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[www.alsglobal.com](http://www.alsglobal.com)

## LABORATORY REPORT

October 23, 2018

[REDACTED]  
Tetra Tech EM, Incorporated  
250 West Court Street, Suite 200W  
Cincinnati, OH 45202

**RE: Boarhead Farms**

Dear [REDACTED]:

Enclosed are the results of the samples submitted to our laboratory on October 9, 2018. For your reference, these analyses have been assigned our service request number P1805376.

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](http://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 [REDACTED].

Respectfully submitted,

**ALS | Environmental**

[REDACTED]  
[REDACTED]  
Laboratory Director



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Client: Tetra Tech EM, Incorporated  
Project: Boarhead Farms

Service Request No: P1805376

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## CASE NARRATIVE

The samples were received intact under chain of custody on October 9, 2018 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 in SIM mode 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.

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*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	<a href="http://dec.alaska.gov/eh/lab.aspx">http://dec.alaska.gov/eh/lab.aspx</a>	17-019
Arizona DHS	<a href="http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home">http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home</a>	AZ0694
Florida DOH (NELAP)	<a href="http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html">http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html</a>	E871020
Louisiana DEQ (NELAP)	<a href="http://www.deq.louisiana.gov/page/la-lab-accreditation">http://www.deq.louisiana.gov/page/la-lab-accreditation</a>	05071
Maine DHHS	<a href="http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml">http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml</a>	2016036
Minnesota DOH (NELAP)	<a href="http://www.health.state.mn.us/accreditation">http://www.health.state.mn.us/accreditation</a>	1347317
New Jersey DEP (NELAP)	<a href="http://www.nj.gov/dep/enforcement/oqa.html">http://www.nj.gov/dep/enforcement/oqa.html</a>	CA009
New York DOH (NELAP)	<a href="http://www.wadsworth.org/labcert/elap/elap.html">http://www.wadsworth.org/labcert/elap/elap.html</a>	11221
Oregon PHD (NELAP)	<a href="http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx">http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx</a>	4068-005
Pennsylvania DEP	<a href="http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx">http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx</a>	68-03307 (Registration)
PJLA (DoD ELAP)	<a href="http://www.pjlabs.com/search-accredited-labs">http://www.pjlabs.com/search-accredited-labs</a>	65818 (Testing)
Texas CEQ (NELAP)	<a href="http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html">http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html</a>	T104704413-18-9
Utah DOH (NELAP)	<a href="http://health.utah.gov/lab/lab_cert_env">http://health.utah.gov/lab/lab_cert_env</a>	CA016272018-9
Washington DOE	<a href="http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html">http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html</a>	C946
<p>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 <a href="http://www.alsglobal.com">www.alsglobal.com</a>, or at the accreditation body's website.</p> <p>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.</p>		

# ALS ENVIRONMENTAL

## DETAIL SUMMARY REPORT

Client: Tetra Tech EM, Incorporated  
Project ID: Boarhead Farms

Service Request: P1805376

Date Received: 10/9/2018  
Time Received: 09:30

TO-15 - VOC SIM

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	
BF-A1-100218	P1805376-001	Air	10/2/2018	10:24	AS00854	-3.46	3.88	X
BF-LR2-100218	P1805376-002	Air	10/2/2018	10:45	AC02107	-3.66	3.62	X
BF-B1-100218	P1805376-003	Air	10/2/2018	10:30	AS01245	-3.60	3.90	X
BF-B2-100218	P1805376-004	Air	10/2/2018	10:30	AS01038	-3.59	3.87	X
BF-A2-100218	P1805376-005	Air	10/2/2018	10:20	AC01149	-2.37	3.93	X
BF-SF-100218	P1805376-006	Air	10/2/2018	10:47	AC02154	-3.68	3.65	X
BF-LR-100218	P1805376-007	Air	10/2/2018	10:44	AC02024	-3.15	3.88	X
BF-BS-100218	P1805376-008	Air	10/2/2018	10:42	AC02252	-3.06	3.64	X
BF-DR-100218	P1805376-009	Air	10/2/2018	10:35	SC01715	-3.87	3.76	X



# Air - Chain of Custody Record & Analytical Service Request

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Page 1 of 1

Company Name & Address (Reporting Information)				Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard				ALS Project No. <u>180532</u>	
Project Name <u>Bearhead Farms</u>				ALS Contact:		Analysis Method <u>EPA</u>		Comments e.g. Actual Preservative or specific instructions	
Project Number				P.O. # / Billing Information		Sample (Print & Sign)			
Laboratory ID Number				Date Collected		Time Collected		Carloter ID (Bar code # - FC #)	
Client Sample ID				Date Collected		Time Collected		Carloter ID (Bar code # - FC #)	
BF-A1-100218	1	10/2/18	10:24	AS01854	FC00058	-29.74	-7.80	*	
BF-LR2-100218	2	10/2/18	10:45	AC02107	FC00088	-29.77	-8.13	*	
BF-B1-100218	3	10/2/18	10:30	AS01245	FC000360	-29.77	-7.83	*	
BF-B2-100218	4	10/2/18	10:30	AS01038	FC000300	-29.75	-7.96	*	
BF-A2-100218	5	10/2/18	10:20	AC01149	FC000304	-27.00	-5.53	*	
BF-SF-100218	6	10/2/18	10:47	SC02112	FC00025	-29.74	-8.22	*	
BF-LR-100218	7	10/2/18	10:44	AC02024	FC00078	-29.56	-5.25	*	
BF-B3-100218	Y	10/2/18	10:42	AC02252	FC000355	-29.73	-7.03	*	
BF-DR-100218	9	10/2/18	10:35	SC01715	FC00020	-29.74	-8.18	*	
Report Tier Levels - please select									
Tier I - Results (Default in not specified) _____									
Tier II (Results + QC Summaries) _____									
Tier III (Results + QC & Calibration Summaries) <u>X</u>									
Tier IV (Data Validation Package) 10% Surcharge _____									
Relinquished by: (Signature)				Date: <u>10/3/18</u>		Time: <u>1035</u>		Chain of Custody Seal (Circle) INTACT _____ BROKEN _____ ABSENT _____	
Relinquished by: (Signature)				Date: _____		Time: _____		Project Requirements (MRLs, QAPP)	
Relinquished by: (Signature)				Date: _____		Time: _____		Cooler / Blank Temperature _____ °C	

# ALS Environmental Sample Acceptance Check Form

Client: Tetra Tech EM, Incorporated Work order: P1805376  
 Project: Boarhead Farms  
 Sample(s) received on: 10/9/18 Date opened: 10/9/18 by: ADAVID

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

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

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1805376-001.02	6.0 L Silonite Can					
P1805376-002.01	6.0 L Ambient Can					
P1805376-003.02	6.0 L Silonite Can					
P1805376-004.02	6.0 L Silonite Can					
P1805376-005.01	6.0 L Ambient Can					
P1805376-006.02	6.0 L Ambient Can					
P1805376-007.01	6.0 L Ambient Can					
P1805376-008.01	6.0 L Ambient Can					
P1805376-009.02	6.0 L Source Can					
P1805376-010.01	6.0 L Ambient Can					

Explain any discrepancies: (include lab sample ID numbers): \_\_\_\_\_

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated

**Client Sample ID:** BF-A1-100218

**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

ALS Sample ID: P1805376-001

**Test Code:** EPA TO-15 SIM

**Instrument ID:** Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19

**Analyst:** [REDACTED]

**Sample Type:** 6.0 L Silonite Canister

**Test Notes:**

**Container ID:** AS00854

Date Collected: 10/2/18

Date Received: 10/9/18

Date Analyzed: 10/12/18

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -3.46 Final Pressure (psig): 3.88

Container Dilution Factor: 1.65

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.18	0.013	ND	0.071	0.0049	
75-35-4	1,1-Dichloroethene	ND	0.18	0.014	ND	0.046	0.0036	
156-60-5	trans-1,2-Dichloroethene	ND	0.18	0.012	ND	0.046	0.0030	
156-59-2	cis-1,2-Dichloroethene	<b>0.029</b>	0.18	0.015	<b>0.0073</b>	0.046	0.0038	<b>J</b>
79-01-6	Trichloroethene	<b>0.051</b>	0.18	0.014	<b>0.0095</b>	0.034	0.0026	<b>J</b>
127-18-4	Tetrachloroethene	<b>0.073</b>	0.18	0.014	<b>0.011</b>	0.027	0.0020	<b>J</b>

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.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated

**Client Sample ID:** BF-LR2-100218

**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

ALS Sample ID: P1805376-002

**Test Code:** EPA TO-15 SIM

**Instrument ID:** Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19

**Analyst:** [REDACTED]

**Sample Type:** 6.0 L Summa Canister

**Test Notes:**

**Container ID:** AC02107

Date Collected: 10/2/18

Date Received: 10/9/18

Date Analyzed: 10/12/18

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -3.66 Final Pressure (psig): 3.62

Container Dilution Factor: 1.66

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	0.014	0.18	0.013	0.0054	0.071	0.0049	J
75-35-4	1,1-Dichloroethene	0.018	0.18	0.014	0.0047	0.046	0.0036	J
156-60-5	trans-1,2-Dichloroethene	0.017	0.18	0.012	0.0044	0.046	0.0031	J
156-59-2	cis-1,2-Dichloroethene	0.24	0.18	0.015	0.062	0.046	0.0039	
79-01-6	Trichloroethene	0.49	0.18	0.014	0.091	0.034	0.0026	
127-18-4	Tetrachloroethene	1.9	0.18	0.014	0.28	0.027	0.0020	

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.



# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated

**Client Sample ID:** BF-B1-100218

**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

ALS Sample ID: P1805376-003

**Test Code:** EPA TO-15 SIM

**Instrument ID:** Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19

**Analyst:** [REDACTED]

**Sample Type:** 6.0 L Silonite Canister

**Test Notes:**

**Container ID:** AS01245

Date Collected: 10/2/18

Date Received: 10/9/18

Date Analyzed: 10/12/18 & 10/16/18

Volume(s) Analyzed: 1.00 Liter(s)

0.20 Liter(s)

Initial Pressure (psig): -3.60 Final Pressure (psig): 3.90

Container Dilution Factor: 1.68

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	0.54	0.18	0.013	0.21	0.072	0.0050	
75-35-4	1,1-Dichloroethene	5.2	0.18	0.014	1.3	0.047	0.0036	
156-60-5	trans-1,2-Dichloroethene	0.18	0.18	0.012	0.047	0.047	0.0031	
156-59-2	cis-1,2-Dichloroethene	16	0.18	0.015	3.9	0.047	0.0039	
79-01-6	Trichloroethene	120	0.92	0.071	22	0.17	0.013	D
127-18-4	Tetrachloroethene	1.2	0.18	0.014	0.18	0.027	0.0020	

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.

D = The reported result is from a dilution.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated

**Client Sample ID:** BF-B2-100218

**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

ALS Sample ID: P1805376-004

**Test Code:** EPA TO-15 SIM

**Instrument ID:** Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19

**Analyst:** Wida Ang

**Sample Type:** 6.0 L Silonite Canister

**Test Notes:**

**Container ID:** AS01038

Date Collected: 10/2/18

Date Received: 10/9/18

Date Analyzed: 10/12/18 & 10/16/18

Volume(s) Analyzed: 1.00 Liter(s)

0.20 Liter(s)

Initial Pressure (psig): -3.59 Final Pressure (psig): 3.87

Container Dilution Factor: 1.67

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	0.54	0.18	0.013	0.21	0.072	0.0050	
75-35-4	1,1-Dichloroethene	4.6	0.18	0.014	1.2	0.046	0.0036	
156-60-5	trans-1,2-Dichloroethene	0.18	0.18	0.012	0.046	0.046	0.0031	J
156-59-2	cis-1,2-Dichloroethene	15	0.18	0.015	3.9	0.046	0.0039	
79-01-6	Trichloroethene	120	0.92	0.071	22	0.17	0.013	D
127-18-4	Tetrachloroethene	1.2	0.18	0.014	0.18	0.027	0.0020	

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.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated

**Client Sample ID:** BF-A2-100218

**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

ALS Sample ID: P1805376-005

**Test Code:** EPA TO-15 SIM

Date Collected: 10/2/18

**Instrument ID:** Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19

Date Received: 10/9/18

**Analyst:** Wida Ang

Date Analyzed: 10/12/18

**Sample Type:** 6.0 L Summa Canister

Volume(s) Analyzed: 1.00 Liter(s)

**Test Notes:**

**Container ID:** AC01149

Initial Pressure (psig): -2.37 Final Pressure (psig): 3.93

Container Dilution Factor: 1.51

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.17	0.011	ND	0.065	0.0045	
75-35-4	1,1-Dichloroethene	ND	0.17	0.013	ND	0.042	0.0033	
156-60-5	trans-1,2-Dichloroethene	ND	0.17	0.011	ND	0.042	0.0028	
156-59-2	cis-1,2-Dichloroethene	<b>0.040</b>	0.17	0.014	<b>0.010</b>	0.042	0.0035	<b>J</b>
79-01-6	Trichloroethene	<b>0.092</b>	0.17	0.013	<b>0.017</b>	0.031	0.0024	<b>J</b>
127-18-4	Tetrachloroethene	<b>0.079</b>	0.17	0.012	<b>0.012</b>	0.025	0.0018	<b>J</b>

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.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated  
**Client Sample ID:** BF-SF-100218  
**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376  
 ALS Sample ID: P1805376-006

**Test Code:** EPA TO-15 SIM  
**Instrument ID:** Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19  
**Analyst:** Wida Ang  
**Sample Type:** 6.0 L Summa Canister  
**Test Notes:**  
**Container ID:** AC02154

**Date Collected:** 10/2/18  
**Date Received:** 10/9/18  
**Date Analyzed:** 10/12/18  
**Volume(s) Analyzed:** 1.00 Liter(s)

**Initial Pressure (psig):** -3.68      **Final Pressure (psig):** 3.65

**Container Dilution Factor:** 1.67

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.18	0.013	ND	0.072	0.0050	
75-35-4	1,1-Dichloroethene	0.020	0.18	0.014	0.0052	0.046	0.0036	J
156-60-5	trans-1,2-Dichloroethene	ND	0.18	0.012	ND	0.046	0.0031	
156-59-2	cis-1,2-Dichloroethene	0.076	0.18	0.015	0.019	0.046	0.0039	J
79-01-6	Trichloroethene	0.31	0.18	0.014	0.057	0.034	0.0026	
127-18-4	Tetrachloroethene	0.36	0.18	0.014	0.053	0.027	0.0020	

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.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated

**Client Sample ID:** BF-LR-100218

**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

ALS Sample ID: P1805376-007

**Test Code:** EPA TO-15 SIM

Date Collected: 10/2/18

**Instrument ID:** Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19

Date Received: 10/9/18

**Analyst:** Wida Ang

Date Analyzed: 10/12/18

**Sample Type:** 6.0 L Summa Canister

Volume(s) Analyzed: 1.00 Liter(s)

**Test Notes:**

**Container ID:** AC02024

Initial Pressure (psig): -3.15 Final Pressure (psig): 3.88

Container Dilution Factor: 1.61

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.18	0.012	ND	0.069	0.0048	
75-35-4	1,1-Dichloroethene	0.019	0.18	0.014	0.0048	0.045	0.0035	J
156-60-5	trans-1,2-Dichloroethene	ND	0.18	0.012	ND	0.045	0.0030	
156-59-2	cis-1,2-Dichloroethene	0.069	0.18	0.015	0.017	0.045	0.0037	J
79-01-6	Trichloroethene	0.30	0.18	0.014	0.056	0.033	0.0025	
127-18-4	Tetrachloroethene	0.37	0.18	0.013	0.055	0.026	0.0019	

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.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated

**Client Sample ID:** BF-BS-100218

**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

ALS Sample ID: P1805376-008

**Test Code:** EPA TO-15 SIM

Date Collected: 10/2/18

**Instrument ID:** Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19

Date Received: 10/9/18

**Analyst:** Wida Ang

Date Analyzed: 10/12/18

**Sample Type:** 6.0 L Summa Canister

Volume(s) Analyzed: 1.00 Liter(s)

**Test Notes:**

**Container ID:** AC02252

Initial Pressure (psig): -3.06 Final Pressure (psig): 3.64

Container Dilution Factor: 1.58

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.17	0.012	ND	0.068	0.0047	
75-35-4	1,1-Dichloroethene	0.019	0.17	0.014	0.0047	0.044	0.0034	J
156-60-5	trans-1,2-Dichloroethene	ND	0.17	0.012	ND	0.044	0.0029	
156-59-2	cis-1,2-Dichloroethene	0.078	0.17	0.015	0.020	0.044	0.0037	J
79-01-6	Trichloroethene	0.28	0.17	0.013	0.052	0.032	0.0025	
127-18-4	Tetrachloroethene	0.21	0.17	0.013	0.031	0.026	0.0019	

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.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated

**Client Sample ID:** BF-DR-100218

**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

ALS Sample ID: P1805376-009

**Test Code:** EPA TO-15 SIM

Date Collected: 10/2/18

**Instrument ID:** Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19

Date Received: 10/9/18

**Analyst:** Wida Ang

Date Analyzed: 10/12/18

**Sample Type:** 6.0 L Summa Canister

Volume(s) Analyzed: 1.00 Liter(s)

**Test Notes:**

**Container ID:** SC01715

Initial Pressure (psig): -3.87 Final Pressure (psig): 3.76

Container Dilution Factor: 1.70

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	0.048	0.19	0.013	0.019	0.073	0.0051	J
75-35-4	1,1-Dichloroethene	0.021	0.19	0.015	0.0052	0.047	0.0037	J
156-60-5	trans-1,2-Dichloroethene	ND	0.19	0.012	ND	0.047	0.0031	
156-59-2	cis-1,2-Dichloroethene	0.082	0.19	0.016	0.021	0.047	0.0039	J
79-01-6	Trichloroethene	0.34	0.19	0.014	0.063	0.035	0.0027	
127-18-4	Tetrachloroethene	0.39	0.19	0.014	0.057	0.028	0.0021	

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.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated

**Client Sample ID:** Method Blank

**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

ALS Sample ID: P181012-MB

**Test Code:** EPA TO-15 SIM

**Instrument ID:** Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19

**Analyst:** Wida Ang

**Sample Type:** 6.0 L Silonite Canister

**Test Notes:**

Date Collected: NA

Date Received: NA

Date Analyzed: 10/12/18

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.11	0.0076	ND	0.043	0.0030	
75-35-4	1,1-Dichloroethene	ND	0.11	0.0086	ND	0.028	0.0022	
156-60-5	trans-1,2-Dichloroethene	ND	0.11	0.0073	ND	0.028	0.0018	
156-59-2	cis-1,2-Dichloroethene	ND	0.11	0.0092	ND	0.028	0.0023	
79-01-6	Trichloroethene	ND	0.11	0.0085	ND	0.020	0.0016	
127-18-4	Tetrachloroethene	ND	0.11	0.0082	ND	0.016	0.0012	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.



# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated

**Client Sample ID:** Method Blank

**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

ALS Sample ID: P181016-MB

**Test Code:** EPA TO-15 SIM

**Instrument ID:** Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19

**Analyst:** Wida Ang

**Sample Type:** 6.0 L Silonite Canister

**Test Notes:**

Date Collected: NA

Date Received: NA

Date Analyzed: 10/16/18

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m <sup>3</sup>	MRL µg/m <sup>3</sup>	MDL µg/m <sup>3</sup>	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.11	0.0076	ND	0.043	0.0030	
75-35-4	1,1-Dichloroethene	ND	0.11	0.0086	ND	0.028	0.0022	
156-60-5	trans-1,2-Dichloroethene	ND	0.11	0.0073	ND	0.028	0.0018	
156-59-2	cis-1,2-Dichloroethene	ND	0.11	0.0092	ND	0.028	0.0023	
79-01-6	Trichloroethene	ND	0.11	0.0085	ND	0.020	0.0016	
127-18-4	Tetrachloroethene	ND	0.11	0.0082	ND	0.016	0.0012	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

# ALS ENVIRONMENTAL

## SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated  
**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

**Test Code:** EPA TO-15 SIM  
**Instrument ID:** Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19  
**Analyst:** Wida Ang  
**Sample Type:** 6.0 L Silonite Canister(s) / 6.0 L Summa Canister(s)  
**Test Notes:**

**Date(s) Collected:** 10/2/18  
**Date(s) Received:** 10/9/18  
**Date(s) Analyzed:** 10/12 - 10/16/18

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		% Recovered	% Recovered	% Recovered		
Method Blank	P181012-MB	99	104	103	70-130	
Method Blank	P181016-MB	98	105	103	70-130	
Lab Control Sample	P181012-LCS	97	100	110	70-130	
Lab Control Sample	P181016-LCS	97	100	109	70-130	
Duplicate Lab Control Sample	P181012-DLCS	97	99	109	70-130	
Duplicate Lab Control Sample	P181016-DLCS	97	99	110	70-130	
BF-A1-100218	P1805376-001	94	106	107	70-130	
BF-A1-100218	P1805376-001DUP	94	105	106	70-130	
BF-LR2-100218	P1805376-002	92	104	108	70-130	
BF-B1-100218	P1805376-003	92	105	106	70-130	
BF-B2-100218	P1805376-004	90	105	107	70-130	
BF-A2-100218	P1805376-005	93	108	108	70-130	
BF-SF-100218	P1805376-006	91	104	108	70-130	
BF-LR-100218	P1805376-007	92	106	109	70-130	
BF-BS-100218	P1805376-008	91	106	109	70-130	
BF-DR-100218	P1805376-009	92	105	109	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 / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated

**Client Sample ID:** Duplicate Lab Control Sample

**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

ALS Sample ID: P181012-DLCS

**Test Code:** EPA TO-15 SIM

**Instrument ID:** Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19

**Analyst:** Wida Ang

**Sample Type:** 6.0 L Silonite Canister

**Test Notes:**

Date Collected: NA

Date Received: NA

Date Analyzed: 10/12/18

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		ALS	RPD	RPD	Data
		LCS / DLCS	LCS	DLCS	LCS	DLCS	Acceptance			
		µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>			Limits		Limit	Qualifier
75-01-4	Vinyl Chloride	8.55	8.00	8.02	94	94	65-136	0	25	
75-35-4	1,1-Dichloroethene	8.71	8.06	8.08	93	93	76-120	0	25	
156-60-5	trans-1,2-Dichloroethene	8.55	8.18	8.20	96	96	73-124	0	25	
156-59-2	cis-1,2-Dichloroethene	8.43	8.16	8.15	97	97	76-121	0	25	
79-01-6	Trichloroethene	8.54	8.39	8.34	98	98	73-121	0	25	
127-18-4	Tetrachloroethene	8.51	8.34	8.23	98	97	72-118	1	25	

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 / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated

**Client Sample ID:** Duplicate Lab Control Sample

**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

ALS Sample ID: P181016-DLCS

**Test Code:** EPA TO-15 SIM

**Instrument ID:** Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19

**Analyst:** Wida Ang

**Sample Type:** 6.0 L Silonite Canister

**Test Notes:**

Date Collected: NA

Date Received: NA

Date Analyzed: 10/16/18

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		ALS	RPD	RPD	Data
		LCS / DLCS	LCS	DLCS	LCS	DLCS	Acceptance			
		µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>			Limits		Limit	Qualifier
75-01-4	Vinyl Chloride	8.55	7.70	7.71	90	90	65-136	0	25	
75-35-4	1,1-Dichloroethene	8.71	8.91	8.92	102	102	76-120	0	25	
156-60-5	trans-1,2-Dichloroethene	8.55	7.96	7.87	93	92	73-124	1	25	
156-59-2	cis-1,2-Dichloroethene	8.43	7.82	7.82	93	93	76-121	0	25	
79-01-6	Trichloroethene	8.54	8.18	8.08	96	95	73-121	1	25	
127-18-4	Tetrachloroethene	8.51	8.04	7.93	94	93	72-118	1	25	

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 DUPLICATE SUMMARY RESULTS

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated

**Client Sample ID:** BF-A1-100218

**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

ALS Sample ID: P1805376-001DUP

**Test Code:** EPA TO-15 SIM

**Instrument ID:** Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19

**Analyst:** Wida Ang

**Sample Type:** 6.0 L Silonite Canister

**Test Notes:**

**Container ID:** AS00854

Date Collected: 10/2/18

Date Received: 10/9/18

Date Analyzed: 10/12/18

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -3.46

Final Pressure (psig): 3.88

Container Dilution Factor: 1.65

CAS #	Compound	Sample Result		Duplicate Sample Result		Average µg/m <sup>3</sup>	% RPD	RPD Limit	Data Qualifier
		µg/m <sup>3</sup>	ppbV	µg/m <sup>3</sup>	ppbV				
75-01-4	Vinyl Chloride	ND	ND	ND	ND	-	-	25	
75-35-4	1,1-Dichloroethene	ND	ND	ND	ND	-	-	25	
156-60-5	trans-1,2-Dichloroethene	ND	ND	ND	ND	-	-	25	
156-59-2	cis-1,2-Dichloroethene	0.0290	0.00730	0.0277	0.00699	0.02835	5	25	J
79-01-6	Trichloroethene	0.0508	0.00946	0.0503	0.00936	0.05055	1	25	J
127-18-4	Tetrachloroethene	0.0734	0.0108	0.0724	0.0107	0.0729	1	25	J

ND = Compound was analyzed for, but not detected above the laboratory detection limit.

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated

**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

### Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19

Lab File ID: 10121802.D

Analyst: Wida Ang

Date Analyzed: 10/12/18

Sample Type: 6.0 L Silonite Canister(s)

Time Analyzed: 03:46

Test Notes:

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	#	RT	#	AREA	#
<b>24 Hour Standard</b>	19534	9.62	89611	11.58	11132	15.92
<b>Upper Limit</b>	27348	9.95	125455	11.91	15585	16.25
<b>Lower Limit</b>	11720	9.29	53767	11.25	6679	15.59

Client Sample ID		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA	#	RT	#	AREA	#
01	Method Blank	18092	9.62	77381	11.58	10109	15.92
02	Lab Control Sample	18769	9.62	86003	11.58	10717	15.92
03	Duplicate Lab Control Sample	18955	9.62	86558	11.58	10662	15.92
04	BF-LR-100218	19392	9.62	87998	11.57	11922	15.92
05	BF-A1-100218	18069	9.62	80596	11.58	10725	15.92
06	BF-A1-100218 (Lab Duplicate)	18210	9.62	81559	11.58	10856	15.92
07	BF-LR2-100218	19075	9.62	87033	11.58	11603	15.92
08	BF-B1-100218	19041	9.62	87743	11.58	11374	15.92
09	BF-B2-100218	19591	9.62	91478	11.58	12189	15.92
10	BF-A2-100218	18624	9.62	84810	11.58	11753	15.92
11	BF-SF-100218	18653	9.62	84787	11.58	11717	15.92
12	BF-BS-100218	18788	9.62	85306	11.58	11519	15.92
13	BF-DR-100218	18720	9.62	85369	11.58	11751	15.92
14							
15							
16							
17							
18							
19							
20							

IS1 (BCM) = Bromochloromethane

IS2 (DFB) = 1,4-Difluorobenzene

IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area

AREA LOWER LIMIT = 60% of internal standard area

RT UPPER LIMIT = 0.33 minutes of internal standard RT

RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.

I = Internal standard not within the specified limits. See case narrative.

# ALS ENVIRONMENTAL

## RESULTS OF ANALYSIS

Page 1 of 1

**Client:** Tetra Tech EM, Incorporated  
**Client Project ID:** Boarhead Farms

ALS Project ID: P1805376

### Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM  
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/7890A/MS19  
Analyst: Wida Ang  
Sample Type: 6.0 L Silonite Canister(s)  
Test Notes:

Lab File ID: 10161802.D  
Date Analyzed: 10/16/18  
Time Analyzed: 03:52

	IS1 (BCM)				IS2 (DFB)				IS3 (CBZ)			
	AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
<b>24 Hour Standard</b>	19343		9.62		88970		11.58		11259		15.92	
<b>Upper Limit</b>	27080		9.95		124558		11.91		15763		16.25	
<b>Lower Limit</b>	11606		9.29		53382		11.25		6755		15.59	
<b>Client Sample ID</b>												
01	Method Blank		17217	9.62	73147	11.58	9649	15.92				
02	Lab Control Sample		18549	9.62	84295	11.58	10492	15.91				
03	Duplicate Lab Control Sample		18743	9.62	85660	11.58	10603	15.91				
04	BF-B1-100218 (Dilution)		18528	9.61	81882	11.58	10791	15.92				
05	BF-B2-100218 (Dilution)		18419	9.61	82884	11.58	10990	15.91				
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. See case narrative.

Data File : I:\MS19\DATA\2018 10\12\10121815.D  
 Acq On : 12 Oct 2018 17:21  
 Sample : P1805376-001 (1000mL)  
 Misc : S31-09241806

Vial: 1  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 16 17:09:24 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

10/17/18

DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18069	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	80596	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10725	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	20218	934.740	pg	-0.03
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	93.47%
33) Toluene-d8 (SS2)	14.01	98	87673	1054.847	pg	-0.02
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	105.48%
45) Bromofluorobenzene (SS3)	17.43	174	32286	1065.351	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	106.54%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.32	85	51575	1339.589	pg	100
3) Chloromethane	4.53	52	1650	183.280	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	1636	58.948	pg	99
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	5.01	54	116	6.138	pg	# 16
7) Bromomethane	5.34	94	345	19.643	pg	99
8) Chloroethane	5.56	64	130	9.938	pg	# 42
9) Acrolein	6.12	56	2080	196.707	pg	99
10) Acetone	6.26	58	43685	3258.688	pg	90
11) Trichlorofluoromethane	6.48	101	20899	694.097	pg	100
12) 1,1-Dichloroethene	7.20	96	71	N.D.		
13) Methylene Chloride	7.33	84	4119	184.538	pg	99
14) Trichlorotrifluoroethane	7.67	151	5226	247.646	pg	100
15) trans-1,2-Dichloroethene	8.37	96	85	N.D.		
16) 1,1-Dichloroethane	8.58	63	146	N.D.		
17) Methyl tert-Butyl Ether	8.67	73	162	N.D.		
18) cis-1,2-Dichloroethene	9.46	96	414	17.546	pg	98
19) Chloroform	9.75	83	1964	52.616	pg	98
21) 1,2-Dichloroethane	10.51	62	708	30.666	pg	98
22) 1,1,1-Trichloroethane	10.78	97	669	21.130	pg	100
23) Benzene	11.23	78	13117	139.877	pg	99
24) Carbon Tetrachloride	11.39	117	6785	234.784	pg	100
26) 1,2-Dichloropropane	12.05	63	126	6.277	pg	# 74
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.28	130	776	30.814	pg	97
29) 1,4-Dioxane	0.00	88	0	N.D.	d	
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
32) 1,1,2-Trichloroethane	13.81	83	57	N.D.		
34) Toluene	14.11	91	52520	570.716	pg	100
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.27	166	1205	44.497	pg	100
39) Chlorobenzene	15.97	112	225	N.D.		
40) Ethylbenzene	16.35	91	7585	76.712	pg	100
41) m,p-Xylene	16.52	91	20570	272.086	pg	100
42) Styrene	16.89	104	1421	23.664	pg	99
43) o-Xylene	17.00	106	4491	111.735	pg	98
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d	
46) 1,3,5-Trimethylbenzene	18.27	105	2057	24.333	pg	98
47) 1,2,4-Trimethylbenzene	18.66	105	9637	114.275	pg	88
48) 1,3-Dichlorobenzene	18.81	146	80	N.D.		
49) 1,4-Dichlorobenzene	18.87	146	521	9.417	pg	100
50) 1,2-Dichlorobenzene	19.20	146	88	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.83	182	93	N.D.		
53) Naphthalene	20.94	128	4262	43.207	pg	94

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Data File : I:\MS19\DATA\2018 10\12\10121815.D  
Acq On : 12 Oct 2018 17:21  
Sample : P1805376-001 (1000mL)  
Misc : S31-09241806

Vial: 1  
Operator: WA  
Inst : MS19

Quant Time: Oct 16 17:09:24 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

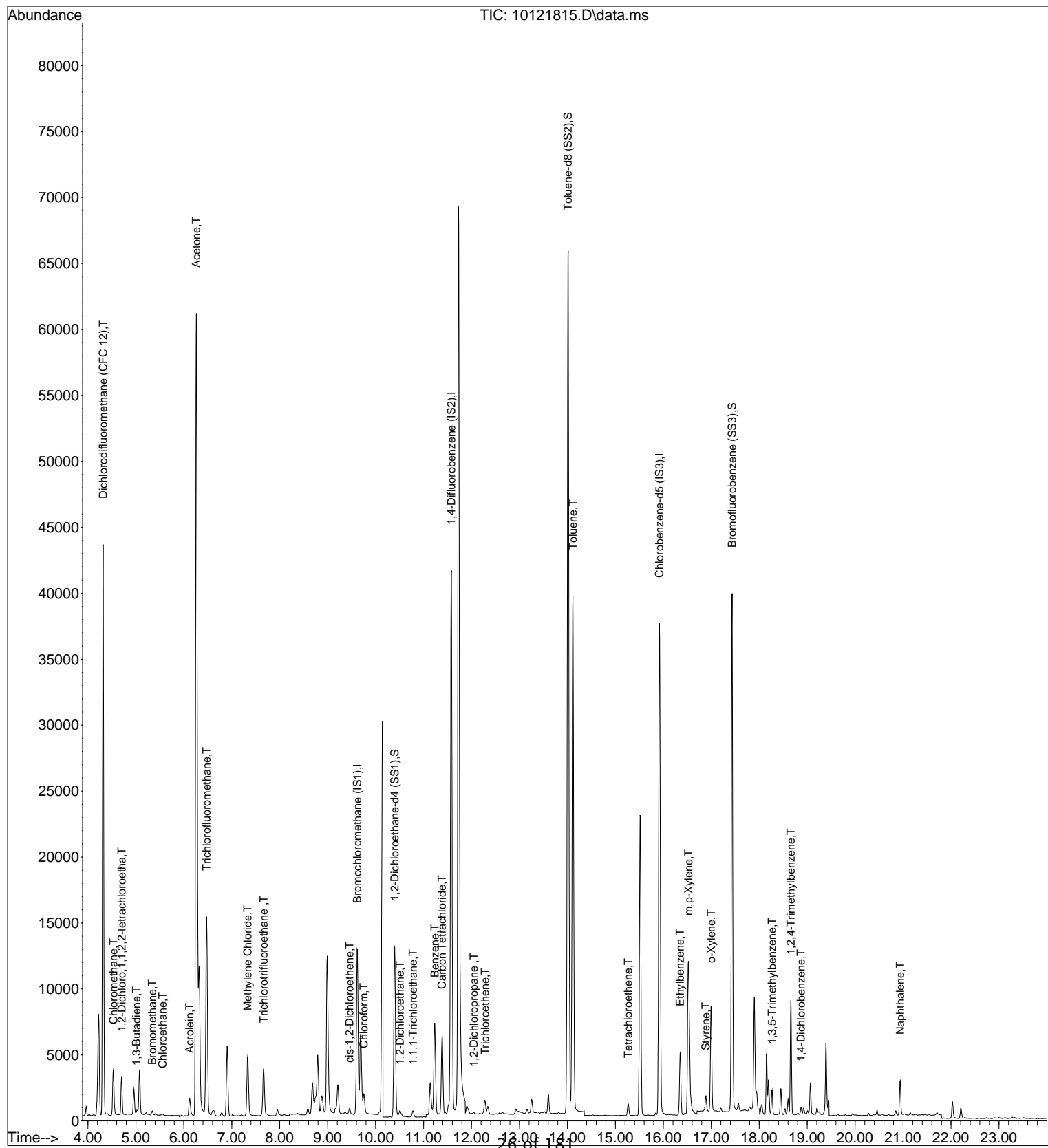
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	51	N.D.		

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

Data File : I:\MS19\DATA\2018 10\12\10121815.D  
Acq On : 12 Oct 2018 17:21  
Sample : P1805376-001 (1000mL)  
Misc : S31-09241806

Vial: 1  
Operator: WA  
Inst : MS19

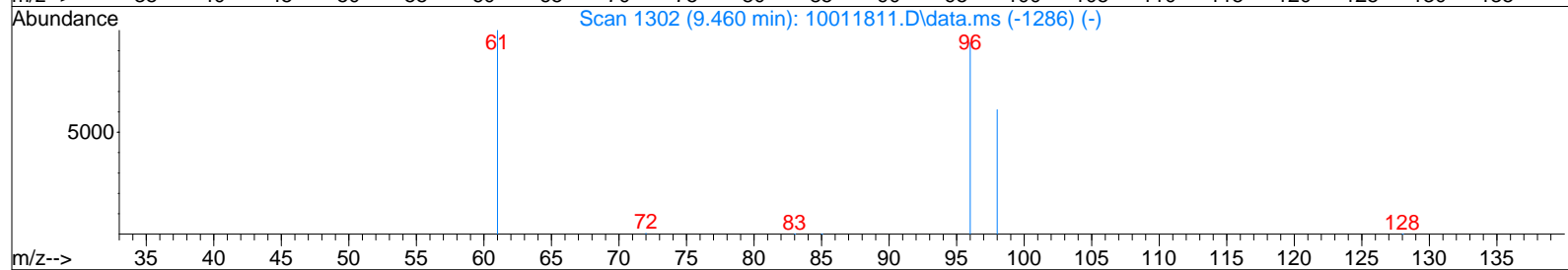
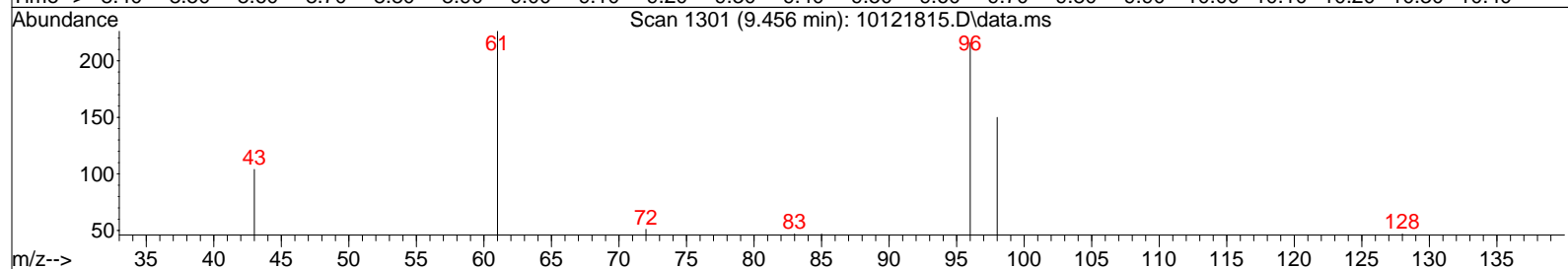
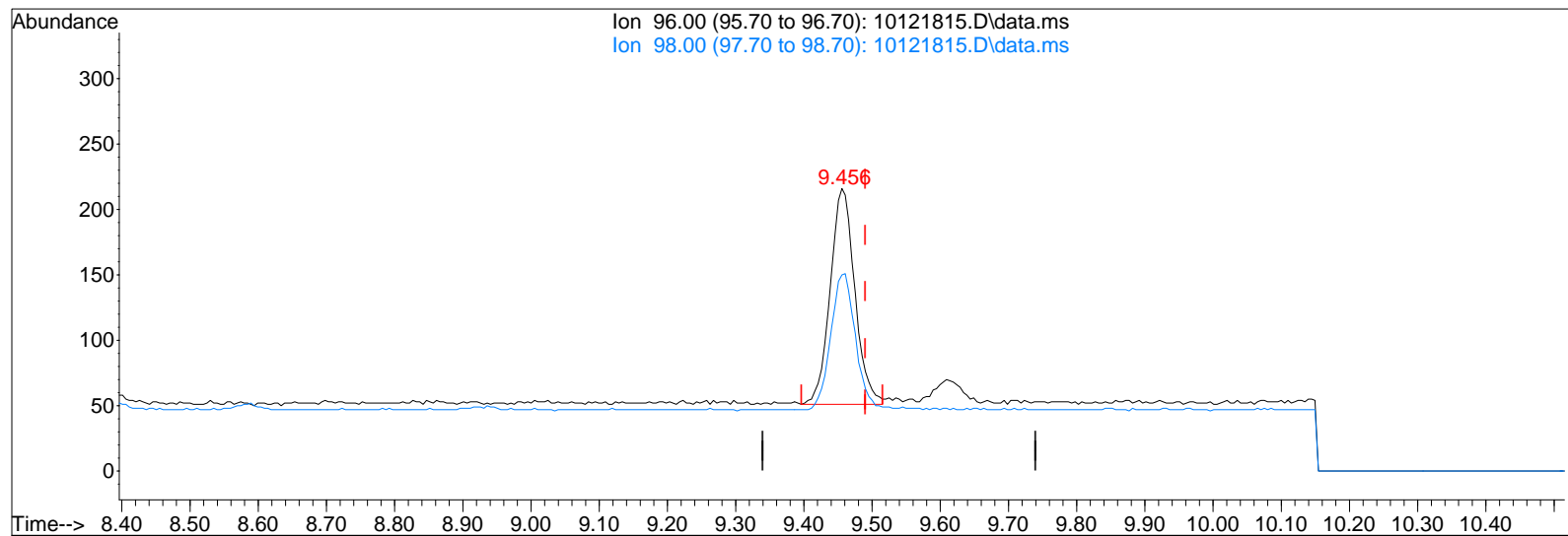
Quant Time: Oct 16 17:09:24 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\12\10121815.D  
Acq On : 12 Oct 2018 17:21  
Sample : P1805376-001 (1000mL)  
Misc : S31-09241806

Vial: 1  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:16 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121815.D\data.ms

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

9.456min (-0.034) 17.55pg

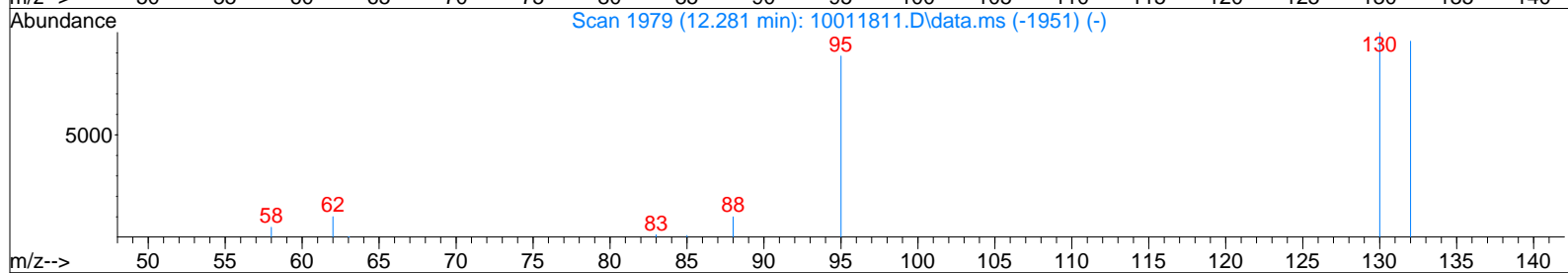
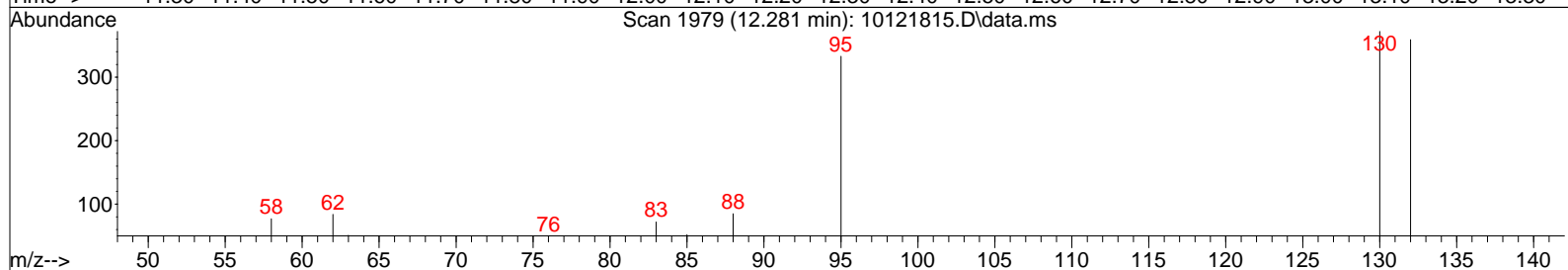
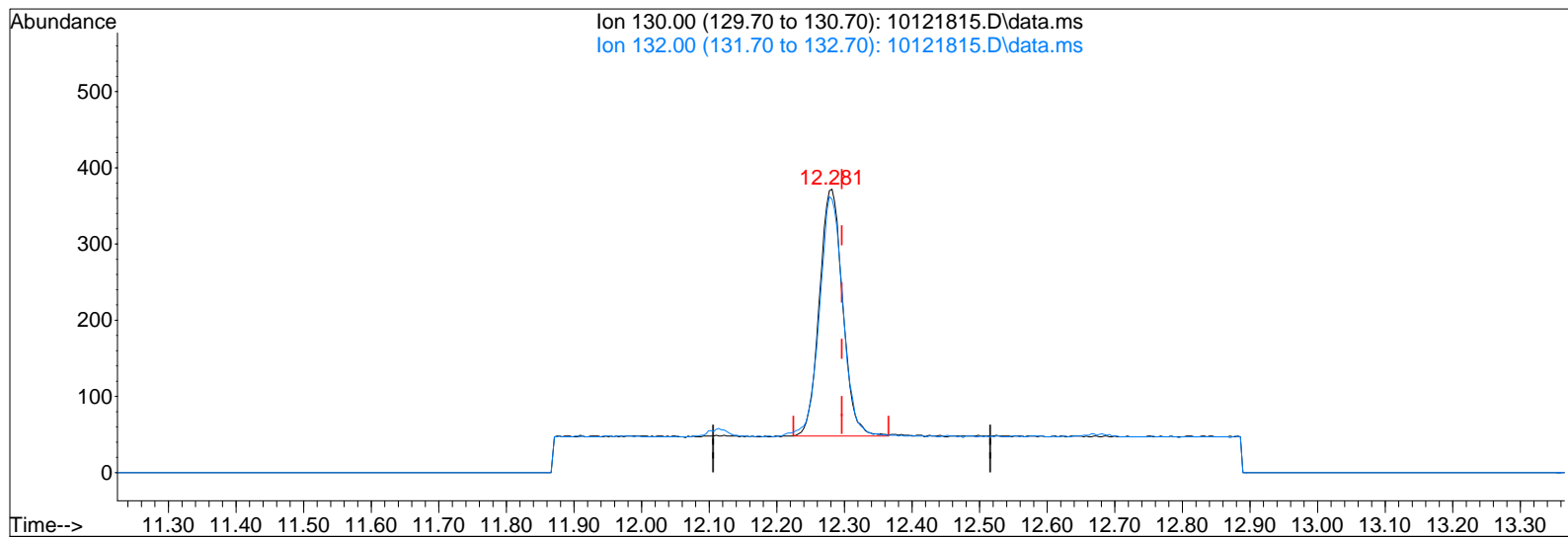
response 414

Ion	Exp%	Act%
96.00	100	100
98.00	64.50	62.80
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121815.D  
Acq On : 12 Oct 2018 17:21  
Sample : P1805376-001 (1000mL)  
Misc : S31-09241806

Vial: 1  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:16 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121815.D\data.ms

(28) Trichloroethene (T)

12.281min (-0.014) 30.81pg

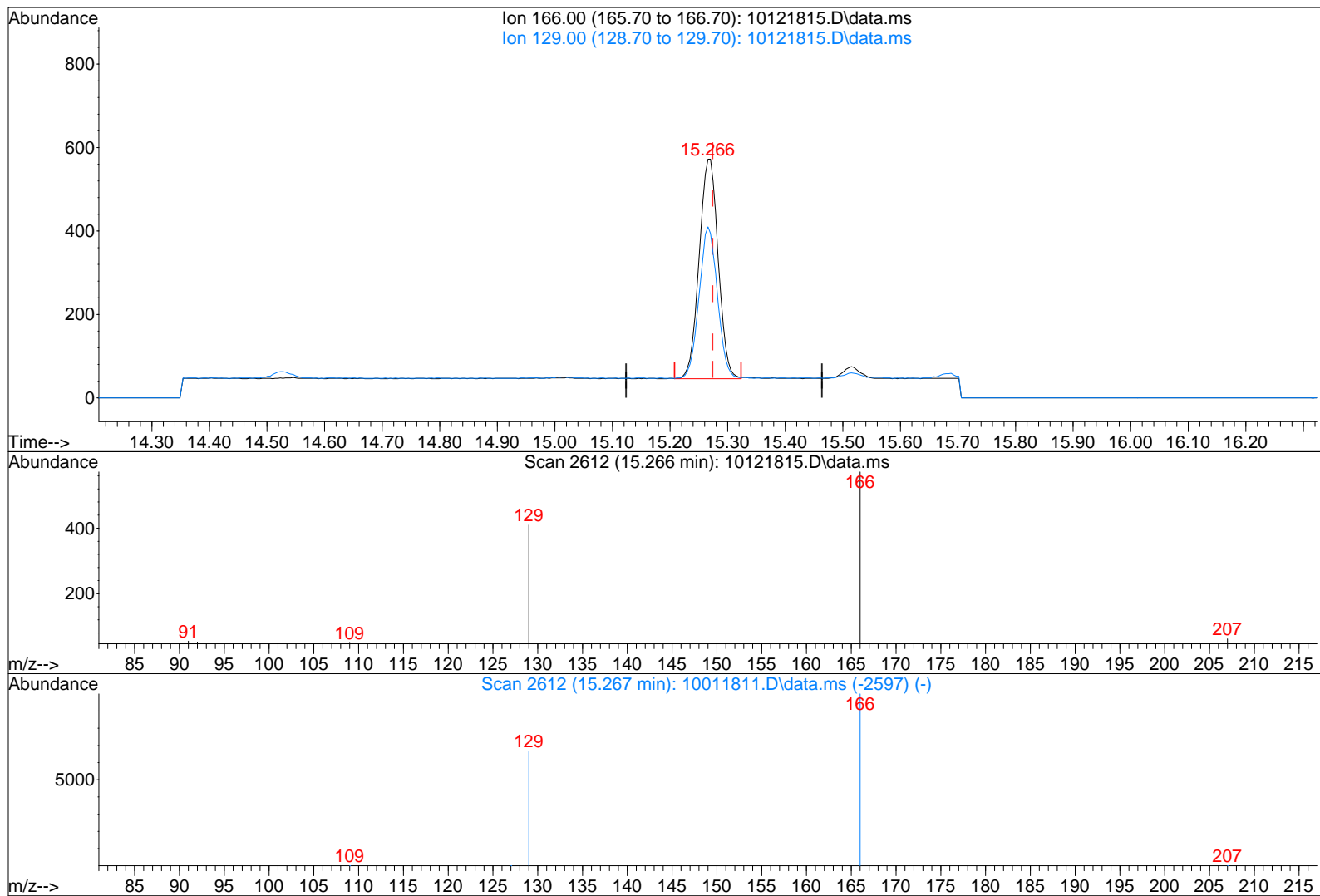
response 776

Ion	Exp%	Act%
130.00	100	100
132.00	95.60	98.58
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121815.D  
Acq On : 12 Oct 2018 17:21  
Sample : P1805376-001 (1000mL)  
Misc : S31-09241806

Vial: 1  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:16 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121815.D\data.ms

(37) Tetrachloroethene (T)

15.266min (-0.008) 44.50pg

response 1205

Ion	Exp%	Act%
166.00	100	100
129.00	66.70	66.31
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121817.D  
 Acq On : 12 Oct 2018 18:23  
 Sample : P1805376-002 (1000mL)  
 Misc : S31-09241806

Vial: 3  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 16 17:12:31 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

~~10/17/18~~ 10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19075	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	87033	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11603	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	20935	916.843	pg	-0.03
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	91.68%	
33) Toluene-d8 (SS2)	14.01	98	93590	1042.755	pg	-0.01
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	104.28%	
45) Bromofluorobenzene (SS3)	17.43	174	35445	1081.087	pg	0.00
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	108.11%	

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.31	85	51237	1260.624	pg	100
3) Chloromethane	4.52	52	2030	213.598	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	1661	56.693	pg	100
5) Vinyl Chloride	4.82	62	218	8.260	pg	89
6) 1,3-Butadiene	5.00	54	415	20.800	pg	93
7) Bromomethane	5.33	94	322	17.366	pg	96
8) Chloroethane	5.55	64	914	66.188	pg	99
9) Acrolein	6.12	56	18254	1635.251	pg	100
10) Acetone	6.26	58	205715	14536.034	pg	# 88
11) Trichlorofluoromethane	6.47	101	74786	2352.796	pg	100
12) 1,1-Dichloroethene	7.20	96	250	11.114	pg	98
13) Methylene Chloride	7.34	84	3945	167.421	pg	98
14) Trichlorotrifluoroethane	7.67	151	5169	232.026	pg	100
15) trans-1,2-Dichloroethene	8.37	96	246	10.511	pg	96
16) 1,1-Dichloroethane	8.59	63	644	17.631	pg	99
17) Methyl tert-Butyl Ether	8.66	73	200	N.D.		
18) cis-1,2-Dichloroethene	9.46	96	3664	147.096	pg	99
19) Chloroform	9.76	83	6828	173.276	pg	98
21) 1,2-Dichloroethane	10.51	62	858	35.203	pg	99
22) 1,1,1-Trichloroethane	10.78	97	2910	87.065	pg	100
23) Benzene	11.23	78	18214	183.987	pg	99
24) Carbon Tetrachloride	11.39	117	17340	568.379	pg	100
26) 1,2-Dichloropropane	12.05	63	212	9.780	pg	98
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.28	130	8037	295.538	pg	99
29) 1,4-Dioxane	12.25	88	5787	311.045	pg	96
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.	d	
34) Toluene	14.11	91	104095	1047.502	pg	100
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	14.84	107	74	N.D.		
37) Tetrachloroethene	15.27	166	32923	1125.839	pg	100
39) Chlorobenzene	15.96	112	4055	57.725	pg	98
40) Ethylbenzene	16.35	91	27397	256.116	pg	100
41) m,p-Xylene	16.52	91	72845	890.631	pg	97
42) Styrene	16.89	104	30064	462.767	pg	98
43) o-Xylene	17.00	106	24493	563.269	pg	# 29
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d	
46) 1,3,5-Trimethylbenzene	18.27	105	5535	60.521	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	24033	263.418	pg	90
48) 1,3-Dichlorobenzene	18.81	146	148	N.D.		
49) 1,4-Dichlorobenzene	18.87	146	892	14.902	pg	99
50) 1,2-Dichlorobenzene	19.20	146	123	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.82	182	139	N.D.		
53) Naphthalene	20.94	128	14977	140.345	pg	94

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Data File : I:\MS19\DATA\2018 10\12\10121817.D  
Acq On : 12 Oct 2018 18:23  
Sample : P1805376-002 (1000mL)  
Misc : S31-09241806

Vial: 3  
Operator: WA  
Inst : MS19

Quant Time: Oct 16 17:12:31 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

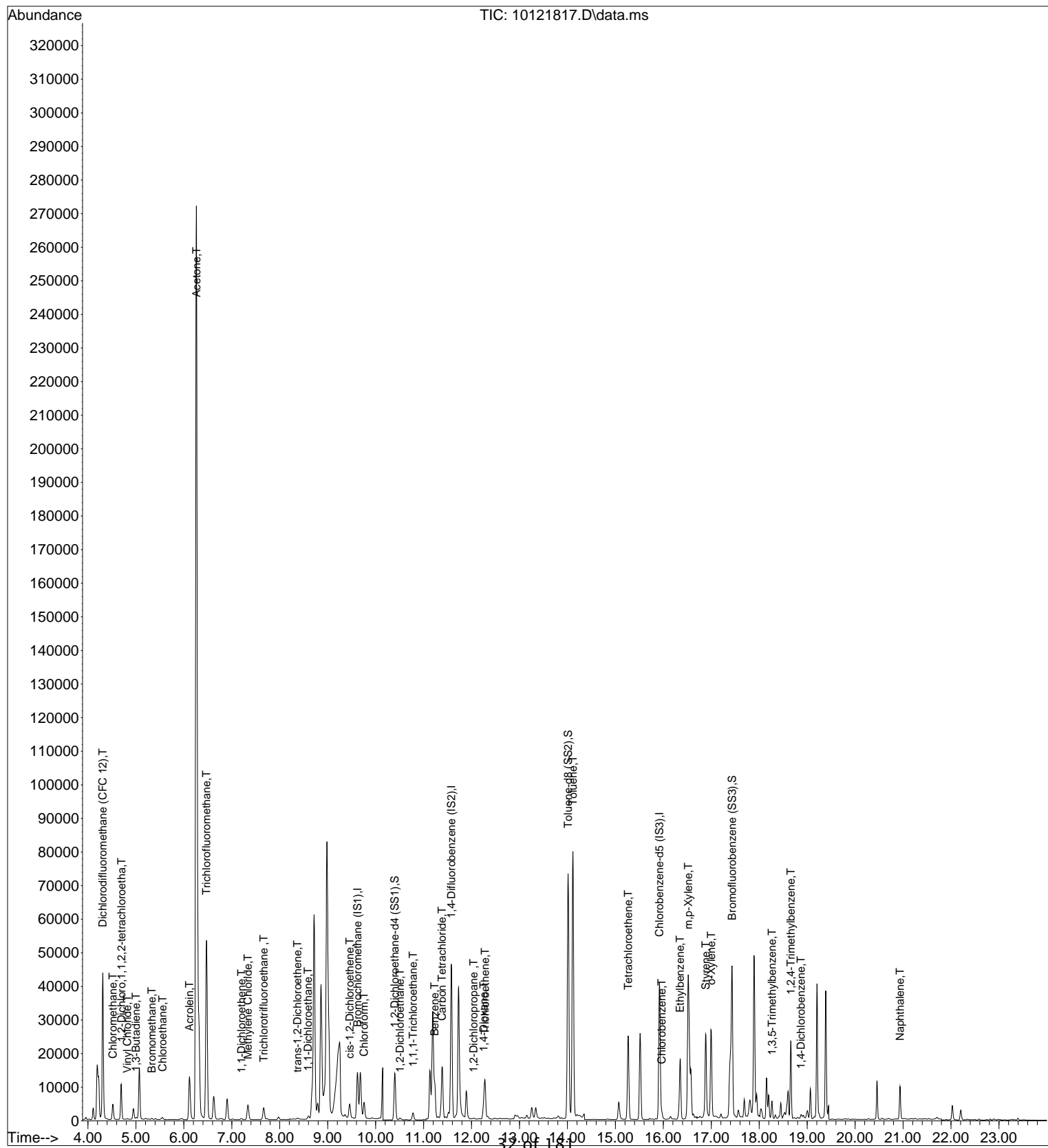
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	51	N.D.		

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

Data File : I:\MS19\DATA\2018 10\12\10121817.D  
Acq On : 12 Oct 2018 18:23  
Sample : P1805376-002 (1000mL)  
Misc : S31-09241806

Vial: 3  
Operator: WA  
Inst : MS19

Quant Time: Oct 16 17:12:31 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

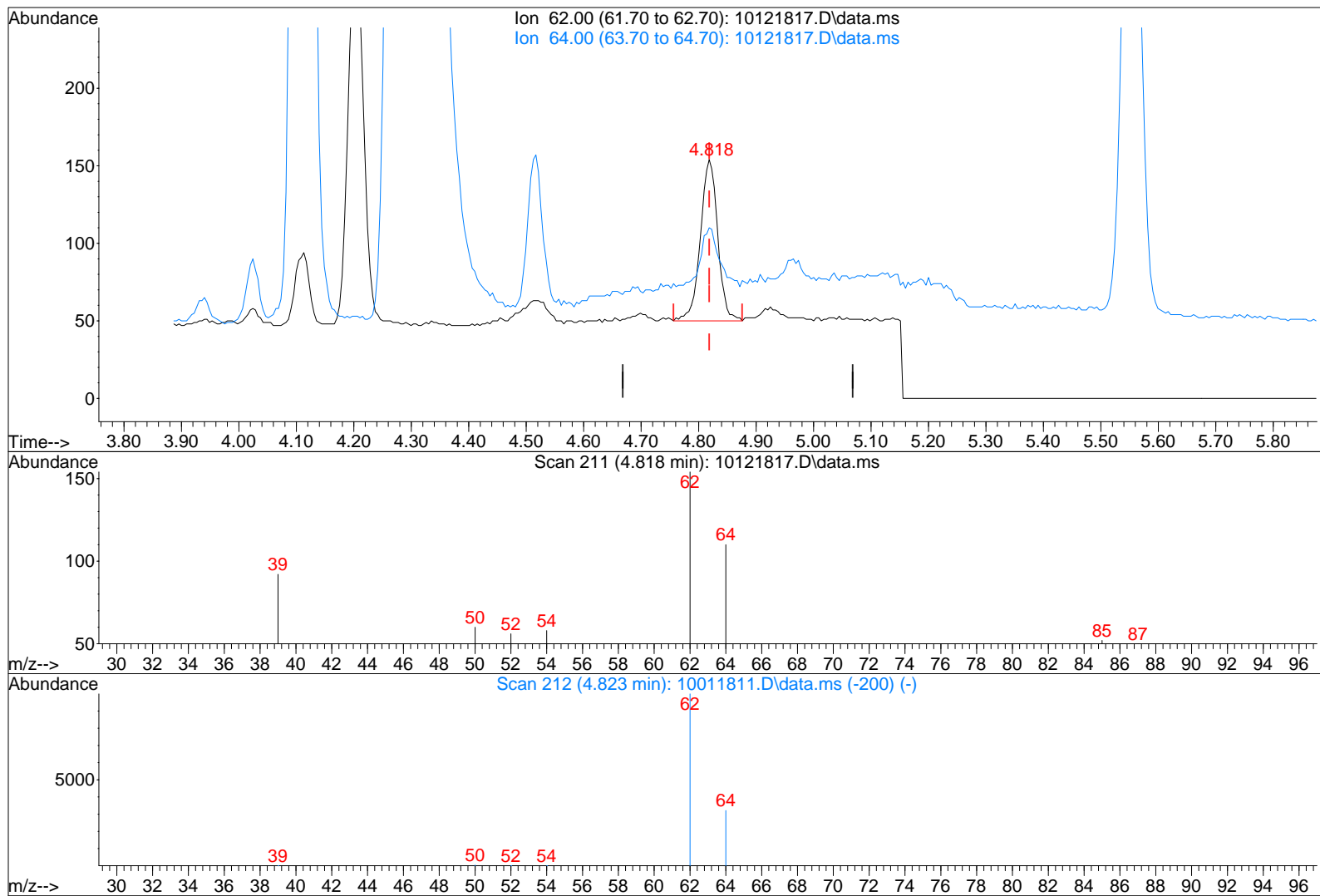




Data File : I:\MS19\DATA\2018 10\12\10121817.D  
Acq On : 12 Oct 2018 18:23  
Sample : P1805376-002 (1000mL)  
Misc : S31-09241806

Vial: 3  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:18 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121817.D\data.ms

(5) Vinyl Chloride (T)

4.818min (+0.000) 8.26pg

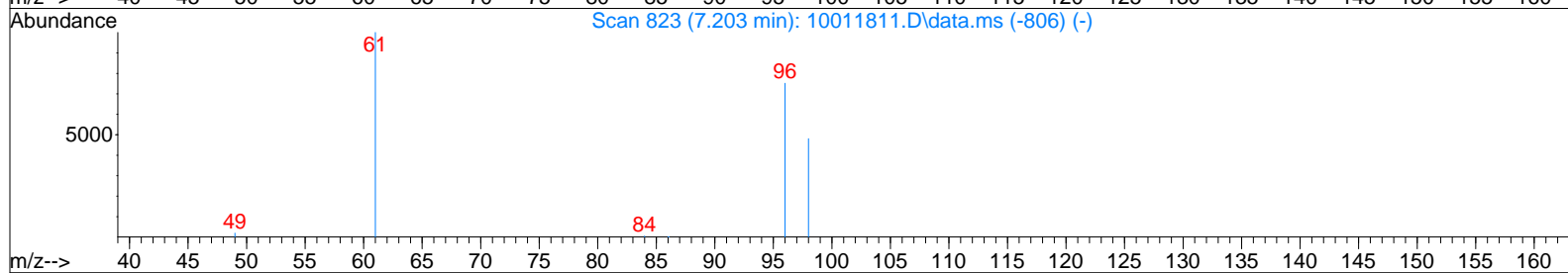
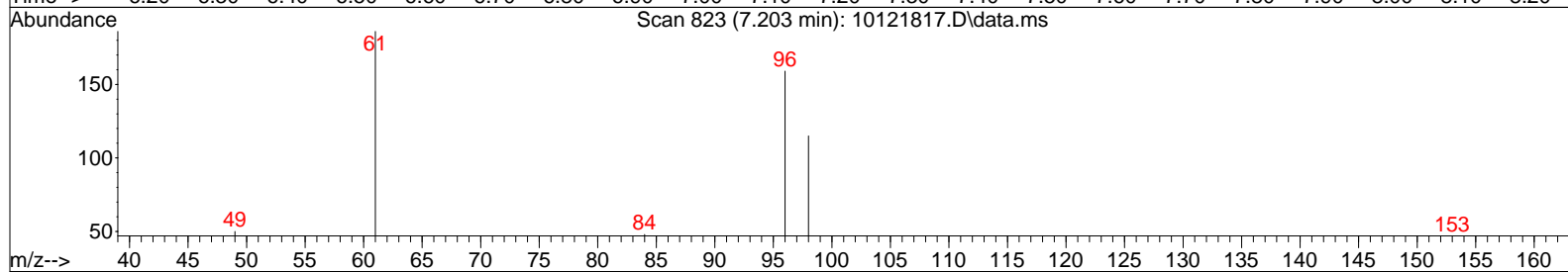
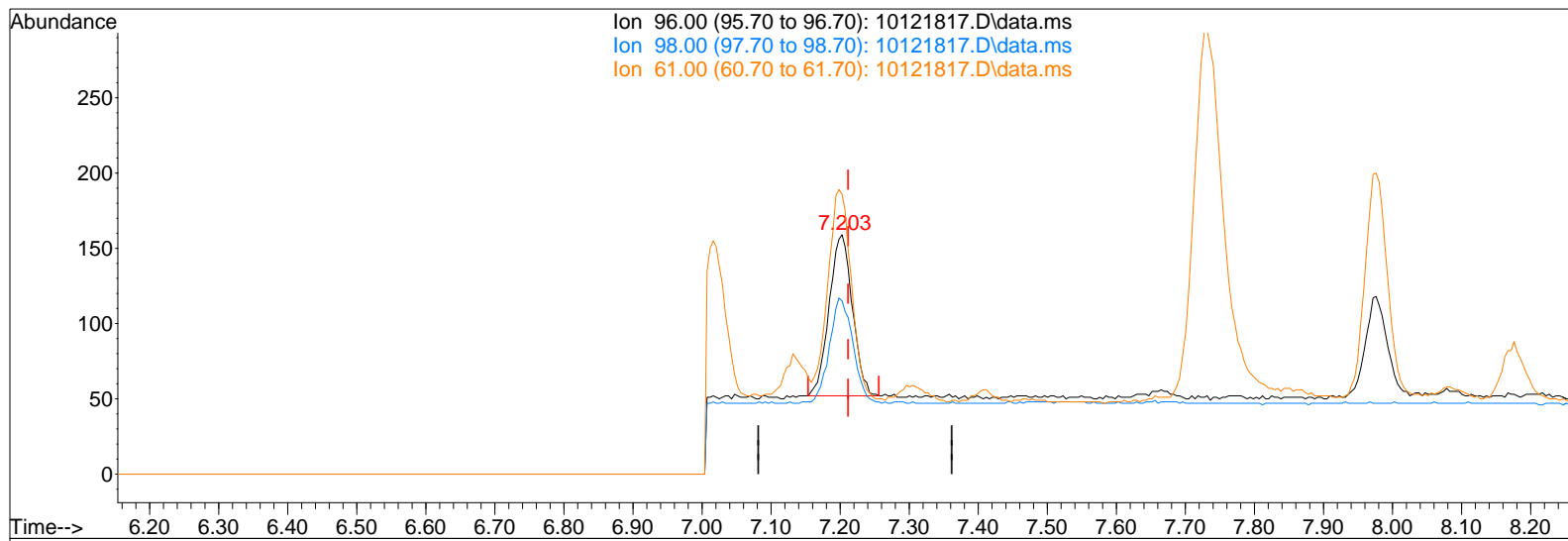
response 218

Ion	Exp%	Act%
62.00	100	100
64.00	32.80	38.99
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121817.D  
Acq On : 12 Oct 2018 18:23  
Sample : P1805376-002 (1000mL)  
Misc : S31-09241806

Vial: 3  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:18 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121817.D\data.ms

(12) 1,1-Dichloroethene (T)

