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LABORATORY REPORT

November 22, 2016

Christine Millner, MBA
Center for Toxicology and Environmental Health, LLC
5120 North Shore Drive
North Little Rock, AR 72118

RE: 108046

Dear Christine:

Tier IV Report

Enclosed are the results of the samples submitted to our laboratory on November 2, 2016. For your reference, these analyses have been assigned our service request number P1605133.

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

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

Respectfully submitted,

ALS | Environmental

By Kate Kaneko at 9:01 am, 11/22/16

Kate Kaneko
Project Manager



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Simi Valley, CA 93065
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Client: Center for Toxicology and Environmental Health, LLC Service Request No: P1605133
Project: 108046

CASE NARRATIVE

The samples were received intact under chain of custody on November 2, 2016 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.

Helium Analysis

Six of the samples were analyzed for helium according to modified EPA Method 3C (single injection) using a gas chromatograph equipped with a thermal conductivity detector (TCD). This method is not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

Volatile Organic Compound Analysis

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

The spike recovery of 1,2-dichloroethane in the Laboratory Control Sample (LCS) analyzed on November 09, 2016 was outside the Laboratory generated control criteria. The recovery error equates to a potential high bias. However, the recovery in question was within the method criteria, therefore, the data quality is not significantly affected. No corrective action was taken.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

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

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



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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2016036
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	977273
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-003
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413- 16-7
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA01627201 6-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

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

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

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Center for Toxicology and Environmental Health, LLC
 Project ID: 108046

Service Request: P1605133

Date Received: 11/2/2016
 Time Received: 09:40

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans 3C Modified - Helium Can	
GRMS1026BS1	P1605133-001	Air	10/27/2016	10:14	SSC00414	0.61	3.55	X	
GRMS1026BS2	P1605133-002	Air	10/27/2016	10:15	AS00575	-1.69	3.51	X	
GRMS1026IA0A1	P1605133-003	Air	10/27/2016	10:45	AC01648	-1.77	3.53	X	
GRMS1026IA0A2	P1605133-004	Air	10/27/2016	10:56	AC02220	-2.49	3.51	X	
GRMS1026IA0A3	P1605133-005	Air	10/27/2016	10:55	AS00361	-2.68	3.61	X	
GRMS1026IA0A5	P1605133-006	Air	10/27/2016	10:39	AS01139	-2.21	3.51	X	
GRMS1026IA0A6	P1605133-007	Air	10/27/2016	10:46	AS01115	-1.78	3.52	X	
GRMS1026IA0B1	P1605133-008	Air	10/27/2016	10:39	AC02070	-3.24	3.53	X	
GRMS1026IA0B2	P1605133-009	Air	10/27/2016	10:42	AS00917	-2.85	3.59	X	
GRMS1026IA0B3	P1605133-010	Air	10/27/2016	10:48	AS00514	-2.05	3.52	X	
GRMS1026IA0B4	P1605133-011	Air	10/27/2016	10:51	AC01862	-1.85	3.53	X	
GRMS1026IA0B5	P1605133-012	Air	10/27/2016	10:52	AS01005	-2.07	3.51	X	
GRMS1026IA0B6	P1605133-013	Air	10/27/2016	11:04	AC01528	-1.91	3.51	X	
GRMS1026OA001	P1605133-014	Air	10/27/2016	09:55	SSC00210	-3.41	3.59	X	
GRMS1026OA002	P1605133-015	Air	10/27/2016	09:58	SSC00311	-1.58	3.56	X	
GRMS1026OA003	P1605133-016	Air	10/27/2016	09:57	AC00674	-1.58	3.54	X	
GRMS1028FB001	P1605133-018	Air	10/28/2016	11:40	AC01695	9.28	9.28	X	
GRMS1028SS1	P1605133-019	Air	10/28/2016	08:10	SC01862	-1.63	5.35	X	X
GRMS1028SS2	P1605133-020	Air	10/28/2016	08:40	SSC00243	-2.12	3.53	X	X
GRMS1028SS3	P1605133-021	Air	10/28/2016	11:25	SSC00024	-2.82	3.57	X	X
GRMS1028SS4	P1605133-022	Air	10/28/2016	09:09	SC01520	-1.97	3.65	X	X
GRMS1028SS5	P1605133-023	Air	10/28/2016	10:30	SSC00139	0.34	3.56	X	X
GRMS1028SS6	P1605133-024	Air	10/28/2016	11:00	SC01966	-2.84	3.51	X	X

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5120 North Shore Drive
North Little Rock, AR 72118
Phone: (501) 801-8500
Fax: (501) 801-8501
Website: www.cteh.com

Center for Toxicology and Environmental Health L.L.C.
SAMPLE CHAIN OF CUSTODY AND ANALYSIS REQUEST FORM

P1685133

Name	Christine Millner	Send Report To:		Send Invoice To:	
Company	CTEH				CTEH Project #: 108046
Address	5120 Northshore Drive North Little Rock, AR 72118				
Phone	(501)801-8500				
Fax	(501)801-8501				
e-mail	labresults@cteh.com, cmillner@cteh.com				

Lab Information:
ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Lab Contact:
Kate Kaneko
Lab Project #:

Instructions/Comments:
Ensure chlorinated solvents are within calibration range (i.e. E flag hydrocarbons, if necessary)
In July, AR
ambient concentrations were between 0.5- 2ppm at time of sample collection. Hold GRMS1026CS001
Until IA samples have been analyzed and results have been provided.

SampleID	Canister	Regulator	Start Date/Time	Stop Date/Time	Pressure - (Start (Hg)	Pressure- (Stop (Hg)	Volume	EPA TO-15 (low-level short list)	Hold	Matrix
GRMS1026BS1	SSC00414	FCA00685	10/26/2016 10:13	10/27/2016 10:14	-28	-1	6 L	X		A
GRMS1026BS2	AS00575	FCA00492	10/26/2016 10:14	10/27/2016 10:15	-29	-4	6 L	X		A
GRMS1026IA0A1	AC01648	FCR00049	10/26/2016 10:55	10/27/2016 10:45	-29	-4.5	6 L	X		A
GRMS1026IA0A2	AC02220	FCR00183	10/26/2016 11:00	10/27/2016 10:56	-30	-6.5	6 L	X		A
GRMS1026IA0A3	AS00361	FRC00143	10/26/2016 11:02	10/27/2016 10:55	-30	-7	6 L	X		A
GRMS1026IA0A5	AS01139	FCR00140	10/26/2016 10:36	10/27/2016 10:39	-30	-7	6 L	X		A
GRMS1026IA0A6	AS01115	FCR00101	10/26/2016 10:58	10/27/2016 10:46	-30	-5.5	6 L	X		A
GRMS1026IA0B1	AC02070	FCR00079	10/26/2016 10:56	10/27/2016 10:39	-30	-7	6 L	X		A
GRMS1026IA0B2	AS00917	FCR00086	10/26/2016 11:00	10/27/2016 10:42	-30	-7	6 L	X		A
GRMS1026IA0B3	AS00514	FCR00106	10/26/2016 10:31	10/27/2016 10:48	-30	-7	6 L	X		A
GRMS1026IA0B4	AC01862	FCR00106	10/26/2016 11:11	10/27/2016 10:51	-30	-12	6 L	X		A

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	COMMENTS
Christine Millner	10/28/2016 12:47	FedEx	10/28/2016 12:47	
				11/2/16 0940

Center for Toxicology and Environmental Health L.L.C.
SAMPLE CHAIN OF CUSTODY AND ANALYSIS REQUEST FORM

5120 North Shore Drive
North Little Rock, AR 72118
Phone: (501) 801-8500
Fax: (501) 801-8501
Website: www.cteh.com

Center for Toxicology and Environmental Health L.L.C.
SAMPLE CHAIN OF CUSTODY AND ANALYSIS REQUEST FORM

Pr 685137

	Send Report To:	Send Invoice To:
Name	Christine Millner	
Company	CTEH	CTEH
Address	5120 Northshore Drive North Little Rock, AR 72118	5120 Northshore Drive North Little Rock, AR 72118
Phone	(501)801-8500	(501)801-8500
Fax	(501)801-8501	(501)801-8501
e-mail	labresults@cteh.com, cmillner@cteh.com	lraccounting@cteh.com

CTEH Project #: 108046	

Turnaround Requested:	
Same Day	Next Day (24 hour)
Other (Specify)	
Complete Data Packet Requested	
X Yes	□ No

Instructions/Comments:

Instructions/Comments :
Ensure chlorinated solvents are within calibration range(i.e. E flag hydrocarbons, if necessary)
until IA samples have been analyzed and results have been provided.

Lab Contact:

Kate Kaneko
Lab Project #:

Lab Information:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

[illegible]

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	COMMENTS
Yvonne J. Miller	10/28/2016 12:47	Edith	10/28/2016 12:47	FC A00662 - included in shipment; not used
				11/2/16 0940

P1605133

5120 North Shore Drive
North Little Rock, AR 72118
Phone: (501) 801-8500
Fax: (501) 801-8501
WebSite: www.atch.com

CTEH Project #: 108046

Turnaround Requested:

___ Same Day ___ Next Day (24 hour) X Normal
___ Other (Specify) _____

Complete Data Packet Requested X Yes ☐ No

Lab Information: ALS Environmental 2655 Park Center Drive, Suite A Simi Valley, CA 93065	Lab Contact: Kate Kaneko Lab Project #:	Instructions/Comments: Ensure chlorinated solvents are within calibration range (i.e. E flag hydrocarbons, if necessary) Analyte concentrations were between 0.5- 2ppm at time of sample collection. Hold GRMS1026CS001 until IA samples have been analyzed and results have been provided.

[illegible]

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME	COMMENTS
Christine Miller	10/20/2016 12:47	Felix	10/28/2016 12:47	OAC0810 - couldn't use b/c wouldn't pass year test
			09/48	AC02097 - Donot analyze; Did not pass year test FCR 00092

ALS Environmental
Sample Acceptance Check Form

Client: Center for Toxicology and Environmental Health, LLC

Work order: P1605133

Project: 108046

Sample(s) received on: 11/2/16

Date opened: 11/2/16

by: KKELPE

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

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

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1605133-001.01	6.0 L Silonite Can					
P1605133-002.01	6.0 L Silonite Can					
P1605133-003.01	6.0 L Ambient Can					
P1605133-004.01	6.0 L Ambient Can					
P1605133-005.01	6.0 L Silonite Can					
P1605133-006.01	6.0 L Silonite Can					
P1605133-007.01	6.0 L Silonite Can					
P1605133-008.01	6.0 L Ambient Can					
P1605133-009.01	6.0 L Silonite Can					
P1605133-010.01	6.0 L Silonite Can					
P1605133-011.01	6.0 L Ambient Can					
P1605133-012.01	6.0 L Silonite Can					
P1605133-013.01	6.0 L Ambient Can					
P1605133-014.01	6.0 L Silonite Can					
P1605133-015.01	6.0 L Silonite Can					

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

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

Sample Acceptance Check Form

Work order: P1605133

Sample(s) received on: 11/2/16

Date opened: 11/2/16

by: KKELEPE

[illegible]

Explain any discrepancies (check for sample ID numbers).

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Center for Toxicology and Environmental Health, LLC

Client Project ID: 108046

ALS Project ID: P1605133

Helium

Test Code: EPA 3C Modified

Instrument ID: HP5890 II/GC8/TCD

Analyst: Adam McAfee

Sample Type: 6.0 L Summa Canister(s)

Test Notes:

Date(s) Collected: 10/28/16

Date Received: 11/2/16

Date Analyzed: 11/17/16

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Canister Dilution Factor	Result ppmV	MRL ppmV	Data Qualifier
GRMS1028SS1	P1605133-019	1.00	1.53	1,200	38	
GRMS1028SS2	P1605133-020	1.00	1.45	58	36	
GRMS1028SS3	P1605133-021	1.00	1.54	ND	39	
GRMS1028SS4	P1605133-022	1.00	1.44	150	36	
GRMS1028SS5	P1605133-023	1.00	1.21	1,300	30	
GRMS1028SS6	P1605133-024	1.00	1.54	210	39	
Method Blank	P161117-MB	1.00	1.00	ND	25	

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

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

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: Lab Control Sample
Client Project ID: 108046

ALS Project ID: P1605133
ALS Sample ID: P161117-LCS

Test Code: EPA 3C Modified
Instrument ID: HP5890 II/GC8/TCD
Analyst: Adam McAfee
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/17/16
Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount ppmV	Result ppmV	% Recovery	ALS Acceptance Limits	Data Qualifier
7440-59-7	Helium	10,000	9,690	97	75-124	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1026BS1
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00414

Date Collected: 10/27/16
Date Received: 11/2/16
Date Analyzed: 11/10/16
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.61 **Final Pressure (psig):** 3.55

Canister Dilution Factor: 1.19

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.12	ND	0.047	
75-35-4	1,1-Dichloroethene	ND	0.12	ND	0.030	
75-09-2	Methylene Chloride	7.1	0.60	2.0	0.17	
156-60-5	trans-1,2-Dichloroethene	ND	0.12	ND	0.030	
156-59-2	cis-1,2-Dichloroethene	0.58	0.12	0.15	0.030	
107-06-2	1,2-Dichloroethane	ND	0.12	ND	0.029	
71-43-2	Benzene	0.57	0.12	0.18	0.037	
79-01-6	Trichloroethene	2.3	0.12	0.43	0.022	
79-00-5	1,1,2-Trichloroethane	ND	0.12	ND	0.022	
108-88-3	Toluene	1.3	0.60	0.33	0.16	
127-18-4	Tetrachloroethene	4.4	0.12	0.64	0.018	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1026BS2
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: AS00575

Date Collected: 10/27/16
Date Received: 11/2/16
Date Analyzed: 11/10/16
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.69 **Final Pressure (psig):** 3.51

Canister Dilution Factor: 1.40

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.14	ND	0.055	
75-35-4	1,1-Dichloroethene	ND	0.14	ND	0.035	
75-09-2	Methylene Chloride	6.2	0.70	1.8	0.20	
156-60-5	trans-1,2-Dichloroethene	ND	0.14	ND	0.035	
156-59-2	cis-1,2-Dichloroethene	0.90	0.14	0.23	0.035	
107-06-2	1,2-Dichloroethane	ND	0.14	ND	0.035	
71-43-2	Benzene	0.52	0.14	0.16	0.044	
79-01-6	Trichloroethene	3.3	0.14	0.61	0.026	
79-00-5	1,1,2-Trichloroethane	ND	0.14	ND	0.026	
108-88-3	Toluene	2.3	0.70	0.60	0.19	
127-18-4	Tetrachloroethene	5.6	0.14	0.83	0.021	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1026IA0A1
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Summa Canister
Test Notes:
Container ID: AC01648

Date Collected: 10/27/16
Date Received: 11/2/16
Date Analyzed: 11/9/16
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.77 **Final Pressure (psig):** 3.53

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.14	ND	0.055	
75-35-4	1,1-Dichloroethene	ND	0.14	ND	0.036	
75-09-2	Methylene Chloride	26	0.71	7.5	0.20	
156-60-5	trans-1,2-Dichloroethene	ND	0.14	ND	0.036	
156-59-2	cis-1,2-Dichloroethene	1.9	0.14	0.47	0.036	
107-06-2	1,2-Dichloroethane	ND	0.14	ND	0.035	
71-43-2	Benzene	0.97	0.14	0.30	0.044	
79-01-6	Trichloroethene	7.1	0.14	1.3	0.026	
79-00-5	1,1,2-Trichloroethane	ND	0.14	ND	0.026	
108-88-3	Toluene	6.2	0.71	1.6	0.19	
127-18-4	Tetrachloroethene	24	0.14	3.6	0.021	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1026IA0A2
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-004

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Summa Canister
 Test Notes:
 Container ID: AC02220

Date Collected: 10/27/16
 Date Received: 11/2/16
 Date Analyzed: 11/9/16
 Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.49 Final Pressure (psig): 3.51

Canister Dilution Factor: 1.49

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.15	ND	0.058	
75-35-4	1,1-Dichloroethene	ND	0.15	ND	0.038	
75-09-2	Methylene Chloride	27	0.75	7.7	0.21	
156-60-5	trans-1,2-Dichloroethene	ND	0.15	ND	0.038	
156-59-2	cis-1,2-Dichloroethene	1.9	0.15	0.47	0.038	
107-06-2	1,2-Dichloroethane	0.25	0.15	0.062	0.037	
71-43-2	Benzene	1.0	0.15	0.31	0.047	
79-01-6	Trichloroethene	7.1	0.15	1.3	0.028	
79-00-5	1,1,2-Trichloroethane	ND	0.15	ND	0.027	
108-88-3	Toluene	6.2	0.75	1.6	0.20	
127-18-4	Tetrachloroethene	25	0.15	3.6	0.022	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1026IA0A3
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-005

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Silonite Canister
 Test Notes:
 Container ID: AS00361

Date Collected: 10/27/16
 Date Received: 11/2/16
 Date Analyzed: 11/9/16
 Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.68 Final Pressure (psig): 3.61

Canister Dilution Factor: 1.52

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.15	ND	0.059	
75-35-4	1,1-Dichloroethene	ND	0.15	ND	0.038	
75-09-2	Methylene Chloride	27	0.76	7.7	0.22	
156-60-5	trans-1,2-Dichloroethene	ND	0.15	ND	0.038	
156-59-2	cis-1,2-Dichloroethene	1.9	0.15	0.48	0.038	
107-06-2	1,2-Dichloroethane	ND	0.15	ND	0.038	
71-43-2	Benzene	1.1	0.15	0.34	0.048	
79-01-6	Trichloroethene	7.1	0.15	1.3	0.028	
79-00-5	1,1,2-Trichloroethane	ND	0.15	ND	0.028	
108-88-3	Toluene	6.3	0.76	1.7	0.20	
127-18-4	Tetrachloroethene	25	0.15	3.6	0.022	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1026IA0A5
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-006

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: AS01139

Date Collected: 10/27/16
Date Received: 11/2/16
Date Analyzed: 11/9/16
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.21 **Final Pressure (psig):** 3.51

Canister Dilution Factor: 1.46

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.15	ND	0.057	
75-35-4	1,1-Dichloroethene	ND	0.15	ND	0.037	
75-09-2	Methylene Chloride	34	0.73	9.8	0.21	
156-60-5	trans-1,2-Dichloroethene	ND	0.15	ND	0.037	
156-59-2	cis-1,2-Dichloroethene	1.8	0.15	0.47	0.037	
107-06-2	1,2-Dichloroethane	ND	0.15	ND	0.036	
71-43-2	Benzene	0.79	0.15	0.25	0.046	
79-01-6	Trichloroethene	6.9	0.15	1.3	0.027	
79-00-5	1,1,2-Trichloroethane	ND	0.15	ND	0.027	
108-88-3	Toluene	10	0.73	2.7	0.19	
127-18-4	Tetrachloroethene	32	0.15	4.7	0.022	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1026IA0A6
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-007

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: AS01115

Date Collected: 10/27/16
Date Received: 11/2/16
Date Analyzed: 11/10/16
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.78 **Final Pressure (psig):** 3.52

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.14	ND	0.055	
75-35-4	1,1-Dichloroethene	ND	0.14	ND	0.036	
75-09-2	Methylene Chloride	25	0.71	7.3	0.20	
156-60-5	trans-1,2-Dichloroethene	ND	0.14	ND	0.036	
156-59-2	cis-1,2-Dichloroethene	1.8	0.14	0.44	0.036	
107-06-2	1,2-Dichloroethane	1.2	0.14	0.28	0.035	
71-43-2	Benzene	1.0	0.14	0.31	0.044	
79-01-6	Trichloroethene	6.7	0.14	1.2	0.026	
79-00-5	1,1,2-Trichloroethane	ND	0.14	ND	0.026	
108-88-3	Toluene	7.8	0.71	2.1	0.19	
127-18-4	Tetrachloroethene	24	0.14	3.5	0.021	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1026IA0B1
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-008

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Summa Canister
 Test Notes:
 Container ID: AC02070

Date Collected: 10/27/16
 Date Received: 11/2/16
 Date Analyzed: 11/10/16
 Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -3.24 Final Pressure (psig): 3.53

Canister Dilution Factor: 1.59

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.16	ND	0.062	
75-35-4	1,1-Dichloroethene	ND	0.16	ND	0.040	
75-09-2	Methylene Chloride	48	0.80	14	0.23	
156-60-5	trans-1,2-Dichloroethene	ND	0.16	ND	0.040	
156-59-2	cis-1,2-Dichloroethene	2.8	0.16	0.71	0.040	
107-06-2	1,2-Dichloroethane	ND	0.16	ND	0.039	
71-43-2	Benzene	0.73	0.16	0.23	0.050	
79-01-6	Trichloroethene	11	0.16	2.1	0.030	
79-00-5	1,1,2-Trichloroethane	ND	0.16	ND	0.029	
108-88-3	Toluene	7.0	0.80	1.9	0.21	
127-18-4	Tetrachloroethene	47	0.16	6.9	0.023	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1026IA0B2
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-009

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: AS00917

Date Collected: 10/27/16
Date Received: 11/2/16
Date Analyzed: 11/10/16
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.85 **Final Pressure (psig):** 3.59

Canister Dilution Factor: 1.54

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.15	ND	0.060	
75-35-4	1,1-Dichloroethene	ND	0.15	ND	0.039	
75-09-2	Methylene Chloride	35	0.77	10	0.22	
156-60-5	trans-1,2-Dichloroethene	ND	0.15	ND	0.039	
156-59-2	cis-1,2-Dichloroethene	2.4	0.15	0.62	0.039	
107-06-2	1,2-Dichloroethane	ND	0.15	ND	0.038	
71-43-2	Benzene	0.73	0.15	0.23	0.048	
79-01-6	Trichloroethene	11	0.15	2.0	0.029	
79-00-5	1,1,2-Trichloroethane	ND	0.15	ND	0.028	
108-88-3	Toluene	9.0	0.77	2.4	0.20	
127-18-4	Tetrachloroethene	32	0.15	4.8	0.023	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1026IA0B3
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-010

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: AS00514

Date Collected: 10/27/16
Date Received: 11/2/16
Date Analyzed: 11/10/16
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.05 **Final Pressure (psig):** 3.52

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.14	ND	0.056	
75-35-4	1,1-Dichloroethene	ND	0.14	ND	0.036	
75-09-2	Methylene Chloride	87	0.72	25	0.21	
156-60-5	trans-1,2-Dichloroethene	ND	0.14	ND	0.036	
156-59-2	cis-1,2-Dichloroethene	3.7	0.14	0.93	0.036	
107-06-2	1,2-Dichloroethane	ND	0.14	ND	0.036	
71-43-2	Benzene	0.60	0.14	0.19	0.045	
79-01-6	Trichloroethene	29	0.14	5.4	0.027	
79-00-5	1,1,2-Trichloroethane	ND	0.14	ND	0.026	
108-88-3	Toluene	5.6	0.72	1.5	0.19	
127-18-4	Tetrachloroethene	68	0.14	10	0.021	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1026IA0B4
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-011

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Summa Canister
 Test Notes:
 Container ID: AC01862

Date Collected: 10/27/16
 Date Received: 11/2/16
 Date Analyzed: 11/10/16
 Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.85 Final Pressure (psig): 3.53

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.14	ND	0.056	
75-35-4	1,1-Dichloroethene	ND	0.14	ND	0.036	
75-09-2	Methylene Chloride	76	0.71	22	0.20	
156-60-5	trans-1,2-Dichloroethene	ND	0.14	ND	0.036	
156-59-2	cis-1,2-Dichloroethene	2.2	0.14	0.55	0.036	
107-06-2	1,2-Dichloroethane	0.14	0.14	0.036	0.035	
71-43-2	Benzene	0.70	0.14	0.22	0.044	
79-01-6	Trichloroethene	13	0.14	2.4	0.026	
79-00-5	1,1,2-Trichloroethane	ND	0.14	ND	0.026	
108-88-3	Toluene	8.5	0.71	2.3	0.19	
127-18-4	Tetrachloroethene	63	0.14	9.3	0.021	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1026IA0B5
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-012

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: AS01005

Date Collected: 10/27/16
Date Received: 11/2/16
Date Analyzed: 11/10/16
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.07 **Final Pressure (psig):** 3.51

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.14	ND	0.056	
75-35-4	1,1-Dichloroethene	ND	0.14	ND	0.036	
75-09-2	Methylene Chloride	75	0.72	21	0.21	
156-60-5	trans-1,2-Dichloroethene	ND	0.14	ND	0.036	
156-59-2	cis-1,2-Dichloroethene	2.2	0.14	0.54	0.036	
107-06-2	1,2-Dichloroethane	ND	0.14	ND	0.036	
71-43-2	Benzene	0.68	0.14	0.21	0.045	
79-01-6	Trichloroethene	12	0.14	2.3	0.027	
79-00-5	1,1,2-Trichloroethane	ND	0.14	ND	0.026	
108-88-3	Toluene	7.8	0.72	2.1	0.19	
127-18-4	Tetrachloroethene	61	0.14	9.1	0.021	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1026IA0B6
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-013

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Summa Canister
 Test Notes:
 Container ID: AC01528

Date Collected: 10/27/16
 Date Received: 11/2/16
 Date Analyzed: 11/10/16
 Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.91 Final Pressure (psig): 3.51

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.14	ND	0.056	
75-35-4	1,1-Dichloroethene	ND	0.14	ND	0.036	
75-09-2	Methylene Chloride	38	0.71	11	0.20	
156-60-5	trans-1,2-Dichloroethene	ND	0.14	ND	0.036	
156-59-2	cis-1,2-Dichloroethene	2.1	0.14	0.53	0.036	
107-06-2	1,2-Dichloroethane	ND	0.14	ND	0.035	
71-43-2	Benzene	0.67	0.14	0.21	0.044	
79-01-6	Trichloroethene	6.8	0.14	1.3	0.026	
79-00-5	1,1,2-Trichloroethane	ND	0.14	ND	0.026	
108-88-3	Toluene	3.3	0.71	0.87	0.19	
127-18-4	Tetrachloroethene	39	0.14	5.8	0.021	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS10260A001
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-014

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00210

Date Collected: 10/27/16
Date Received: 11/2/16
Date Analyzed: 11/10/16
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -3.41 **Final Pressure (psig):** 3.59

Canister Dilution Factor: 1.62

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.16	ND	0.063	
75-35-4	1,1-Dichloroethene	ND	0.16	ND	0.041	
75-09-2	Methylene Chloride	ND	0.81	ND	0.23	
156-60-5	trans-1,2-Dichloroethene	ND	0.16	ND	0.041	
156-59-2	cis-1,2-Dichloroethene	0.49	0.16	0.12	0.041	
107-06-2	1,2-Dichloroethane	ND	0.16	ND	0.040	
71-43-2	Benzene	0.58	0.16	0.18	0.051	
79-01-6	Trichloroethene	1.7	0.16	0.32	0.030	
79-00-5	1,1,2-Trichloroethane	ND	0.16	ND	0.030	
108-88-3	Toluene	1.2	0.81	0.33	0.22	
127-18-4	Tetrachloroethene	0.52	0.16	0.076	0.024	

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

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

ALS ENVIRONMENTAL

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1026OA002
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-015

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Silonite Canister
 Test Notes:
 Container ID: SSC00311

Date Collected: 10/27/16
 Date Received: 11/2/16
 Date Analyzed: 11/10/16
 Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.58 Final Pressure (psig): 3.56

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.14	ND	0.054	
75-35-4	1,1-Dichloroethene	ND	0.14	ND	0.035	
75-09-2	Methylene Chloride	ND	0.70	ND	0.20	
156-60-5	trans-1,2-Dichloroethene	ND	0.14	ND	0.035	
156-59-2	cis-1,2-Dichloroethene	0.56	0.14	0.14	0.035	
107-06-2	1,2-Dichloroethane	ND	0.14	ND	0.034	
71-43-2	Benzene	1.2	0.14	0.38	0.044	
79-01-6	Trichloroethene	2.0	0.14	0.37	0.026	
79-00-5	1,1,2-Trichloroethane	ND	0.14	ND	0.025	
108-88-3	Toluene	1.5	0.70	0.39	0.18	
127-18-4	Tetrachloroethene	0.66	0.14	0.098	0.021	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS10260A003
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-016

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Summa Canister
Test Notes:
Container ID: AC00674

Date Collected: 10/27/16
Date Received: 11/2/16
Date Analyzed: 11/10/16
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.58 **Final Pressure (psig):** 3.54

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.14	ND	0.054	
75-35-4	1,1-Dichloroethene	ND	0.14	ND	0.035	
75-09-2	Methylene Chloride	ND	0.70	ND	0.20	
156-60-5	trans-1,2-Dichloroethene	ND	0.14	ND	0.035	
156-59-2	cis-1,2-Dichloroethene	0.68	0.14	0.17	0.035	
107-06-2	1,2-Dichloroethane	ND	0.14	ND	0.034	
71-43-2	Benzene	0.41	0.14	0.13	0.044	
79-01-6	Trichloroethene	3.5	0.14	0.65	0.026	
79-00-5	1,1,2-Trichloroethane	ND	0.14	ND	0.025	
108-88-3	Toluene	0.90	0.70	0.24	0.18	
127-18-4	Tetrachloroethene	0.48	0.14	0.071	0.021	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1028FB001
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-018

Test Code: EPA TO-15
 Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
 Analyst: Lusine Hakobyan
 Sample Type: 6.0 L Summa Canister
 Test Notes:
 Container ID: AC01695

Date Collected: 10/28/16
 Date Received: 11/2/16
 Date Analyzed: 11/10/16
 Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 9.28 Final Pressure (psig): 9.28

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.10	ND	0.039	
75-35-4	1,1-Dichloroethene	ND	0.10	ND	0.025	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
156-60-5	trans-1,2-Dichloroethene	ND	0.10	ND	0.025	
156-59-2	cis-1,2-Dichloroethene	ND	0.10	ND	0.025	
107-06-2	1,2-Dichloroethane	ND	0.10	ND	0.025	
71-43-2	Benzene	ND	0.10	ND	0.031	
79-01-6	Trichloroethene	ND	0.10	ND	0.019	
79-00-5	1,1,2-Trichloroethane	ND	0.10	ND	0.018	
108-88-3	Toluene	ND	0.50	ND	0.13	
127-18-4	Tetrachloroethene	ND	0.10	ND	0.015	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1028SS1
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-019

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Summa Canister
Test Notes:
Container ID: SC01862

Date Collected: 10/28/16
Date Received: 11/2/16
Date Analyzed: 11/9/16
Volume(s) Analyzed: 0.050 Liter(s)

Initial Pressure (psig): -1.63 **Final Pressure (psig):** 5.35

Canister Dilution Factor: 1.53

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	17	3.1	6.6	1.2	
75-35-4	1,1-Dichloroethene	68	3.1	17	0.77	
75-09-2	Methylene Chloride	ND	15	ND	4.4	
156-60-5	trans-1,2-Dichloroethene	33	3.1	8.2	0.77	
156-59-2	cis-1,2-Dichloroethene	1,600	3.1	400	0.77	
107-06-2	1,2-Dichloroethane	14	3.1	3.4	0.76	
71-43-2	Benzene	28	3.1	8.7	0.96	
79-01-6	Trichloroethene	3,000	3.1	560	0.57	
79-00-5	1,1,2-Trichloroethane	ND	3.1	ND	0.56	
108-88-3	Toluene	39	15	10	4.1	
127-18-4	Tetrachloroethene	88	3.1	13	0.45	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1028SS2
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-020

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00243

Date Collected: 10/28/16
Date Received: 11/2/16
Date Analyzed: 11/9/16
Volume(s) Analyzed: 0.00050 Liter(s)

Initial Pressure (psig): -2.12 **Final Pressure (psig):** 3.53

Canister Dilution Factor: 1.45

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	290	ND	110	
75-35-4	1,1-Dichloroethene	ND	290	ND	73	
75-09-2	Methylene Chloride	ND	1,500	ND	420	
156-60-5	trans-1,2-Dichloroethene	470	290	120	73	
156-59-2	cis-1,2-Dichloroethene	54,000	290	14,000	73	
107-06-2	1,2-Dichloroethane	ND	290	ND	72	
71-43-2	Benzene	ND	290	ND	91	
79-01-6	Trichloroethene	240,000	290	45,000	54	
79-00-5	1,1,2-Trichloroethane	ND	290	ND	53	
108-88-3	Toluene	ND	1,500	ND	380	
127-18-4	Tetrachloroethene	950	290	140	43	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1028SS3
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-021

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00024

Date Collected: 10/28/16
Date Received: 11/2/16
Date Analyzed: 11/10/16
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.82 **Final Pressure (psig):** 3.57

Canister Dilution Factor: 1.54

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.15	ND	0.060	
75-35-4	1,1-Dichloroethene	0.17	0.15	0.043	0.039	
75-09-2	Methylene Chloride	ND	0.77	ND	0.22	
156-60-5	trans-1,2-Dichloroethene	0.76	0.15	0.19	0.039	
156-59-2	cis-1,2-Dichloroethene	3.1	0.15	0.77	0.039	
107-06-2	1,2-Dichloroethane	4.1	0.15	1.0	0.038	
71-43-2	Benzene	2.6	0.15	0.80	0.048	
79-01-6	Trichloroethene	100	0.15	19	0.029	
79-00-5	1,1,2-Trichloroethane	ND	0.15	ND	0.028	
108-88-3	Toluene	10	0.77	2.6	0.20	
127-18-4	Tetrachloroethene	39	0.15	5.8	0.023	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1028SS4
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-022

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Summa Canister
Test Notes:
Container ID: SC01520

Date Collected: 10/28/16
Date Received: 11/2/16
Date Analyzed: 11/9/16
Volume(s) Analyzed: 0.000050 Liter(s)

Initial Pressure (psig): -1.97 **Final Pressure (psig):** 3.65

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	2,900	ND	1,100	
75-35-4	1,1-Dichloroethene	5,400	2,900	1,400	730	
75-09-2	Methylene Chloride	ND	14,000	ND	4,100	
156-60-5	trans-1,2-Dichloroethene	ND	2,900	ND	730	
156-59-2	cis-1,2-Dichloroethene	14,000	2,900	3,500	730	
107-06-2	1,2-Dichloroethane	ND	2,900	ND	710	
71-43-2	Benzene	ND	2,900	ND	900	
79-01-6	Trichloroethene	2,900,000	2,900	530,000	540	
79-00-5	1,1,2-Trichloroethane	ND	2,900	ND	530	
108-88-3	Toluene	ND	14,000	ND	3,800	
127-18-4	Tetrachloroethene	8,000	2,900	1,200	420	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1028SS5
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-023

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00139

Date Collected: 10/28/16
Date Received: 11/2/16
Date Analyzed: 11/9/16
Volume(s) Analyzed: 0.0017 Liter(s)

Initial Pressure (psig): 0.34 **Final Pressure (psig):** 3.56

Canister Dilution Factor: 1.21

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	71	ND	28	
75-35-4	1,1-Dichloroethene	ND	71	ND	18	
75-09-2	Methylene Chloride	ND	360	ND	100	
156-60-5	trans-1,2-Dichloroethene	120	71	30	18	
156-59-2	cis-1,2-Dichloroethene	6,500	71	1,600	18	
107-06-2	1,2-Dichloroethane	ND	71	ND	18	
71-43-2	Benzene	ND	71	ND	22	
79-01-6	Trichloroethene	74,000	71	14,000	13	
79-00-5	1,1,2-Trichloroethane	ND	71	ND	13	
108-88-3	Toluene	ND	360	ND	94	
127-18-4	Tetrachloroethene	130	71	19	11	

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

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

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Client: Center for Toxicology and Environmental Health, LLC
Client Sample ID: GRMS1028SS6
Client Project ID: 108046

ALS Project ID: P1605133
 ALS Sample ID: P1605133-024

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Summa Canister
Test Notes:
Container ID: SC01966

Date Collected: 10/28/16
Date Received: 11/2/16
Date Analyzed: 11/10/16
Volume(s) Analyzed: 0.0040 Liter(s)

Initial Pressure (psig): -2.84 **Final Pressure (psig):** 3.51

Canister Dilution Factor: 1.54

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	39	ND	15	
75-35-4	1,1-Dichloroethene	5,700	39	1,400	9.7	
75-09-2	Methylene Chloride	ND	190	ND	55	
156-60-5	trans-1,2-Dichloroethene	980	39	250	9.7	
156-59-2	cis-1,2-Dichloroethene	38,000	39	9,600	9.7	
107-06-2	1,2-Dichloroethane	ND	39	ND	9.5	
71-43-2	Benzene	ND	39	ND	12	
79-01-6	Trichloroethene	29,000	39	5,500	7.2	
79-00-5	1,1,2-Trichloroethane	ND	39	ND	7.1	
108-88-3	Toluene	ND	190	ND	51	
127-18-4	Tetrachloroethene	1,100	39	170	5.7	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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

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Client: Center for Toxicology and Environmental Health, LLC

Client Sample ID: Method Blank

Client Project ID: 108046

ALS Project ID: P1605133

ALS Sample ID: P161108-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 11/8/16

Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.10	ND	0.039	
75-35-4	1,1-Dichloroethene	ND	0.10	ND	0.025	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
156-60-5	trans-1,2-Dichloroethene	ND	0.10	ND	0.025	
156-59-2	cis-1,2-Dichloroethene	ND	0.10	ND	0.025	
107-06-2	1,2-Dichloroethane	ND	0.10	ND	0.025	
71-43-2	Benzene	ND	0.10	ND	0.031	
79-01-6	Trichloroethene	ND	0.10	ND	0.019	
79-00-5	1,1,2-Trichloroethane	ND	0.10	ND	0.018	
108-88-3	Toluene	ND	0.50	ND	0.13	
127-18-4	Tetrachloroethene	ND	0.10	ND	0.015	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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

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Client: Center for Toxicology and Environmental Health, LLC

Client Sample ID: Method Blank

Client Project ID: 108046

ALS Project ID: P1605133

ALS Sample ID: P161109-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 11/9/16

Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.10	ND	0.039	
75-35-4	1,1-Dichloroethene	ND	0.10	ND	0.025	
75-09-2	Methylene Chloride	ND	0.50	ND	0.14	
156-60-5	trans-1,2-Dichloroethene	ND	0.10	ND	0.025	
156-59-2	cis-1,2-Dichloroethene	ND	0.10	ND	0.025	
107-06-2	1,2-Dichloroethane	ND	0.10	ND	0.025	
71-43-2	Benzene	ND	0.10	ND	0.031	
79-01-6	Trichloroethene	ND	0.10	ND	0.019	
79-00-5	1,1,2-Trichloroethane	ND	0.10	ND	0.018	
108-88-3	Toluene	ND	0.50	ND	0.13	
127-18-4	Tetrachloroethene	ND	0.10	ND	0.015	

ND = Compound was analyzed for, but not detected above the laboratory reporting 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: Center for Toxicology and Environmental Health, LLC
Client Project ID: 108046

ALS Project ID: P1605133

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Silonite Canister(s)
Test Notes:

Date(s) Collected: 10/27 - 10/28/16
Date(s) Received: 11/2/16
Date(s) Analyzed: 11/8 - 11/10/16

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P161108-MB	114	96	87	70-130	
Method Blank	P161109-MB	121	95	82	70-130	
Lab Control Sample	P161108-LCS	109	97	91	70-130	
Lab Control Sample	P161109-LCS	116	95	88	70-130	
GRMS1026BS1	P1605133-001	126	97	84	70-130	
GRMS1026BS2	P1605133-002	123	95	83	70-130	
GRMS1026IA0A1	P1605133-003	119	95	89	70-130	
GRMS1026IA0A2	P1605133-004	121	95	87	70-130	
GRMS1026IA0A2	P1605133-004DUP	119	95	87	70-130	
GRMS1026IA0A3	P1605133-005	119	95	88	70-130	
GRMS1026IA0A5	P1605133-006	117	95	87	70-130	
GRMS1026IA0A6	P1605133-007	118	95	87	70-130	
GRMS1026IA0B1	P1605133-008	118	96	87	70-130	
GRMS1026IA0B2	P1605133-009	120	95	86	70-130	
GRMS1026IA0B3	P1605133-010	120	95	87	70-130	
GRMS1026IA0B4	P1605133-011	120	96	86	70-130	
GRMS1026IA0B5	P1605133-012	120	96	86	70-130	
GRMS1026IA0B6	P1605133-013	120	96	85	70-130	
GRMS1026OA001	P1605133-014	121	94	85	70-130	
GRMS1026OA002	P1605133-015	123	97	85	70-130	
GRMS1026OA003	P1605133-016	123	97	84	70-130	
GRMS1028FB001	P1605133-018	123	96	81	70-130	
GRMS1028SS1	P1605133-019	122	96	83	70-130	
GRMS1028SS1	P1605133-019DUP	122	96	82	70-130	
GRMS1028SS2	P1605133-020	119	96	82	70-130	
GRMS1028SS3	P1605133-021	128	95	83	70-130	
GRMS1028SS4	P1605133-022	121	96	81	70-130	
GRMS1028SS5	P1605133-023	121	98	82	70-130	
GRMS1028SS6	P1605133-024	121	96	83	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.

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

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

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Client: Center for Toxicology and Environmental Health, LLC

Client Sample ID: Lab Control Sample

Client Project ID: 108046

ALS Project ID: P1605133

ALS Sample ID: P161108-LCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 11/9/16

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	210	243	116	61-125	
75-35-4	1,1-Dichloroethene	213	222	104	76-118	
75-09-2	Methylene Chloride	212	208	98	60-118	
156-60-5	trans-1,2-Dichloroethene	213	234	110	74-123	
156-59-2	cis-1,2-Dichloroethene	212	231	109	72-117	
107-06-2	1,2-Dichloroethane	212	229	108	69-113	
71-43-2	Benzene	212	214	101	65-107	
79-01-6	Trichloroethene	212	205	97	68-114	
79-00-5	1,1,2-Trichloroethane	212	218	103	75-119	
108-88-3	Toluene	212	216	102	59-118	
127-18-4	Tetrachloroethene	213	194	91	65-130	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: Center for Toxicology and Environmental Health, LLC

Client Sample ID: Lab Control Sample

Client Project ID: 108046

ALS Project ID: P1605133

ALS Sample ID: P161109-LCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 11/9/16

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	210	257	122	61-125	
75-35-4	1,1-Dichloroethene	213	224	105	76-118	
75-09-2	Methylene Chloride	212	213	100	60-118	
156-60-5	trans-1,2-Dichloroethene	213	249	117	74-123	
156-59-2	cis-1,2-Dichloroethene	212	241	114	72-117	
107-06-2	1,2-Dichloroethane	212	242	114	69-113	L
71-43-2	Benzene	212	219	103	65-107	
79-01-6	Trichloroethene	212	203	96	68-114	
79-00-5	1,1,2-Trichloroethane	212	221	104	75-119	
108-88-3	Toluene	212	211	100	59-118	
127-18-4	Tetrachloroethene	213	184	86	65-130	

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.

L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Page 1 of 1

Client: Center for Toxicology and Environmental Health, LLC

Client Sample ID: GRMS1026IA0A2

ALS Project ID: P1605133

Client Project ID: 108046

ALS Sample ID: P1605133-004DUP

Test Code: EPA TO-15

Date Collected: 10/27/16

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Date Received: 11/2/16

Analyst: Lusine Hakobyan

Date Analyzed: 11/9/16

Sample Type: 6.0 L Summa Canister

Volume(s) Analyzed: 1.00 Liter(s)

Test Notes:

Container ID: AC02220

Initial Pressure (psig): -2.49

Final Pressure (psig): 3.51

Canister Dilution Factor: 1.49

Compound	Sample Result		Duplicate Sample Result		Average µg/m³	% RPD	RPD Limit	Data Qualifier
	µg/m³	ppbV	µg/m³	ppbV				
Vinyl Chloride	ND	ND	ND	ND	-	-	25	
1,1-Dichloroethene	ND	ND	ND	ND	-	-	25	
Methylene Chloride	26.7	7.70	26.6	7.67	26.65	0.4	25	
trans-1,2-Dichloroethene	ND	ND	ND	ND	-	-	25	
cis-1,2-Dichloroethene	1.87	0.471	1.87	0.471	1.87	0	25	
1,2-Dichloroethane	0.249	0.0615	0.255	0.0630	0.252	2	25	
Benzene	0.997	0.312	0.997	0.312	0.997	0	25	
Trichloroethene	7.07	1.32	7.19	1.34	7.13	2	25	
1,1,2-Trichloroethane	ND	ND	ND	ND	-	-	25	
Toluene	6.20	1.64	6.29	1.67	6.245	1	25	
Tetrachloroethene	24.5	3.62	24.7	3.65	24.6	0.8	25	

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

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Page 1 of 1

Client: Center for Toxicology and Environmental Health, LLC

Client Sample ID: GRMS1028SS1

Client Project ID: 108046

ALS Project ID: P1605133

ALS Sample ID: P1605133-019DUP

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC01862

Date Collected: 10/28/16

Date Received: 11/2/16

Date Analyzed: 11/9/16

Volume(s) Analyzed: 0.050 Liter(s)

Initial Pressure (psig): -1.63

Final Pressure (psig): 5.35

Canister Dilution Factor: 1.53

Compound	Sample Result		Duplicate Sample Result		Average µg/m³	% RPD	RPD Limit	Data Qualifier
	µg/m³	ppbV	µg/m³	ppbV				
Vinyl Chloride	17.0	6.63	17.3	6.78	17.15	2	25	
1,1-Dichloroethene	68.4	17.3	69.6	17.6	69	2	25	
Methylene Chloride	ND	ND	ND	ND	-	-	25	
trans-1,2-Dichloroethene	32.7	8.25	32.9	8.29	32.8	0.6	25	
cis-1,2-Dichloroethene	1,590	402	1,600	404	1595	0.6	25	
1,2-Dichloroethane	13.8	3.41	14.4	3.55	14.1	4	25	
Benzene	27.9	8.74	27.8	8.71	27.85	0.4	25	
Trichloroethene	3,030	564	3,020	563	3025	0.3	25	
1,1,2-Trichloroethane	ND	ND	ND	ND	-	-	25	
Toluene	39.0	10.4	39.5	10.5	39.25	1	25	
Tetrachloroethene	88.3	13.0	88.0	13.0	88.15	0.3	25	

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Center for Toxicology and Environmental Health, LLC

Client Project ID: 108046

ALS Project ID: P1605133

Internal Standard Area and RT Summary

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Lab File ID: 11081627.D

Analyst: Lusine Hakobyan

Date Analyzed: 11/8/16

Sample Type: 6.0 L Silonite Canister(s)

Time Analyzed: 22:29

Test Notes:

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	#	RT	#	AREA	#
24 Hour Standard	313281	11.29	1497333	13.41	625044	17.72
Upper Limit	438593	11.62	2096266	13.74	875062	18.05
Lower Limit	187969	10.96	898400	13.08	375026	17.39

Client Sample ID		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA	#	RT	#	AREA	#
01	Method Blank	282866	11.29	1401294	13.41	580752	17.72
02	Lab Control Sample	303394	11.29	1441106	13.41	599572	17.72
03	GRMS1028SS2	286977	11.28	1391990	13.41	590370	17.72
04	GRMS1028SS4	281632	11.29	1382615	13.41	585735	17.72
05	GRMS1028SS5	277203	11.28	1358829	13.41	569235	17.72
06	GRMS1028SS1	283271	11.28	1362813	13.41	581586	17.72
07	GRMS1028SS1 (Lab Duplicate)	283025	11.28	1370387	13.41	581834	17.72
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (BCM) = Bromochloromethane

IS2 (DFB) = 1,4-Difluorobenzene

IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area

AREA LOWER LIMIT = 60% of internal standard area

RT UPPER LIMIT = 0.33 minutes of internal standard RT

RT LOWER LIMIT = 0.33 minutes of internal standard RT

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

I = Internal standard not within the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Center for Toxicology and Environmental Health, LLC

Client Project ID: 108046

ALS Project ID: P1605133

Internal Standard Area and RT Summary

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Lab File ID: 11091601.D

Analyst: Lusine Hakobyan

Date Analyzed: 11/9/16

Sample Type: 6.0 L Silonite Canister(s)

Time Analyzed: 17:54

Test Notes:

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	# RT	AREA	# RT	AREA	# RT
24 Hour Standard	292337	11.29	1400072	13.41	595353	17.72
Upper Limit	409272	11.62	1960101	13.74	833494	18.05
Lower Limit	175402	10.96	840043	13.08	357212	17.39

Client Sample ID		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA	# RT	AREA	# RT	AREA	# RT
01	Method Blank	267627	11.29	1320878	13.41	567509	17.72
02	Lab Control Sample	291063	11.29	1384860	13.41	601402	17.72
03	GRMS1026IA0A1	276953	11.28	1354894	13.41	584624	17.72
04	GRMS1026IA0A2	278490	11.28	1377279	13.41	599459	17.72
05	GRMS1026IA0A2 (Lab Duplicate)	281025	11.28	1372480	13.41	597520	17.72
06	GRMS1026IA0A3	282767	11.27	1386732	13.41	606174	17.72
07	GRMS1026IA0A5	288988	11.28	1407441	13.41	611288	17.72
08	GRMS1026IA0A6	283900	11.27	1398354	13.41	601917	17.72
09	GRMS1026IA0B1	287539	11.28	1397633	13.41	598768	17.72
10	GRMS1026IA0B2	282460	11.27	1401591	13.41	600521	17.72
11	GRMS1026IA0B3	284664	11.28	1393102	13.41	599163	17.72
12	GRMS1026IA0B4	284000	11.27	1394842	13.41	593670	17.72
13	GRMS1026IA0B5	283898	11.28	1400149	13.41	603420	17.72
14	GRMS1026IA0B6	278000	11.28	1366345	13.41	587039	17.72
15	GRMS1026OA001	282680	11.28	1389545	13.41	605185	17.72
16	GRMS1028SS6	284394	11.29	1378963	13.41	593792	17.72
17	GRMS1026BS1	276362	11.28	1383915	13.41	591157	17.72
18	GRMS1026BS2	274592	11.28	1348616	13.41	591476	17.72
19	GRMS1026OA002	276914	11.28	1365333	13.41	576580	17.72
20	GRMS1026OA003	278396	11.28	1374511	13.41	582323	17.72
21	GRMS1028FB001	271043	11.29	1328772	13.41	574021	17.72
22	GRMS1028SS3	265146	11.28	1352846	13.41	583709	17.72

IS1 (BCM) = Bromochloromethane

IS2 (DFB) = 1,4-Difluorobenzene

IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area

AREA LOWER LIMIT = 60% of internal standard area

RT UPPER LIMIT = 0.33 minutes of internal standard RT

RT LOWER LIMIT = 0.33 minutes of internal standard RT

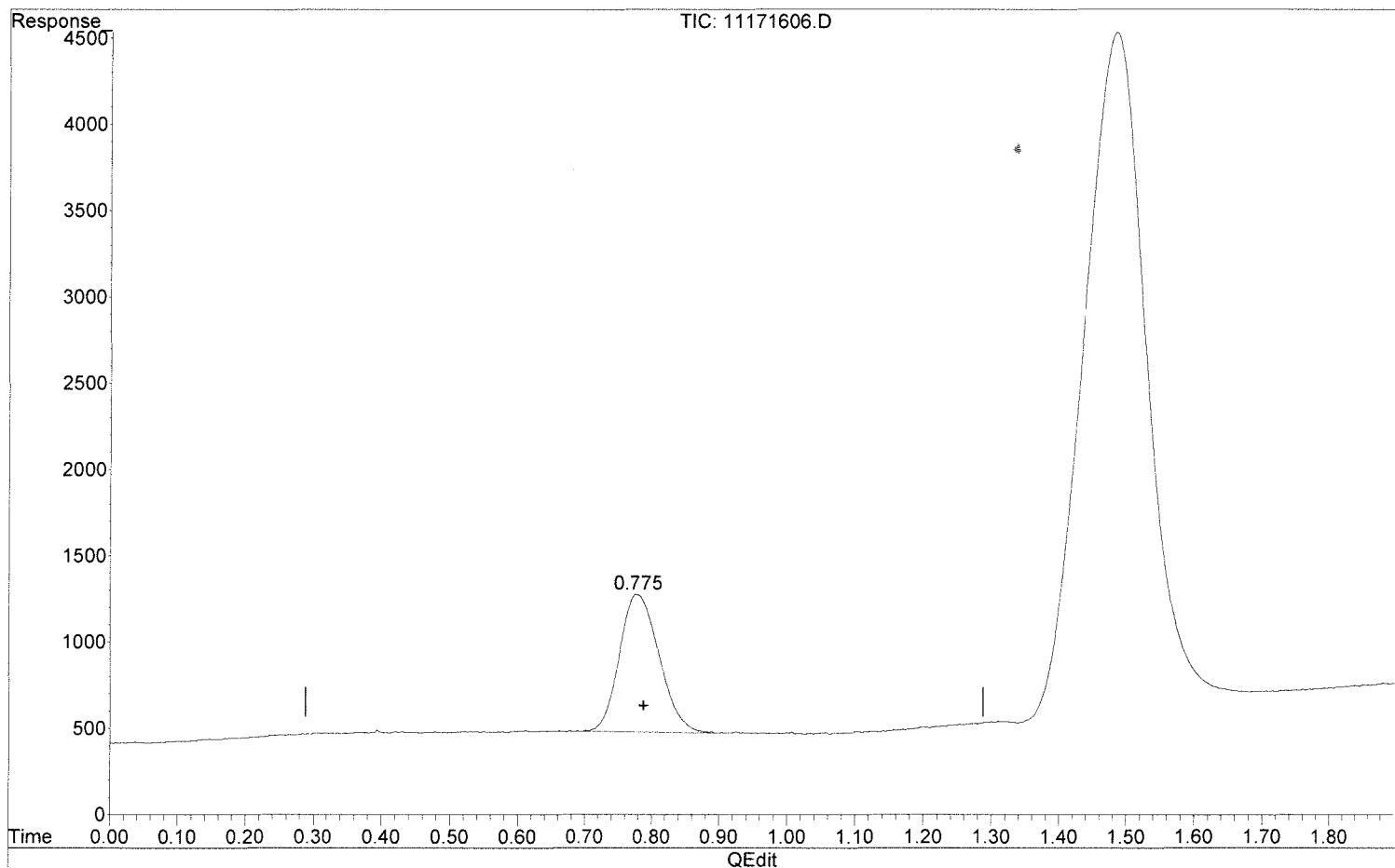
Column used to flag values outside QC limits with an I.

I = Internal standard not within the specified limits.

Data Path : I:\GC08\DATA\H2_He\2016_11\17\
Data File : 11171606.D
Signal(s) : TCD1A.CH
Acq On : 17-Nov-2016, 09:12:01
Operator : amf
Sample : 5133-019 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 17 11:43:35 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Helium

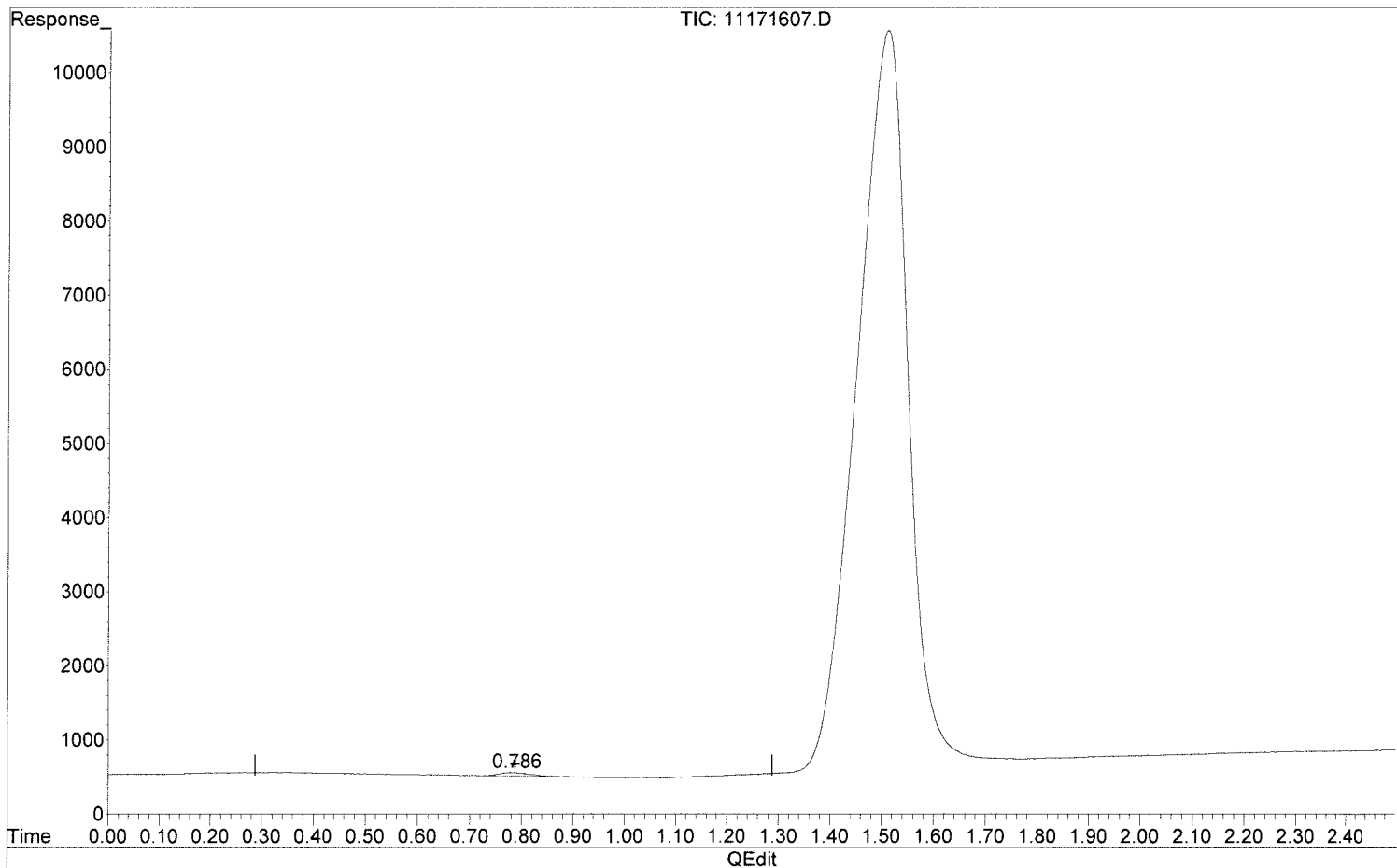
0.778min 768.226 ppm

response 33053

Data Path : I:\GC08\DATA\H2_He\2016_11\17\
Data File : 11171607.D
Signal(s) : TCD1A.CH
Acq On : 17-Nov-2016, 09:18:45
Operator : amf
Sample : 5133-020 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 17 11:44:23 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Helium

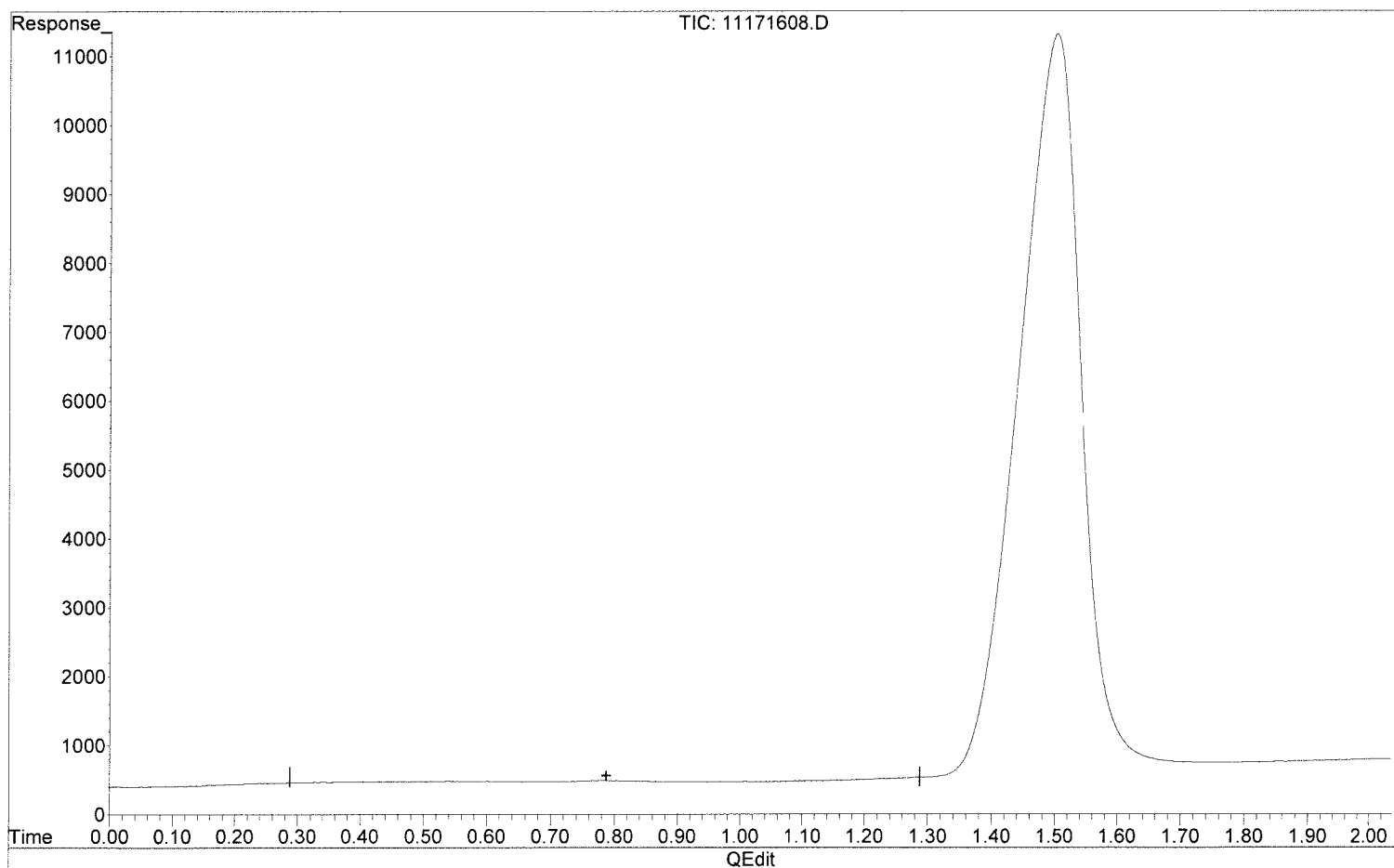
0.786min 40.183 ppm

response 1729

Data Path : I:\GC08\DATA\H2_He\2016_11\17\
Data File : 11171608.D
Signal(s) : TCD1A.CH
Acq On : 17-Nov-2016, 09:27:21
Operator : amf
Sample : 5133-021 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 17 11:44:39 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Helium

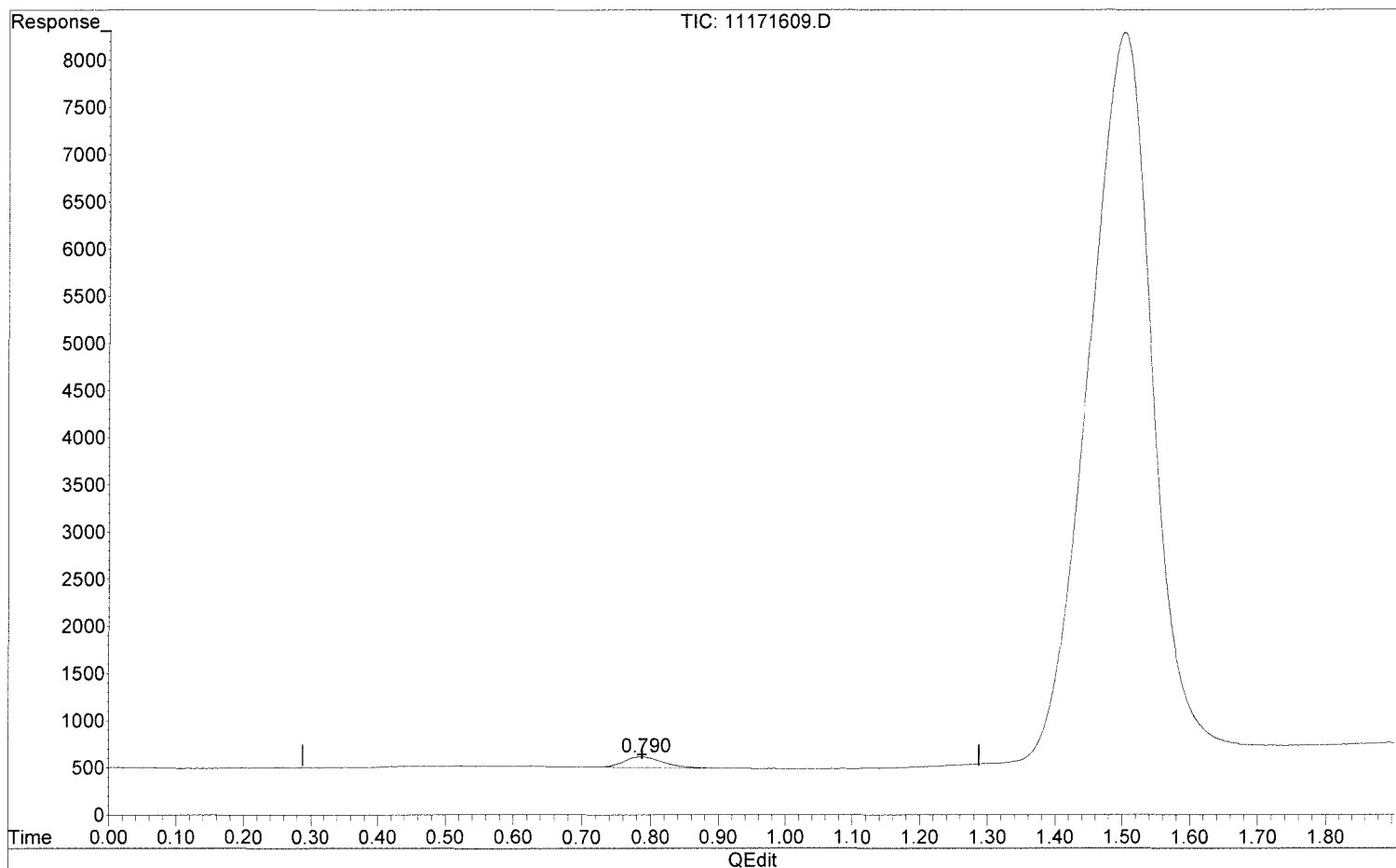
0.788min 0.000 ppm

response 0

Data Path : I:\GC08\DATA\H2_He\2016_11\17\
Data File : 11171609.D
Signal(s) : TCD1A.CH
Acq On : 17-Nov-2016, 09:40:20
Operator : amf
Sample : 5133-022 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 17 11:44:50 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Helium

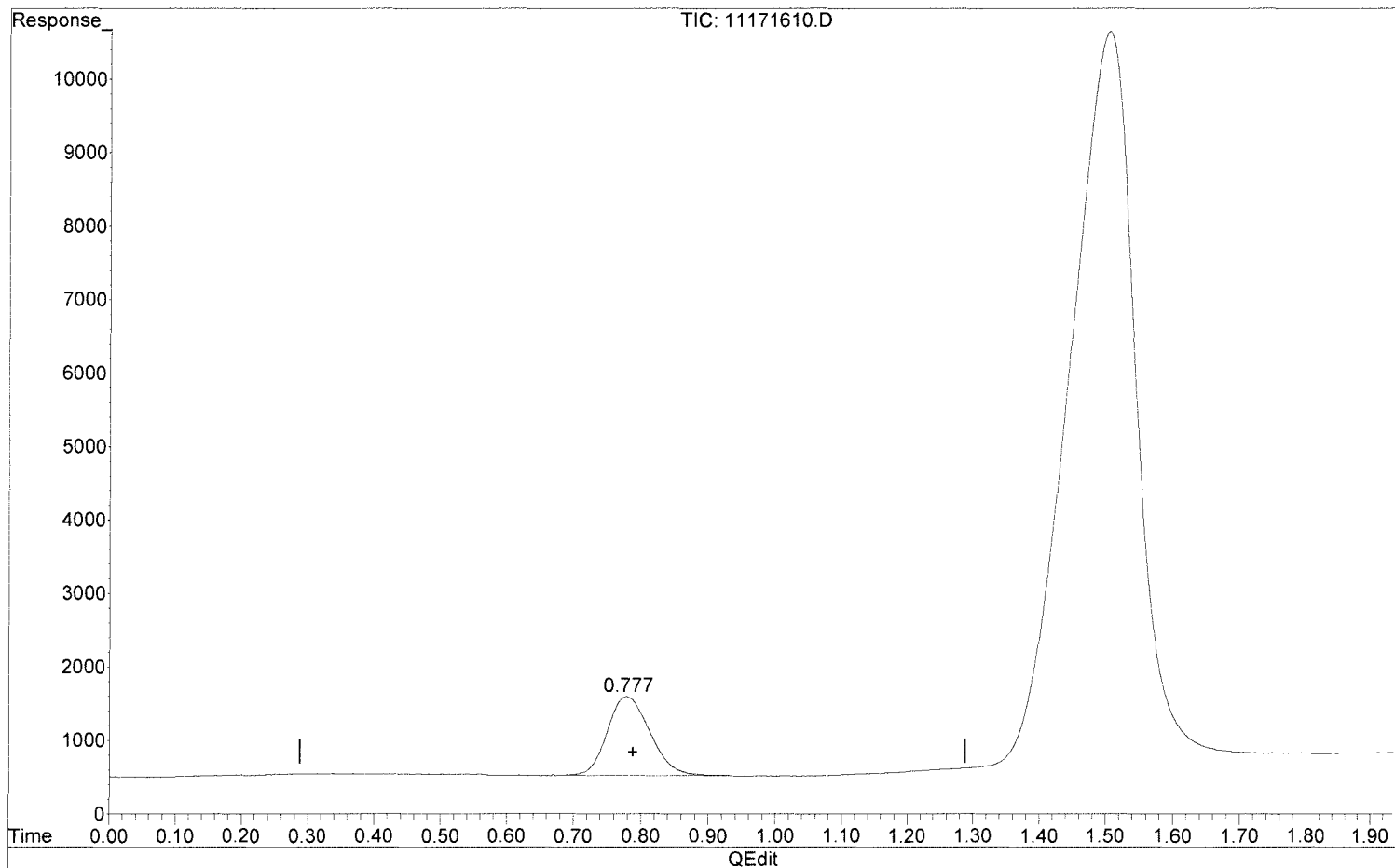
0.790min 104.877 ppm

response 4512

Data Path : I:\GC08\DATA\H2_He\2016_11\17\
Data File : 11171610.D
Signal(s) : TCD1A.CH
Acq On : 17-Nov-2016, 09:55:02
Operator : amf
Sample : 5133-023 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 17 11:45:06 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Helium

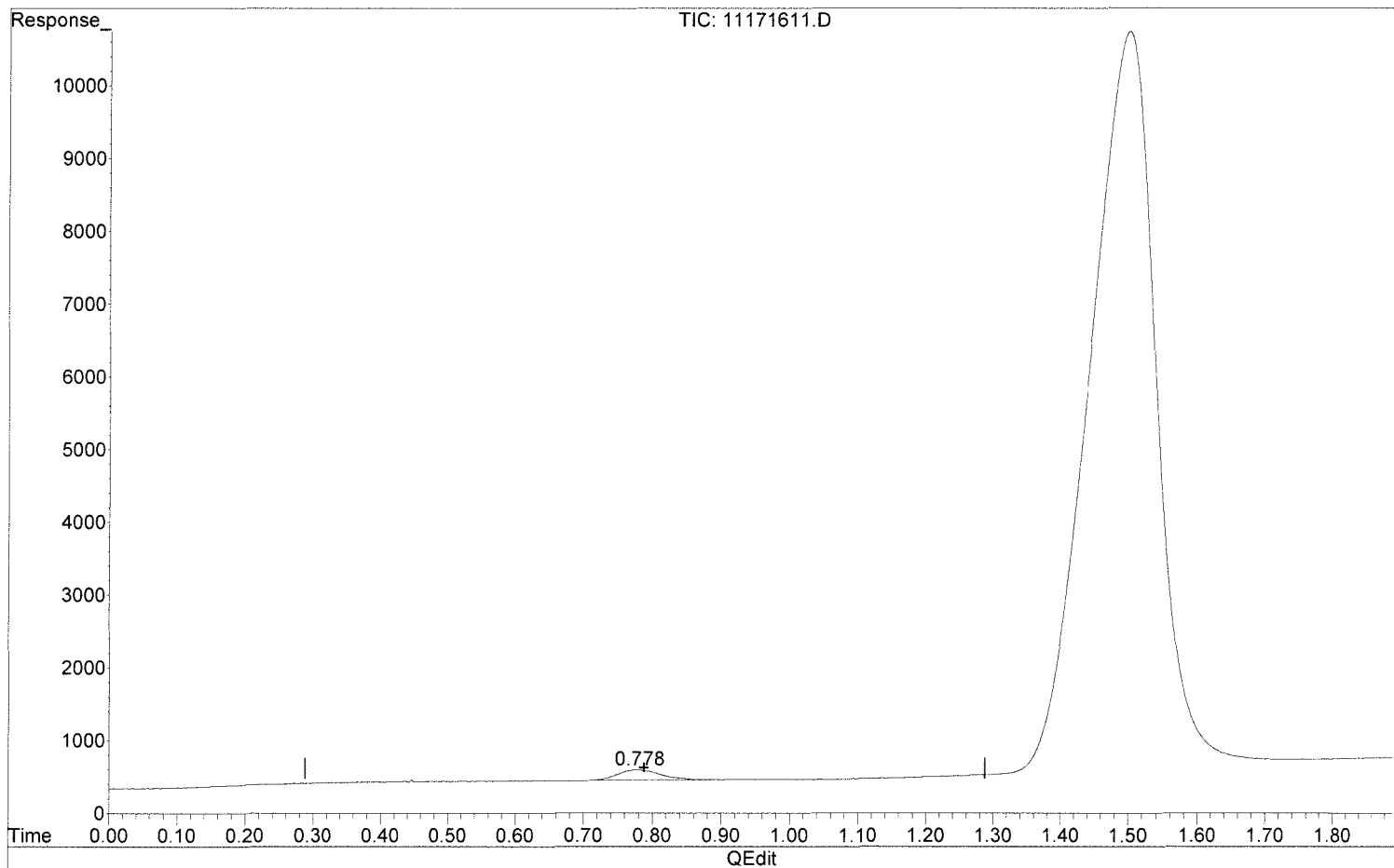
0.778min 1099.135 ppm

response 47291

Data Path : I:\GC08\DATA\H2_He\2016_11\17\
Data File : 11171611.D
Signal(s) : TCD1A.CH
Acq On : 17-Nov-2016, 10:03:11
Operator : amf
Sample : 5133-024 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 17 11:45:18 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Helium

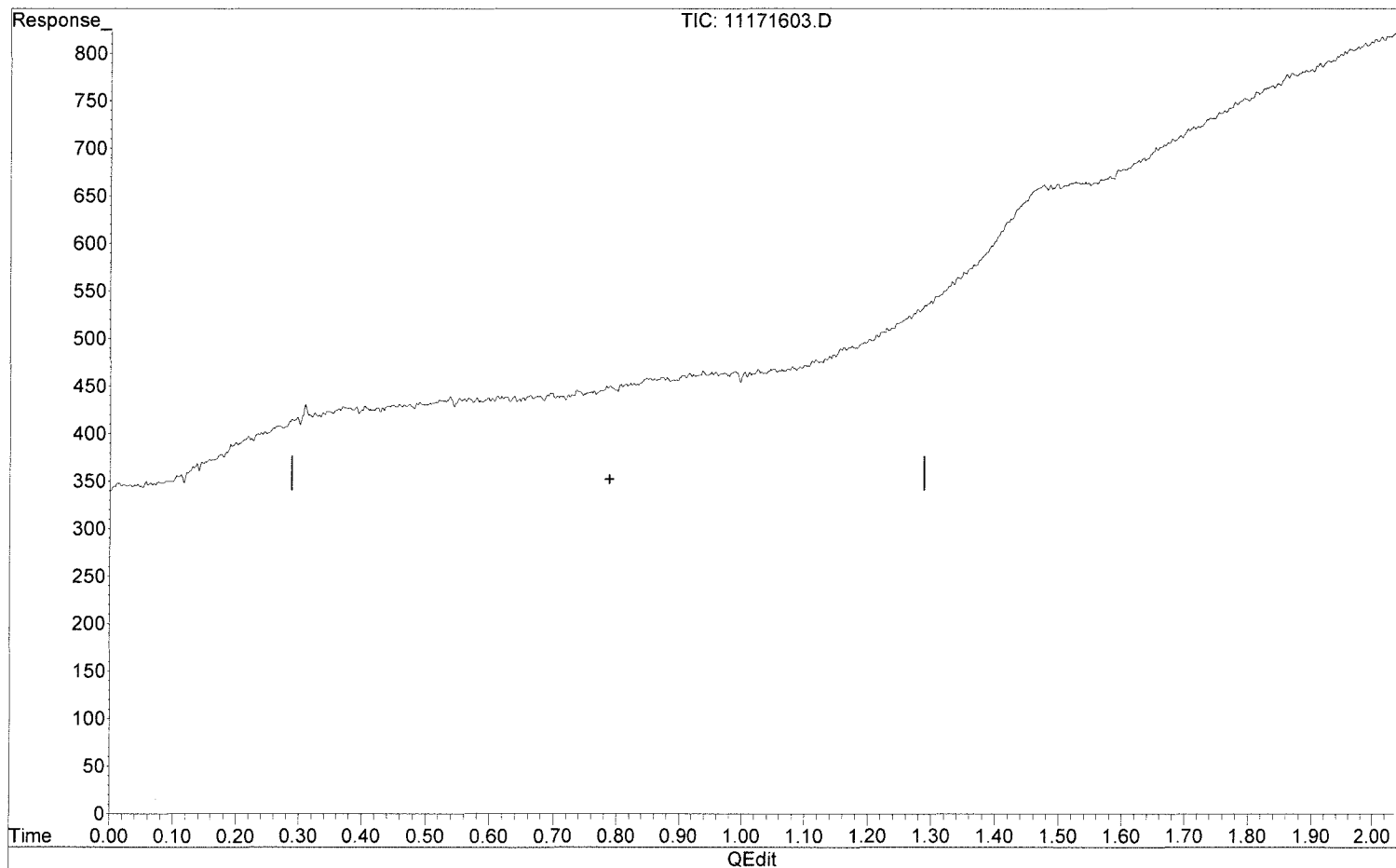
0.779min 138.155 ppm

response 5944

Data Path : I:\GC08\DATA\H2_He\2016_11\17\
Data File : 11171603.D
Signal(s) : TCD1A.CH
Acq On : 17-Nov-2016, 08:45:15
Operator : amf
Sample : mb 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 17 08:52:33 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Helium

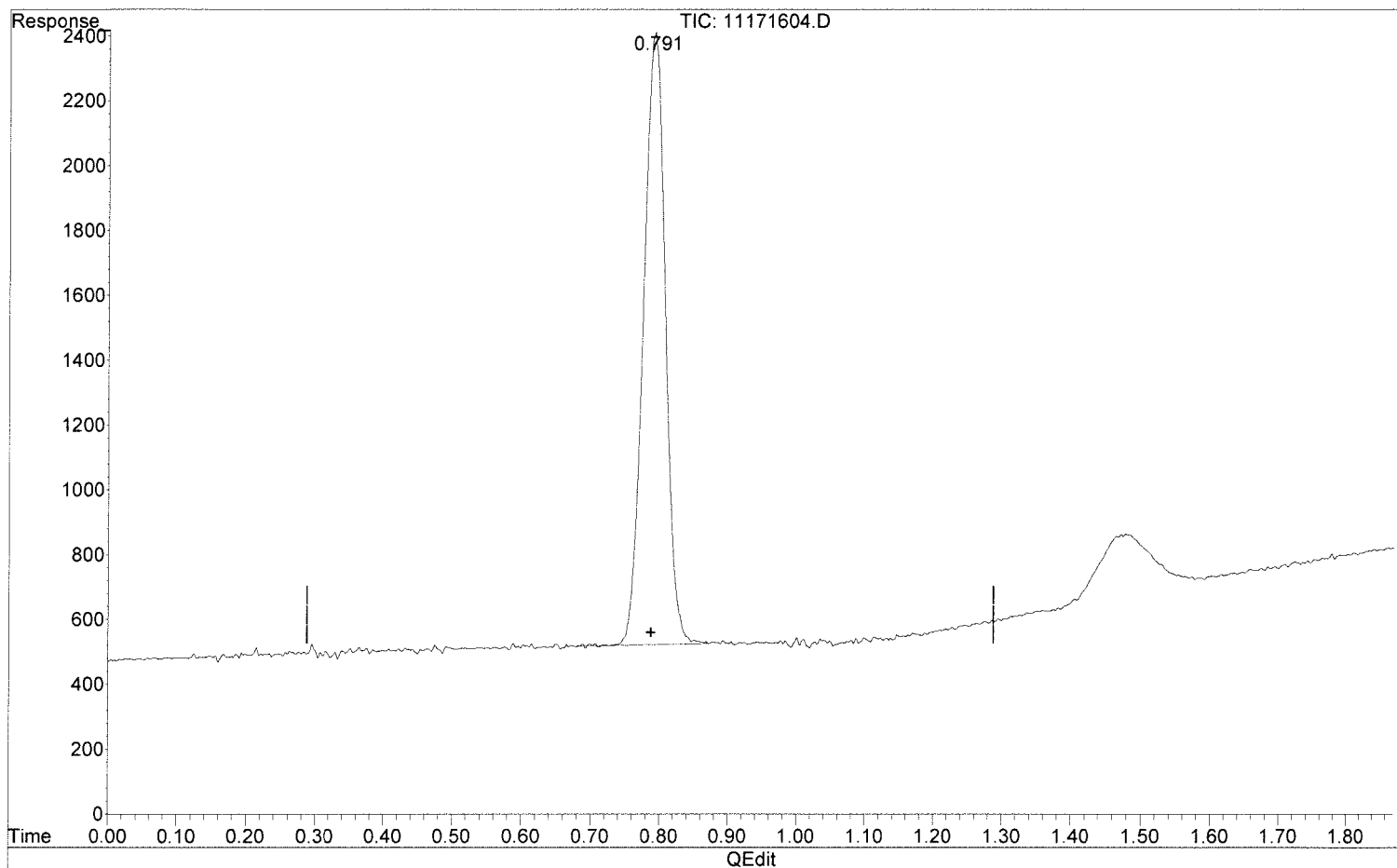
0.788min 0.000 ppm

response 0

Data Path : I:\GC08\DATA\H2_He\2016_11\17\
Data File : 11171604.D
Signal(s) : TCD1A.CH
Acq On : 17-Nov-2016, 08:53:44
Operator : amf
Sample : lcs s30-11161602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 17 09:09:57 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Helium

0.791min 969.048 ppm

response 41694

ALS Enviromental

REPORT SUMMARY

Method : Helium by modified EPA 3C
 Client : Center for Toxicology and Environmental Health, LLC
 Analyst : amf

Instrument : Instrument #8 / TCD #8
 Date Acquired : 11/17/2016
 Sample Amount : 1 mL

Opening CCV¹

std s30-11161601		He
Sample result (ppm)	inj vol.	9895.40
ACTUAL	0.10	10000.00
%Difference		1.05%

Closing CCV¹

std s30-11161601		He
Sample result (ppm)	inj vol.	9577.70
ACTUAL	0.10	10000.00
%Difference		4.22%

Laboratory Control Spike²

lcs s30-11161602	He
sample result ppm	9690.5
spike amount	10000
% recovery	96.91%

Laboratory Control Spike⁴

lcsds30-11161602	He
sample result ppm	9408.4
spike amount	10000
% recovery	94.08%
% RPD	2.95%

FINAL SAMPLE RESULT SUMMARIES

Sample ID Reporting Limit	Inject. Vol(ml)	Dilution DF	Pi	Pf	PIPf DF	He Result (ppm)	FINAL HELIUM RESULT		File ID	Acq time
							ppm 25.0	mg/M3 4.09		
mb 1ml	1.000	1.0			1.00	0.00	ND	ND		
5133-019 1ml	1.00	1.0	-1.63	5.35	1.53	768.23	1178.501	192.848	11171606.D	09:12:01
5133-020 1ml	1.00	1.0	-2.12	3.53	1.45	40.18	58.226	9.528	11171607.D	09:18:45
5133-021 1ml	1.00	1.0	-2.82	3.57	1.54	0.00	ND	ND	11171608.D	09:27:21
5133-022 1ml	1.00	1.0	-1.97	3.65	1.44	104.88	151.182	24.739	11171609.D	09:40:20
5133-023 1ml	1.00	1.0	0.34	3.56	1.21	1099.14	1334.461	218.369	11171610.D	09:55:02
5133-024 1ml	1.00	1.0	-2.84	3.51	1.54	138.15	212.117	34.711	11171611.D	10:03:11

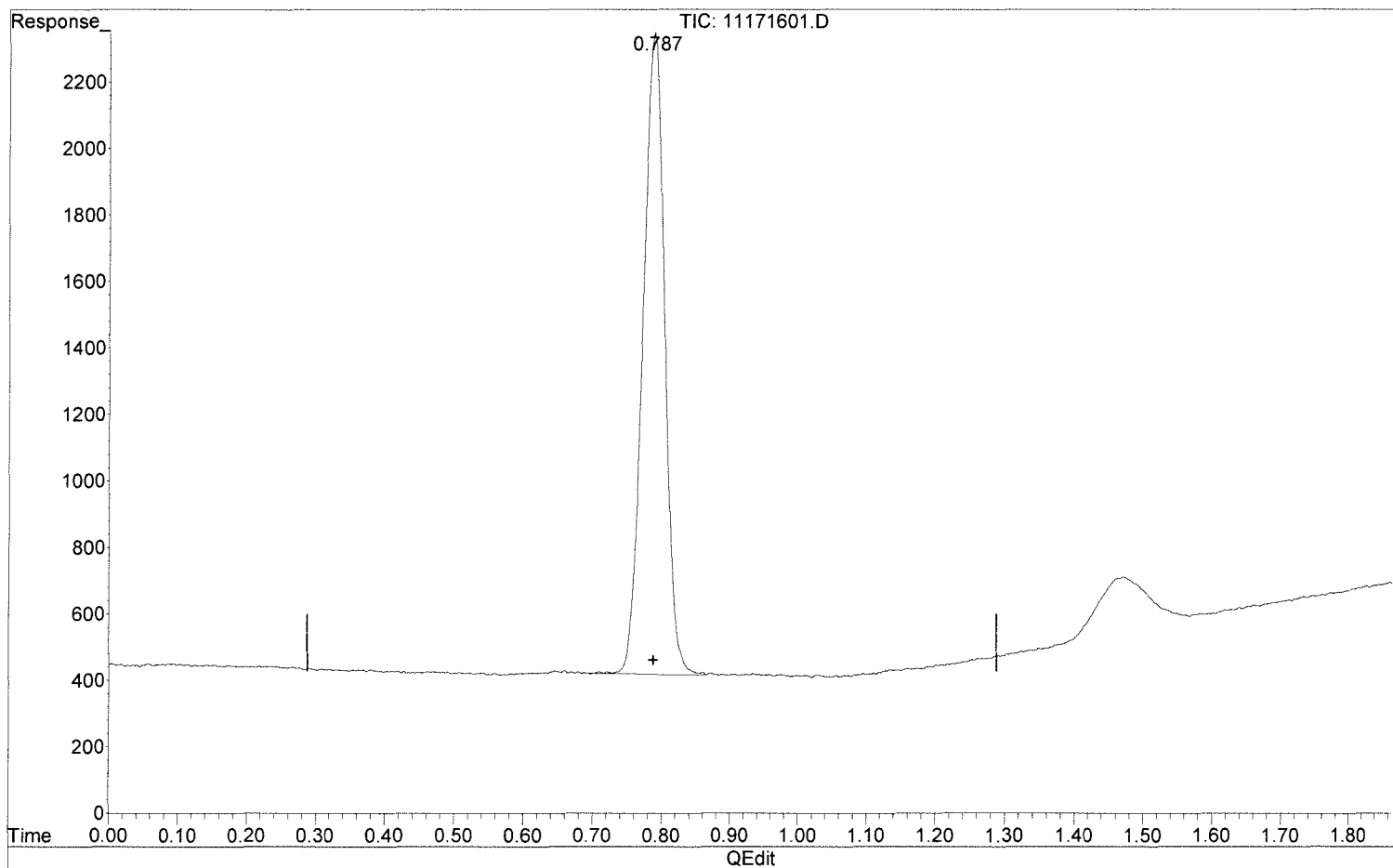
AM
11/17/16

1. 15% difference allowed for the opening and closing standards.
2. 75-124% helium recovery for the lab control spike.
3. 15% helium RPD allowed between duplicate samples.

