	173	533640	56.890	ng	100
69) Styrene	18.55	104	1571908	52.908	ng	99
70) o-Xylene	18.65	91	1921309	47.068	ng	98
71) n-Nonane	18.85	43	1241635	45.987	ng	98
72) 1,1,2,2-Tetrachloroethane	18.63	83	904874	50.016	ng	100
74) Cumene	19.18	105	2460288	46.581	ng	98
75) alpha-Pinene	19.52	93	1213421	54.417	ng	100
76) n-Propylbenzene	19.63	91	2903795	47.227	ng	99
77) 3-Ethyltoluene	19.72	105	2450688	46.245	ng	98
78) 4-Ethyltoluene	19.76	105	2330780	47.461	ng	98
79) 1,3,5-Trimethylbenzene	19.82	105	2053724	46.149	ng	98
80) alpha-Methylstyrene	19.95	118	1103518	55.412	ng	100
81) 2-Ethyltoluene	19.99	105	2414917	46.525	ng	99
82) 1,2,4-Trimethylbenzene	20.19	105	1973965	46.236	ng	98
83) n-Decane	20.27	57	1184507	46.519	ng	99
84) Benzyl Chloride	20.30	91	1822980	55.057	ng	98
85) 1,3-Dichlorobenzene	20.32	146	1239292	49.776	ng	100
86) 1,4-Dichlorobenzene	20.37	146	1257009	49.382	ng	99
87) sec-Butylbenzene	20.42	105	2718576	46.359	ng	99
88) 4-Isopropyltoluene (p-...	20.56	119	2440017	43.299	ng	98
89) 1,2,3-Trimethylbenzene	20.56	105	1938759	44.625	ng	98
90) 1,2-Dichlorobenzene	20.68	146	1177347	49.937	ng	100
91) d-Limonene	20.69	68	712436	51.478	ng	98
92) 1,2-Dibromo-3-Chloropr...	21.06	157	457610	55.961	ng	95
93) n-Undecane	21.36	57	1219002	46.708	ng	98
94) 1,2,4-Trichlorobenzene	22.19	180	865742	51.798	ng	100
95) Naphthalene	22.29	128	2645935	45.797	ng	99
96) n-Dodecane	22.28	57	1003284	44.198	ng	97
97) Hexachlorobutadiene	22.61	225	533295	47.079	ng	100
98) Cyclohexanone	18.36	55	761931	44.642	ng	98
99) tert-Butylbenzene	20.19	119	1972194	45.893	ng	98
100) n-Butylbenzene	20.92	91	2178570	47.367	ng	98

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

ALS Vial : 8 Sample Multiplier: 1

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 02\18\02181916.D

Sample : 100ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 16:28

Misc : S31-02071907/S31-02111901 (3/12)

ALS Vial : 8 Sample Multiplier: 1

Inst : MS08

Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:47:06 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

RS 2/21/19

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.26	130	164890	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.37	114	712308	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.67	82	362062	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.11	65	283834	12.881	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	103.04%
57) Toluene-d8 (SS2)	15.81	98	801545	12.527	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.24%
73) Bromofluorobenzene (SS3)	19.05	174	288337	12.676	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.44%

Target Compounds

						Qvalue
2) Propene	4.16	42	1360394	85.682	ng	99
3) Dichlorodifluoromethan...	4.32	85	1953862	87.927	ng	99
4) Chloromethane	4.62	50	1117021	56.942	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	956246	82.010	ng	100
6) Vinyl Chloride	5.04	62	1479797	81.759	ng	99
7) 1,3-Butadiene	5.31	54	1333007	81.250	ng	97
8) Bromomethane	5.75	94	882295	92.741	ng	100
9) Chloroethane	6.09	64	818173	92.070	ng	100
10) Ethanol	6.54	45	4073999	393.367	ng	99
11) Acetonitrile	6.76	41	2527501	92.438	ng	100
12) Acrolein	6.92	56	731576	99.955	ng	100
13) Acetone	7.15	58	3935786	399.416	ng	# 85
14) Trichlorofluoromethane	7.36	101	1818929	95.057	ng	99
15) 2-Propanol (Isopropanol)	7.65	45	5613774	162.979	ng	100
16) Acrylonitrile	7.90	53	1617058	103.959	ng	100
17) 1,1-Dichloroethene	8.32	96	1026168	96.387	ng	96
18) 2-Methyl-2-Propanol (t...	8.52	59	5117332	177.466	ng	99
19) Methylene Chloride	8.55	84	1036212	94.451	ng	94
20) 3-Chloro-1-propene (Al...	8.71	41	2047728	96.071	ng	97
21) Trichlorotrifluoroethane	8.95	151	915950	92.316	ng	100
22) Carbon Disulfide	8.80	76	3726727	87.286	ng	99
23) trans-1,2-Dichloroethene	9.81	61	1595178	101.356	ng	98
24) 1,1-Dichloroethane	10.07	63	1857789	90.715	ng	100
25) Methyl tert-Butyl Ether	10.15	73	3264990	98.263	ng	100
26) Vinyl Acetate	10.34	86	1474069	473.000	ng	# 55
27) 2-Butanone (MEK)	10.57	72	798801	99.459	ng	# 89
28) cis-1,2-Dichloroethene	11.08	61	1508258	93.133	ng	97
29) Diisopropyl Ether	11.37	87	891106	79.450	ng	# 85
30) Ethyl Acetate	11.38	61	717316	177.513	ng	98
31) n-Hexane	11.35	57	1637159	79.132	ng	99
32) Chloroform	11.43	83	1824676	94.054	ng	100
34) Tetrahydrofuran (THF)	11.82	72	768446	99.643	ng	94
35) Ethyl tert-Butyl Ether	11.96	87	1292735	100.463	ng	93
36) 1,2-Dichloroethane	12.22	62	1534549	97.953	ng	99
38) 1,1,1-Trichloroethane	12.50	97	1711205	96.273	ng	99
39) Isopropyl Acetate	12.92	61	1290794	165.427	ng	# 77
40) 1-Butanol	12.96	56	1923924	155.027	ng	90
41) Benzene	12.98	78	3789141	79.264	ng	100
42) Carbon Tetrachloride	13.14	117	1512779	95.551	ng	100
43) Cyclohexane	13.27	84	3186137	160.609	ng	92
44) tert-Amyl Methyl Ether	13.61	73	2881848	93.976	ng	98
45) 1,2-Dichloropropane	13.83	63	1060017	91.965	ng	100
46) Bromodichloromethane	14.02	83	1471040	97.975	ng	99
47) Trichloroethene	14.07	130	1119592	89.751	ng	100
48) 1,4-Dioxane	14.04	88	863817	92.144	ng	95
49) 2,2,4-Trimethylpentane...	14.14	57	4410925	80.267	ng	100
50) Methyl Methacrylate	14.28	100	954230	209.869	ng	# 85

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Data File: I:\MS08\Data\2019 02\18\02181916.D

Sample : 100ng TO-15 ICAL Std.

Inst : MS08

Acq On : 18 Feb 2019 16:28

Operator: RS

Misc : S31-02071907/S31-02111901 (3/12)

ALS Vial : 8 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:47:06 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.40	71	1119064	87.096	ng	97
52) cis-1,3-Dichloropropene	14.93	75	1828117	104.139	ng	99
53) 4-Methyl-2-pentanone	14.96	58	1018918	94.958	ng	92
54) trans-1,3-Dichloropropene	15.45	75	1677988	107.490	ng	99
55) 1,1,2-Trichloroethane	15.62	97	999876	95.753	ng	99
58) Toluene	15.91	91	3933064	83.710	ng	97
59) 2-Hexanone	16.16	43	2587813	93.828	ng	97
60) Dibromochloromethane	16.32	129	1222337	105.378	ng	99
61) 1,2-Dibromoethane	16.58	107	1169652	103.435	ng	100
62) n-Butyl Acetate	16.79	43	2888996	94.685	ng	97
63) n-Octane	16.91	57	928566	86.805	ng	95
64) Tetrachloroethene	17.05	166	1183267	92.365	ng	99
65) Chlorobenzene	17.71	112	2706942	87.967	ng	99
66) Ethylbenzene	18.07	91	4458465	82.708	ng	96
67) m- & p-Xylenes	18.24	91	6584730	158.921	ng	95
68) Bromoform	18.29	173	1051258	109.657	ng	99
69) Styrene	18.56	104	2956783	97.377	ng	99
70) o-Xylene	18.66	91	3430750	82.235	ng	95
71) n-Nonane	18.85	43	2115241	76.655	ng	93
72) 1,1,2,2-Tetrachloroethane	18.64	83	1645086	88.972	ng	99
74) Cumene	19.18	105	4455257	82.535	ng	96
75) alpha-Pinene	19.52	93	2282639	100.161	ng	99
76) n-Propylbenzene	19.63	91	5155234	82.037	ng	96
77) 3-Ethyltoluene	19.72	105	4593623	84.814	ng	96
78) 4-Ethyltoluene	19.76	105	3993623	79.569	ng	95
79) 1,3,5-Trimethylbenzene	19.82	105	3705654	81.475	ng	95
80) alpha-Methylstyrene	19.96	118	2062618	101.339	ng	99
81) 2-Ethyltoluene	19.99	105	4338624	81.785	ng	96
82) 1,2,4-Trimethylbenzene	20.19	105	3223858	73.885	ng	96
83) n-Decane	20.27	57	2052650	78.876	ng	96
84) Benzyl Chloride	20.30	91	3243060	95.835	ng	93
85) 1,3-Dichlorobenzene	20.33	146	2315602	91.002	ng	99
86) 1,4-Dichlorobenzene	20.38	146	2348770	90.284	ng	99
87) sec-Butylbenzene	20.42	105	4850477	80.930	ng	97
88) 4-Isopropyltoluene (p-...	20.56	119	3883121	67.422	ng	97
89) 1,2,3-Trimethylbenzene	20.56	105	3104407	69.916	ng	98
90) 1,2-Dichlorobenzene	20.68	146	2061687	85.561	ng	100
91) d-Limonene	20.69	68	1176378	83.169	ng	95
92) 1,2-Dibromo-3-Chloropr...	21.06	157	904157	108.186	ng	89
93) n-Undecane	21.37	57	2097924	78.653	ng	95
94) 1,2,4-Trichlorobenzene	22.19	180	1684913	98.636	ng	99
95) Naphthalene	22.30	128	4627714	78.372	ng	99
96) n-Dodecane	22.28	57	1595486	68.772	ng	93
97) Hexachlorobutadiene	22.61	225	1023548	88.411	ng	100
98) Cyclohexanone	18.37	55	1418184	81.301	ng	97
99) tert-Butylbenzene	20.19	119	3276151	74.594	ng	97
100) n-Butylbenzene	20.93	91	3810869	81.071	ng	96

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

Data File: I:\MS08\Data\2019 02\18\02181916.D

Sample : 100ng TO-15 ICAL Std.

Acq On : 18 Feb 2019 16:28

Misc : S31-02071907/S31-02111901 (3/12)

ALS Vial : 8 Sample Multiplier: 1

Inst : MS08

Operator: RS

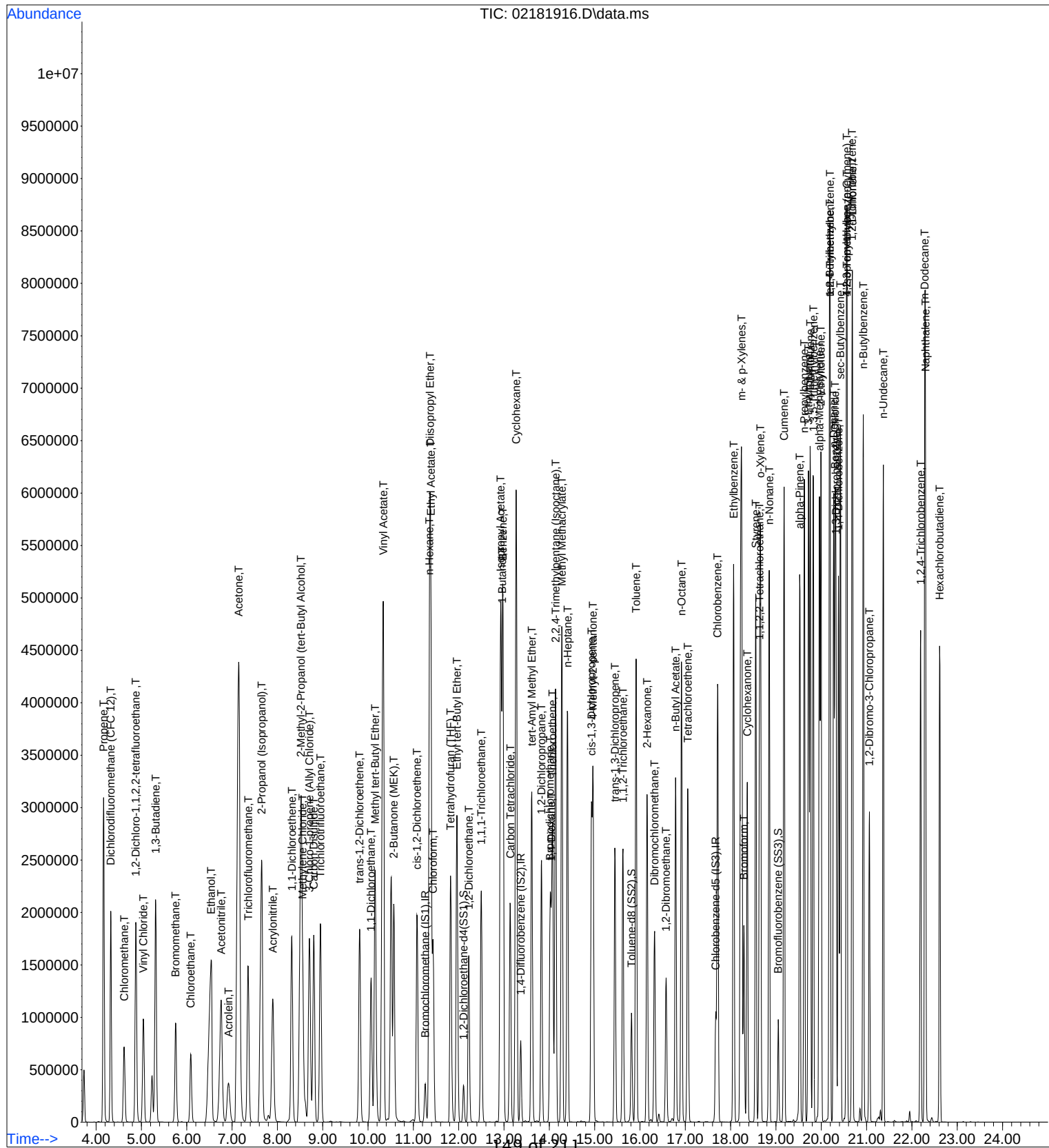
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 11:47:06 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



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Data File: I:\MS08\Data\2019 02\18\02181918.D

Sample : 25ng TO-15 ICV Std.

Acq On : 18 Feb 2019 17:33

Misc : S31-02071907/S31-02181902 (3/19)

ALS Vial : 1 Sample Multiplier: 1

Inst : MS08

Operator: RS

RS 2/21/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 13:18:47 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.24	130	164976	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.36	114	692912	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.67	82	363195	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.09	65	280005	12.700	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.60%
57) Toluene-d8 (SS2)	15.81	98	797636	12.428	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.44%
73) Bromofluorobenzene (SS3)	19.05	174	283747	12.436	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.52%

Target Compounds

						Qvalue
2) Propene	4.16	42	375922	23.665	ng	100
3) Dichlorodifluoromethan...	4.32	85	524963	23.612	ng	100
4) Chloromethane	4.60	50	452942	23.077	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	263479	22.585	ng	100
6) Vinyl Chloride	5.03	62	421573	23.280	ng	99
7) 1,3-Butadiene	5.30	54	382056	23.275	ng	99
8) Bromomethane	5.74	94	244348	25.671	ng	100
9) Chloroethane	6.07	64	224883	25.295	ng	100
10) Ethanol	6.47	45	1259912	121.588	ng	100
11) Acetonitrile	6.72	41	687973	25.148	ng	100
12) Acrolein	6.90	56	213462	29.150	ng	99
13) Acetone	7.11	58	1189273	120.628	ng	98
14) Trichlorofluoromethane	7.34	101	470063	24.553	ng	100
15) 2-Propanol (Isopropanol)	7.61	45	1755154	50.929	ng	99
16) Acrylonitrile	7.87	53	446027	28.660	ng	100
17) 1,1-Dichloroethene	8.30	96	275884	25.900	ng	99
18) 2-Methyl-2-Propanol (t...	8.47	59	1499862	51.987	ng	99
19) Methylene Chloride	8.53	84	293256	26.716	ng	98
20) 3-Chloro-1-propene (Al...	8.69	41	592938	27.804	ng	98
21) Trichlorotrifluoroethane	8.94	151	243124	24.491	ng	99
22) Carbon Disulfide	8.79	76	1058978	24.790	ng	100
23) trans-1,2-Dichloroethene	9.80	61	441075	28.011	ng	100
24) 1,1-Dichloroethane	10.05	63	522878	25.519	ng	100
25) Methyl tert-Butyl Ether	10.15	73	877733	26.402	ng	100
26) Vinyl Acetate	10.31	86	429367	137.704	ng	# 93
27) 2-Butanone (MEK)	10.55	72	222786	27.725	ng	95
28) cis-1,2-Dichloroethene	11.07	61	421286	26.000	ng	100
29) Diisopropyl Ether	11.36	87	258033	22.994	ng	# 79
30) Ethyl Acetate	11.36	61	213761	52.872	ng	98
31) n-Hexane	11.35	57	480439	23.210	ng	100
32) Chloroform	11.41	83	498809	25.698	ng	100
34) Tetrahydrofuran (THF)	11.81	72	210507	27.282	ng	98
35) Ethyl tert-Butyl Ether	11.95	87	344930	26.792	ng	98
36) 1,2-Dichloroethane	12.21	62	410137	26.166	ng	99
38) 1,1,1-Trichloroethane	12.49	97	448885	25.961	ng	100
39) Isopropyl Acetate	12.91	61	380995	50.195	ng	98
40) 1-Butanol	12.93	56	624749	51.751	ng	96
41) Benzene	12.97	78	1140492	24.525	ng	100
42) Carbon Tetrachloride	13.13	117	404896	26.290	ng	100
43) Cyclohexane	13.26	84	936550	48.532	ng	99
44) tert-Amyl Methyl Ether	13.60	73	795719	26.675	ng	99
45) 1,2-Dichloropropane	13.82	63	291954	26.038	ng	100
46) Bromodichloromethane	14.01	83	402784	27.577	ng	100
47) Trichloroethene	14.06	130	303170	24.984	ng	100
48) 1,4-Dioxane	14.03	88	242902	26.636	ng	100
49) 2,2,4-Trimethylpentane...	14.13	57	1338613	25.041	ng	99
50) Methyl Methacrylate	14.26	100	259041	58.561	ng	96

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Data File: I:\MS08\Data\2019 02\18\02181918.D

Sample : 25ng TO-15 ICV Std.

Inst : MS08

Acq On : 18 Feb 2019 17:33

Operator: RS

Misc : S31-02071907/S31-02181902 (3/19)

ALS Vial : 1 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 13:18:47 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	318750	25.502	ng	99
52) cis-1,3-Dichloropropene	14.92	75	491163	28.762	ng	100
53) 4-Methyl-2-pentanone	14.96	58	297755	28.526	ng	97
54) trans-1,3-Dichloropropene	15.44	75	464073	30.560	ng	100
55) 1,1,2-Trichloroethane	15.61	97	274933	27.066	ng	100
58) Toluene	15.91	91	1155617	24.519	ng	100
59) 2-Hexanone	16.15	43	763428	27.594	ng	98
60) Dibromochloromethane	16.32	129	335386	28.823	ng	100
61) 1,2-Dibromoethane	16.57	107	320643	28.267	ng	99
62) n-Butyl Acetate	16.78	43	874489	28.571	ng	99
63) n-Octane	16.91	57	275899	25.711	ng	98
64) Tetrachloroethene	17.05	166	321841	25.044	ng	100
65) Chlorobenzene	17.71	112	775463	25.122	ng	100
66) Ethylbenzene	18.06	91	1345059	24.874	ng	99
67) m- & p-Xylenes	18.23	91	2058016	49.515	ng	99
68) Bromoform	18.29	173	281831	29.306	ng	100
69) Styrene	18.55	104	862880	28.329	ng	99
70) o-Xylene	18.65	91	1059922	25.327	ng	99
71) n-Nonane	18.85	43	688380	24.869	ng	99
72) 1,1,2,2-Tetrachloroethane	18.63	83	484851	26.141	ng	100
74) Cumene	19.17	105	1369616	25.293	ng	99
75) alpha-Pinene	19.52	93	678148	29.664	ng	99
76) n-Propylbenzene	19.62	91	1621867	25.729	ng	100
77) 3-Ethyltoluene	19.71	105	1373537	25.281	ng	99
78) 4-Ethyltoluene	19.75	105	1282942	25.482	ng	99
79) 1,3,5-Trimethylbenzene	19.81	105	1123907	24.634	ng	100
80) alpha-Methylstyrene	19.95	118	646859	31.682	ng	99
81) 2-Ethyltoluene	19.99	105	1329800	24.989	ng	100
82) 1,2,4-Trimethylbenzene	20.18	105	1108891	25.335	ng	99
83) n-Decane	20.27	57	651336	24.950	ng	99
84) Benzyl Chloride	20.29	91	1048749	30.895	ng	99
85) 1,3-Dichlorobenzene	20.31	146	676732	26.512	ng	100
86) 1,4-Dichlorobenzene	20.37	146	681448	26.112	ng	100
87) sec-Butylbenzene	20.42	105	1507135	25.068	ng	99
88) 4-Isopropyltoluene (p-...	20.56	119	1394660	24.140	ng	100
89) 1,2,3-Trimethylbenzene	20.56	105	1135094	25.484	ng	100
90) 1,2-Dichlorobenzene	20.68	146	638972	26.435	ng	100
91) d-Limonene	20.68	68	433322	30.540	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.06	157	244228	29.132	ng	96
93) n-Undecane	21.36	57	656493	24.536	ng	100
94) 1,2,4-Trichlorobenzene	22.19	180	466889	27.247	ng	99
95) Naphthalene	22.29	128	1484214	25.057	ng	100
96) n-Dodecane	22.28	57	565346	24.293	ng	100
97) Hexachlorobutadiene	22.61	225	274785	23.661	ng	100
98) Cyclohexanone	18.36	55	427677	24.441	ng	98
99) tert-Butylbenzene	20.18	119	1102715	25.029	ng	99
100) n-Butylbenzene	20.92	91	1204229	25.538	ng	100

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

Data File: I:\MS08\Data\2019 02\18\02181918.D

Sample : 25ng TO-15 ICV Std.

Acq On : 18 Feb 2019 17:33

Misc : S31-02071907/S31-02181902 (3/19)

ALS Vial : 1 Sample Multiplier: 1

Inst : MS08

Operator: RS

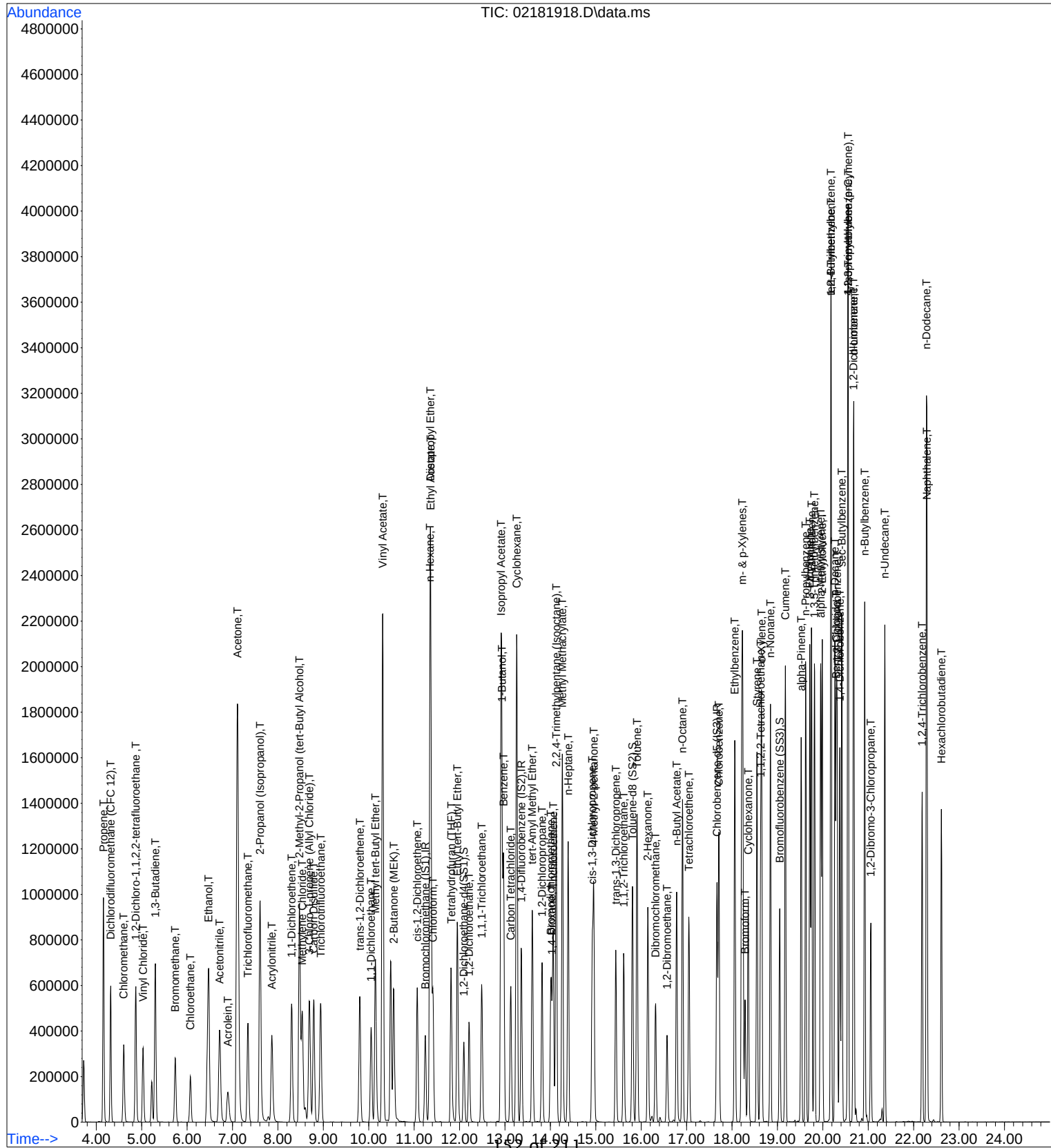
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Feb 21 13:18:47 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: 02181918.D

Acq. Method File: TO15.M

Data File Path: I:\MS08\Data\2019_02\18\

Sample Name: 25ng TO-15 ICV Std.