7.203min (-0.009) 11.11pg

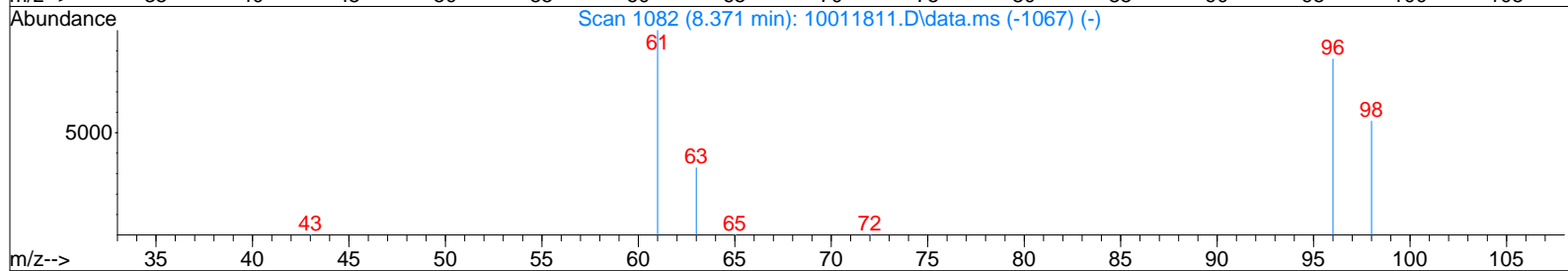
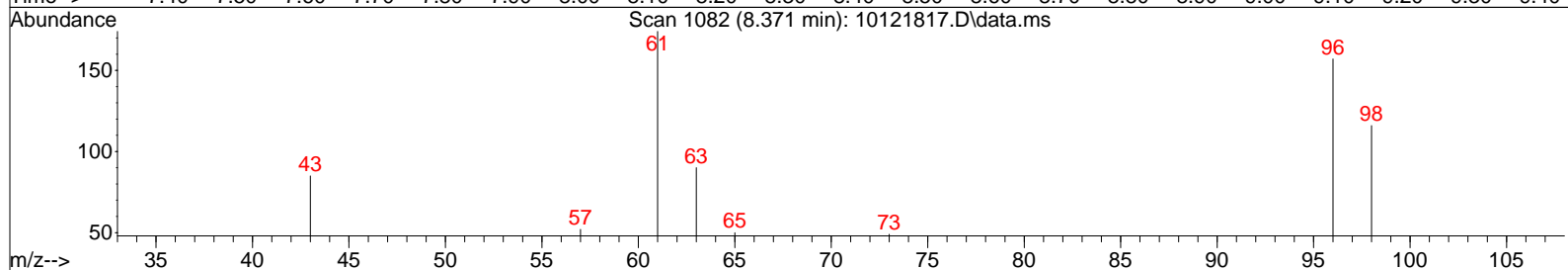
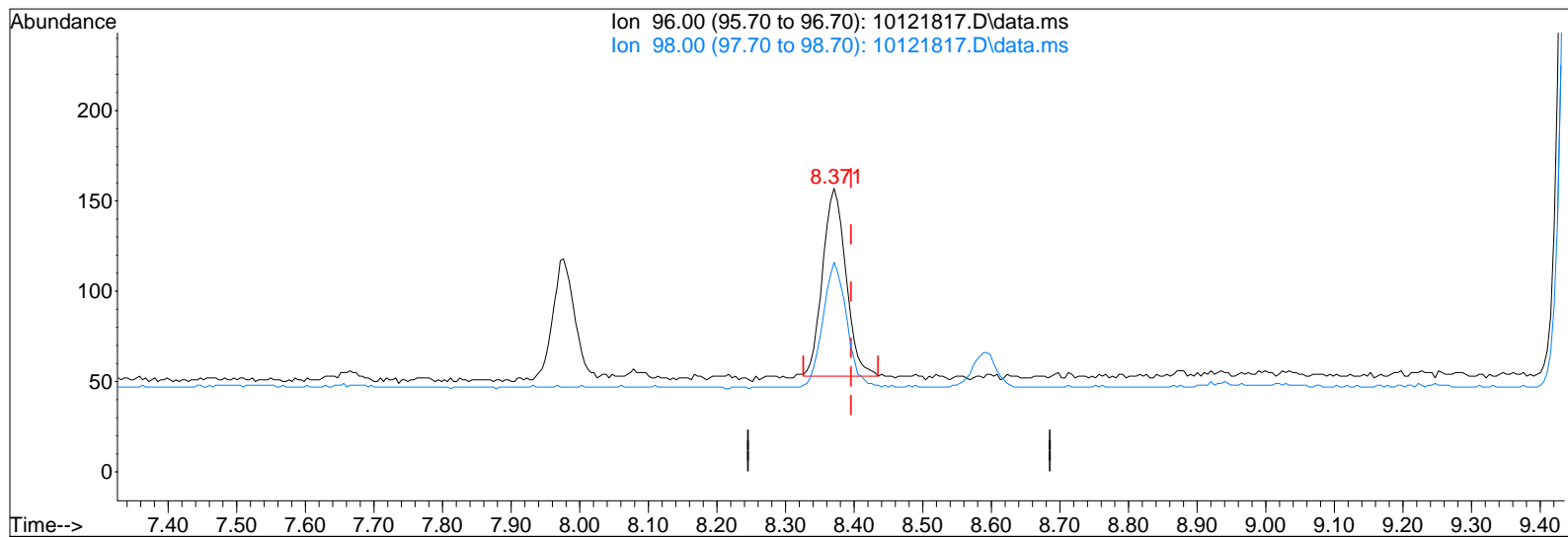
response 250

Ion	Exp%	Act%
96.00	100	100
98.00	64.20	66.00
61.00	134.10	131.60
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121817.D  
Acq On : 12 Oct 2018 18:23  
Sample : P1805376-002 (1000mL)  
Misc : S31-09241806

Vial: 3  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:18 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121817.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.371min (-0.025) 10.51pg

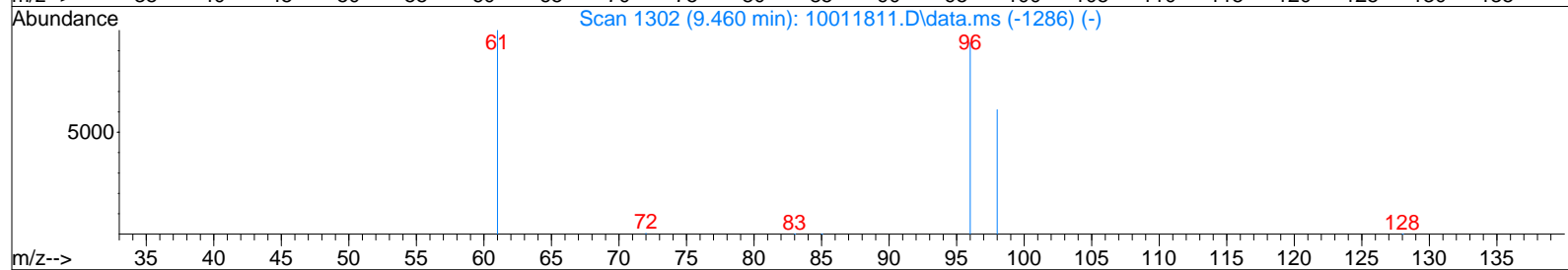
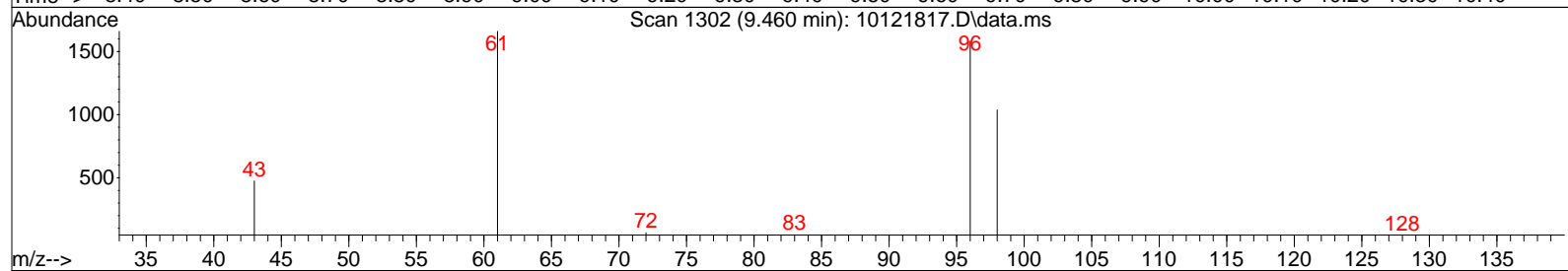
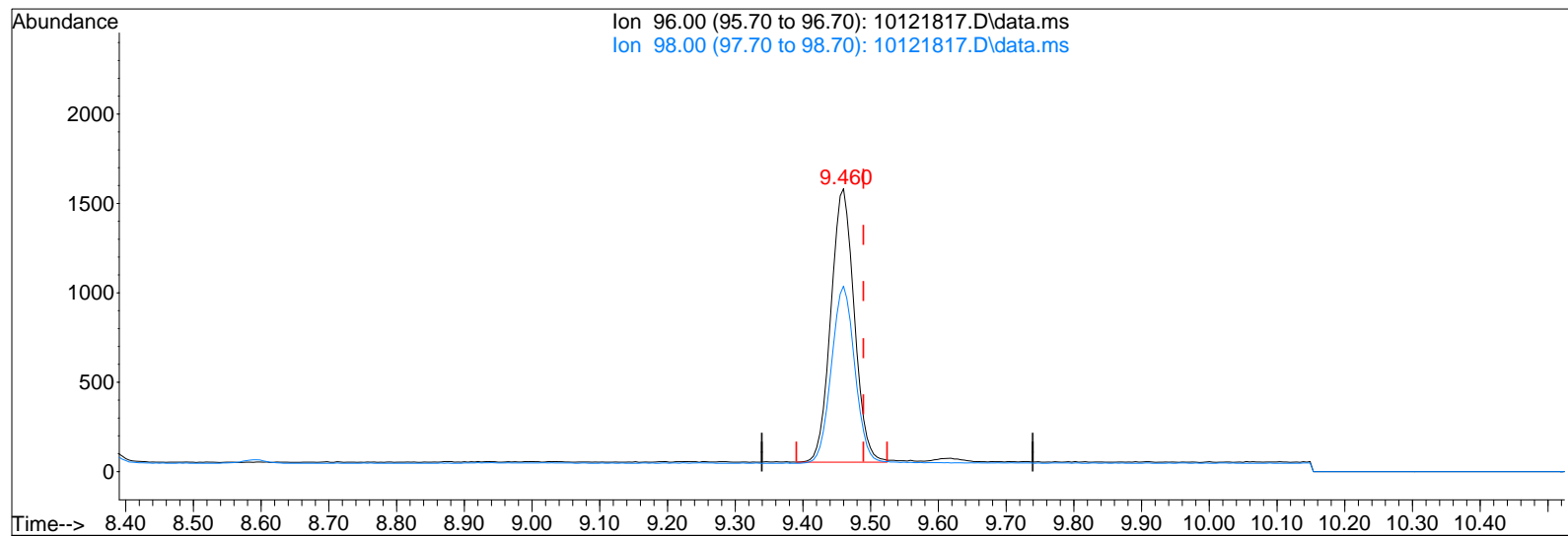
response 246

Ion	Exp%	Act%
96.00	100	100
98.00	64.10	67.07
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121817.D  
Acq On : 12 Oct 2018 18:23  
Sample : P1805376-002 (1000mL)  
Misc : S31-09241806

Vial: 3  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:18 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121817.D\data.ms

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

9.460min (-0.030) 147.10pg

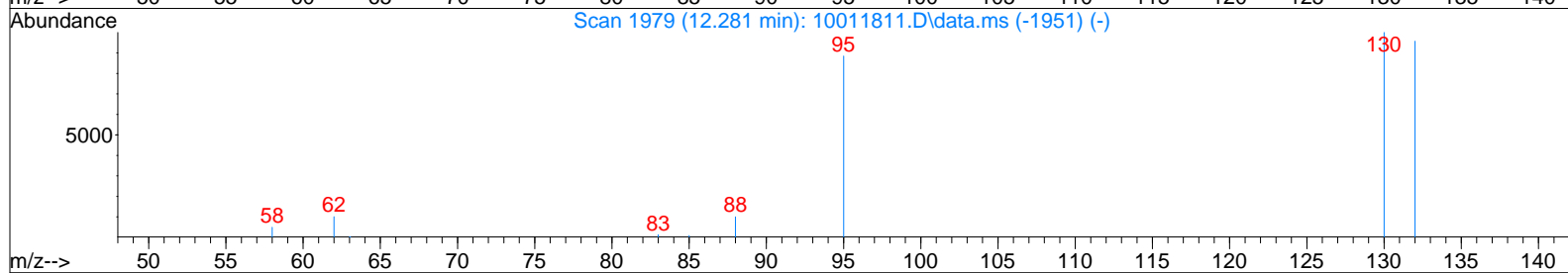
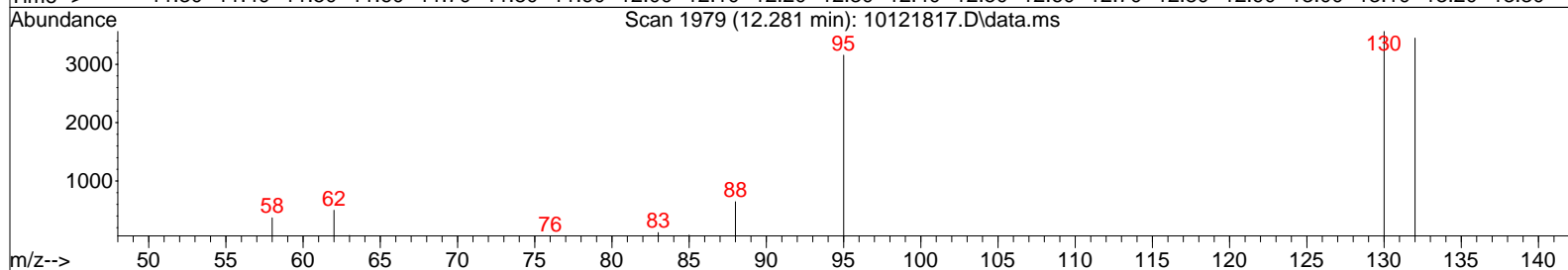
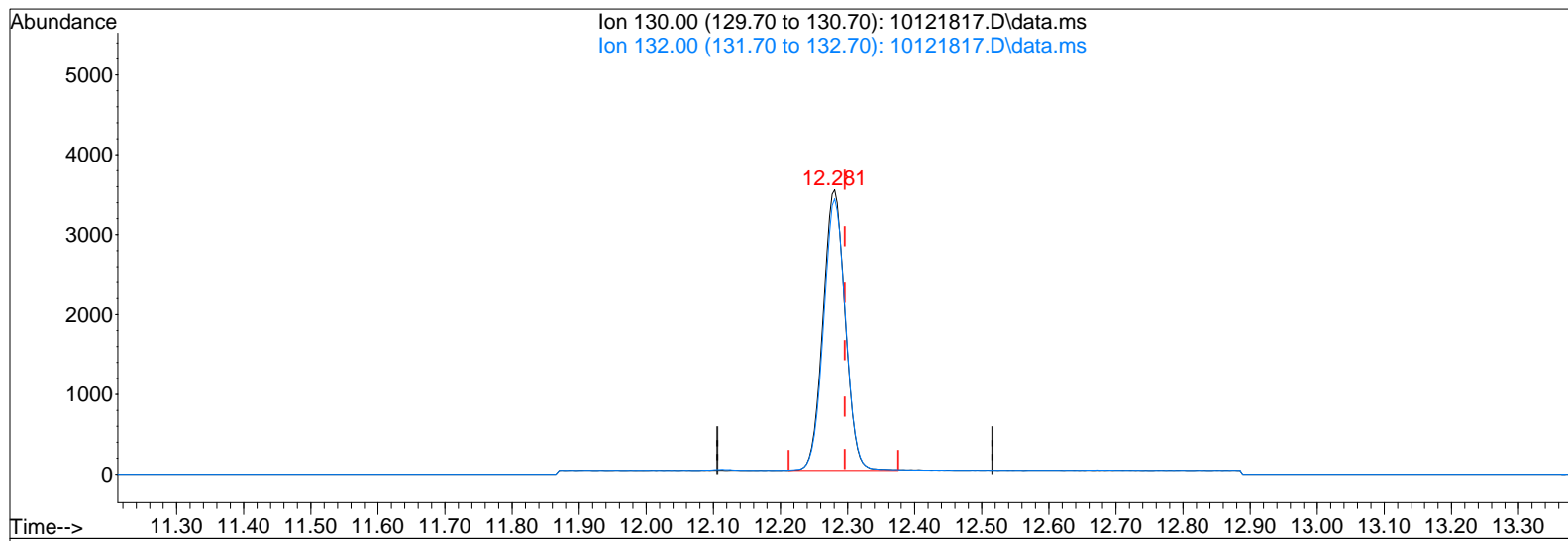
response 3664

Ion	Exp%	Act%
96.00	100	100
98.00	64.50	65.23
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121817.D  
Acq On : 12 Oct 2018 18:23  
Sample : P1805376-002 (1000mL)  
Misc : S31-09241806

Vial: 3  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:18 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121817.D\data.ms

(28) Trichloroethene (T)

12.281min (-0.015) 295.54pg

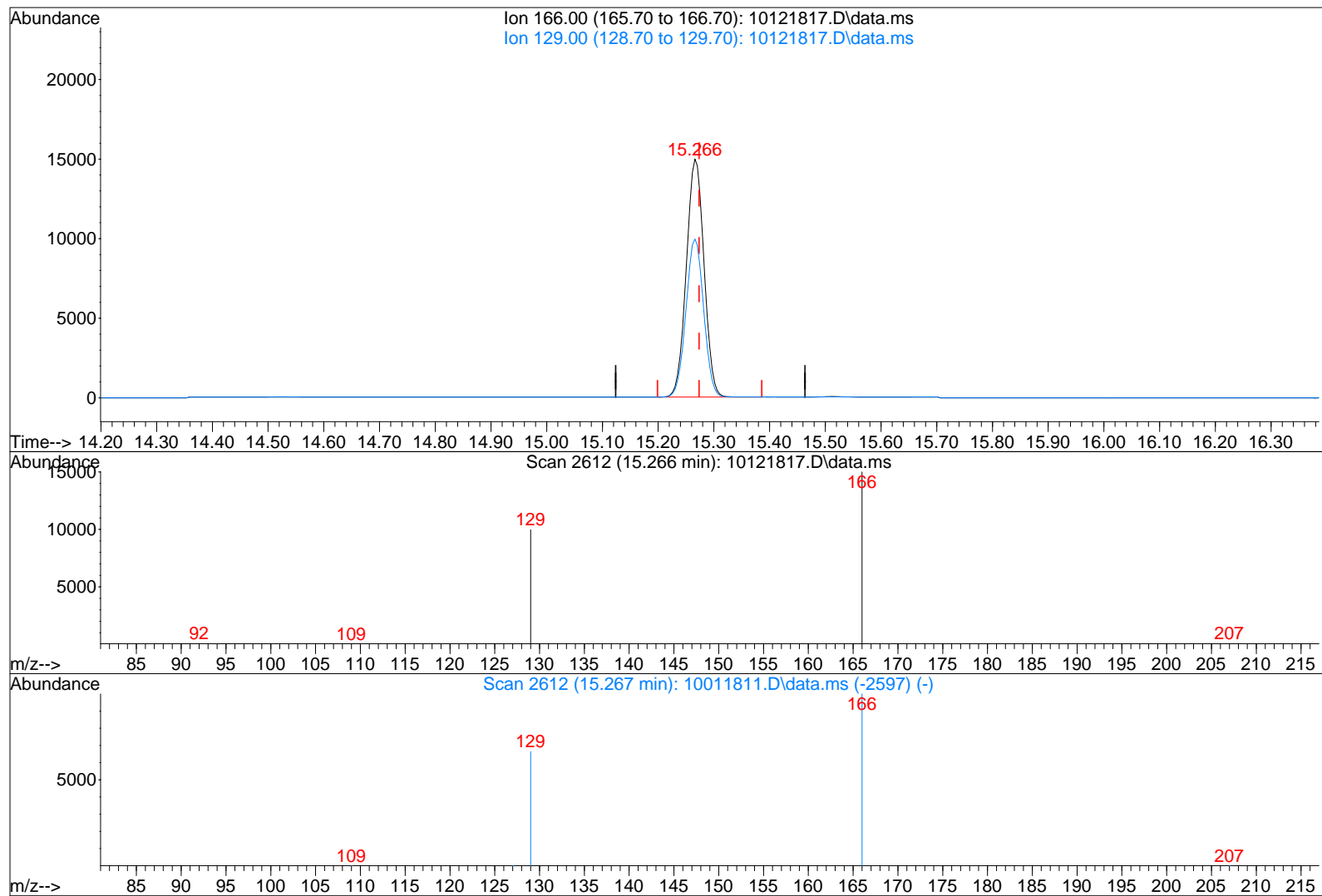
response 8037

Ion	Exp%	Act%
130.00	100	100
132.00	95.60	96.38
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121817.D  
Acq On : 12 Oct 2018 18:23  
Sample : P1805376-002 (1000mL)  
Misc : S31-09241806

Vial: 3  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:18 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121817.D\data.ms

(37) Tetrachloroethene (T)

15.266min (-0.008) 1125.84pg

response 32923

Ion	Exp%	Act%
166.00	100	100
129.00	66.70	66.56
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121818.D  
 Acq On : 12 Oct 2018 18:55  
 Sample : P1805376-003 (1000mL)  
 Misc : S31-09241806

Vial: 4  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 16 17:16:24 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

~~WA~~ 10/17/18

DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19041	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	87743	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	15.92	54	11374	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	20898	916.857	pg	-0.03
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	91.69%	
33) Toluene-d8 (SS2)	14.02	98	94668	1046.231	pg	-0.01
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	104.62%	
45) Bromofluorobenzene (SS3)	17.43	174	34046	1059.324	pg	0.00
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	105.93%	

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.31	85	51171	1261.249	pg	100
3) Chloromethane	4.52	52	790	83.273	pg	# 17
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1603	54.811	pg	99
5) Vinyl Chloride	4.81	62	8419	319.560	pg	99
6) 1,3-Butadiene	5.00	54	105	5.272	pg	# 16
7) Bromomethane	5.33	94	203	10.968	pg	98
8) Chloroethane	5.56	64	466	33.806	pg	97
9) Acrolein	6.13	56	2292	205.691	pg	100
10) Acetone	6.28	58	57353	4059.859	pg	# 87
11) Trichlorofluoromethane	6.47	101	106204	3347.185	pg	100
12) 1,1-Dichloroethene	7.19	96	70143	3123.859	pg	99
13) Methylene Chloride	7.33	84	4576	194.547	pg	100
14) Trichlorotrifluoroethane	7.67	151	15069	677.626	pg	100
15) trans-1,2-Dichloroethene	8.37	96	2572	110.097	pg	98
16) 1,1-Dichloroethane	8.58	63	24966	684.733	pg	99
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.	d	
18) cis-1,2-Dichloroethene	9.46	96	231480	9309.638	pg	100
19) Chloroform	9.76	83	8188	208.160	pg	99
21) 1,2-Dichloroethane	10.51	62	1261	51.830	pg	97
22) 1,1,1-Trichloroethane	10.78	97	1154077	34590.767	pg	100
23) Benzene	11.24	78	10406	105.303	pg	99
24) Carbon Tetrachloride	11.39	117	16563	543.879	pg	100
26) 1,2-Dichloropropane	12.05	63	231	10.570	pg	93
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.28	130	2027821	73964.092	pg	99
29) 1,4-Dioxane	0.00	88	0	N.D.	d	
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
32) 1,1,2-Trichloroethane	13.82	83	433	22.725	pg	99
34) Toluene	14.11	91	67476	673.513	pg	100
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.27	166	21804	739.579	pg	100
39) Chlorobenzene	15.97	112	696	10.107	pg	86
40) Ethylbenzene	16.35	91	21760	207.515	pg	100
41) m,p-Xylene	16.52	91	50827	633.942	pg	100
42) Styrene	16.89	104	10015	157.262	pg	94
43) o-Xylene	17.00	106	8305	194.837	pg	94
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d	
46) 1,3,5-Trimethylbenzene	18.27	105	2532	28.243	pg	98
47) 1,2,4-Trimethylbenzene	18.66	105	11667	130.453	pg	88
48) 1,3-Dichlorobenzene	18.81	146	62	N.D.		
49) 1,4-Dichlorobenzene	18.87	146	714	12.169	pg	100
50) 1,2-Dichlorobenzene	19.20	146	73	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.82	182	149	N.D.		
53) Naphthalene	20.94	128	8344	79.763	pg	96

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Data File : I:\MS19\DATA\2018 10\12\10121818.D  
Acq On : 12 Oct 2018 18:55  
Sample : P1805376-003 (1000mL)  
Misc : S31-09241806

Vial: 4  
Operator: WA  
Inst : MS19

Quant Time: Oct 16 17:16:24 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

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

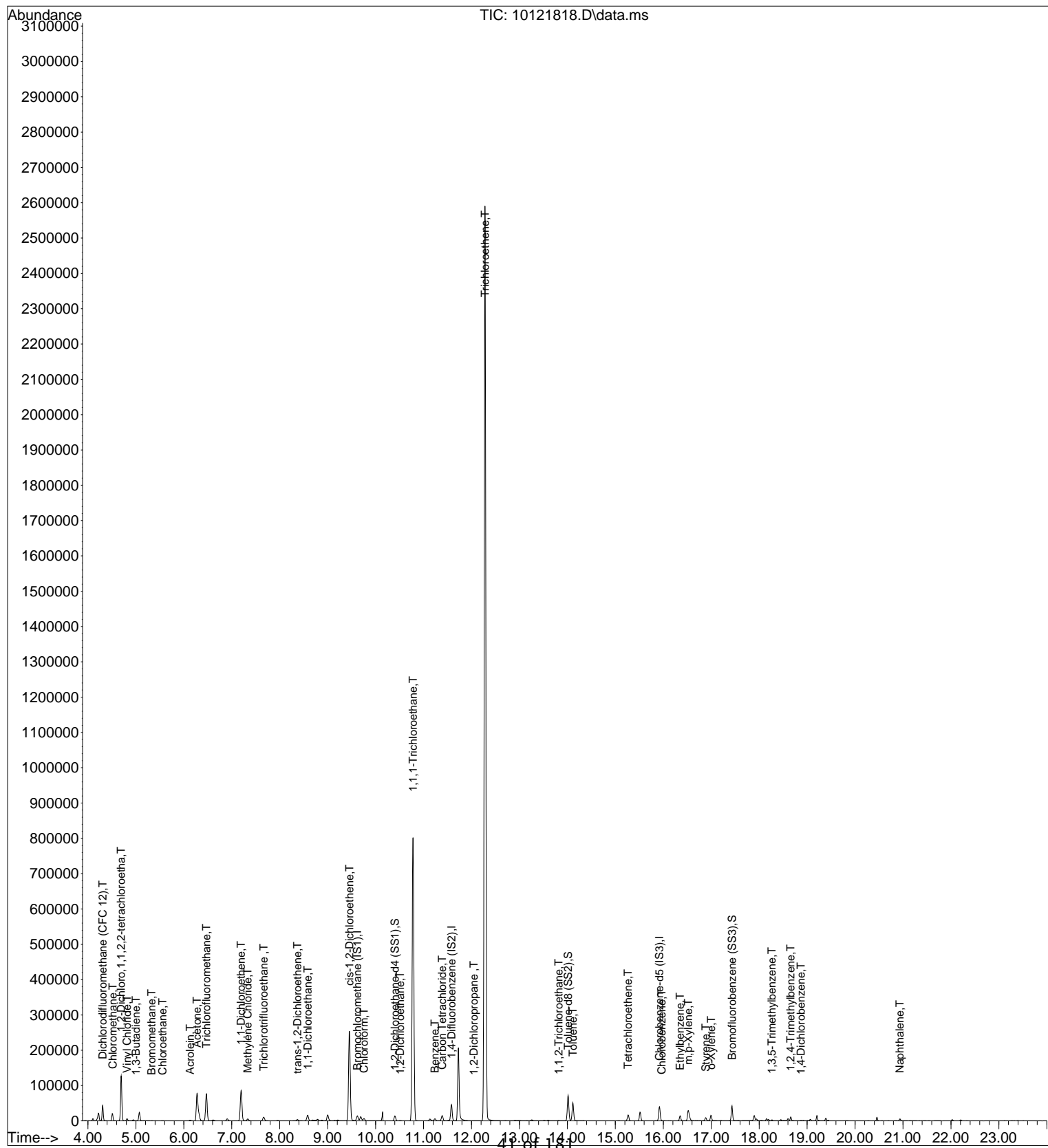
(#) = qualifier out of range (m) = manual integration (+) = signals summed



Data File : I:\MS19\DATA\2018 10\12\10121818.D  
Acq On : 12 Oct 2018 18:55  
Sample : P1805376-003 (1000mL)  
Misc : S31-09241806

Vial: 4  
Operator: WA  
Inst : MS19

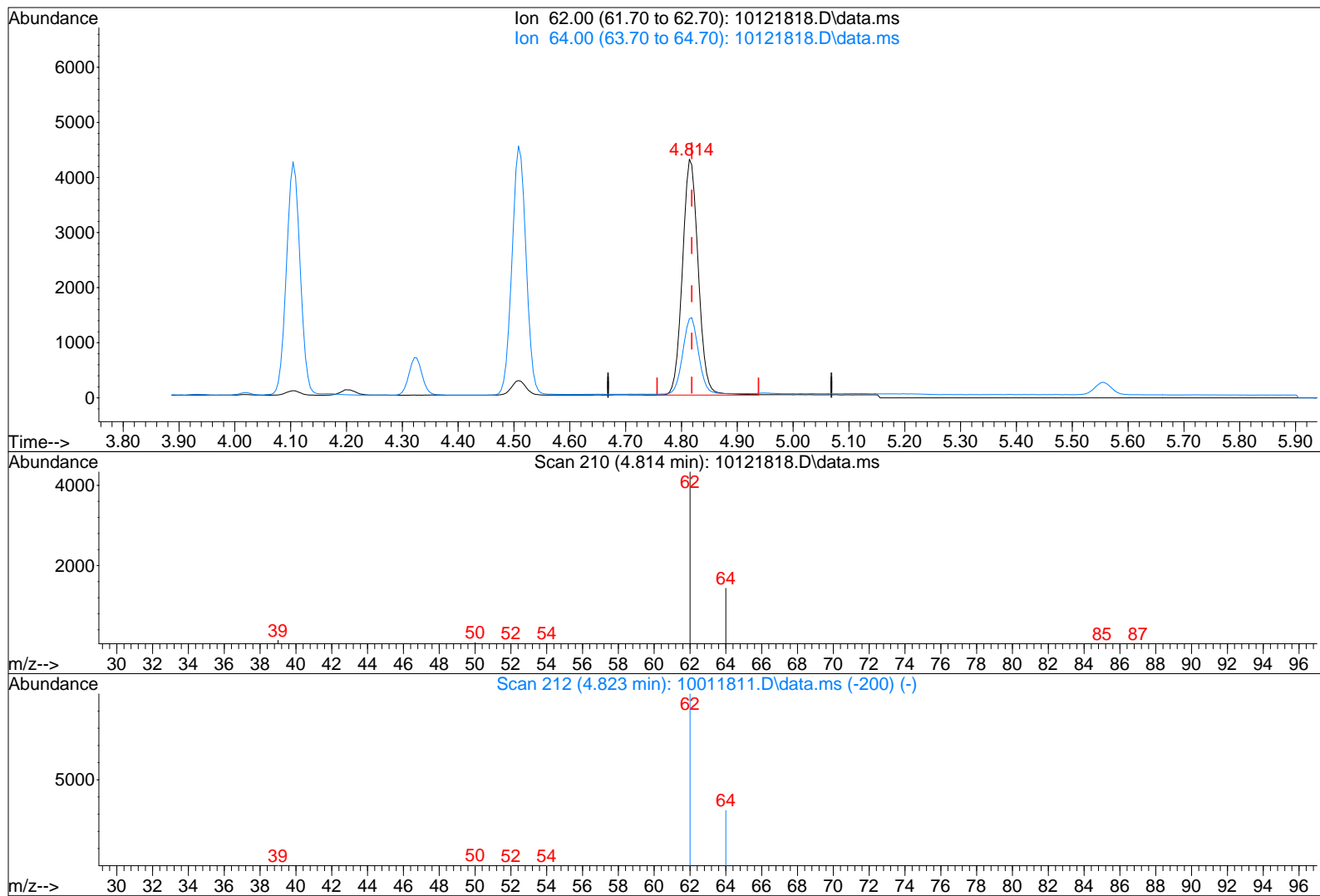
Quant Time: Oct 16 17:16:24 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\12\10121818.D  
Acq On : 12 Oct 2018 18:55  
Sample : P1805376-003 (1000mL)  
Misc : S31-09241806

Vial: 4  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:19 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121818.D\data.ms

(5) Vinyl Chloride (T)

4.814min (-0.004) 319.56pg

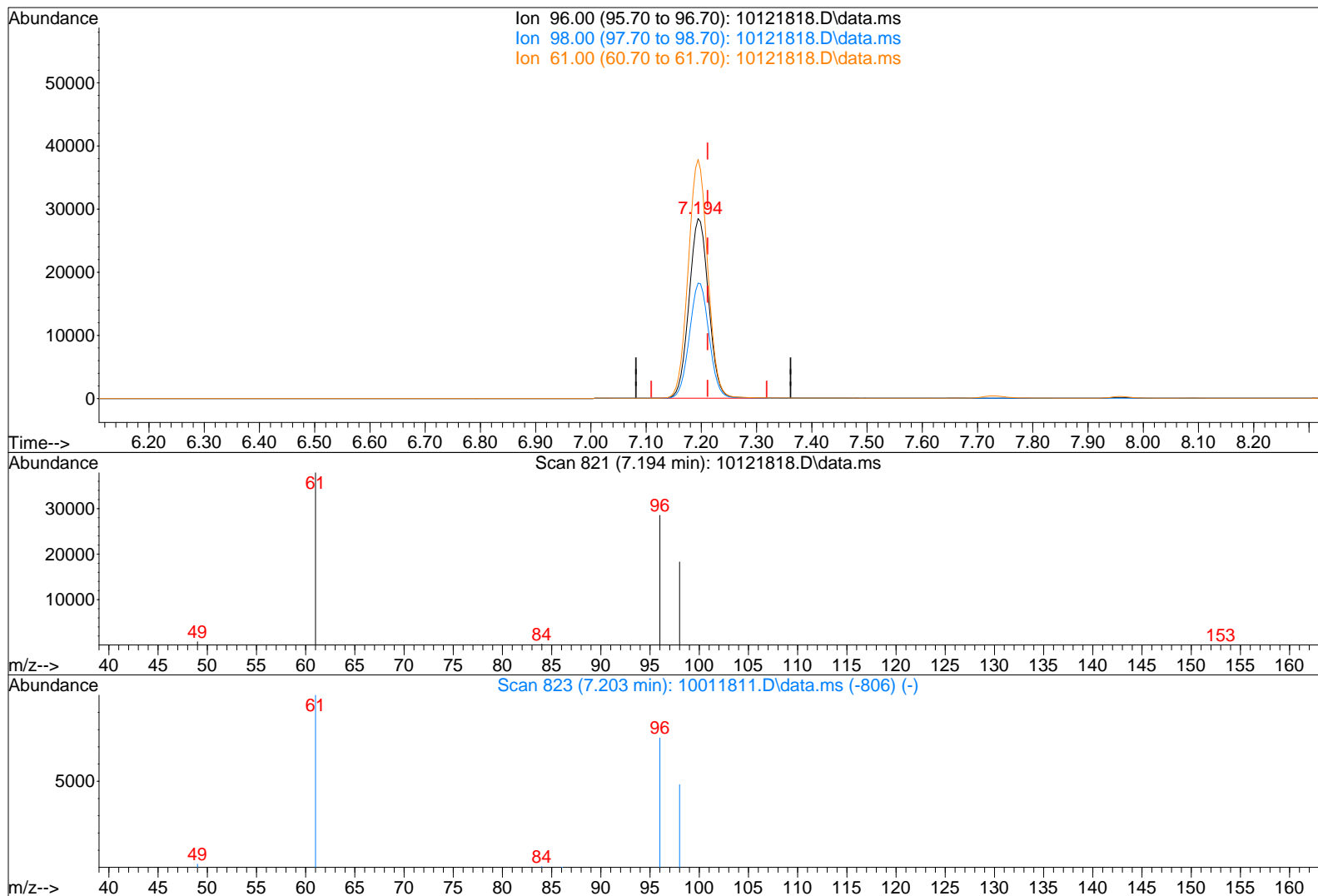
response 8419

Ion	Exp%	Act%
62.00	100	100
64.00	32.80	32.45
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121818.D  
Acq On : 12 Oct 2018 18:55  
Sample : P1805376-003 (1000mL)  
Misc : S31-09241806

Vial: 4  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:19 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121818.D\data.ms

(12) 1,1-Dichloroethene (T)

7.194min (-0.018) 3123.86pg

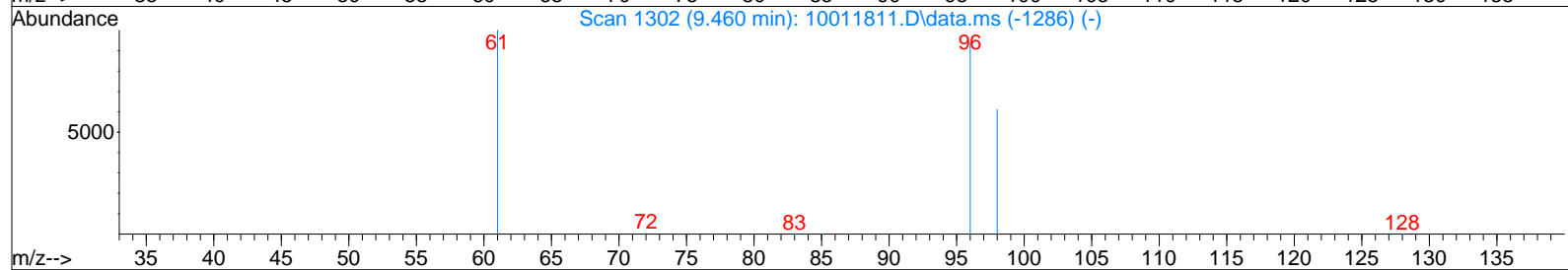
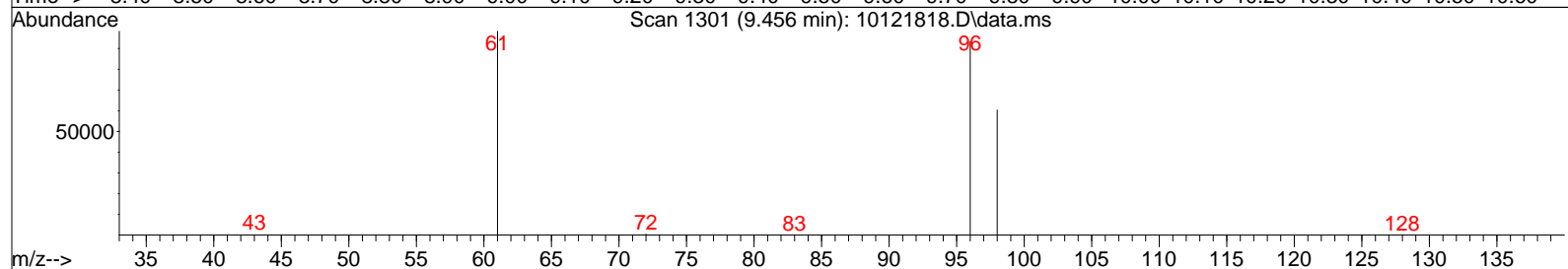
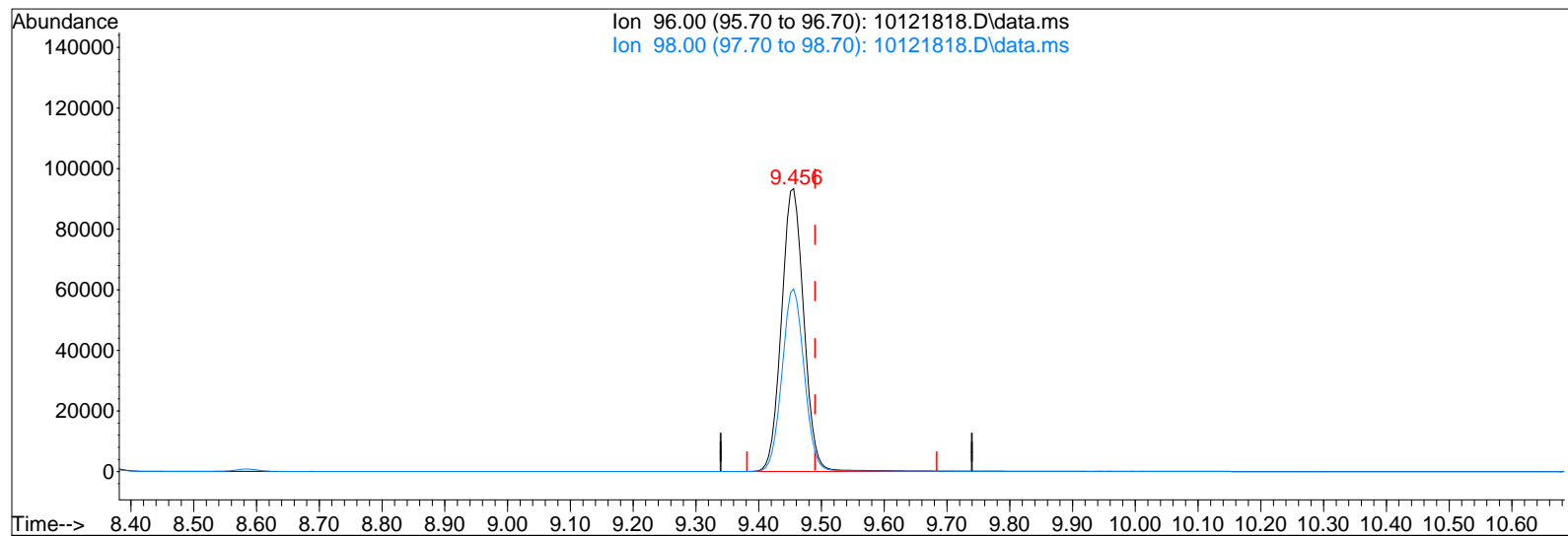
response 70143

Ion	Exp%	Act%
96.00	100	100
98.00	64.20	64.33
61.00	134.10	132.48
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121818.D  
Acq On : 12 Oct 2018 18:55  
Sample : P1805376-003 (1000mL)  
Misc : S31-09241806

Vial: 4  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:19 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121818.D\data.ms

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

9.456min (-0.034) 9309.64pg

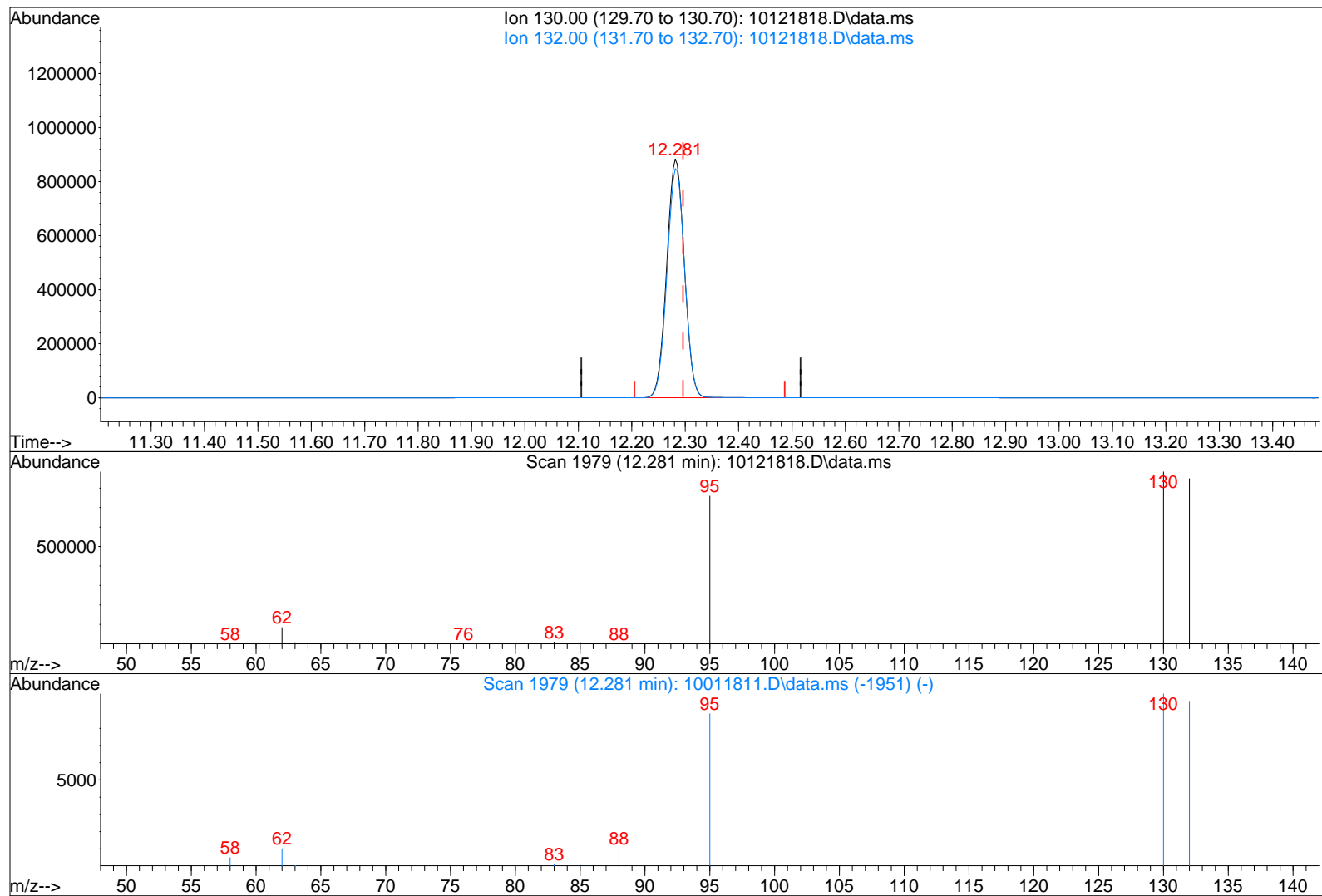
response 231480

Ion	Exp%	Act%
96.00	100	100
98.00	64.50	64.41
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121818.D  
Acq On : 12 Oct 2018 18:55  
Sample : P1805376-003 (1000mL)  
Misc : S31-09241806

Vial: 4  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:19 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121818.D\data.ms

(28) Trichloroethene (T)

12.281min (-0.015) 73964.09pg

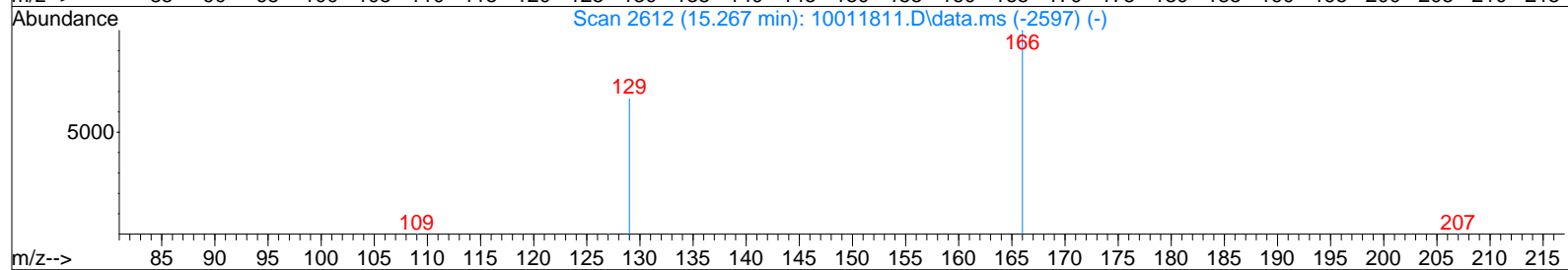
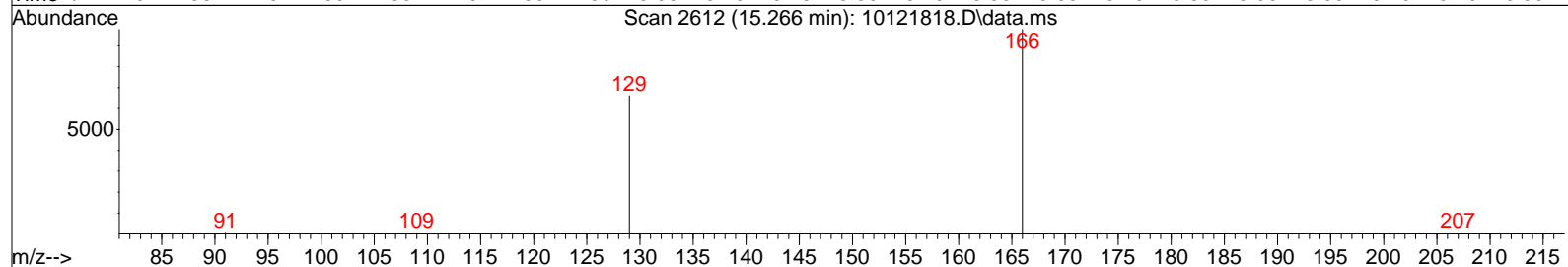
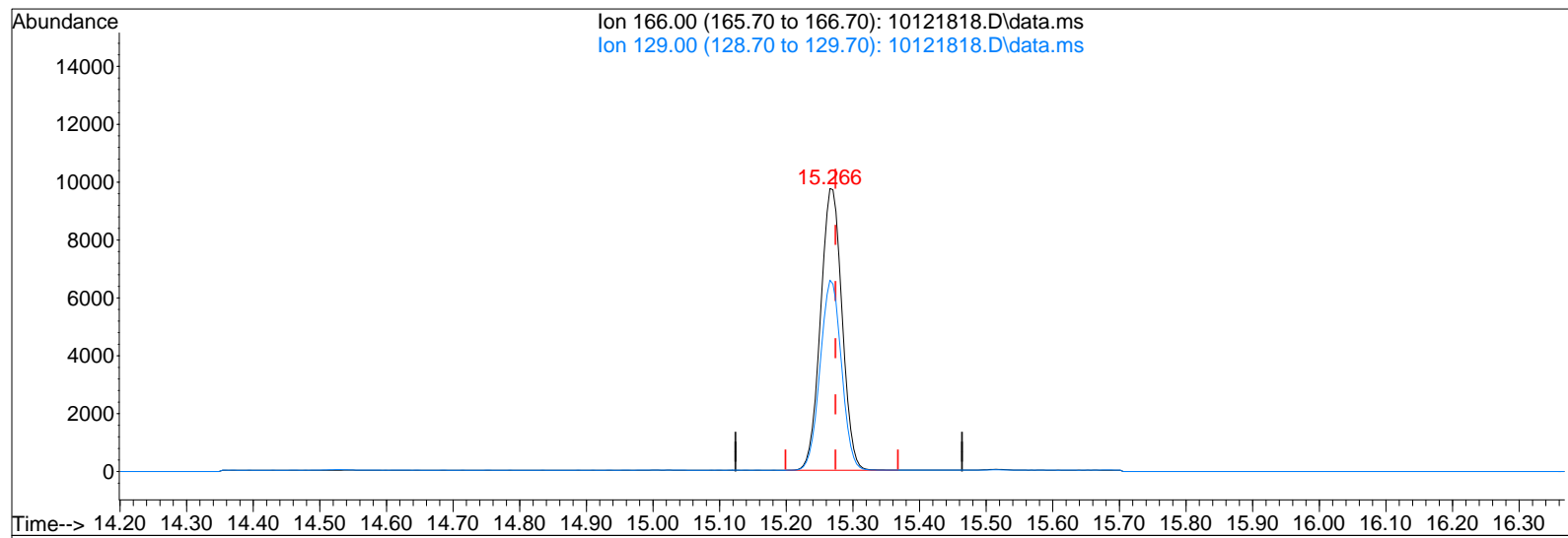
response 2027821

Ion	Exp%	Act%
130.00	100	100
132.00	95.60	96.28
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121818.D  
Acq On : 12 Oct 2018 18:55  
Sample : P1805376-003 (1000mL)  
Misc : S31-09241806

Vial: 4  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:19 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121818.D\data.ms

(37) Tetrachloroethene (T)

15.266min (-0.008) 739.58pg

response 21804

Ion	Exp%	Act%
166.00	100	100
129.00	66.70	66.94
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\16\10161825.D  
 Acq On : 16 Oct 2018 18:32  
 Sample : P1805376-003dil (200mL)  
 Misc : S31-09241806

Vial: 14  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 17 07:42:46 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

~~10/17/18~~ 10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	18528	1000.000	pg	-0.04
25) 1,4-Difluorobenzene (IS2)	11.58	114	81882	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10791	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	22069	995.040	pg	-0.03
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	99.50%
33) Toluene-d8 (SS2)	14.01	98	88229	1044.864	pg	-0.02
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	104.49%
45) Bromofluorobenzene (SS3)	17.43	174	32252	1057.720	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	105.77%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.31	85	9939	251.756	pg	100
3) Chloromethane	4.52	52	464	50.264	pg	# 74
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	314	11.034	pg	98
5) Vinyl Chloride	4.82	62	1610	62.803	pg	100
6) 1,3-Butadiene	0.00	54	0	N.D.		
7) Bromomethane	5.34	94	58	N.D.		
8) Chloroethane	5.57	64	94	7.008	pg	# 42
9) Acrolein	6.14	56	548	50.541	pg	99
10) Acetone	6.28	58	13706	997.072	pg	89
11) Trichlorofluoromethane	6.48	101	20179	653.581	pg	100
12) 1,1-Dichloroethene	7.21	96	5305	242.803	pg	99
13) Methylene Chloride	7.34	84	949	41.463	pg	99
14) Trichlorotrifluoroethane	7.67	151	2987	138.039	pg	100
15) trans-1,2-Dichloroethene	8.37	96	482	21.204	pg	96
16) 1,1-Dichloroethane	8.58	63	4765	134.306	pg	99
17) Methyl tert-Butyl Ether	8.59	73	77	N.D.		
18) cis-1,2-Dichloroethene	9.45	96	42486	1756.008	pg	100
19) Chloroform	9.75	83	1836	47.968	pg	99
21) 1,2-Dichloroethane	10.51	62	240	10.138	pg	97
22) 1,1,1-Trichloroethane	10.77	97	246885	7604.687	pg	100
23) Benzene	11.23	78	2468	25.666	pg	99
24) Carbon Tetrachloride	11.39	117	3210	108.325	pg	100
26) 1,2-Dichloropropane	12.05	63	53	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.28	130	364678	14253.612	pg	99
29) 1,4-Dioxane	0.00	88	0	N.D.	d	
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	13.61	75	52	N.D.		
32) 1,1,2-Trichloroethane	13.81	83	77	N.D.		
34) Toluene	14.11	91	13735	146.909	pg	100
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.27	166	4215	153.204	pg	100
39) Chlorobenzene	15.97	112	161	N.D.		
40) Ethylbenzene	16.35	91	3807	38.267	pg	100
41) m,p-Xylene	16.52	91	8554	112.454	pg	99
42) Styrene	16.89	104	1772	29.328	pg	94
43) o-Xylene	17.00	106	1552	38.377	pg	87
44) 1,1,2,2-Tetrachloroethane	17.00	83	148	N.D.		
46) 1,3,5-Trimethylbenzene	18.27	105	479	5.632	pg	98
47) 1,2,4-Trimethylbenzene	18.66	105	2098	24.726	pg	90
48) 1,3-Dichlorobenzene	18.88	146	185	N.D.		
49) 1,4-Dichlorobenzene	18.88	146	185	N.D.		
50) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.83	182	53	N.D.		
53) Naphthalene	20.94	128	1537	15.487	pg	100

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Data File : I:\MS19\DATA\2018 10\16\10161825.D  
Acq On : 16 Oct 2018 18:32  
Sample : P1805376-003dil (200mL)  
Misc : S31-09241806

Vial: 14  
Operator: WA  
Inst : MS19

Quant Time: Oct 17 07:42:46 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

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

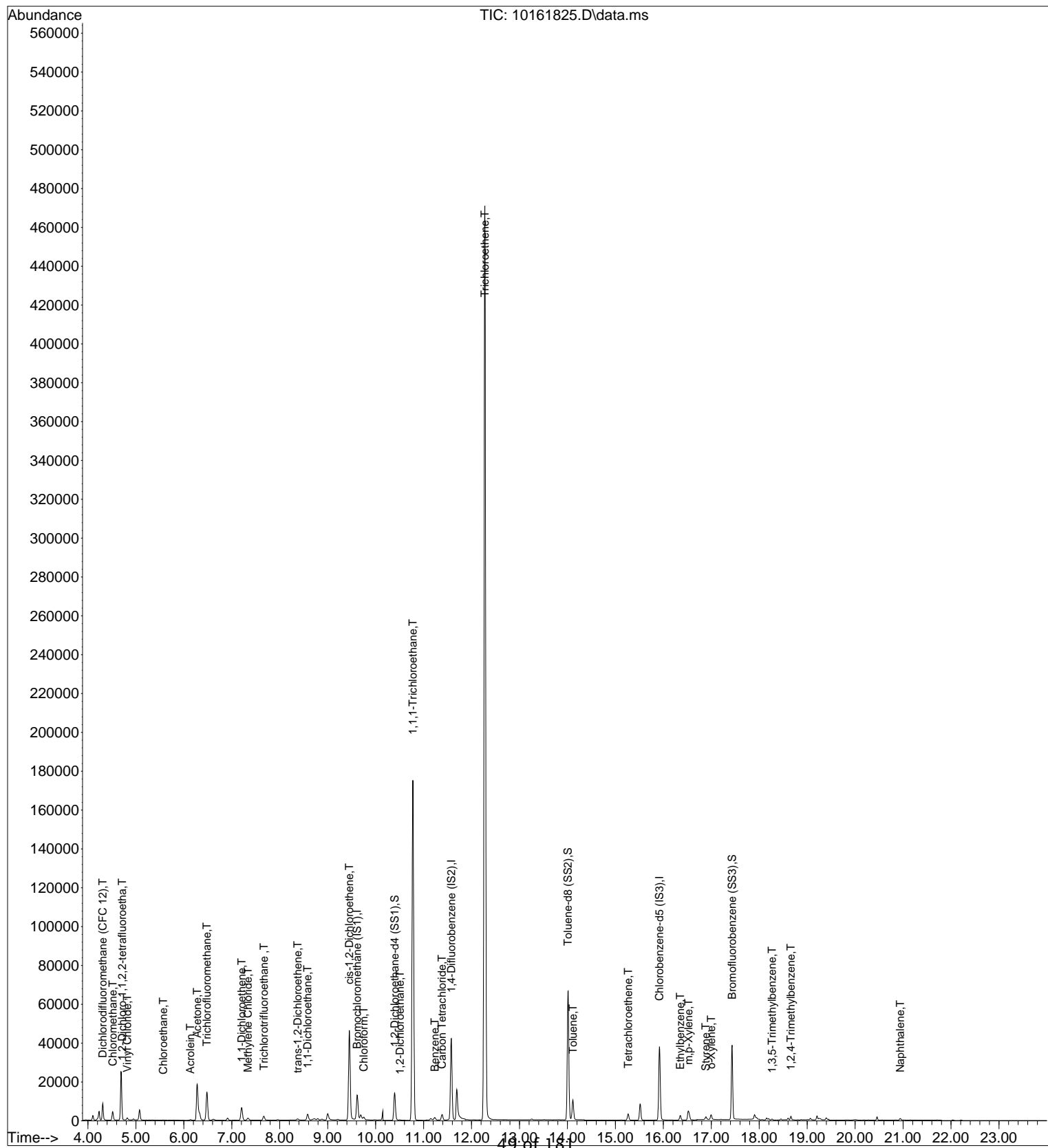
(#) = qualifier out of range (m) = manual integration (+) = signals summed



Data File : I:\MS19\DATA\2018 10\16\10161825.D  
Acq On : 16 Oct 2018 18:32  
Sample : P1805376-003dil (200mL)  
Misc : S31-09241806

Vial: 14  
Operator: WA  
Inst : MS19

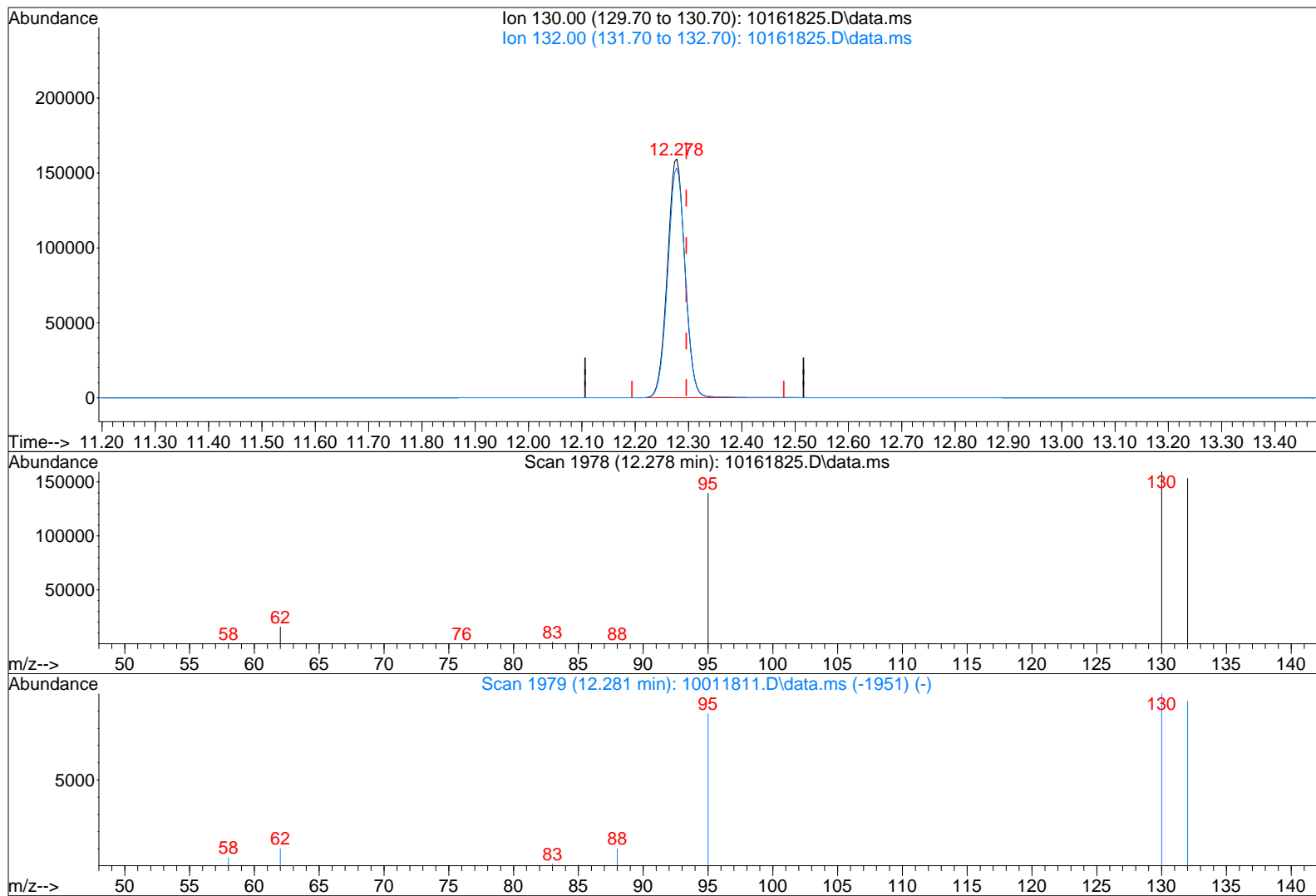
Quant Time: Oct 17 07:42:46 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\16\10161825.D  
Acq On : 16 Oct 2018 18:32  
Sample : P1805376-003dil (200mL)  
Misc : S31-09241806

Vial: 14  
Operator: WA  
Inst : MS19

Quant Time: Oct 17 07:41:52 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10161825.D\data.ms

(28) Trichloroethene (T)

12.278min (-0.018) 14253.61pg

response 364678

Ion	Exp%	Act%
130.00	100	100
132.00	95.60	96.13
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121819.D  
 Acq On : 12 Oct 2018 19:26  
 Sample : P1805376-004 (1000mL)  
 Misc : S31-09241806

Vial: 5  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 16 17:23:27 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

10/17/18

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19591	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	91478	1000.000	pg	-0.01
38) Chlorobenzene-d5 (IS3)	15.92	54	12189	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	21162	902.374	pg	-0.03
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	90.24%
33) Toluene-d8 (SS2)	14.02	98	99011	1049.551	pg	-0.01
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	104.96%
45) Bromofluorobenzene (SS3)	17.43	174	36752	1067.060	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	106.71%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.31	85	51255	1227.852	pg	100
3) Chloromethane	4.52	52	799	81.857	pg	# 21
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1612	53.571	pg	100
5) Vinyl Chloride	4.81	62	8687	320.476	pg	100
6) 1,3-Butadiene	5.00	54	311	15.177	pg	88
7) Bromomethane	5.33	94	168	8.822	pg	94
8) Chloroethane	5.55	64	558	39.343	pg	96
9) Acrolein	6.12	56	6067	529.186	pg	100
10) Acetone	6.27	58	85689	5895.396	pg	98
11) Trichlorofluoromethane	6.47	101	105254	3224.115	pg	100
12) 1,1-Dichloroethene	7.19	96	63277	2738.963	pg	99
13) Methylene Chloride	7.34	84	3663	151.359	pg	100
14) Trichlorotrifluoroethane	7.67	151	14564	636.531	pg	100
15) trans-1,2-Dichloroethene	8.37	96	2611	108.628	pg	99
16) 1,1-Dichloroethane	8.58	63	24883	663.297	pg	99
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.	d	
18) cis-1,2-Dichloroethene	9.46	96	235697	9213.116	pg	100
19) Chloroform	9.76	83	8185	202.242	pg	99
21) 1,2-Dichloroethane	10.51	62	1305	52.133	pg	99
22) 1,1,1-Trichloroethane	10.78	97	1165814	33961.575	pg	100
23) Benzene	11.24	78	10448	102.760	pg	99
24) Carbon Tetrachloride	11.39	117	16716	533.494	pg	100
26) 1,2-Dichloropropane	12.05	63	231	10.138	pg	93
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.28	130	2054372	71873.074	pg	99
29) 1,4-Dioxane	0.00	88	0	N.D.	d	
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.	d	
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
32) 1,1,2-Trichloroethane	13.81	83	796	40.070	pg	# 69
34) Toluene	14.11	91	59761	572.150	pg	100
35) Dibromochloromethane	14.52	129	52	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.27	166	22156	720.834	pg	100
39) Chlorobenzene	15.96	112	692	9.377	pg	90
40) Ethylbenzene	16.35	91	27798	247.371	pg	100
41) m,p-Xylene	16.52	91	62616	728.762	pg	85
42) Styrene	16.89	104	12343	180.858	pg	95
43) o-Xylene	17.00	106	311352	6815.969	pg	# 1
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d	
46) 1,3,5-Trimethylbenzene	18.27	105	5002	52.063	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	22168	231.295	pg	# 77
48) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d	
49) 1,4-Dichlorobenzene	18.87	146	847	13.470	pg	98
50) 1,2-Dichlorobenzene	19.20	146	92	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.82	182	83	N.D.		
53) Naphthalene	20.94	128	38353	342.116	pg	99

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Data File : I:\MS19\DATA\2018 10\12\10121819.D  
Acq On : 12 Oct 2018 19:26  
Sample : P1805376-004 (1000mL)  
Misc : S31-09241806

Vial: 5  
Operator: WA  
Inst : MS19

Quant Time: Oct 16 17:23:27 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

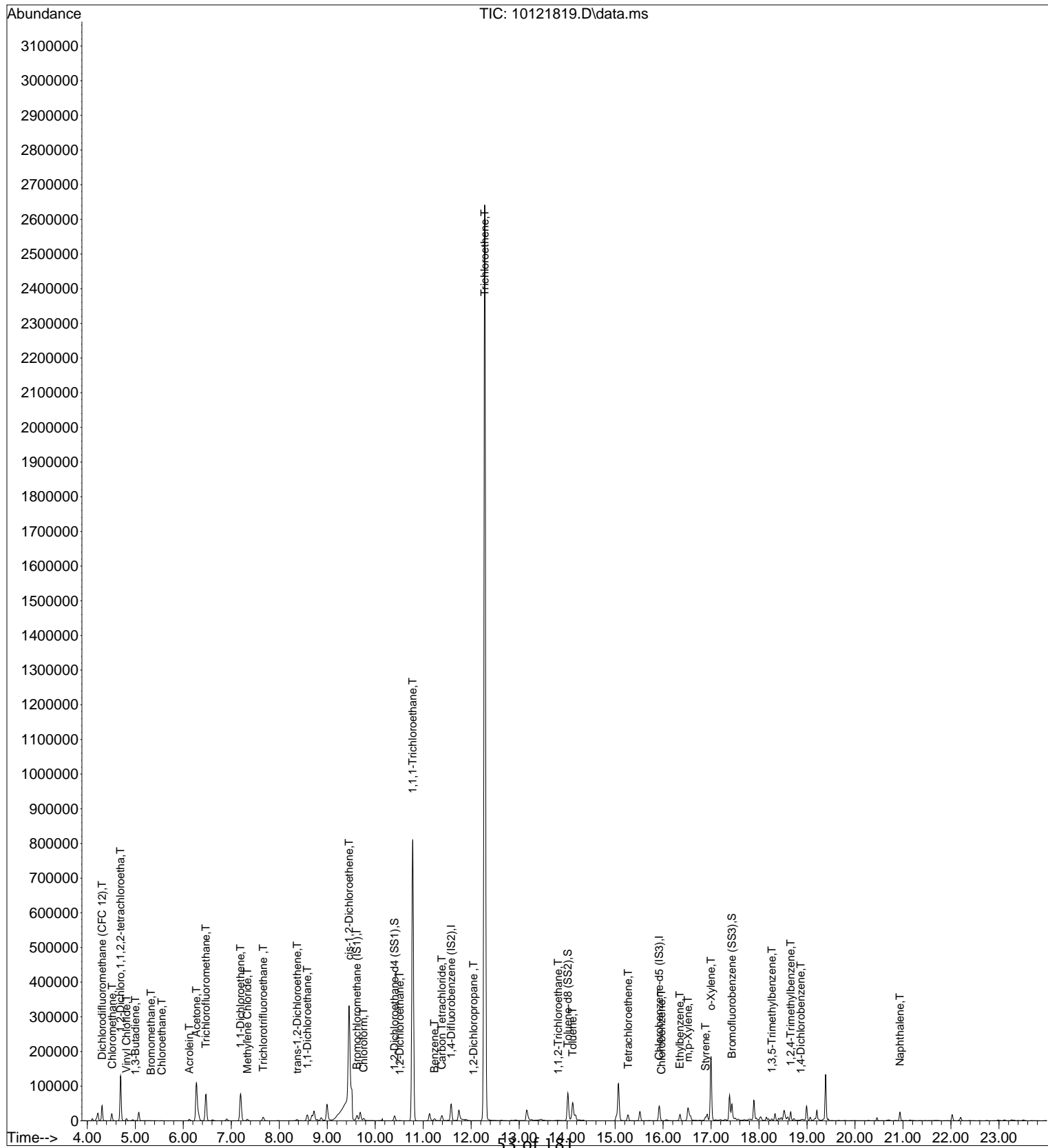
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