Data Path : I:\GC08\DATA\H2_He\2016_11\17\
Data File : 11171601.D
Signal(s) : TCD1A.CH
Acq On : 17-Nov-2016, 08:29:03
Operator : amf
Sample : std s30-11161601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 17 08:36:28 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Helium

0.787min 989.542 ppm

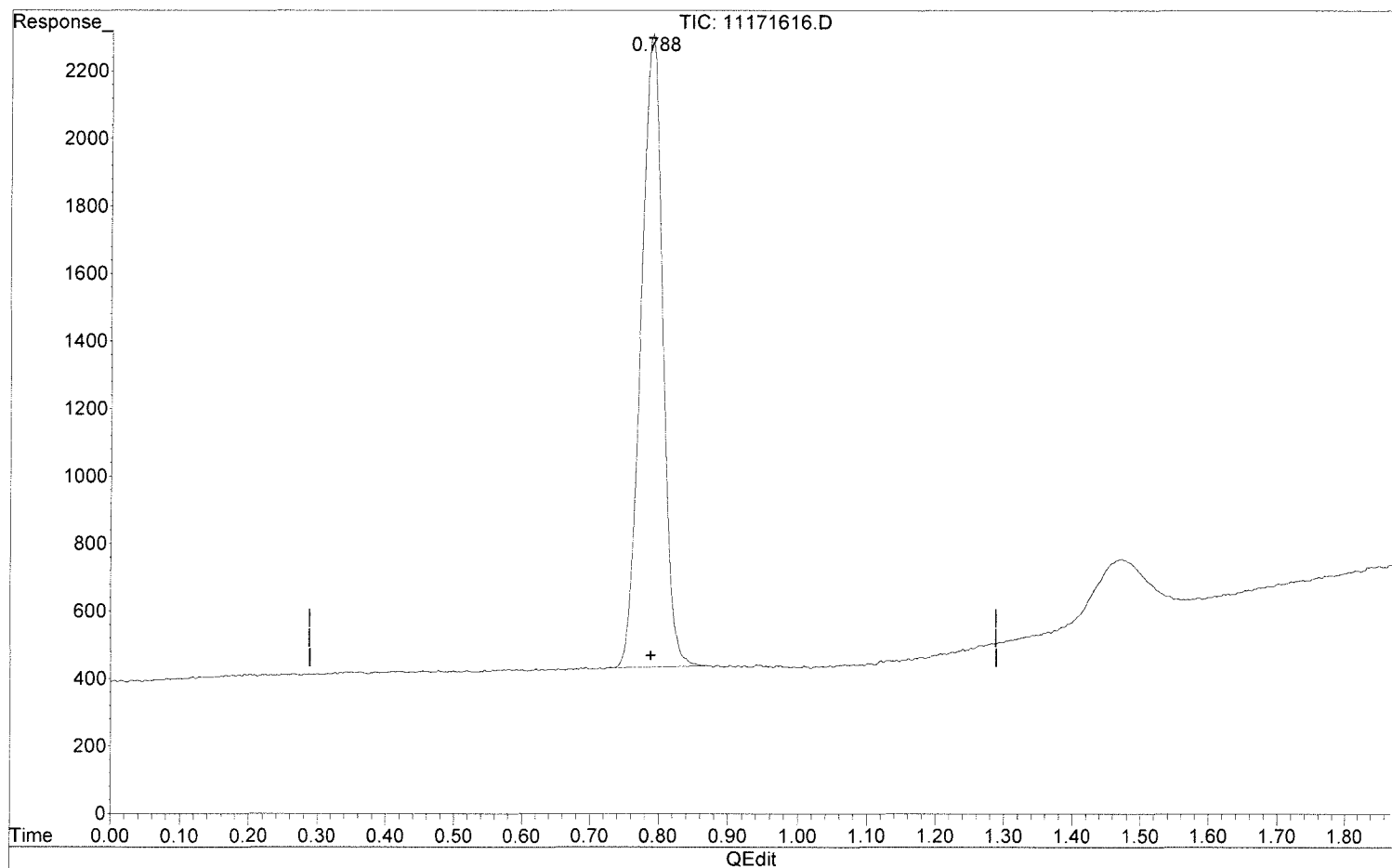
response 42575

amf
11/17/16

Data Path : I:\GC08\DATA\H2_He\2016_11\17\
Data File : 11171616.D
Signal(s) : TCD1A.CH
Acq On : 17-Nov-2016, 10:47:19
Operator : amf
Sample : std s30-11161601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 17 10:54:05 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Helium

0.788min 957.770 ppm

response 41208

Injection Log

Directory: I:\GC08\DATA\H2_HE\2016_09\23\

[illegible]

Injection Log

Directory: I:\GC08\DATA\H2_HE\2016_11\17\

[illegible]

Method Path : I:\GC08\METHODS\
Method File : H2HE092316.M
Title : Hydrogen and Helium by EPA Method 3C
Last Update : Fri Sep 23 17:05:35 2016
Response Via : Initial Calibration

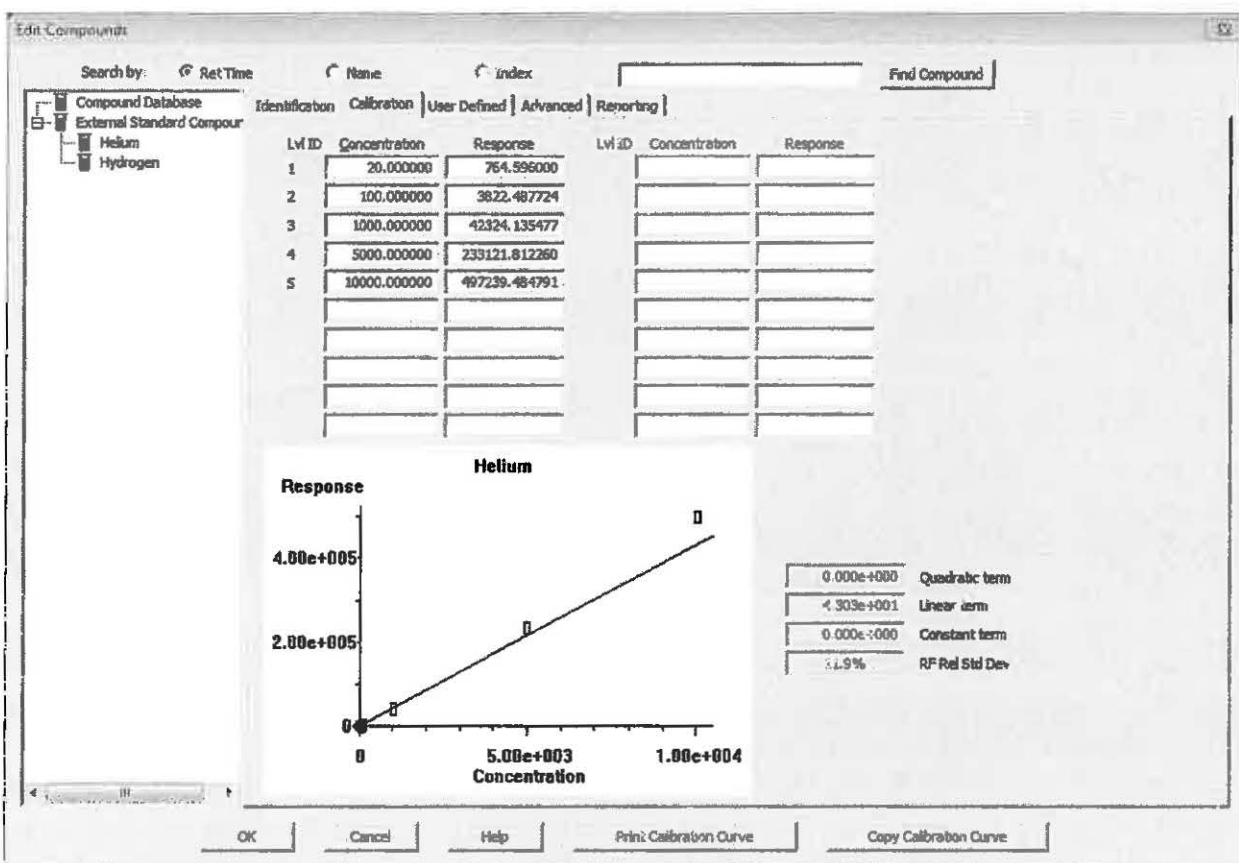
Calibration Files

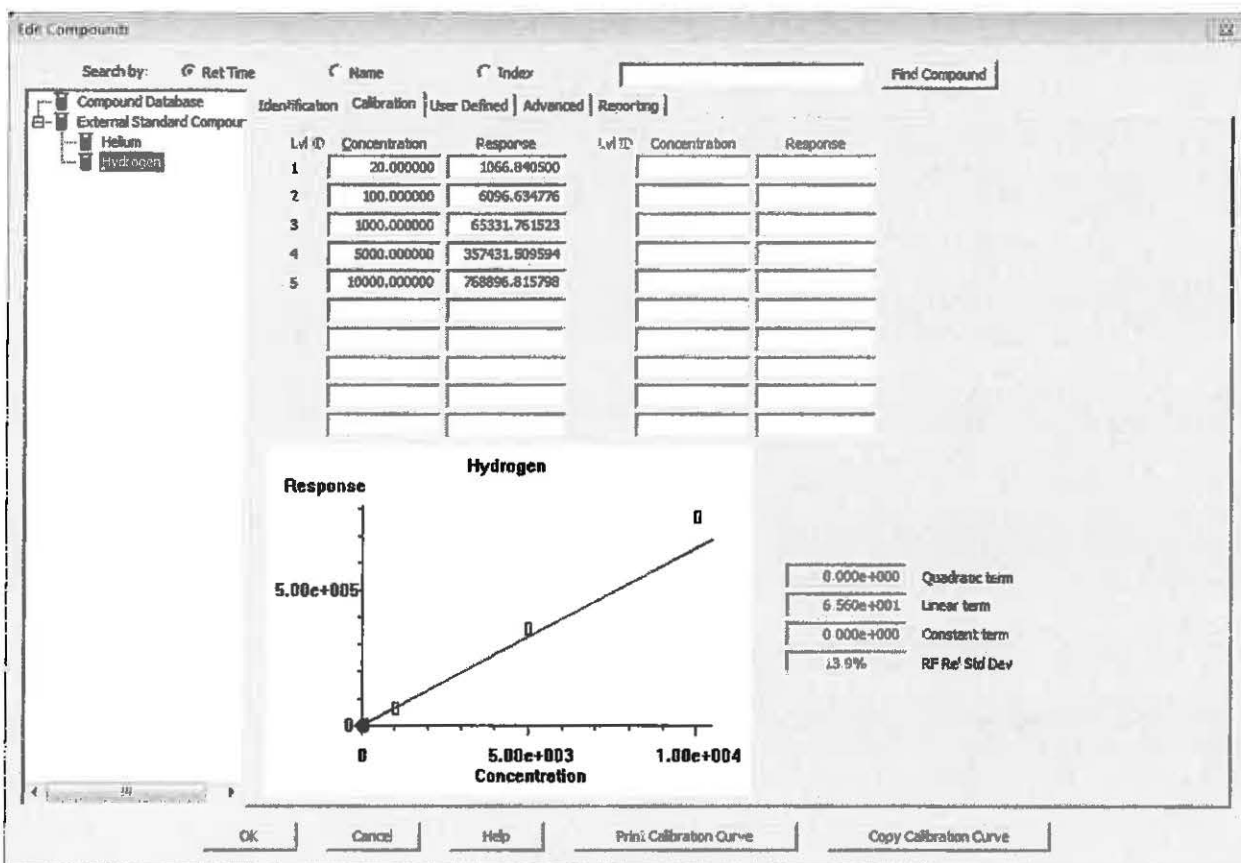
1 =09231603.D 2 =09231604.D 3 =09231605.D
4 =09231606.D 5 =09231607.D

	Compound	1	2	3	4	5	Avg		%RSD
1)	Helium	3.823	3.822	4.232	4.662	4.972	4.303	E1	11.87
2)	Hydrogen	5.334	6.097	6.533	7.149	7.689	6.560	E1	13.93

(#) = Out of Range

H2HE092316.M Fri Sep 23 17:15:48 2016





Method Path : I:\GC08\METHODS\
 Method File : H2HE092316.M
 Title : Hydrogen and Helium by EPA Method 3C
 Last Update : Fri Sep 23 17:05:35 2016
 Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	20	0	I:\GC08\DATA\TO_3M\2016_09\23HE\09231603.D
2	2	100	0	I:\GC08\DATA\TO_3M\2016_09\23HE\09231604.D
3	3	1000	0	I:\GC08\DATA\TO_3M\2016_09\23HE\09231605.D
4	4	5000	0	I:\GC08\DATA\TO_3M\2016_09\23HE\09231606.D
5	5	10000	0	I:\GC08\DATA\TO_3M\2016_09\23HE\09231607.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Sep 23 15:14 2016	Sep 23 15:13 2016	23-Sep-2016, 15:05:31
2	2	Sep 23 15:22 2016	Sep 23 15:22 2016	23-Sep-2016, 15:16:08
3	3	Sep 23 16:56 2016	Sep 23 16:55 2016	23-Sep-2016, 16:53:58
4	4	Sep 23 17:02 2016	Sep 23 17:02 2016	23-Sep-2016, 17:00:18
5	5	Sep 23 17:05 2016	Sep 23 17:05 2016	23-Sep-2016, 17:03:41

H2HE092316.M Fri Sep 30 13:59:08 2016

Data Path : I:\GC08\DATA\H2_He\2016_09\23\
Data File : 09231603.D
Signal(s) : TCD1A.CH
Acq On : 23-Sep-2016, 15:05:31
Operator : amf
Sample : s30-09231601 20ppm
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Sep 23 17:14:45 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Helium	0.789	951	22.104 ppm
2) Hydrogen	0.937	1246	18.995 ppm

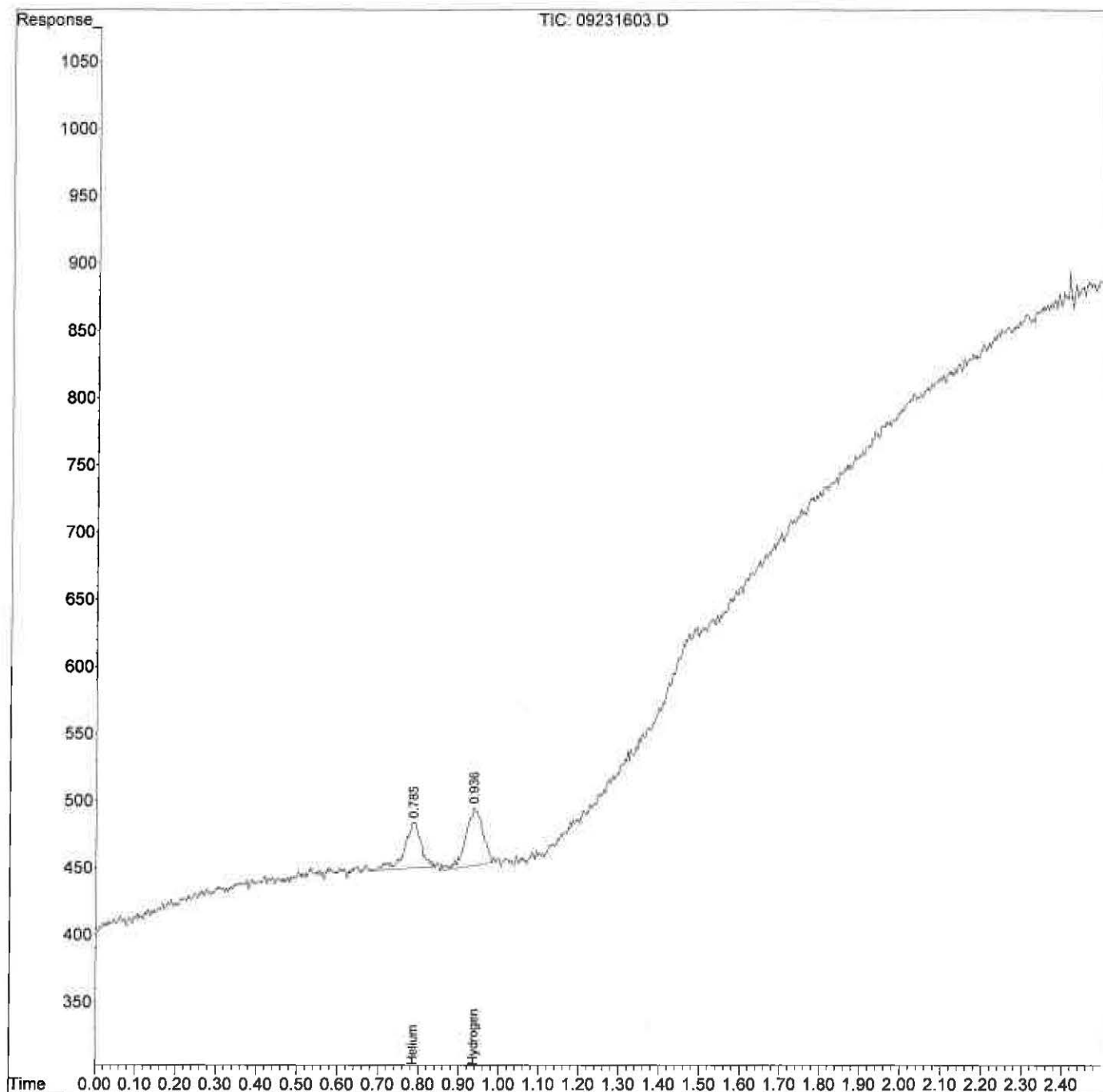
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC08\DATA\H2_He\2016_09\23\
Data File : 09231603.D
Signal(s) : TCD1A.CH
Acq On : 23-Sep-2016, 15:05:31
Operator : amf
Sample : s30-09231601 20ppm
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Sep 23 17:14:45 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : I:\GC08\DATA\H2_He\2016_09\23\
Data File : 09231604.D
Signal(s) : TCD1A.CH
Acq On : 23-Sep-2016, 15:16:08
Operator : amf
Sample : s30-09231601 100ppm
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Sep 23 17:14:54 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Helium	0.773	3822	88.843 ppm
2) Hydrogen	0.928	6097	92.932 ppm

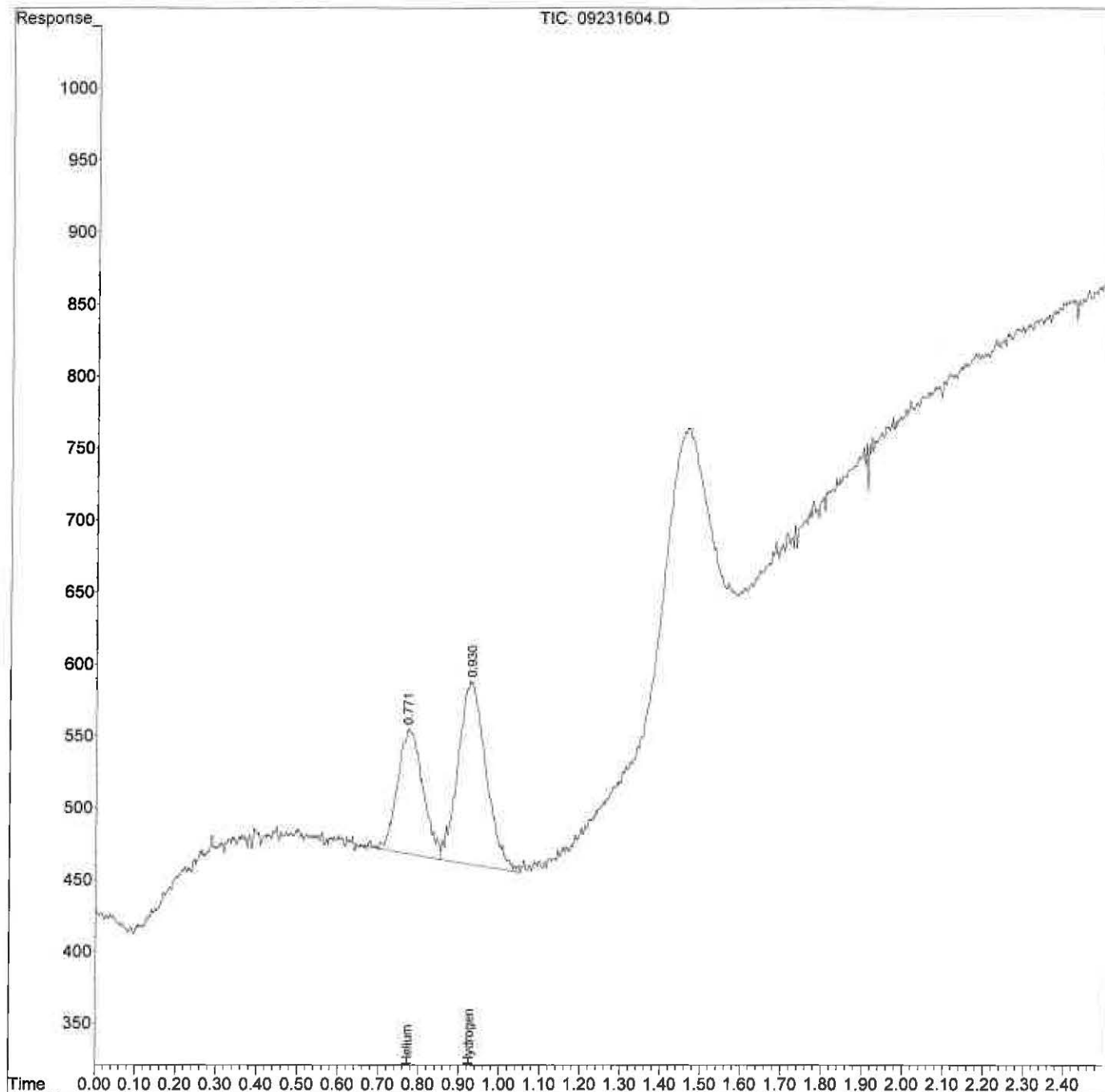
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC08\DATA\H2_He\2016_09\23\
Data File : 09231604.D
Signal(s) : TCD1A.CH
Acq On : 23-Sep-2016, 15:16:08
Operator : amf
Sample : s30-09231601 100ppm
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Sep 23 17:14:54 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : I:\GC08\DATA\H2_He\2016_09\23\
Data File : 09231605.D
Signal(s) : TCD1A.CH
Acq On : 23-Sep-2016, 16:53:58
Operator : amf
Sample : s30-09231601 1000ppm
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Sep 23 17:15:03 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Helium	0.787	42324	983.701 ppm
2) Hydrogen	0.939	65332	995.862 ppm

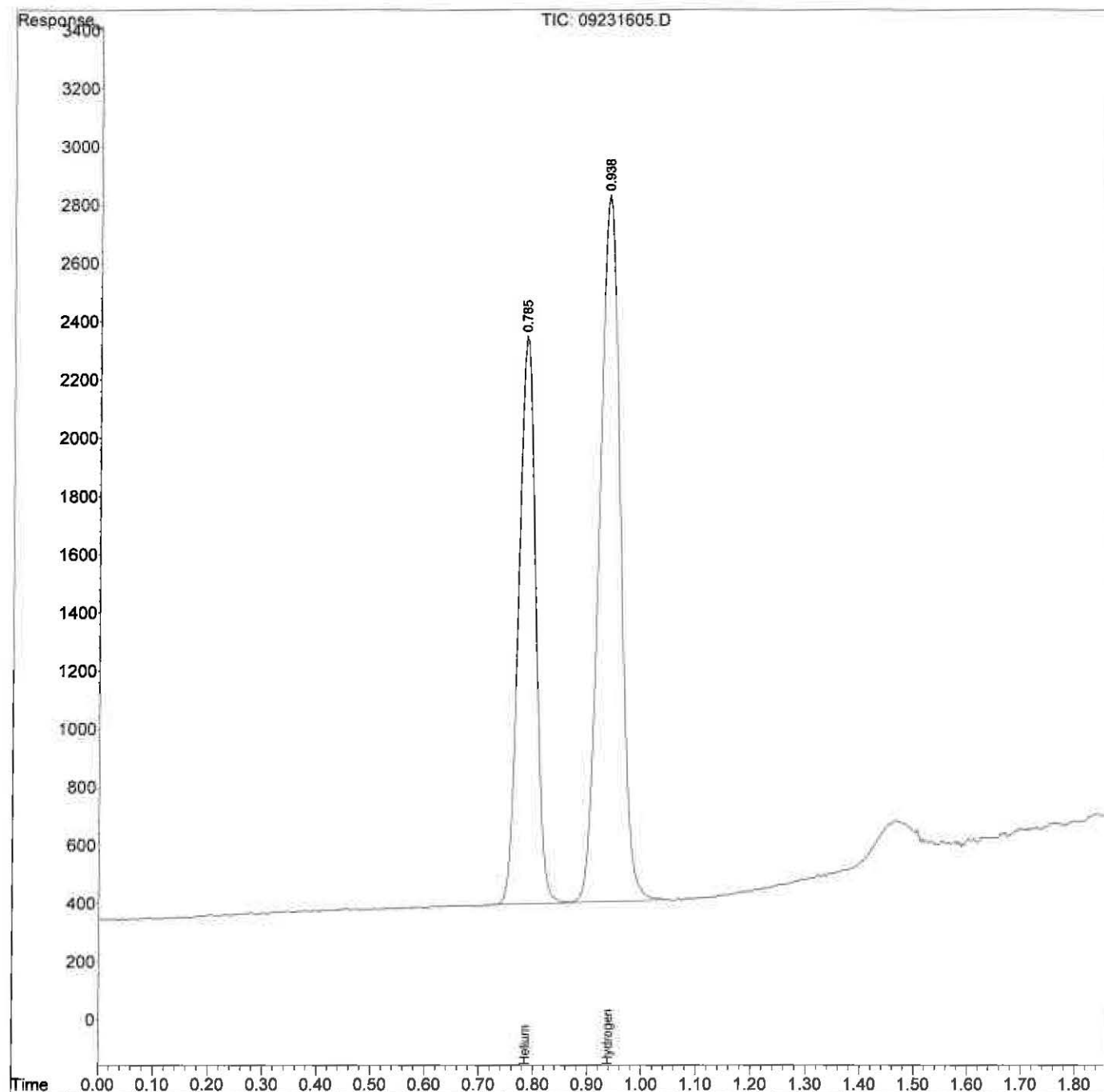
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC08\DATA\H2_He\2016_09\23\
Data File : 09231605.D
Signal(s) : TCD1A.CH
Acq On : 23-Sep-2016, 16:53:58
Operator : amf
Sample : s30-09231601 1000ppm
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Sep 23 17:15:03 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : I:\GC08\DATA\H2_He\2016_09\23\
Data File : 09231606.D
Signal(s) : TCD1A.CH
Acq On : 23-Sep-2016, 17:00:18
Operator : amf
Sample : s30-09231601 5000ppm
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Sep 23 17:15:12 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Helium	0.786	233122	5418.234 ppm
2) Hydrogen	0.937	357432	5448.383 ppm

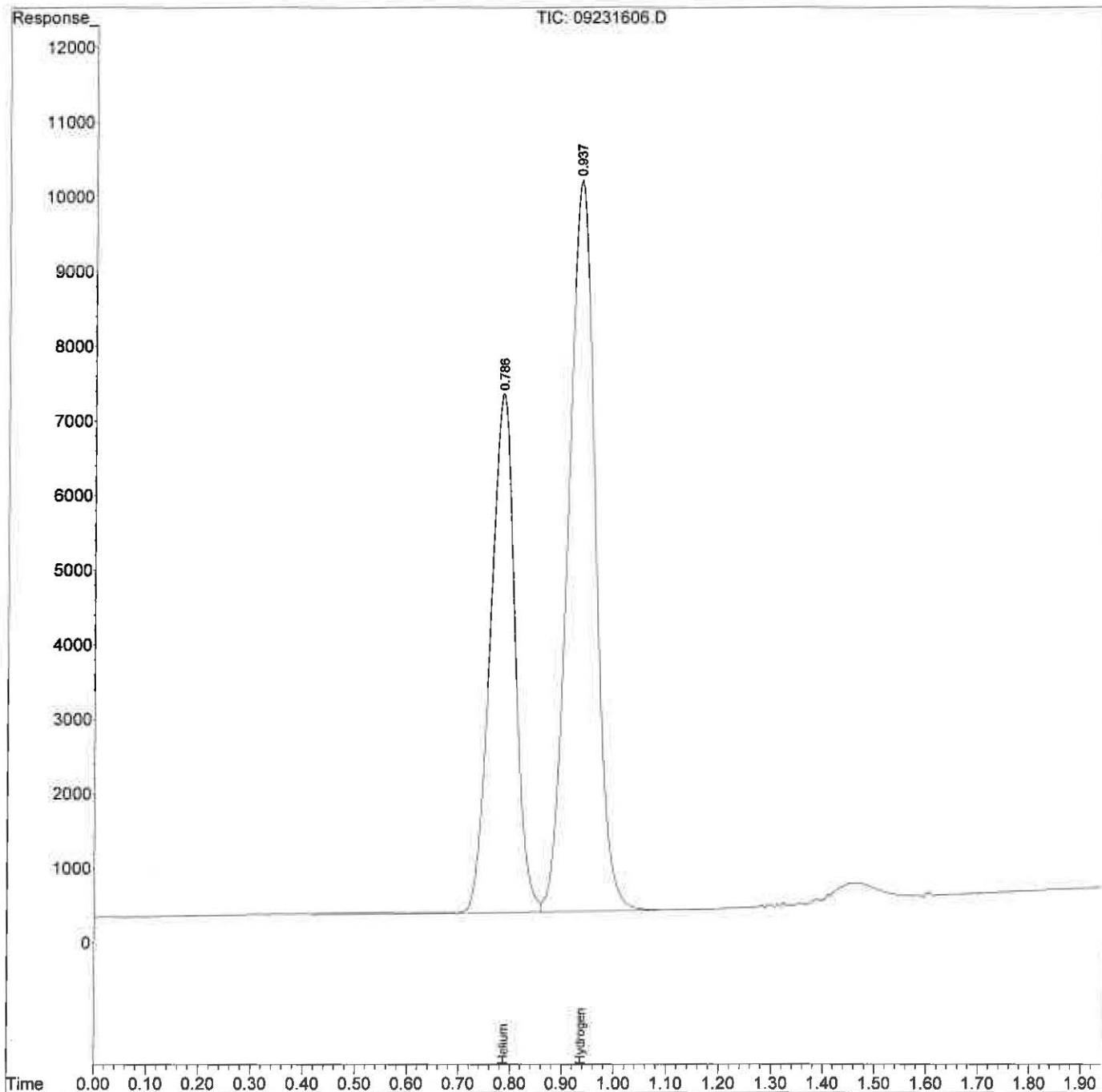
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC08\DATA\H2_He\2016_09\23\
Data File : 09231606.D
Signal(s) : TCD1A.CH
Acq On : 23-Sep-2016, 17:00:18
Operator : amf
Sample : s30-09231601 5000ppm
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Sep 23 17:15:12 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : I:\GC08\DATA\H2_He\2016_09\23\
Data File : 09231607.D
Signal(s) : TCD1A.CH
Acq On : 23-Sep-2016, 17:03:41
Operator : amf
Sample : s30-09231601 10000ppm
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Sep 27 11:16:57 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Helium	0.786	482958	11224.942 ppm
2) Hydrogen	0.937	755585	11517.503 ppm

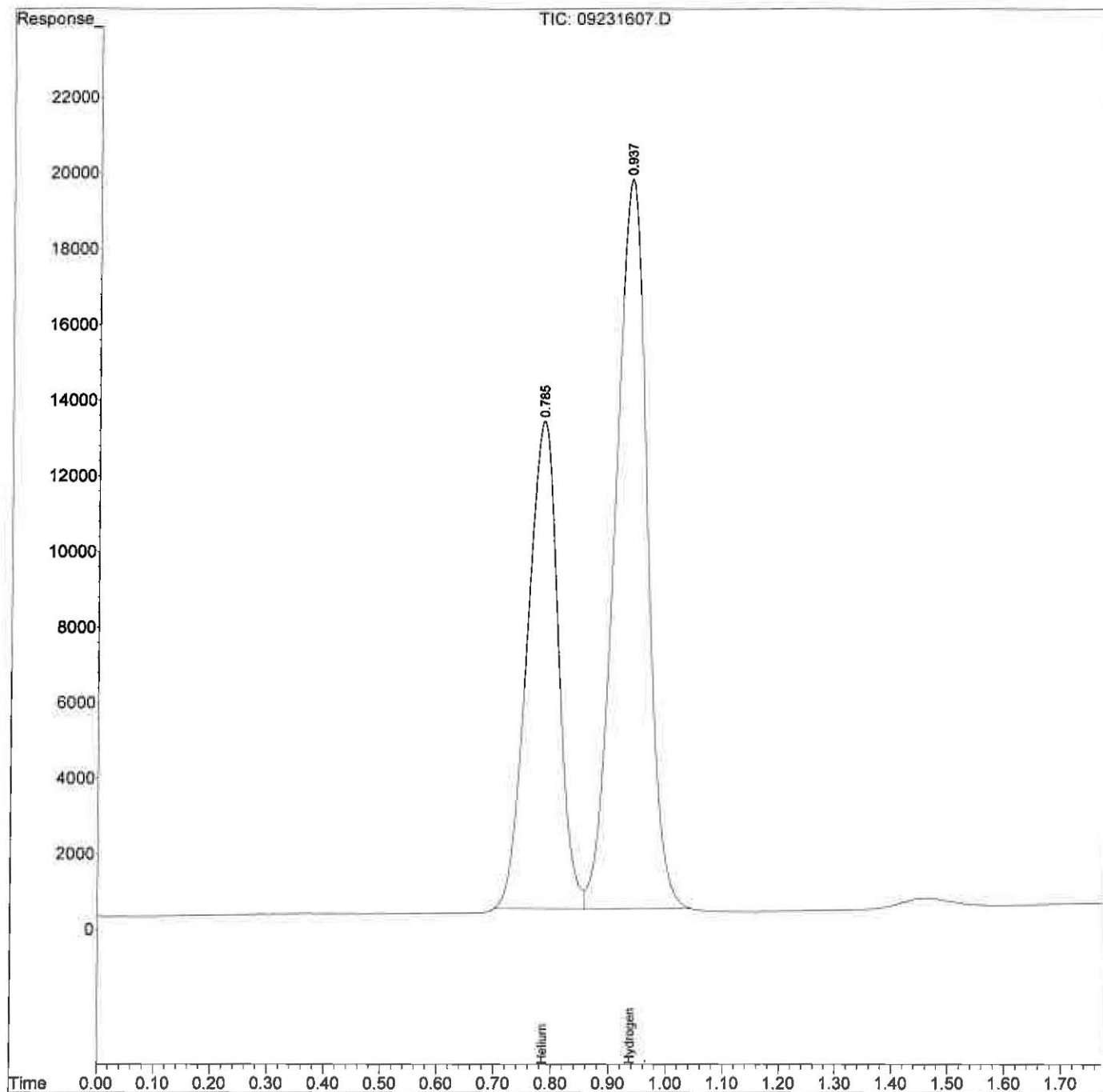
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC08\DATA\H2_He\2016_09\23\
Data File : 09231607.D
Signal(s) : TCD1A.CH
Acq On : 23-Sep-2016, 17:03:41
Operator : amf
Sample : s30-09231601 10000ppm
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Sep 27 11:16:57 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : I:\GC08\DATA\H2_He\2016_09\23\
Data File : 09231609.D
Signal(s) : TCD1A.CH
Acq On : 23-Sep-2016, 17:12:27
Operator : amf
Sample : ICV s30-09231602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Sep 23 17:15:39 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units

Target Compounds			
1) Helium	0.786	50814	1181.027 ppm
2) Hydrogen	0.937	78129	1190.932 ppm

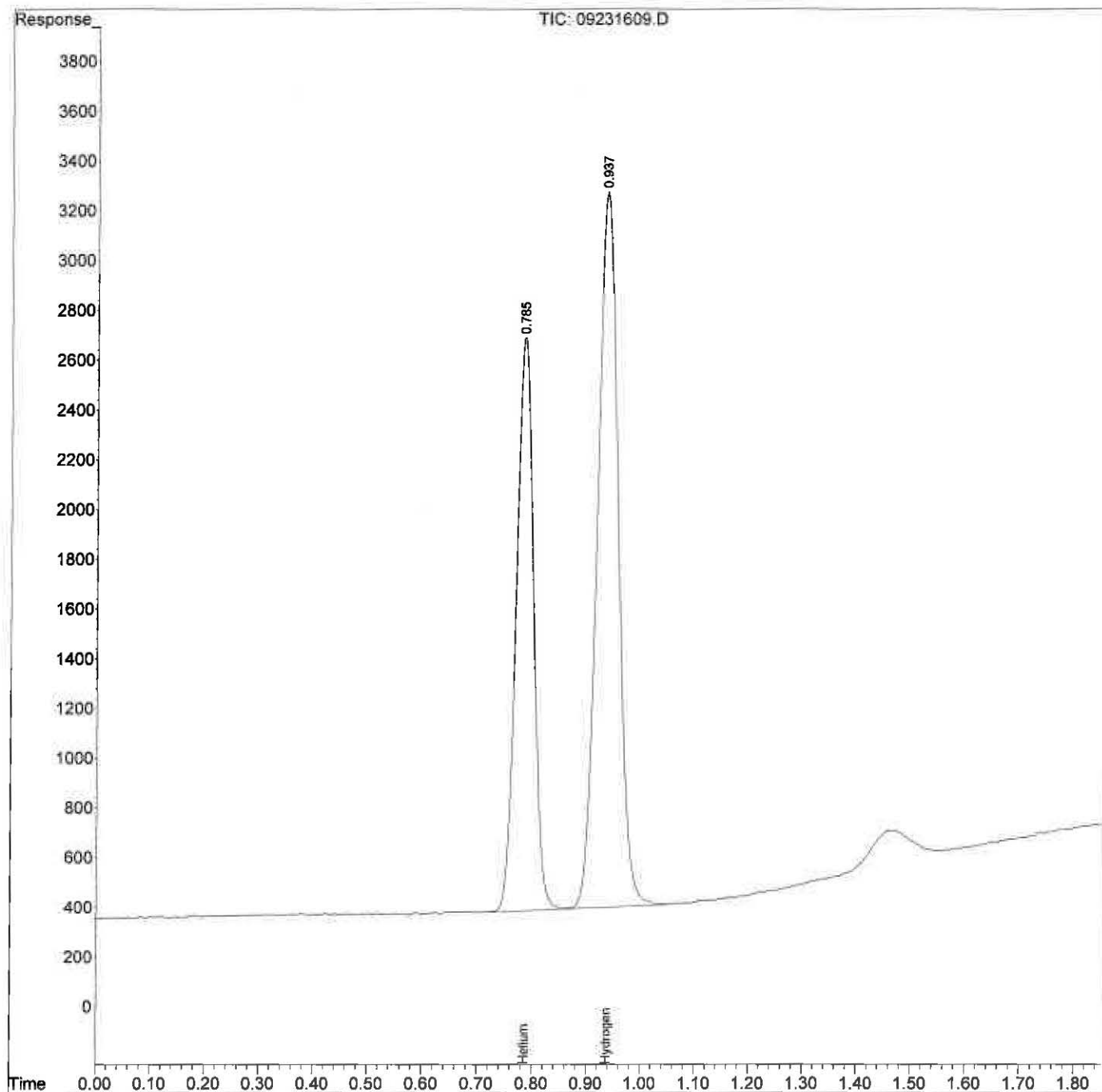
(f)=RT Delta > 1/2 Window

(m)=manual int.

Data Path : I:\GC08\DATA\H2_He\2016_09\23\
Data File : 09231609.D
Signal(s) : TCD1A.CH
Acq On : 23-Sep-2016, 17:12:27
Operator : amf
Sample : ICV s30-09231602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Sep 23 17:15:39 2016
Quant Method : I:\GC08\METHODS\H2HE092316.M
Quant Title : Hydrogen and Helium by EPA Method 3C
QLast Update : Fri Sep 23 17:05:35 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Data File: I:\MS16\DATA\2016 11\09\11091621.D

Acq On : 10 Nov 2016 10:03

Operator: LH

Sample : P1605133-001 (1000mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 14 14:27:40 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 11/14/16

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	276362	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1383915	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	591157	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	444587	15.703	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	125.60%
57) Toluene-d8 (SS2)	15.87	98	1423246	12.073	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.56%
73) Bromofluorobenzene (SS3)	19.10	174	468239	10.462	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	83.68%

Target Compounds

						Qvalue
2) Propene	4.13	42	369129	15.118	ng	97
3) Dichlorodifluoromethan...	4.31	85	120378	2.566	ng	99
4) Chloromethane	4.64	50	6490	0.230	ng	92
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	2612	0.094	ng	88
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	5.31	54	914	N.D.		
8) Bromomethane	5.75	94	1481	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.42	45	557781	31.513	ng	100
11) Acetonitrile	6.75	41	35619	0.773	ng	99
12) Acrolein	6.92	56	7607	0.459	ng	100
13) Acetone	7.10	58	463625	26.343	ng	# 77
14) Trichlorofluoromethane	7.35	101	50767	1.165	ng	98
15) 2-Propanol (Isopropanol)	7.58	45	682517	11.530	ng	98
16) Acrylonitrile	7.96	53	2235	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.55	84	171315	5.960	ng	80
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	8.98	151	10744	0.417	ng	89
22) Carbon Disulfide	8.82	76	3001384	30.872	ng	100
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	10.08	63	514	N.D.		
25) Methyl tert-Butyl Ether	10.21	73	1677	N.D.		
26) Vinyl Acetate	10.31	86	12474	2.396	ng	# 17
27) 2-Butanone (MEK)	10.59	72	33446	1.847	ng	# 73
28) cis-1,2-Dichloroethene	11.10	61	17074	0.490	ng	# 75
29) Diisopropyl Ether	11.41	87	1171	N.D.		
30) Ethyl Acetate	11.41	61	30048	3.206	ng	87
31) n-Hexane	11.40	57	25349	0.654	ng	# 96
32) Chloroform	11.45	83	5375	0.119	ng	99
34) Tetrahydrofuran (THF)	11.88	72	1656	0.095	ng	# 1
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	1531	N.D.		
38) 1,1,1-Trichloroethane	12.53	97	1761	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	55017	0.482	ng	100
42) Carbon Tetrachloride	13.18	117	14629	0.411	ng	100
43) Cyclohexane	13.30	84	4945	0.118	ng	# 66
44) tert-Amyl Methyl Ether	13.73	73	673	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	14.08	83	537	N.D.		
47) Trichloroethene	14.11	130	62185	1.921	ng	100
48) 1,4-Dioxane	14.10	88	1237	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091621.D

Acq On : 10 Nov 2016 10:03

Operator: LH

Sample : P1605133-001 (1000mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 14 14:27:40 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

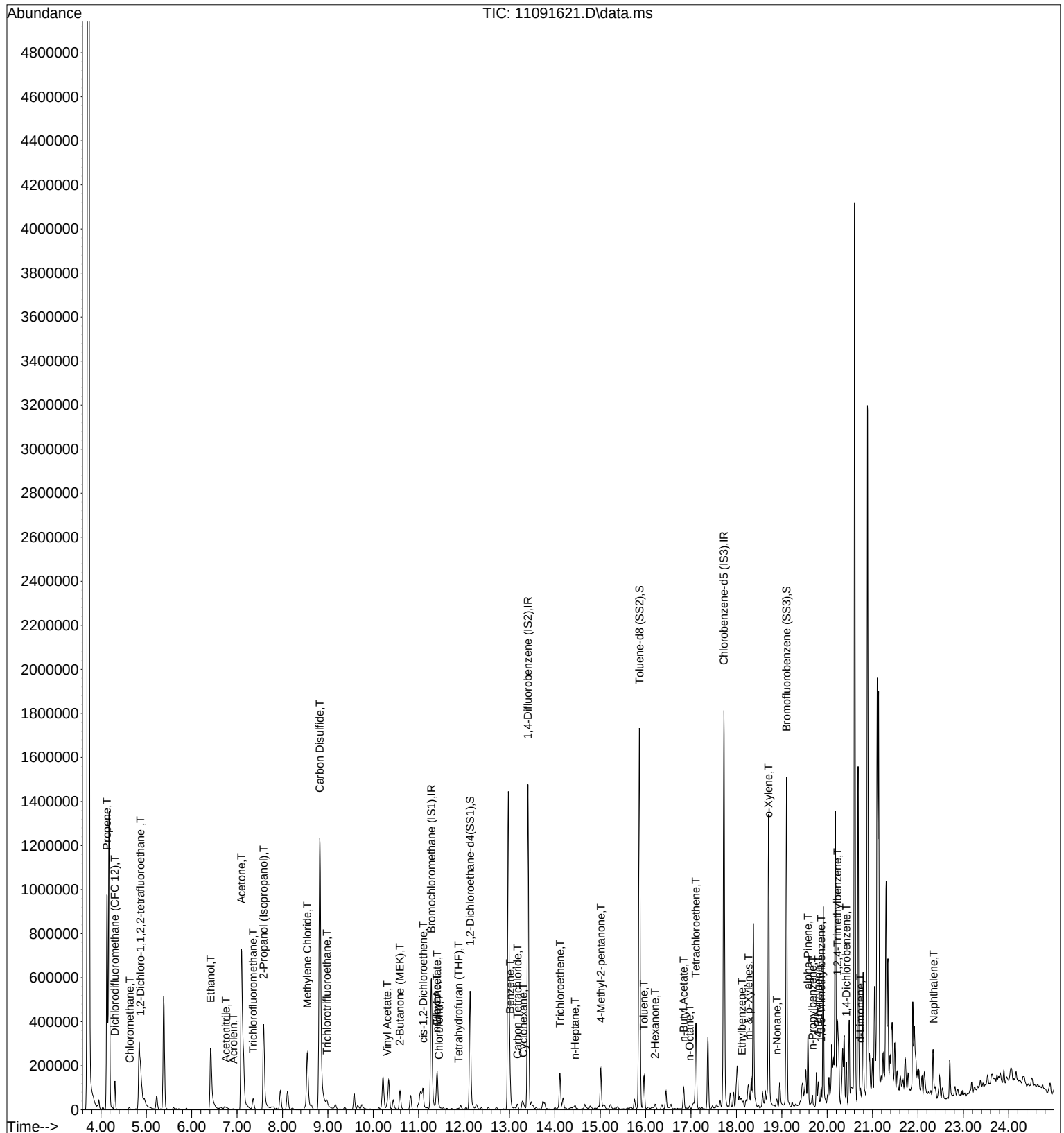
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.25	100	643	N.D.		
51) n-Heptane	14.45	71	3996	0.144 ng		89
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.01	58	60443	2.380 ng	#	75
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.96	91	121625	1.052 ng		100
59) 2-Hexanone	16.21	43	16107	0.265 ng		89
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	83771	1.248 ng		95
63) n-Octane	16.97	57	2521	0.100 ng	#	70
64) Tetrachloroethene	17.11	166	136695	3.668 ng		99
65) Chlorobenzene	17.76	112	1153	N.D.		
66) Ethylbenzene	18.12	91	23981	0.172 ng		96
67) m- & p-Xylenes	18.27	91	63979	0.599 ng		99
68) Bromoform	18.35	173	611	N.D.		
69) Styrene	18.60	104	7460	N.D.		
70) o-Xylene	18.70	91	43464	0.410 ng		99
71) n-Nonane	18.90	43	8982	0.172 ng		96
72) 1,1,2,2-Tetrachloroethane	18.72	83	884	N.D.		
74) Cumene	19.23	105	8965	N.D.		
75) alpha-Pinene	19.58	93	135923	1.967 ng		100
76) n-Propylbenzene	19.68	91	31142	0.209 ng		96
77) 3-Ethyltoluene	0.00	105	0	N.D. d		
78) 4-Ethyltoluene	19.80	105	33544	0.266 ng		94
79) 1,3,5-Trimethylbenzene	19.87	105	33929	0.298 ng		96
80) alpha-Methylstyrene	20.00	118	4742	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D. d		
82) 1,2,4-Trimethylbenzene	20.23	105	145963	1.292 ng		86
83) n-Decane	0.00	57	0	N.D. d		
84) Benzyl Chloride	20.35	91	1939	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D. d		
86) 1,4-Dichlorobenzene	20.42	146	47888	0.656 ng		99
87) sec-Butylbenzene	20.47	105	3478	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D. d		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D. d		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.73	68	13681	0.344 ng		81
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	22.23	180	1255	N.D.		
95) Naphthalene	22.34	128	25294	0.160 ng		99
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	0.00	119	0	N.D. d		
100) n-Butylbenzene	0.00	91	0	N.D. d		

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

ALS Vial : 4 Sample Multiplier: 1

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2016 11\09\11091621.D

Acq On : 10 Nov 2016 10:03

Operator: LH

Sample : P1605133-001 (1000mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 12:11:50 2016

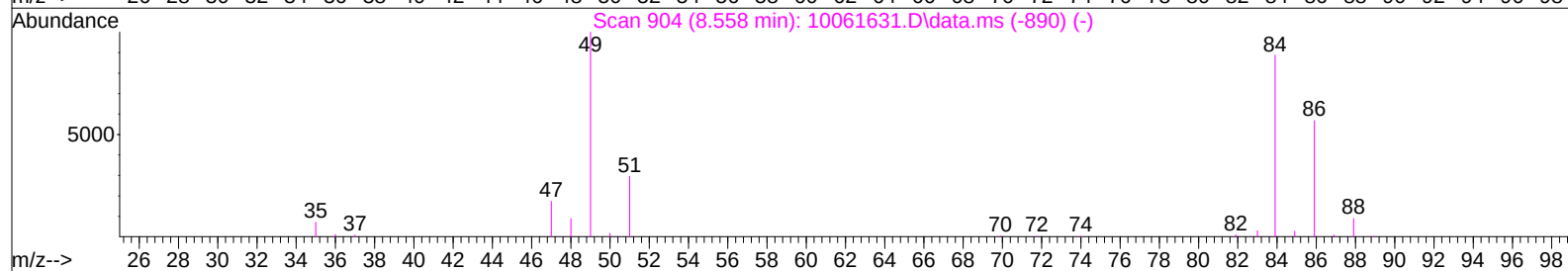
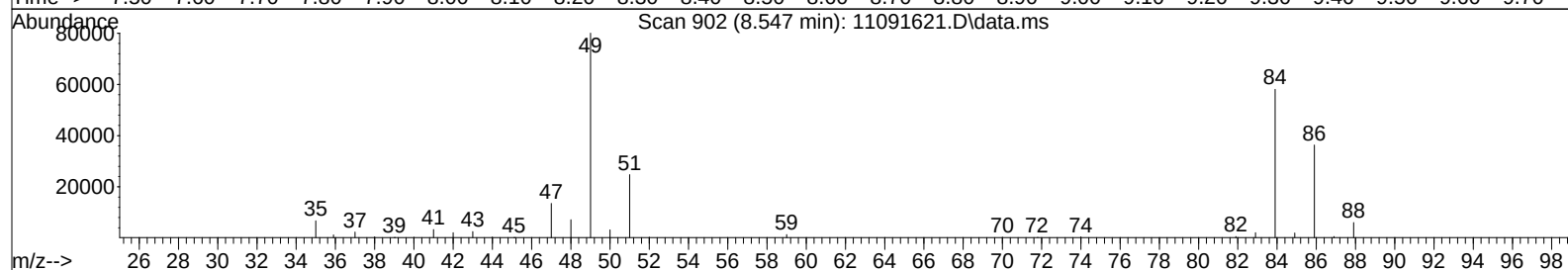
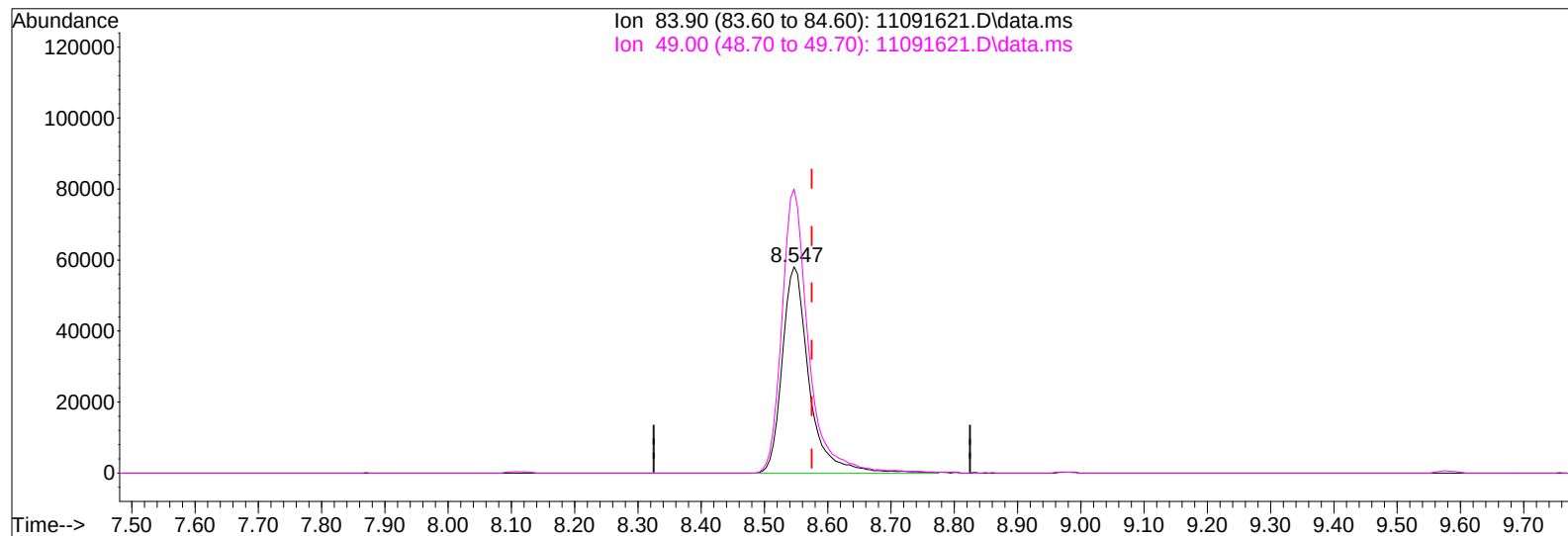
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091621.D\data.ms

(19) Methylene Chloride (T)

8.547min (-0.028) 5.96ng

response 171315

Ion	Exp%	Act%
83.90	100	100
49.00	114.70	136.45
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091621.D

Acq On : 10 Nov 2016 10:03

Operator: LH

Sample : P1605133-001 (1000mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 12:11:50 2016

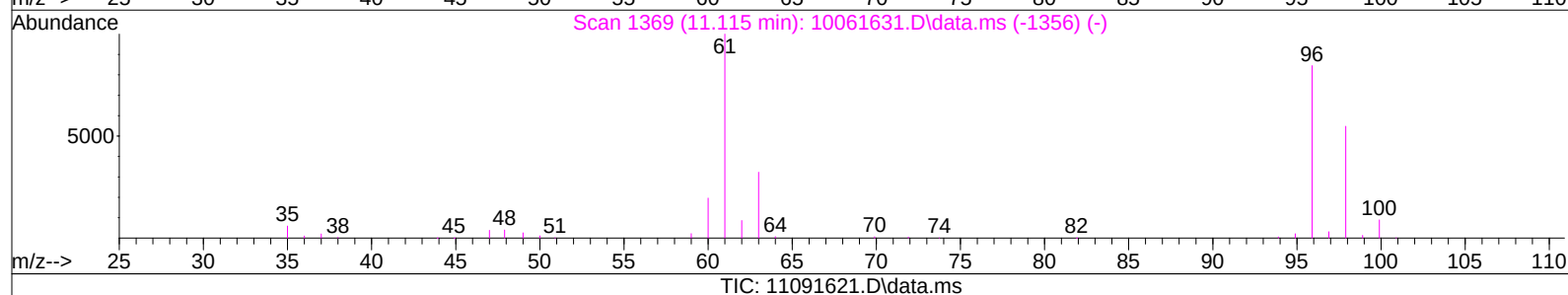
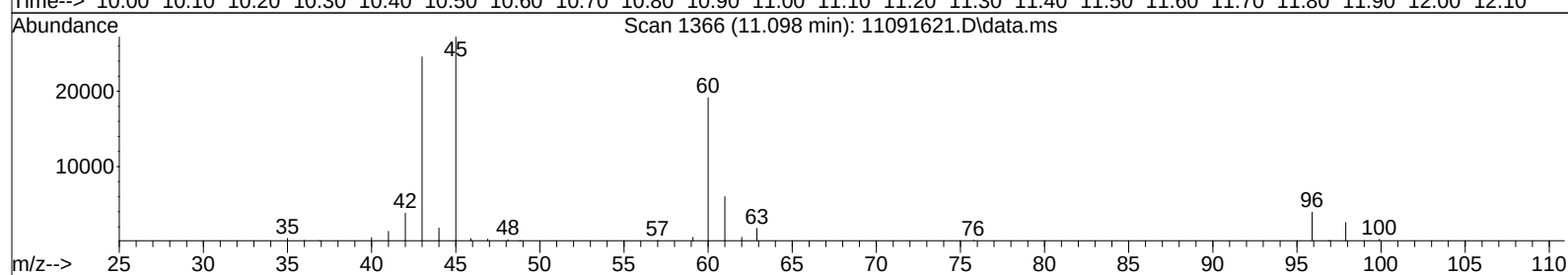
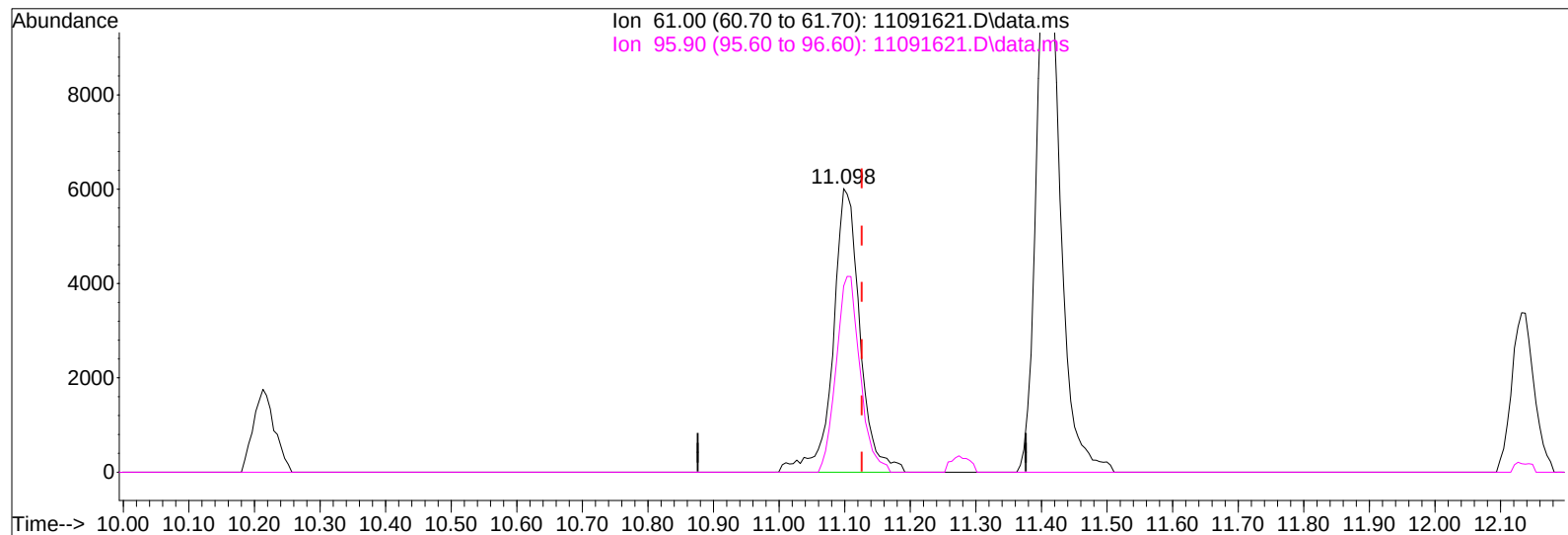
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091621.D\data.ms

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

11.098min (-0.028) 0.49ng

response 17074

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	61.49#
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091621.D

Acq On : 10 Nov 2016 10:03

Operator: LH

Sample : P1605133-001 (1000mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 12:11:50 2016

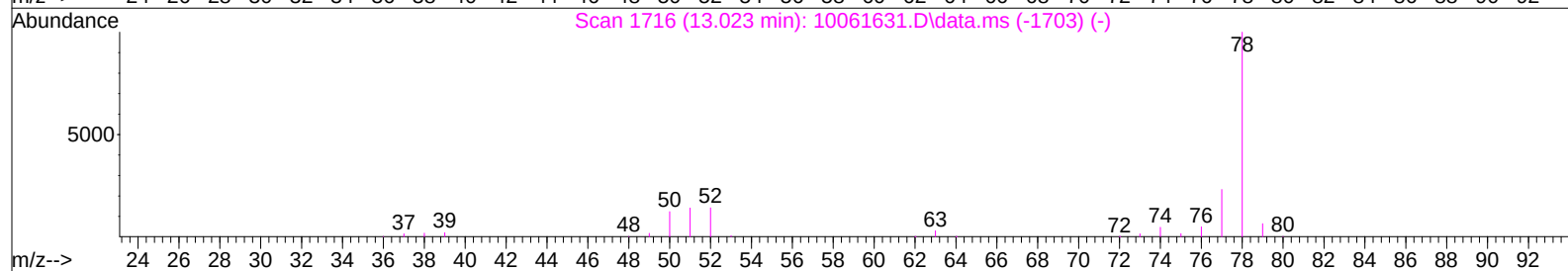
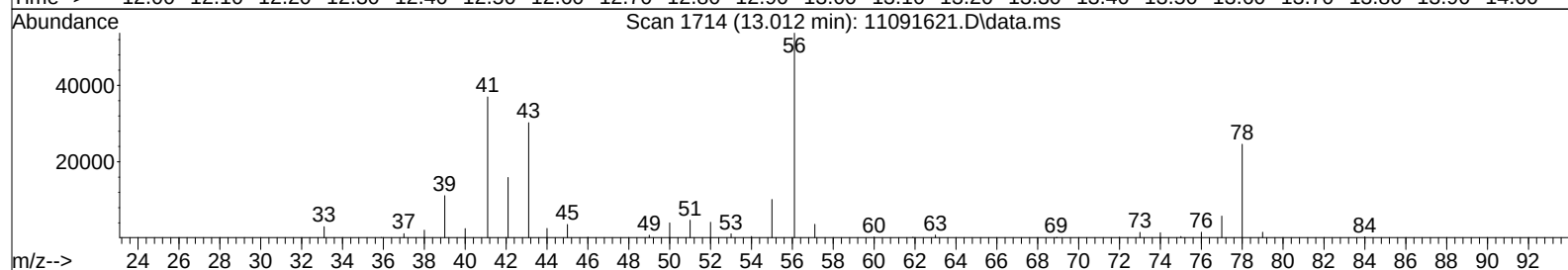
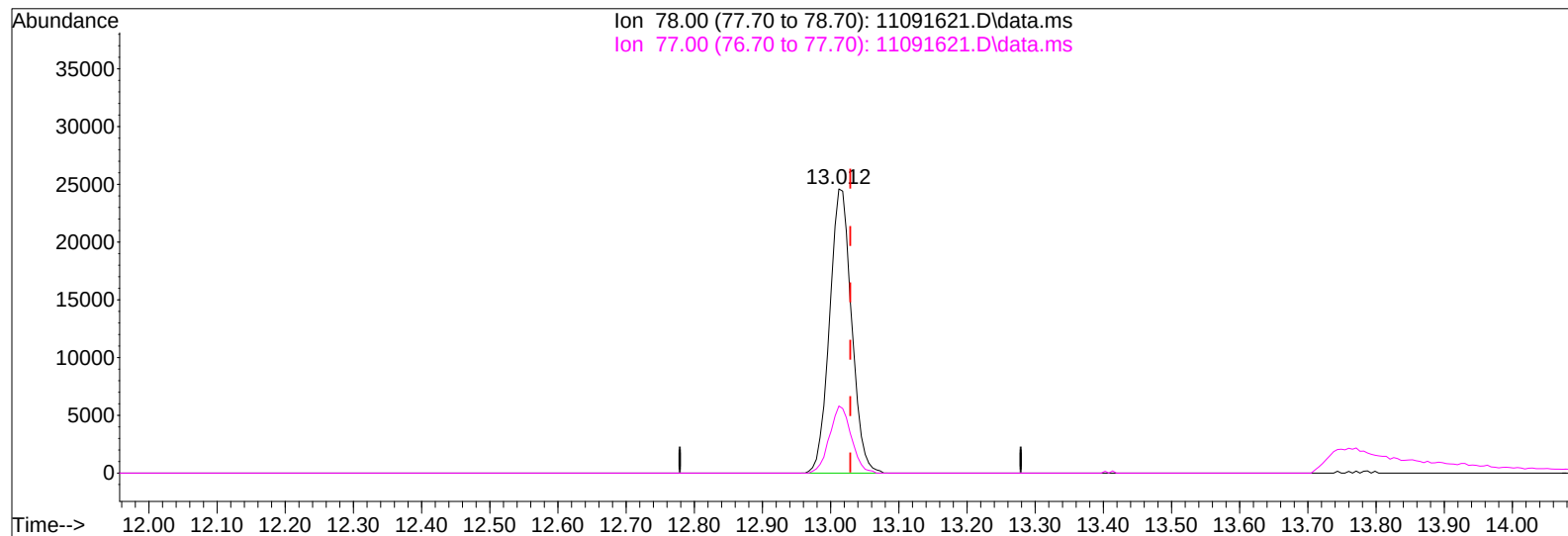
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091621.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 0.48ng

response 55017

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.33
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091621.D

Acq On : 10 Nov 2016 10:03

Operator: LH

Sample : P1605133-001 (1000mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 12:11:50 2016

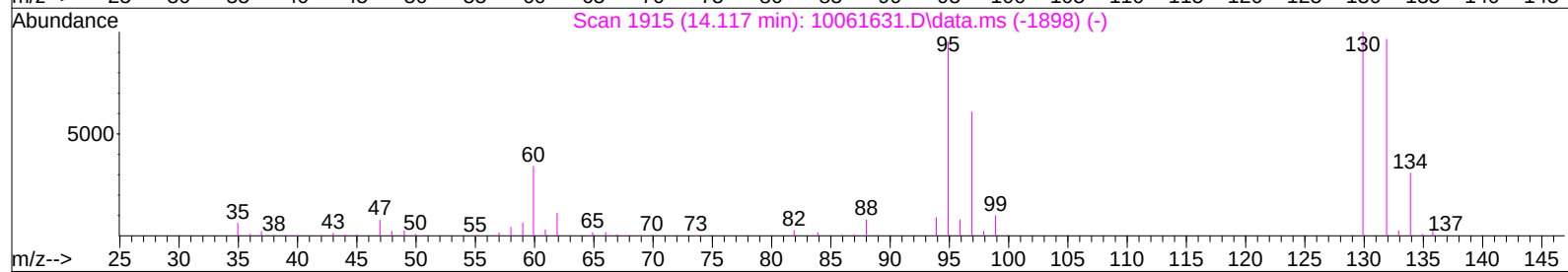
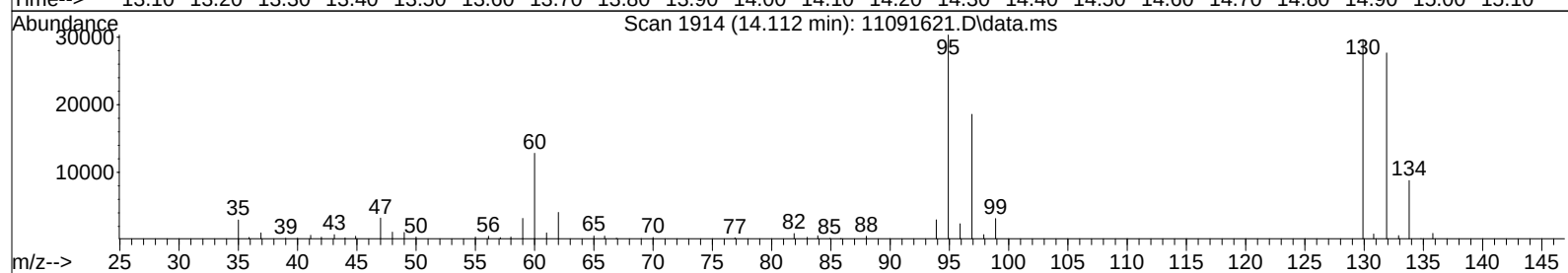
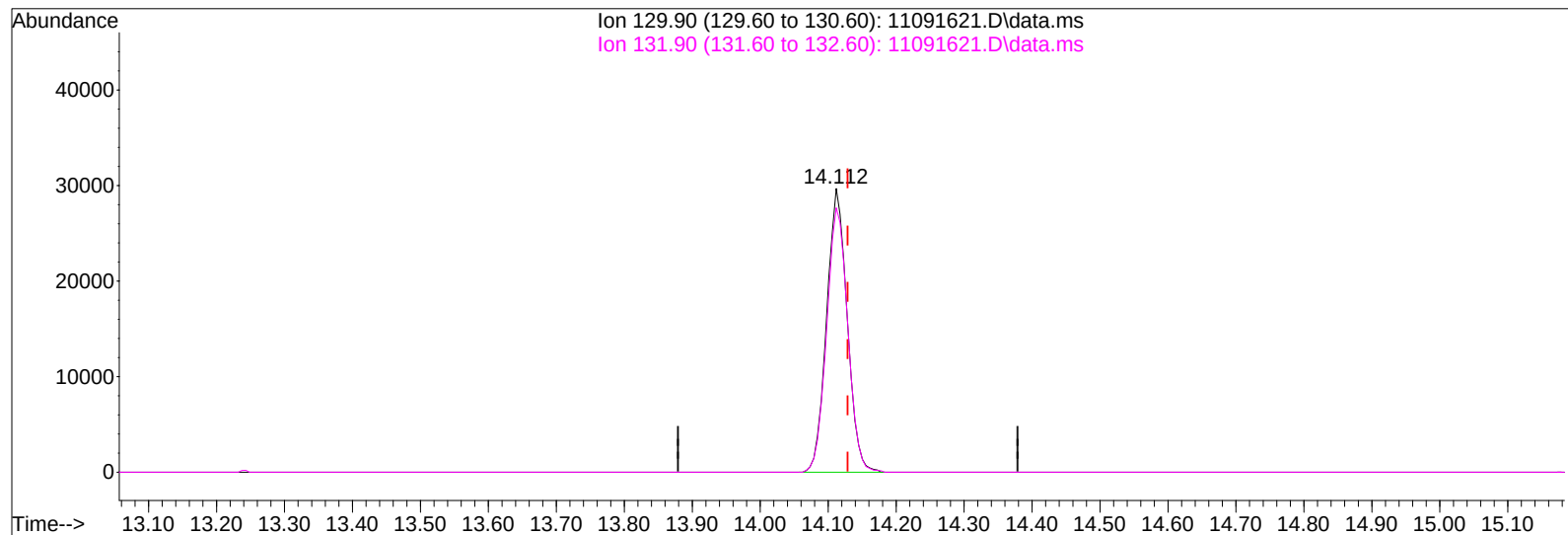
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091621.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 1.92ng

response 62185

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	95.96
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091621.D

Acq On : 10 Nov 2016 10:03

Operator: LH

Sample : P1605133-001 (1000mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 12:11:50 2016

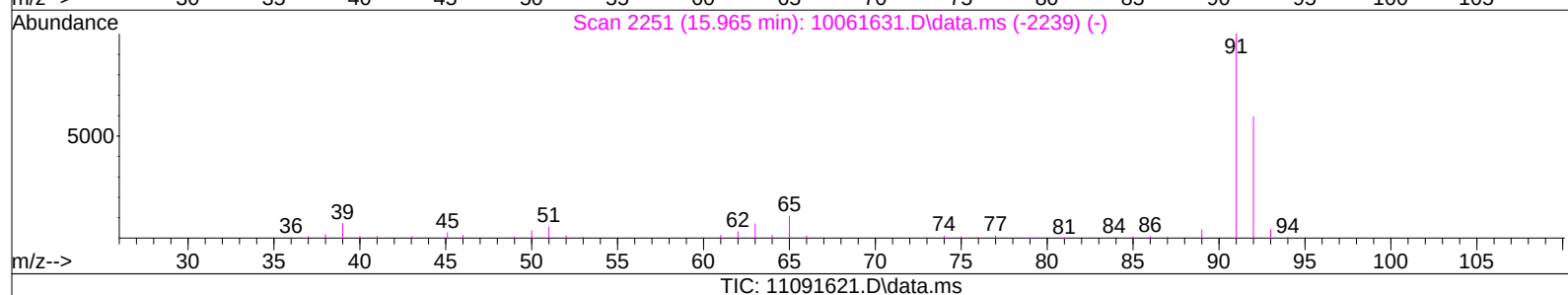
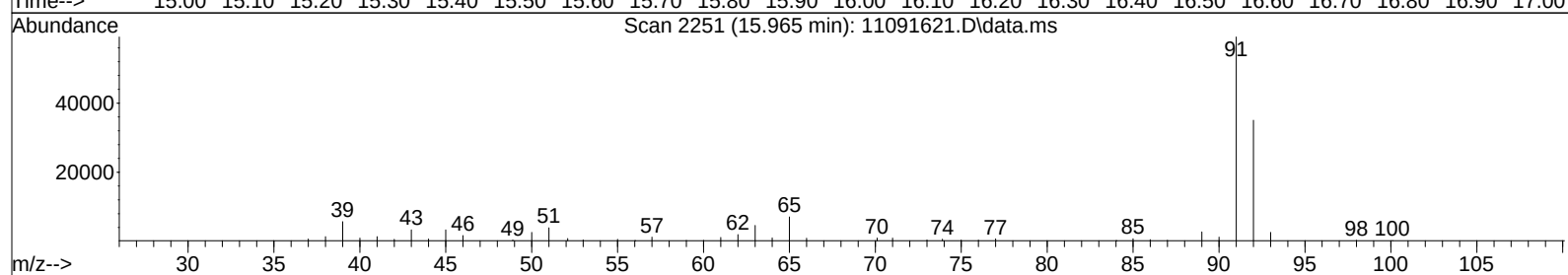
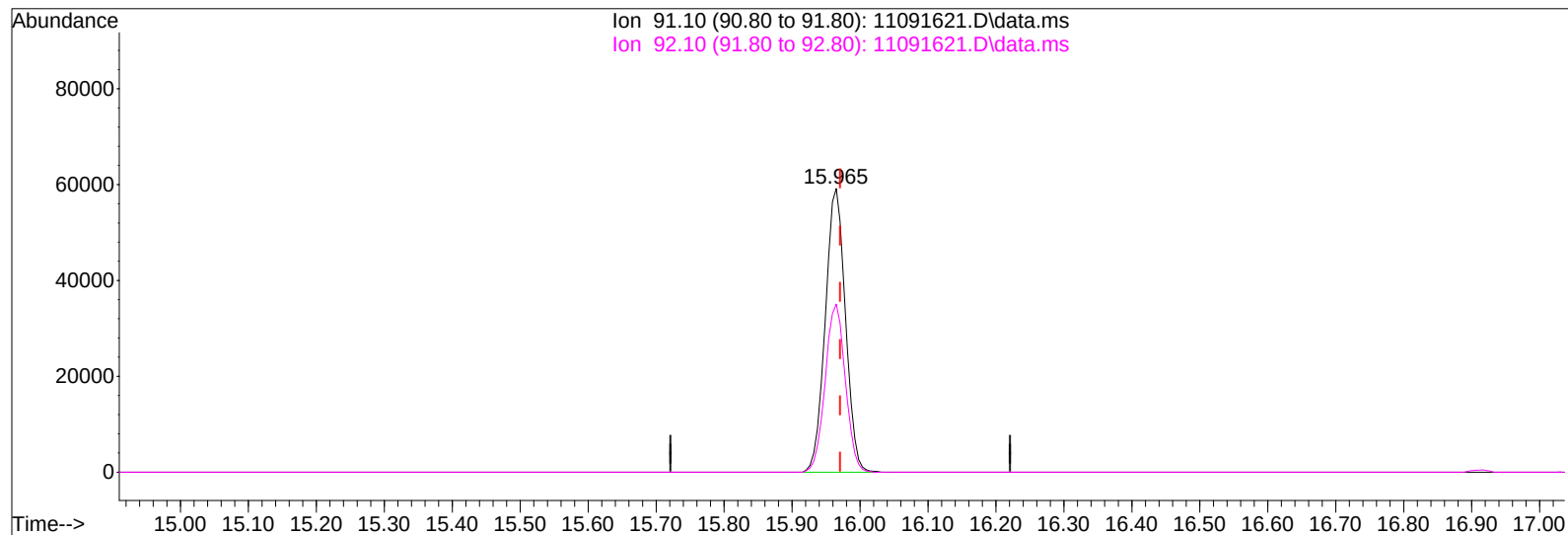
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(58) Toluene (T)

15.965min (-0.006) 1.05ng

response 121625

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	59.22
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091621.D

Acq On : 10 Nov 2016 10:03

Operator: LH

Sample : P1605133-001 (1000mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 12:11:50 2016

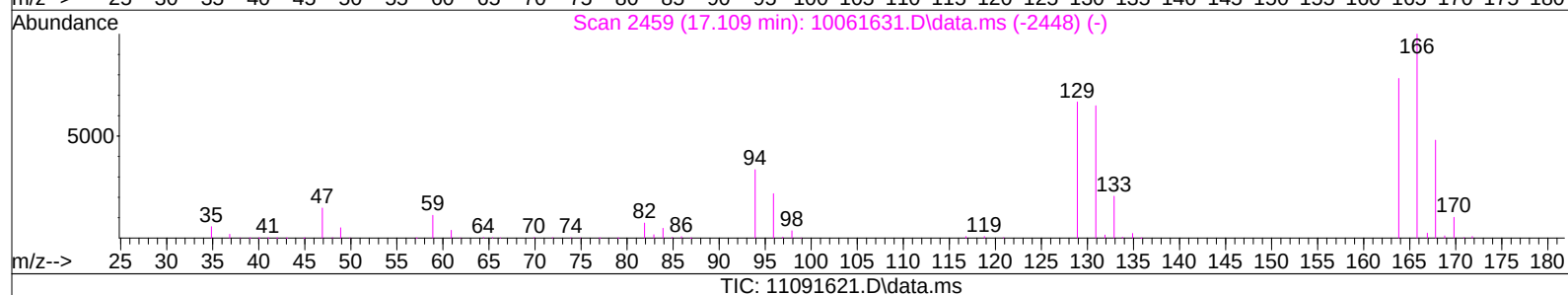
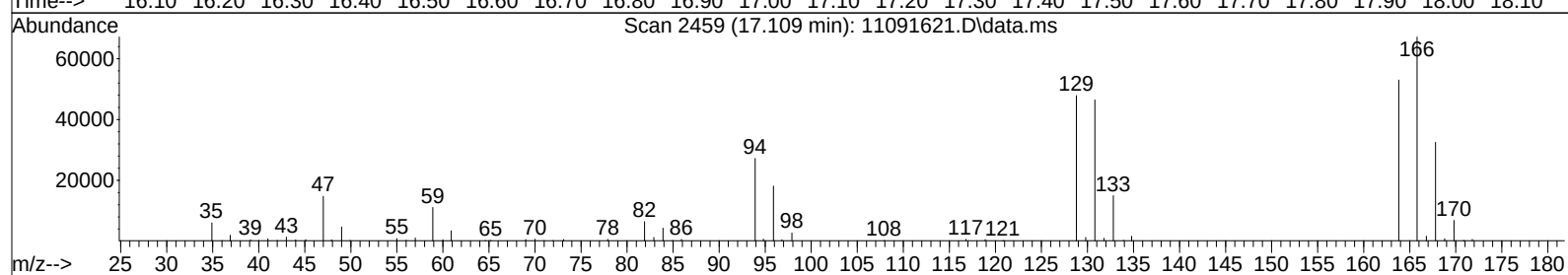
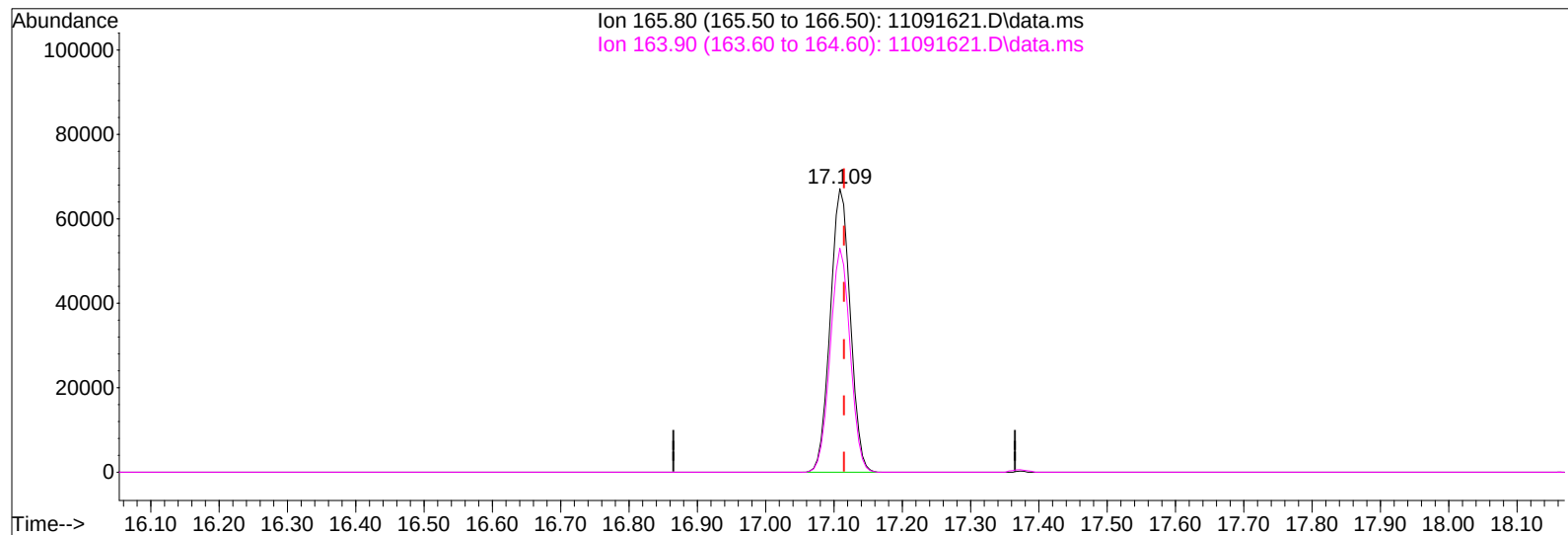
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091621.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 3.67ng

response 136695

Ion	Exp%	Act%

165.80	100	100

163.90	78.10	78.56

0.00	0.00	0.00

0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091622.D

Acq On : 10 Nov 2016 10:36

Operator: LH

Sample : P1605133-002 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 14 14:33:04 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

LH 11/14/16

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	274592	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1348616	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	591476	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.14	65	432214	15.364	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	122.88%
57) Toluene-d8 (SS2)	15.86	98	1402784	11.893	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.12%
73) Bromofluorobenzene (SS3)	19.11	174	465222	10.389	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	83.12%

Target Compounds

						Qvalue
2) Propene	4.15	42	973903m	40.145	ng	
3) Dichlorodifluoromethan...	4.31	85	98944	2.122	ng	100
4) Chloromethane	4.64	50	5454m	0.195	ng	
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	2878	0.104	ng	96
6) Vinyl Chloride	5.07	62	766	N.D.		
7) 1,3-Butadiene	5.33	54	812	N.D.		
8) Bromomethane	5.77	94	643	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.42	45	238890	13.583	ng	100
11) Acetonitrile	6.78	41	11832	0.259	ng	98
12) Acrolein	6.93	56	4202	0.255	ng	93
13) Acetone	7.11	58	214296	12.255	ng	# 67
14) Trichlorofluoromethane	7.36	101	44948	1.038	ng	99
15) 2-Propanol (Isopropanol)	7.59	45	189035	3.214	ng	97
16) Acrylonitrile	7.96	53	3080	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.55	84	126909	4.444	ng	81
20) 3-Chloro-1-propene (Al...	8.74	41	600	N.D.		
21) Trichlorotrifluoroethane	8.98	151	9254	0.362	ng	90
22) Carbon Disulfide	8.85	76	10466	0.108	ng	90
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	10.31	86	3532	0.683	ng	# 1
27) 2-Butanone (MEK)	10.60	72	14247	0.792	ng	# 69
28) cis-1,2-Dichloroethene	11.10	61	22179	0.640	ng	87
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	11.41	61	16573	1.780	ng	86
31) n-Hexane	11.40	57	16894	0.439	ng	# 95
32) Chloroform	11.44	83	4251	0.095	ng	97
34) Tetrahydrofuran (THF)	11.89	72	1098	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	1575	N.D.		
38) 1,1,1-Trichloroethane	12.54	97	1276	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	41366	0.372	ng	99
42) Carbon Tetrachloride	13.18	117	13045	0.376	ng	98
43) Cyclohexane	13.31	84	3856	0.094	ng	# 77
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	13.88	63	588	N.D.		
46) Bromodichloromethane	14.06	83	629	N.D.		
47) Trichloroethene	14.11	130	73273	2.322	ng	99
48) 1,4-Dioxane	14.11	88	654	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091622.D

Acq On : 10 Nov 2016 10:36

Operator: LH

Sample : P1605133-002 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 14 14:33:04 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.45	100	967	N.D.		
51) n-Heptane	14.45	71	4335	0.160	ng	89
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.01	58	16632	0.672	ng	# 78
54) trans-1,3-Dichloropropene	15.52	75	548	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.	d	
58) Toluene	15.97	91	186250	1.610	ng	99
59) 2-Hexanone	16.21	43	6515	0.107	ng	91
60) Dibromochloromethane	16.37	129	618	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	57407	0.855	ng	95
63) n-Octane	16.97	57	3445	0.136	ng	88
64) Tetrachloroethene	17.11	166	149641	4.013	ng	100
65) Chlorobenzene	17.76	112	1790	N.D.		
66) Ethylbenzene	18.12	91	19692	0.141	ng	98
67) m- & p-Xylenes	18.27	91	54745	0.512	ng	98
68) Bromoform	18.35	173	1491	N.D.		
69) Styrene	18.60	104	9297	0.109	ng	92
70) o-Xylene	18.70	91	35271	0.333	ng	97
71) n-Nonane	18.90	43	8496	0.163	ng	# 5
72) 1,1,2,2-Tetrachloroethane	18.72	83	2115	N.D.		
74) Cumene	19.23	105	5918	N.D.		
75) alpha-Pinene	19.58	93	174936	2.530	ng	97
76) n-Propylbenzene	19.68	91	21784	0.146	ng	95
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	23082	0.183	ng	88
79) 1,3,5-Trimethylbenzene	19.87	105	30353	0.266	ng	96
80) alpha-Methylstyrene	20.00	118	1189	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	109646	0.970	ng	87
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.35	91	1069	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d	
86) 1,4-Dichlorobenzene	20.42	146	21406	0.293	ng	99
87) sec-Butylbenzene	20.47	105	2233	N.D.		
88) 4-Isopropyltoluene (p-...	20.61	119	11062	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.73	68	12427	0.312	ng	# 37
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.23	180	812	N.D.		
95) Naphthalene	22.34	128	13751	N.D.		
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	20.96	91	6812	N.D.		

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

Data File: I:\MS16\DATA\2016 11\09\11091622.D

Acq On : 10 Nov 2016 10:36

Operator: LH

Sample : P1605133-002 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 14 14:33:04 2016

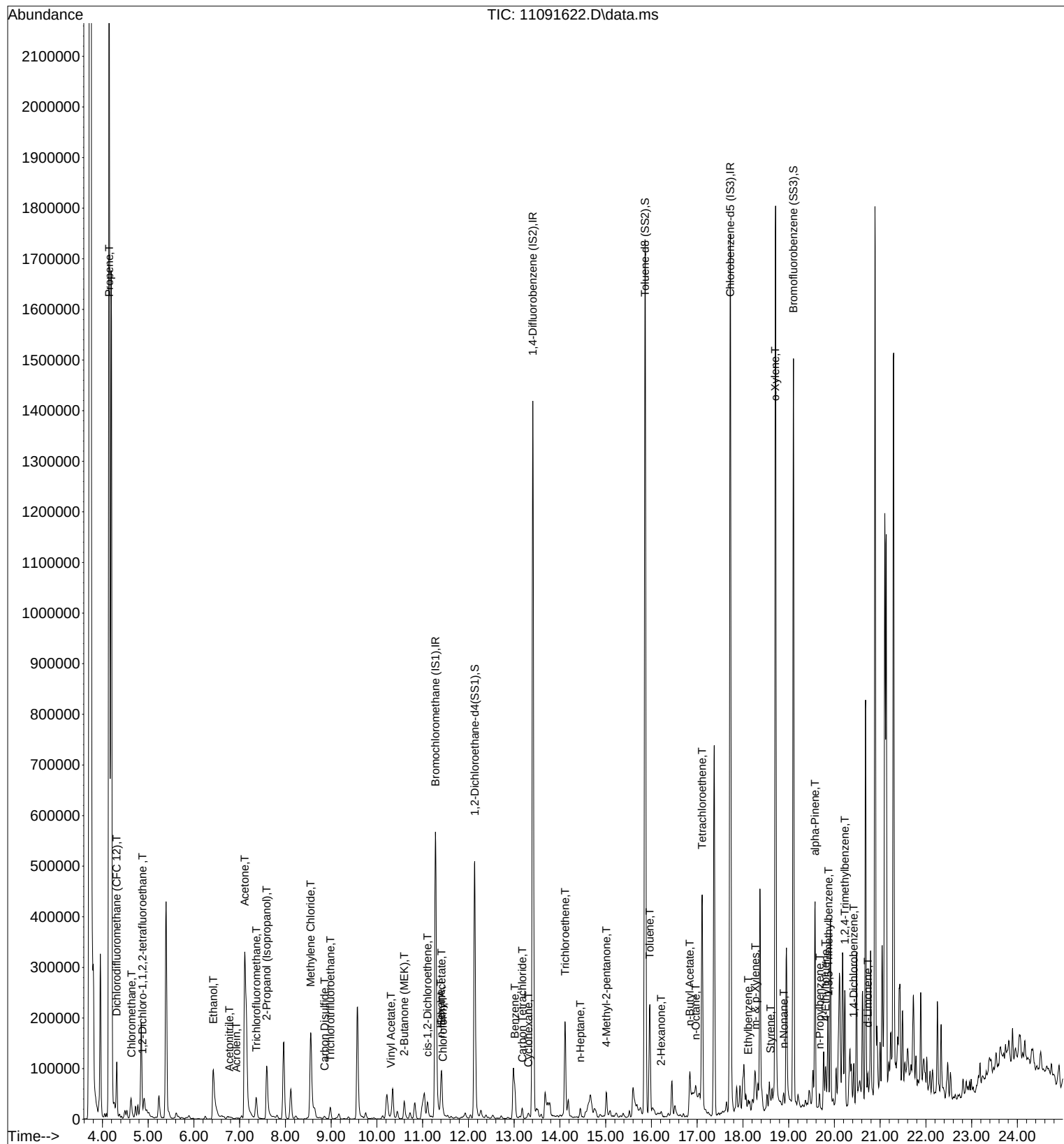
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091622.D

Acq On : 10 Nov 2016 10:36

Operator: LH

Sample : P1605133-002 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 12:11:57 2016

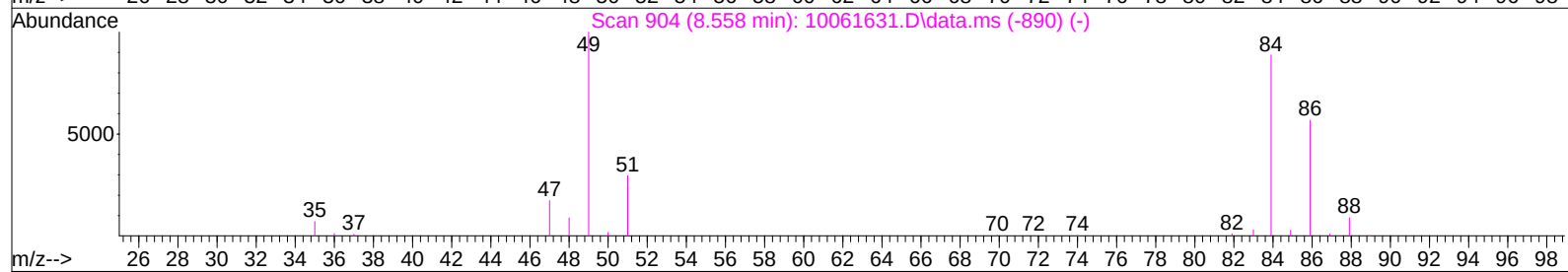
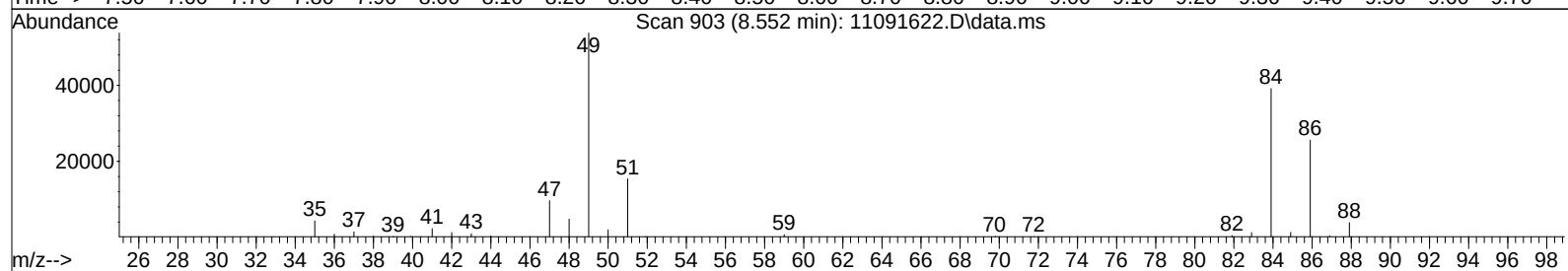
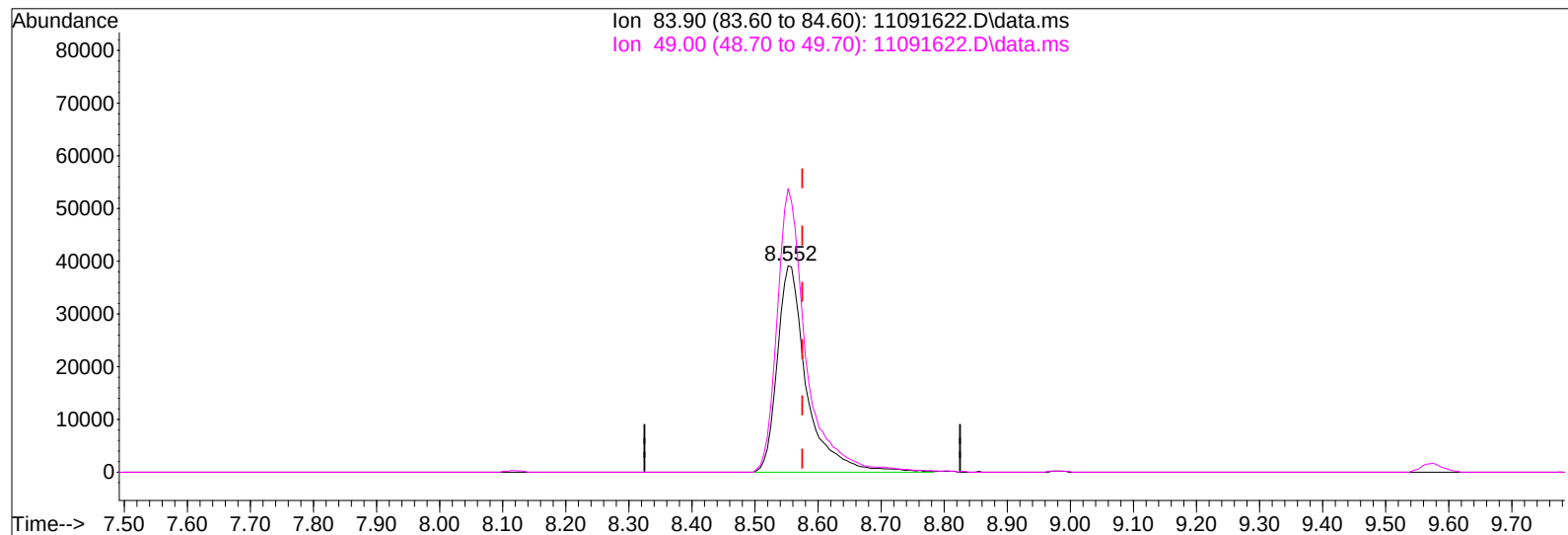
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091622.D\data.ms

(19) Methylene Chloride (T)

8.552min (-0.023) 4.44ng

response 126909

Ion	Exp%	Act%
83.90	100	100
49.00	114.70	134.79
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091622.D

Acq On : 10 Nov 2016 10:36

Operator: LH

Sample : P1605133-002 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 12:11:57 2016

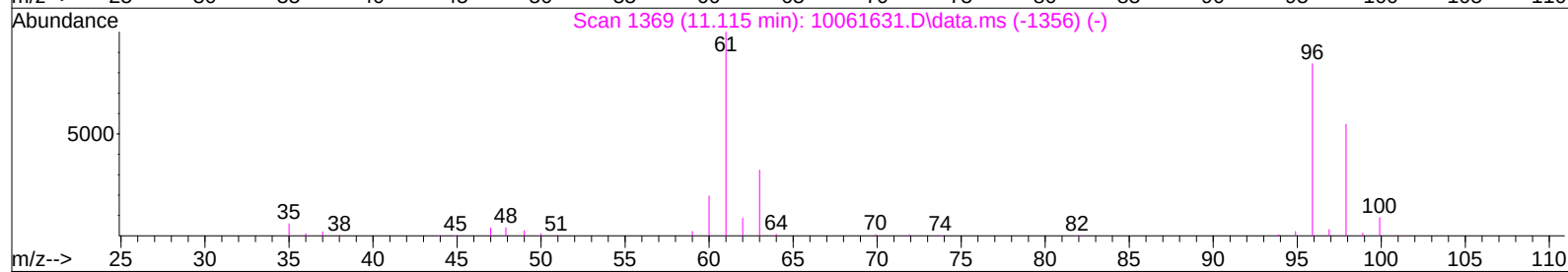
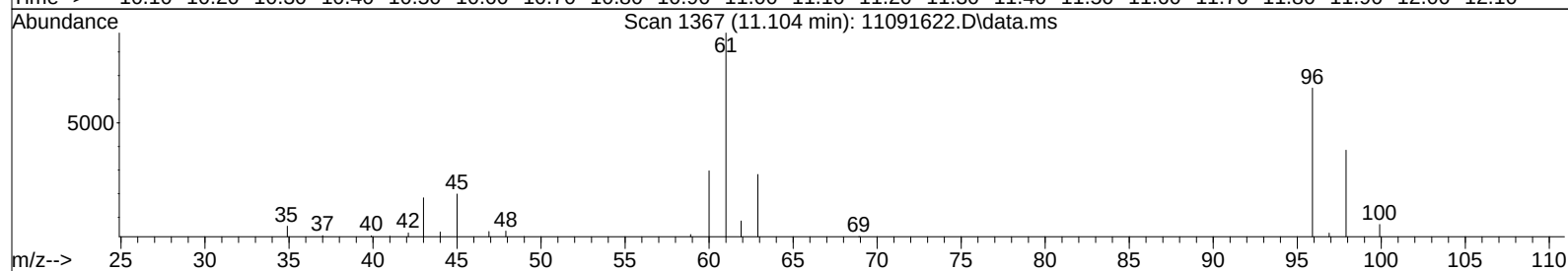
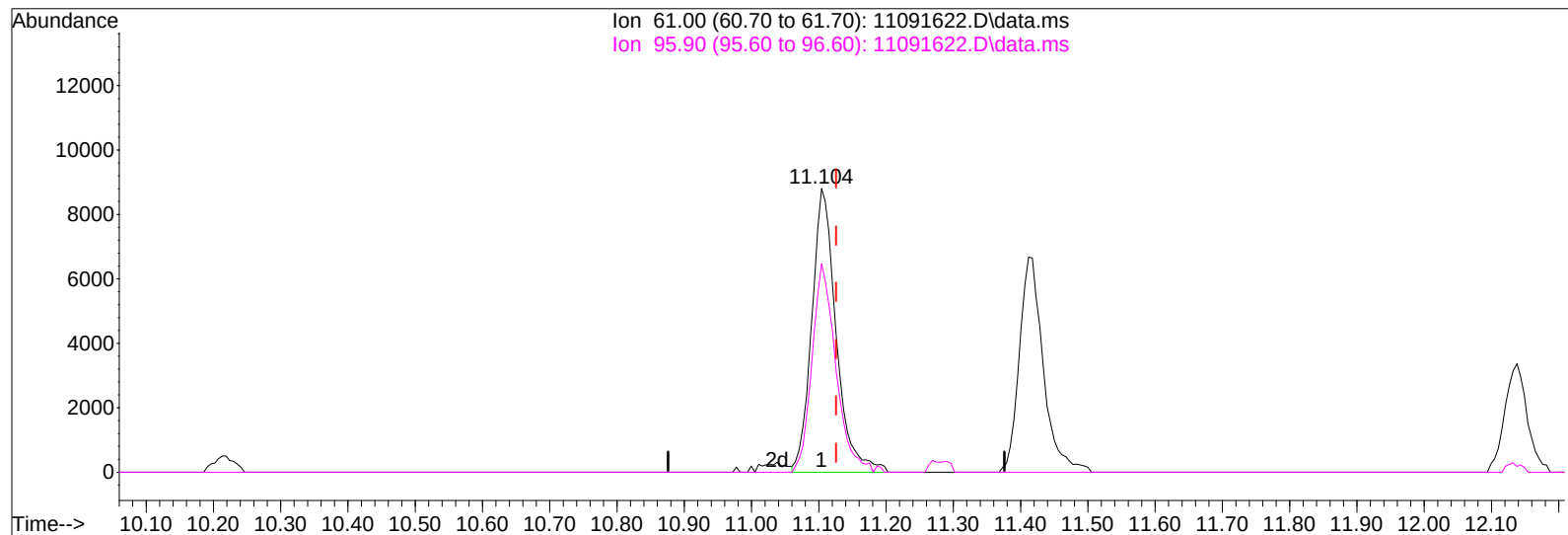
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091622.D\data.ms

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

11.104min (-0.022) 0.64ng

response 22179

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	71.76
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091622.D

Acq On : 10 Nov 2016 10:36

Operator: LH

Sample : P1605133-002 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 12:11:57 2016

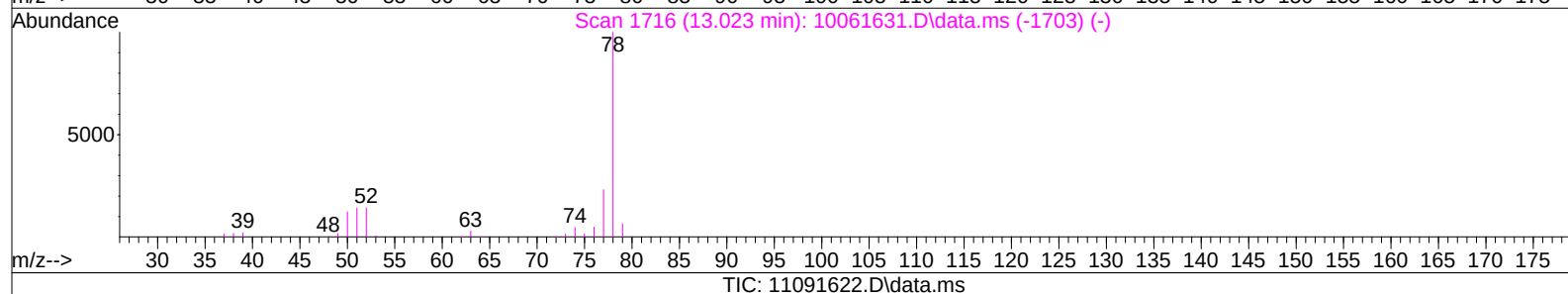
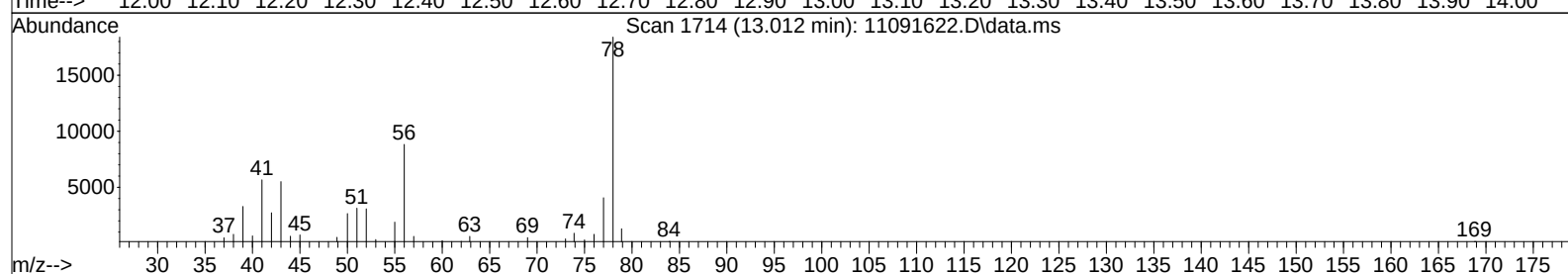
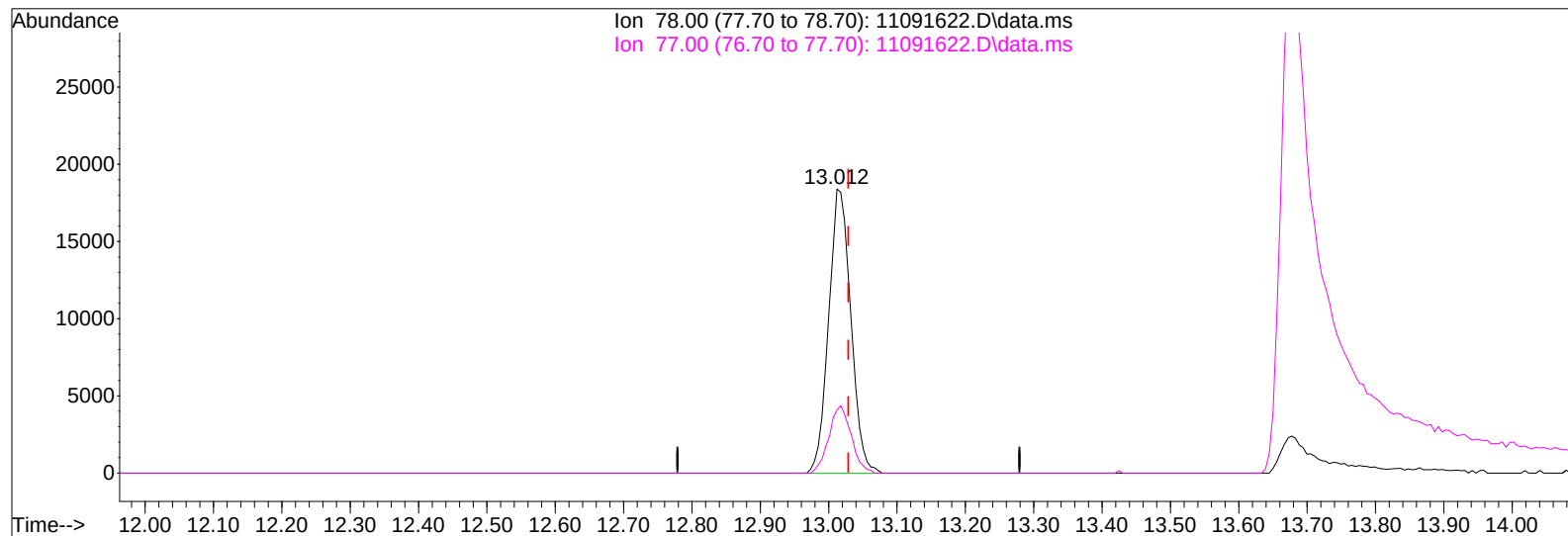
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(41) Benzene (T)

13.012min (-0.017) 0.37ng

response 41366

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.82
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091622.D

Acq On : 10 Nov 2016 10:36

Operator: LH

Sample : P1605133-002 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 12:11:57 2016

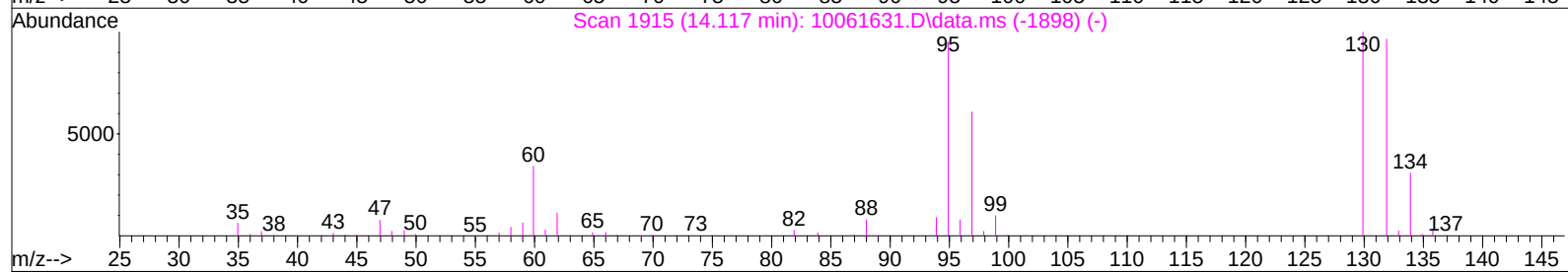
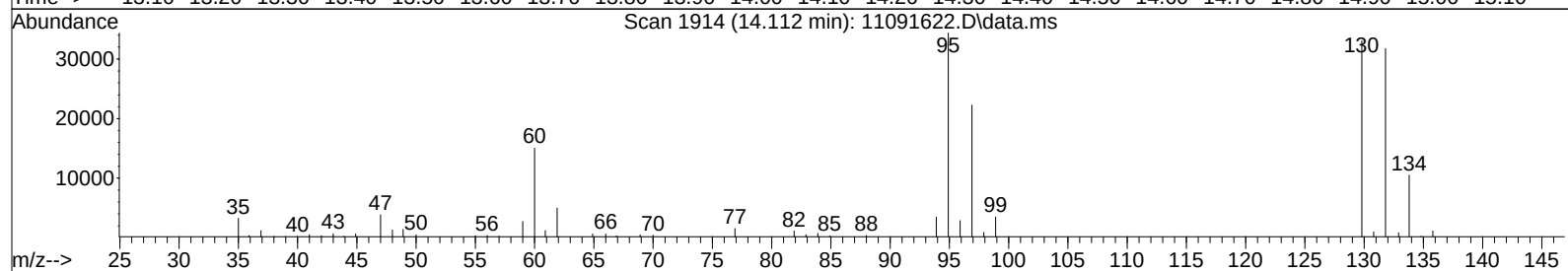
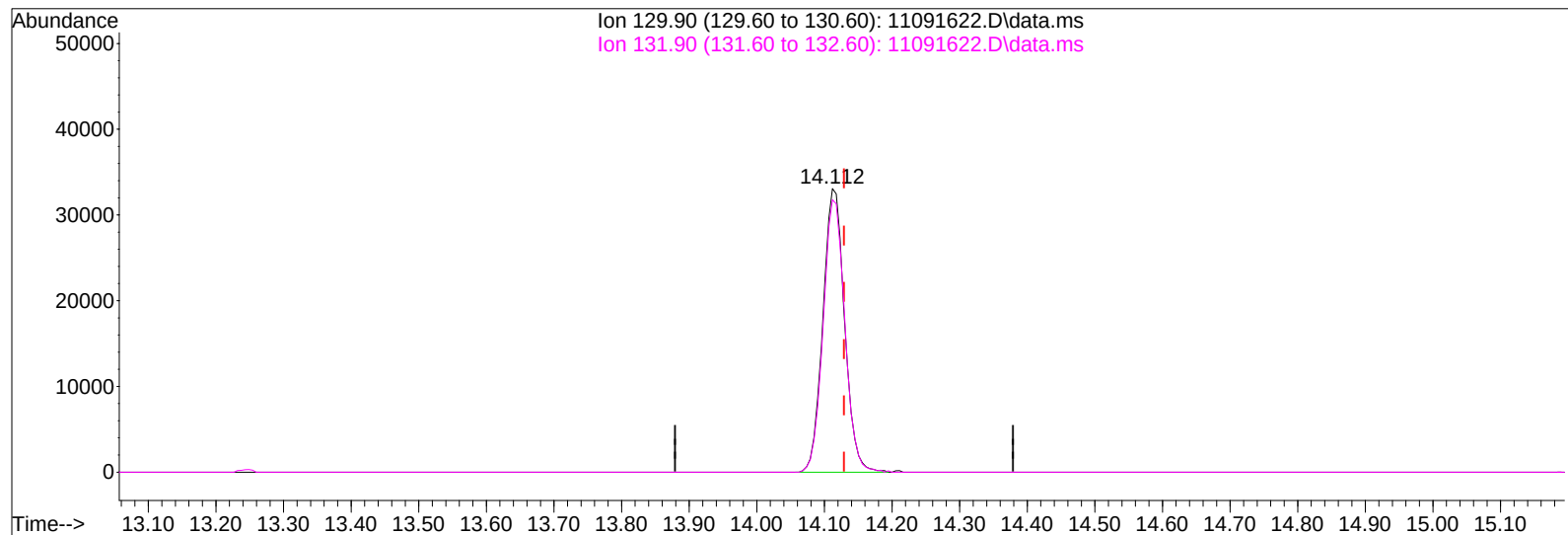
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091622.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 2.32ng

response 73273

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	96.55
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091622.D

Acq On : 10 Nov 2016 10:36

Operator: LH

Sample : P1605133-002 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 12:11:57 2016

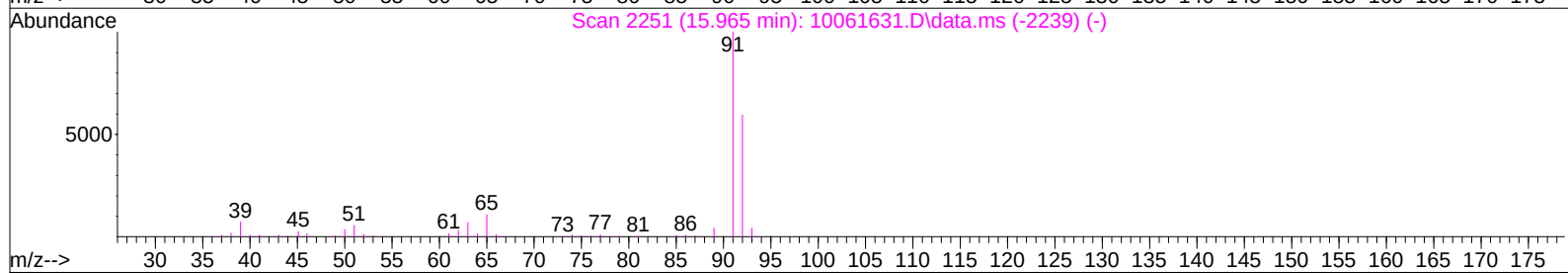
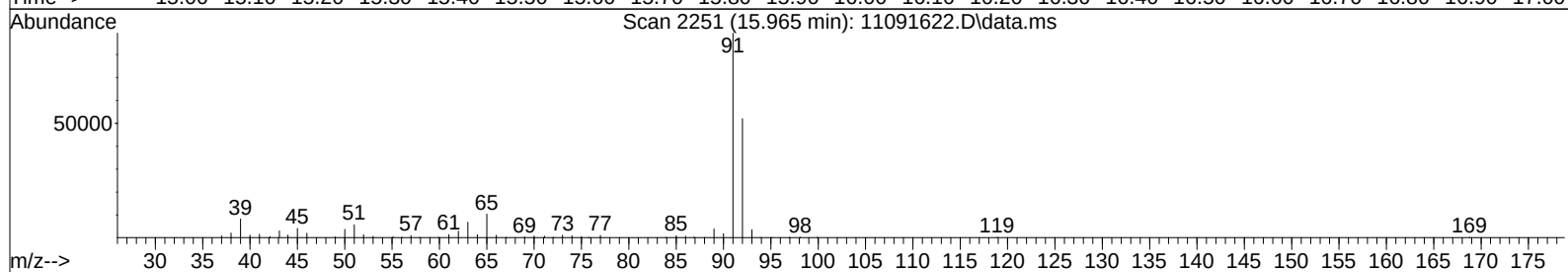
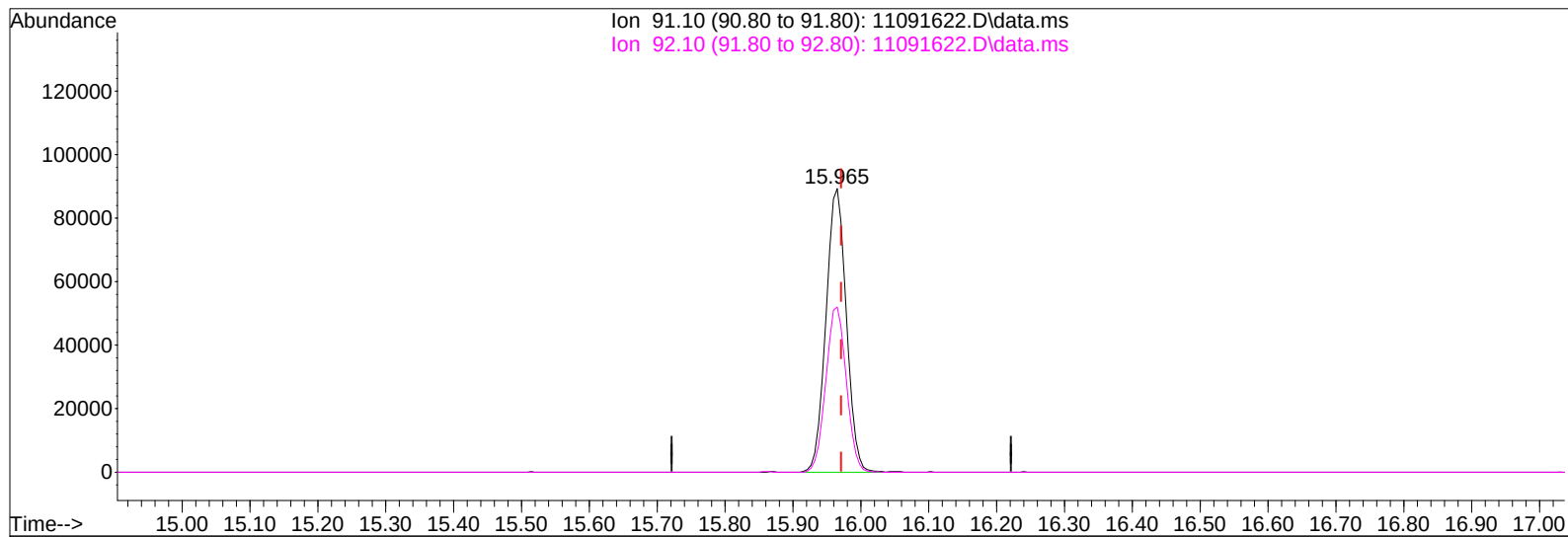
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091622.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 1.61ng

response 186250

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	58.62
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091622.D