Operator: RS

Misc Info: S31-02071907/S31-02181902 (

Date Acquired: 2/18/19

17:33

Instrument Name: MS08

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
2)	Propene	4.16	23.7	26.43	90	53	112	*	*
3)	Dichlorodifluoromethane (CFC 12)	4.32	23.6	26.30	90	62	103	*	*
4)	Chloromethane	4.60	23.1	26.38	88	51	121	*	*
5)	1,2-Dichloro-1,1,2,2-tetrafluoroethane	4.87	22.6	26.38	86	56	111	*	*
6)	Vinyl Chloride	5.03	23.3	26.73	87	57	117	*	*
7)	1,3-Butadiene	5.30	23.3	26.28	89	53	134	*	*
8)	Bromomethane	5.74	25.7	26.48	97	65	110	*	*
9)	Chloroethane	6.07	25.3	26.75	95	64	111	*	*
10)	Ethanol	6.47	122	128.10	95	57	124	*	*
11)	Acetonitrile	6.72	25.1	25.73	98	57	126	*	*
12)	Acrolein	6.90	29.2	25.63	114	62	121	*	*
13)	Acetone	7.11	121	132.33	91	60	113	*	*
14)	Trichlorofluoromethane	7.34	24.6	26.40	93	63	104	*	*
15)	2-Propanol (Isopropanol)	7.61	50.9	51.60	99	60	124	*	*
16)	Acrylonitrile	7.87	28.7	25.88	111	66	125	*	*
17)	1,1-Dichloroethene	8.30	25.9	27.23	95	68	107	*	*
18)	2-Methyl-2-Propanol (tert-Butyl Alcohol)	8.47	52.0	54.25	96	64	114	*	*
19)	Methylene Chloride	8.53	26.7	27.08	99	66	105	*	*
20)	3-Chloro-1-propene (Allyl Chloride)	8.69	27.8	27.00	103	63	127	*	*
21)	Trichlorotrifluoroethane	8.94	24.5	26.95	91	59	109	*	*
22)	Carbon Disulfide	8.79	24.8	27.20	91	67	109	*	*
23)	trans-1,2-Dichloroethene	9.80	28.0	26.73	105	70	115	*	*
24)	1,1-Dichloroethane	10.05	25.5	26.95	95	66	106	*	*
25)	Methyl tert-Butyl Ether	10.15	26.4	26.80	99	67	109	*	*
26)	Vinyl Acetate	10.31	138	133.03	104	68	136	*	*
27)	2-Butanone (MEK)	10.55	27.7	25.95	107	71	116	*	*
28)	cis-1,2-Dichloroethene	11.07	26.0	26.35	99	67	110	*	*
29)	Diisopropyl Ether	11.36	23.0	27.18	85	62	109	*	*
30)	Ethyl Acetate	11.36	52.9	54.45	97	64	127	*	*
31)	n-Hexane	11.35	23.2	26.95	86	60	115	*	*
32)	Chloroform	11.41	25.7	27.08	95	66	105	*	*
34)	Tetrahydrofuran (THF)	11.81	27.3	27.00	101	65	110	*	*
35)	Ethyl tert-Butyl Ether	11.95	26.8	26.80	100	69	109	*	*
36)	1,2-Dichloroethane	12.21	26.2	26.85	98	60	110	*	*
38)	1,1,1-Trichloroethane	12.49	26.0	26.90	97	64	108	*	*
39)	Isopropyl Acetate	12.91	50.2	51.55	97	66	119	*	*
40)	1-Butanol	12.93	51.8	51.58	100	54	143	*	*
41)	Benzene	12.97	24.5	26.38	93	67	106	*	*
42)	Carbon Tetrachloride	13.13	26.3	26.45	99	64	112	*	*
43)	Cyclohexane	13.26	48.5	52.05	93	67	110	*	*
44)	tert-Amyl Methyl Ether	13.60	26.7	27.08	99	68	112	*	*
45)	1,2-Dichloropropane	13.82	26.0	26.98	96	66	112	*	*
46)	Bromodichloromethane	14.01	27.6	26.83	103	67	113	*	*
47)	Trichloroethene	14.06	25.0	26.68	94	66	108	*	*
48)	1,4-Dioxane	14.03	26.6	26.73	100	70	116	*	*
49)	2,2,4-Trimethylpentane (Isooctane)	14.13	25.0	26.65	94	64	113	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: 02181918.D

TO15.M

Data File Path: I:\MS08\Data\2019_02\18\

Sample Name: 25ng TO-15 ICV Std.

Operator: RS

Misc Info: S31-02071907/S31-02181902 (

Date Acquired: 2/18/19

17:33

Instrument Name: MS08

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
50)	Methyl Methacrylate	14.26	58.6	53.88	109	73	118	*	*
51)	n-Heptane	14.39	25.5	26.90	95	66	110	*	*
52)	cis-1,3-Dichloropropene	14.92	28.8	26.78	108	75	120	*	*
53)	4-Methyl-2-pentanone	14.96	28.5	26.15	109	65	124	*	*
54)	trans-1,3-Dichloropropene	15.44	30.6	26.60	115	77	123	*	*
55)	1,1,2-Trichloroethane	15.61	27.1	26.85	101	68	112	*	*
58)	Toluene	15.91	24.5	26.50	92	62	111	*	*
59)	2-Hexanone	16.15	27.6	26.78	103	59	128	*	*
60)	Dibromochloromethane	16.32	28.8	26.60	108	67	123	*	*
61)	1,2-Dibromoethane	16.57	28.3	27.03	105	66	122	*	*
62)	n-Butyl Acetate	16.78	28.6	27.35	105	64	128	*	*
63)	n-Octane	16.91	25.7	27.13	95	65	114	*	*
64)	Tetrachloroethene	17.05	25.0	26.60	94	55	120	*	*
65)	Chlorobenzene	17.71	25.1	26.83	94	61	114	*	*
66)	Ethylbenzene	18.06	24.9	26.53	94	64	113	*	*
67)	m- & p-Xylenes	18.23	49.5	53.28	93	64	114	*	*
68)	Bromoform	18.29	29.3	26.68	110	65	132	*	*
69)	Styrene	18.55	28.3	26.50	107	67	124	*	*
70)	o-Xylene	18.65	25.3	26.75	95	65	114	*	*
71)	n-Nonane	18.85	24.9	26.83	93	64	117	*	*
72)	1,1,2,2-Tetrachloroethane	18.63	26.1	26.80	97	66	119	*	*
74)	Cumene	19.17	25.3	26.80	94	61	116	*	*
75)	alpha-Pinene	19.52	29.7	26.40	113	65	120	*	*
76)	n-Propylbenzene	19.62	25.7	27.23	94	63	117	*	*
77)	3-Ethyltoluene	19.71	25.3	26.83	94	60	117	*	*
78)	4-Ethyltoluene	19.75	25.5	26.80	95	63	124	*	*
79)	1,3,5-Trimethylbenzene	19.81	24.6	26.73	92	60	117	*	*
80)	alpha-Methylstyrene	19.95	31.7	26.75	119	64	131	*	*
81)	2-Ethyltoluene	19.99	25.0	27.08	92	62	116	*	*
82)	1,2,4-Trimethylbenzene	20.18	25.3	26.90	94	61	122	*	*
83)	n-Decane	20.27	25.0	26.88	93	67	120	*	*
84)	Benzyl Chloride	20.29	30.9	27.08	114	77	142	*	*
85)	1,3-Dichlorobenzene	20.31	26.5	26.98	98	61	125	*	*
86)	1,4-Dichlorobenzene	20.37	26.1	27.00	97	59	123	*	*
87)	sec-Butylbenzene	20.42	25.1	26.55	95	62	117	*	*
88)	4-Isopropyltoluene (p-Cymene)	20.56	24.1	26.95	89	58	122	*	*
89)	1,2,3-Trimethylbenzene	20.56	25.5	26.95	95	62	124	*	*
90)	1,2-Dichlorobenzene	20.68	26.4	26.95	98	61	126	*	*
91)	d-Limonene	20.68	30.5	26.38	116	66	124	*	*
92)	1,2-Dibromo-3-Chloropropane	21.06	29.1	26.15	111	67	138	*	*
93)	n-Undecane	21.36	24.5	27.03	91	68	127	*	*
94)	1,2,4-Trichlorobenzene	22.19	27.2	26.78	102	62	141	*	*
95)	Naphthalene	22.29	25.1	25.38	99	62	145	*	*
96)	n-Dodecane	22.28	24.3	25.63	95	64	152	*	*
97)	Hexachlorobutadiene	22.61	23.7	26.13	91	49	131	*	*
98)	Cyclohexanone	18.36	24.4	24.45	100	61	127	*	*
99)	tert-Butylbenzene	20.18	25.0	26.88	93	58	122	*	*
100)	n-Butylbenzene	20.92	25.5	27.00	94	64	121	*	*

Bold = 75 Compound List

Data File: I:\MS08\Data\2019 04\04\04041902.D

Sample : CCV R8040419 25ng

Inst : MS08

Acq On : 4 Apr 2019 1:24

Operator: RS

Misc : S31-04021901/S31-03131901 (4/11)

ALS Vial : 1 Sample Multiplier: 1

RS 4/4/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 04 07:00:40 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

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 IR	Bromochloromethane (IS1)	1.000	1.000	0.0	117	-0.02
2 T	Propene	1.204	1.003	16.7	107	-0.01
3 T	Dichlorodifluoromethane (CF	1.685	1.530	9.2	117	-0.01
4 T	Chloromethane	1.487	1.137	23.5	97	-0.02
5 T	1,2-Dichloro-1,1,2,2-tetra	0.884	0.771	12.8	115	-0.02
6 T	Vinyl Chloride	1.372	1.186	13.6	111	-0.02
7 T	1,3-Butadiene	1.244	1.089	12.5	108	-0.02
8 T	Bromomethane	0.721	0.695	3.6	119	-0.02
9 T	Chloroethane	0.674	0.634	5.9	119	-0.02
10 T	Ethanol	0.785	0.685	12.7	109	-0.08
11 T	Acetonitrile	2.073	1.847	10.9	111	-0.05
12 T	Acrolein	0.555	0.555	0.0	113	-0.03
13 T	Acetone	0.747	0.662	11.4	110	-0.05
14 T	Trichlorofluoromethane	1.451	1.351	6.9	119	-0.02
15 T	2-Propanol (Isopropanol)	2.611	2.546	2.5	114	-0.05
16 T	Acrylonitrile	1.179	1.201	-1.9	109	-0.04
17 T	1,1-Dichloroethene	0.807	0.750	7.1	114	-0.02
18 T	2-Methyl-2-Propanol (tert-B	2.186	2.364	-8.1	130	-0.05
19 T	Methylene Chloride	0.832	0.791	4.9	114	-0.02
20 T	3-Chloro-1-propene (Allyl C	1.616	1.506	6.8	108	-0.02
21 T	Trichlorotrifluoroethane	0.752	0.676	10.1	113	-0.01
22 T	Carbon Disulfide	3.237	2.828	12.6	112	-0.02
23 T	trans-1,2-Dichloroethene	1.193	1.210	-1.4	114	-0.02
24 T	1,1-Dichloroethane	1.553	1.446	6.9	116	-0.02
25 T	Methyl tert-Butyl Ether	2.519	2.596	-3.1	125	-0.01
26 T	Vinyl Acetate	0.236	0.250	-5.9	116	-0.03
27 T	2-Butanone (MEK)	0.609	0.627	-3.0	109	-0.02
28 T	cis-1,2-Dichloroethene	1.228	1.166	5.0	113	-0.01
29 T	Diisopropyl Ether	0.850	0.747	12.1	100	-0.01
30 T	Ethyl Acetate	0.306	0.308	-0.7	112	-0.02
31 T	n-Hexane	1.568	1.443	8.0	115	0.00
32 T	Chloroform	1.471	1.381	6.1	114	-0.02
33 S	1,2-Dichloroethane-d4 (SS1)	1.670	1.728	-3.5	120	-0.01
34 T	Tetrahydrofuran (THF)	0.585	0.578	1.2	113	0.00
35 T	Ethyl tert-Butyl Ether	0.975	1.068	-9.5	128	0.00
36 T	1,2-Dichloroethane	1.188	1.157	2.6	117	-0.01
37 IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	118	0.00
38 T	1,1,1-Trichloroethane	0.312	0.299	4.2	118	0.00
39 T	Isopropyl Acetate	0.137	0.135	1.5	113	0.00
40 T	1-Butanol	0.218	0.225	-3.2	121	-0.03
41 T	Benzene	0.839	0.759	9.5	111	0.00
42 T	Carbon Tetrachloride	0.278	0.265	4.7	114	-0.01
43 T	Cyclohexane	0.348	0.320	8.0	114	0.00
44 T	tert-Amyl Methyl Ether	0.538	0.568	-5.6	127	0.00
45 T	1,2-Dichloropropane	0.202	0.188	6.9	113	0.00
46 T	Bromodichloromethane	0.263	0.262	0.4	115	0.00
47 T	Trichloroethene	0.219	0.197	10.0	112	0.00
48 T	1,4-Dioxane	0.165	0.161	2.4	116	0.00
49 T	2,2,4-Trimethylpentane (Iso	0.964	0.873	9.4	113	0.00
50 T	Methyl Methacrylate	0.080	0.084	-5.0	113	-0.01
51 T	n-Heptane	0.225	0.210	6.7	113	0.00
52 T	cis-1,3-Dichloropropene	0.308	0.315	-2.3	112	0.00
53 T	4-Methyl-2-pentanone	0.188	0.199	-5.9	114	0.00
54 T	trans-1,3-Dichloropropene	0.274	0.290	-5.8	111	0.00
55 T	1,1,2-Trichloroethane	0.183	0.176	3.8	113	0.00

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Data File: I:\MS08\Data\2019 04\04\04041902.D

Sample : CCV R8040419 25ng

Inst : MS08

Acq On : 4 Apr 2019 1:24

Operator: RS

Misc : S31-04021901/S31-03131901 (4/11)

ALS Vial : 1 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 04 07:00:40 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

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)
56	IR Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	111	0.00
57	S Toluene-d8 (SS2)	2.209	2.245	-1.6	115	0.00
58	T Toluene	1.622	1.513	6.7	110	0.00
59	T 2-Hexanone	0.952	1.007	-5.8	110	0.00
60	T Dibromochloromethane	0.400	0.421	-5.2	112	0.00
61	T 1,2-Dibromoethane	0.390	0.395	-1.3	111	0.00
62	T n-Butyl Acetate	1.053	1.124	-6.7	113	0.00
63	T n-Octane	0.369	0.359	2.7	110	0.00
64	T Tetrachloroethene	0.442	0.415	6.1	112	0.00
65	T Chlorobenzene	1.062	0.974	8.3	109	0.00
66	T Ethylbenzene	1.861	1.801	3.2	110	0.00
67	T m- & p-Xylenes	1.430	1.365	4.5	109	-0.01
68	T Bromoform	0.331	0.352	-6.3	107	0.00
69	T Styrene	1.048	1.071	-2.2	106	0.00
70	T o-Xylene	1.440	1.392	3.3	109	0.00
71	T n-Nonane	0.953	0.916	3.9	109	0.00
72	T 1,1,2,2-Tetrachloroethane	0.638	0.647	-1.4	109	0.00
73	S Bromofluorobenzene (SS3)	0.785	0.748	4.7	105	0.00
74	T Cumene	1.864	1.794	3.8	110	0.00
75	T alpha-Pinene	0.787	0.915	-16.3	115	0.00
76	T n-Propylbenzene	2.170	2.092	3.6	109	0.00
77	T 3-Ethyltoluene	1.870	1.773	5.2	106	0.00
78	T 4-Ethyltoluene	1.733	1.694	2.3	112	0.00
79	T 1,3,5-Trimethylbenzene	1.570	1.487	5.3	109	0.00
80	T alpha-Methylstyrene	0.703	0.752	-7.0	105	0.00
81	T 2-Ethyltoluene	1.831	1.740	5.0	109	0.00
82	T 1,2,4-Trimethylbenzene	1.506	1.496	0.7	112	-0.01
83	T n-Decane	0.898	0.885	1.4	111	0.00
84	T Benzyl Chloride	1.168	1.271	-8.8	106	0.00
85	T 1,3-Dichlorobenzene	0.878	0.804	8.4	102	-0.01
86	T 1,4-Dichlorobenzene	0.898	0.781	13.0	99	0.00
87	T sec-Butylbenzene	2.069	1.996	3.5	110	0.00
88	T 4-Isopropyltoluene (p-Cymen	1.988	1.883	5.3	110	0.00
89	T 1,2,3-Trimethylbenzene	1.533	1.511	1.4	112	0.00
90	T 1,2-Dichlorobenzene	0.832	0.784	5.8	106	0.00
91	T d-Limonene	0.488	0.599	-22.7	119	0.00
92	T 1,2-Dibromo-3-Chloropropane	0.289	0.308	-6.6	106	0.00
93	T n-Undecane	0.921	0.923	-0.2	110	0.00
94	T 1,2,4-Trichlorobenzene	0.590	0.509	13.7	95	0.00
95	T Naphthalene	2.039	1.642	19.5	91	0.00
96	T n-Dodecane	0.801	0.817	-2.0	111	0.00
97	T Hexachlorobutadiene	0.400	0.356	11.0	106	0.00
98	T Cyclohexanone	0.602	0.619	-2.8	118	-0.01
99	T tert-Butylbenzene	1.516	1.479	2.4	112	0.00
100	T n-Butylbenzene	1.623	1.591	2.0	108	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data File: I:\MS08\Data\2019 04\04\04041902.D

Sample : CCV R8040419 25ng

Acq On : 4 Apr 2019 1:24

Misc : S31-04021901/S31-03131901 (4/11)

ALS Vial : 1 Sample Multiplier: 1

Inst : MS08

Operator: RS

RS 4/4/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 04 07:00:40 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.24	130	175251	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.36	114	753235	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.67	82	379256	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.09	65	302771	12.928	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	103.44%
57) Toluene-d8 (SS2)	15.81	98	851517	12.705	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.68%
73) Bromofluorobenzene (SS3)	19.06	174	283496	11.898	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.20%

Target Compounds

						Qvalue
2) Propene	4.15	42	362581	21.487	ng	99
3) Dichlorodifluoromethan...	4.31	85	560219	23.720	ng	100
4) Chloromethane	4.60	50	401633	19.263	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	277867	22.422	ng	100
6) Vinyl Chloride	5.02	62	436953	22.714	ng	100
7) 1,3-Butadiene	5.29	54	400323	22.958	ng	97
8) Bromomethane	5.73	94	245803	24.310	ng	100
9) Chloroethane	6.06	64	227173	24.054	ng	100
10) Ethanol	6.46	45	1234508	112.151	ng	100
11) Acetonitrile	6.70	41	668782	23.013	ng	100
12) Acrolein	6.89	56	200002	25.711	ng	100
13) Acetone	7.10	58	1246156	118.987	ng	99
14) Trichlorofluoromethane	7.33	101	501880	24.678	ng	100
15) 2-Propanol (Isopropanol)	7.60	45	1840676	50.279	ng	100
16) Acrylonitrile	7.86	53	435388	26.336	ng	100
17) 1,1-Dichloroethene	8.30	96	282512	24.967	ng	100
18) 2-Methyl-2-Propanol (t...	8.46	59	1776734	57.973	ng	98
19) Methylene Chloride	8.53	84	296751	25.450	ng	96
20) 3-Chloro-1-propene (Al...	8.69	41	563236	24.863	ng	98
21) Trichlorotrifluoroethane	8.94	151	252482	23.943	ng	98
22) Carbon Disulfide	8.79	76	1065533	23.481	ng	100
23) trans-1,2-Dichloroethene	9.80	61	450279	26.919	ng	100
24) 1,1-Dichloroethane	10.05	63	522210	23.992	ng	100
25) Methyl tert-Butyl Ether	10.14	73	990837	28.057	ng	99
26) Vinyl Acetate	10.30	86	460545	139.043	ng	# 95
27) 2-Butanone (MEK)	10.55	72	225678	26.438	ng	96
28) cis-1,2-Dichloroethene	11.07	61	430733	25.025	ng	100
29) Diisopropyl Ether	11.36	87	283137	23.752	ng	# 79
30) Ethyl Acetate	11.36	61	234117	54.511	ng	99
31) n-Hexane	11.35	57	547090	24.880	ng	100
32) Chloroform	11.41	83	521332	25.284	ng	99
34) Tetrahydrofuran (THF)	11.81	72	216333	26.393	ng	96
35) Ethyl tert-Butyl Ether	11.95	87	396817	29.015	ng	97
36) 1,2-Dichloroethane	12.21	62	430278	25.842	ng	99
38) 1,1,1-Trichloroethane	12.49	97	487283	25.925	ng	100
39) Isopropyl Acetate	12.92	61	420152	50.921	ng	100
40) 1-Butanol	12.93	56	699986	53.339	ng	96
41) Benzene	12.97	78	1180787	23.358	ng	99
42) Carbon Tetrachloride	13.13	117	413325	24.688	ng	100
43) Cyclohexane	13.26	84	1004640	47.891	ng	98
44) tert-Amyl Methyl Ether	13.61	73	919650	28.360	ng	98
45) 1,2-Dichloropropane	13.82	63	303822	24.927	ng	99
46) Bromodichloromethane	14.01	83	421549	26.551	ng	100
47) Trichloroethene	14.06	130	315490	23.917	ng	99
48) 1,4-Dioxane	14.04	88	258844	26.111	ng	99
49) 2,2,4-Trimethylpentane...	14.13	57	1395575	24.016	ng	99
50) Methyl Methacrylate	14.27	100	271480	56.458	ng	97

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Data File: I:\MS08\Data\2019 04\04\04041902.D

Sample : CCV R8040419 25ng Inst : MS08
 Acq On : 4 Apr 2019 1:24 Operator: RS
 Misc : S31-04021901/S31-03131901 (4/11)
 ALS Vial : 1 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 04 07:00:40 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.40	71	339778	25.008	ng	99
52) cis-1,3-Dichloropropene	14.92	75	531997	28.659	ng	100
53) 4-Methyl-2-pentanone	14.96	58	318091	28.034	ng	97
54) trans-1,3-Dichloropropene	15.45	75	460384	27.889	ng	100
55) 1,1,2-Trichloroethane	15.62	97	285793	25.882	ng	100
58) Toluene	15.91	91	1207140	24.528	ng	99
59) 2-Hexanone	16.15	43	820026	28.384	ng	100
60) Dibromochloromethane	16.32	129	343127	28.240	ng	100
61) 1,2-Dibromoethane	16.57	107	322672	27.241	ng	100
62) n-Butyl Acetate	16.79	43	925422	28.955	ng	99
63) n-Octane	16.91	57	292732	26.125	ng	99
64) Tetrachloroethene	17.05	166	333075	24.821	ng	100
65) Chlorobenzene	17.71	112	787565	24.433	ng	100
66) Ethylbenzene	18.07	91	1411430	24.996	ng	100
67) m- & p-Xylenes	18.23	91	2198542	50.656	ng	99
68) Bromoform	18.29	173	283754	28.257	ng	100
69) Styrene	18.55	104	861462	27.085	ng	100
70) o-Xylene	18.65	91	1120912	25.650	ng	100
71) n-Nonane	18.85	43	744415	25.754	ng	100
72) 1,1,2,2-Tetrachloroethane	18.63	83	522502	26.977	ng	100
74) Cumene	19.18	105	1438046	25.432	ng	100
75) alpha-Pinene	19.52	93	718009	30.078	ng	99
76) n-Propylbenzene	19.63	91	1707311	25.937	ng	100
77) 3-Ethyltoluene	19.72	105	1428227	25.174	ng	100
78) 4-Ethyltoluene	19.76	105	1363059	25.926	ng	100
79) 1,3,5-Trimethylbenzene	19.82	105	1192509	25.031	ng	100
80) alpha-Methylstyrene	19.95	118	603852	28.323	ng	93
81) 2-Ethyltoluene	19.99	105	1415089	25.466	ng	100
82) 1,2,4-Trimethylbenzene	20.18	105	1212122	26.520	ng	100
83) n-Decane	20.27	57	722030	26.487	ng	100
84) Benzyl Chloride	20.30	91	1012858	28.574	ng	99
85) 1,3-Dichlorobenzene	20.31	146	658587	24.709	ng	100
86) 1,4-Dichlorobenzene	20.37	146	640681	23.511	ng	99
87) sec-Butylbenzene	20.42	105	1609458	25.636	ng	100
88) 4-Isopropyltoluene (p-...	20.56	119	1488579	24.674	ng	100
89) 1,2,3-Trimethylbenzene	20.56	105	1194347	25.679	ng	100
90) 1,2-Dichlorobenzene	20.68	146	647971	25.672	ng	100
91) d-Limonene	20.69	68	459269	30.998	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.06	157	243504	27.815	ng	99
93) n-Undecane	21.36	57	739712	26.475	ng	100
94) 1,2,4-Trichlorobenzene	22.19	180	410833	22.960	ng	100
95) Naphthalene	22.29	128	1276419	20.637	ng	100
96) n-Dodecane	22.28	57	638677	26.281	ng	100
97) Hexachlorobutadiene	22.61	225	284432	23.454	ng	100
98) Cyclohexanone	18.36	55	461107	25.236	ng	99
99) tert-Butylbenzene	20.18	119	1196962	26.018	ng	100
100) n-Butylbenzene	20.92	91	1283935	26.076	ng	100