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

Data File : I:\MS19\DATA\2018 10\12\10121819.D  
Acq On : 12 Oct 2018 19:26  
Sample : P1805376-004 (1000mL)  
Misc : S31-09241806

Vial: 5  
Operator: WA  
Inst : MS19

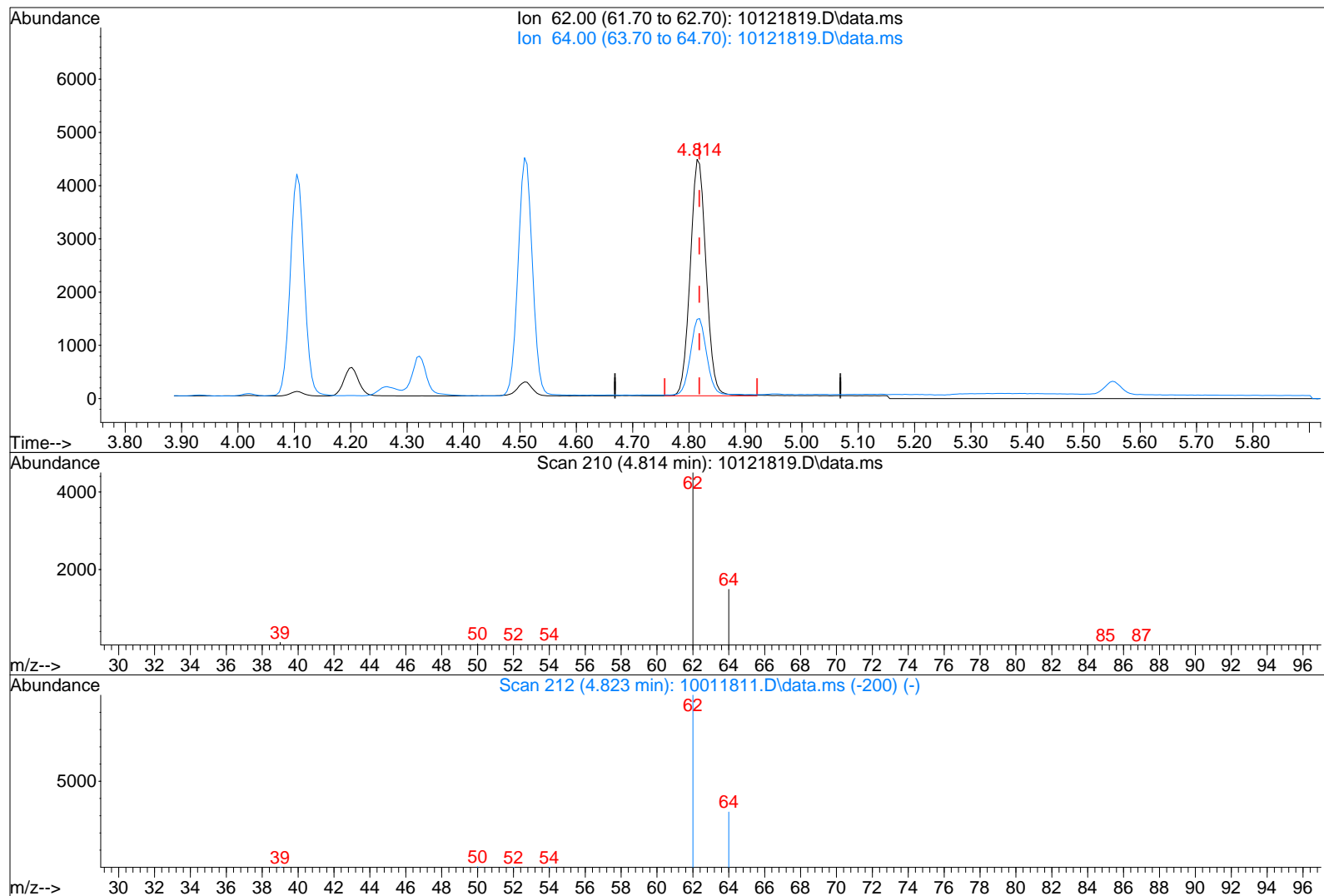
Quant Time: Oct 16 17:23:27 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\12\10121819.D  
Acq On : 12 Oct 2018 19:26  
Sample : P1805376-004 (1000mL)  
Misc : S31-09241806

Vial: 5  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:20 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121819.D\data.ms

(5) Vinyl Chloride (T)

4.814min (-0.004) 320.48pg

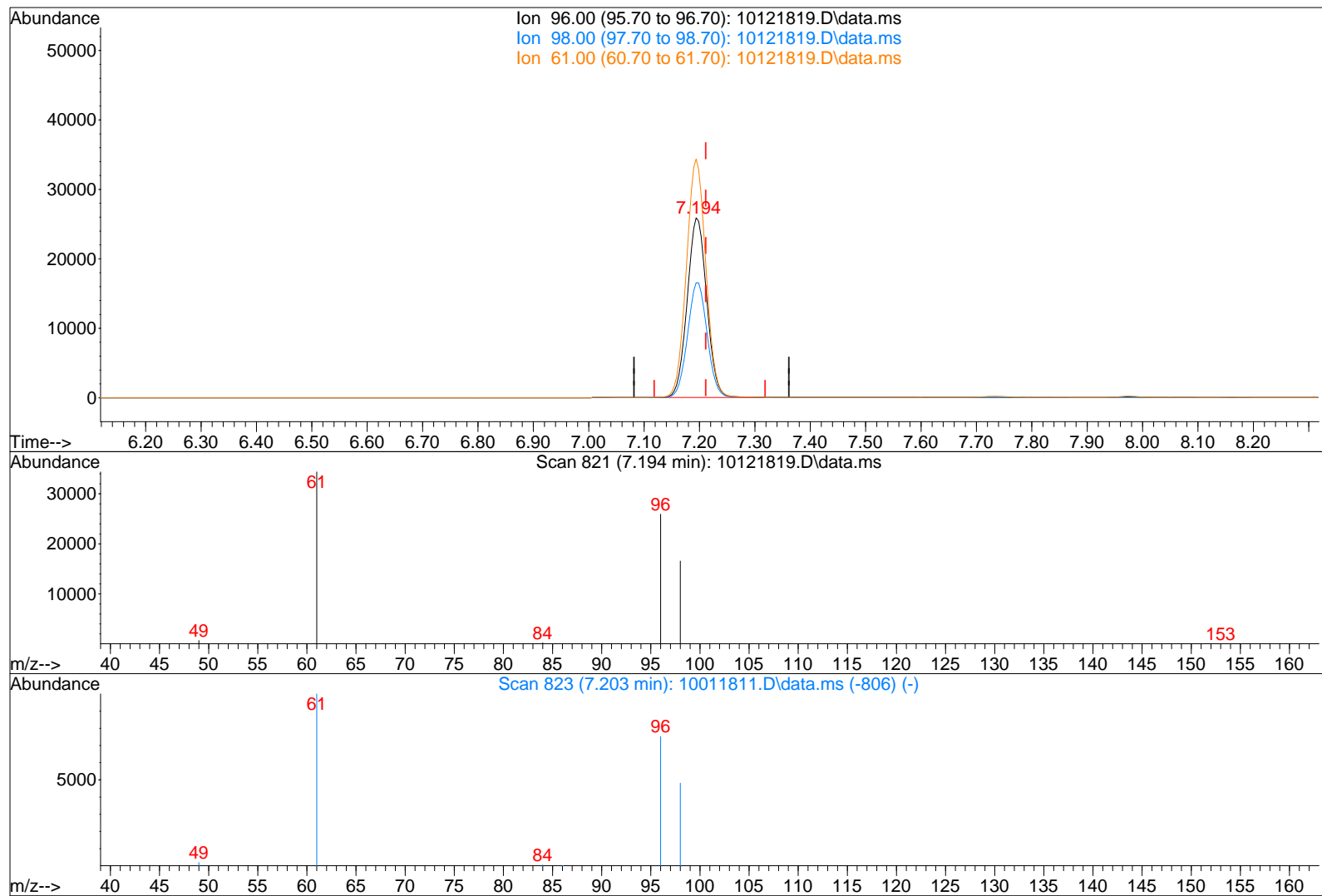
response 8687

Ion	Exp%	Act%
62.00	100	100
64.00	32.80	32.59
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121819.D  
Acq On : 12 Oct 2018 19:26  
Sample : P1805376-004 (1000mL)  
Misc : S31-09241806

Vial: 5  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:20 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121819.D\data.ms

(12) 1,1-Dichloroethene (T)

7.194min (-0.018) 2738.96pg

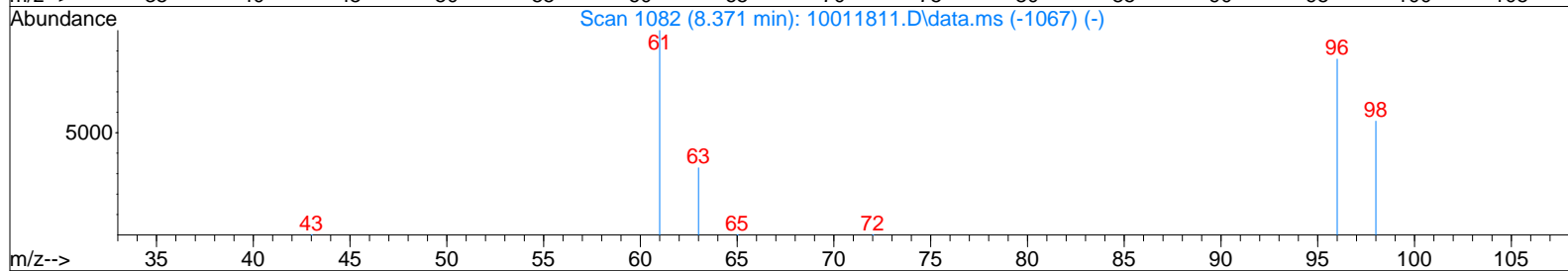
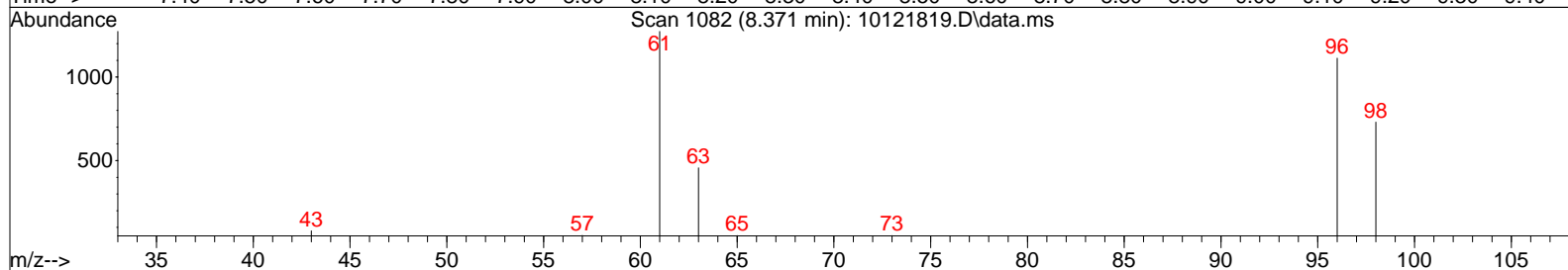
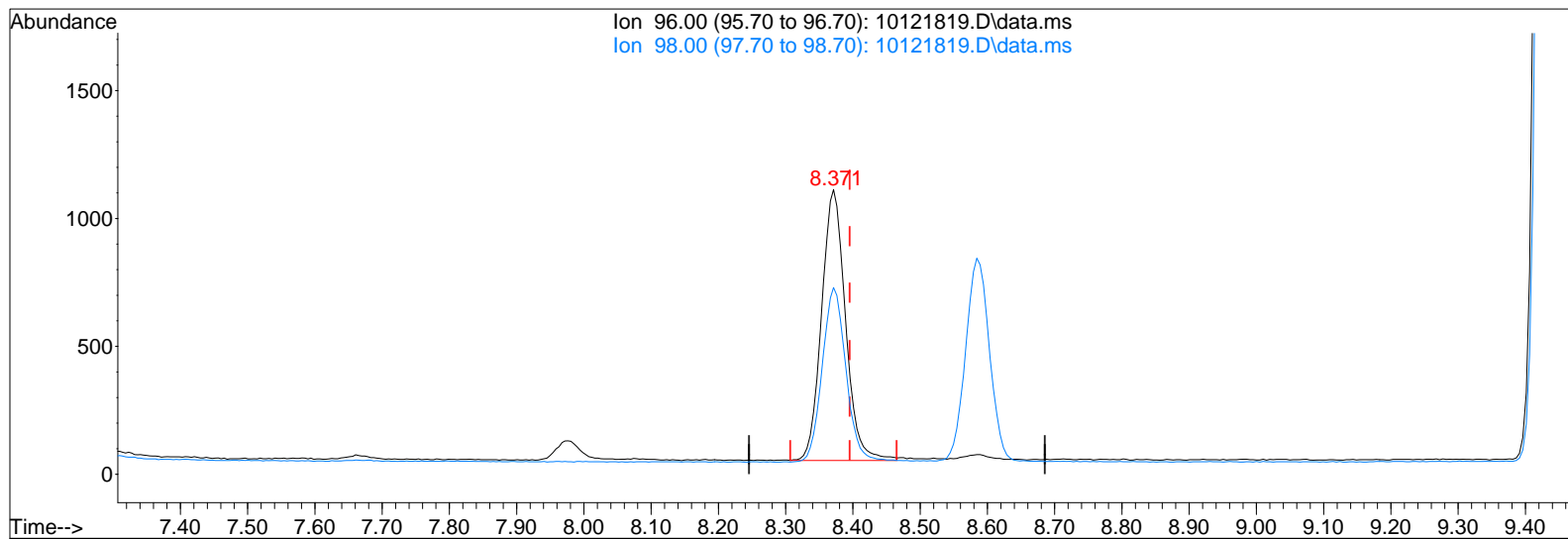
response 63277

Ion	Exp%	Act%
96.00	100	100
98.00	64.20	64.32
61.00	134.10	132.62
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121819.D  
Acq On : 12 Oct 2018 19:26  
Sample : P1805376-004 (1000mL)  
Misc : S31-09241806

Vial: 5  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:20 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121819.D\data.ms

(15) trans-1,2-Dichloroethene (T)

8.371min (-0.024) 108.63pg

response 2611

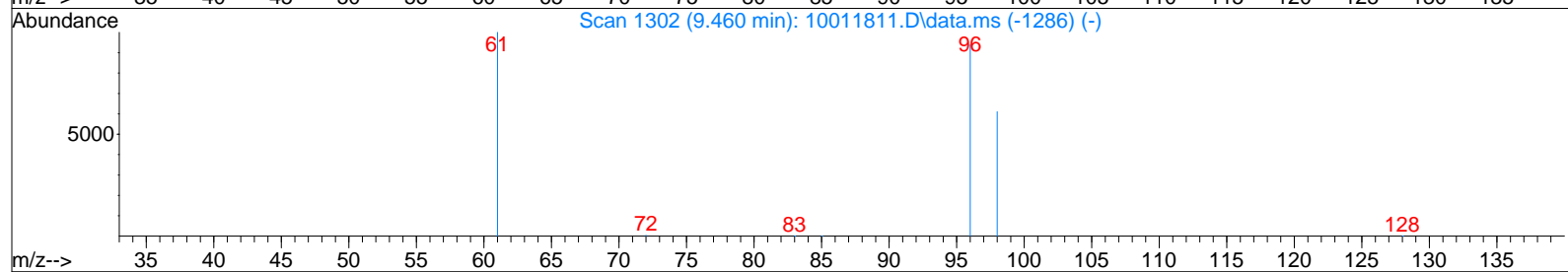
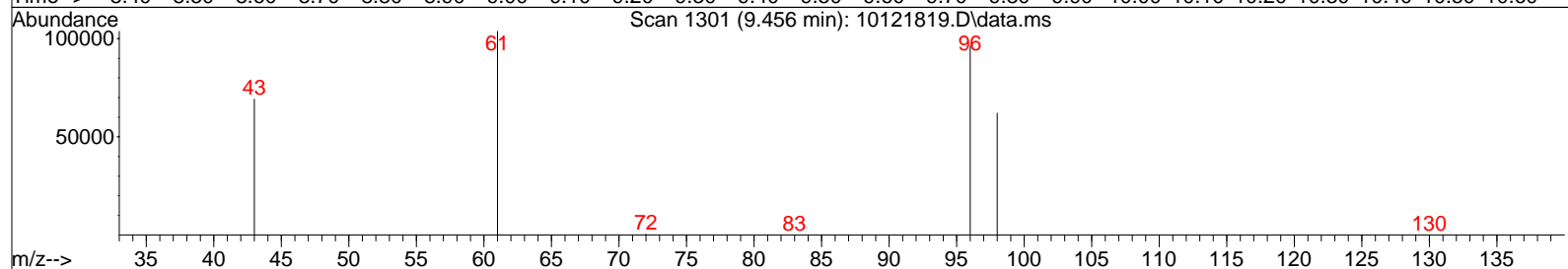
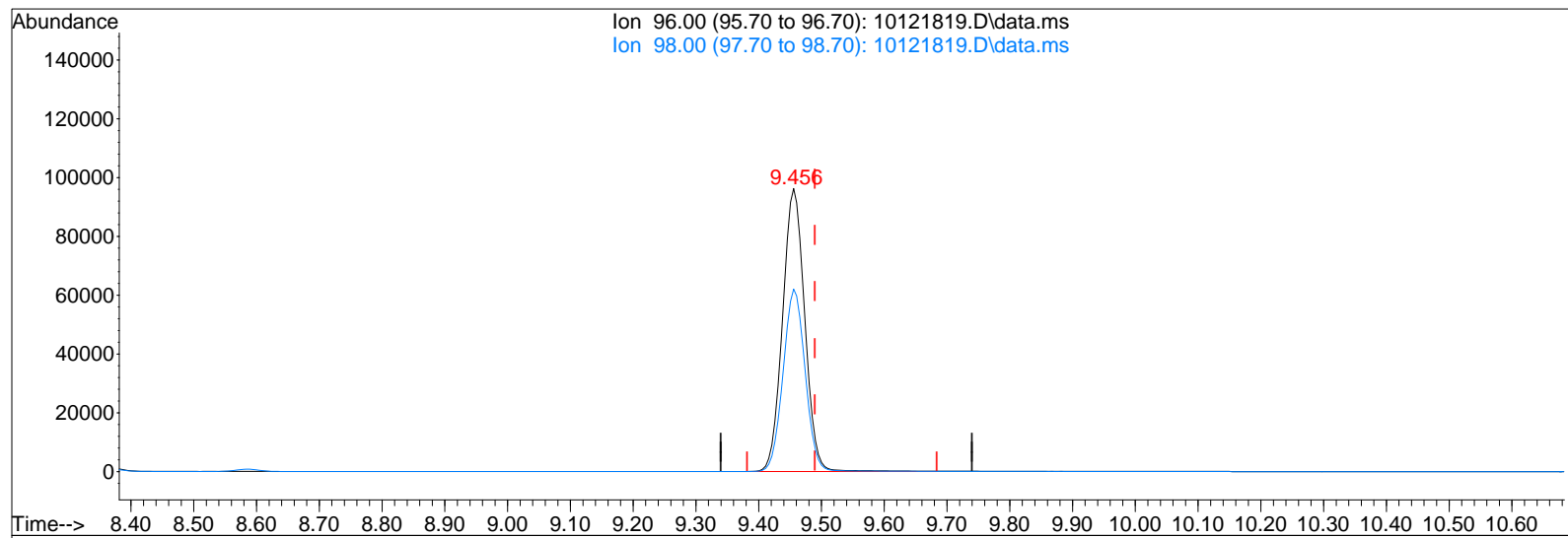
Ion	Exp%	Act%
96.00	100	100
98.00	64.10	64.50
0.00	0.00	0.00
0.00	0.00	0.00



Data File : I:\MS19\DATA\2018 10\12\10121819.D  
Acq On : 12 Oct 2018 19:26  
Sample : P1805376-004 (1000mL)  
Misc : S31-09241806

Vial: 5  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:20 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121819.D\data.ms

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

9.456min (-0.034) 9213.12pg

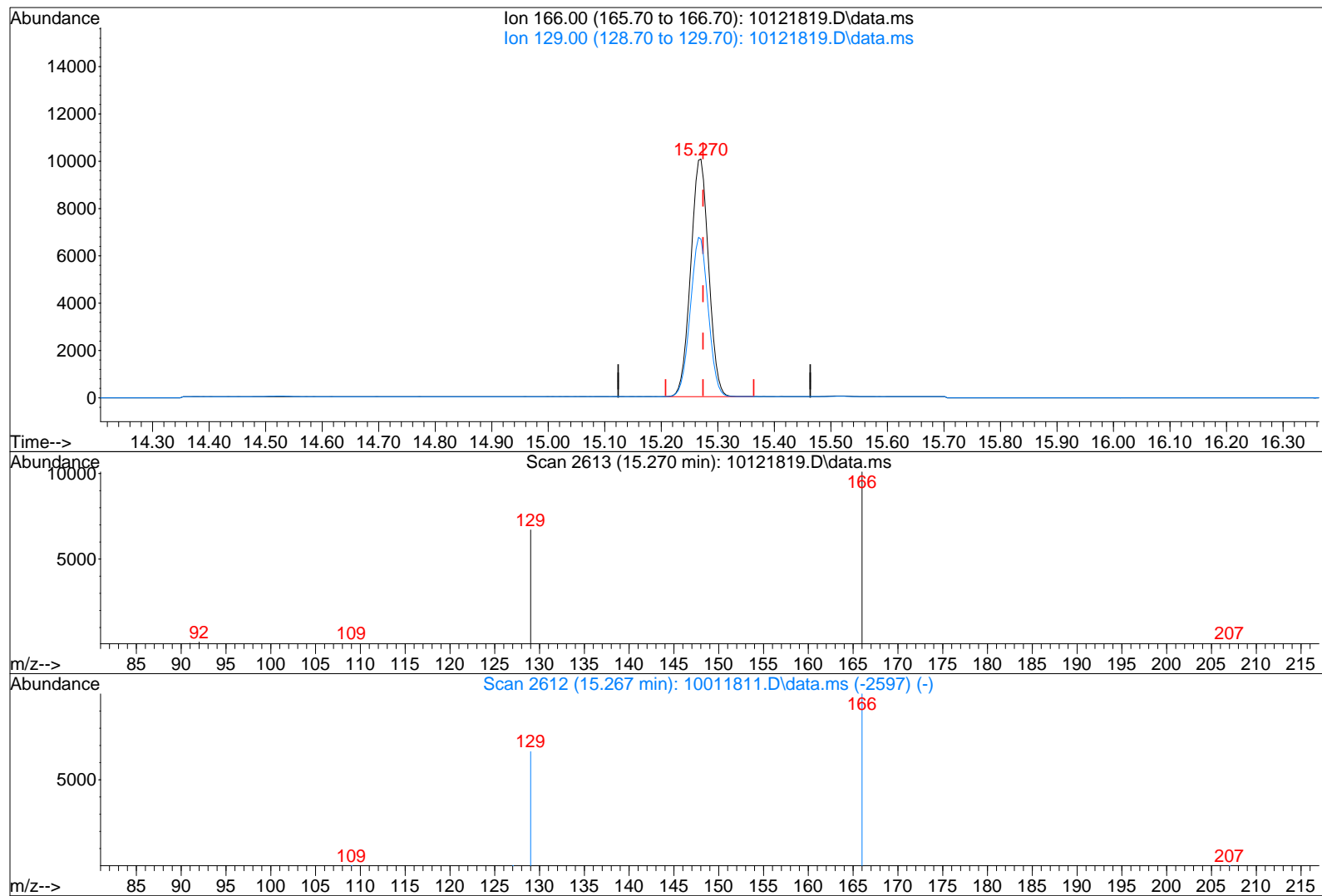
response 235697

Ion	Exp%	Act%
96.00	100	100
98.00	64.50	64.34
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121819.D  
Acq On : 12 Oct 2018 19:26  
Sample : P1805376-004 (1000mL)  
Misc : S31-09241806

Vial: 5  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:20 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121819.D\data.ms

(37) Tetrachloroethene (T)

15.270min (-0.004) 720.83pg

response 22156

Ion	Exp%	Act%
166.00	100	100
129.00	66.70	66.93
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\16\10161826.D  
 Acq On : 16 Oct 2018 19:03  
 Sample : P1805376-004dil (200mL)  
 Misc : S31-09241806

Vial: 13  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 17 07:44:02 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

~~10/17/18~~ 10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.61	130	18419	1000.000	pg	-0.04
25) 1,4-Difluorobenzene (IS2)	11.58	114	82884	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	10990	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	21875	992.130	pg	-0.03
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	99.21%
33) Toluene-d8 (SS2)	14.01	98	90305	1056.521	pg	-0.02
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	105.65%
45) Bromofluorobenzene (SS3)	17.43	174	34095	1097.916	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	109.79%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.31	85	9883	251.819	pg	100
3) Chloromethane	4.51	52	477	51.978	pg	# 80
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	313	11.064	pg	98
5) Vinyl Chloride	4.82	62	1628	63.881	pg	99
6) 1,3-Butadiene	5.00	54	50	N.D.		
7) Bromomethane	0.00	94	0	N.D.		
8) Chloroethane	5.56	64	103	7.724	pg	# 42
9) Acrolein	6.13	56	1392	129.141	pg	100
10) Acetone	6.27	58	21549	1576.905	pg	# 85
11) Trichlorofluoromethane	6.48	101	19993	651.389	pg	100
12) 1,1-Dichloroethene	7.20	96	5545	255.289	pg	99
13) Methylene Chloride	7.34	84	723	31.776	pg	98
14) Trichlorotrifluoroethane	7.67	151	2981	138.577	pg	99
15) trans-1,2-Dichloroethene	8.37	96	479	21.196	pg	98
16) 1,1-Dichloroethane	8.58	63	4803	136.178	pg	100
17) Methyl tert-Butyl Ether	8.59	73	209	N.D.		
18) cis-1,2-Dichloroethene	9.45	96	44556	1852.462	pg	100
19) Chloroform	9.75	83	1834	48.199	pg	98
21) 1,2-Dichloroethane	10.51	62	244	10.368	pg	99
22) 1,1,1-Trichloroethane	10.77	97	248882	7711.566	pg	100
23) Benzene	11.23	78	2396	25.065	pg	99
24) Carbon Tetrachloride	11.39	117	3244	110.121	pg	100
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.28	130	372380	14378.694	pg	99
29) 1,4-Dioxane	0.00	88	0	N.D.	d	
30) cis-1,3-Dichloropropene	13.17	75	2143	66.499	pg	77
31) trans-1,3-Dichloropropene	13.60	75	62	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.	d	
34) Toluene	14.11	91	10975	115.969	pg	100
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.27	166	4281	153.722	pg	100
39) Chlorobenzene	15.96	112	147	N.D.		
40) Ethylbenzene	16.35	91	4892	48.283	pg	100
41) m,p-Xylene	16.52	91	10964	141.527	pg	94
42) Styrene	16.89	104	2089	33.949	pg	92
43) o-Xylene	16.99	106	26893	652.959	pg	# 1
44) 1,1,2,2-Tetrachloroethane	17.00	83	142	N.D.		
46) 1,3,5-Trimethylbenzene	18.26	105	883	10.193	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	3895	45.073	pg	95
48) 1,3-Dichlorobenzene	18.87	146	164	N.D.		
49) 1,4-Dichlorobenzene	18.87	146	170	N.D.		
50) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	0.00	182	0	N.D.		
53) Naphthalene	20.94	128	7740	76.575	pg	98

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Data File : I:\MS19\DATA\2018 10\16\10161826.D  
Acq On : 16 Oct 2018 19:03  
Sample : P1805376-004dil (200mL)  
Misc : S31-09241806

Vial: 13  
Operator: WA  
Inst : MS19

Quant Time: Oct 17 07:44:02 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

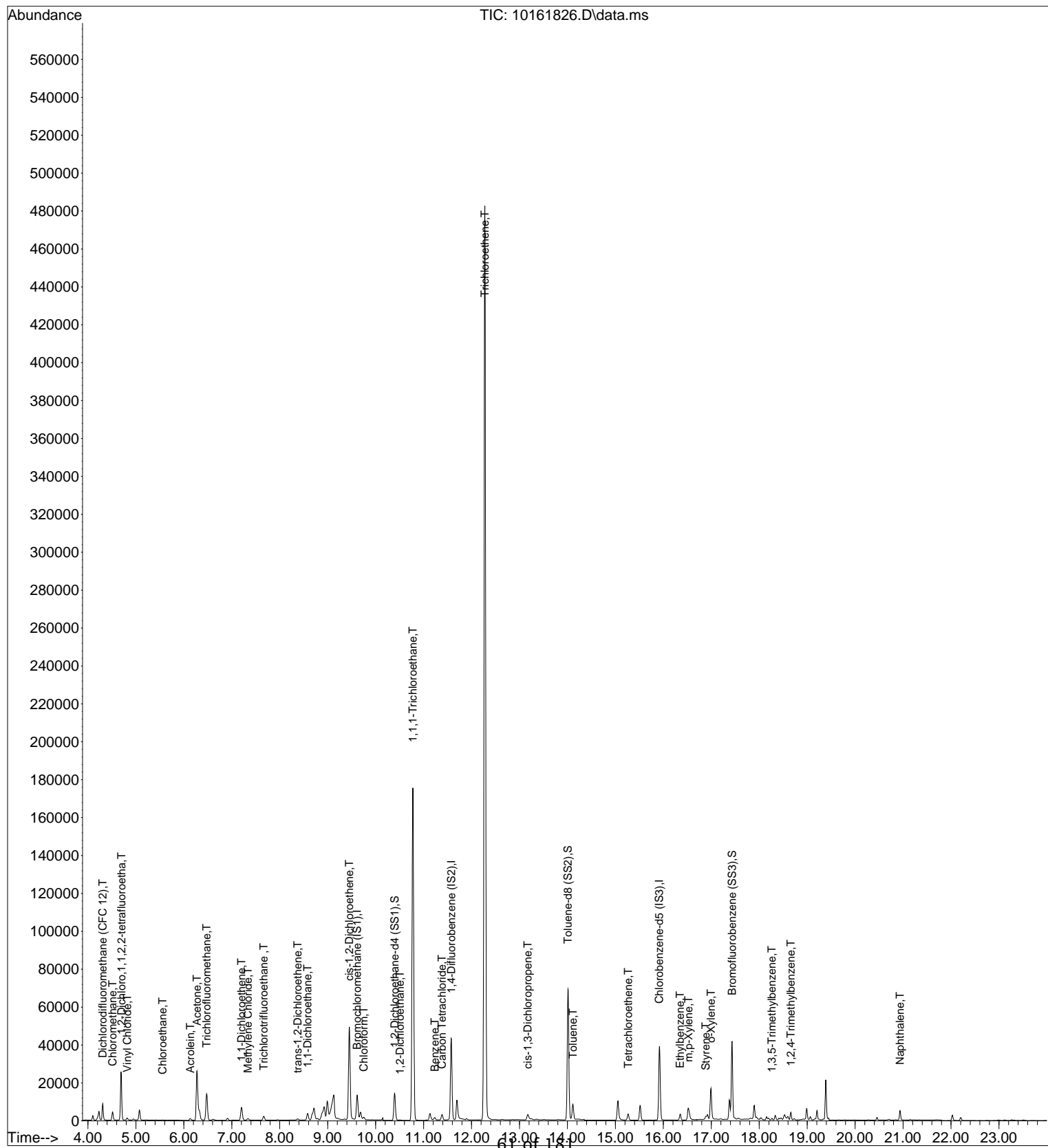
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

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

Data File : I:\MS19\DATA\2018 10\16\10161826.D  
Acq On : 16 Oct 2018 19:03  
Sample : P1805376-004dil (200mL)  
Misc : S31-09241806

Vial: 13  
Operator: WA  
Inst : MS19

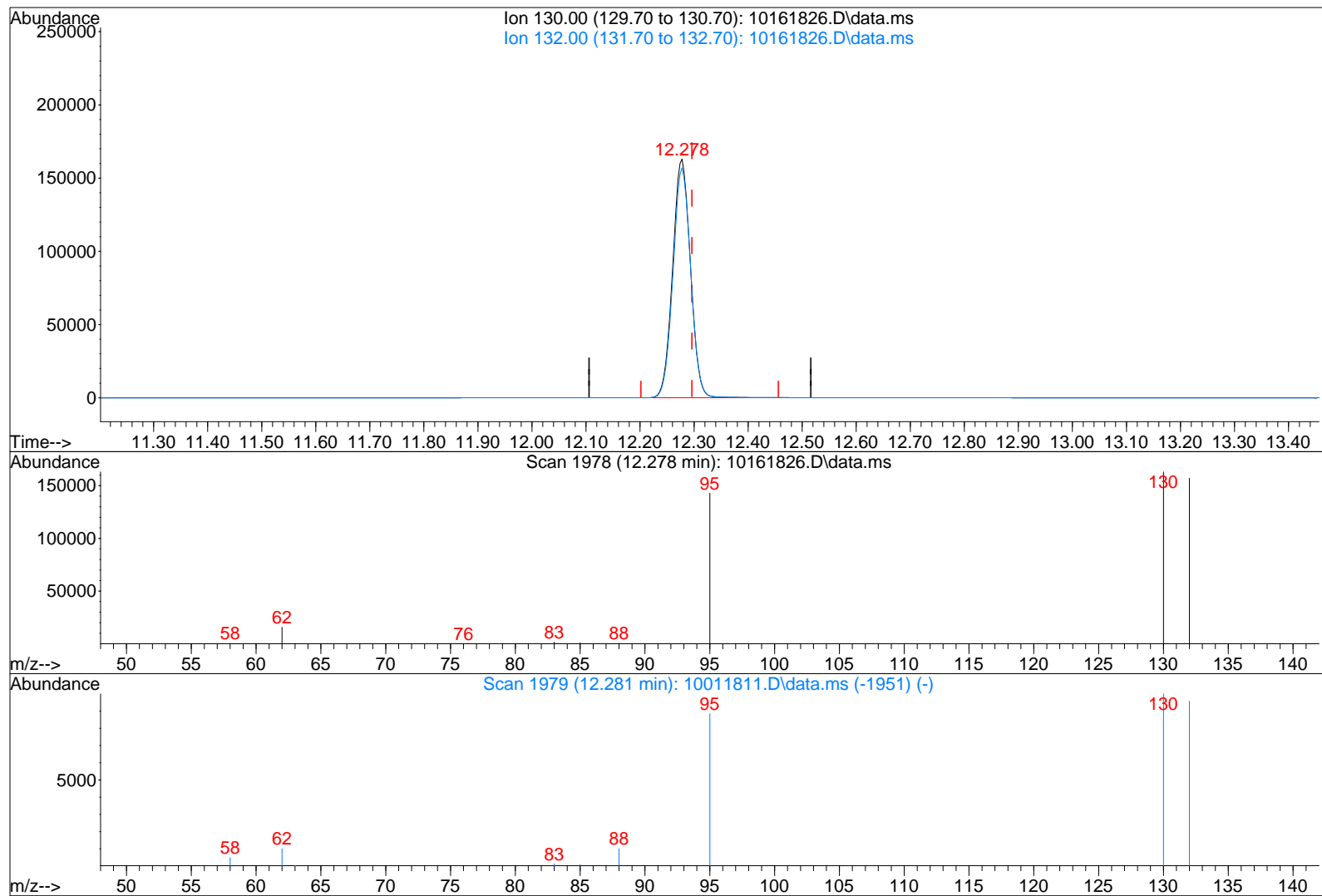
Quant Time: Oct 17 07:44:02 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\16\10161826.D  
Acq On : 16 Oct 2018 19:03  
Sample : P1805376-004dil (200mL)  
Misc : S31-09241806

Vial: 13  
Operator: WA  
Inst : MS19

Quant Time: Oct 17 07:43:14 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10161826.D\data.ms

(28) Trichloroethene (T)

12.278min (-0.018) 14378.69pg

response 372380

Ion	Exp%	Act%
130.00	100	100
132.00	95.60	96.15
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121820.D  
 Acq On : 12 Oct 2018 19:57  
 Sample : P1805376-005 (1000mL)  
 Misc : S31-09241806

Vial: 6  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 16 17:24:22 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

~~10/17/18~~ 10/17/18

DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18624	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	84810	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11753	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	20656	926.531	pg	-0.03
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	92.65%
33) Toluene-d8 (SS2)	14.01	98	94087	1075.770	pg	-0.01
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	107.58%
45) Bromofluorobenzene (SS3)	17.43	174	35868	1080.026	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	108.00%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.32	85	57050	1437.637	pg	100
3) Chloromethane	4.53	52	1739	187.409	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	1819	63.589	pg	98
5) Vinyl Chloride	4.83	62	91	N.D.		
6) 1,3-Butadiene	5.01	54	165	8.470	pg	# 16
7) Bromomethane	5.33	94	507	28.006	pg	95
8) Chloroethane	5.55	64	183	13.573	pg	99
9) Acrolein	6.12	56	3832	351.596	pg	100
10) Acetone	6.26	58	80728	5842.460	pg	100
11) Trichlorofluoromethane	6.48	101	22648	729.769	pg	100
12) 1,1-Dichloroethene	7.20	96	105	N.D.		
13) Methylene Chloride	7.33	84	3662	159.174	pg	100
14) Trichlorotrifluoroethane	7.67	151	5673	260.817	pg	100
15) trans-1,2-Dichloroethene	8.37	96	102	N.D.		
16) 1,1-Dichloroethane	8.58	63	227	6.365	pg	97
17) Methyl tert-Butyl Ether	8.67	73	180	N.D.		
18) cis-1,2-Dichloroethene	9.45	96	645	26.521	pg	99
19) Chloroform	9.76	83	2204	57.286	pg	97
21) 1,2-Dichloroethane	10.50	62	774	32.526	pg	98
22) 1,1,1-Trichloroethane	10.78	97	1277	39.132	pg	99
23) Benzene	11.23	78	14860	153.742	pg	98
24) Carbon Tetrachloride	11.39	117	7366	247.293	pg	100
26) 1,2-Dichloropropane	12.04	63	162	7.669	pg	# 74
27) Bromodichloromethane	12.24	83	57	N.D.		
28) Trichloroethene	12.28	130	1610	60.755	pg	97
29) 1,4-Dioxane	12.26	88	487	26.862	pg	98
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.	d	
34) Toluene	14.11	91	60407	623.805	pg	100
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.27	166	1500	52.639	pg	100
39) Chlorobenzene	15.97	112	363	5.102	pg	89
40) Ethylbenzene	16.35	91	20488	189.084	pg	100
41) m,p-Xylene	16.52	91	20000	241.407	pg	98
42) Styrene	16.89	104	115935	1761.781	pg	100
43) o-Xylene	16.99	106	7627	173.161	pg	# 39
44) 1,1,2,2-Tetrachloroethane	17.00	83	992	23.472	pg	75
46) 1,3,5-Trimethylbenzene	18.27	105	2696	29.102	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	12631	136.677	pg	88
48) 1,3-Dichlorobenzene	18.81	146	82	N.D.		
49) 1,4-Dichlorobenzene	18.87	146	672	11.084	pg	99
50) 1,2-Dichlorobenzene	19.20	146	114	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.83	182	65	N.D.		
53) Naphthalene	20.93	128	6422	59.411	pg	94

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Data File : I:\MS19\DATA\2018 10\12\10121820.D  
Acq On : 12 Oct 2018 19:57  
Sample : P1805376-005 (1000mL)  
Misc : S31-09241806

Vial: 6  
Operator: WA  
Inst : MS19

Quant Time: Oct 16 17:24:22 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	72	N.D.		

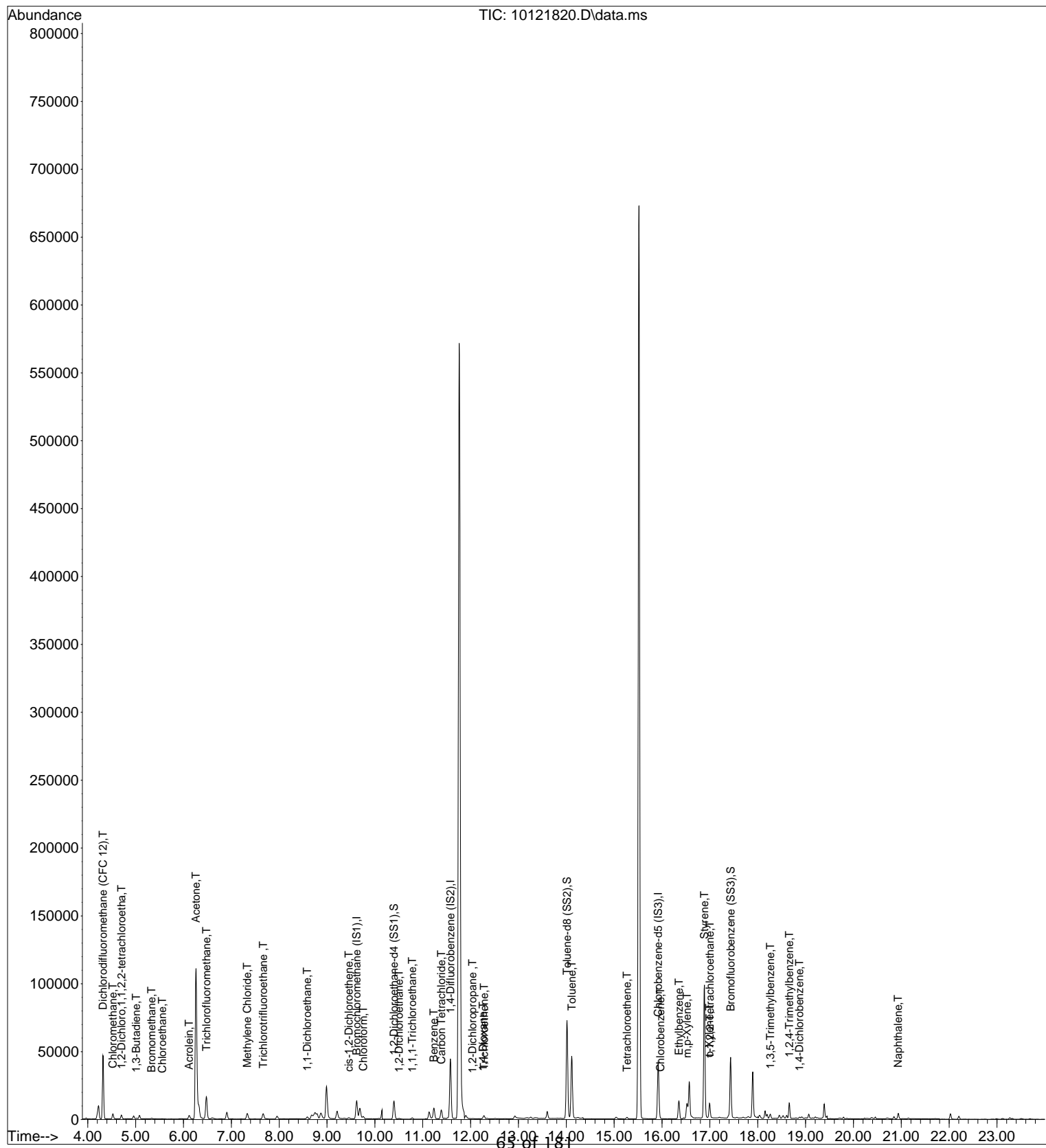
(#) = qualifier out of range (m) = manual integration (+) = signals summed



Data File : I:\MS19\DATA\2018 10\12\10121820.D  
Acq On : 12 Oct 2018 19:57  
Sample : P1805376-005 (1000mL)  
Misc : S31-09241806

Vial: 6  
Operator: WA  
Inst : MS19

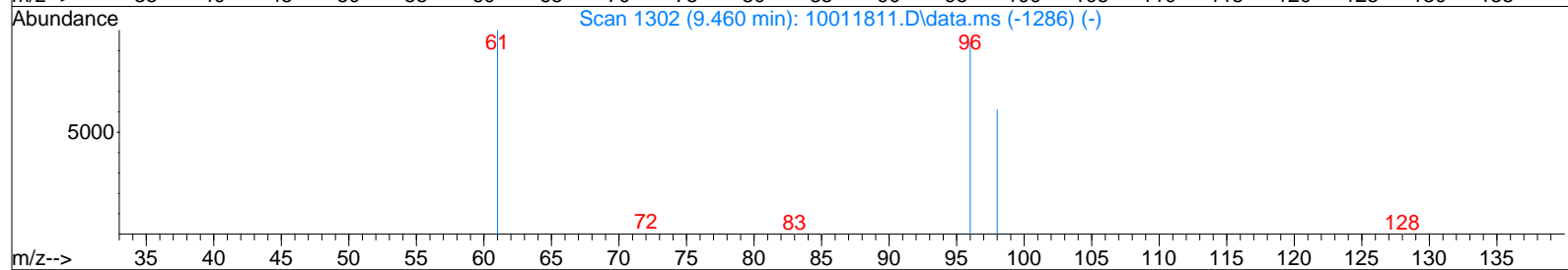
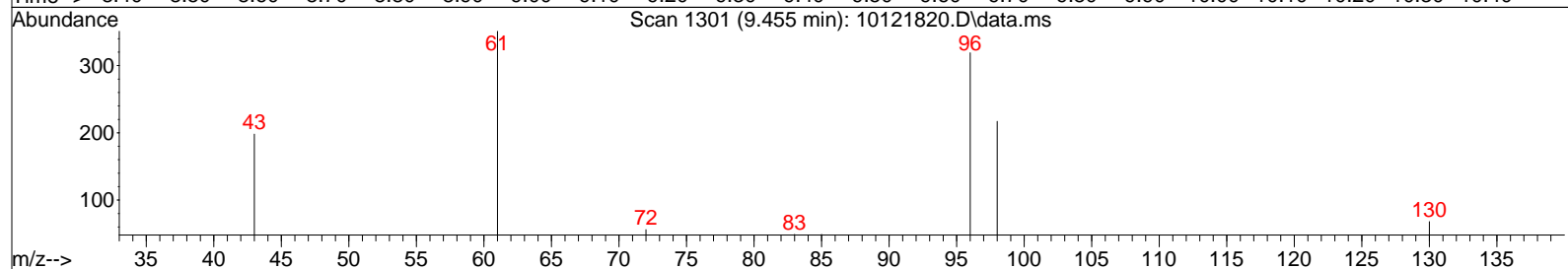
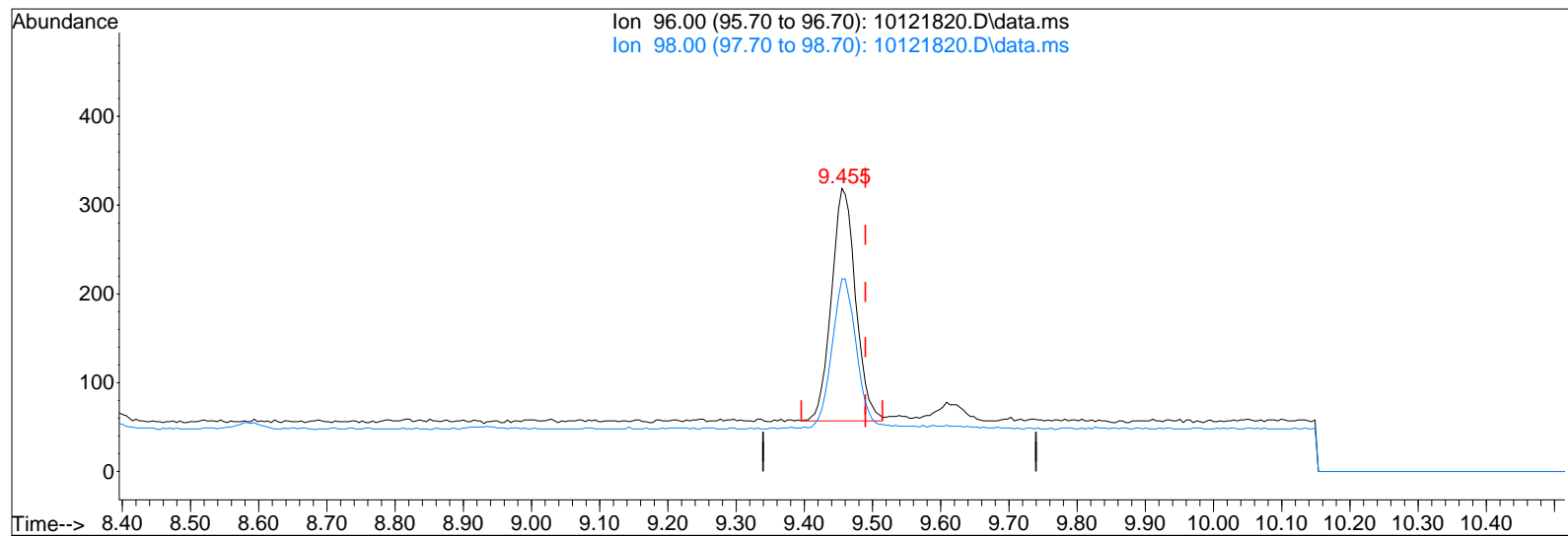
Quant Time: Oct 16 17:24:22 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\12\10121820.D  
Acq On : 12 Oct 2018 19:57  
Sample : P1805376-005 (1000mL)  
Misc : S31-09241806

Vial: 6  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:21 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121820.D\data.ms

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

9.455min (-0.035) 26.52pg

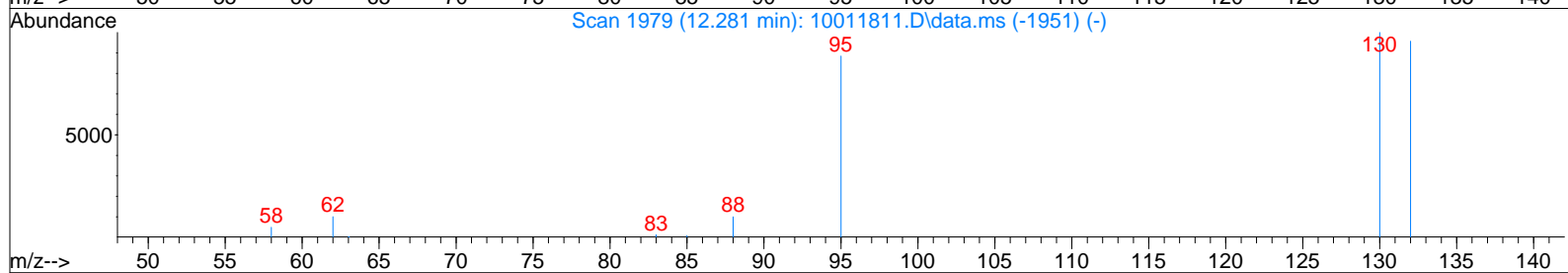
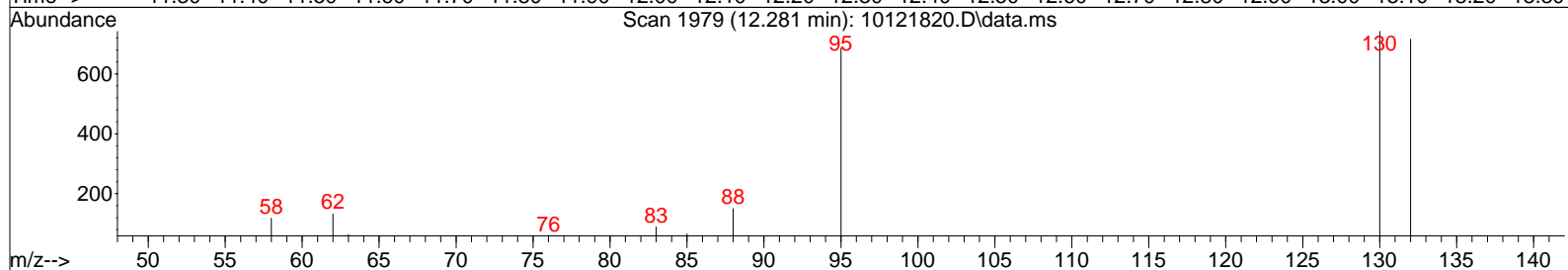
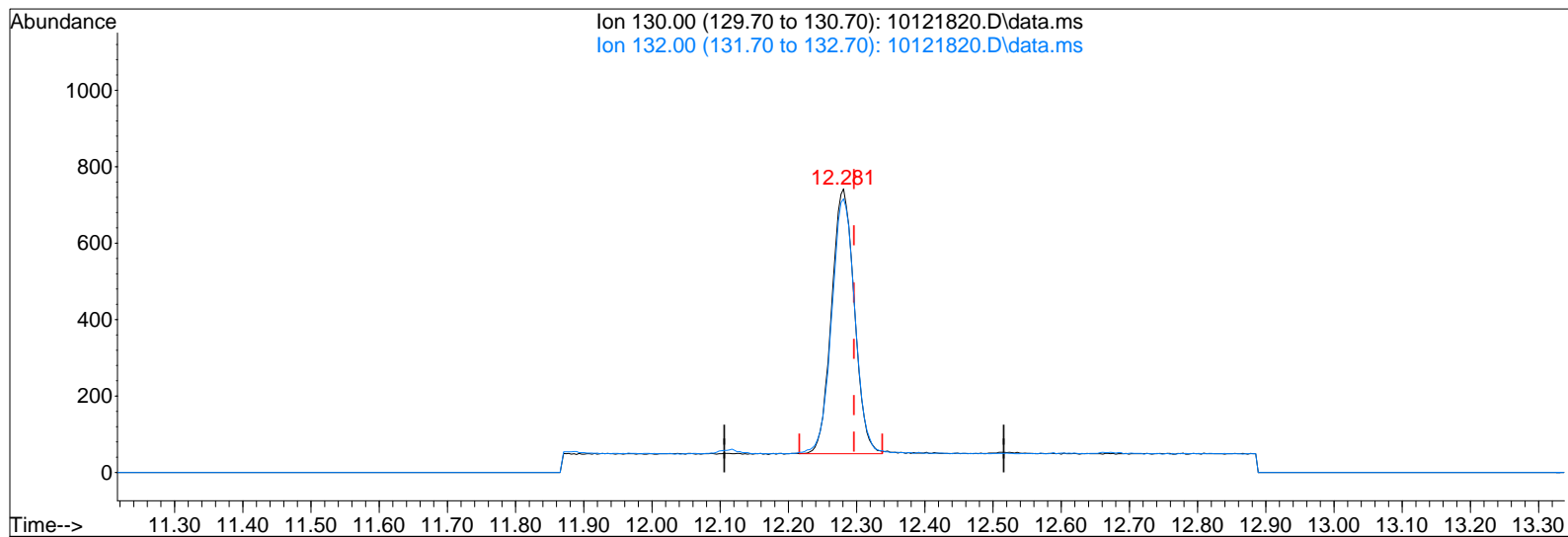
response 645

Ion	Exp%	Act%
96.00	100	100
98.00	64.50	65.27
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121820.D  
Acq On : 12 Oct 2018 19:57  
Sample : P1805376-005 (1000mL)  
Misc : S31-09241806

Vial: 6  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:21 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121820.D\data.ms

(28) Trichloroethene (T)

12.281min (-0.015) 60.76pg

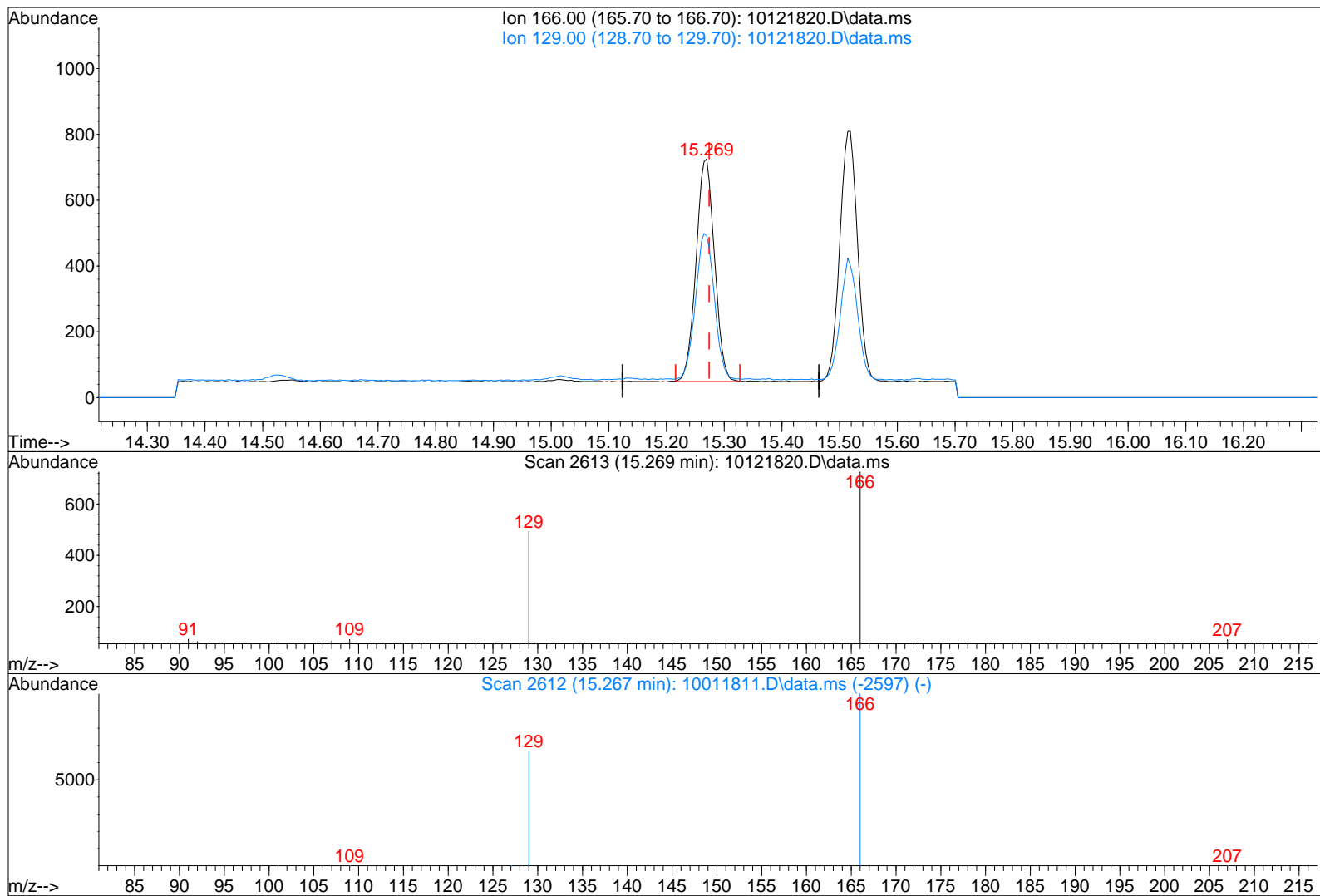
response 1610

Ion	Exp%	Act%
130.00	100	100
132.00	95.60	98.26
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121820.D  
Acq On : 12 Oct 2018 19:57  
Sample : P1805376-005 (1000mL)  
Misc : S31-09241806

Vial: 6  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:21 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121820.D\data.ms

(37) Tetrachloroethene (T)

15.269min (-0.004) 52.64pg

response 1500

Ion	Exp%	Act%
166.00	100	100
129.00	66.70	66.73
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121824.D  
 Acq On : 12 Oct 2018 22:04  
 Sample : P1805376-006 (1000mL)  
 Misc : S31-09241806

Vial: 7  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 17 07:52:50 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

~~10/17/18~~ 10/17/18

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18653	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	84787	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11717	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	20393	913.312	pg	-0.03
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	91.33%
33) Toluene-d8 (SS2)	14.02	98	91087	1041.751	pg	-0.01
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	104.18%
45) Bromofluorobenzene (SS3)	17.43	174	35688	1077.908	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	107.79%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.30	85	50116	1260.939	pg	100
3) Chloromethane	4.52	52	1981	213.157	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1603	55.951	pg	100
5) Vinyl Chloride	0.00	62	0	N.D.	d	
6) 1,3-Butadiene	5.00	54	878	45.002	pg	93
7) Bromomethane	5.32	94	374	20.627	pg	# 75
8) Chloroethane	5.55	64	158	11.700	pg	# 42
9) Acrolein	6.11	56	9107	834.291	pg	100
10) Acetone	6.26	58	208452	15062.668	pg	97
11) Trichlorofluoromethane	6.46	101	95553	3074.144	pg	100
12) 1,1-Dichloroethene	7.19	96	270	12.275	pg	97
13) Methylene Chloride	7.33	84	3469	150.551	pg	99
14) Trichlorotrifluoroethane	7.66	151	5174	237.505	pg	100
15) trans-1,2-Dichloroethene	8.37	96	118	5.156	pg	93
16) 1,1-Dichloroethane	8.58	63	390	10.919	pg	98
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.	d	
18) cis-1,2-Dichloroethene	9.46	96	1107	45.447	pg	100
19) Chloroform	9.75	83	9259	240.284	pg	99
21) 1,2-Dichloroethane	10.51	62	1350	56.643	pg	100
22) 1,1,1-Trichloroethane	10.78	97	3646	111.553	pg	100
23) Benzene	11.23	78	17095	176.590	pg	99
24) Carbon Tetrachloride	11.39	117	20673	692.960	pg	100
26) 1,2-Dichloropropane	12.05	63	255	12.075	pg	96
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.28	130	4896	184.806	pg	98
29) 1,4-Dioxane	12.25	88	1109	61.186	pg	96
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.	d	
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.	d	
34) Toluene	14.11	91	162369	1677.192	pg	100
35) Dibromochloromethane	0.00	129	0	N.D.	d	
36) 1,2-Dibromoethane	0.00	107	0	N.D.	d	
37) Tetrachloroethene	15.27	166	6149	215.842	pg	100
39) Chlorobenzene	0.00	112	0	N.D.	d	
40) Ethylbenzene	16.35	91	30600	283.276	pg	100
41) m,p-Xylene	16.52	91	81622	988.233	pg	100
42) Styrene	16.89	104	45825	698.509	pg	98
43) o-Xylene	17.00	106	13784	313.908	pg	91
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d	
46) 1,3,5-Trimethylbenzene	18.27	105	6261	67.793	pg	99
47) 1,2,4-Trimethylbenzene	18.66	105	26830	291.214	pg	88
48) 1,3-Dichlorobenzene	18.80	146	101	N.D.	d	
49) 1,4-Dichlorobenzene	18.87	146	1489	24.634	pg	100
50) 1,2-Dichlorobenzene	19.20	146	104	N.D.	d	
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.	d	
52) 1,2,4-Trichlorobenzene	20.82	182	93	N.D.	d	
53) Naphthalene	20.94	128	19667	182.501	pg	96

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Data File : I:\MS19\DATA\2018 10\12\10121824.D  
Acq On : 12 Oct 2018 22:04  
Sample : P1805376-006 (1000mL)  
Misc : S31-09241806

Vial: 7  
Operator: WA  
Inst : MS19

Quant Time: Oct 17 07:52:50 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	71	N.D.		