Acq On : 10 Nov 2016 10:36

Operator: LH

Sample : P1605133-002 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 12:11:57 2016

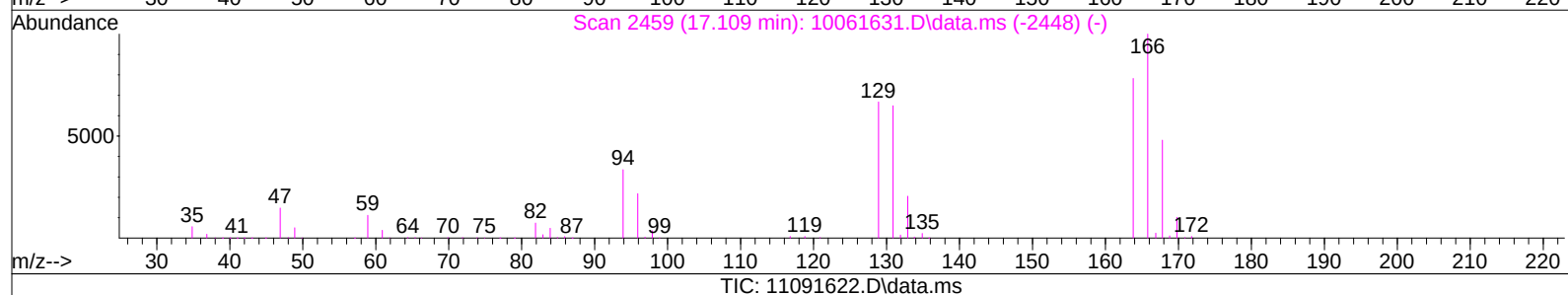
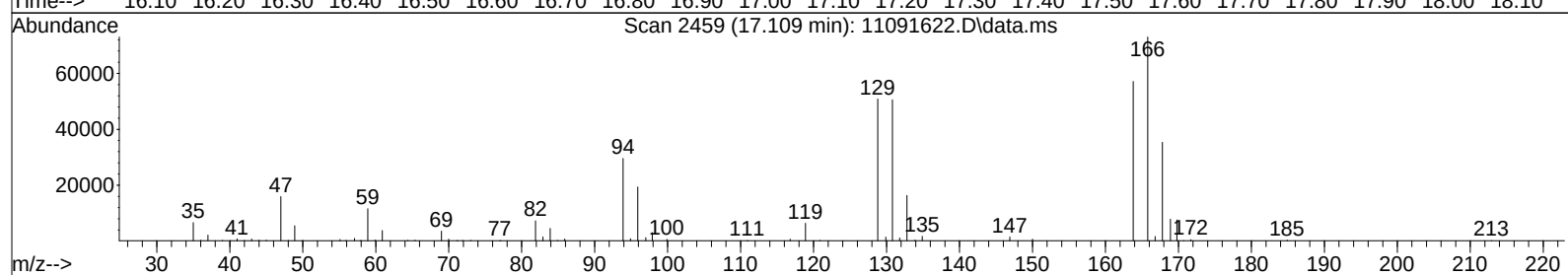
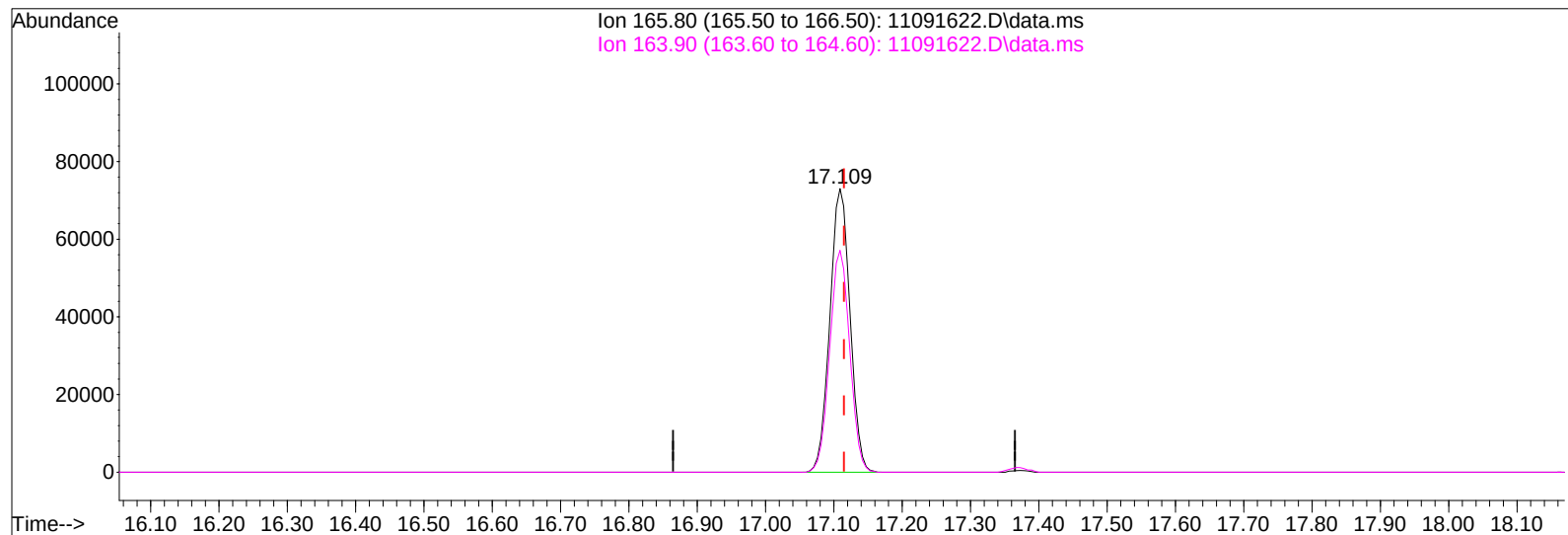
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091622.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 4.01ng

response 149641

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	77.97
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091622.D

Acq On : 10 Nov 2016 10:36

Operator: LH

Sample : P1605133-002 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 12:11:57 2016

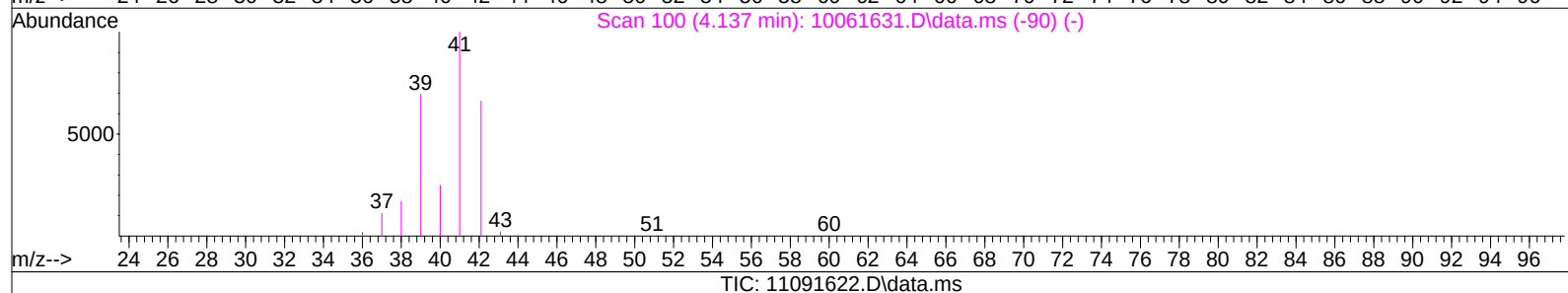
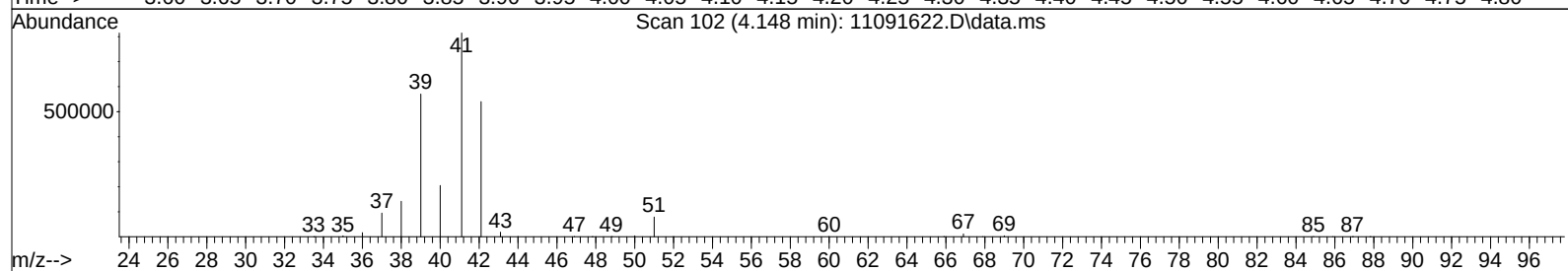
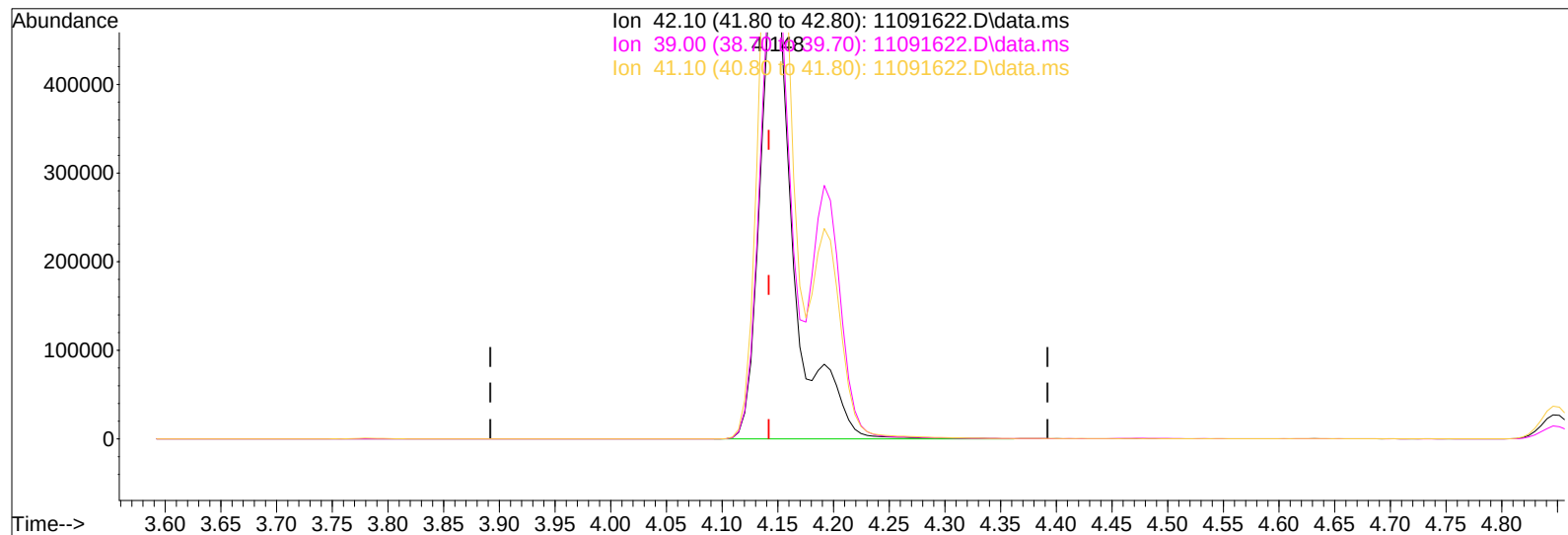
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(2) Propene (T)

4.148min (+0.006) 45.71ng

response 1108891

Ion	Exp%	Act%
42.10	100	100
39.00	105.30	94.29
41.10	151.20	131.65
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091622.D

Acq On : 10 Nov 2016 10:36

Operator: LH

Sample : P1605133-002 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 12:11:57 2016

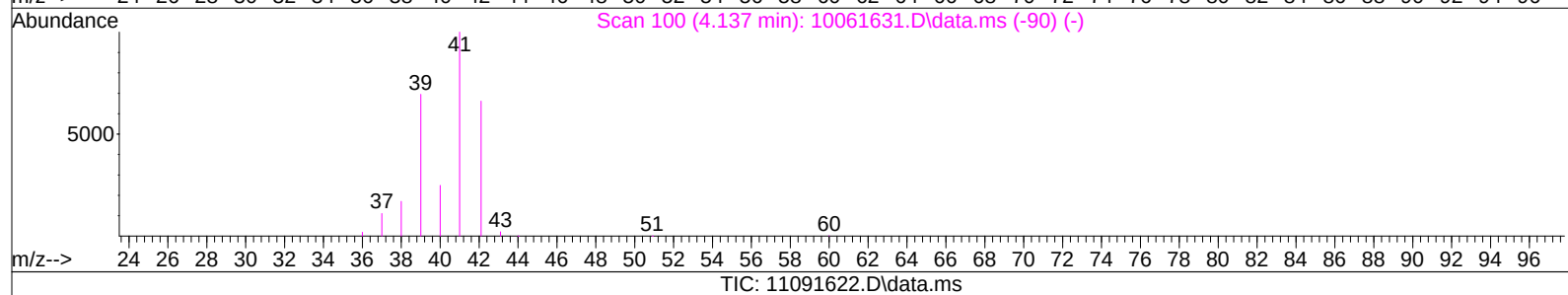
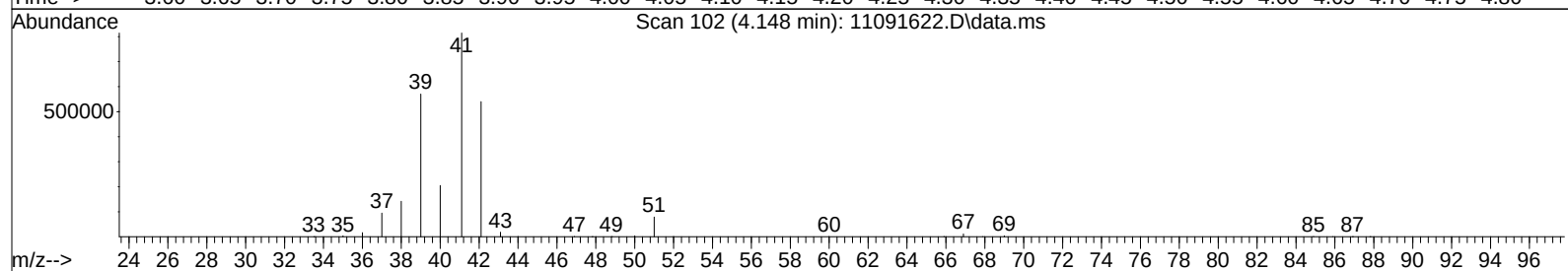
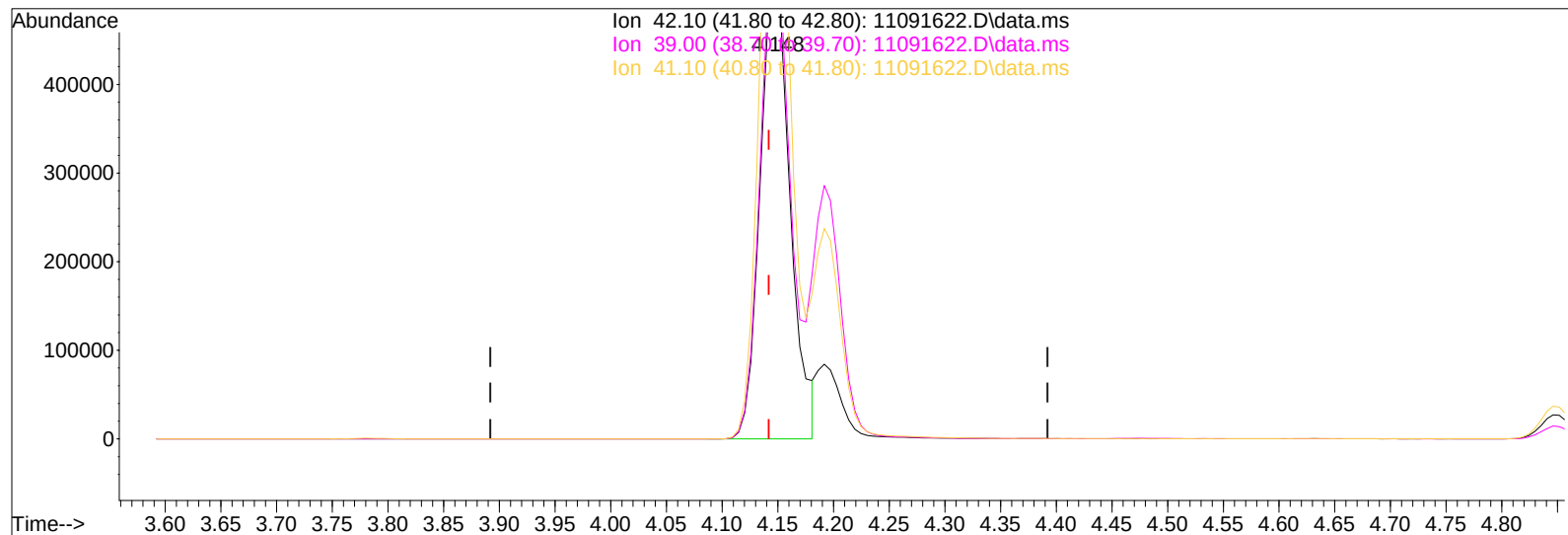
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(2) Propene (T)

4.148min (+0.006) 40.14ng m

response 973903

IPC

Ion	Exp%	Act%
42.10	100	100
39.00	105.30	107.35
41.10	151.20	149.90
0.00	0.00	0.00

LH 11/14/16

WJ 11/14/16

Data File: I:\MS16\DATA\2016 11\09\11091622.D

Acq On : 10 Nov 2016 10:36

Operator: LH

Sample : P1605133-002 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 12:11:57 2016

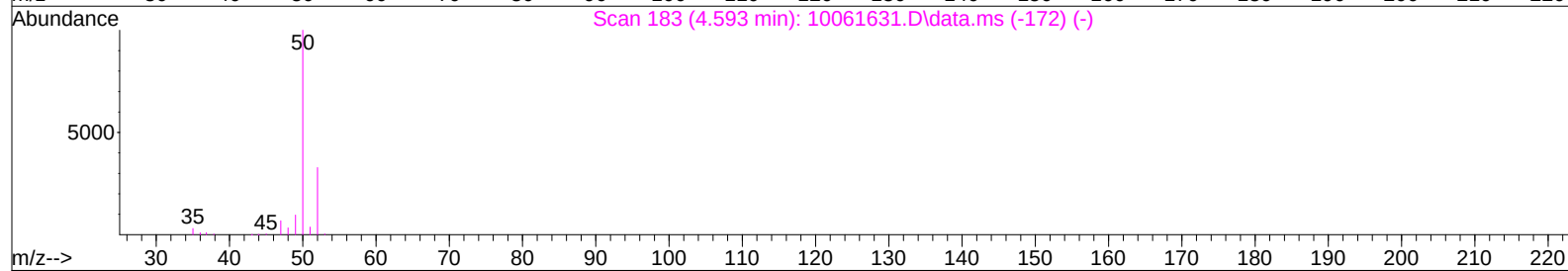
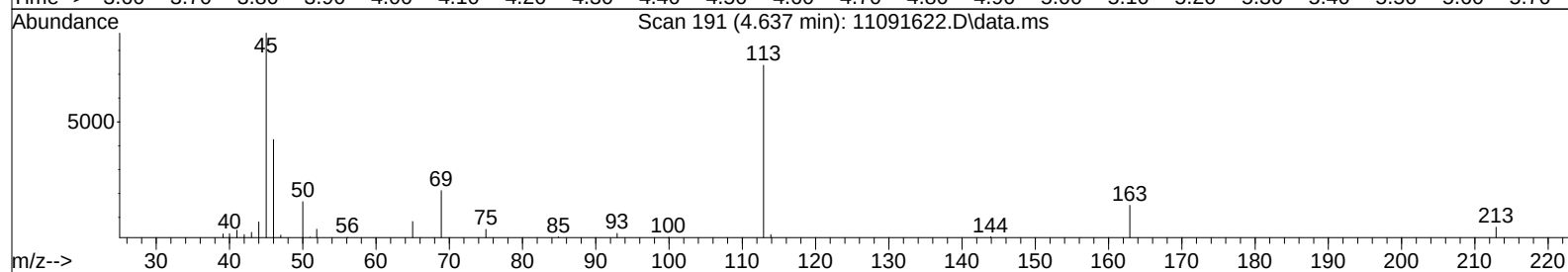
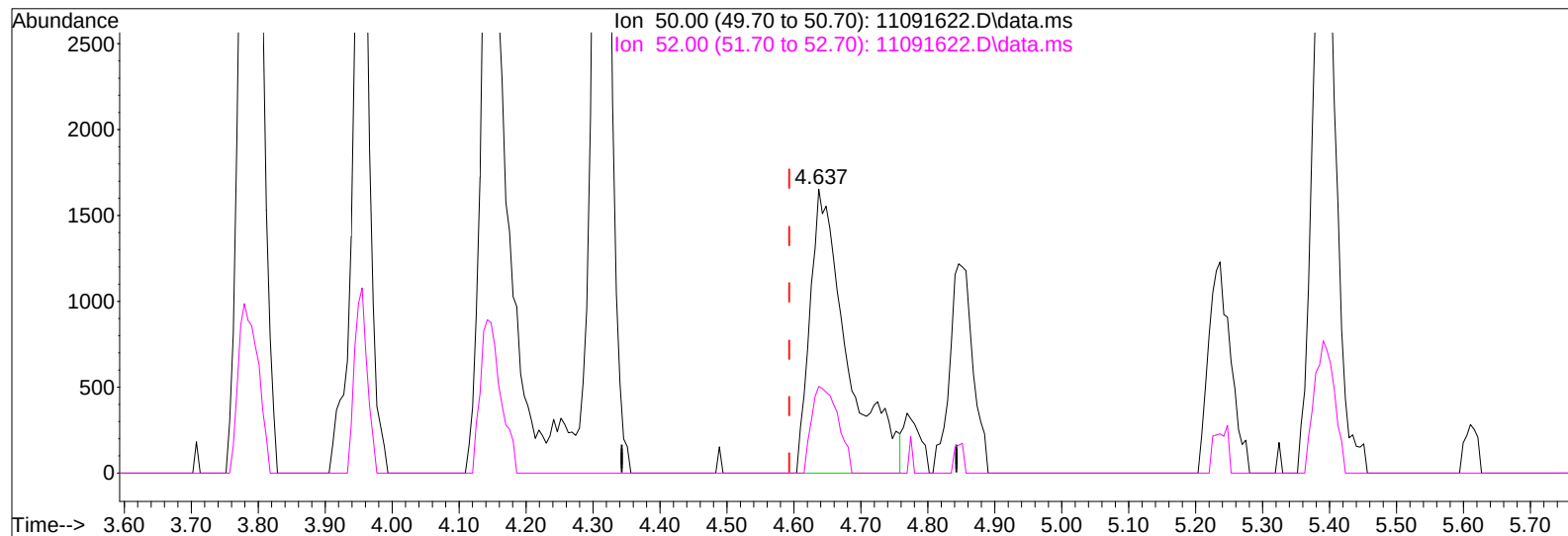
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091622.D\data.ms

(4) Chloromethane (T)

4.637min (+0.044) 0.23ng

response 6398

Ion	Exp%	Act%
50.00	100	100
52.00	33.10	21.58
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091622.D

Acq On : 10 Nov 2016 10:36

Operator: LH

Sample : P1605133-002 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 12:11:57 2016

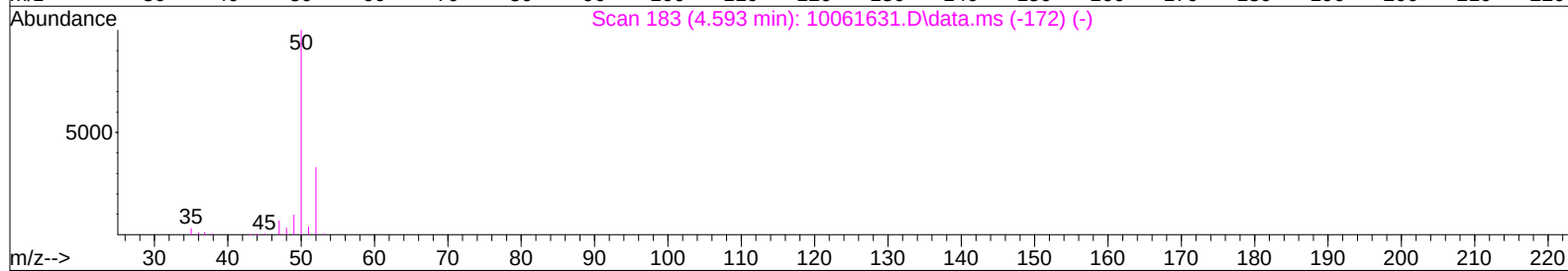
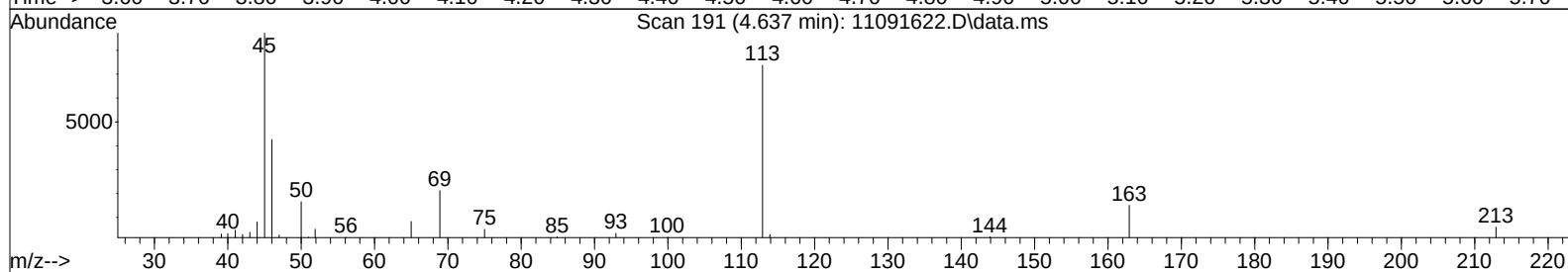
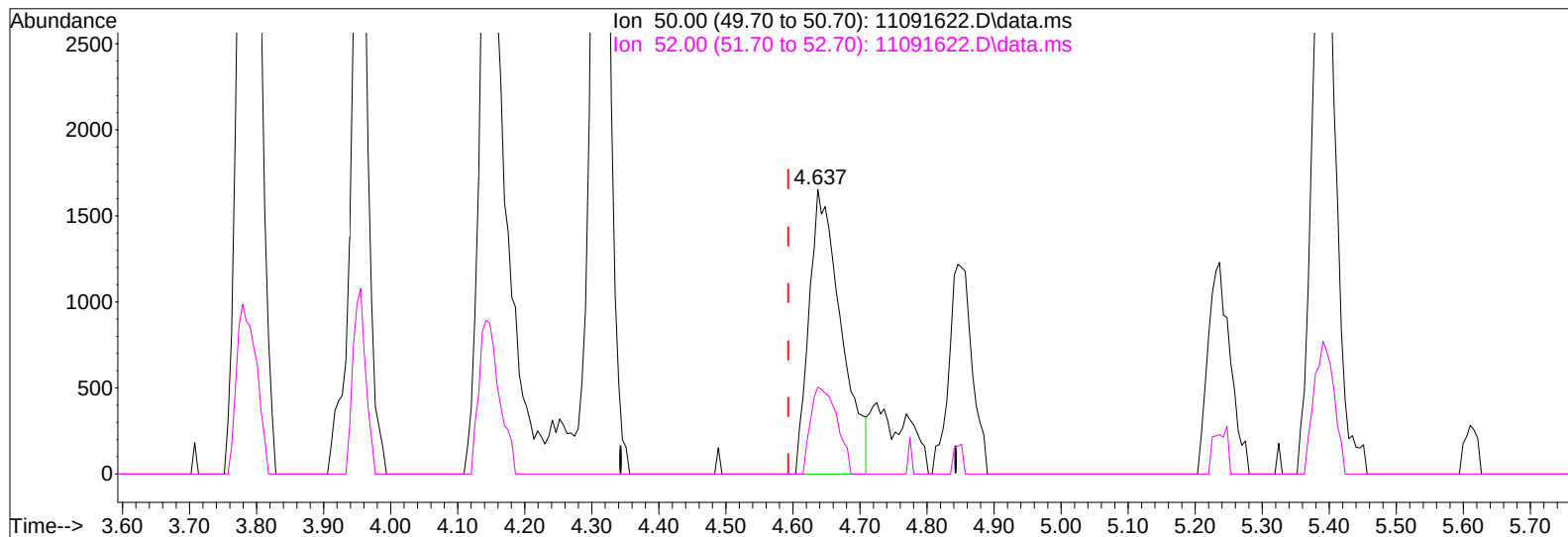
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091622.D\data.ms

(4) Chloromethane (T)

4.637min (+0.044) 0.19ng m

response 5454

Ion	Exp%	Act%
50.00	100	100
52.00	33.10	25.32
0.00	0.00	0.00
0.00	0.00	0.00

IPC

LH 11/14/16

W/H 11/14/16

Data File: I:\MS16\DATA\2016 11\09\11091607.D

Acq On : 9 Nov 2016 21:18
 Sample : P1605133-003 (1000mL)
 Misc : S29-11051601
 ALS Vial : 5 Sample Multiplier: 1

Operator: LH

Quant Time: Nov 14 13:14:04 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 11/14/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	276953	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1354894	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	584624	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	423096	14.912	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	119.28%
57) Toluene-d8 (SS2)	15.86	98	1389696	11.920	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.36%
73) Bromofluorobenzene (SS3)	19.11	174	490631	11.084	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	88.64%

Target Compounds

						Qvalue
2) Propene	4.14	42	2950081m	120.567	ng	
3) Dichlorodifluoromethan...	4.30	85	97843	2.081	ng	99
4) Chloromethane	4.63	50	7953	0.281	ng	92
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	2809	0.101	ng	94
6) Vinyl Chloride	5.04	62	648	N.D.		
7) 1,3-Butadiene	5.31	54	5684	0.275	ng	97
8) Bromomethane	5.75	94	916	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.45	45	1859490	104.831	ng	100
11) Acetonitrile	6.72	41	39506	0.856	ng	97
12) Acrolein	6.90	56	26256	1.582	ng	100
13) Acetone	7.10	58	1392102	78.930	ng	88
14) Trichlorofluoromethane	7.35	101	43393	0.993	ng	99
15) 2-Propanol (Isopropanol)	7.62	45	13593320	229.156	ng	99
16) Acrylonitrile	0.00	53	0	N.D.	d	
17) 1,1-Dichloroethene	8.33	96	628	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.55	84	532262	18.478	ng	85
20) 3-Chloro-1-propene (Al...	8.72	41	1460	N.D.		
21) Trichlorotrifluoroethane	8.97	151	9772	0.379	ng	95
22) Carbon Disulfide	8.83	76	9911	0.102	ng	91
23) trans-1,2-Dichloroethene	9.84	61	1115	N.D.		
24) 1,1-Dichloroethane	10.08	63	3398	N.D.		
25) Methyl tert-Butyl Ether	10.22	73	3452	N.D.		
26) Vinyl Acetate	10.30	86	31590	6.054	ng	# 85
27) 2-Butanone (MEK)	10.59	72	46408	2.558	ng	# 75
28) cis-1,2-Dichloroethene	11.10	61	46152	1.321	ng	88
29) Diisopropyl Ether	11.40	87	1805	N.D.		
30) Ethyl Acetate	11.41	61	16470	1.754	ng	82
31) n-Hexane	11.39	57	70923	1.826	ng	# 98
32) Chloroform	11.44	83	5046	0.112	ng	96
34) Tetrahydrofuran (THF)	11.86	72	17987	1.029	ng	# 68
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	2349	N.D.		
38) 1,1,1-Trichloroethane	12.53	97	7139	0.181	ng	96
39) Isopropyl Acetate	12.96	61	1428	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	76915	0.688	ng	99
42) Carbon Tetrachloride	13.18	117	12424	0.357	ng	98
43) Cyclohexane	13.31	84	10094	0.246	ng	# 81
44) tert-Amyl Methyl Ether	13.70	73	1472	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.11	130	159735	5.039	ng	100
48) 1,4-Dioxane	14.11	88	1684	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091607.D

Acq On : 9 Nov 2016 21:18

Operator: LH

Sample : P1605133-003 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 14 13:14:04 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.32	100	1844	0.161	ng	# 69
51) n-Heptane	14.44	71	13474	0.495	ng	93
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.01	58	46709	1.878	ng	81
54) trans-1,3-Dichloropropene	15.51	75	711	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	502107	4.391	ng	99
59) 2-Hexanone	16.21	43	18205	0.303	ng	# 73
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	158008	2.380	ng	95
63) n-Octane	16.97	57	8966	0.359	ng	85
64) Tetrachloroethene	17.11	166	636535	17.271	ng	100
65) Chlorobenzene	17.77	112	4561	N.D.		
66) Ethylbenzene	18.12	91	51348	0.372	ng	96
67) m- & p-Xylenes	18.27	91	130822	1.238	ng	96
68) Bromoform	18.35	173	578	N.D.		
69) Styrene	18.60	104	24759	0.295	ng	97
70) o-Xylene	18.70	91	65853	0.628	ng	97
71) n-Nonane	18.90	43	54344	1.053	ng	# 81
72) 1,1,2,2-Tetrachloroethane	18.71	83	1590	N.D.		
74) Cumene	19.23	105	9261	N.D.		
75) alpha-Pinene	19.58	93	233389	3.415	ng	96
76) n-Propylbenzene	19.68	91	35902	0.243	ng	93
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	33891	0.272	ng	98
79) 1,3,5-Trimethylbenzene	19.87	105	38007	0.337	ng	97
80) alpha-Methylstyrene	20.00	118	2941	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	141893	1.270	ng	87
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.35	91	3523	N.D.		
85) 1,3-Dichlorobenzene	20.36	146	2657	N.D.		
86) 1,4-Dichlorobenzene	20.42	146	904220	12.517	ng	99
87) sec-Butylbenzene	20.47	105	4460	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.73	146	4758	N.D.		
91) d-Limonene	20.73	68	111204	2.825	ng	95
92) 1,2-Dibromo-3-Chloropr...	21.11	157	551	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.23	180	5537	0.097	ng	# 87
95) Naphthalene	22.34	128	51832	0.331	ng	100
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.66	225	827	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS16\DATA\2016 11\09\11091607.D

Acq On : 9 Nov 2016 21:18

Operator: LH

Sample : P1605133-003 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 14 13:14:04 2016

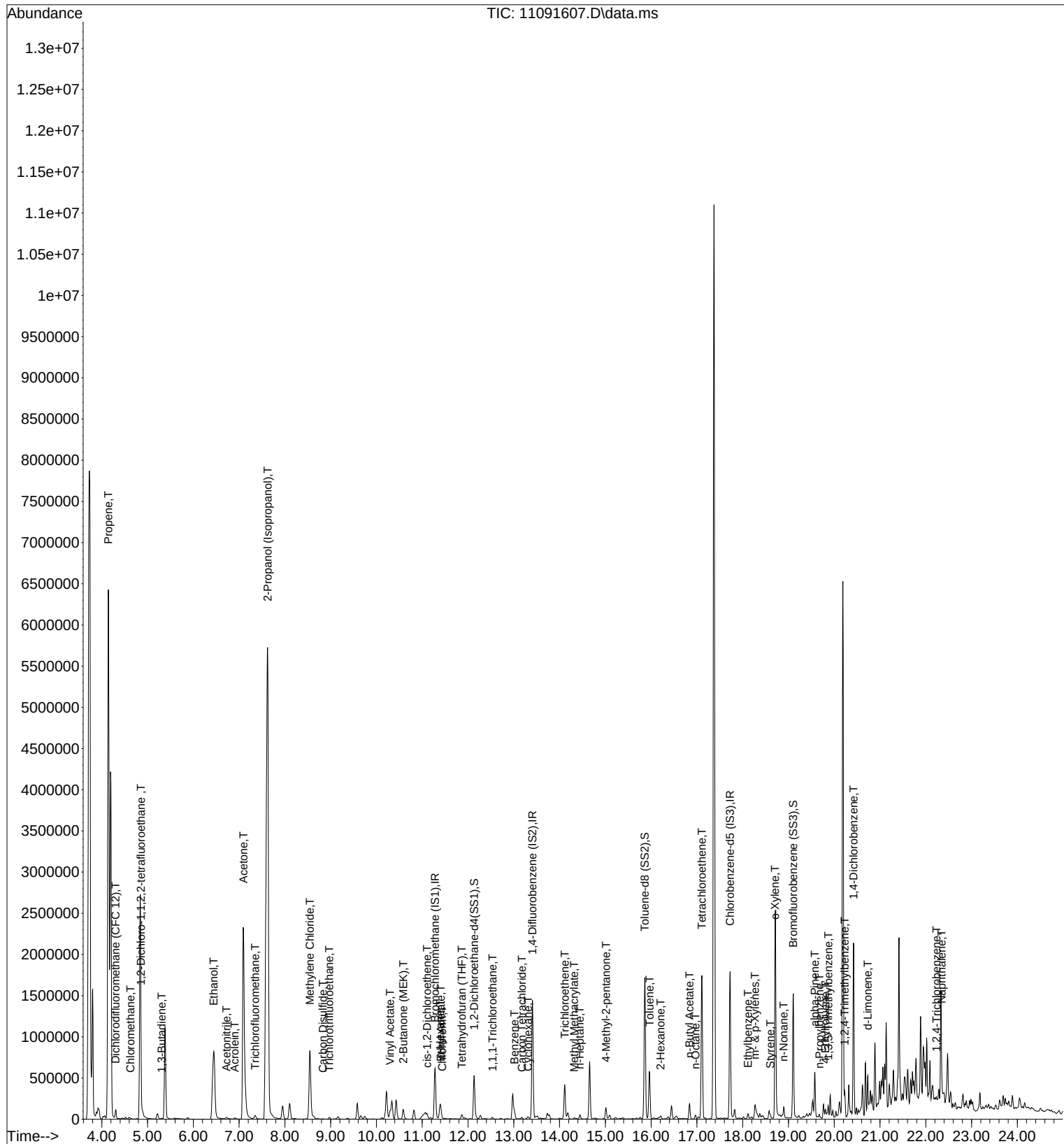
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091607.D

Acq On : 9 Nov 2016 21:18

Operator: LH

Sample : P1605133-003 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 08:18:38 2016

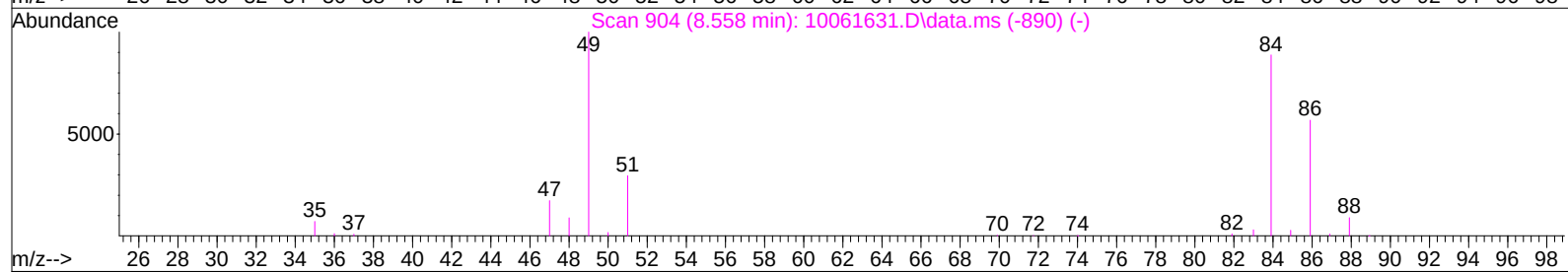
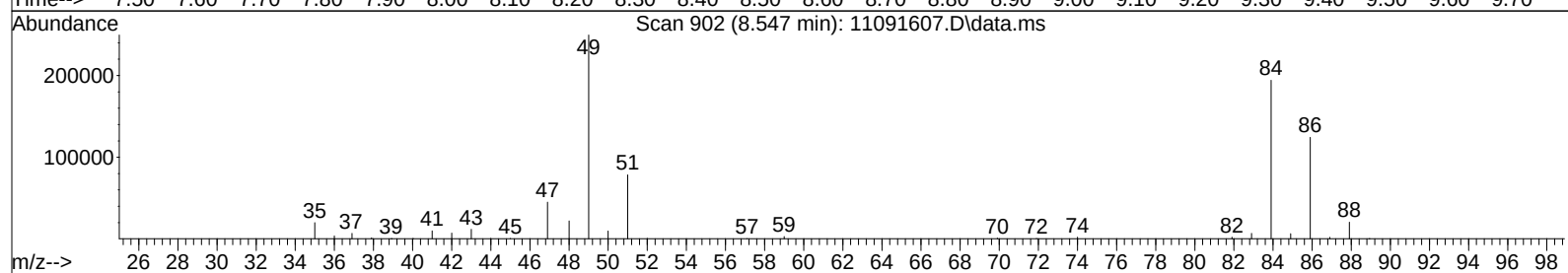
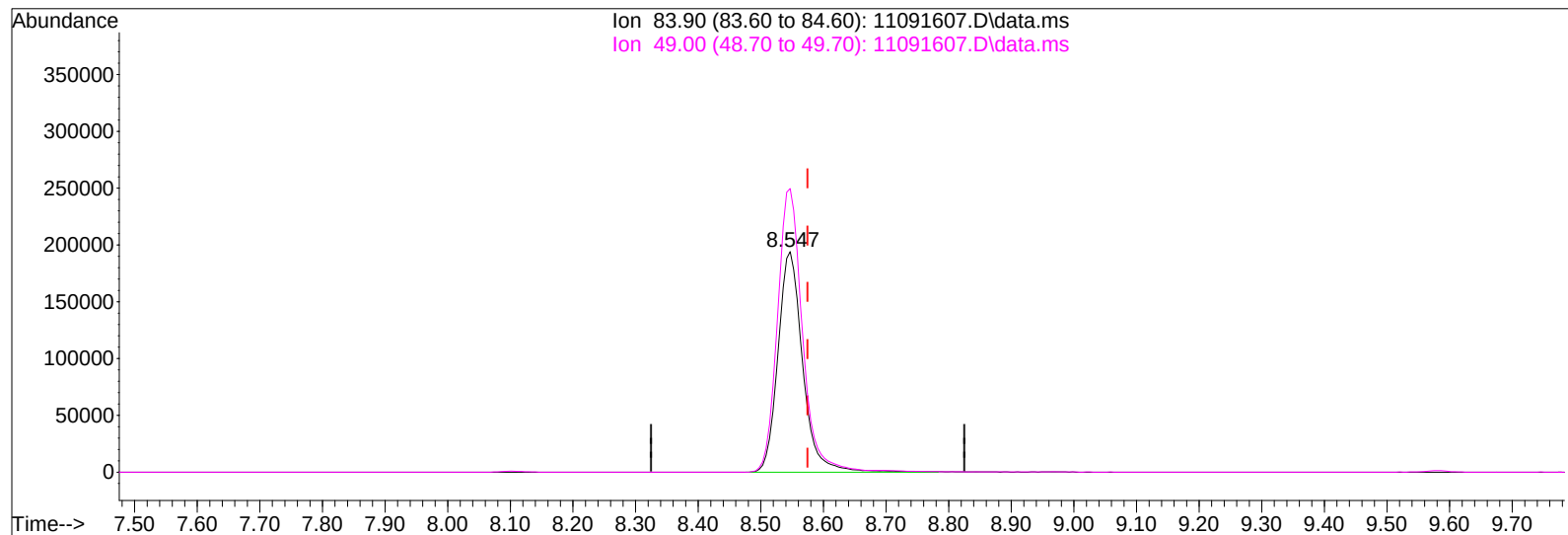
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091607.D\data.ms

(19) Methylene Chloride (T)

8.547min (-0.028) 18.48ng

response 532262

Ion	Exp%	Act%
83.90	100	100
49.00	114.70	130.40
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091607.D

Acq On : 9 Nov 2016 21:18

Operator: LH

Sample : P1605133-003 (1000mL)

Misc : S29-11051601

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ALS Vial      : 5      Sample Multiplier: 1
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Quant Time: Nov 10 08:18:38 2016

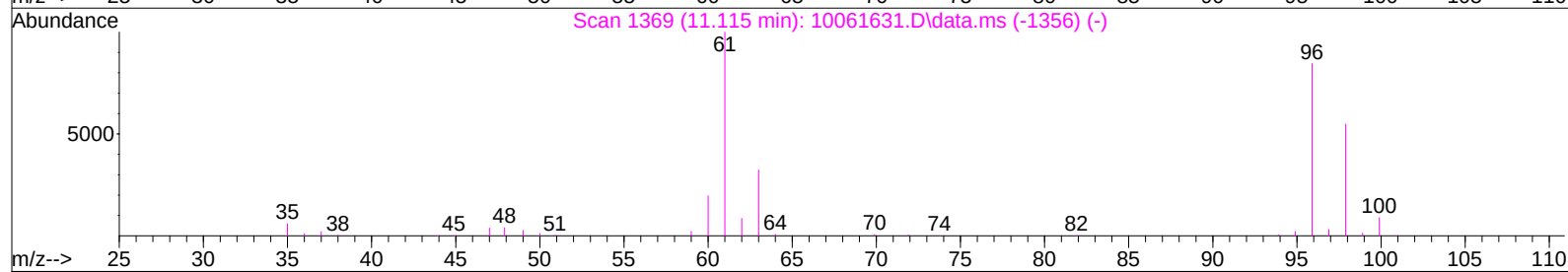
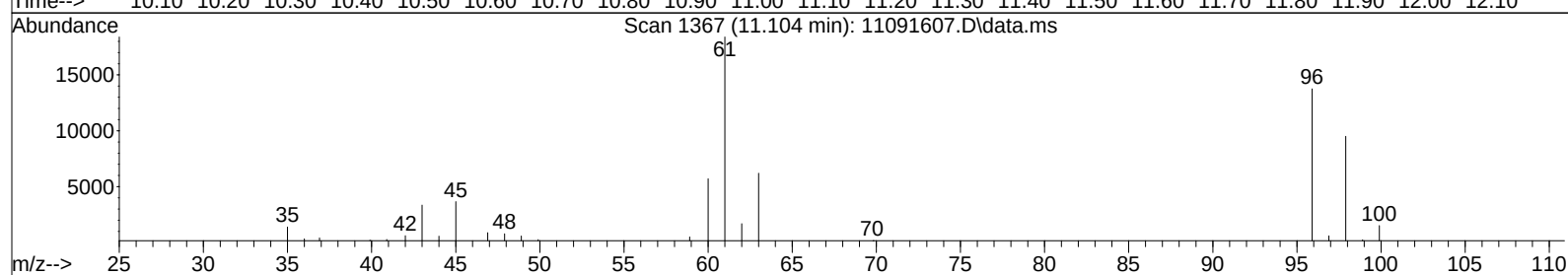
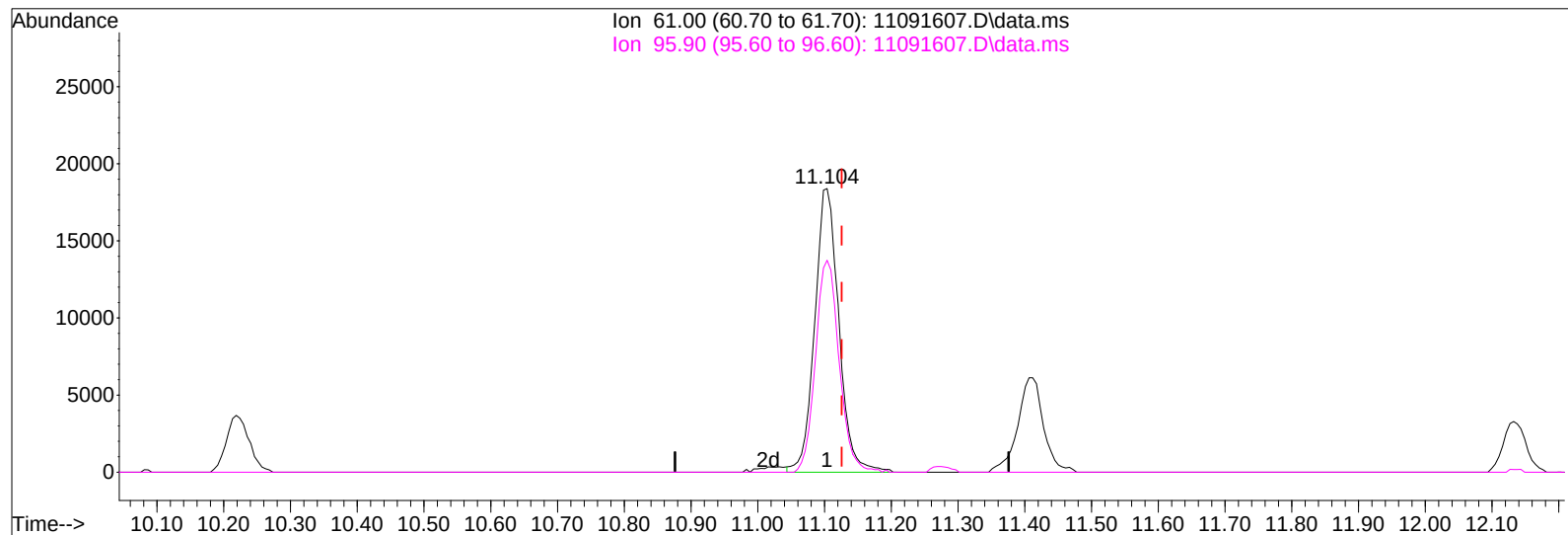
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:T015.M



TIC: 11091607.D\data.ms

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

11.104min (-0.022) 1.32ng

response 46152

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	73.36
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091607.D

Acq On : 9 Nov 2016 21:18

Operator: LH

Sample : P1605133-003 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 08:18:38 2016

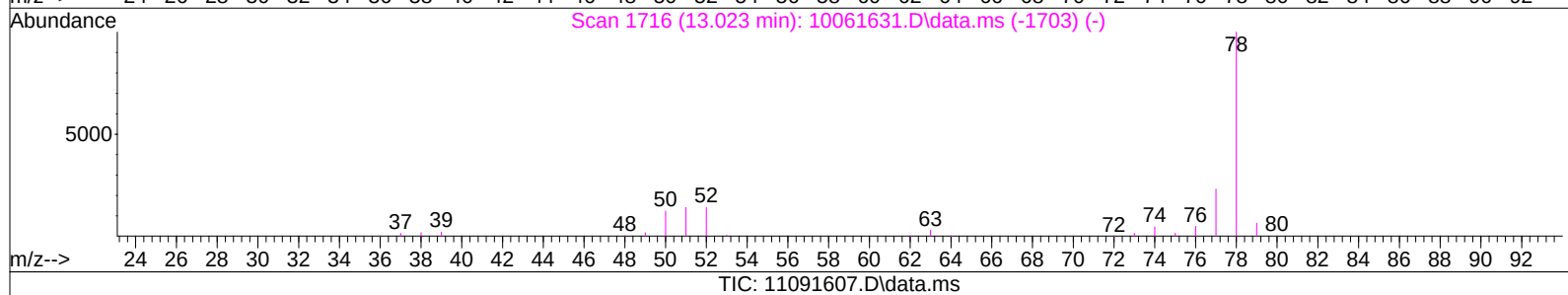
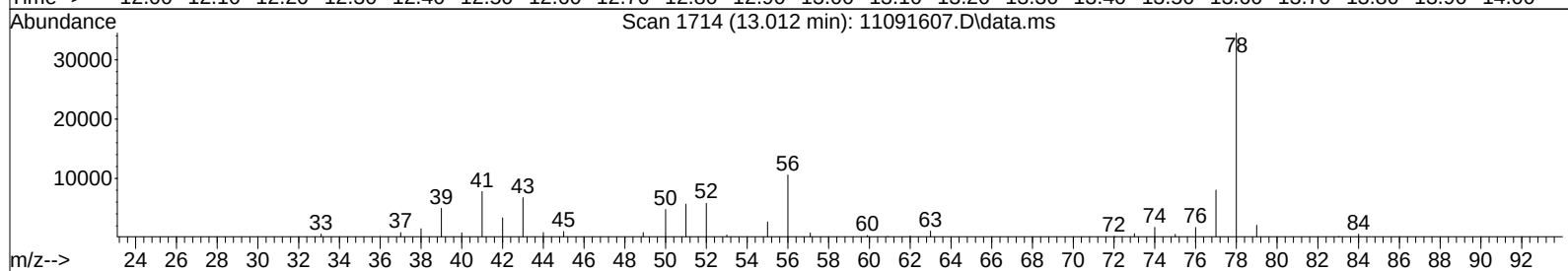
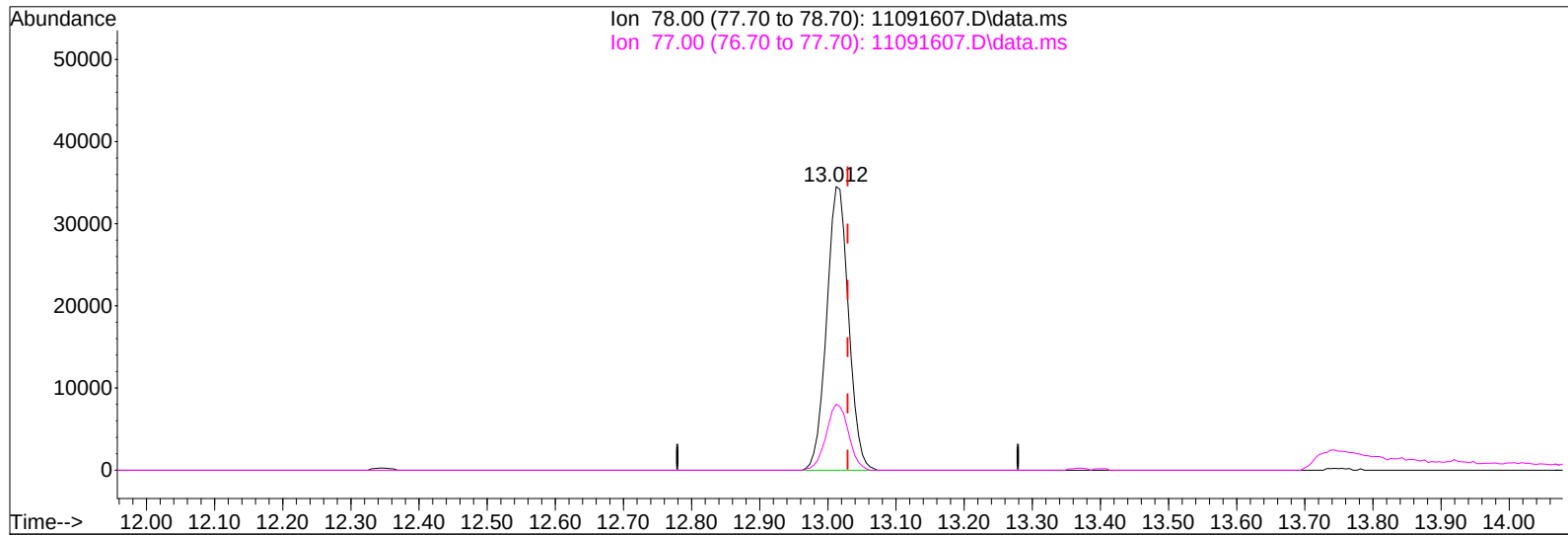
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091607.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 0.69ng

response 76915

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.77
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091607.D

Acq On : 9 Nov 2016 21:18

Operator: LH

Sample : P1605133-003 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 08:18:38 2016

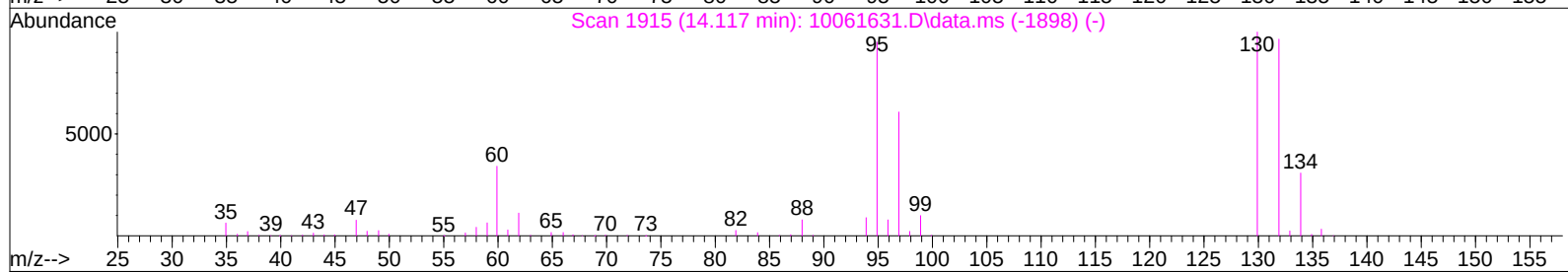
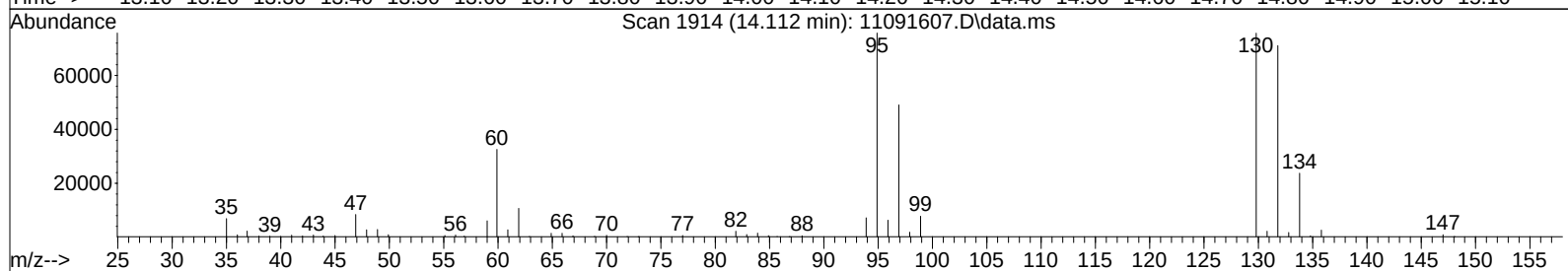
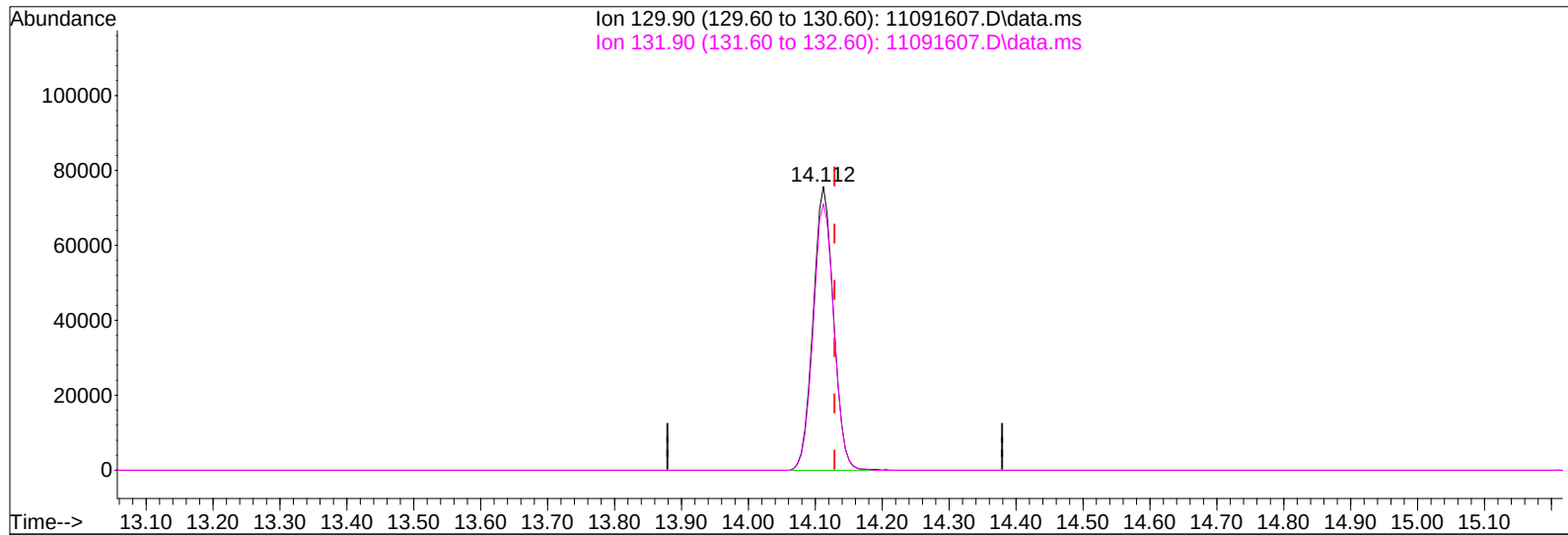
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091607.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 5.04ng

response 159735

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	95.70
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091607.D

Acq On : 9 Nov 2016 21:18

Operator: LH

Sample : P1605133-003 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 08:18:38 2016

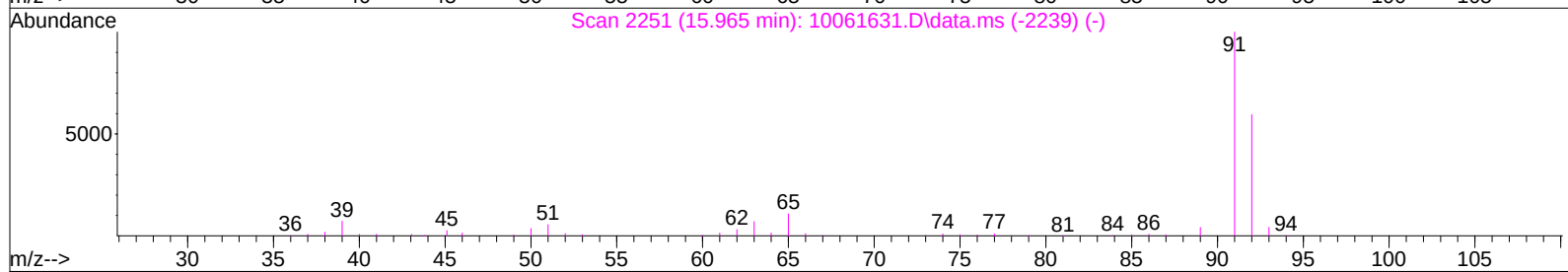
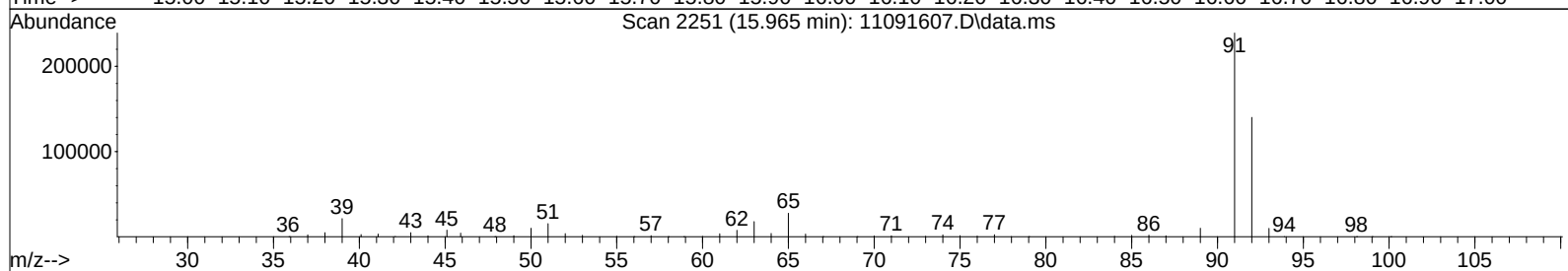
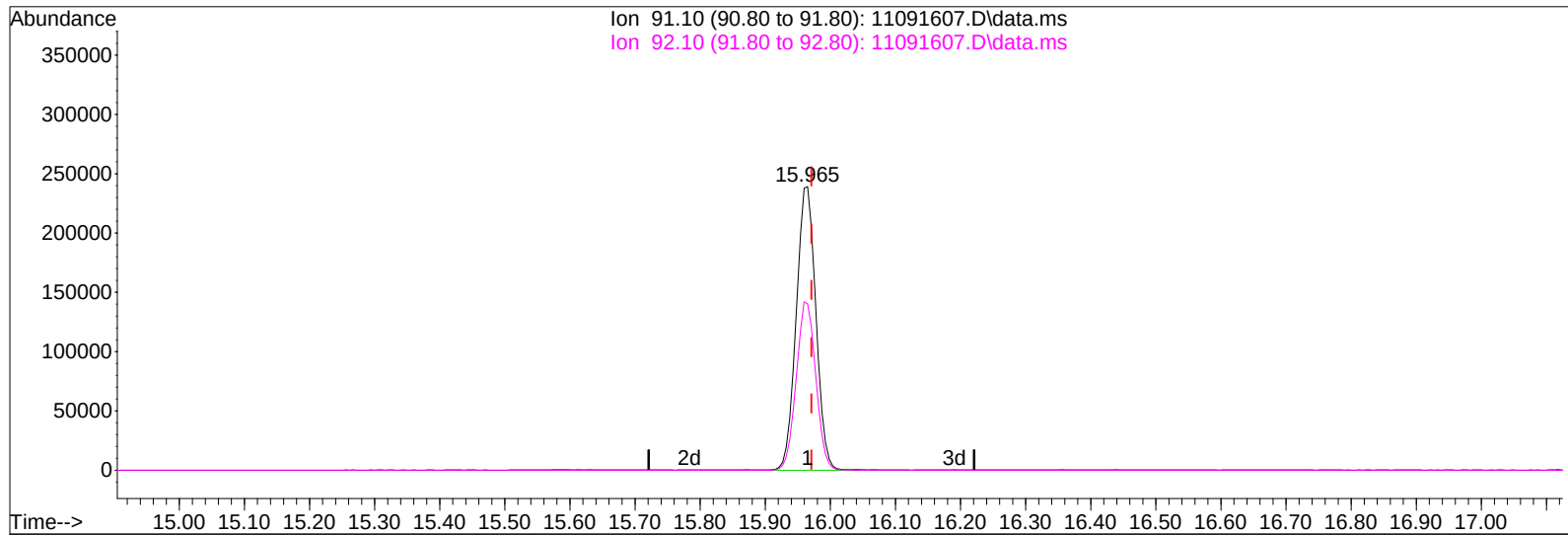
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091607.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 4.39ng

response 502107

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	58.89
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091607.D

Acq On : 9 Nov 2016 21:18

Operator: LH

Sample : P1605133-003 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 08:18:38 2016

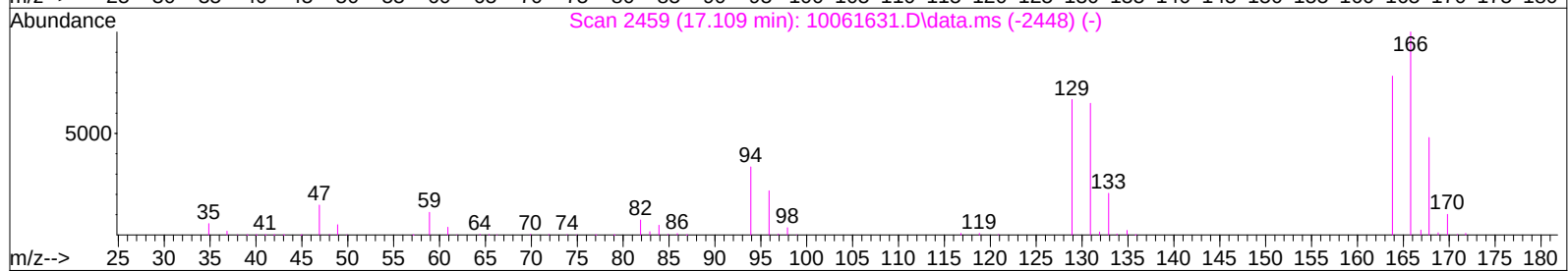
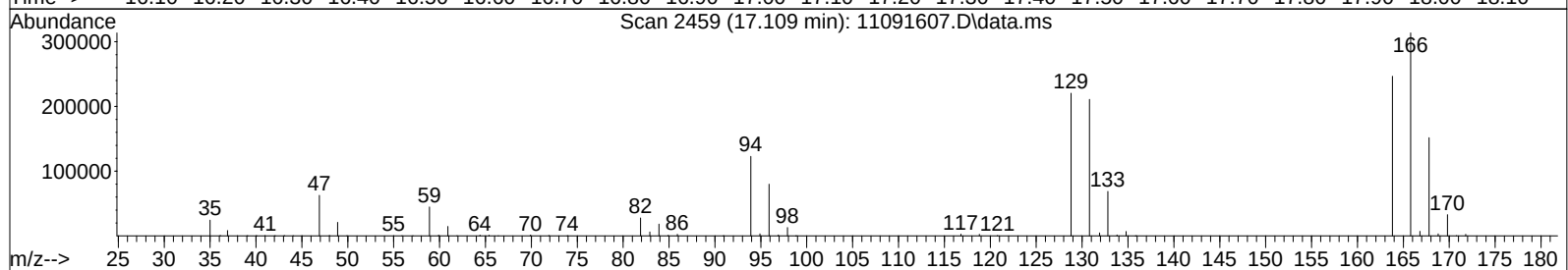
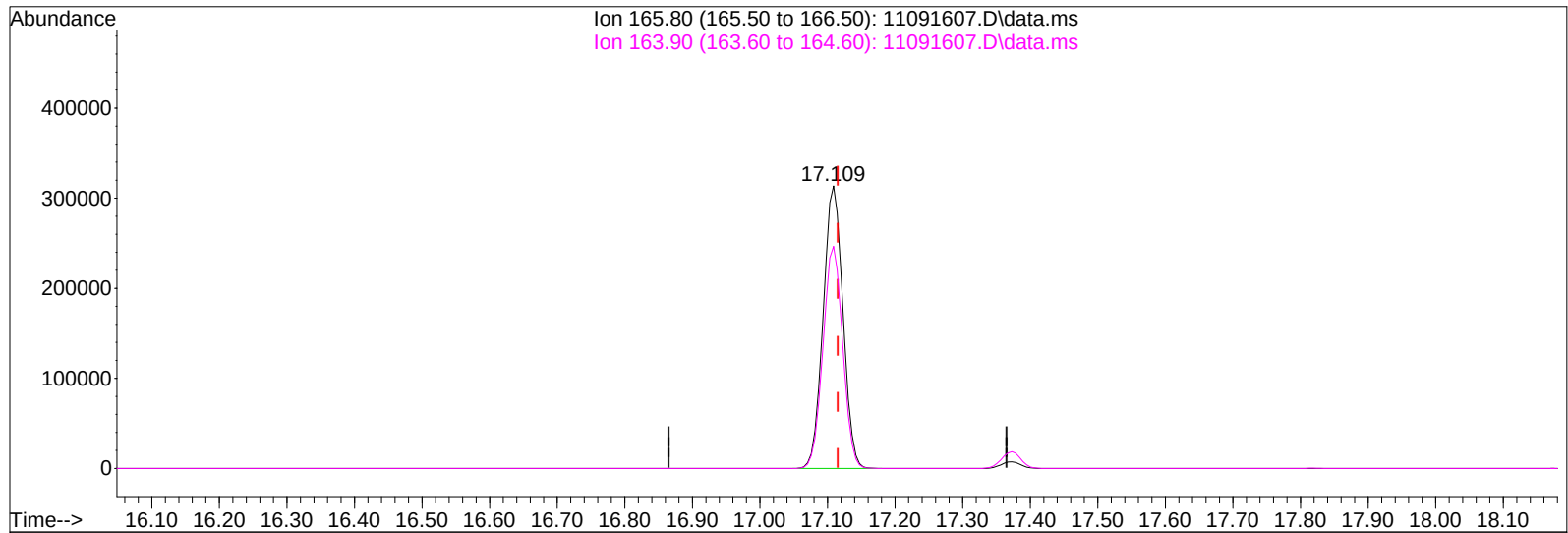
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091607.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 17.27ng

response 636535

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	78.45
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091607.D

Acq On : 9 Nov 2016 21:18

Operator: LH

Sample : P1605133-003 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 08:18:38 2016

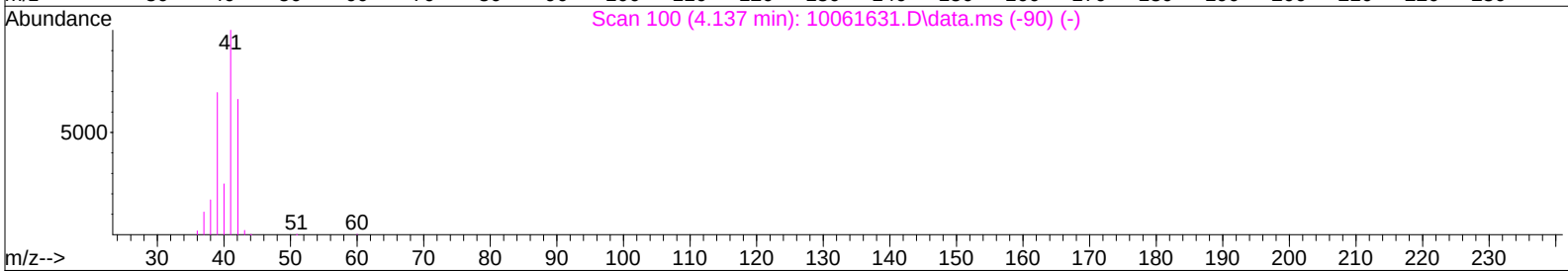
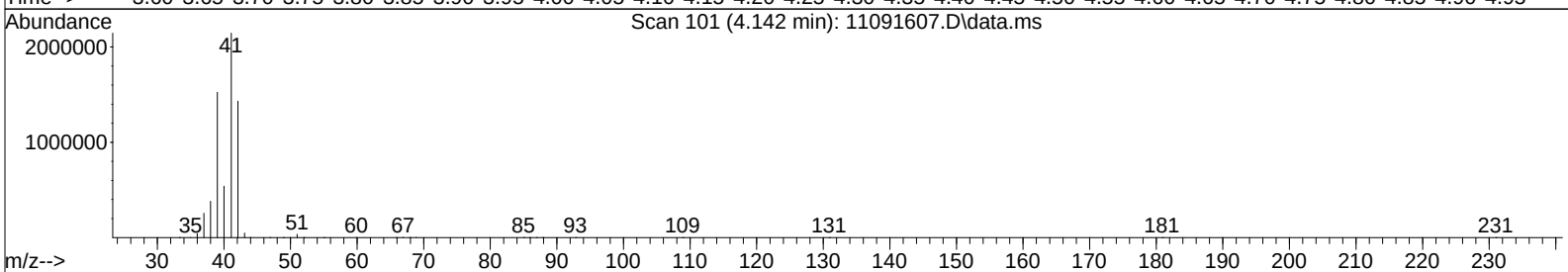
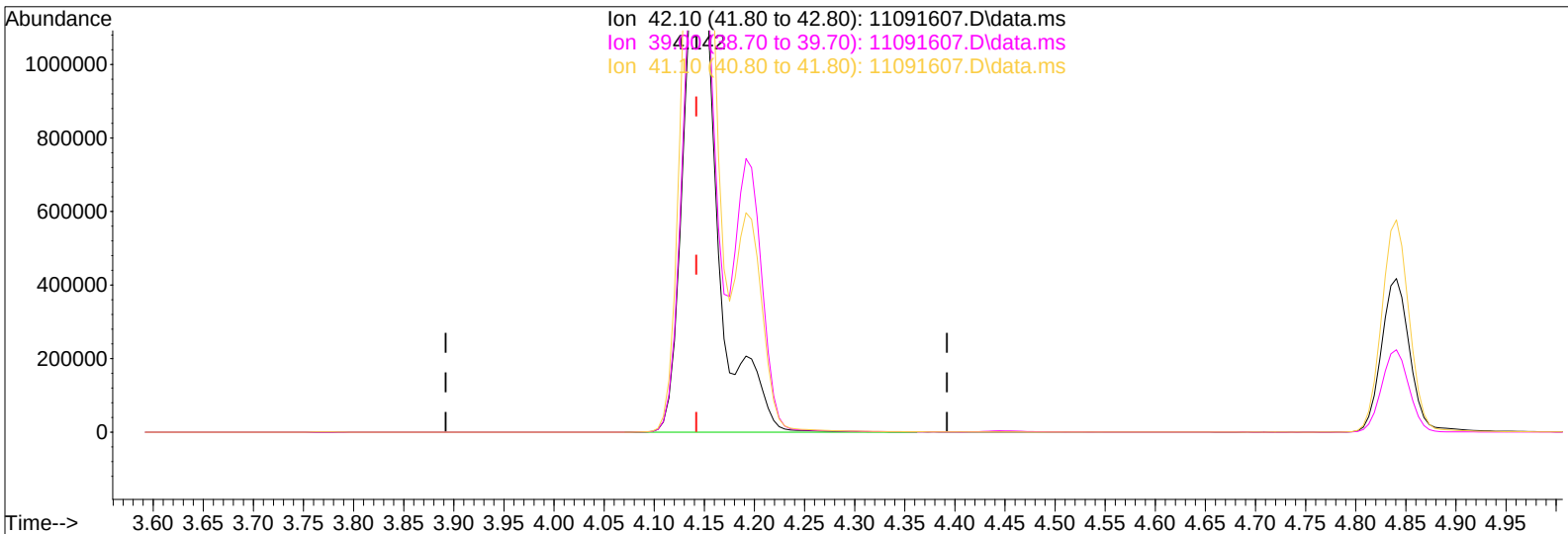
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091607.D\data.ms

(2) Propene (T)

4.142min (+0.000) 134.70ng

response 3295979

Ion	Exp%	Act%
42.10	100	100
39.00	105.30	97.43
41.10	151.20	134.38
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091607.D

Acq On : 9 Nov 2016 21:18

Operator: LH

Sample : P1605133-003 (1000mL)

Misc : S29-11051601

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 10 08:18:38 2016

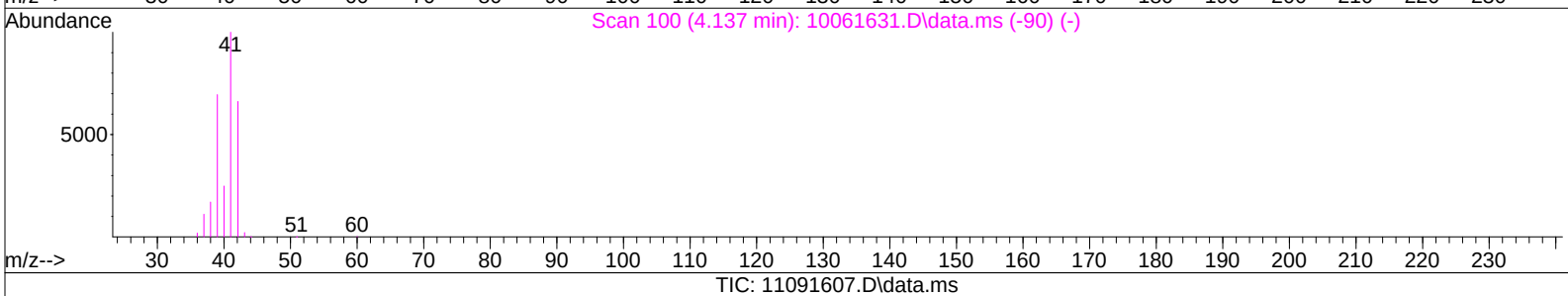
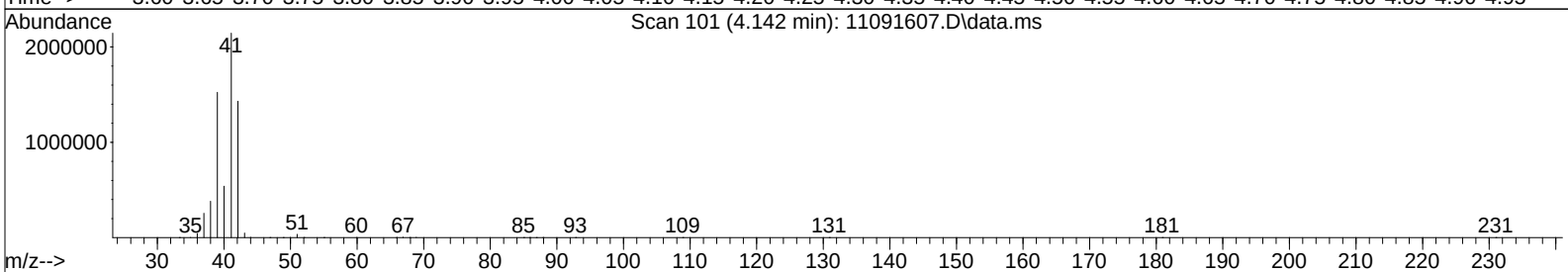
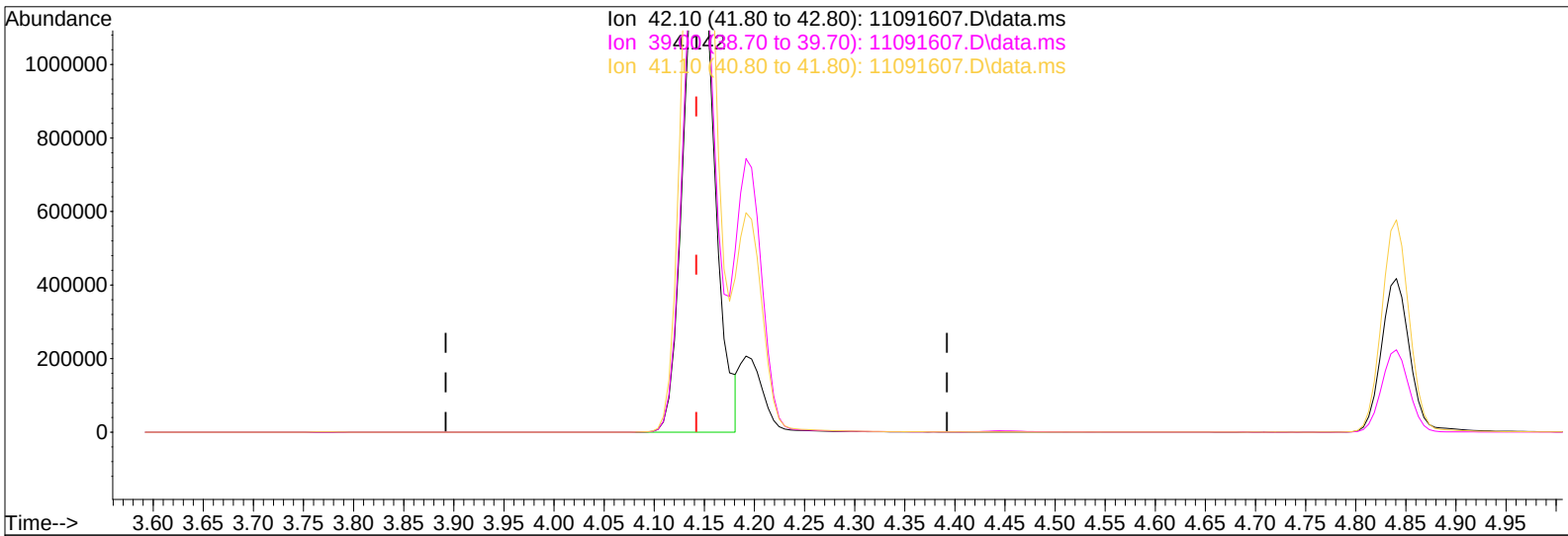
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(2) Propene (T)

4.142min (+0.000) 120.57ng m

IPC

response 2950081

LH 11/14/16

Ion	Exp%	Act%
42.10	100	100
39.00	105.30	108.86
41.10	151.20	150.13
0.00	0.00	0.00

W 11/14/16

Data File: I:\MS16\DATA\2016 11\09\11091608.D

Acq On : 9 Nov 2016 21:52

Operator: LH

Sample : P1605133-004 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 14 13:22:55 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 11/14/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	278490	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1377279	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	599459	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	430323	15.083	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	120.64%
57) Toluene-d8 (SS2)	15.86	98	1414649	11.833	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	94.64%
73) Bromofluorobenzene (SS3)	19.11	174	495709	10.922	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	87.36%

Target Compounds

						Qvalue
2) Propene	4.14	42	1451054	58.976	ng	98
3) Dichlorodifluoromethan...	4.30	85	92397	1.954	ng	99
4) Chloromethane	4.62	50	7852	0.276	ng	89
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	2623	0.093	ng	90
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	5.30	54	5226	0.252	ng	98
8) Bromomethane	5.75	94	821	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.43	45	1768251	99.137	ng	100
11) Acetonitrile	6.72	41	39801	0.857	ng	97
12) Acrolein	6.90	56	14522	0.870	ng	95
13) Acetone	7.09	58	1177853	66.414	ng	# 83
14) Trichlorofluoromethane	7.35	101	40777	0.928	ng	99
15) 2-Propanol (Isopropanol)	7.59	45	5352575	89.736	ng	100
16) Acrylonitrile	0.00	53	0	N.D.	d	
17) 1,1-Dichloroethene	8.33	96	562	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.54	84	519514	17.936	ng	85
20) 3-Chloro-1-propene (Al...	8.71	41	994	N.D.		
21) Trichlorotrifluoroethane	8.97	151	9169	0.353	ng	94
22) Carbon Disulfide	8.84	76	11933	0.122	ng	93
23) trans-1,2-Dichloroethene	9.83	61	932	N.D.		
24) 1,1-Dichloroethane	10.08	63	3311	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.	d	
27) 2-Butanone (MEK)	10.59	72	37583	2.060	ng	# 72
28) cis-1,2-Dichloroethene	11.10	61	43986	1.252	ng	88
29) Diisopropyl Ether	11.40	87	1368	N.D.		
30) Ethyl Acetate	11.41	61	16886	1.788	ng	89
31) n-Hexane	11.39	57	61011	1.562	ng	# 98
32) Chloroform	11.44	83	5209	0.115	ng	99
34) Tetrahydrofuran (THF)	11.86	72	17538	0.998	ng	# 63
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	5210	0.167	ng	99
38) 1,1,1-Trichloroethane	12.53	97	7059	0.176	ng	96
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	76030	0.669	ng	99
42) Carbon Tetrachloride	13.17	117	11978	0.338	ng	99
43) Cyclohexane	13.31	84	18858	0.452	ng	84
44) tert-Amyl Methyl Ether	13.70	73	762	N.D.		
45) 1,2-Dichloropropane	13.86	63	537	N.D.		
46) Bromodichloromethane	14.00	83	891	N.D.		
47) Trichloroethene	14.11	130	152983	4.748	ng	99
48) 1,4-Dioxane	14.10	88	1711	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091608.D

Acq On : 9 Nov 2016 21:52

Operator: LH

Sample : P1605133-004 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 14 13:22:55 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.32	100	1748	0.150	ng	# 36
51) n-Heptane	14.44	71	13609	0.492	ng	94
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.01	58	53510	2.117	ng	82
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.96	91	487565	4.158	ng	99
59) 2-Hexanone	16.21	43	9960	0.162	ng	# 68
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.83	43	261678	3.844	ng	95
63) n-Octane	16.97	57	8607	0.336	ng	90
64) Tetrachloroethene	17.11	166	622357	16.468	ng	100
65) Chlorobenzene	17.76	112	4269	N.D.		
66) Ethylbenzene	18.12	91	50992	0.360	ng	96
67) m- & p-Xylenes	18.27	91	124589	1.150	ng	97
68) Bromoform	18.34	173	534	N.D.		
69) Styrene	18.60	104	25215	0.293	ng	97
70) o-Xylene	18.70	91	65431	0.609	ng	95
71) n-Nonane	18.90	43	51063m	0.965	ng	
72) 1,1,2,2-Tetrachloroethane	18.71	83	3092	N.D.		
74) Cumene	19.23	105	8626	N.D.		
75) alpha-Pinene	19.58	93	239857	3.423	ng	98
76) n-Propylbenzene	19.68	91	35461	0.234	ng	95
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	35275	0.276	ng	97
79) 1,3,5-Trimethylbenzene	19.87	105	37076	0.321	ng	99
80) alpha-Methylstyrene	20.00	118	3474	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	146114	1.275	ng	88
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.35	91	2616	N.D.		
85) 1,3-Dichlorobenzene	20.36	146	1813	N.D.		
86) 1,4-Dichlorobenzene	20.42	146	902968	12.190	ng	99
87) sec-Butylbenzene	20.47	105	4231	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.72	146	3634	N.D.		
91) d-Limonene	20.73	68	126049	3.123	ng	98
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.24	180	3698	N.D.		
95) Naphthalene	22.34	128	40368	0.252	ng	97
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS16\DATA\2016 11\09\11091608.D

Acq On : 9 Nov 2016 21:52

Operator: LH

Sample : P1605133-004 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 14 13:22:55 2016

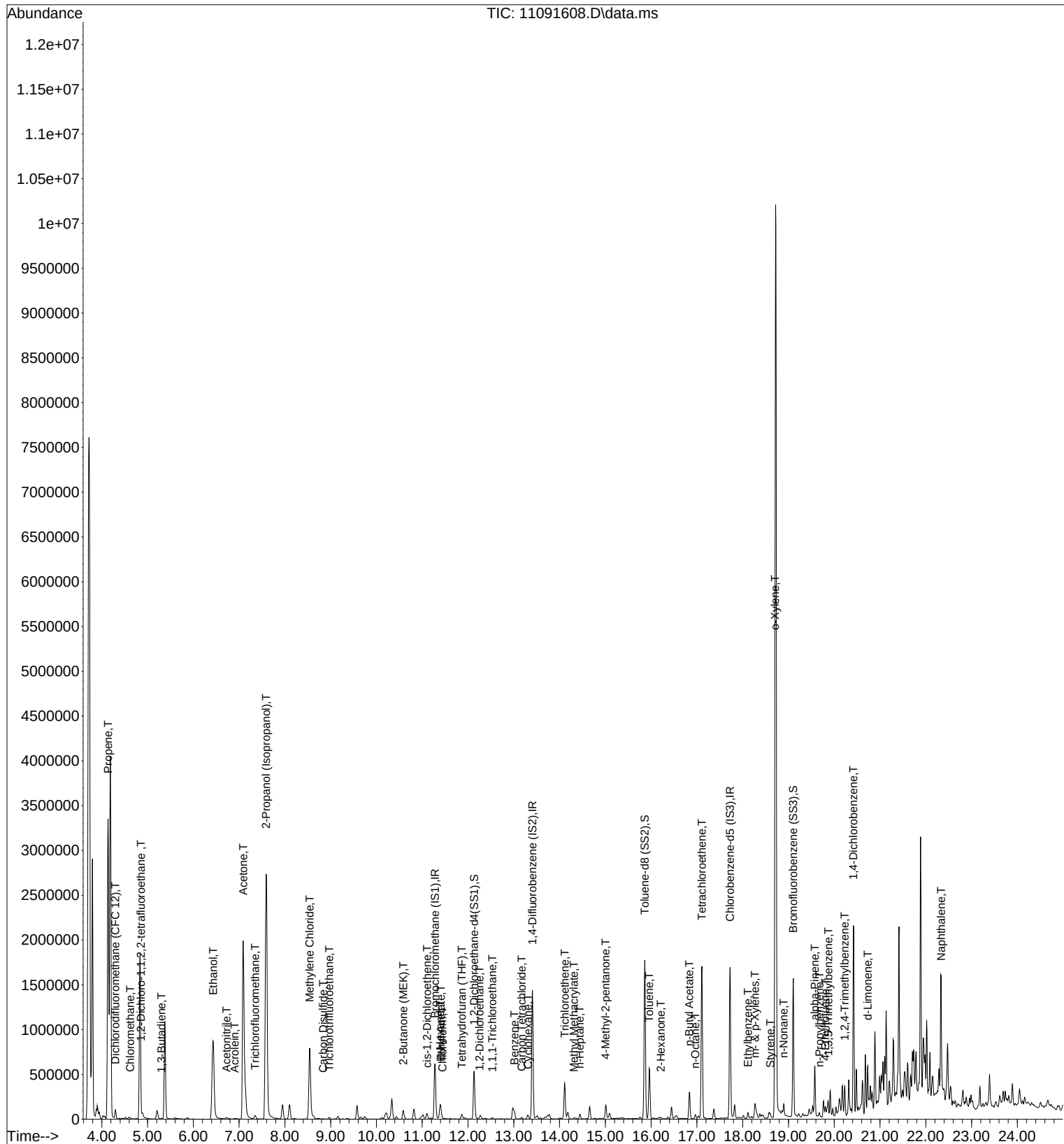
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091608.D

Acq On : 9 Nov 2016 21:52

Operator: LH

Sample : P1605133-004 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:18:55 2016

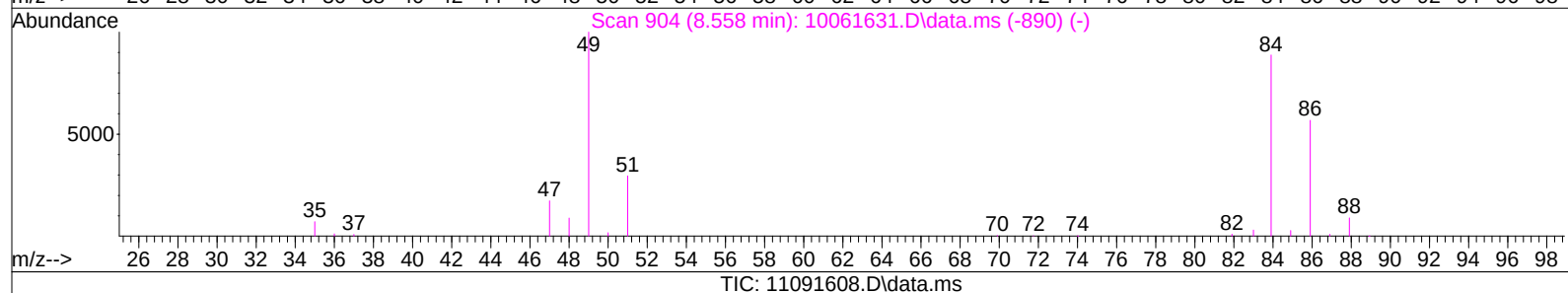
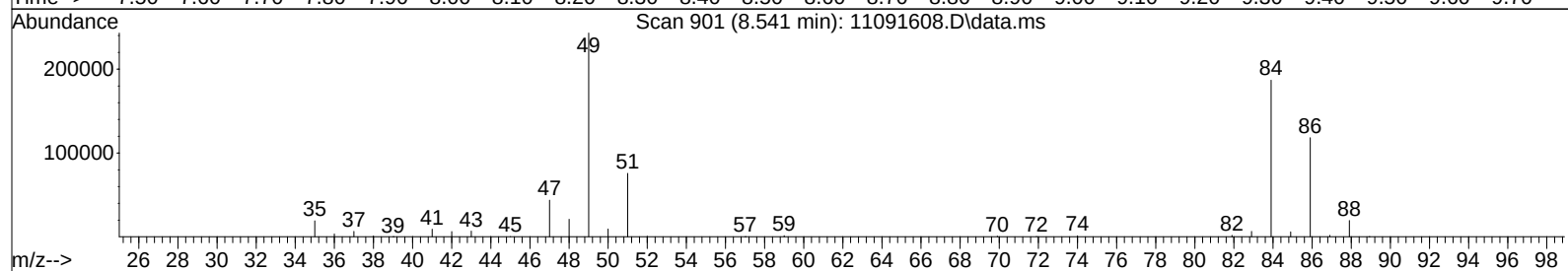
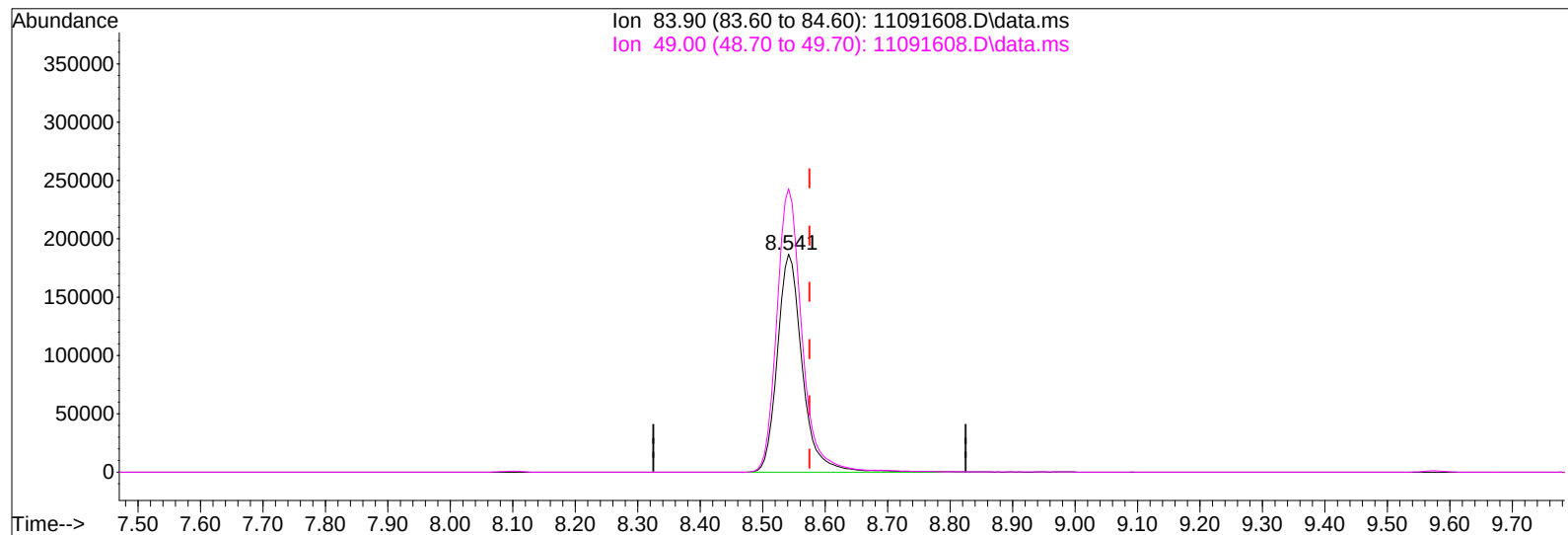
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(19) Methylene Chloride (T)

8.541min (-0.034) 17.94ng

response 519514

Ion	Exp%	Act%
83.90	100	100
49.00	114.70	131.15
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091608.D

Acq On : 9 Nov 2016 21:52

Operator: LH

Sample : P1605133-004 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:18:55 2016