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

Data File: I:\MS08\Data\2019 04\04\04041902.D

Sample : CCV R8040419 25ng

Acq On : 4 Apr 2019 1:24

Misc : S31-04021901/S31-03131901 (4/11)

ALS Vial : 1 Sample Multiplier: 1

Inst : MS08

Operator: RS

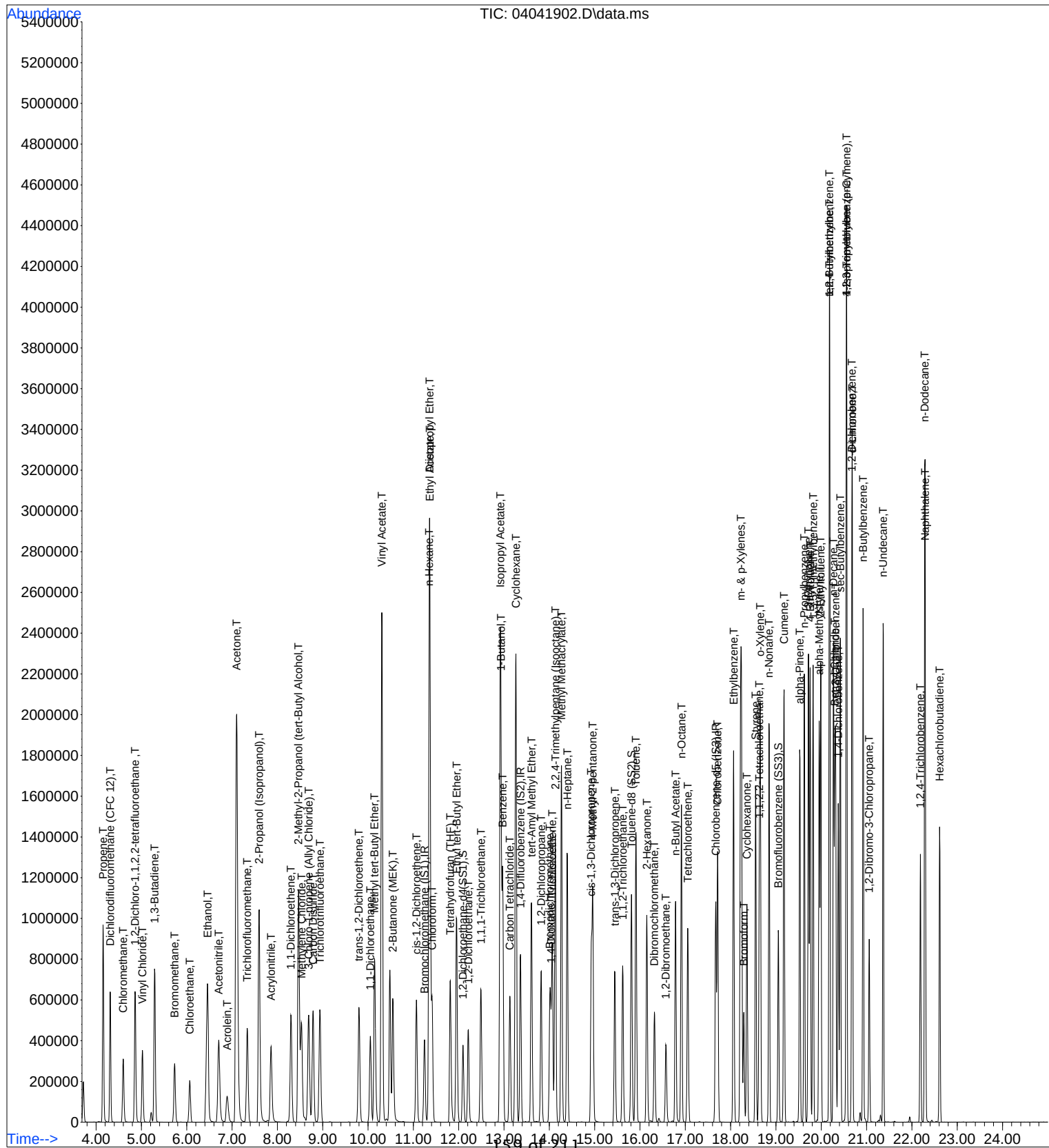
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 04 07:00:40 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 04\05\04051902.D

Sample : CCV R8040519 25ng

Inst : MS08

Acq On : 5 Apr 2019 5:03

Operator: RS

Misc : S31-04021901/S31-03131901 (4/11)

ALS Vial : 1 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

RS 4/5/19

Quant Time: Apr 05 07:40:17 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

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 IR	Bromochloromethane (IS1)	1.000	1.000	0.0	102	-0.02
2 T	Propene	1.204	0.940	21.9	88	0.00
3 T	Dichlorodifluoromethane (CF	1.685	1.461	13.3	97	0.00
4 T	Chloromethane	1.487	1.073	27.8	80	-0.02
5 T	1,2-Dichloro-1,1,2,2-tetra	0.884	0.746	15.6	97	-0.01
6 T	Vinyl Chloride	1.372	1.144	16.6	93	-0.02
7 T	1,3-Butadiene	1.244	1.030	17.2	89	-0.02
8 T	Bromomethane	0.721	0.649	10.0	97	-0.02
9 T	Chloroethane	0.674	0.600	11.0	98	-0.02
10 T	Ethanol	0.785	0.660	15.9	92	-0.08
11 T	Acetonitrile	2.073	1.766	14.8	92	-0.05
12 T	Acrolein	0.555	0.532	4.1	94	-0.03
13 T	Acetone	0.747	0.652	12.7	94	-0.04
14 T	Trichlorofluoromethane	1.451	1.345	7.3	103	-0.02
15 T	2-Propanol (Isopropanol)	2.611	2.481	5.0	97	-0.05
16 T	Acrylonitrile	1.179	1.157	1.9	92	-0.04
17 T	1,1-Dichloroethene	0.807	0.738	8.6	98	-0.02
18 T	2-Methyl-2-Propanol (tert-B	2.186	2.330	-6.6	112	-0.05
19 T	Methylene Chloride	0.832	0.777	6.6	98	-0.02
20 T	3-Chloro-1-propene (Allyl C	1.616	1.456	9.9	91	-0.02
21 T	Trichlorotrifluoroethane	0.752	0.669	11.0	98	0.00
22 T	Carbon Disulfide	3.237	2.793	13.7	96	-0.02
23 T	trans-1,2-Dichloroethene	1.193	1.182	0.9	97	-0.01
24 T	1,1-Dichloroethane	1.553	1.420	8.6	100	-0.02
25 T	Methyl tert-Butyl Ether	2.519	2.545	-1.0	107	0.00
26 T	Vinyl Acetate	0.236	0.250	-5.9	101	-0.03
27 T	2-Butanone (MEK)	0.609	0.619	-1.6	94	-0.02
28 T	cis-1,2-Dichloroethene	1.228	1.143	6.9	96	-0.01
29 T	Diisopropyl Ether	0.850	0.751	11.6	87	-0.01
30 T	Ethyl Acetate	0.306	0.307	-0.3	97	-0.02
31 T	n-Hexane	1.568	1.454	7.3	101	0.00
32 T	Chloroform	1.471	1.362	7.4	98	-0.02
33 S	1,2-Dichloroethane-d4 (SS1)	1.670	1.740	-4.2	106	-0.01
34 T	Tetrahydrofuran (THF)	0.585	0.566	3.2	97	0.00
35 T	Ethyl tert-Butyl Ether	0.975	1.053	-8.0	110	0.00
36 T	1,2-Dichloroethane	1.188	1.143	3.8	101	-0.01
37 IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	104	0.00
38 T	1,1,1-Trichloroethane	0.312	0.294	5.8	102	0.00
39 T	Isopropyl Acetate	0.137	0.134	2.2	99	0.00
40 T	1-Butanol	0.218	0.223	-2.3	106	-0.03
41 T	Benzene	0.839	0.750	10.6	96	0.00
42 T	Carbon Tetrachloride	0.278	0.261	6.1	99	-0.01
43 T	Cyclohexane	0.348	0.316	9.2	99	0.00
44 T	tert-Amyl Methyl Ether	0.538	0.556	-3.3	110	0.00
45 T	1,2-Dichloropropane	0.202	0.183	9.4	97	0.00
46 T	Bromodichloromethane	0.263	0.258	1.9	100	0.00
47 T	Trichloroethene	0.219	0.192	12.3	96	0.00
48 T	1,4-Dioxane	0.165	0.159	3.6	101	0.00
49 T	2,2,4-Trimethylpentane (Iso	0.964	0.850	11.8	97	0.00
50 T	Methyl Methacrylate	0.080	0.084	-5.0	99	-0.01
51 T	n-Heptane	0.225	0.206	8.4	98	0.00
52 T	cis-1,3-Dichloropropene	0.308	0.311	-1.0	97	0.00
53 T	4-Methyl-2-pentanone	0.188	0.195	-3.7	99	0.00
54 T	trans-1,3-Dichloropropene	0.274	0.285	-4.0	96	0.00
55 T	1,1,2-Trichloroethane	0.183	0.174	4.9	99	0.00

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Data File: I:\MS08\Data\2019 04\05\04051902.D

Sample : CCV R8040519 25ng Inst : MS08
 Acq On : 5 Apr 2019 5:03 Operator: RS
 Misc : S31-04021901/S31-03131901 (4/11)
 ALS Vial : 1 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:40:17 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

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)
56	IR Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	98	0.00
57	S Toluene-d8 (SS2)	2.209	2.250	-1.9	102	0.00
58	T Toluene	1.622	1.503	7.3	97	0.00
59	T 2-Hexanone	0.952	0.988	-3.8	96	0.00
60	T Dibromochloromethane	0.400	0.417	-4.2	98	0.00
61	T 1,2-Dibromoethane	0.390	0.391	-0.3	97	0.00
62	T n-Butyl Acetate	1.053	1.097	-4.2	97	0.00
63	T n-Octane	0.369	0.351	4.9	95	0.00
64	T Tetrachloroethene	0.442	0.412	6.8	98	0.00
65	T Chlorobenzene	1.062	0.967	8.9	95	0.00
66	T Ethylbenzene	1.861	1.795	3.5	97	0.00
67	T m- & p-Xylenes	1.430	1.374	3.9	97	0.00
68	T Bromoform	0.331	0.351	-6.0	95	0.00
69	T Styrene	1.048	1.067	-1.8	93	0.00
70	T o-Xylene	1.440	1.402	2.6	97	0.00
71	T n-Nonane	0.953	0.905	5.0	95	0.00
72	T 1,1,2,2-Tetrachloroethane	0.638	0.649	-1.7	96	0.00
73	S Bromofluorobenzene (SS3)	0.785	0.745	5.1	93	0.00
74	T Cumene	1.864	1.795	3.7	97	0.00
75	T alpha-Pinene	0.787	0.905	-15.0	101	0.00
76	T n-Propylbenzene	2.170	2.116	2.5	97	0.00
77	T 3-Ethyltoluene	1.870	1.777	5.0	94	0.00
78	T 4-Ethyltoluene	1.733	1.718	0.9	100	0.00
79	T 1,3,5-Trimethylbenzene	1.570	1.501	4.4	97	0.00
80	T alpha-Methylstyrene	0.703	0.754	-7.3	93	0.00
81	T 2-Ethyltoluene	1.831	1.764	3.7	98	0.00
82	T 1,2,4-Trimethylbenzene	1.506	1.527	-1.4	101	0.00
83	T n-Decane	0.898	0.883	1.7	98	0.00
84	T Benzyl Chloride	1.168	1.265	-8.3	93	0.00
85	T 1,3-Dichlorobenzene	0.878	0.807	8.1	91	0.00
86	T 1,4-Dichlorobenzene	0.898	0.788	12.2	88	0.00
87	T sec-Butylbenzene	2.069	2.012	2.8	98	0.00
88	T 4-Isopropyltoluene (p-Cymen	1.988	1.938	2.5	100	0.00
89	T 1,2,3-Trimethylbenzene	1.533	1.550	-1.1	101	0.00
90	T 1,2-Dichlorobenzene	0.832	0.795	4.4	95	0.00
91	T d-Limonene	0.488	0.597	-22.3	104	0.00
92	T 1,2-Dibromo-3-Chloropropane	0.289	0.303	-4.8	93	0.00
93	T n-Undecane	0.921	0.914	0.8	96	0.00
94	T 1,2,4-Trichlorobenzene	0.590	0.506	14.2	83	0.00
95	T Naphthalene	2.039	1.650	19.1	81	0.00
96	T n-Dodecane	0.801	0.809	-1.0	97	0.00
97	T Hexachlorobutadiene	0.400	0.353	11.8	93	0.00
98	T Cyclohexanone	0.602	0.608	-1.0	103	0.00
99	T tert-Butylbenzene	1.516	1.514	0.1	101	0.00
100	T n-Butylbenzene	1.623	1.605	1.1	96	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data File: I:\MS08\Data\2019 04\05\04051902.D

Sample : CCV R8040519 25ng Inst : MS08
 Acq On : 5 Apr 2019 5:03 Operator: RS
 Misc : S31-04021901/S31-03131901 (4/11)
 ALS Vial : 1 Sample Multiplier: 1

RS 4/5/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:40:17 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.24	130	153028	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.36	114	663638	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.67	82	335017	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.09	65	266202	13.017	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	104.16%
57) Toluene-d8 (SS2)	15.81	98	753809	12.732	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.84%
73) Bromofluorobenzene (SS3)	19.06	174	249535	11.856	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	94.88%

Target Compounds

						Qvalue
2) Propene	4.16	42	296767	20.140	ng	98
3) Dichlorodifluoromethan...	4.32	85	467173	22.653	ng	99
4) Chloromethane	4.60	50	330923	18.177	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	234648	21.684	ng	100
6) Vinyl Chloride	5.03	62	367833	21.898	ng	100
7) 1,3-Butadiene	5.29	54	330699	21.719	ng	98
8) Bromomethane	5.74	94	200524	22.712	ng	99
9) Chloroethane	6.07	64	187773	22.770	ng	100
10) Ethanol	6.46	45	1038934	108.091	ng	100
11) Acetonitrile	6.70	41	558347	22.003	ng	100
12) Acrolein	6.89	56	167359	24.639	ng	100
13) Acetone	7.10	58	1071150	117.130	ng	99
14) Trichlorofluoromethane	7.34	101	436354	24.571	ng	100
15) 2-Propanol (Isopropanol)	7.60	45	1566459	49.003	ng	100
16) Acrylonitrile	7.86	53	366189	25.367	ng	100
17) 1,1-Dichloroethene	8.30	96	242569	24.550	ng	100
18) 2-Methyl-2-Propanol (t...	8.46	59	1528727	57.125	ng	98
19) Methylene Chloride	8.53	84	254513	24.997	ng	96
20) 3-Chloro-1-propene (Al...	8.69	41	475619	24.044	ng	97
21) Trichlorotrifluoroethane	8.94	151	217949	23.669	ng	98
22) Carbon Disulfide	8.79	76	918789	23.188	ng	100
23) trans-1,2-Dichloroethene	9.80	61	384310	26.312	ng	99
24) 1,1-Dichloroethane	10.05	63	447526	23.546	ng	100
25) Methyl tert-Butyl Ether	10.15	73	848199	27.506	ng	98
26) Vinyl Acetate	10.31	86	401950	138.976	ng	# 95
27) 2-Butanone (MEK)	10.55	72	194475	26.091	ng	94
28) cis-1,2-Dichloroethene	11.07	61	368720	24.533	ng	99
29) Diisopropyl Ether	11.36	87	248336	23.858	ng	# 79
30) Ethyl Acetate	11.36	61	203772	54.336	ng	99
31) n-Hexane	11.35	57	481503	25.078	ng	99
32) Chloroform	11.42	83	448935	24.934	ng	100
34) Tetrahydrofuran (THF)	11.81	72	185095	25.861	ng	95
35) Ethyl tert-Butyl Ether	11.95	87	341456	28.593	ng	96
36) 1,2-Dichloroethane	12.21	62	371244	25.534	ng	100
38) 1,1,1-Trichloroethane	12.49	97	422201	25.495	ng	100
39) Isopropyl Acetate	12.92	61	367066	50.493	ng	99
40) 1-Butanol	12.93	56	611580	52.894	ng	96
41) Benzene	12.97	78	1028527	23.093	ng	99
42) Carbon Tetrachloride	13.13	117	359192	24.351	ng	100
43) Cyclohexane	13.26	84	875622	47.376	ng	97
44) tert-Amyl Methyl Ether	13.61	73	792466	27.737	ng	98
45) 1,2-Dichloropropane	13.82	63	260310	24.240	ng	100
46) Bromodichloromethane	14.01	83	365541	26.131	ng	100
47) Trichloroethene	14.06	130	271025	23.320	ng	100
48) 1,4-Dioxane	14.04	88	224945	25.755	ng	98
49) 2,2,4-Trimethylpentane...	14.13	57	1197567	23.391	ng	100
50) Methyl Methacrylate	14.27	100	237998	56.177	ng	97

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Data File: I:\MS08\Data\2019 04\05\04051902.D

Sample : CCV R8040519 25ng Inst : MS08
 Acq On : 5 Apr 2019 5:03 Operator: RS
 Misc : S31-04021901/S31-03131901 (4/11)
 ALS Vial : 1 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:40:17 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.40	71	293747	24.539	ng	98
52) cis-1,3-Dichloropropene	14.92	75	461632	28.225	ng	100
53) 4-Methyl-2-pentanone	14.96	58	274467	27.455	ng	98
54) trans-1,3-Dichloropropene	15.45	75	398559	27.404	ng	100
55) 1,1,2-Trichloroethane	15.62	97	248760	25.569	ng	100
58) Toluene	15.91	91	1059317	24.366	ng	100
59) 2-Hexanone	16.15	43	711326	27.873	ng	99
60) Dibromochloromethane	16.32	129	300677	28.014	ng	100
61) 1,2-Dibromoethane	16.57	107	282045	26.955	ng	99
62) n-Butyl Acetate	16.79	43	797288	28.240	ng	99
63) n-Octane	16.91	57	253218	25.583	ng	98
64) Tetrachloroethene	17.05	166	291719	24.610	ng	99
65) Chlorobenzene	17.71	112	690961	24.267	ng	100
66) Ethylbenzene	18.07	91	1242164	24.903	ng	100
67) m- & p-Xylenes	18.23	91	1953780	50.961	ng	100
68) Bromoform	18.29	173	250213	28.207	ng	99
69) Styrene	18.56	104	757799	26.971	ng	99
70) o-Xylene	18.65	91	997557	25.842	ng	100
71) n-Nonane	18.85	43	649609	25.442	ng	99
72) 1,1,2,2-Tetrachloroethane	18.63	83	462576	27.037	ng	99
74) Cumene	19.18	105	1270966	25.446	ng	100
75) alpha-Pinene	19.53	93	627660	29.765	ng	99
76) n-Propylbenzene	19.63	91	1525215	26.231	ng	100
77) 3-Ethyltoluene	19.72	105	1264515	25.232	ng	100
78) 4-Ethyltoluene	19.75	105	1221374	26.299	ng	100
79) 1,3,5-Trimethylbenzene	19.82	105	1063061	25.260	ng	100
80) alpha-Methylstyrene	19.95	118	534355	28.373	ng	93
81) 2-Ethyltoluene	19.99	105	1267073	25.813	ng	99
82) 1,2,4-Trimethylbenzene	20.19	105	1092893	27.069	ng	100
83) n-Decane	20.27	57	636699	26.441	ng	100
84) Benzyl Chloride	20.30	91	890577	28.442	ng	99
85) 1,3-Dichlorobenzene	20.32	146	584092	24.808	ng	100
86) 1,4-Dichlorobenzene	20.37	146	570616	23.705	ng	100
87) sec-Butylbenzene	20.42	105	1432740	25.835	ng	100
88) 4-Isopropyltoluene (p-...	20.56	119	1353104	25.390	ng	100
89) 1,2,3-Trimethylbenzene	20.56	105	1082367	26.344	ng	100
90) 1,2-Dichlorobenzene	20.68	146	580036	26.015	ng	100
91) d-Limonene	20.69	68	403726	30.847	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.06	157	211856	27.396	ng	99
93) n-Undecane	21.37	57	647613	26.240	ng	100
94) 1,2,4-Trichlorobenzene	22.19	180	360681	22.819	ng	100
95) Naphthalene	22.29	128	1133290	20.742	ng	100
96) n-Dodecane	22.28	57	559149	26.047	ng	99
97) Hexachlorobutadiene	22.61	225	249315	23.273	ng	100
98) Cyclohexanone	18.36	55	399809	24.770	ng	99
99) tert-Butylbenzene	20.18	119	1082379	26.634	ng	100
100) n-Butylbenzene	20.92	91	1144274	26.308	ng	100

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

Data File: I:\MS08\Data\2019 04\05\04051902.D

Sample : CCV R8040519 25ng

Acq On : 5 Apr 2019 5:03

Misc : S31-04021901/S31-03131901 (4/11)

ALS Vial : 1 Sample Multiplier: 1

Inst : MS08

Operator: RS

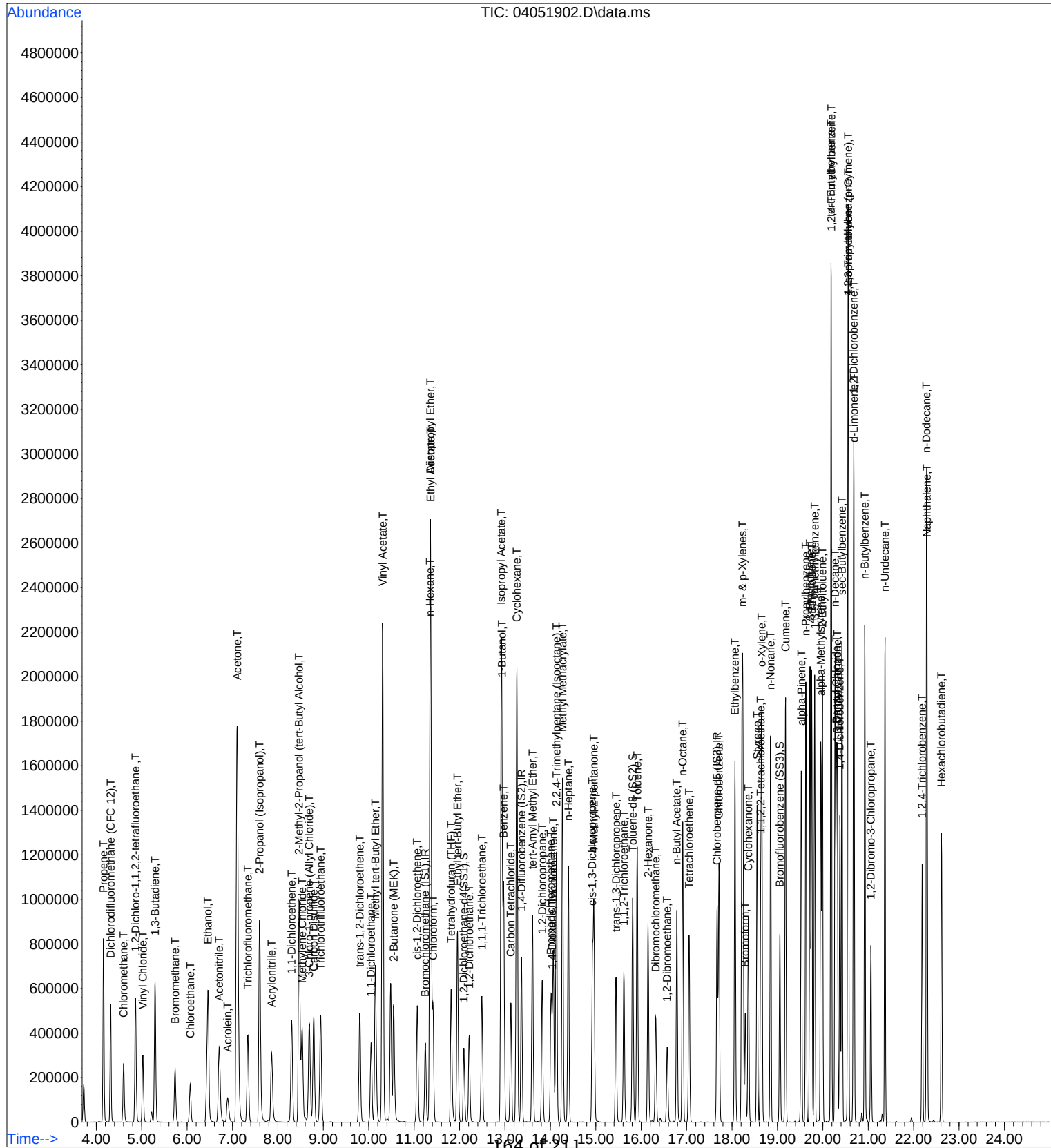
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:40:17 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