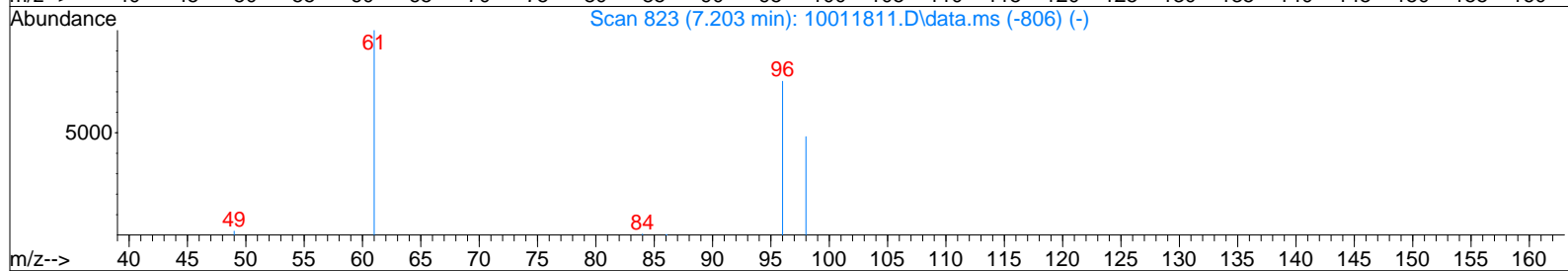
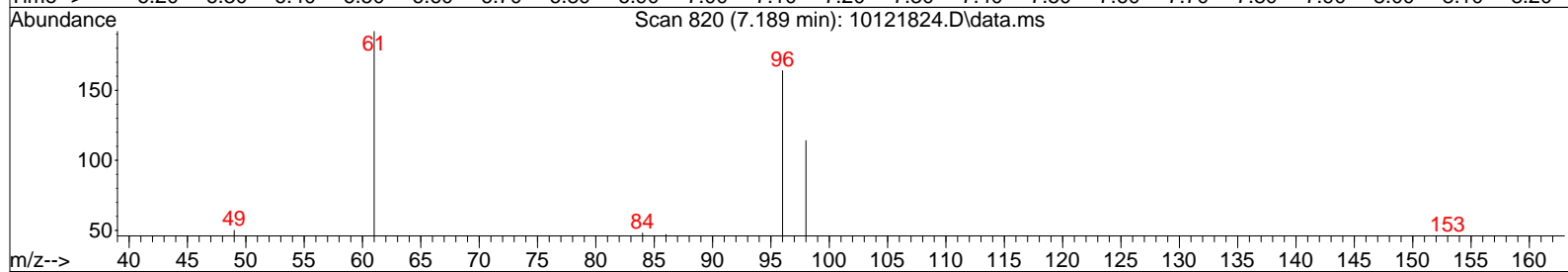
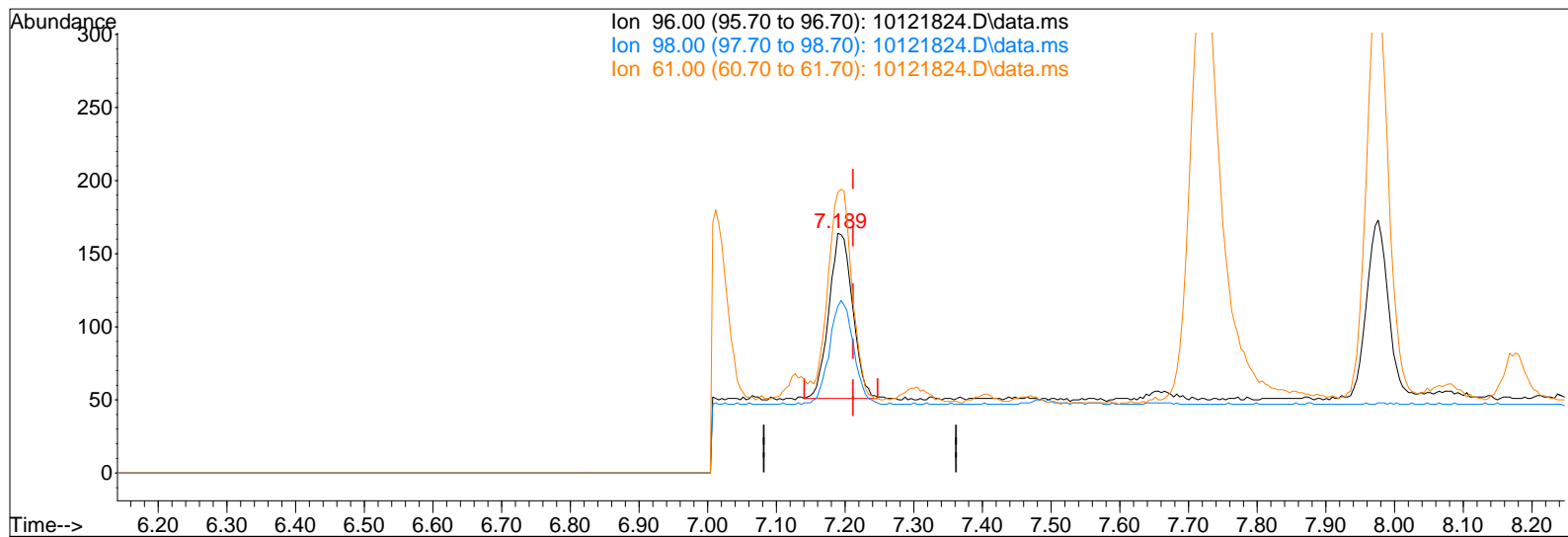
(#) = qualifier out of range (m) = manual integration (+) = signals summed



Data File : I:\MS19\DATA\2018 10\12\10121824.D  
Acq On : 12 Oct 2018 22:04  
Sample : P1805376-006 (1000mL)  
Misc : S31-09241806

Vial: 7  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:25 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121824.D\data.ms

(12) 1,1-Dichloroethene (T)

7.189min (-0.022) 12.27pg

response 270

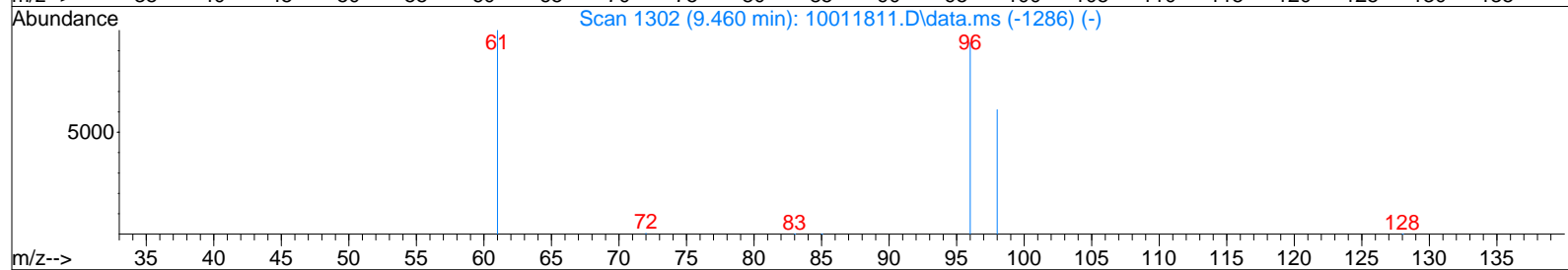
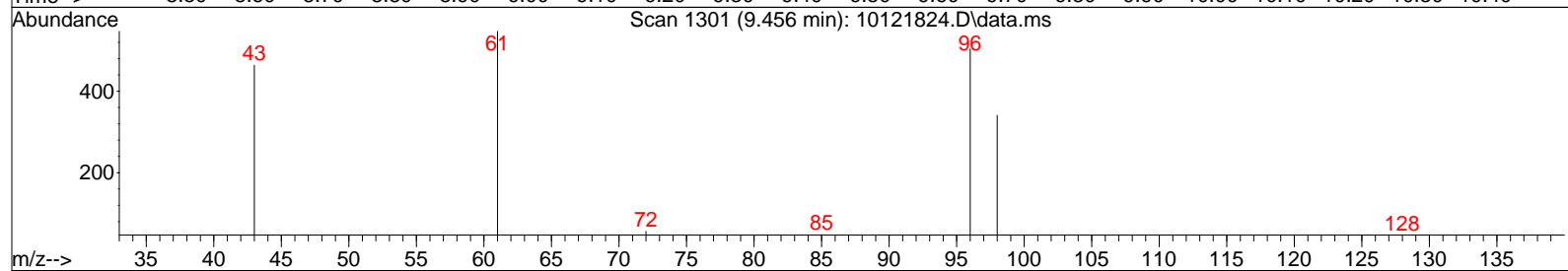
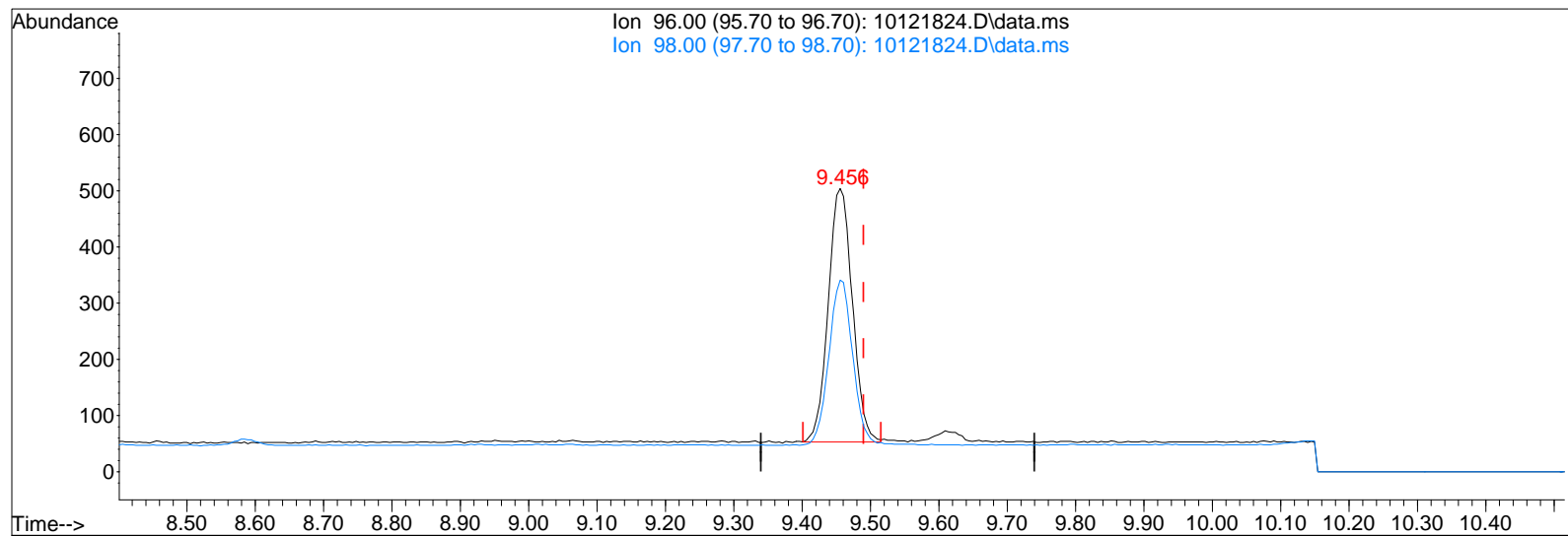
Ion	Exp%	Act%
96.00	100	100
98.00	64.20	63.70
61.00	134.10	129.26
0.00	0.00	0.00



Data File : I:\MS19\DATA\2018 10\12\10121824.D  
Acq On : 12 Oct 2018 22:04  
Sample : P1805376-006 (1000mL)  
Misc : S31-09241806

Vial: 7  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:25 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121824.D\data.ms

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

9.456min (-0.034) 45.45pg

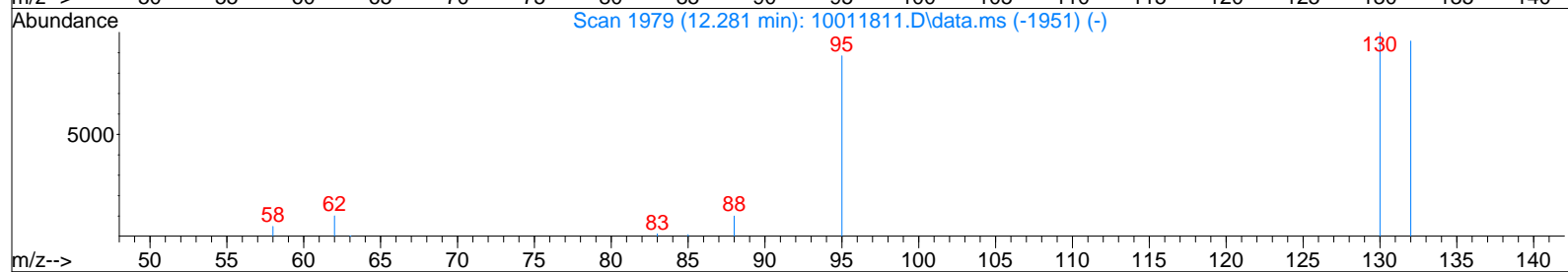
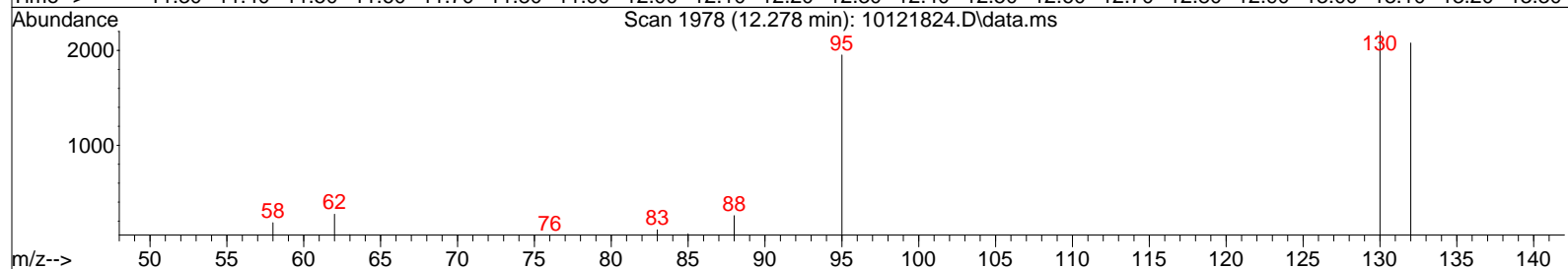
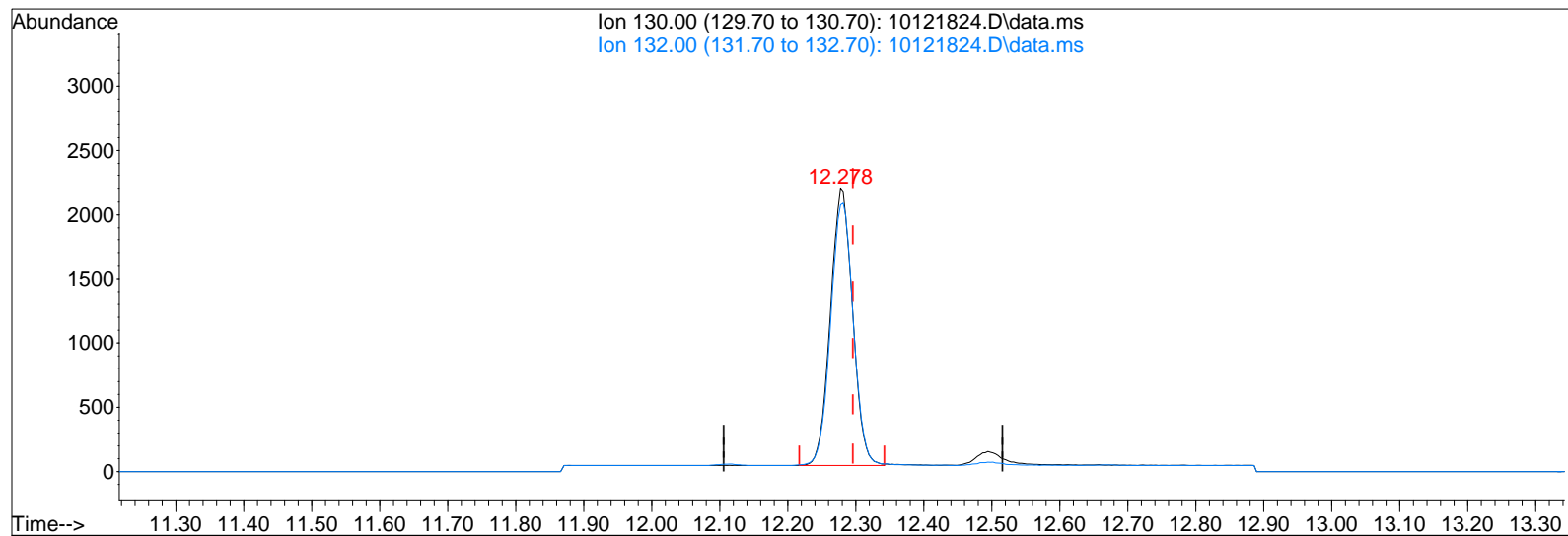
response 1107

Ion	Exp%	Act%
96.00	100	100
98.00	64.50	64.32
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121824.D  
Acq On : 12 Oct 2018 22:04  
Sample : P1805376-006 (1000mL)  
Misc : S31-09241806

Vial: 7  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:25 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121824.D\data.ms

(28) Trichloroethene (T)

12.278min (-0.018) 184.81pg

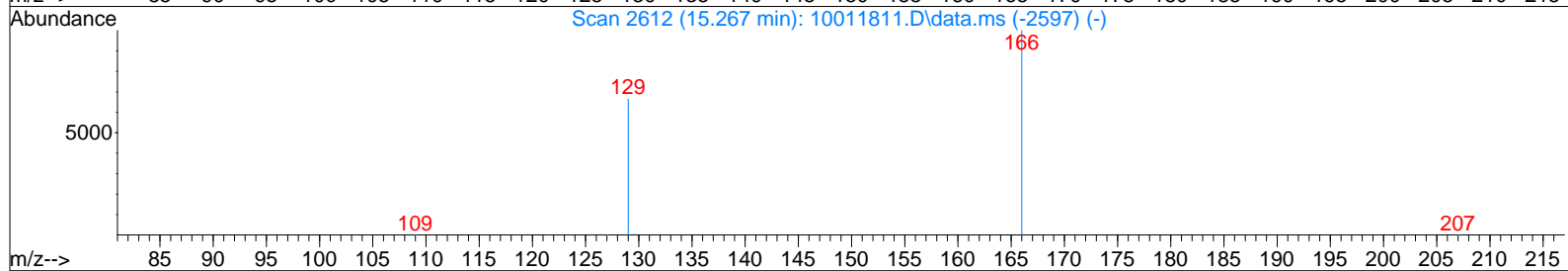
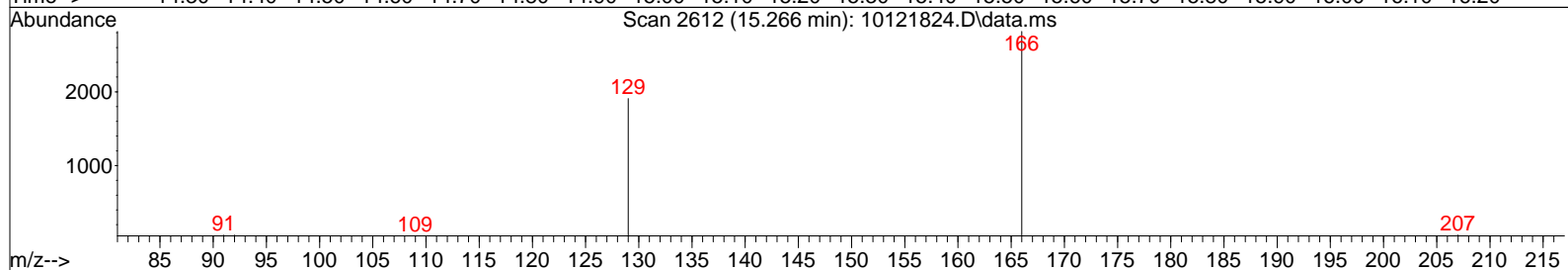
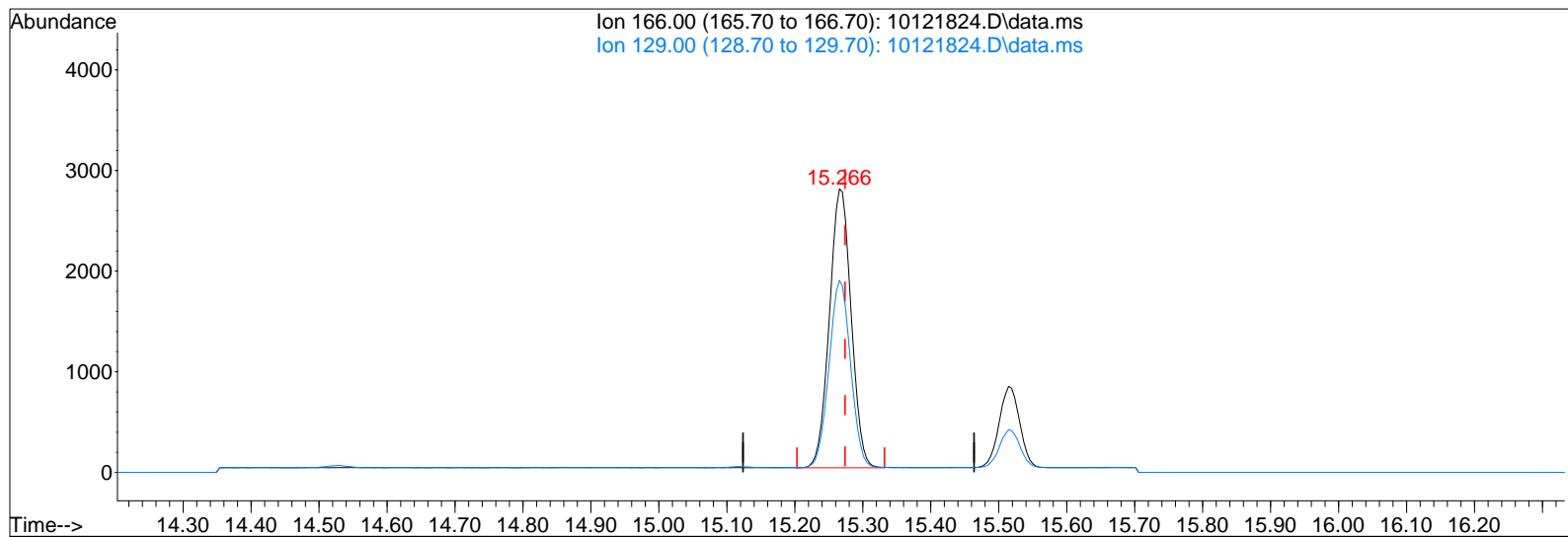
response 4896

Ion	Exp%	Act%
130.00	100	100
132.00	95.60	97.10
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121824.D  
Acq On : 12 Oct 2018 22:04  
Sample : P1805376-006 (1000mL)  
Misc : S31-09241806

Vial: 7  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:25 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121824.D\data.ms

(37) Tetrachloroethene (T)

15.266min (-0.008) 215.84pg

response 6149

Ion	Exp%	Act%
166.00	100	100
129.00	66.70	66.78
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121813.D  
 Acq On : 12 Oct 2018 16:17  
 Sample : P1805376-007 (1000mL)  
 Misc : S31-09241806

Vial: 8  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 17 07:59:01 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

~~10/17/18~~ 10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19392	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.57	114	87998	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11922	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	21398	921.801	pg	-0.03
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	92.18%
33) Toluene-d8 (SS2)	14.01	98	96042	1058.340	pg	-0.01
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	105.83%
45) Bromofluorobenzene (SS3)	17.43	174	36592	1086.208	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	108.62%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.31	85	52720	1275.908	pg	100
3) Chloromethane	4.52	52	1686	174.502	pg	97
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	1685	56.572	pg	99
5) Vinyl Chloride	4.81	62	131	N.D.		
6) 1,3-Butadiene	5.00	54	250	12.325	pg	# 79
7) Bromomethane	5.33	94	321	17.029	pg	83
8) Chloroethane	5.55	64	171	12.181	pg	98
9) Acrolein	6.12	56	3673	323.660	pg	100
10) Acetone	6.26	58	171662	11931.529	pg	92
11) Trichlorofluoromethane	6.47	101	89468	2768.686	pg	100
12) 1,1-Dichloroethene	7.19	96	269	11.763	pg	98
13) Methylene Chloride	7.34	84	4794	200.126	pg	99
14) Trichlorotrifluoroethane	7.66	151	5380	237.550	pg	100
15) trans-1,2-Dichloroethene	8.37	96	96	N.D.		
16) 1,1-Dichloroethane	8.58	63	349	9.399	pg	98
17) Methyl tert-Butyl Ether	8.61	73	226	N.D.		
18) cis-1,2-Dichloroethene	9.46	96	1089	43.005	pg	98
19) Chloroform	9.76	83	10064	251.222	pg	100
21) 1,2-Dichloroethane	10.50	62	989	39.915	pg	100
22) 1,1,1-Trichloroethane	10.78	97	3405	100.210	pg	100
23) Benzene	11.23	78	15501	154.022	pg	99
24) Carbon Tetrachloride	11.39	117	21740	700.955	pg	100
26) 1,2-Dichloropropane	12.04	63	217	9.901	pg	# 69
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.28	130	5183	188.500	pg	100
29) 1,4-Dioxane	12.26	88	730	38.806	pg	97
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
32) 1,1,2-Trichloroethane	13.80	83	59	N.D.		
34) Toluene	14.11	91	138998	1383.390	pg	100
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.26	166	6871	232.385	pg	100
39) Chlorobenzene	16.00	112	281	N.D.		
40) Ethylbenzene	16.35	91	28960	263.484	pg	100
41) m,p-Xylene	16.52	91	79257	943.099	pg	100
42) Styrene	16.89	104	40706	609.811	pg	97
43) o-Xylene	17.00	106	12915	289.061	pg	100
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d	
46) 1,3,5-Trimethylbenzene	18.27	105	6860	73.001	pg	99
47) 1,2,4-Trimethylbenzene	18.66	105	28895	308.234	pg	88
48) 1,3-Dichlorobenzene	18.81	146	94	N.D.		
49) 1,4-Dichlorobenzene	18.87	146	1281	20.829	pg	100
50) 1,2-Dichlorobenzene	19.20	146	112	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.83	182	132	N.D.		
53) Naphthalene	20.94	128	25336	231.064	pg	96

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Data File : I:\MS19\DATA\2018 10\12\10121813.D  
Acq On : 12 Oct 2018 16:17  
Sample : P1805376-007 (1000mL)  
Misc : S31-09241806

Vial: 8  
Operator: WA  
Inst : MS19

Quant Time: Oct 17 07:59:01 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

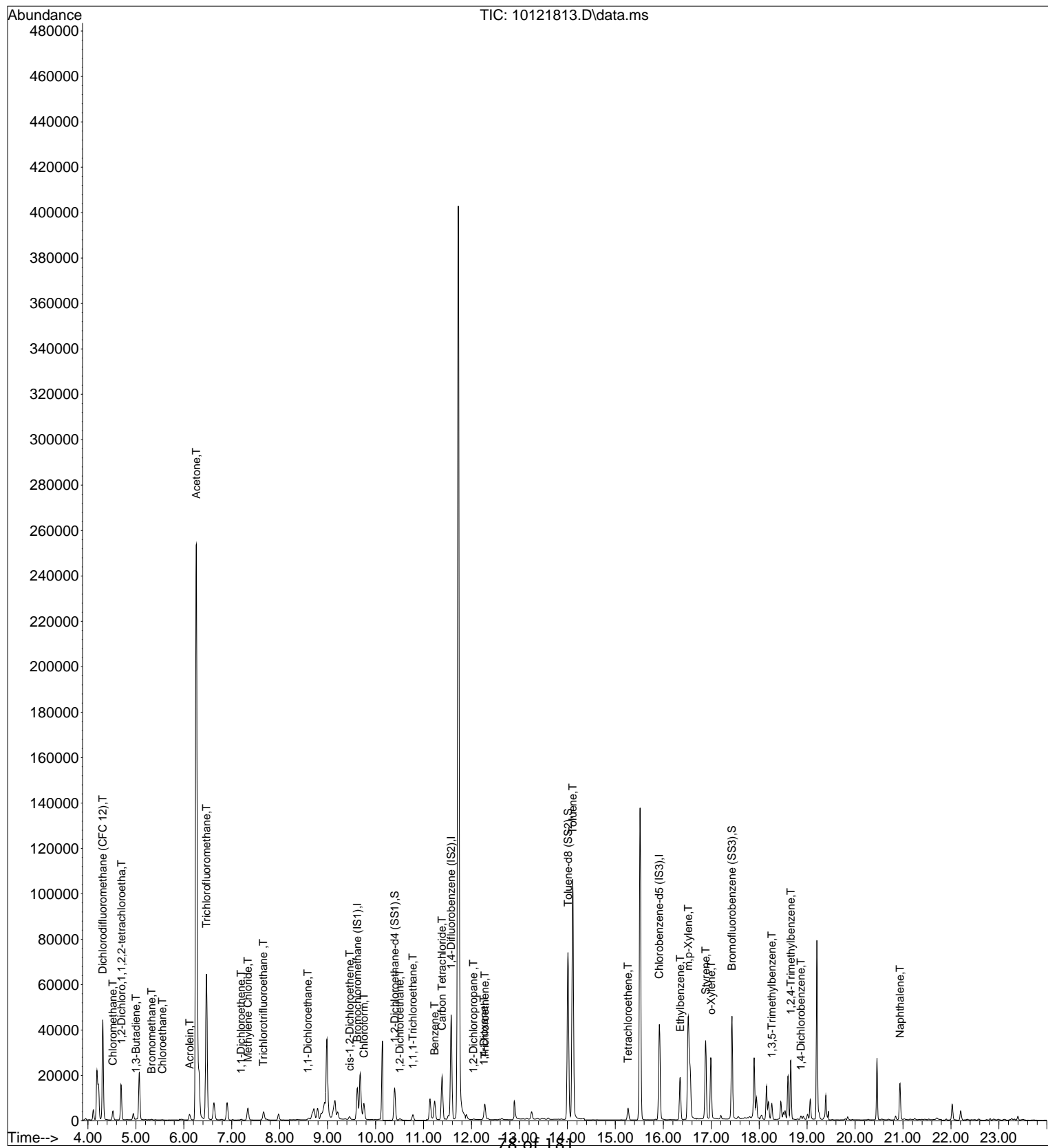
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	56	N.D.		

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

Data File : I:\MS19\DATA\2018 10\12\10121813.D  
Acq On : 12 Oct 2018 16:17  
Sample : P1805376-007 (1000mL)  
Misc : S31-09241806

Vial: 8  
Operator: WA  
Inst : MS19

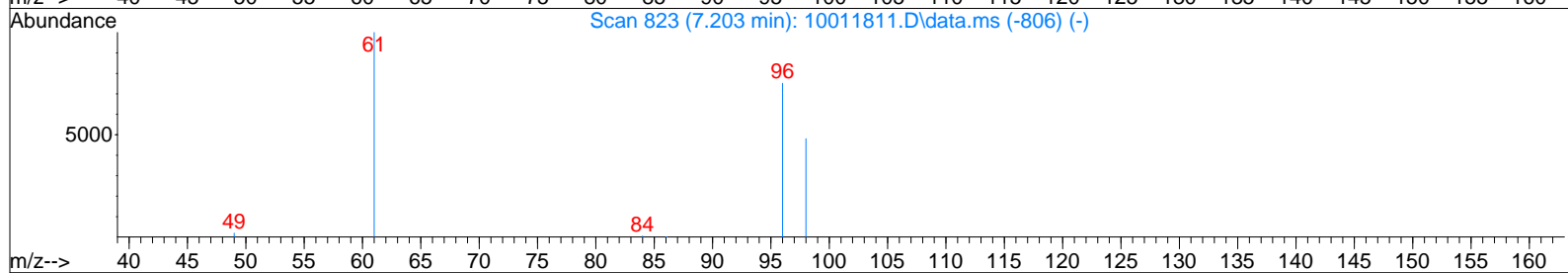
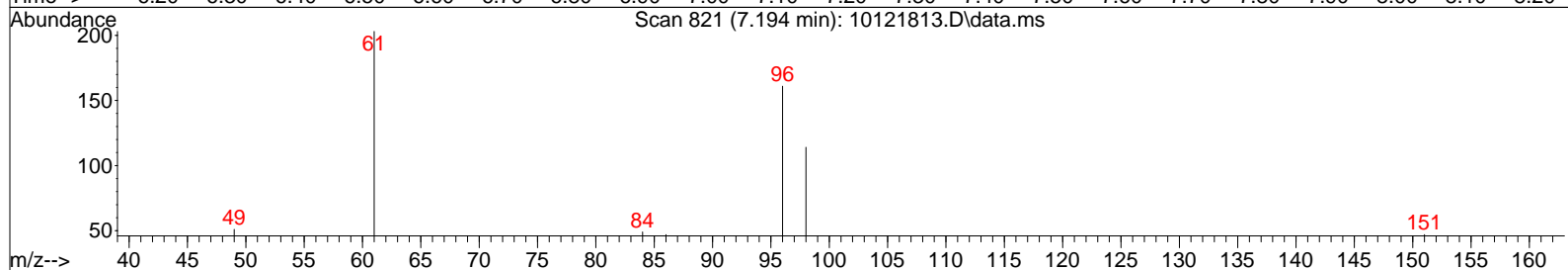
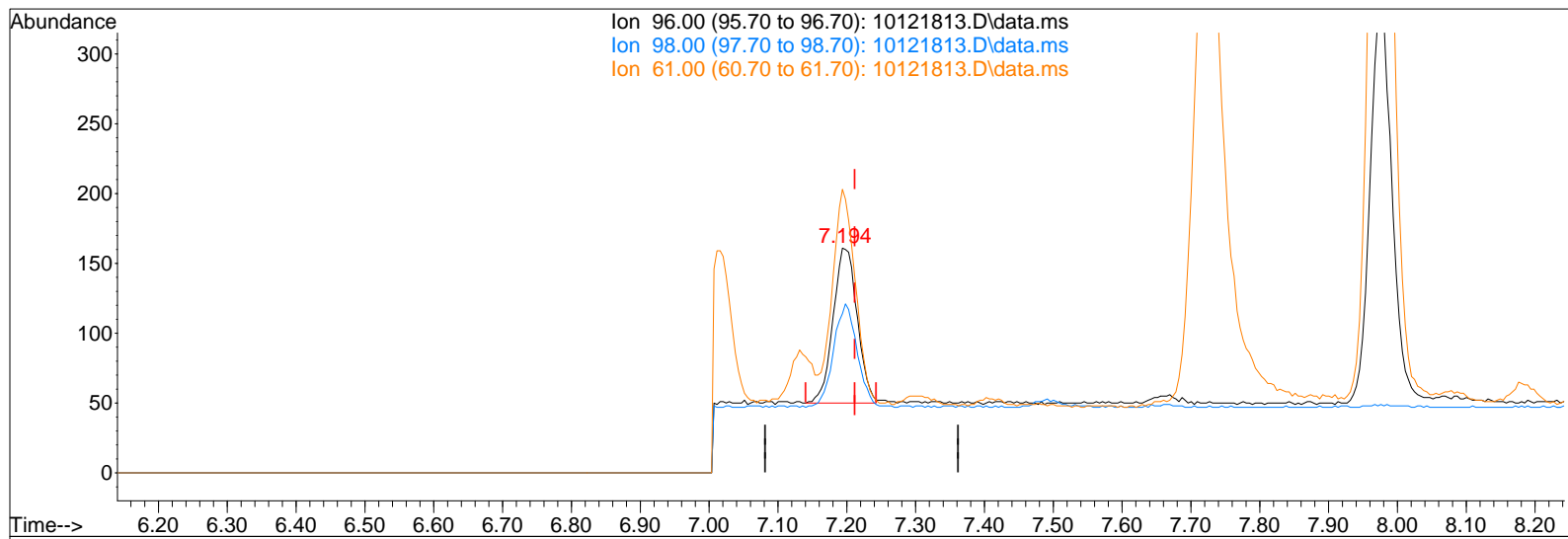
Quant Time: Oct 17 07:59:01 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\12\10121813.D  
Acq On : 12 Oct 2018 16:17  
Sample : P1805376-007 (1000mL)  
Misc : S31-09241806

Vial: 8  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:14 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121813.D\data.ms

(12) 1,1-Dichloroethene (T)

7.194min (-0.018) 11.76pg

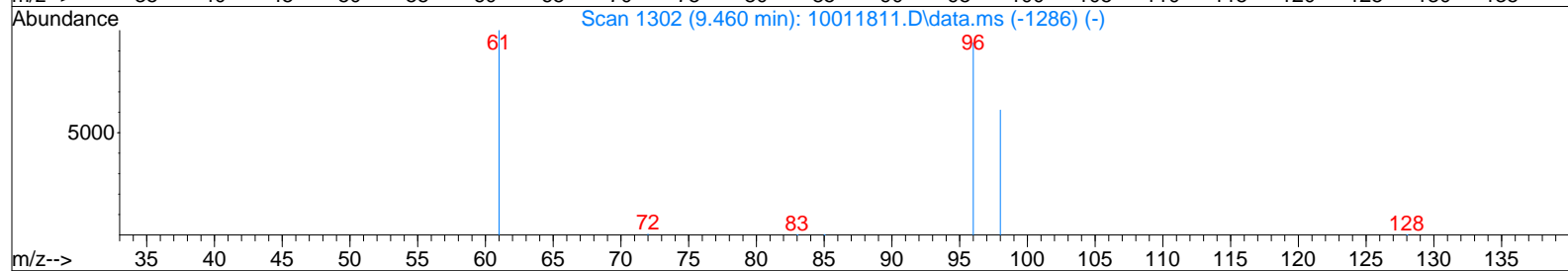
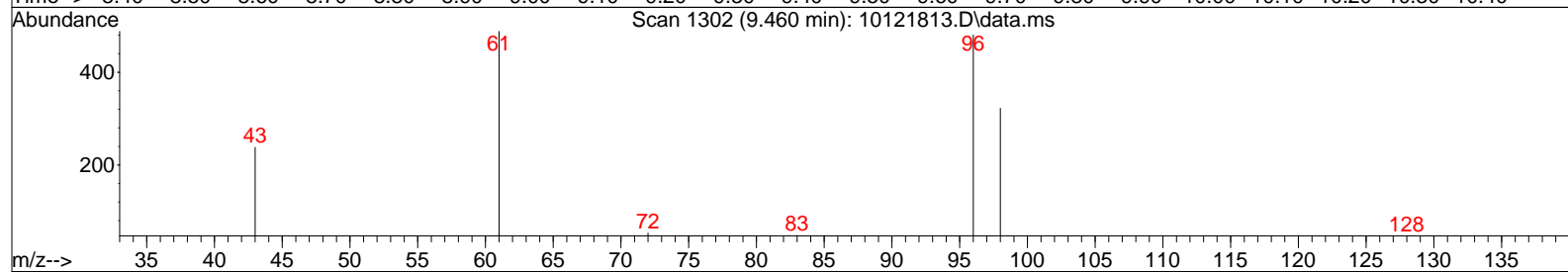
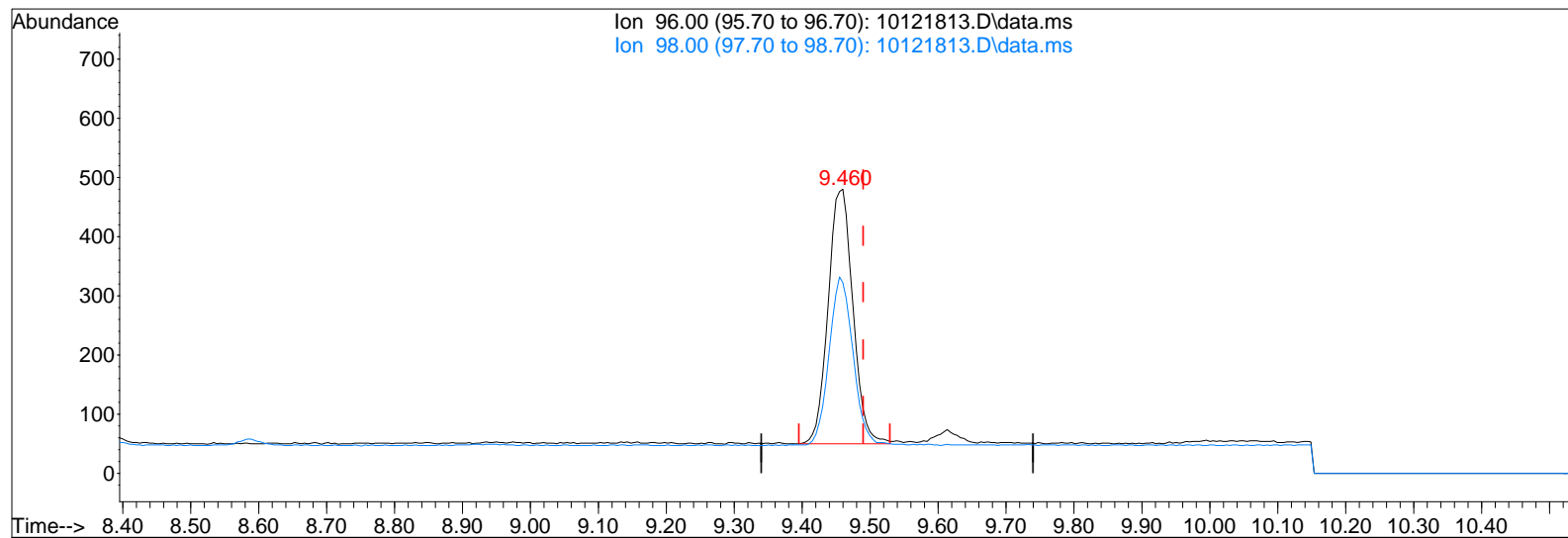
response 269

Ion	Exp%	Act%
96.00	100	100
98.00	64.20	65.43
61.00	134.10	131.60
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121813.D  
Acq On : 12 Oct 2018 16:17  
Sample : P1805376-007 (1000mL)  
Misc : S31-09241806

Vial: 8  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:14 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121813.D\data.ms

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

9.460min (-0.030) 43.00pg

response 1089

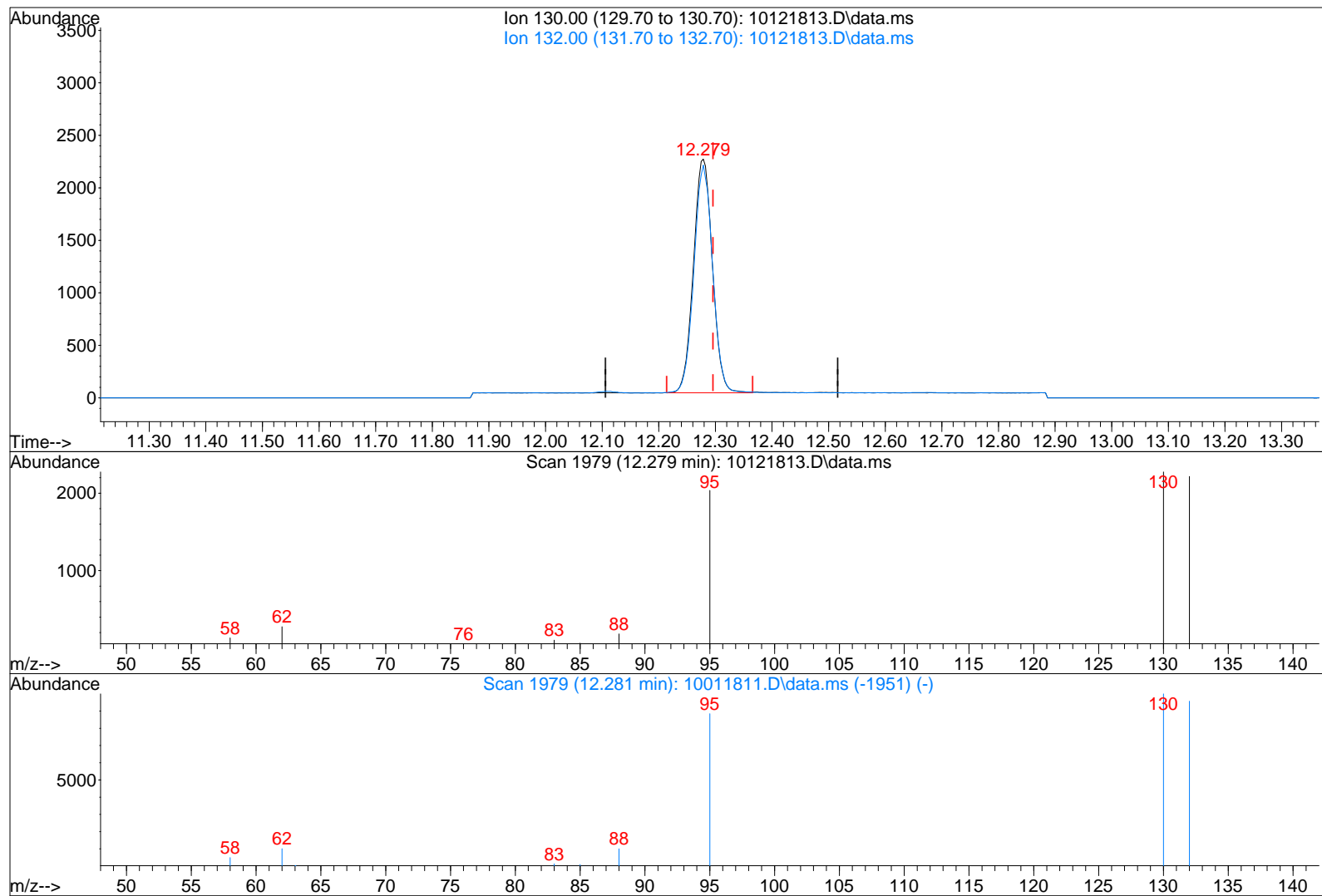
Ion	Exp%	Act%
96.00	100	100
98.00	64.50	63.09
0.00	0.00	0.00
0.00	0.00	0.00



Data File : I:\MS19\DATA\2018 10\12\10121813.D  
Acq On : 12 Oct 2018 16:17  
Sample : P1805376-007 (1000mL)  
Misc : S31-09241806

Vial: 8  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:14 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121813.D\data.ms

(28) Trichloroethene (T)

12.279min (-0.017) 188.50pg

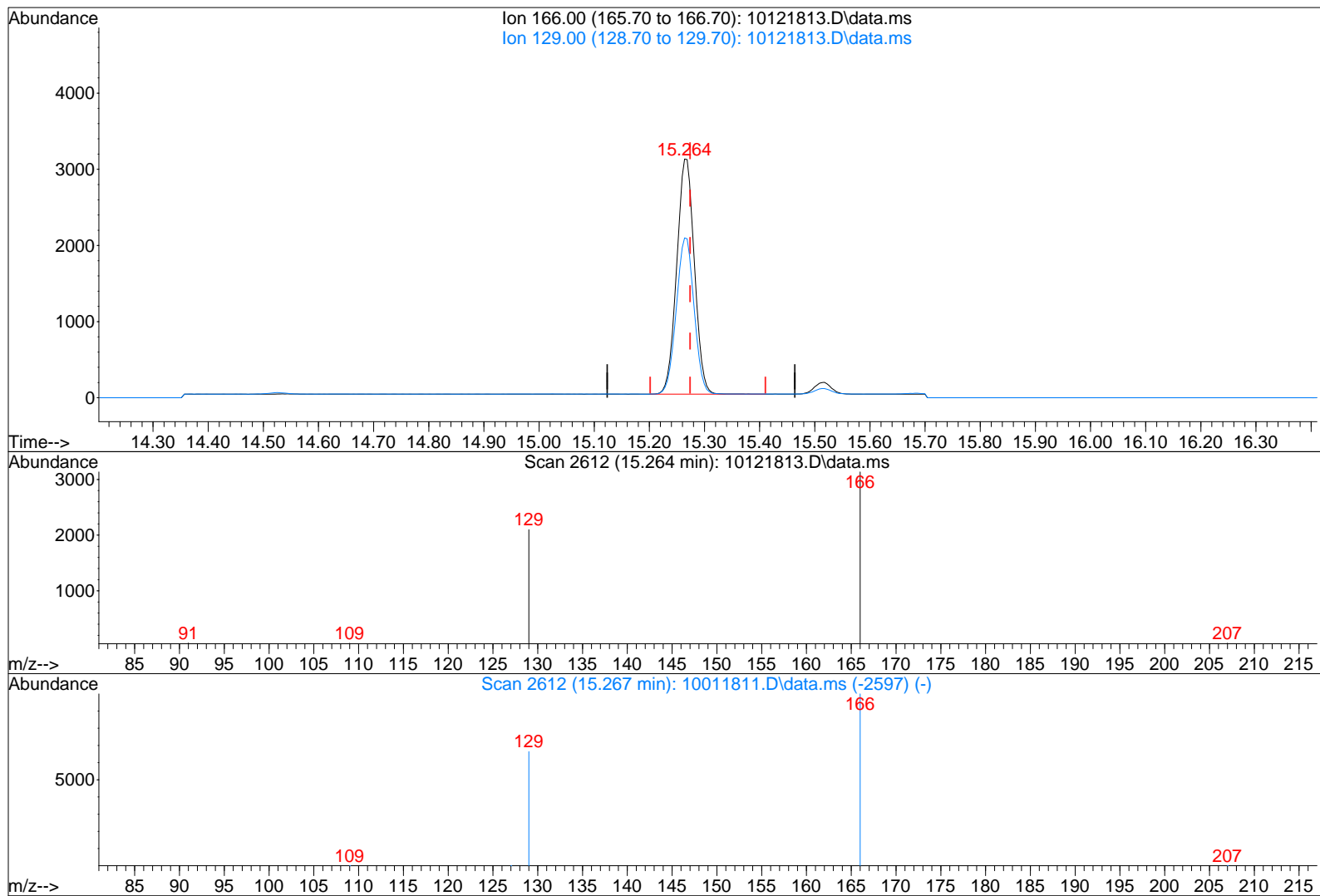
response 5183

Ion	Exp%	Act%
130.00	100	100
132.00	95.60	95.97
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121813.D  
Acq On : 12 Oct 2018 16:17  
Sample : P1805376-007 (1000mL)  
Misc : S31-09241806

Vial: 8  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:14 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121813.D\data.ms

(37) Tetrachloroethene (T)

15.264min (-0.010) 232.38pg

response 6871

Ion	Exp%	Act%
166.00	100	100
129.00	66.70	66.83
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121826.D  
 Acq On : 12 Oct 2018 22:36  
 Sample : P1805376-008 (1000mL)  
 Misc : S31-09241806

Vial: 9  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 17 07:54:09 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18788	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	85306	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11519	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	20509	911.907	pg	-0.03
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	91.19%
33) Toluene-d8 (SS2)	14.01	98	92835	1055.283	pg	-0.01
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	105.53%
45) Bromofluorobenzene (SS3)	17.43	174	35331	1085.468	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	108.55%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.31	85	53468	1335.611	pg	100
3) Chloromethane	4.53	52	1812	193.572	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1711	59.291	pg	99
5) Vinyl Chloride	4.82	62	124	N.D.		
6) 1,3-Butadiene	5.00	54	148	7.531	pg	# 16
7) Bromomethane	5.33	94	361	19.767	pg	# 78
8) Chloroethane	5.55	64	167	12.278	pg	98
9) Acrolein	6.12	56	3653	332.246	pg	100
10) Acetone	6.26	58	312973	22452.818	pg	96
11) Trichlorofluoromethane	6.47	101	57955	1851.139	pg	100
12) 1,1-Dichloroethene	7.19	96	262	11.825	pg	95
13) Methylene Chloride	7.34	84	4049	174.460	pg	98
14) Trichlorotrifluoroethane	7.67	151	5405	246.326	pg	100
15) trans-1,2-Dichloroethene	8.37	96	123	5.336	pg	98
16) 1,1-Dichloroethane	8.59	63	371	10.312	pg	100
17) Methyl tert-Butyl Ether	8.61	73	152	N.D.		
18) cis-1,2-Dichloroethene	9.46	96	1214	49.482	pg	99
19) Chloroform	9.76	83	8447	217.636	pg	99
21) 1,2-Dichloroethane	10.50	62	1164	48.488	pg	100
22) 1,1,1-Trichloroethane	10.78	97	3278	99.573	pg	100
23) Benzene	11.23	78	13314	136.545	pg	99
24) Carbon Tetrachloride	11.39	117	20541	683.588	pg	100
26) 1,2-Dichloropropane	12.05	63	249	11.719	pg	98
27) Bromodichloromethane	12.25	83	137	N.D.		
28) Trichloroethene	12.28	130	4741	177.867	pg	99
29) 1,4-Dioxane	12.26	88	874	47.928	pg	99
30) cis-1,3-Dichloropropene	13.12	75	77	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
32) 1,1,2-Trichloroethane	13.81	83	92	N.D.		
34) Toluene	14.11	91	111054	1140.154	pg	100
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.27	166	3831	133.658	pg	100
39) Chlorobenzene	15.97	112	290	N.D.		
40) Ethylbenzene	16.35	91	18985	178.772	pg	100
41) m,p-Xylene	16.52	91	50527	622.268	pg	100
42) Styrene	16.89	104	31795	492.981	pg	96
43) o-Xylene	17.00	106	9568	221.641	pg	97
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d	
46) 1,3,5-Trimethylbenzene	18.27	105	5647	62.196	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	23429	258.670	pg	88
48) 1,3-Dichlorobenzene	18.81	146	5388	91.056	pg	99
49) 1,4-Dichlorobenzene	18.87	146	882	14.843	pg	98
50) 1,2-Dichlorobenzene	19.20	146	104	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.83	182	138	N.D.		
53) Naphthalene	20.93	128	14178	133.827	pg	94

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Data File : I:\MS19\DATA\2018 10\12\10121826.D  
Acq On : 12 Oct 2018 22:36  
Sample : P1805376-008 (1000mL)  
Misc : S31-09241806

Vial: 9  
Operator: WA  
Inst : MS19

Quant Time: Oct 17 07:54:09 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

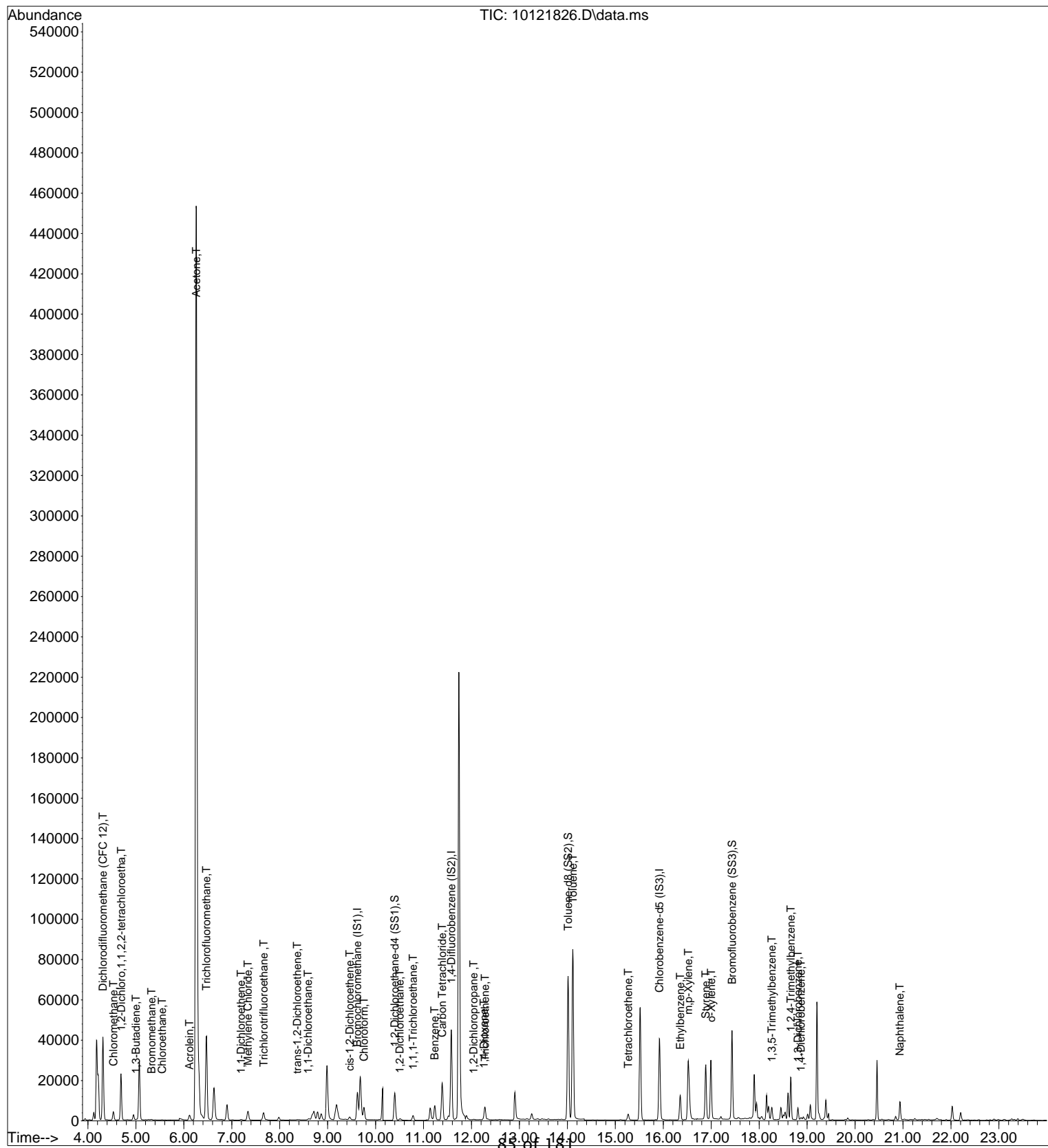
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	61	N.D.		

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

Data File : I:\MS19\DATA\2018 10\12\10121826.D  
Acq On : 12 Oct 2018 22:36  
Sample : P1805376-008 (1000mL)  
Misc : S31-09241806

Vial: 9  
Operator: WA  
Inst : MS19

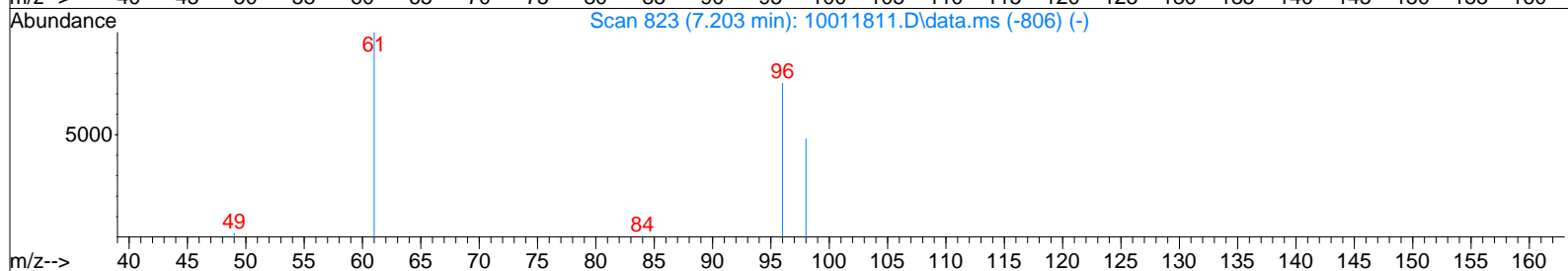
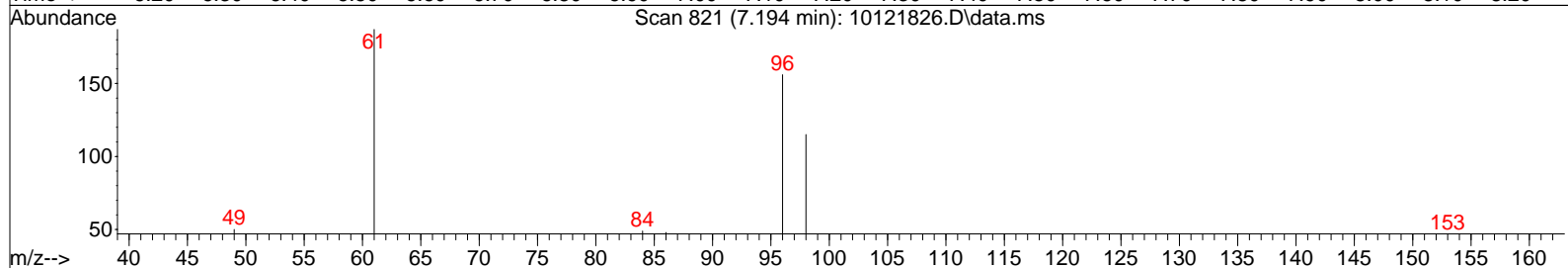
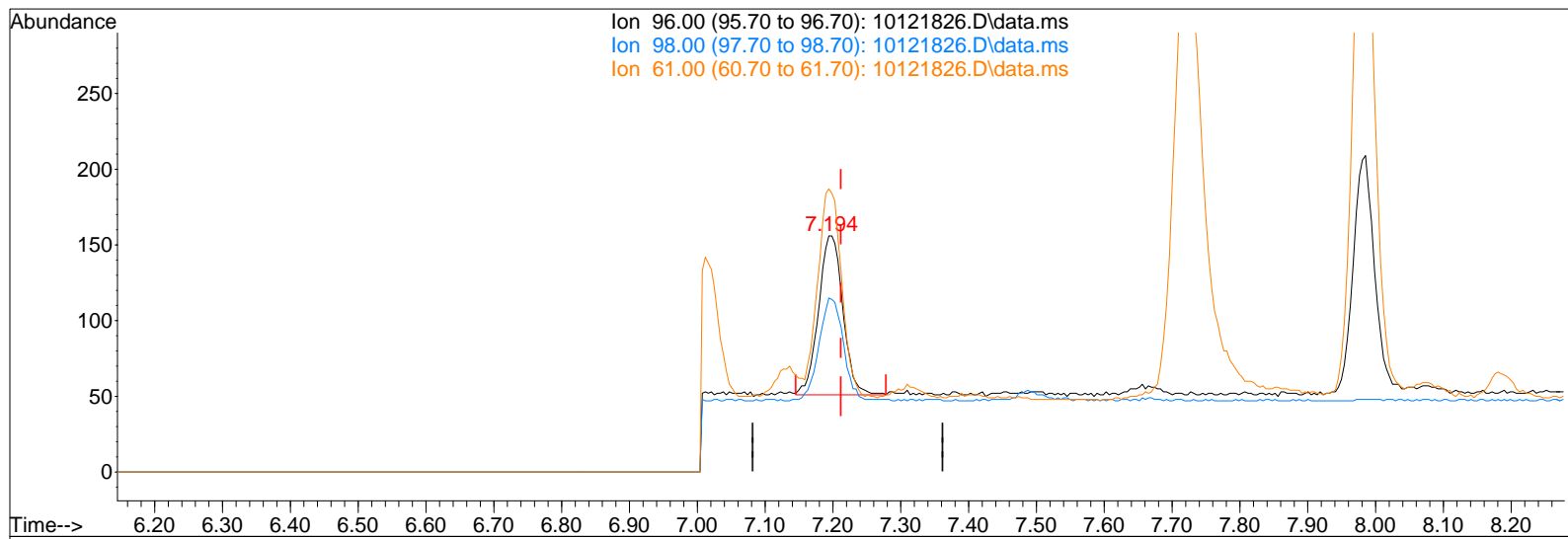
Quant Time: Oct 17 07:54:09 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\12\10121826.D  
Acq On : 12 Oct 2018 22:36  
Sample : P1805376-008 (1000mL)  
Misc : S31-09241806

Vial: 9  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:26 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121826.D\data.ms

(12) 1,1-Dichloroethene (T)

7.194min (-0.018) 11.83pg

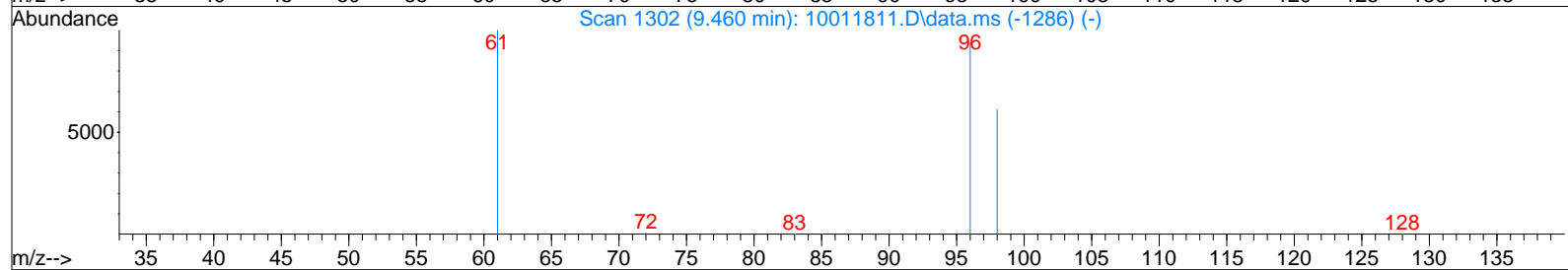
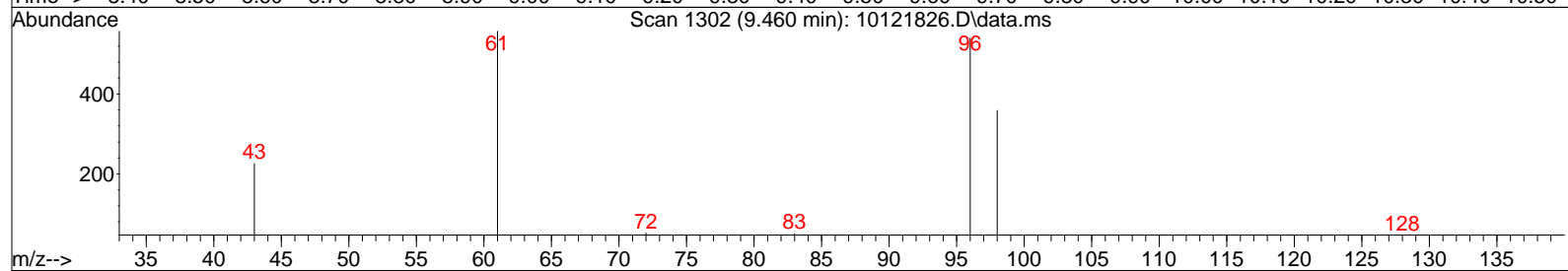
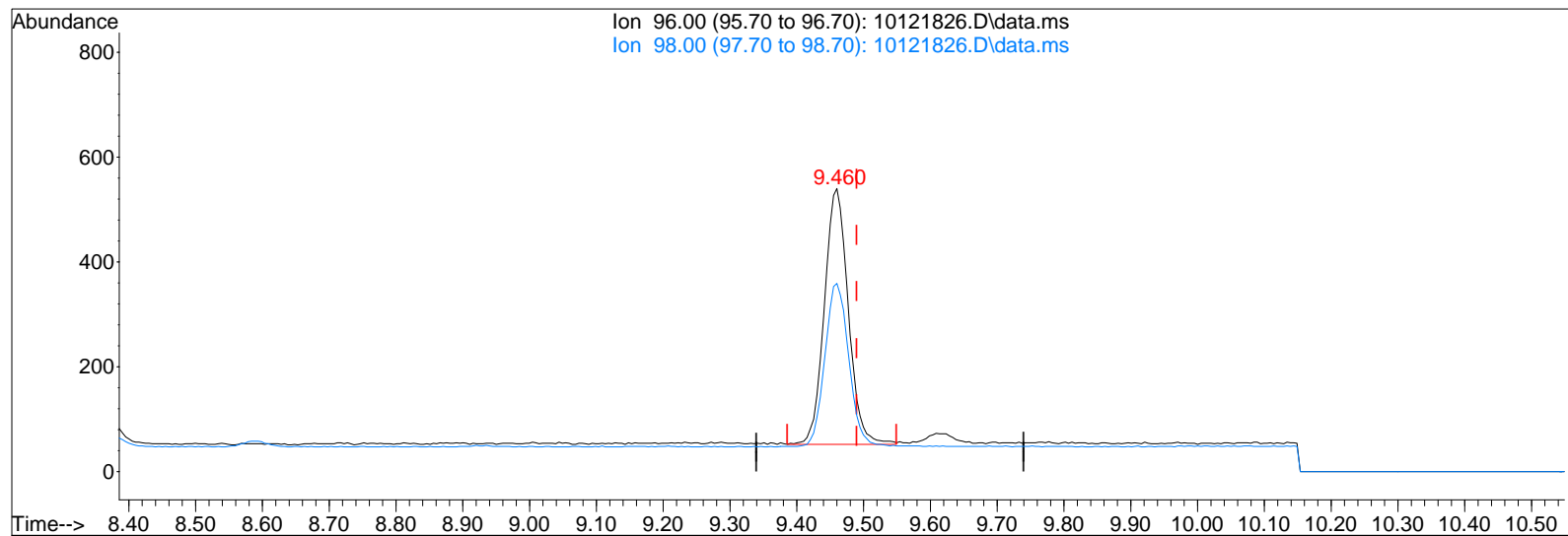
response 262

Ion	Exp%	Act%
96.00	100	100
98.00	64.20	61.83
61.00	134.10	126.72
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121826.D  
Acq On : 12 Oct 2018 22:36  
Sample : P1805376-008 (1000mL)  
Misc : S31-09241806

Vial: 9  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:26 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121826.D\data.ms

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

9.460min (-0.030) 49.48pg

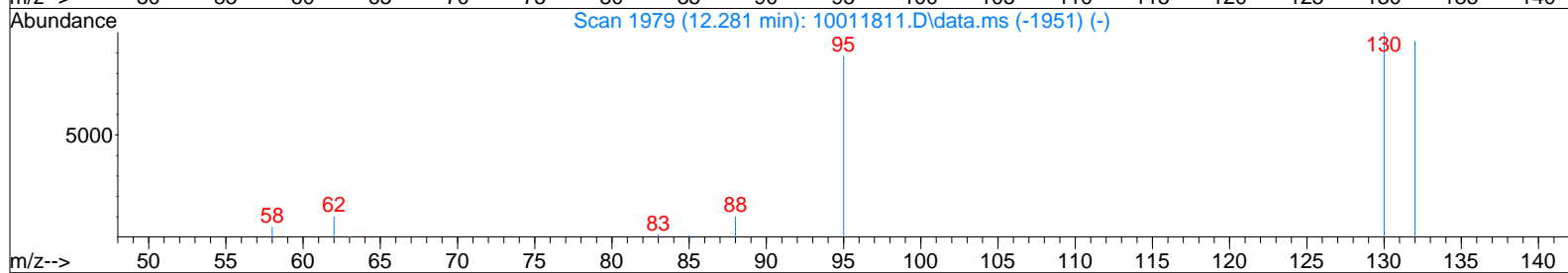
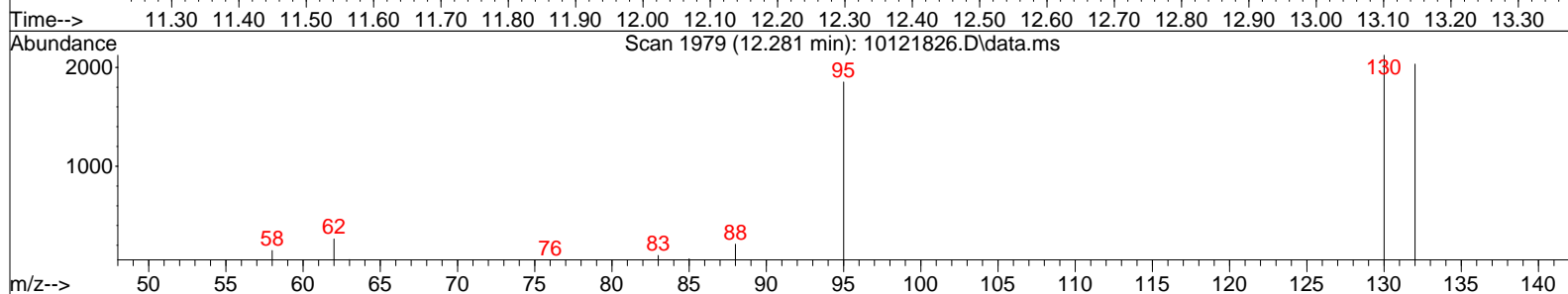
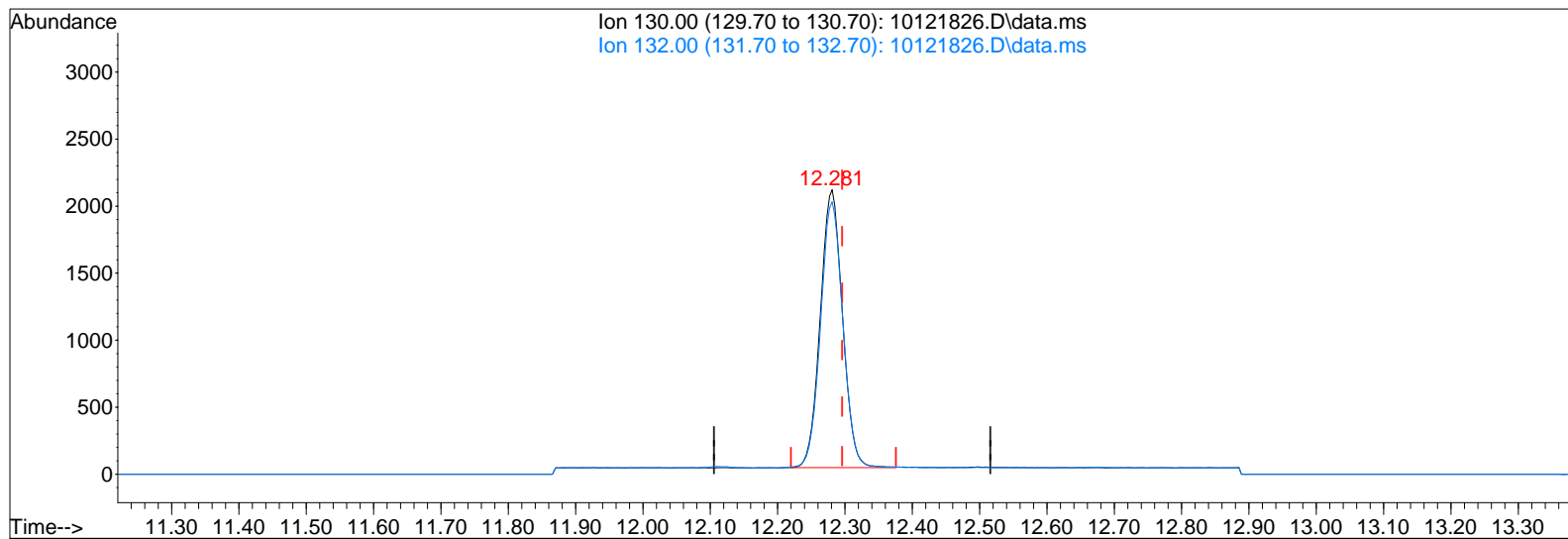
response 1214

Ion	Exp%	Act%
96.00	100	100
98.00	64.50	63.43
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121826.D  
Acq On : 12 Oct 2018 22:36  
Sample : P1805376-008 (1000mL)  
Misc : S31-09241806

Vial: 9  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:26 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121826.D\data.ms

(28) Trichloroethene (T)