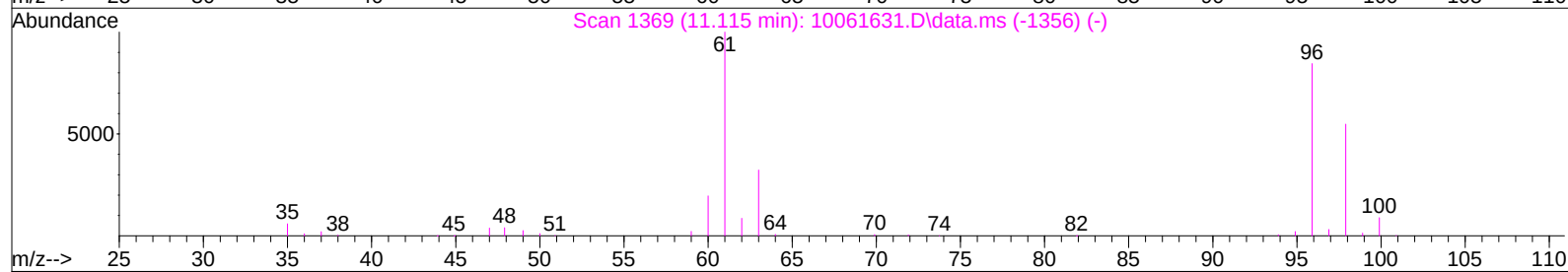
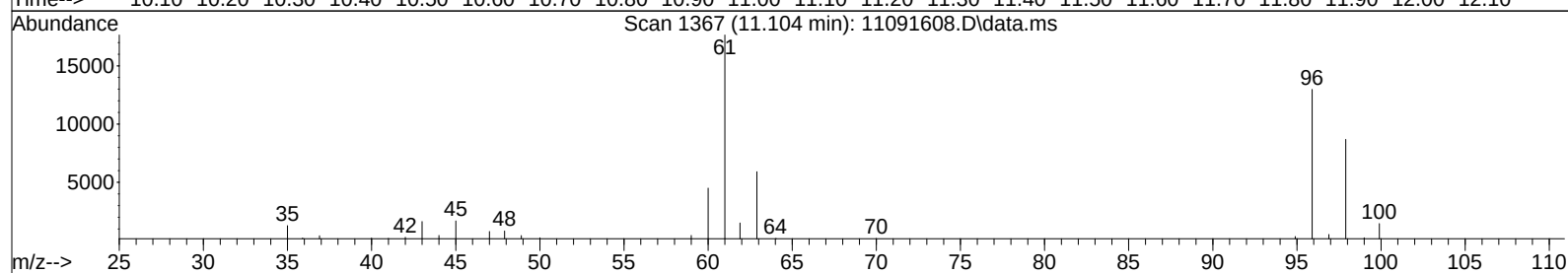
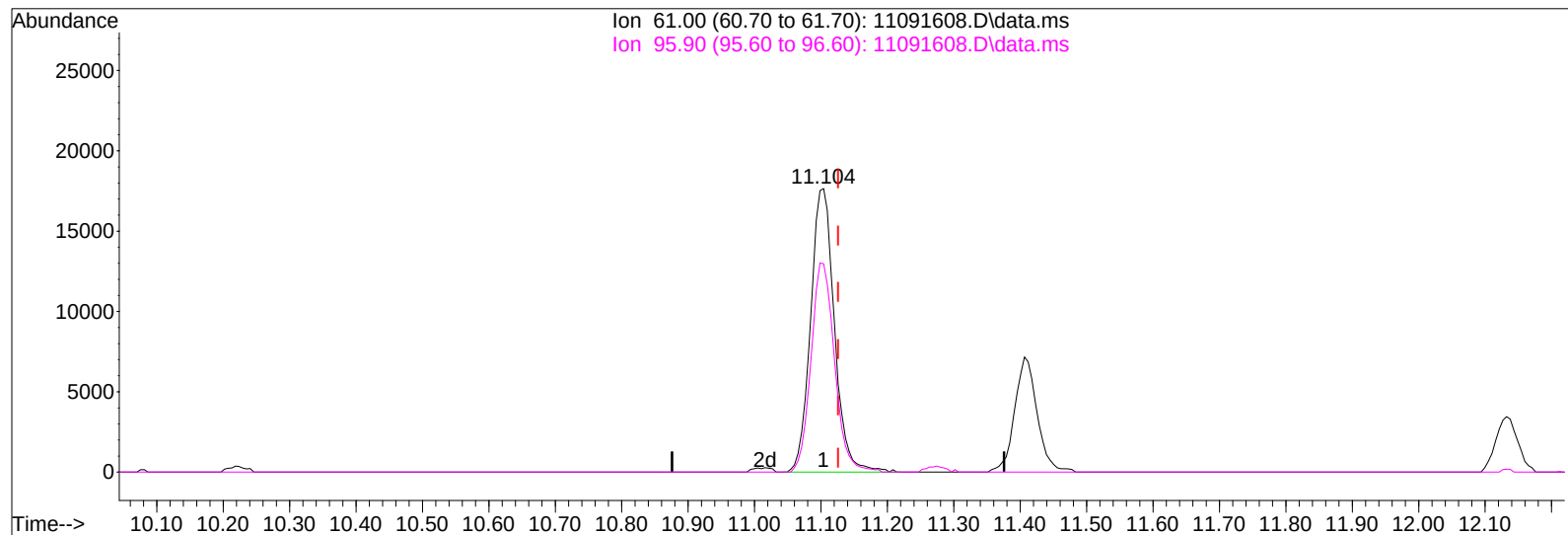
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091608.D\data.ms

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

11.104min (-0.022) 1.25ng

response 43986

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	73.11
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091608.D

Acq On : 9 Nov 2016 21:52

Operator: LH

Sample : P1605133-004 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:18:55 2016

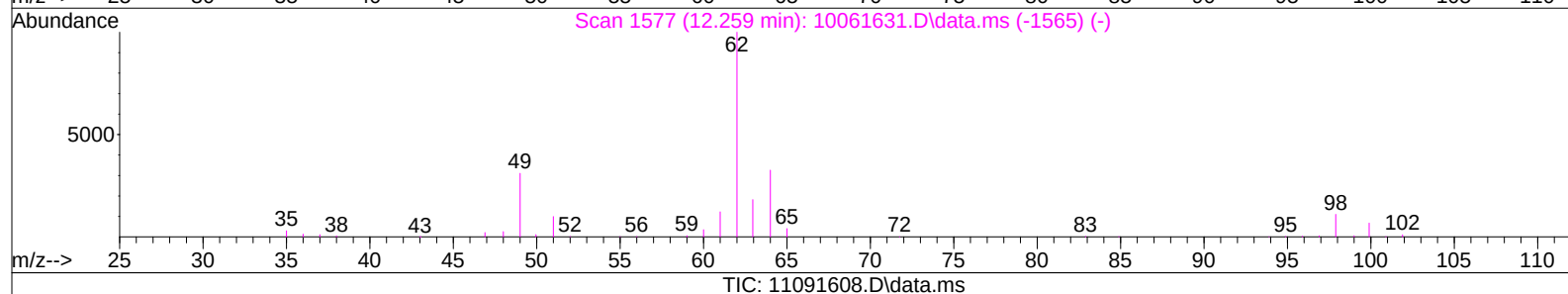
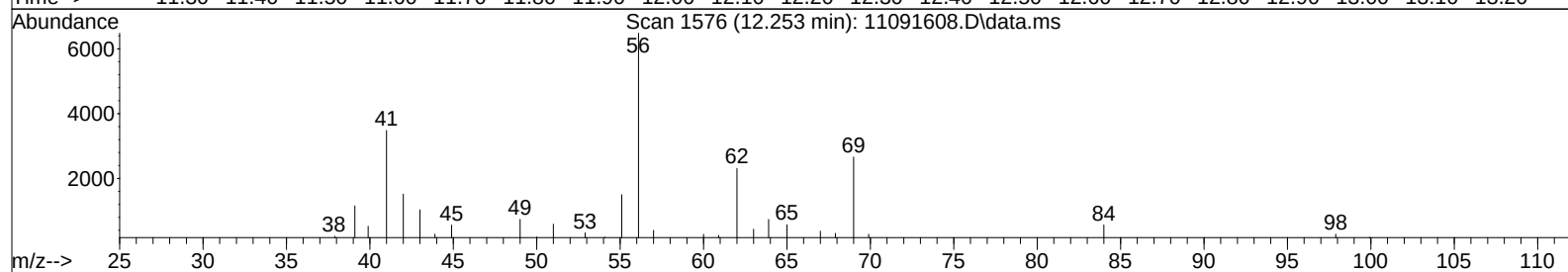
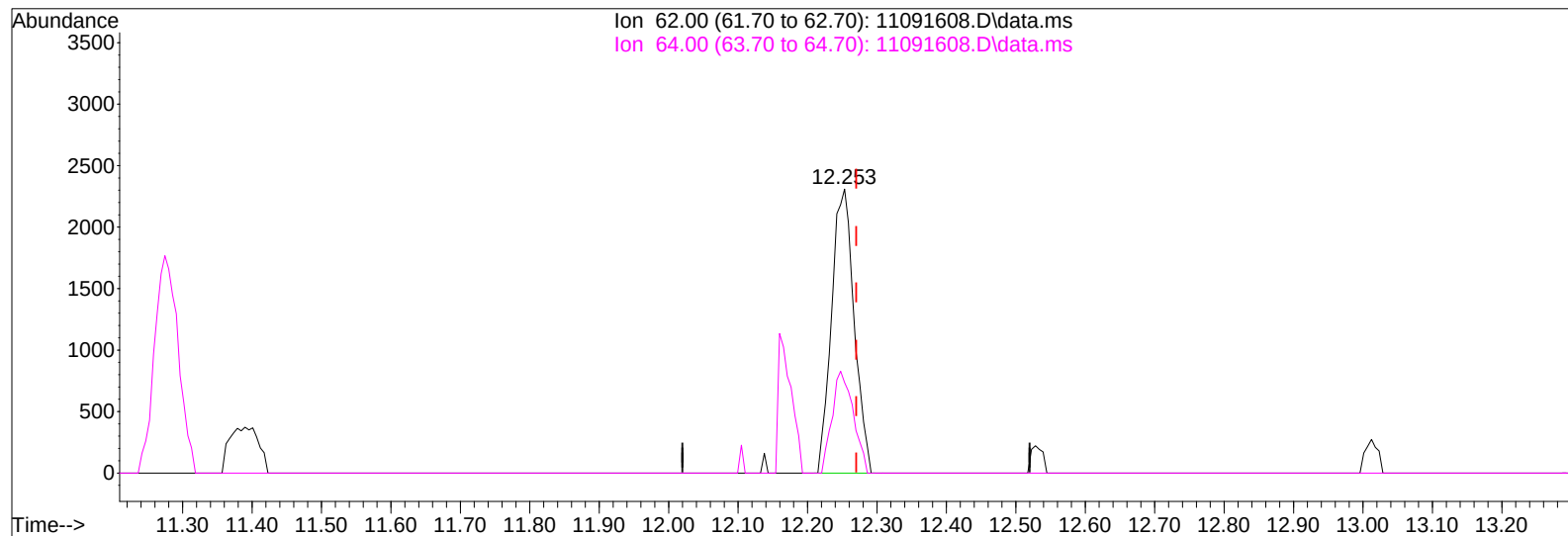
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(36) 1,2-Dichloroethane (T)

12.253min (-0.017) 0.17ng

response 5210

Ion	Exp%	Act%
62.00	100	100
64.00	32.80	33.63
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091608.D

Acq On : 9 Nov 2016 21:52

Operator: LH

Sample : P1605133-004 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:18:55 2016

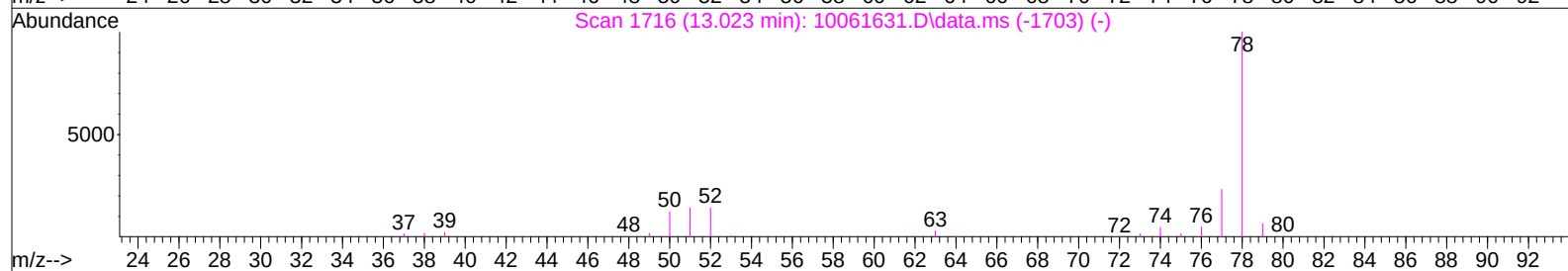
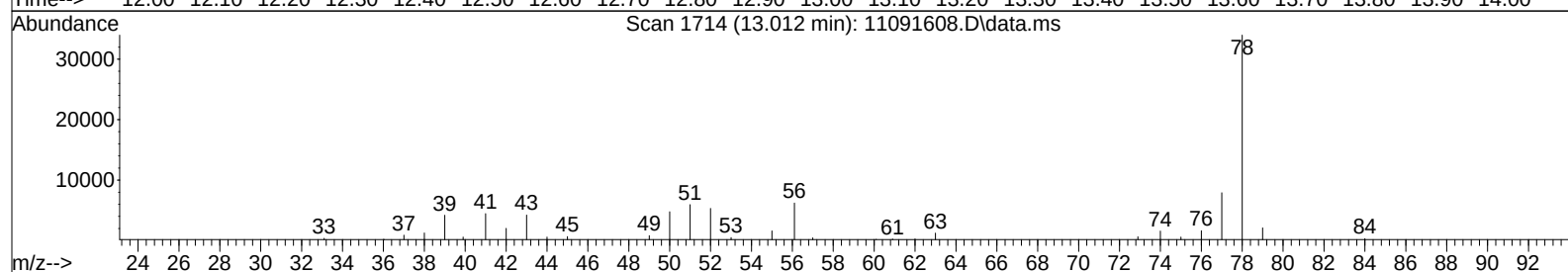
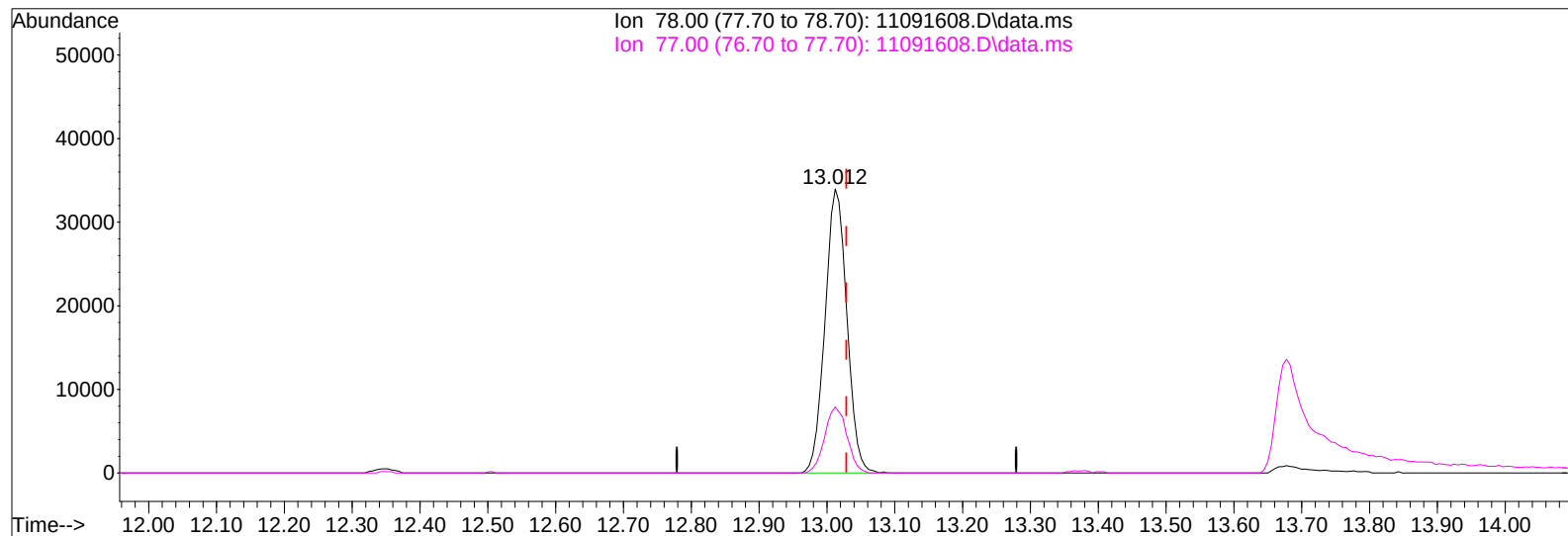
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091608.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 0.67ng

response 76030

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.73
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091608.D

Acq On : 9 Nov 2016 21:52

Operator: LH

Sample : P1605133-004 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:18:55 2016

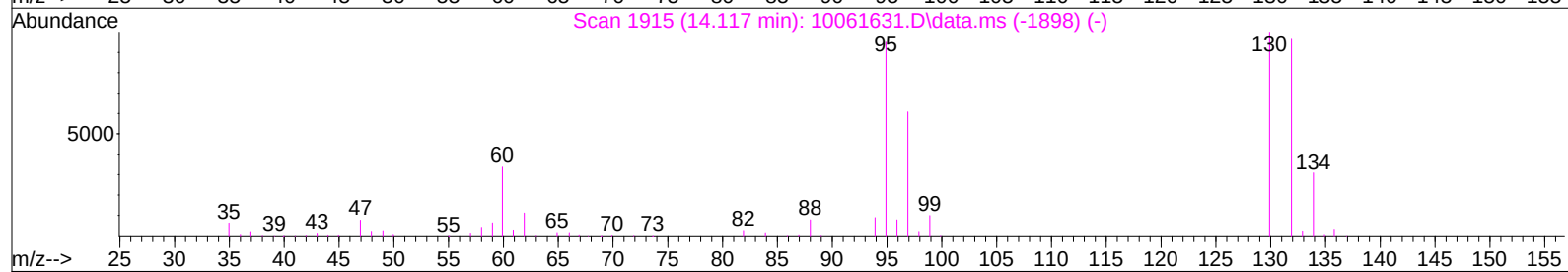
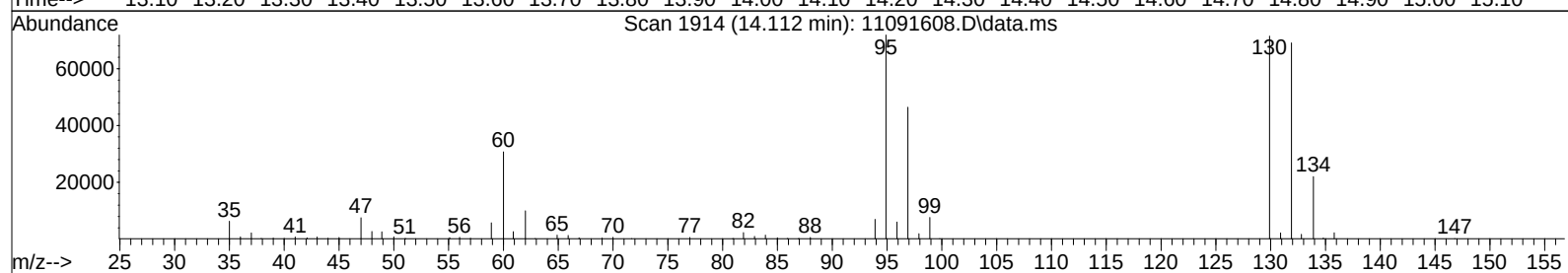
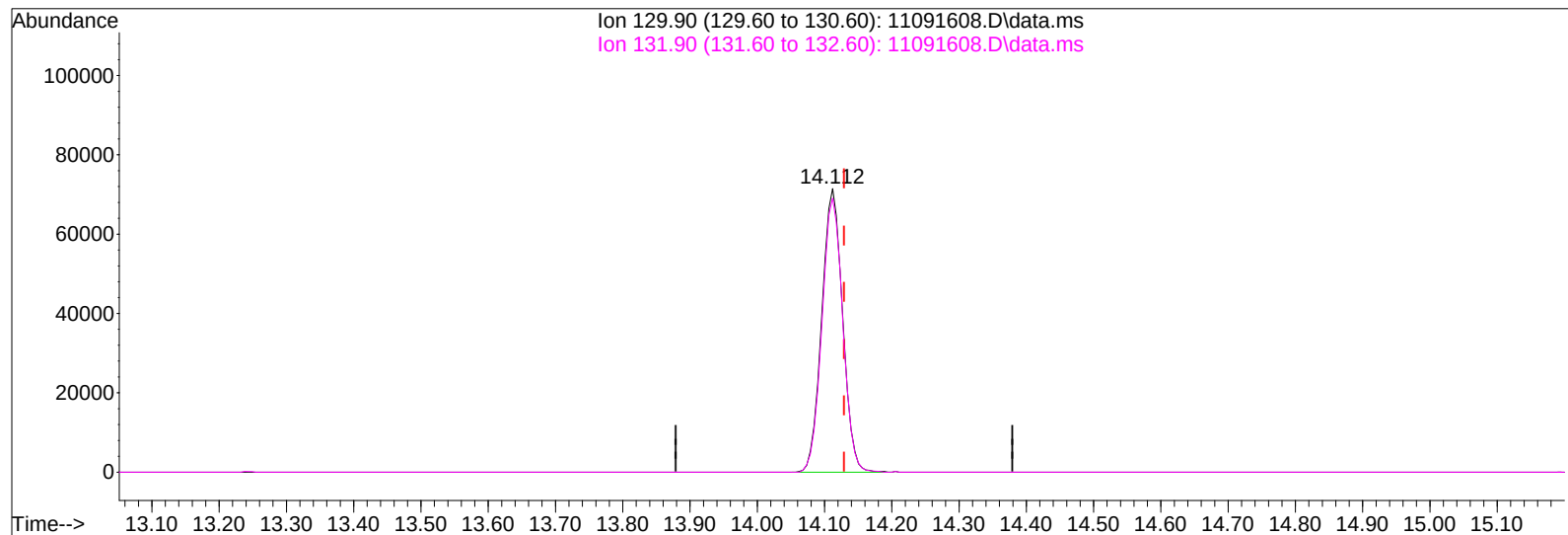
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091608.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 4.75ng

response 152983

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	96.49
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091608.D

Acq On : 9 Nov 2016 21:52

Operator: LH

Sample : P1605133-004 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:18:55 2016

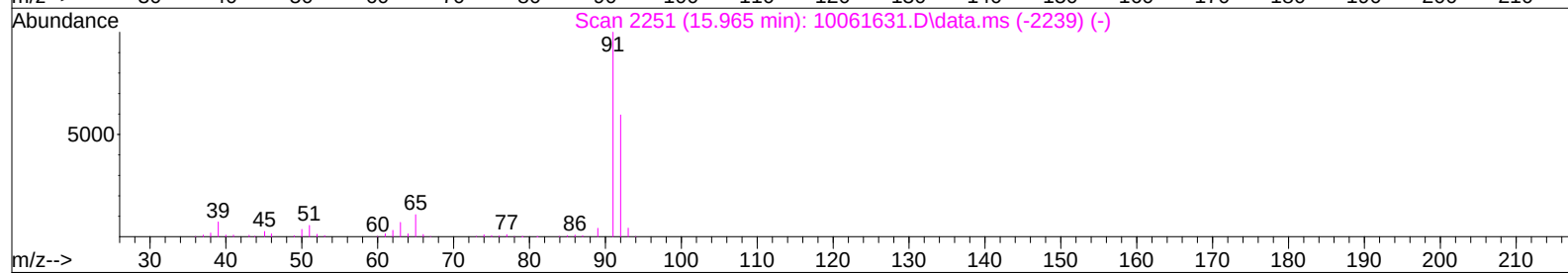
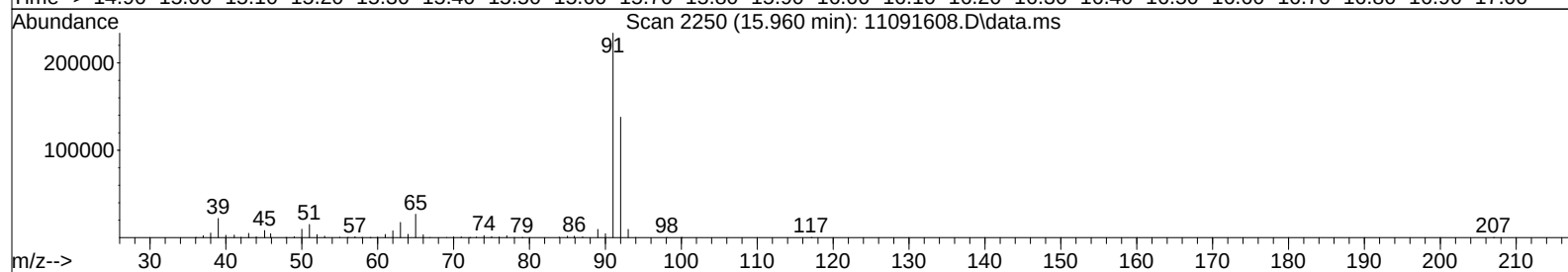
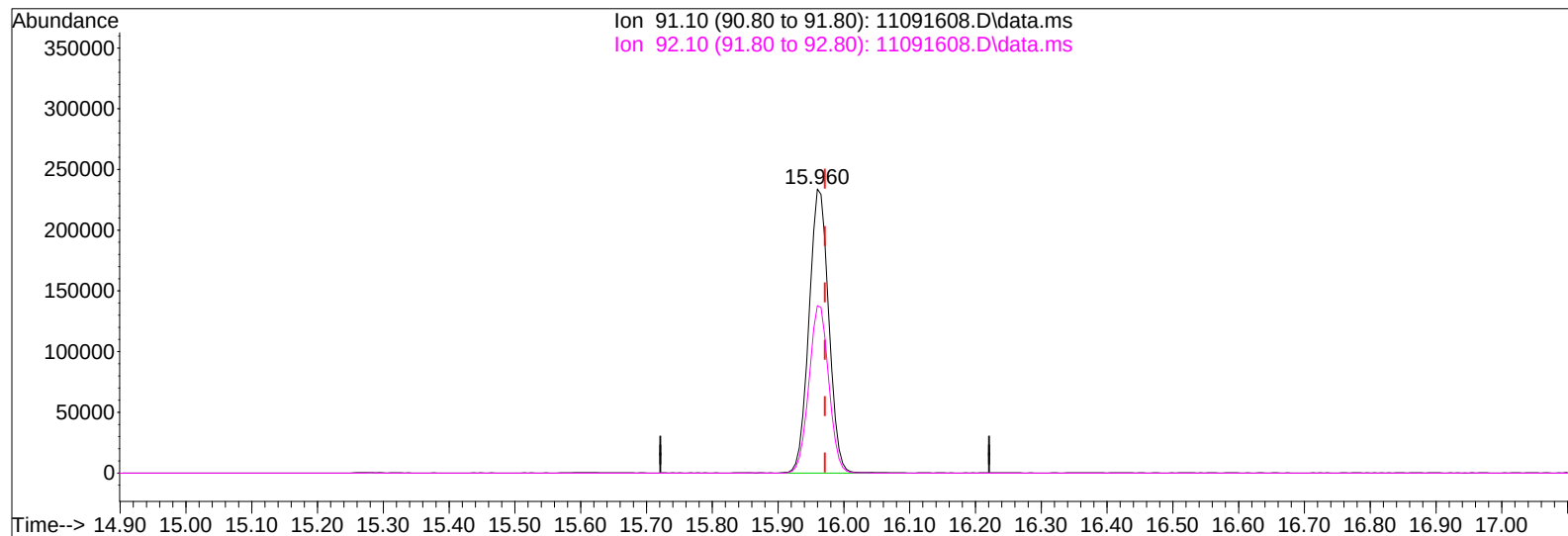
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091608.D\data.ms

(58) Toluene (T)

15.960min (-0.011) 4.16ng

response 487565

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	58.97
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091608.D

Acq On : 9 Nov 2016 21:52

Operator: LH

Sample : P1605133-004 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:18:55 2016

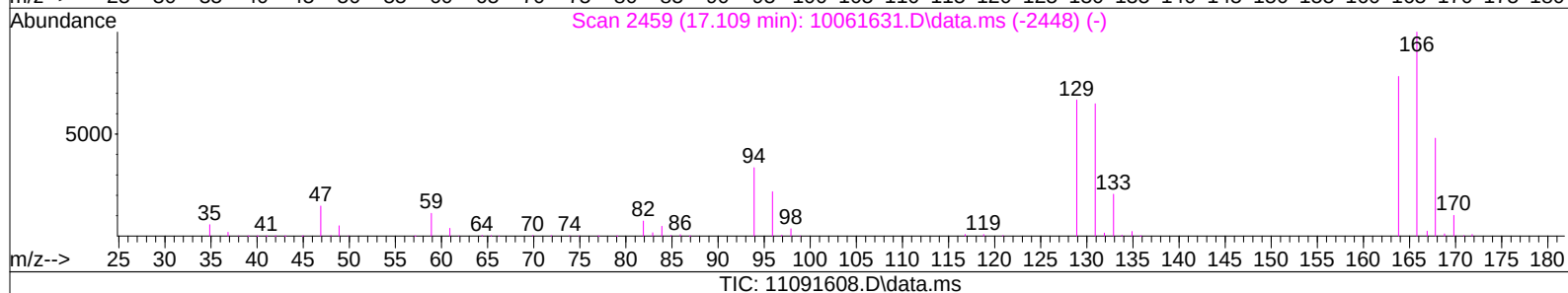
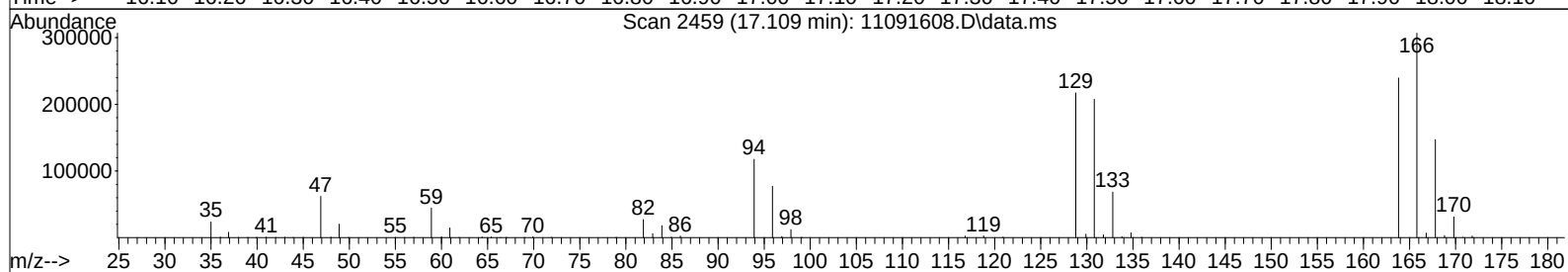
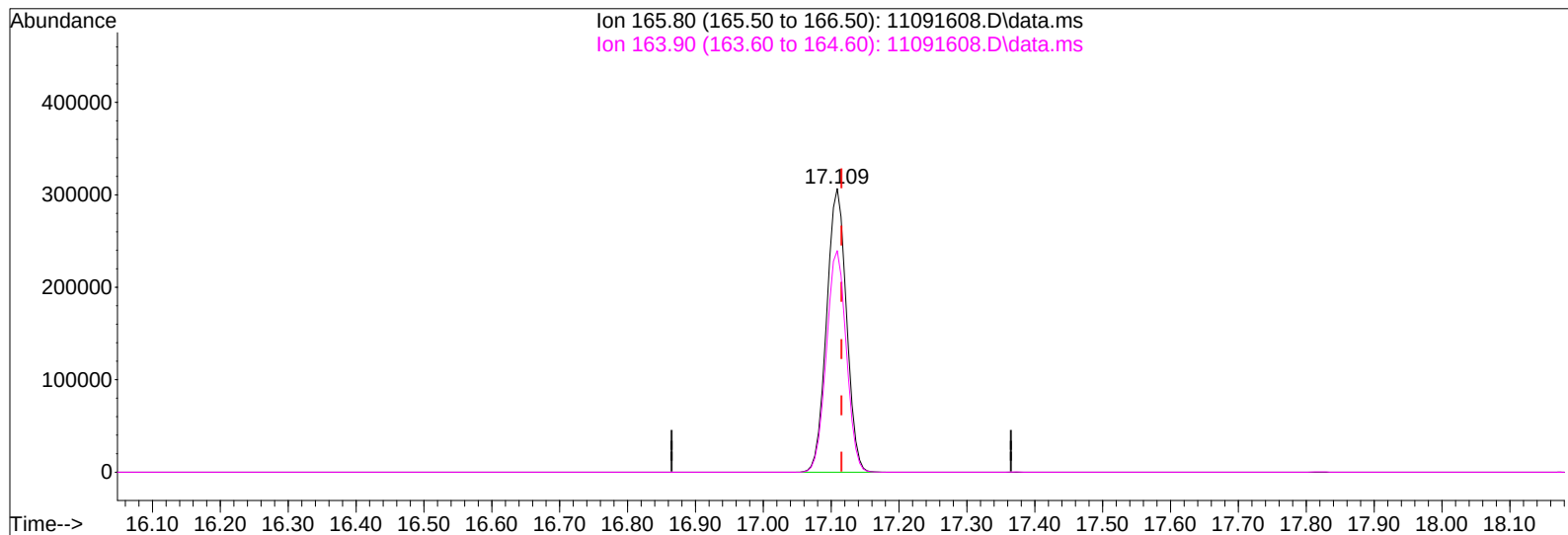
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091608.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 16.47ng

response 622357

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	78.51
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091608.D

Acq On : 9 Nov 2016 21:52

Operator: LH

Sample : P1605133-004 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:18:55 2016

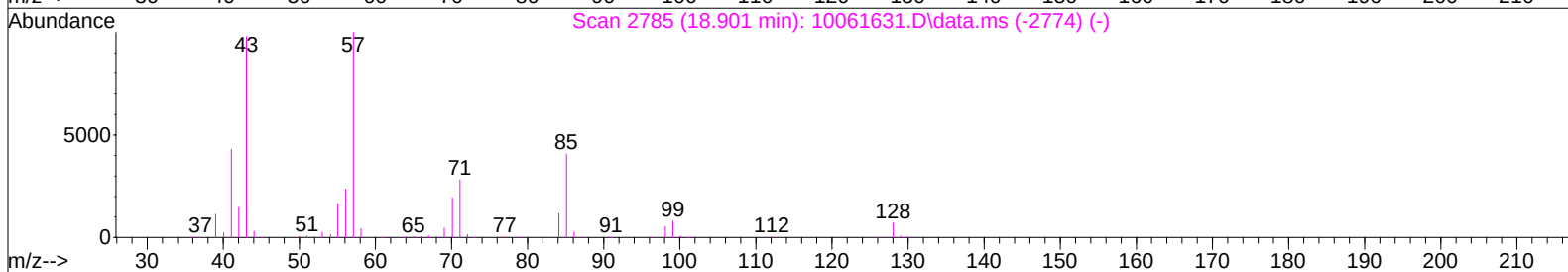
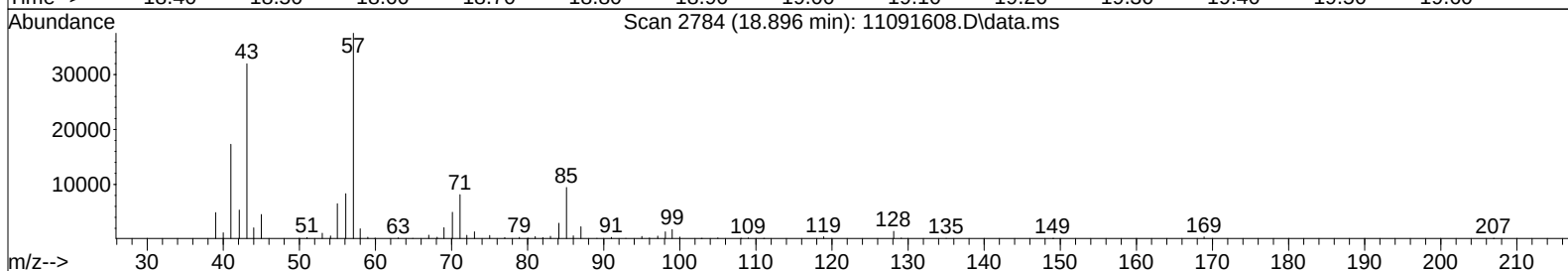
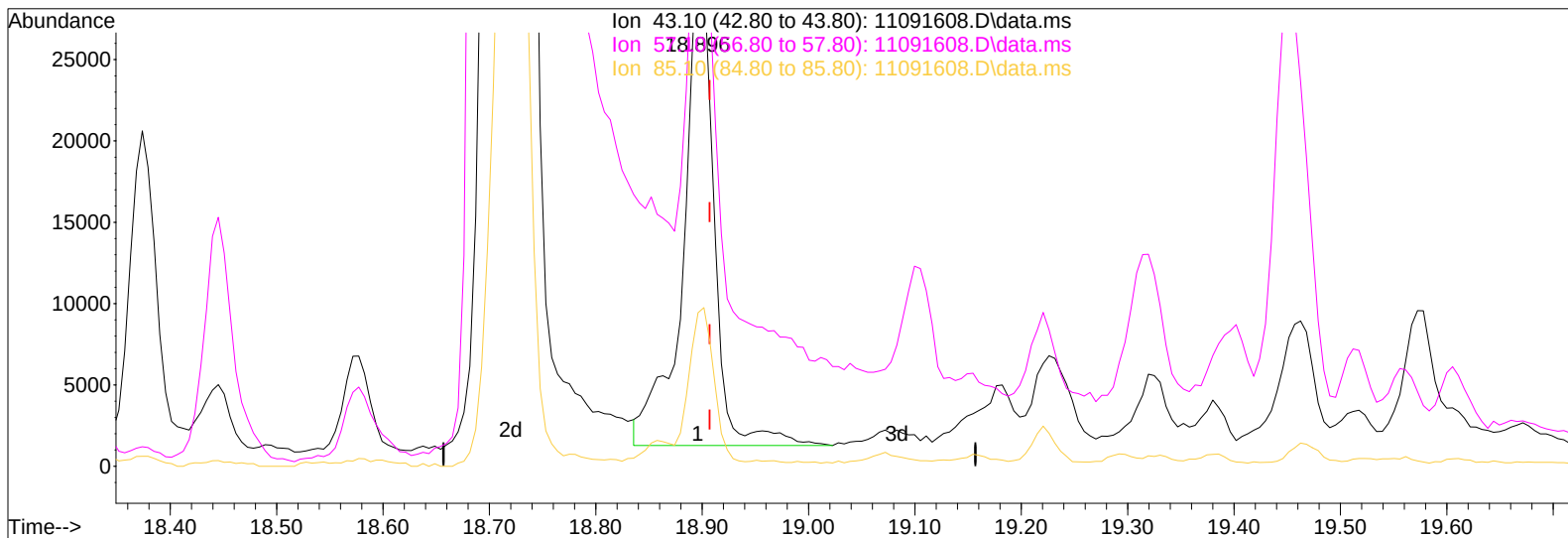
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091608.D\data.ms

(71) n-Nonane (T)

18.896min (-0.011) 1.13ng

response 59973

Ion	Exp%	Act%
43.10	100	100
57.10	100.70	144.42#
85.10	40.70	26.58
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091608.D

Acq On : 9 Nov 2016 21:52

Operator: LH

Sample : P1605133-004 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:18:55 2016

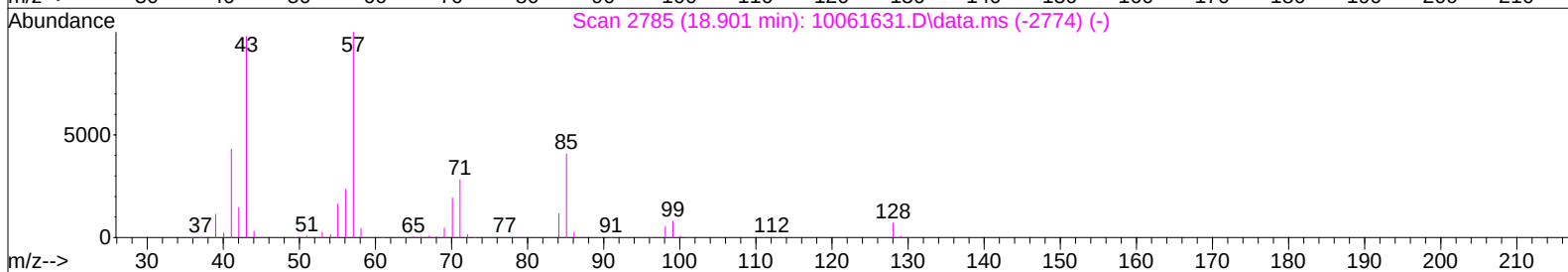
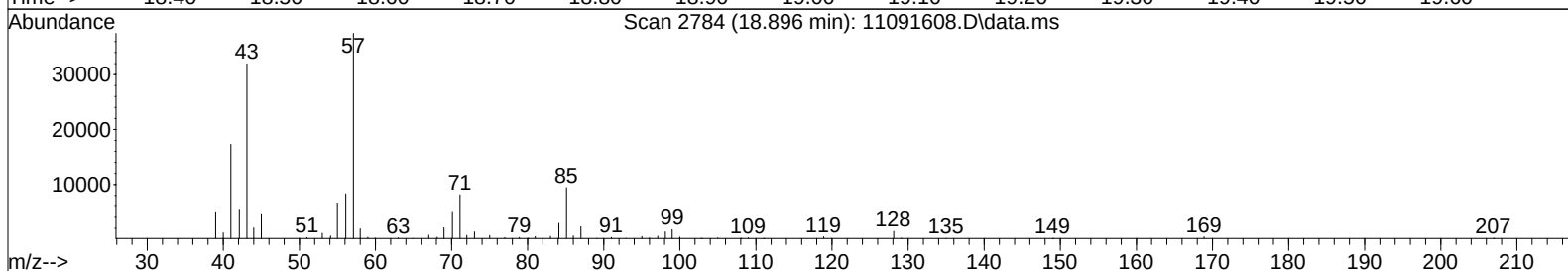
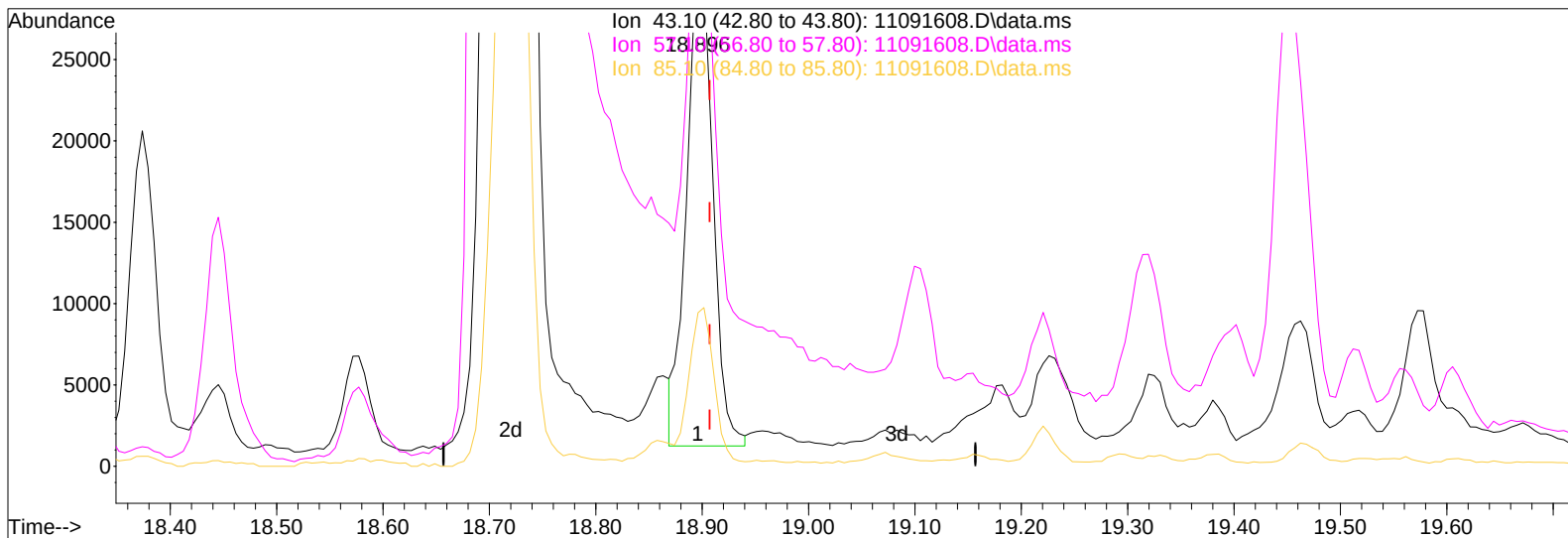
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091608.D\data.ms

(71) n-Nonane (T)

18.896min (-0.011) 0.97ng m

response 51063

Ion	Exp%	Act%

43.10	100	100

57.10	100.70	169.63#

85.10	40.70	31.22

0.00	0.00	0.00

IPC

LH 11/14/16

WJ 11/14/16

Data File: I:\MS16\DATA\2016 11\09\11091610.D

Acq On : 9 Nov 2016 23:00

Operator: LH

Sample : P1605133-005 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 14 13:29:32 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 11/14/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.27	130	282767	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.41	114	1386732	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	606174	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	430773	14.870	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	118.96%
57) Toluene-d8 (SS2)	15.86	98	1433978	11.862	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	94.88%
73) Bromofluorobenzene (SS3)	19.11	174	504690	10.997	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	88.00%

Target Compounds

						Qvalue
2) Propene	4.13	42	1360505	54.459	ng	99
3) Dichlorodifluoromethan...	4.29	85	89594	1.866	ng	99
4) Chloromethane	4.62	50	7789	0.270	ng	88
5) 1,2-Dichloro-1,1,2,2-t...	4.84	135	2577	0.090	ng	96
6) Vinyl Chloride	5.04	62	540	N.D.		
7) 1,3-Butadiene	5.30	54	5732	0.272	ng	96
8) Bromomethane	5.74	94	1715	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.42	45	1742131	96.195	ng	100
11) Acetonitrile	6.70	41	54161	1.149	ng	98
12) Acrolein	6.90	56	22908	1.351	ng	97
13) Acetone	7.08	58	1169563	64.949	ng	85
14) Trichlorofluoromethane	7.34	101	40796	0.915	ng	100
15) 2-Propanol (Isopropanol)	7.59	45	5299363	87.500	ng	100
16) Acrylonitrile	0.00	53	0	N.D.	d	
17) 1,1-Dichloroethene	8.32	96	524	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.54	84	517520	17.597	ng	85
20) 3-Chloro-1-propene (Al...	8.71	41	1404	N.D.		
21) Trichlorotrifluoroethane	8.97	151	9021	0.342	ng	93
22) Carbon Disulfide	8.83	76	33384	0.336	ng	95
23) trans-1,2-Dichloroethene	9.83	61	1020	N.D.		
24) 1,1-Dichloroethane	10.08	63	3260	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	10.30	86	22471	4.218	ng	# 1
27) 2-Butanone (MEK)	10.58	72	37211	2.009	ng	# 68
28) cis-1,2-Dichloroethene	11.10	61	44770	1.255	ng	85
29) Diisopropyl Ether	11.39	87	1385	N.D.		
30) Ethyl Acetate	11.41	61	15280	1.593	ng	89
31) n-Hexane	11.39	57	60954	1.537	ng	98
32) Chloroform	11.44	83	6003	0.130	ng	93
34) Tetrahydrofuran (THF)	11.86	72	16693	0.936	ng	# 66
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	2220	N.D.		
38) 1,1,1-Trichloroethane	12.53	97	7131	0.176	ng	96
39) Isopropyl Acetate	12.96	61	642	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	82827	0.724	ng	99
42) Carbon Tetrachloride	13.17	117	11941	0.335	ng	99
43) Cyclohexane	13.31	84	11315	0.270	ng	87
44) tert-Amyl Methyl Ether	13.69	73	2099	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.11	130	150727	4.646	ng	100
48) 1,4-Dioxane	14.10	88	1663	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091610.D

Acq On : 9 Nov 2016 23:00

Operator: LH

Sample : P1605133-005 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 14 13:29:32 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.32	100	1719	0.147	ng	# 28
51) n-Heptane	14.45	71	13146	0.472	ng	86
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.01	58	54166	2.128	ng	82
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	488383	4.119	ng	99
59) 2-Hexanone	16.21	43	8199	0.131	ng	77
60) Dibromochloromethane	16.38	129	516	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.83	43	250535	3.640	ng	94
63) n-Octane	16.97	57	8413	0.325	ng	89
64) Tetrachloroethene	17.11	166	619910	16.222	ng	100
65) Chlorobenzene	17.77	112	3912	N.D.		
66) Ethylbenzene	18.12	91	49444	0.345	ng	97
67) m- & p-Xylenes	18.27	91	124236	1.134	ng	97
68) Bromoform	18.35	173	1189	N.D.		
69) Styrene	18.60	104	23545	0.270	ng	97
70) o-Xylene	18.70	91	63883	0.588	ng	97
71) n-Nonane	18.90	43	54995	1.028	ng	# 72
72) 1,1,2,2-Tetrachloroethane	18.72	83	1992	N.D.		
74) Cumene	19.23	105	8315	N.D.		
75) alpha-Pinene	19.58	93	246384	3.477	ng	98
76) n-Propylbenzene	19.67	91	34657	0.226	ng	# 69
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	34465	0.267	ng	98
79) 1,3,5-Trimethylbenzene	19.87	105	38291	0.328	ng	98
80) alpha-Methylstyrene	20.00	118	3192	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	148652	1.283	ng	88
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.34	91	2116	N.D.		
85) 1,3-Dichlorobenzene	20.36	146	1392	N.D.		
86) 1,4-Dichlorobenzene	20.42	146	883714	11.798	ng	99
87) sec-Butylbenzene	20.47	105	4110	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.72	146	3189	N.D.		
91) d-Limonene	20.73	68	136622	3.347	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.10	157	750	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.23	180	2722	N.D.		
95) Naphthalene	22.34	128	39057	0.241	ng	91
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS16\DATA\2016 11\09\11091610.D

Acq On : 9 Nov 2016 23:00

Operator: LH

Sample : P1605133-005 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 14 13:29:32 2016

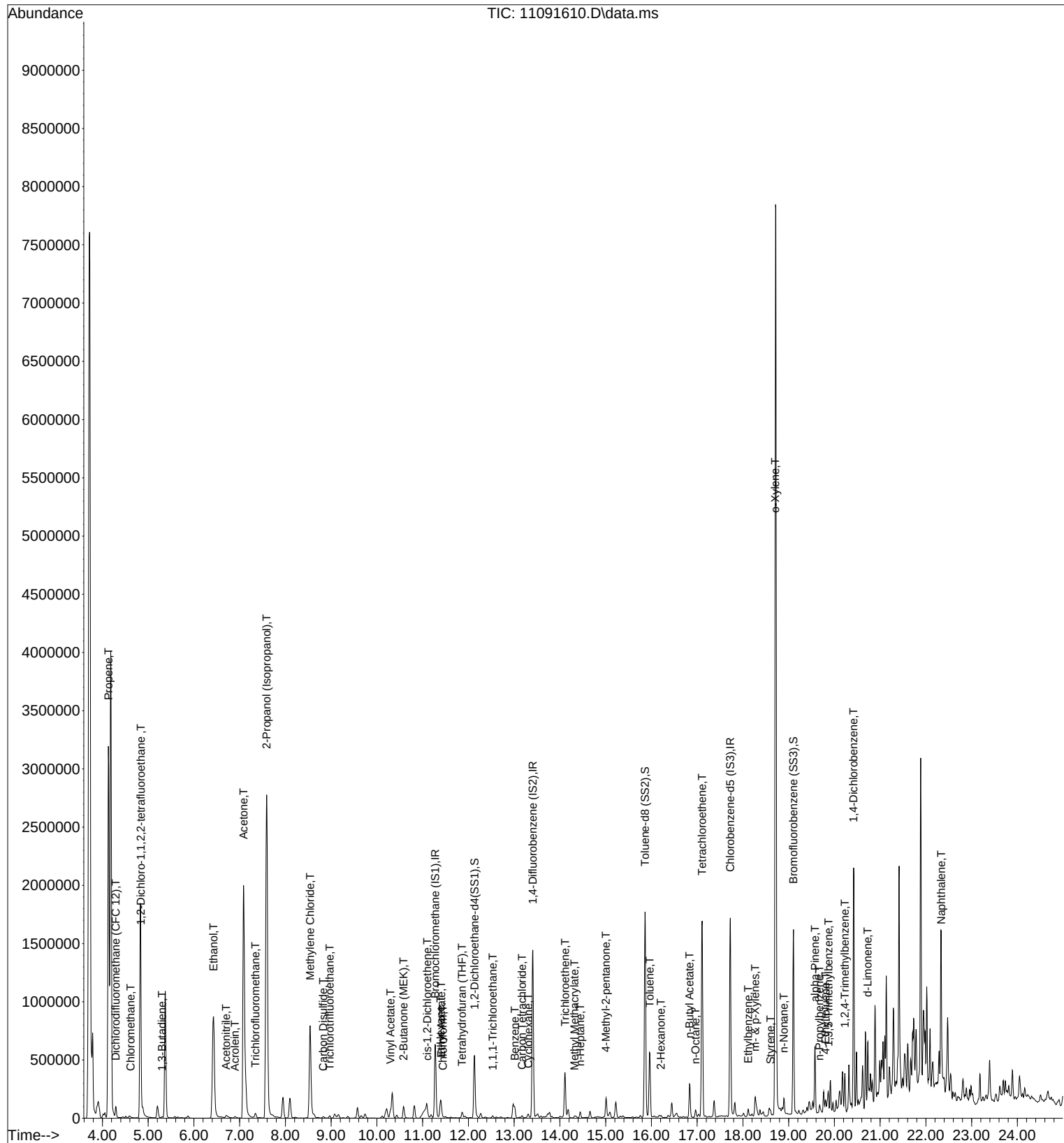
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091610.D

Acq On : 9 Nov 2016 23:00

Operator: LH

Sample : P1605133-005 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 10 08:19:12 2016

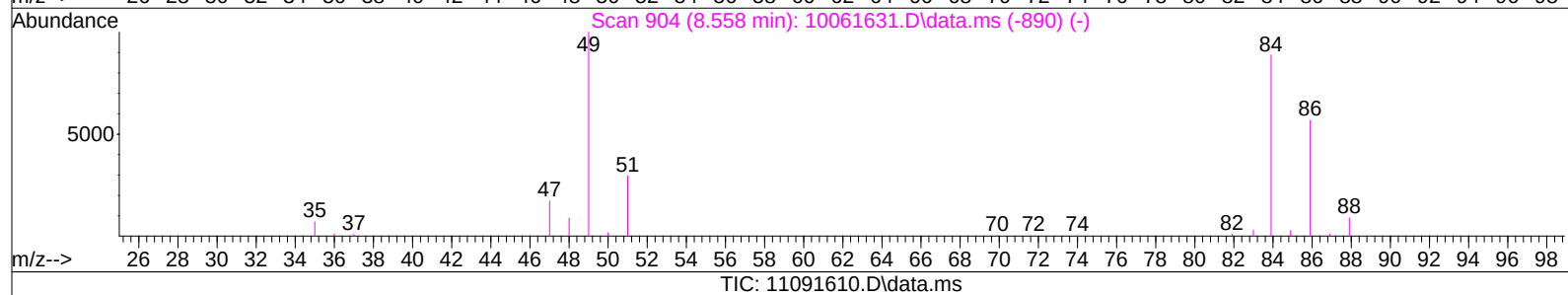
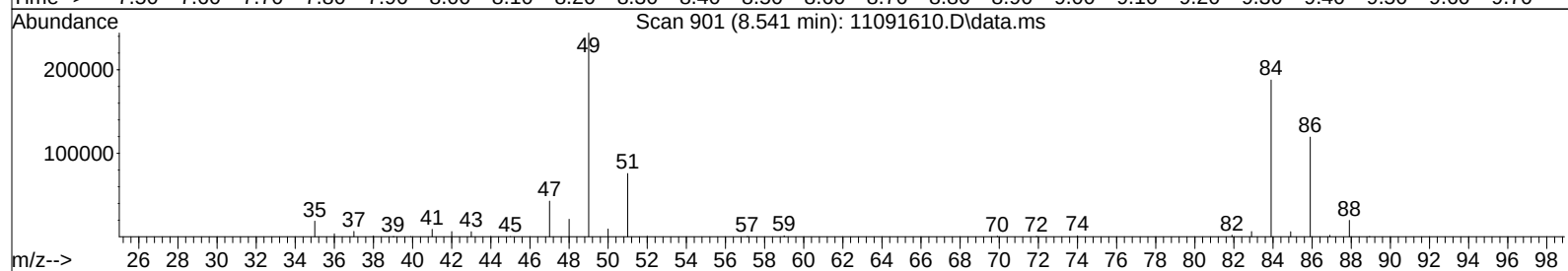
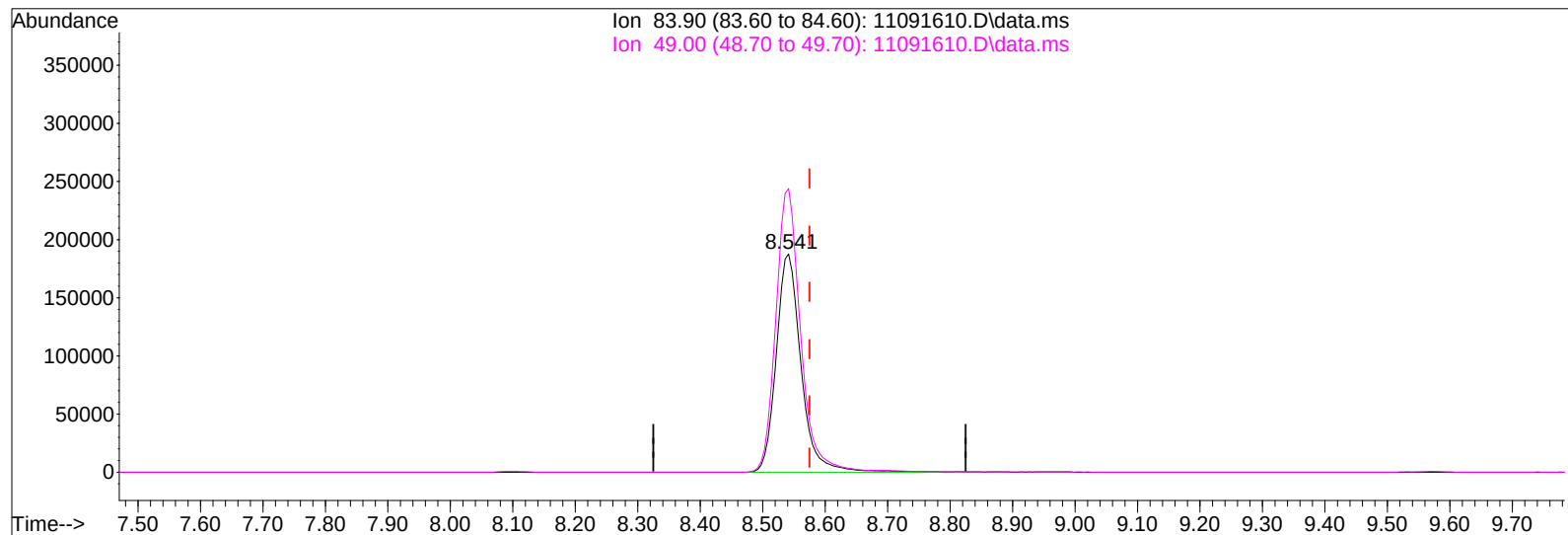
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(19) Methylene Chloride (T)

8.541min (-0.034) 17.60ng

response 517520

Ion	Exp%	Act%
83.90	100	100
49.00	114.70	130.52
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091610.D

Acq On : 9 Nov 2016 23:00

Operator: LH

Sample : P1605133-005 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 10 08:19:12 2016

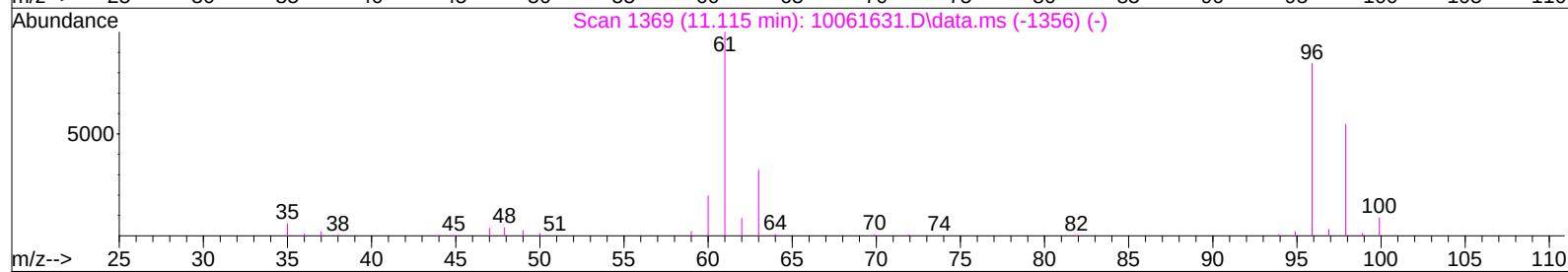
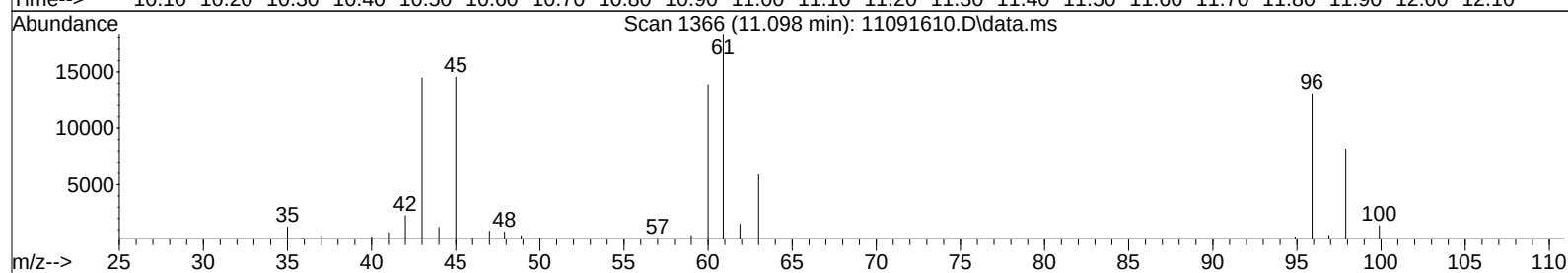
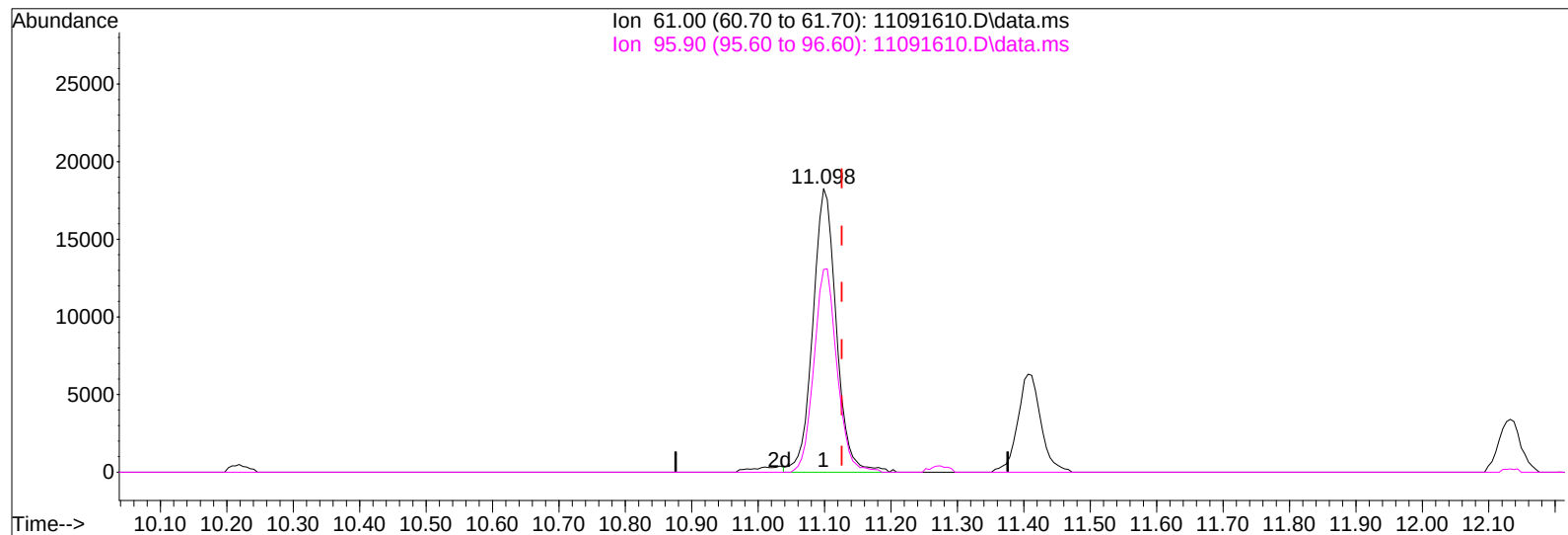
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091610.D\data.ms

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

11.098min (-0.028) 1.26ng

response 44770

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	70.60
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091610.D

Acq On : 9 Nov 2016 23:00

Operator: LH

Sample : P1605133-005 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 10 08:19:12 2016

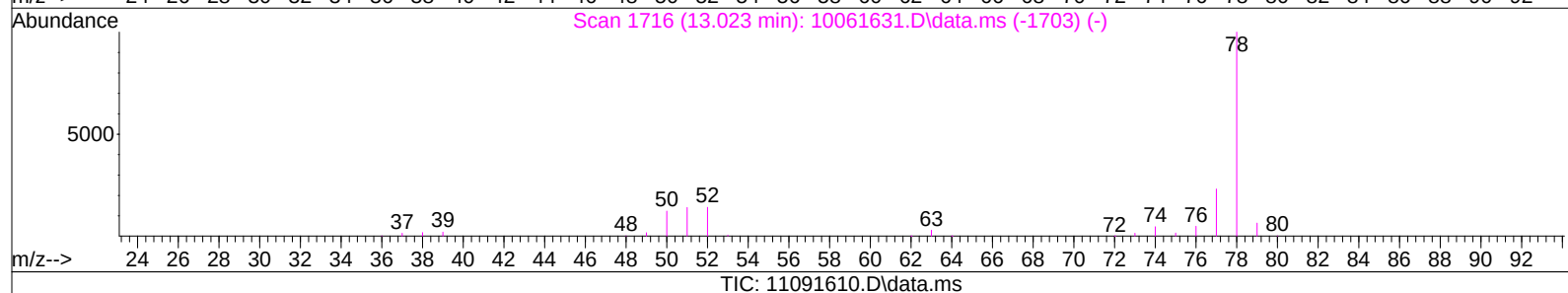
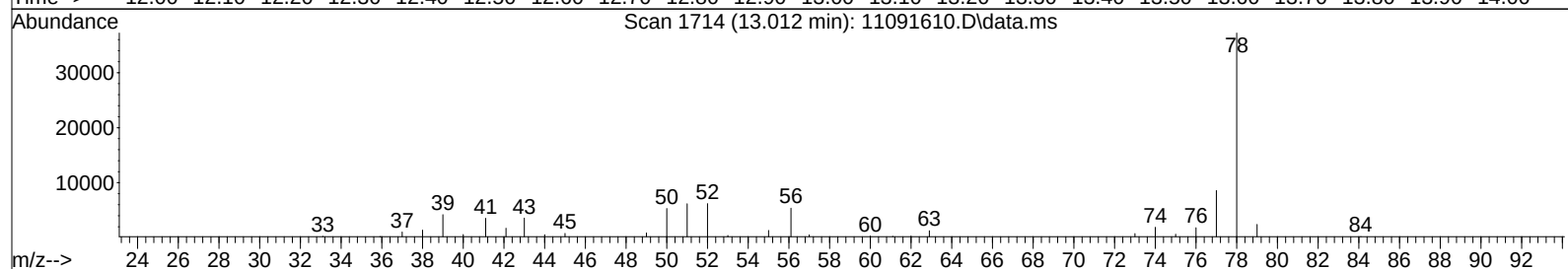
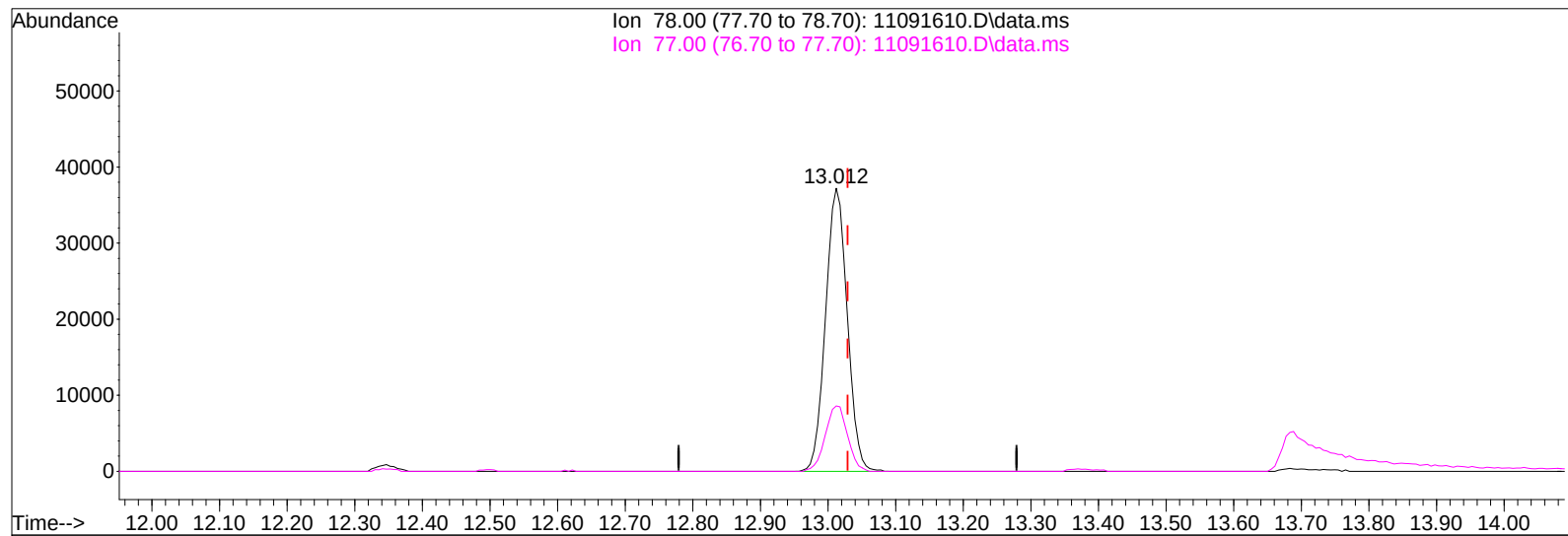
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091610.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 0.72ng

response 82827

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.67
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091610.D

Acq On : 9 Nov 2016 23:00

Operator: LH

Sample : P1605133-005 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 10 08:19:12 2016

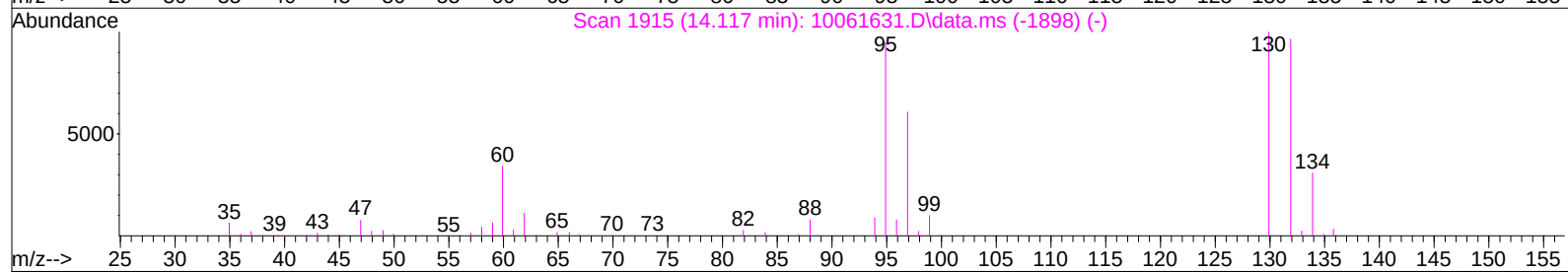
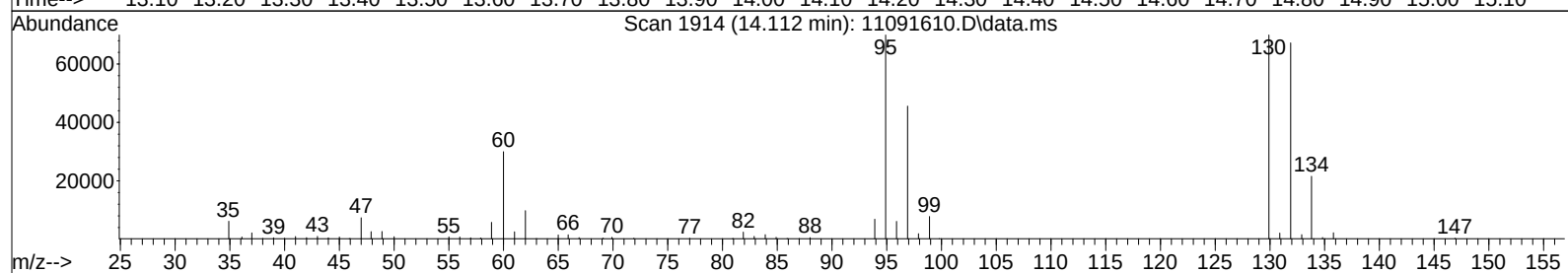
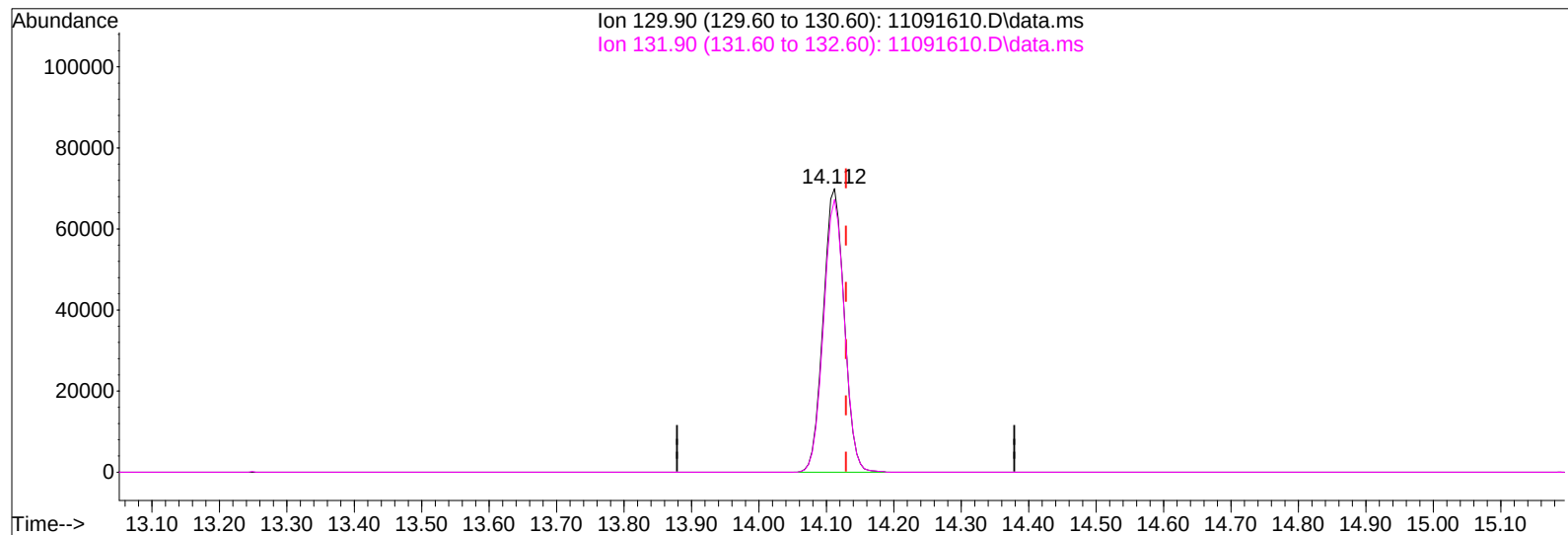
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091610.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 4.65ng

response 150727

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	96.24
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091610.D

Acq On : 9 Nov 2016 23:00

Operator: LH

Sample : P1605133-005 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 10 08:19:12 2016

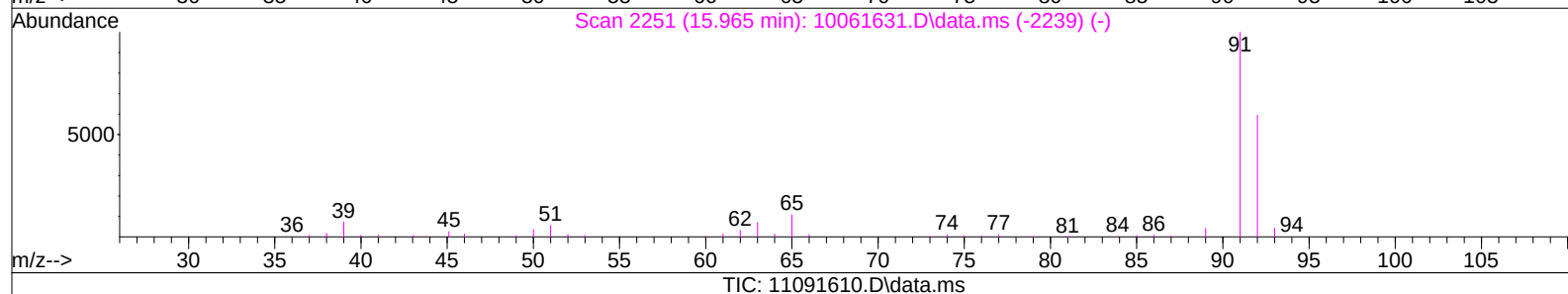
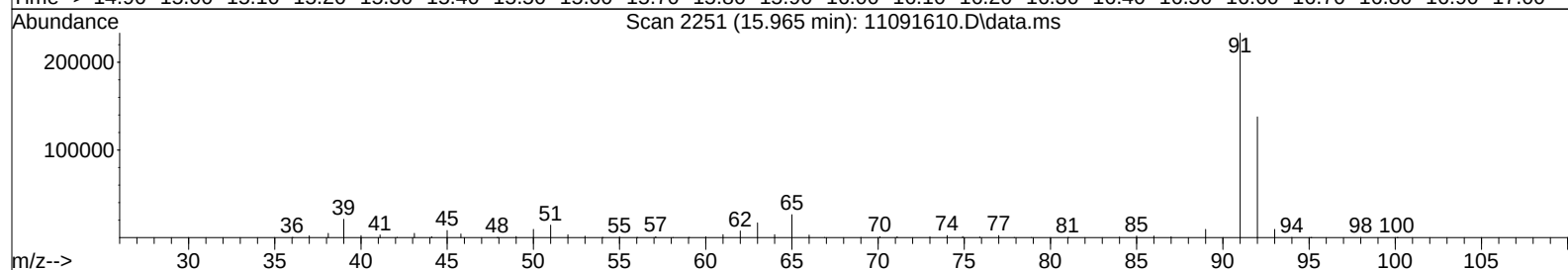
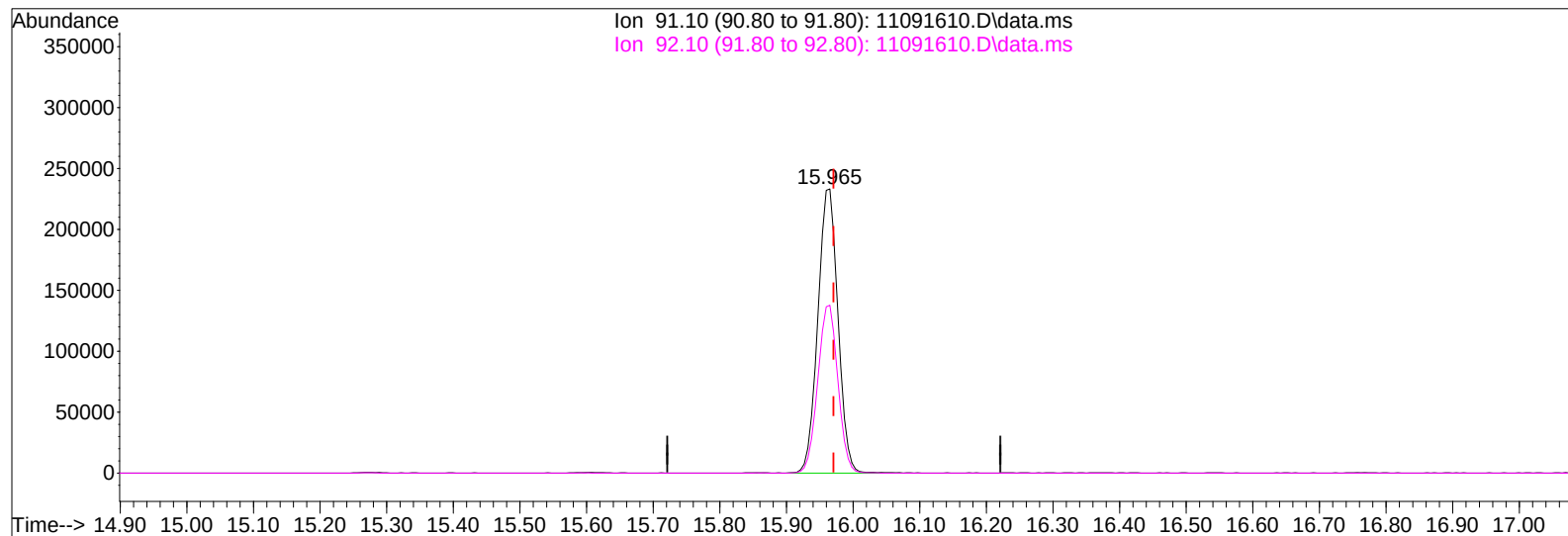
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091610.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 4.12ng

response 488383

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	58.89
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091610.D

Acq On : 9 Nov 2016 23:00

Operator: LH

Sample : P1605133-005 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 10 08:19:12 2016

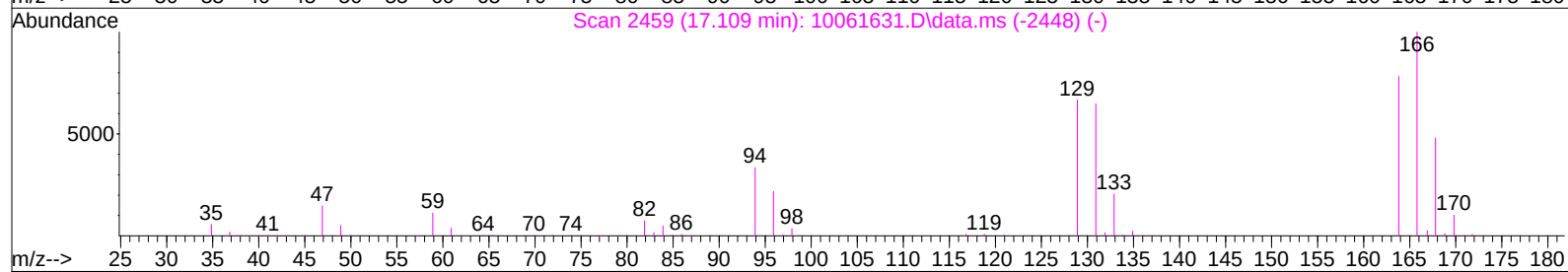
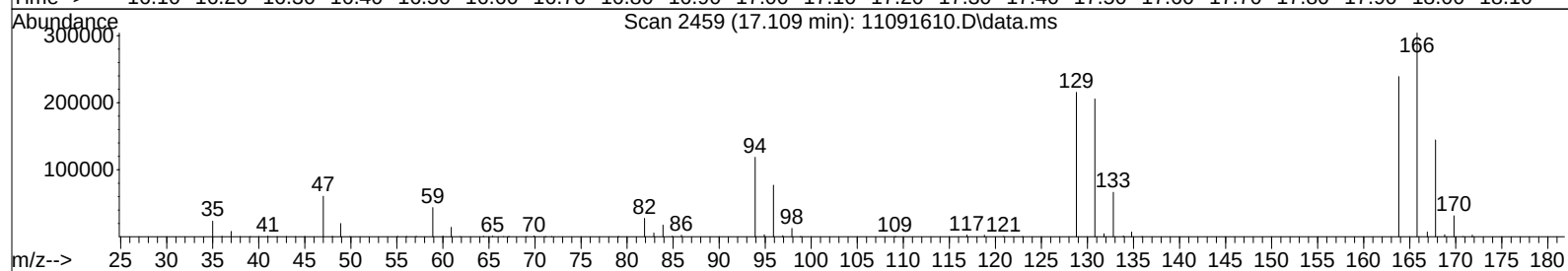
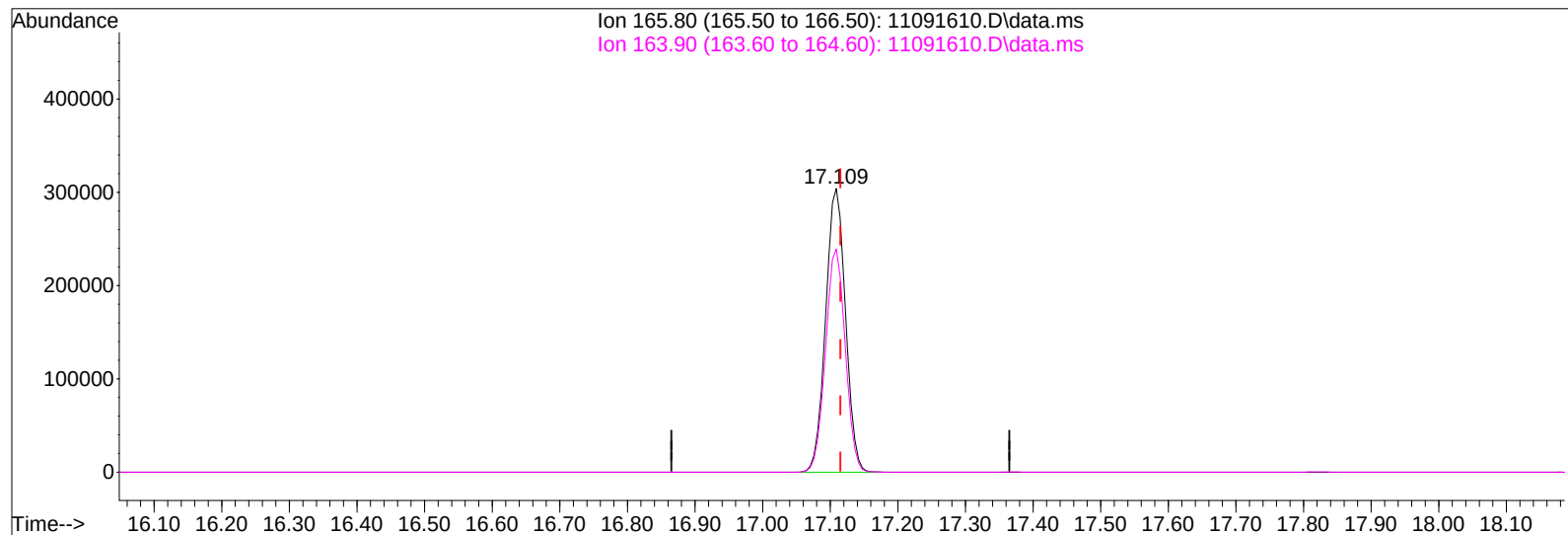
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091610.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 16.22ng

response 619910

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	78.39
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091611.D

Acq On : 9 Nov 2016 23:34

Operator: LH

Sample : P1605133-006 (1000mL)

Misc : S29-11051601

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 14 13:32:47 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 11/14/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	288988	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1407441	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	611288	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	434622	14.680	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	117.44%
57) Toluene-d8 (SS2)	15.86	98	1443448	11.841	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	94.72%
73) Bromofluorobenzene (SS3)	19.11	174	504367	10.898	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	87.20%

Target Compounds

						Qvalue
2) Propene	4.15	42	1228924m	48.133	ng	
3) Dichlorodifluoromethan...	4.30	85	94618	1.928	ng	100
4) Chloromethane	4.59	50	7360	0.250	ng	95
5) 1,2-Dichloro-1,1,2,2-t...	4.85	135	2614	N.D.		
6) Vinyl Chloride	5.03	62	2620	N.D.		
7) 1,3-Butadiene	5.29	54	2445	0.113	ng	91
8) Bromomethane	5.75	94	725	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.45	45	3565038	192.612	ng	100
11) Acetonitrile	6.70	41	39736	0.825	ng	97
12) Acrolein	6.90	56	21135	1.220	ng	99
13) Acetone	7.09	58	2004344	108.910	ng	88
14) Trichlorofluoromethane	7.35	101	42109	0.924	ng	100
15) 2-Propanol (Isopropanol)	7.60	45	3764022	60.811	ng	100
16) Acrylonitrile	7.87	53	2292	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.54	84	699663	23.278	ng	87
20) 3-Chloro-1-propene (Al...	8.71	41	535	N.D.		
21) Trichlorotrifluoroethane	8.96	151	9339	0.347	ng	91
22) Carbon Disulfide	8.83	76	12370	0.122	ng	95
23) trans-1,2-Dichloroethene	9.82	61	1563	N.D.		
24) 1,1-Dichloroethane	10.08	63	897	N.D.		
25) Methyl tert-Butyl Ether	10.21	73	1331	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.	d	
27) 2-Butanone (MEK)	10.58	72	53002	2.800	ng	# 76
28) cis-1,2-Dichloroethene	11.10	61	46163	1.267	ng	90
29) Diisopropyl Ether	11.40	87	1318	N.D.		
30) Ethyl Acetate	11.41	61	33102	3.378	ng	91
31) n-Hexane	11.39	57	79774	1.969	ng	# 97
32) Chloroform	11.45	83	4764	0.101	ng	95
34) Tetrahydrofuran (THF)	11.87	72	6180	0.339	ng	# 74
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	1921	N.D.		
38) 1,1,1-Trichloroethane	12.53	97	1522	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.02	78	62783	0.541	ng	100
42) Carbon Tetrachloride	13.18	117	12431	0.344	ng	97
43) Cyclohexane	13.31	84	8345	0.196	ng	# 10
44) tert-Amyl Methyl Ether	13.77	73	1323	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.	d	
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.11	130	155886	4.734	ng	100
48) 1,4-Dioxane	14.11	88	916	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091611.D

Acq On : 9 Nov 2016 23:34

Operator: LH

Sample : P1605133-006 (1000mL)

Misc : S29-11051601

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 14 13:32:47 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	d	
51) n-Heptane	14.45	71	586745	20.765	ng	95
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.01	58	67137	2.599	ng	# 74
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	15.59	97	844	N.D.		
58) Toluene	15.97	91	832067	6.959	ng	99
59) 2-Hexanone	16.21	43	20433	0.325	ng	# 64
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	88805	1.279	ng	96
63) n-Octane	16.97	57	36746	1.408	ng	92
64) Tetrachloroethene	17.11	166	832010	21.590	ng	100
65) Chlorobenzene	0.00	112	0	N.D.	d	
66) Ethylbenzene	18.12	91	43613	0.302	ng	98
67) m- & p-Xylenes	18.27	91	123340	1.116	ng	97
68) Bromoform	18.35	173	1208	N.D.		
69) Styrene	18.60	104	15197	0.173	ng	82
70) o-Xylene	18.70	91	61098	0.558	ng	97
71) n-Nonane	18.90	43	85860	1.592	ng	94
72) 1,1,2,2-Tetrachloroethane	18.71	83	1300	N.D.		
74) Cumene	19.23	105	5880	N.D.		
75) alpha-Pinene	19.58	93	201114	2.814	ng	98
76) n-Propylbenzene	19.68	91	20396	0.132	ng	97
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	19975	0.153	ng	98
79) 1,3,5-Trimethylbenzene	19.87	105	17340	0.147	ng	98
80) alpha-Methylstyrene	20.00	118	4560	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	78941	0.676	ng	87
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.35	91	1913	N.D.		
85) 1,3-Dichlorobenzene	20.36	146	1059	N.D.		
86) 1,4-Dichlorobenzene	20.42	146	223464	2.958	ng	99
87) sec-Butylbenzene	20.47	105	2698	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.72	146	1480	N.D.		
91) d-Limonene	20.73	68	200234	4.865	ng	94
92) 1,2-Dibromo-3-Chloropr...	21.14	157	626	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.24	180	3510	N.D.		
95) Naphthalene	22.34	128	33704	0.206	ng	92
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.23	119	9812	N.D.		
100) n-Butylbenzene	20.96	91	10378	N.D.		