Data File: I:\MS08\Data\2019 04\08\04081902.D

Sample : CCV R8040819 25ng

Inst : MS08

Acq On : 8 Apr 2019 8:07

Operator: RS

Misc : S31-04021901/S31-03131901 (4/11)

RS 4/8/19

ALS Vial : 1 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 09:45:28 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

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 IR	Bromochloromethane (IS1)	1.000	1.000	0.0	102	-0.02
2 T	Propene	1.204	0.966	19.8	90	0.00
3 T	Dichlorodifluoromethane (CF	1.685	1.489	11.6	99	-0.01
4 T	Chloromethane	1.487	1.094	26.4	82	-0.02
5 T	1,2-Dichloro-1,1,2,2-tetra	0.884	0.739	16.4	96	-0.01
6 T	Vinyl Chloride	1.372	1.129	17.7	92	-0.02
7 T	1,3-Butadiene	1.244	1.023	17.8	89	-0.02
8 T	Bromomethane	0.721	0.643	10.8	96	-0.02
9 T	Chloroethane	0.674	0.588	12.8	96	-0.02
10 T	Ethanol	0.785	0.653	16.8	90	-0.08
11 T	Acetonitrile	2.073	1.748	15.7	91	-0.05
12 T	Acrolein	0.555	0.525	5.4	93	-0.03
13 T	Acetone	0.747	0.637	14.7	92	-0.04
14 T	Trichlorofluoromethane	1.451	1.304	10.1	100	-0.02
15 T	2-Propanol (Isopropanol)	2.611	2.439	6.6	95	-0.05
16 T	Acrylonitrile	1.179	1.139	3.4	90	-0.04
17 T	1,1-Dichloroethene	0.807	0.717	11.2	95	-0.02
18 T	2-Methyl-2-Propanol (tert-B	2.186	2.299	-5.2	110	-0.05
19 T	Methylene Chloride	0.832	0.758	8.9	95	-0.02
20 T	3-Chloro-1-propene (Allyl C	1.616	1.425	11.8	89	-0.02
21 T	Trichlorotrifluoroethane	0.752	0.653	13.2	95	-0.01
22 T	Carbon Disulfide	3.237	2.719	16.0	94	-0.02
23 T	trans-1,2-Dichloroethene	1.193	1.165	2.3	96	-0.02
24 T	1,1-Dichloroethane	1.553	1.391	10.4	97	-0.02
25 T	Methyl tert-Butyl Ether	2.519	2.511	0.3	106	-0.01
26 T	Vinyl Acetate	0.236	0.242	-2.5	98	-0.03
27 T	2-Butanone (MEK)	0.609	0.613	-0.7	93	-0.02
28 T	cis-1,2-Dichloroethene	1.228	1.120	8.8	94	-0.01
29 T	Diisopropyl Ether	0.850	0.842	0.9	98	-0.01
30 T	Ethyl Acetate	0.306	0.303	1.0	96	-0.02
31 T	n-Hexane	1.568	1.432	8.7	99	0.00
32 T	Chloroform	1.471	1.340	8.9	97	-0.02
33 S	1,2-Dichloroethane-d4 (SS1)	1.670	1.761	-5.4	107	-0.01
34 T	Tetrahydrofuran (THF)	0.585	0.557	4.8	95	0.00
35 T	Ethyl tert-Butyl Ether	0.975	1.043	-7.0	109	-0.01
36 T	1,2-Dichloroethane	1.188	1.129	5.0	99	-0.02
37 IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	105	-0.01
38 T	1,1,1-Trichloroethane	0.312	0.286	8.3	100	-0.01
39 T	Isopropyl Acetate	0.137	0.130	5.1	97	-0.01
40 T	1-Butanol	0.218	0.215	1.4	103	-0.03
41 T	Benzene	0.839	0.734	12.5	95	-0.01
42 T	Carbon Tetrachloride	0.278	0.252	9.4	96	-0.01
43 T	Cyclohexane	0.348	0.308	11.5	97	-0.01
44 T	tert-Amyl Methyl Ether	0.538	0.552	-2.6	110	-0.01
45 T	1,2-Dichloropropane	0.202	0.179	11.4	96	-0.01
46 T	Bromodichloromethane	0.263	0.252	4.2	98	0.00
47 T	Trichloroethene	0.219	0.190	13.2	96	0.00
48 T	1,4-Dioxane	0.165	0.154	6.7	98	-0.01
49 T	2,2,4-Trimethylpentane (Iso	0.964	0.829	14.0	95	-0.01
50 T	Methyl Methacrylate	0.080	0.082	-2.5	96	-0.02
51 T	n-Heptane	0.225	0.204	9.3	98	-0.01
52 T	cis-1,3-Dichloropropene	0.308	0.301	2.3	95	0.00
53 T	4-Methyl-2-pentanone	0.188	0.191	-1.6	97	0.00
54 T	trans-1,3-Dichloropropene	0.274	0.276	-0.7	94	0.00
55 T	1,1,2-Trichloroethane	0.183	0.170	7.1	97	0.00

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Data File: I:\MS08\Data\2019 04\08\04081902.D

Sample : CCV R8040819 25ng Inst : MS08
 Acq On : 8 Apr 2019 8:07 Operator: RS
 Misc : S31-04021901/S31-03131901 (4/11)
 ALS Vial : 1 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 09:45:28 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

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)
56	IR Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	99	0.00
57	S Toluene-d8 (SS2)	2.209	2.246	-1.7	102	0.00
58	T Toluene	1.622	1.474	9.1	95	0.00
59	T 2-Hexanone	0.952	0.965	-1.4	94	-0.01
60	T Dibromochloromethane	0.400	0.407	-1.7	96	0.00
61	T 1,2-Dibromoethane	0.390	0.380	2.6	95	0.00
62	T n-Butyl Acetate	1.053	1.072	-1.8	95	0.00
63	T n-Octane	0.369	0.347	6.0	94	0.00
64	T Tetrachloroethene	0.442	0.401	9.3	96	0.00
65	T Chlorobenzene	1.062	0.946	10.9	93	0.00
66	T Ethylbenzene	1.861	1.765	5.2	95	0.00
67	T m- & p-Xylenes	1.430	1.345	5.9	95	-0.01
68	T Bromoform	0.331	0.343	-3.6	92	0.00
69	T Styrene	1.048	1.043	0.5	91	0.00
70	T o-Xylene	1.440	1.367	5.1	95	0.00
71	T n-Nonane	0.953	0.882	7.5	93	0.00
72	T 1,1,2,2-Tetrachloroethane	0.638	0.632	0.9	94	0.00
73	S Bromofluorobenzene (SS3)	0.785	0.759	3.3	95	0.00
74	T Cumene	1.864	1.763	5.4	96	0.00
75	T alpha-Pinene	0.787	0.909	-15.5	101	0.00
76	T n-Propylbenzene	2.170	2.068	4.7	95	0.00
77	T 3-Ethyltoluene	1.870	1.794	4.1	95	0.00
78	T 4-Ethyltoluene	1.733	1.631	5.9	95	0.00
79	T 1,3,5-Trimethylbenzene	1.570	1.462	6.9	95	0.00
80	T alpha-Methylstyrene	0.703	0.728	-3.6	90	0.00
81	T 2-Ethyltoluene	1.831	1.721	6.0	96	0.00
82	T 1,2,4-Trimethylbenzene	1.506	1.484	1.5	98	-0.01
83	T n-Decane	0.898	0.862	4.0	96	0.00
84	T Benzyl Chloride	1.168	1.212	-3.8	89	-0.01
85	T 1,3-Dichlorobenzene	0.878	0.791	9.9	89	-0.01
86	T 1,4-Dichlorobenzene	0.898	0.765	14.8	86	0.00
87	T sec-Butylbenzene	2.069	1.960	5.3	96	0.00
88	T 4-Isopropyltoluene (p-Cymen	1.988	1.876	5.6	97	0.00
89	T 1,2,3-Trimethylbenzene	1.533	1.499	2.2	98	0.00
90	T 1,2-Dichlorobenzene	0.832	0.775	6.9	93	0.00
91	T d-Limonene	0.488	0.587	-20.3	103	0.00
92	T 1,2-Dibromo-3-Chloropropane	0.289	0.298	-3.1	91	0.00
93	T n-Undecane	0.921	0.896	2.7	94	0.00
94	T 1,2,4-Trichlorobenzene	0.590	0.488	17.3	81	0.00
95	T Naphthalene	2.039	1.597	21.7	79	0.00
96	T n-Dodecane	0.801	0.792	1.1	95	0.00
97	T Hexachlorobutadiene	0.400	0.345	13.8	91	0.00
98	T Cyclohexanone	0.602	0.590	2.0	100	-0.01
99	T tert-Butylbenzene	1.516	1.474	2.8	99	0.00
100	T n-Butylbenzene	1.623	1.564	3.6	94	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data File: I:\MS08\Data\2019 04\08\04081902.D

Sample : CCV R8040819 25ng
 Acq On : 8 Apr 2019 8:07
 Misc : S31-04021901/S31-03131901 (4/11)
 ALS Vial : 1 Sample Multiplier: 1

Inst : MS08
 Operator: RS

RS 4/8/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 09:45:28 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.24	130	152680	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.36	114	667080	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.67	82	335822	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.09	65	268840	13.176	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	105.44%
57) Toluene-d8 (SS2)	15.81	98	754399	12.712	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.68%
73) Bromofluorobenzene (SS3)	19.05	174	254964	12.085	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.64%

Target Compounds

						Qvalue
2) Propene	4.16	42	304018	20.679	ng	99
3) Dichlorodifluoromethan...	4.31	85	475190	23.094	ng	100
4) Chloromethane	4.60	50	336670	18.535	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	232126	21.500	ng	100
6) Vinyl Chloride	5.03	62	362418	21.625	ng	100
7) 1,3-Butadiene	5.29	54	327832	21.580	ng	98
8) Bromomethane	5.74	94	198186	22.498	ng	100
9) Chloroethane	6.07	64	183574	22.312	ng	100
10) Ethanol	6.46	45	1024196	106.800	ng	100
11) Acetonitrile	6.70	41	551282	21.774	ng	100
12) Acrolein	6.89	56	164810	24.319	ng	100
13) Acetone	7.10	58	1044457	114.471	ng	97
14) Trichlorofluoromethane	7.33	101	422105	23.823	ng	100
15) 2-Propanol (Isopropanol)	7.60	45	1536427	48.173	ng	99
16) Acrylonitrile	7.86	53	359581	24.966	ng	100
17) 1,1-Dichloroethene	8.30	96	235029	23.841	ng	99
18) 2-Methyl-2-Propanol (t...	8.47	59	1505058	56.369	ng	98
19) Methylene Chloride	8.53	84	247636	24.377	ng	97
20) 3-Chloro-1-propene (Al...	8.69	41	464207	23.520	ng	97
21) Trichlorotrifluoroethane	8.94	151	212305	23.109	ng	98
22) Carbon Disulfide	8.79	76	892679	22.580	ng	100
23) trans-1,2-Dichloroethene	9.80	61	377657	25.915	ng	99
24) 1,1-Dichloroethane	10.05	63	437589	23.076	ng	100
25) Methyl tert-Butyl Ether	10.14	73	834950	27.138	ng	99
26) Vinyl Acetate	10.30	86	388695	134.699	ng	98
27) 2-Butanone (MEK)	10.55	72	192320	25.861	ng	94
28) cis-1,2-Dichloroethene	11.07	61	360519	24.042	ng	99
29) Diisopropyl Ether	11.36	87	277950	26.763	ng	# 95
30) Ethyl Acetate	11.36	61	200286	53.528	ng	99
31) n-Hexane	11.35	57	473223	24.702	ng	99
32) Chloroform	11.41	83	440808	24.539	ng	100
34) Tetrahydrofuran (THF)	11.81	72	181722	25.448	ng	96
35) Ethyl tert-Butyl Ether	11.95	87	337629	28.337	ng	97
36) 1,2-Dichloroethane	12.21	62	365934	25.226	ng	100
38) 1,1,1-Trichloroethane	12.49	97	413089	24.816	ng	100
39) Isopropyl Acetate	12.91	61	359208	49.157	ng	98
40) 1-Butanol	12.93	56	593209	51.041	ng	97
41) Benzene	12.97	78	1011913	22.603	ng	99
42) Carbon Tetrachloride	13.13	117	348837	23.527	ng	100
43) Cyclohexane	13.26	84	857812	46.173	ng	97
44) tert-Amyl Methyl Ether	13.60	73	790814	27.537	ng	98
45) 1,2-Dichloropropane	13.82	63	256703	23.781	ng	100
46) Bromodichloromethane	14.01	83	358587	25.502	ng	99
47) Trichloroethene	14.06	130	268846	23.013	ng	99
48) 1,4-Dioxane	14.03	88	218955	24.940	ng	98
49) 2,2,4-Trimethylpentane...	14.13	57	1174067	22.813	ng	99
50) Methyl Methacrylate	14.26	100	232753	54.656	ng	98

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Data File: I:\MS08\Data\2019 04\08\04081902.D

Sample : CCV R8040819 25ng

Acq On : 8 Apr 2019 8:07

Misc : S31-04021901/S31-03131901 (4/11)

ALS Vial : 1 Sample Multiplier: 1

Inst : MS08

Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 09:45:28 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

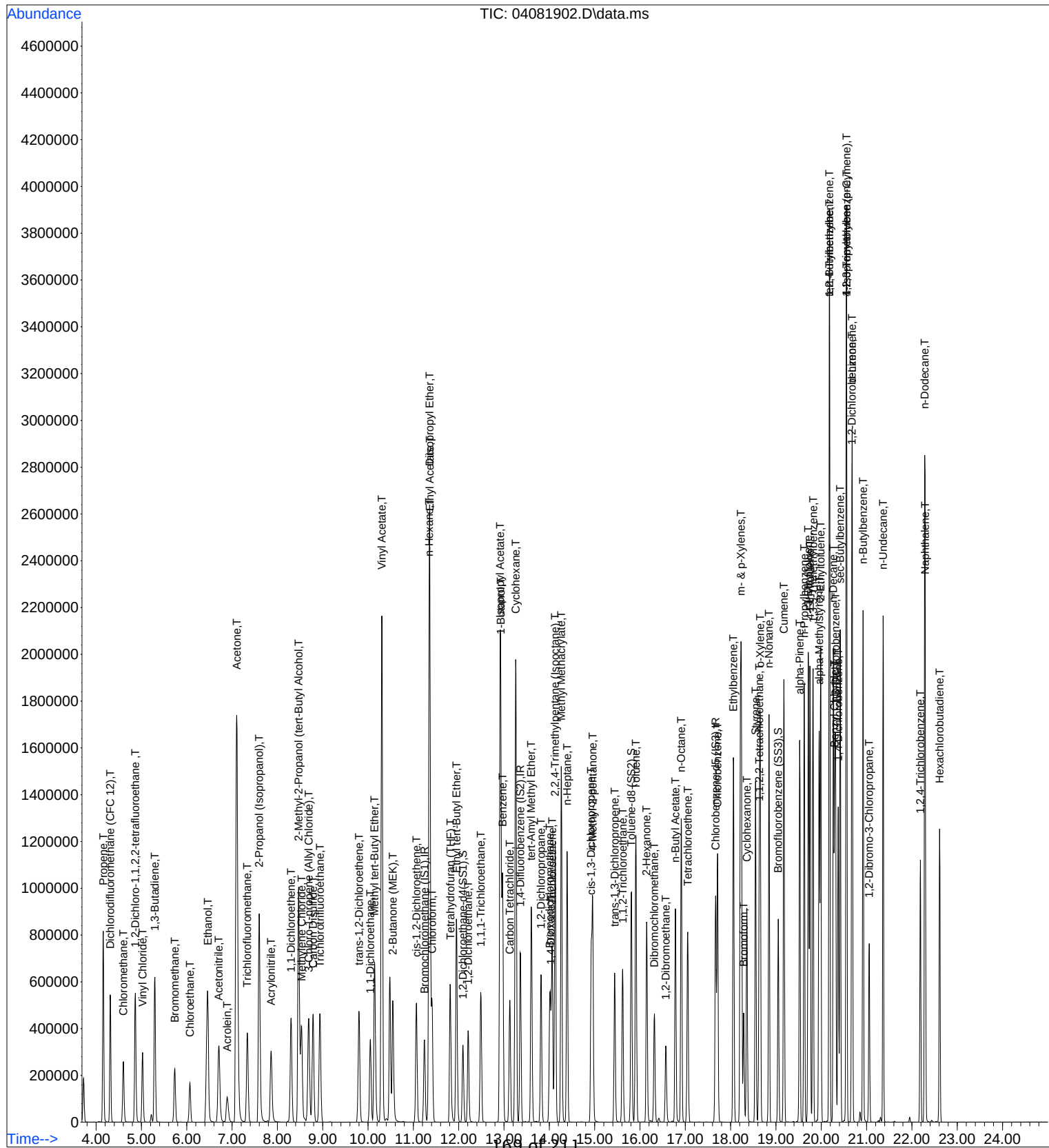
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	292848	24.337	ng	98
52) cis-1,3-Dichloropropene	14.92	75	450369	27.395	ng	100
53) 4-Methyl-2-pentanone	14.96	58	270288	26.897	ng	97
54) trans-1,3-Dichloropropene	15.44	75	388995	26.608	ng	100
55) 1,1,2-Trichloroethane	15.62	97	243501	24.900	ng	100
58) Toluene	15.91	91	1041263	23.894	ng	100
59) 2-Hexanone	16.15	43	696207	27.215	ng	99
60) Dibromochloromethane	16.32	129	294000	27.326	ng	100
61) 1,2-Dibromoethane	16.57	107	274940	26.213	ng	100
62) n-Butyl Acetate	16.78	43	781242	27.605	ng	99
63) n-Octane	16.91	57	250559	25.253	ng	98
64) Tetrachloroethene	17.05	166	284959	23.982	ng	100
65) Chlorobenzene	17.71	112	677053	23.721	ng	100
66) Ethylbenzene	18.06	91	1224312	24.487	ng	100
67) m- & p-Xylenes	18.23	91	1917646	49.898	ng	100
68) Bromoform	18.29	173	244762	27.526	ng	100
69) Styrene	18.55	104	742239	26.354	ng	99
70) o-Xylene	18.65	91	974831	25.193	ng	100
71) n-Nonane	18.85	43	634247	24.781	ng	99
72) 1,1,2,2-Tetrachloroethane	18.63	83	451943	26.352	ng	100
74) Cumene	19.17	105	1251431	24.995	ng	100
75) alpha-Pinene	19.52	93	631994	29.899	ng	99
76) n-Propylbenzene	19.63	91	1494753	25.645	ng	100
77) 3-Ethyltoluene	19.71	105	1279879	25.477	ng	100
78) 4-Ethyltoluene	19.75	105	1162361	24.968	ng	100
79) 1,3,5-Trimethylbenzene	19.82	105	1038189	24.610	ng	100
80) alpha-Methylstyrene	19.95	118	517132	27.393	ng	92
81) 2-Ethyltoluene	19.99	105	1239299	25.187	ng	100
82) 1,2,4-Trimethylbenzene	20.18	105	1064175	26.295	ng	100
83) n-Decane	20.27	57	622968	25.809	ng	100
84) Benzyl Chloride	20.29	91	855766	27.265	ng	100
85) 1,3-Dichlorobenzene	20.31	146	573767	24.311	ng	100
86) 1,4-Dichlorobenzene	20.37	146	555435	23.019	ng	100
87) sec-Butylbenzene	20.42	105	1399464	25.175	ng	100
88) 4-Isopropyltoluene (p-...	20.56	119	1312773	24.575	ng	100
89) 1,2,3-Trimethylbenzene	20.56	105	1048744	25.465	ng	100
90) 1,2-Dichlorobenzene	20.68	146	566871	25.364	ng	100
91) d-Limonene	20.68	68	398148	30.348	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.06	157	208559	26.905	ng	98
93) n-Undecane	21.36	57	635885	25.703	ng	100
94) 1,2,4-Trichlorobenzene	22.19	180	348829	22.016	ng	100
95) Naphthalene	22.29	128	1099172	20.069	ng	100
96) n-Dodecane	22.28	57	548452	25.488	ng	100
97) Hexachlorobutadiene	22.61	225	244049	22.727	ng	100
98) Cyclohexanone	18.36	55	388990	24.042	ng	99
99) tert-Butylbenzene	20.18	119	1056383	25.932	ng	100
100) n-Butylbenzene	20.92	91	1117734	25.636	ng	100

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

Sample : CCV R8040819 25ng
Acq On : 8 Apr 2019 8:07
Misc : S31-04021901/S31-03131901 (4/11)
ALS Vial : 1 Sample Multiplier: 1

Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Quant Time: Apr 08 09:45:28 2019
Quant Method : I:\MS08\Methods\R8021819A.M
QLast Update : Tue Feb 19 08:36:45 2019
Response via : Initial Calibration



ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

ALS Project ID: P1901724

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

Internal Standard Area and RT Summary

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Lab File ID: 04041902.D

Analyst: Raneem Sahtah

Date Analyzed: 4/4/19

Sample Type: 6.0 L Summa Canister(s)

Time Analyzed: 01:24

Test Notes:

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	# RT	AREA	# RT	AREA	# RT
24 Hour Standard	175251	11.24	753235	13.36	379256	17.67
Upper Limit	245351	11.57	1054529	13.69	530958	18.00
Lower Limit	105151	10.91	451941	13.03	227554	17.34

Client Sample ID		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA	# RT	AREA	# RT	AREA	# RT
01	Method Blank	156615	11.22	696508	13.35	341237	17.67
02	SS-17	156758	11.25	685783	13.36	331952	17.67
03	SS-3	150283	11.23	658473	13.36	320545	17.67
04	SS-1	149101	11.23	651052	13.36	316913	17.67
05	SS-14	155968	11.23	677965	13.36	337730	17.67
06	Lab Control Sample	162353	11.24	697801	13.36	348634	17.67
07	SS-15	152862	11.23	659848	13.35	340773	17.67
08	SS-18	151809	11.23	649918	13.36	332610	17.67
09	SS-16	149498	11.23	640186	13.36	317757	17.67
10	WSP USA TRIP BLANK	140331	11.23	619603	13.35	315047	17.67
11							
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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

ALS Project ID: P1901724

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

Internal Standard Area and RT Summary

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Lab File ID: 04051902.D

Analyst: Raneem Sahtah

Date Analyzed: 4/5/19

Sample Type: 6.0 L Summa Canister(s)

Time Analyzed: 05:03

Test Notes:

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	#	RT	#	AREA	#
24 Hour Standard	153028		11.24		663638	13.36
Upper Limit	214239		11.57		929093	13.69
Lower Limit	91817		10.91		398183	13.03

Client Sample ID		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA	#	RT	#	AREA	#
01	Method Blank	137688		11.23		606868	13.35
02	SS-12	144867		11.22		633308	13.35
03	SS-100	139266		11.22		604001	13.35
04	Lab Control Sample	154062		11.25		664950	13.36
05	SS-1 (Dilution)	132656		11.23		585472	13.35
06							
07							
08							
09							
10							
11							
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.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

ALS Project ID: P1901724

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

Internal Standard Area and RT Summary

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Lab File ID: 04081902.D

Analyst: Raneem Sahtah

Date Analyzed: 4/8/19

Sample Type: 6.0 L Summa Canister(s)

Time Analyzed: 08:07

Test Notes:

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	#	RT	#	AREA	#
24 Hour Standard	152680	11.24	667080	13.36	335822	17.67
Upper Limit	213752	11.57	933912	13.69	470151	18.00
Lower Limit	91608	10.91	400248	13.03	201493	17.34

Client Sample ID		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA	#	RT	#	AREA	#
01	Method Blank	141267	11.22	630505	13.35	314297	17.67
02	Lab Control Sample	148184	11.24	645518	13.36	321532	17.67
03	SS-3 (Dilution)	146177	11.23	642051	13.35	316577	17.67
04							
05							
06							
07							
08							
09							
10							
11							
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

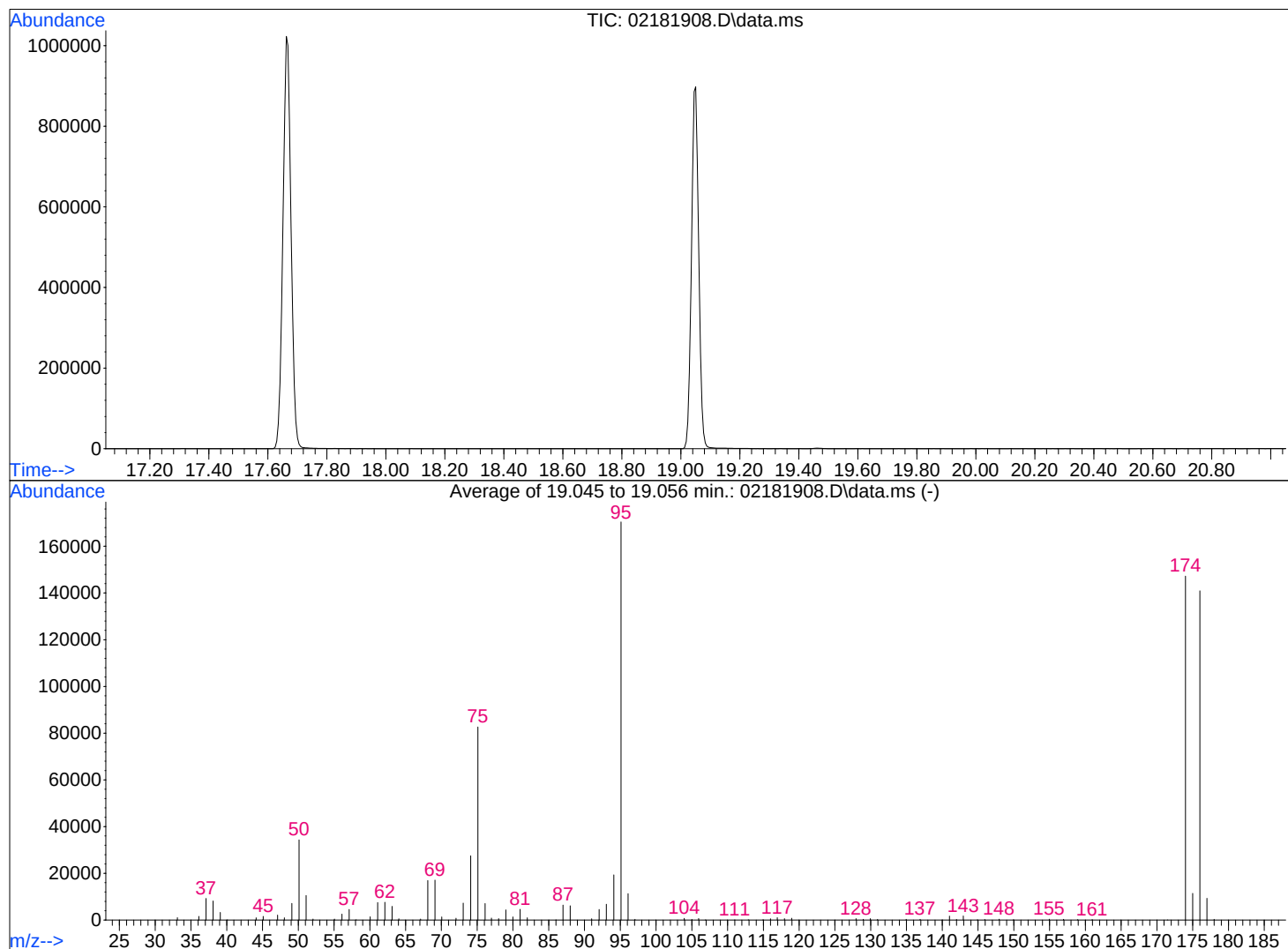
Column used to flag values outside QC limits with an I.