12.281min (-0.015) 177.87pg

response 4741

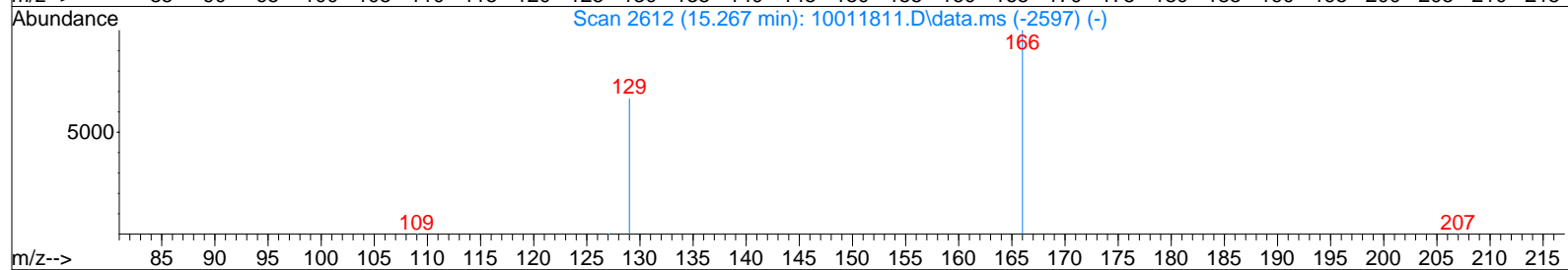
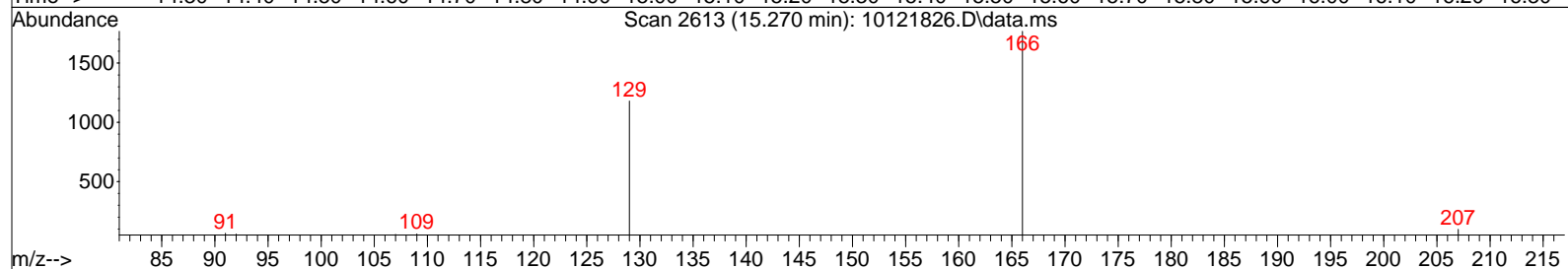
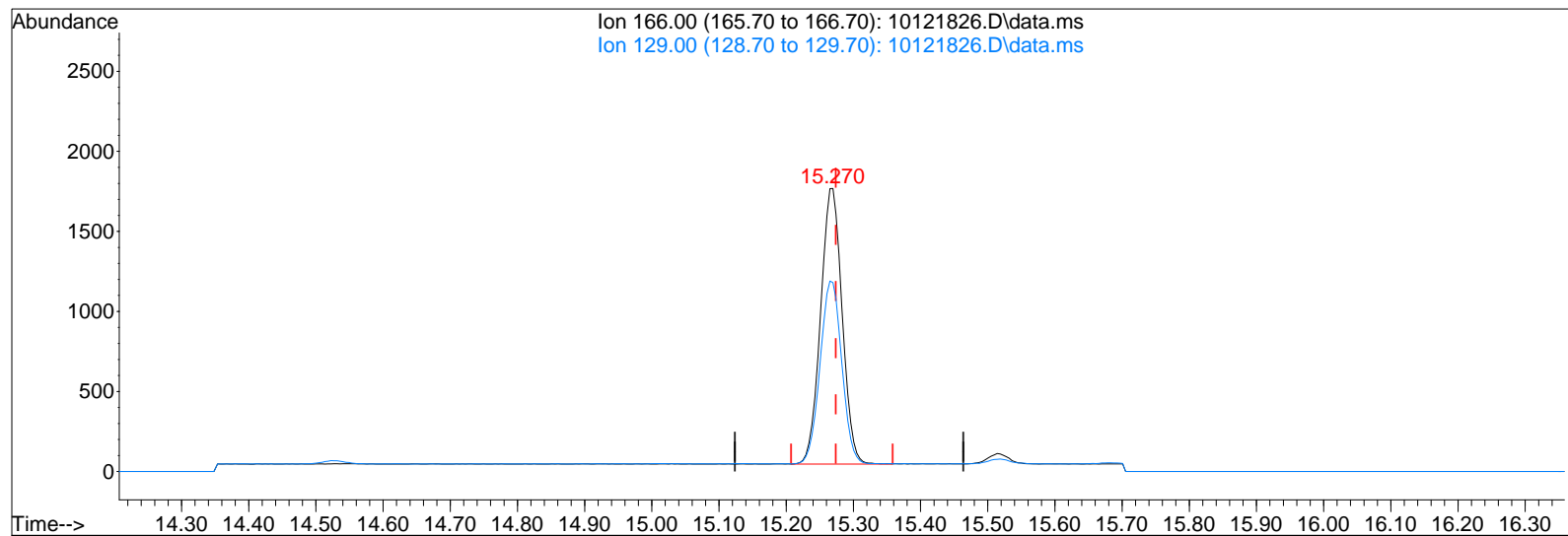
Ion	Exp%	Act%
130.00	100	100
132.00	95.60	96.46
0.00	0.00	0.00
0.00	0.00	0.00



Data File : I:\MS19\DATA\2018 10\12\10121826.D  
Acq On : 12 Oct 2018 22:36  
Sample : P1805376-008 (1000mL)  
Misc : S31-09241806

Vial: 9  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:26 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121826.D\data.ms

(37) Tetrachloroethene (T)

15.270min (-0.004) 133.66pg

response 3831

Ion	Exp%	Act%
166.00	100	100
129.00	66.70	66.77
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121827.D  
 Acq On : 12 Oct 2018 23:08  
 Sample : P1805376-009 (1000mL)  
 Misc : S31-09241806

Vial: 10  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 17 07:55:30 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

~~10/17/18~~ 10/17/18

DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18720	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	85369	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11751	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	20559	917.451	pg	-0.03
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	91.75%
33) Toluene-d8 (SS2)	14.01	98	92350	1048.995	pg	-0.01
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	104.90%
45) Bromofluorobenzene (SS3)	17.43	174	36156	1088.884	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	108.89%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.31	85	49533	1241.810	pg	100
3) Chloromethane	4.53	52	1937	207.677	pg	98
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1597	55.542	pg	99
5) Vinyl Chloride	4.82	62	727	28.068	pg	97
6) 1,3-Butadiene	5.00	54	722	36.873	pg	# 16
7) Bromomethane	5.33	94	415	22.807	pg	96
8) Chloroethane	5.55	64	411	30.327	pg	97
9) Acrolein	6.13	56	6353	579.914	pg	99
10) Acetone	6.27	58	232153	16715.254	pg	98
11) Trichlorofluoromethane	6.47	101	130187	4173.403	pg	100
12) 1,1-Dichloroethene	7.19	96	269	12.185	pg	97
13) Methylene Chloride	7.33	84	3624	156.715	pg	99
14) Trichlorotrifluoroethane	7.67	151	5054	231.166	pg	100
15) trans-1,2-Dichloroethene	8.37	96	98	N.D.		
16) 1,1-Dichloroethane	8.59	63	386	10.768	pg	90
17) Methyl tert-Butyl Ether	8.61	73	133	N.D.		
18) cis-1,2-Dichloroethene	9.46	96	1175	48.066	pg	100
19) Chloroform	9.76	83	11878	307.147	pg	99
21) 1,2-Dichloroethane	10.51	62	794	33.195	pg	100
22) 1,1,1-Trichloroethane	10.78	97	3620	110.362	pg	100
23) Benzene	11.24	78	16019	164.883	pg	97
24) Carbon Tetrachloride	11.39	117	26719	892.417	pg	99
26) 1,2-Dichloropropane	12.05	63	230	10.817	pg	93
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.28	130	5309	199.029	pg	100
29) 1,4-Dioxane	12.26	88	2122	116.278	pg	99
30) cis-1,3-Dichloropropene	13.11	75	107	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.	d	
34) Toluene	14.11	91	95070	975.332	pg	100
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.27	166	6544	228.141	pg	100
39) Chlorobenzene	15.97	112	1400	19.679	pg	93
40) Ethylbenzene	16.35	91	28158	259.915	pg	100
41) m,p-Xylene	16.52	91	68814	830.750	pg	99
42) Styrene	16.89	104	49799	756.888	pg	97
43) o-Xylene	17.00	106	12897	292.859	pg	87
44) 1,1,2,2-Tetrachloroethane	16.99	83	123	N.D.		
46) 1,3,5-Trimethylbenzene	18.27	105	7038	75.986	pg	99
47) 1,2,4-Trimethylbenzene	18.66	105	29047	314.365	pg	88
48) 1,3-Dichlorobenzene	18.81	146	66	N.D.		
49) 1,4-Dichlorobenzene	18.87	146	899	14.830	pg	99
50) 1,2-Dichlorobenzene	19.20	146	109	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.82	182	73	N.D.		
53) Naphthalene	20.94	128	18837	174.293	pg	94

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Data File : I:\MS19\DATA\2018 10\12\10121827.D  
Acq On : 12 Oct 2018 23:08  
Sample : P1805376-009 (1000mL)  
Misc : S31-09241806

Vial: 10  
Operator: WA  
Inst : MS19

Quant Time: Oct 17 07:55:30 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

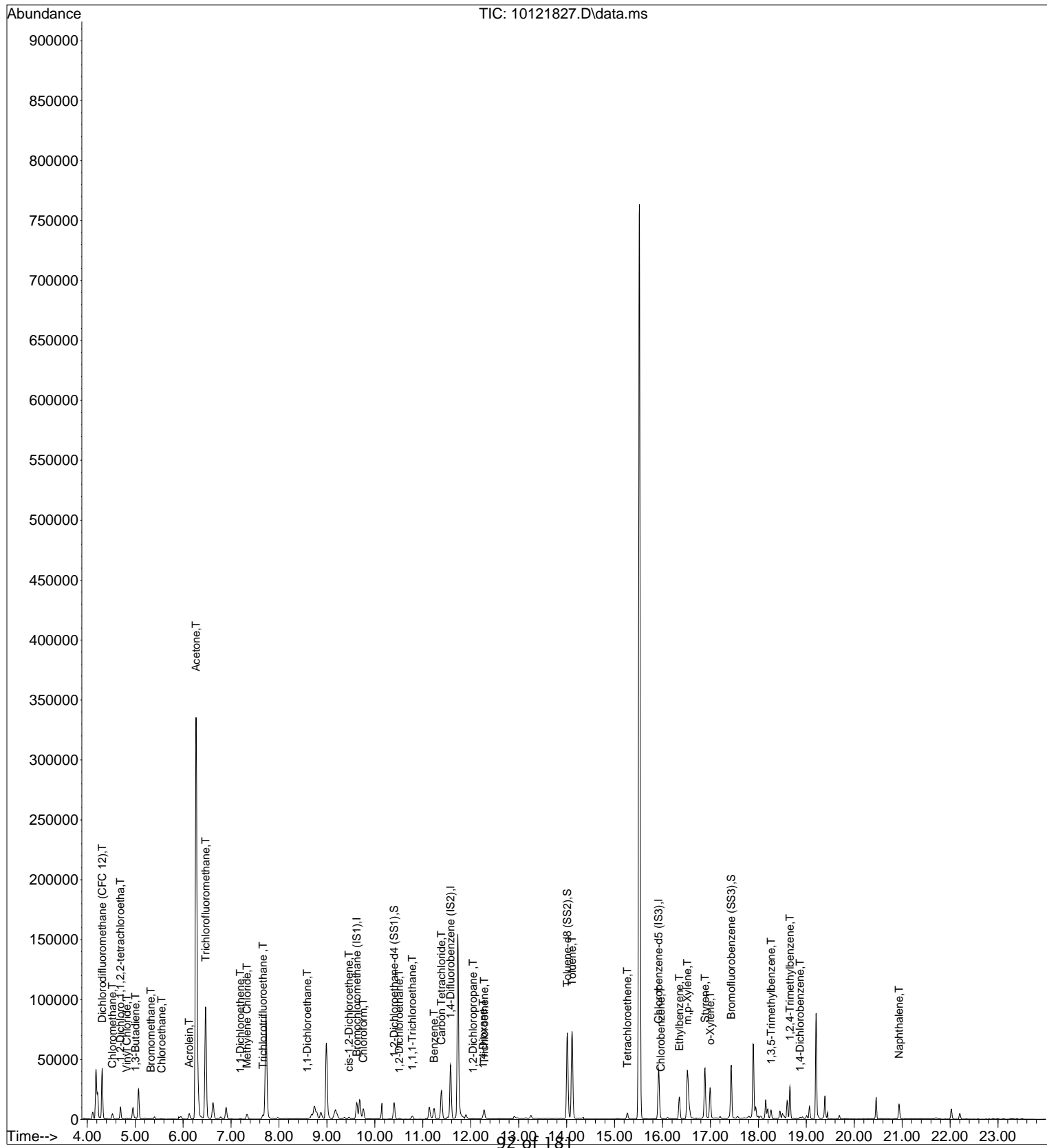
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	57	N.D.		

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

Data File : I:\MS19\DATA\2018 10\12\10121827.D  
Acq On : 12 Oct 2018 23:08  
Sample : P1805376-009 (1000mL)  
Misc : S31-09241806

Vial: 10  
Operator: WA  
Inst : MS19

Quant Time: Oct 17 07:55:30 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

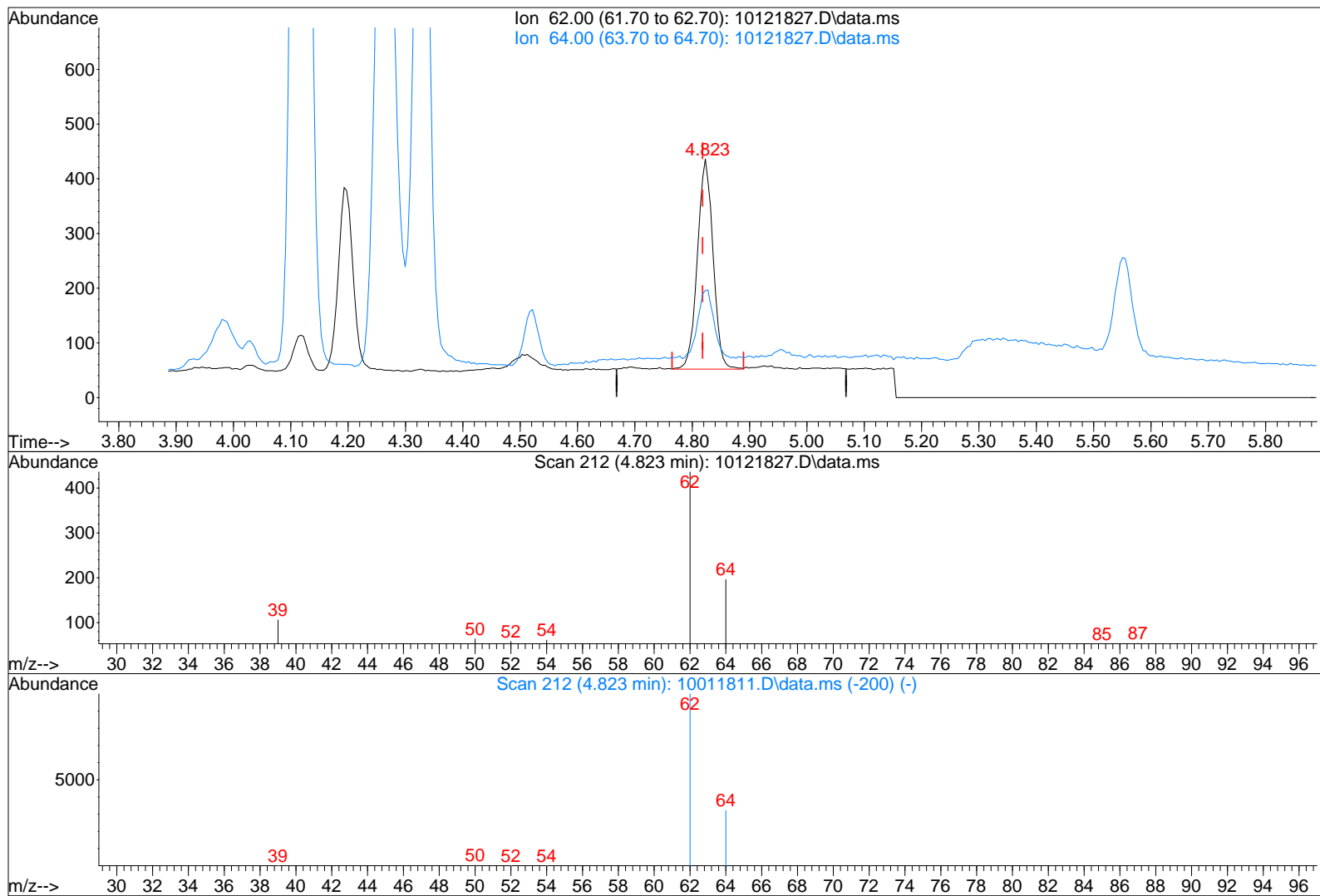


12 of 181

Data File : I:\MS19\DATA\2018 10\12\10121827.D  
Acq On : 12 Oct 2018 23:08  
Sample : P1805376-009 (1000mL)  
Misc : S31-09241806

Vial: 10  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:27 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121827.D\data.ms

(5) Vinyl Chloride (T)

4.823min (+0.004) 28.07pg

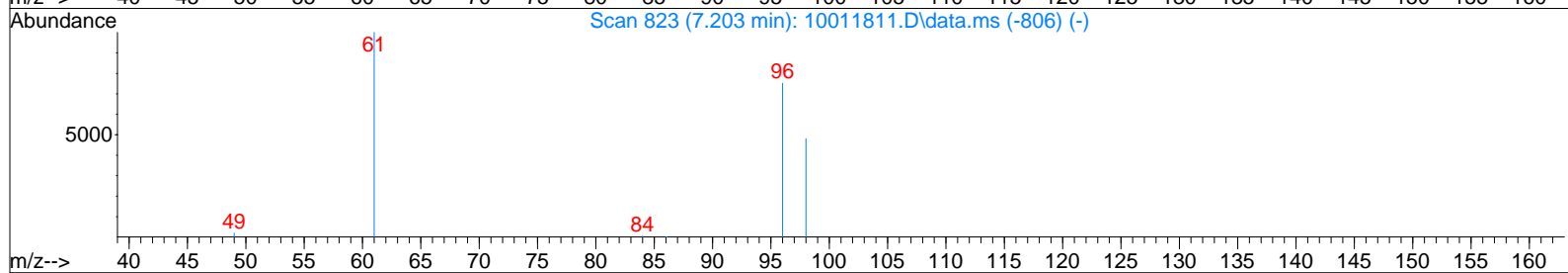
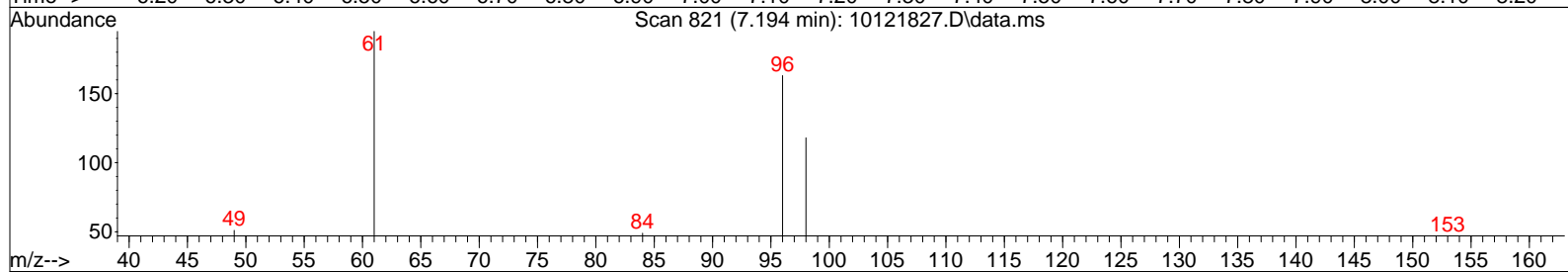
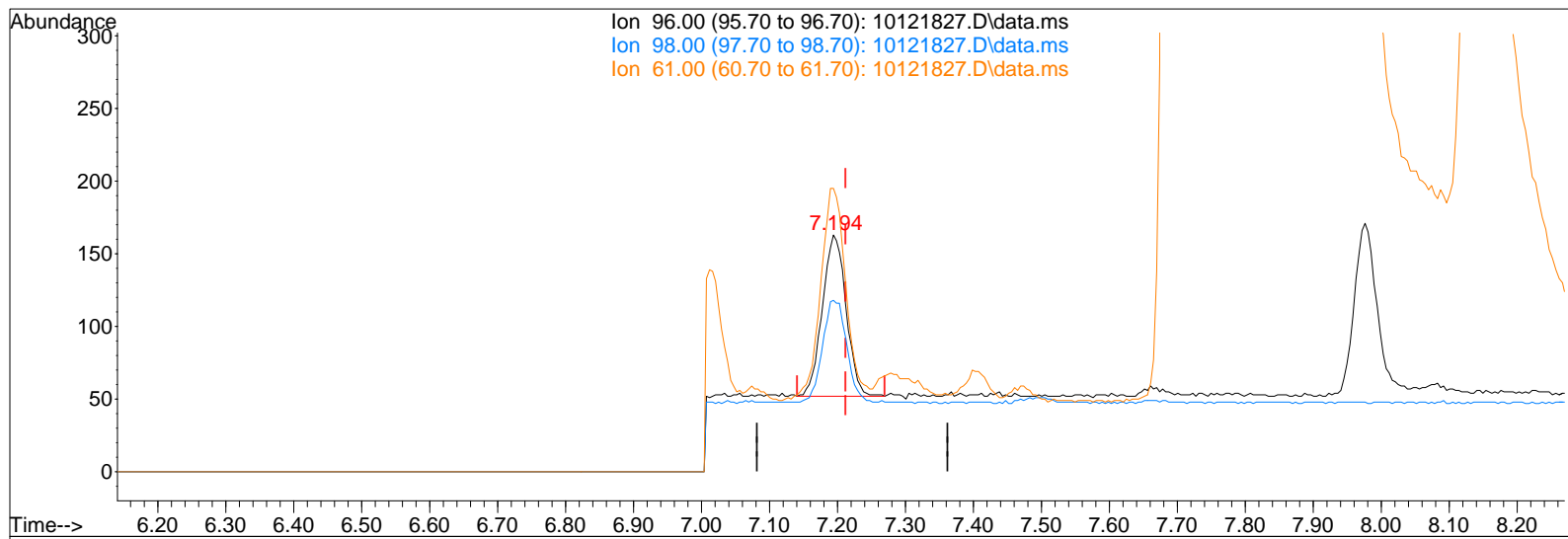
response 727

Ion	Exp%	Act%
62.00	100	100
64.00	32.80	34.39
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121827.D  
Acq On : 12 Oct 2018 23:08  
Sample : P1805376-009 (1000mL)  
Misc : S31-09241806

Vial: 10  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:27 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121827.D\data.ms

(12) 1,1-Dichloroethene (T)

7.194min (-0.018) 12.19pg

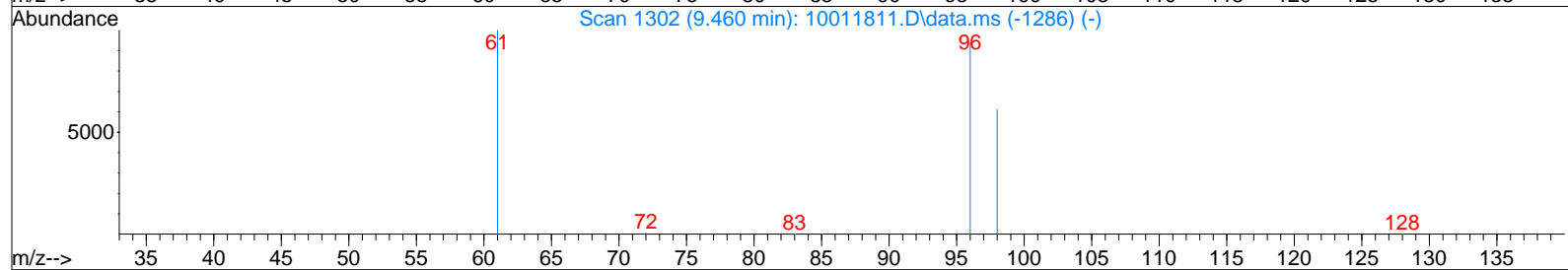
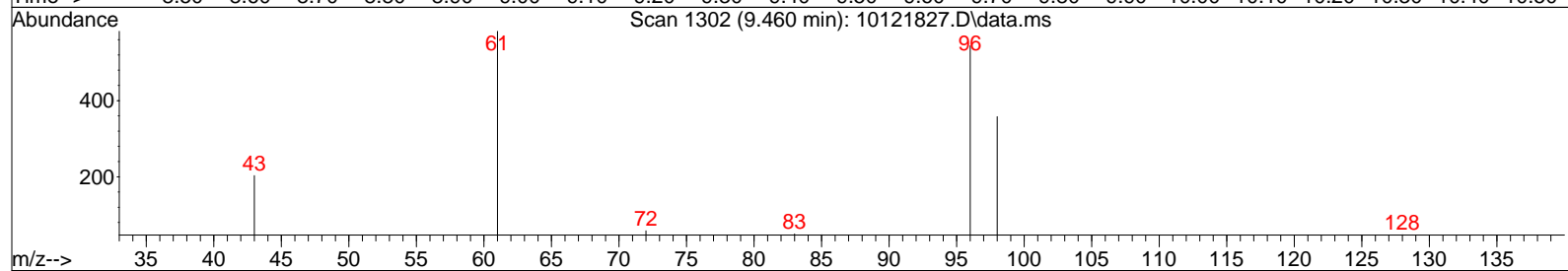
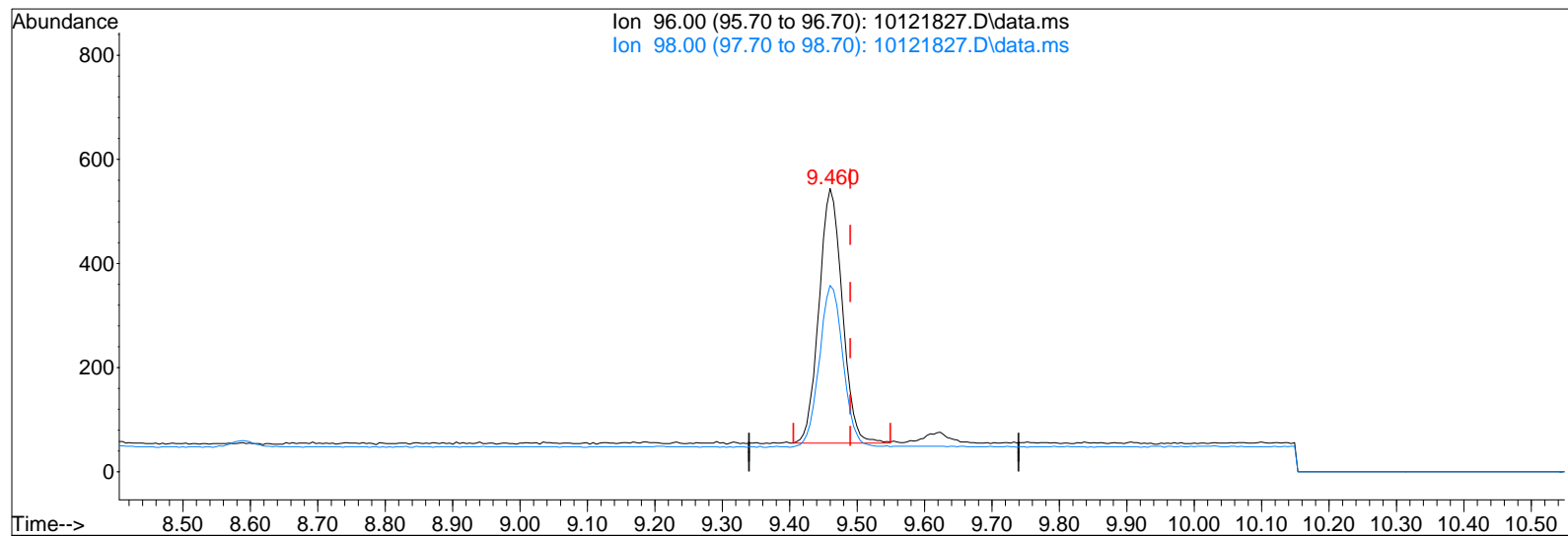
response 269

Ion	Exp%	Act%
96.00	100	100
98.00	64.20	63.57
61.00	134.10	138.66
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121827.D  
Acq On : 12 Oct 2018 23:08  
Sample : P1805376-009 (1000mL)  
Misc : S31-09241806

Vial: 10  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:27 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121827.D\data.ms

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

9.460min (-0.030) 48.07pg

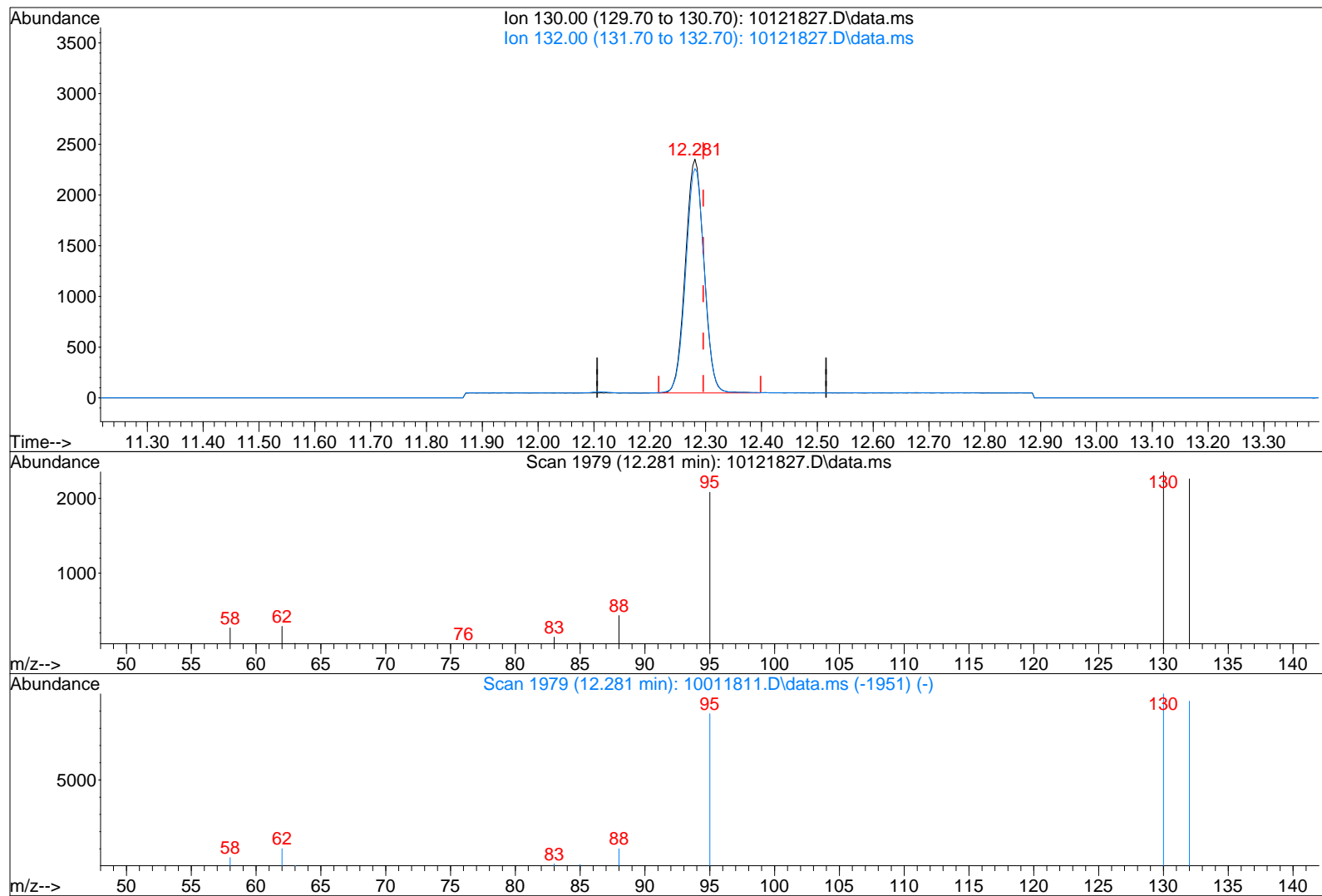
response 1175

Ion	Exp%	Act%
96.00	100	100
98.00	64.50	64.85
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121827.D  
Acq On : 12 Oct 2018 23:08  
Sample : P1805376-009 (1000mL)  
Misc : S31-09241806

Vial: 10  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:27 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121827.D\data.ms

(28) Trichloroethene (T)

12.281min (-0.015) 199.03pg

response 5309

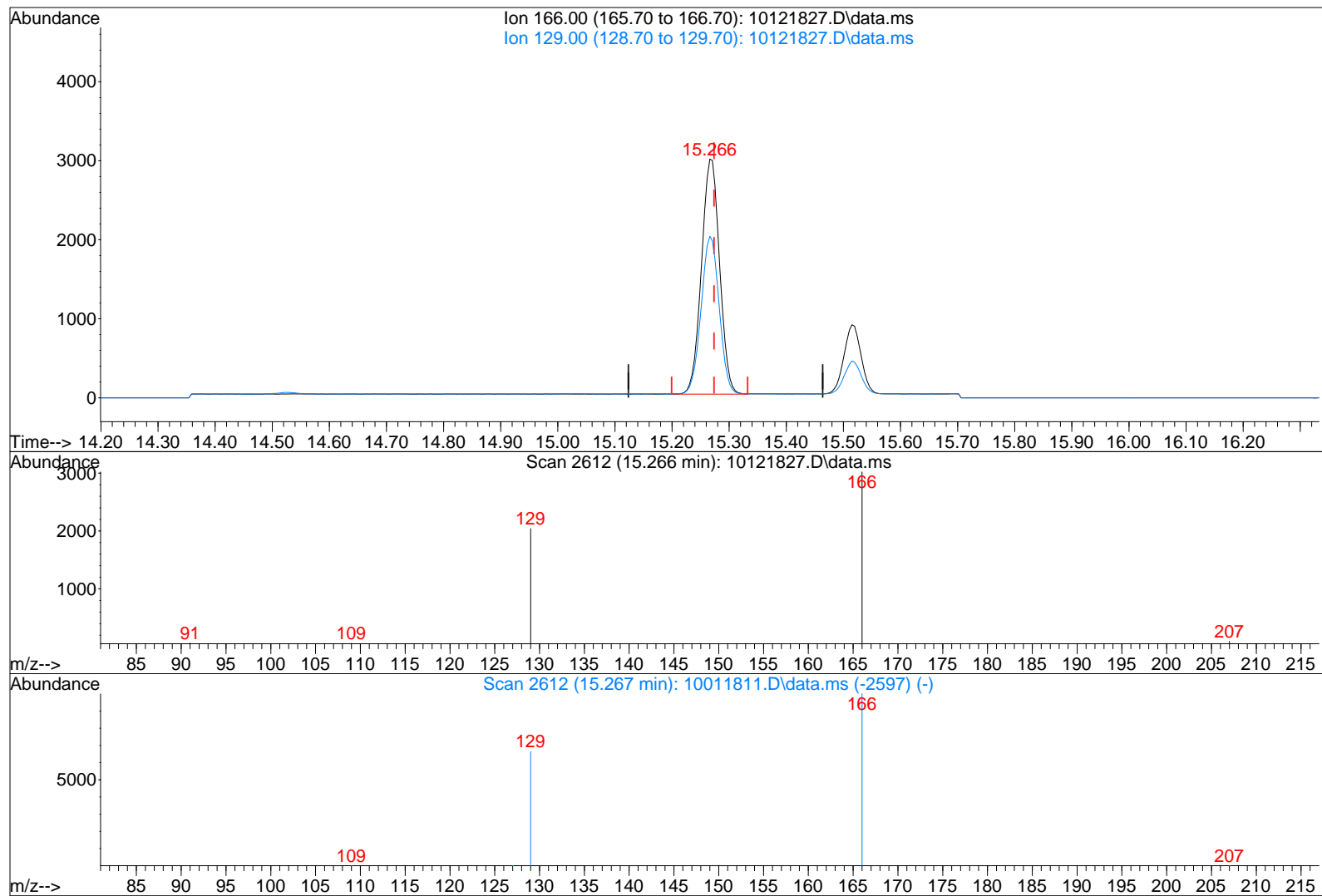
Ion	Exp%	Act%
130.00	100	100
132.00	95.60	95.99
0.00	0.00	0.00
0.00	0.00	0.00



Data File : I:\MS19\DATA\2018 10\12\10121827.D  
Acq On : 12 Oct 2018 23:08  
Sample : P1805376-009 (1000mL)  
Misc : S31-09241806

Vial: 10  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:27 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121827.D\data.ms

(37) Tetrachloroethene (T)

15.266min (-0.008) 228.14pg

response 6544

Ion	Exp%	Act%
166.00	100	100
129.00	66.70	66.72
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121804.D  
 Acq On : 12 Oct 2018 4:49  
 Sample : MB S19101218 1000mL  
 Misc : S31-09241806\_AS01329

Vial: 2  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 12 09:03:17 2018  
 Quant Method : I:\MS19\METHODS\S19100118.M  
 Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
 QLast Update : Tue Oct 02 06:45:50 2018  
 Response via : Initial Calibration  
 DataAcq Meth:TO15SIM.M

~~10/12/18~~ 10/12/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18092	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	77381	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10109	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	21387	987.529	pg	-0.03
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	98.75%	
33) Toluene-d8 (SS2)	14.02	98	83222	1042.895	pg	-0.01
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	104.29%	
45) Bromofluorobenzene (SS3)	17.44	174	29303	1025.840	pg	0.00
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	102.58%	

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	0.00	85	0	N.D.		
3) Chloromethane	0.00	52	0	N.D.		
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.		
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.		
7) Bromomethane	5.36	94	84	4.777	pg	99
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	6.15	56	205	19.362	pg	97
10) Acetone	6.30	58	3495	260.379	pg	99
11) Trichlorofluoromethane	0.00	101	0	N.D.		
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	0.00	84	0	N.D.		
14) Trichlorotrifluoroethane	0.00	151	0	N.D.		
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	0.00	63	0	N.D.		
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.76	83	301	8.054	pg	100
21) 1,2-Dichloroethane	0.00	62	0	N.D.		
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.24	78	1025	10.917	pg	99
24) Carbon Tetrachloride	0.00	117	0	N.D.		
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	0.00	130	0	N.D.		
29) 1,4-Dioxane	0.00	88	0	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.		
34) Toluene	14.11	91	347	3.927	pg	98
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	0.00	166	0	N.D.		
39) Chlorobenzene	0.00	112	0	N.D.		
40) Ethylbenzene	16.36	91	85	0.912	pg	# 41
41) m,p-Xylene	16.53	91	171	2.400	pg	# 93
42) Styrene	16.90	104	75	1.325	pg	# 30
43) o-Xylene	0.00	106	0	N.D.		
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
46) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.		
47) 1,2,4-Trimethylbenzene	18.66	105	61	0.767	pg	# 21
48) 1,3-Dichlorobenzene	18.81	146	62	1.194	pg	# 18
49) 1,4-Dichlorobenzene	18.88	146	82	1.572	pg	# 18
50) 1,2-Dichlorobenzene	19.20	146	52	1.043	pg	# 18
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.83	182	110	3.729	pg	# 46
53) Naphthalene	20.95	128	421	4.528	pg	# 71

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Data File : I:\MS19\DATA\2018 10\12\10121804.D  
Acq On : 12 Oct 2018 4:49  
Sample : MB S19101218 1000mL  
Misc : S31-09241806\_AS01329

Vial: 2  
Operator: WA  
Inst : MS19

Quant Time: Oct 12 09:03:17 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

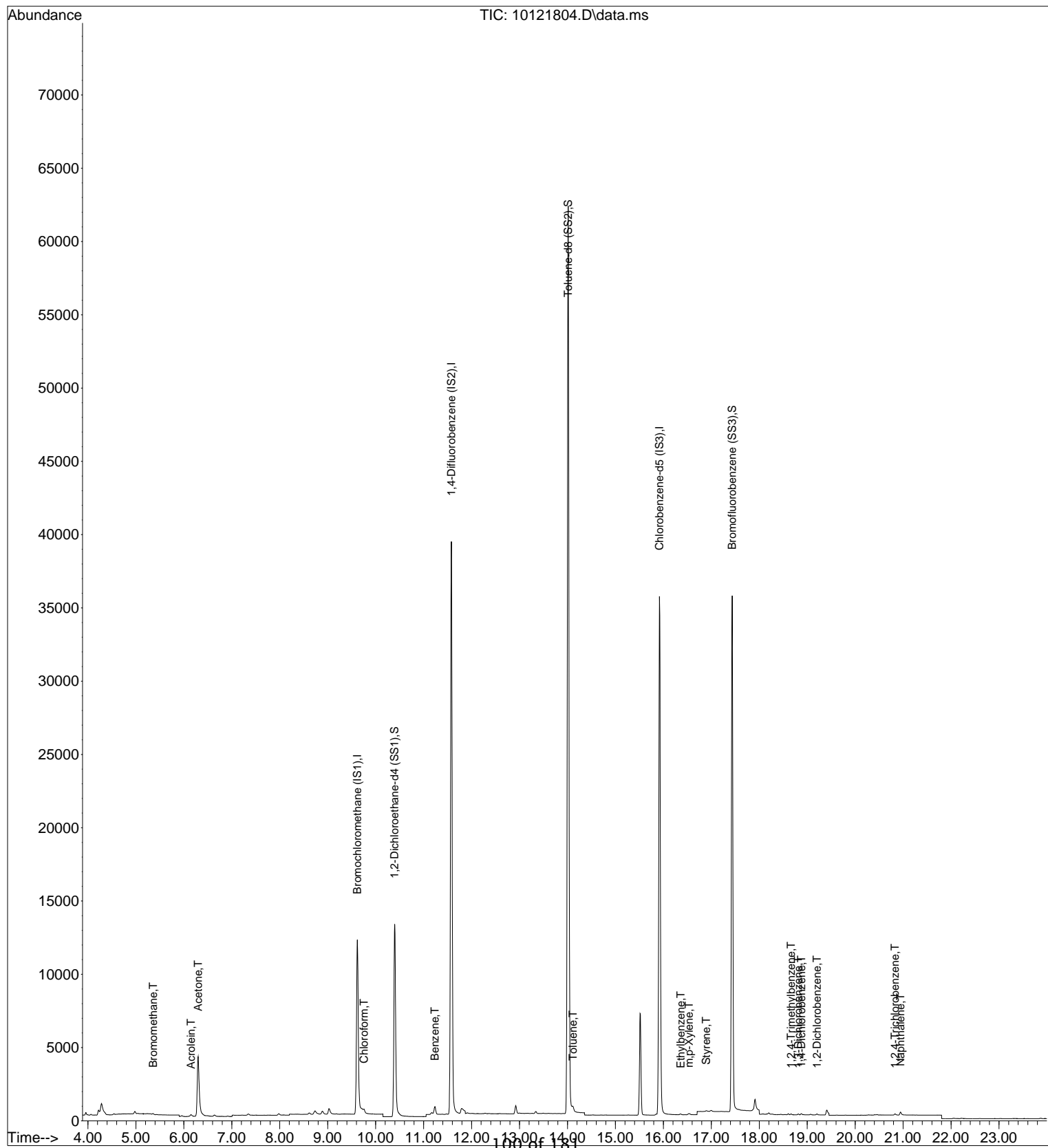
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

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

Data File : I:\MS19\DATA\2018 10\12\10121804.D  
Acq On : 12 Oct 2018 4:49  
Sample : MB S19101218 1000mL  
Misc : S31-09241806\_AS01329

Vial: 2  
Operator: WA  
Inst : MS19

Quant Time: Oct 12 09:03:17 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\16\10161804.D  
 Acq On : 16 Oct 2018 4:55  
 Sample : MB S19101618 1000mL  
 Misc : S31-09241806\_AS01329

Vial: 2  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 16 07:12:37 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

~~10/17/18~~ 10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	17217	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	73147	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	9649	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	20164	978.376	pg	-0.03
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	97.84%
33) Toluene-d8 (SS2)	14.02	98	78770	1044.242	pg	-0.01
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	104.42%
45) Bromofluorobenzene (SS3)	17.43	174	27996	1026.809	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	102.68%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	0.00	85	0	N.D.		
3) Chloromethane	0.00	52	0	N.D.		
4) 1,2-Dichloro,1,1,2,2-t...	0.00	85	0	N.D.		
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	0.00	54	0	N.D.		
7) Bromomethane	5.36	94	130	7.768	pg	92
8) Chloroethane	0.00	64	0	N.D.		
9) Acrolein	6.15	56	285	28.286	pg	95
10) Acetone	6.29	58	4489	351.428	pg	100
11) Trichlorofluoromethane	0.00	101	0	N.D.		
12) 1,1-Dichloroethene	0.00	96	0	N.D.		
13) Methylene Chloride	7.34	84	66	3.103	pg	94
14) Trichlorotrifluoroethane	0.00	151	0	N.D.		
15) trans-1,2-Dichloroethene	0.00	96	0	N.D.		
16) 1,1-Dichloroethane	0.00	63	0	N.D.		
17) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
18) cis-1,2-Dichloroethene	0.00	96	0	N.D.		
19) Chloroform	9.75	83	411	11.556	pg	97
21) 1,2-Dichloroethane	0.00	62	0	N.D.		
22) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
23) Benzene	11.24	78	1014	11.348	pg	98
24) Carbon Tetrachloride	0.00	117	0	N.D.		
26) 1,2-Dichloropropane	0.00	63	0	N.D.		
27) Bromodichloromethane	0.00	83	0	N.D.		
28) Trichloroethene	0.00	130	0	N.D.		
29) 1,4-Dioxane	0.00	88	0	N.D.		
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
32) 1,1,2-Trichloroethane	0.00	83	0	N.D.		
34) Toluene	14.11	91	526	6.298	pg	94
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	0.00	166	0	N.D.		
39) Chlorobenzene	15.96	112	72	1.233	pg	# 42
40) Ethylbenzene	16.36	91	136	1.529	pg	# 41
41) m,p-Xylene	16.53	91	278	4.087	pg	# 57
42) Styrene	16.89	104	92	1.703	pg	# 30
43) o-Xylene	0.00	106	0	N.D.		
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
46) 1,3,5-Trimethylbenzene	0.00	105	0	N.D.		
47) 1,2,4-Trimethylbenzene	18.66	105	103	1.358	pg	# 21
48) 1,3-Dichlorobenzene	18.81	146	92	1.856	pg	96
49) 1,4-Dichlorobenzene	18.88	146	127	2.551	pg	97
50) 1,2-Dichlorobenzene	19.20	146	86	1.808	pg	98
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.83	182	169	6.002	pg	# 46
53) Naphthalene	20.94	128	557	6.276	pg	96

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Data File : I:\MS19\DATA\2018 10\16\10161804.D  
Acq On : 16 Oct 2018 4:55  
Sample : MB S19101618 1000mL  
Misc : S31-09241806\_AS01329

Vial: 2  
Operator: WA  
Inst : MS19

Quant Time: Oct 16 07:12:37 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

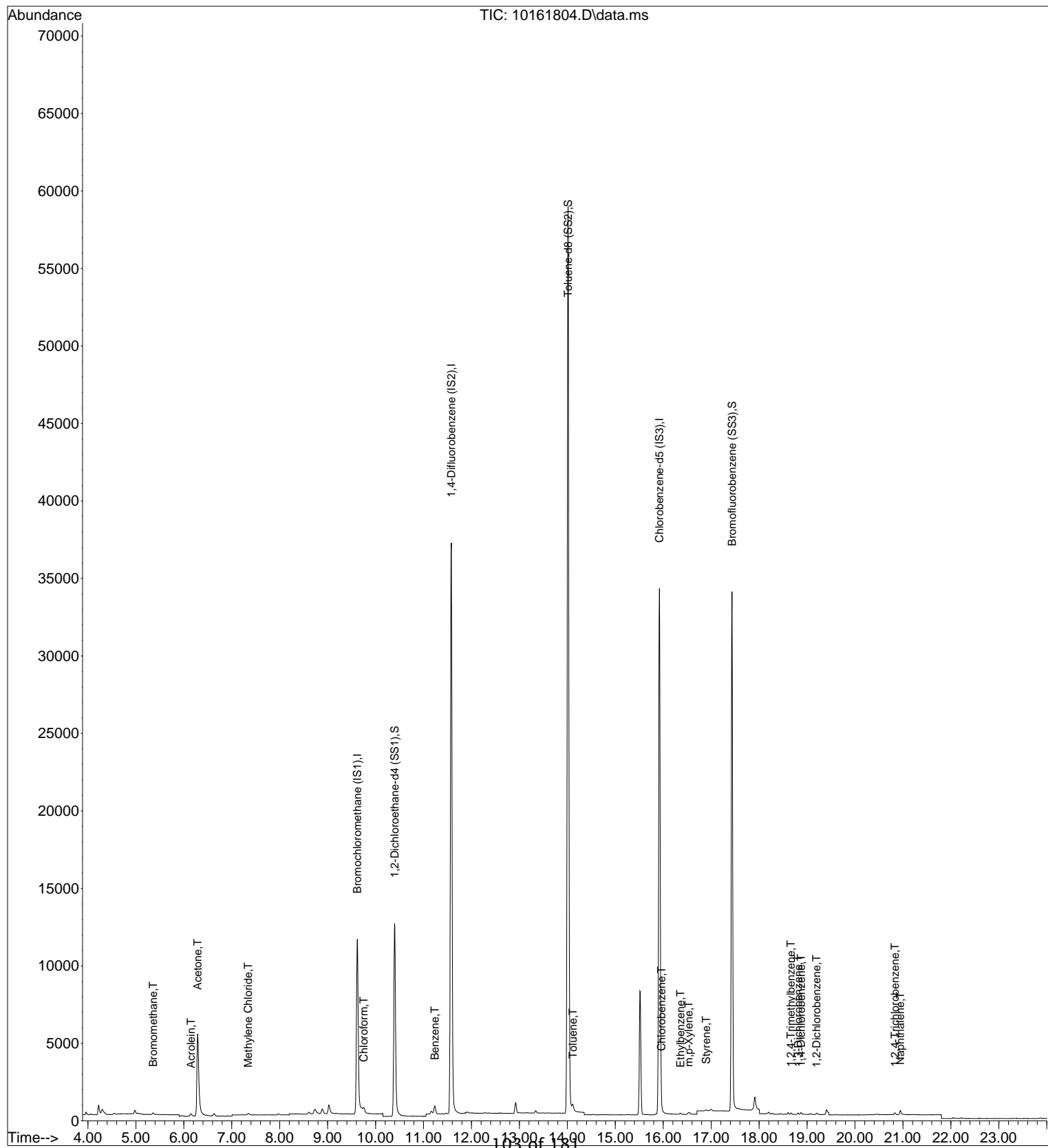
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

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

Data File : I:\MS19\DATA\2018 10\16\10161804.D  
Acq On : 16 Oct 2018 4:55  
Sample : MB S19101618 1000mL  
Misc : S31-09241806\_AS01329

Vial: 2  
Operator: WA  
Inst : MS19

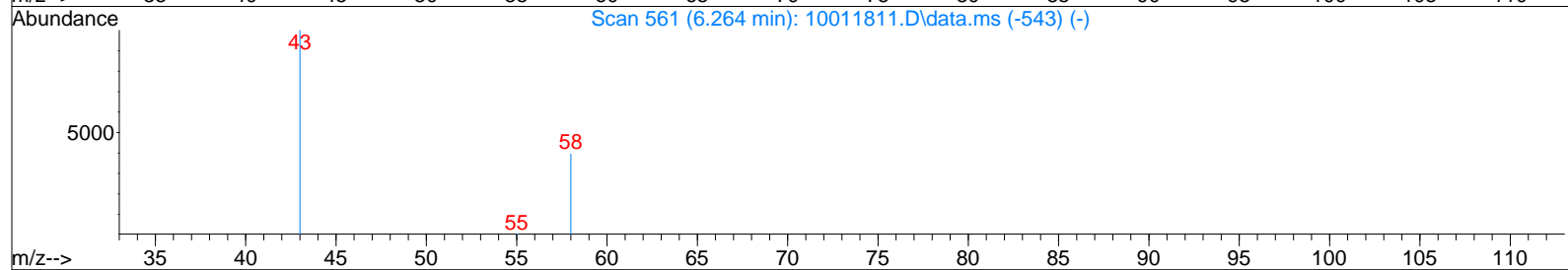
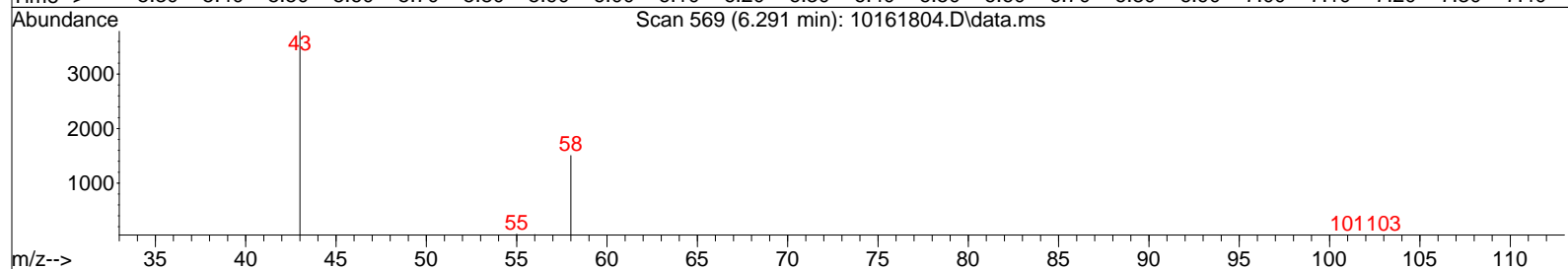
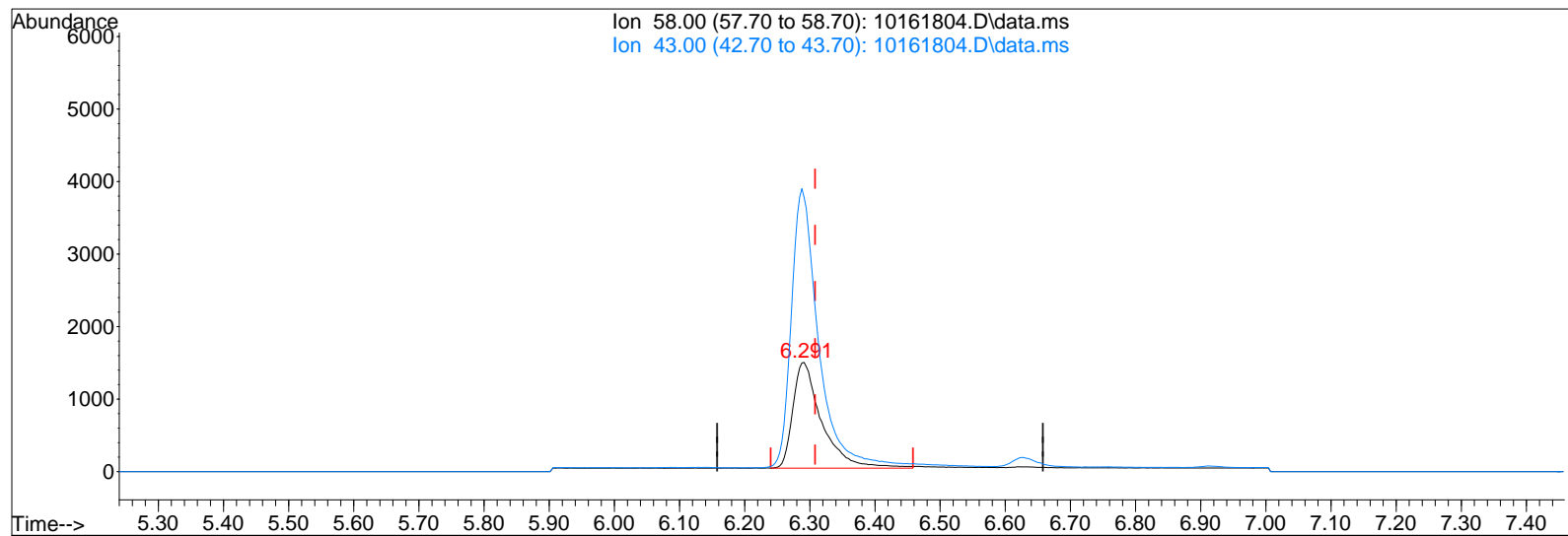
Quant Time: Oct 16 07:12:37 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\16\10161804.D  
Acq On : 16 Oct 2018 4:55  
Sample : MB S19101618 1000mL  
Misc : S31-09241806\_AS01329

Vial: 2  
Operator: WA  
Inst : MS19

Quant Time: Oct 16 07:12:37 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10161804.D\data.ms

(10) Acetone (T)

6.291min (-0.017) 351.43pg

response 4489

Ion	Exp%	Act%
58.00	100	100
43.00	254.70	254.89
0.00	0.00	0.00
0.00	0.00	0.00



Data File : I:\MS19\DATA\2018 10\12\10121805.D  
 Acq On : 12 Oct 2018 5:20  
 Sample : LCS S19101218 1000pg  
 Misc : S31-09241806/S31-10021801 (11/1)

Vial: 2  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 12 09:03:18 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

~~10/12/18~~ 10/12/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18769	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	86003	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10717	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	21854	972.694	pg	-0.03
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	97.27%
33) Toluene-d8 (SS2)	14.02	98	88576	998.710	pg	-0.01
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	99.87%
45) Bromofluorobenzene (SS3)	17.43	174	33317	1100.192	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	110.02%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.31	85	40375	1009.573	pg	100
3) Chloromethane	4.52	52	9142	977.608	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	26677	925.376	pg	100
5) Vinyl Chloride	4.81	62	25960	999.644	pg	100
6) 1,3-Butadiene	5.00	54	17852	909.342	pg	98
7) Bromomethane	5.32	94	17714	970.945	pg	100
8) Chloroethane	5.55	64	13293	978.310	pg	100
9) Acrolein	6.11	56	10135	922.728	pg	100
10) Acetone	6.26	58	65719	4719.482	pg	100
11) Trichlorofluoromethane	6.48	101	31105	994.529	pg	100
12) 1,1-Dichloroethene	7.20	96	22297	1007.400	pg	99
13) Methylene Chloride	7.33	84	23234	1002.099	pg	99
14) Trichlorotrifluoroethane	7.66	151	23168	1056.921	pg	100
15) trans-1,2-Dichloroethene	8.36	96	23556	1022.948	pg	99
16) 1,1-Dichloroethane	8.58	63	36103	1004.533	pg	100
17) Methyl tert-Butyl Ether	8.65	73	62384	1025.062	pg	100
18) cis-1,2-Dichloroethene	9.46	96	24999	1019.977	pg	100
19) Chloroform	9.75	83	37522	967.730	pg	100
21) 1,2-Dichloroethane	10.51	62	24246	1011.013	pg	99
22) 1,1,1-Trichloroethane	10.78	97	33406	1015.777	pg	100
23) Benzene	11.23	78	95411	979.499	pg	100
24) Carbon Tetrachloride	11.39	117	30821	1026.737	pg	100
26) 1,2-Dichloropropane	12.05	63	21794	1017.417	pg	100
27) Bromodichloromethane	12.22	83	29320	1031.149	pg	100
28) Trichloroethene	12.28	130	28178	1048.577	pg	100
29) 1,4-Dioxane	12.25	88	19537	1062.668	pg	99
30) cis-1,3-Dichloropropene	13.12	75	34154	1021.392	pg	100
31) trans-1,3-Dichloropropene	13.63	75	29045	1031.913	pg	100
32) 1,1,2-Trichloroethane	13.81	83	19346	1035.871	pg	100
34) Toluene	14.11	91	98968	1007.837	pg	100
35) Dibromochloromethane	14.53	129	27236	1035.330	pg	100
36) 1,2-Dibromoethane	14.78	107	26198	1039.595	pg	100
37) Tetrachloroethene	15.27	166	30108	1041.907	pg	99
39) Chlorobenzene	15.97	112	68811	1060.542	pg	100
40) Ethylbenzene	16.35	91	105849	1071.316	pg	100
41) m,p-Xylene	16.53	91	167893	2222.429	pg	100
42) Styrene	16.89	104	67340	1122.240	pg	100
43) o-Xylene	17.00	106	44609	1110.691	pg	100
44) 1,1,2,2-Tetrachloroethane	16.97	83	40214	1043.477	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	96110	1137.764	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	96524	1145.432	pg	100
48) 1,3-Dichlorobenzene	18.81	146	60005	1089.955	pg	100
49) 1,4-Dichlorobenzene	18.87	146	58926	1065.841	pg	100
50) 1,2-Dichlorobenzene	19.19	146	58550	1108.248	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	20221	1110.017	pg	99
52) 1,2,4-Trichlorobenzene	20.82	182	34643	1107.673	pg	100
53) Naphthalene	20.93	128	106211	1078.568	pg	100

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Data File : I:\MS19\DATA\2018 10\12\10121805.D Vial: 2  
Acq On : 12 Oct 2018 5:20 Operator: WA  
Sample : LCS S19101218 1000pg Inst : MS19  
Misc : S31-09241806/S31-10021801 (11/1)

Quant Time: Oct 12 09:03:18 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	25220	1097.342	pg	100

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

Data File : I:\MS19\DATA\2018 10\12\10121805.D  
Acq On : 12 Oct 2018 5:20  
Sample : LCS S19101218 1000pg  
Misc : S31-09241806/S31-10021801 (11/1)

Vial: 2  
Operator: WA  
Inst : MS19

Quant Time: Oct 12 09:03:18 2018

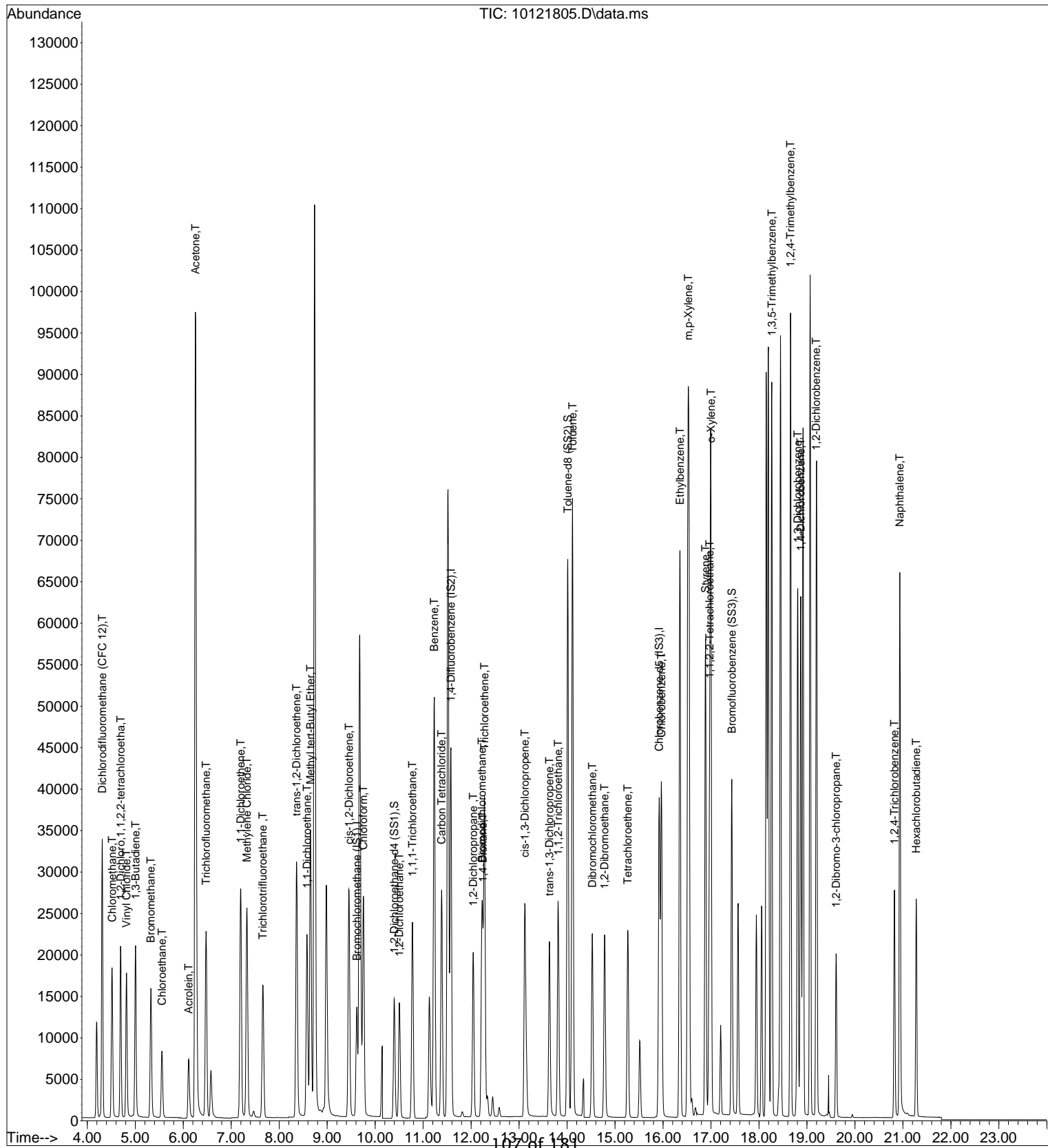
Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\12\10121806.D  
 Acq On : 12 Oct 2018 5:52  
 Sample : LCSD S19101218 1000pg  
 Misc : S31-09241806/S31-10021801 (11/1)

Vial: 2  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 12 09:03:20 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

~~WA~~ 10/12/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18955	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	86558	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10662	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	21926	966.323	pg	-0.03
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	96.63%	
33) Toluene-d8 (SS2)	14.02	98	88596	992.530	pg	-0.01
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	99.25%	
45) Bromofluorobenzene (SS3)	17.43	174	32694	1085.189	pg	0.00
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	108.52%	

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.31	85	40693	1007.540	pg	100
3) Chloromethane	4.52	52	9231	977.439	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	26976	926.566	pg	100
5) Vinyl Chloride	4.81	62	26297	1002.685	pg	99
6) 1,3-Butadiene	5.00	54	18651	940.719	pg	98
7) Bromomethane	5.32	94	17893	971.133	pg	100
8) Chloroethane	5.56	64	13386	975.487	pg	100
9) Acrolein	6.11	56	10229	922.147	pg	100
10) Acetone	6.26	58	66722	4744.493	pg	100
11) Trichlorofluoromethane	6.48	101	31433	995.155	pg	100
12) 1,1-Dichloroethene	7.20	96	22585	1010.400	pg	99
13) Methylene Chloride	7.33	84	23427	1000.509	pg	98
14) Trichlorotrifluoroethane	7.66	151	23381	1056.172	pg	100
15) trans-1,2-Dichloroethene	8.36	96	23850	1025.552	pg	100
16) 1,1-Dichloroethane	8.58	63	36570	1007.542	pg	100
17) Methyl tert-Butyl Ether	8.65	73	62825	1022.179	pg	100
18) cis-1,2-Dichloroethene	9.46	96	25227	1019.180	pg	100
19) Chloroform	9.75	83	37687	962.447	pg	100
21) 1,2-Dichloroethane	10.51	62	24335	1004.767	pg	100
22) 1,1,1-Trichloroethane	10.78	97	33472	1007.797	pg	100
23) Benzene	11.23	78	95253	968.282	pg	100
24) Carbon Tetrachloride	11.39	117	30843	1017.387	pg	100
26) 1,2-Dichloropropane	12.05	63	21901	1015.856	pg	100
27) Bromodichloromethane	12.22	83	29346	1025.446	pg	100
28) Trichloroethene	12.28	130	28197	1042.556	pg	100
29) 1,4-Dioxane	12.25	88	19622	1060.448	pg	99
30) cis-1,3-Dichloropropene	13.12	75	34159	1014.992	pg	100
31) trans-1,3-Dichloropropene	13.63	75	29096	1027.096	pg	100
32) 1,1,2-Trichloroethane	13.81	83	19316	1027.633	pg	100
34) Toluene	14.11	91	98767	999.341	pg	100
35) Dibromochloromethane	14.53	129	27113	1024.046	pg	100
36) 1,2-Dibromoethane	14.78	107	26117	1029.736	pg	100
37) Tetrachloroethene	15.27	166	29920	1028.763	pg	100
39) Chlorobenzene	15.96	112	68829	1066.292	pg	100
40) Ethylbenzene	16.35	91	105301	1071.267	pg	100
41) m,p-Xylene	16.53	91	167810	2232.789	pg	100
42) Styrene	16.89	104	66711	1117.493	pg	100
43) o-Xylene	17.00	106	44523	1114.268	pg	100
44) 1,1,2,2-Tetrachloroethane	16.97	83	40233	1049.356	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	95642	1138.064	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	96144	1146.808	pg	100
48) 1,3-Dichlorobenzene	18.81	146	59782	1091.506	pg	100
49) 1,4-Dichlorobenzene	18.87	146	58653	1066.376	pg	100
50) 1,2-Dichlorobenzene	19.20	146	58229	1107.857	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	19971	1101.949	pg	99
52) 1,2,4-Trichlorobenzene	20.82	182	33939	1090.761	pg	100
53) Naphthalene	20.94	128	103870	1059.239	pg	100

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Data File : I:\MS19\DATA\2018 10\12\10121806.D  
Acq On : 12 Oct 2018 5:52  
Sample : LCSD S19101218 1000pg  
Misc : S31-09241806/S31-10021801 (11/1)