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

Data File: I:\MS16\DATA\2016 11\09\11091611.D

Acq On : 9 Nov 2016 23:34

Operator: LH

Sample : P1605133-006 (1000mL)

Misc : S29-11051601

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 14 13:32:47 2016

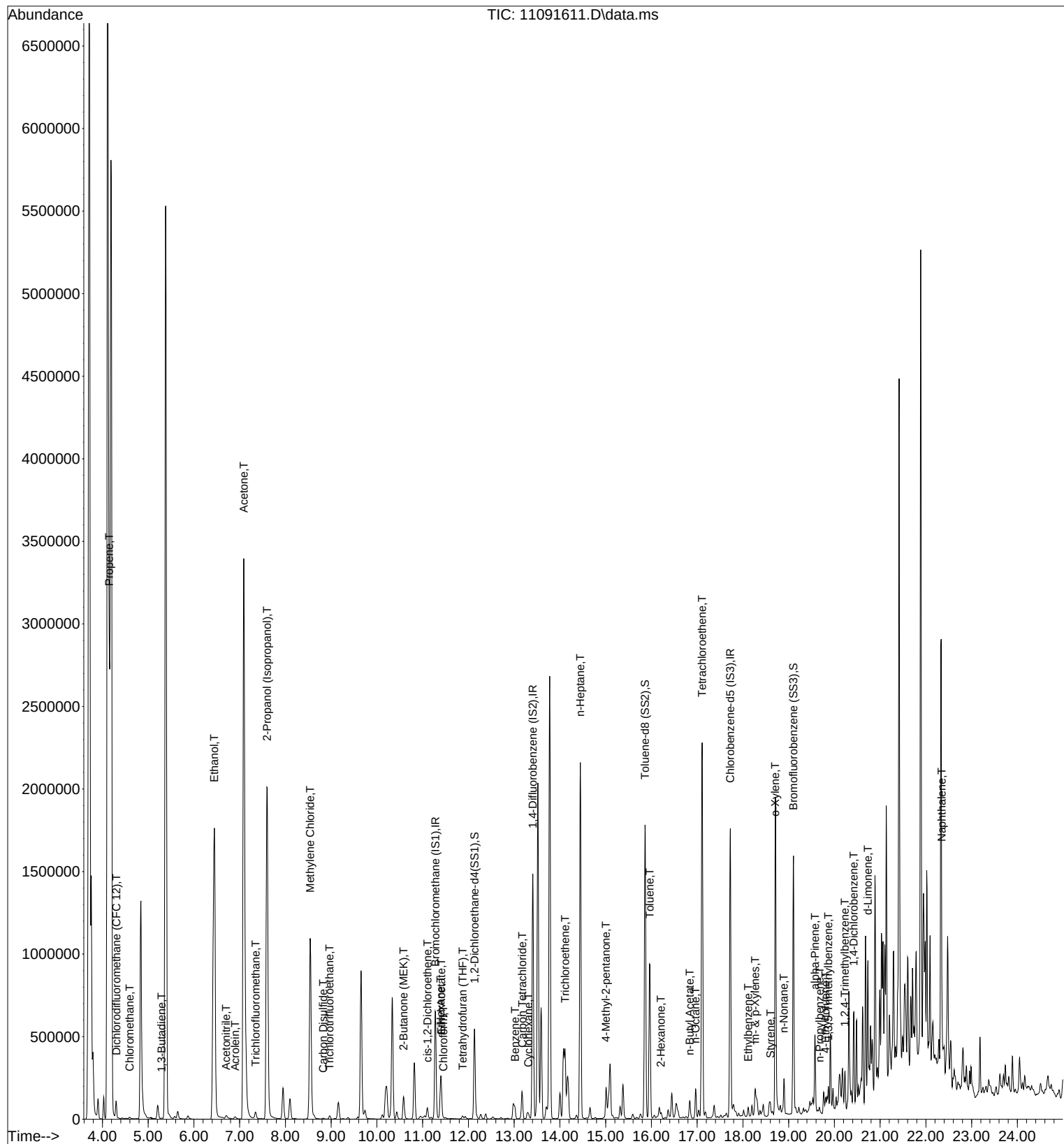
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091611.D

Acq On : 9 Nov 2016 23:34

Operator: LH

Sample : P1605133-006 (1000mL)

Misc : S29-11051601

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 10 08:19:20 2016

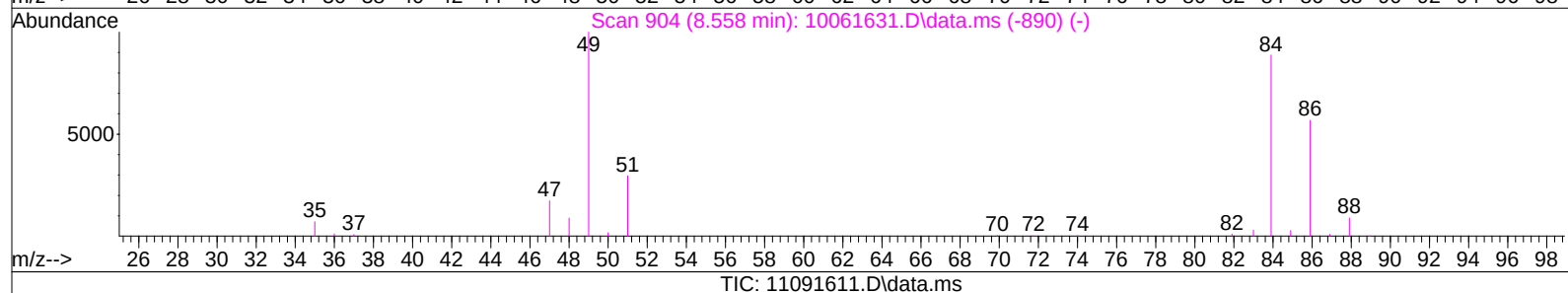
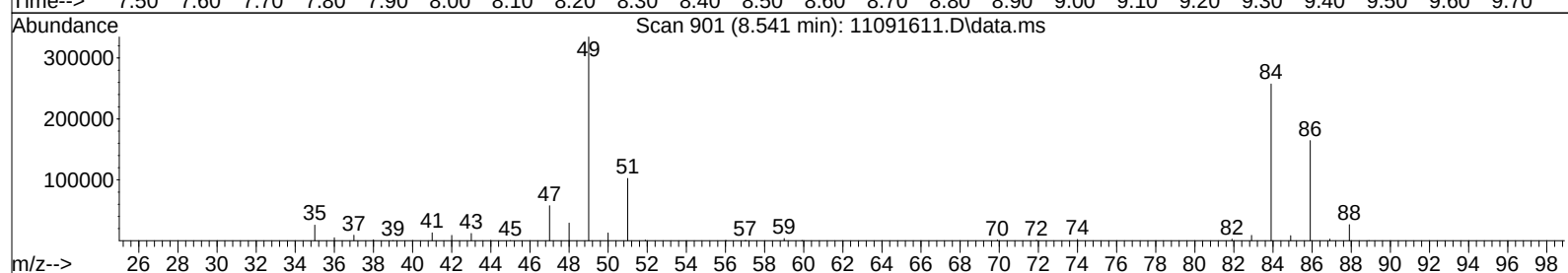
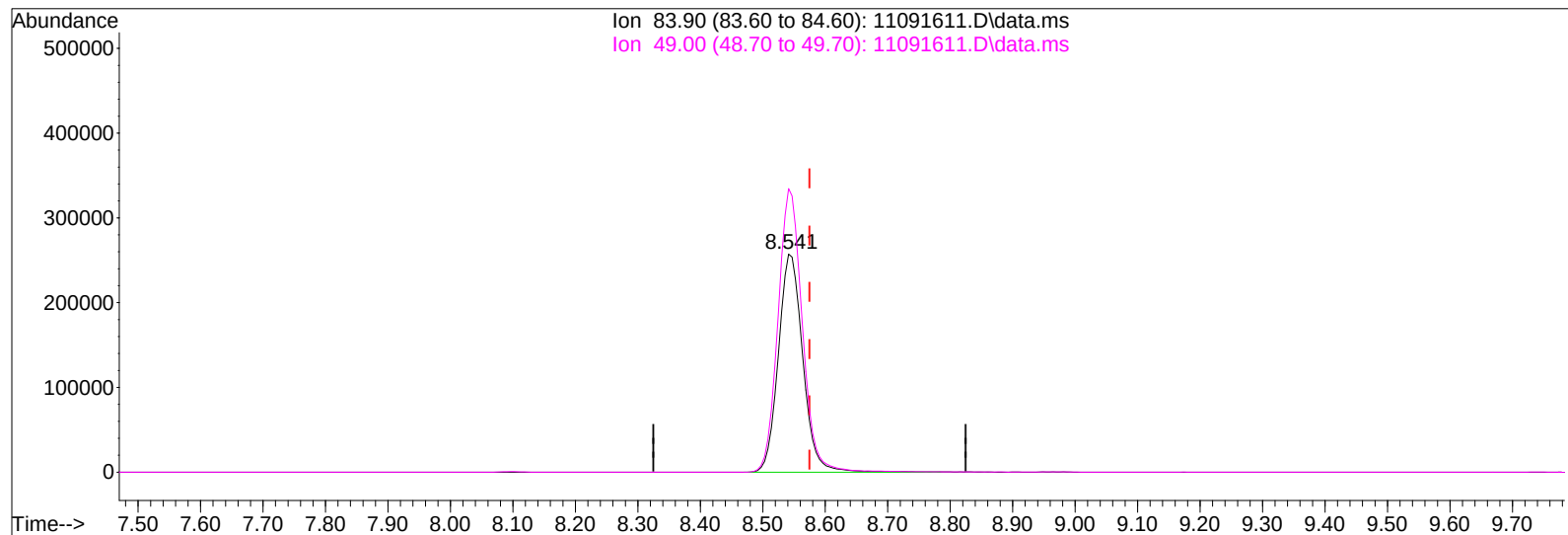
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(19) Methylene Chloride (T)

8.541min (-0.034) 23.28ng

response 699663

Ion	Exp%	Act%
83.90	100	100
49.00	114.70	129.17
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091611.D

Acq On : 9 Nov 2016 23:34

Operator: LH

Sample : P1605133-006 (1000mL)

Misc : S29-11051601

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 10 08:19:20 2016

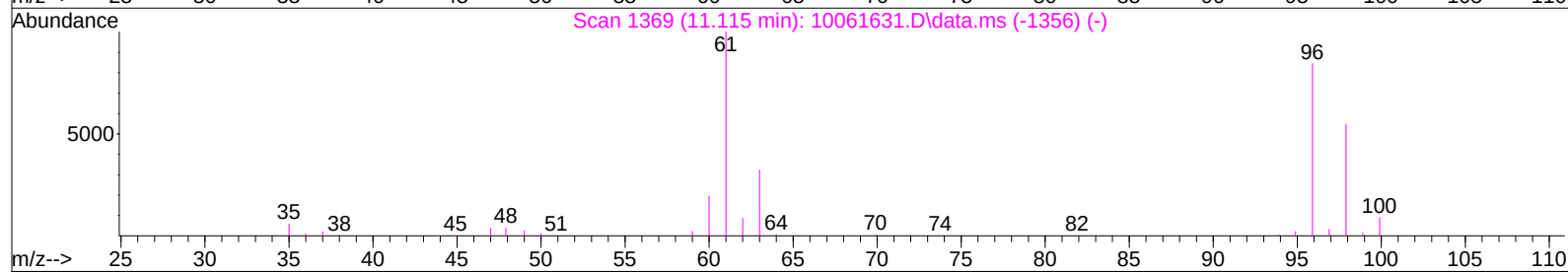
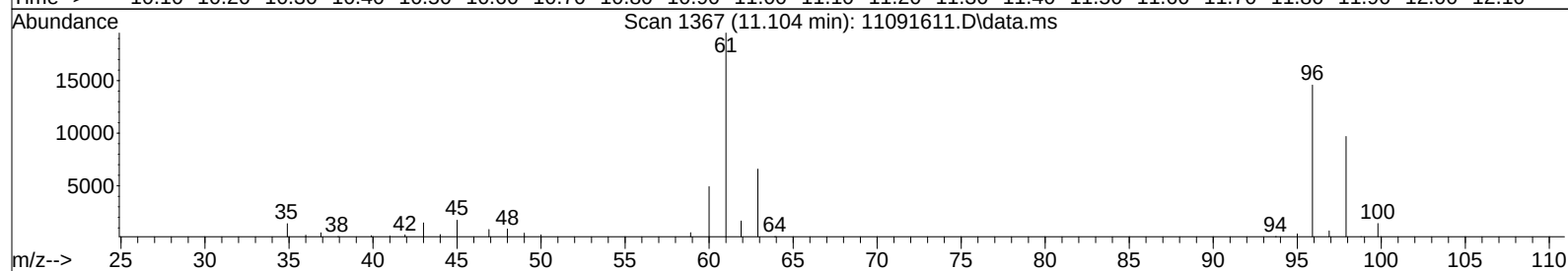
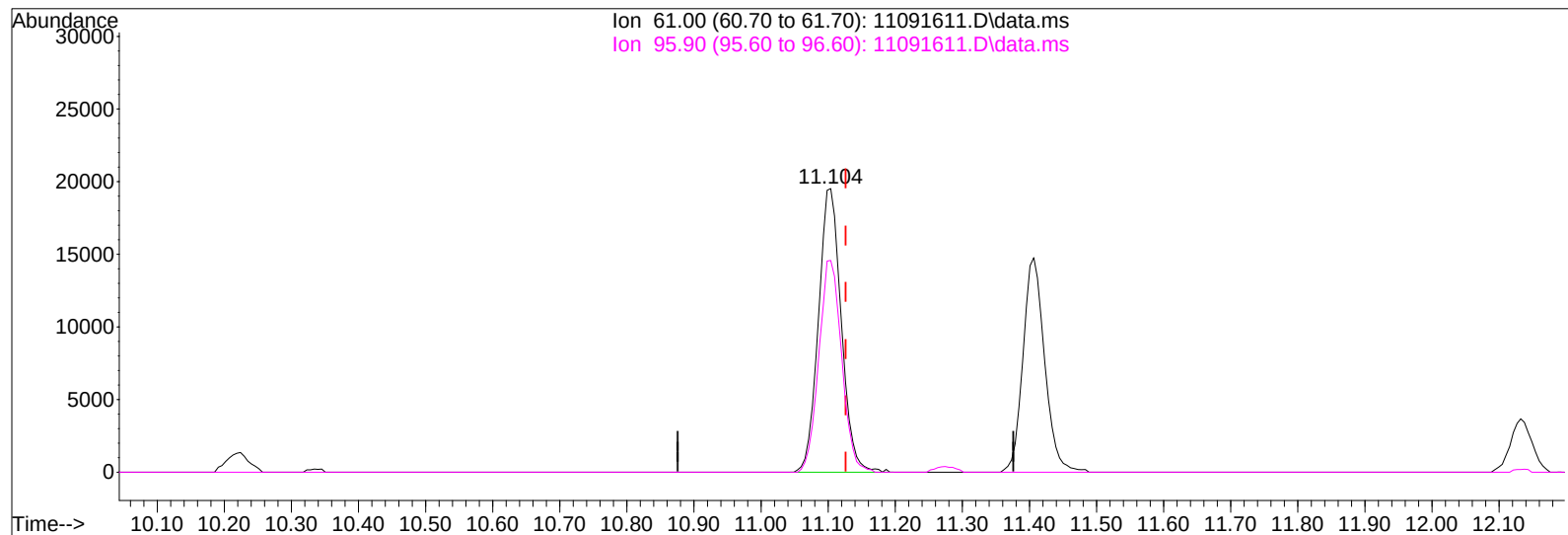
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091611.D\data.ms

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

11.104min (-0.022) 1.27ng

response 46163

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	74.73
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091611.D

Acq On : 9 Nov 2016 23:34

Operator: LH

Sample : P1605133-006 (1000mL)

Misc : S29-11051601

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 10 08:19:20 2016

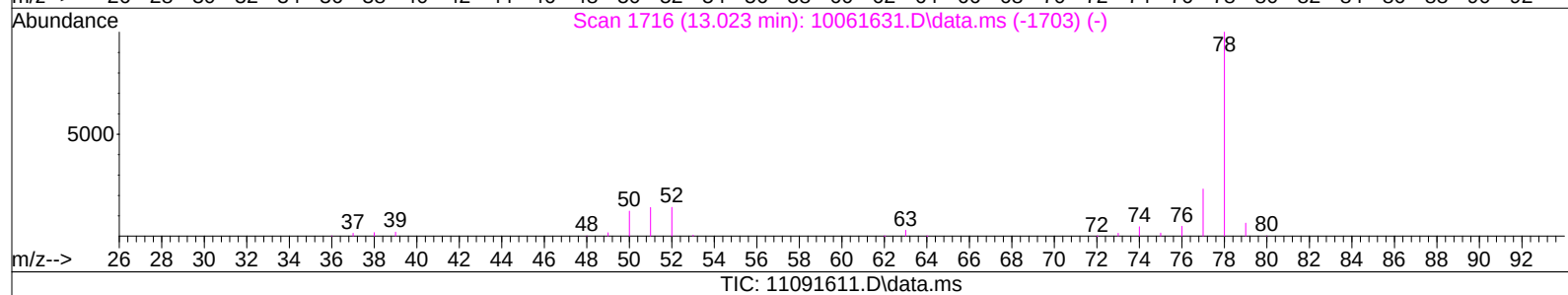
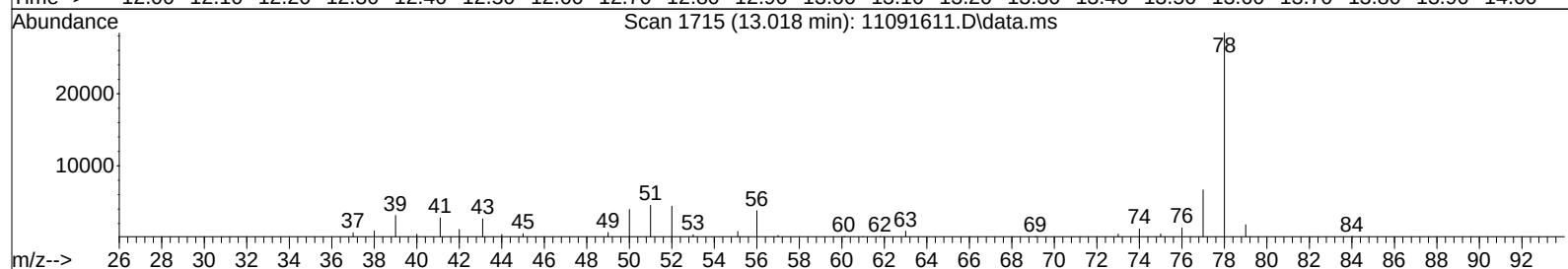
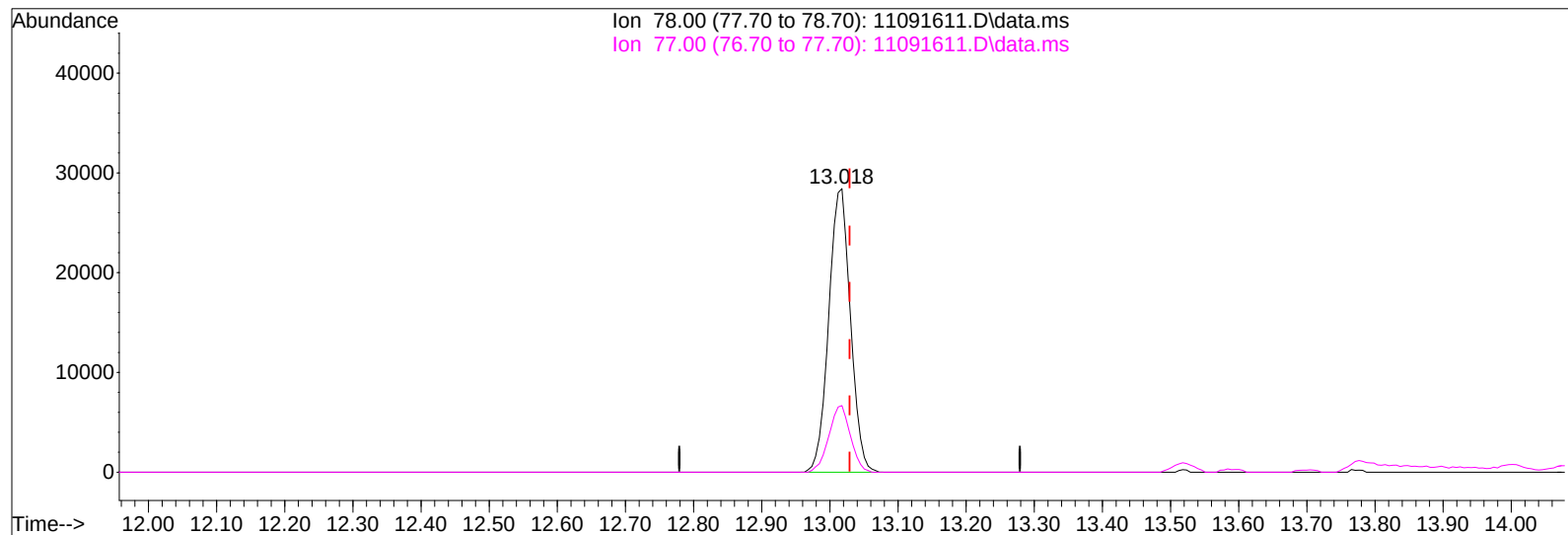
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091611.D\data.ms

(41) Benzene (T)

13.018min (-0.011) 0.54ng

response 62783

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.33
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091611.D

Acq On : 9 Nov 2016 23:34

Operator: LH

Sample : P1605133-006 (1000mL)

Misc : S29-11051601

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 10 08:19:20 2016

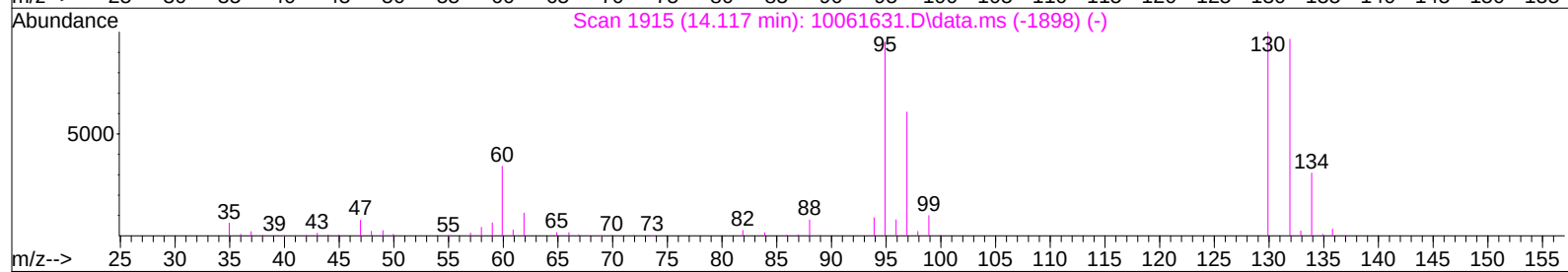
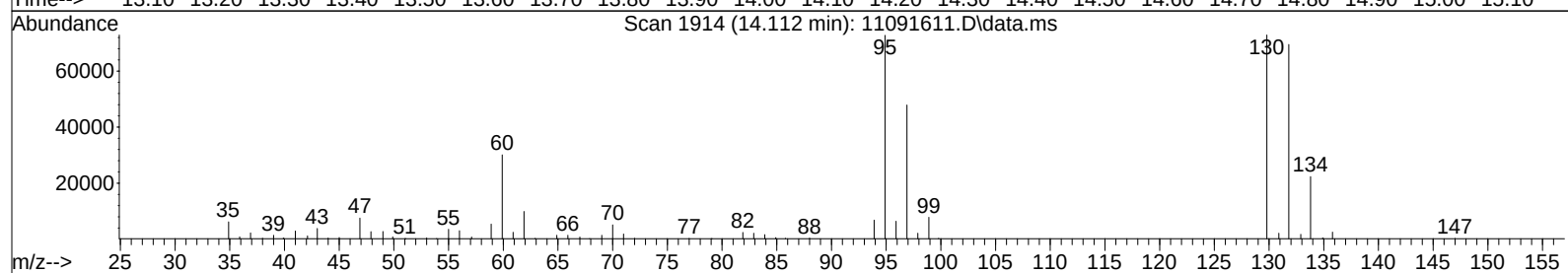
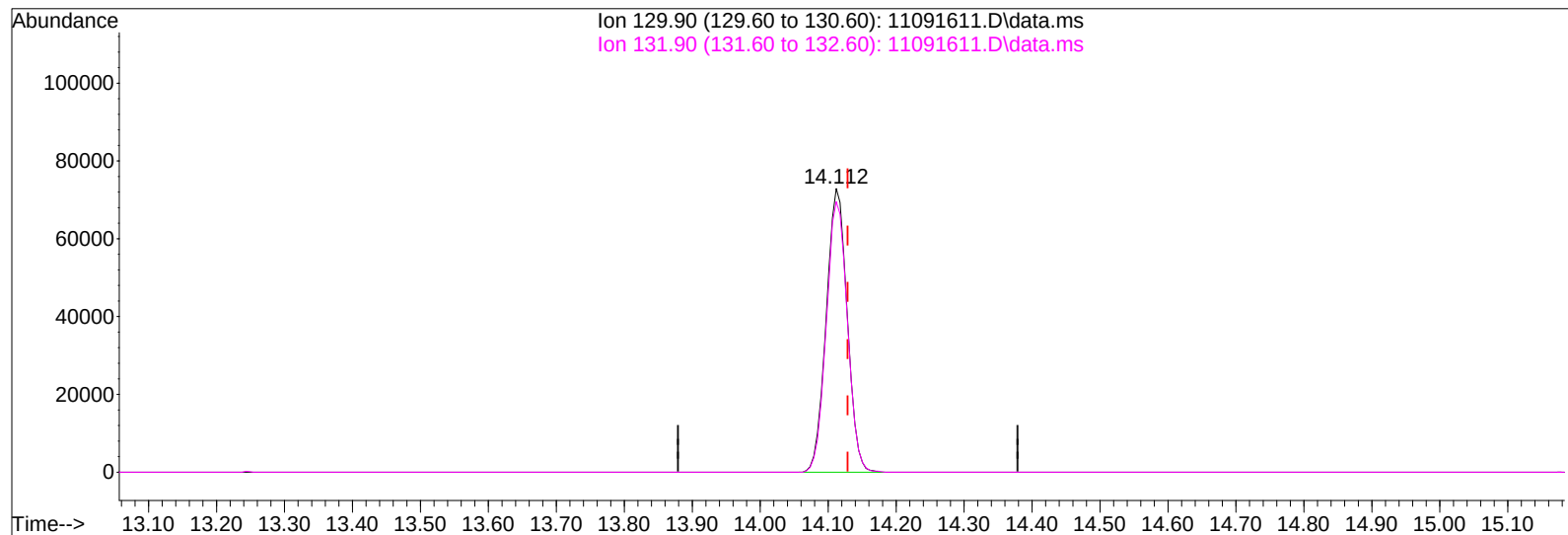
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091611.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 4.73ng

response 155886

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	96.03
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091611.D

Acq On : 9 Nov 2016 23:34

Operator: LH

Sample : P1605133-006 (1000mL)

Misc : S29-11051601

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 10 08:19:20 2016

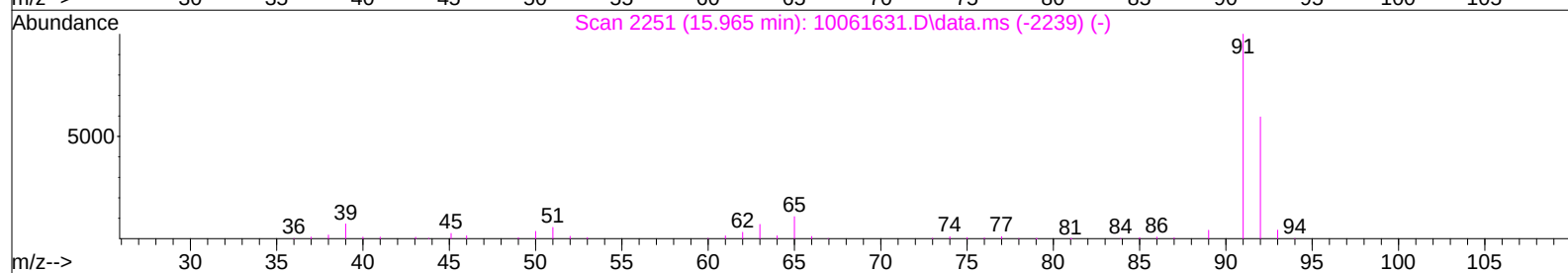
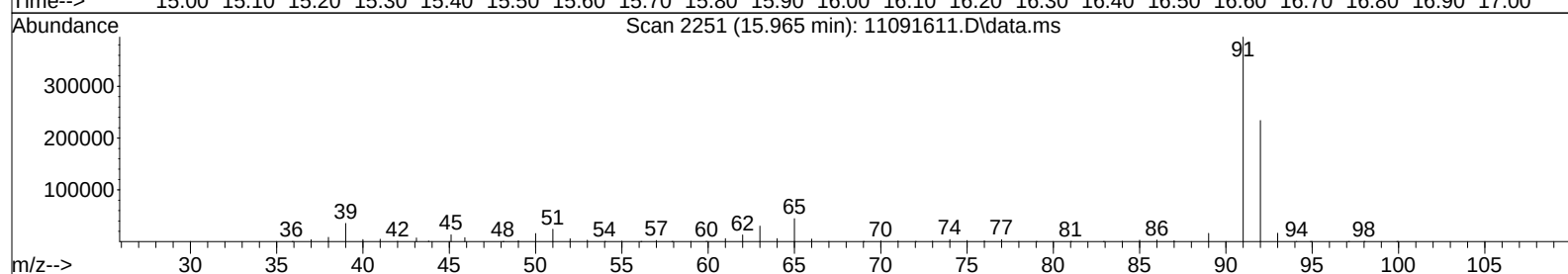
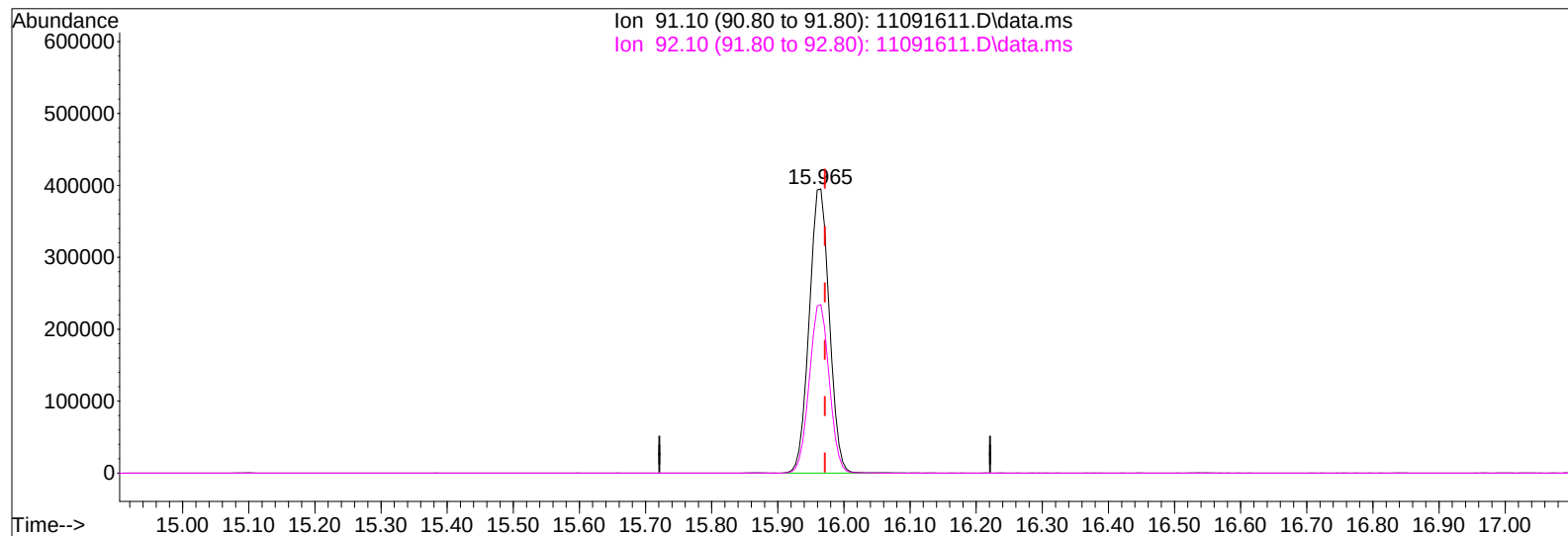
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091611.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 6.96ng

response 832067

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	59.00
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091611.D

Acq On : 9 Nov 2016 23:34

Operator: LH

Sample : P1605133-006 (1000mL)

Misc : S29-11051601

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 10 08:19:20 2016

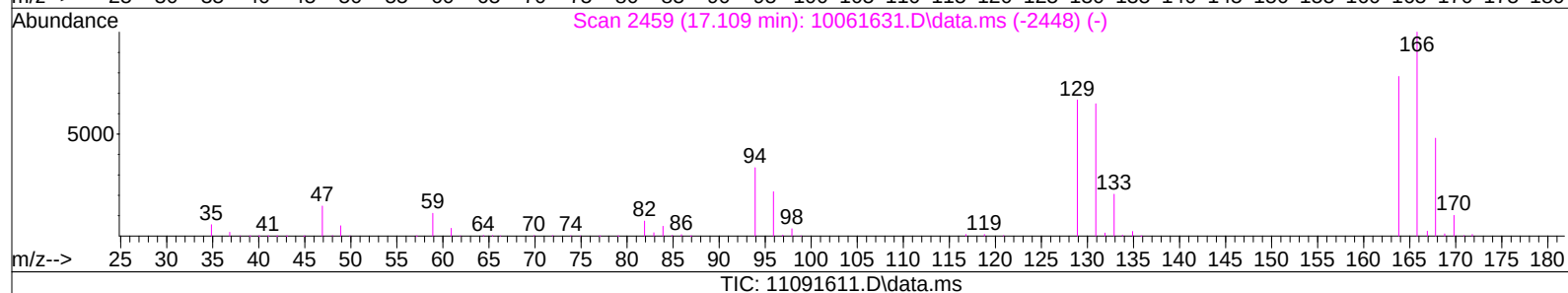
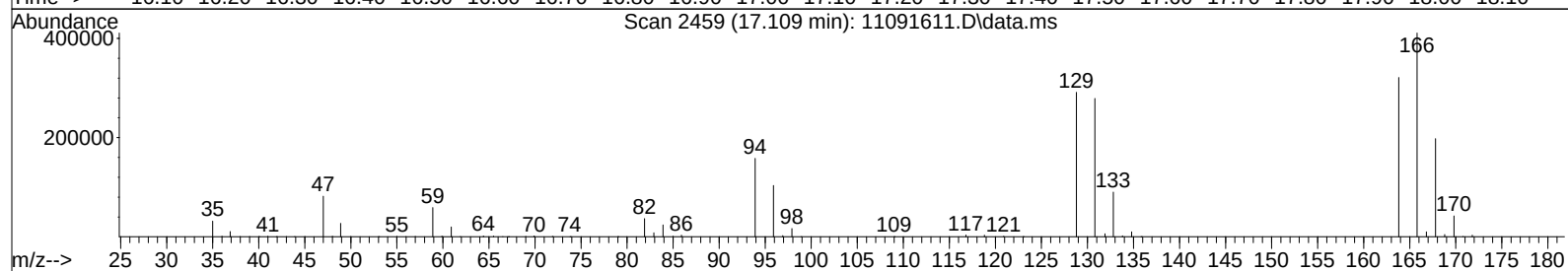
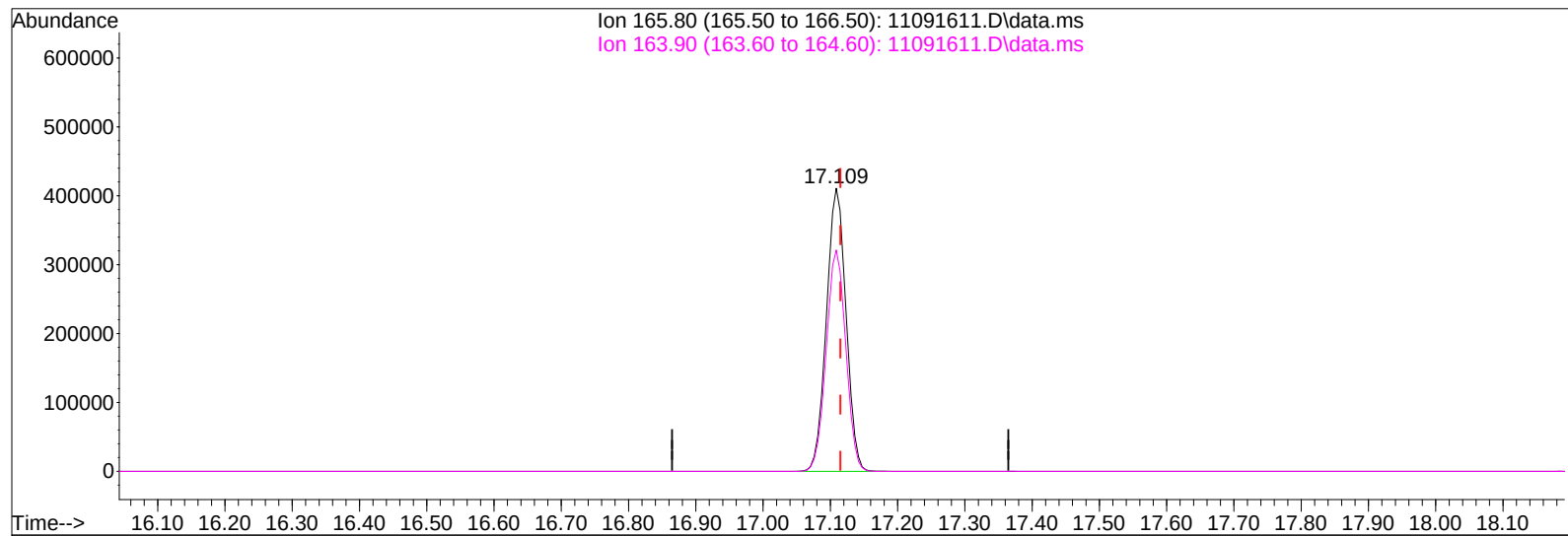
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091611.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 21.59ng

response 832010

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	78.28
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091611.D

Acq On : 9 Nov 2016 23:34

Operator: LH

Sample : P1605133-006 (1000mL)

Misc : S29-11051601

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 10 08:19:20 2016

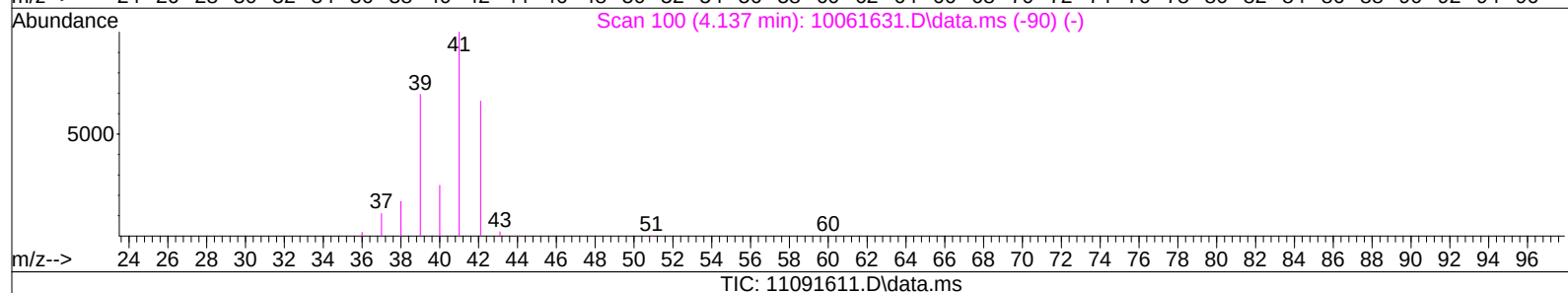
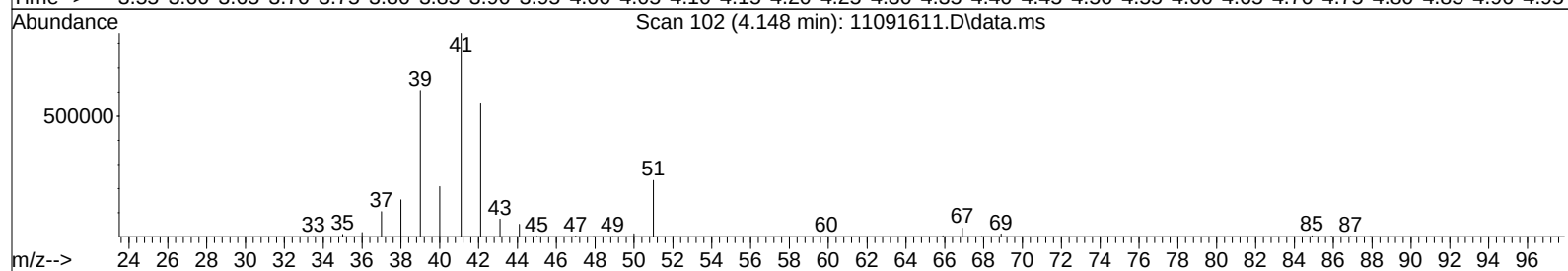
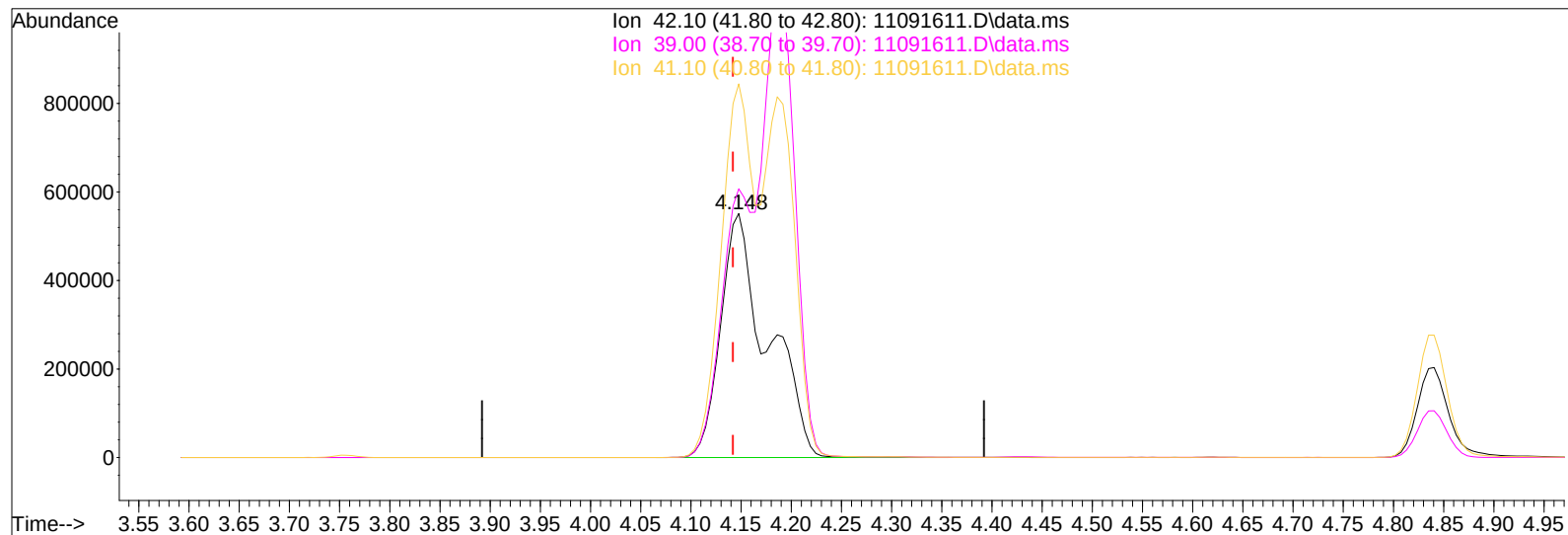
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091611.D\data.ms

(2) Propene (T)

4.148min (+0.006) 70.26ng

response 1793924

Ion	Exp%	Act%
42.10	100	100
39.00	105.30	77.55#
41.10	151.20	112.59#
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091611.D

Acq On : 9 Nov 2016 23:34

Operator: LH

Sample : P1605133-006 (1000mL)

Misc : S29-11051601

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 10 08:19:20 2016

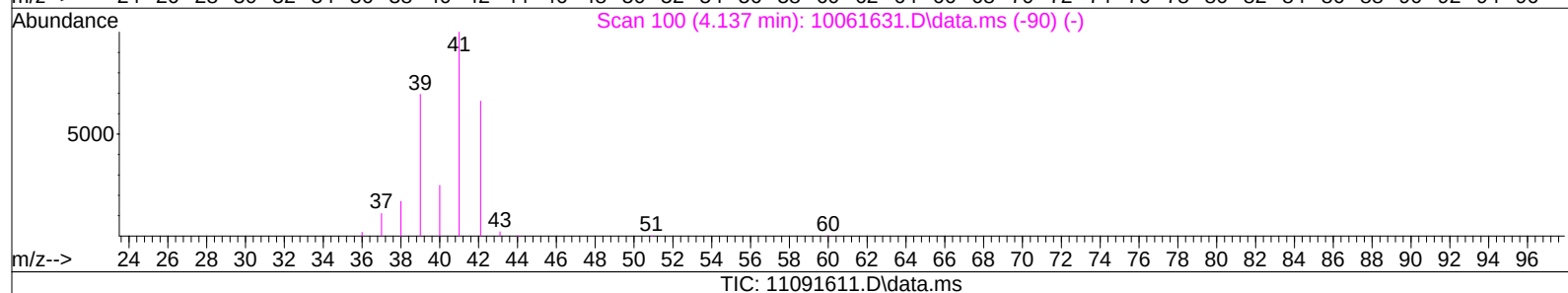
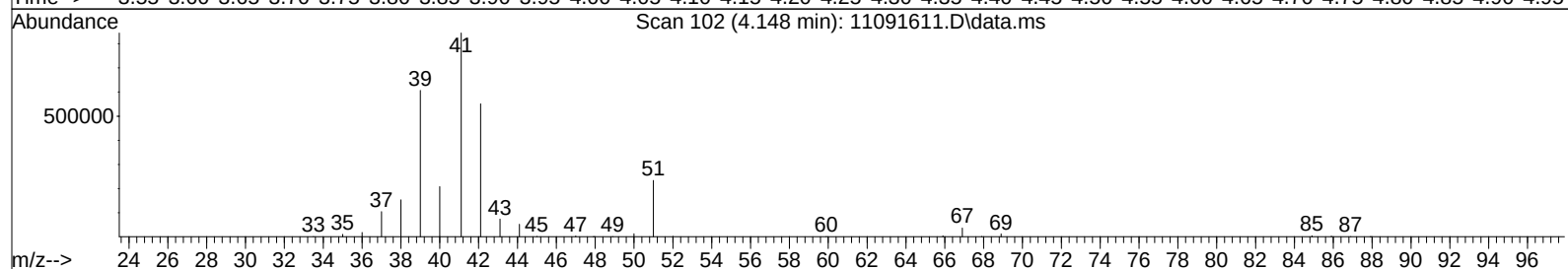
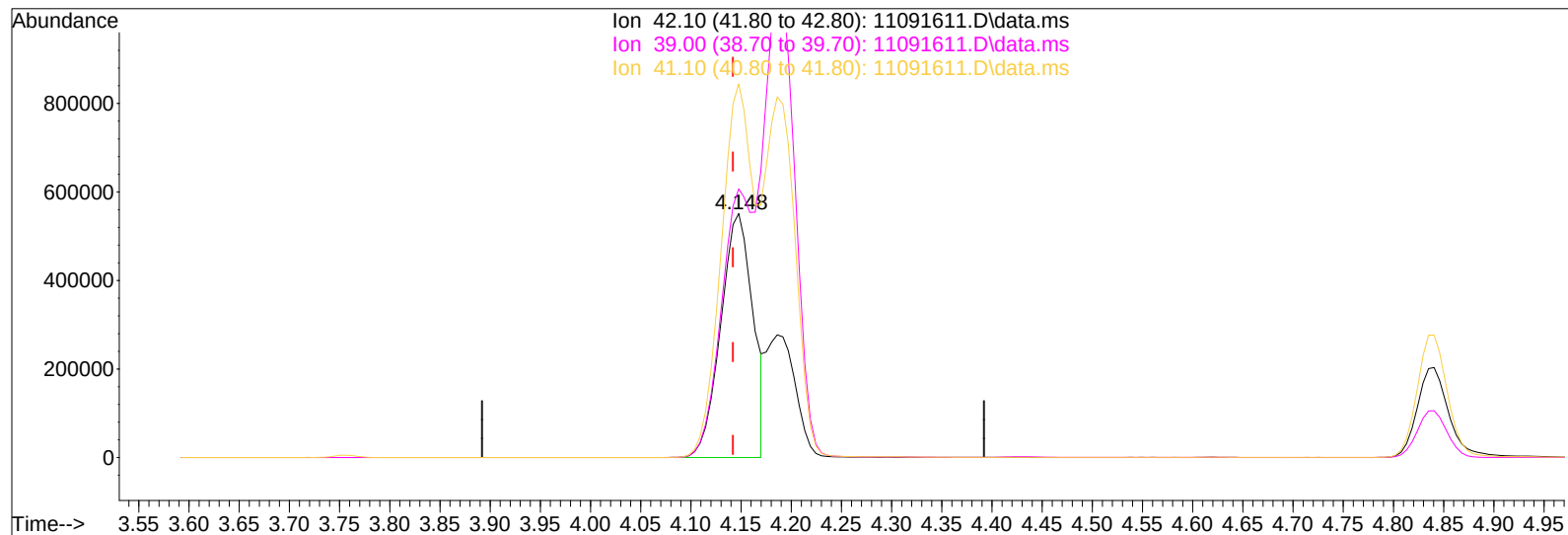
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091611.D\data.ms

(2) Propene (T)

4.148min (+0.006) 48.13ng m

response 1228924

IPC

LH 11/14/16

Ion	Exp%	Act%
42.10	100	100
39.00	105.30	113.20
41.10	151.20	164.36
0.00	0.00	0.00

W# 11/14/16

Data File: I:\MS16\DATA\2016 11\09\11091612.D

Acq On : 10 Nov 2016 00:08

Operator: LH

Sample : P1605133-007 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 14 13:35:33 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 11/14/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.27	130	283900	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.41	114	1398354	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	601917	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	430170	14.790	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	118.32%
57) Toluene-d8 (SS2)	15.86	98	1431210	11.923	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.36%
73) Bromofluorobenzene (SS3)	19.11	174	497452	10.916	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	87.36%

Target Compounds

						Qvalue
2) Propene	4.14	42	2649362	105.627	ng	97
3) Dichlorodifluoromethan...	4.30	85	96634	2.005	ng	99
4) Chloromethane	4.60	50	7773	0.268	ng	92
5) 1,2-Dichloro-1,1,2,2-t...	4.85	135	2886	0.101	ng	92
6) Vinyl Chloride	5.04	62	505	N.D.		
7) 1,3-Butadiene	5.30	54	4817	0.228	ng	98
8) Bromomethane	5.74	94	650	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.44	45	1880747	103.434	ng	100
11) Acetonitrile	6.72	41	40916	0.865	ng	96
12) Acrolein	6.90	56	18513	1.088	ng	99
13) Acetone	7.08	58	1453076	80.371	ng	# 81
14) Trichlorofluoromethane	7.35	101	44560	0.995	ng	100
15) 2-Propanol (Isopropanol)	7.61	45	13391718	220.234	ng	99
16) Acrylonitrile	0.00	53	0	N.D.	d	
17) 1,1-Dichloroethene	8.32	96	585	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.54	84	528244	17.890	ng	86
20) 3-Chloro-1-propene (Al...	8.71	41	1366	N.D.		
21) Trichlorotrifluoroethane	8.97	151	9934	0.375	ng	94
22) Carbon Disulfide	8.83	76	23140	0.232	ng	97
23) trans-1,2-Dichloroethene	9.83	61	1086	N.D.		
24) 1,1-Dichloroethane	10.08	63	3348	N.D.		
25) Methyl tert-Butyl Ether	10.23	73	1008	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.	d	
27) 2-Butanone (MEK)	10.58	72	56089	3.016	ng	# 75
28) cis-1,2-Dichloroethene	11.10	61	44494	1.243	ng	90
29) Diisopropyl Ether	11.41	87	2193	N.D.		
30) Ethyl Acetate	11.41	61	29526	3.067	ng	86
31) n-Hexane	11.39	57	74577	1.874	ng	# 98
32) Chloroform	11.45	83	5508	0.119	ng	99
34) Tetrahydrofuran (THF)	11.86	72	24324	1.358	ng	# 68
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	25920	0.817	ng	99
38) 1,1,1-Trichloroethane	12.53	97	6958	0.171	ng	96
39) Isopropyl Acetate	12.97	61	1442	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	82224	0.713	ng	100
42) Carbon Tetrachloride	13.17	117	12958	0.361	ng	99
43) Cyclohexane	13.30	84	72005	1.701	ng	88
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	13.86	63	1253	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.11	130	155669	4.758	ng	99
48) 1,4-Dioxane	14.10	88	1656	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091612.D

Acq On : 10 Nov 2016 00:08

Operator: LH

Sample : P1605133-007 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 14 13:35:33 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.32	100	1997	0.169	ng	# 7
51) n-Heptane	14.44	71	17226	0.614	ng	90
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.01	58	48605	1.894	ng	82
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	15.71	97	1191	N.D.		
58) Toluene	15.96	91	655208	5.565	ng	100
59) 2-Hexanone	16.21	43	13874	0.224	ng	# 71
60) Dibromochloromethane	16.37	129	503	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.83	43	210599	3.081	ng	94
63) n-Octane	16.97	57	10434	0.406	ng	89
64) Tetrachloroethene	17.11	166	634992	16.734	ng	100
65) Chlorobenzene	17.76	112	4255	N.D.		
66) Ethylbenzene	18.12	91	70065	0.493	ng	98
67) m- & p-Xylenes	18.27	91	154541	1.420	ng	97
68) Bromoform	18.35	173	2133	N.D.		
69) Styrene	18.60	104	39676	0.459	ng	97
70) o-Xylene	18.70	91	76815	0.712	ng	97
71) n-Nonane	18.90	43	57142	1.076	ng	# 77
72) 1,1,2,2-Tetrachloroethane	18.71	83	1443	N.D.		
74) Cumene	19.23	105	11558	N.D.		
75) alpha-Pinene	19.57	93	240798	3.422	ng	99
76) n-Propylbenzene	19.67	91	38735	0.255	ng	97
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	35807	0.279	ng	97
79) 1,3,5-Trimethylbenzene	19.87	105	37370	0.322	ng	99
80) alpha-Methylstyrene	20.00	118	3639	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	147568	1.283	ng	89
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.35	91	1501	N.D.		
85) 1,3-Dichlorobenzene	20.36	146	997	N.D.		
86) 1,4-Dichlorobenzene	20.42	146	846667	11.383	ng	99
87) sec-Butylbenzene	20.47	105	4595	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.72	146	4303	N.D.		
91) d-Limonene	20.73	68	102883	2.538	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.14	157	1012	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.24	180	2802	N.D.		
95) Naphthalene	22.34	128	29777	0.185	ng	96
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS16\DATA\2016 11\09\11091612.D

Acq On : 10 Nov 2016 00:08

Operator: LH

Sample : P1605133-007 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 14 13:35:33 2016

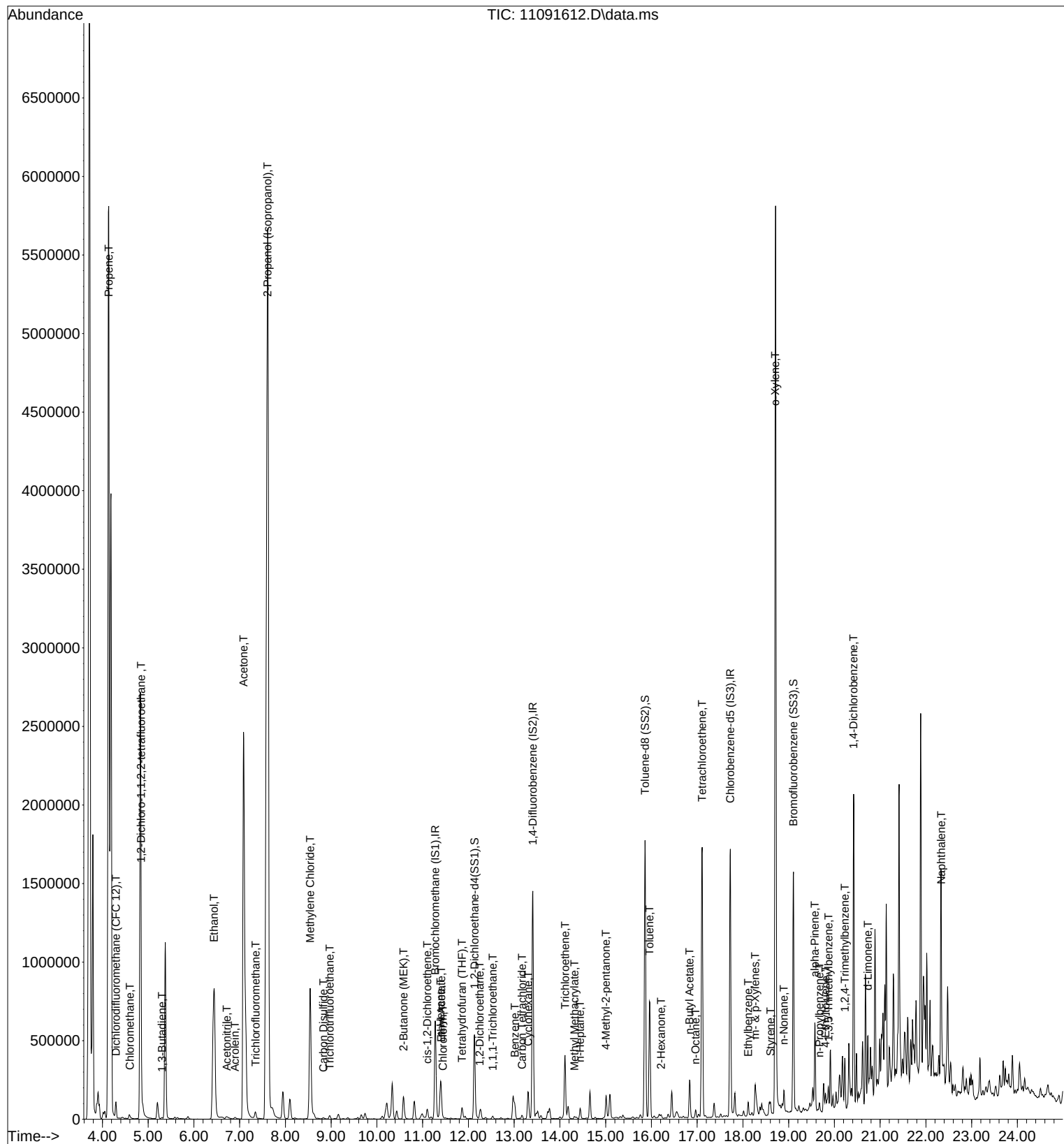
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091612.D

Acq On : 10 Nov 2016 00:08

Operator: LH

Sample : P1605133-007 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 10 08:19:30 2016

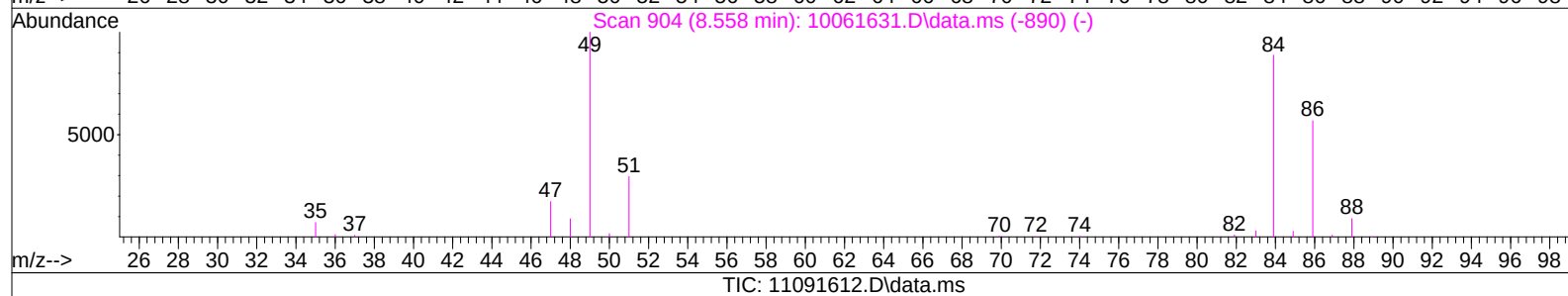
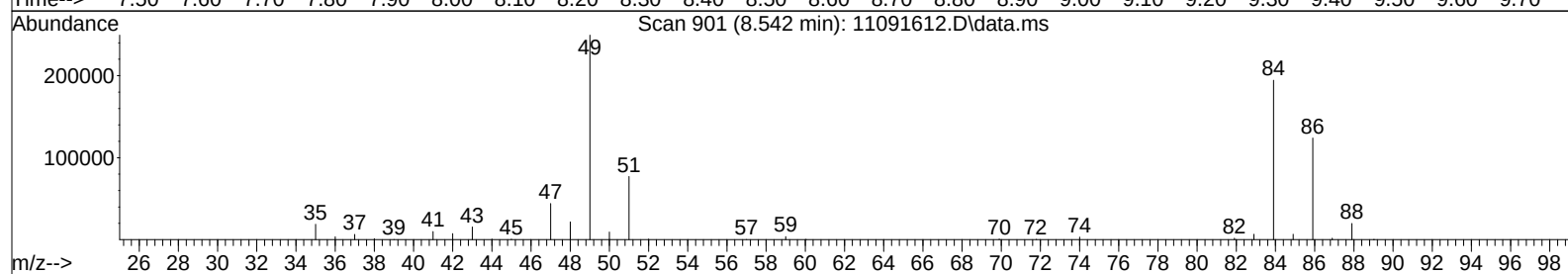
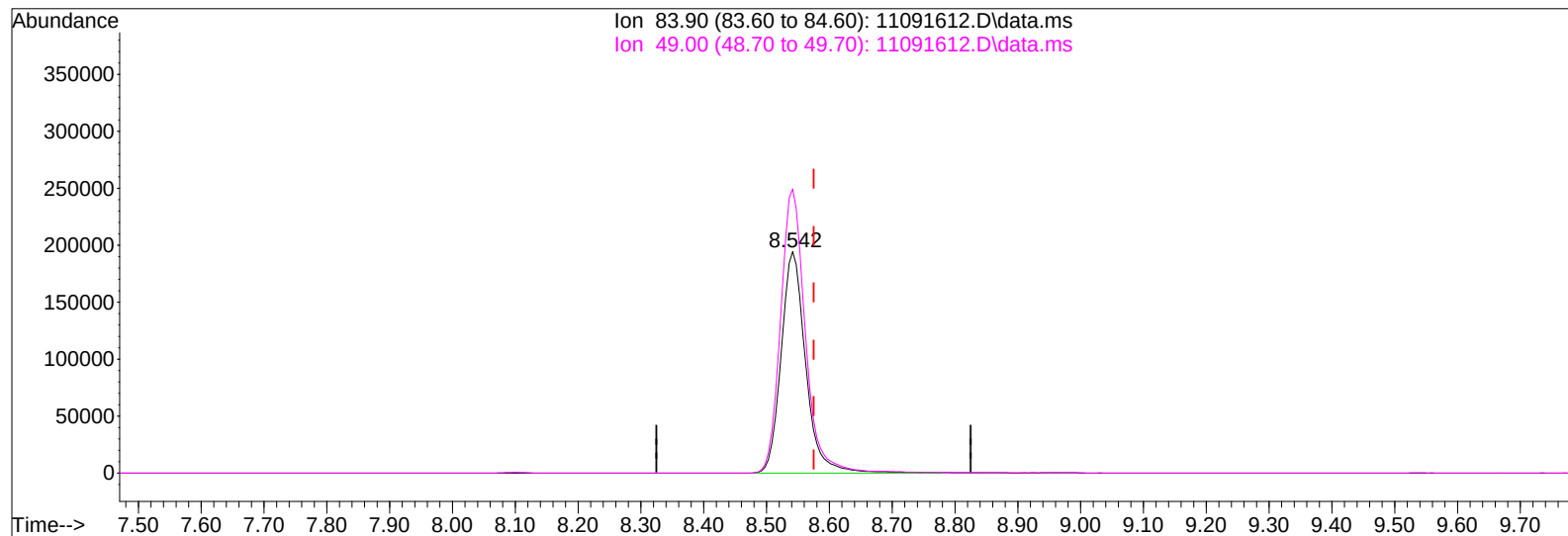
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091612.D\data.ms

(19) Methylene Chloride (T)

8.542min (-0.033) 17.89ng

response 528244

Ion	Exp%	Act%
83.90	100	100
49.00	114.70	129.65
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091612.D

Acq On : 10 Nov 2016 00:08

Operator: LH

Sample : P1605133-007 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 10 08:19:30 2016

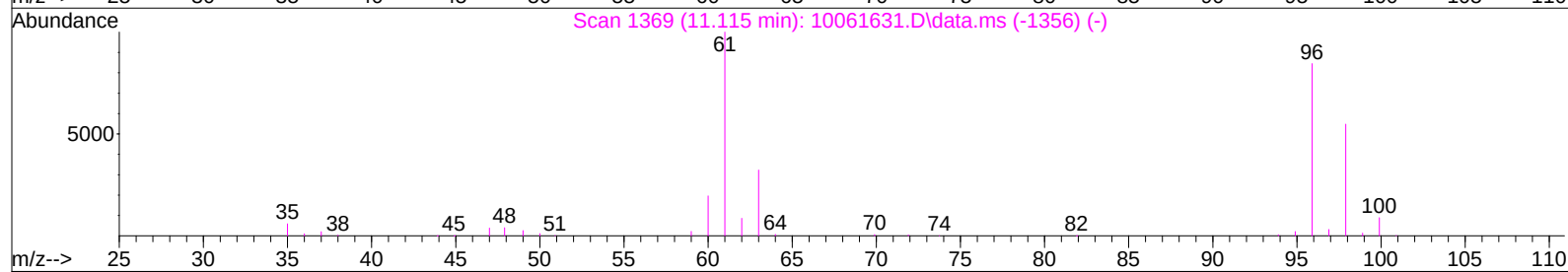
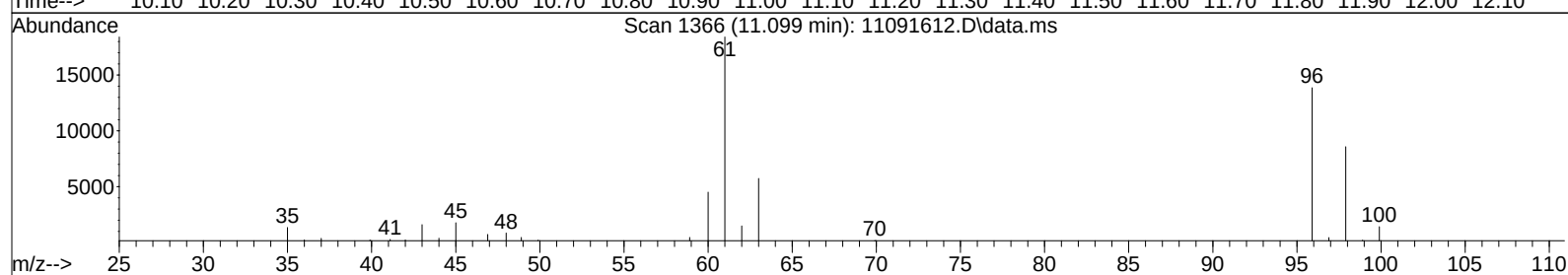
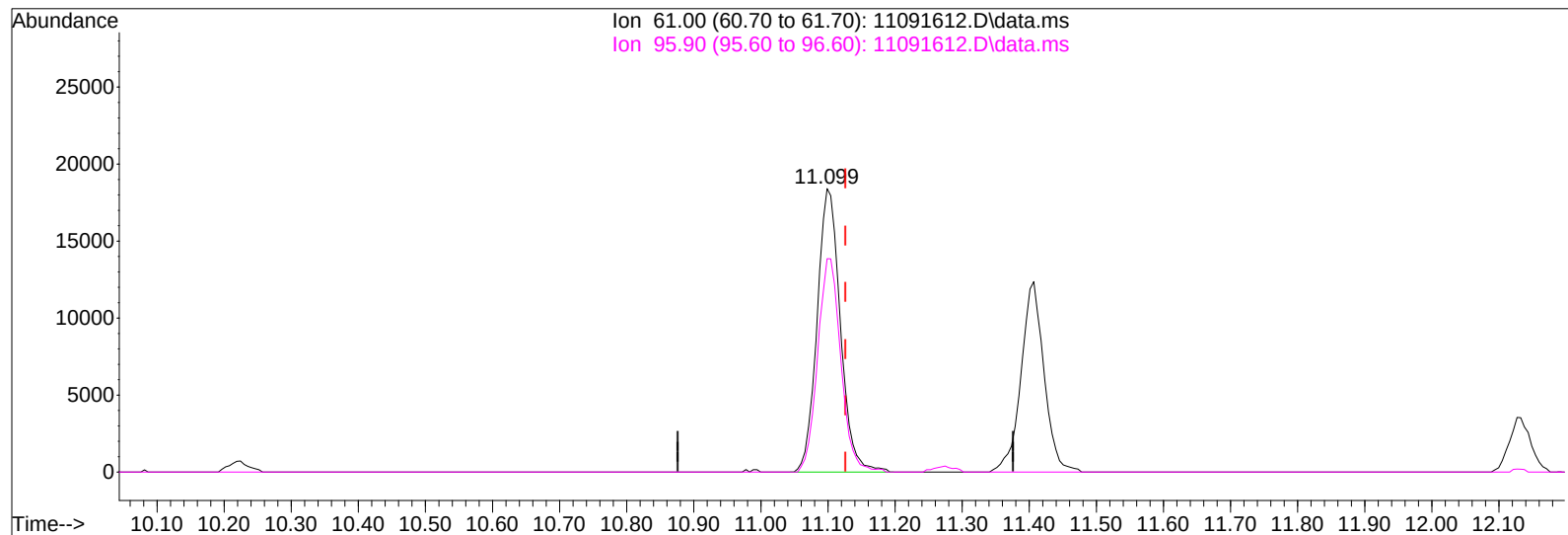
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091612.D\data.ms

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

11.099min (-0.027) 1.24ng

response 44494

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	75.01
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091612.D

Acq On : 10 Nov 2016 00:08

Operator: LH

Sample : P1605133-007 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 10 08:19:30 2016

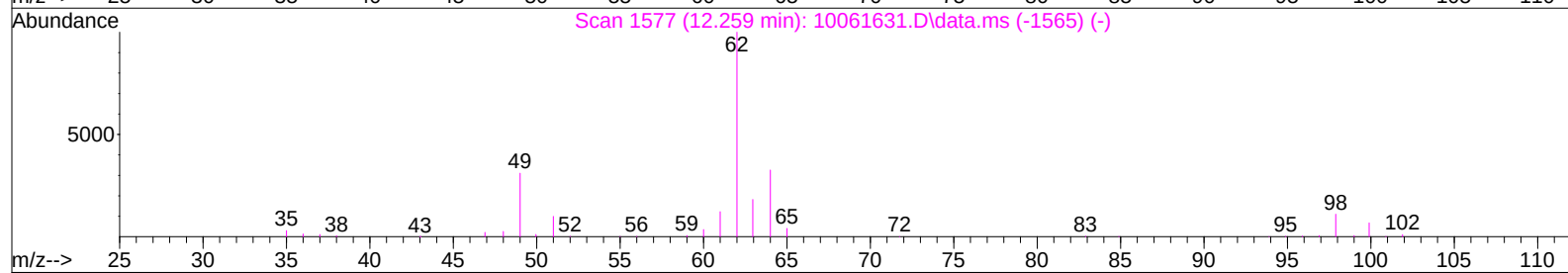
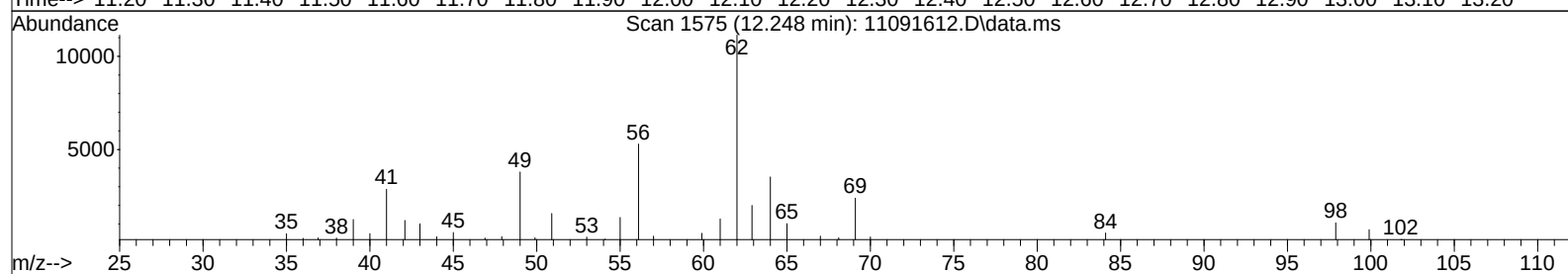
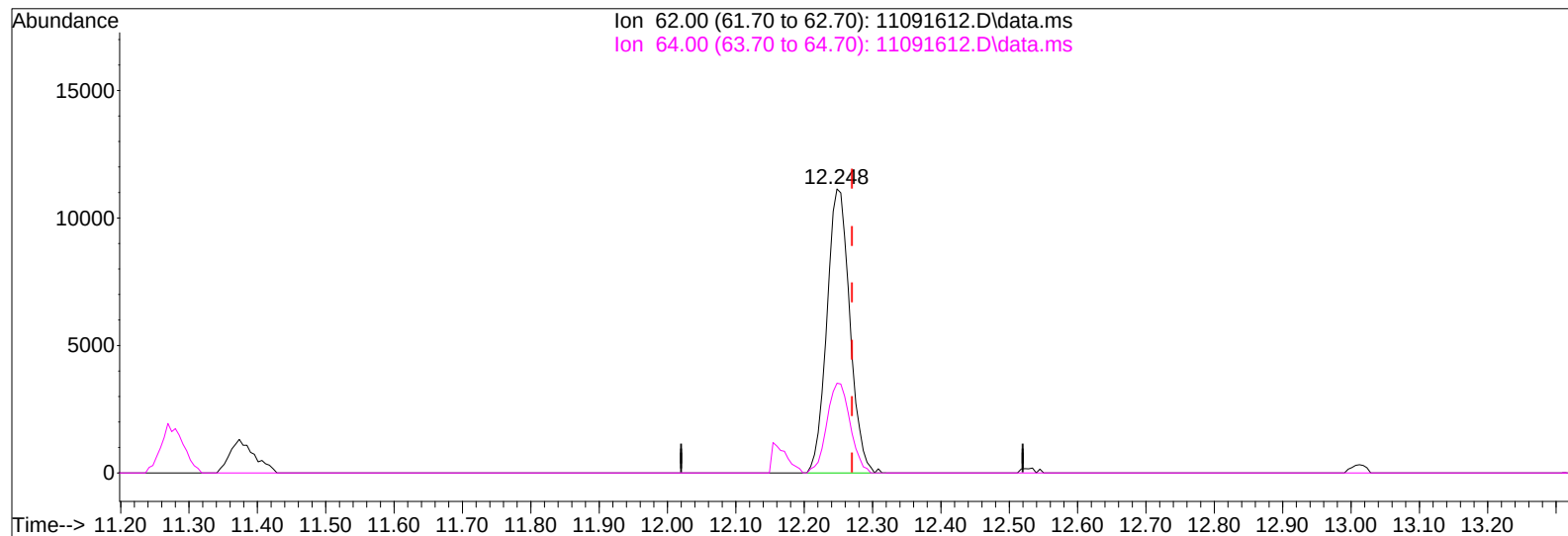
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091612.D\data.ms

(36) 1,2-Dichloroethane (T)

12.248min (-0.022) 0.82ng

response 25920

Ion	Exp%	Act%
62.00	100	100
64.00	32.80	32.14
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091612.D

Acq On : 10 Nov 2016 00:08

Operator: LH

Sample : P1605133-007 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 10 08:19:30 2016

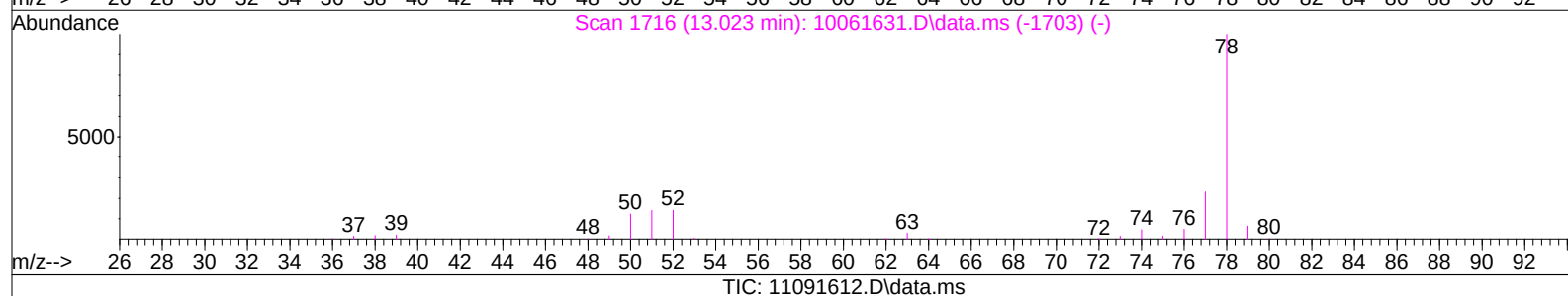
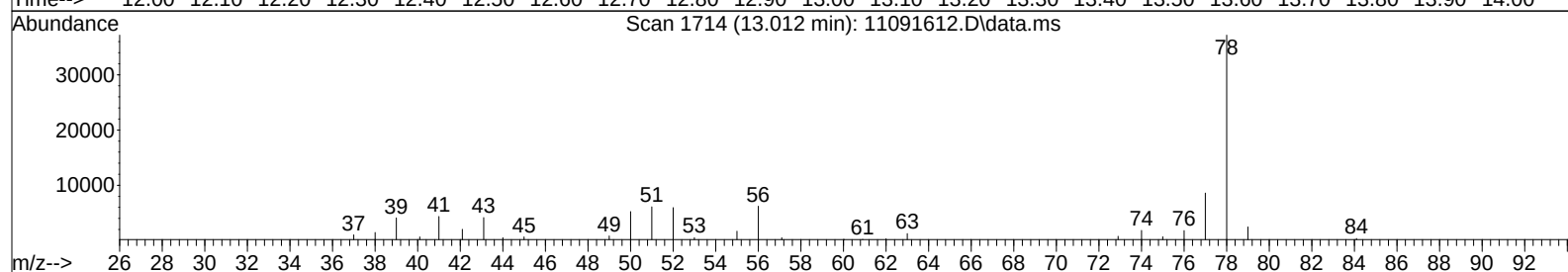
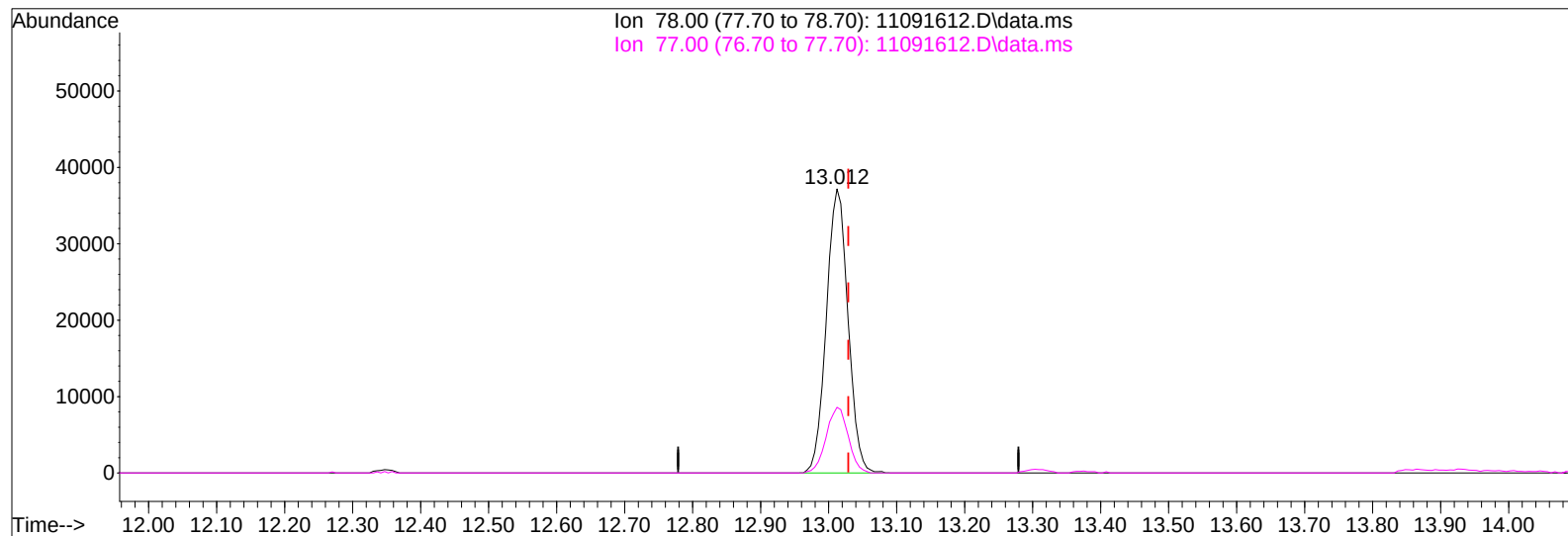
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091612.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 0.71ng

response 82224

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.58
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091612.D

Acq On : 10 Nov 2016 00:08

Operator: LH

Sample : P1605133-007 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 10 08:19:30 2016

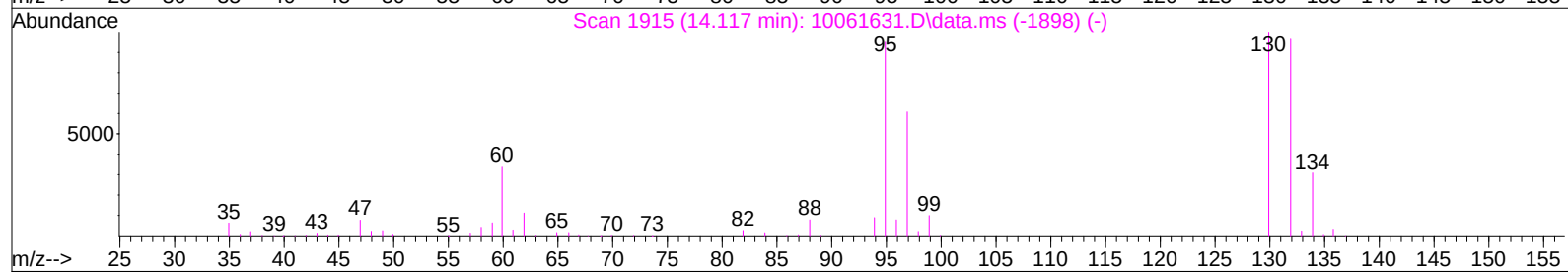
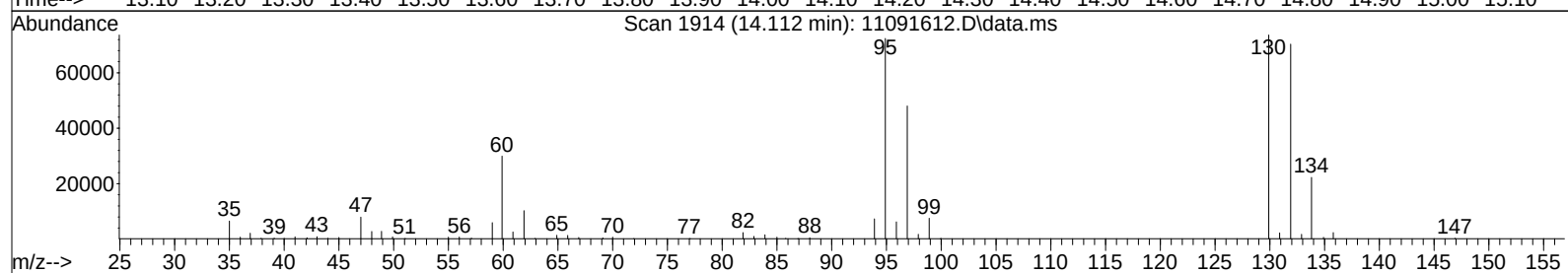
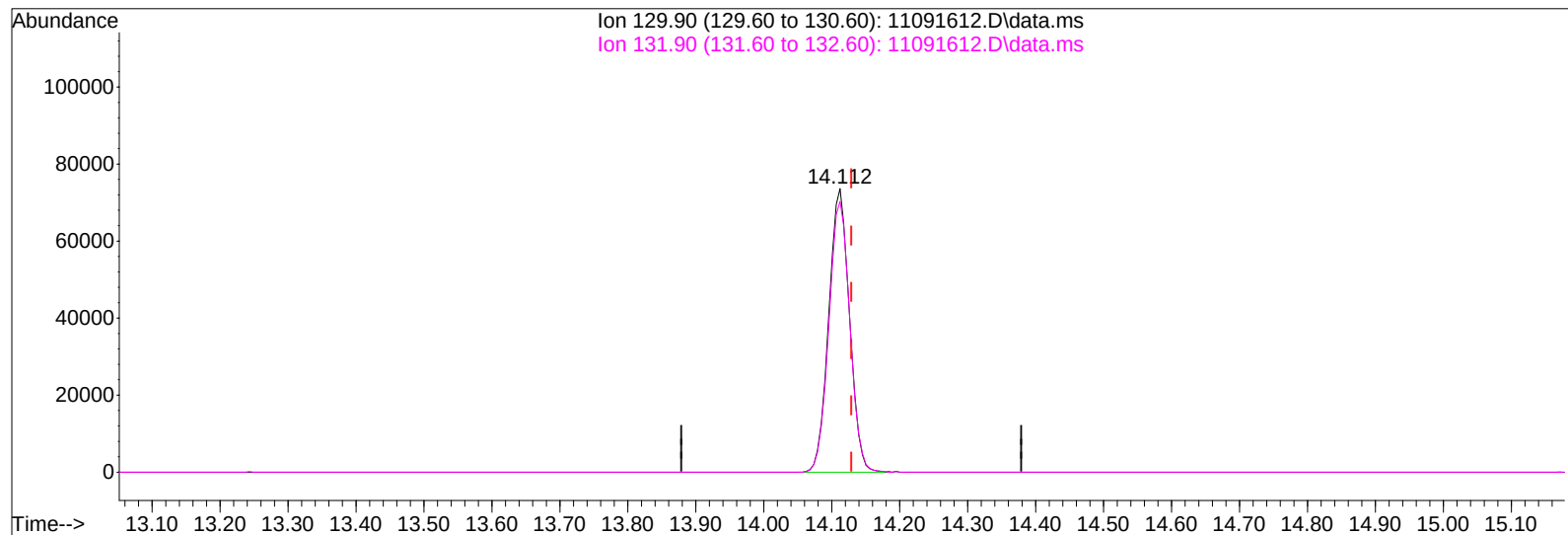
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091612.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 4.76ng

response 155669

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	96.76
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091612.D

Acq On : 10 Nov 2016 00:08

Operator: LH

Sample : P1605133-007 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 10 08:19:30 2016

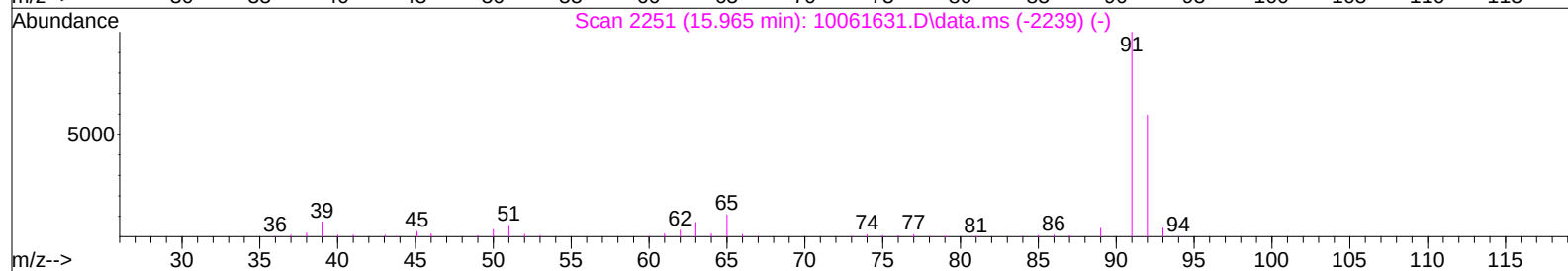
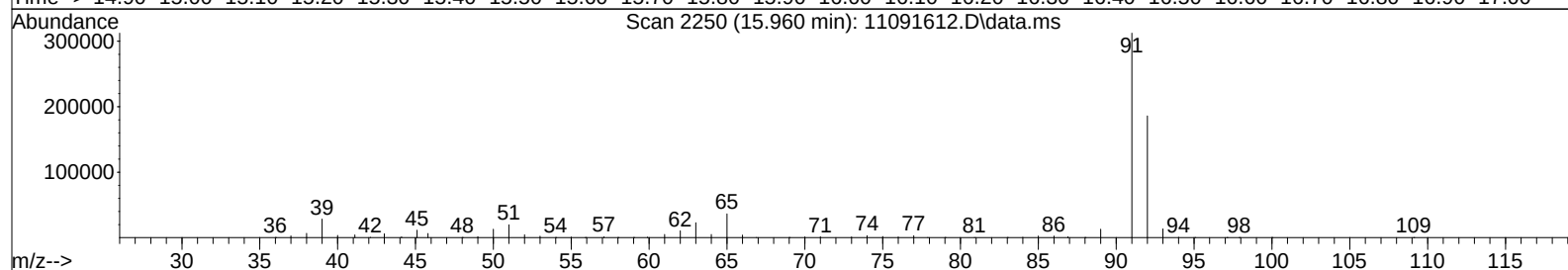
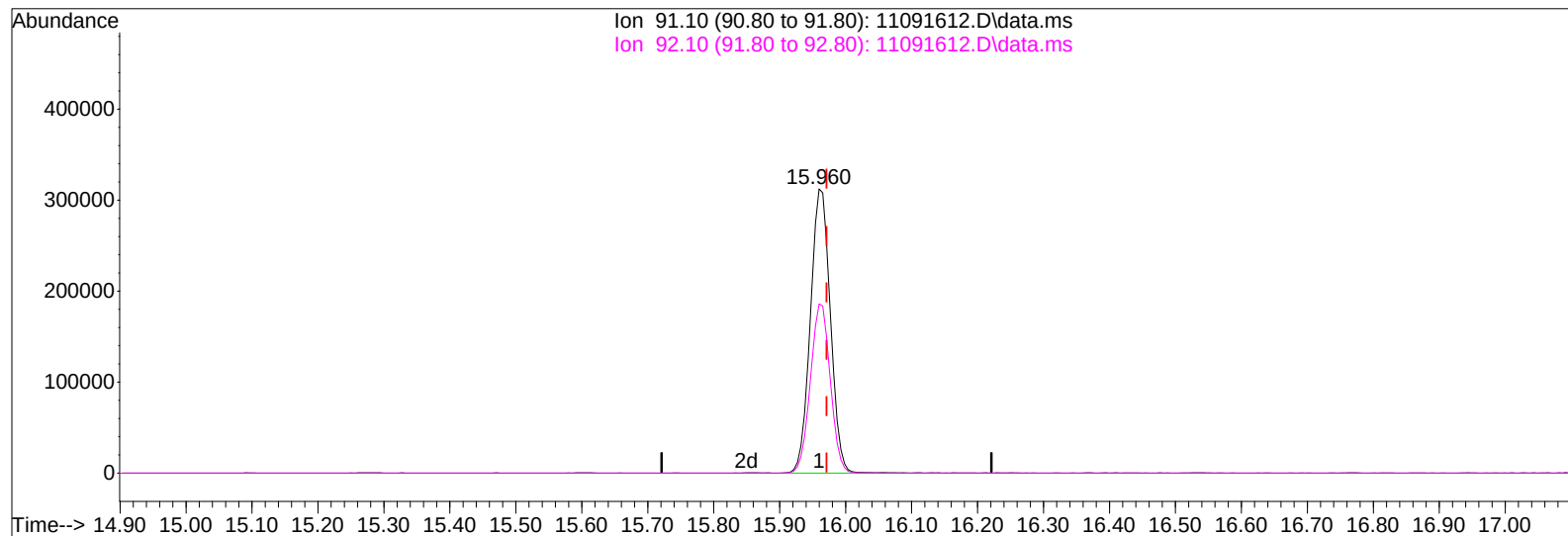
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091612.D\data.ms

(58) Toluene (T)

15.960min (-0.011) 5.56ng

response 655208

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	59.04
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091612.D

Acq On : 10 Nov 2016 00:08

Operator: LH

Sample : P1605133-007 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 10 08:19:30 2016

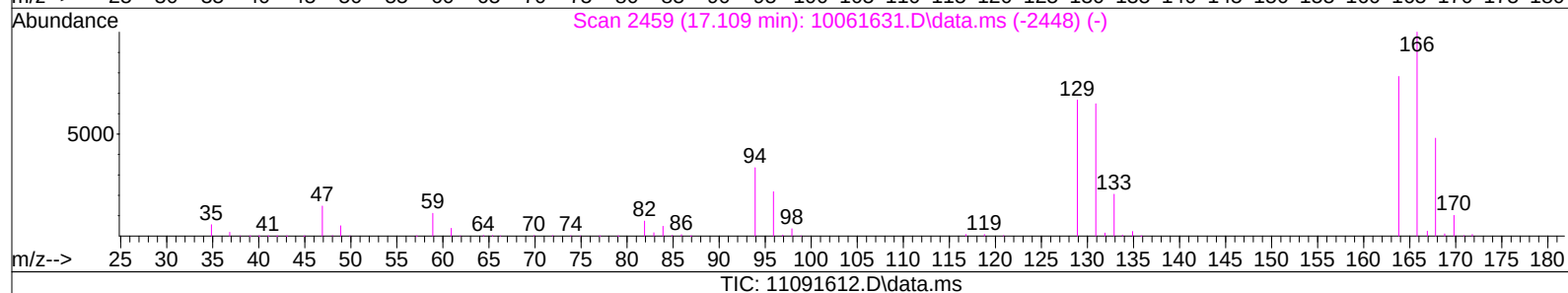
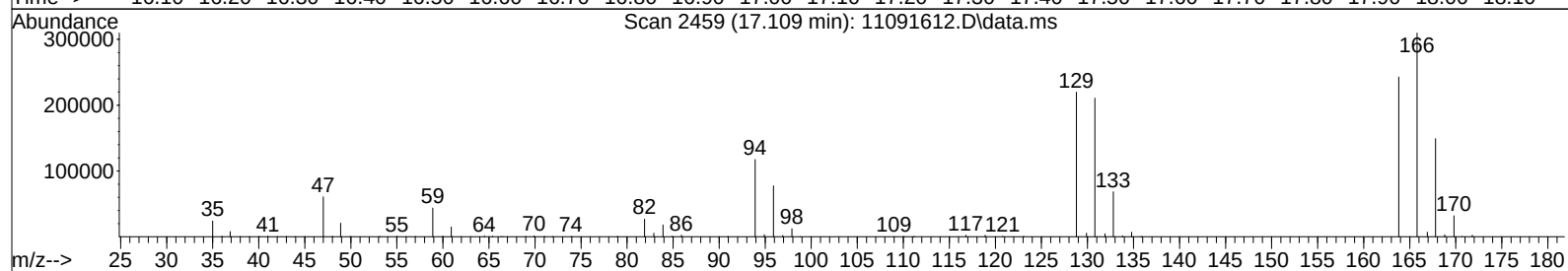
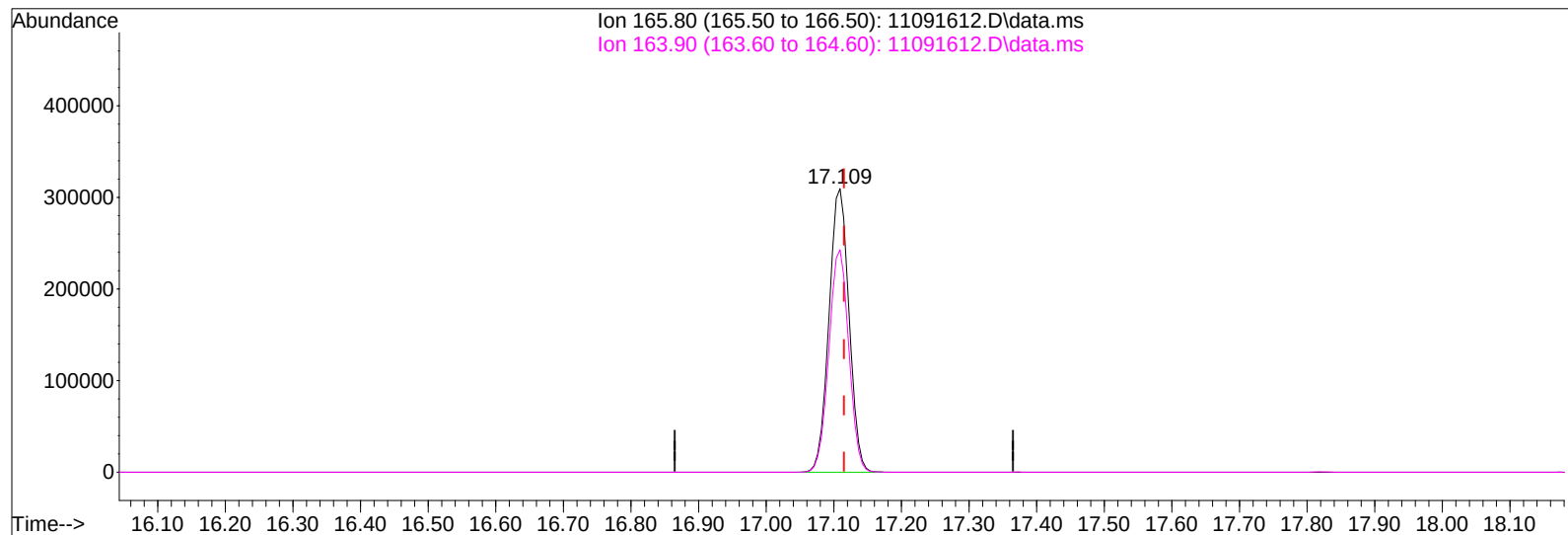
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091612.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 16.73ng

response 634992

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	78.23
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091613.D

Acq On : 10 Nov 2016 00:42

Operator: LH

Sample : P1605133-008 (1000mL)

Misc : S29-11051601

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 14 13:40:26 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 11/14/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	287539	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1397633	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	598768	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	433488	14.716	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	117.76%
57) Toluene-d8 (SS2)	15.86	98	1427807	11.957	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.68%
73) Bromofluorobenzene (SS3)	19.11	174	494004	10.897	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	87.20%

Target Compounds

						Qvalue
2) Propene	4.14	42	1206542	47.495	ng	97
3) Dichlorodifluoromethan...	4.31	85	85153	1.744	ng	100
4) Chloromethane	4.63	50	5665	0.193	ng	95
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	2637	0.091	ng	83
6) Vinyl Chloride	5.05	62	1128	N.D.		
7) 1,3-Butadiene	5.32	54	2387	0.111	ng	93
8) Bromomethane	5.75	94	632	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.42	45	654054	35.515	ng	100
11) Acetonitrile	6.72	41	21815	0.455	ng	99
12) Acrolein	6.90	56	31205	1.810	ng	97
13) Acetone	7.09	58	1915975	104.633	ng	94
14) Trichlorofluoromethane	7.35	101	38168	0.842	ng	99
15) 2-Propanol (Isopropanol)	7.58	45	3162152	51.345	ng	100
16) Acrylonitrile	7.89	53	659	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.55	84	900573	30.113	ng	86
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	8.97	151	8335	0.311	ng	89
22) Carbon Disulfide	8.84	76	6821	N.D.		
23) trans-1,2-Dichloroethene	9.82	61	968	N.D.		
24) 1,1-Dichloroethane	10.08	63	2936	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	10.30	86	41566	7.672	ng	# 9
27) 2-Butanone (MEK)	10.59	72	36391	1.932	ng	# 76
28) cis-1,2-Dichloroethene	11.10	61	64409	1.776	ng	83
29) Diisopropyl Ether	11.39	87	902	N.D.		
30) Ethyl Acetate	11.41	61	11702	1.200	ng	90
31) n-Hexane	11.39	57	43604	1.082	ng	97
32) Chloroform	11.45	83	3846	N.D.		
34) Tetrahydrofuran (THF)	11.88	72	3294	0.182	ng	# 30
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.26	62	1397	N.D.		
38) 1,1,1-Trichloroethane	12.53	97	2269	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	52666	0.457	ng	100
42) Carbon Tetrachloride	13.17	117	11399	0.317	ng	100
43) Cyclohexane	13.31	84	4327	0.102	ng	# 69
44) tert-Amyl Methyl Ether	13.71	73	4898	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.11	130	229027	7.004	ng	99
48) 1,4-Dioxane	14.10	88	1430	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091613.D

Acq On : 10 Nov 2016 00:42

Operator: LH

Sample : P1605133-008 (1000mL)

Misc : S29-11051601

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 14 13:40:26 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	d	
51) n-Heptane	14.45	71	11299	0.403	ng	90
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.01	58	23048	0.899	ng	78
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	515443	4.401	ng	100
59) 2-Hexanone	16.21	43	20068m	0.326	ng	
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	130850	1.925	ng	94
63) n-Octane	16.97	57	9730	0.381	ng	93
64) Tetrachloroethene	17.11	166	1108045	29.354	ng	100
65) Chlorobenzene	17.80	112	4233	N.D.		
66) Ethylbenzene	18.12	91	29401	0.208	ng	97
67) m- & p-Xylenes	18.27	91	87007	0.804	ng	97
68) Bromoform	18.35	173	731	N.D.		
69) Styrene	18.60	104	15455	0.180	ng	97
70) o-Xylene	18.70	91	47890	0.446	ng	98
71) n-Nonane	18.90	43	90002	1.703	ng	93
72) 1,1,2,2-Tetrachloroethane	18.71	83	1192	N.D.		
74) Cumene	19.23	105	7595	N.D.		
75) alpha-Pinene	19.58	93	236422	3.378	ng	98
76) n-Propylbenzene	19.67	91	32108	0.212	ng	96
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	32635	0.256	ng	98
79) 1,3,5-Trimethylbenzene	19.87	105	36204	0.314	ng	99
80) alpha-Methylstyrene	20.00	118	1424	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	144909	1.266	ng	87
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.34	91	1473	N.D.		
85) 1,3-Dichlorobenzene	20.36	146	832	N.D.		
86) 1,4-Dichlorobenzene	20.42	146	233672	3.158	ng	99
87) sec-Butylbenzene	20.46	105	4014	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.73	146	1244	N.D.		
91) d-Limonene	20.73	68	33801	0.838	ng	88
92) 1,2-Dibromo-3-Chloropr...	21.14	157	683	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.23	180	2982	N.D.		
95) Naphthalene	22.34	128	30028	0.187	ng	92
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS16\DATA\2016 11\09\11091613.D

Acq On : 10 Nov 2016 00:42

Operator: LH

Sample : P1605133-008 (1000mL)

Misc : S29-11051601

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 14 13:40:26 2016

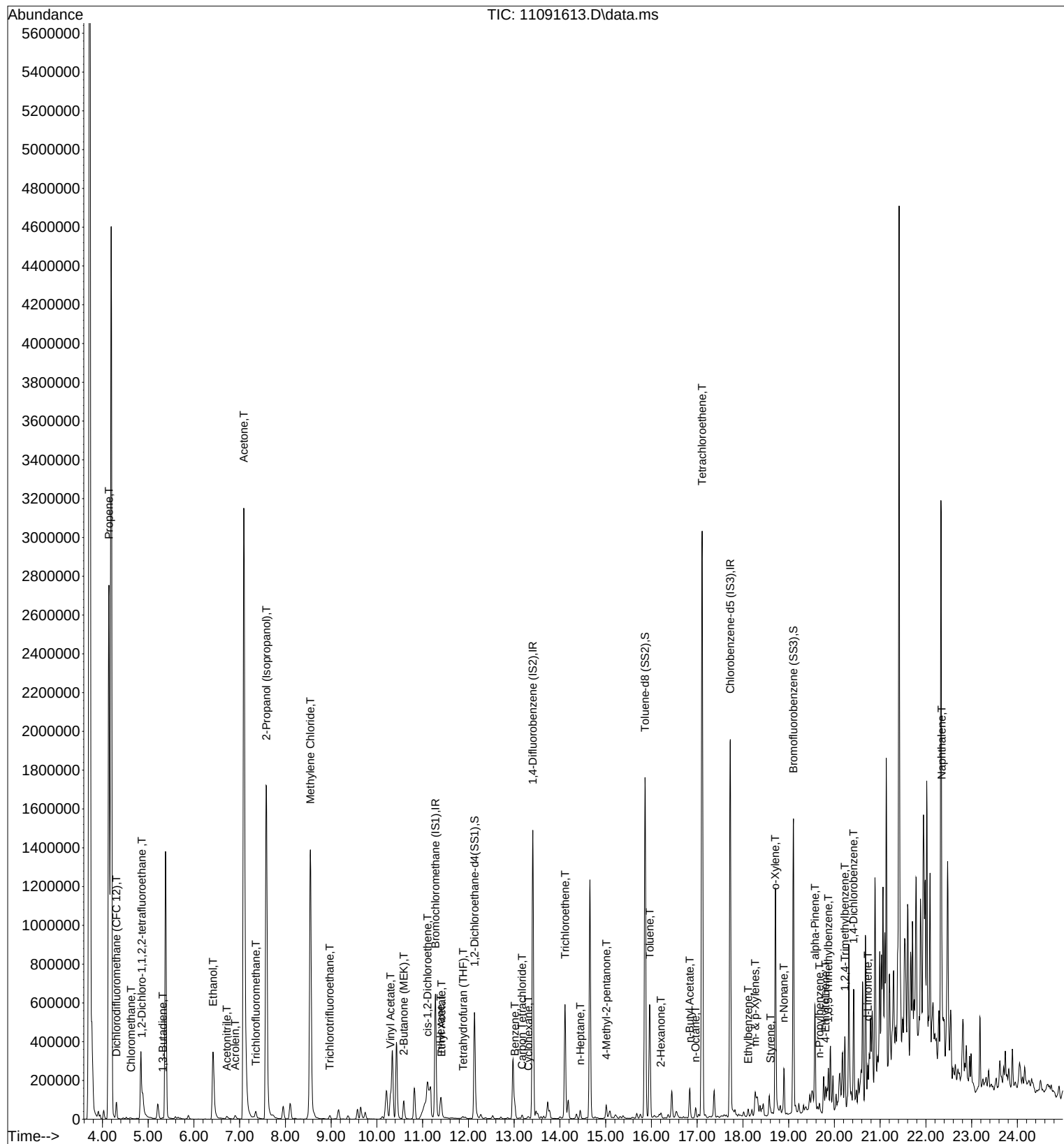
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091613.D

Acq On : 10 Nov 2016 00:42

Operator: LH

Sample : P1605133-008 (1000mL)

Misc : S29-11051601

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 10 08:19:38 2016

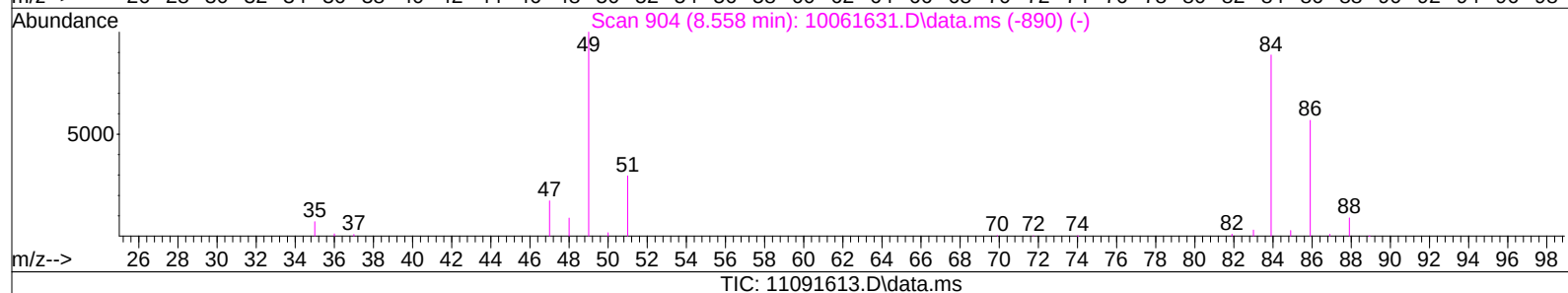
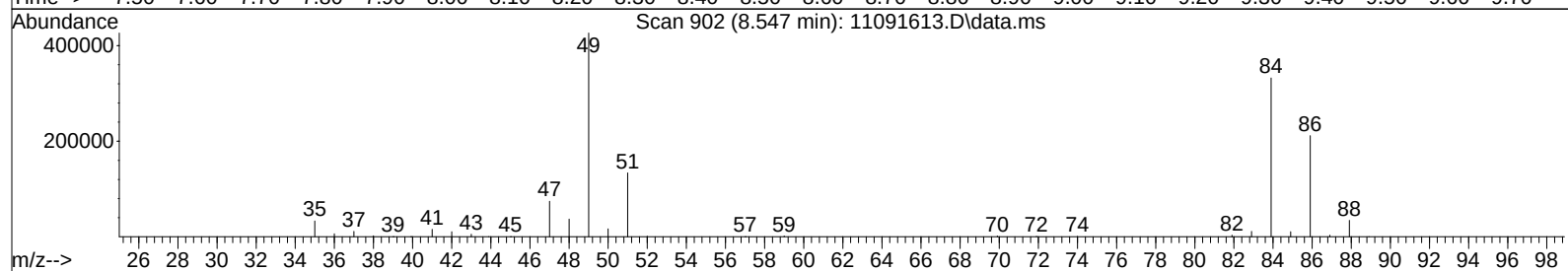
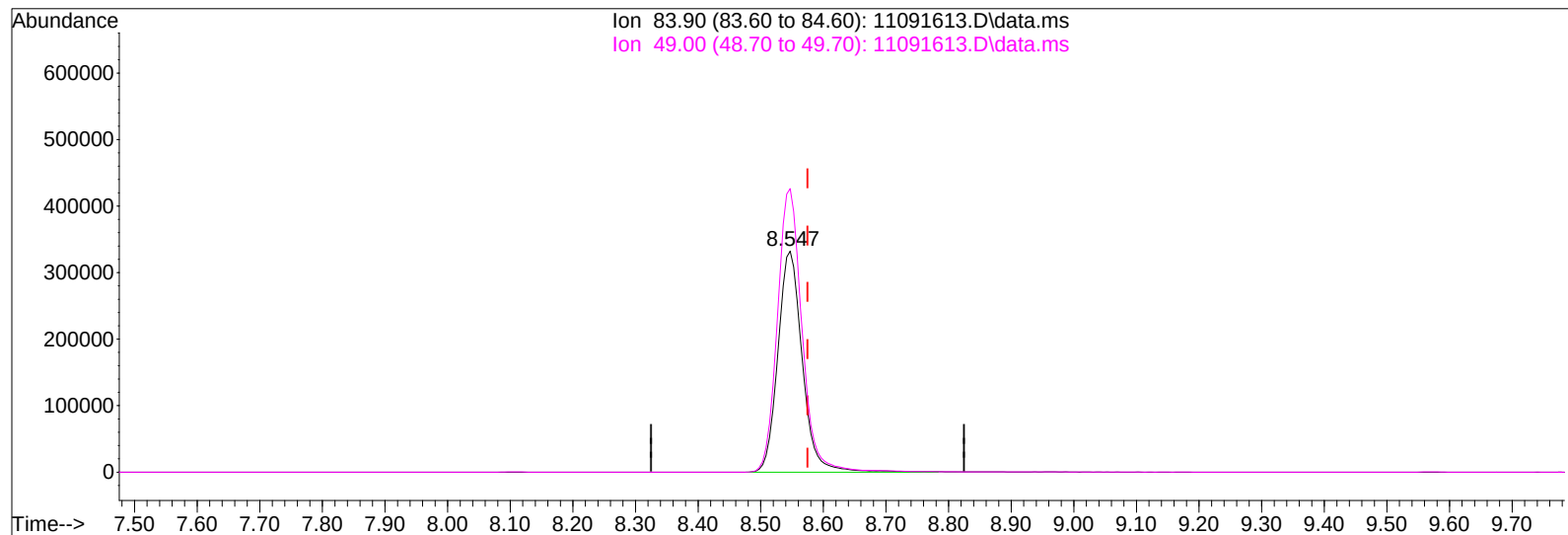
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091613.D\data.ms

(19) Methylene Chloride (T)

8.547min (-0.028) 30.11ng

response 900573

Ion	Exp%	Act%
83.90	100	100
49.00	114.70	129.41
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091613.D

Acq On : 10 Nov 2016 00:42

Operator: LH

Sample : P1605133-008 (1000mL)