I = Internal standard not within the specified limits.

Data Path : I:\MS08\Data\2019 02\18\
 Data File : 02181908.D
 Acq On : 18 Feb 2019 12:01
 Operator : RS
 Sample : BFB Check
 Misc : S31-02071907
 ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS08\Methods\R8021819A.M
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 Last Update : Tue Feb 19 08:36:45 2019



AutoFind: Scans 2852, 2853, 2854; Background Corrected with Scan 2844

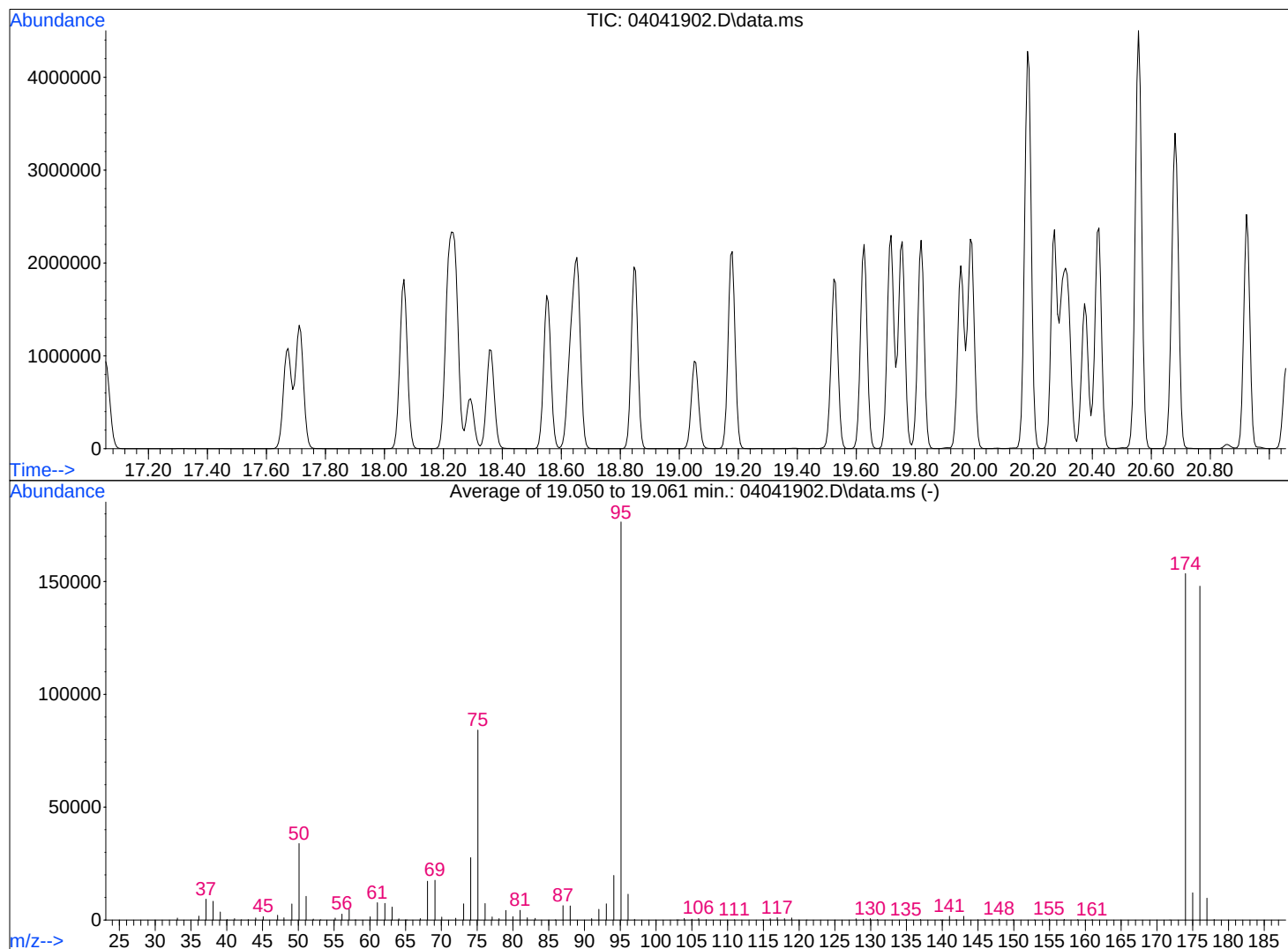
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	20.1	34328	PASS
75	95	30	66	48.5	82621	PASS
95	95	100	100	100.0	170411	PASS
96	95	5	9	6.7	11333	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	86.4	147200	PASS
175	174	4	9	7.8	11415	PASS
176	174	93	101	95.7	140936	PASS
177	176	5	9	6.6	9330	PASS

RS 2/21/19

Data Path : I:\MS08\Data\2019 04\04\
 Data File : 04041902.D
 Acq On : 4 Apr 2019 1:24
 Operator : RS
 Sample : CCV R8040419 25ng
 Misc : S31-04021901/S31-03131901 (4/11)
 ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS08\Methods\R8021819A.M
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 Last Update : Tue Feb 19 08:36:45 2019



AutoFind: Scans 2853, 2854, 2855; Background Corrected with Scan 2845

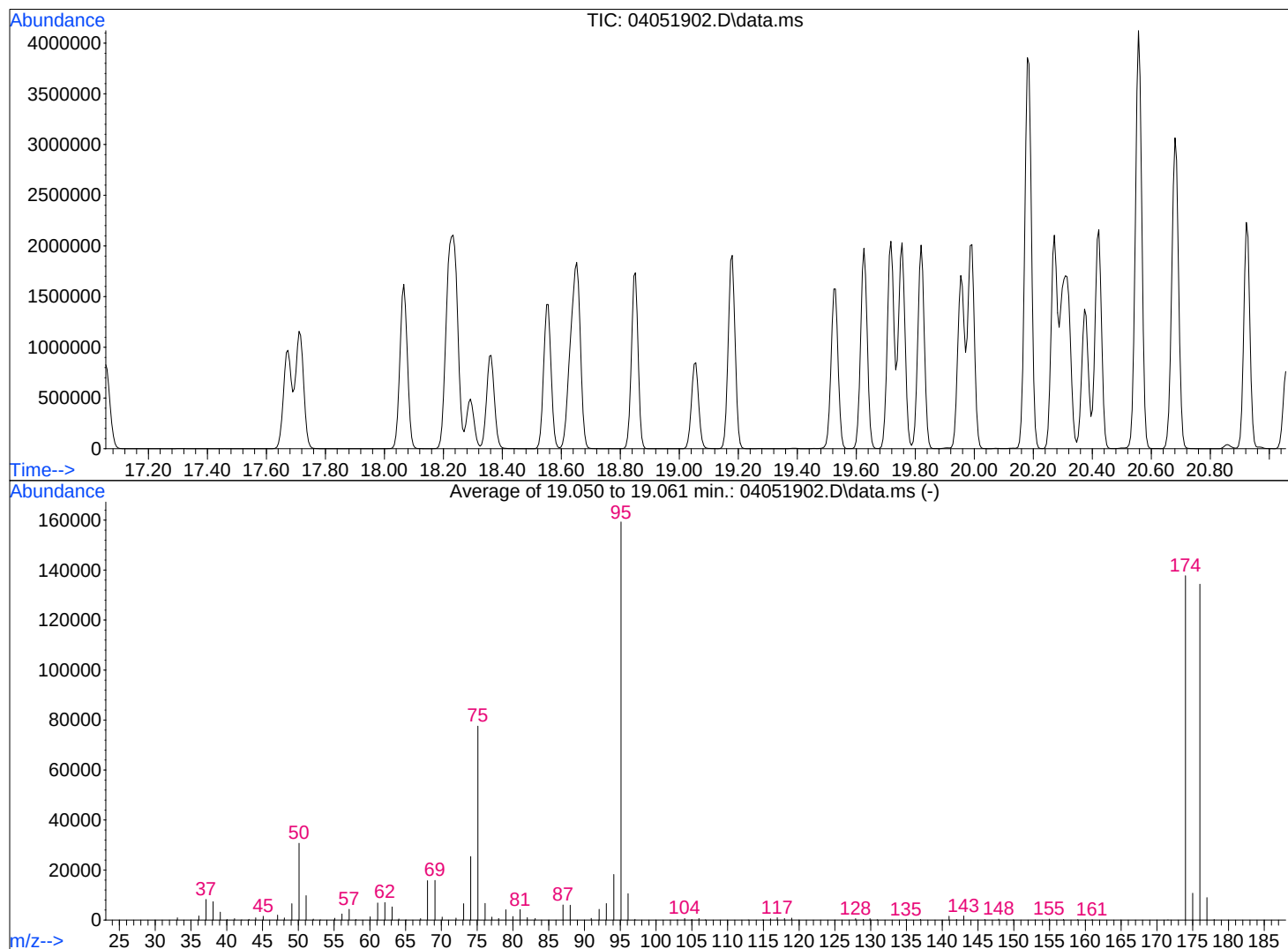
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	19.2	33864	PASS
75	95	30	66	47.7	84152	PASS
95	95	100	100	100.0	176405	PASS
96	95	5	9	6.5	11473	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	87.0	153515	PASS
175	174	4	9	7.8	12040	PASS
176	174	93	101	96.4	147989	PASS
177	176	5	9	6.6	9706	PASS

RS 4/4/19

Data Path : I:\MS08\Data\2019 04\05\
 Data File : 04051902.D
 Acq On : 5 Apr 2019 5:03
 Operator : RS
 Sample : CCV R8040519 25ng
 Misc : S31-04021901/S31-03131901 (4/11)
 ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS08\Methods\R8021819A.M
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 Last Update : Tue Feb 19 08:36:45 2019



AutoFind: Scans 2853, 2854, 2855; Background Corrected with Scan 2845

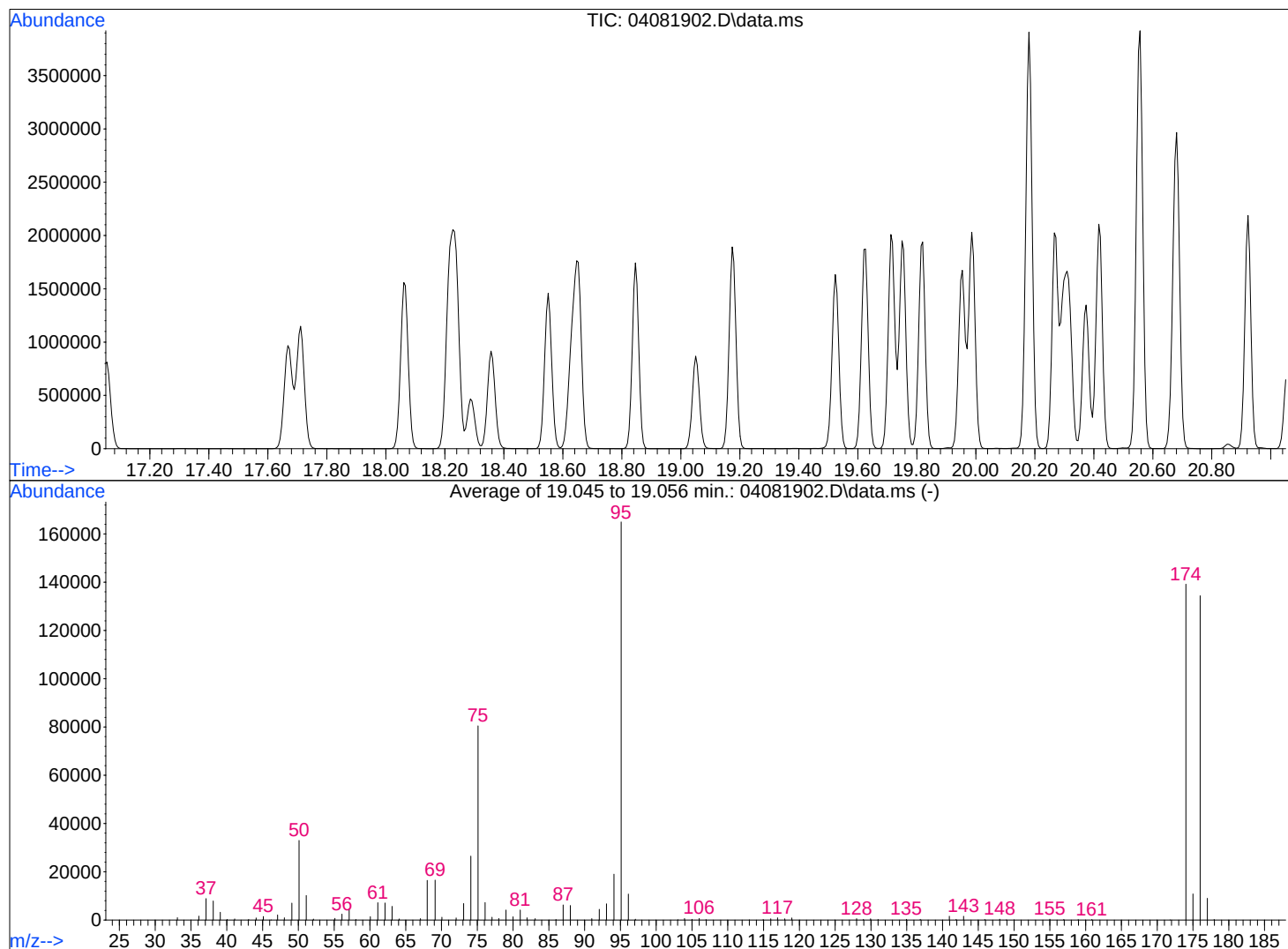
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	19.3	30720	PASS
75	95	30	66	48.7	77579	PASS
95	95	100	100	100.0	159253	PASS
96	95	5	9	6.6	10578	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	86.5	137744	PASS
175	174	4	9	7.8	10721	PASS
176	174	93	101	97.6	134371	PASS
177	176	5	9	6.7	8952	PASS

RS 4/5/19

Data Path : I:\MS08\Data\2019 04\08\
 Data File : 04081902.D
 Acq On : 8 Apr 2019 8:07
 Operator : RS
 Sample : CCV R8040819 25ng
 Misc : S31-04021901/S31-03131901 (4/11)
 ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS08\Methods\R8021819A.M
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 Last Update : Tue Feb 19 08:36:45 2019



AutoFind: Scans 2852, 2853, 2854; Background Corrected with Scan 2844

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	20.0	33011	PASS
75	95	30	66	48.8	80501	PASS
95	95	100	100	100.0	164971	PASS
96	95	5	9	6.5	10783	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	84.4	139173	PASS
175	174	4	9	7.8	10853	PASS
176	174	93	101	96.6	134389	PASS
177	176	5	9	6.7	9008	PASS

RS 4/8/19

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group
Client Sample ID: Method Blank
Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

ALS Project ID: P1901724
 ALS Sample ID: P190404-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/4/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	MDL µg/m ³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.11	0.057	ND	0.043	0.022	
75-35-4	1,1-Dichloroethene	ND	0.11	0.074	ND	0.028	0.019	
75-09-2	Methylene Chloride	ND	0.54	0.15	ND	0.16	0.043	
156-59-2	cis-1,2-Dichloroethene	ND	0.11	0.075	ND	0.028	0.019	
71-55-6	1,1,1-Trichloroethane	ND	0.11	0.066	ND	0.020	0.012	
56-23-5	Carbon Tetrachloride	ND	0.10	0.074	ND	0.016	0.012	
79-01-6	Trichloroethene	ND	0.11	0.072	ND	0.020	0.013	
127-18-4	Tetrachloroethene	ND	0.11	0.069	ND	0.016	0.010	

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.

Data File: I:\MS08\Data\2019 04\04\04041906.D

Sample : MB R8040419 1000mL

Acq On : 4 Apr 2019 9:03

Misc : S31-04021901

ALS Vial : 1 Sample Multiplier: 1

Inst : MS08

Operator: RS

RS 4/4/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 04 09:45:01 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	156615	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	13.35	114	696508	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.67	82	341237	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	276827	13.227	ng	-0.03
Spiked Amount	12.500	Range 70 - 130	Recovery	=	105.84%	
57) Toluene-d8 (SS2)	15.81	98	780903	12.950	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	103.60%	
73) Bromofluorobenzene (SS3)	19.05	174	246823	11.513	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	92.08%	

Target Compounds

						Qvalue
2) Propene	0.00	42	0	N.D.		
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.46	45	2293	0.233	ng	88
11) Acetonitrile	0.00	41	0	N.D.	d	
12) Acrolein	0.00	56	0	N.D.		
13) Acetone	7.15	58	2097	0.224	ng	# 82
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	0.00	45	0	N.D.		
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.		
19) Methylene Chloride	0.00	84	0	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	0.00	76	0	N.D.	d	
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.97	78	1275	0.027	ng	# 52
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	0.00	84	0	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	0.00	130	0	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		
50) Methyl Methacrylate	0.00	100	0	N.D.		

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Data File: I:\MS08\Data\2019 04\04\04041906.D

Sample : MB R8040419 1000mL

Inst : MS08

Acq On : 4 Apr 2019 9:03

Operator: RS

Misc : S31-04021901

ALS Vial : 1 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 04 09:45:01 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	0.00	91	0	N.D.	d	
59) 2-Hexanone	0.00	43	0	N.D.	d	
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	0.00	91	0	N.D.	d	
67) m- & p-Xylenes	0.00	91	0	N.D.	d	
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	0.00	104	0	N.D.		
70) o-Xylene	0.00	91	0	N.D.	d	
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	0.00	105	0	N.D.	d	
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	0.00	91	0	N.D.	d	
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	0.00	105	0	N.D.	d	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	d	
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.	d	
83) n-Decane	0.00	57	0	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D.	d	
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	d	
87) sec-Butylbenzene	0.00	105	0	N.D.	d	
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.20	180	363	0.023	ng #	85
95) Naphthalene	22.30	128	2746	0.049	ng #	71
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS08\Data\2019 04\04\04041906.D

Sample : MB R8040419 1000mL

Acq On : 4 Apr 2019 9:03

Misc : S31-04021901

ALS Vial : 1 Sample Multiplier: 1

Inst : MS08

Operator: RS

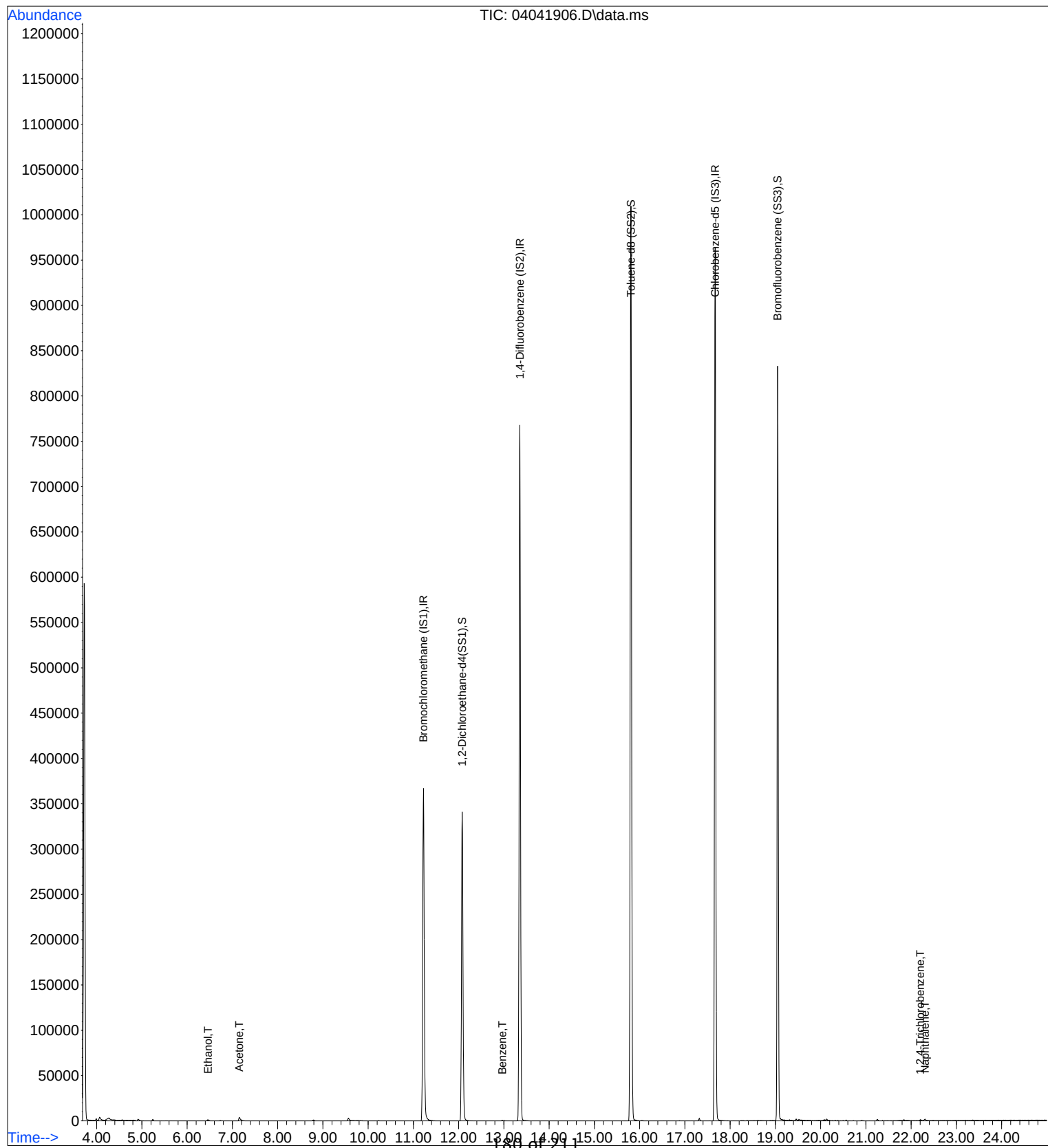
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 04 09:45:01 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group
Client Sample ID: Method Blank
Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

ALS Project ID: P1901724
 ALS Sample ID: P190405-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8
Analyst: Raneem Sahtah
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/5/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	MDL µg/m ³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.11	0.057	ND	0.043	0.022	
75-35-4	1,1-Dichloroethene	ND	0.11	0.074	ND	0.028	0.019	
75-09-2	Methylene Chloride	ND	0.54	0.15	ND	0.16	0.043	
156-59-2	cis-1,2-Dichloroethene	ND	0.11	0.075	ND	0.028	0.019	
71-55-6	1,1,1-Trichloroethane	ND	0.11	0.066	ND	0.020	0.012	
56-23-5	Carbon Tetrachloride	ND	0.10	0.074	ND	0.016	0.012	
79-01-6	Trichloroethene	ND	0.11	0.072	ND	0.020	0.013	
127-18-4	Tetrachloroethene	ND	0.11	0.069	ND	0.016	0.010	

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.

Data File: I:\MS08\Data\2019 04\05\04051903.D

Sample : MB R8040519 1000mL

Inst : MS08

Acq On : 5 Apr 2019 5:36

Operator: RS

Misc : S31-04021901

ALS Vial : 1 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

RS 4/5/19

Quant Time: Apr 05 14:27:02 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.23	130	137688	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.35	114	606868	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.67	82	302201	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	245310	13.332	ng	-0.02
Spiked Amount	12.500	Range 70	- 130	Recovery	=	106.64%
57) Toluene-d8 (SS2)	15.81	98	689868	12.918	ng	0.00
Spiked Amount	12.500	Range 70	- 130	Recovery	=	103.36%
73) Bromofluorobenzene (SS3)	19.06	174	219989	11.587	ng	0.00
Spiked Amount	12.500	Range 70	- 130	Recovery	=	92.72%

Target Compounds

						Qvalue
2) Propene	0.00	42	0	N.D.		
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.45	45	4200	0.486	ng	89
11) Acetonitrile	6.71	41	2007	0.088	ng	98
12) Acrolein	0.00	56	0	N.D.		
13) Acetone	7.15	58	2344	0.285	ng	# 71
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	0.00	45	0	N.D.	d	
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.		
19) Methylene Chloride	0.00	84	0	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	0.00	76	0	N.D.	d	
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.97	78	1162	0.029	ng	70
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	0.00	84	0	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	0.00	130	0	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		
50) Methyl Methacrylate	0.00	100	0	N.D.		