Vial: 2  
Operator: WA  
Inst : MS19

Quant Time: Oct 12 09:03:20 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	24636	1077.462	pg	100

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

Data File : I:\MS19\DATA\2018 10\12\10121806.D  
Acq On : 12 Oct 2018 5:52  
Sample : LCSD S19101218 1000pg  
Misc : S31-09241806/S31-10021801 (11/1)

Vial: 2  
Operator: WA  
Inst : MS19

Quant Time: Oct 12 09:03:20 2018

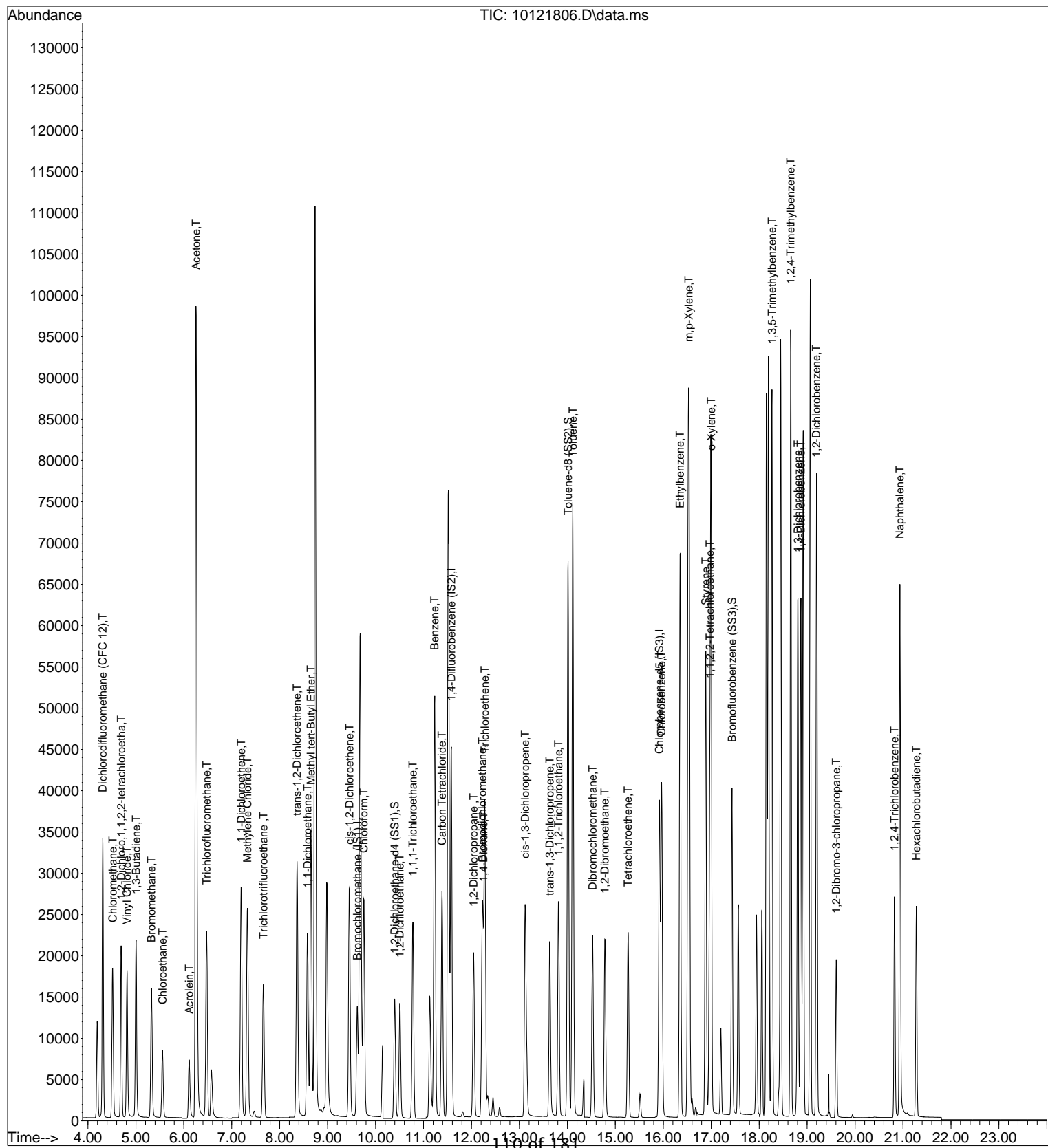
Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\16\10161805.D  
 Acq On : 16 Oct 2018 5:27  
 Sample : LCS S19101618 1000pg  
 Misc : S31-09241806/S31-10021801 (11/1)

Vial: 2  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 16 07:12:39 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18549	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	84295	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	10492	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	21461	966.531	pg	-0.03
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	96.65%
33) Toluene-d8 (SS2)	14.01	98	86527	995.375	pg	-0.01
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	99.54%
45) Bromofluorobenzene (SS3)	17.43	174	32414	1093.328	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	109.33%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.31	85	38216	966.922	pg	100
3) Chloromethane	4.52	52	8582	928.609	pg	96
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	25240	885.913	pg	100
5) Vinyl Chloride	4.82	62	24693	962.133	pg	99
6) 1,3-Butadiene	5.01	54	16465	848.639	pg	97
7) Bromomethane	5.33	94	16551	917.958	pg	100
8) Chloroethane	5.55	64	12512	931.753	pg	100
9) Acrolein	6.12	56	9703	893.874	pg	100
10) Acetone	6.26	58	66342	4820.728	pg	# 85
11) Trichlorofluoromethane	6.48	101	29437	952.361	pg	100
12) 1,1-Dichloroethene	7.20	96	24358	1113.571	pg	99
13) Methylene Chloride	7.33	84	22083	963.753	pg	99
14) Trichlorotrifluoroethane	7.66	151	20596	950.731	pg	100
15) trans-1,2-Dichloroethene	8.37	96	22654	995.445	pg	99
16) 1,1-Dichloroethane	8.58	63	34245	964.137	pg	100
17) Methyl tert-Butyl Ether	8.65	73	58638	974.937	pg	100
18) cis-1,2-Dichloroethene	9.45	96	23675	977.414	pg	99
19) Chloroform	9.76	83	35747	932.885	pg	100
21) 1,2-Dichloroethane	10.51	62	23083	973.934	pg	99
22) 1,1,1-Trichloroethane	10.78	97	31595	972.105	pg	100
23) Benzene	11.23	78	92624	962.166	pg	100
24) Carbon Tetrachloride	11.39	117	29233	985.386	pg	100
26) 1,2-Dichloropropane	12.05	63	20844	992.784	pg	100
27) Bromodichloromethane	12.22	83	27933	1002.275	pg	100
28) Trichloroethene	12.28	130	26946	1023.049	pg	100
29) 1,4-Dioxane	12.25	88	18627	1033.699	pg	99
30) cis-1,3-Dichloropropene	13.12	75	32237	983.598	pg	100
31) trans-1,3-Dichloropropene	13.63	75	27543	998.377	pg	100
32) 1,1,2-Trichloroethane	13.81	83	18314	1000.482	pg	100
34) Toluene	14.11	91	93839	974.968	pg	100
35) Dibromochloromethane	14.52	129	25837	1002.050	pg	100
36) 1,2-Dibromoethane	14.78	107	24777	1003.129	pg	100
37) Tetrachloroethene	15.27	166	28449	1004.445	pg	99
39) Chlorobenzene	15.96	112	65577	1032.373	pg	100
40) Ethylbenzene	16.35	91	103803	1073.138	pg	100
41) m,p-Xylene	16.53	91	159868	2161.583	pg	100
42) Styrene	16.88	104	64275	1094.132	pg	100
43) o-Xylene	16.99	106	42464	1079.957	pg	99
44) 1,1,2,2-Tetrachloroethane	16.96	83	37742	1000.335	pg	100
46) 1,3,5-Trimethylbenzene	18.26	105	91572	1107.289	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	92063	1115.923	pg	100
48) 1,3-Dichlorobenzene	18.80	146	56902	1055.756	pg	99
49) 1,4-Dichlorobenzene	18.87	146	56283	1039.866	pg	100
50) 1,2-Dichlorobenzene	19.20	146	55789	1078.633	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	19414	1088.572	pg	99
52) 1,2,4-Trichlorobenzene	20.82	182	34955	1141.616	pg	100
53) Naphthalene	20.94	128	107408	1113.076	pg	100

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Data File : I:\MS19\DATA\2018 10\16\10161805.D  
Acq On : 16 Oct 2018 5:27  
Sample : LCS S19101618 1000pg  
Misc : S31-09241806/S31-10021801 (11/1)

Vial: 2  
Operator: WA  
Inst : MS19

Quant Time: Oct 16 07:12:39 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	24543	1090.786	pg	100

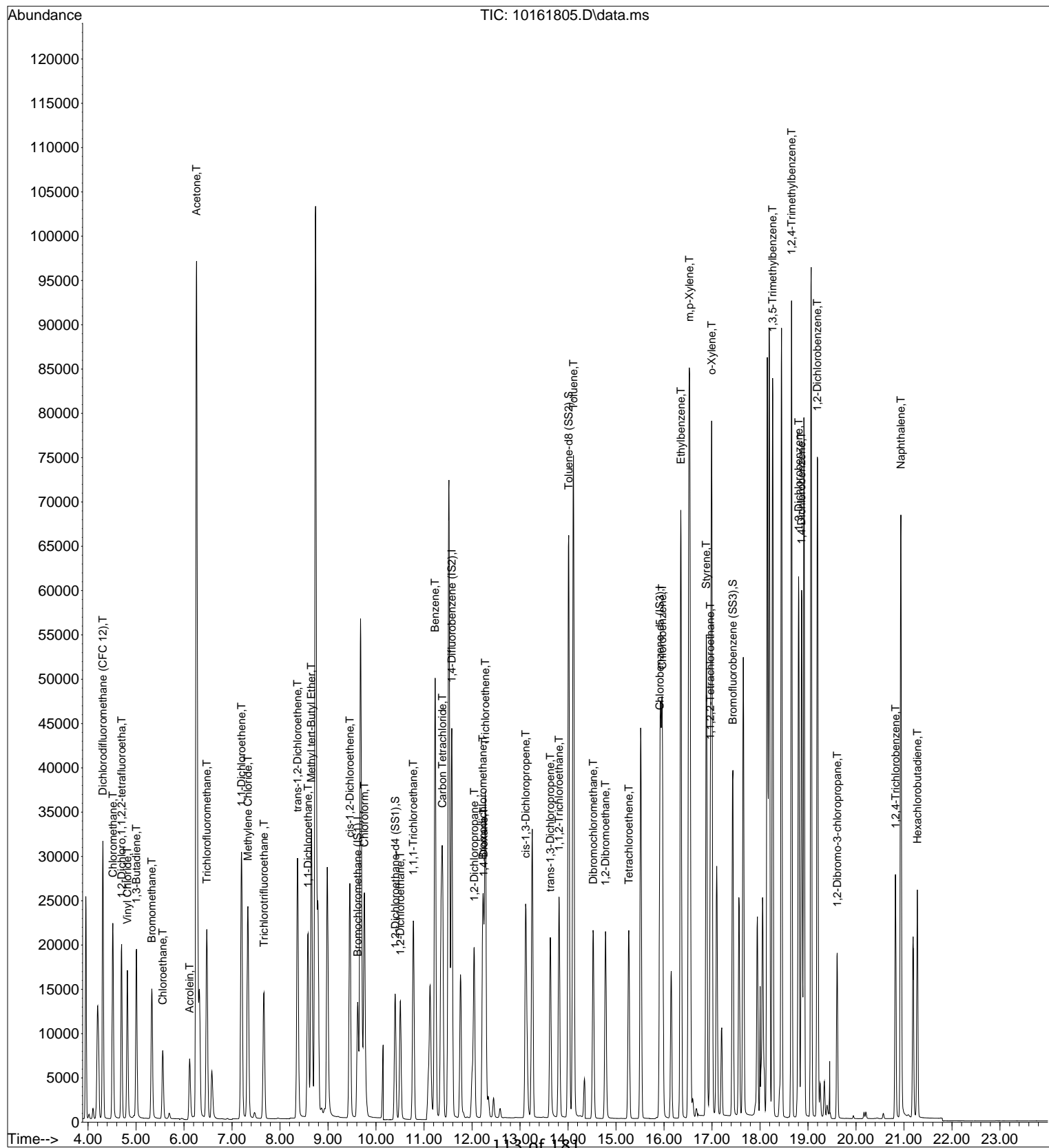
(#) = qualifier out of range (m) = manual integration (+) = signals summed



Data File : I:\MS19\DATA\2018 10\16\10161805.D  
Acq On : 16 Oct 2018 5:27  
Sample : LCS S19101618 1000pg  
Misc : S31-09241806/S31-10021801 (11/1)

Vial: 2  
Operator: WA  
Inst : MS19

Quant Time: Oct 16 07:12:39 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\16\10161806.D  
 Acq On : 16 Oct 2018 5:59  
 Sample : LCSD S19101618 1000pg  
 Misc : S31-09241806/S31-10021801 (11/1)

Vial: 2  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 16 07:12:41 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

~~WA~~ 10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18743	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	85660	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.91	54	10603	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	21829	972.929	pg	-0.03
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	97.29%	
33) Toluene-d8 (SS2)	14.01	98	87696	992.747	pg	-0.02
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	99.28%	
45) Bromofluorobenzene (SS3)	17.43	174	32927	1099.004	pg	0.00
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	109.90%	

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.30	85	38484	963.624	pg	100
3) Chloromethane	4.51	52	8693	930.883	pg	97
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	25589	888.867	pg	100
5) Vinyl Chloride	4.81	62	24980	963.242	pg	100
6) 1,3-Butadiene	5.00	54	16662	849.903	pg	98
7) Bromomethane	5.32	94	16732	918.392	pg	100
8) Chloroethane	5.55	64	12669	933.679	pg	100
9) Acrolein	6.11	56	9783	891.916	pg	99
10) Acetone	6.26	58	67513	4855.040	pg	# 85
11) Trichlorofluoromethane	6.47	101	29742	952.269	pg	100
12) 1,1-Dichloroethene	7.19	96	24647	1115.121	pg	99
13) Methylene Chloride	7.33	84	22201	958.874	pg	99
14) Trichlorotrifluoroethane	7.66	151	20827	951.443	pg	100
15) trans-1,2-Dichloroethene	8.36	96	22625	983.881	pg	100
16) 1,1-Dichloroethane	8.58	63	34502	961.318	pg	100
17) Methyl tert-Butyl Ether	8.65	73	59187	973.880	pg	100
18) cis-1,2-Dichloroethene	9.45	96	23928	977.634	pg	100
19) Chloroform	9.75	83	36008	929.970	pg	100
21) 1,2-Dichloroethane	10.51	62	23237	970.284	pg	100
22) 1,1,1-Trichloroethane	10.78	97	31739	966.428	pg	100
23) Benzene	11.23	78	90637	931.780	pg	100
24) Carbon Tetrachloride	11.39	117	29306	977.622	pg	100
26) 1,2-Dichloropropane	12.04	63	20922	980.620	pg	100
27) Bromodichloromethane	12.22	83	27919	985.809	pg	100
28) Trichloroethene	12.28	130	27037	1010.146	pg	100
29) 1,4-Dioxane	12.24	88	18705	1021.487	pg	99
30) cis-1,3-Dichloropropene	13.12	75	32336	970.896	pg	100
31) trans-1,3-Dichloropropene	13.63	75	27715	988.603	pg	100
32) 1,1,2-Trichloroethane	13.81	83	18377	987.926	pg	100
34) Toluene	14.11	91	94185	962.970	pg	100
35) Dibromochloromethane	14.52	129	25706	981.082	pg	100
36) 1,2-Dibromoethane	14.78	107	24905	992.244	pg	100
37) Tetrachloroethene	15.27	166	28520	990.906	pg	100
39) Chlorobenzene	15.96	112	65289	1017.079	pg	100
40) Ethylbenzene	16.35	91	103816	1062.037	pg	100
41) m,p-Xylene	16.53	91	160027	2141.081	pg	100
42) Styrene	16.89	104	63770	1074.172	pg	100
43) o-Xylene	16.99	106	42365	1066.160	pg	100
44) 1,1,2,2-Tetrachloroethane	16.96	83	37792	991.174	pg	100
46) 1,3,5-Trimethylbenzene	18.26	105	91167	1090.851	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	91741	1100.378	pg	100
48) 1,3-Dichlorobenzene	18.80	146	57196	1050.101	pg	100
49) 1,4-Dichlorobenzene	18.87	146	55930	1022.527	pg	100
50) 1,2-Dichlorobenzene	19.20	146	55857	1068.642	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	19334	1072.737	pg	99
52) 1,2,4-Trichlorobenzene	20.82	182	34759	1123.331	pg	100
53) Naphthalene	20.94	128	106856	1095.753	pg	100

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Data File : I:\MS19\DATA\2018 10\16\10161806.D  
Acq On : 16 Oct 2018 5:59  
Sample : LCSD S19101618 1000pg  
Misc : S31-09241806/S31-10021801 (11/1)

Vial: 2  
Operator: WA  
Inst : MS19

Quant Time: Oct 16 07:12:41 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

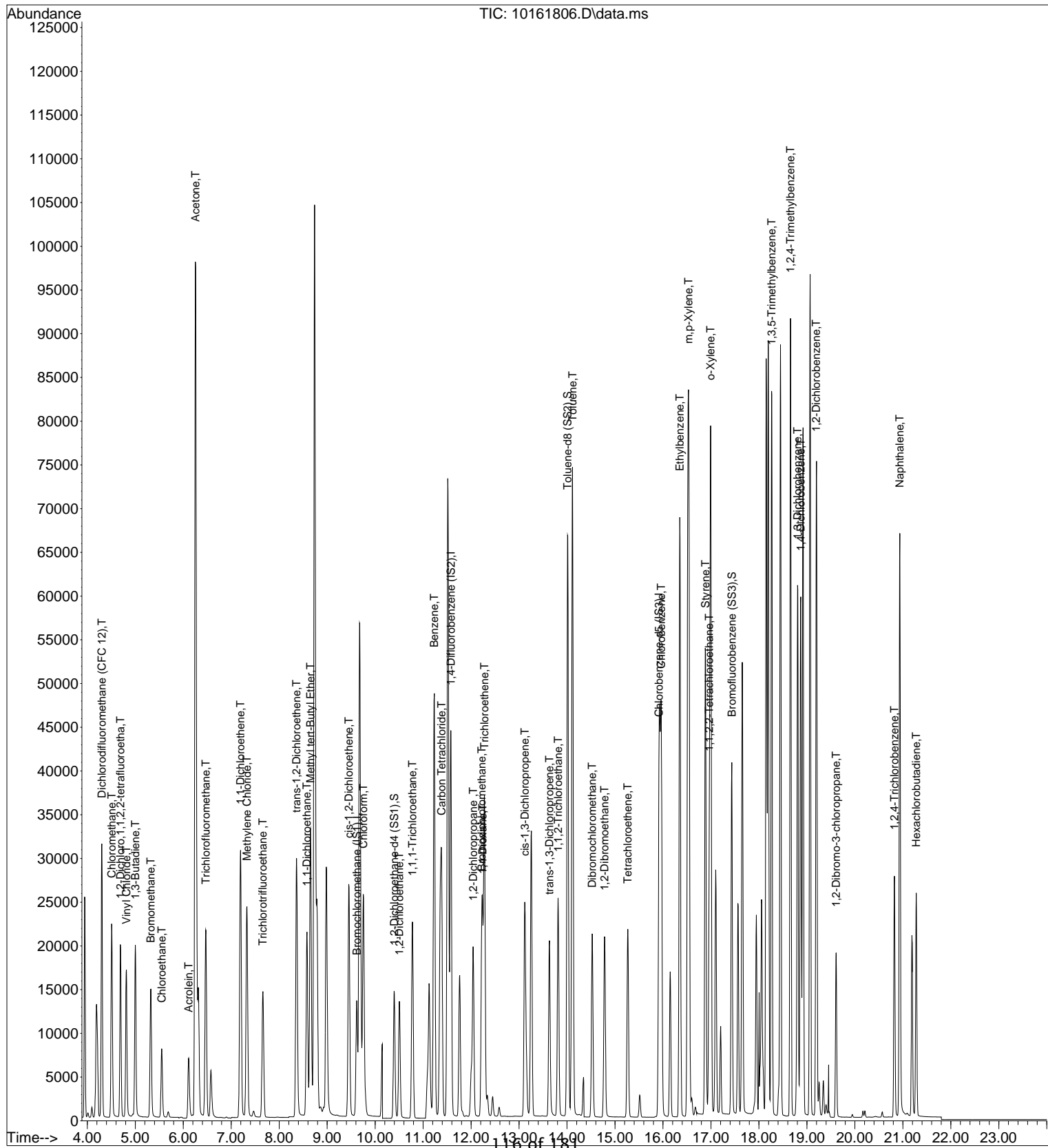
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	24282	1067.889	pg	100

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

Data File : I:\MS19\DATA\2018 10\16\10161806.D  
 Acq On : 16 Oct 2018 5:59  
 Sample : LCSD S19101618 1000pg  
 Misc : S31-09241806/S31-10021801 (11/1)

Vial: 2  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 16 07:12:41 2018  
 Quant Method : I:\MS19\METHODS\S19100118.M  
 Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
 QLast Update : Tue Oct 02 06:45:50 2018  
 Response via : Initial Calibration  
 DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\12\10121816.D  
 Acq On : 12 Oct 2018 17:52  
 Sample : P1805376-001dup (1000mL)  
 Misc : S31-09241806

Vial: 1  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 16 17:10:41 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

~~DA~~ 10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	18210	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	81559	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	10856	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	20356	933.833	pg	-0.03
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	93.38%
33) Toluene-d8 (SS2)	14.02	98	88527	1052.545	pg	-0.01
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	105.25%
45) Bromofluorobenzene (SS3)	17.43	174	32569	1061.721	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	106.17%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.32	85	51609	1330.093	pg	100
3) Chloromethane	4.53	52	1492	164.446	pg	95
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	1652	59.064	pg	99
5) Vinyl Chloride	0.00	62	0	N.D.		
6) 1,3-Butadiene	5.02	54	121	6.353	pg	# 16
7) Bromomethane	5.34	94	344	19.434	pg	95
8) Chloroethane	5.56	64	132	10.013	pg	# 42
9) Acrolein	6.12	56	2076	194.809	pg	99
10) Acetone	6.26	58	44030	3258.992	pg	90
11) Trichlorofluoromethane	6.48	101	20999	692.018	pg	100
12) 1,1-Dichloroethene	7.20	96	63	N.D.		
13) Methylene Chloride	7.33	84	4165	185.154	pg	98
14) Trichlorotrifluoroethane	7.67	151	5255	247.092	pg	100
15) trans-1,2-Dichloroethene	8.38	96	85	N.D.		
16) 1,1-Dichloroethane	8.58	63	145	N.D.		
17) Methyl tert-Butyl Ether	8.59	73	139	N.D.		
18) cis-1,2-Dichloroethene	9.46	96	399	16.779	pg	99
19) Chloroform	9.76	83	1924	51.145	pg	99
21) 1,2-Dichloroethane	10.51	62	706	30.343	pg	98
22) 1,1,1-Trichloroethane	10.78	97	653	20.465	pg	100
23) Benzene	11.23	78	13141	139.048	pg	99
24) Carbon Tetrachloride	11.39	117	6682	229.430	pg	100
26) 1,2-Dichloropropane	12.05	63	132	6.498	pg	94
27) Bromodichloromethane	0.00	83	0	N.D.	d	
28) Trichloroethene	12.28	130	777	30.490	pg	96
29) 1,4-Dioxane	0.00	88	0	N.D.	d	
30) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
31) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
32) 1,1,2-Trichloroethane	13.81	83	54	N.D.		
34) Toluene	14.11	91	52910	568.165	pg	100
35) Dibromochloromethane	0.00	129	0	N.D.		
36) 1,2-Dibromoethane	0.00	107	0	N.D.		
37) Tetrachloroethene	15.27	166	1202	43.863	pg	100
39) Chlorobenzene	15.97	112	229	N.D.		
40) Ethylbenzene	16.35	91	7596	75.896	pg	100
41) m,p-Xylene	16.52	91	20661	269.991	pg	99
42) Styrene	16.89	104	1415	23.279	pg	98
43) o-Xylene	17.00	106	4484	110.215	pg	98
44) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d	
46) 1,3,5-Trimethylbenzene	18.27	105	2038	23.817	pg	99
47) 1,2,4-Trimethylbenzene	18.66	105	9631	112.826	pg	88
48) 1,3-Dichlorobenzene	18.80	146	64	N.D.		
49) 1,4-Dichlorobenzene	18.87	146	484	8.642	pg	98
50) 1,2-Dichlorobenzene	19.20	146	70	N.D.		
51) 1,2-Dibromo-3-chloropr...	0.00	157	0	N.D.		
52) 1,2,4-Trichlorobenzene	20.82	182	65	N.D.		
53) Naphthalene	20.94	128	1170181	42.956	pg	95

Data File : I:\MS19\DATA\2018 10\12\10121816.D  
Acq On : 12 Oct 2018 17:52  
Sample : P1805376-001dup (1000mL)  
Misc : S31-09241806

Vial: 1  
Operator: WA  
Inst : MS19

Quant Time: Oct 16 17:10:41 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

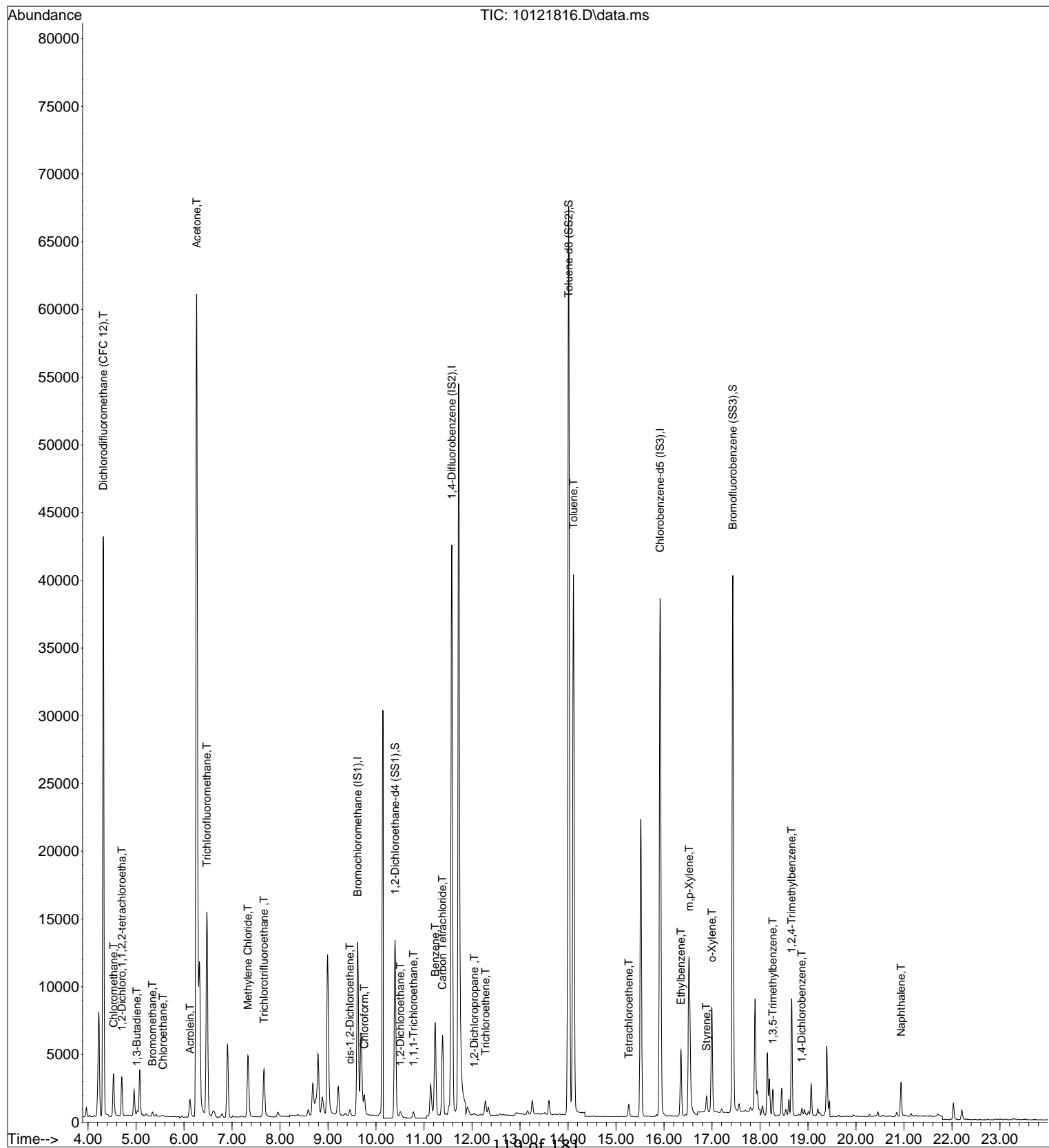
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	0.00	225	0	N.D.		

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

Data File : I:\MS19\DATA\2018 10\12\10121816.D  
Acq On : 12 Oct 2018 17:52  
Sample : P1805376-001dup (1000mL)  
Misc : S31-09241806

Vial: 1  
Operator: WA  
Inst : MS19

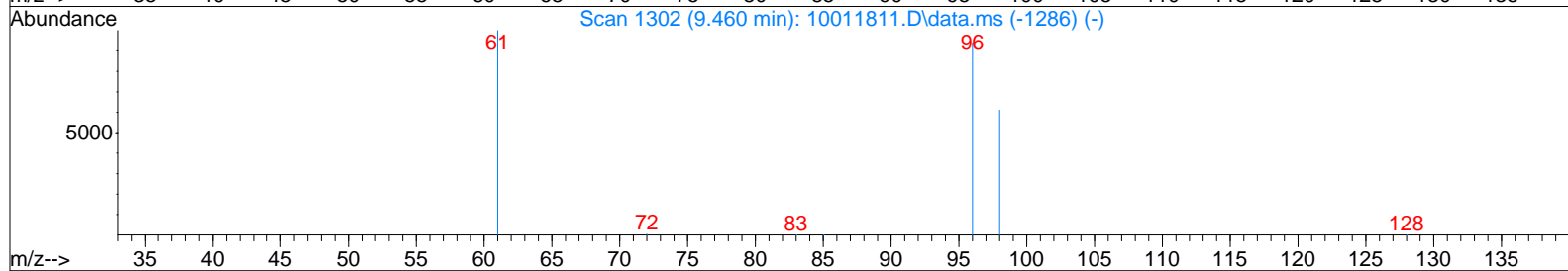
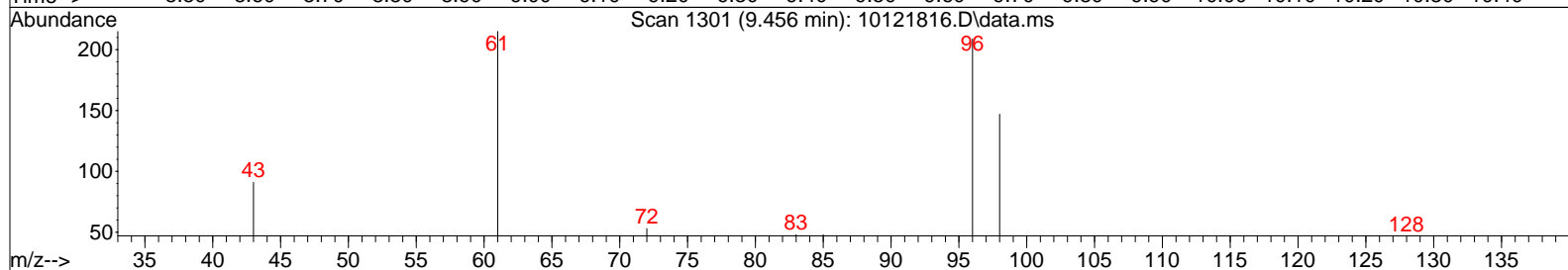
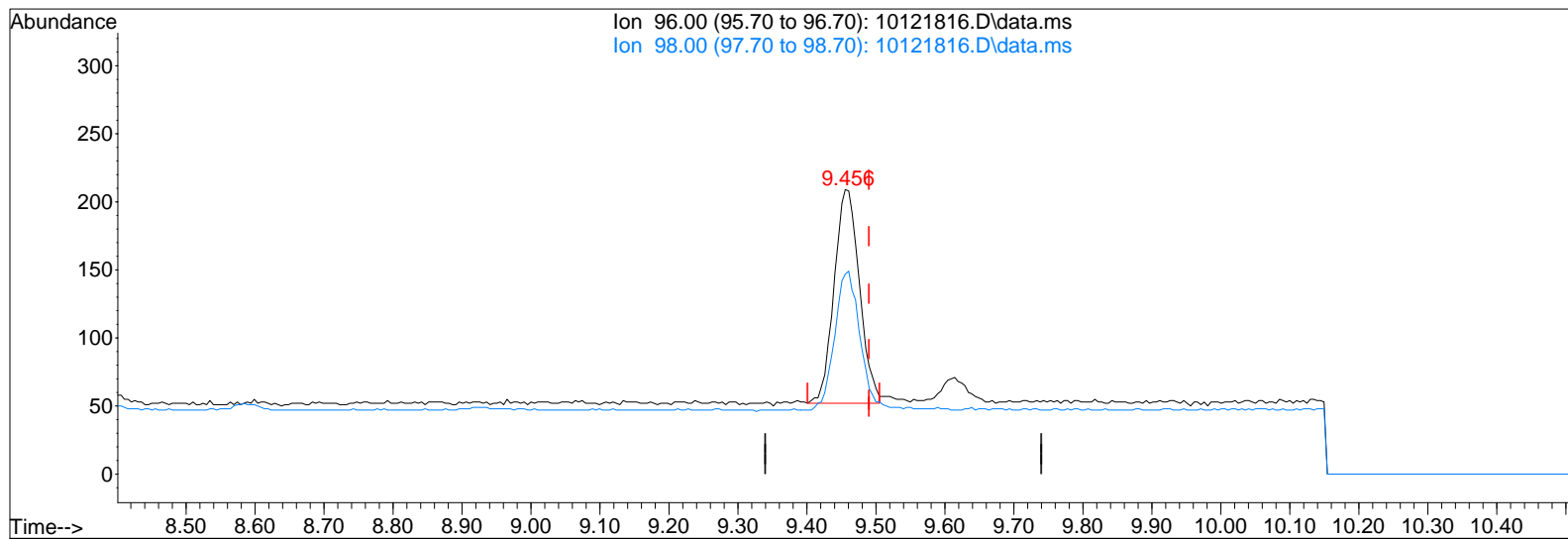
Quant Time: Oct 16 17:10:41 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\12\10121816.D  
Acq On : 12 Oct 2018 17:52  
Sample : P1805376-001dup (1000mL)  
Misc : S31-09241806

Vial: 1  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:17 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121816.D\data.ms

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

9.456min (-0.034) 16.78pg

response 399

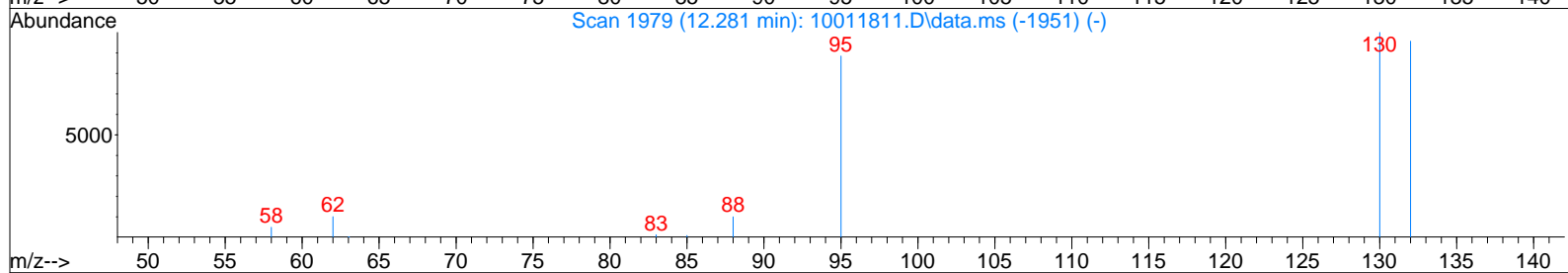
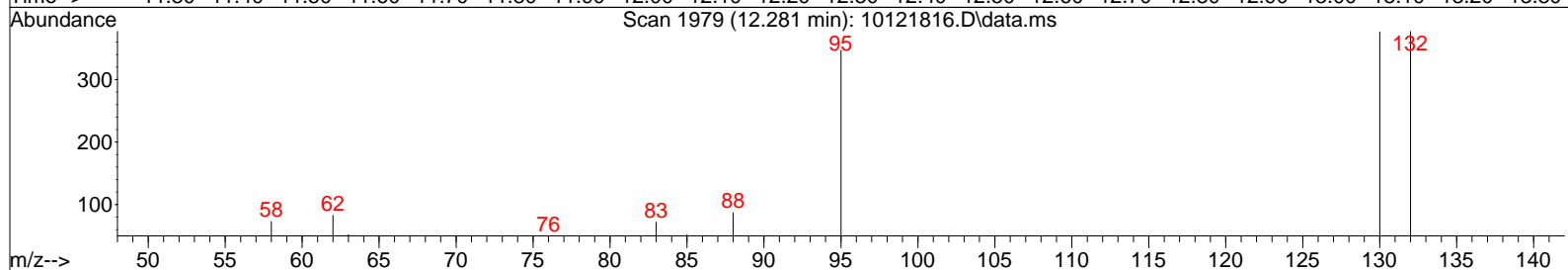
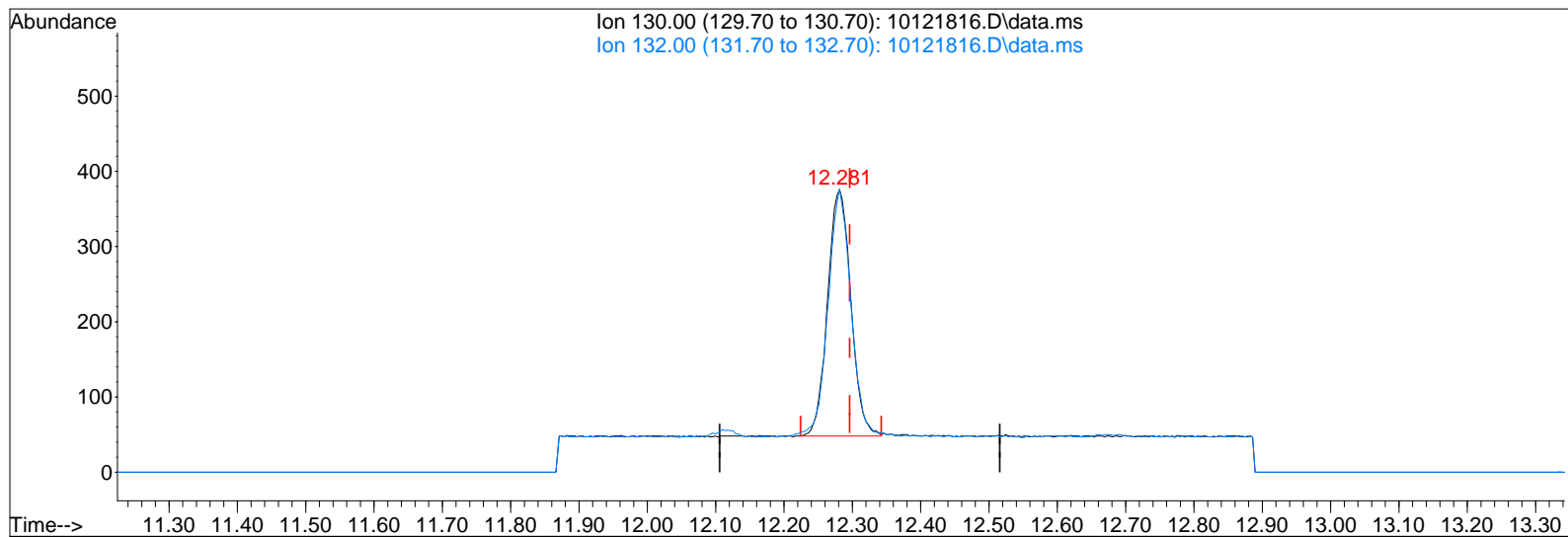
Ion	Exp%	Act%
96.00	100	100
98.00	64.50	65.16
0.00	0.00	0.00
0.00	0.00	0.00



Data File : I:\MS19\DATA\2018 10\12\10121816.D  
Acq On : 12 Oct 2018 17:52  
Sample : P1805376-001dup (1000mL)  
Misc : S31-09241806

Vial: 1  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:17 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121816.D\data.ms

(28) Trichloroethene (T)

12.281min (-0.015) 30.49pg

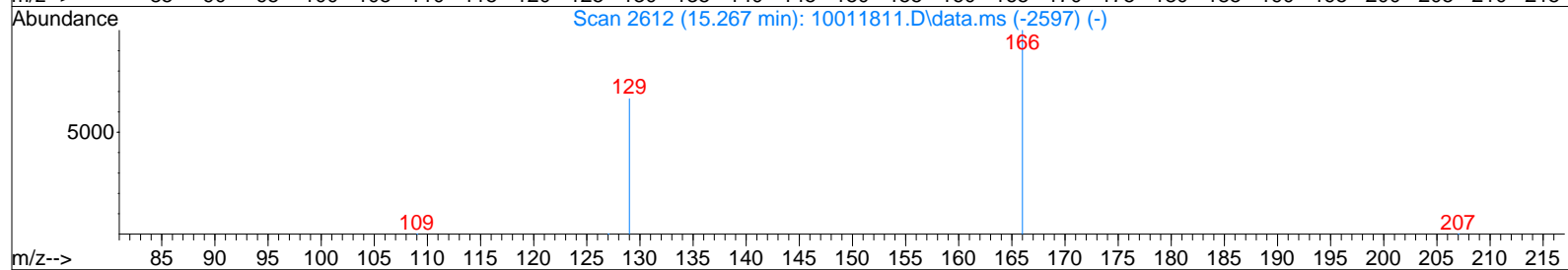
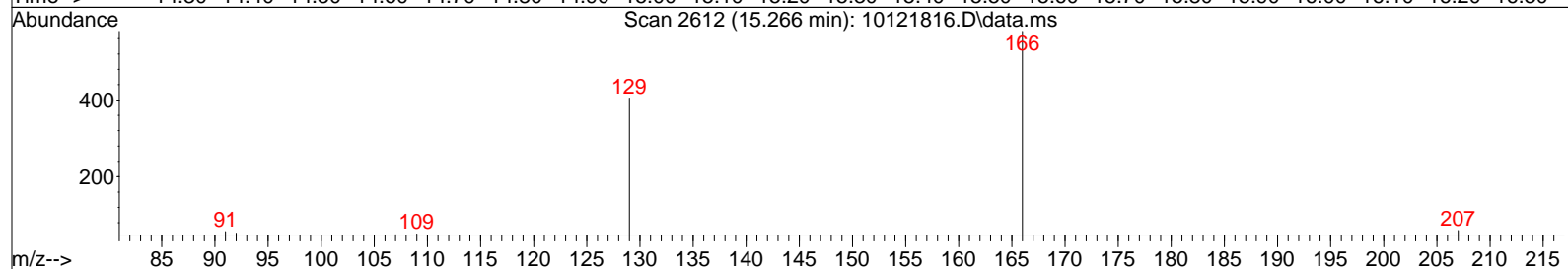
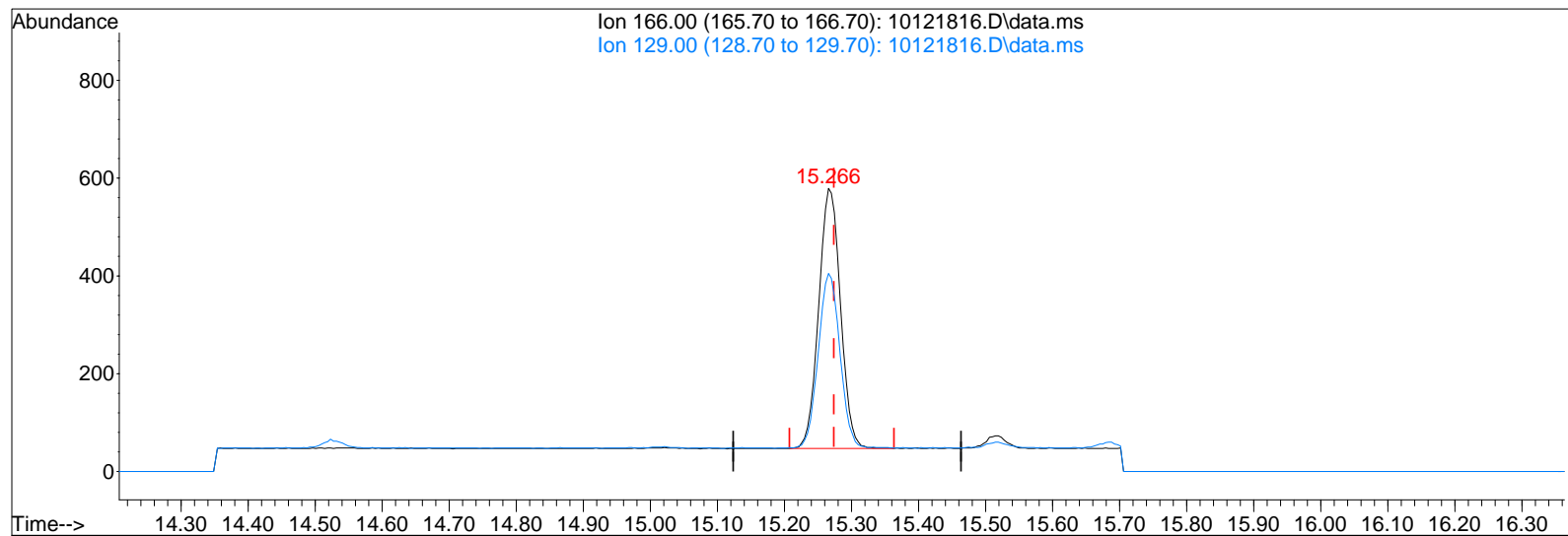
response 777

Ion	Exp%	Act%
130.00	100	100
132.00	95.60	99.23
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS19\DATA\2018 10\12\10121816.D  
Acq On : 12 Oct 2018 17:52  
Sample : P1805376-001dup (1000mL)  
Misc : S31-09241806

Vial: 1  
Operator: WA  
Inst : MS19

Quant Time: Oct 15 08:00:17 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



TIC: 10121816.D\data.ms

(37) Tetrachloroethene (T)

15.266min (-0.008) 43.86pg

response 1202

Ion	Exp%	Act%
166.00	100	100
129.00	66.70	66.56
0.00	0.00	0.00
0.00	0.00	0.00

Method Path : I:\MS19\METHODS\  
Method File : S19100118.M  
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
Last Update : Tue Oct 02 06:45:50 2018  
Response Via : Initial Calibration

Calibration Files

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10K =10011814.D 25K =10011815.D 50K =10011816.D

Compound		20	50	100	500	1000	2000	5000	10K	25K	50K	Avg	%RSD
-----ISTD-----													
1) I	Bromochloromethane...	2.473	2.247	2.130	2.080	2.439	2.198	1.952	1.896	2.033	1.858	2.131	9.94
2) T	Dichlorodifluo...	0.600	0.542	0.492	0.397	0.562	0.507	0.452	0.440	0.514	0.477	0.498	12.16
3) T	Chloromethane	1.777	1.607	1.518	1.477	1.732	1.565	1.396	1.355	1.486	1.446	1.536	8.92
4) T	1,2-Dichloro,1...	1.557	1.431	1.353	1.333	1.559	1.420	1.266	1.248	1.379	1.289	1.384	7.95
5) T	Vinyl Chloride	1.161	0.966	0.920	0.864	1.240	1.071	0.924	0.899	1.240	1.175	1.046	14.18
6) T	1,3-Butadiene	1.243	1.026	0.948	0.882	1.073	0.971	0.874	0.852	0.949	0.903	0.972	12.11
7) T	Bromomethane	0.828	0.740	0.705	0.688	0.809	0.735	0.663	0.653	0.728	0.689	0.724	7.99
8) T	Chloroethane	0.784	0.634	0.563	0.570	0.609	0.572	0.520	0.511	0.558	0.531	0.585	13.57
9) T	Acrolein		0.943	0.764	0.807	0.732	0.659	0.637	0.650		0.742		14.74
10) T	Acetone			1.618	1.580	1.869	1.697	1.559	1.525	1.659	1.532	1.666	8.10
11) T	Trichlorofluor...	1.295	1.147	1.099	1.105	1.323	1.233	1.125	1.110	1.222	1.132	1.179	7.04
12) T	1,1-Dichloroet...	1.438	1.256	1.188	1.166	1.372	1.259	1.150	1.133	1.240	1.151	1.235	8.23
13) T	Methylene Chlo...	1.358	1.251	1.095	0.981	1.364	1.244	1.079	1.007	1.195	1.106	1.168	11.63
14) T	Trichlorotrifl...	1.316	1.183	1.150	1.153	1.373	1.273	1.176	1.170	1.283	1.191	1.227	6.37
15) T	trans-1,2-Dich...	2.134	1.927	1.818	1.770	2.172	1.989	1.801	1.782	1.960	1.796	1.915	7.72
16) T	1,1-Dichloroet...	3.208	2.921	2.818	2.989	3.716	3.469	3.234	3.222	3.560	3.288	3.243	8.77
17) T	Methyl tert-Bu...	1.367	1.246	1.206	1.230	1.479	1.372	1.271	1.255	1.369	1.263	1.306	6.60
18) T	cis-1,2-Dichlo...	2.744	2.130	1.901	2.238	2.051	1.862	1.830	1.998	1.838	2.066		14.06
19) T	Chloroform	1.189	1.195	1.209	1.219	1.187	1.196	1.195	1.203	1.188	1.190	1.197	0.86
20) S	1,2-Dichloroet...	1.355	1.255	1.218	1.231	1.455	1.342	1.226	1.205	1.299	1.192	1.278	6.57
21) T	1,2-Dichloroet...	1.924	1.750	1.667	1.669	1.987	1.814	1.659	1.635	1.780	1.638	1.752	7.10
22) T	1,1,1-Trichlor...	7.432	5.606	4.900	4.761	5.550	5.114	4.625	4.523	4.896	4.490	5.190	16.92
23) T	Benzene												
24) T	Carbon Tetrach...	1.750	1.595	1.497	1.498	1.808	1.663	1.521	1.499	1.645	1.518	1.599	7.10
-----ISTD-----													
25) I	1,4-Difluorobenzen...	0.287	0.253	0.240	0.231	0.281	0.257	0.236	0.230	0.248	0.227	0.249	8.45
26) T	1,2-Dichloropr...	0.370	0.337	0.316	0.305	0.371	0.342	0.315	0.307	0.335	0.307	0.331	7.54
27) T	Bromodichlorom...	0.355	0.314	0.297	0.290	0.353	0.324	0.296	0.287	0.316	0.293	0.312	7.99
28) T	Trichloroethene	0.224	0.199	0.191	0.196	0.247	0.229	0.213	0.207	0.223	0.210	0.214	7.97
29) T	1,4-Dioxane	0.399	0.355	0.344	0.357	0.440	0.414	0.391	0.385	0.418	0.384	0.389	7.82
30) T	cis-1,3-Dichlo...	0.295	0.282	0.271	0.301	0.370	0.354	0.340	0.339	0.373	0.347	0.327	11.31
31) T	trans-1,3-Dich...	0.242	0.221	0.209	0.203	0.246	0.226	0.206	0.200	0.218	0.201	0.217	7.70
32) T	1,1,2-Trichlor...	1.055	1.042	1.035	1.031	1.020	1.019	1.025	1.029	1.027	1.030	1.031	1.03
33) S	Toluene-d8 (SS2)	1.377	1.171	1.091	1.064	1.272	1.170	1.077	1.044	1.129	1.024	1.142	9.69
34) T	Toluene	0.338	0.299	0.284	0.281	0.343	0.320	0.296	0.289	0.317	0.293	0.306	7.26
35) T	Dibromochlorom...	0.317	0.285	0.273	0.275	0.329	0.307	0.283	0.278	0.302	0.280	0.293	6.65
36) T	1,2-Dibromoethane	0.389	0.352	0.329	0.316	0.377	0.345	0.313	0.303	0.330	0.304	0.336	8.87
37) T	Tetrachloroethene												
-----ISTD-----													
38) I	Chlorobenzene-d5 (...)	7.143	6.485	6.096	5.893	7.105	6.497	5.856	5.507	5.484	4.475	6.054	13.33
39) T	Chlorobenzene	0.961	0.874	0.833	0.892	1.114	1.045	0.963	0.909	0.902	0.726	0.922	E1 11.72
40) T	Ethylbenzene												
41) T	m,p-Xylene	7.148	6.339	6.157	6.958	8.758	8.115	7.393	6.946	6.863	5.815	7.049	12.57

10/2/18

Method Path : I:\MS19\METHODS\

Method File : S19100118.M

Title		: EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)															
42)	T	Styrene	4.809	4.551	4.583	5.588	6.858	6.566	6.164	5.868	6.074	4.930	5.599				14.99
43)	T	o-Xylene	3.672	3.480	3.417	3.747	4.661	4.297	3.905	3.659	3.662	2.977	3.748				12.44
44)	T	1,1,2,2-Tetrac...	4.035	3.702	3.522	3.523	4.327	3.981	3.583	3.359	3.279	2.650	3.596				12.94
45)	S	Bromofluoroben...	2.852	2.867	2.904	3.004	3.011	2.992	2.971	2.843	2.557	2.255	2.826			8.51	
46)	T	1,3,5-Trimethy...	0.712	0.699	0.706	0.792	1.008	0.922	0.839	0.788	0.787	0.629	0.788	E1		14.32	
47)	T	1,2,4-Trimethy...	0.694	0.691	0.704	0.800	1.015	0.937	0.847	0.791	0.776	0.608	0.786	E1		15.58	
48)	T	1,3-Dichlororobe...	5.469	5.156	4.996	5.127	6.210	5.722	5.138	4.806	4.807	3.938	5.137			11.75	
49)	T	1,4-Dichlororobe...	5.534	5.296	5.083	5.118	6.178	5.636	5.106	4.803	4.823	4.010	5.159			11.18	
50)	T	1,2-Dichlororobe...	5.355	4.983	4.834	4.861	5.998	5.503	4.940	4.614	4.511	3.698	4.930			12.58	
51)	T	1,2-Dibromo-3-...	1.549	1.547	1.549	1.680	2.055	1.980	1.829	1.731	1.674	1.406	1.700			12.06	
52)	T	1,2,4-Trichlor...	2.814	2.746	2.593	2.776	3.010	3.435	3.187	3.017	3.007	2.597	2.918			9.10	
53)	T	Naphthalene	0.792	0.780	0.748	0.863	0.930	1.119	1.032	0.973	1.068	0.892	0.920	E1		13.87	
54)	T	Hexachlorobuta...	2.386	2.325	2.218	2.163	1.879	2.460	2.217	2.084	1.999	1.714	2.145			10.79	
-----																	
(#)		= Out of Range															

Primary Source Standards Concentrations (Working & Initial Calibration)

10/4/18

0.2ng/L Std. ID: 1ng/L Std. ID: 4ng/L Std. ID:		S31-09271803					20ng/L Std. ID: S31-09271802 200ng/L Std. ID: S31-08171802				
		Dilution Factors:					5	50	250	1000	5000
Compounds	Source Std. mg/m <sup>3</sup>	Primary Working Standards									
		200ng/L	20ng/L	4ng/L	1ng/L	0.2ng/L					
Propene	1.031	206.2	20.62	4.124	1.031	0.2062					
Dichlorodifluoromethane	1.045	209.0	20.90	4.180	1.045	0.2090					
Chloromethane	1.008	201.6	20.16	4.032	1.008	0.2016					
Freon-114	1.028	205.6	20.56	4.112	1.028	0.2056					
Vinyl Chloride	1.051	210.2	21.02	4.204	1.051	0.2102					
1,3-Butadiene	1.049	209.8	20.98	4.196	1.049	0.2098					
Bromomethane	1.009	201.8	20.18	4.036	1.009	0.2018					
Chloroethane	1.022	204.4	20.44	4.088	1.022	0.2044					
Ethanol	5.140	1028.0	102.80	20.560	5.140	1.0280					
Acetonitrile	1.033	206.6	20.66	4.132	1.033	0.2066					
Acrolein	1.028	205.6	20.56	4.112	1.028	0.2056					
Acetone	5.370	1074.0	107.40	21.480	5.370	1.0740					
Trichlorofluoromethane	1.060	212.0	21.20	4.240	1.060	0.2120					
Isopropanol	2.063	412.6	41.26	8.252	2.063	0.4126					
Acrylonitrile	1.034	206.8	20.68	4.136	1.034	0.2068					
1,1-Dichloroethene	1.074	214.8	21.48	4.296	1.074	0.2148					
tert-Butanol	2.144	428.8	42.88	8.576	2.144	0.4288					
Methylene Chloride	1.070	214.0	21.40	4.280	1.070	0.2140					
Allyl Chloride	1.067	213.4	21.34	4.268	1.067	0.2134					
Trichlorotrifluoroethane	1.065	213.0	21.30	4.260	1.065	0.2130					
Carbon Disulfide	1.075	215.0	21.50	4.300	1.075	0.2150					
trans-1,2-Dichloroethene	1.062	212.4	21.24	4.248	1.062	0.2124					
1,1-Dichloroethane	1.030	206.0	20.60	4.120	1.030	0.2060					
Methyl tert-Butyl Ether	1.089	217.8	21.78	4.356	1.089	0.2178					
Vinyl Acetate	5.252	1050.4	105.04	21.008	5.252	1.0504					
2-Butanone	1.027	205.4	20.54	4.108	1.027	0.2054					
cis-1,2-Dichloroethene	1.054	210.8	21.08	4.216	1.054	0.2108					
Diisopropyl Ether	1.081	216.2	21.62	4.324	1.081	0.2162					
Ethyl Acetate	2.166	433.2	43.32	8.664	2.166	0.4332					
n-Hexane	1.082	216.4	21.64	4.328	1.082	0.2164					
Chloroform	1.077	215.4	21.54	4.308	1.077	0.2154					
Tetrahydrofuran	1.068	213.6	21.36	4.272	1.068	0.2136					
Ethyl tert-Butyl Ether	1.060	212.0	21.20	4.240	1.060	0.2120					
1,2-Dichloroethane	1.061	212.2	21.22	4.244	1.061	0.2122					
1,1,1-Trichloroethane	1.081	216.2	21.62	4.324	1.081	0.2162					
Isopropyl Acetate	2.066	413.2	41.32	8.264	2.066	0.4132					
1-Butanol	2.067	413.4	41.34	8.268	2.067	0.4134					
Benzene	1.033	206.6	20.66	4.132	1.033	0.2066					
Carbon Tetrachloride	1.036	207.2	20.72	4.144	1.036	0.2072					
Cyclohexane	2.087	417.4	41.74	8.348	2.087	0.4174					
tert-Amyl Methyl Ether	1.074	214.8	21.48	4.296	1.074	0.2148					
1,2-Dichloropropane	1.073	214.6	21.46	4.292	1.073	0.2146					
Bromodichloromethane	1.068	213.6	21.36	4.272	1.068	0.2136					
Trichloroethene	1.062	212.4	21.24	4.248	1.062	0.2124					
1,4-Dioxane	1.064	212.8	21.28	4.256	1.064	0.2128					
Isocitane	1.061	212.2	21.22	4.244	1.061	0.2122					
Methyl Methacrylate	2.135	427.0	42.70	8.540	2.135	0.4270					
n-Heptane	1.076	215.2	21.52	4.304	1.076	0.2152					
cis-1,3-Dichloropropene	1.120	224.0	22.40	4.480	1.120	0.2240					

0.2ng/L Std. ID:		20ng/L Std. ID:	S31-09271802
1ng/L Std. ID:		200ng/L Std. ID:	S31-08171802
4ng/L Std. ID:			
Dilution Factors:	5	50	250
			1000
			5000

Q:\TO16 Std. Concentrations\MST9 Std. Conc\20161019\1016.xls(CAL Conc. (Primary Source))

Method : I:\MS19\METHODS\S19100118.M (RTE Integrator)  
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
 Last Update : Tue Oct 02 06:45:50 2018  
 Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
2	20	1000	1000	I:\MS19\DATA\2018_10\01\10011807.D
3	50	1000	1000	I:\MS19\DATA\2018_10\01\10011808.D
4	100	1000	1000	I:\MS19\DATA\2018_10\01\10011809.D
5	500	1000	1000	I:\MS19\DATA\2018_10\01\10011810.D
6	1000	1000	1000	I:\MS19\DATA\2018_10\01\10011811.D
7	2000	1000	1000	I:\MS19\DATA\2018_10\01\10011812.D
8	5000	1000	1000	I:\MS19\DATA\2018_10\01\10011813.D
9	10K	1000	1000	I:\MS19\DATA\2018_10\01\10011814.D
10	25K	1000	1000	I:\MS19\DATA\2018_10\01\10011815.D
11	50K	1000	1000	I:\MS19\DATA\2018_10\01\10011816.D

~~DA~~ 10/2/18

#	ID	Update Time	Quant Time	Acquisition Time
2	20	Oct 02 06:44 2018	Oct 01 15:35 2018	1 Oct 2018 12:11
3	50	Oct 02 06:44 2018	Oct 01 15:35 2018	1 Oct 2018 13:09
4	100	Oct 02 06:44 2018	Oct 01 15:35 2018	1 Oct 2018 13:44
5	500	Oct 02 06:44 2018	Oct 01 15:35 2018	1 Oct 2018 14:21
6	1000	Oct 02 06:44 2018	Oct 01 15:35 2018	1 Oct 2018 14:52
7	2000	Oct 02 06:45 2018	Oct 02 06:40 2018	1 Oct 2018 15:36
8	5000	Oct 02 06:45 2018	Oct 02 06:40 2018	1 Oct 2018 16:08
9	10K	Oct 02 06:45 2018	Oct 02 06:40 2018	1 Oct 2018 16:39
10	25K	Oct 02 06:45 2018	Oct 02 06:40 2018	1 Oct 2018 17:11
11	50K	Oct 02 06:45 2018	Oct 02 06:40 2018	1 Oct 2018 17:43

S19100118.M

Tue Oct 02 09:00:05 2018

Data File : I:\MS19\DATA\2018 10\01\10011807.D  
 Acq On : 1 Oct 2018 12:11  
 Sample : 20pg S19100118 ICAL Std  
 Misc : S31-09241806/S31-09271803 (10/26)

Vial: 13  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 01 15:35:06 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Mon Oct 01 15:34:24 2018

Response via : Initial Calibration

~~10/1~~ 10/2/18

DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	20699	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	88774	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	11242	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	24610	924.137	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	92.41%
33) Toluene-d8 (SS2)	14.02	98	93636	989.835	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	98.98%
45) Bromofluorobenzene (SS3)	17.43	174	32067	1038.075	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	103.81%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.34	85	1073	25.626	pg	100
3) Chloromethane	4.55	52	250	24.961	pg	97
4) 1,2-Dichloro,1,1,2,2-t...	4.73	85	751	24.924	pg	99
5) Vinyl Chloride	4.85	62	665	23.916	pg	94
6) 1,3-Butadiene	5.04	54	509	25.518	pg	# 72
7) Bromomethane	5.36	94	511	27.857	pg	100
8) Chloroethane	5.59	64	347	24.289	pg	98
9) Acrolein	6.15	56	342	32.266	pg	98
10) Acetone	6.30	58	4028	262.547	pg	96
11) Trichlorofluoromethane	6.50	101	832	25.754	pg	98
12) 1,1-Dichloroethene	7.22	96	569	25.301	pg	98
13) Methylene Chloride	7.34	84	630	26.254	pg	98
14) Trichlorotrifluoroethane	7.67	151	592	27.300	pg	100
15) trans-1,2-Dichloroethene	8.38	96	589	25.118	pg	99
16) 1,1-Dichloroethane	8.58	63	903	23.963	pg	99
17) Methyl tert-Butyl Ether	8.69	73	1421	23.047	pg	99
18) cis-1,2-Dichloroethene	9.46	96	604	24.436	pg	98
19) Chloroform	9.76	83	1443	36.144	pg	99
21) 1,2-Dichloroethane	10.51	62	592	23.286	pg	98
22) 1,1,1-Trichloroethane	10.78	97	858	25.546	pg	100
23) Benzene	11.24	78	3252	33.579	pg	100
24) Carbon Tetrachloride	11.39	117	768	27.434	pg	100
26) 1,2-Dichloropropane	12.05	63	544	26.450	pg	98
27) Bromodichloromethane	12.23	83	701	26.064	pg	97
28) Trichloroethene	12.28	130	668	27.141	pg	99
29) 1,4-Dioxane	12.27	88	422	24.440	pg	98
30) cis-1,3-Dichloropropene	13.13	75	793	25.244	pg	99
31) trans-1,3-Dichloropropene	13.64	75	559	21.205	pg	95
32) 1,1,2-Trichloroethane	13.82	83	458	25.914	pg	97
34) Toluene	14.11	91	2576	28.067	pg	98
35) Dibromochloromethane	14.53	129	637	26.654	pg	98
36) 1,2-Dibromoethane	14.79	107	599	25.485	pg	99
37) Tetrachloroethene	15.27	166	735	27.998	pg	99
39) Chlorobenzene	15.97	112	1712	31.025	pg	99
40) Ethylbenzene	16.35	91	2274	27.046	pg	99
41) m,p-Xylene	16.53	91	3412	52.899	pg	98
42) Styrene	16.89	104	1144	24.398	pg	100
43) o-Xylene	17.00	106	871	25.815	pg	90
44) 1,1,2,2-Tetrachloroethane	16.97	83	959	29.198	pg	98
46) 1,3,5-Trimethylbenzene	18.27	105	1680	24.039	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	1639	23.610	pg	99
48) 1,3-Dichlorobenzene	18.81	146	1317	28.883	pg	100
49) 1,4-Dichlorobenzene	18.87	146	1324	28.951	pg	97
50) 1,2-Dichlorobenzene	19.20	146	1304	29.943	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	366	25.182	pg	88
52) 1,2,4-Trichlorobenzene	20.83	182	694	26.181	pg	95
53) Naphthalene	20.94	128	1881	20.946	pg	97

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Data File : I:\MS19\DATA\2018 10\01\10011807.D  
Acq On : 1 Oct 2018 12:11  
Sample : 20pg S19100118 ICAL Std  
Misc : S31-09241806/S31-09271803 (10/26)

Vial: 13  
Operator: WA  
Inst : MS19

Quant Time: Oct 01 15:35:06 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

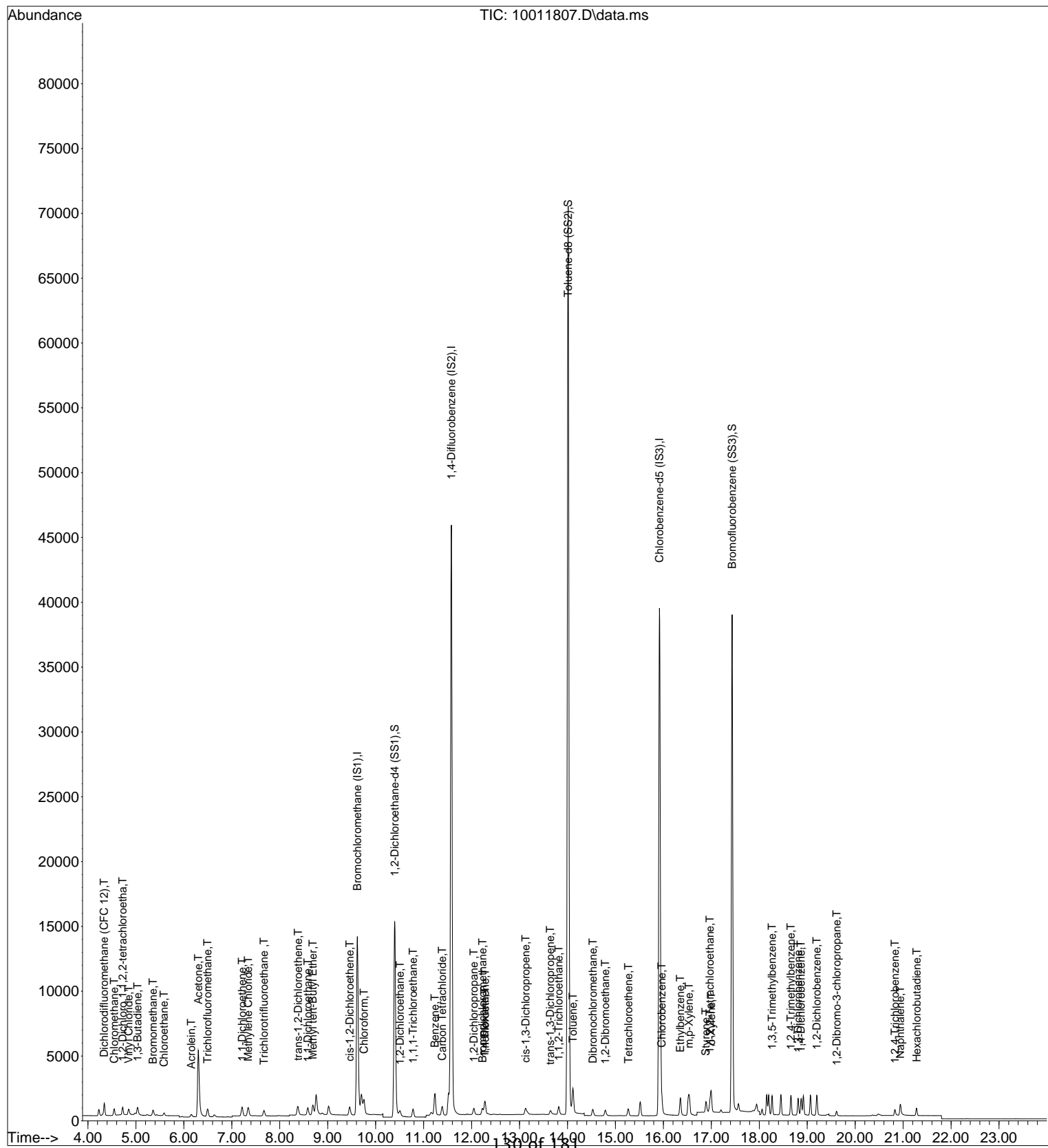
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	567	28.841	pg	100