Misc : S29-11051601

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 10 08:19:38 2016

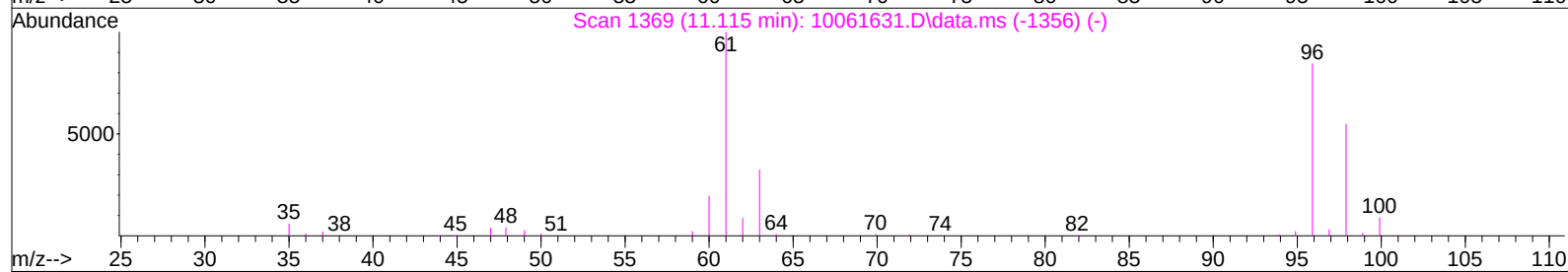
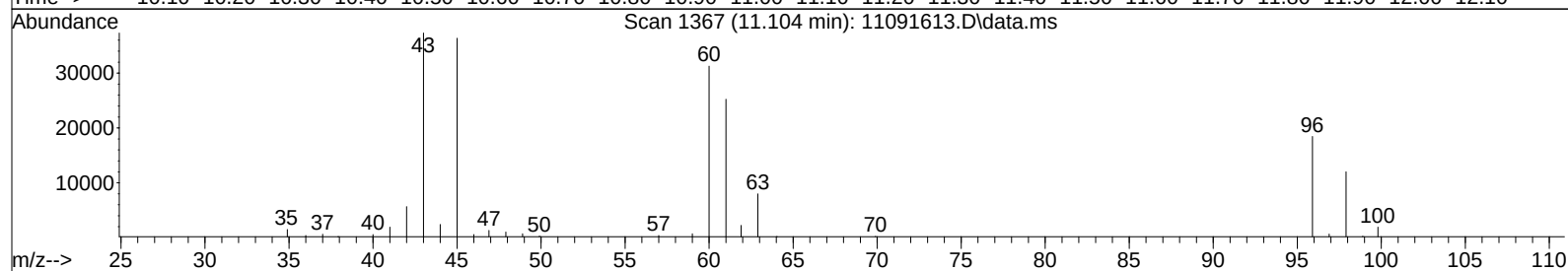
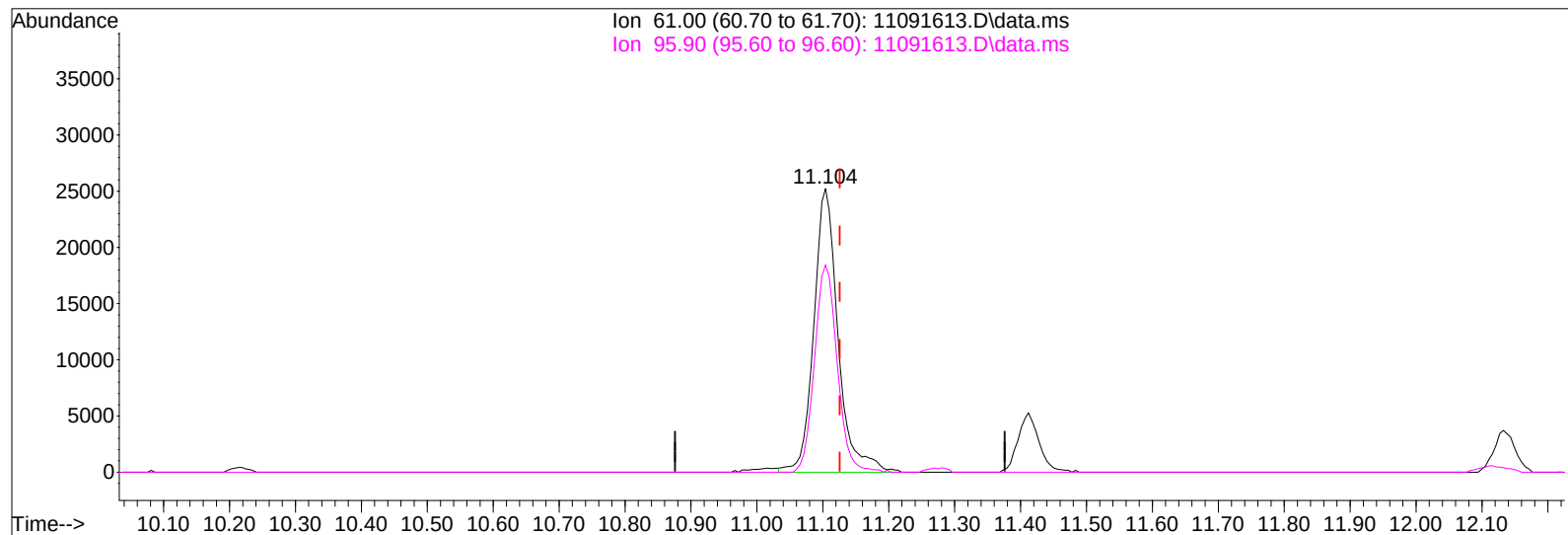
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091613.D\data.ms

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

11.104min (-0.022) 1.78ng

response 64409

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	68.30
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091613.D

Acq On : 10 Nov 2016 00:42

Operator: LH

Sample : P1605133-008 (1000mL)

Misc : S29-11051601

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 10 08:19:38 2016

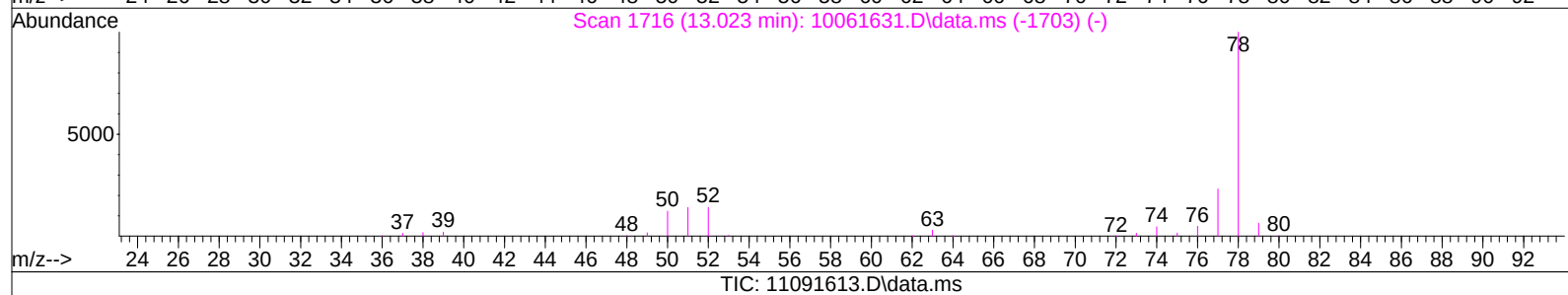
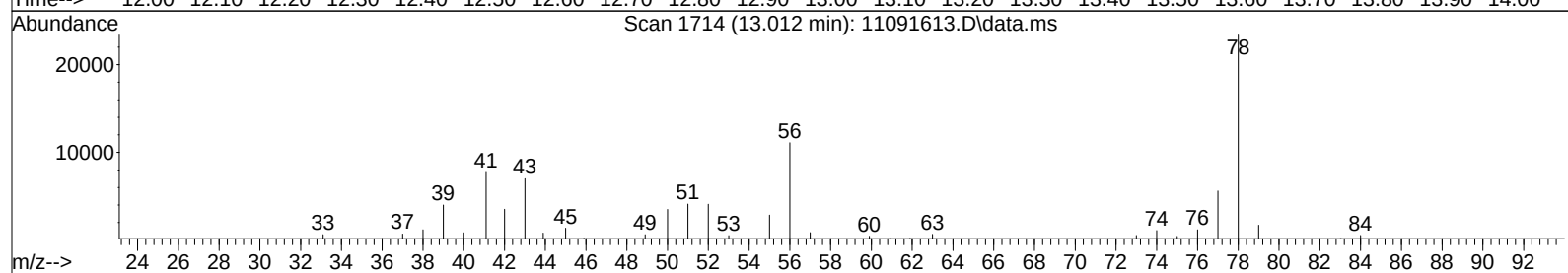
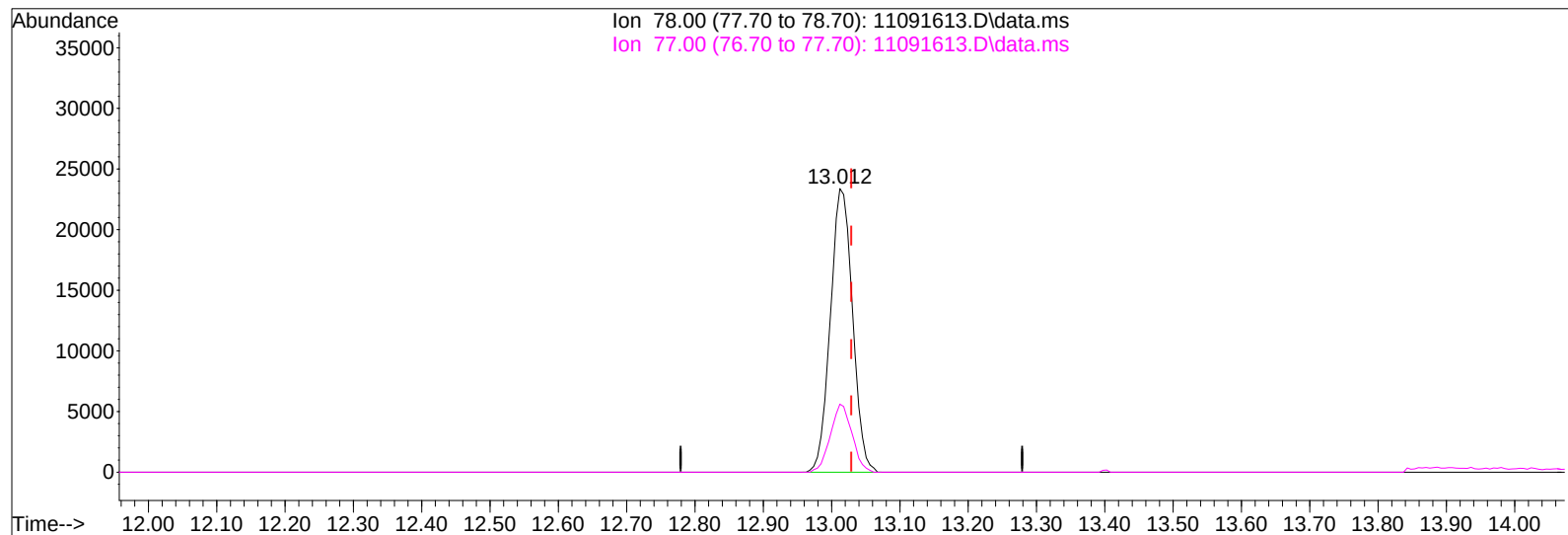
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091613.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 0.46ng

response 52666

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.37
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091613.D

Acq On : 10 Nov 2016 00:42

Operator: LH

Sample : P1605133-008 (1000mL)

Misc : S29-11051601

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 10 08:19:38 2016

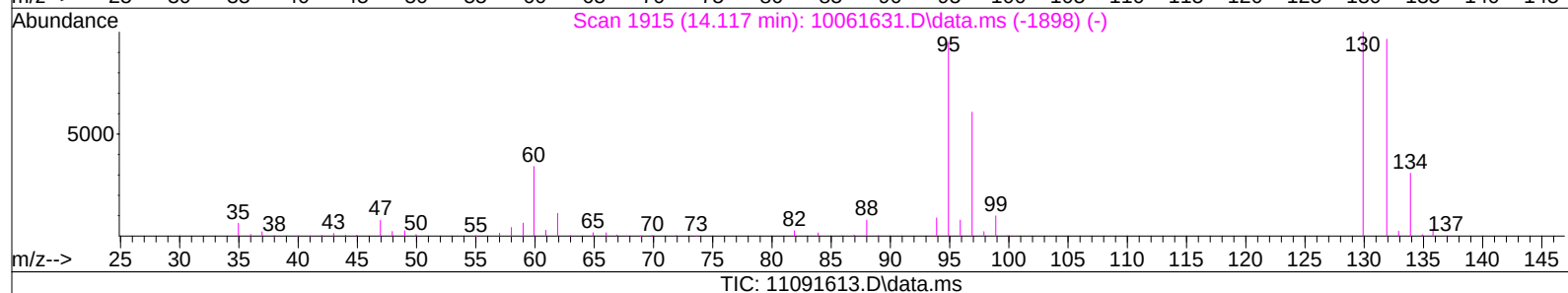
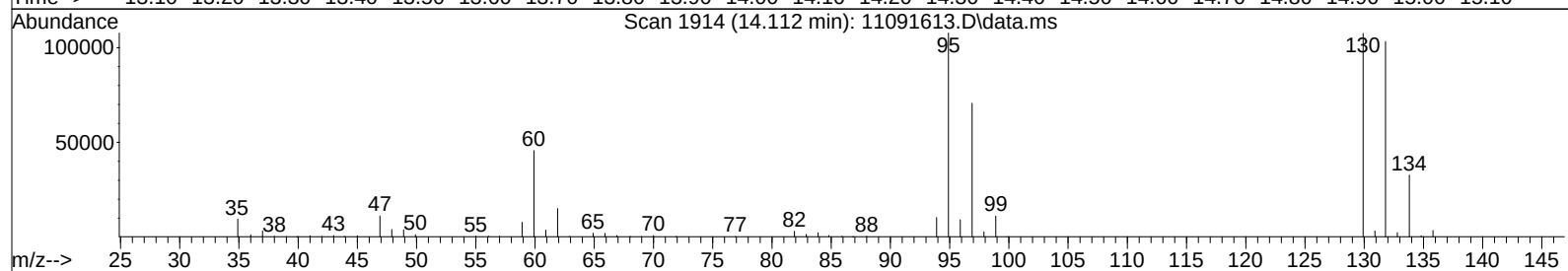
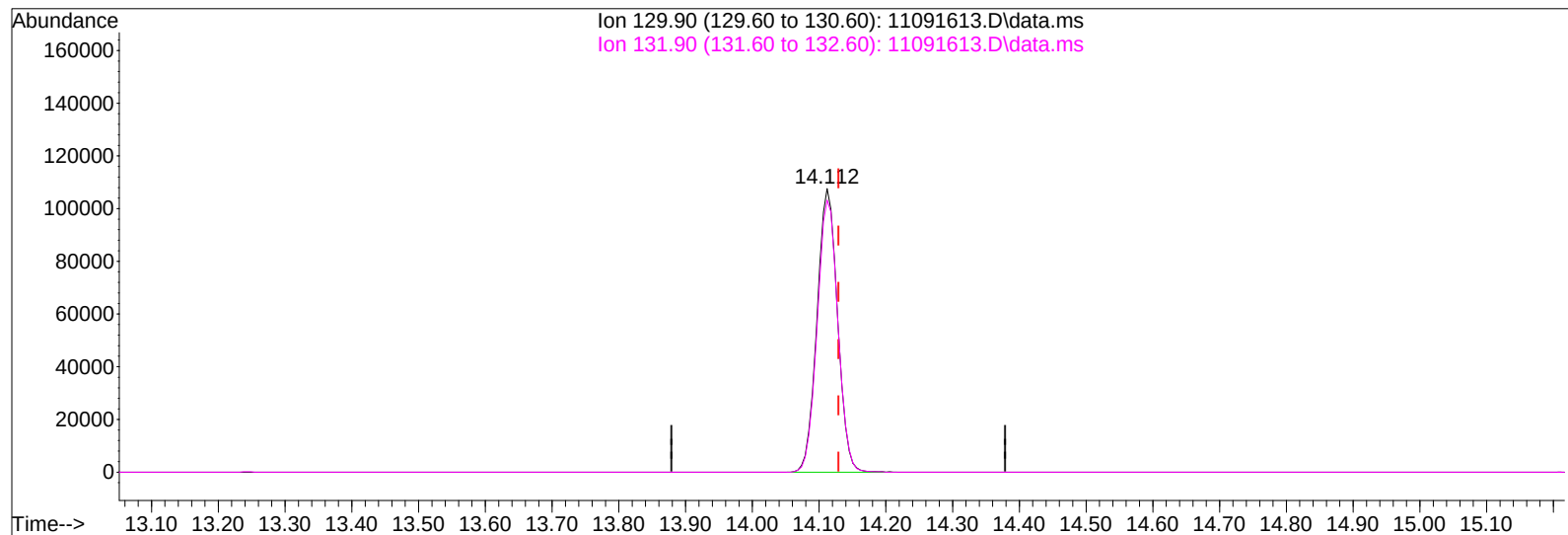
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091613.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 7.00ng

response 229027

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	96.84
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091613.D

Acq On : 10 Nov 2016 00:42

Operator: LH

Sample : P1605133-008 (1000mL)

Misc : S29-11051601

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 10 08:19:38 2016

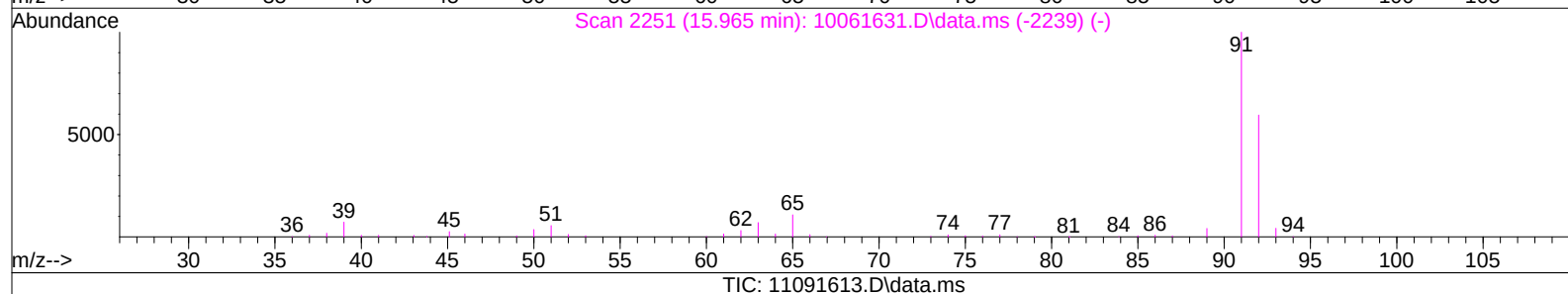
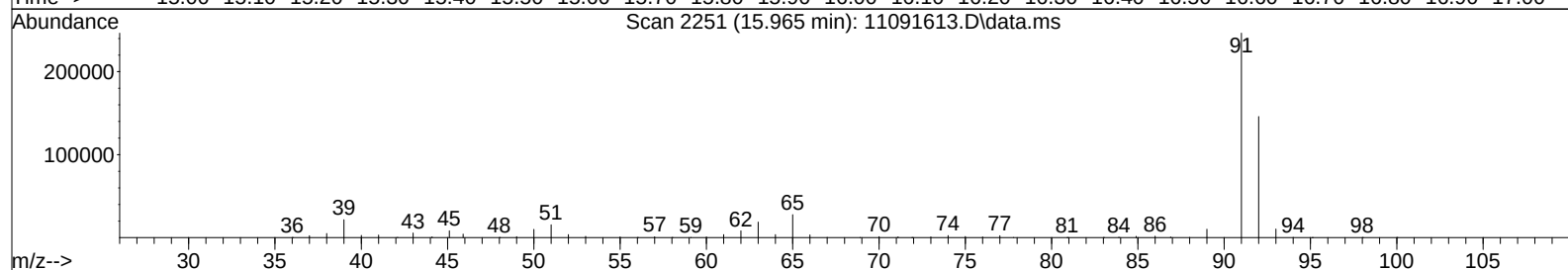
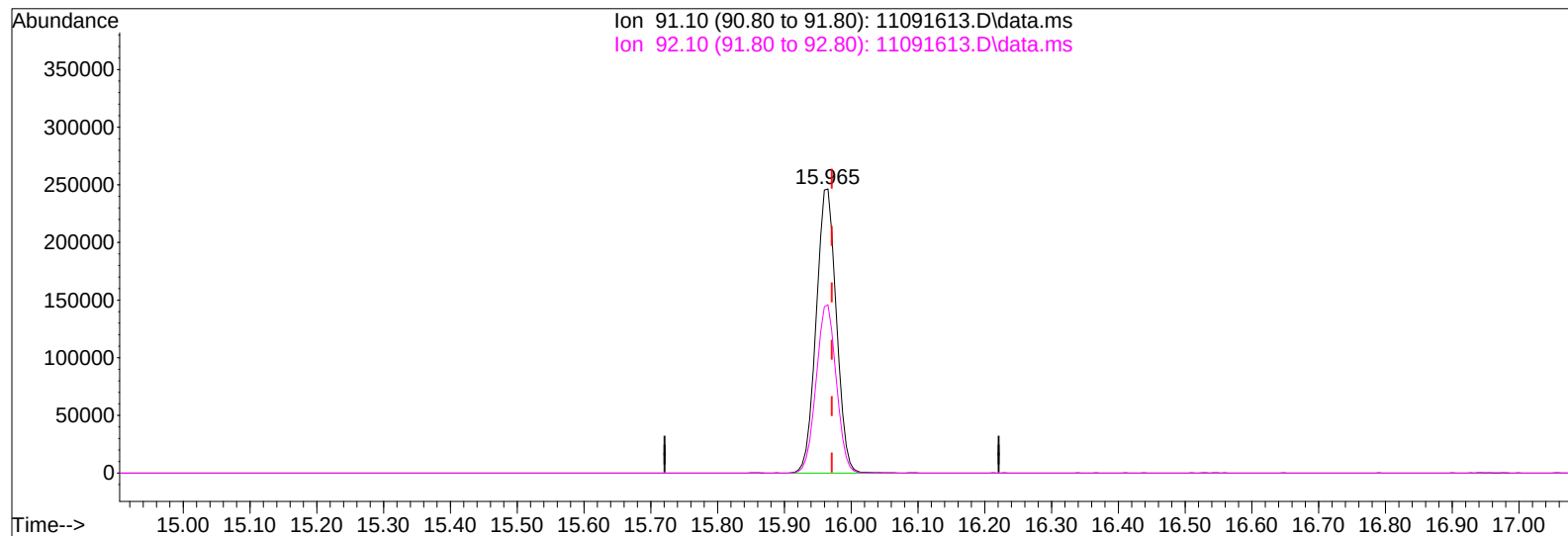
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091613.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 4.40ng

response 515443

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	59.14
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091613.D

Acq On : 10 Nov 2016 00:42

Operator: LH

Sample : P1605133-008 (1000mL)

Misc : S29-11051601

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 10 08:19:38 2016

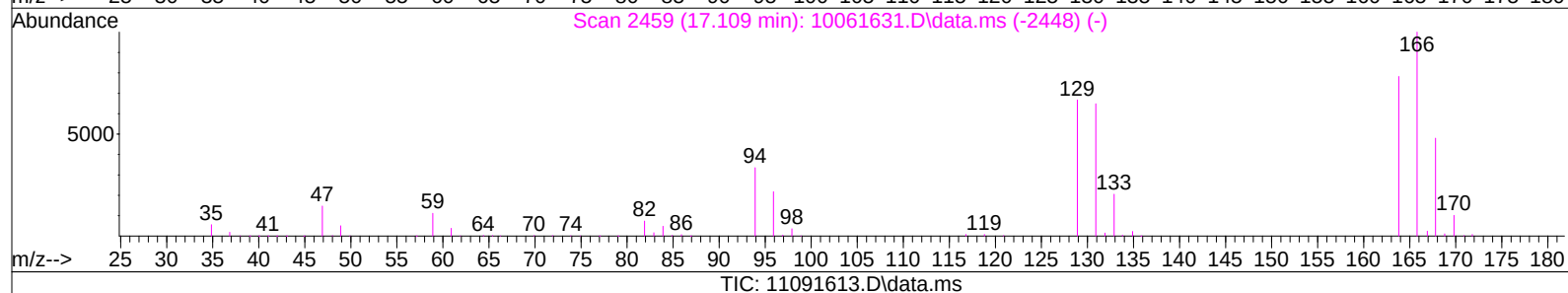
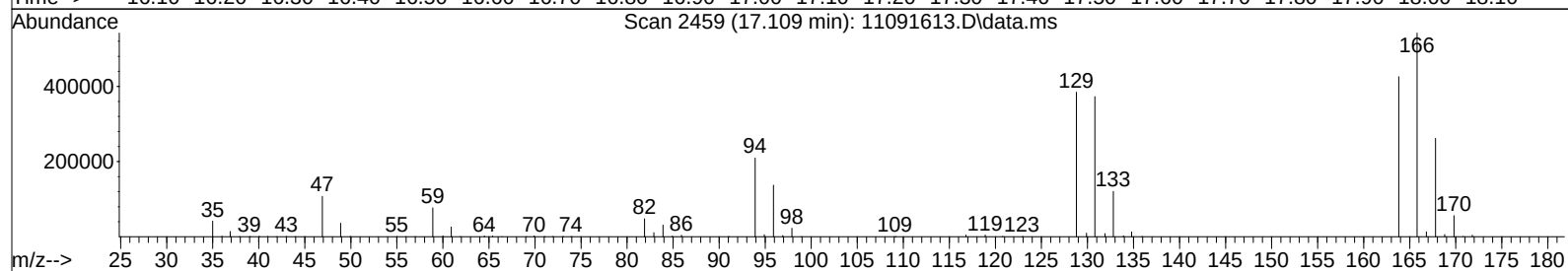
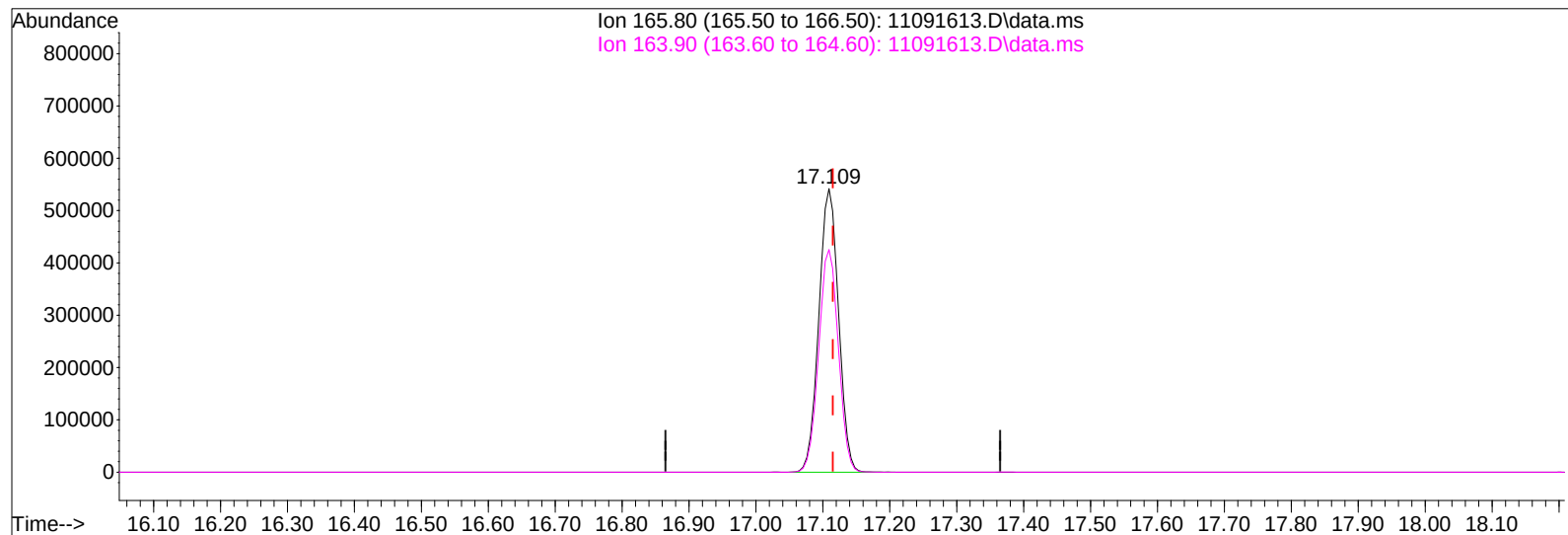
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091613.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 29.35ng

response 1108045

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	78.52
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091613.D

Acq On : 10 Nov 2016 00:42

Operator: LH

Sample : P1605133-008 (1000mL)

Misc : S29-11051601

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 10 08:19:38 2016

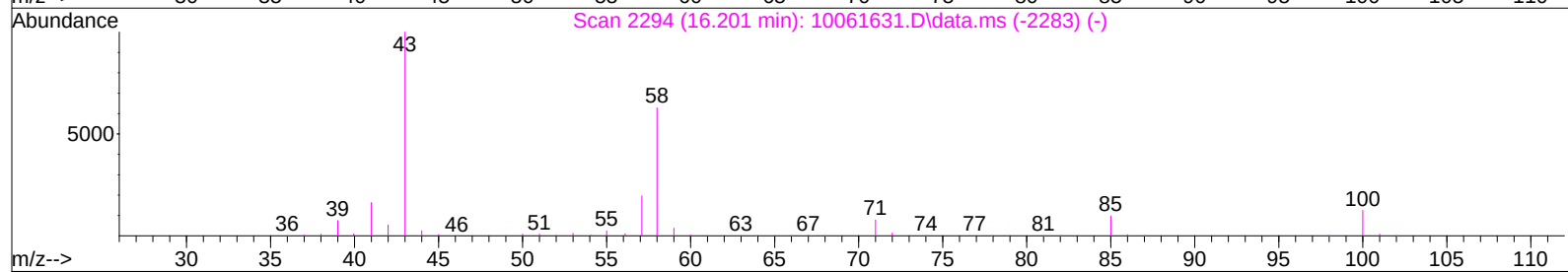
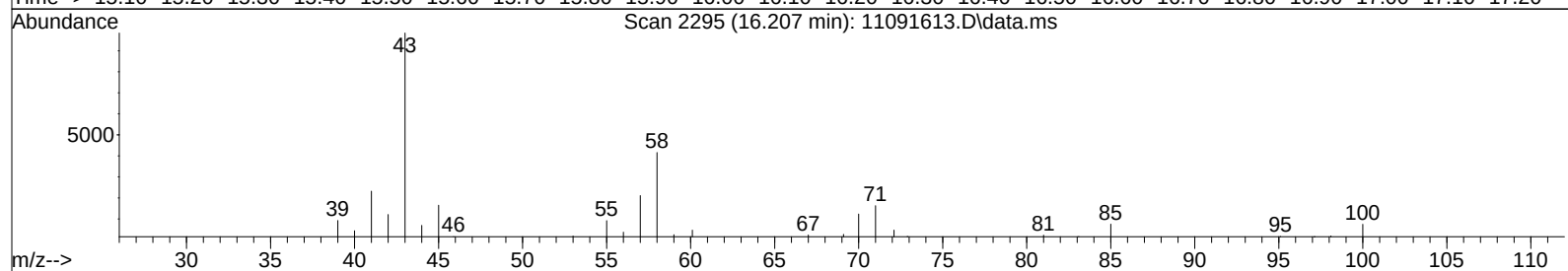
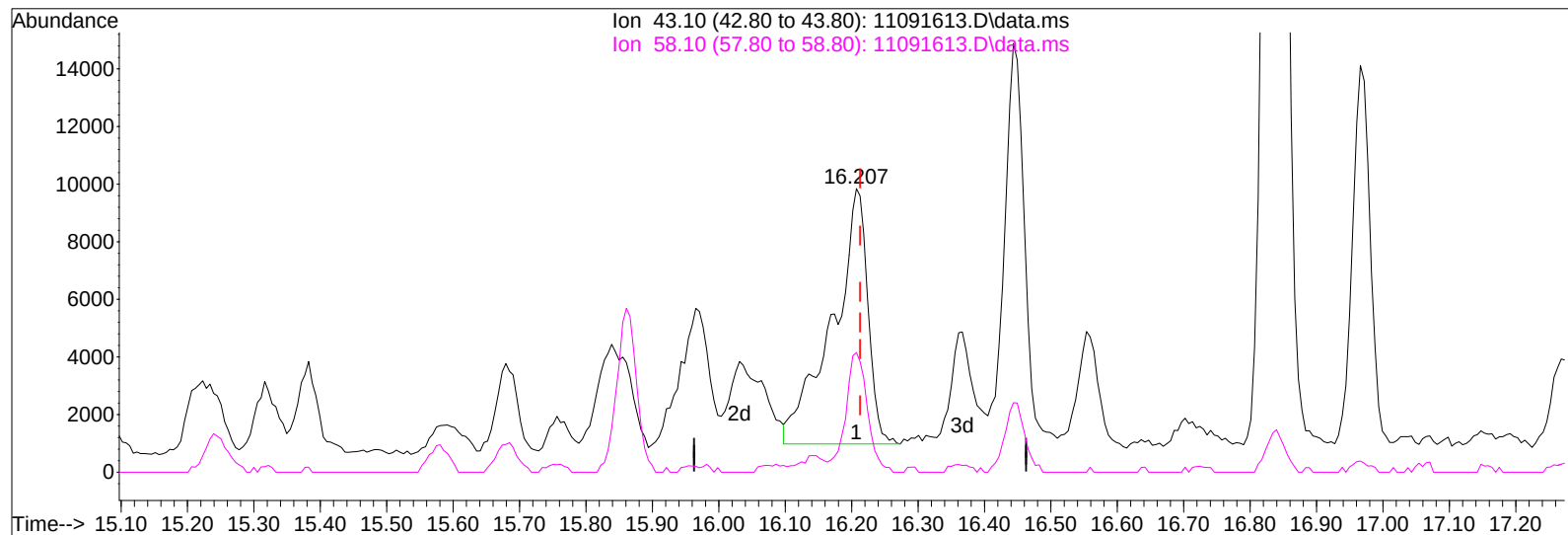
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091613.D\data.ms

(59) 2-Hexanone (T)

16.207min (-0.006) 0.53ng

response 32674

Ion	Exp%	Act%
43.10	100	100
58.10	63.30	28.85#
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091613.D

Acq On : 10 Nov 2016 00:42

Operator: LH

Sample : P1605133-008 (1000mL)

Misc : S29-11051601

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Nov 10 08:19:38 2016

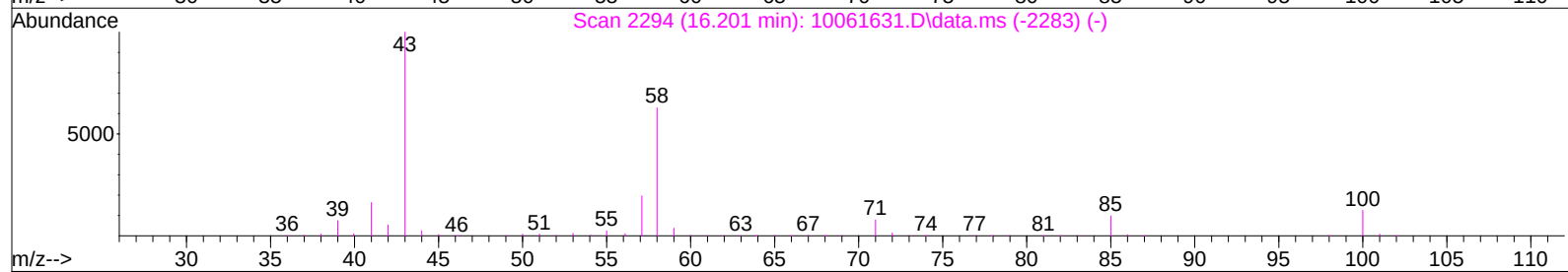
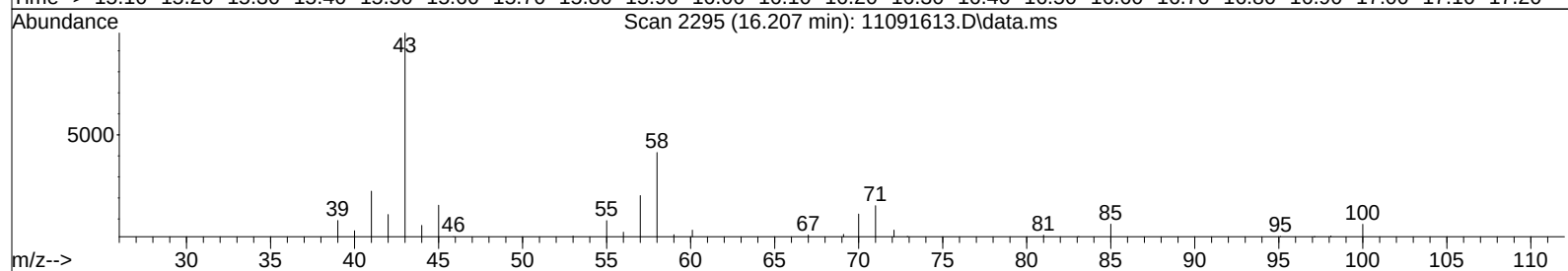
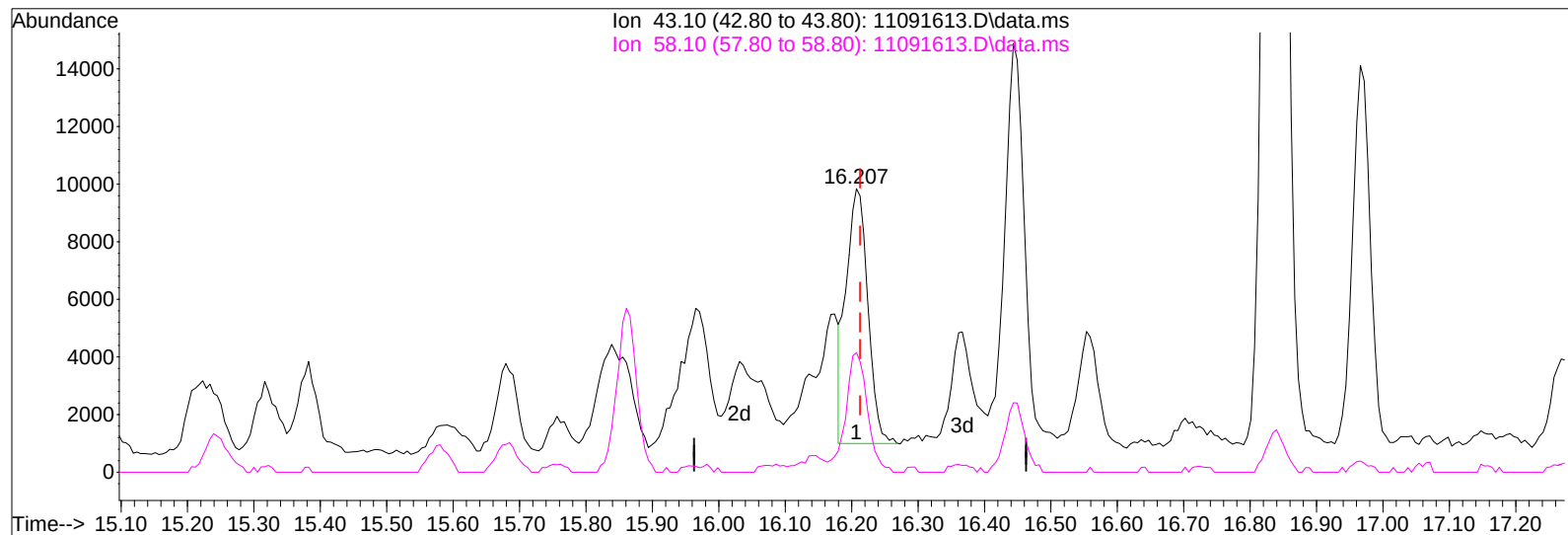
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091613.D\data.ms

(59) 2-Hexanone (T)

16.207min (-0.006) 0.33ng m

response 20068

IPC

Ion	Exp%	Act%
43.10	100	100
58.10	63.30	46.98
0.00	0.00	0.00
0.00	0.00	0.00

LH 11/14/16

WA 11/14/16

Data File: I:\MS16\DATA\2016 11\09\11091614.D

Acq On : 10 Nov 2016 1:16

Operator: LH

Sample : P1605133-009 (1000mL)

Misc : S29-11051601

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 14 13:42:59 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 11/14/16

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.27	130	282460	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.41	114	1401591	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	600521	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	435421	15.047	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	120.40%
57) Toluene-d8 (SS2)	15.86	98	1429170	11.934	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.44%
73) Bromofluorobenzene (SS3)	19.11	174	490408	10.786	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	86.32%

Target Compounds

						Qvalue
2) Propene	4.13	42	965332	38.683	ng	99
3) Dichlorodifluoromethan...	4.30	85	87853	1.832	ng	99
4) Chloromethane	4.62	50	5303	0.184	ng	93
5) 1,2-Dichloro-1,1,2,2-t...	4.85	135	2526	N.D.		
6) Vinyl Chloride	5.04	62	916	N.D.		
7) 1,3-Butadiene	5.32	54	1630	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.41	45	326025	18.022	ng	99
11) Acetonitrile	6.74	41	20866	0.443	ng	96
12) Acrolein	6.91	56	8839	0.522	ng	99
13) Acetone	7.08	58	745986	41.472	ng	87
14) Trichlorofluoromethane	7.35	101	39792	0.893	ng	100
15) 2-Propanol (Isopropanol)	7.57	45	1089596	18.010	ng	99
16) Acrylonitrile	7.95	53	1654	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.54	84	672280	22.884	ng	85
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	8.97	151	8713	0.331	ng	93
22) Carbon Disulfide	8.83	76	5773	N.D.		
23) trans-1,2-Dichloroethene	9.82	61	939	N.D.		
24) 1,1-Dichloroethane	10.08	63	2000	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.	d	
27) 2-Butanone (MEK)	10.59	72	23475	1.269	ng	# 72
28) cis-1,2-Dichloroethene	11.10	61	56511	1.586	ng	89
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	11.41	61	14882	1.554	ng	90
31) n-Hexane	11.39	57	29498	0.745	ng	# 96
32) Chloroform	11.44	83	4282	0.093	ng	96
34) Tetrahydrofuran (THF)	11.88	72	3184	0.179	ng	# 27
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.24	62	1470	N.D.		
38) 1,1,1-Trichloroethane	12.53	97	2849	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	55143	0.477	ng	100
42) Carbon Tetrachloride	13.17	117	11850	0.329	ng	97
43) Cyclohexane	13.30	84	4084	0.096	ng	# 77
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.11	130	224403	6.843	ng	99
48) 1,4-Dioxane	14.10	88	1508	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091614.D

Acq On : 10 Nov 2016 1:16

Operator: LH

Sample : P1605133-009 (1000mL)

Misc : S29-11051601

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 14 13:42:59 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	d	
51) n-Heptane	14.45	71	9356	0.332	ng	89
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.01	58	19707	0.766	ng	81
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	683977	5.823	ng	100
59) 2-Hexanone	16.21	43	9180	0.149	ng	78
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	118134	1.732	ng	94
63) n-Octane	16.97	57	8407	0.328	ng	# 83
64) Tetrachloroethene	17.11	166	796406	21.037	ng	100
65) Chlorobenzene	17.80	112	3912	N.D.		
66) Ethylbenzene	18.12	91	26835	0.189	ng	97
67) m- & p-Xylenes	18.27	91	68800	0.634	ng	97
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	10811	0.125	ng	96
70) o-Xylene	18.70	91	41672	0.387	ng	98
71) n-Nonane	18.90	43	38391	0.724	ng	# 37
72) 1,1,2,2-Tetrachloroethane	18.71	83	789	N.D.		
74) Cumene	19.23	105	7502	N.D.		
75) alpha-Pinene	19.58	93	202875	2.890	ng	98
76) n-Propylbenzene	19.68	91	32162	0.212	ng	95
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	32179	0.251	ng	98
79) 1,3,5-Trimethylbenzene	19.87	105	27669	0.239	ng	97
80) alpha-Methylstyrene	20.00	118	869	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	122342	1.066	ng	88
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.34	91	1115	N.D.		
85) 1,3-Dichlorobenzene	20.36	146	693	N.D.		
86) 1,4-Dichlorobenzene	20.42	146	120038	1.618	ng	99
87) sec-Butylbenzene	20.47	105	3912	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.73	146	828	N.D.		
91) d-Limonene	20.73	68	16086	0.398	ng	83
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.24	180	1629	N.D.		
95) Naphthalene	22.34	128	30391	0.189	ng	94
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS16\DATA\2016 11\09\11091614.D

Acq On : 10 Nov 2016 1:16
Sample : P1605133-009 (1000mL)
Misc : S29-11051601
ALS Vial : 11 Sample Multiplier

Operator: LH

Quant Time: Nov 14 13:42:59 2016

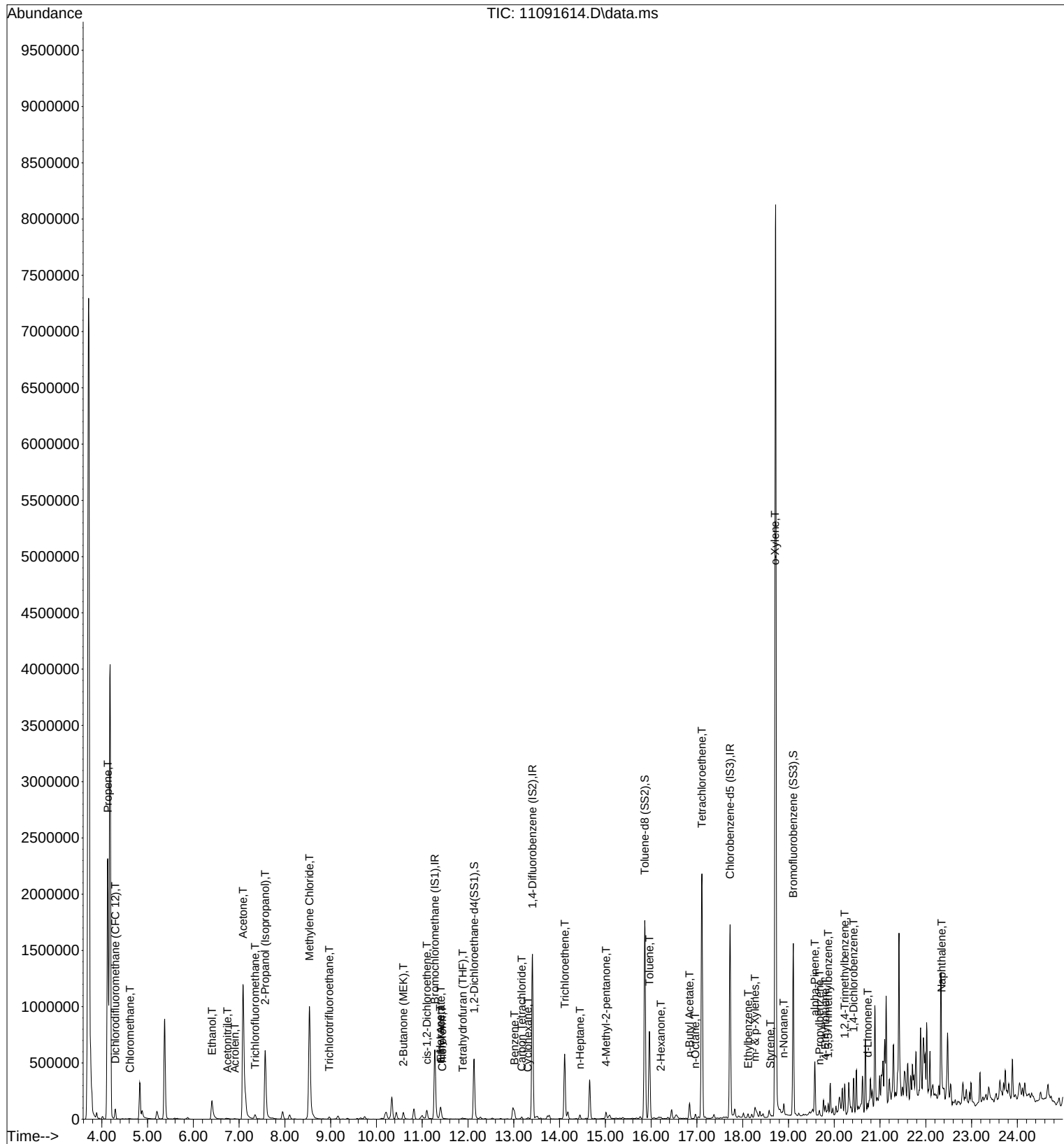
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2016 11\09\11091614.D

Acq On : 10 Nov 2016 1:16

Operator: LH

Sample : P1605133-009 (1000mL)

Misc : S29-11051601

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 10 08:19:46 2016

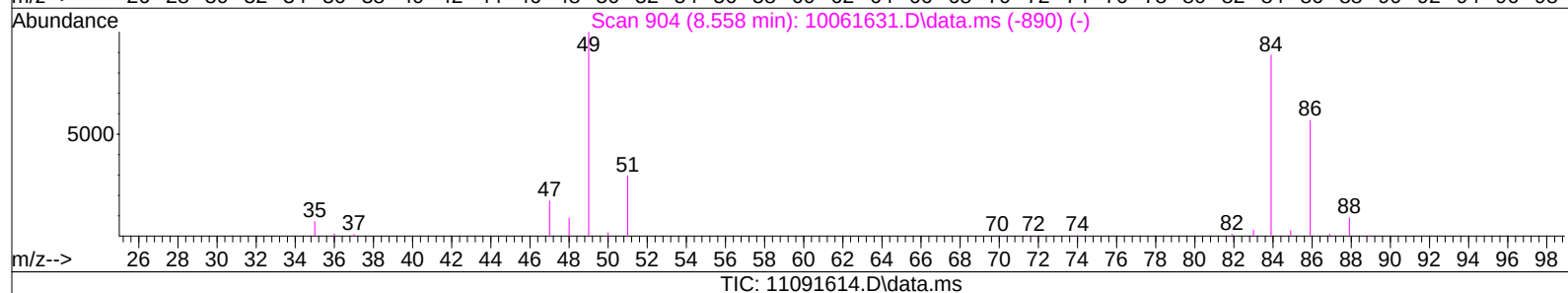
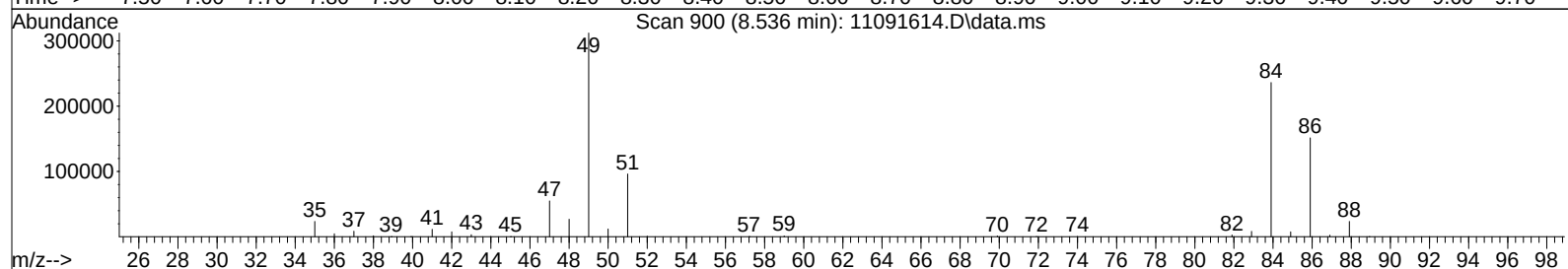
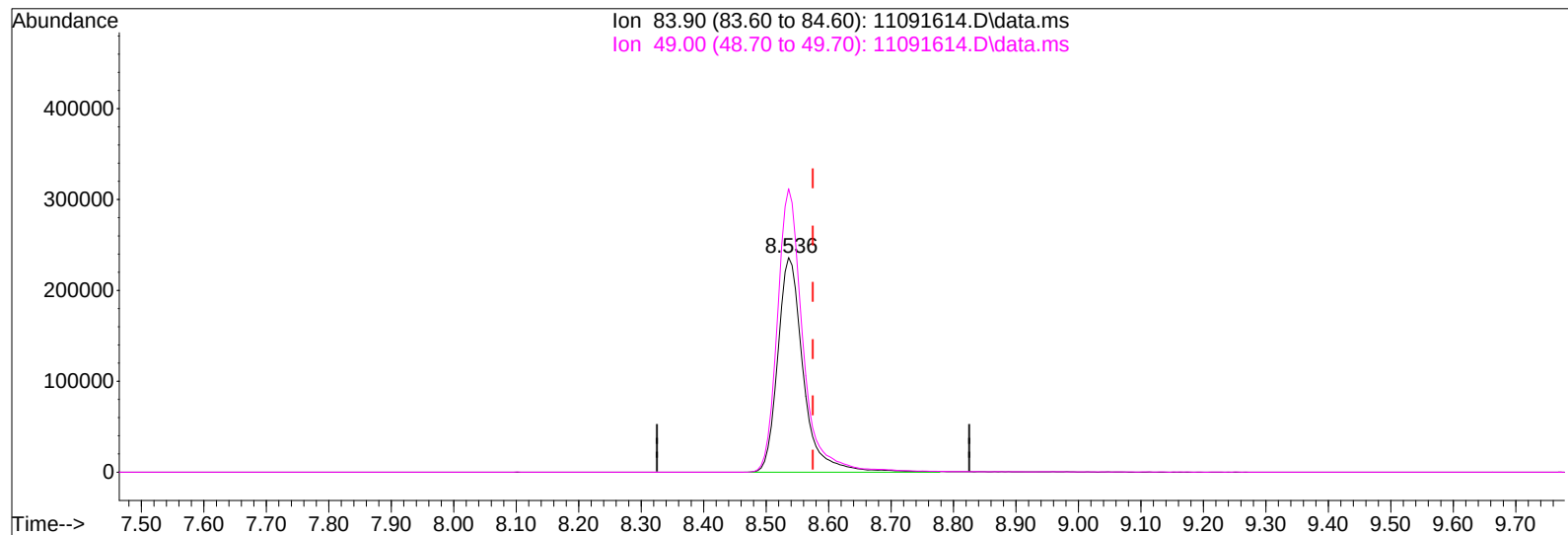
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(19) Methylene Chloride (T)

8.536min (-0.039) 22.88ng

response 672280

Ion	Exp%	Act%
83.90	100	100
49.00	114.70	131.43
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091614.D

Acq On : 10 Nov 2016 1:16

Operator: LH

Sample : P1605133-009 (1000mL)

Misc : S29-11051601

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 10 08:19:46 2016

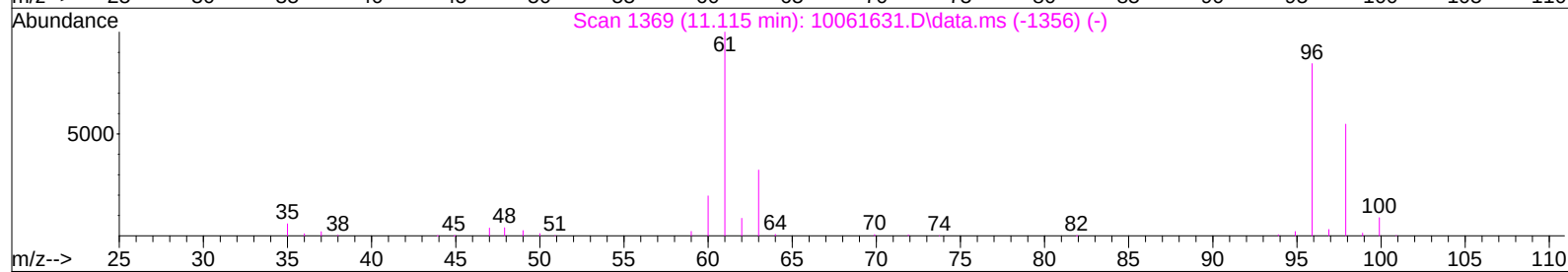
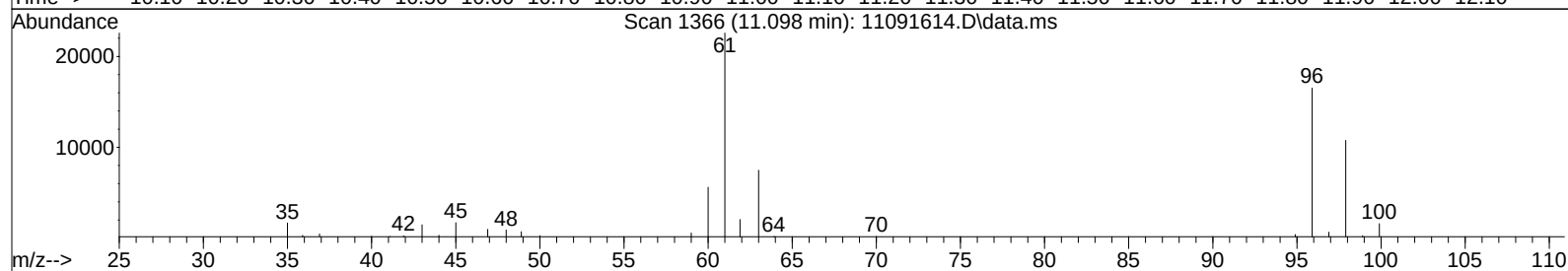
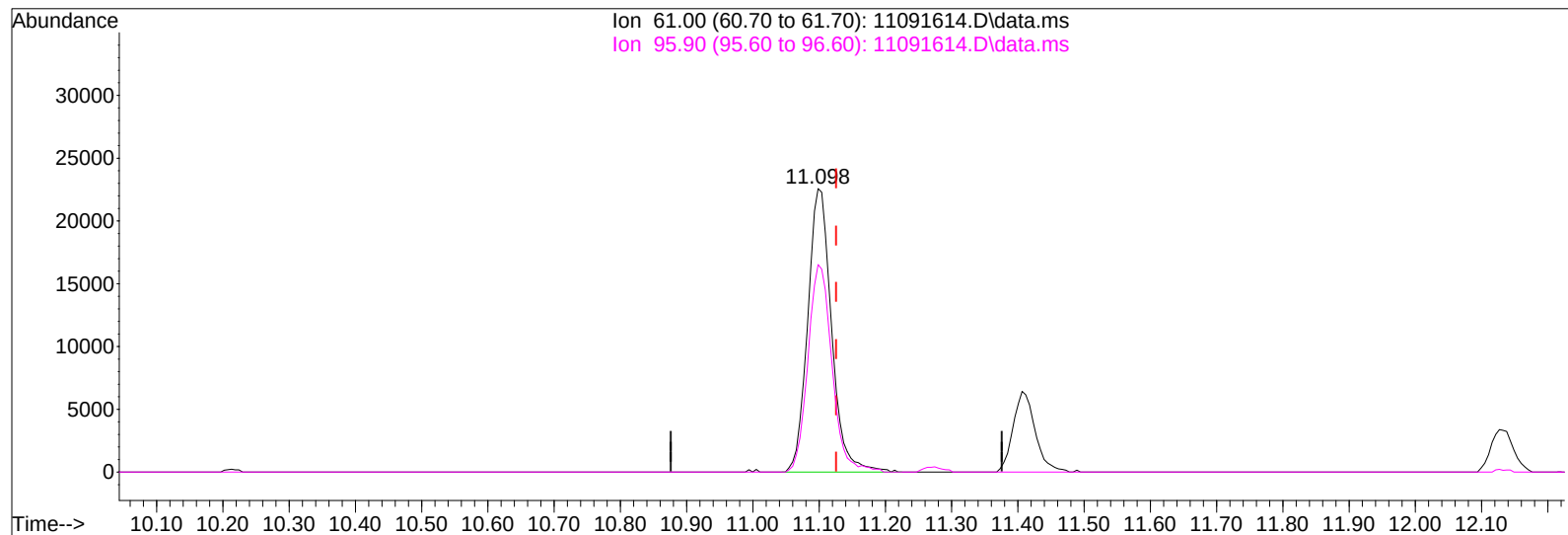
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091614.D\data.ms

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

11.098min (-0.028) 1.59ng

response 56511

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	73.80
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091614.D

Acq On : 10 Nov 2016 1:16

Operator: LH

Sample : P1605133-009 (1000mL)

Misc : S29-11051601

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 10 08:19:46 2016

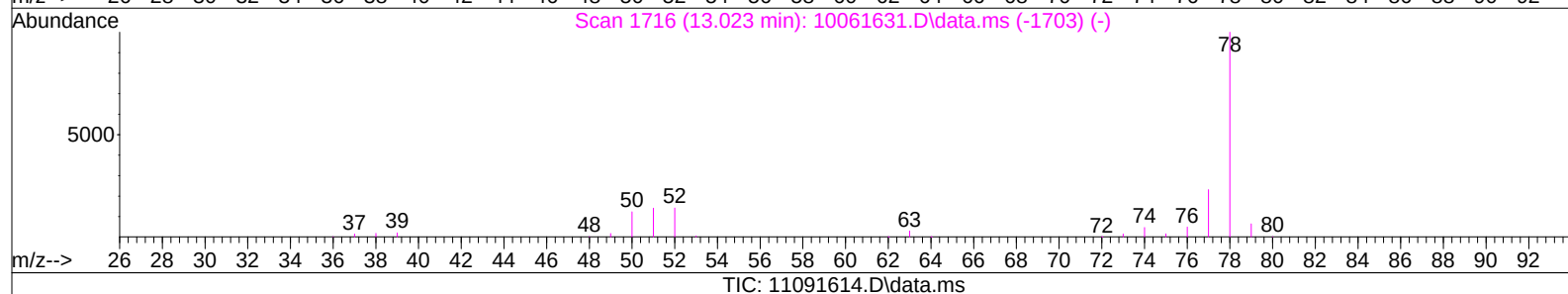
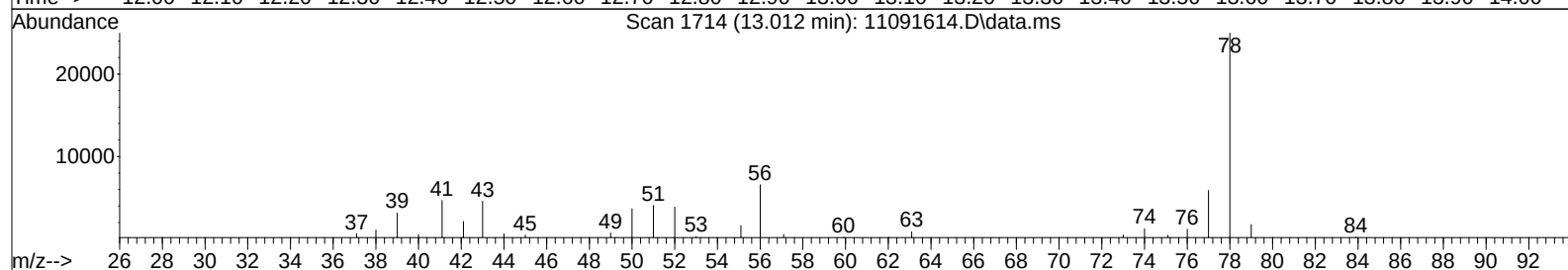
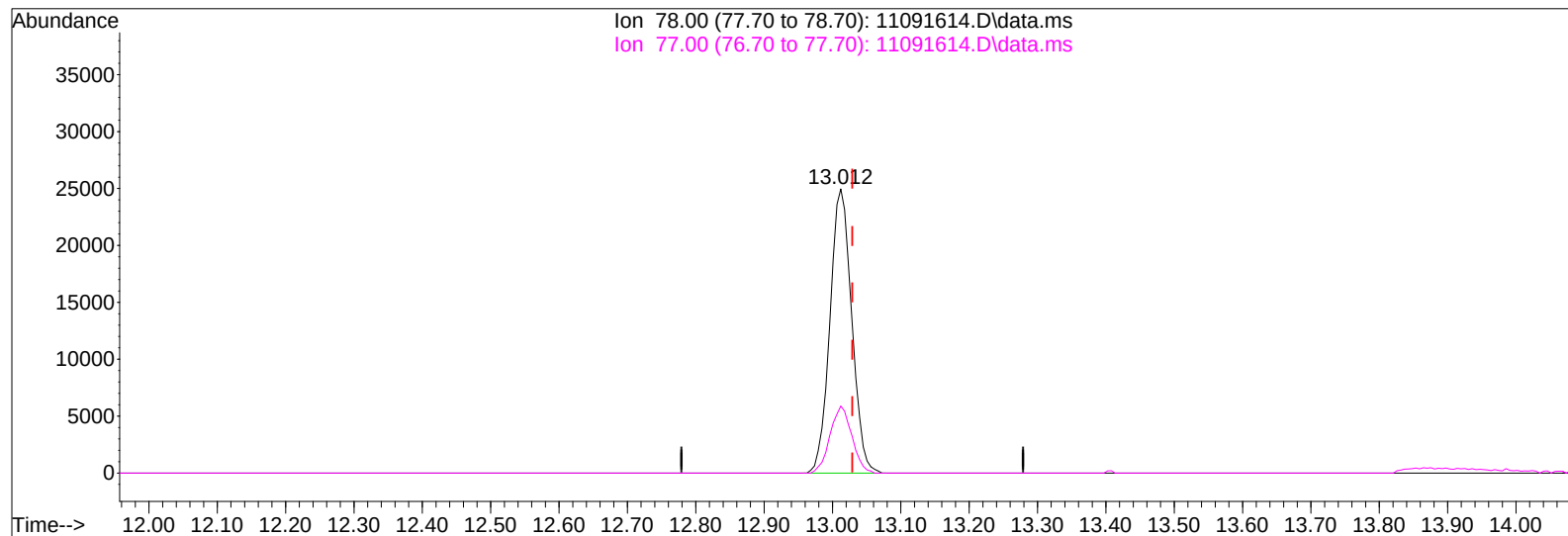
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091614.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 0.48ng

response 55143

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.60
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091614.D

Acq On : 10 Nov 2016 1:16

Operator: LH

Sample : P1605133-009 (1000mL)

Misc : S29-11051601

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 10 08:19:46 2016

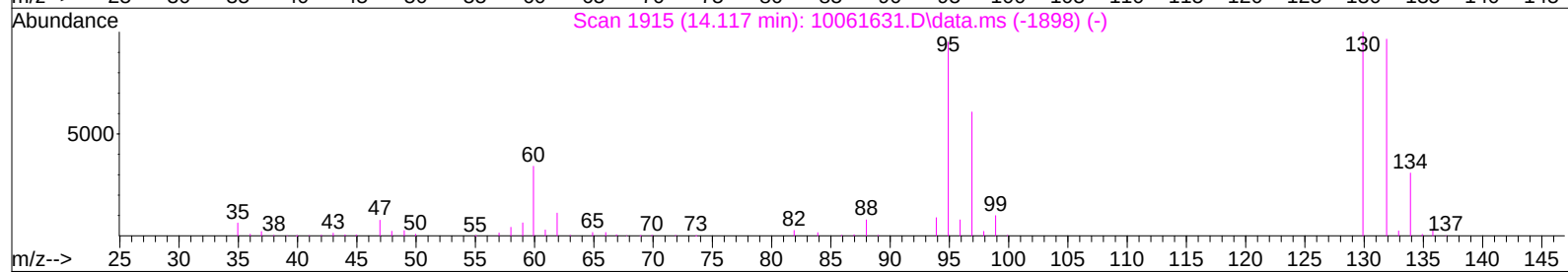
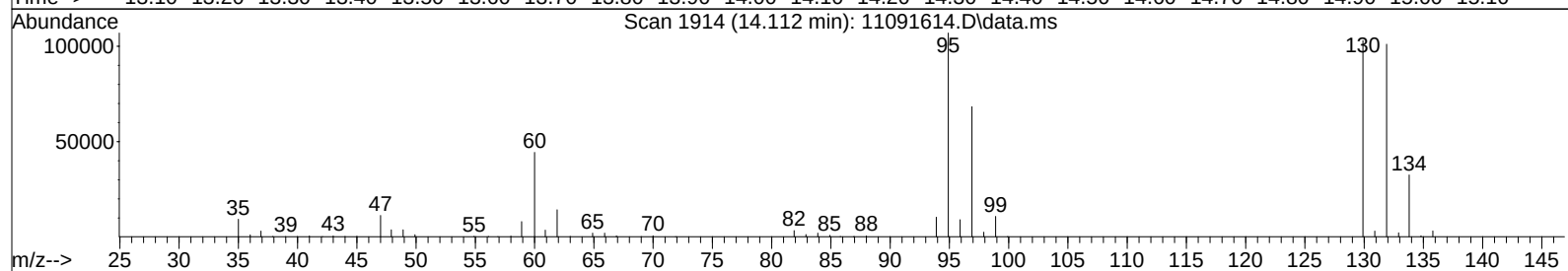
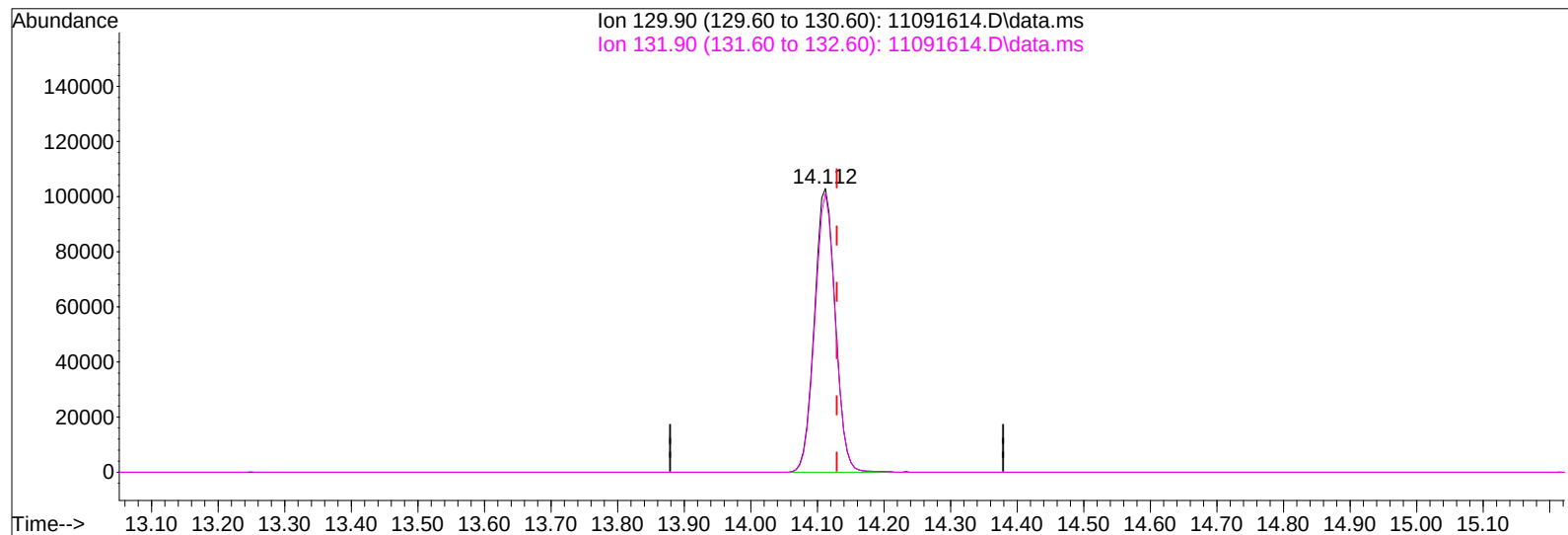
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091614.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 6.84ng

response 224403

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	96.35
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091614.D

Acq On : 10 Nov 2016 1:16

Operator: LH

Sample : P1605133-009 (1000mL)

Misc : S29-11051601

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 10 08:19:46 2016

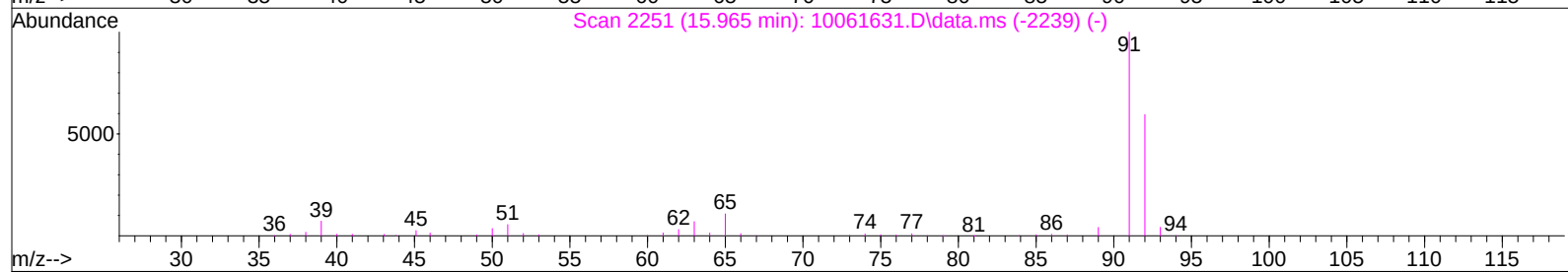
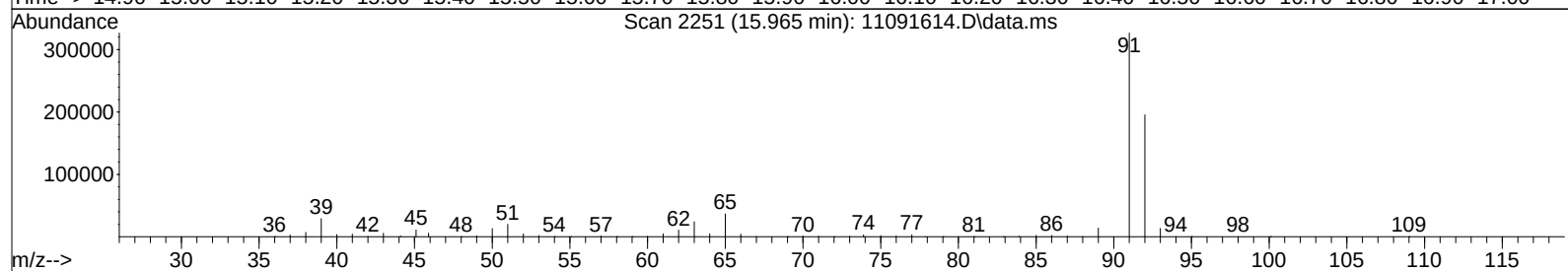
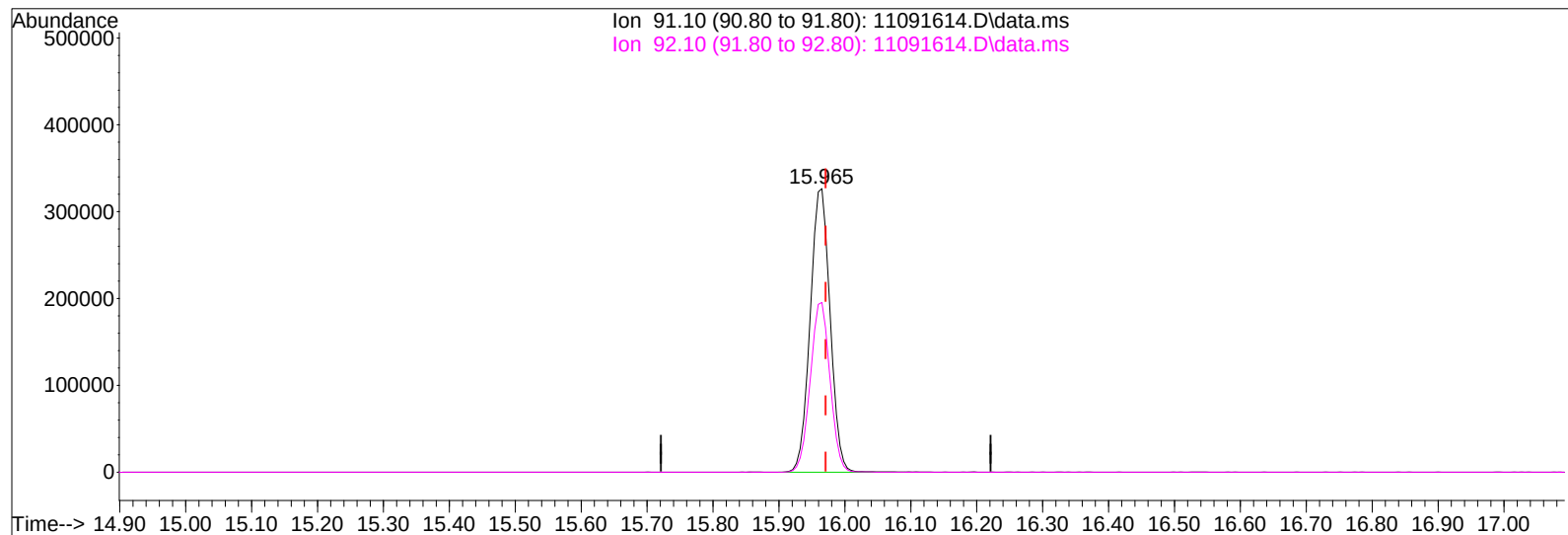
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091614.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 5.82ng

response 683977

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	59.35
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091614.D

Acq On : 10 Nov 2016 1:16

Operator: LH

Sample : P1605133-009 (1000mL)

Misc : S29-11051601

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 10 08:19:46 2016

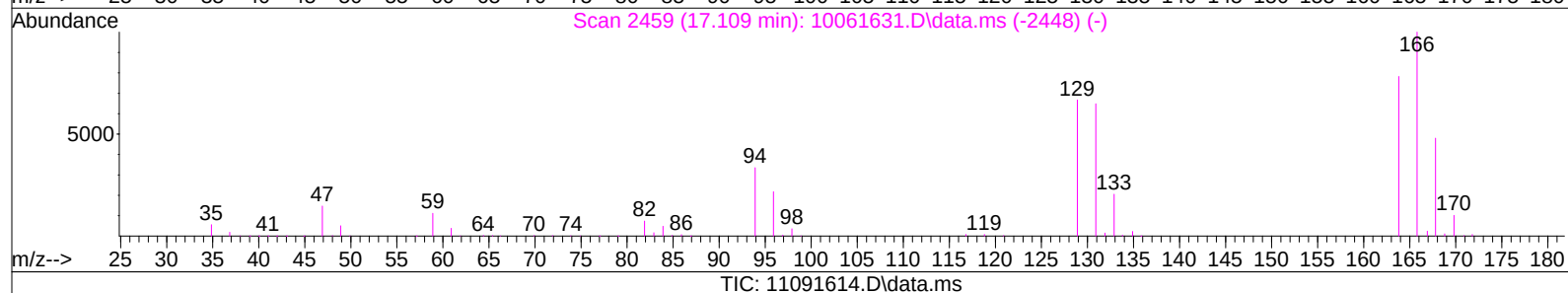
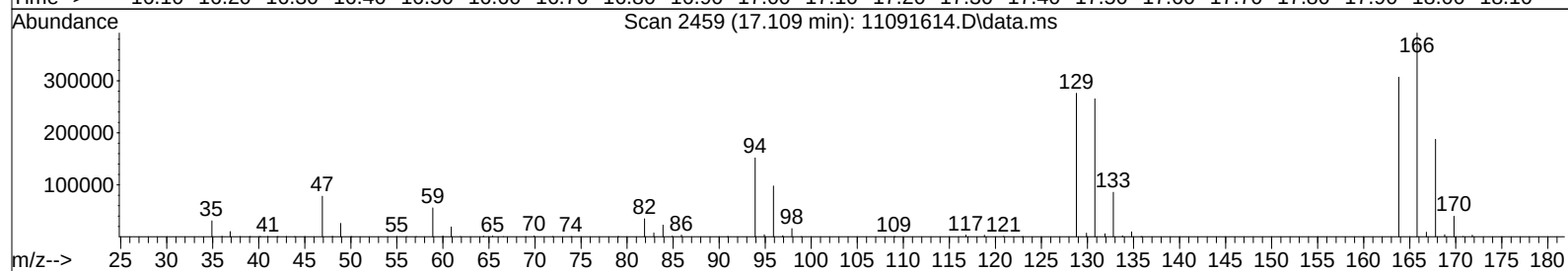
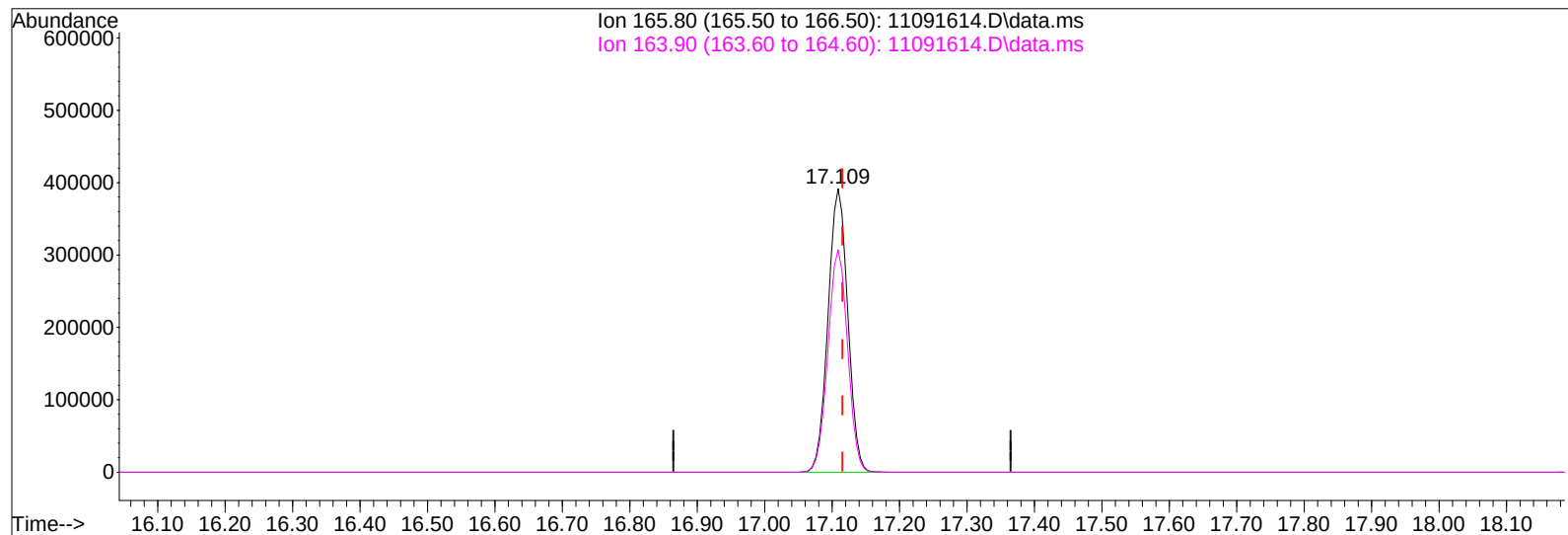
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091614.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 21.04ng

response 796406

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	78.50
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091615.D

Acq On : 10 Nov 2016 1:50

Operator: LH

Sample : P1605133-010 (1000mL)

Misc : S29-11051601

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 14 13:45:35 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

LH 11/14/16

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	284664	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1393102	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	599163	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	436034	14.952	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	119.60%
57) Toluene-d8 (SS2)	15.86	98	1422027	11.901	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.20%
73) Bromofluorobenzene (SS3)	19.11	174	493891	10.887	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	87.12%

Target Compounds

						Qvalue
2) Propene	4.14	42	1140073	45.331	ng	97
3) Dichlorodifluoromethan...	4.31	85	94265	1.950	ng	100
4) Chloromethane	4.64	50	5868	0.202	ng	87
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	2640	0.092	ng	93
6) Vinyl Chloride	5.06	62	1154	N.D.		
7) 1,3-Butadiene	5.32	54	1386	N.D.		
8) Bromomethane	5.76	94	679	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.41	45	193510	10.614	ng	99
11) Acetonitrile	6.74	41	18318	0.386	ng	95
12) Acrolein	6.91	56	6526	0.382	ng	99
13) Acetone	7.10	58	539759	29.774	ng	# 82
14) Trichlorofluoromethane	7.35	101	43162	0.961	ng	99
15) 2-Propanol (Isopropanol)	7.57	45	550048	9.022	ng	99
16) Acrylonitrile	7.90	53	119	N.D.		
17) 1,1-Dichloroethene	8.33	96	1640	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.54	84	1798699	60.752	ng	86
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	8.96	151	9695	0.365	ng	93
22) Carbon Disulfide	8.83	76	5110	N.D.		
23) trans-1,2-Dichloroethene	9.82	61	1238	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.	d	
27) 2-Butanone (MEK)	10.59	72	20137	1.080	ng	# 73
28) cis-1,2-Dichloroethene	11.10	61	91560	2.550	ng	88
29) Diisopropyl Ether	11.43	87	698	N.D.		
30) Ethyl Acetate	11.41	61	14336	1.485	ng	88
31) n-Hexane	11.40	57	25985	0.651	ng	97
32) Chloroform	11.44	83	4282	0.092	ng	98
34) Tetrahydrofuran (THF)	11.88	72	5680	0.316	ng	# 53
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	1629	N.D.		
38) 1,1,1-Trichloroethane	12.53	97	2034	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	47731	0.415	ng	99
42) Carbon Tetrachloride	13.18	117	12836	0.359	ng	98
43) Cyclohexane	13.31	84	3723	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.11	130	661341	20.291	ng	99
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091615.D

Acq On : 10 Nov 2016 1:50

Operator: LH

Sample : P1605133-010 (1000mL)

Misc : S29-11051601

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 14 13:45:35 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	d	
51) n-Heptane	14.45	71	7177	0.257	ng	83
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.01	58	52607	2.058	ng	82
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	15.67	97	1024	N.D.		
58) Toluene	15.97	91	458962	3.916	ng	99
59) 2-Hexanone	16.21	43	5484	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	107224	1.576	ng	95
63) n-Octane	16.97	57	3797	0.148	ng	90
64) Tetrachloroethene	17.11	166	1782857	47.200	ng	99
65) Chlorobenzene	17.76	112	2624	N.D.		
66) Ethylbenzene	18.12	91	25155	0.178	ng	98
67) m- & p-Xylenes	18.27	91	63825	0.589	ng	97
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	12375	0.144	ng	96
70) o-Xylene	18.70	91	39711	0.370	ng	98
71) n-Nonane	18.90	43	22139	0.419	ng	# 69
72) 1,1,2,2-Tetrachloroethane	18.71	83	948	N.D.		
74) Cumene	19.23	105	6771	N.D.		
75) alpha-Pinene	19.58	93	269867	3.853	ng	96
76) n-Propylbenzene	19.68	91	30895	0.204	ng	95
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	30820	0.241	ng	99
79) 1,3,5-Trimethylbenzene	19.86	105	29584	0.256	ng	99
80) alpha-Methylstyrene	20.01	118	826	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	126049	1.101	ng	88
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.34	91	1054	N.D.		
85) 1,3-Dichlorobenzene	20.36	146	623	N.D.		
86) 1,4-Dichlorobenzene	20.42	146	39051	0.527	ng	100
87) sec-Butylbenzene	20.47	105	3568	N.D.		
88) 4-Isopropyltoluene (p-...	20.61	119	10735	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.73	146	633	N.D.		
91) d-Limonene	20.73	68	23077	0.572	ng	# 62
92) 1,2-Dibromo-3-Chloropr...	21.10	157	553	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.23	180	1534	N.D.		
95) Naphthalene	22.34	128	24874	0.155	ng	89
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	20.96	91	9763	N.D.		

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

Data File: I:\MS16\DATA\2016 11\09\11091615.D

Acq On : 10 Nov 2016 1:50

Operator: LH

Sample : P1605133-010 (1000mL)

Misc : S29-11051601

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 14 13:45:35 2016

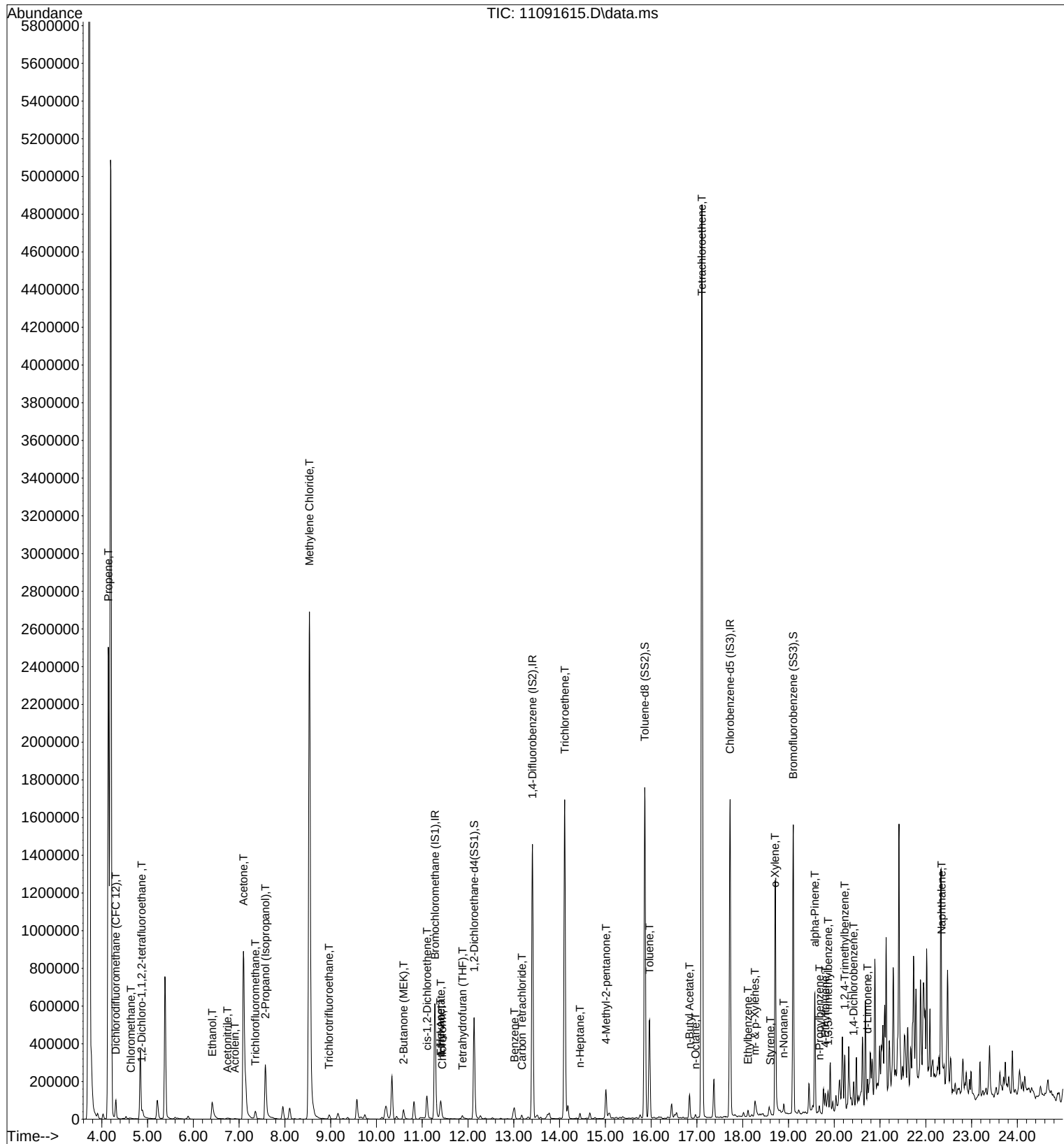
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091615.D

Acq On : 10 Nov 2016 1:50

Operator: LH

Sample : P1605133-010 (1000mL)

Misc : S29-11051601

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 10 08:19:53 2016

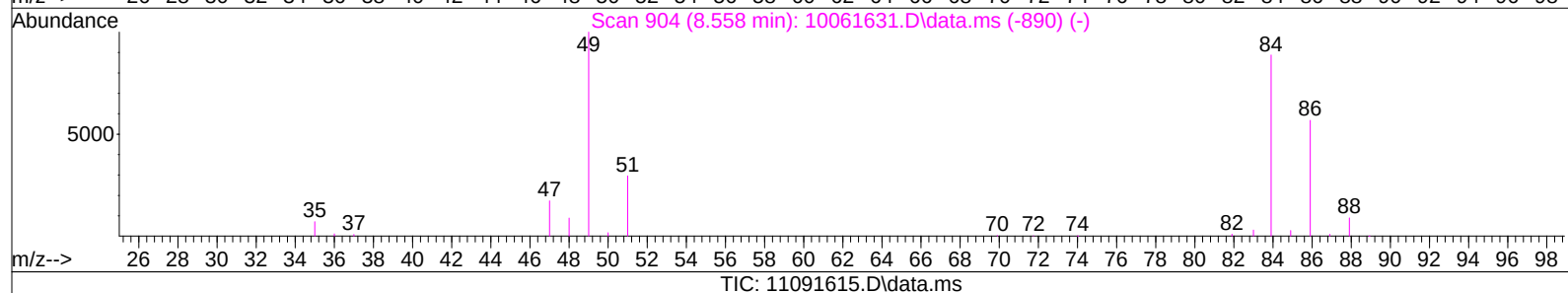
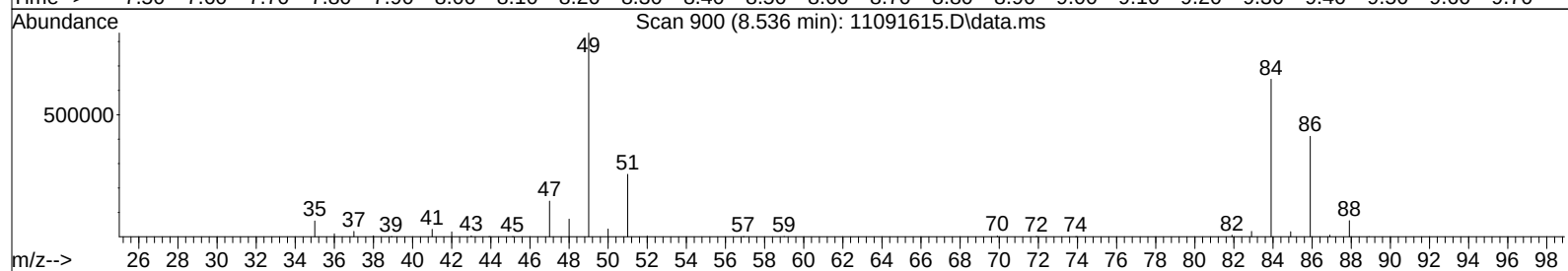
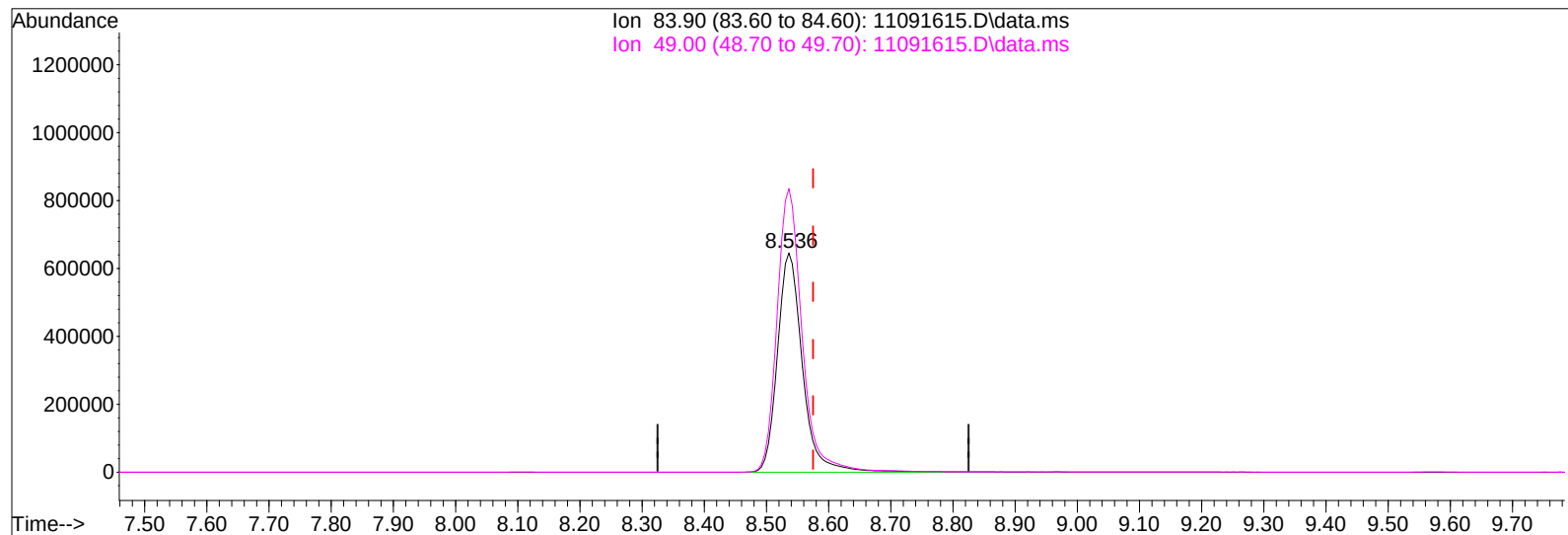
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091615.D\data.ms

(19) Methylene Chloride (T)

8.536min (-0.039) 60.75ng

response 1798699

Ion	Exp%	Act%
83.90	100	100
49.00	114.70	130.10
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091615.D

Acq On : 10 Nov 2016 1:50

Operator: LH

Sample : P1605133-010 (1000mL)

Misc : S29-11051601

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 10 08:19:53 2016

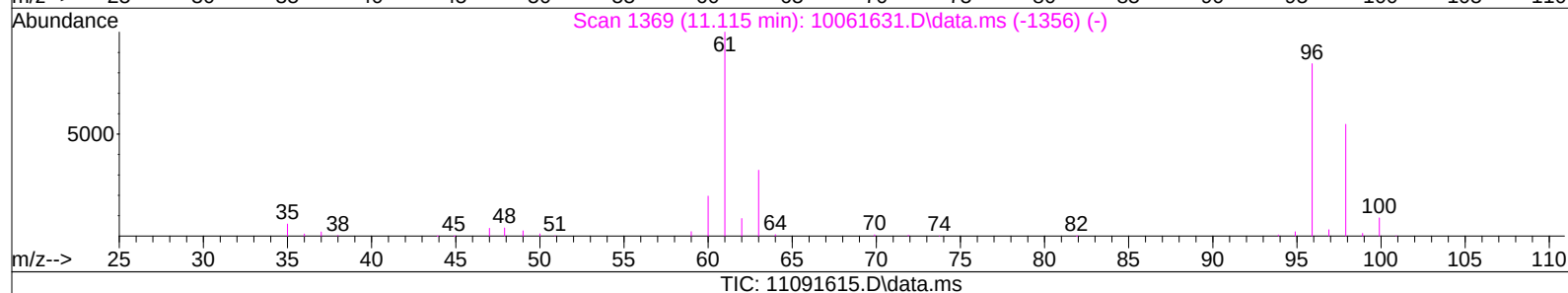
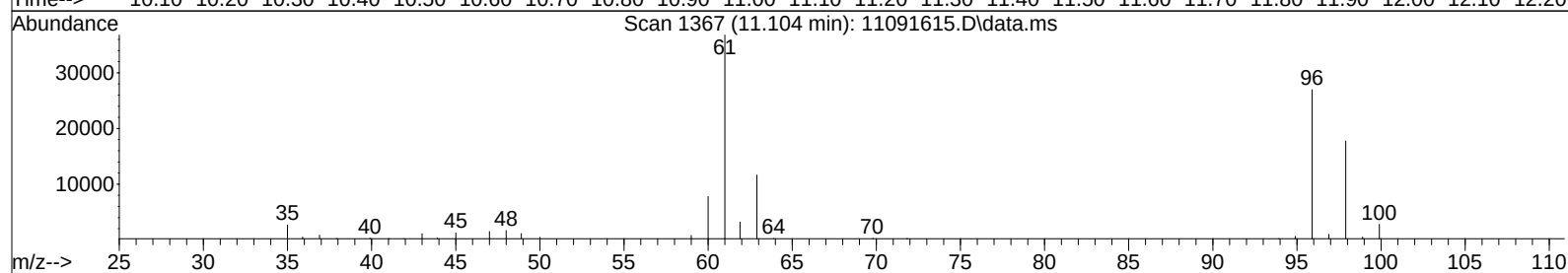
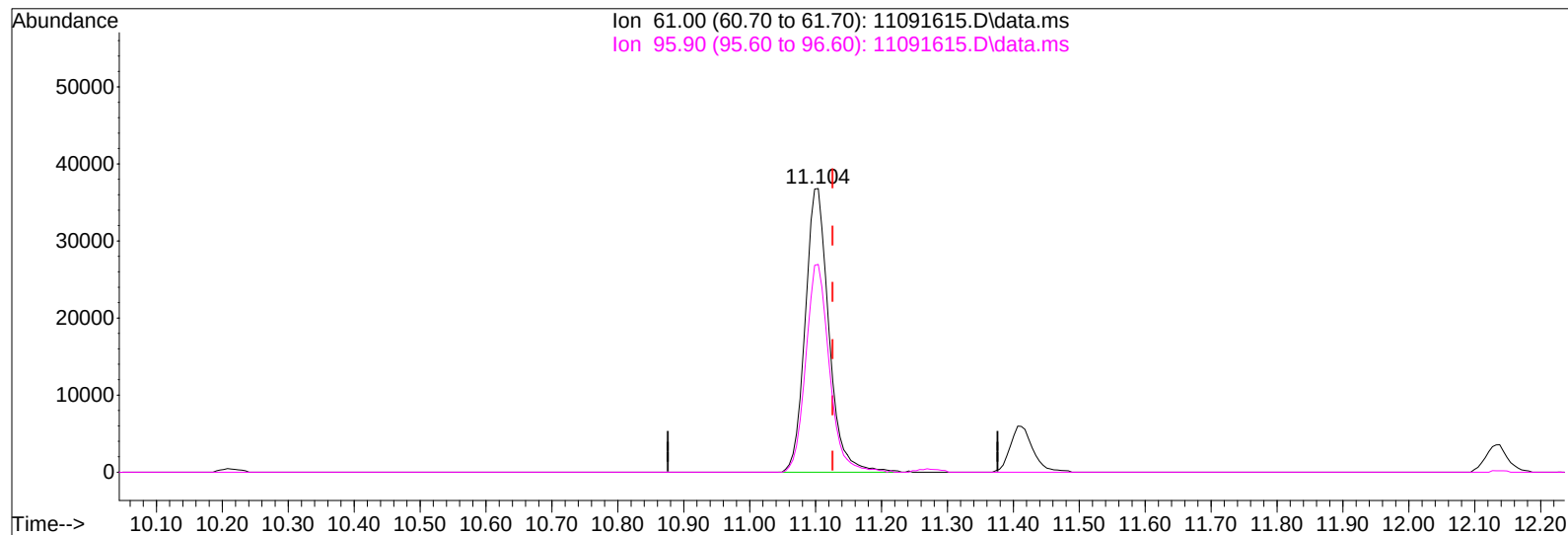
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091615.D\data.ms

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

11.104min (-0.022) 2.55ng

response 91560

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	73.20
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091615.D

Acq On : 10 Nov 2016 1:50

Operator: LH

Sample : P1605133-010 (1000mL)