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Data File: I:\MS08\Data\2019 04\05\04051903.D

Sample : MB R8040519 1000mL

Inst : MS08

Acq On : 5 Apr 2019 5:36

Operator: RS

Misc : S31-04021901

ALS Vial : 1 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 14:27:02 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	0.00	91	0	N.D.	d	
59) 2-Hexanone	0.00	43	0	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	0.00	91	0	N.D.		
67) m- & p-Xylenes	0.00	91	0	N.D.	d	
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	0.00	104	0	N.D.		
70) o-Xylene	0.00	91	0	N.D.	d	
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	0.00	105	0	N.D.	d	
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	19.63	91	988	0.019 ng	#	57
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	0.00	105	0	N.D.	d	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	d	
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.	d	
83) n-Decane	0.00	57	0	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D.	d	
85) 1,3-Dichlorobenzene	20.33	146	430	0.020 ng	#	18
86) 1,4-Dichlorobenzene	20.38	146	555	0.026 ng		86
87) sec-Butylbenzene	0.00	105	0	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.69	146	120	0.006 ng	#	18
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.19	180	455	0.032 ng	#	81
95) Naphthalene	0.00	128	0	N.D.	d	
96) n-Dodecane	22.29	57	333	0.017 ng	#	62
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS08\Data\2019 04\05\04051903.D

Sample : MB R8040519 1000mL

Acq On : 5 Apr 2019 5:36

Misc : S31-04021901

ALS Vial : 1 Sample Multiplier: 1

Inst : MS08

Operator: RS

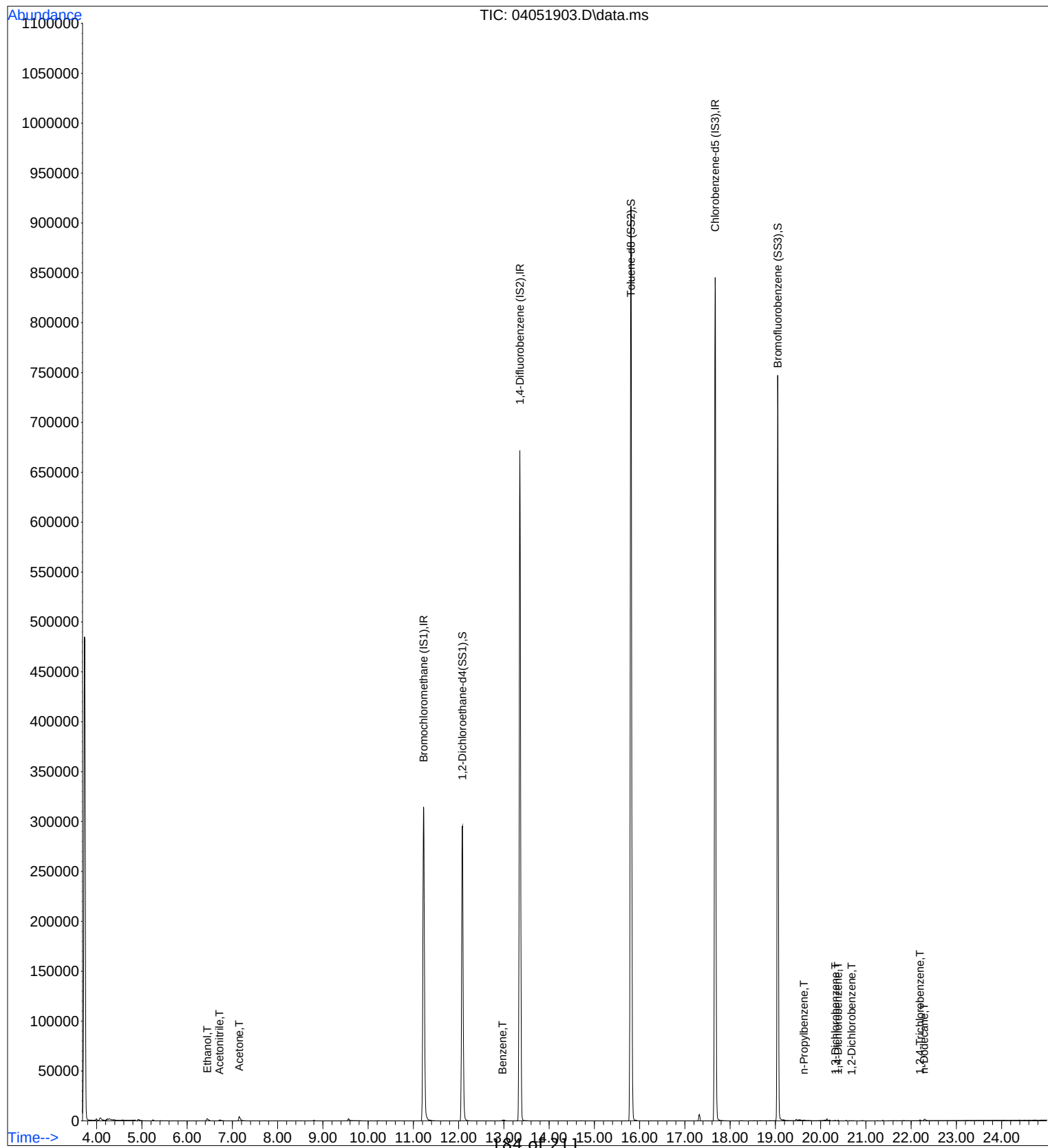
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 14:27:02 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: WSP Group

Client Sample ID: Method Blank

Client Project ID: Former Rollway Bearing Corporation / 31401545.018..05

ALS Project ID: P1901724

ALS Sample ID: P190408-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8

Analyst: Raneem Sahtah

Sample Type: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 4/8/19

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	MDL µg/m ³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.11	0.057	ND	0.043	0.022	
75-35-4	1,1-Dichloroethene	ND	0.11	0.074	ND	0.028	0.019	
75-09-2	Methylene Chloride	ND	0.54	0.15	ND	0.16	0.043	
156-59-2	cis-1,2-Dichloroethene	ND	0.11	0.075	ND	0.028	0.019	
71-55-6	1,1,1-Trichloroethane	ND	0.11	0.066	ND	0.020	0.012	
56-23-5	Carbon Tetrachloride	ND	0.10	0.074	ND	0.016	0.012	
79-01-6	Trichloroethene	ND	0.11	0.072	ND	0.020	0.013	
127-18-4	Tetrachloroethene	ND	0.11	0.069	ND	0.016	0.010	

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.

Data File: I:\MS08\Data\2019 04\08\04081903.D

Sample : MB R8040819 1000mL

Acq On : 8 Apr 2019 8:56

Misc : S31-04021901

ALS Vial : 1 Sample Multiplier: 1

Inst : MS08

Operator: RS

RS 4/8/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 09:46:34 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	141267	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	13.35	114	630505	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.67	82	314297	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.08	65	252637	13.382	ng	-0.03
Spiked Amount	12.500	Range 70 - 130	Recovery	=	107.04%	
57) Toluene-d8 (SS2)	15.81	98	714515	12.864	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	102.88%	
73) Bromofluorobenzene (SS3)	19.05	174	227505	11.522	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	92.16%	

Target Compounds

						Qvalue
2) Propene	0.00	42	0	N.D.		
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.45	45	2340	0.264	ng	92
11) Acetonitrile	0.00	41	0	N.D.	d	
12) Acrolein	0.00	56	0	N.D.		
13) Acetone	7.16	58	2097	0.248	ng	95
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	0.00	45	0	N.D.	d	
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.		
19) Methylene Chloride	0.00	84	0	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	0.00	76	0	N.D.	d	
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.		
41) Benzene	0.00	78	0	N.D.	d	
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	0.00	84	0	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	0.00	130	0	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		
50) Methyl Methacrylate	0.00	100	0	N.D.		

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Data File: I:\MS08\Data\2019 04\08\04081903.D

Sample : MB R8040819 1000mL

Acq On : 8 Apr 2019 8:56

Misc : S31-04021901

ALS Vial : 1 Sample Multiplier: 1

Inst : MS08

Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 09:46:34 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	0.00	91	0	N.D.	d	
59) 2-Hexanone	0.00	43	0	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	0.00	91	0	N.D.	d	
67) m- & p-Xylenes	0.00	91	0	N.D.	d	
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	0.00	104	0	N.D.		
70) o-Xylene	0.00	91	0	N.D.	d	
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	0.00	105	0	N.D.	d	
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	0.00	91	0	N.D.	d	
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	0.00	105	0	N.D.	d	
79) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.	d	
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.	d	
83) n-Decane	0.00	57	0	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d	
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.	d	
87) sec-Butylbenzene	0.00	105	0	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	0.00	128	0	N.D.	d	
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	0.00	91	0	N.D.		

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

Data File: I:\MS08\Data\2019 04\08\04081903.D

Sample : MB R8040819 1000mL

Acq On : 8 Apr 2019 8:56

Misc : S31-04021901

ALS Vial : 1 Sample Multiplier: 1

Inst : MS08

Operator: RS

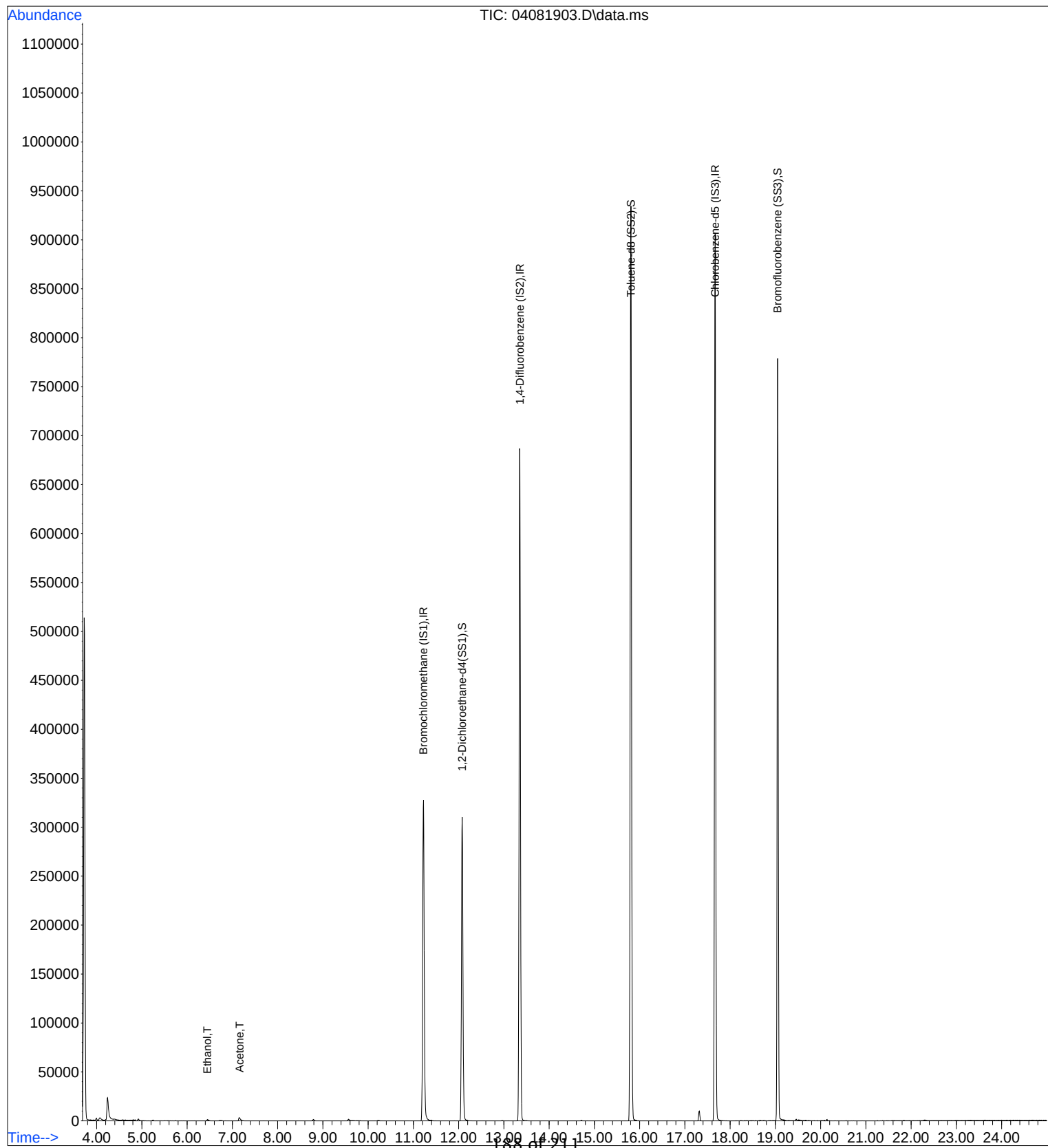
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 09:46:34 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client:	WSP Group	
Client Sample ID:	Lab Control Sample	ALS Project ID: P1901724
Client Project ID:	Former Rollway Bearing Corporation / 31401545.018..05	ALS Sample ID: P190404-LCS
Test Code:	EPA TO-15	Date Collected: NA
Instrument ID:	Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8	Date Received: NA
Analyst:	Raneem Sahtah	Date Analyzed: 4/4/19
Sample Type:	6.0 L Summa Canister	Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:		

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	214	174	81	57-117	
75-35-4	1,1-Dichloroethene	218	193	89	68-107	
75-09-2	Methylene Chloride	217	198	91	66-105	
156-59-2	cis-1,2-Dichloroethene	211	190	90	67-110	
71-55-6	1,1,1-Trichloroethane	215	196	91	64-108	
56-23-5	Carbon Tetrachloride	212	192	91	64-112	
79-01-6	Trichloroethene	213	185	87	66-108	
127-18-4	Tetrachloroethene	213	195	92	55-120	

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.

Data File: I:\MS08\Data\2019 04\04\04041925.D

Sample : LCS R8040419 25ng Inst : MS08
 Acq On : 4 Apr 2019 19:42 Operator: RS
 Misc : S31-04021901/S31-03071901 (4/5)
 ALS Vial : 1 Sample Multiplier: 1

RS 4/5/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:42 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.24	130	162353	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.36	114	697801	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.67	82	348634	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.09	65	277320	12.782	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	102.24%
57) Toluene-d8 (SS2)	15.81	98	784140	12.727	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.84%
73) Bromofluorobenzene (SS3)	19.06	174	263012	12.008	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.08%

Target Compounds

						Qvalue
2) Propene	4.15	42	328443	21.010	ng	99
3) Dichlorodifluoromethan...	4.31	85	502195	22.953	ng	100
4) Chloromethane	4.60	50	362029	18.743	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	248562	21.650	ng	100
6) Vinyl Chloride	5.02	62	387131	21.723	ng	99
7) 1,3-Butadiene	5.29	54	342645	21.212	ng	98
8) Bromomethane	5.73	94	224428	23.959	ng	100
9) Chloroethane	6.06	64	202863	23.187	ng	99
10) Ethanol	6.46	45	1129756	110.789	ng	100
11) Acetonitrile	6.70	41	591404	21.967	ng	100
12) Acrolein	6.89	56	183888	25.517	ng	100
13) Acetone	7.10	58	1109356	114.340	ng	99
14) Trichlorofluoromethane	7.33	101	448188	23.788	ng	100
15) 2-Propanol (Isopropanol)	7.59	45	1665115	49.097	ng	100
16) Acrylonitrile	7.86	53	389346	25.422	ng	100
17) 1,1-Dichloroethene	8.30	96	252419	24.080	ng	98
18) 2-Methyl-2-Propanol (t...	8.47	59	1608801	56.664	ng	98
19) Methylene Chloride	8.53	84	266905	24.709	ng	95
20) 3-Chloro-1-propene (Al...	8.69	41	516831	24.627	ng	97
21) Trichlorotrifluoroethane	8.94	151	227628	23.301	ng	99
22) Carbon Disulfide	8.79	76	954809	22.713	ng	100
23) trans-1,2-Dichloroethene	9.80	61	398851	25.739	ng	99
24) 1,1-Dichloroethane	10.05	63	480824	23.845	ng	100
25) Methyl tert-Butyl Ether	10.14	73	879311	26.877	ng	99
26) Vinyl Acetate	10.30	86	416605	135.769	ng	# 94
27) 2-Butanone (MEK)	10.55	72	206049	26.056	ng	93
28) cis-1,2-Dichloroethene	11.07	61	379371	23.792	ng	98
29) Diisopropyl Ether	11.36	87	290141	26.273	ng	# 94
30) Ethyl Acetate	11.36	61	210381	52.876	ng	99
31) n-Hexane	11.35	57	485929	23.854	ng	99
32) Chloroform	11.41	83	459729	24.067	ng	100
34) Tetrahydrofuran (THF)	11.81	72	193993	25.548	ng	95
35) Ethyl tert-Butyl Ether	11.95	87	354003	27.941	ng	97
36) 1,2-Dichloroethane	12.21	62	384470	24.925	ng	100
38) 1,1,1-Trichloroethane	12.49	97	426153	24.474	ng	99
39) Isopropyl Acetate	12.92	61	381640	49.928	ng	97
40) 1-Butanol	12.93	56	708839	58.305	ng	92
41) Benzene	12.97	78	1072994	22.912	ng	99
42) Carbon Tetrachloride	13.13	117	373052	24.053	ng	100
43) Cyclohexane	13.26	84	894322	46.019	ng	97
44) tert-Amyl Methyl Ether	13.61	73	824394	27.442	ng	98
45) 1,2-Dichloropropane	13.82	63	269377	23.857	ng	99
46) Bromodichloromethane	14.01	83	377903	25.693	ng	100
47) Trichloroethene	14.06	130	283168	23.172	ng	100
48) 1,4-Dioxane	14.04	88	239443	26.073	ng	98
49) 2,2,4-Trimethylpentane...	14.13	57	1233312	22.910	ng	99
50) Methyl Methacrylate	14.27	100	248948	55.885	ng	97

190 01 211

Data File: I:\MS08\Data\2019 04\04\04041925.D

Sample : LCS R8040419 25ng Inst : MS08
 Acq On : 4 Apr 2019 19:42 Operator: RS
 Misc : S31-04021901/S31-03071901 (4/5)
 ALS Vial : 1 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:42 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.40	71	302330	24.019	ng	98
52) cis-1,3-Dichloropropene	14.92	75	455615	26.494	ng	100
53) 4-Methyl-2-pentanone	14.96	58	292642	27.840	ng	97
54) trans-1,3-Dichloropropene	15.45	75	428005	27.987	ng	100
55) 1,1,2-Trichloroethane	15.62	97	255099	24.937	ng	100
58) Toluene	15.91	91	1081588	23.907	ng	99
59) 2-Hexanone	16.15	43	781273	29.418	ng	99
60) Dibromochloromethane	16.32	129	310426	27.793	ng	99
61) 1,2-Dibromoethane	16.57	107	296239	27.206	ng	99
62) n-Butyl Acetate	16.79	43	880300	29.963	ng	99
63) n-Octane	16.91	57	259425	25.186	ng	98
64) Tetrachloroethene	17.05	166	300094	24.327	ng	100
65) Chlorobenzene	17.71	112	719525	24.283	ng	100
66) Ethylbenzene	18.07	91	1276583	24.594	ng	100
67) m- & p-Xylenes	18.23	91	1983108	49.705	ng	99
68) Bromoform	18.29	173	256148	27.748	ng	100
69) Styrene	18.56	104	814250	27.849	ng	99
70) o-Xylene	18.65	91	1016851	25.313	ng	99
71) n-Nonane	18.85	43	663095	24.956	ng	100
72) 1,1,2,2-Tetrachloroethane	18.63	83	468378	26.307	ng	100
74) Cumene	19.18	105	1308446	25.173	ng	100
75) alpha-Pinene	19.52	93	670309	30.546	ng	99
76) n-Propylbenzene	19.63	91	1569284	25.934	ng	100
77) 3-Ethyltoluene	19.72	105	1270027	24.352	ng	100
78) 4-Ethyltoluene	19.76	105	1306563	27.035	ng	100
79) 1,3,5-Trimethylbenzene	19.82	105	1083254	24.734	ng	100
80) alpha-Methylstyrene	19.95	118	618616	31.564	ng	99
81) 2-Ethyltoluene	19.99	105	1293876	25.330	ng	100
82) 1,2,4-Trimethylbenzene	20.18	105	1116684	26.578	ng	100
83) n-Decane	20.27	57	656092	26.182	ng	99
84) Benzyl Chloride	20.30	91	1004634	30.831	ng	100
85) 1,3-Dichlorobenzene	20.32	146	629967	25.711	ng	100
86) 1,4-Dichlorobenzene	20.37	146	632881	25.264	ng	100
87) sec-Butylbenzene	20.42	105	1462382	25.340	ng	100
88) 4-Isopropyltoluene (p-...	20.56	119	1402391	25.287	ng	100
89) 1,2,3-Trimethylbenzene	20.56	105	1146258	26.810	ng	99
90) 1,2-Dichlorobenzene	20.67	146	611128	26.339	ng	100
91) d-Limonene	20.69	68	457007	33.554	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.06	157	234458	29.134	ng	98
93) n-Undecane	21.37	57	677621	26.383	ng	100
94) 1,2,4-Trichlorobenzene	22.19	180	441473	26.840	ng	100
95) Naphthalene	22.29	128	1495714	26.306	ng	100
96) n-Dodecane	22.28	57	624263	27.945	ng	100
97) Hexachlorobutadiene	22.61	225	256233	22.985	ng	100
98) Cyclohexanone	18.36	55	465007	27.684	ng	99
99) tert-Butylbenzene	20.18	119	1103570	26.095	ng	100
100) n-Butylbenzene	20.92	91	1191303	26.319	ng	100

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

Inst : MS08
Operator: RS

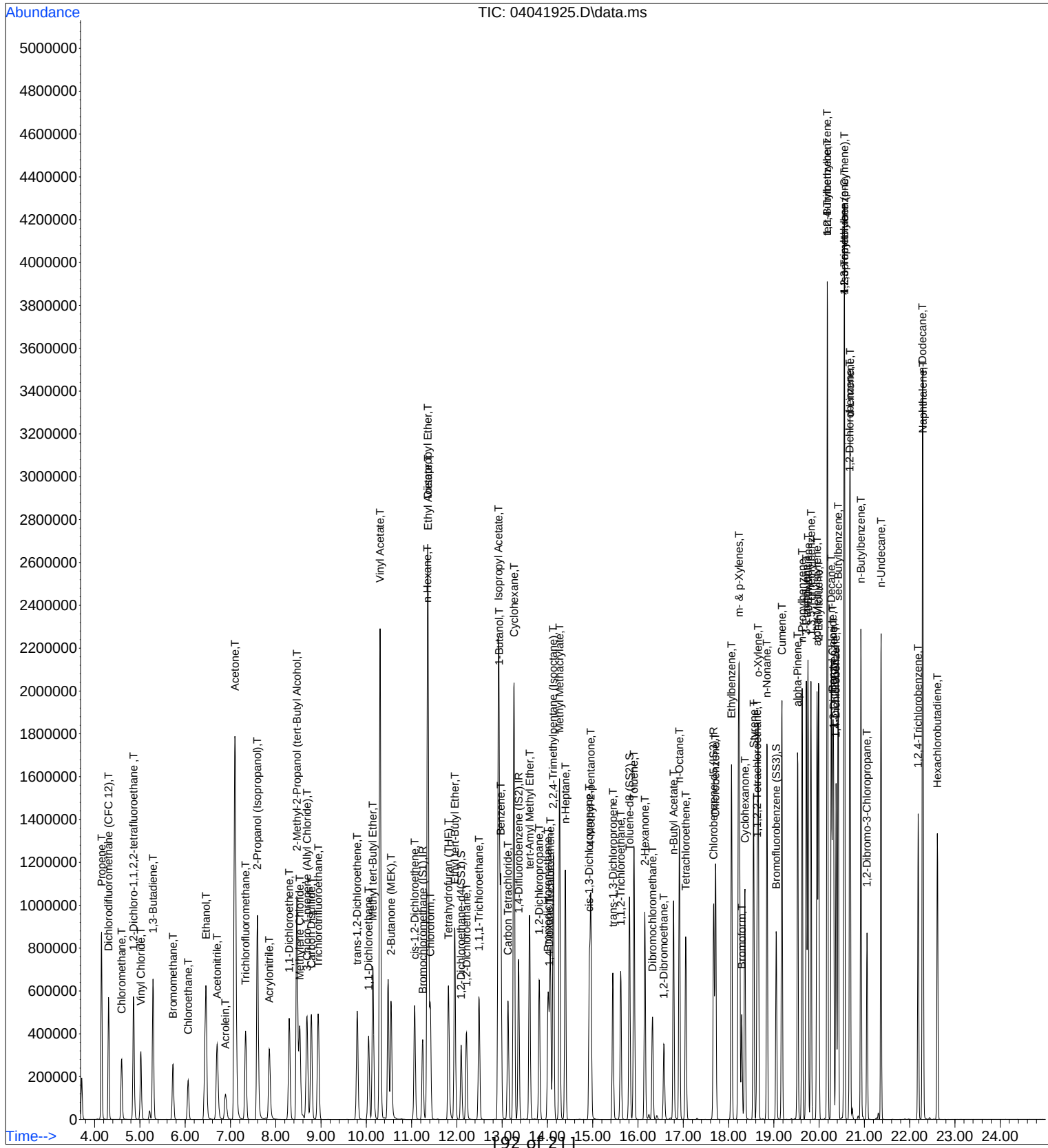
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 07:19:42 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration



ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client:	WSP Group	
Client Sample ID:	Lab Control Sample	ALS Project ID: P1901724
Client Project ID:	Former Rollway Bearing Corporation / 31401545.018..05	ALS Sample ID: P190405-LCS
Test Code:	EPA TO-15	Date Collected: NA
Instrument ID:	Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8	Date Received: NA
Analyst:	Raneem Sahtah	Date Analyzed: 4/5/19
Sample Type:	6.0 L Summa Canister	Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:		

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	214	177	83	57-117	
75-35-4	1,1-Dichloroethene	218	195	89	68-107	
75-09-2	Methylene Chloride	217	199	92	66-105	
156-59-2	cis-1,2-Dichloroethene	211	192	91	67-110	
71-55-6	1,1,1-Trichloroethane	215	196	91	64-108	
56-23-5	Carbon Tetrachloride	212	192	91	64-112	
79-01-6	Trichloroethene	213	185	87	66-108	
127-18-4	Tetrachloroethene	213	193	91	55-120	

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.