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

Data File : I:\MS19\DATA\2018 10\01\10011807.D  
Acq On : 1 Oct 2018 12:11  
Sample : 20pg S19100118 ICAL Std  
Misc : S31-09241806/S31-09271803 (10/26)

Vial: 13  
Operator: WA  
Inst : MS19

Quant Time: Oct 01 15:35:06 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\01\10011808.D  
 Acq On : 1 Oct 2018 13:09  
 Sample : 50pg S19100118 ICAL Std  
 Misc : S31-09241806/S31-09271803 (10/26)

Vial: 13  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 01 15:35:09 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Mon Oct 01 15:34:24 2018

Response via : Initial Calibration

WA 10/2/18

DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	20108	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	87937	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	10970	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	24026	928.724	pg	0.00
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	92.87%	
33) Toluene-d8 (SS2)	14.02	98	91636	977.913	pg	0.00
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	97.79%	
45) Bromofluorobenzene (SS3)	17.43	174	31447	1043.246	pg	0.00
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	104.33%	

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.34	85	2368	58.216	pg	99
3) Chloromethane	4.55	52	548	56.322	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.73	85	1650	56.370	pg	100
5) Vinyl Chloride	4.85	62	1485	54.976	pg	99
6) 1,3-Butadiene	5.04	54	1028	53.051	pg	97
7) Bromomethane	5.36	94	1024	57.464	pg	99
8) Chloroethane	5.59	64	753	54.258	pg	98
9) Acrolein	6.15	56	672	65.263	pg	97
10) Acetone	6.30	58	6468	433.978	pg	96
11) Trichlorofluoromethane	6.50	101	1809	57.642	pg	100
12) 1,1-Dichloroethene	7.22	96	1224	56.027	pg	99
13) Methylene Chloride	7.35	84	1336	57.311	pg	98
14) Trichlorotrifluoroethane	7.67	151	1324	62.851	pg	100
15) trans-1,2-Dichloroethene	8.38	96	1286	56.453	pg	99
16) 1,1-Dichloroethane	8.58	63	1980	54.088	pg	100
17) Methyl tert-Butyl Ether	8.69	73	3142	52.457	pg	99
18) cis-1,2-Dichloroethene	9.46	96	1337	55.681	pg	100
19) Chloroform	9.76	83	2927	75.470	pg	99
21) 1,2-Dichloroethane	10.51	62	1331	53.892	pg	99
22) 1,1,1-Trichloroethane	10.78	97	1895	58.079	pg	99
23) Benzene	11.24	78	5958	63.329	pg	100
24) Carbon Tetrachloride	11.39	117	1700	62.511	pg	100
26) 1,2-Dichloropropane	12.05	63	1184	58.117	pg	98
27) Bromodichloromethane	12.23	83	1582	59.381	pg	98
28) Trichloroethene	12.28	130	1465	60.089	pg	99
29) 1,4-Dioxane	12.26	88	932	54.490	pg	98
30) cis-1,3-Dichloropropene	13.12	75	1750	56.240	pg	99
31) trans-1,3-Dichloropropene	13.64	75	1321	50.589	pg	100
32) 1,1,2-Trichloroethane	13.82	83	1036	59.175	pg	98
34) Toluene	14.11	91	5429	59.716	pg	100
35) Dibromochloromethane	14.53	129	1394	58.885	pg	99
36) 1,2-Dibromoethane	14.79	107	1335	57.340	pg	99
37) Tetrachloroethene	15.27	166	1647	63.337	pg	99
39) Chlorobenzene	15.97	112	3792	70.423	pg	100
40) Ethylbenzene	16.35	91	5045	61.491	pg	100
41) m,p-Xylene	16.53	91	7381	117.271	pg	100
42) Styrene	16.89	104	2641	57.720	pg	100
43) o-Xylene	17.00	106	2014	61.172	pg	96
44) 1,1,2,2-Tetrachloroethane	16.97	83	2146	66.958	pg	99
46) 1,3,5-Trimethylbenzene	18.27	105	4024	59.007	pg	99
47) 1,2,4-Trimethylbenzene	18.66	105	3986	58.842	pg	99
48) 1,3-Dichlorobenzene	18.81	146	3029	68.076	pg	99
49) 1,4-Dichlorobenzene	18.87	146	3091	69.263	pg	98
50) 1,2-Dichlorobenzene	19.20	146	2960	69.655	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	892	62.895	pg	96
52) 1,2,4-Trichlorobenzene	20.83	182	1652	63.866	pg	98
53) Naphthalene	20.94	128	4520	51.580	pg	99

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Data File : I:\MS19\DATA\2018 10\01\10011808.D  
Acq On : 1 Oct 2018 13:09  
Sample : 50pg S19100118 ICAL Std  
Misc : S31-09241806/S31-09271803 (10/26)

Vial: 13  
Operator: WA  
Inst : MS19

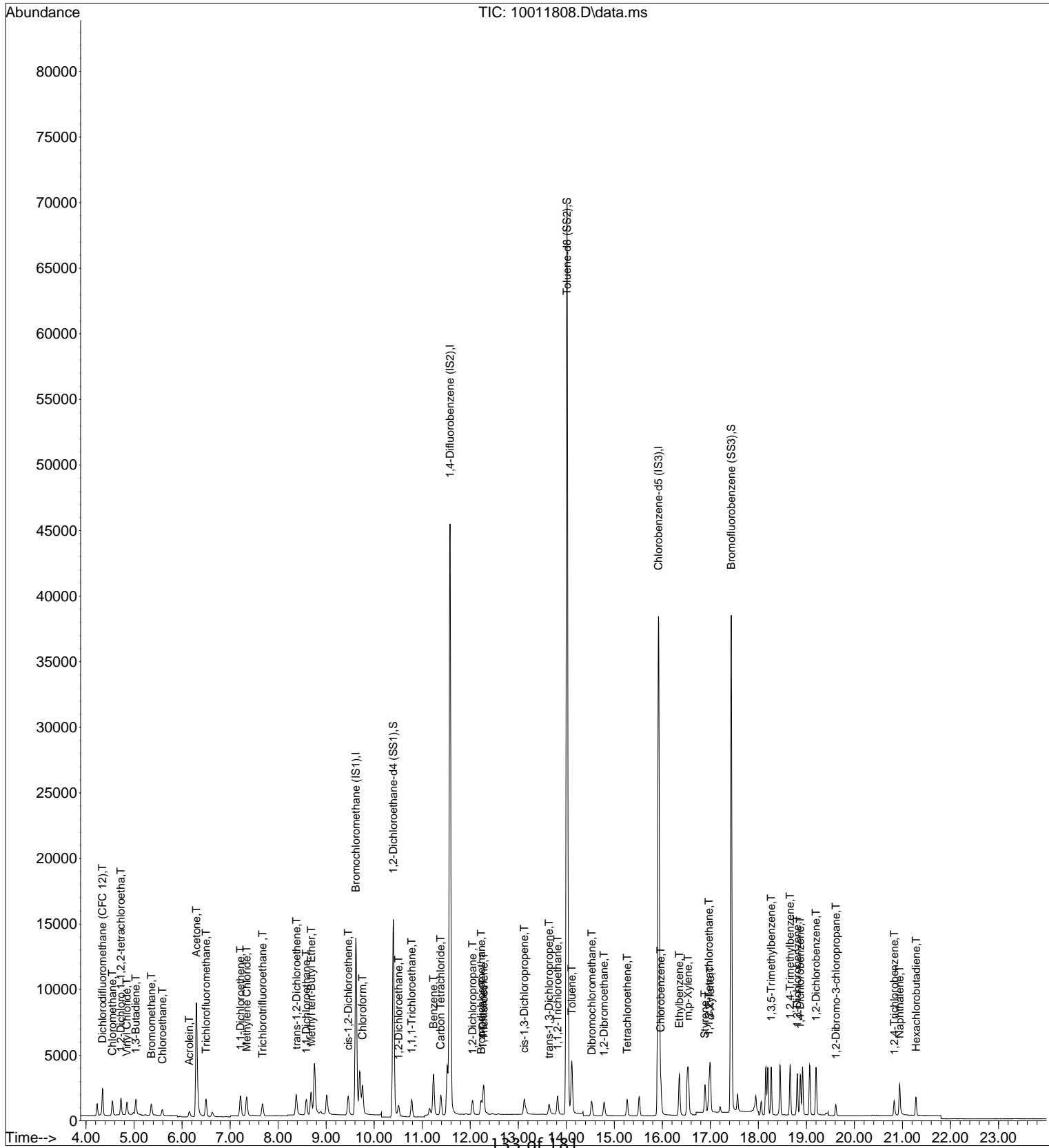
Quant Time: Oct 01 15:35:09 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	1348	70.267	pg	99

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

Vial: 13  
Operator: WA  
Inst : MS19

Quant Time: Oct 01 15:35:09 2018



Data File : I:\MS19\DATA\2018 10\01\10011809.D  
 Acq On : 1 Oct 2018 13:44  
 Sample : 100pg S19100118 ICAL Std  
 Misc : S31-09241806/S31-09271803 (10/26)

Vial: 13  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 01 15:35:11 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Mon Oct 01 15:34:24 2018

Response via : Initial Calibration

~~10/1~~ 10/2/18

DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	20065	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	89360	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	11139	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	24256	939.624	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	93.96%
33) Toluene-d8 (SS2)	14.02	98	92480	971.204	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	97.12%
45) Bromofluorobenzene (SS3)	17.43	174	32346	1056.789	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	105.68%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.33	85	4479	110.349	pg	100
3) Chloromethane	4.54	52	994	102.379	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.72	85	3109	106.442	pg	100
5) Vinyl Chloride	4.84	62	2802	103.955	pg	100
6) 1,3-Butadiene	5.03	54	1955	101.107	pg	95
7) Bromomethane	5.35	94	1888	106.176	pg	100
8) Chloroethane	5.58	64	1432	103.405	pg	100
9) Acrolein	6.14	56	1190	115.818	pg	98
10) Acetone	6.29	58	10075	677.442	pg	97
11) Trichlorofluoromethane	6.49	101	3413	108.985	pg	100
12) 1,1-Dichloroethene	7.21	96	2339	107.293	pg	99
13) Methylene Chloride	7.34	84	2522	108.418	pg	99
14) Trichlorotrifluoroethane	7.67	151	2313	110.035	pg	100
15) trans-1,2-Dichloroethene	8.38	96	2495	109.760	pg	100
16) 1,1-Dichloroethane	8.58	63	3728	102.057	pg	100
17) Methyl tert-Butyl Ether	8.68	73	6051	101.240	pg	100
18) cis-1,2-Dichloroethene	9.46	96	2583	107.802	pg	100
19) Chloroform	9.76	83	4534	117.155	pg	100
21) 1,2-Dichloroethane	10.51	62	2578	104.607	pg	98
22) 1,1,1-Trichloroethane	10.78	97	3602	110.632	pg	100
23) Benzene	11.23	78	10392	110.696	pg	100
24) Carbon Tetrachloride	11.39	117	3183	117.293	pg	100
26) 1,2-Dichloropropane	12.05	63	2290	110.615	pg	99
27) Bromodichloromethane	12.22	83	3016	111.404	pg	100
28) Trichloroethene	12.28	130	2813	113.542	pg	99
29) 1,4-Dioxane	12.26	88	1815	104.425	pg	99
30) cis-1,3-Dichloropropene	13.12	75	3447	109.012	pg	99
31) trans-1,3-Dichloropropene	13.64	75	2587	97.493	pg	100
32) 1,1,2-Trichloroethane	13.82	83	1984	111.519	pg	98
34) Toluene	14.11	91	10272	111.187	pg	100
35) Dibromochloromethane	14.53	129	2690	111.821	pg	100
36) 1,2-Dibromoethane	14.79	107	2600	109.896	pg	99
37) Tetrachloroethene	15.27	166	3128	118.374	pg	100
39) Chlorobenzene	15.97	112	7239	132.398	pg	100
40) Ethylbenzene	16.35	91	9765	117.215	pg	100
41) m,p-Xylene	16.53	91	14559	227.808	pg	100
42) Styrene	16.89	104	5401	116.250	pg	100
43) o-Xylene	17.00	106	4016	120.129	pg	98
44) 1,1,2,2-Tetrachloroethane	16.97	83	4147	127.428	pg	99
46) 1,3,5-Trimethylbenzene	18.27	105	8246	119.084	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	8236	119.737	pg	100
48) 1,3-Dichlorobenzene	18.81	146	5960	131.918	pg	100
49) 1,4-Dichlorobenzene	18.87	146	6024	132.938	pg	100
50) 1,2-Dichlorobenzene	19.20	146	5831	135.133	pg	99
51) 1,2-Dibromo-3-chloropr...	19.61	157	1813	125.895	pg	97
52) 1,2,4-Trichlorobenzene	20.83	182	3169	120.654	pg	100
53) Naphthalene	20.94	128	8799	98.886	pg	98

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Data File : I:\MS19\DATA\2018 10\01\10011809.D  
Acq On : 1 Oct 2018 13:44  
Sample : 100pg S19100118 ICAL Std  
Misc : S31-09241806/S31-09271803 (10/26)

Vial: 13  
Operator: WA  
Inst : MS19

Quant Time: Oct 01 15:35:11 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

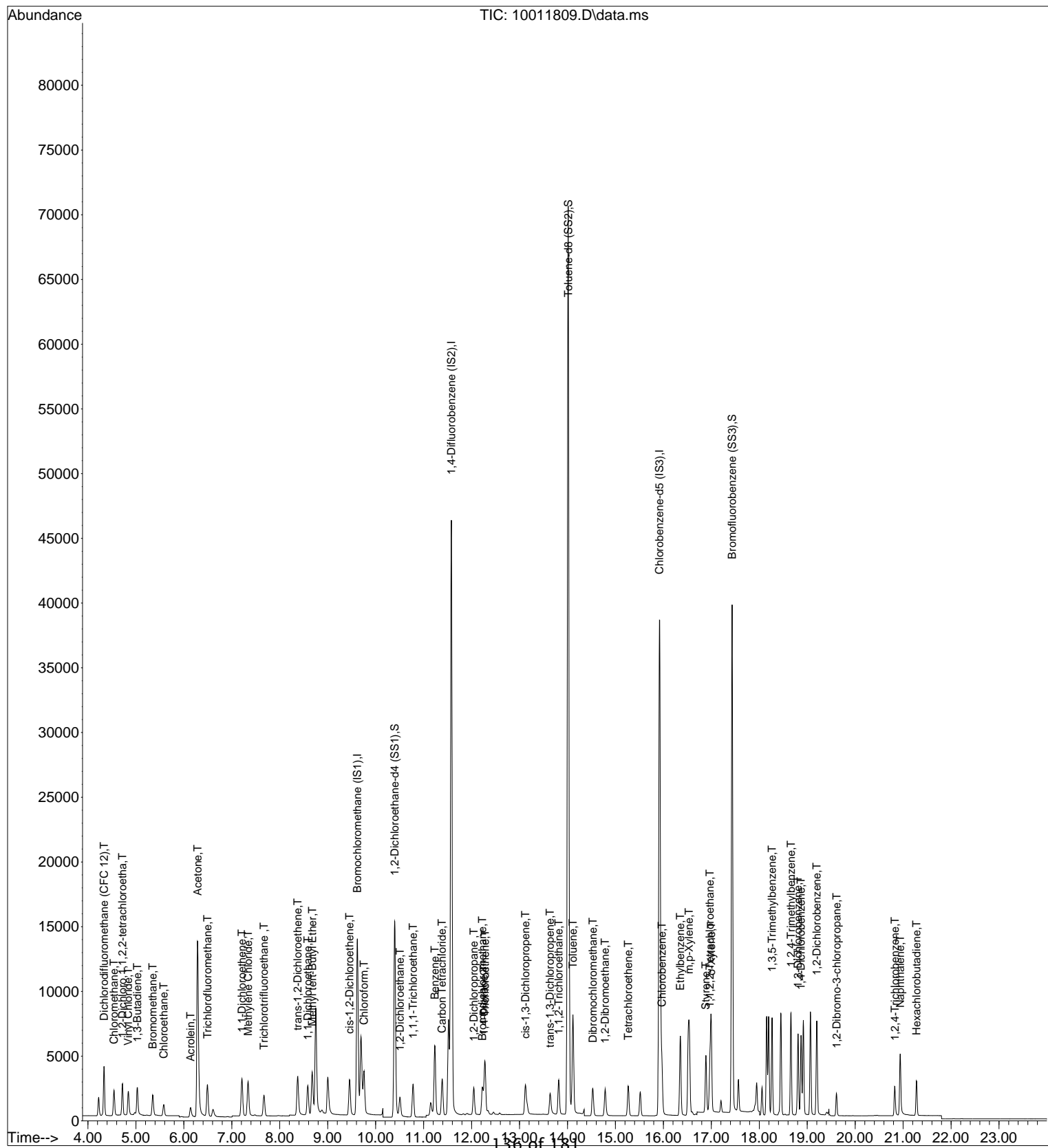
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	2611	134.039	pg	100

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

Data File : I:\MS19\DATA\2018 10\01\10011809.D  
Acq On : 1 Oct 2018 13:44  
Sample : 100pg S19100118 ICAL Std  
Misc : S31-09241806/S31-09271803 (10/26)

Vial: 13  
Operator: WA  
Inst : MS19

Quant Time: Oct 01 15:35:11 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M





Data File : I:\MS19\DATA\2018 10\01\10011810.D  
 Acq On : 1 Oct 2018 14:21  
 Sample : 500pg S19100118 ICAL Std  
 Misc : S31-09241806/S31-09271803 (10/26)

Vial: 13  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 01 15:35:13 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Mon Oct 01 15:34:24 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

~~10/1~~ 10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19931	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	93855	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	11642	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	24294	947.423	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	94.74%
33) Toluene-d8 (SS2)	14.01	98	96719	967.075	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	96.71%
45) Bromofluorobenzene (SS3)	17.43	174	34970	1093.156	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	109.32%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.33	85	21723	538.789	pg	100
3) Chloromethane	4.53	52	3976	412.271	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.71	85	15025	517.865	pg	100
5) Vinyl Chloride	4.83	62	13708	511.990	pg	99
6) 1,3-Butadiene	5.02	54	9118	474.726	pg	100
7) Bromomethane	5.34	94	8729	494.195	pg	99
8) Chloroethane	5.57	64	6937	504.288	pg	100
9) Acrolein	6.12	56	5986	586.513	pg	99
10) Acetone	6.27	58	40532	2743.691	pg	99
11) Trichlorofluoromethane	6.49	101	16551	532.066	pg	100
12) 1,1-Dichloroethene	7.20	96	11682	539.472	pg	100
13) Methylene Chloride	7.33	84	12292	531.975	pg	100
14) Trichlorotrifluoroethane	7.67	151	10290	492.813	pg	100
15) trans-1,2-Dichloroethene	8.37	96	12419	550.012	pg	100
16) 1,1-Dichloroethane	8.58	63	18032	496.958	pg	100
17) Methyl tert-Butyl Ether	8.66	73	31874	536.873	pg	100
18) cis-1,2-Dichloroethene	9.45	96	13074	549.314	pg	100
19) Chloroform	9.76	83	20096	522.758	pg	100
21) 1,2-Dichloroethane	10.50	62	12940	528.592	pg	99
22) 1,1,1-Trichloroethane	10.78	97	17911	553.819	pg	100
23) Benzene	11.23	78	50147	537.760	pg	100
24) Carbon Tetrachloride	11.39	117	15823	586.996	pg	100
26) 1,2-Dichloropropane	12.05	63	11546	531.000	pg	100
27) Bromodichloromethane	12.22	83	15278	537.307	pg	100
28) Trichloroethene	12.28	130	14464	555.855	pg	100
29) 1,4-Dioxane	12.25	88	9760	534.641	pg	99
30) cis-1,3-Dichloropropene	13.12	75	18781	565.506	pg	99
31) trans-1,3-Dichloropropene	13.63	75	15064	540.511	pg	100
32) 1,1,2-Trichloroethane	13.81	83	10121	541.649	pg	99
34) Toluene	14.11	91	52607	542.162	pg	100
35) Dibromochloromethane	14.53	129	13978	553.226	pg	100
36) 1,2-Dibromoethane	14.78	107	13734	552.700	pg	99
37) Tetrachloroethene	15.27	166	15788	568.855	pg	100
39) Chlorobenzene	15.97	112	36568	639.917	pg	100
40) Ethylbenzene	16.35	91	54645	627.594	pg	100
41) m,p-Xylene	16.53	91	85981	1287.237	pg	100
42) Styrene	16.89	104	34415	708.740	pg	100
43) o-Xylene	16.99	106	23010	658.554	pg	100
44) 1,1,2,2-Tetrachloroethane	16.97	83	21679	637.365	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	48377	668.446	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	48925	680.550	pg	100
48) 1,3-Dichlorobenzene	18.81	146	31963	676.897	pg	100
49) 1,4-Dichlorobenzene	18.87	146	31699	669.314	pg	100
50) 1,2-Dichlorobenzene	19.20	146	30647	679.555	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	10276	682.738	pg	99
52) 1,2,4-Trichlorobenzene	20.82	182	17728	645.799	pg	100
53) Naphthalene	20.94	128	53038	570.305	pg	100

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Data File : I:\MS19\DATA\2018 10\01\10011810.D  
Acq On : 1 Oct 2018 14:21  
Sample : 500pg S19100118 ICAL Std  
Misc : S31-09241806/S31-09271803 (10/26)

Vial: 13  
Operator: WA  
Inst : MS19

Quant Time: Oct 01 15:35:13 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	13306	653.567	pg	100

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

Abundance

TIC: 10011810.D\data.ms

Time-->

Chloromethane, T

Dichlorodifluoromethane (CFC 12), T

Vinyl Chloride, T

1,1,2,2-tetrachloroethane, T

1,3-Butadiene, T

Bromomethane, T

Chloroethane, T

Acrolein, T

Trichlorofluoromethane, T

1,1,1-Trichloroethane, T

Methylene Chloride, T

Trichlorotrifluoroethane, T

trans-1,2-Dichloroethene, T

1,1-Dichloroethane, T

Methyl tert-Butyl Ether, T

cis-1,2-Dichloroethene, T

1,1,1-Trichloroethane (IS1), I

1,2-Dichloroethane, T

1,2-Dichloroethane-d4 (SS1), S

1,1,1-Trichloroethane, T

Carbon Tetrachloride, T

Benzene, T

1,2-Dichloropropane, T

1,1,2-Trichloroethane, T

trans-1,3-Dichloropropene, T

cis-1,3-Dichloropropene, T

trans-1,3-Dichloropropene, T

1,1,2-Trichloroethane, T

Dibromochloromethane, T

1,2-Dibromoethane, T

Tetrachloroethene, T

Chlorobenzene, T

Chlorobenzene-d5 (IS3), I

Ethylbenzene, T

m,p-Xylene, T

o-Xylene, T

Bromofluorobenzene (SS3), S

1,3,5-Trimethylbenzene, T

1,2,4-Trimethylbenzene, T

1,3-Dichlorobenzene, T

1,2-Dichlorobenzene, T

1,2-Dibromo-3-chloropropane, T

Naphthalene, T

1,2,4-Trichlorobenzene, T

Hexachlorobutadiene, T

Toluene, I

Toluene-d8 (SS2), S

1,4-Difluorobenzene (IS2), I

Data File : I:\MS19\DATA\2018 10\01\10011811.D  
 Acq On : 1 Oct 2018 14:52  
 Sample : 1000pg S19100118 ICAL Std  
 Misc : S31-09241806/S31-09271802 (10/26)

Vial: 14  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 01 15:35:15 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Mon Oct 01 15:34:24 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

~~WA~~ 10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	21343	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	98418	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	12041	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	25337	922.728	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	92.27%
33) Toluene-d8 (SS2)	14.02	98	100388	957.223	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	95.72%
45) Bromofluorobenzene (SS3)	17.44	174	36261	1095.951	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	109.60%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.32	85	54556	1263.616	pg	100
3) Chloromethane	4.53	52	12060	1167.770	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	37736	1214.595	pg	100
5) Vinyl Chloride	4.82	62	34347	1197.981	pg	100
6) 1,3-Butadiene	5.01	54	28024	1362.534	pg	100
7) Bromomethane	5.33	94	22751	1202.841	pg	100
8) Chloroethane	5.56	64	17484	1186.920	pg	100
9) Acrolein	6.12	56	13705	1253.988	pg	100
10) Acetone	6.26	58	91676	5795.174	pg	100
11) Trichlorofluoromethane	6.48	101	41922	1258.511	pg	100
12) 1,1-Dichloroethene	7.20	96	29967	1292.317	pg	100
13) Methylene Chloride	7.34	84	30981	1252.095	pg	100
14) Trichlorotrifluoroethane	7.67	151	30655	1371.014	pg	100
15) trans-1,2-Dichloroethene	8.37	96	31674	1309.971	pg	100
16) 1,1-Dichloroethane	8.58	63	47368	1219.087	pg	100
17) Methyl tert-Butyl Ether	8.65	73	84859	1334.771	pg	100
18) cis-1,2-Dichloroethene	9.46	96	33680	1321.473	pg	100
19) Chloroform	9.76	83	50690	1231.365	pg	100
21) 1,2-Dichloroethane	10.51	62	32755	1249.503	pg	100
22) 1,1,1-Trichloroethane	10.78	97	45673	1318.808	pg	100
23) Benzene	11.24	78	125214	1253.920	pg	100
24) Carbon Tetrachloride	11.39	117	40898	1416.844	pg	100
26) 1,2-Dichloropropane	12.05	63	29449	1291.565	pg	100
27) Bromodichloromethane	12.22	83	38980	1307.316	pg	100
28) Trichloroethene	12.28	130	36846	1350.350	pg	100
29) 1,4-Dioxane	12.25	88	25793	1347.402	pg	100
30) cis-1,3-Dichloropropene	13.12	75	48452	1391.275	pg	100
31) trans-1,3-Dichloropropene	13.63	75	38882	1330.442	pg	100
32) 1,1,2-Trichloroethane	13.82	83	25733	1313.312	pg	100
34) Toluene	14.11	91	131899	1296.313	pg	100
35) Dibromochloromethane	14.53	129	35806	1351.439	pg	100
36) 1,2-Dibromoethane	14.78	107	34480	1323.252	pg	100
37) Tetrachloroethene	15.27	166	39481	1356.581	pg	100
39) Chlorobenzene	15.96	112	91204	1543.127	pg	100
40) Ethylbenzene	16.35	91	141081	1566.614	pg	100
41) m,p-Xylene	16.53	91	223870	3240.536	pg	100
42) Styrene	16.89	104	87370	1739.669	pg	100
43) o-Xylene	16.99	106	59205	1638.317	pg	100
44) 1,1,2,2-Tetrachloroethane	16.97	83	55068	1565.356	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	127264	1700.191	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	128493	1728.119	pg	100
48) 1,3-Dichlorobenzene	18.81	146	80086	1639.823	pg	100
49) 1,4-Dichlorobenzene	18.87	146	79145	1615.745	pg	100
50) 1,2-Dichlorobenzene	19.20	146	78221	1676.970	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	26006	1670.586	pg	100
52) 1,2,4-Trichlorobenzene	20.82	182	39764	1400.531	pg	100
53) Naphthalene	20.94	128	118266	1229.547	pg	100

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Data File : I:\MS19\DATA\2018 10\01\10011811.D  
Acq On : 1 Oct 2018 14:52  
Sample : 1000pg S19100118 ICAL Std  
Misc : S31-09241806/S31-09271802 (10/26)

Vial: 14  
Operator: WA  
Inst : MS19

Quant Time: Oct 01 15:35:15 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

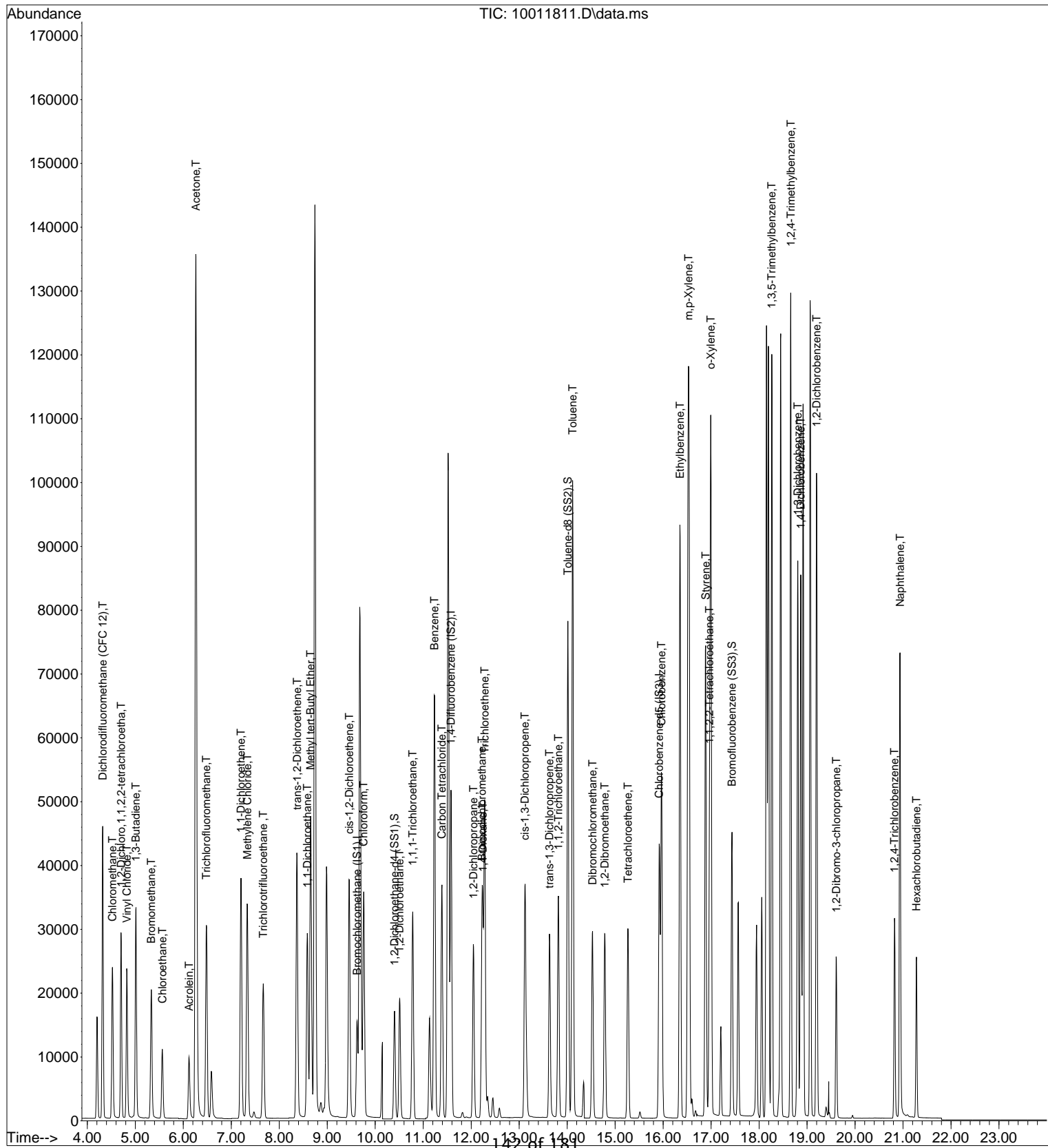
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	23913	1135.643	pg	100

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

Data File : I:\MS19\DATA\2018 10\01\10011811.D  
Acq On : 1 Oct 2018 14:52  
Sample : 1000pg S19100118 ICAL Std  
Misc : S31-09241806/S31-09271802 (10/26)

Vial: 14  
Operator: WA  
Inst : MS19

Quant Time: Oct 01 15:35:15 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\01\10011812.D  
 Acq On : 1 Oct 2018 15:36  
 Sample : 2000pg S19100118 ICAL Std  
 Misc : S31-09241806/S31-09271802 (10/26)

Vial: 14  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 02 06:40:07 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Mon Oct 01 15:34:24 2018

Response via : Initial Calibration

10/2/18

DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	21158	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	98346	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	12046	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	25304	929.584	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	92.96%
33) Toluene-d8 (SS2)	14.01	98	100255	956.655	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	95.67%
45) Bromofluorobenzene (SS3)	17.43	174	36038	1088.759	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	108.88%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.31	85	97482	2277.603	pg	100
3) Chloromethane	4.52	52	21596	2109.425	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.70	85	67634	2195.945	pg	100
5) Vinyl Chloride	4.82	62	62023	2182.201	pg	100
6) 1,3-Butadiene	5.00	54	48011	2354.718	pg	100
7) Bromomethane	5.33	94	40799	2175.895	pg	100
8) Chloroethane	5.55	64	31468	2154.917	pg	100
9) Acrolein	6.12	56	25502	2353.799	pg	100
10) Acetone	6.26	58	164950	10518.262	pg	99
11) Trichlorofluoromethane	6.48	101	75472	2285.502	pg	100
12) 1,1-Dichloroethene	7.20	96	55361	2408.300	pg	100
13) Methylene Chloride	7.34	84	56375	2298.314	pg	100
14) Trichlorotrifluoroethane	7.66	151	55413	2499.960	pg	100
15) trans-1,2-Dichloroethene	8.37	96	58249	2430.122	pg	100
16) 1,1-Dichloroethane	8.58	63	86003	2232.771	pg	100
17) Methyl tert-Butyl Ether	8.65	73	157062	2492.074	pg	100
18) cis-1,2-Dichloroethene	9.46	96	61935	2451.337	pg	100
19) Chloroform	9.76	83	92106	2257.008	pg	100
21) 1,2-Dichloroethane	10.51	62	59913	2305.481	pg	100
22) 1,1,1-Trichloroethane	10.78	97	82673	2408.056	pg	100
23) Benzene	11.24	78	228757	2310.852	pg	100
24) Carbon Tetrachloride	11.39	117	74610	2607.341	pg	100
26) 1,2-Dichloropropane	12.05	63	53939	2367.371	pg	100
27) Bromodichloromethane	12.23	83	71772	2408.860	pg	100
28) Trichloroethene	12.28	130	67683	2482.294	pg	100
29) 1,4-Dioxane	12.25	88	47932	2505.756	pg	100
30) cis-1,3-Dichloropropene	13.12	75	91226	2621.426	pg	100
31) trans-1,3-Dichloropropene	13.63	75	74271	2543.223	pg	100
32) 1,1,2-Trichloroethane	13.82	83	47300	2415.775	pg	100
34) Toluene	14.11	91	242532	2385.367	pg	100
35) Dibromochloromethane	14.53	129	66689	2518.909	pg	100
36) 1,2-Dibromoethane	14.78	107	64147	2463.596	pg	100
37) Tetrachloroethene	15.27	166	72061	2477.854	pg	100
39) Chlorobenzene	15.97	112	166856	2821.949	pg	100
40) Ethylbenzene	16.35	91	264742	2938.571	pg	100
41) m,p-Xylene	16.53	91	415079	6005.807	pg	100
42) Styrene	16.88	104	167353	3330.868	pg	100
43) o-Xylene	17.00	106	109222	3021.130	pg	100
44) 1,1,2,2-Tetrachloroethane	16.97	83	101378	2880.563	pg	100
46) 1,3,5-Trimethylbenzene	18.26	105	233124	3113.142	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	237136	3187.948	pg	100
48) 1,3-Dichlorobenzene	18.81	146	147647	3021.932	pg	100
49) 1,4-Dichlorobenzene	18.87	146	144480	2948.335	pg	100
50) 1,2-Dichlorobenzene	19.20	146	143580	3076.915	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	50123	3218.489	pg	100
52) 1,2,4-Trichlorobenzene	20.83	182	90778	3195.972	pg	100
53) Naphthalene	20.94	128	284738	2959.037	pg	100

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Data File : I:\MS19\DATA\2018 10\01\10011812.D Vial: 14  
Acq On : 1 Oct 2018 15:36 Operator: WA  
Sample : 2000pg S19100118 ICAL Std Inst : MS19  
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:07 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	62652	2974.146	pg	100

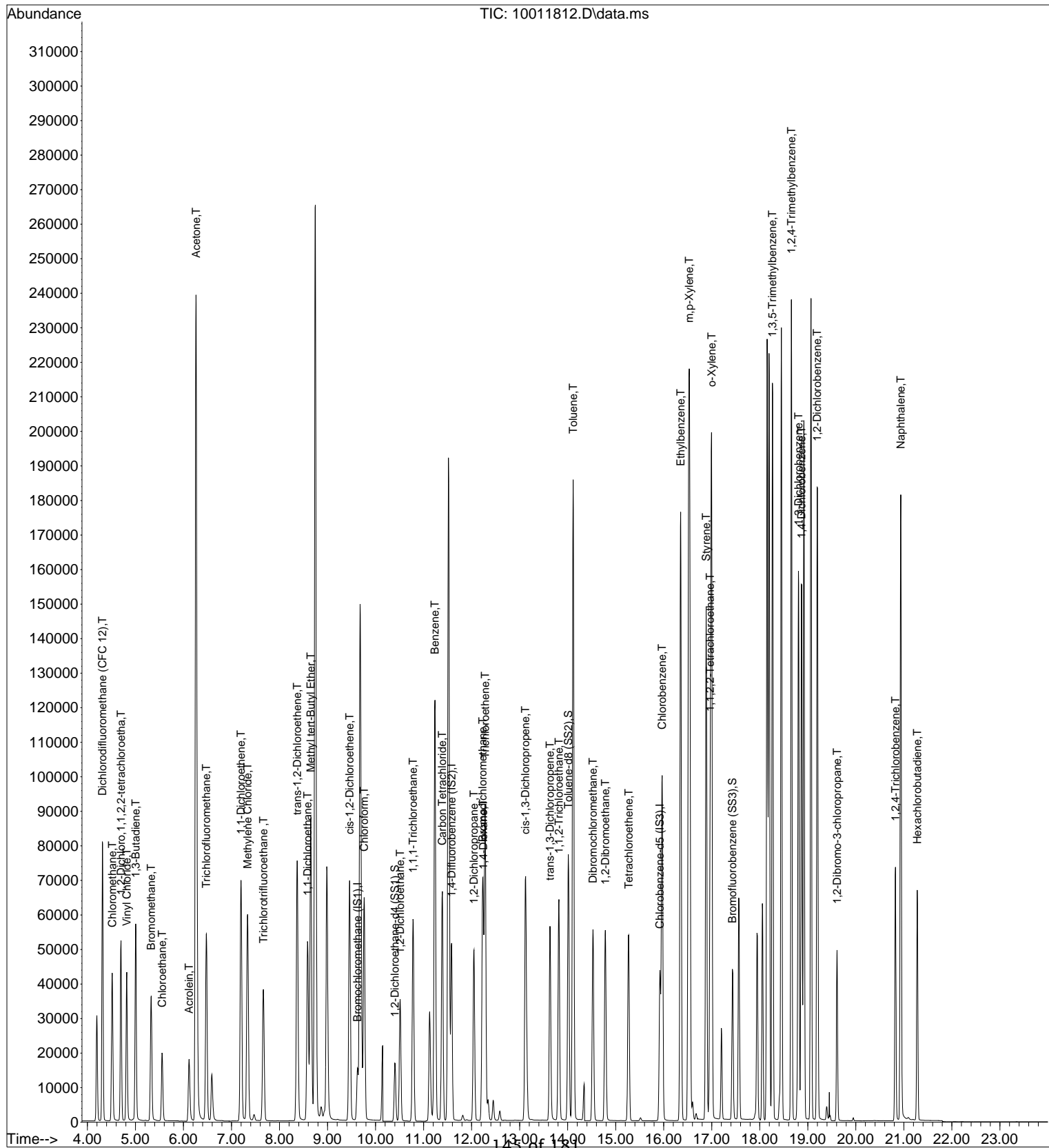
(#) = qualifier out of range (m) = manual integration (+) = signals summed



Data File : I:\MS19\DATA\2018 10\01\10011812.D  
Acq On : 1 Oct 2018 15:36  
Sample : 2000pg S19100118 ICAL Std  
Misc : S31-09241806/S31-09271802 (10/26)

Vial: 14  
Operator: WA  
Inst : MS19

Quant Time: Oct 02 06:40:07 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\01\10011813.D  
 Acq On : 1 Oct 2018 16:08  
 Sample : 5000pg S19100118 ICAL Std  
 Misc : S31-09241806/S31-09271802 (10/26)

Vial: 14  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 02 06:40:18 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Mon Oct 01 15:34:24 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

~~10/2~~ 10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.63	130	21979	1000.000	pg	0.00
25) 1,4-Difluorobenzene (IS2)	11.58	114	101793	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	15.92	54	12673	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.41	65	26270	929.023	pg	0.00
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	92.90%	
33) Toluene-d8 (SS2)	14.02	98	104343	961.947	pg	0.00
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	96.20%	
45) Bromofluorobenzene (SS3)	17.43	174	37651	1081.213	pg	0.00
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	108.12%	

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.30	85	224861	5057.482	pg	100
3) Chloromethane	4.50	52	49965	4698.112	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	156657	4896.355	pg	100
5) Vinyl Chloride	4.81	62	143597	4863.558	pg	99
6) 1,3-Butadiene	5.00	54	107512	5076.002	pg	98
7) Bromomethane	5.32	94	95338	4894.644	pg	100
8) Chloroethane	5.55	64	73709	4859.018	pg	100
9) Acrolein	6.12	56	60234	5351.844	pg	100
10) Acetone	6.26	58	385336	23653.636	pg	99
11) Trichlorofluoromethane	6.47	101	180051	5248.775	pg	100
12) 1,1-Dichloroethene	7.19	96	131183	5493.521	pg	99
13) Methylene Chloride	7.34	84	133745	5248.884	pg	99
14) Trichlorotrifluoroethane	7.66	151	124815	5420.693	pg	100
15) trans-1,2-Dichloroethene	8.37	96	139761	5612.965	pg	100
16) 1,1-Dichloroethane	8.59	63	202292	5055.638	pg	100
17) Methyl tert-Butyl Ether	8.65	73	380286	5808.537	pg	100
18) cis-1,2-Dichloroethene	9.47	96	149090	5680.442	pg	100
19) Chloroform	9.77	83	217099	5121.176	pg	100
21) 1,2-Dichloroethane	10.52	62	142125	5264.749	pg	100
22) 1,1,1-Trichloroethane	10.78	97	196324	5504.817	pg	100
23) Benzene	11.24	78	537276	5224.707	pg	100
24) Carbon Tetrachloride	11.39	117	177152	5959.552	pg	100
26) 1,2-Dichloropropane	12.05	63	128300	5440.375	pg	100
27) Bromodichloromethane	12.23	83	171061	5546.848	pg	100
28) Trichloroethene	12.29	130	159704	5658.851	pg	100
29) 1,4-Dioxane	12.25	88	114979	5807.251	pg	99
30) cis-1,3-Dichloropropene	13.12	75	223011	6191.332	pg	100
31) trans-1,3-Dichloropropene	13.63	75	184690	6110.085	pg	100
32) 1,1,2-Trichloroethane	13.82	83	111483	5501.015	pg	100
34) Toluene	14.11	91	577593	5488.414	pg	100
35) Dibromochloromethane	14.53	129	159683	5827.145	pg	100
36) 1,2-Dibromoethane	14.79	107	153521	5696.390	pg	100
37) Tetrachloroethene	15.27	166	169392	5627.391	pg	100
39) Chlorobenzene	15.97	112	395561	6358.933	pg	100
40) Ethylbenzene	16.35	91	641860	6772.001	pg	100
41) m,p-Xylene	16.53	91	994468	13677.127	pg	100
42) Styrene	16.89	104	413208	7817.287	pg	100
43) o-Xylene	17.00	106	261034	6863.091	pg	99
44) 1,1,2,2-Tetrachloroethane	16.96	83	239946	6480.531	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	558005	7082.938	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	564297	7210.825	pg	100
48) 1,3-Dichlorobenzene	18.81	146	348686	6783.565	pg	100
49) 1,4-Dichlorobenzene	18.87	146	344250	6677.386	pg	100
50) 1,2-Dichlorobenzene	19.20	146	338979	6904.907	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	121782	7432.956	pg	98
52) 1,2,4-Trichlorobenzene	20.82	182	221549	7414.051	pg	100
53) Naphthalene	20.94	128	690675	6822.477	pg	100

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Data File : I:\MS19\DATA\2018 10\01\10011813.D Vial: 14  
Acq On : 1 Oct 2018 16:08 Operator: WA  
Sample : 5000pg S19100118 ICAL Std Inst : MS19  
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:18 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

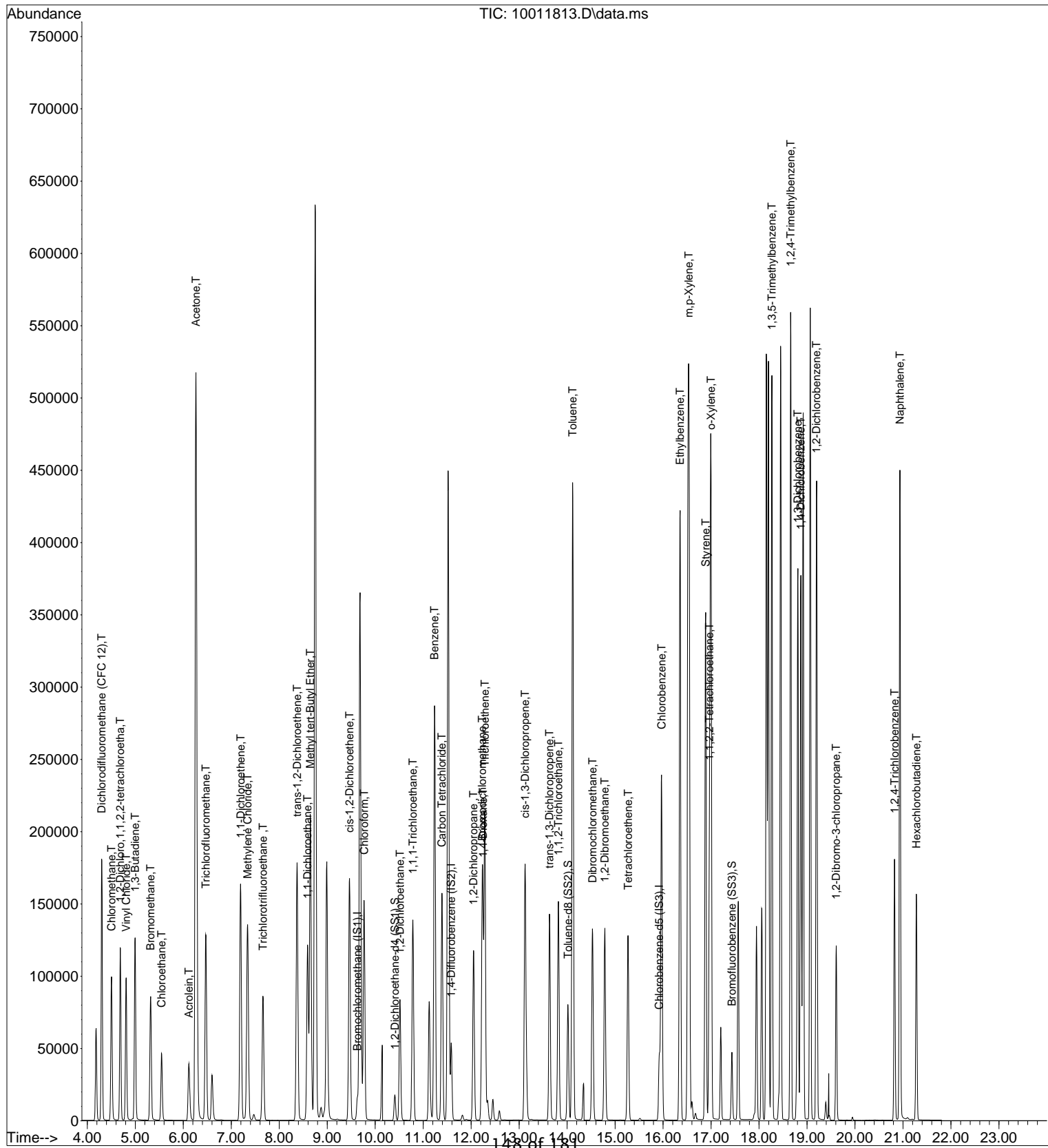
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	148497	6700.519	pg	100

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

Data File : I:\MS19\DATA\2018 10\01\10011813.D  
Acq On : 1 Oct 2018 16:08  
Sample : 5000pg S19100118 ICAL Std  
Misc : S31-09241806/S31-09271802 (10/26)

Vial: 14  
Operator: WA  
Inst : MS19

Quant Time: Oct 02 06:40:18 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\01\10011814.D  
 Acq On : 1 Oct 2018 16:39  
 Sample : 10000pg S19100118 ICAL Std  
 Misc : S31-09241806/S31-09271802 (10/26)

Vial: 14  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 02 06:40:25 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Mon Oct 01 15:34:24 2018

Response via : Initial Calibration

10/2/18

DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.64	130	21839	1000.000	pg	0.01
25) 1,4-Difluorobenzene (IS2)	11.59	114	102402	1000.000	pg	0.01
38) Chlorobenzene-d5 (IS3)	15.92	54	13188	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.42	65	26267	934.871	pg	0.01
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	93.49%
33) Toluene-d8 (SS2)	14.02	98	105337	965.336	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	96.53%
45) Bromofluorobenzene (SS3)	17.43	174	37497	1034.741	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	103.47%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.30	85	433912	9821.935	pg	100
3) Chloromethane	4.51	52	96612	9142.474	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	302197	9505.794	pg	100
5) Vinyl Chloride	4.81	62	281319	9589.213	pg	99
6) 1,3-Butadiene	5.00	54	207819	9874.732	pg	98
7) Bromomethane	5.32	94	184794	9548.126	pg	100
8) Chloroethane	5.56	64	144421	9581.501	pg	100
9) Acrolein	6.13	56	117735	10527.918	pg	100
10) Acetone	6.28	58	740502	45746.698	pg	99
11) Trichlorofluoromethane	6.48	101	350111	10271.725	pg	100
12) 1,1-Dichloroethene	7.20	96	257291	10843.589	pg	99
13) Methylene Chloride	7.35	84	261754	10338.510	pg	98
14) Trichlorotrifluoroethane	7.67	151	231594	10122.563	pg	100
15) trans-1,2-Dichloroethene	8.38	96	276102	11159.663	pg	100
16) 1,1-Dichloroethane	8.60	63	397667	10002.119	pg	100
17) Methyl tert-Butyl Ether	8.65	73	752976	11574.781	pg	100
18) cis-1,2-Dichloroethene	9.47	96	292496	11215.760	pg	100
19) Chloroform	9.78	83	424086	10067.949	pg	99
21) 1,2-Dichloroethane	10.52	62	277683	10352.177	pg	100
22) 1,1,1-Trichloroethane	10.79	97	384459	10849.125	pg	100
23) Benzene	11.24	78	1044137	10218.735	pg	100
24) Carbon Tetrachloride	11.40	117	347002	11748.291	pg	100
26) 1,2-Dichloropropane	12.05	63	250769	10570.256	pg	99
27) Bromodichloromethane	12.23	83	335620	10818.140	pg	100
28) Trichloroethene	12.29	130	311721	10979.638	pg	100
29) 1,4-Dioxane	12.25	88	225390	11316.085	pg	99
30) cis-1,3-Dichloropropene	13.12	75	441642	12188.146	pg	100
31) trans-1,3-Dichloropropene	13.64	75	370381	12180.414	pg	100
32) 1,1,2-Trichloroethane	13.82	83	218143	10700.028	pg	100
34) Toluene	14.12	91	1127023	10645.528	pg	99
35) Dibromochloromethane	14.53	129	314167	11396.386	pg	100
36) 1,2-Dibromoethane	14.79	107	302923	11173.099	pg	100
37) Tetrachloroethene	15.27	166	330033	10898.859	pg	100
39) Chlorobenzene	15.97	112	774148	11959.012	pg	100
40) Ethylbenzene	16.35	91	1261319	12787.985	pg	100
41) m,p-Xylene	16.53	91	1944860	25703.538	pg	100
42) Styrene	16.89	104	818745	14884.577	pg	100
43) o-Xylene	17.00	106	509044	12861.112	pg	99
44) 1,1,2,2-Tetrachloroethane	16.97	83	468194	12151.318	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	1089463	13288.879	pg	99
47) 1,2,4-Trimethylbenzene	18.66	105	1096552	13465.017	pg	100
48) 1,3-Dichlorobenzene	18.81	146	678792	12689.972	pg	100
49) 1,4-Dichlorobenzene	18.87	146	673906	12561.236	pg	100
50) 1,2-Dichlorobenzene	19.20	146	659009	12899.618	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	239958	14073.891	pg	98
52) 1,2,4-Trichlorobenzene	20.82	182	436487	14036.459	pg	100
53) Naphthalene	20.94	128	1354459	12856.854	pg	99

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Data File : I:\MS19\DATA\2018 10\01\10011814.D Vial: 14  
Acq On : 1 Oct 2018 16:39 Operator: WA  
Sample : 10000pg S19100118 ICAL Std Inst : MS19  
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 02 06:40:25 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

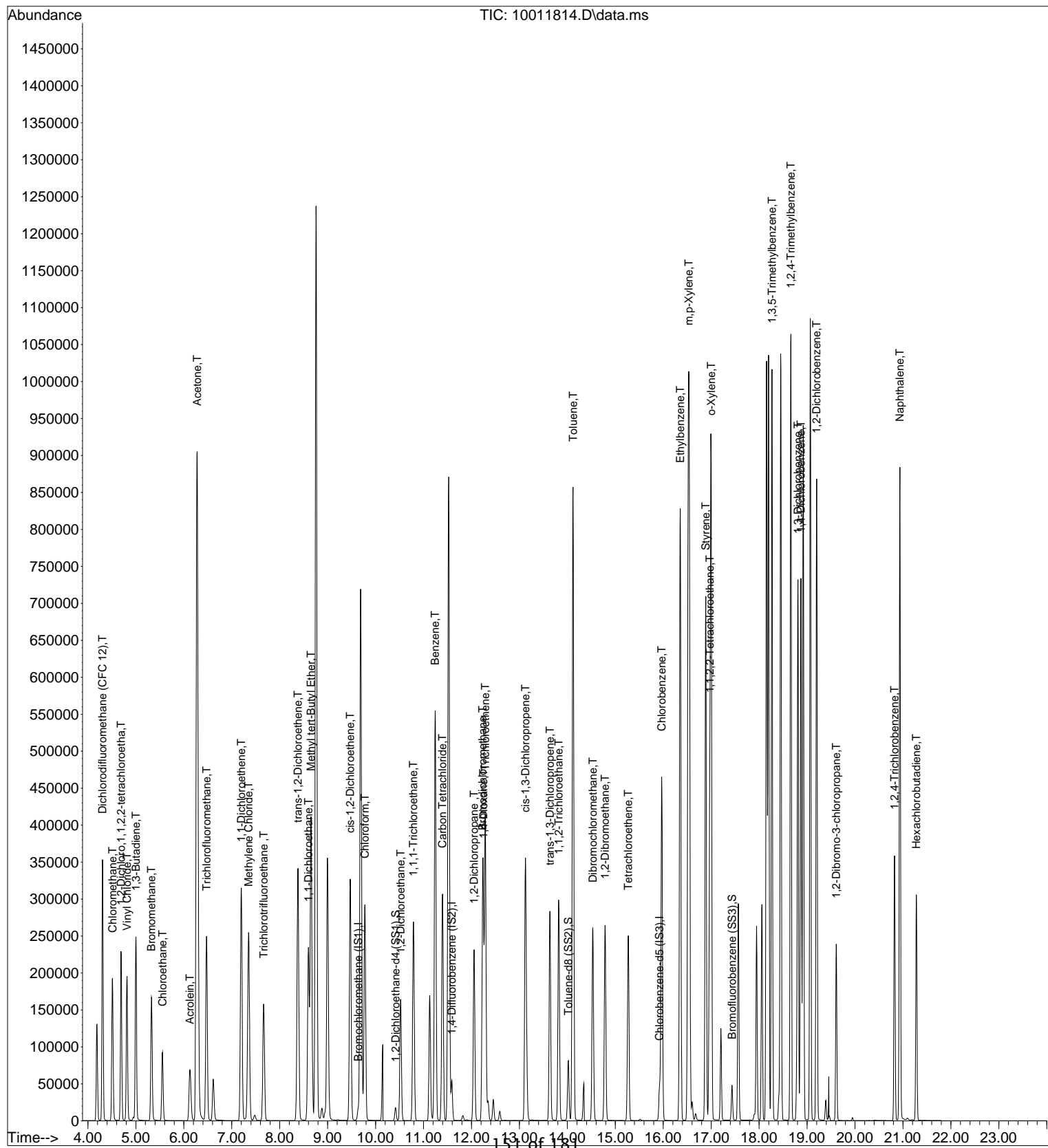
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	290485	12595.487	pg	100

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

Data File : I:\MS19\DATA\2018 10\01\10011814.D  
Acq On : 1 Oct 2018 16:39  
Sample : 10000pg S19100118 ICAL Std  
Misc : S31-09241806/S31-09271802 (10/26)

Vial: 14  
Operator: WA  
Inst : MS19

Quant Time: Oct 02 06:40:25 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\01\10011815.D  
 Acq On : 1 Oct 2018 17:11  
 Sample : 25000pg S19100118 ICAL Std  
 Misc : S31-09241806/S31-08171802

Vial: 15  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 02 06:40:32 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Mon Oct 01 15:34:24 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

~~10/1~~ 10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.65	130	22065	1000.000	pg	0.02
25) 1,4-Difluorobenzene (IS2)	11.59	114	103137	1000.000	pg	0.01
38) Chlorobenzene-d5 (IS3)	15.92	54	14496	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.42	65	26208	923.218	pg	0.02
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	92.32%
33) Toluene-d8 (SS2)	14.02	98	105918	963.743	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	96.37%
45) Bromofluorobenzene (SS3)	17.43	174	37072	930.705	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	93.07%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.30	85	1175449	26334.679	pg	100
3) Chloromethane	4.52	52	285120	26704.790	pg	100
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	837060	26060.555	pg	100
5) Vinyl Chloride	4.82	62	785255	26492.529	pg	99
6) 1,3-Butadiene	5.00	54	724653	34079.952	pg	100
7) Bromomethane	5.33	94	519739	26579.353	pg	100
8) Chloroethane	5.56	64	406431	26688.172	pg	100
9) Acrolein	6.14	56	324675	28735.223	pg	100
10) Acetone	6.29	58	1908854	116717.249	pg	97
11) Trichlorofluoromethane	6.48	101	961848	27930.127	pg	100
12) 1,1-Dichloroethene	7.20	96	715370	29840.630	pg	99
13) Methylene Chloride	7.36	84	723597	28287.216	pg	99
14) Trichlorotrifluoroethane	7.66	151	694310	30036.229	pg	100
15) trans-1,2-Dichloroethene	8.39	96	765357	30617.830	pg	100
16) 1,1-Dichloroethane	8.61	63	1104862	27504.851	pg	100
17) Methyl tert-Butyl Ether	8.66	73	2101384	31971.710	pg	100
18) cis-1,2-Dichloroethene	9.48	96	805588	30573.883	pg	100
19) Chloroform	9.79	83	1169368	27476.859	pg	100
21) 1,2-Dichloroethane	10.53	62	755703	27884.467	pg	100
22) 1,1,1-Trichloroethane	10.79	97	1057295	29530.422	pg	100
23) Benzene	11.25	78	2854604	27651.222	pg	100
24) Carbon Tetrachloride	11.40	117	961856	32231.581	pg	100
26) 1,2-Dichloropropane	12.06	63	682689	28571.203	pg	99
27) Bromodichloromethane	12.24	83	921769	29499.918	pg	100
28) Trichloroethene	12.29	130	864600	30236.473	pg	100
29) 1,4-Dioxane	12.25	88	611449	30480.055	pg	99
30) cis-1,3-Dichloropropene	13.13	75	1208471	33112.919	pg	100
31) trans-1,3-Dichloropropene	13.64	75	1026925	33530.964	pg	100
32) 1,1,2-Trichloroethane	13.82	83	596957	29072.383	pg	99
34) Toluene	14.12	91	3069160	28783.785	pg	99
35) Dibromochloromethane	14.53	129	867155	31231.818	pg	100
36) 1,2-Dibromoethane	14.79	107	828968	30357.996	pg	99
37) Tetrachloroethene	15.27	166	904671	29662.536	pg	100
39) Chlorobenzene	15.97	112	2118495	29773.474	pg	99
40) Ethylbenzene	16.35	91	3438163	31712.787	pg	99
41) m,p-Xylene	16.54	91	5280531	63491.109	pg	98
42) Styrene	16.89	104	2328920	38518.836	pg	100
43) o-Xylene	17.00	106	1400023	32180.229	pg	98
44) 1,1,2,2-Tetrachloroethane	16.97	83	1255875	29653.416	pg	99
46) 1,3,5-Trimethylbenzene	18.27	105	2991368	33195.290	pg	98
47) 1,2,4-Trimethylbenzene	18.66	105	2955963	33022.309	pg	99
48) 1,3-Dichlorobenzene	18.81	146	1865896	31735.267	pg	99
49) 1,4-Dichlorobenzene	18.87	146	1859677	31535.616	pg	99
50) 1,2-Dichlorobenzene	19.20	146	1770377	31526.955	pg	99
51) 1,2-Dibromo-3-chloropr...	19.61	157	637450	34013.852	pg	97
52) 1,2,4-Trichlorobenzene	20.82	182	1195622	34979.283	pg	100
53) Naphthalene	20.93	128	4087226	35296.226	pg	99

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Data File : I:\MS19\DATA\2018 10\01\10011815.D Vial: 15  
Acq On : 1 Oct 2018 17:11 Operator: WA  
Sample : 25000pg S19100118 ICAL Std Inst : MS19  
Misc : S31-09241806/S31-08171802

Quant Time: Oct 02 06:40:32 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

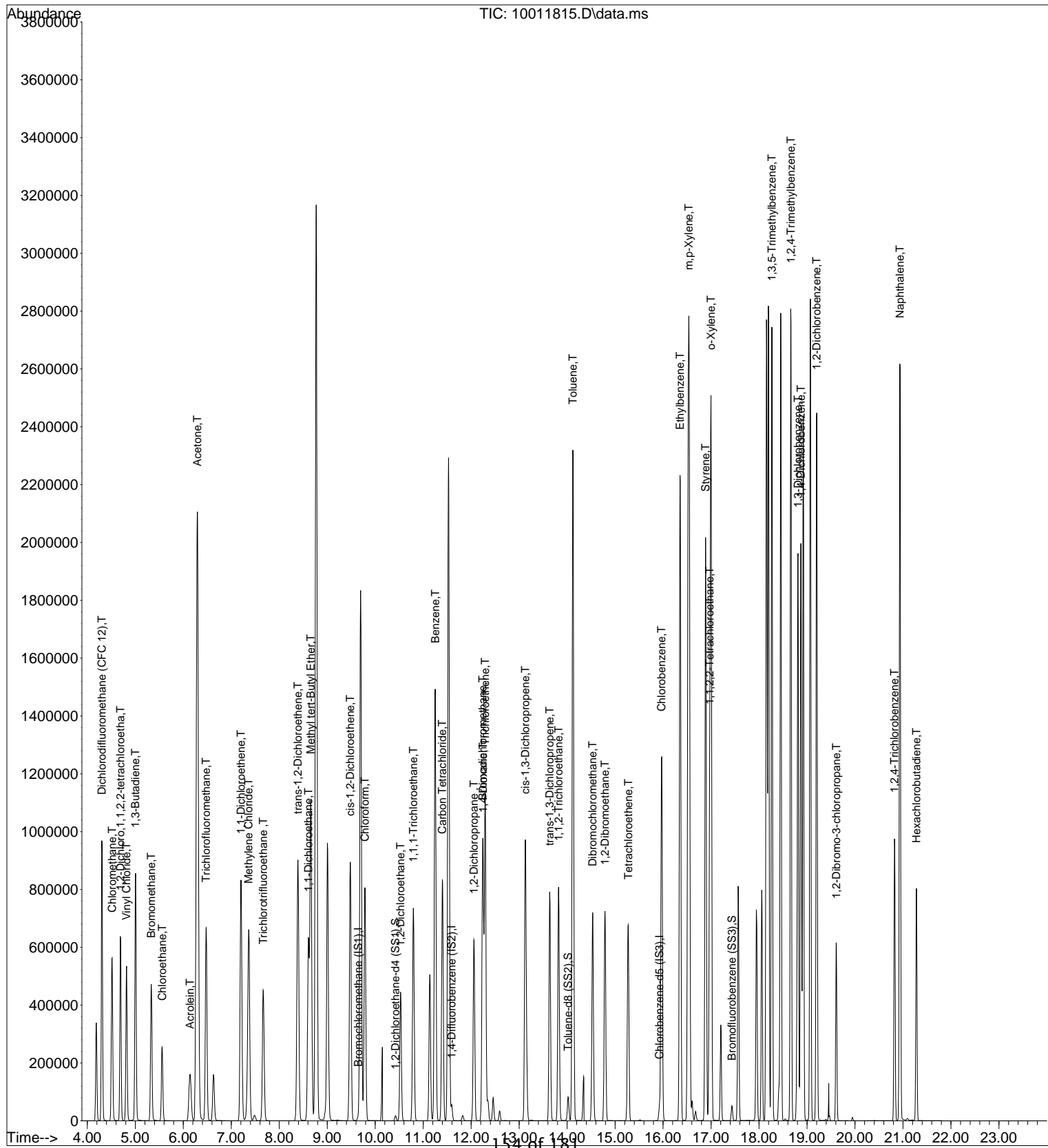
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	765922	30213.883	pg	100

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

Data File : I:\MS19\DATA\2018 10\01\10011815.D  
Acq On : 1 Oct 2018 17:11  
Sample : 25000pg S19100118 ICAL Std  
Misc : S31-09241806/S31-08171802

Vial: 15  
Operator: WA  
Inst : MS19

Quant Time: Oct 02 06:40:32 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\01\10011816.D  
 Acq On : 1 Oct 2018 17:43  
 Sample : 50000pg S19100118 ICAL Std  
 Misc : S31-09241806/S31-08171802

Vial: 15  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 02 06:40:38 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Mon Oct 01 15:34:24 2018

Response via : Initial Calibration

~~WA~~ 10/2/18

DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.65	130	21786	1000.000	pg	0.03
25) 1,4-Difluorobenzene (IS2)	11.60	114	102151	1000.000	pg	0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	16136	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.43	65	25928	925.051	pg	0.03
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	92.50%
33) Toluene-d8 (SS2)	14.03	98	105227	966.697	pg	0.01
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	96.67%
45) Bromofluorobenzene (SS3)	17.43	174	36393	820.797	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	82.08%

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.30	85	2121230	48132.501	pg	99
3) Chloromethane	4.52	52	522445	49559.680	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	1608435	50717.405	pg	99
5) Vinyl Chloride	4.82	62	1449049	49513.339	pg	100
6) 1,3-Butadiene	5.01	54	1355430	64561.321	pg	100
7) Bromomethane	5.34	94	976601	50582.780	pg	100
8) Chloroethane	5.56	64	760043	50547.141	pg	100
9) Acrolein	6.15	56	609177	54605.407	pg	100
10) Acetone	6.31	58	3436847	212837.898	pg	95
11) Trichlorofluoromethane	6.48	101	1753519	51570.740	pg	100
12) 1,1-Dichloroethene	7.21	96	1308137	55265.859	pg	99
13) Methylene Chloride	7.38	84	1326001	52500.536	pg	99
14) Trichlorotrifluoroethane	7.67	151	1269075	55603.959	pg	100
15) trans-1,2-Dichloroethene	8.40	96	1402081	56808.051	pg	100
16) 1,1-Dichloroethane	8.62	63	1999424	50411.845	pg	100
17) Methyl tert-Butyl Ether	8.66	73	3831900	59047.436	pg	100
18) cis-1,2-Dichloroethene	9.49	96	1467538	56409.649	pg	100
19) Chloroform	9.80	83	2124196	50551.832	pg	100
21) 1,2-Dichloroethane	10.54	62	1370000	51198.613	pg	100
22) 1,1,1-Trichloroethane	10.80	97	1921689	54360.447	pg	99
23) Benzene	11.26	78	5170027	50720.988	pg	100
24) Carbon Tetrachloride	11.40	117	1752780	59487.455	pg	100
26) 1,2-Dichloropropane	12.06	63	1235662	52212.824	pg	100
27) Bromodichloromethane	12.24	83	1673814	54085.118	pg	100
28) Trichloroethene	12.30	130	1587270	56045.220	pg	100
29) 1,4-Dioxane	12.26	88	1137524	57251.641	pg	98
30) cis-1,3-Dichloropropene	13.13	75	2195223	60731.185	pg	99
31) trans-1,3-Dichloropropene	13.64	75	1893529	62423.935	pg	99
32) 1,1,2-Trichloroethane	13.82	83	1091659	53678.017	pg	99
34) Toluene	14.12	91	5513325	52205.209	pg	98
35) Dibromochloromethane	14.54	129	1588204	57753.550	pg	100
36) 1,2-Dibromoethane	14.79	107	1520188	56208.824	pg	99
37) Tetrachloroethene	15.27	166	1650507	54639.518	pg	99
39) Chlorobenzene	15.97	112	3848880	48594.681	pg	99
40) Ethylbenzene	16.36	91	6159455	51039.044	pg	97
41) m,p-Xylene	16.54	91	9382796	101349.097	pg	96
42) Styrene	16.89	104	4208085	62525.242	pg	100
43) o-Xylene	17.01	106	2533620	52317.591	pg	96
44) 1,1,2,2-Tetrachloroethane	16.97	83	2260027	47939.581	pg	99
46) 1,3,5-Trimethylbenzene	18.27	105	5320337	53039.334	pg	97
47) 1,2,4-Trimethylbenzene	18.67	105	5158974	51775.474	pg	98
48) 1,3-Dichlorobenzene	18.81	146	3402479	51987.923	pg	99
49) 1,4-Dichlorobenzene	18.87	146	3442390	52441.629	pg	99
50) 1,2-Dichlorobenzene	19.20	146	3230938	51688.888	pg	99
51) 1,2-Dibromo-3-chloropr...	19.61	157	1191870	57133.507	pg	97
52) 1,2,4-Trichlorobenzene	20.83	182	2298722	60416.526	pg	100
53) Naphthalene	20.94	128	7596985	58937.700	pg	98