Misc : S29-11051601

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 10 08:19:53 2016

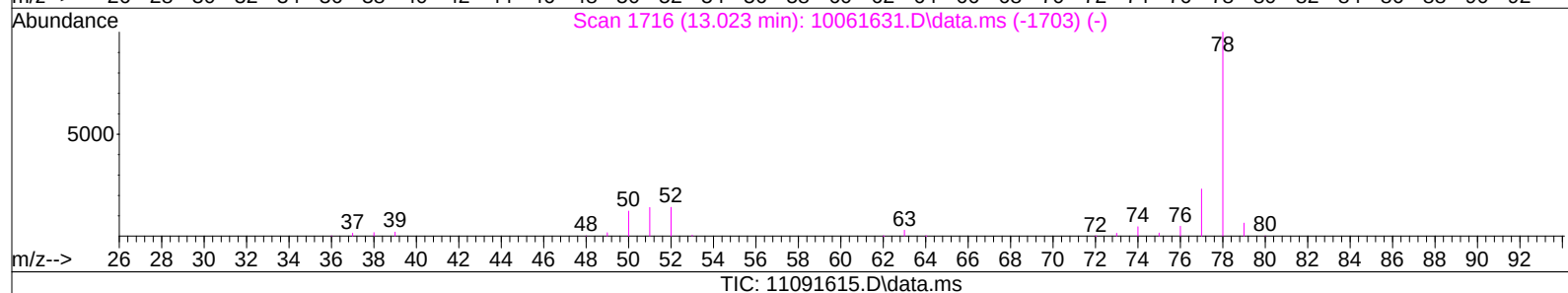
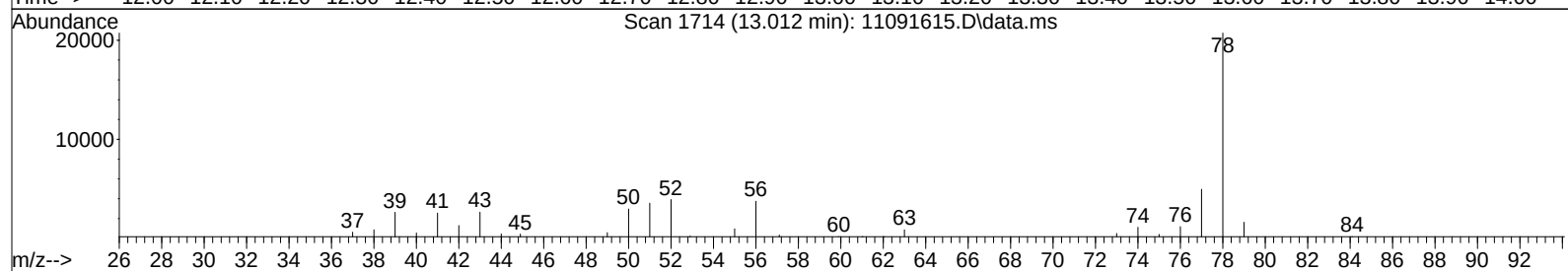
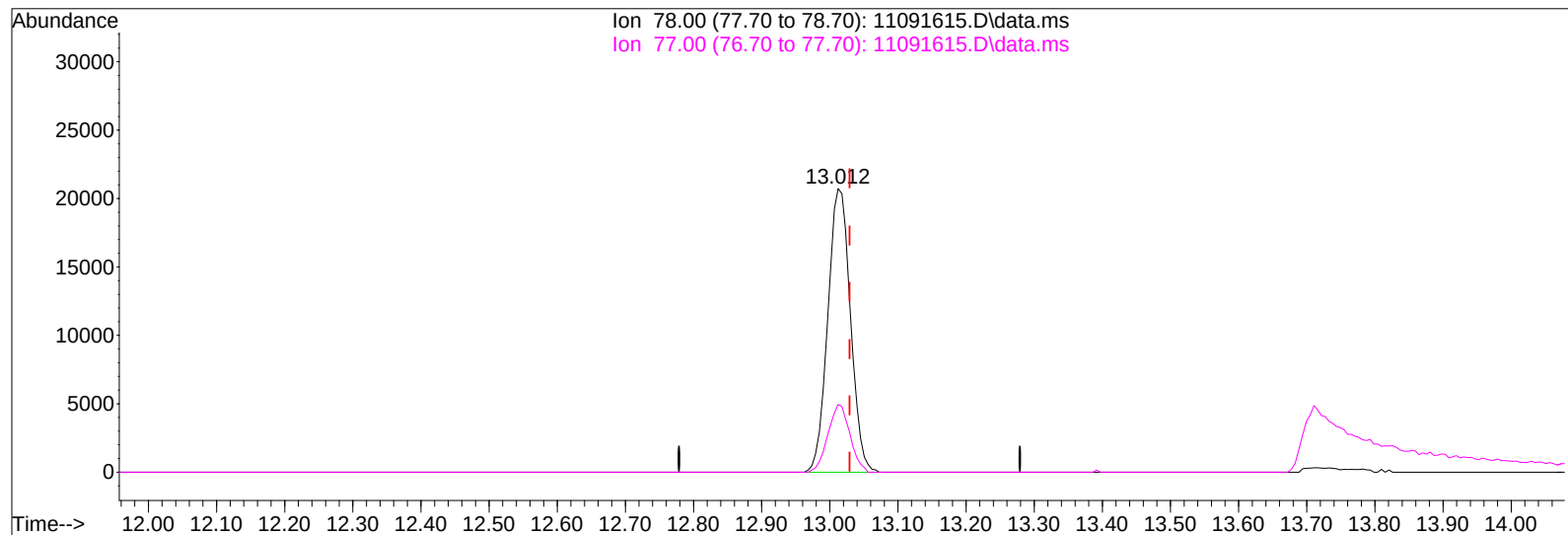
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091615.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 0.42ng

response 47731

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.15
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091615.D

Acq On : 10 Nov 2016 1:50

Operator: LH

Sample : P1605133-010 (1000mL)

Misc : S29-11051601

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 10 08:19:53 2016

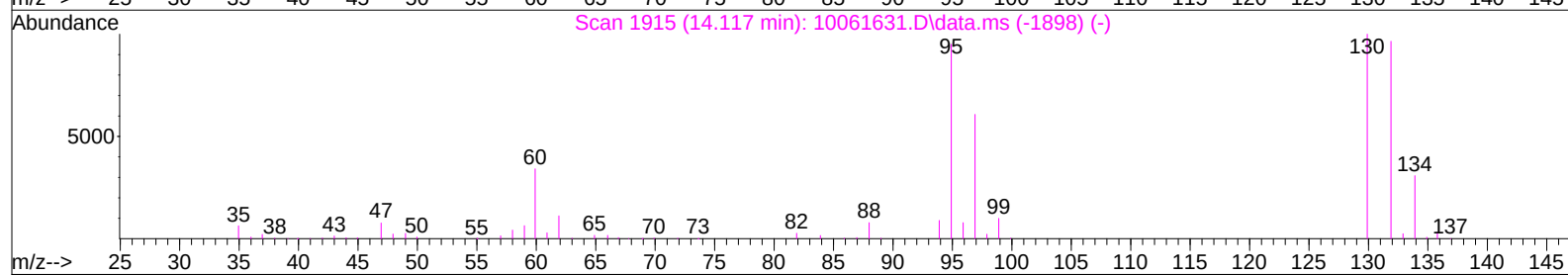
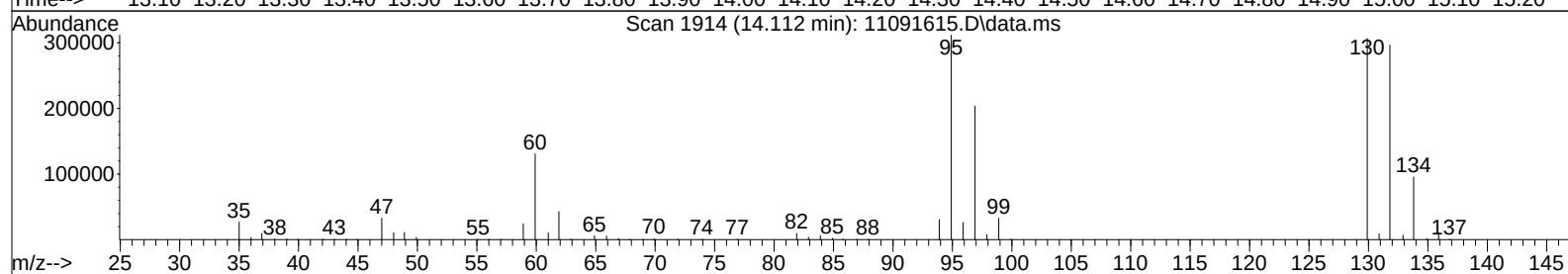
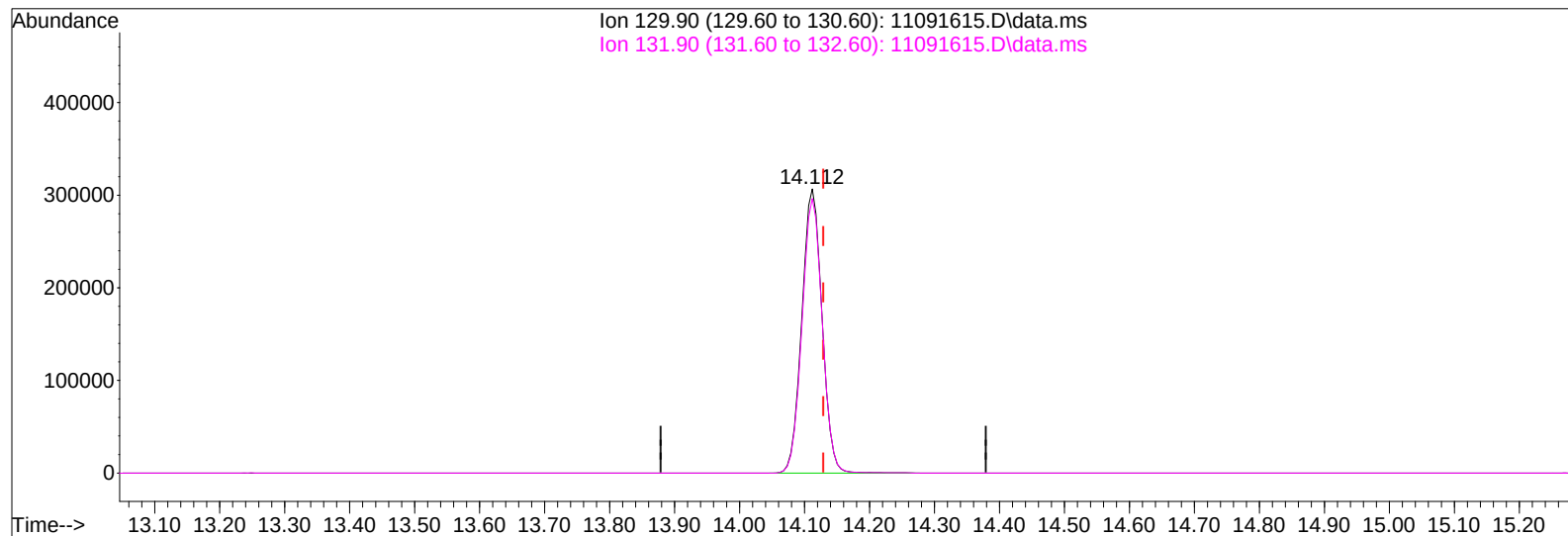
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091615.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 20.29ng

response 661341

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	96.62
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091615.D

Acq On : 10 Nov 2016 1:50

Operator: LH

Sample : P1605133-010 (1000mL)

Misc : S29-11051601

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 10 08:19:53 2016

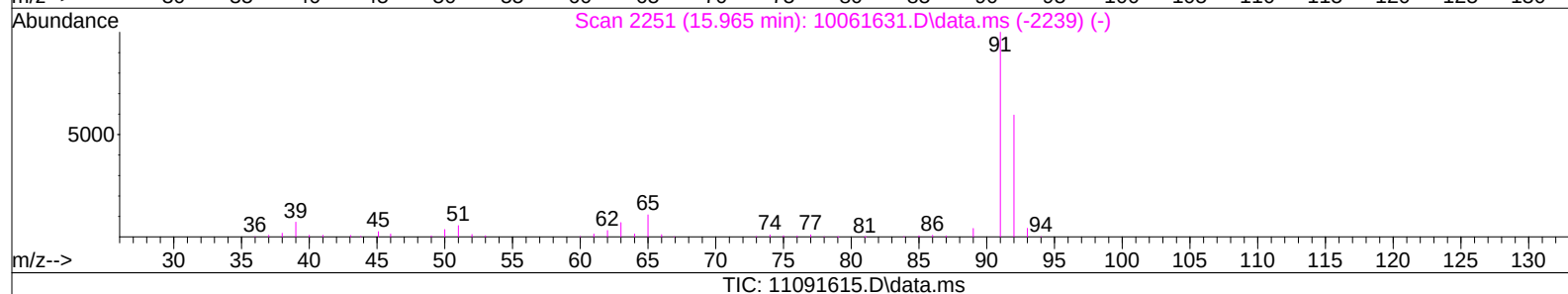
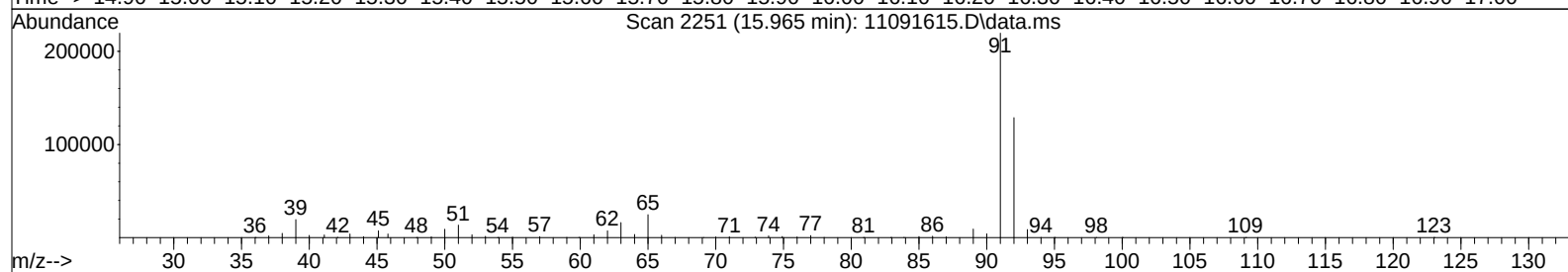
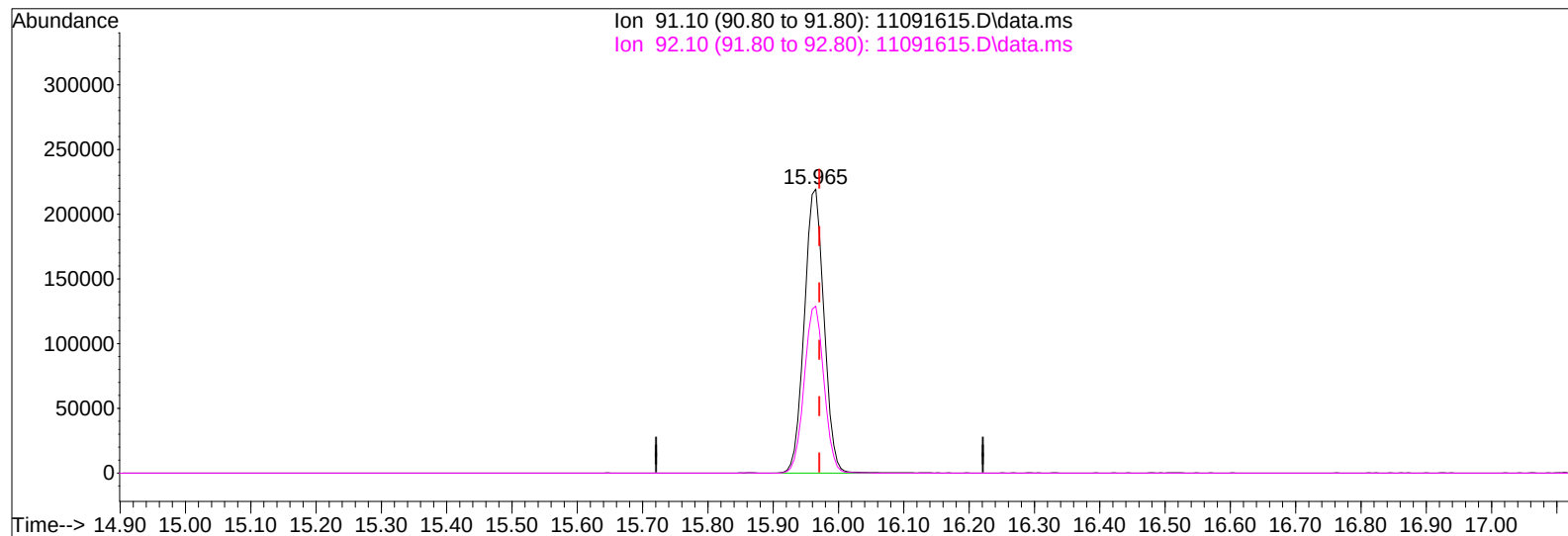
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091615.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 3.92ng

response 458962

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	58.93
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091615.D

Acq On : 10 Nov 2016 1:50

Operator: LH

Sample : P1605133-010 (1000mL)

Misc : S29-11051601

ALS Vial : 12 Sample Multiplier: 1

Quant Time: Nov 10 08:19:53 2016

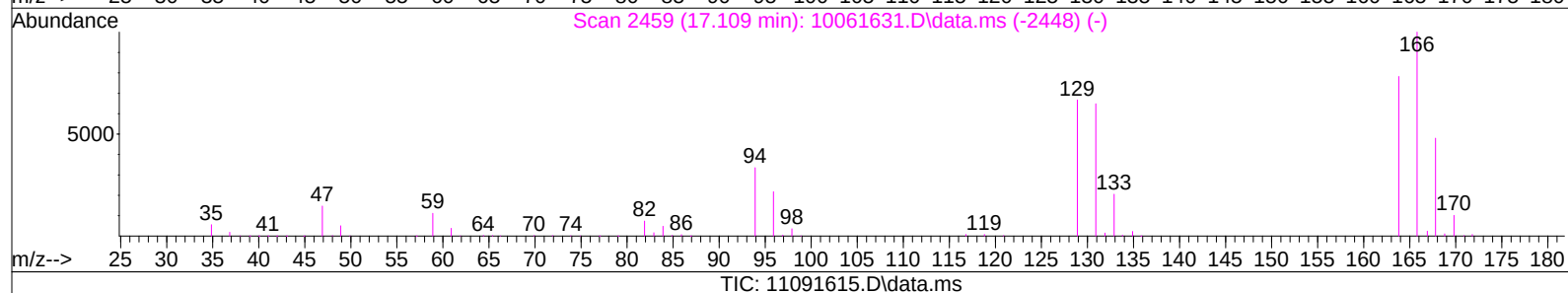
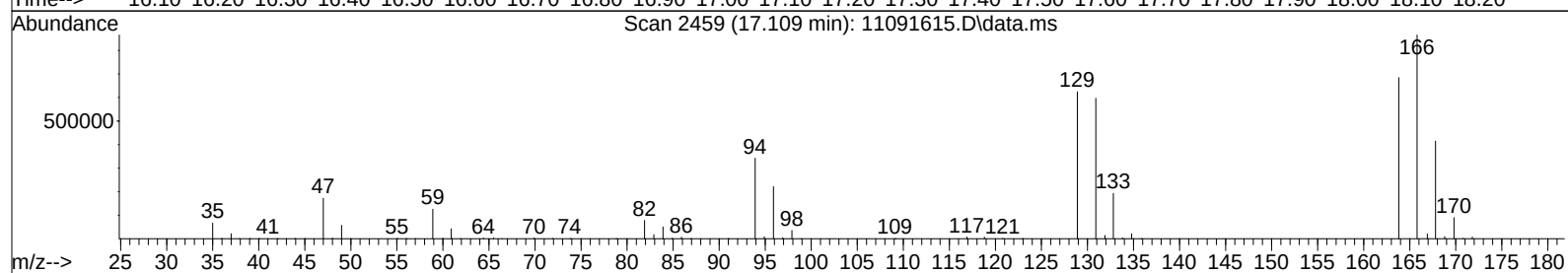
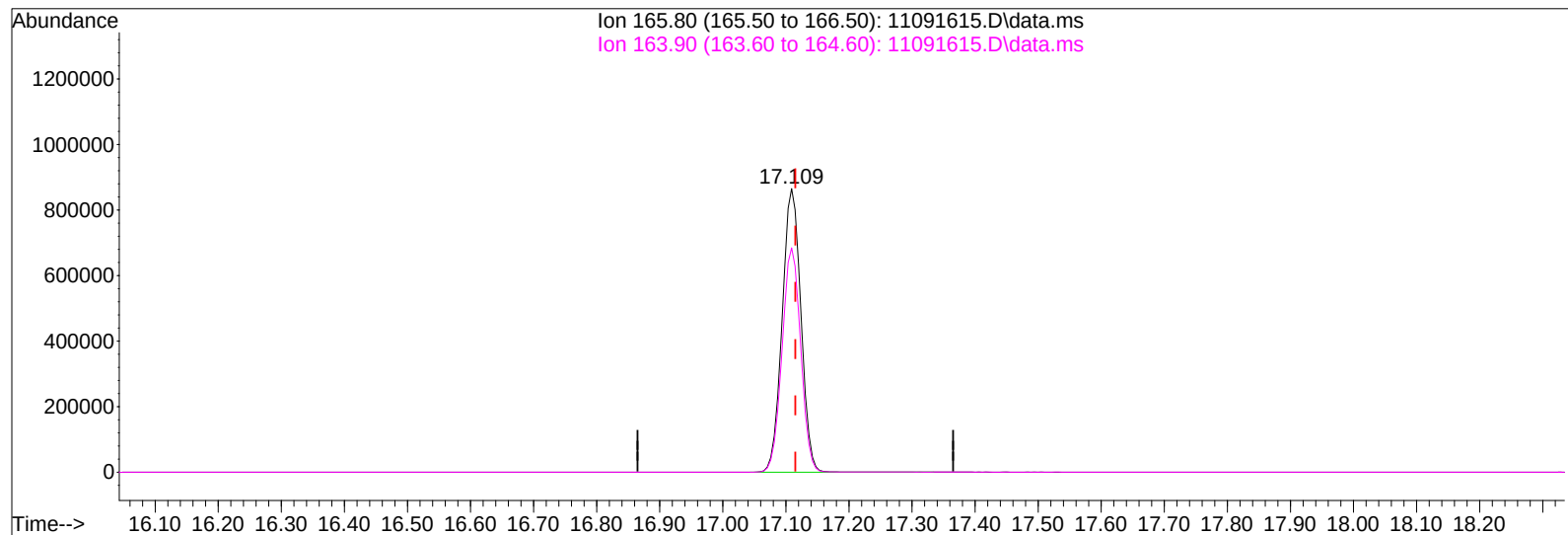
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091615.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 47.20ng

response 1782857

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	78.79
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091616.D

Acq On : 10 Nov 2016 2:24

Operator: LH

Sample : P1605133-011 (1000mL)

Misc : S29-11051601

ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 14 14:15:42 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 11/14/16

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.27	130	284000	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.41	114	1394842	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	593670	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	434823	14.945	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	119.52%
57) Toluene-d8 (SS2)	15.86	98	1424133	12.029	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.24%
73) Bromofluorobenzene (SS3)	19.10	174	482970	10.745	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	86.00%

Target Compounds

						Qvalue
2) Propene	4.14	42	691724	27.569	ng	95
3) Dichlorodifluoromethan...	4.30	85	97525	2.023	ng	99
4) Chloromethane	4.64	50	6996	0.241	ng	84
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	2832	0.099	ng	97
6) Vinyl Chloride	5.05	62	705	N.D.		
7) 1,3-Butadiene	5.32	54	1824	N.D.		
8) Bromomethane	5.76	94	1166	N.D.		
9) Chloroethane	6.05	64	668	N.D.		
10) Ethanol	6.41	45	254733	14.004	ng	99
11) Acetonitrile	6.74	41	22246	0.470	ng	94
12) Acrolein	6.91	56	6032	0.354	ng	96
13) Acetone	7.09	58	575248	31.806	ng	# 80
14) Trichlorofluoromethane	7.35	101	44007	0.982	ng	99
15) 2-Propanol (Isopropanol)	7.57	45	656368	10.791	ng	99
16) Acrylonitrile	7.90	53	110	N.D.		
17) 1,1-Dichloroethene	8.32	96	531	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.54	84	1577166	53.394	ng	85
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	8.97	151	9369	0.354	ng	91
22) Carbon Disulfide	8.83	76	6957	N.D.		
23) trans-1,2-Dichloroethene	9.83	61	1079	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	10.20	73	4744	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.	d	
27) 2-Butanone (MEK)	10.59	72	17694	0.951	ng	# 72
28) cis-1,2-Dichloroethene	11.10	61	55140	1.540	ng	90
29) Diisopropyl Ether	11.41	87	577	N.D.		
30) Ethyl Acetate	11.41	61	19691	2.045	ng	87
31) n-Hexane	11.40	57	23617	0.593	ng	# 98
32) Chloroform	11.44	83	4507	0.097	ng	98
34) Tetrahydrofuran (THF)	11.88	72	3195	0.178	ng	# 30
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	3225	0.102	ng	96
38) 1,1,1-Trichloroethane	12.53	97	1152	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.02	78	56349	0.490	ng	99
42) Carbon Tetrachloride	13.17	117	12842	0.358	ng	99
43) Cyclohexane	13.31	84	6197	0.147	ng	83
44) tert-Amyl Methyl Ether	13.69	73	516	N.D.		
45) 1,2-Dichloropropane	13.86	63	734	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.11	130	290219	8.893	ng	100
48) 1,4-Dioxane	14.11	88	558	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091616.D

Acq On : 10 Nov 2016 2:24

Operator: LH

Sample : P1605133-011 (1000mL)

Misc : S29-11051601

ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 14 14:15:42 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	d	
51) n-Heptane	14.44	71	6956	0.248	ng	88
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.01	58	28955	1.131	ng	# 83
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.	d	
55) 1,1,2-Trichloroethane	15.68	97	529	N.D.		
58) Toluene	15.96	91	694422	5.980	ng	100
59) 2-Hexanone	16.21	43	8723	0.143	ng	80
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	16.50	107	719	N.D.		
62) n-Butyl Acetate	16.84	43	104504	1.550	ng	94
63) n-Octane	16.97	57	4665	0.184	ng	89
64) Tetrachloroethene	17.11	166	1656609	44.264	ng	99
65) Chlorobenzene	17.76	112	2286	N.D.		
66) Ethylbenzene	18.12	91	25181	0.179	ng	97
67) m- & p-Xylenes	18.27	91	67346	0.628	ng	95
68) Bromoform	18.35	173	502	N.D.		
69) Styrene	18.60	104	14824	0.174	ng	93
70) o-Xylene	18.70	91	39663	0.373	ng	97
71) n-Nonane	18.90	43	29680	0.567	ng	92
72) 1,1,2,2-Tetrachloroethane	18.66	83	911	N.D.		
74) Cumene	19.23	105	7878	N.D.		
75) alpha-Pinene	19.58	93	268774	3.873	ng	97
76) n-Propylbenzene	19.67	91	29919	0.200	ng	96
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	31700	0.251	ng	97
79) 1,3,5-Trimethylbenzene	19.87	105	32817	0.287	ng	98
80) alpha-Methylstyrene	20.00	118	1138	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	127398	1.123	ng	87
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.35	91	1170	N.D.		
85) 1,3-Dichlorobenzene	20.36	146	632	N.D.		
86) 1,4-Dichlorobenzene	20.42	146	31285	0.426	ng	98
87) sec-Butylbenzene	20.47	105	3619	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.73	146	661	N.D.		
91) d-Limonene	20.73	68	36523	0.914	ng	88
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.23	180	1528	N.D.		
95) Naphthalene	22.34	128	19782	0.125	ng	89
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.60	225	624	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	20.96	91	10089	N.D.		

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

Data File: I:\MS16\DATA\2016 11\09\11091616.D

Acq On : 10 Nov 2016 2:24

Operator: LH

Sample : P1605133-011 (1000mL)

Misc : S29-11051601

ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 14 14:15:42 2016

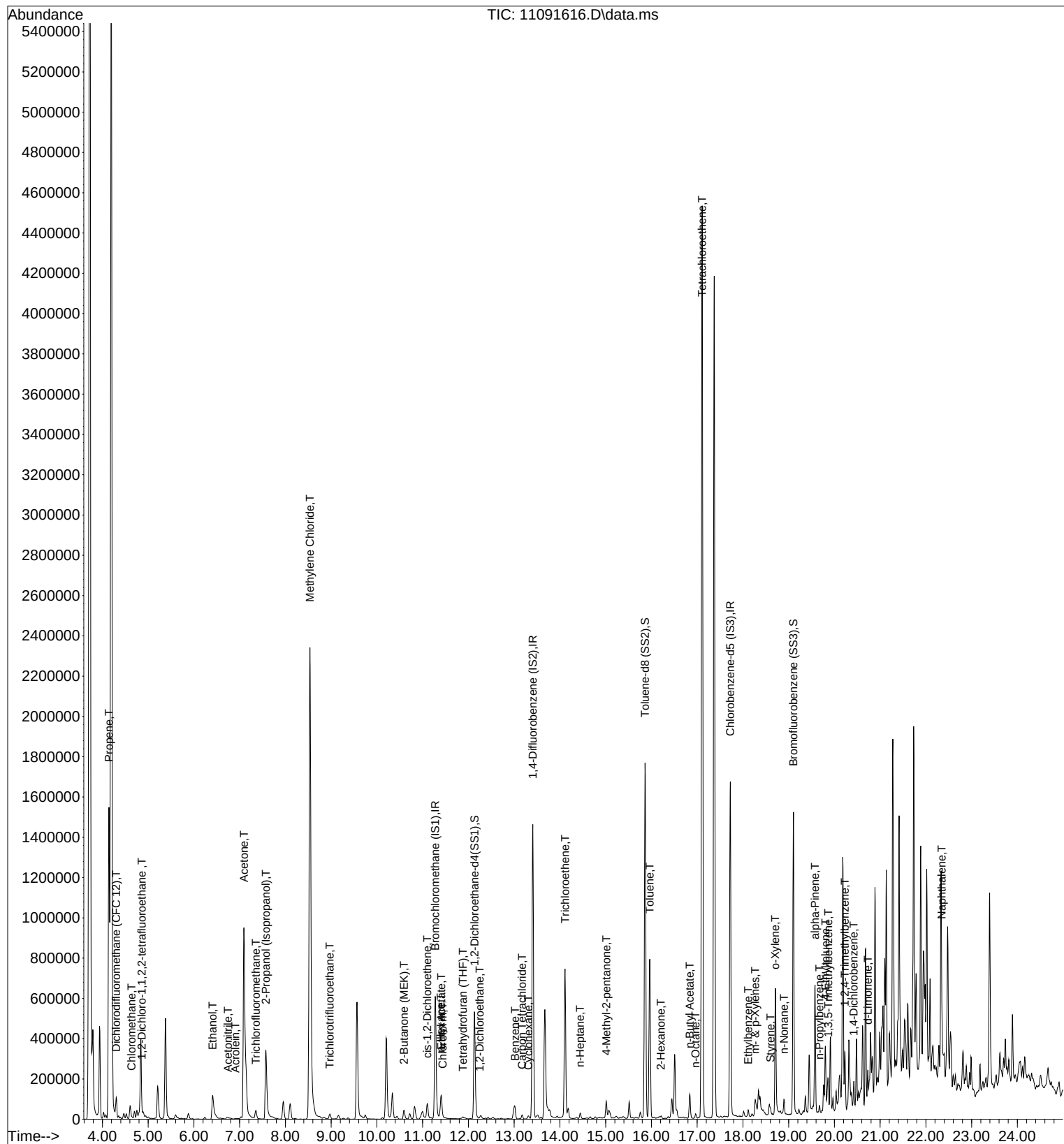
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091616.D

Acq On : 10 Nov 2016 2:24

Operator: LH

Sample : P1605133-011 (1000mL)

Misc : S29-11051601

ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 10 08:19:59 2016

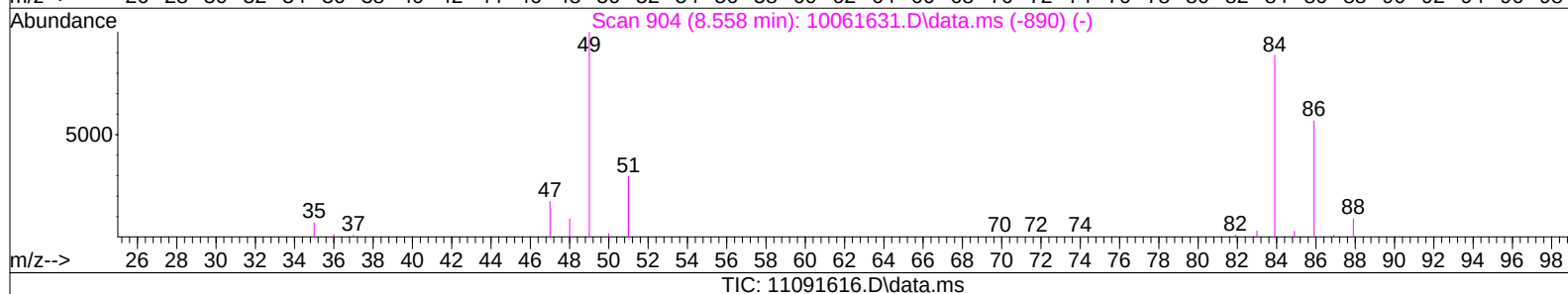
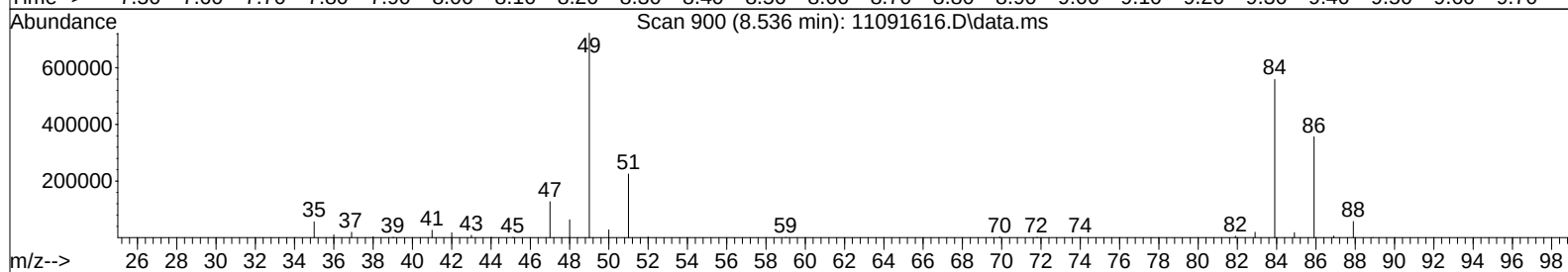
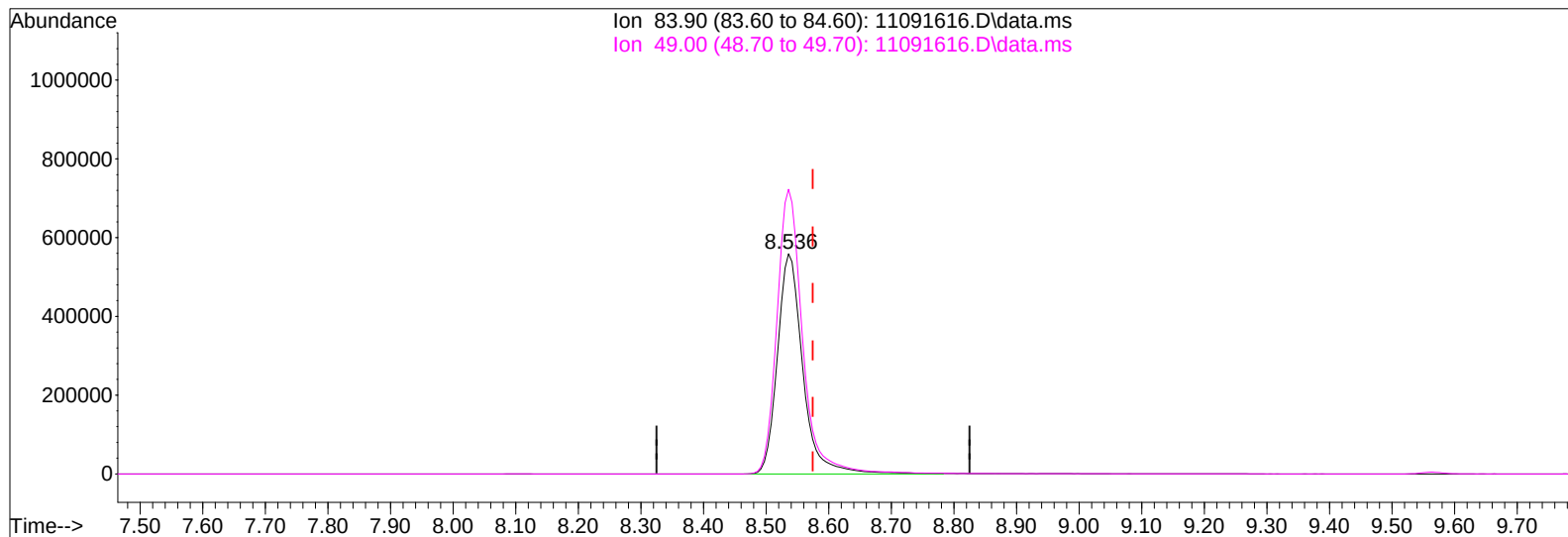
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091616.D\data.ms

(19) Methylene Chloride (T)

8.536min (-0.039) 53.39ng

response 1577166

Ion	Exp%	Act%
83.90	100	100
49.00	114.70	130.44
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091616.D

Acq On : 10 Nov 2016 2:24

Operator: LH

Sample : P1605133-011 (1000mL)

Misc : S29-11051601

ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 10 08:19:59 2016

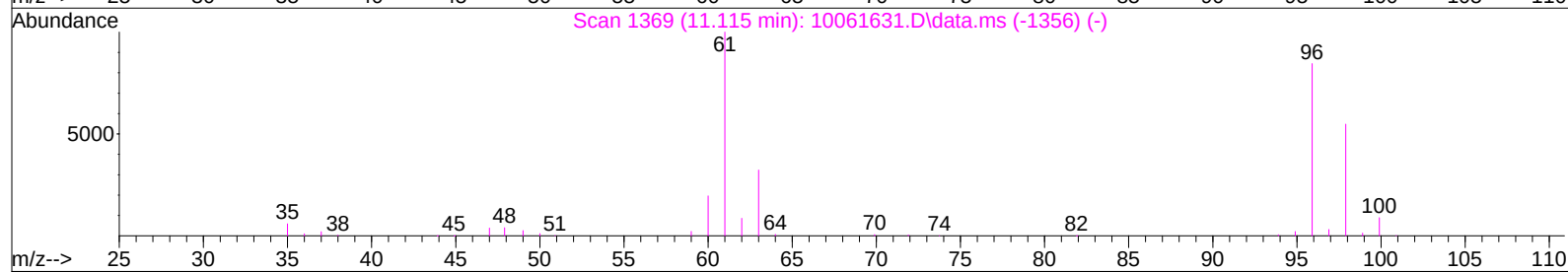
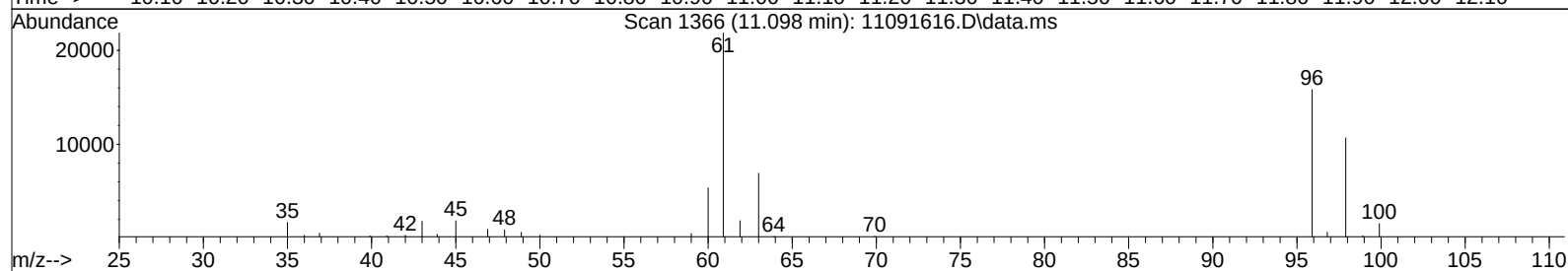
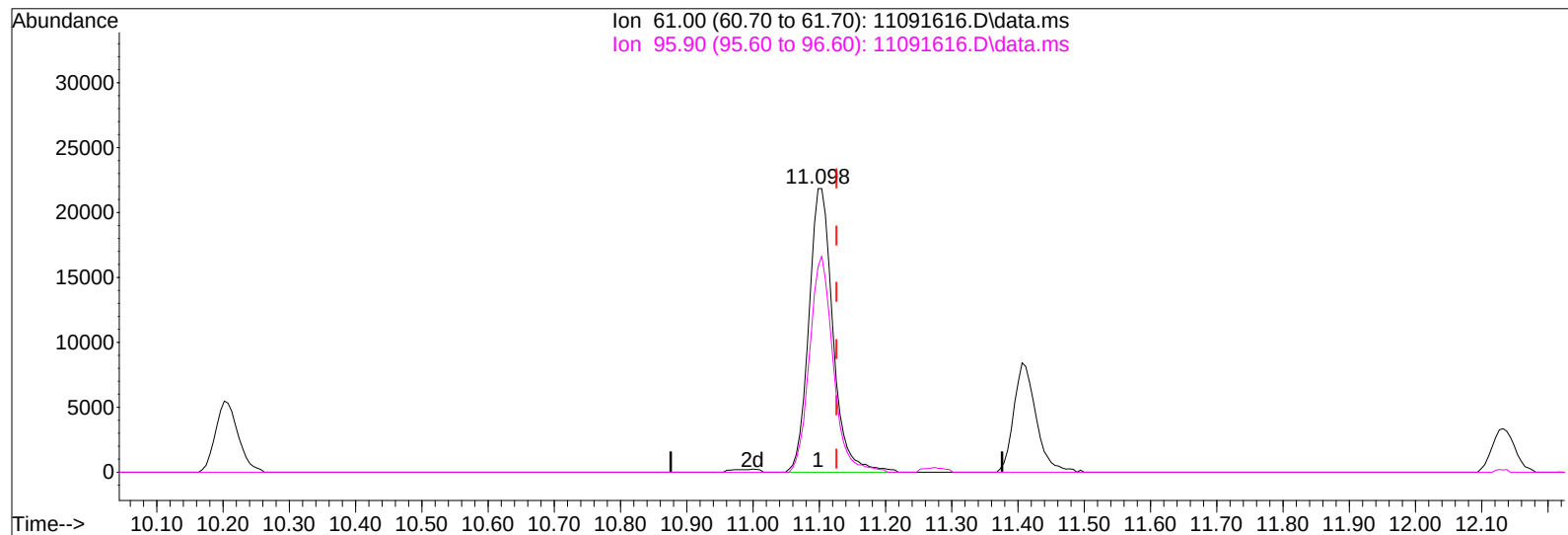
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091616.D\data.ms

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

11.098min (-0.028) 1.54ng

response 55140

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	74.62
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091616.D

Acq On : 10 Nov 2016 2:24

Operator: LH

Sample : P1605133-011 (1000mL)

Misc : S29-11051601

ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 10 08:19:59 2016

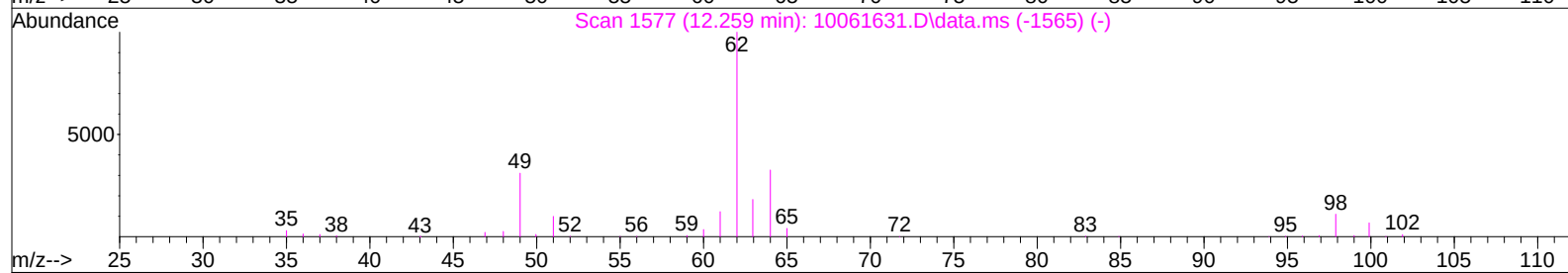
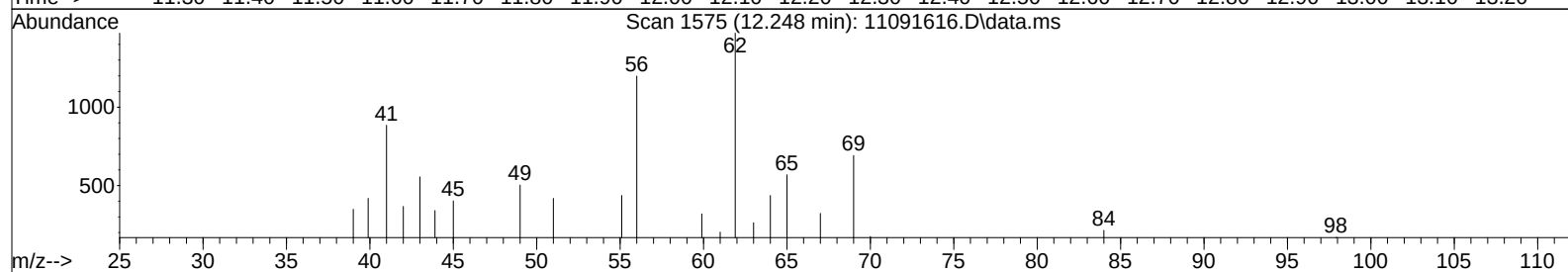
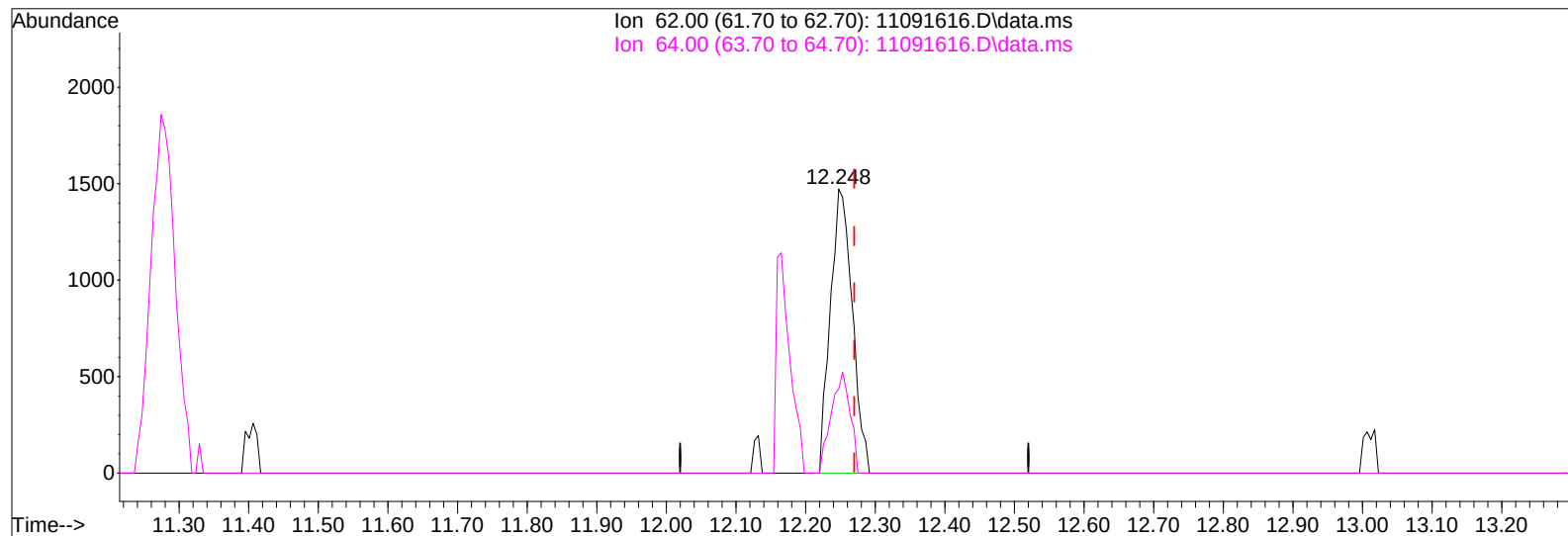
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091616.D\data.ms

(36) 1,2-Dichloroethane (T)

12.248min (-0.022) 0.10ng

response 3225

Ion	Exp%	Act%
62.00	100	100
64.00	32.80	30.48
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091616.D

Acq On : 10 Nov 2016 2:24

Operator: LH

Sample : P1605133-011 (1000mL)

Misc : S29-11051601

ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 10 08:19:59 2016

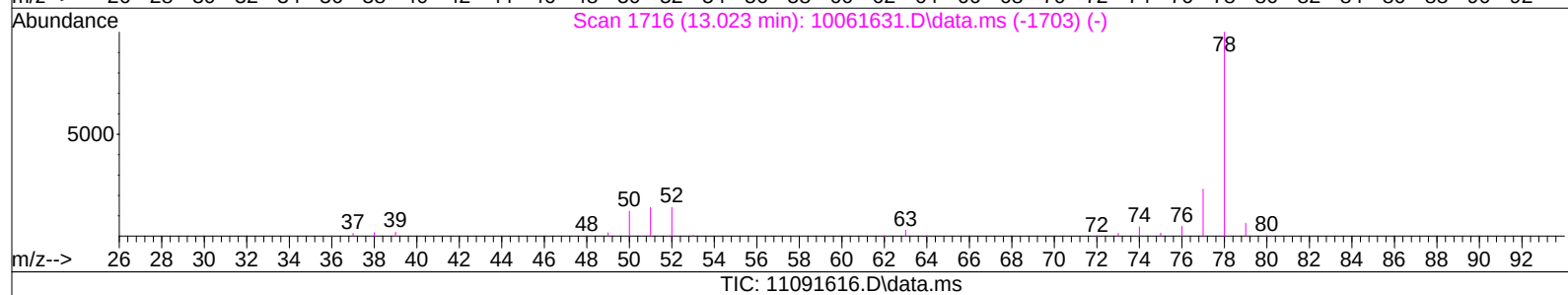
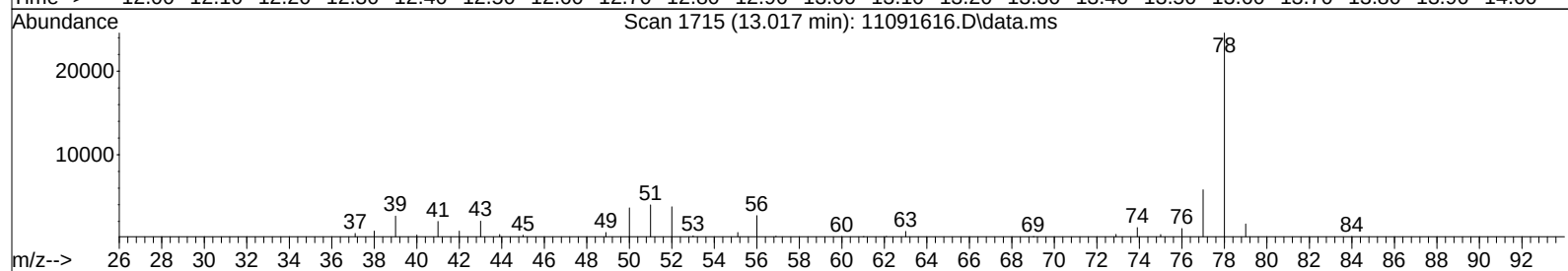
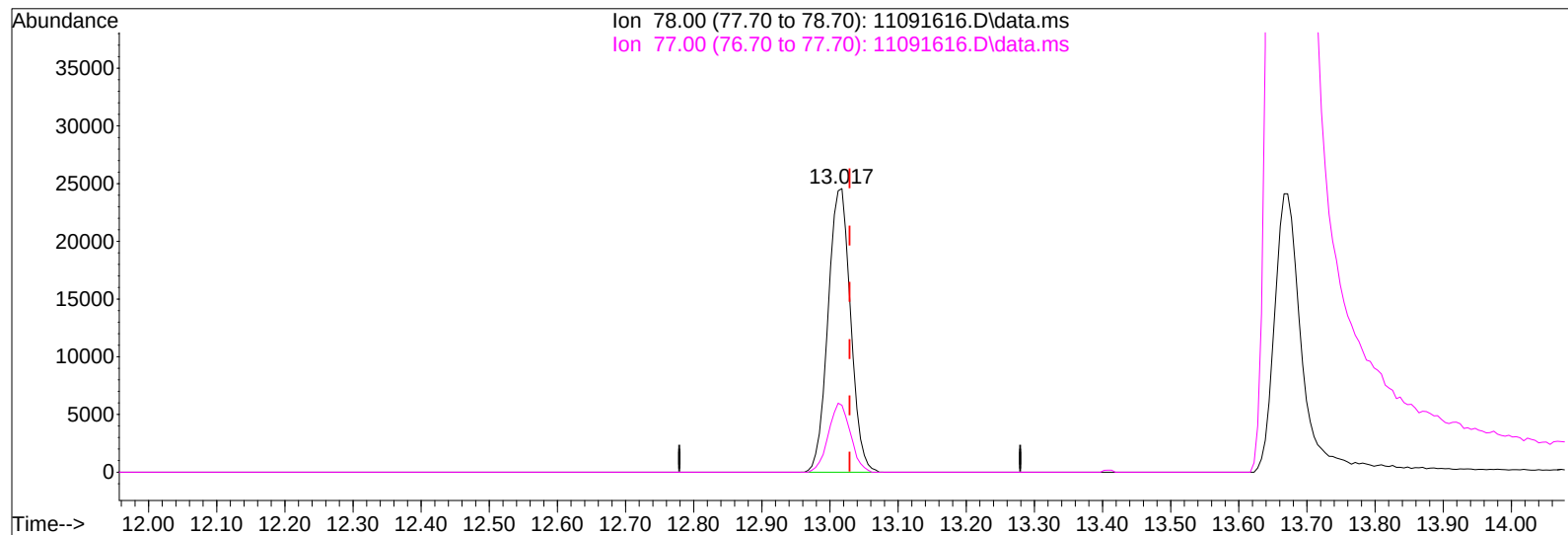
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091616.D\data.ms

(41) Benzene (T)

13.017min (-0.012) 0.49ng

response 56349

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.75
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091616.D

Acq On : 10 Nov 2016 2:24

Operator: LH

Sample : P1605133-011 (1000mL)

Misc : S29-11051601

ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 10 08:19:59 2016

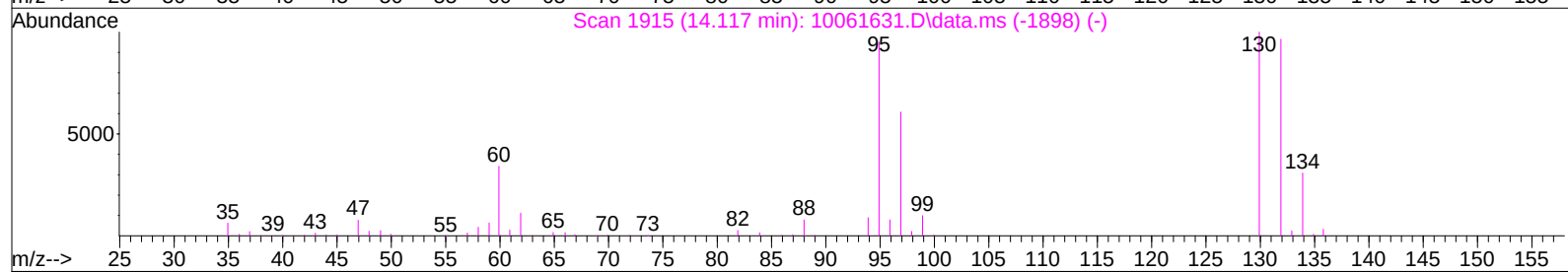
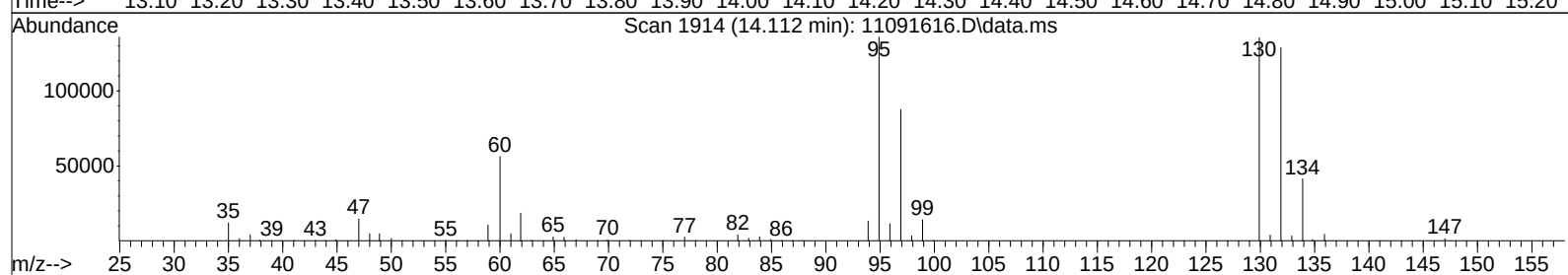
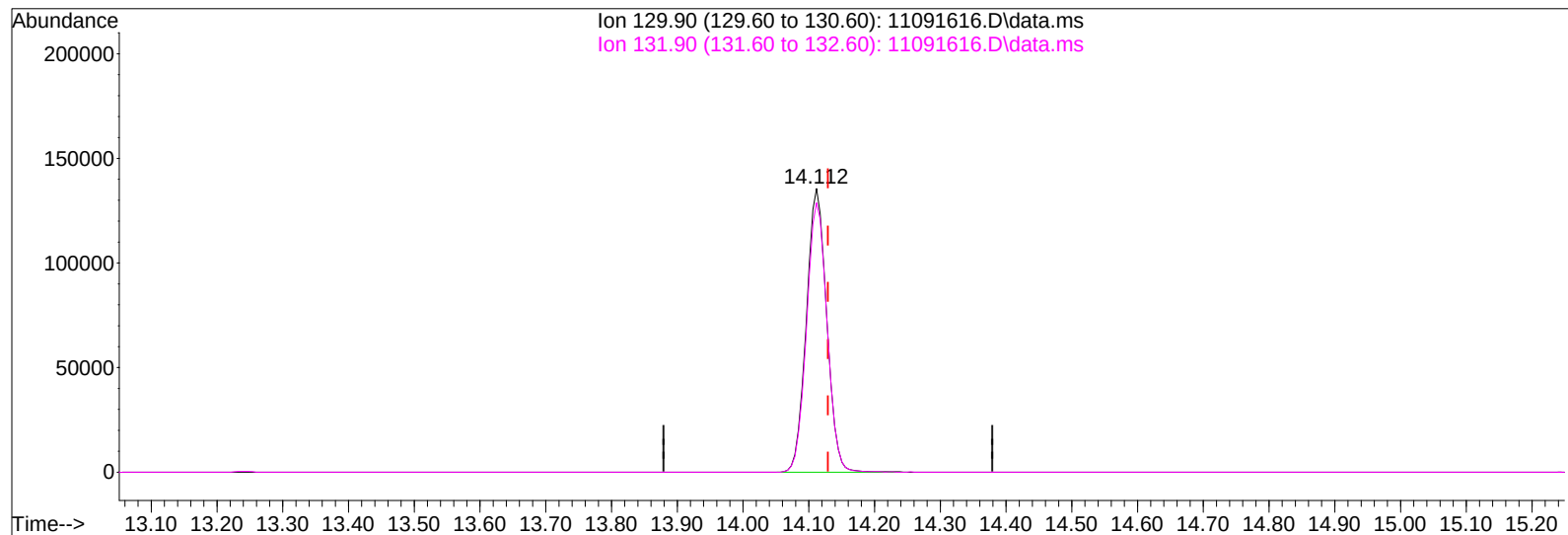
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091616.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 8.89ng

response 290219

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	96.03
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091616.D

Acq On : 10 Nov 2016 2:24

Operator: LH

Sample : P1605133-011 (1000mL)

Misc : S29-11051601

ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 10 08:19:59 2016

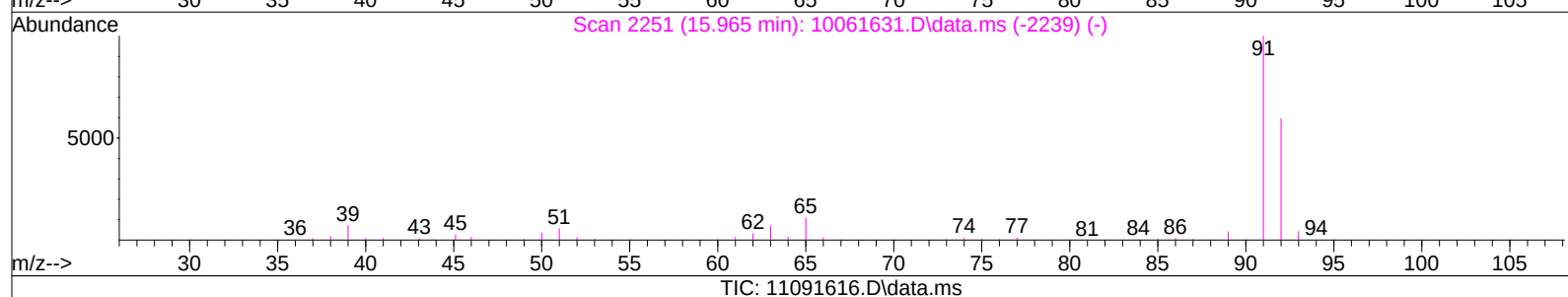
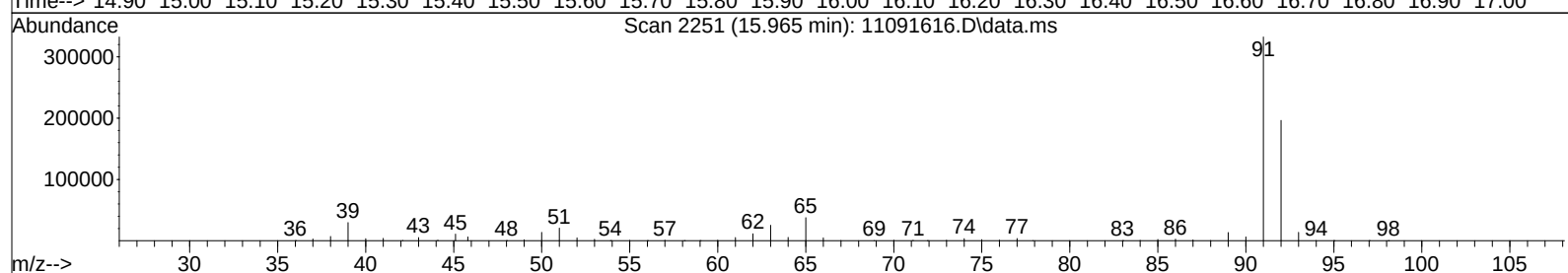
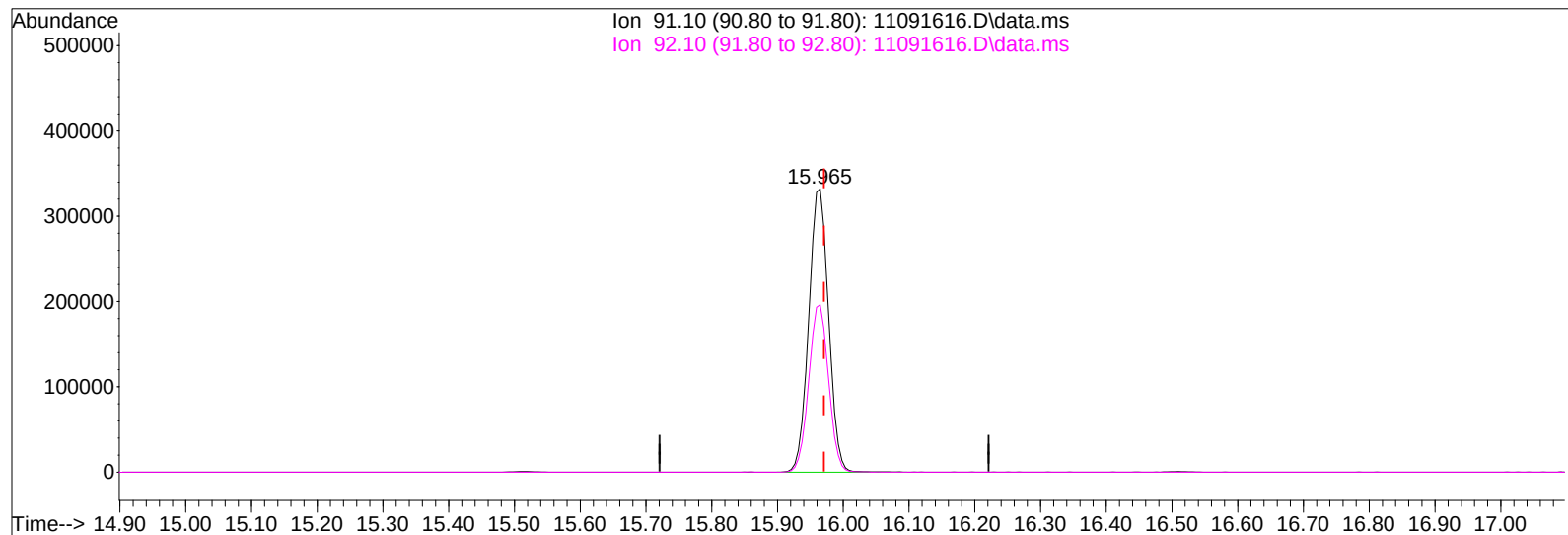
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091616.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 5.98ng

response 694422

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	59.04
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091616.D

Acq On : 10 Nov 2016 2:24

Operator: LH

Sample : P1605133-011 (1000mL)

Misc : S29-11051601

ALS Vial : 13 Sample Multiplier: 1

Quant Time: Nov 10 08:19:59 2016

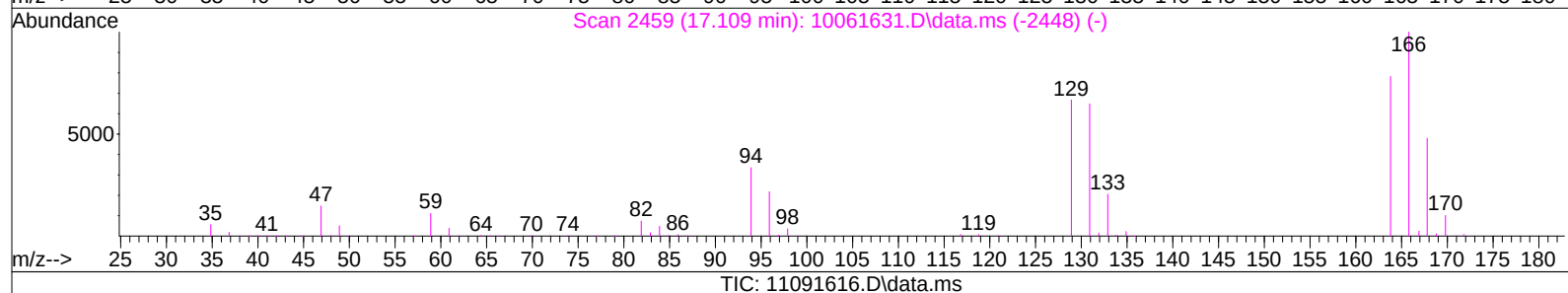
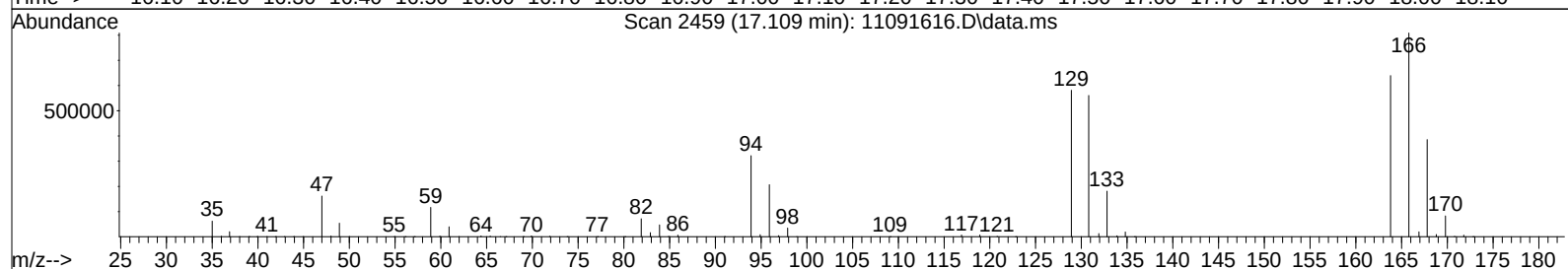
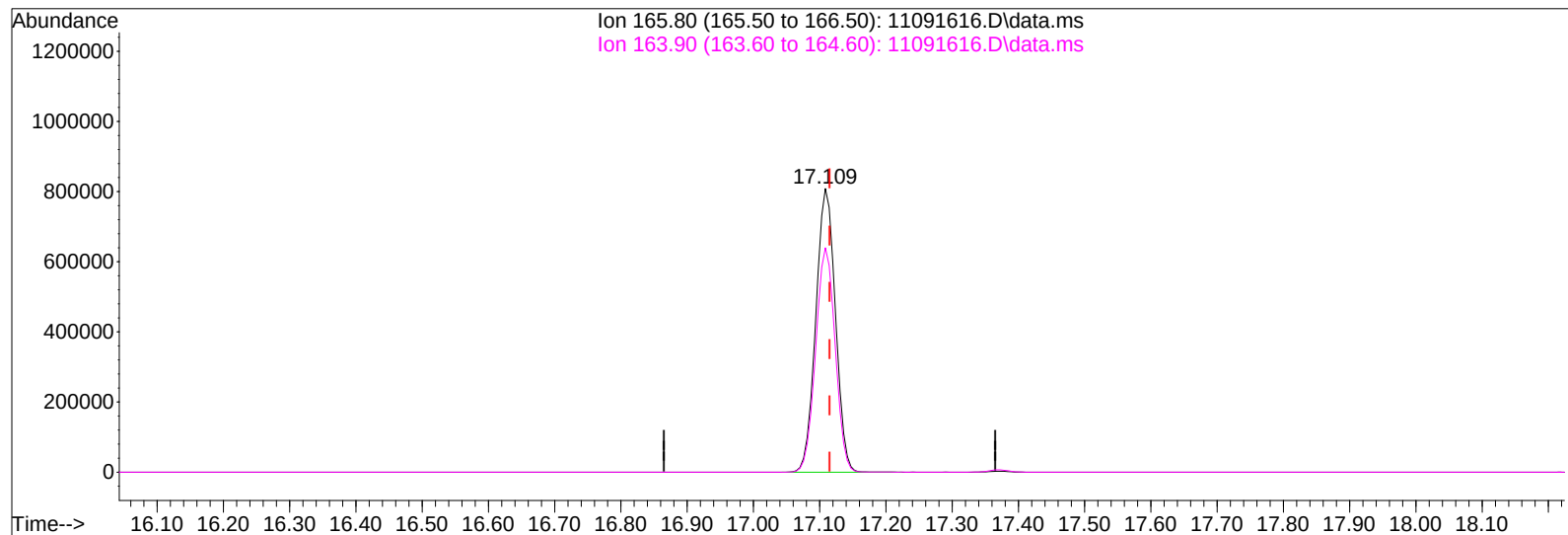
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(64) Tetrachloroethene (T)

17.109min (-0.006) 44.26ng

response 1656609

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	78.79
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091617.D

Acq On : 10 Nov 2016 2:58

Operator: LH

Sample : P1605133-012 (1000mL)

Misc : S29-11051601

ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 14 14:18:04 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 11/14/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	283898	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1400149	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	603420	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	437746	15.051	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	120.40%
57) Toluene-d8 (SS2)	15.86	98	1443767	11.998	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.00%
73) Bromofluorobenzene (SS3)	19.10	174	492320	10.776	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	86.24%

Target Compounds

						Qvalue
2) Propene	4.14	42	605961	24.159	ng	97
3) Dichlorodifluoromethan...	4.30	85	94940	1.970	ng	99
4) Chloromethane	4.63	50	6346	0.219	ng	86
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	2810	0.098	ng	100
6) Vinyl Chloride	5.06	62	681	N.D.		
7) 1,3-Butadiene	5.32	54	1387	N.D.		
8) Bromomethane	5.76	94	594	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.41	45	275793	15.168	ng	99
11) Acetonitrile	6.74	41	21795	0.461	ng	94
12) Acrolein	6.91	56	8883	0.522	ng	98
13) Acetone	7.09	58	748144	41.381	ng	85
14) Trichlorofluoromethane	7.35	101	43201	0.965	ng	100
15) 2-Propanol (Isopropanol)	7.57	45	678177	11.153	ng	99
16) Acrylonitrile	7.89	53	230	N.D.		
17) 1,1-Dichloroethene	8.33	96	558	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.54	84	1530508	51.833	ng	85
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	8.97	151	9491	0.359	ng	95
22) Carbon Disulfide	8.84	76	5566	N.D.		
23) trans-1,2-Dichloroethene	9.83	61	1095	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.	d	
27) 2-Butanone (MEK)	10.59	72	22376	1.203	ng	# 71
28) cis-1,2-Dichloroethene	11.10	61	53484	1.494	ng	89
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	11.41	61	13892	1.443	ng	91
31) n-Hexane	11.40	57	22545	0.566	ng	97
32) Chloroform	11.44	83	4134	N.D.		
34) Tetrahydrofuran (THF)	11.88	72	2766	0.154	ng	# 19
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	1553	N.D.		
38) 1,1,1-Trichloroethane	12.53	97	1259	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	54605	0.473	ng	99
42) Carbon Tetrachloride	13.17	117	12746	0.354	ng	99
43) Cyclohexane	13.31	84	3956	0.093	ng	92
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.11	130	282997	8.639	ng	99
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091617.D

Acq On : 10 Nov 2016 2:58

Operator: LH

Sample : P1605133-012 (1000mL)

Misc : S29-11051601

ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 14 14:18:04 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

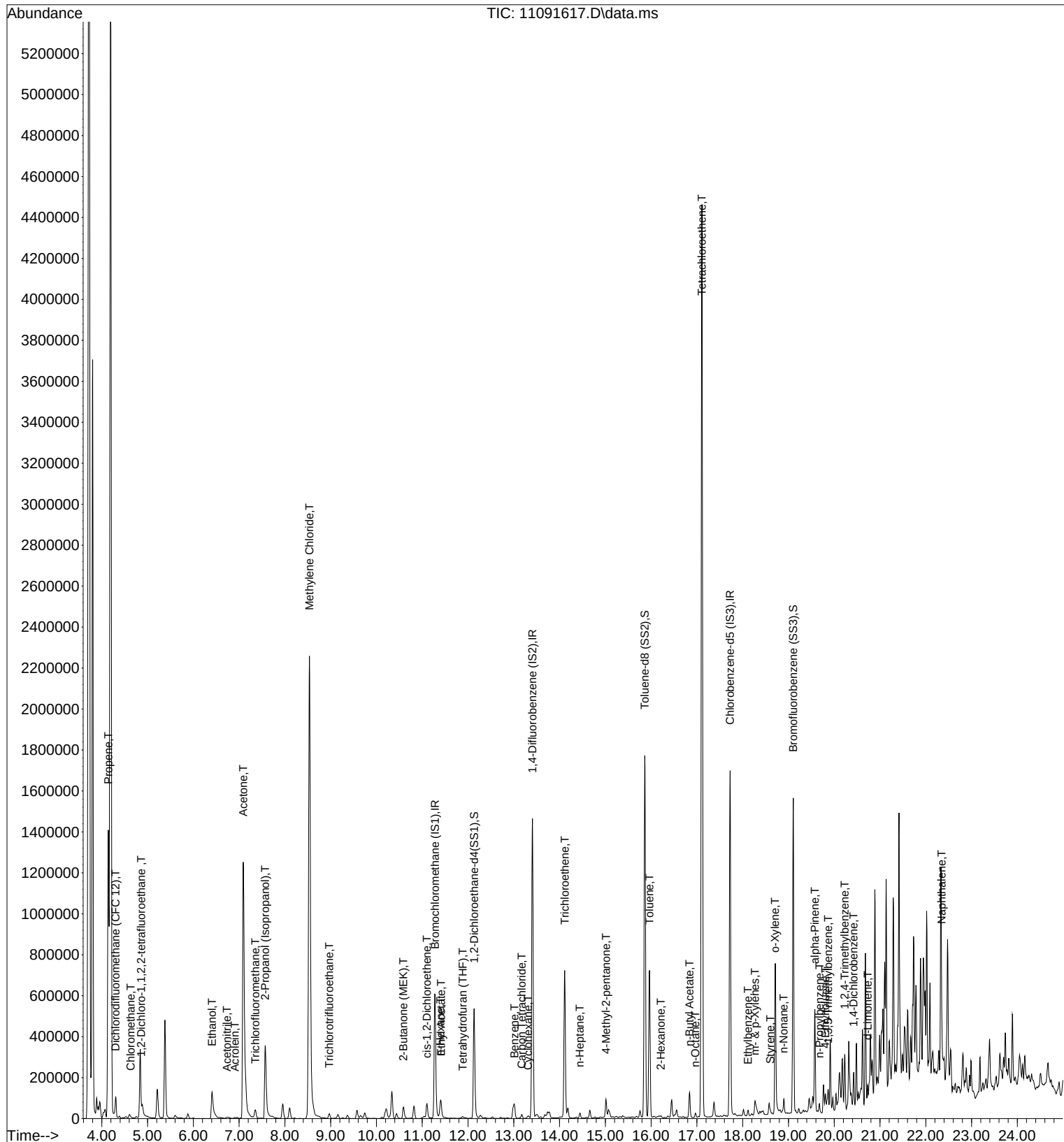
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	d	
51) n-Heptane	14.44	71	6404	0.228	ng	90
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.01	58	30139	1.173	ng	85
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	15.66	97	551	N.D.		
58) Toluene	15.97	91	635283	5.382	ng	99
59) 2-Hexanone	16.21	43	7582	0.122	ng	74
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	106893	1.560	ng	95
63) n-Octane	16.97	57	4659	0.181	ng	89
64) Tetrachloroethene	17.11	166	1624407	42.702	ng	99
65) Chlorobenzene	17.76	112	2284	N.D.		
66) Ethylbenzene	18.12	91	22088	0.155	ng	99
67) m- & p-Xylenes	18.27	91	54643	0.501	ng	98
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	10096	0.116	ng	91
70) o-Xylene	18.70	91	36718	0.339	ng	98
71) n-Nonane	18.90	43	30076	0.565	ng	88
72) 1,1,2,2-Tetrachloroethane	18.71	83	1899	N.D.		
74) Cumene	19.23	105	7539	N.D.		
75) alpha-Pinene	19.58	93	211578	2.999	ng	97
76) n-Propylbenzene	19.68	91	30609	0.201	ng	95
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	30273	0.235	ng	98
79) 1,3,5-Trimethylbenzene	19.87	105	25958	0.223	ng	100
80) alpha-Methylstyrene	20.00	118	820	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	120170	1.042	ng	88
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.34	91	1077	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d	
86) 1,4-Dichlorobenzene	20.42	146	50010	0.671	ng	100
87) sec-Butylbenzene	20.47	105	3623	N.D.		
88) 4-Isopropyltoluene (p-...	20.60	119	10041	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.73	146	659	N.D.		
91) d-Limonene	20.73	68	16145	0.397	ng	78
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.24	180	1506	N.D.		
95) Naphthalene	22.34	128	28261	0.175	ng	97
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	20.96	91	10503	N.D.		

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

ALS Vial : 14 Sample Multiplier: 1

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2016 11\09\11091617.D

Acq On : 10 Nov 2016 2:58

Operator: LH

Sample : P1605133-012 (1000mL)

Misc : S29-11051601

ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 10 08:20:06 2016

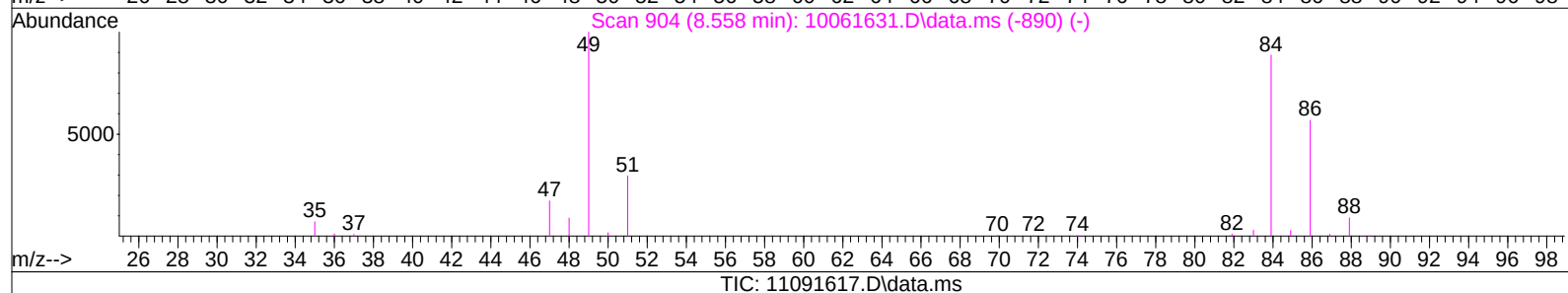
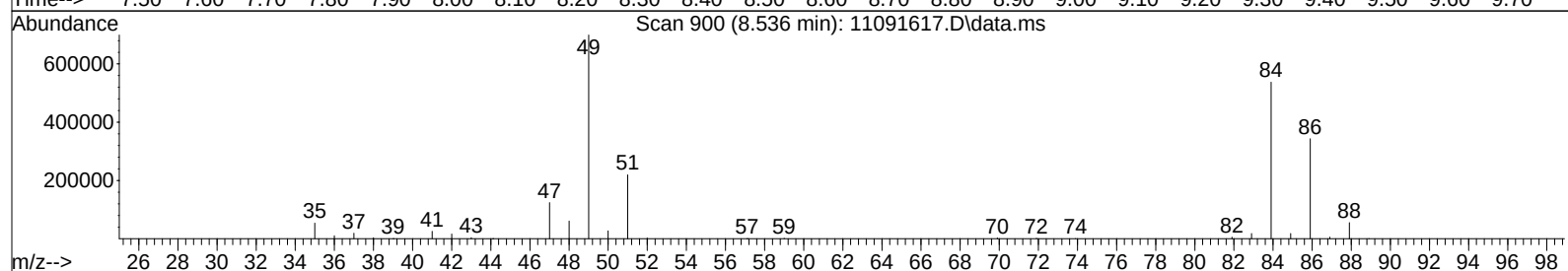
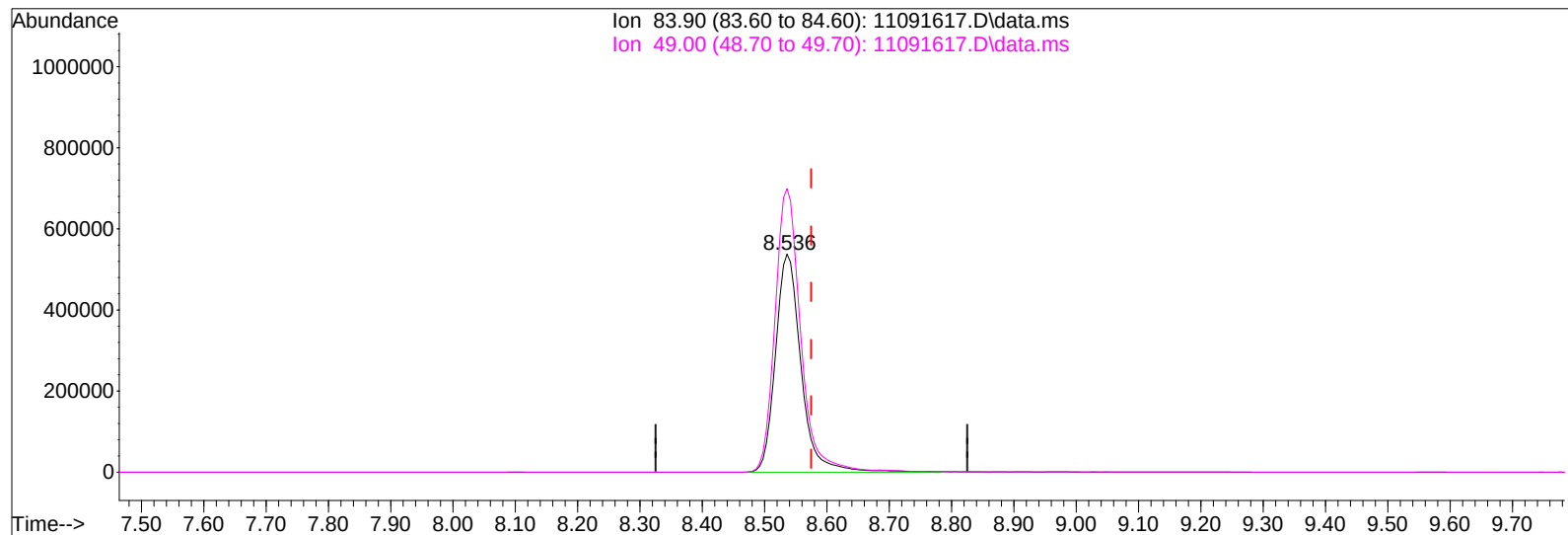
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091617.D\data.ms

(19) Methylene Chloride (T)

8.536min (-0.039) 51.83ng

response 1530508

Ion	Exp%	Act%
83.90	100	100
49.00	114.70	131.33
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091617.D

Acq On : 10 Nov 2016 2:58

Operator: LH

Sample : P1605133-012 (1000mL)

Misc : S29-11051601

ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 10 08:20:06 2016

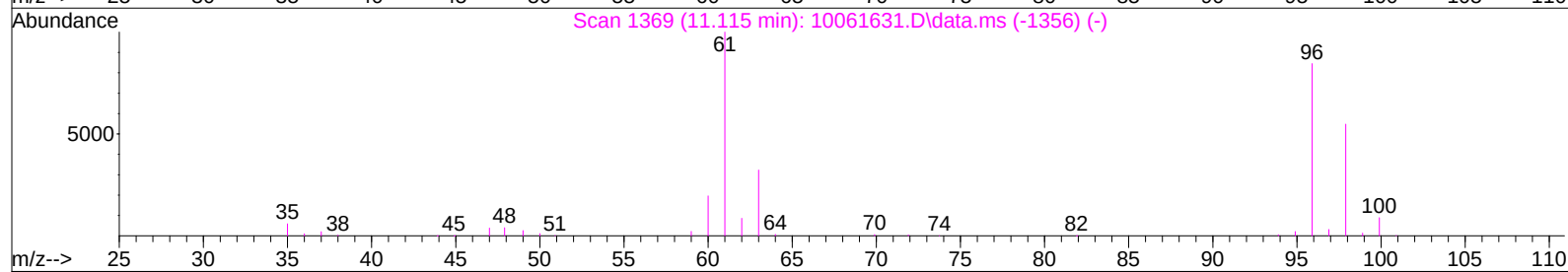
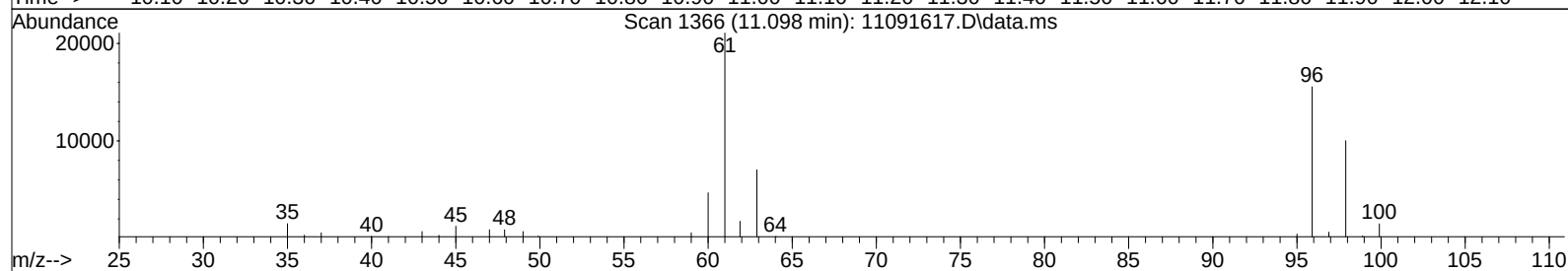
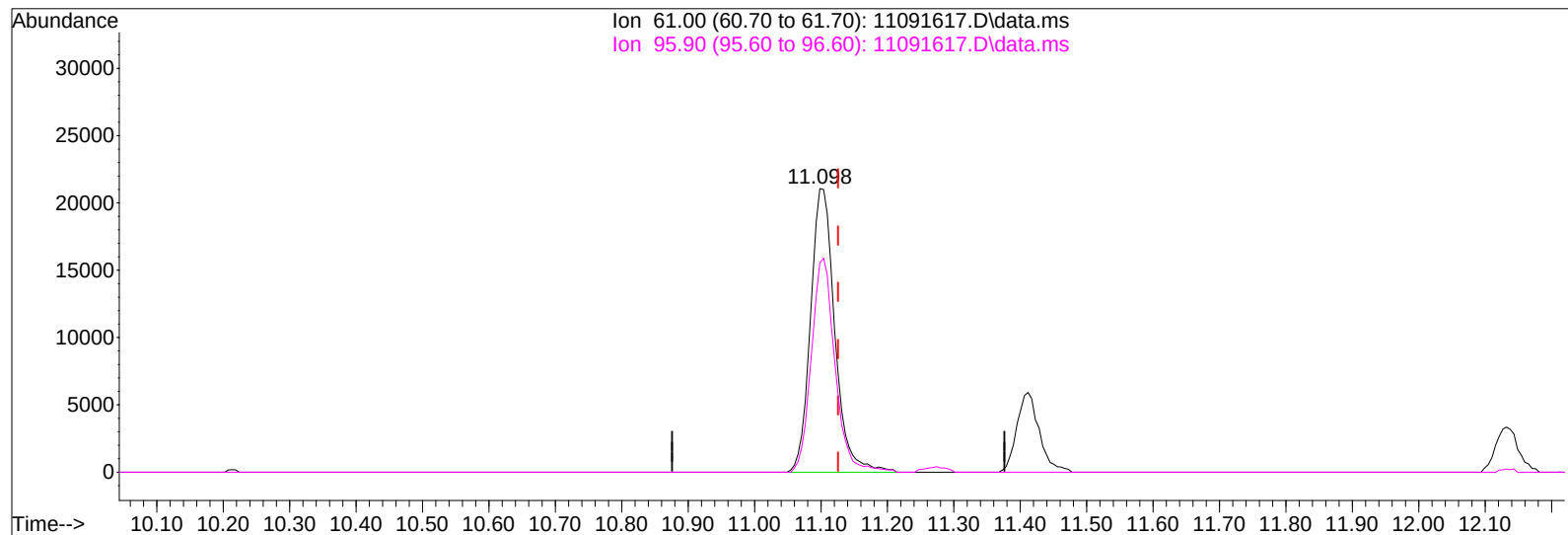
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091617.D\data.ms

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

11.098min (-0.028) 1.49ng

response 53484

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	73.53
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091617.D

Acq On : 10 Nov 2016 2:58

Operator: LH

Sample : P1605133-012 (1000mL)

Misc : S29-11051601

ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 10 08:20:06 2016

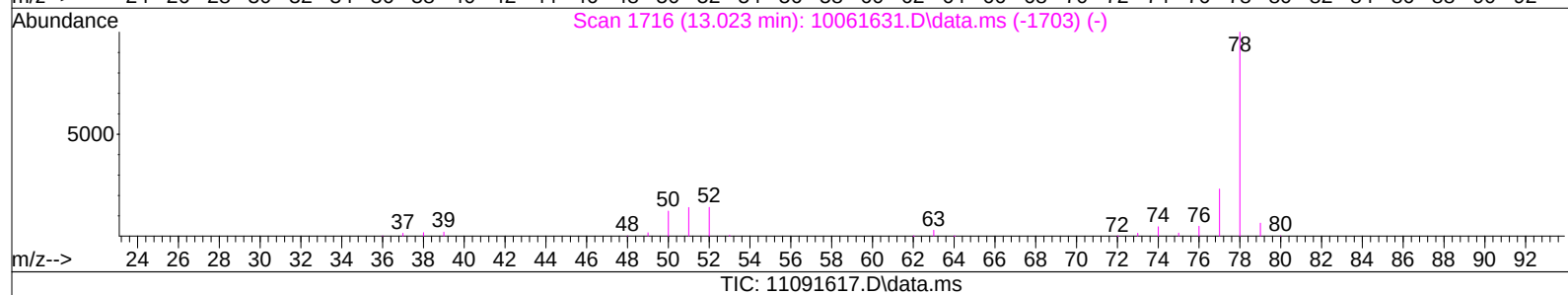
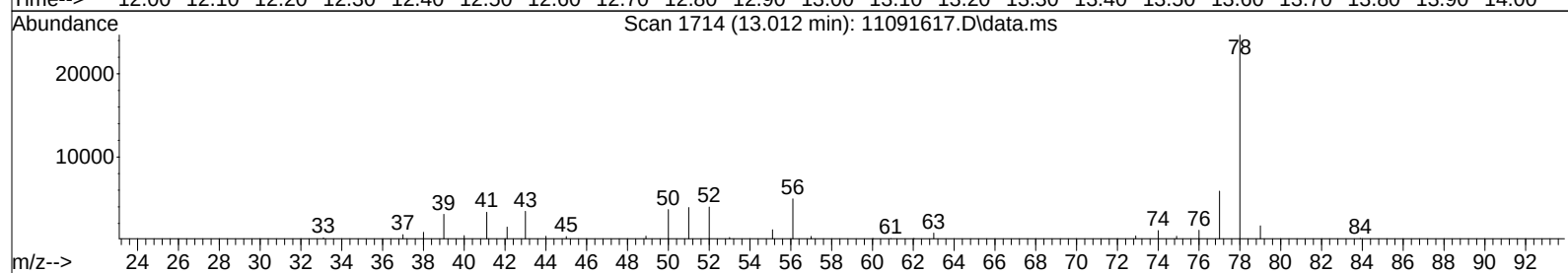
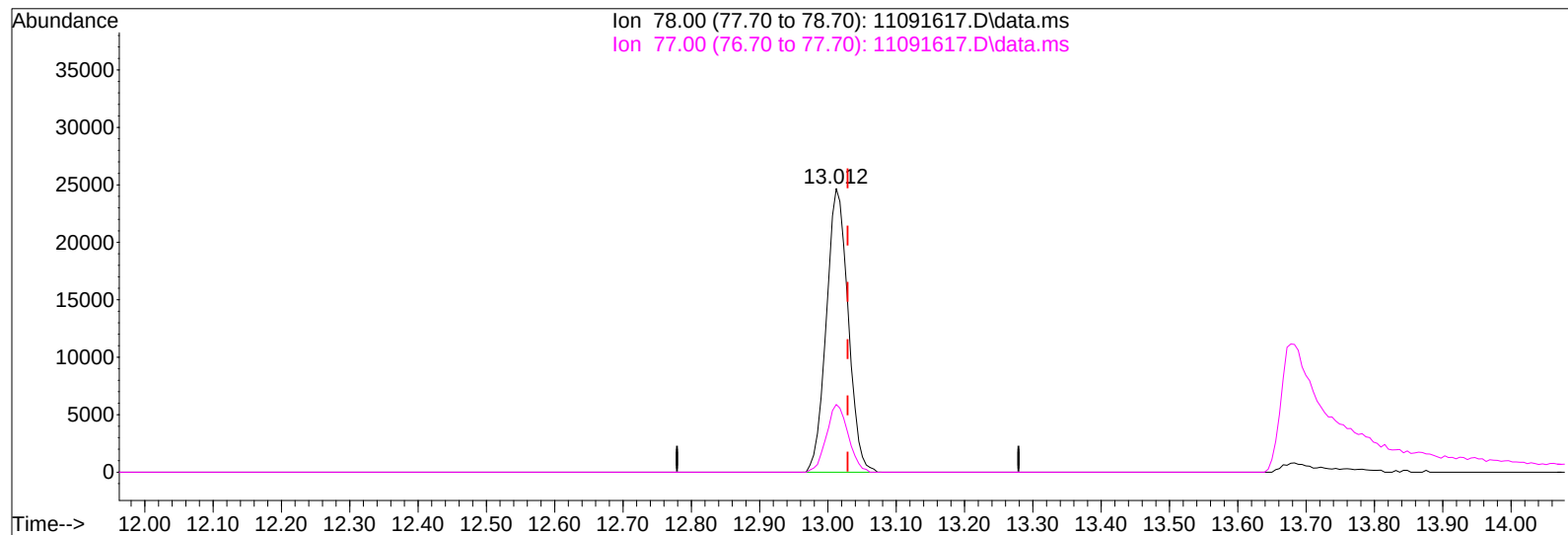
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091617.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 0.47ng

response 54605

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.84
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091617.D

Acq On : 10 Nov 2016 2:58

Operator: LH

Sample : P1605133-012 (1000mL)

Misc : S29-11051601

ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 10 08:20:06 2016

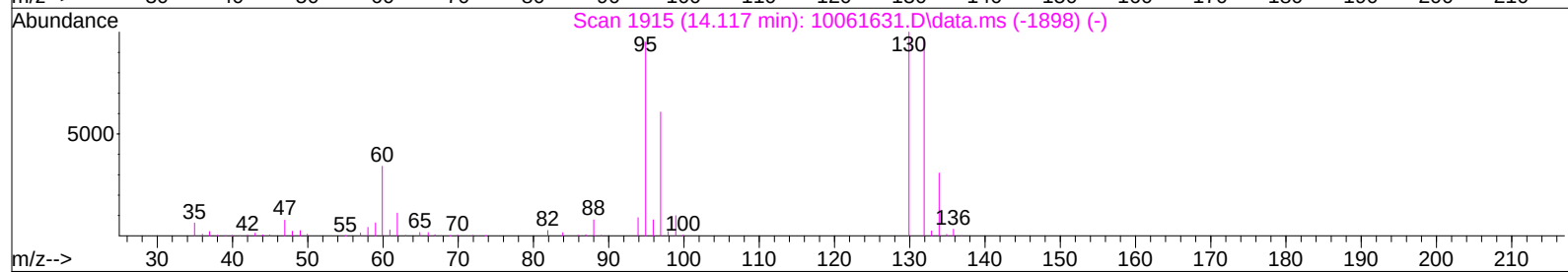
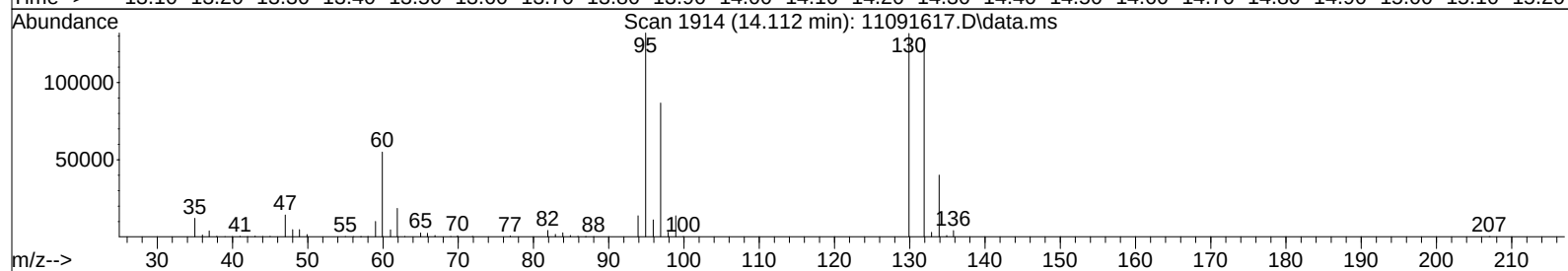
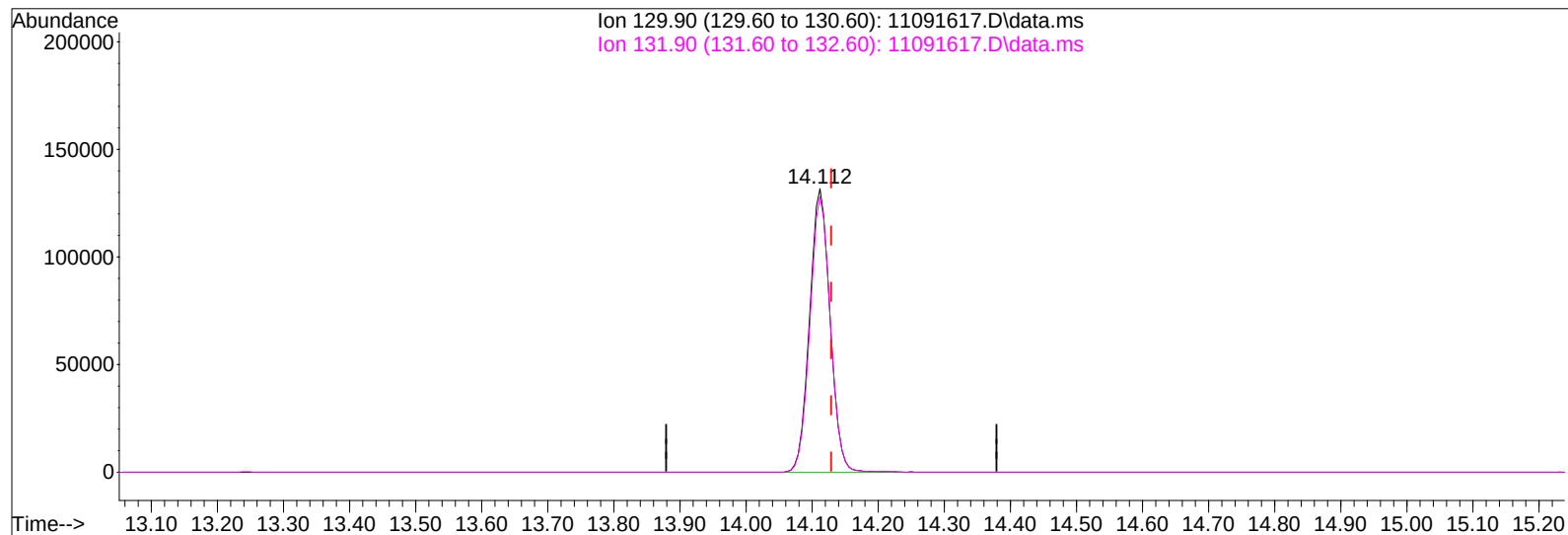
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091617.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 8.64ng

response 282997

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	96.77
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091617.D