Data File: I:\MS08\Data\2019 04\05\04051913.D

Sample : LCS R8040519 25ng Inst : MS08
 Acq On : 5 Apr 2019 11:13 Operator: RS
 Misc : S31-04021901/S31-03071901 (4/5)
 ALS Vial : 1 Sample Multiplier: 1

RS 4/5/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 11:43:27 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.25	130	154062	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.36	114	664950	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.67	82	332282	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.09	65	266513	12.945	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	103.52%	
57) Toluene-d8 (SS2)	15.81	98	748200	12.742	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	101.92%	
73) Bromofluorobenzene (SS3)	19.06	174	249263	11.941	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	95.52%	

Target Compounds

						Qvalue
2) Propene	4.16	42	305624	20.602	ng	99
3) Dichlorodifluoromethan...	4.32	85	474558	22.857	ng	100
4) Chloromethane	4.61	50	335097	18.283	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	242025	22.215	ng	99
6) Vinyl Chloride	5.03	62	374803	22.163	ng	100
7) 1,3-Butadiene	5.30	54	326639	21.309	ng	97
8) Bromomethane	5.74	94	214009	24.076	ng	100
9) Chloroethane	6.07	64	194972	23.484	ng	100
10) Ethanol	6.46	45	1079451	111.552	ng	100
11) Acetonitrile	6.71	41	563614	22.062	ng	100
12) Acrolein	6.89	56	175846	25.714	ng	99
13) Acetone	7.11	58	1067502	115.947	ng	100
14) Trichlorofluoromethane	7.34	101	431630	24.142	ng	100
15) 2-Propanol (Isopropanol)	7.60	45	1587841	49.338	ng	100
16) Acrylonitrile	7.87	53	373327	25.688	ng	99
17) 1,1-Dichloroethene	8.30	96	242139	24.342	ng	99
18) 2-Methyl-2-Propanol (t...	8.47	59	1528357	56.728	ng	98
19) Methylene Chloride	8.53	84	255594	24.935	ng	95
20) 3-Chloro-1-propene (Al...	8.69	41	488200	24.514	ng	96
21) Trichlorotrifluoroethane	8.94	151	218726	23.594	ng	98
22) Carbon Disulfide	8.79	76	915443	22.948	ng	100
23) trans-1,2-Dichloroethene	9.80	61	381632	25.953	ng	100
24) 1,1-Dichloroethane	10.05	63	458750	23.975	ng	100
25) Methyl tert-Butyl Ether	10.15	73	839061	27.027	ng	98
26) Vinyl Acetate	10.31	86	402546	138.248	ng	# 95
27) 2-Butanone (MEK)	10.55	72	198082	26.397	ng	93
28) cis-1,2-Dichloroethene	11.07	61	363324	24.012	ng	98
29) Diisopropyl Ether	11.36	87	244024	23.286	ng	# 76
30) Ethyl Acetate	11.37	61	204039	54.042	ng	99
31) n-Hexane	11.35	57	473601	24.500	ng	100
32) Chloroform	11.41	83	444096	24.500	ng	100
34) Tetrahydrofuran (THF)	11.81	72	185743	25.778	ng	95
35) Ethyl tert-Butyl Ether	11.95	87	335635	27.917	ng	97
36) 1,2-Dichloroethane	12.21	62	369646	25.253	ng	100
38) 1,1,1-Trichloroethane	12.49	97	407445	24.556	ng	99
39) Isopropyl Acetate	12.92	61	368643	50.610	ng	97
40) 1-Butanol	12.93	56	676789	58.419	ng	93
41) Benzene	12.97	78	1032610	23.139	ng	99
42) Carbon Tetrachloride	13.13	117	353977	23.951	ng	100
43) Cyclohexane	13.26	84	857260	46.291	ng	97
44) tert-Amyl Methyl Ether	13.61	73	779377	27.225	ng	98
45) 1,2-Dichloropropane	13.82	63	255938	23.786	ng	100
46) Bromodichloromethane	14.01	83	361175	25.768	ng	100
47) Trichloroethene	14.06	130	269830	23.171	ng	100
48) 1,4-Dioxane	14.04	88	226467	25.878	ng	98
49) 2,2,4-Trimethylpentane...	14.13	57	1176856	22.941	ng	99
50) Methyl Methacrylate	14.27	100	237992	56.065	ng	97

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Data File: I:\MS08\Data\2019 04\05\04051913.D

Sample : LCS R8040519 25ng Inst : MS08
 Acq On : 5 Apr 2019 11:13 Operator: RS
 Misc : S31-04021901/S31-03071901 (4/5)
 ALS Vial : 1 Sample Multiplier: 1

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 05 11:43:27 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

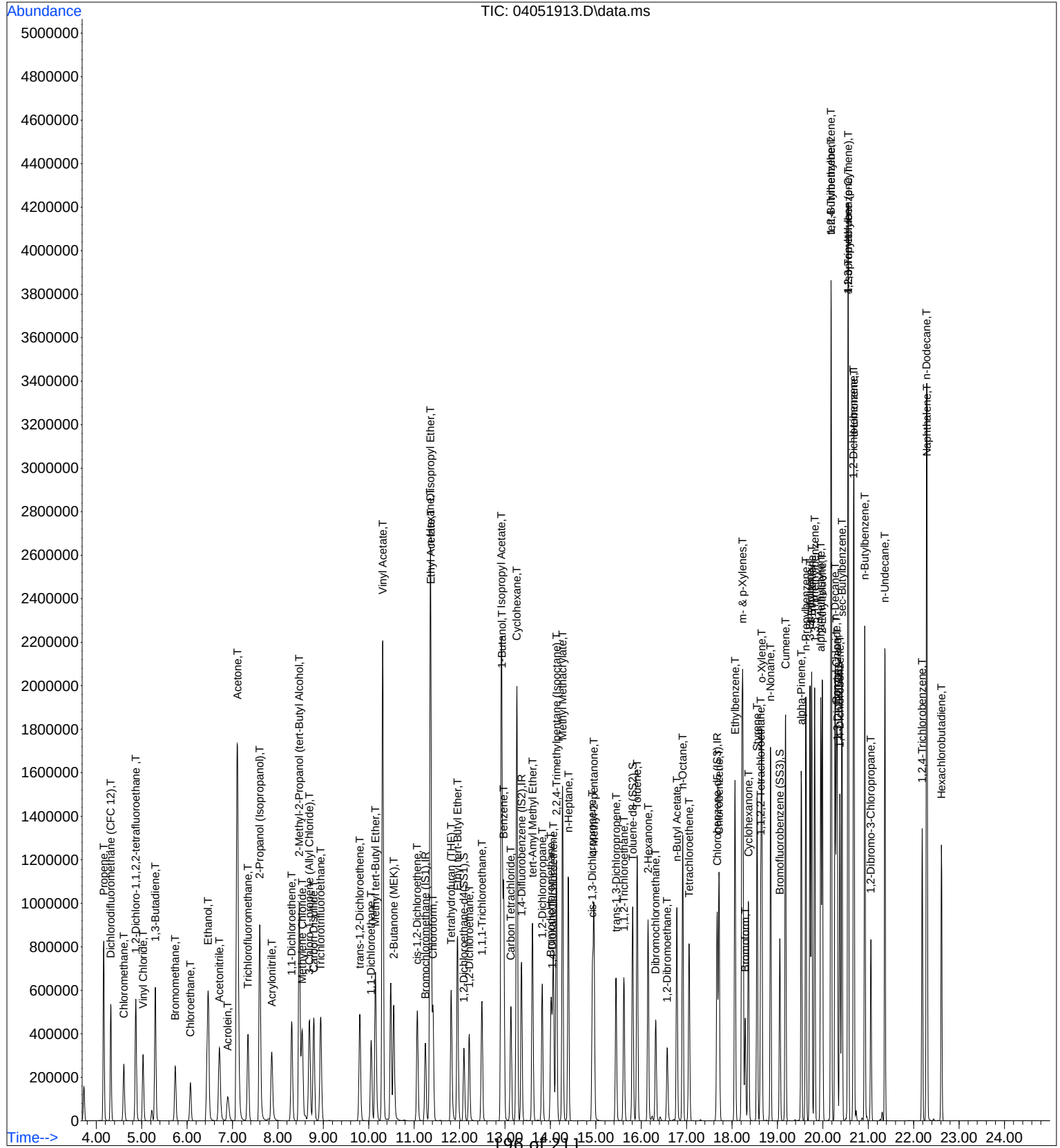
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.40	71	289127	24.105	ng	98
52) cis-1,3-Dichloropropene	14.92	75	432245	26.376	ng	100
53) 4-Methyl-2-pentanone	14.96	58	279323	27.885	ng	97
54) trans-1,3-Dichloropropene	15.45	75	406058	27.864	ng	100
55) 1,1,2-Trichloroethane	15.62	97	243533	24.983	ng	100
58) Toluene	15.91	91	1038679	24.088	ng	100
59) 2-Hexanone	16.15	43	744214	29.402	ng	99
60) Dibromochloromethane	16.32	129	294496	27.664	ng	100
61) 1,2-Dibromoethane	16.57	107	280566	27.035	ng	100
62) n-Butyl Acetate	16.79	43	838954	29.960	ng	99
63) n-Octane	16.91	57	248804	25.344	ng	98
64) Tetrachloroethene	17.05	166	283998	24.156	ng	100
65) Chlorobenzene	17.72	112	683846	24.215	ng	100
66) Ethylbenzene	18.07	91	1221918	24.699	ng	100
67) m- & p-Xylenes	18.23	91	1918798	50.460	ng	100
68) Bromoform	18.29	173	243213	27.643	ng	100
69) Styrene	18.55	104	784337	28.146	ng	99
70) o-Xylene	18.65	91	984232	25.706	ng	100
71) n-Nonane	18.85	43	637543	25.175	ng	100
72) 1,1,2,2-Tetrachloroethane	18.63	83	451482	26.606	ng	100
74) Cumene	19.18	105	1258567	25.405	ng	100
75) alpha-Pinene	19.52	93	628265	30.039	ng	99
76) n-Propylbenzene	19.63	91	1516807	26.301	ng	100
77) 3-Ethyltoluene	19.72	105	1232375	24.793	ng	100
78) 4-Ethyltoluene	19.75	105	1250500	27.148	ng	100
79) 1,3,5-Trimethylbenzene	19.82	105	1048516	25.119	ng	99
80) alpha-Methylstyrene	19.95	118	595480	31.879	ng	99
81) 2-Ethyltoluene	19.99	105	1253409	25.745	ng	100
82) 1,2,4-Trimethylbenzene	20.18	105	1088915	27.193	ng	99
83) n-Decane	20.27	57	631032	26.421	ng	99
84) Benzyl Chloride	20.30	91	960446	30.926	ng	99
85) 1,3-Dichlorobenzene	20.32	146	607462	26.012	ng	100
86) 1,4-Dichlorobenzene	20.37	146	606488	25.402	ng	100
87) sec-Butylbenzene	20.42	105	1409076	25.618	ng	100
88) 4-Isopropyltoluene (p-...	20.56	119	1361984	25.767	ng	99
89) 1,2,3-Trimethylbenzene	20.56	105	1120987	27.509	ng	99
90) 1,2-Dichlorobenzene	20.67	146	590885	26.720	ng	100
91) d-Limonene	20.69	68	439622	33.866	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.06	157	223657	29.160	ng	99
93) n-Undecane	21.36	57	652390	26.651	ng	100
94) 1,2,4-Trichlorobenzene	22.19	180	420986	26.854	ng	100
95) Naphthalene	22.29	128	1438008	26.536	ng	100
96) n-Dodecane	22.28	57	602458	28.296	ng	100
97) Hexachlorobutadiene	22.61	225	241181	22.699	ng	100
98) Cyclohexanone	18.36	55	440300	27.503	ng	99
99) tert-Butylbenzene	20.18	119	1072694	26.613	ng	100
100) n-Butylbenzene	20.92	91	1154016	26.750	ng	100

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

Sample : LCS R8040519 25ng
Acq On : 5 Apr 2019 11:13
Misc : S31-04021901/S31-03071901 (4/5)
ALS Vial : 1 Sample Multiplier: 1

Inst : MS08
Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Quant Time: Apr 05 11:43:27 2019
Quant Method : I:\MS08\Methods\R8021819A.M
QLast Update : Tue Feb 19 08:36:45 2019
Response via : Initial Calibration



ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client:	WSP Group	
Client Sample ID:	Lab Control Sample	ALS Project ID: P1901724
Client Project ID:	Former Rollway Bearing Corporation / 31401545.018..05	ALS Sample ID: P190408-LCS
Test Code:	EPA TO-15	Date Collected: NA
Instrument ID:	Tekmar AUTOCAN/Agilent 5973inert/6890N/MS8	Date Received: NA
Analyst:	Raneem Sahtah	Date Analyzed: 4/8/19
Sample Type:	6.0 L Summa Canister	Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:		

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	214	178	83	57-117	
75-35-4	1,1-Dichloroethene	218	195	89	68-107	
75-09-2	Methylene Chloride	217	198	91	66-105	
156-59-2	cis-1,2-Dichloroethene	211	195	92	67-110	
71-55-6	1,1,1-Trichloroethane	215	197	92	64-108	
56-23-5	Carbon Tetrachloride	212	192	91	64-112	
79-01-6	Trichloroethene	213	186	87	66-108	
127-18-4	Tetrachloroethene	213	195	92	55-120	

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.

Data File: I:\MS08\Data\2019 04\08\04081913.D

Sample : LCS R8040819 25ng Inst : MS08
 Acq On : 8 Apr 2019 14:44 Operator: RS
 Misc : S31-04021901/S31-03181912 (4/16)
 ALS Vial : 1 Sample Multiplier: 1

RS 4/8/19

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 15:13:51 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.24	130	155790	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.36	114	670688	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.67	82	336189	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.09	65	266298	12.791	ng	-0.01
Spiked Amount	12.500	Range 70	- 130	Recovery	=	102.32%
57) Toluene-d8 (SS2)	15.81	98	755398	12.715	ng	0.00
Spiked Amount	12.500	Range 70	- 130	Recovery	=	101.68%
73) Bromofluorobenzene (SS3)	19.06	174	254366	12.043	ng	0.00
Spiked Amount	12.500	Range 70	- 130	Recovery	=	96.32%

Target Compounds

						Qvalue
2) Propene	4.15	42	316936	21.128	ng	99
3) Dichlorodifluoromethan...	4.31	85	486077	23.152	ng	100
4) Chloromethane	4.60	50	355999	19.208	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	246706	22.394	ng	100
6) Vinyl Chloride	5.02	62	384959	22.511	ng	99
7) 1,3-Butadiene	5.29	54	337379	21.765	ng	97
8) Bromomethane	5.73	94	222576	24.762	ng	100
9) Chloroethane	6.06	64	203068	24.188	ng	100
10) Ethanol	6.46	45	1104212	112.846	ng	100
11) Acetonitrile	6.70	41	582008	22.529	ng	100
12) Acrolein	6.89	56	179464	25.952	ng	99
13) Acetone	7.10	58	1090185	117.098	ng	98
14) Trichlorofluoromethane	7.33	101	434669	24.043	ng	100
15) 2-Propanol (Isopropanol)	7.60	45	1618629	49.737	ng	100
16) Acrylonitrile	7.86	53	381376	25.950	ng	100
17) 1,1-Dichloroethene	8.30	96	247270	24.582	ng	97
18) 2-Methyl-2-Propanol (t...	8.47	59	1552111	56.970	ng	98
19) Methylene Chloride	8.53	84	259476	25.033	ng	95
20) 3-Chloro-1-propene (Al...	8.69	41	500229	24.840	ng	97
21) Trichlorotrifluoroethane	8.94	151	221120	23.588	ng	98
22) Carbon Disulfide	8.79	76	930007	23.055	ng	100
23) trans-1,2-Dichloroethene	9.80	61	385040	25.894	ng	99
24) 1,1-Dichloroethane	10.05	63	463911	23.976	ng	100
25) Methyl tert-Butyl Ether	10.14	73	848922	27.042	ng	99
26) Vinyl Acetate	10.30	86	392646	133.352	ng	# 93
27) 2-Butanone (MEK)	10.55	72	200608	26.437	ng	93
28) cis-1,2-Dichloroethene	11.07	61	366601	23.960	ng	99
29) Diisopropyl Ether	11.36	87	246405	23.252	ng	# 80
30) Ethyl Acetate	11.36	61	204103	53.459	ng	99
31) n-Hexane	11.35	57	471025	24.097	ng	99
32) Chloroform	11.41	83	444164	24.232	ng	100
34) Tetrahydrofuran (THF)	11.81	72	187613	25.749	ng	95
35) Ethyl tert-Butyl Ether	11.95	87	342989	28.212	ng	96
36) 1,2-Dichloroethane	12.21	62	368951	24.926	ng	100
38) 1,1,1-Trichloroethane	12.49	97	407528	24.350	ng	99
39) Isopropyl Acetate	12.92	61	365679	49.773	ng	97
40) 1-Butanol	12.93	56	674488	57.722	ng	92
41) Benzene	12.97	78	1037141	23.042	ng	99
42) Carbon Tetrachloride	13.13	117	350393	23.505	ng	99
43) Cyclohexane	13.26	84	865434	46.333	ng	97
44) tert-Amyl Methyl Ether	13.61	73	793678	27.488	ng	98
45) 1,2-Dichloropropane	13.82	63	257816	23.756	ng	100
46) Bromodichloromethane	14.01	83	362114	25.614	ng	100
47) Trichloroethene	14.06	130	272205	23.175	ng	99
48) 1,4-Dioxane	14.04	88	230093	26.067	ng	97
49) 2,2,4-Trimethylpentane...	14.13	57	1189895	22.997	ng	99
50) Methyl Methacrylate	14.27	100	239480	55.933	ng	96

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Data File: I:\MS08\Data\2019 04\08\04081913.D

Sample : LCS R8040819 25ng

Acq On : 8 Apr 2019 14:44

Misc : S31-04021901/S31-03181912 (4/16)

ALS Vial : 1 Sample Multiplier: 1

Inst : MS08

Operator: RS

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

Quant Time: Apr 08 15:13:51 2019

Quant Method : I:\MS08\Methods\R8021819A.M

QLast Update : Tue Feb 19 08:36:45 2019

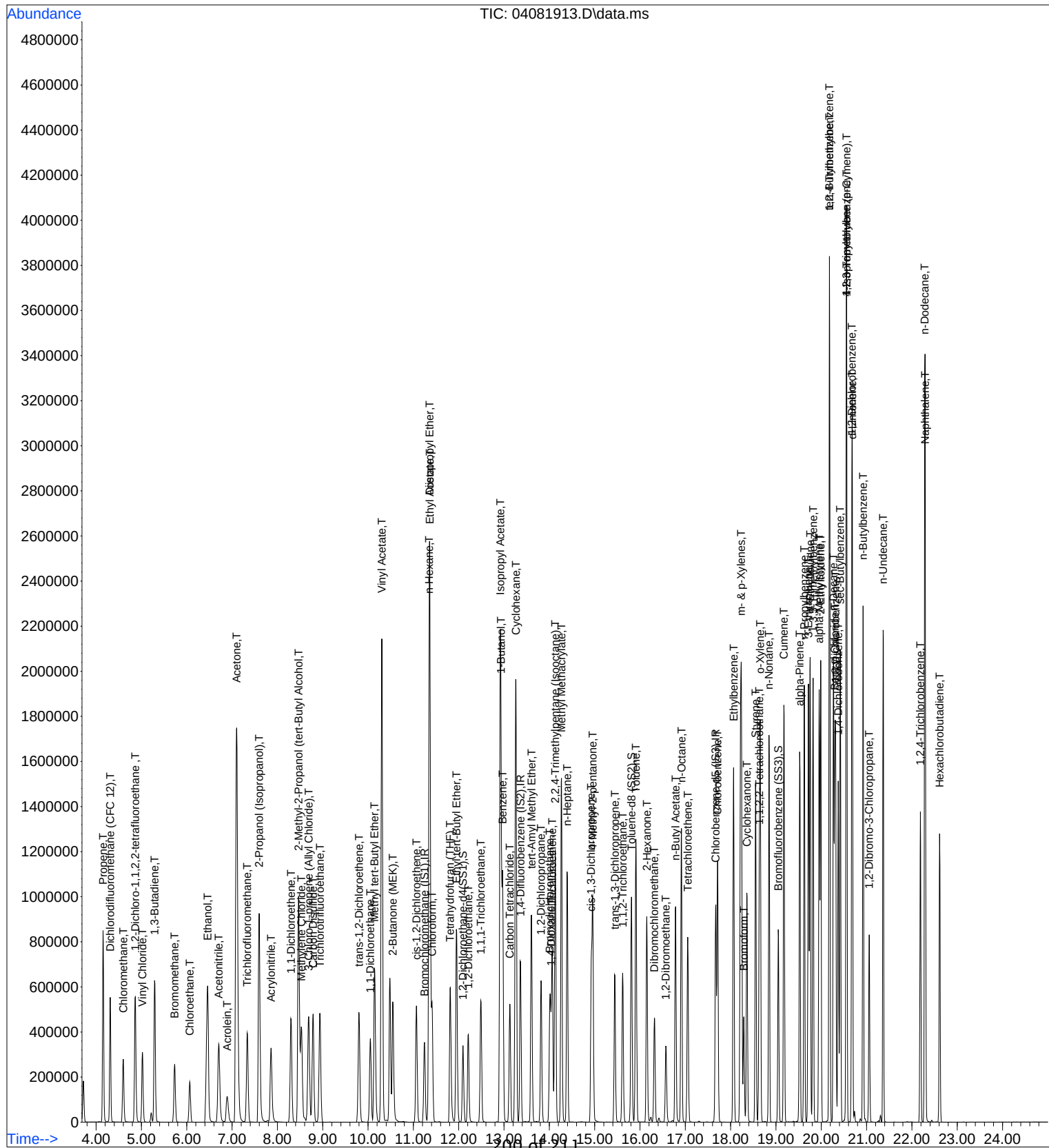
Response via : Initial Calibration

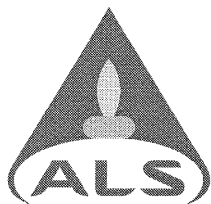
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.39	71	290136	23.982	ng	98
52) cis-1,3-Dichloropropene	14.92	75	436602	26.414	ng	100
53) 4-Methyl-2-pentanone	14.96	58	281316	27.844	ng	97
54) trans-1,3-Dichloropropene	15.45	75	407876	27.749	ng	100
55) 1,1,2-Trichloroethane	15.62	97	246987	25.120	ng	100
58) Toluene	15.91	91	1046787	23.994	ng	100
59) 2-Hexanone	16.15	43	742148	28.979	ng	99
60) Dibromochloromethane	16.32	129	296761	27.553	ng	99
61) 1,2-Dibromoethane	16.57	107	284291	27.075	ng	99
62) n-Butyl Acetate	16.79	43	827389	29.204	ng	98
63) n-Octane	16.91	57	249801	25.149	ng	98
64) Tetrachloroethene	17.05	166	287667	24.183	ng	100
65) Chlorobenzene	17.71	112	692510	24.236	ng	100
66) Ethylbenzene	18.07	91	1226905	24.512	ng	100
67) m- & p-Xylenes	18.23	91	1910172	49.650	ng	99
68) Bromoform	18.29	173	244033	27.414	ng	100
69) Styrene	18.55	104	786647	27.901	ng	99
70) o-Xylene	18.65	91	980773	25.318	ng	100
71) n-Nonane	18.85	43	636287	24.833	ng	100
72) 1,1,2,2-Tetrachloroethane	18.63	83	454142	26.452	ng	99
74) Cumene	19.17	105	1262089	25.180	ng	100
75) alpha-Pinene	19.52	93	643755	30.422	ng	99
76) n-Propylbenzene	19.63	91	1512093	25.914	ng	100
77) 3-Ethyltoluene	19.72	105	1239596	24.648	ng	100
78) 4-Ethyltoluene	19.75	105	1240573	26.619	ng	100
79) 1,3,5-Trimethylbenzene	19.82	105	1041531	24.662	ng	99
80) alpha-Methylstyrene	19.95	118	593071	31.381	ng	99
81) 2-Ethyltoluene	19.99	105	1247851	25.333	ng	100
82) 1,2,4-Trimethylbenzene	20.18	105	1076394	26.568	ng	100
83) n-Decane	20.27	57	634183	26.245	ng	100
84) Benzyl Chloride	20.30	91	935905	29.785	ng	100
85) 1,3-Dichlorobenzene	20.31	146	607459	25.710	ng	100
86) 1,4-Dichlorobenzene	20.37	146	608546	25.192	ng	100
87) sec-Butylbenzene	20.42	105	1416754	25.458	ng	100
88) 4-Isopropyltoluene (p-...	20.56	119	1348272	25.212	ng	100
89) 1,2,3-Trimethylbenzene	20.56	105	1108162	26.878	ng	99
90) 1,2-Dichlorobenzene	20.67	146	589261	26.337	ng	100
91) d-Limonene	20.69	68	440419	33.533	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.06	157	225402	29.046	ng	98
93) n-Undecane	21.36	57	659579	26.631	ng	100
94) 1,2,4-Trichlorobenzene	22.19	180	432462	27.265	ng	100
95) Naphthalene	22.29	128	1460309	26.634	ng	100
96) n-Dodecane	22.28	57	618894	28.730	ng	100
97) Hexachlorobutadiene	22.61	225	247059	22.982	ng	100
98) Cyclohexanone	18.36	55	435825	26.908	ng	98
99) tert-Butylbenzene	20.18	119	1061682	26.033	ng	100
100) n-Butylbenzene	20.92	91	1147778	26.296	ng	100

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

Inst : MS08
Operator: RS

Response via : Initial Calibration





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

Page 1 of 3

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:

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

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:

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

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 $\leq 40\%$) for the calibration to be considered valid and linear.