Data File : I:\MS19\DATA\2018 10\01\10011816.D Vial: 15  
Acq On : 1 Oct 2018 17:43 Operator: WA  
Sample : 50000pg S19100118 ICAL Std Inst : MS19  
Misc : S31-09241806/S31-08171802

Quant Time: Oct 02 06:40:38 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

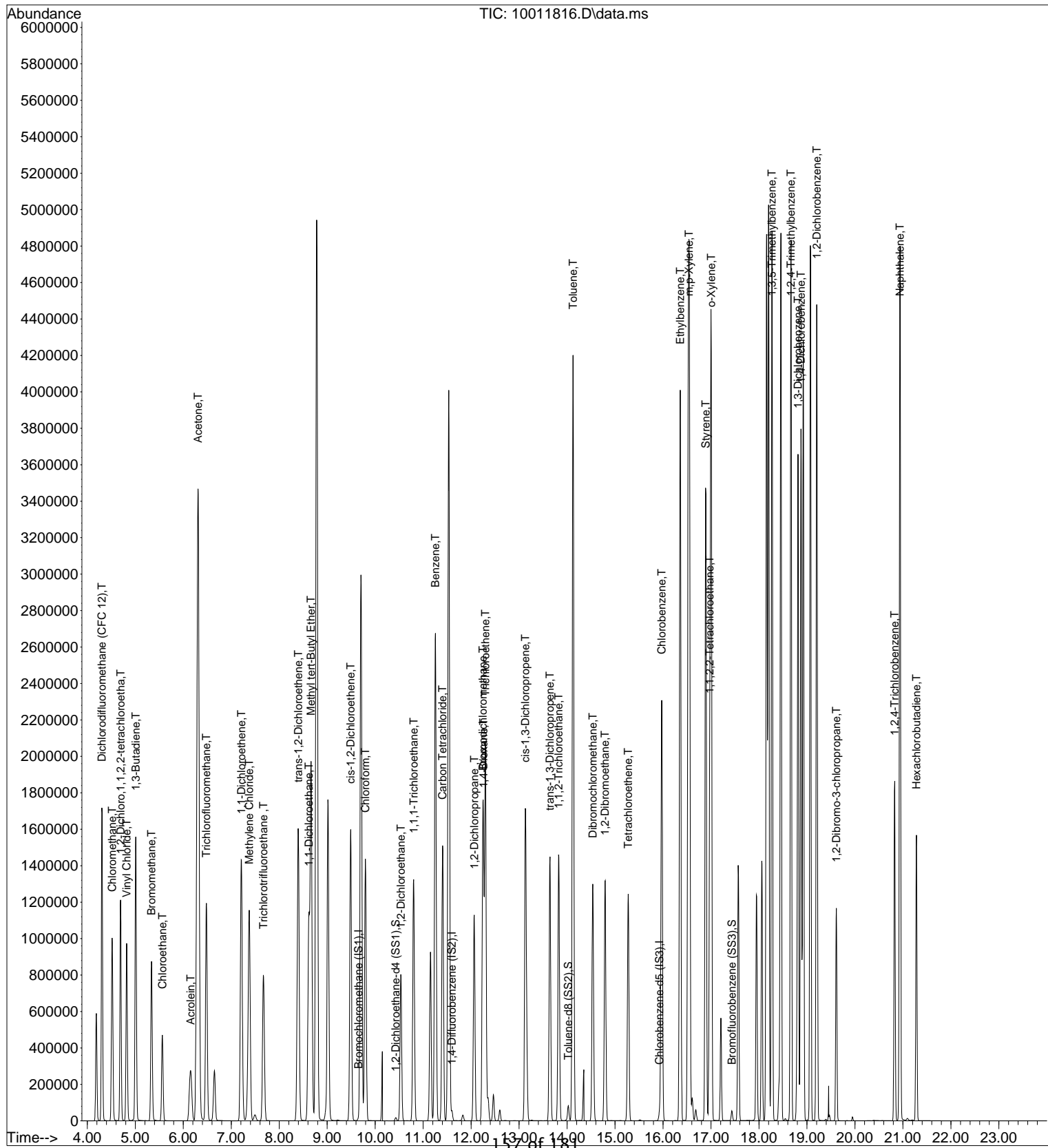
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	1462036	51812.239	pg	99

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

Data File : I:\MS19\DATA\2018 10\01\10011816.D  
Acq On : 1 Oct 2018 17:43  
Sample : 50000pg S19100118 ICAL Std  
Misc : S31-09241806/S31-08171802

Vial: 15  
Operator: WA  
Inst : MS19

Quant Time: Oct 02 06:40:38 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Mon Oct 01 15:34:24 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\01\10011819.D  
 Acq On : 1 Oct 2018 19:18  
 Sample : 1000pg S19100118 ICV Std  
 Misc : S31-09241806/S31-09271801 (10/26)

Vial: 9  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 02 06:50:02 2018  
 Quant Method : I:\MS19\METHODS\S19100118.M  
 Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
 QLast Update : Tue Oct 02 06:45:50 2018  
 Response via : Initial Calibration  
 DataAcq Meth:TO15SIM.M

10/2/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19284	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	90340	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11755	1000.000	pg	0.00

## System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	23710	1027.119	pg	-0.03
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	102.71%
33) Toluene-d8 (SS2)	14.01	98	94591	1015.329	pg	-0.01
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	101.53%
45) Bromofluorobenzene (SS3)	17.43	174	33942	1021.858	pg	0.00
Spiked Amount	1000.000	Range	70 - 130	Recovery	=	102.19%

## Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.31	85	46083	1121.528	pg	100
3) Chloromethane	4.51	52	10852	1129.477	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	30940	1044.589	pg	100
5) Vinyl Chloride	4.81	62	30208	1132.157	pg	99
6) 1,3-Butadiene	5.00	54	21243	1053.174	pg	99
7) Bromomethane	5.32	94	19977	1065.743	pg	100
8) Chloroethane	5.55	64	15635	1119.941	pg	100
9) Acrolein	6.11	56	12939	1146.554	pg	100
10) Acetone	6.26	58	88055	6154.623	pg	98
11) Trichlorofluoromethane	6.47	101	35243	1096.742	pg	100
12) 1,1-Dichloroethene	7.19	96	25399	1116.905	pg	98
13) Methylene Chloride	7.33	84	26395	1108.033	pg	97
14) Trichlorotrifluoroethane	7.66	151	23781	1055.913	pg	100
15) trans-1,2-Dichloroethene	8.37	96	27072	1144.238	pg	100
16) 1,1-Dichloroethane	8.58	63	41751	1130.659	pg	100
17) Methyl tert-Butyl Ether	8.65	73	74261	1187.632	pg	100
18) cis-1,2-Dichloroethene	9.45	96	28325	1124.817	pg	100
19) Chloroform	9.76	83	43586	1094.105	pg	100
21) 1,2-Dichloroethane	10.51	62	28072	1139.290	pg	100
22) 1,1,1-Trichloroethane	10.78	97	37540	1110.996	pg	100
23) Benzene	11.23	78	108739	1086.513	pg	100
24) Carbon Tetrachloride	11.39	117	33790	1095.581	pg	100
26) 1,2-Dichloropropane	12.05	63	25221	1120.876	pg	99
27) Bromodichloromethane	12.23	83	32895	1101.339	pg	100
28) Trichloroethene	12.28	130	30568	1082.906	pg	100
29) 1,4-Dioxane	12.24	88	21765	1127.020	pg	99
30) cis-1,3-Dichloropropene	13.12	75	39716	1130.707	pg	100
31) trans-1,3-Dichloropropene	13.63	75	34545	1168.397	pg	100
32) 1,1,2-Trichloroethane	13.82	83	21609	1101.495	pg	99
34) Toluene	14.11	91	112377	1089.448	pg	100
35) Dibromochloromethane	14.53	129	28858	1044.324	pg	100
36) 1,2-Dibromoethane	14.78	107	29006	1095.765	pg	100
37) Tetrachloroethene	15.27	166	32294	1063.904	pg	100
39) Chlorobenzene	15.97	112	76186	1070.522	pg	100
40) Ethylbenzene	16.35	91	121902	1124.844	pg	99
41) m,p-Xylene	16.53	91	189199	2283.309	pg	99
42) Styrene	16.89	104	74123	1126.202	pg	100
43) o-Xylene	17.00	106	49274	1118.508	pg	99
44) 1,1,2,2-Tetrachloroethane	16.97	83	44182	1045.205	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	104660	1129.574	pg	99
47) 1,2,4-Trimethylbenzene	18.66	105	105037	1136.389	pg	100
48) 1,3-Dichlorobenzene	18.81	146	62869	1041.138	pg	100
49) 1,4-Dichlorobenzene	18.87	146	62994	1038.808	pg	100
50) 1,2-Dichlorobenzene	19.20	146	60465	1043.433	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	19998	1000.839	pg	98
52) 1,2,4-Trichlorobenzene	20.83	182	35513	1035.223	pg	100
53) Naphthalene	20.94	128	158646	1004.925	pg	100

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Data File : I:\MS19\DATA\2018 10\01\10011819.D  
Acq On : 1 Oct 2018 19:18  
Sample : 1000pg S19100118 ICV Std  
Misc : S31-09241806/S31-09271801 (10/26)

Vial: 9  
Operator: WA  
Inst : MS19

Quant Time: Oct 02 06:50:02 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

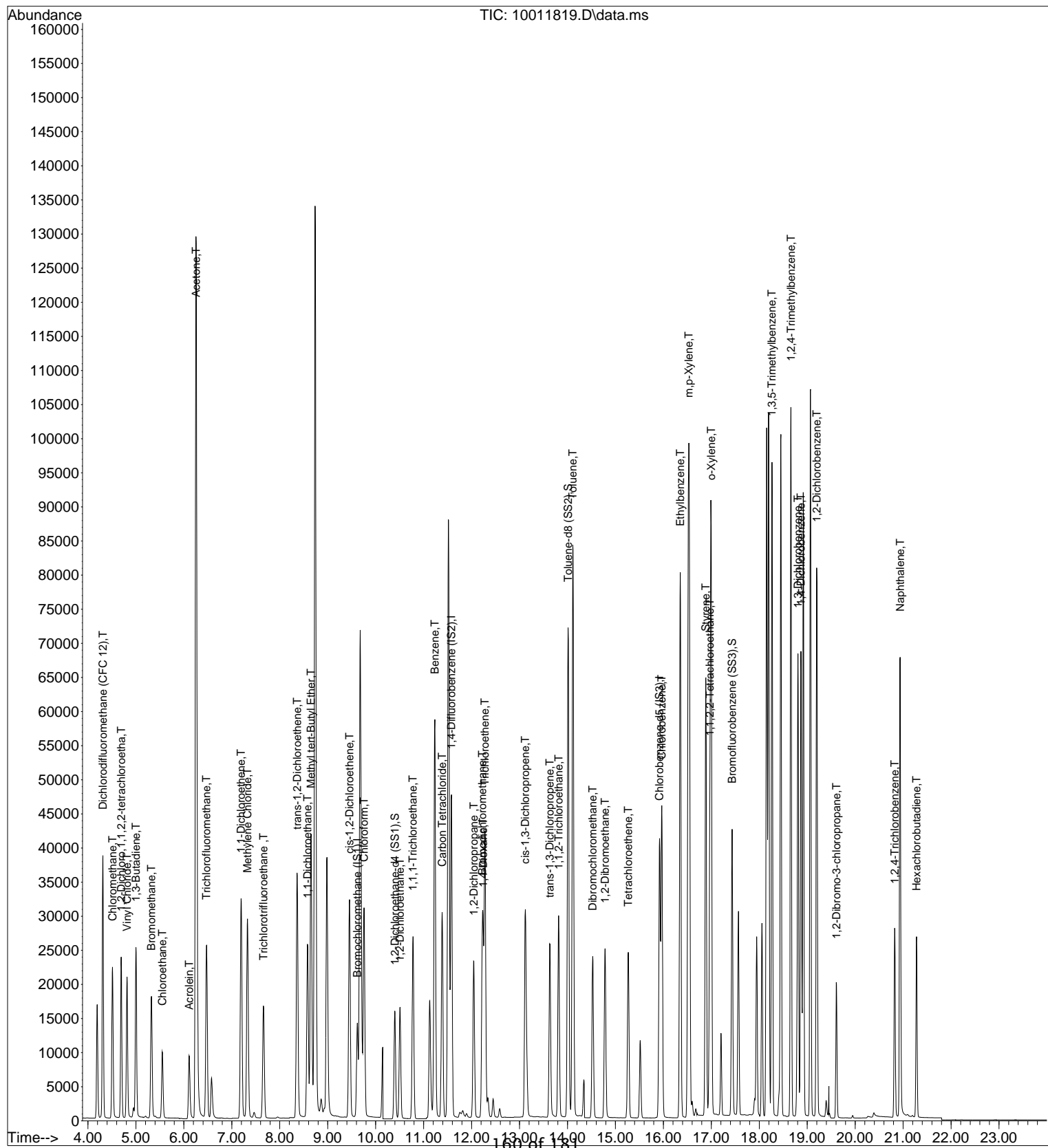
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	25301	1003.657	pg	100

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

Data File : I:\MS19\DATA\2018 10\01\10011819.D  
Acq On : 1 Oct 2018 19:18  
Sample : 1000pg S19100118 ICV Std  
Misc : S31-09241806/S31-09271801 (10/26)

Vial: 9  
Operator: WA  
Inst : MS19

Quant Time: Oct 02 06:50:02 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M





## Laboratory Control Sample Recovery Check Sheet - MS19

Data File Name: 10011819.D  
 Data File Path: I:\MS19\DATA\2018\_10\01\  
 Operator: WA  
 Instrument Name: MS19  
 Sample Name: 1000pg S19100118 ICV Std  
 Misc Info: S31-09241806/S31-09271801 (10/26)  
 Date Acquired: 10/1/18 19:18  
 Acq. Method File: TO15SIM.M

10/2/18

#	Compound Name	Ret. Time	Amount Spiked (pg)	Amount Found (pg)	Percent Recovery	Lower Limit	Upper Limit	Flag	70-130% Method
2)	Dichlorodifluoromethane (CFC 12)	4.31	1052.0	1121.5	107	80	130	*	*
3)	Chloromethane	4.51	1055.0	1129.5	107	54	144	*	*
4)	1,2-Dichloro,1,1,2,2-tetrachloroetha *	4.69	1055.0	1044.6	99	65	125	*	*
5)	Vinyl Chloride	4.81	1069.0	1132.2	106	65	136	*	*
6)	1,3-Butadiene *	5.00	1051.0	1053.2	100	27	154	*	*
7)	Bromomethane	5.32	1059.0	1065.7	101	71	126	*	*
8)	Chloroethane	5.55	1070.0	1119.9	105	71	129	*	*
9)	Acrolein *	6.11	1025.0	1146.6	112	49	117	*	*
10)	Acetone	6.26	5293.0	6154.6	116	62	158	*	*
11)	Trichlorofluoromethane	6.47	1056.0	1096.7	104	82	122	*	*
12)	1,1-Dichloroethene	7.19	1089.0	1116.9	103	76	120	*	*
13)	Methylene Chloride	7.33	1083.0	1108.0	102	76	120	*	*
14)	Trichlorotrifluoroethane	7.66	1078.0	1055.9	98	77	118	*	*
15)	trans-1,2-Dichloroethene	8.37	1069.0	1144.2	107	73	124	*	*
16)	1,1-Dichloroethane	8.58	1078.0	1130.7	105	71	126	*	*
17)	Methyl tert-Butyl Ether	8.65	1072.0	1187.6	111	69	125	*	*
18)	cis-1,2-Dichloroethene	9.45	1054.0	1124.8	107	76	121	*	*
19)	Chloroform	9.76	1083.0	1094.1	101	80	121	*	*
21)	1,2-Dichloroethane	10.51	1074.0	1139.3	106	68	126	*	*
22)	1,1,1-Trichloroethane	10.78	1076.0	1111.0	103	75	121	*	*
25)	Benzene	11.23	1055.0	1086.5	103	76	126	*	*
24)	Carbon Tetrachloride	11.39	1058.0	1095.6	104	78	117	*	*
26)	1,2-Dichloropropane	12.05	1079.0	1120.9	104	65	126	*	*
27)	Bromodichloromethane	12.23	1073.0	1101.3	103	72	119	*	*
28)	Trichloroethene	12.28	1067.0	1082.9	101	73	121	*	*
29)	1,4-Dioxane	12.24	1069.0	1127.0	105	66	119	*	*
30)	cis-1,3-Dichloropropene	13.12	1071.0	1130.7	106	60	122	*	*
31)	trans-1,3-Dichloropropene	13.63	1064.0	1168.4	110	58	122	*	*
32)	1,1,2-Trichloroethane	13.82	1074.0	1101.5	103	68	124	*	*
34)	Toluene	14.01	1060.0	1089.4	103	69	122	*	*
35)	Dibromochloromethane *	14.53	1064.0	1044.3	98	71	114	*	*
36)	1,2-Dibromoethane	14.78	1081.0	1095.8	101	71	119	*	*
37)	Tetrachloroethene	15.27	1064.0	1063.9	100	72	118	*	*
39)	Chlorobenzene	15.97	1073.0	1070.5	100	76	123	*	*
40)	Ethylbenzene	16.35	1061.0	1124.8	106	76	122	*	*
41)	m,p-Xylene	16.53	2131.0	2283.3	107	73	126	*	*
42)	Styrene *	16.89	1060.0	1126.2	106	53	129	*	*
43)	o-Xylene	17.00	1070.0	1118.5	105	70	129	*	*
44)	1,1,2,2-Tetrachloroethane	16.97	1072.0	1045.2	98	73	123	*	*
46)	1,3,5-Trimethylbenzene	18.27	1069.0	1129.6	106	63	132	*	*
47)	1,2,4-Trimethylbenzene *	18.66	1076.0	1136.4	106	57	134	*	*
48)	1,3-Dichlorobenzene	18.81	1079.0	1041.1	96	59	133	*	*
49)	1,4-Dichlorobenzene	18.87	1080.0	1038.8	96	59	125	*	*
50)	1,2-Dichlorobenzene	19.20	1078.0	1043.4	97	60	127	*	*
51)	1,2-Dibromo-3-chloropropane *	19.61	1046.0	1000.8	96	48	132	*	*
52)	1,2,4-Trichlorobenzene	20.83	1071.0	1035.2	97	36	136	*	*
53)	Naphthalene	19.20	1015.0	1004.9	99	26	143	*	*
54)	Hexachlorobutadiene	21.28	1045.0	1003.7	96	41	144	*	*

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

Data File : I:\MS19\DATA\2018 10\12\10121802.D  
 Acq On : 12 Oct 2018 3:46  
 Sample : CCV S19101218 1000pg  
 Misc : S31-09241806/S31-09271802 (10/26)

Vial: 16  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 12 09:03:14 2018  
 Quant Method : I:\MS19\METHODS\S19100118.M  
 Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
 QLast Update : Tue Oct 02 06:45:50 2018  
 Response via : Initial Calibration  
 DataAcq Meth:TO15SIM.M

~~WA~~ 10/12/18

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

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 I	Bromochloromethane (IS1)	1.000	1.000	0.0	92	-0.03
2 T	Dichlorodifluoromethane (CF	2.131	1.908	10.5	80	0.00
3 T	Chloromethane	0.498	0.438	12.0	80	0.00
4 T	1,2-Dichloro,1,1,2,2-tetrac	1.536	1.365	11.1	80	0.00
5 T	Vinyl Chloride	1.384	1.233	10.9	80	0.00
6 T	1,3-Butadiene	1.046	0.972	7.1	84	0.00
7 T	Bromomethane	0.972	0.845	13.1	80	-0.01
8 T	Chloroethane	0.724	0.634	12.4	80	0.00
9 T	Acrolein	0.585	0.490	16.2	79	-0.04
10 T	Acetone	0.742	0.652	12.1	82	-0.05
11 T	Trichlorofluoromethane	1.666	1.479	11.2	80	0.00
12 T	1,1-Dichloroethene	1.179	1.069	9.3	80	-0.01
13 T	Methylene Chloride	1.235	1.103	10.7	81	-0.04
14 T	Trichlorotrifluoroethane	1.168	1.079	7.6	80	0.00
15 T	trans-1,2-Dichloroethene	1.227	1.126	8.2	82	-0.03
16 T	1,1-Dichloroethane	1.915	1.728	9.8	80	-0.03
17 T	Methyl tert-Butyl Ether	3.243	3.044	6.1	81	0.00
18 T	cis-1,2-Dichloroethene	1.306	1.215	7.0	82	-0.03
19 T	Chloroform	2.066	1.784	13.6	80	-0.03
20 S	1,2-Dichloroethane-d4 (SS1)	1.197	1.164	2.8	90	-0.03
21 T	1,2-Dichloroethane	1.278	1.162	9.1	80	-0.03
22 T	1,1,1-Trichloroethane	1.752	1.593	9.1	81	-0.02
23 T	Benzene	5.190	4.439	14.5	80	-0.02
24 T	Carbon Tetrachloride	1.599	1.459	8.8	81	-0.02
25 I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	91	-0.02
26 T	1,2-Dichloropropane	0.249	0.227	8.8	80	-0.02
27 T	Bromodichloromethane	0.331	0.302	8.8	80	-0.02
28 T	Trichloroethene	0.312	0.290	7.1	81	-0.02
29 T	1,4-Dioxane	0.214	0.198	7.5	79	-0.01
30 T	cis-1,3-Dichloropropene	0.389	0.367	5.7	81	-0.01
31 T	trans-1,3-Dichloropropene	0.327	0.315	3.7	81	-0.01
32 T	1,1,2-Trichloroethane	0.217	0.199	8.3	80	-0.01
33 S	Toluene-d8 (SS2)	1.031	1.030	0.1	92	-0.01
34 T	Toluene	1.142	1.037	9.2	81	-0.01
35 T	Dibromochloromethane	0.306	0.284	7.2	81	0.00
36 T	1,2-Dibromoethane	0.293	0.272	7.2	81	0.00
37 T	Tetrachloroethene	0.336	0.307	8.6	81	0.00
38 I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	92	0.00
39 T	Chlorobenzene	6.054	5.676	6.2	81	0.00
40 T	Ethylbenzene	9.219	9.117	1.1	81	0.00
41 T	m,p-Xylene	7.049	7.082	-0.5	81	0.00
42 T	Styrene	5.599	5.353	4.4	75	0.00
43 T	o-Xylene	3.748	3.749	-0.0	81	-0.01
44 T	1,1,2,2-Tetrachloroethane	3.596	3.466	3.6	80	0.00
45 S	Bromofluorobenzene (SS3)	2.826	3.119	-10.4	96	0.00
46 T	1,3,5-Trimethylbenzene	7.882	7.937	-0.7	80	0.00
47 T	1,2,4-Trimethylbenzene	7.863	8.043	-2.3	79	0.00
48 T	1,3-Dichlorobenzene	5.137	4.944	3.8	80	0.00
49 T	1,4-Dichlorobenzene	5.159	4.857	5.9	80	0.00
50 T	1,2-Dichlorobenzene	4.930	4.786	2.9	80	0.00
51 T	1,2-Dibromo-3-chloropropane	1.700	1.741	-2.4	81	0.00
52 T	1,2,4-Trichlorobenzene	2.918	2.942	-0.8	79	0.00
53 T	Naphthalene	9.197	8.693	5.5	72	0.00
54 T	Hexachlorobutadiene	2.145	2.182	-1.7	82	0.00

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Data File : I:\MS19\DATA\2018 10\12\10121802.D Vial: 16  
Acq On : 12 Oct 2018 3:46 Operator: WA  
Sample : CCV S19101218 1000pg Inst : MS19  
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 12 09:03:14 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

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

Compound	AvgRF	CCRF	%Dev Area%	Dev(min)
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(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data File : I:\MS19\DATA\2018 10\12\10121802.D  
 Acq On : 12 Oct 2018 3:46  
 Sample : CCV S19101218 1000pg  
 Misc : S31-09241806/S31-09271802 (10/26)

Vial: 16  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 12 09:03:14 2018  
 Quant Method : I:\MS19\METHODS\S19100118.M  
 Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
 QLast Update : Tue Oct 02 06:45:50 2018  
 Response via : Initial Calibration  
 DataAcq Meth:TO15SIM.M

~~10/12/18~~ 10/12/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19534	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	89611	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11132	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	22734	972.235	pg	-0.03
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	97.22%	
33) Toluene-d8 (SS2)	14.01	98	92292	998.711	pg	-0.01
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	99.87%	
45) Bromofluorobenzene (SS3)	17.43	174	34722	1103.843	pg	0.00
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	110.38%	

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.31	85	78123	1876.957	pg	100
3) Chloromethane	4.51	52	17199	1767.163	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	54435	1814.301	pg	100
5) Vinyl Chloride	4.81	62	49693	1838.595	pg	100
6) 1,3-Butadiene	5.00	54	40210	1967.997	pg	100
7) Bromomethane	5.32	94	32763	1725.487	pg	100
8) Chloroethane	5.55	64	25083	1773.711	pg	100
9) Acrolein	6.11	56	20183	1765.572	pg	99
10) Acetone	6.26	58	135599	9356.423	pg	97
11) Trichlorofluoromethane	6.48	101	60733	1865.787	pg	100
12) 1,1-Dichloroethene	7.20	96	44324	1924.175	pg	99
13) Methylene Chloride	7.33	84	45586	1889.158	pg	99
14) Trichlorotrifluoroethane	7.66	151	44397	1946.067	pg	100
15) trans-1,2-Dichloroethene	8.37	96	47551	1984.090	pg	100
16) 1,1-Dichloroethane	8.58	63	69004	1844.782	pg	100
17) Methyl tert-Butyl Ether	8.65	73	127249	2009.006	pg	100
18) cis-1,2-Dichloroethene	9.45	96	50643	1985.351	pg	100
19) Chloroform	9.76	83	73964	1832.899	pg	100
21) 1,2-Dichloroethane	10.51	62	47885	1918.519	pg	100
22) 1,1,1-Trichloroethane	10.78	97	67046	1958.830	pg	100
23) Benzene	11.24	78	183299	1808.072	pg	100
24) Carbon Tetrachloride	11.39	117	60431	1934.292	pg	100
26) 1,2-Dichloropropane	12.05	63	43276	1938.926	pg	100
27) Bromodichloromethane	12.22	83	57690	1947.199	pg	100
28) Trichloroethene	12.28	130	55078	1967.074	pg	100
29) 1,4-Dioxane	12.25	88	37784	1972.422	pg	99
30) cis-1,3-Dichloropropene	13.12	75	73749	2116.701	pg	100
31) trans-1,3-Dichloropropene	13.63	75	60173	2051.755	pg	100
32) 1,1,2-Trichloroethane	13.81	83	38010	1953.280	pg	99
34) Toluene	14.11	91	195838	1914.012	pg	100
35) Dibromochloromethane	14.53	129	54026	1971.018	pg	100
36) 1,2-Dibromoethane	14.78	107	51902	1976.663	pg	100
37) Tetrachloroethene	15.27	166	58537	1944.151	pg	100
39) Chlorobenzene	15.96	112	134713	1998.847	pg	100
40) Ethylbenzene	16.35	91	213545	2080.752	pg	100
41) m,p-Xylene	16.53	91	334749	4265.939	pg	99
42) Styrene	16.89	104	126091	2023.005	pg	100
43) o-Xylene	16.99	106	88058	2110.764	pg	100
44) 1,1,2,2-Tetrachloroethane	16.96	83	81573	2037.756	pg	100
46) 1,3,5-Trimethylbenzene	18.26	105	185376	2112.696	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	188211	2150.201	pg	100
48) 1,3-Dichlorobenzene	18.80	146	117894	2061.640	pg	100
49) 1,4-Dichlorobenzene	18.87	146	115064	2003.664	pg	100
50) 1,2-Dichlorobenzene	19.20	146	115406	2102.996	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	40737	2152.862	pg	98
52) 1,2,4-Trichlorobenzene	20.82	182	71858	2211.929	pg	100
53) Naphthalene	20.94	128	204388	1996.295	pg	100

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Data File : I:\MS19\DATA\2018 10\12\10121802.D  
Acq On : 12 Oct 2018 3:46  
Sample : CCV S19101218 1000pg  
Misc : S31-09241806/S31-09271802 (10/26)

Vial: 16  
Operator: WA  
Inst : MS19

Quant Time: Oct 12 09:03:14 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

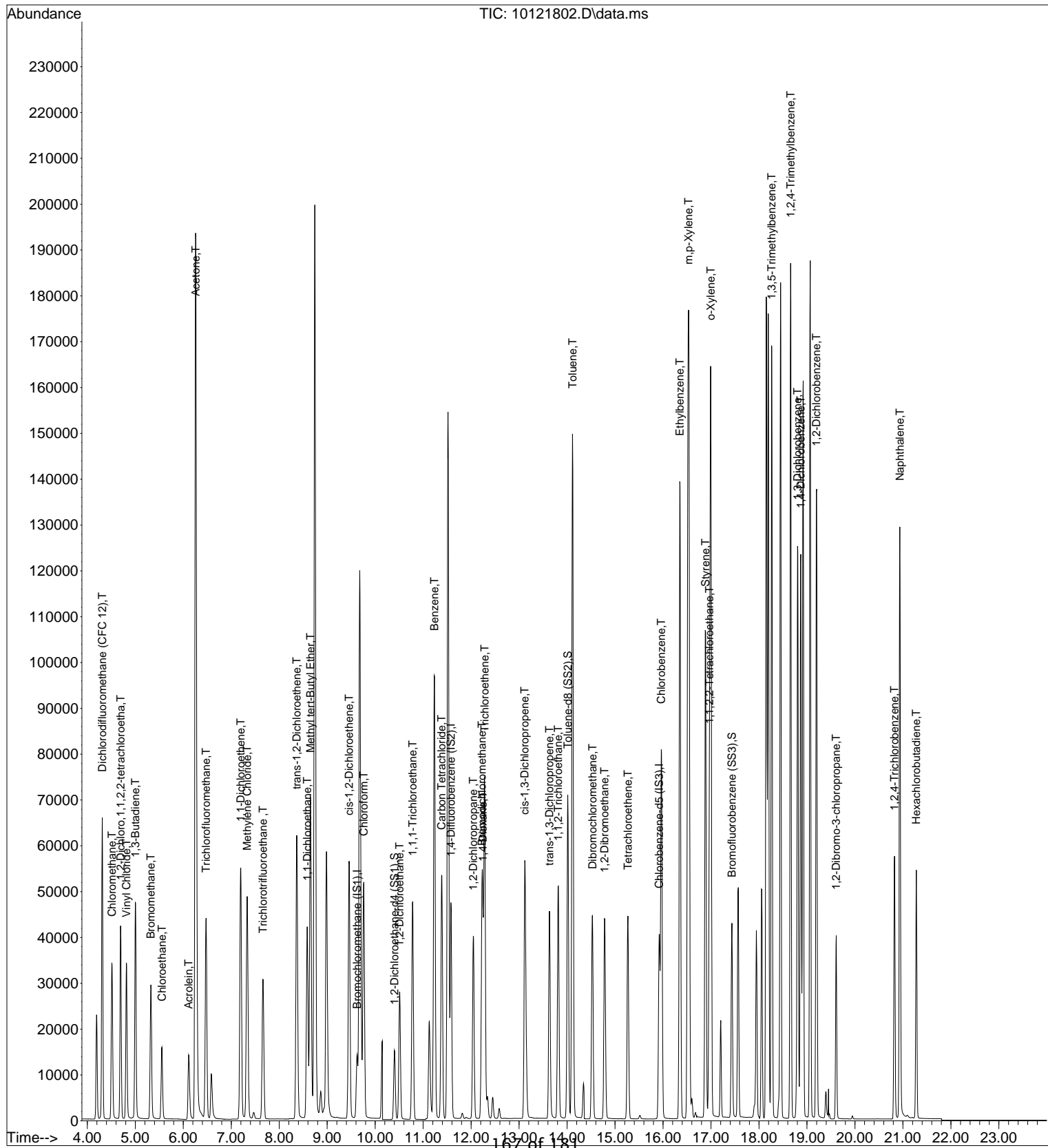
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	51345	2150.776	pg	100

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

Data File : I:\MS19\DATA\2018 10\12\10121802.D  
Acq On : 12 Oct 2018 3:46  
Sample : CCV S19101218 1000pg  
Misc : S31-09241806/S31-09271802 (10/26)

Vial: 16  
Operator: WA  
Inst : MS19

Quant Time: Oct 12 09:03:14 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M



Data File : I:\MS19\DATA\2018 10\16\10161802.D  
 Acq On : 16 Oct 2018 3:52  
 Sample : CCV S19101618 2000pg T 1000pg  
 Misc : S31-09241806/S31-09271802 (10/26)

Vial: 16  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 16 07:12:33 2018  
 Quant Method : I:\MS19\METHODS\S19100118.M  
 Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
 QLast Update : Tue Oct 02 06:45:50 2018  
 Response via : Initial Calibration  
 DataAcq Meth:TO15SIM.M

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

~~10/17/18~~ 10/17/18

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 I	Bromochloromethane (IS1)	1.000	1.000	0.0	91	-0.03
2 T	Dichlorodifluoromethane (CF	2.131	1.792	15.9	75	0.00
3 T	Chloromethane	0.498	0.408	18.1	74	0.00
4 T	1,2-Dichloro,1,1,2,2-tetra	1.536	1.279	16.7	75	0.00
5 T	Vinyl Chloride	1.384	1.159	16.3	75	0.00
6 T	1,3-Butadiene	1.046	0.931	11.0	79	0.00
7 T	Bromomethane	0.972	0.791	18.6	74	-0.01
8 T	Chloroethane	0.724	0.594	18.0	74	-0.01
9 T	Acrolein	0.585	0.457	21.9	73	-0.04
10 T	Acetone	0.742	0.627	15.5	78	-0.05
11 T	Trichlorofluoromethane	1.666	1.393	16.4	75	-0.01
12 T	1,1-Dichloroethene	1.179	1.044	11.5	77	-0.02
13 T	Methylene Chloride	1.235	1.038	16.0	75	-0.04
14 T	Trichlorotrifluoroethane	1.168	1.027	12.1	75	0.00
15 T	trans-1,2-Dichloroethene	1.227	1.061	13.5	76	-0.03
16 T	1,1-Dichloroethane	1.915	1.627	15.0	75	-0.03
17 T	Methyl tert-Butyl Ether	3.243	2.841	12.4	75	-0.01
18 T	cis-1,2-Dichloroethene	1.306	1.137	12.9	76	-0.03
19 T	Chloroform	2.066	1.695	18.0	76	-0.04
20 S	1,2-Dichloroethane-d4 (SS1)	1.197	1.171	2.2	90	-0.03
21 T	1,2-Dichloroethane	1.278	1.098	14.1	75	-0.03
22 T	1,1,1-Trichloroethane	1.752	1.507	14.0	76	-0.02
23 T	Benzene	5.190	4.293	17.3	77	-0.02
24 T	Carbon Tetrachloride	1.599	1.380	13.7	76	-0.02
25 I	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	90	-0.02
26 T	1,2-Dichloropropane	0.249	0.214	14.1	75	-0.02
27 T	Bromodichloromethane	0.331	0.287	13.3	76	-0.02
28 T	Trichloroethene	0.312	0.274	12.2	76	-0.02
29 T	1,4-Dioxane	0.214	0.186	13.1	73	-0.02
30 T	cis-1,3-Dichloropropene	0.389	0.345	11.3	75	-0.01
31 T	trans-1,3-Dichloropropene	0.327	0.294	10.1	75	-0.01
32 T	1,1,2-Trichloroethane	0.217	0.189	12.9	76	-0.01
33 S	Toluene-d8 (SS2)	1.031	1.030	0.1	91	-0.01
34 T	Toluene	1.142	0.983	13.9	76	-0.01
35 T	Dibromochloromethane	0.306	0.270	11.8	76	0.00
36 T	1,2-Dibromoethane	0.293	0.257	12.3	76	0.00
37 T	Tetrachloroethene	0.336	0.292	13.1	77	0.00
38 I	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	93	0.00
39 T	Chlorobenzene	6.054	5.323	12.1	77	0.00
40 T	Ethylbenzene	9.219	8.654	6.1	77	0.00
41 T	m,p-Xylene	7.049	6.612	6.2	76	-0.01
42 T	Styrene	5.599	4.867	13.1	69	0.00
43 T	o-Xylene	3.748	3.506	6.5	76	-0.01
44 T	1,1,2,2-Tetrachloroethane	3.596	3.255	9.5	76	0.00
45 S	Bromofluorobenzene (SS3)	2.826	3.113	-10.2	97	0.00
46 T	1,3,5-Trimethylbenzene	7.882	7.390	6.2	75	0.00
47 T	1,2,4-Trimethylbenzene	7.863	7.508	4.5	75	0.00
48 T	1,3-Dichlorobenzene	5.137	4.631	9.9	76	0.00
49 T	1,4-Dichlorobenzene	5.159	4.525	12.3	75	0.00
50 T	1,2-Dichlorobenzene	4.930	4.489	8.9	76	0.00
51 T	1,2-Dibromo-3-chloropropane	1.700	1.640	3.5	77	0.00
52 T	1,2,4-Trichlorobenzene	2.918	2.801	4.0	76	0.00
53 T	Naphthalene	9.197	7.904	14.1	66	0.00
54 T	Hexachlorobutadiene	2.145	2.078	3.1	79	0.00

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Data File : I:\MS19\DATA\2018 10\16\10161802.D Vial: 16  
Acq On : 16 Oct 2018 3:52 Operator: WA  
Sample : CCV S19101618 2000pg T 1000pg Inst : MS19  
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 16 07:12:33 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

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

Compound	AvgRF	CCRF	%Dev Area%	Dev(min)
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(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data File : I:\MS19\DATA\2018 10\16\10161802.D  
 Acq On : 16 Oct 2018 3:52  
 Sample : CCV S19101618 2000pg T 1000pg  
 Misc : S31-09241806/S31-09271802 (10/26)

Vial: 16  
 Operator: WA  
 Inst : MS19

Quant Time: Oct 16 07:12:33 2018

Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

DataAcq Meth:TO15SIM.M

~~10/17/18~~ 10/17/18

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.62	130	19343	1000.000	pg	-0.03
25) 1,4-Difluorobenzene (IS2)	11.58	114	88970	1000.000	pg	-0.02
38) Chlorobenzene-d5 (IS3)	15.92	54	11259	1000.000	pg	0.00

#### System Monitoring Compounds

20) 1,2-Dichloroethane-d4 ...	10.40	65	22654	978.380	pg	-0.03
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	97.84%	
33) Toluene-d8 (SS2)	14.01	98	91637	998.767	pg	-0.01
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	99.88%	
45) Bromofluorobenzene (SS3)	17.43	174	35050	1101.702	pg	0.00
Spiked Amount 1000.000	Range 70	- 130	Recovery	=	110.17%	

#### Target Compounds

						Qvalue
2) Dichlorodifluoromethan...	4.30	85	72635	1762.336	pg	100
3) Chloromethane	4.51	52	15893	1649.099	pg	99
4) 1,2-Dichloro,1,1,2,2-t...	4.69	85	50520	1700.442	pg	100
5) Vinyl Chloride	4.81	62	46287	1729.487	pg	99
6) 1,3-Butadiene	5.00	54	38151	1885.661	pg	99
7) Bromomethane	5.32	94	30377	1615.624	pg	100
8) Chloroethane	5.55	64	23248	1660.184	pg	100
9) Acrolein	6.11	56	18621	1645.016	pg	99
10) Acetone	6.26	58	129125	8997.690	pg	97
11) Trichlorofluoromethane	6.47	101	56622	1756.669	pg	100
12) 1,1-Dichloroethene	7.19	96	42871	1879.475	pg	99
13) Methylene Chloride	7.33	84	42467	1777.279	pg	99
14) Trichlorotrifluoroethane	7.66	151	41821	1851.254	pg	100
15) trans-1,2-Dichloroethene	8.37	96	44354	1868.968	pg	100
16) 1,1-Dichloroethane	8.58	63	64310	1736.267	pg	100
17) Methyl tert-Butyl Ether	8.65	73	117593	1874.890	pg	100
18) cis-1,2-Dichloroethene	9.45	96	46946	1858.591	pg	100
19) Chloroform	9.76	83	69577	1741.210	pg	100
21) 1,2-Dichloroethane	10.51	62	44794	1812.399	pg	100
22) 1,1,1-Trichloroethane	10.78	97	62782	1852.365	pg	100
23) Benzene	11.23	78	175563	1748.864	pg	100
24) Carbon Tetrachloride	11.39	117	56598	1829.493	pg	100
26) 1,2-Dichloropropane	12.05	63	40642	1834.032	pg	100
27) Bromodichloromethane	12.22	83	54423	1850.163	pg	100
28) Trichloroethene	12.28	130	51754	1861.676	pg	100
29) 1,4-Dioxane	12.24	88	35190	1850.243	pg	99
30) cis-1,3-Dichloropropene	13.12	75	68797	1988.797	pg	100
31) trans-1,3-Dichloropropene	13.63	75	55747	1914.534	pg	100
32) 1,1,2-Trichloroethane	13.81	83	35740	1849.860	pg	100
34) Toluene	14.11	91	184329	1814.509	pg	100
35) Dibromochloromethane	14.53	129	50982	1873.365	pg	100
36) 1,2-Dibromoethane	14.78	107	48595	1864.051	pg	100
37) Tetrachloroethene	15.27	166	55291	1849.574	pg	100
39) Chlorobenzene	15.96	112	127773	1874.487	pg	100
40) Ethylbenzene	16.35	91	204997	1974.930	pg	100
41) m,p-Xylene	16.53	91	316086	3982.667	pg	98
42) Styrene	16.89	104	115954	1839.382	pg	100
43) o-Xylene	16.99	106	83302	1974.239	pg	100
44) 1,1,2,2-Tetrachloroethane	16.96	83	77480	1913.677	pg	100
46) 1,3,5-Trimethylbenzene	18.27	105	174570	1967.100	pg	100
47) 1,2,4-Trimethylbenzene	18.66	105	177698	2007.197	pg	100
48) 1,3-Dichlorobenzene	18.81	146	111693	1931.169	pg	100
49) 1,4-Dichlorobenzene	18.87	146	108424	1866.742	pg	100
50) 1,2-Dichlorobenzene	19.19	146	109474	1972.397	pg	100
51) 1,2-Dibromo-3-chloropr...	19.61	157	38820	2028.411	pg	98
52) 1,2,4-Trichlorobenzene	20.82	182	69189	2105.748	pg	100
53) Naphthalene	20.93	128	187950	1815.035	pg	100

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Data File : I:\MS19\DATA\2018 10\16\10161802.D Vial: 16  
Acq On : 16 Oct 2018 3:52 Operator: WA  
Sample : CCV S19101618 2000pg T 1000pg Inst : MS19  
Misc : S31-09241806/S31-09271802 (10/26)

Quant Time: Oct 16 07:12:33 2018  
Quant Method : I:\MS19\METHODS\S19100118.M  
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
QLast Update : Tue Oct 02 06:45:50 2018  
Response via : Initial Calibration  
DataAcq Meth:TO15SIM.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
54) Hexachlorobutadiene	21.28	225	49448	2047.949	pg	100

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

Data File : I:\MS19\DATA\2018 10\16\10161802.D  
Acq On : 16 Oct 2018 3:52  
Sample : CCV S19101618 2000pg T 1000pg  
Misc : S31-09241806/S31-09271802 (10/26)

Vial: 16  
Operator: WA  
Inst : MS19

Quant Time: Oct 16 07:12:33 2018

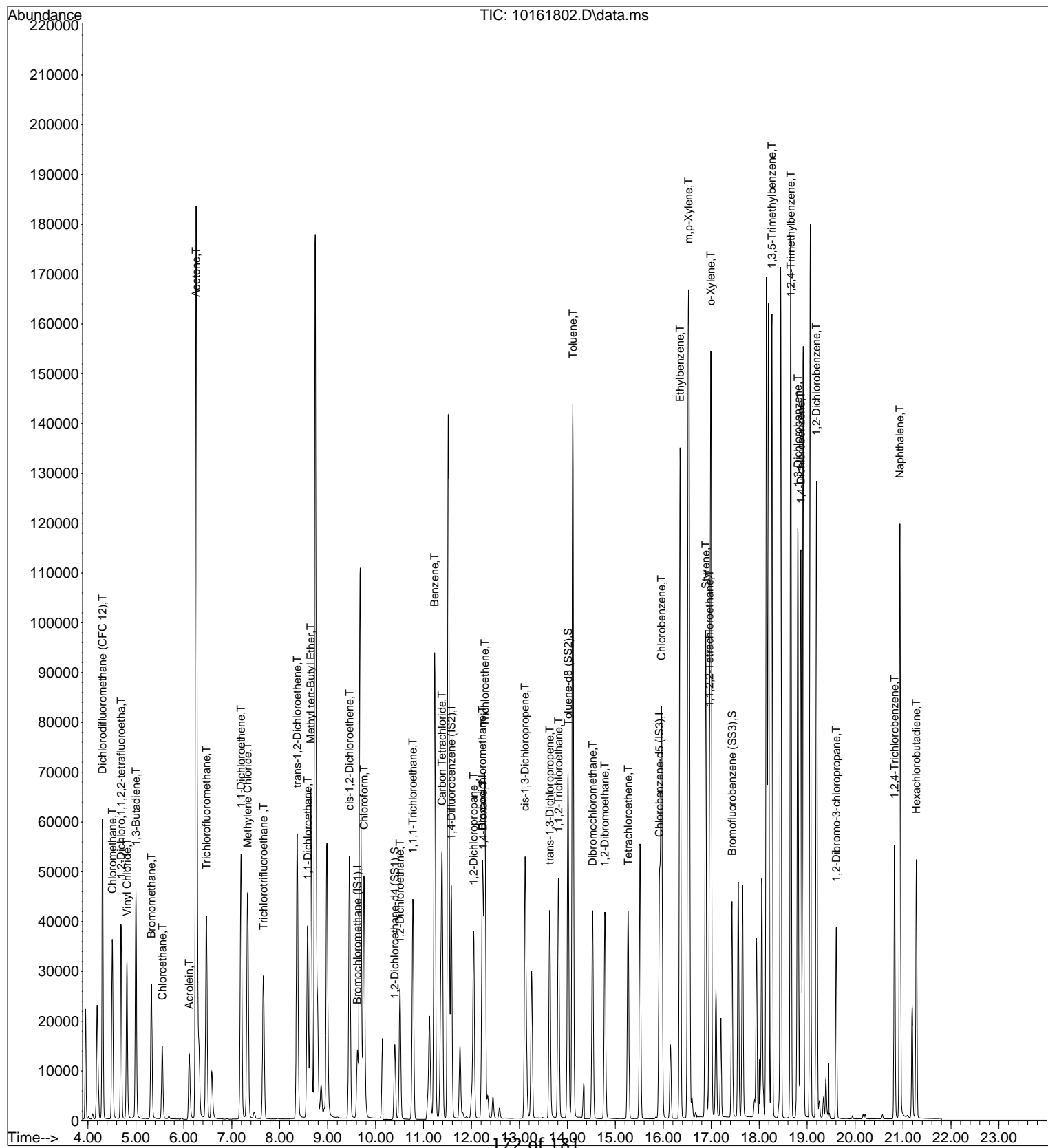
Quant Method : I:\MS19\METHODS\S19100118.M

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

QLast Update : Tue Oct 02 06:45:50 2018

Response via : Initial Calibration

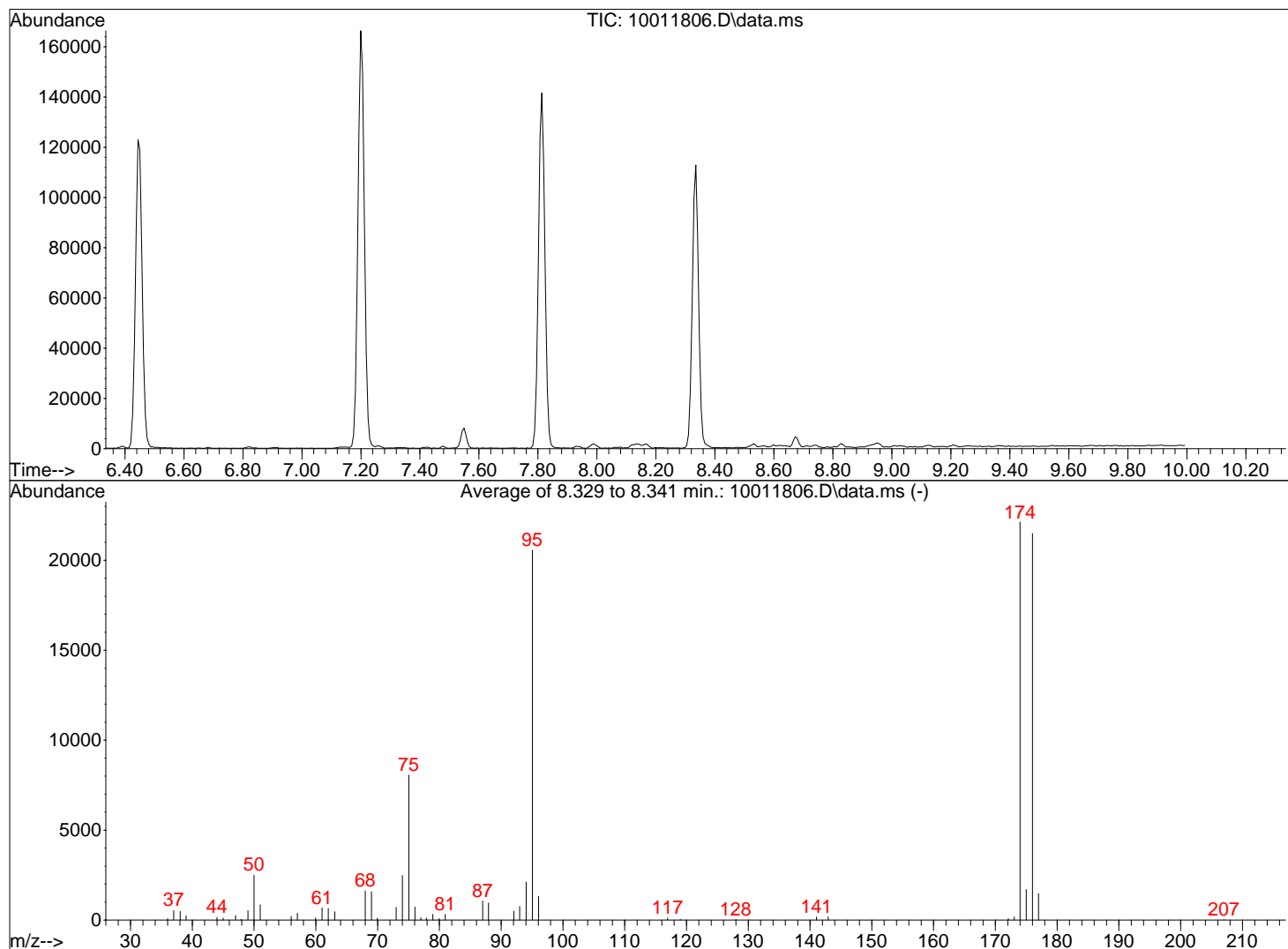
DataAcq Meth:TO15SIM.M



Data Path : I:\MS19\DATA\2018 10\01\  
 Data File : 10011806.D  
 Acq On : 1 Oct 2018 11:45  
 Operator : WA  
 Sample : BFB S19100118  
 Misc : S31-09241806  
 ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19082418A.M  
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
 Last Update : Wed Sep 05 06:48:06 2018



AutoFind: Scans 691, 692, 693; Background Corrected with Scan 685

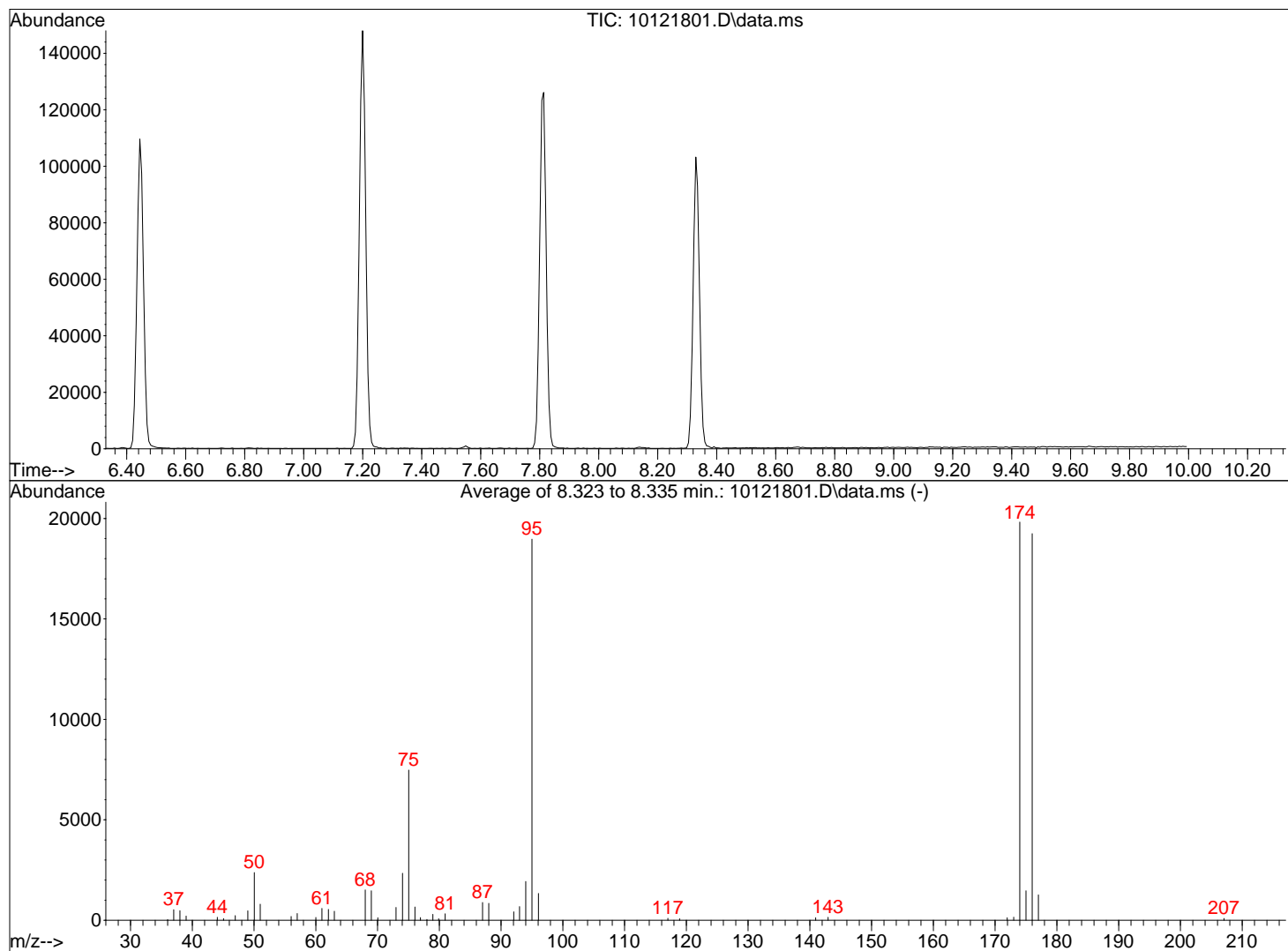
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	12.1	2491	PASS
75	95	30	66	39.2	8057	PASS
95	95	100	100	100.0	20557	PASS
96	95	5	9	6.4	1310	PASS
173	174	0.00	2	0.8	171	PASS
174	95	50	120	107.7	22131	PASS
175	174	4	9	7.7	1702	PASS
176	174	93	101	97.1	21488	PASS
177	176	5	9	6.8	1469	PASS

~~WA~~ 10/1/18

Data Path : I:\MS19\DATA\2018 10\12\  
 Data File : 10121801.D  
 Acq On : 12 Oct 2018 3:26  
 Operator : WA  
 Sample : BFB S19101218  
 Misc : S31-09241806  
 ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19100118.M  
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
 Last Update : Tue Oct 02 06:45:50 2018



AutoFind: Scans 690, 691, 692; Background Corrected with Scan 684

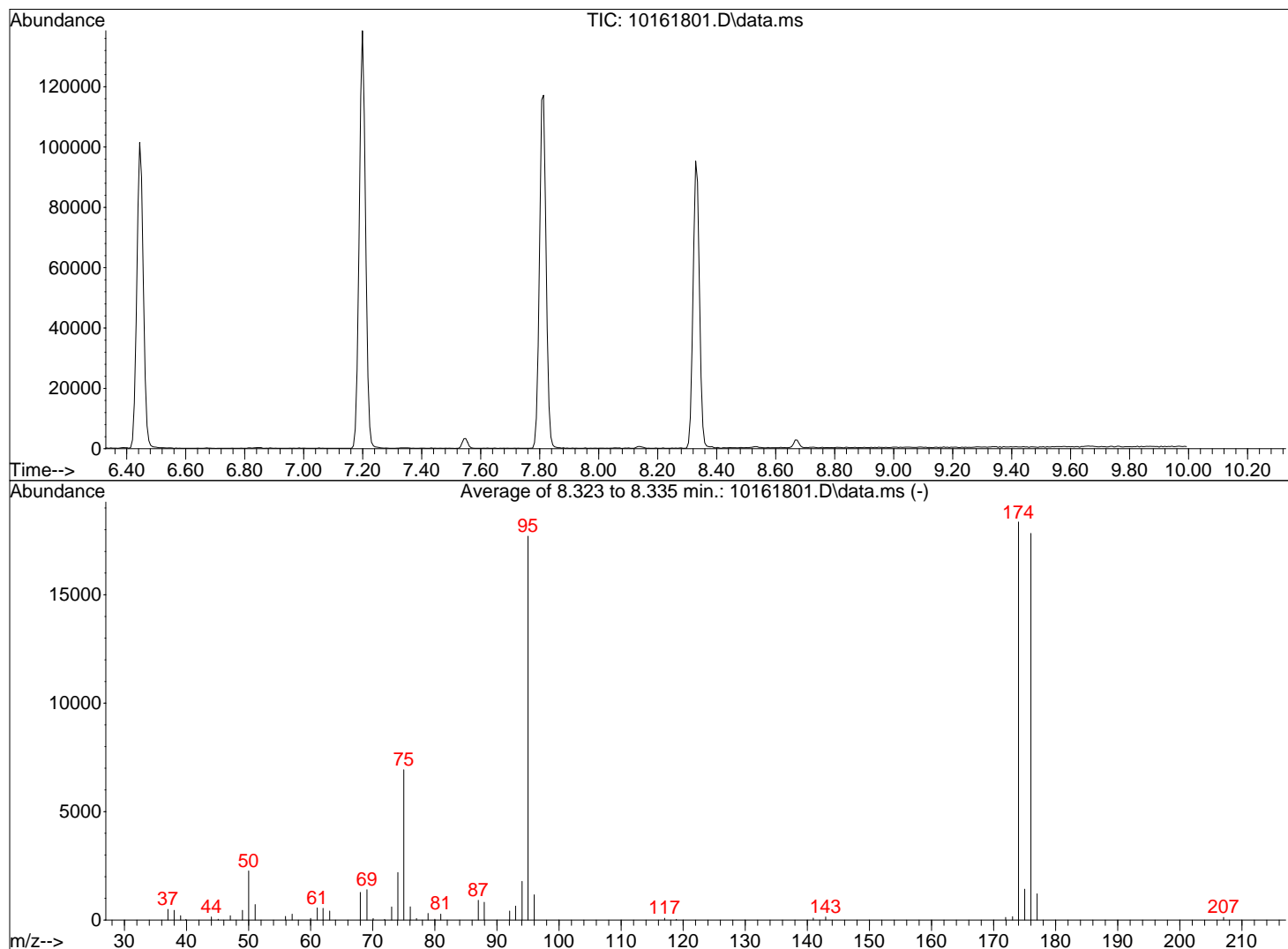
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	12.5	2375	PASS
75	95	30	66	39.4	7475	PASS
95	95	100	100	100.0	18973	PASS
96	95	5	9	7.0	1333	PASS
173	174	0.00	2	0.8	156	PASS
174	95	50	120	104.5	19821	PASS
175	174	4	9	7.4	1467	PASS
176	174	93	101	97.1	19247	PASS
177	176	5	9	6.6	1265	PASS

~~10/12/18~~ 10/12/18

Data Path : I:\MS19\DATA\2018 10\15\  
Data File : 10161801.D  
Acq On : 16 Oct 2018 3:33  
Operator : WA  
Sample : BFB S19101618  
Misc : S31-09241806  
ALS Vial : 2 Sample Multiplier: 1

Integration File: rteint.p

Method : I:\MS19\METHODS\S19100118.M  
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)  
Last Update : Tue Oct 02 06:45:50 2018



AutoFind: Scans 690, 691, 692; Background Corrected with Scan 685

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	12.8	2264	PASS
75	95	30	66	39.2	6931	PASS
95	95	100	100	100.0	17702	PASS
96	95	5	9	6.6	1166	PASS
173	174	0.00	2	0.8	154	PASS
174	95	50	120	103.7	18357	PASS
175	174	4	9	7.8	1427	PASS
176	174	93	101	97.1	17833	PASS
177	176	5	9	6.8	1208	PASS

## Injection Log

Directory: J:\MS19\DATA\2018\_10\01\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/1/18 8:15	10011801.D	Blank	S31-09241806	WA	2	
2	10/1/18 8:46	10011802.D	Blank	S31-09241806	WA	2	
3	10/1/18 9:17	10011803.D	BFB_S19100118	S31-07311807	WA	2	
4	10/1/18 9:37	10011804.D	Std check_1000pg	S31-07311807/S31-09181802 (10/16)	WA	16	
5	10/1/18 10:14	10011805.D	Std check_1000pg	S31-07311807/S31-09181808 (10/16)	WA	14	
6	10/1/18 11:45	10011806.D	BFB_S19100118	S31-09241806	WA	2	<i>passed</i>
7	10/1/18 12:11	10011807.D	20pg S19100118 ICAL Std	S31-09241806/S31-09271803 (10/26)	WA	13	<i>S19100118.M</i>
8	10/1/18 13:09	10011808.D	50pg S19100118 ICAL Std	S31-09241806/S31-09271803 (10/26)	WA	13	
9	10/1/18 13:44	10011809.D	100pg S19100118 ICAL Std	S31-09241806/S31-09271803 (10/26)	WA	13	
10	10/1/18 14:21	10011810.D	500pg S19100118 ICAL Std	S31-09241806/S31-09271803 (10/26)	WA	13	
11	10/1/18 14:52	10011811.D	1000pg S19100118 ICAL Std	S31-09241806/S31-09271802 (10/26)	WA	14	
12	10/1/18 15:36	10011812.D	2000pg S19100118 ICAL Std	S31-09241806/S31-09271802 (10/26)	WA	14	
13	10/1/18 16:39	10011814.D	10000pg S19100118 ICAL Std	S31-09241806/S31-09271802 (10/26)	WA	14	
14	10/1/18 17:11	10011815.D	25000pg S19100118 ICAL Std	S31-09241806/S31-08171802	WA	15	
15	10/1/18 17:43	10011816.D	50000pg S19100118 ICAL Std	S31-09241806/S31-08171802	WA	15	
16	10/1/18 18:14	10011817.D	Blank	S31-09241806/S31-08171802	WA	2	
17	10/1/18 18:46	10011818.D	1000pg S19100118 ICV Std	S31-09241806/S31-09171808 (10/16)	WA	2	<i>not used</i>
18	10/1/18 19:18	10011819.D	1000pg S19100118 ICV Std	S31-09241806/S31-09271801 (10/26)	WA	9	<i>passed</i>
<i>S19100118.M: ranges from 20pg ---&gt; 50K pg, except: Acetone 500pg --&gt; 125K pg and chloroform : 50pg ---&gt; 50K pg</i>							
	<i>IDA</i> 10/4/18						



# Injection Log

Directory: I:\MS19\DATA\2018\_10\12\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	10/12/18 3:26	10121801.D	BFB S19101218	S31-09241806	WA	2	Passed
2	10/12/18 3:46	10121802.D	CCV S19101218_1000pg	S31-09241806/S31-09271802 (10/26)	WA	16	Passed
3	10/12/18 4:17	10121803.D	Blank	S31-09241806	WA	2	Passed
4	10/12/18 4:49	10121804.D	MB S19101218_1000mL	S31-09241806_AS01329	WA	2	Passed
5	10/12/18 5:20	10121805.D	LCS S19101218_1000pg	S31-09241806/S31-10021801 (11/1)	WA	2	Passed
6	10/12/18 5:52	10121806.D	LCSD S19101218_1000pg	S31-09241806/S31-10021801 (11/1)	WA	2	Passed
7	10/12/18 11:45	10121807.D	P1805236-005 (400mL)	S31-09241806	WA	7	
8	10/12/18 12:17	10121808.D	P1805236-006 (400mL)	S31-09241806	WA	8	
9	10/12/18 13:19	10121809.D	P1805236-001 (400mL)	S31-09241806	WA	1	
10	10/12/18 13:51	10121810.D	P1805236-002 (400mL)	S31-09241806	WA	3	
11	10/12/18 14:22	10121811.D	P1805236-003 (400mL)	S31-09241806	WA	4	
12	10/12/18 14:53	10121812.D	P1805236-004 (400mL)	S31-09241806	WA	5	
13	10/12/18 16:17	10121813.D	P1805376-007 (1000mL)	S31-09241806	WA	8	
14	10/12/18 16:49	10121814.D	Br-BNZ _ 200pg	S31-09241806/S31-10121802	WA	14	
15	10/12/18 17:21	10121815.D	P1805376-001 (1000mL)	S31-09241806	WA	1	
16	10/12/18 17:52	10121816.D	P1805376-001dup (1000mL)	S31-09241806	WA	1	Passed
17	10/12/18 18:23	10121817.D	P1805376-002 (1000mL)	S31-09241806	WA	3	
18	10/12/18 18:55	10121818.D	P1805376-003 (1000mL)	S31-09241806	WA	4	
19	10/12/18 19:26	10121819.D	P1805376-004 (1000mL)	S31-09241806	WA	5	
20	10/12/18 19:57	10121820.D	P1805376-005 (1000mL)	S31-09241806	WA	6	
21	10/12/18 20:29	10121821.D	CCV T19101218_1000pg	S31-09241806/S31-10041805	WA	2	Passed
22	10/12/18 21:00	10121822.D	IDOC1 T19101218_200pg	S31-09241806/S31-10121802	WA	15	
23	10/12/18 21:32	10121823.D	IDOC2 T19101218_200pg	S31-09241806/S31-10121802	WA	15	
24	10/12/18 22:04	10121824.D	P1805376-006 (1000mL)	S31-09241806	WA	7	
25	10/12/18 22:36	10121826.D	P1805376-008 (1000mL)	S31-09241806	WA	9	
26	10/12/18 23:08	10121827.D	P1805376-009 (1000mL)	S31-09241806	WA	10	
27	10/12/18 23:39	10121828.D	IDOC3 T19101218_200pg	S31-09241806/S31-10121802	WA	15	
28	10/13/18 0:11	10121829.D	IDOC4 T19101218_200pg	S31-09241806/S31-10121802	WA	15	
29	10/13/18 0:42	10121830.D	P1805324-001 (400mL)	S31-09241806	WA	11	
30	10/13/18 1:13	10121831.D	P1805324-002 (400mL)	S31-09241806	WA	12	
31	10/13/18 1:45	10121832.D	P1805324-006 (400mL)	S31-09241806	WA	13	
32	10/13/18 2:16	10121833.D	Blank	S31-09241806	WA	2	

10/15/18

## Injection Log

Directory: I:\MS19\DATA\2018\_10\16\

[illegible]

# **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 <sub>R</sub> (ug/m3)	MDL <sub>R</sub> (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.



# QC Certification

ALS Environmental  
2655 Park Center Drive, Suite A  
Simi Valley, CA 93065  
Ph. 805-526-7161  
Fax 805-526-7270

<u>Container IDs</u>	<u>Cleaned Date</u>	<u>Date Analyzed</u>	<u>QC Results</u>	<u>Comments</u>
AC00988	10/17/18	10/19/18	Pass w/ Conditions	TO-15 (75 Comp 0.1 ug/m3)
AC01149	9/14/18	9/15/18	Pass w/ Conditions	TO-15 (client specified)
AC02024	9/18/18	9/18/18	Pass w/ Conditions	TO-15 (client specified)
AC02107	9/14/18	9/15/18	Pass w/ Conditions	TO-15 (client specified)
AC02154	9/14/18	9/15/18	Pass w/ Conditions	TO-15 (client specified)
AC02252	9/14/18	9/14/18	Pass w/ Conditions	TO-15 (client specified)
AS00854	9/14/18	9/15/18	Pass w/ Conditions	TO-15 (client specified)
AS01038	9/18/18	9/18/18	Pass w/ Conditions	TO-15 (client specified)
AS01245	9/18/18	9/18/18	Pass w/ Conditions	TO-15 (client specified)
SC01715	9/17/18	9/17/18	Pass w/ Conditions	TO-15 (client specified)

\* QC Canister