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

SD standard deviation

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



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

Page 2 of 3

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)



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

Page 3 of 3

4. Calculation of $\mu\text{g}/\text{m}^3$ (microgram per cubic meter) Results

Target compound results reported on the "Results of Analysis" form in units of $\mu\text{g}/\text{m}^3$ are calculated as follows:

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

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 ($\mu\text{g}/\text{m}^3$)

SIMIVALLEY QC Certification

Conditioner: P-Conditioner-07

Cycles: 30

Batch: 23346

Batch Started By: JUSTIN.FREEMAN on 3/22/19 0921
Finished Cleaning By: JUSTIN.FREEMAN on 3/22/19 0924

Container IDs	Cleaned	QC Date	QC Results	Initial Vacuum			Final Vacuum			Comments
	Date	Analyzed		Vacuum	Date/Time	User	Vacuum	Date/Time	User	
SC02032	3/22/19	3/22/19	Pass w/ Conditions	-14.3	3/22/19 0924	JUSTIN.FREEMAN	-14.0	3/25/19 0311	JHULETTE	MS21_03/22/19
SC00260	3/22/19	3/22/19	Pass w/ Conditions	-14.3	3/22/19 0924	JUSTIN.FREEMAN	-14.0	3/25/19 0311	JHULETTE	
SC02177	3/22/19	3/22/19	Pass w/ Conditions	-14.3	3/22/19 0924	JUSTIN.FREEMAN	-14.0	3/22/19 0126	JHULETTE	
SC01742	3/22/19	3/22/19	Pass w/ Conditions	-14.3	3/22/19 0924	JUSTIN.FREEMAN	-14.0	3/22/19 0126	JHULETTE	
SC02161	3/22/19	3/22/19	Pass w/ Conditions	-14.3	3/22/19 0924	JUSTIN.FREEMAN	-14.0	3/25/19 0311	JHULETTE	
SC01756	3/22/19	3/22/19	Pass w/ Conditions	-14.3	3/22/19 0924	JUSTIN.FREEMAN	-14.0	3/25/19 0311	JHULETTE	
SC00250	3/22/19	3/22/19	Pass w/ Conditions	-14.3	3/22/19 0924	JUSTIN.FREEMAN	-14.0	3/25/19 0311	JHULETTE	
SC00561	3/22/19	3/22/19	Pass w/ Conditions	-14.3	3/22/19 0924	JUSTIN.FREEMAN	-14.0	3/25/19 0311	JHULETTE	
SSC00241	3/22/19	3/22/19	Pass w/ Conditions	-14.3	3/22/19 0924	JUSTIN.FREEMAN	-14.0	3/25/19 0311	JHULETTE	
SC01765	3/22/19	3/22/19	Pass w/ Conditions	-14.3	3/22/19 0924	JUSTIN.FREEMAN	-14.0	3/25/19 0311	JHULETTE	

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS
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Batch Comment:

* QC Canister

Data Path : I:\MS21\DATA\2019 03\22\
 Data File : 03221907.D
 Acq On : 22 Mar 2019 11:58
 Operator : RVT
 Sample : 032219 SC02032 23346
 Misc : LL+TICS (Sig #1); S31-02281901 (Sig #2)
 ALS Vial : 4 Sample Multiplier: 1

RVT 3/26/19

Quant Time: Mar 22 13:19:36 2019
 Quant Method : I:\MS21\Methods\F21030819.M
 Quant Title : EPA TO-15
 QLast Update : Mon Mar 11 09:36:38 2019
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	7.54	130	47771	1000.000	pg	0.00
37) 1,4-Difluorobenzene (IS2)	9.78	114	163103	1000.000	pg	0.00
56) Chlorobenzene-d5 (IS3)	14.70	117	131287	1000.000	pg	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4 ...	8.35	65	64823	845.212	pg	0.00
Spiked Amount 1000.000			Recovery	=	84.52%	
57) Toluene-d8 (SS2)	12.62	98	149356	851.380	pg	0.00
Spiked Amount 1000.000			Recovery	=	85.14%	
74) Bromofluorobenzene (SS3)	16.14	174	45853	1362.897	pg	0.00
Spiked Amount 1000.000			Recovery	=	136.29%	

Target Compounds

						Qvalue
2) * Propene	3.52	42	1758	21.511	pg	# 36
3) * Dichlorodifluoromethane	3.59	85	92	0.520	pg	# 42
4) * Chloromethane	3.71	50	420	4.549	pg	# 85
6) * Vinyl Chloride	3.89	62	76	0.865	pg	# 43
7) * 1,3-Butadiene	3.99	54	178	2.710	pg	# 1
10) * Ethanol	4.43	45	2751	73.983	pg	# 95
11) * Acetonitrile	4.60	41	979	11.818	pg	# 55
12) * Acrolein	4.71	56	3109	65.933	pg	# 88
13) * Acetone	4.84	58	24159	376.688	pg	# 36
15) * 2-Propanol (Isopropa...	5.02	45	2294	18.482	pg	# 90
16) * Acrylonitrile	5.17	53	260	3.213	pg	# 74
18) tert-Butanol	5.54	59	930	12.888	pg	# 91
19) * Methylene Chloride	5.56	84	169	2.438	pg	# 95
22) * Carbon Disulfide	5.83	76	30960	160.749	pg	# 97
26) * Vinyl Acetate	6.69	86	2339	224.426	pg	# 1
27) * 2-Butanone (MEK)	6.97	72	2695	69.434	pg	# 80
29) DIPE	7.63	45	117	0.638	pg	# 49
30) * Ethyl Acetate	7.63	61	126	8.805	pg	# 76
31) * n-Hexane	7.63	57	71	0.790	pg	# 60
39) * Benzene	9.34	78	620	2.726	pg	# 94
41) 1-Butanol	9.28	56	24254	53.139	pg	# 93
47) * Trichloroethene	10.61	130	54	0.942	pg	# 21
48) * 1,4-Dioxane	10.65	88	617	14.790	pg	# 93
49) Isooctane	10.72	56	346	3.823	pg	# 1
51) * n-Heptane	11.01	71	65	0.898	pg	# 40
53) * 4-Methyl-2-pentanone	11.71	58	148	4.359	pg	# 42
58) * Toluene	12.72	91	540	2.353	pg	# 96
59) * 2-Hexanone	13.06	58	401	16.678	pg	# 100
65) * Chlorobenzene	14.75	112	52	0.418	pg	# 43
66) * Ethylbenzene	15.14	91	116	0.625	pg	# 45
67) * m- & p-Xylenes	15.30	91	249	1.783	pg	# 74
69) Cyclohexanone	15.45	98	109	6.976	pg	# 77
71) * o-Xylene	15.74	91	105	0.715	pg	# 74
72) * n-Nonane	15.95	57	756	12.304	pg	# 38
77) * n-Propylbenzene	16.72	91	74	0.425	pg	# 55
78) 3-Ethyltoluene	16.81	105	96	0.711	pg	# 44
79) * 4-Ethyltoluene	16.92	105	54	0.443	pg	# 46
80) * 1,3,5-Trimethylbenzene	16.92	105	54	0.444	pg	# 30
83) tert-Butylbenzene	17.28	134	142	5.223	pg	# 1
84) * 1,2,4-Trimethylbenzene	17.26	105	137	1.176	pg	# 25
90) 1,2,3-Trimethylbenzene	17.62	105	69	0.582	pg	# 27
91) p-Isopropyltoluene	17.62	134	60	1.645	pg	# 68
96) n-Undecane	18.41	85	117	10.950	pg	# 1
98) * Naphthalene	19.29	128	69	2.647	pg	# 67

Data Path : I:\MS21\DATA\2019 03\22\
Data File : 03221907.D
Acq On : 22 Mar 2019 11:58
Operator : RVT
Sample : 032219 SC02032 23346
Misc : LL+TICS (Sig #1); S31-02281901 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 22 13:19:36 2019
Quant Method : I:\MS21\Methods\F21030819.M
Quant Title : EPA TO-15
QLast Update : Mon Mar 11 09:36:38 2019
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
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(#) = qualifier out of range (m) = manual integration (+) = signals summed

SIMIVALLEY QC Certification

Conditioner: P-Conditioner-07

Cycles: 30

Batch: 23355

Batch Started By: JUSTIN.FREEMAN on 3/25/19 0904
Finished Cleaning By: on

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum		Final Vacuum		Comments
				Vacuum	Date/Time	Vacuum	Date/Time	
SC02098	3/25/19	3/25/19	Pass w/ Conditions	-14.3		-14.0	4/4/19 0106	JHULETTE MS21_03/25/19
SC01058	3/25/19	3/25/19	Pass w/ Conditions	-14.3		-14.0	3/25/19 0311	JHULETTE
SC01519	3/25/19	3/25/19	Pass w/ Conditions	-14.3		-14.0	3/25/19 0311	JHULETTE
SC00057	3/25/19	3/25/19	Pass w/ Conditions	-14.3		-14.0	3/25/19 0311	JHULETTE
SC00788	3/25/19	3/25/19	Pass w/ Conditions	-14.3		-14.0	3/25/19 0311	JHULETTE
SC001583	3/25/19	3/25/19	Pass w/ Conditions	-14.3		-14.0	3/25/19 0311	JHULETTE
SC002061	3/25/19	3/25/19	Pass w/ Conditions	-14.3		-14.0	3/25/19 0311	JHULETTE
SC000851	3/25/19	3/25/19	Pass w/ Conditions	-14.3		-14.0	3/25/19 0311	JHULETTE
SC01647	3/25/19	3/25/19	Pass w/ Conditions	-14.3		-14.0	3/25/19 0311	JHULETTE
SSC00354	3/25/19	3/25/19	Pass w/ Conditions	-14.3		-14.0	3/25/19 0311	JHULETTE

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS
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Batch Comment:

* QC Canister

Data Path : I:\MS21\DATA\2019 03\25\
 Data File : 03251908.D
 Acq On : 25 Mar 2019 12:22
 Operator : RVT
 Sample : 032519 SC02098 23355
 Misc : LL+TICS (Sig #1); S31-03221903 (Sig #2)
 ALS Vial : 5 Sample Multiplier: 1

RVT 3/26/19

Quant Time: Mar 25 13:00:09 2019
 Quant Method : I:\MS21\Methods\F21030819.M
 Quant Title : EPA TO-15
 QLast Update : Mon Mar 11 09:36:38 2019
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	7.54	130	37168	1000.000	pg	0.00
37) 1,4-Difluorobenzene (IS2)	9.77	114	131161	1000.000	pg	0.00
56) Chlorobenzene-d5 (IS3)	14.70	117	100344	1000.000	pg	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4 ...	8.35	65	49585	830.964	pg	0.00
Spiked Amount 1000.000			Recovery	=	83.10%	
57) Toluene-d8 (SS2)	12.61	98	121341	904.980	pg	0.00
Spiked Amount 1000.000			Recovery	=	90.50%	
74) Bromofluorobenzene (SS3)	16.14	174	35809	1392.573	pg	0.00
Spiked Amount 1000.000			Recovery	=	139.26%	

Target Compounds

						Qvalue
2) * Propene	3.52	42	4482	70.487	pg	# 47
3) * Dichlorodifluoromethane	3.58	85	2296	16.689	pg	100
4) * Chloromethane	3.70	50	1380	19.211	pg	99
7) * 1,3-Butadiene	3.99	54	178	3.483	pg	# 1
8) * Bromomethane	4.21	94	134	2.436	pg	97
9) * Chloroethane	4.34	64	283	8.272	pg	# 72
10) * Ethanol	4.42	45	54039	1867.862	pg	97
11) * Acetonitrile	4.59	41	6435	99.839	pg	96
12) * Acrolein	4.70	56	9039	246.375	pg	94
13) * Acetone	4.81	58	98090	1965.727	pg	73
14) * Trichlorofluoromethane	4.95	101	1212	13.147	pg	95
15) * 2-Propanol (Isopropa...	5.01	45	23296	241.236	pg	# 88
16) * Acrylonitrile	5.17	53	903	14.341	pg	96
18) tert-Butanol	5.53	59	2133	37.993	pg	85
19) * Methylene Chloride	5.56	84	1468	27.217	pg	98
20) * 3-Chloro-1-propene (...)	5.62	41	62	1.195	pg	# 39
21) * Trichlorotrifluoroet...	5.80	151	193	4.526	pg	98
22) * Carbon Disulfide	5.83	76	19294	128.756	pg	97
26) * Vinyl Acetate	6.69	86	4432	546.559	pg	# 20
27) * 2-Butanone (MEK)	6.95	72	13324	441.211	pg	74
29) DIPE	7.61	45	1252	8.779	pg	# 49
30) * Ethyl Acetate	7.61	61	1466	131.673	pg	83
31) * n-Hexane	7.63	57	737	10.544	pg	99
32) * Chloroform	7.66	83	77	0.920	pg	# 33
34) * Tetrahydrofuran	8.12	71	1092	44.725	pg	93
36) * 1,2-Dichloroethane	8.48	62	111	1.812	pg	# 43
39) * Benzene	9.33	78	2051	11.213	pg	99
41) 1-Butanol	9.26	56	75202	204.890	pg	# 80
43) * Cyclohexane	9.69	84	91	1.587	pg	# 1
48) * 1,4-Dioxane	10.61	88	10852	323.481	pg	96
49) Isooctane	10.71	56	1622	22.284	pg	# 65
50) * Methyl Methacrylate	10.87	69	84	2.496	pg	# 1
51) * n-Heptane	11.01	71	780	13.393	pg	# 75
53) * 4-Methyl-2-pentanone	11.70	58	999	36.590	pg	96
58) * Toluene	12.73	91	5227	29.802	pg	100
59) * 2-Hexanone	13.05	58	1934	105.244	pg	# 92
62) * n-Butyl Acetate	13.81	56	69	6.068	pg	# 38
63) * n-Octane	13.92	85	143	5.489	pg	95
66) * Ethylbenzene	15.14	91	708	4.993	pg	# 89
67) * m- & p-Xylenes	15.30	91	1872	17.539	pg	99
69) Cyclohexanone	15.45	98	300	25.121	pg	92
70) * Styrene	15.64	104	163	2.883	pg	86
71) * o-Xylene	15.74	91	746	6.645	pg	96
72) * n-Nonane	15.98	57	213	4.536	pg	# 70
75) * Cumene	16.27	105	98	0.765	pg	# 50

Data Path : I:\MS21\DATA\2019 03\25\
 Data File : 03251908.D
 Acq On : 25 Mar 2019 12:22
 Operator : RVT
 Sample : 032519 SC02098 23355
 Misc : LL+TICS (Sig #1); S31-03221903 (Sig #2)
 ALS Vial : 5 Sample Multiplier: 1

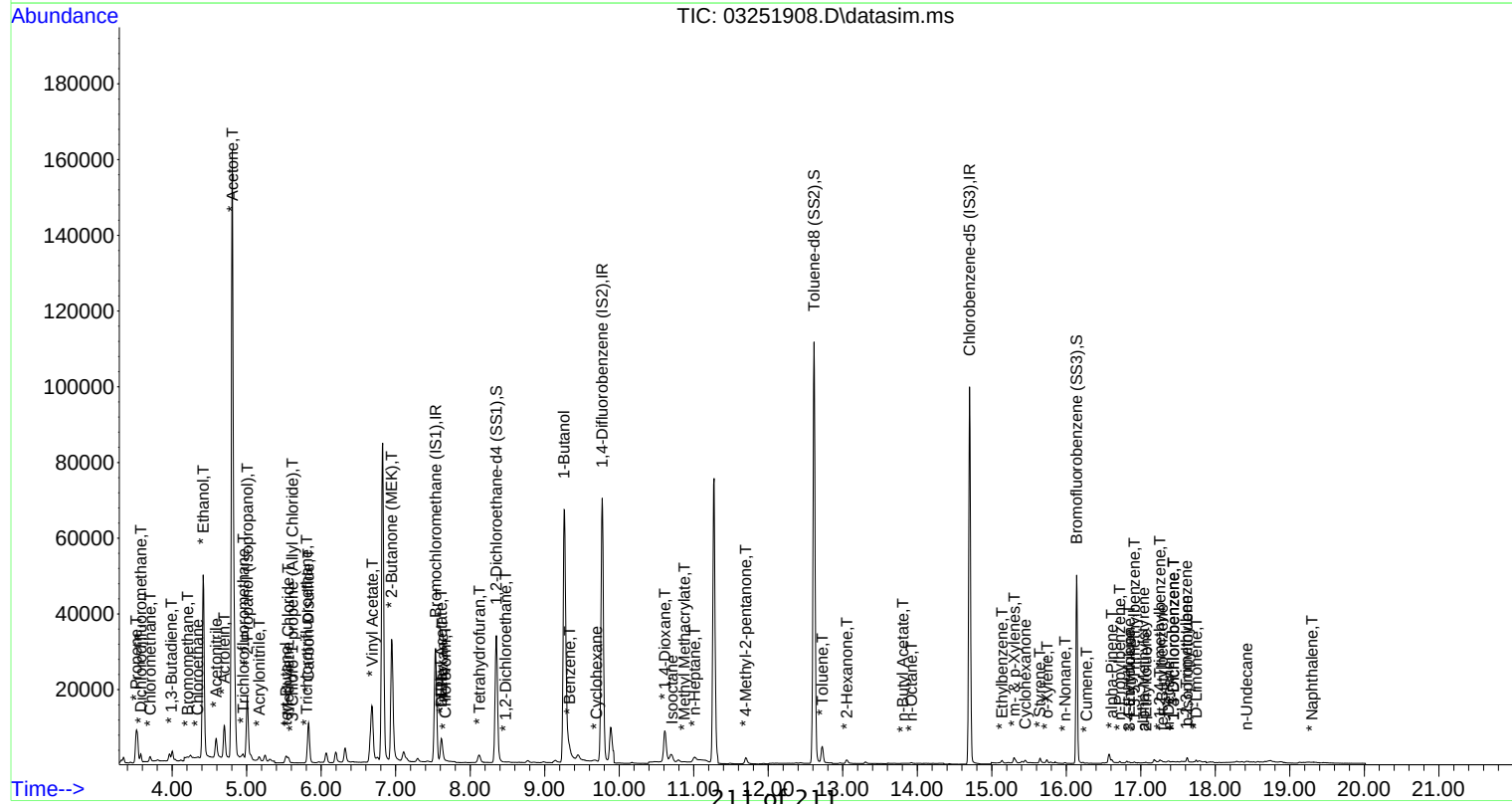
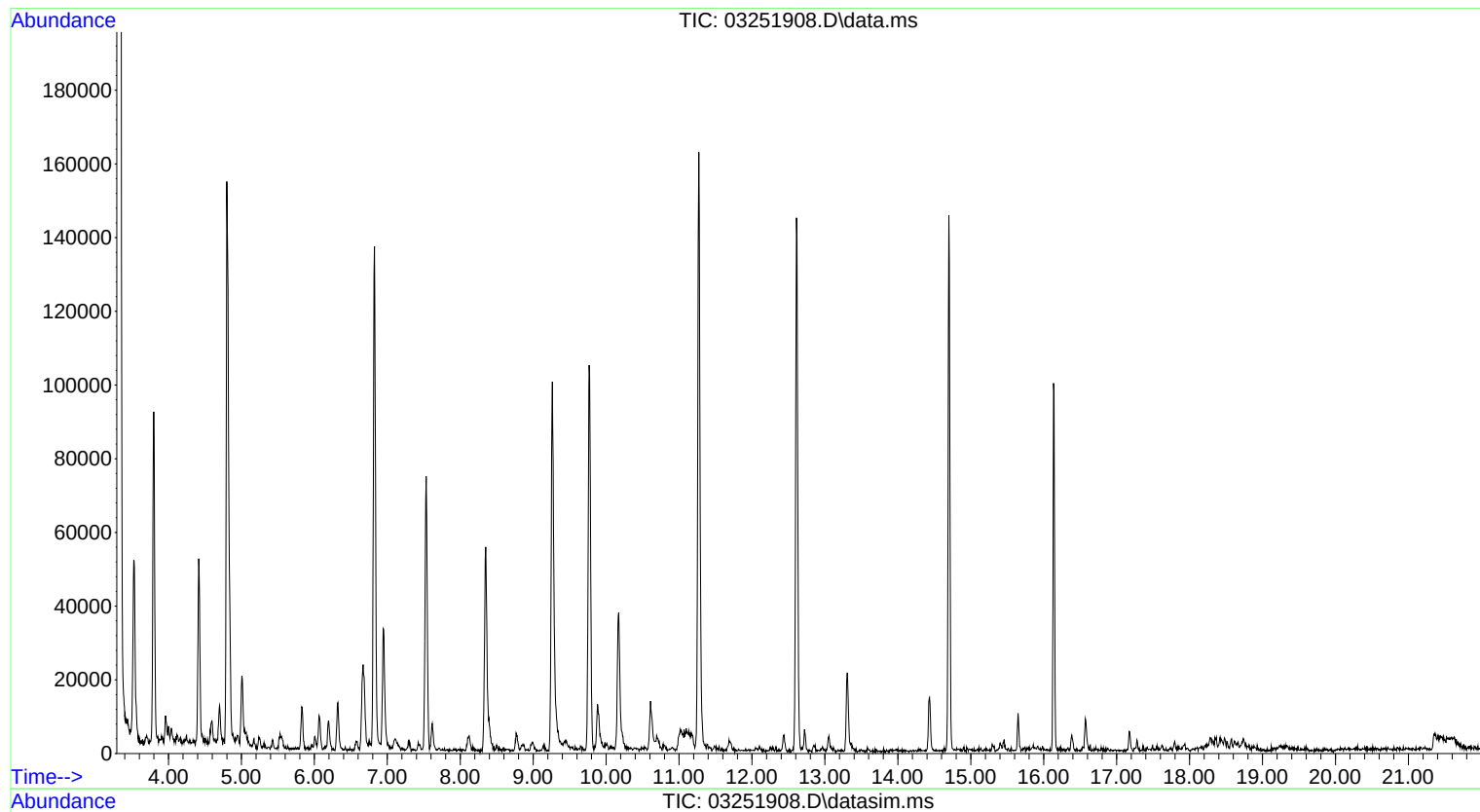
Quant Time: Mar 25 13:00:09 2019
 Quant Method : I:\MS21\Methods\F21030819.M
 Quant Title : EPA TO-15
 QLast Update : Mon Mar 11 09:36:38 2019
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
76) * alpha-Pinene	16.61	93	500	7.857	pg	91
77) * n-Propylbenzene	16.72	91	322	2.421	pg	# 55
78) 3-Ethyltoluene	16.84	105	188	1.821	pg	# 44
79) * 4-Ethyltoluene	16.84	105	188	2.020	pg	# 46
80) * 1,3,5-Trimethylbenzene	16.91	105	186	1.999	pg	95
81) alpha-Methylstyrene	17.04	118	52	1.550	pg	# 22
82) 2-Ethyltoluene	17.07	105	141	1.274	pg	# 67
83) tert-Butylbenzene	17.29	134	113	5.438	pg	# 1
84) * 1,2,4-Trimethylbenzene	17.26	105	447	5.020	pg	94
86) * 1,3-Dichlorobenzene	17.44	146	51	1.239	pg	# 18
87) * 1,4-Dichlorobenzene	17.44	146	51	1.443	pg	# 18
88) n-Decane	17.37	85	87	6.168	pg	87
90) 1,2,3-Trimethylbenzene	17.61	105	136	1.501	pg	# 38
91) p-Isopropyltoluene	17.62	134	174	6.241	pg	100
93) * D-Limonene	17.74	68	201	6.162	pg	# 81
96) n-Undecane	18.42	85	231	28.286	pg	# 1
98) * Naphthalene	19.30	128	68	3.413	pg	# 67

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

Data Path : I:\MS21\DATA\2019 03\25\
Data File : 03251908.D
Acq On : 25 Mar 2019 12:22
Operator : RVT
Sample : 032519 SC02098 23355
Misc : LL+TICS (Sig #1); S31-03221903 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 25 13:00:09 2019
Quant Method : I:\MS21\Methods\F21030819.M
Quant Title : EPA TO-15
QLast Update : Mon Mar 11 09:36:38 2019
Response via : Initial Calibration



ENCLOSURE B – SUB-SLAB DEPRESSURIZATION SYSTEM DESIGN DRAWINGS

R:\Shared_GISC\GISCAD\user\CLIENTS\EMERSON\N\1\liverpool_Facility\CAD\1545.018.DWG 6/20/2019 7:30 AM US2011165