Acq On : 10 Nov 2016 2:58

Operator: LH

Sample : P1605133-012 (1000mL)

Misc : S29-11051601

ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 10 08:20:06 2016

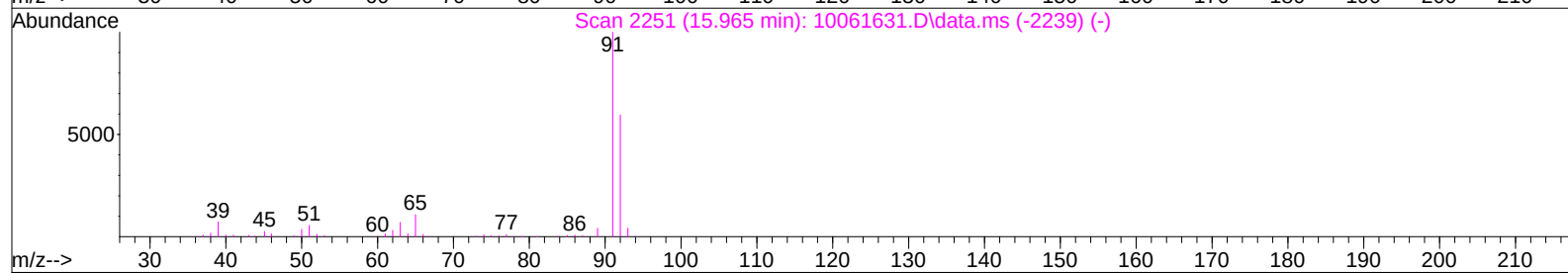
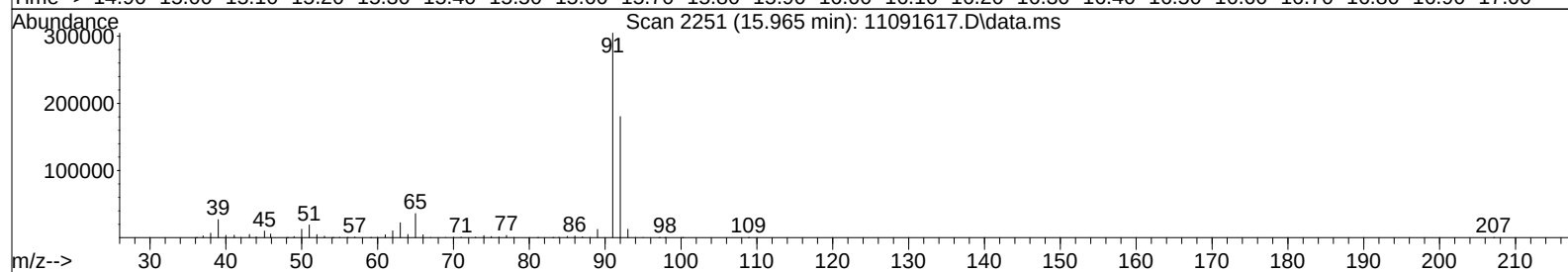
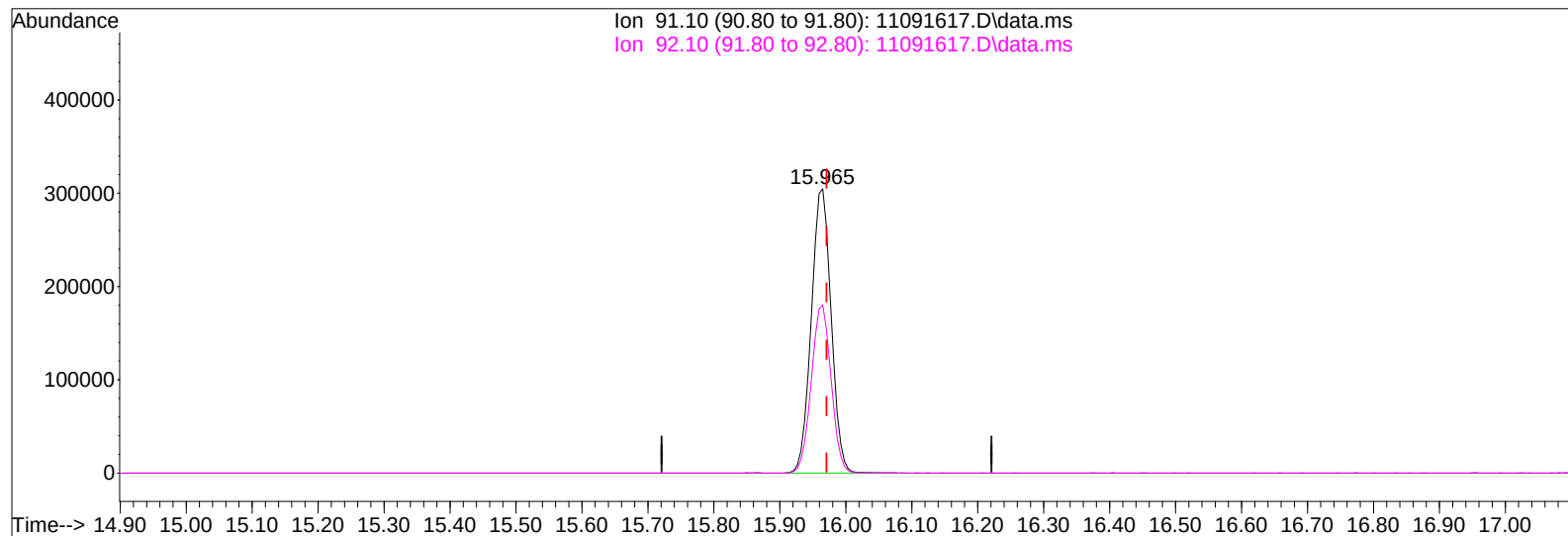
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091617.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 5.38ng

response 635283

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	58.93
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091617.D

Acq On : 10 Nov 2016 2:58

Operator: LH

Sample : P1605133-012 (1000mL)

Misc : S29-11051601

ALS Vial : 14 Sample Multiplier: 1

Quant Time: Nov 10 08:20:06 2016

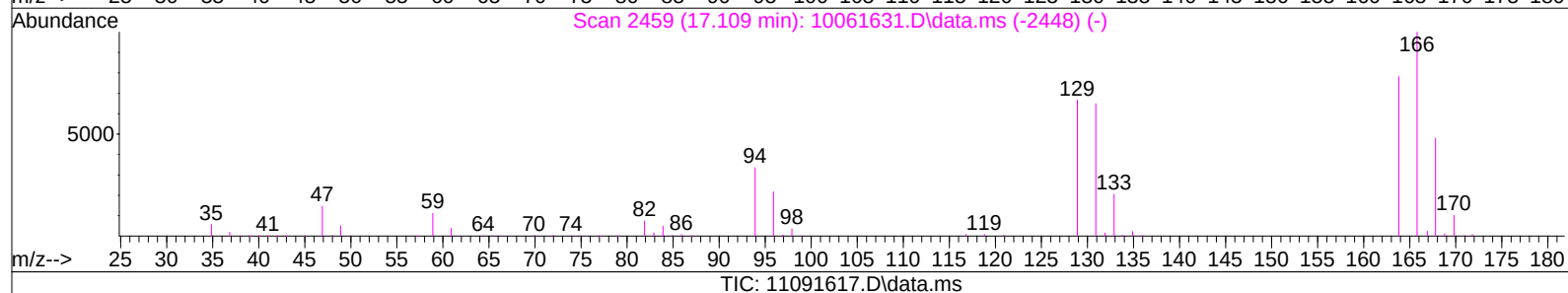
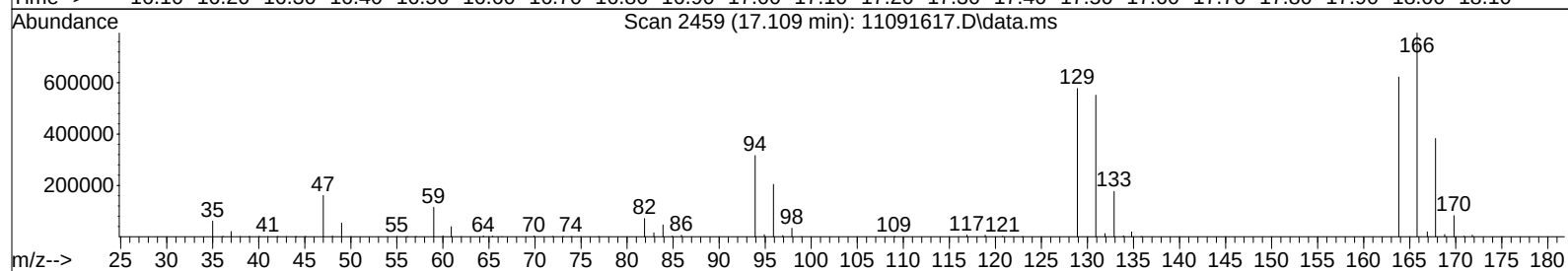
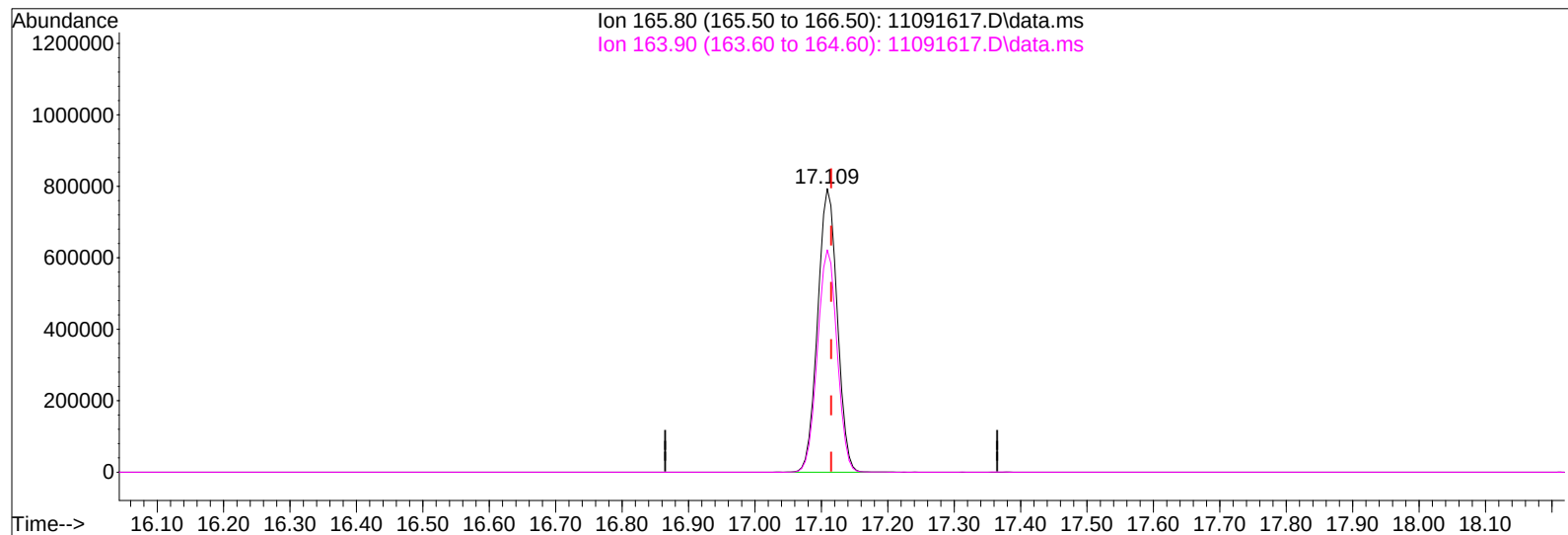
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091617.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 42.70ng

response 1624407

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	78.55
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091618.D

Acq On : 10 Nov 2016 3:32

Operator: LH

Sample : P1605133-013 (1000mL)

Misc : S29-11051601

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 14 14:20:01 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 11/14/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	278000	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1366345	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	587039	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	426457	14.974	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	119.76%
57) Toluene-d8 (SS2)	15.86	98	1410659	12.050	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.40%
73) Bromofluorobenzene (SS3)	19.10	174	474060	10.666	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	85.36%

Target Compounds

						Qvalue
2) Propene	4.14	42	687853	28.006	ng	97
3) Dichlorodifluoromethan...	4.31	85	96446	2.043	ng	99
4) Chloromethane	4.63	50	5930	0.209	ng	89
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	2838	0.101	ng	94
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	5.32	54	1616	N.D.		
8) Bromomethane	5.76	94	569	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.41	45	222496	12.496	ng	100
11) Acetonitrile	6.75	41	21841	0.471	ng	94
12) Acrolein	6.91	56	26754	1.605	ng	98
13) Acetone	7.10	58	504907	28.520	ng	90
14) Trichlorofluoromethane	7.35	101	43764	0.998	ng	99
15) 2-Propanol (Isopropanol)	7.57	45	437285	7.344	ng	99
16) Acrylonitrile	7.93	53	517	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.54	84	778129	26.912	ng	85
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	8.97	151	9750	0.376	ng	96
22) Carbon Disulfide	8.83	76	5710	N.D.		
23) trans-1,2-Dichloroethene	9.83	61	954	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	10.21	73	1186	N.D.		
26) Vinyl Acetate	10.30	86	14708	2.808	ng	# 61
27) 2-Butanone (MEK)	10.58	72	31273	1.717	ng	# 74
28) cis-1,2-Dichloroethene	11.10	61	52215	1.489	ng	90
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	11.41	61	9925	1.053	ng	86
31) n-Hexane	11.39	57	21083	0.541	ng	# 97
32) Chloroform	11.44	83	4211	0.093	ng	97
34) Tetrahydrofuran (THF)	11.89	72	1915	0.109	ng	# 1
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	1784	N.D.		
38) 1,1,1-Trichloroethane	12.54	97	792	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	53503	0.475	ng	100
42) Carbon Tetrachloride	13.17	117	12349	0.352	ng	100
43) Cyclohexane	13.31	84	5501	0.133	ng	83
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	14.11	83	2876	N.D.		
47) Trichloroethene	14.11	130	152126	4.759	ng	100
48) 1,4-Dioxane	14.11	88	518	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091618.D

Acq On : 10 Nov 2016 3:32

Operator: LH

Sample : P1605133-013 (1000mL)

Misc : S29-11051601

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 14 14:20:01 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	d	
51) n-Heptane	14.45	71	6338	0.231	ng	88
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.01	58	22308	0.890	ng	81
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	266139	2.318	ng	99
59) 2-Hexanone	16.21	43	21265	0.352	ng	84
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	98208	1.473	ng	94
63) n-Octane	16.97	57	4104	0.164	ng	88
64) Tetrachloroethene	17.11	166	1025179	27.702	ng	100
65) Chlorobenzene	17.76	112	2133	N.D.		
66) Ethylbenzene	18.12	91	20628	0.149	ng	95
67) m- & p-Xylenes	18.27	91	52362	0.493	ng	96
68) Bromoform	18.35	173	930	N.D.		
69) Styrene	18.60	104	9816	0.116	ng	93
70) o-Xylene	18.70	91	35389	0.336	ng	100
71) n-Nonane	18.90	43	21107	0.407	ng	94
72) 1,1,2,2-Tetrachloroethane	18.71	83	1144	N.D.		
74) Cumene	19.23	105	6773	N.D.		
75) alpha-Pinene	19.58	93	296432	4.319	ng	97
76) n-Propylbenzene	19.67	91	28855	0.195	ng	97
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	28205	0.225	ng	97
79) 1,3,5-Trimethylbenzene	19.87	105	33469	0.296	ng	99
80) alpha-Methylstyrene	20.01	118	832	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	124481	1.109	ng	88
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.35	91	1310	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d	
86) 1,4-Dichlorobenzene	20.42	146	19948	0.275	ng	100
87) sec-Butylbenzene	20.47	105	3819	N.D.		
88) 4-Isopropyltoluene (p-...	20.61	119	9837	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.72	146	665	N.D.		
91) d-Limonene	20.73	68	32140	0.813	ng	86
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.23	180	859	N.D.		
95) Naphthalene	22.34	128	9631	N.D.		
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	20.96	91	7626	N.D.		

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

Data File: I:\MS16\DATA\2016 11\09\11091618.D

Acq On : 10 Nov 2016 3:32

Operator: LH

Sample : P1605133-013 (1000mL)

Misc : S29-11051601

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 14 14:20:01 2016

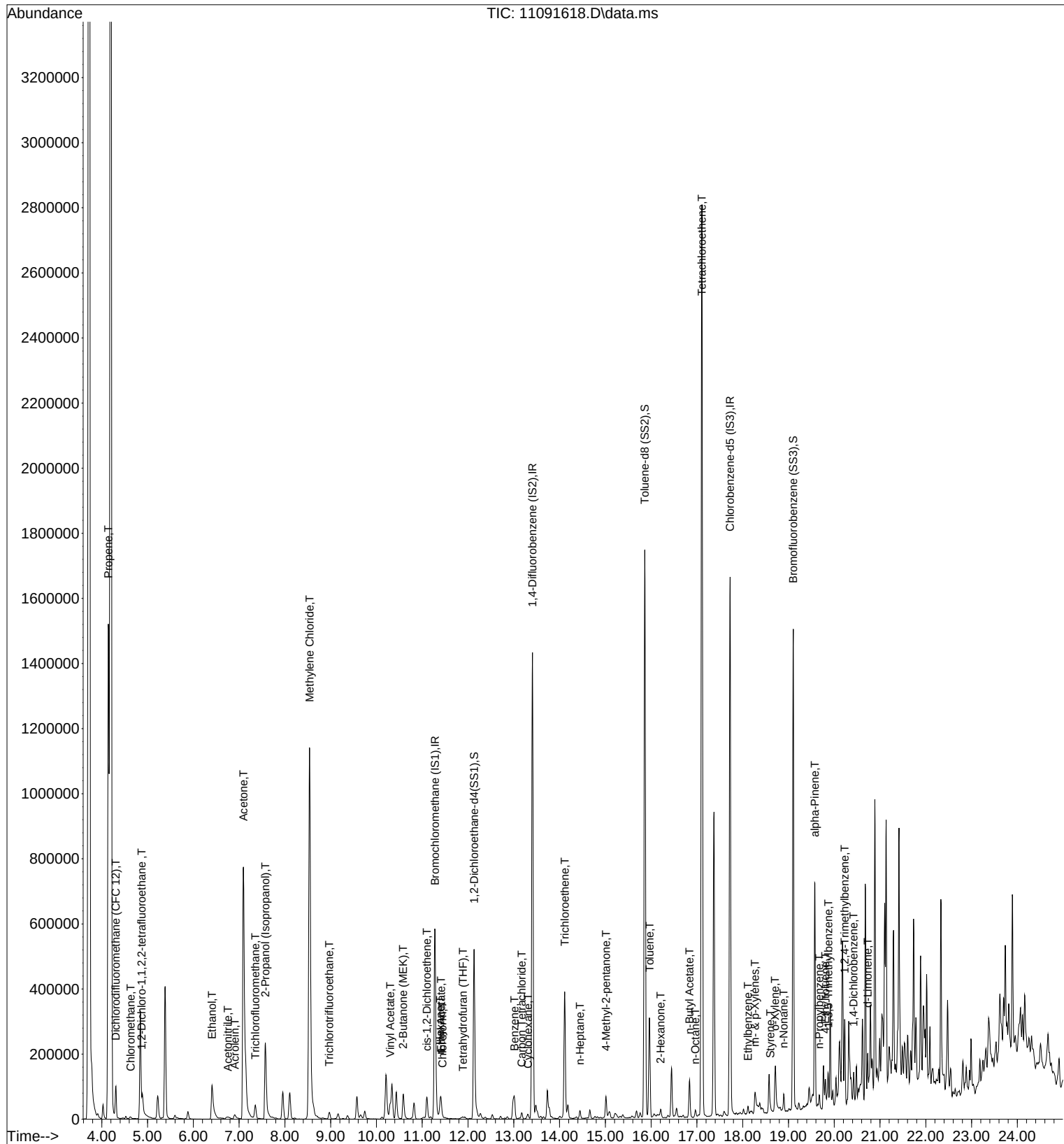
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2016 11\09\11091618.D

Acq On : 10 Nov 2016 3:32

Operator: LH

Sample : P1605133-013 (1000mL)

Misc : S29-11051601

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 10 08:20:13 2016

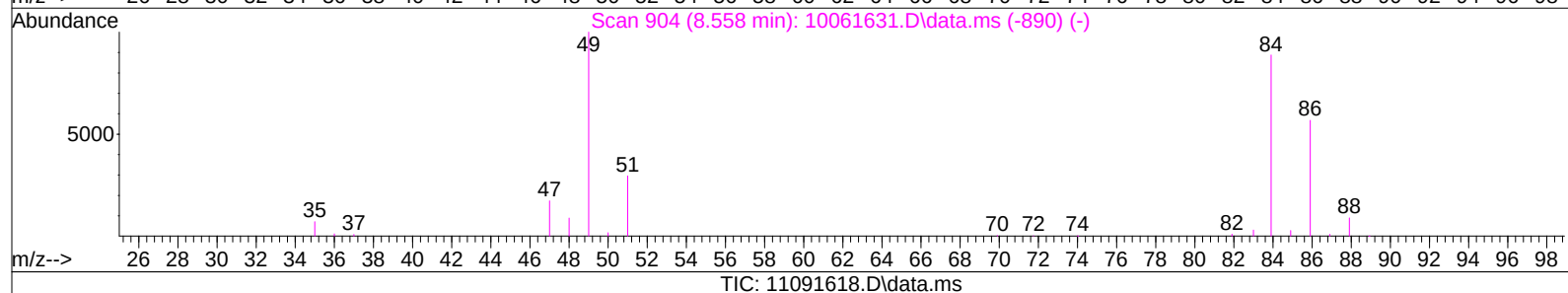
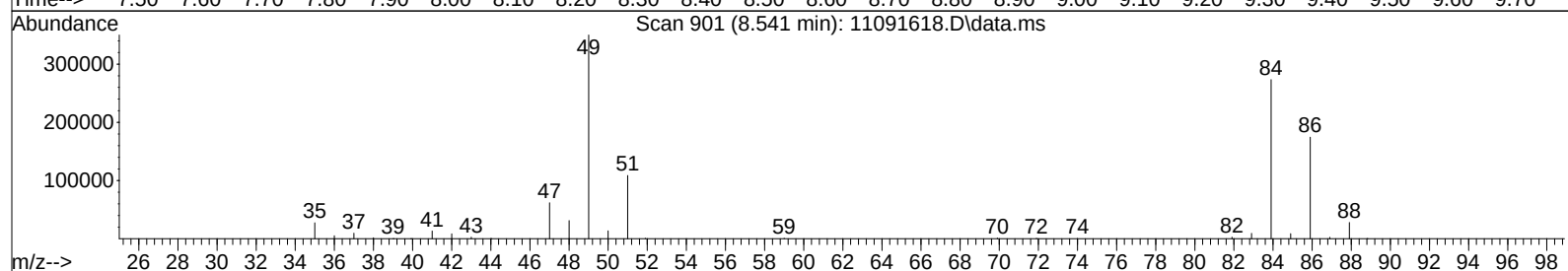
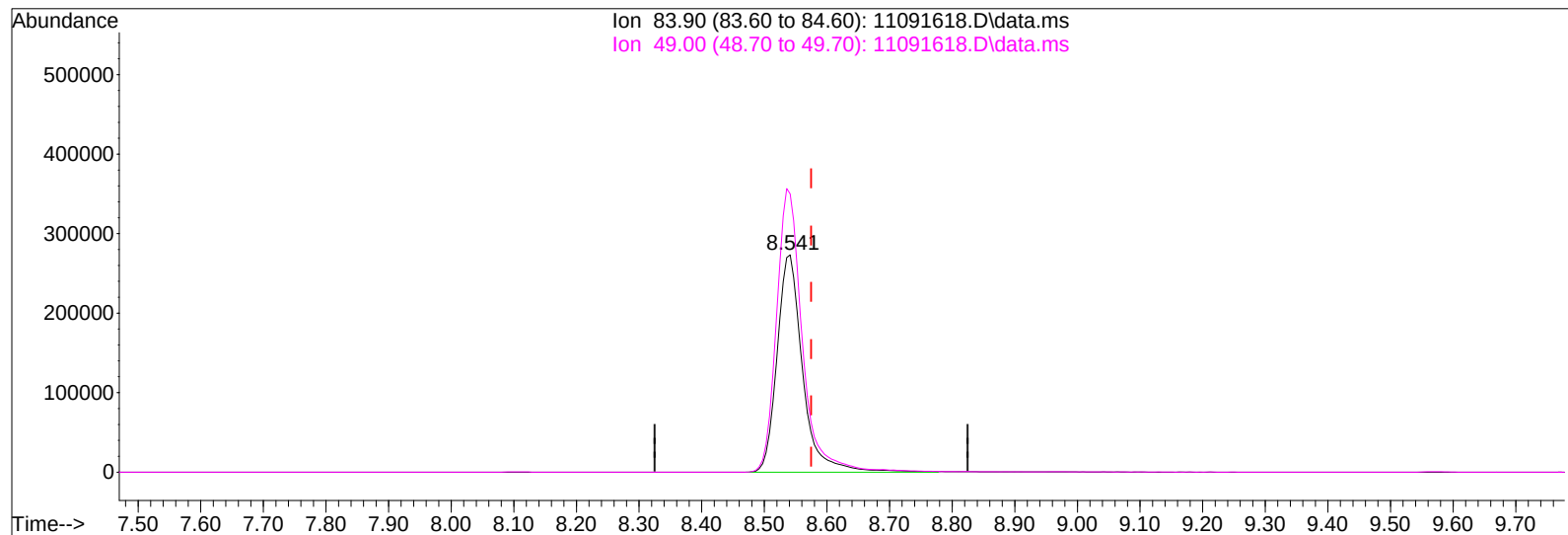
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091618.D\data.ms

(19) Methylene Chloride (T)

8.541min (-0.034) 26.91ng

response 778129

Ion	Exp%	Act%
83.90	100	100
49.00	114.70	131.47
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091618.D

Acq On : 10 Nov 2016 3:32

Operator: LH

Sample : P1605133-013 (1000mL)

Misc : S29-11051601

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 10 08:20:13 2016

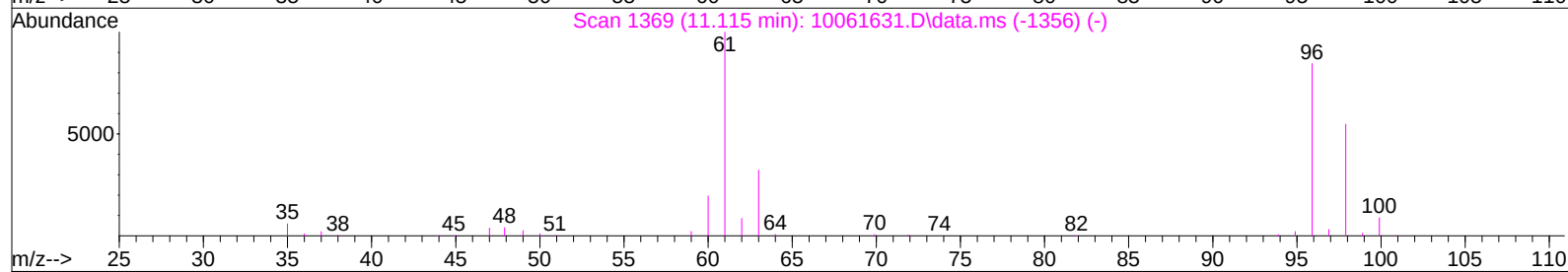
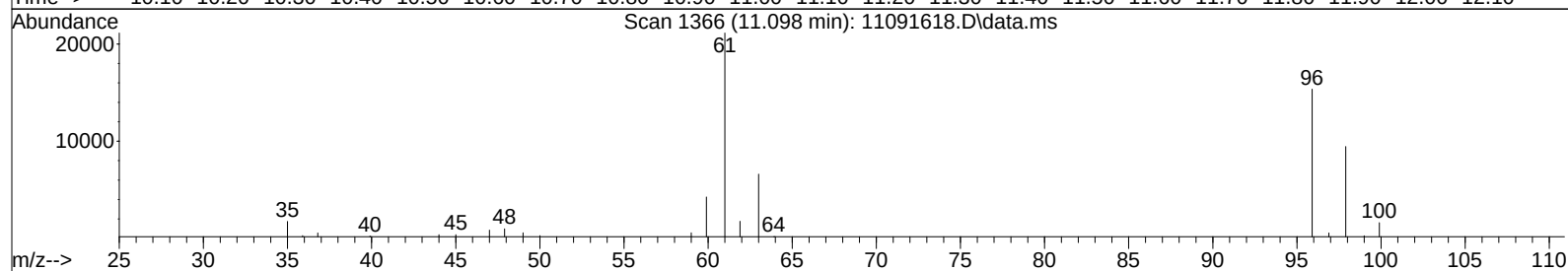
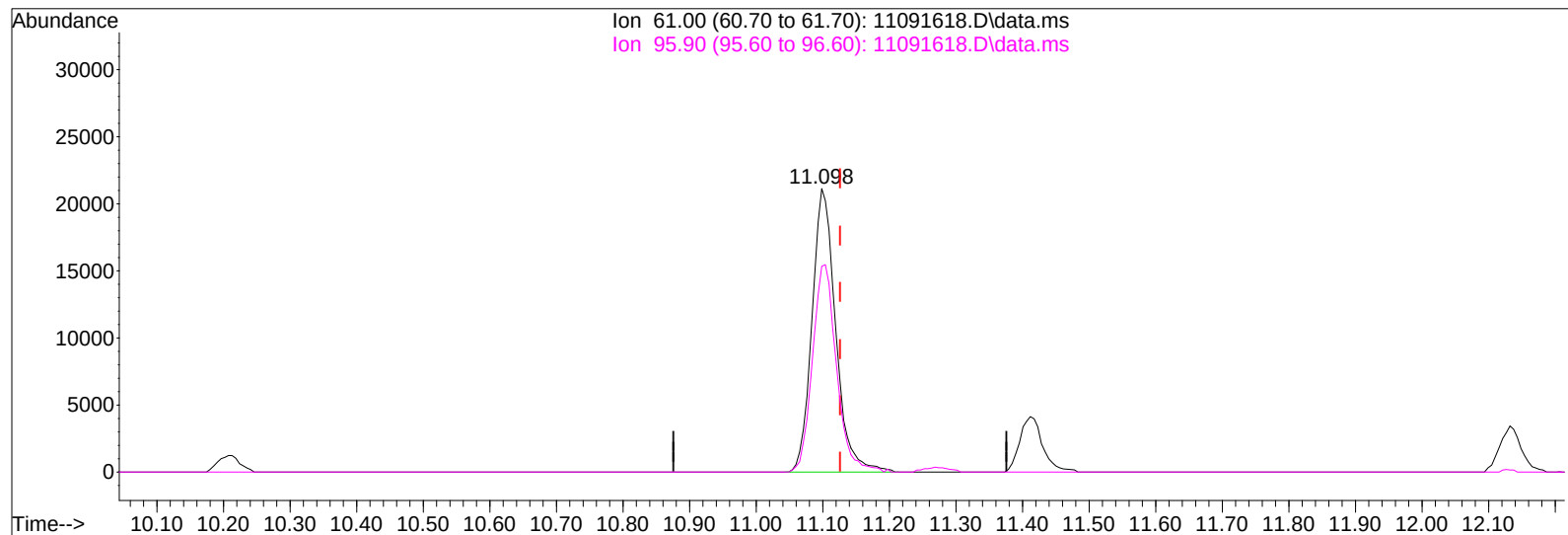
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091618.D\data.ms

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

11.098min (-0.028) 1.49ng

response 52215

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	74.55
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091618.D

Acq On : 10 Nov 2016 3:32

Operator: LH

Sample : P1605133-013 (1000mL)

Misc : S29-11051601

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 10 08:20:13 2016

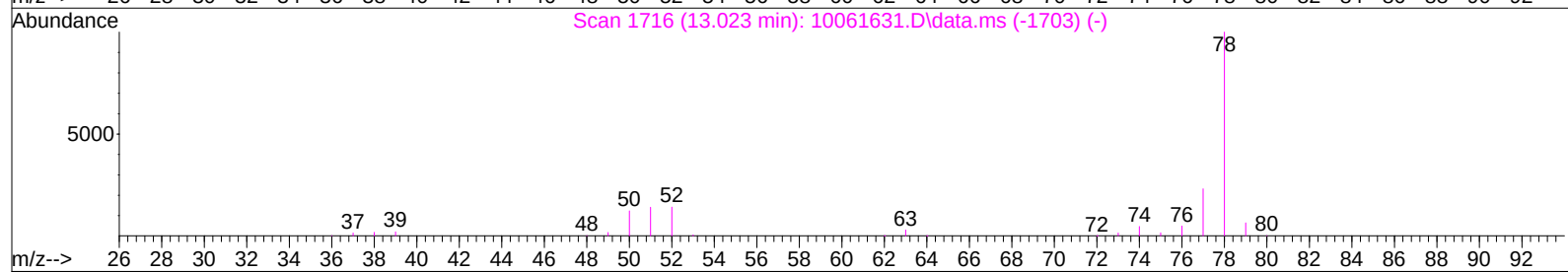
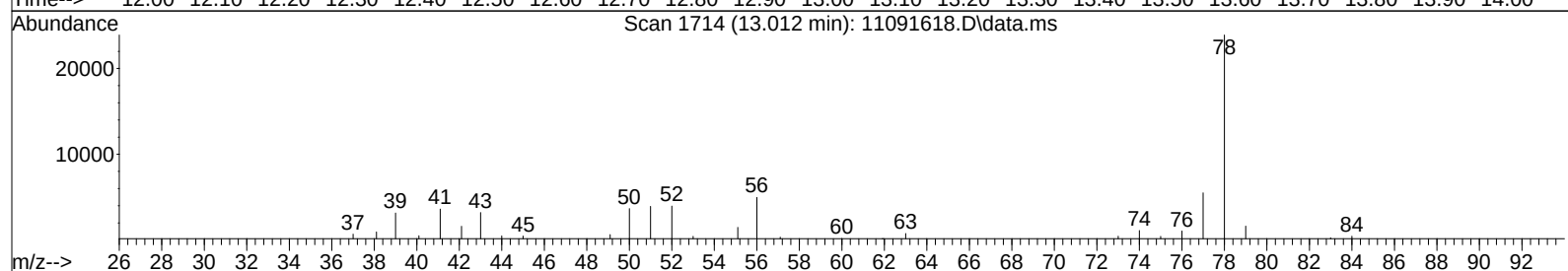
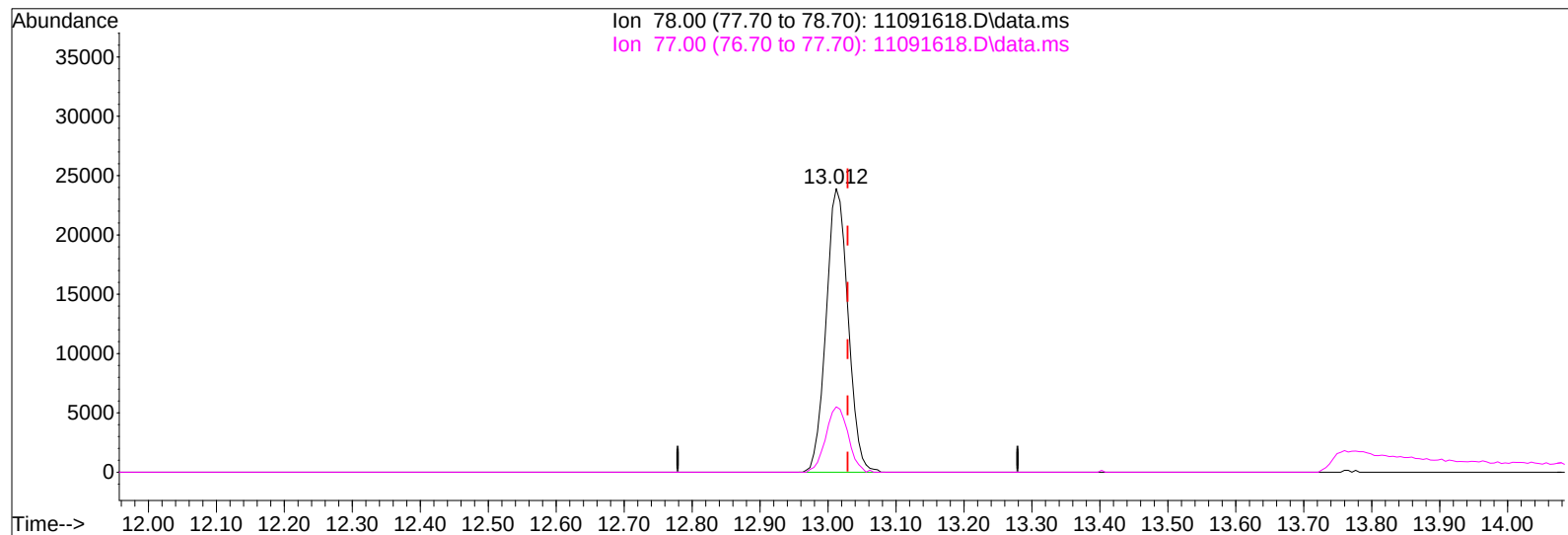
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091618.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 0.47ng

response 53503

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.47
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091618.D

Acq On : 10 Nov 2016 3:32

Operator: LH

Sample : P1605133-013 (1000mL)

Misc : S29-11051601

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 10 08:20:13 2016

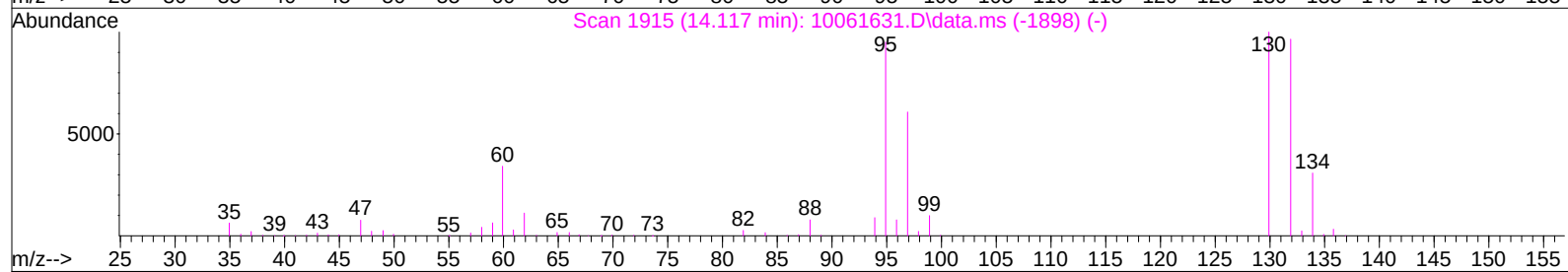
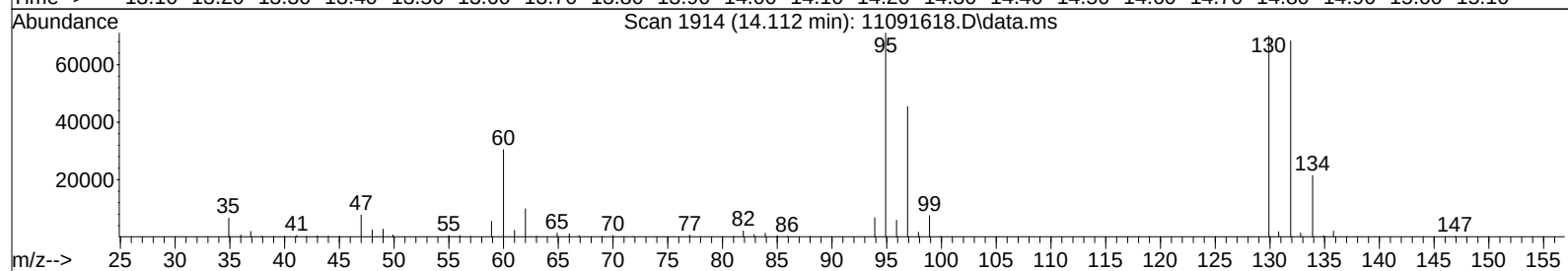
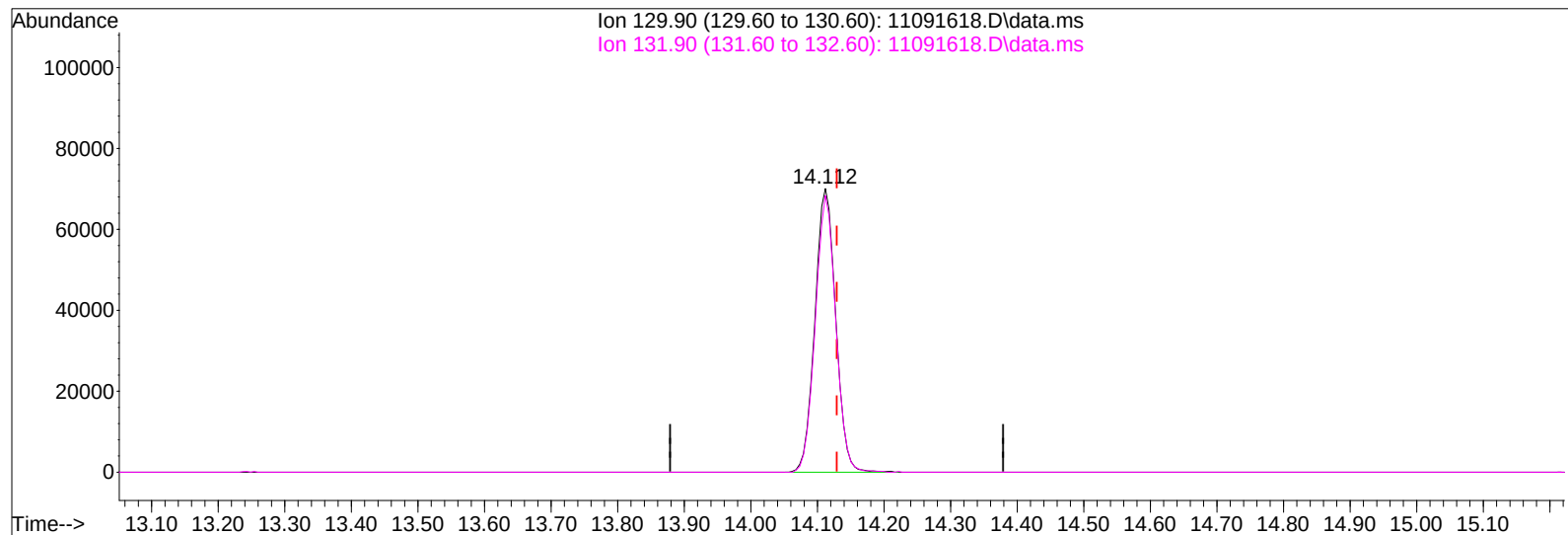
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091618.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 4.76ng

response 152126

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	96.07
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091618.D

Acq On : 10 Nov 2016 3:32

Operator: LH

Sample : P1605133-013 (1000mL)

Misc : S29-11051601

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 14 14:20:01 2016

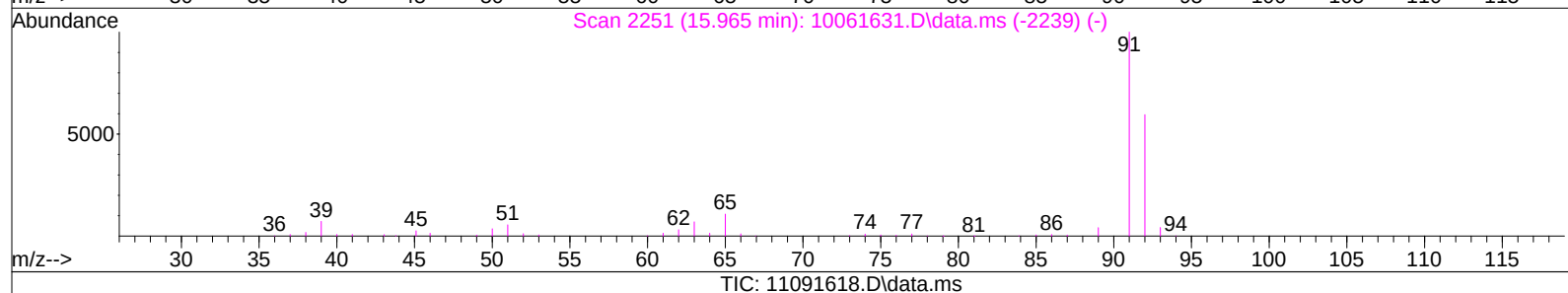
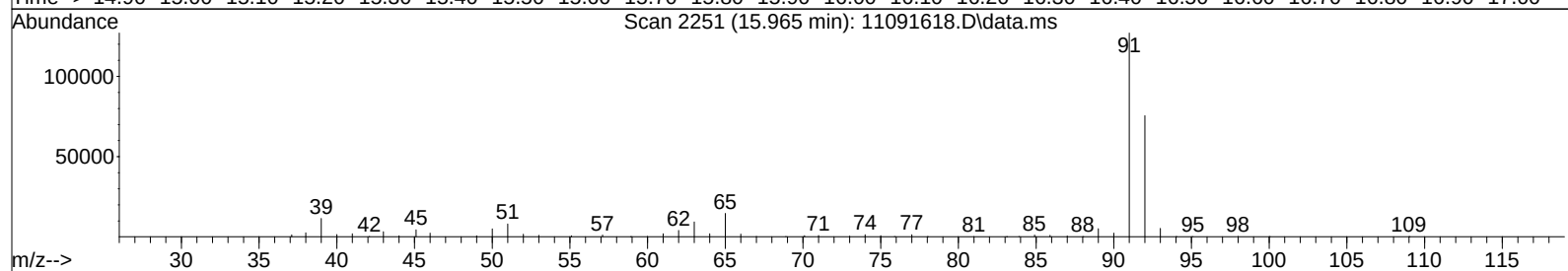
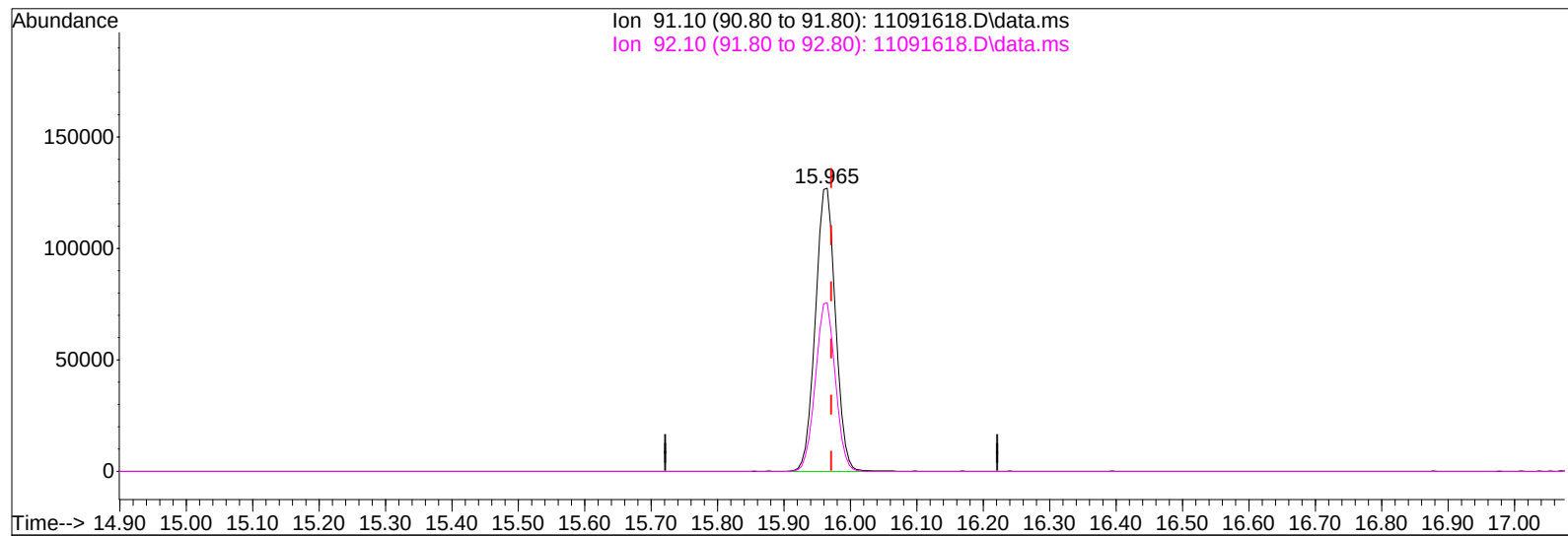
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091618.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 2.32ng

response 266139

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	59.00
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091618.D

Acq On : 10 Nov 2016 3:32

Operator: LH

Sample : P1605133-013 (1000mL)

Misc : S29-11051601

ALS Vial : 15 Sample Multiplier: 1

Quant Time: Nov 10 08:20:13 2016

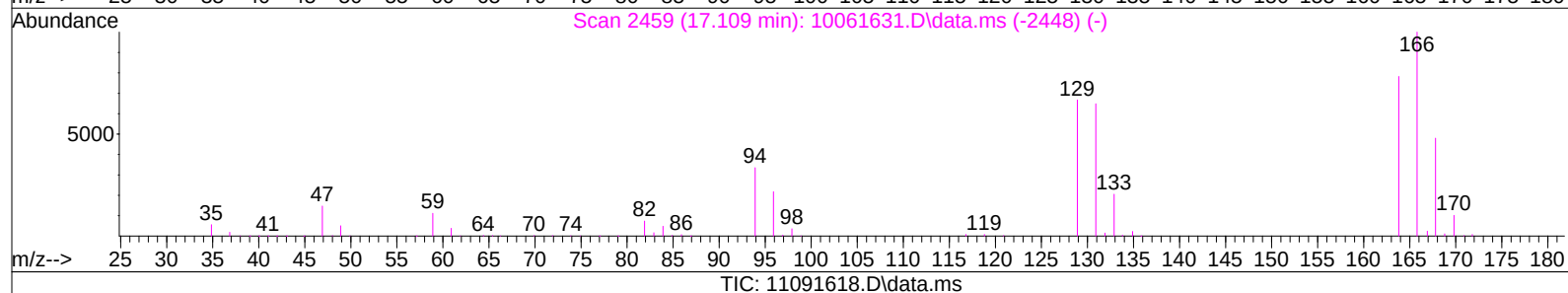
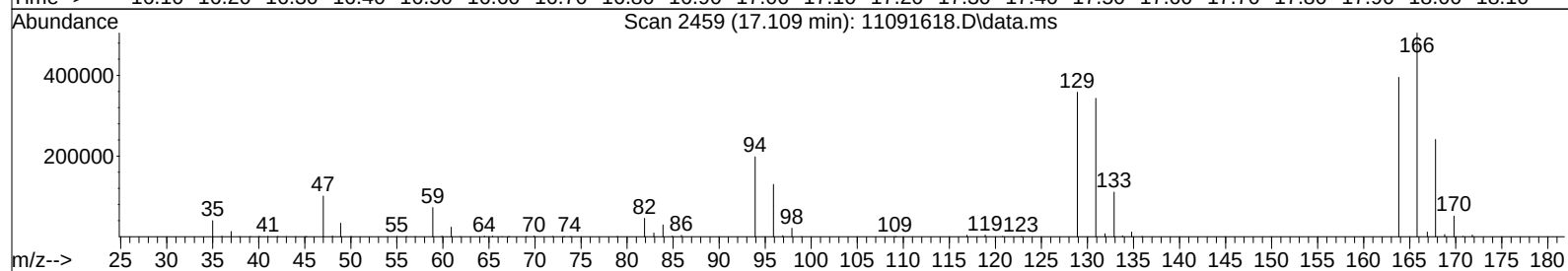
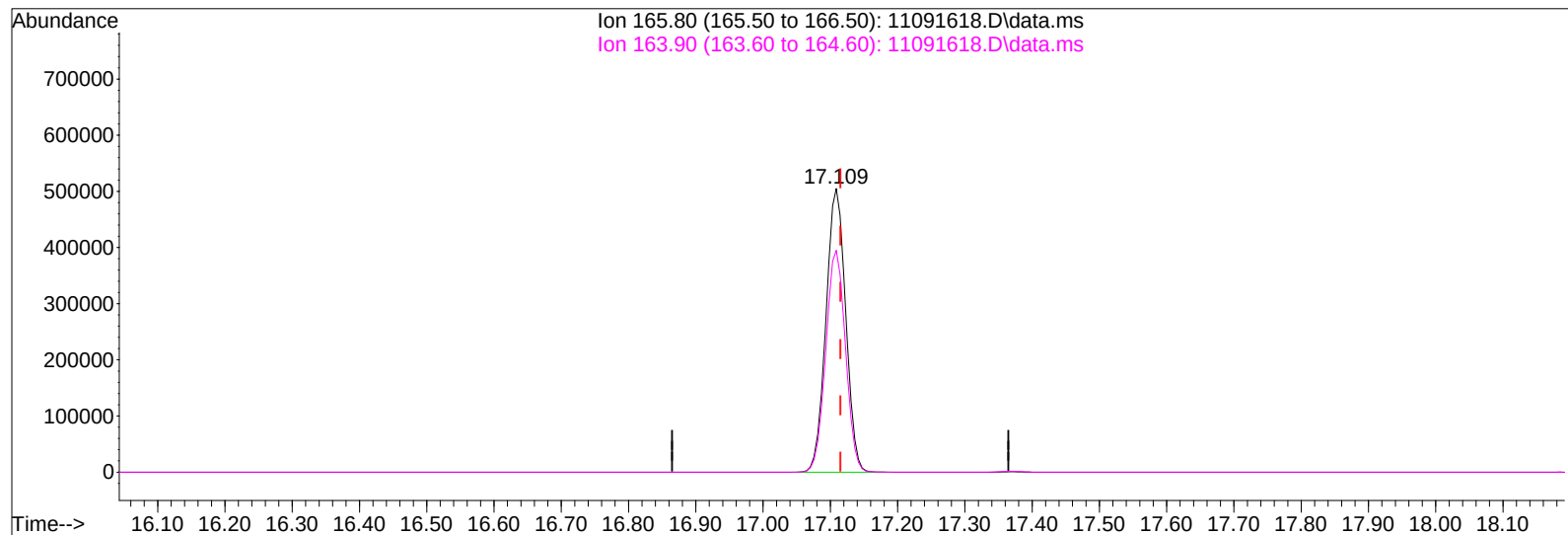
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091618.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 27.70ng

response 1025179

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	78.41
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091619.D

Acq On : 10 Nov 2016 4:06

Operator: LH

Sample : P1605133-014 (1000mL)

Misc : S29-11051601

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 14 14:23:15 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 11/14/16

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	282680	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1389545	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	605185	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	436842	15.084	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	120.64%
57) Toluene-d8 (SS2)	15.86	98	1425393	11.811	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	94.48%
73) Bromofluorobenzene (SS3)	19.10	174	484538	10.575	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	84.56%

Target Compounds

						Qvalue
2) Propene	4.14	42	271081	10.854	ng	96
3) Dichlorodifluoromethan...	4.31	85	86042	1.793	ng	99
4) Chloromethane	4.66	50	5742	0.199	ng	82
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	2492	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	5.35	54	825	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.44	45	52532	2.902	ng	100
11) Acetonitrile	6.77	41	8701	0.185	ng	90
12) Acrolein	6.95	56	5801	0.342	ng	100
13) Acetone	7.10	58	216097	12.004	ng	# 76
14) Trichlorofluoromethane	7.36	101	38148	0.856	ng	100
15) 2-Propanol (Isopropanol)	7.60	45	65806	1.087	ng	94
16) Acrylonitrile	7.96	53	986	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.55	84	5544	0.189	ng	78
20) 3-Chloro-1-propene (Al...	8.63	41	1747	N.D.		
21) Trichlorotrifluoroethane	8.98	151	8260	0.314	ng	93
22) Carbon Disulfide	8.85	76	45817	0.461	ng	98
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.	d	
27) 2-Butanone (MEK)	10.60	72	11489	0.620	ng	# 71
28) cis-1,2-Dichloroethene	11.10	61	10862	0.305	ng	89
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	11.42	61	8804	0.918	ng	86
31) n-Hexane	11.40	57	12447	0.314	ng	# 97
32) Chloroform	11.44	83	3350	N.D.		
34) Tetrahydrofuran (THF)	11.90	72	977	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	1474	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	40778	0.356	ng	100
42) Carbon Tetrachloride	13.18	117	10967	0.307	ng	98
43) Cyclohexane	13.30	84	2573	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	14.11	83	1034	N.D.		
47) Trichloroethene	14.11	130	34960	1.075	ng	98
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091619.D

Acq On : 10 Nov 2016 4:06

Operator: LH

Sample : P1605133-014 (1000mL)

Misc : S29-11051601

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 14 14:23:15 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	d	
51) n-Heptane	14.45	71	4900	0.176	ng	86
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.02	58	1716	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	89881	0.759	ng	100
59) 2-Hexanone	16.22	43	3597	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	90452	1.316	ng	93
63) n-Octane	16.97	57	10389	0.402	ng	# 79
64) Tetrachloroethene	17.11	166	12210	0.320	ng	99
65) Chlorobenzene	17.76	112	1308	N.D.		
66) Ethylbenzene	18.12	91	19201	0.134	ng	95
67) m- & p-Xylenes	18.27	91	49762	0.455	ng	93
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	7557	N.D.		
70) o-Xylene	18.70	91	35153	0.324	ng	98
71) n-Nonane	18.90	43	5989	0.112	ng	# 78
72) 1,1,2,2-Tetrachloroethane	18.71	83	2722	N.D.		
74) Cumene	19.23	105	7300	N.D.		
75) alpha-Pinene	19.58	93	198046	2.799	ng	88
76) n-Propylbenzene	19.68	91	30274	0.198	ng	96
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	30928	0.240	ng	98
79) 1,3,5-Trimethylbenzene	19.87	105	31613	0.271	ng	97
80) alpha-Methylstyrene	20.00	118	812	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	130813	1.131	ng	87
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.34	91	778	N.D.		
85) 1,3-Dichlorobenzene	20.42	146	6120	N.D.		
86) 1,4-Dichlorobenzene	20.42	146	6120	N.D.		
87) sec-Butylbenzene	20.47	105	3116	N.D.		
88) 4-Isopropyltoluene (p-...	20.61	119	9885	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.73	68	13045	0.320	ng	# 43
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.24	180	518	N.D.		
95) Naphthalene	22.35	128	6637	N.D.		
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	20.95	91	7108	N.D.		

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

Data File: I:\MS16\DATA\2016 11\09\11091619.D

Acq On : 10 Nov 2016 4:06

Operator: LH

Sample : P1605133-014 (1000mL)

Misc : S29-11051601

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 14 14:23:15 2016

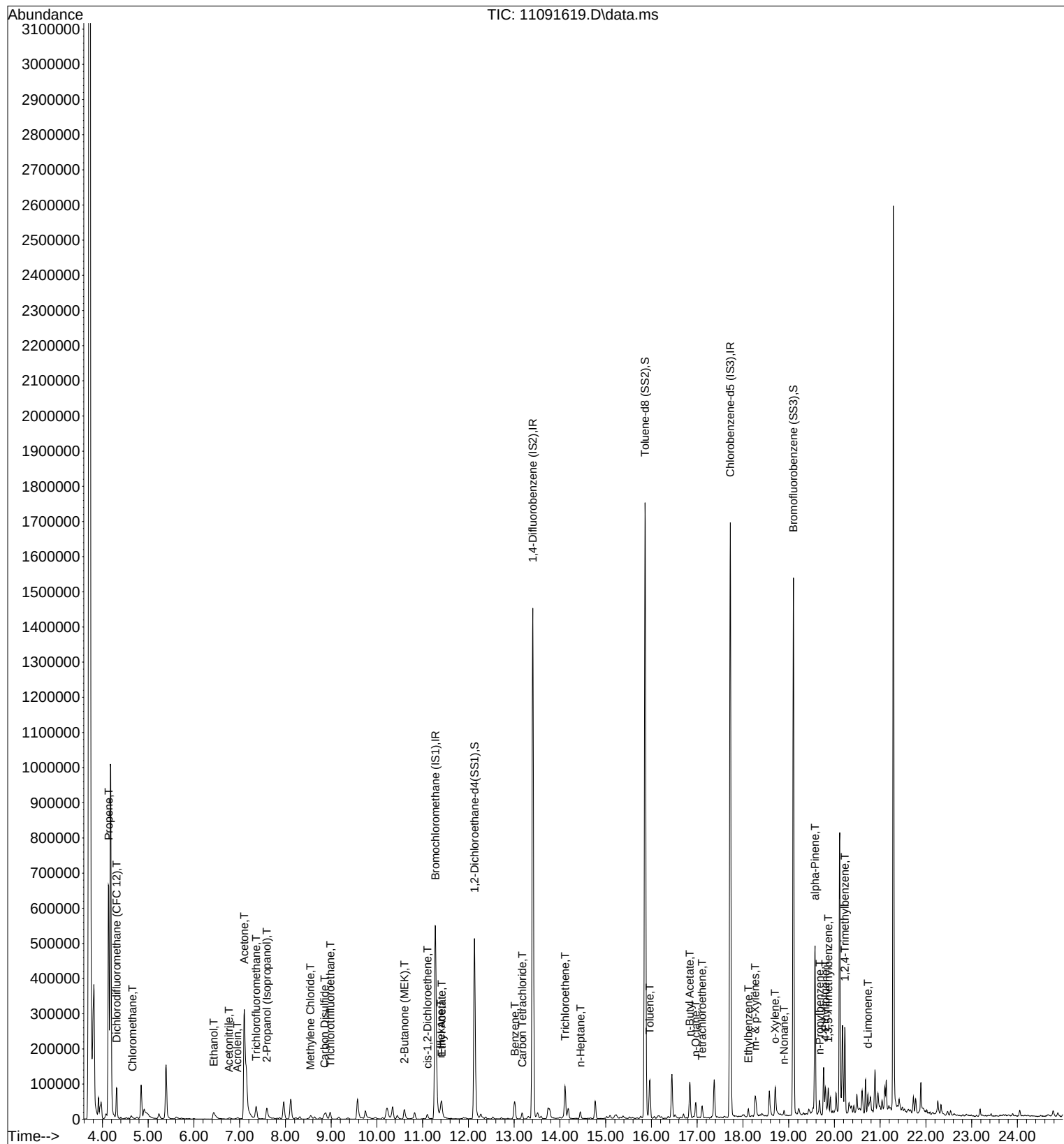
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091619.D

Acq On : 10 Nov 2016 4:06

Operator: LH

Sample : P1605133-014 (1000mL)

Misc : S29-11051601

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 10 08:20:20 2016

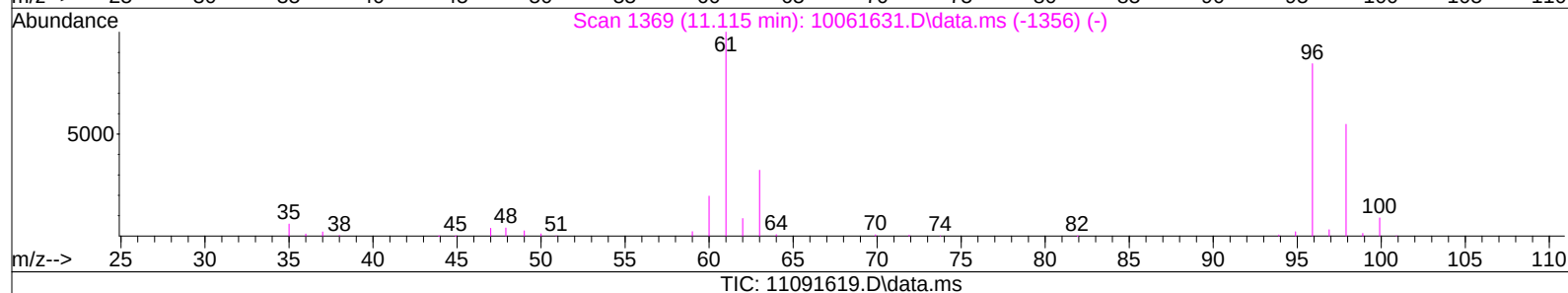
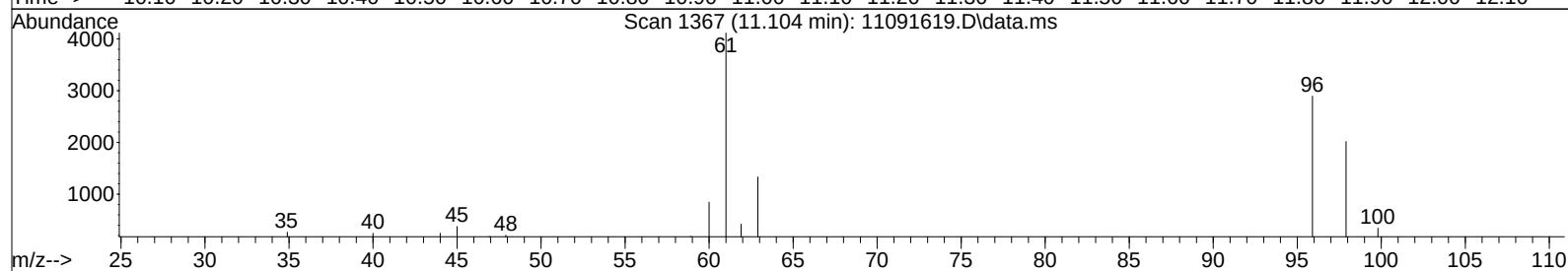
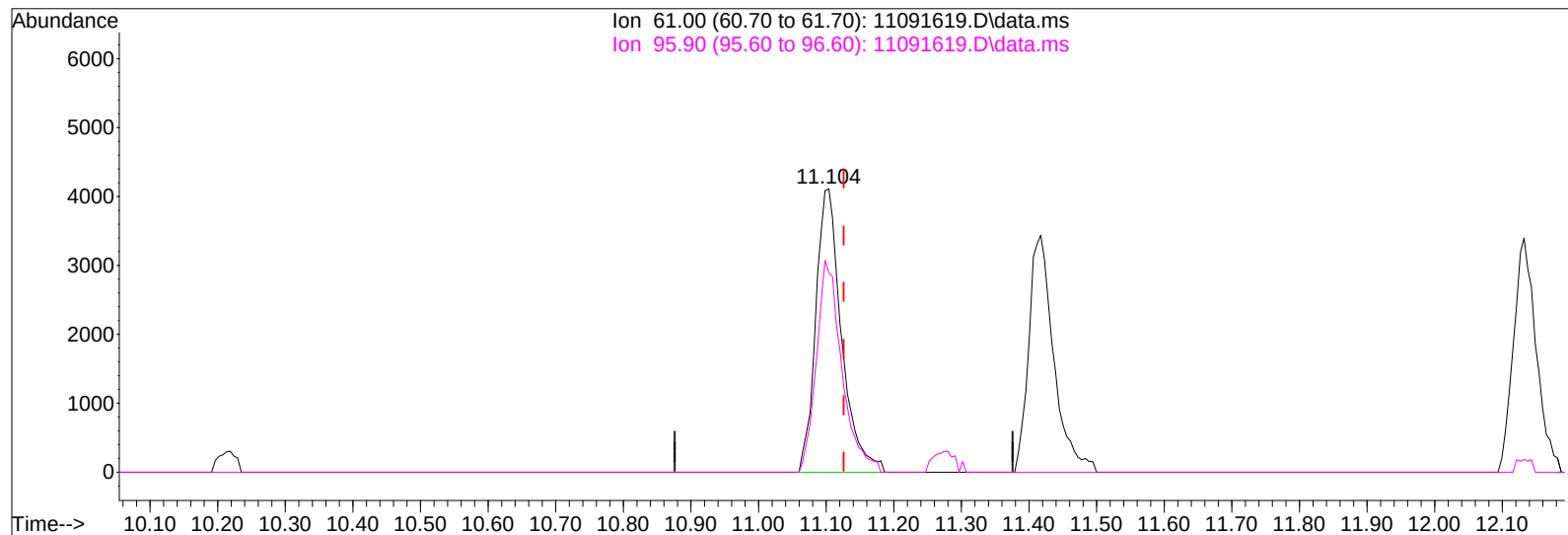
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091619.D\data.ms

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

11.104min (-0.022) 0.30ng

response 10862

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	74.04
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091619.D

Acq On : 10 Nov 2016 4:06

Operator: LH

Sample : P1605133-014 (1000mL)

Misc : S29-11051601

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 10 08:20:20 2016

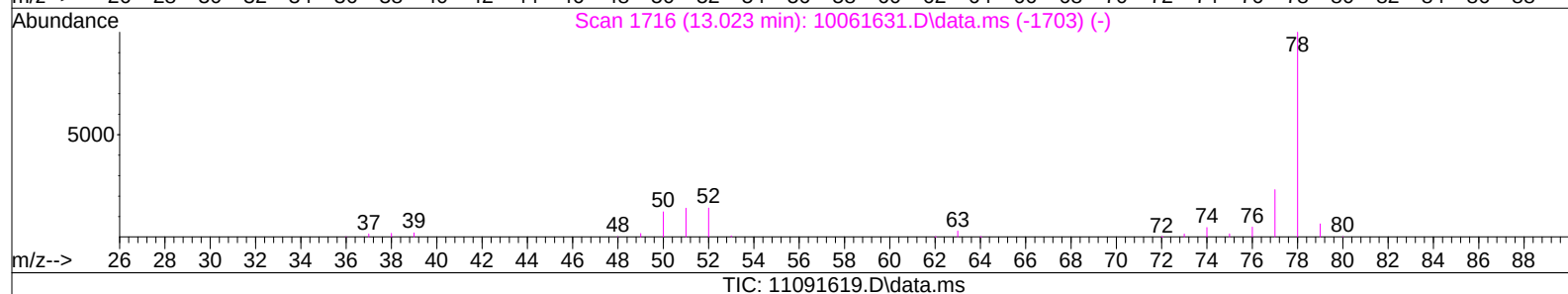
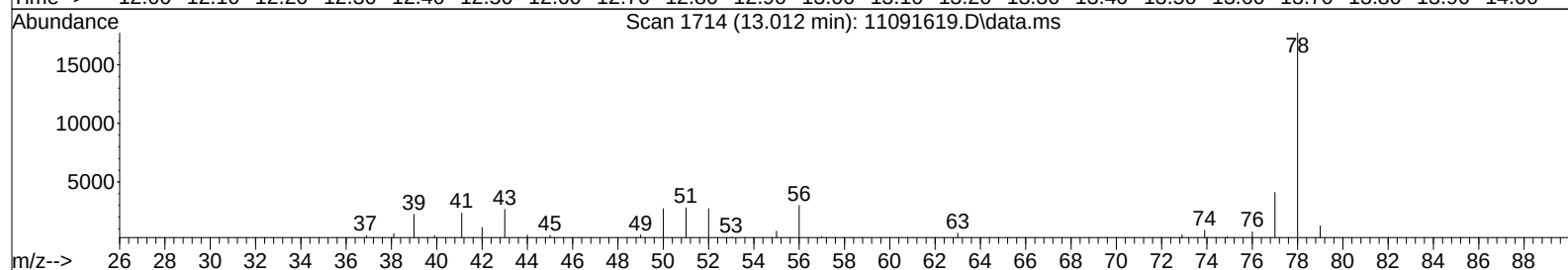
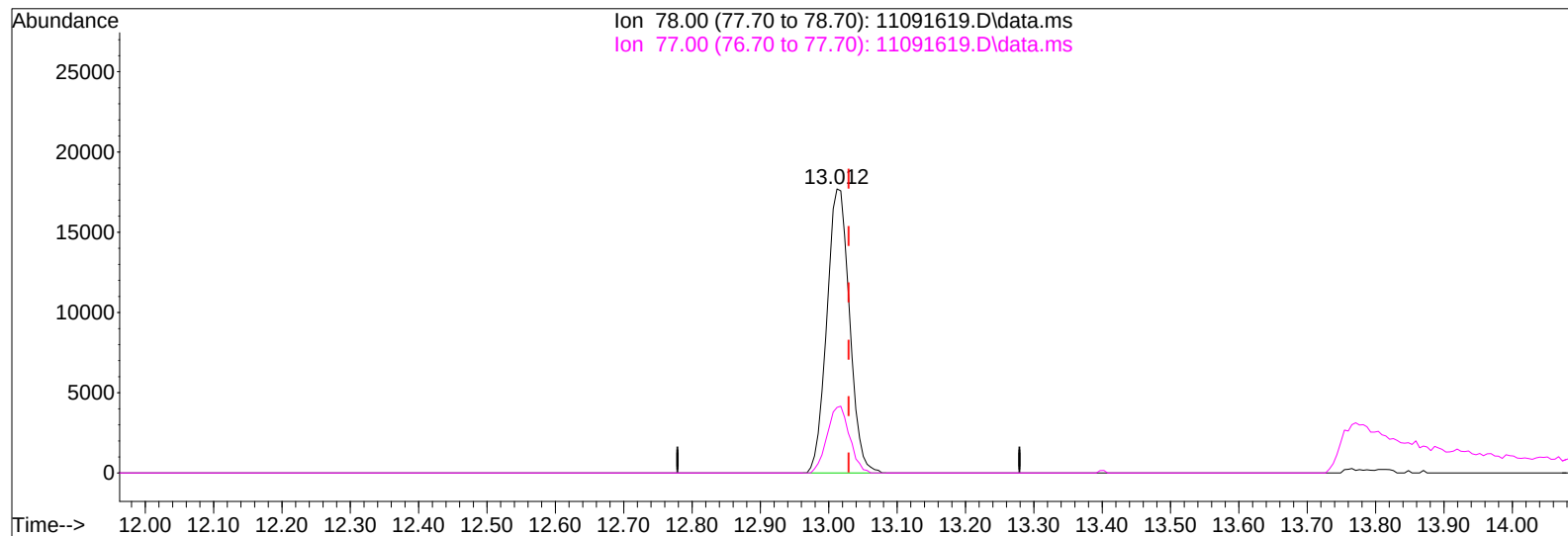
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091619.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 0.36ng

response 40778

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.20
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091619.D

Acq On : 10 Nov 2016 4:06

Operator: LH

Sample : P1605133-014 (1000mL)

Misc : S29-11051601

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 10 08:20:20 2016

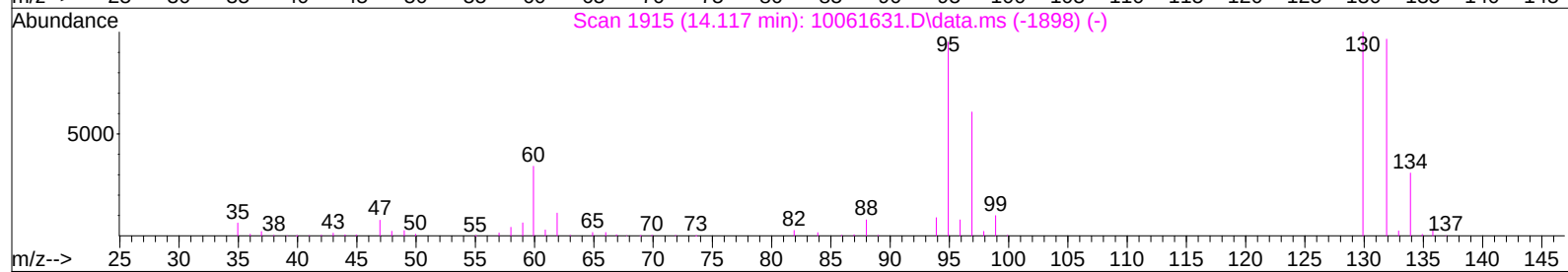
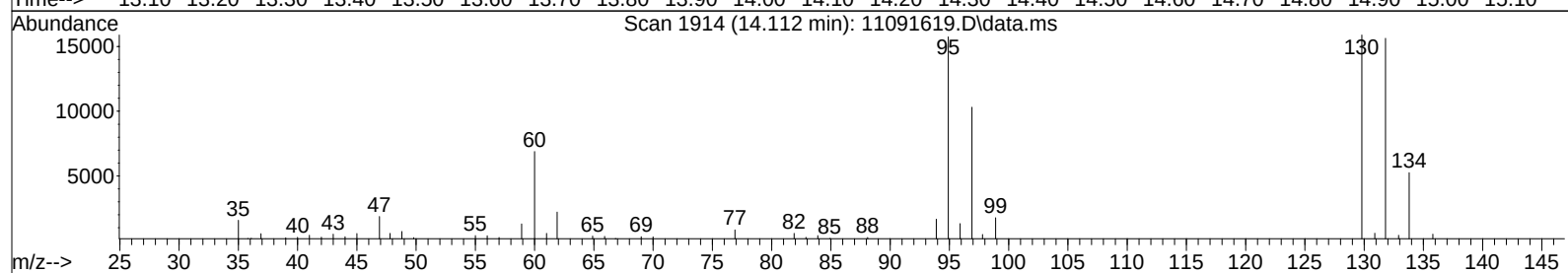
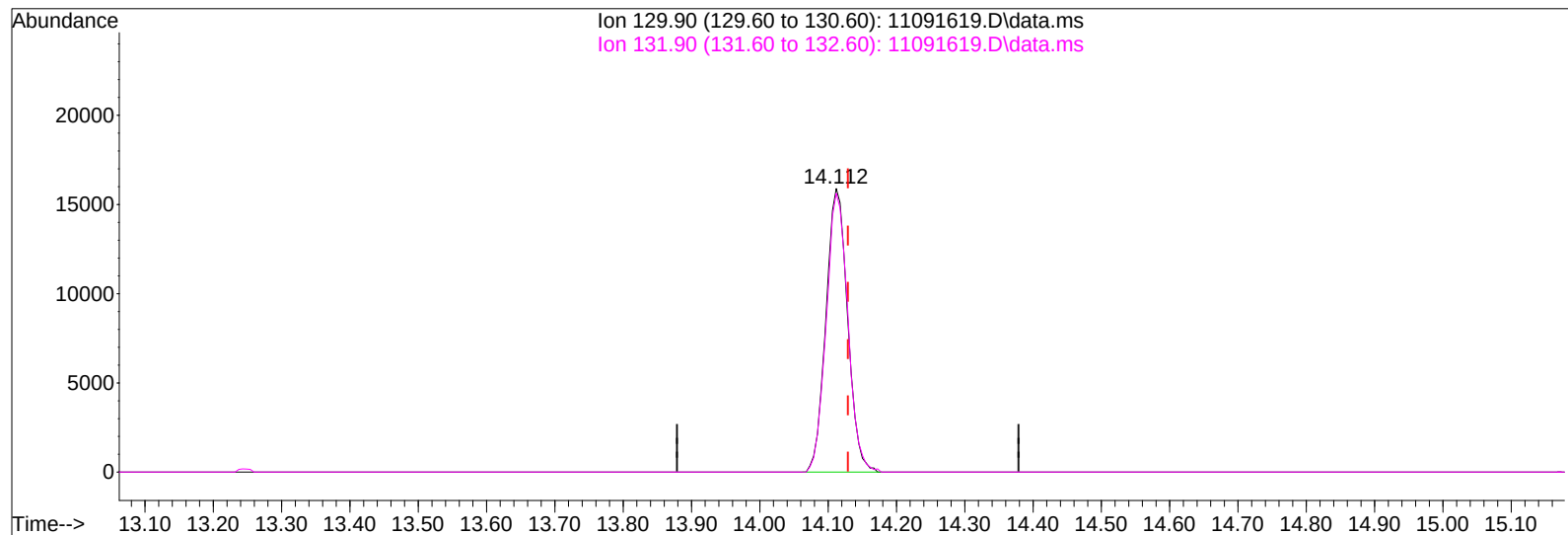
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091619.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 1.08ng

response 34960

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	98.19
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091619.D

Acq On : 10 Nov 2016 4:06

Operator: LH

Sample : P1605133-014 (1000mL)

Misc : S29-11051601

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 10 08:20:20 2016

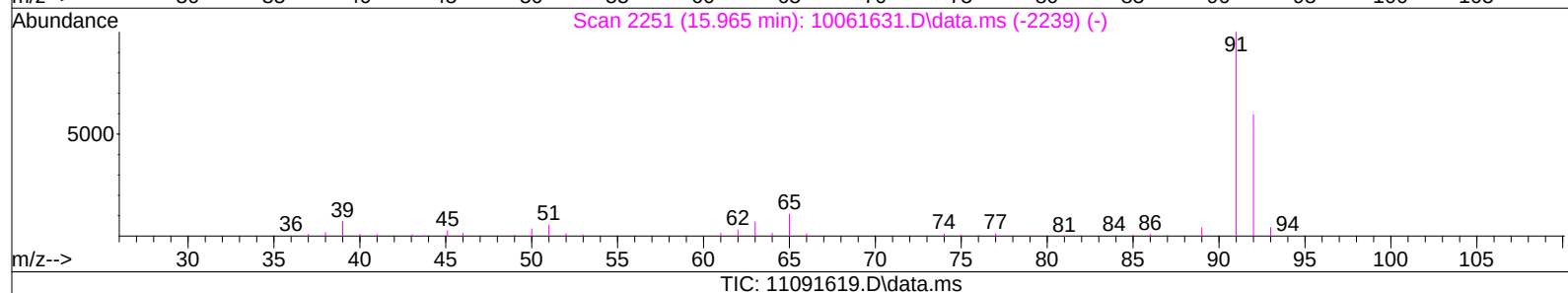
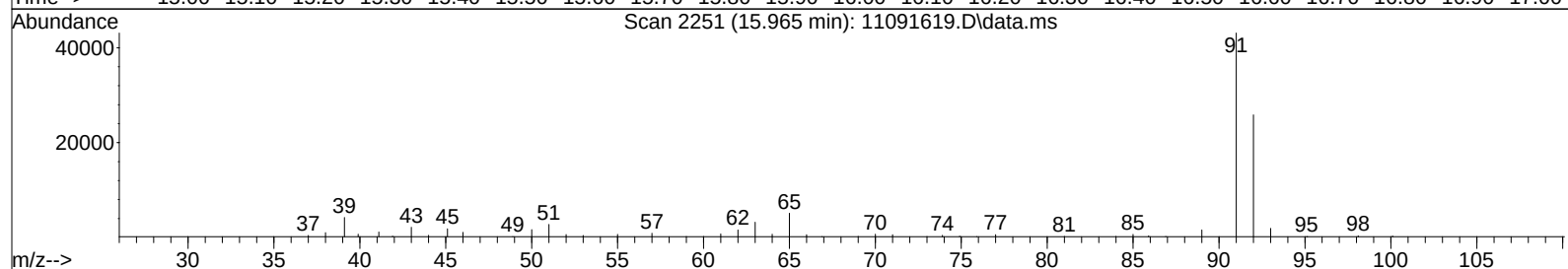
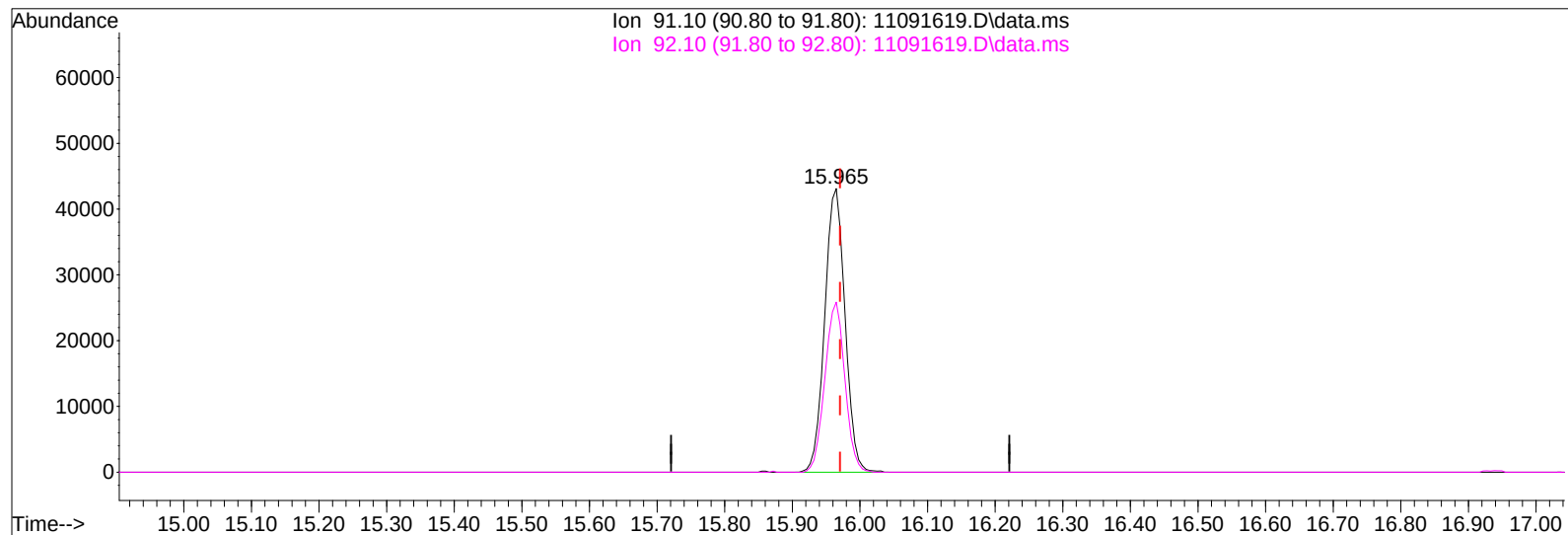
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091619.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 0.76ng

response 89881

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	59.10
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091619.D

Acq On : 10 Nov 2016 4:06

Operator: LH

Sample : P1605133-014 (1000mL)

Misc : S29-11051601

ALS Vial : 16 Sample Multiplier: 1

Quant Time: Nov 10 08:20:20 2016

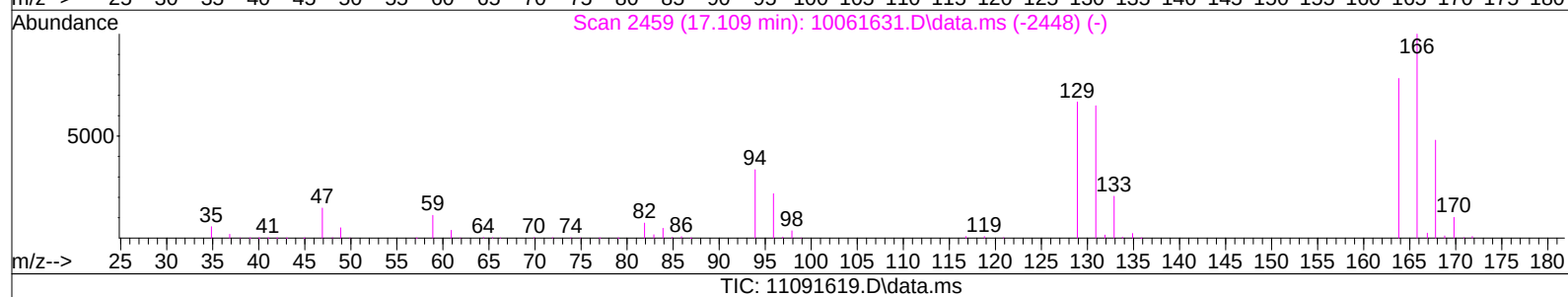
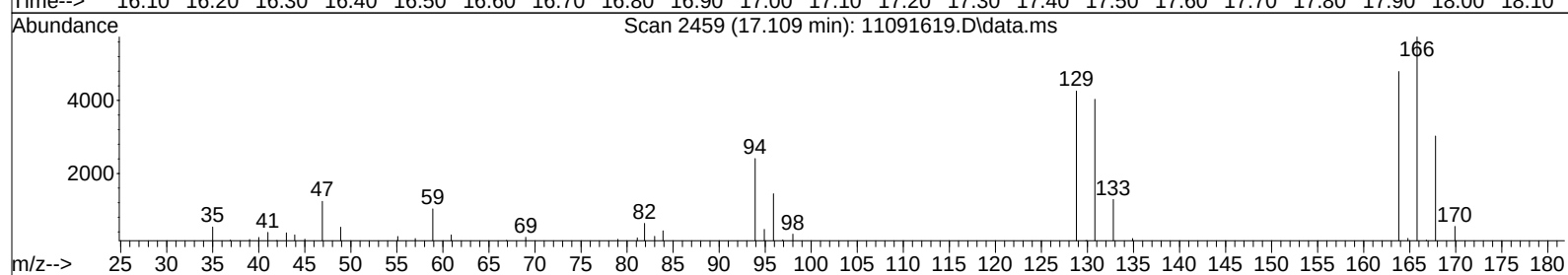
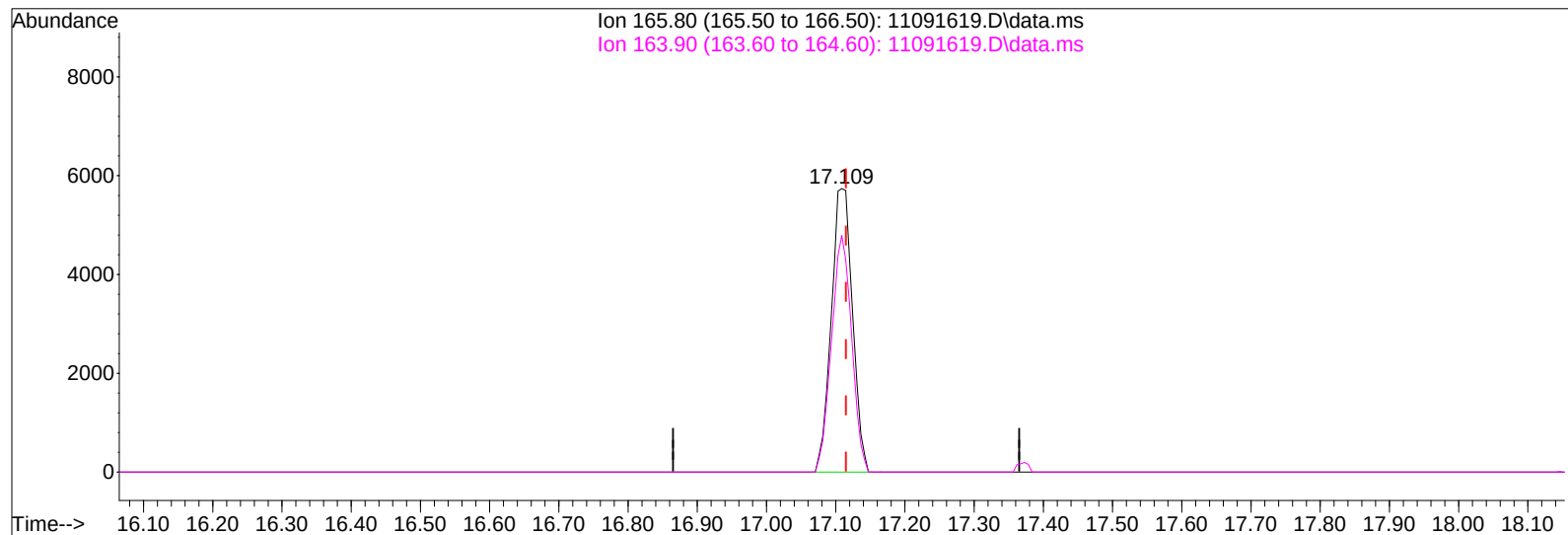
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091619.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 0.32ng

response 12210

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	79.19
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091623.D

Acq On : 10 Nov 2016 11:10
 Sample : P1605133-015 (1000mL)
 Misc : S29-11051601
 ALS Vial : 6 Sample Multiplier: 1

Operator: LH

Quant Time: Nov 14 14:35:19 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 11/14/16

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	276914	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1365333	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	576580	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	434742	15.324	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	122.56%
57) Toluene-d8 (SS2)	15.86	98	1399819	12.174	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.36%
73) Bromofluorobenzene (SS3)	19.11	174	461667	10.575	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	84.64%

Target Compounds

						Qvalue
2) Propene	4.14	42	358095	14.637	ng	98
3) Dichlorodifluoromethan...	4.31	85	100634	2.141	ng	100
4) Chloromethane	4.65	50	6137	0.217	ng	90
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	2848	0.102	ng	94
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	5.35	54	1110	N.D.		
8) Bromomethane	5.78	94	697	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.42	45	122078	6.883	ng	99
11) Acetonitrile	6.78	41	10387	0.225	ng	97
12) Acrolein	6.92	56	17052	1.027	ng	99
13) Acetone	7.10	58	292800	16.604	ng	# 75
14) Trichlorofluoromethane	7.36	101	45373	1.039	ng	99
15) 2-Propanol (Isopropanol)	7.59	45	134902	2.275	ng	94
16) Acrylonitrile	7.96	53	1088	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.55	84	8006	0.278	ng	81
20) 3-Chloro-1-propene (Al...	8.65	41	2391	N.D.		
21) Trichlorotrifluoroethane	8.98	151	9325	0.361	ng	89
22) Carbon Disulfide	8.85	76	40316	0.414	ng	98
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	10.22	73	1056	N.D.		
26) Vinyl Acetate	10.31	86	5051	0.968	ng	# 1
27) 2-Butanone (MEK)	10.59	72	16160	0.891	ng	# 70
28) cis-1,2-Dichloroethene	11.10	61	14147	0.405	ng	87
29) Diisopropyl Ether	11.45	87	534	N.D.		
30) Ethyl Acetate	11.41	61	10906	1.161	ng	91
31) n-Hexane	11.40	57	17935	0.462	ng	# 94
32) Chloroform	11.44	83	4128	0.092	ng	99
34) Tetrahydrofuran (THF)	11.88	72	5297	0.303	ng	# 42
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	2328	N.D.		
38) 1,1,1-Trichloroethane	12.54	97	908	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	99306	0.882	ng	100
42) Carbon Tetrachloride	13.18	117	13352	0.381	ng	98
43) Cyclohexane	13.31	84	5899	0.143	ng	# 79
44) tert-Amyl Methyl Ether	13.69	73	2900	N.D.		
45) 1,2-Dichloropropane	13.68	63	938	N.D.		
46) Bromodichloromethane	14.10	83	1498	N.D.		
47) Trichloroethene	14.11	130	45166	1.414	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091623.D

Acq On : 10 Nov 2016 11:10

Operator: LH

Sample : P1605133-015 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 14 14:35:19 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	d	
51) n-Heptane	14.45	71	7006	0.256	ng	91
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.02	58	4674	0.187	ng	# 84
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	120410	1.068	ng	99
59) 2-Hexanone	0.00	43	0	N.D.	d	
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	108223	1.653	ng	96
63) n-Octane	16.97	57	12836	0.522	ng	87
64) Tetrachloroethene	17.11	166	17387	0.478	ng	98
65) Chlorobenzene	17.80	112	6902	N.D.		
66) Ethylbenzene	18.12	91	37290	0.274	ng	97
67) m- & p-Xylenes	18.27	91	71476	0.686	ng	96
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	11953	0.144	ng	89
70) o-Xylene	18.70	91	43081	0.417	ng	96
71) n-Nonane	18.90	43	8026	0.158	ng	90
72) 1,1,2,2-Tetrachloroethane	18.71	83	1441	N.D.		
74) Cumene	19.23	105	11051	N.D.		
75) alpha-Pinene	19.58	93	252968	3.753	ng	97
76) n-Propylbenzene	19.68	91	43603	0.300	ng	93
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	40247	0.327	ng	97
79) 1,3,5-Trimethylbenzene	19.87	105	48951	0.440	ng	96
80) alpha-Methylstyrene	20.00	118	1043	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	192137	1.743	ng	86
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.35	91	977	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d	
86) 1,4-Dichlorobenzene	20.42	146	21169	0.297	ng	100
87) sec-Butylbenzene	20.47	105	6806	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.73	68	23608	0.608	ng	# 66
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.34	128	27102	0.176	ng	100
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS16\DATA\2016 11\09\11091623.D

Acq On : 10 Nov 2016 11:10

Operator: LH

Sample : P1605133-015 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 14 14:35:19 2016

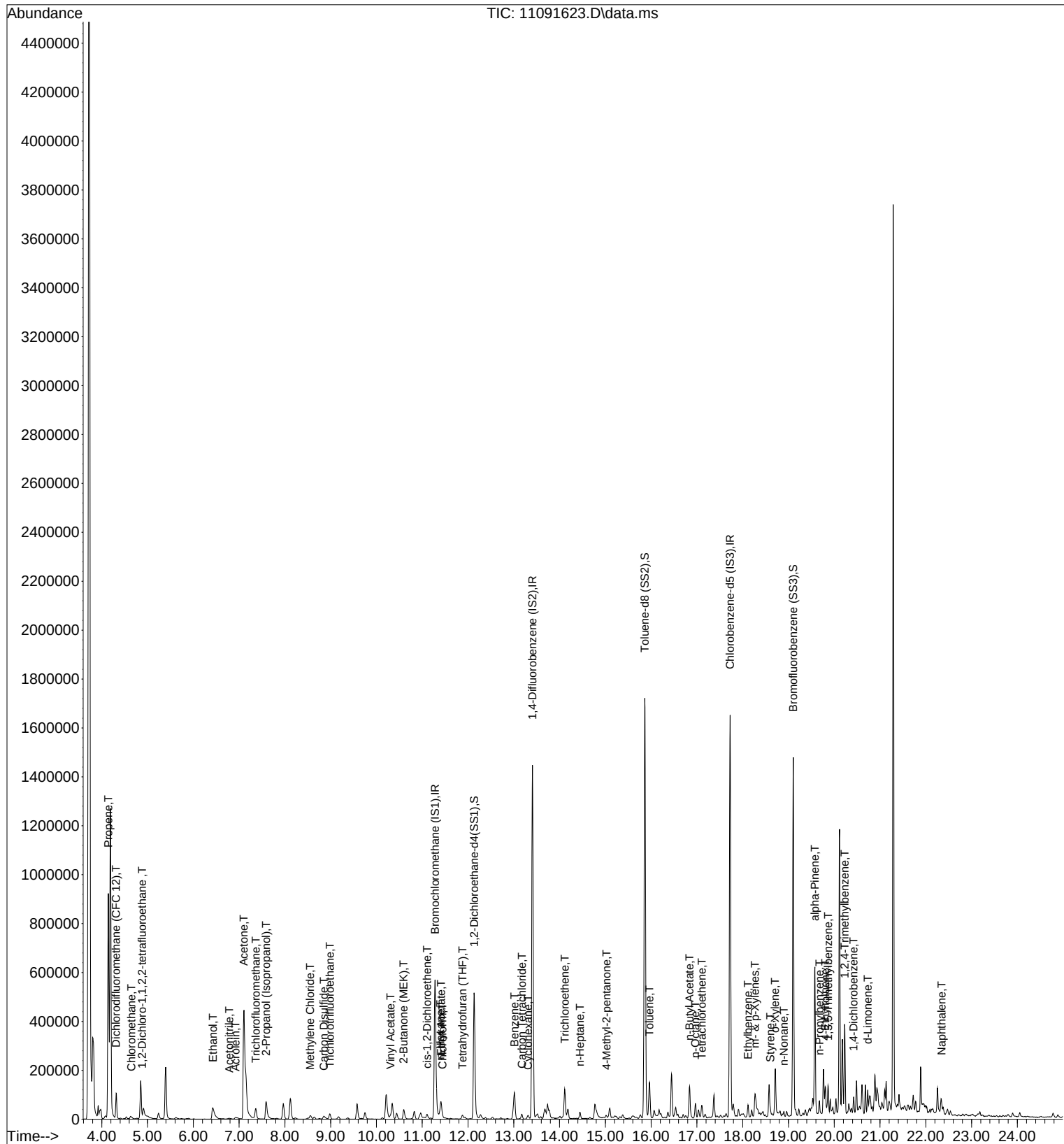
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091623.D

Acq On : 10 Nov 2016 11:10

Operator: LH

Sample : P1605133-015 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 12:12:04 2016

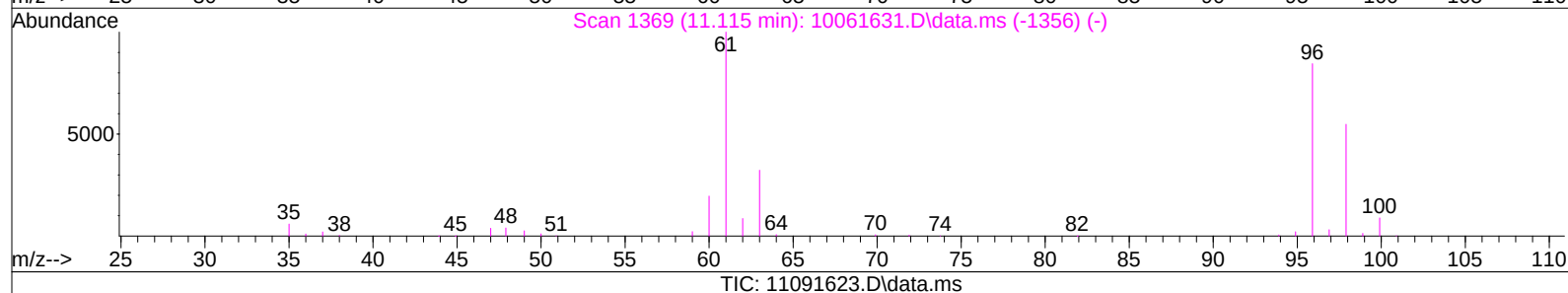
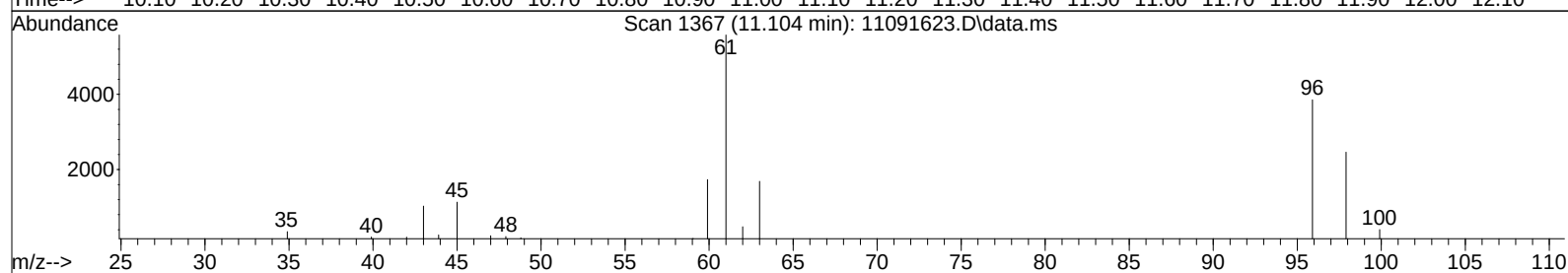
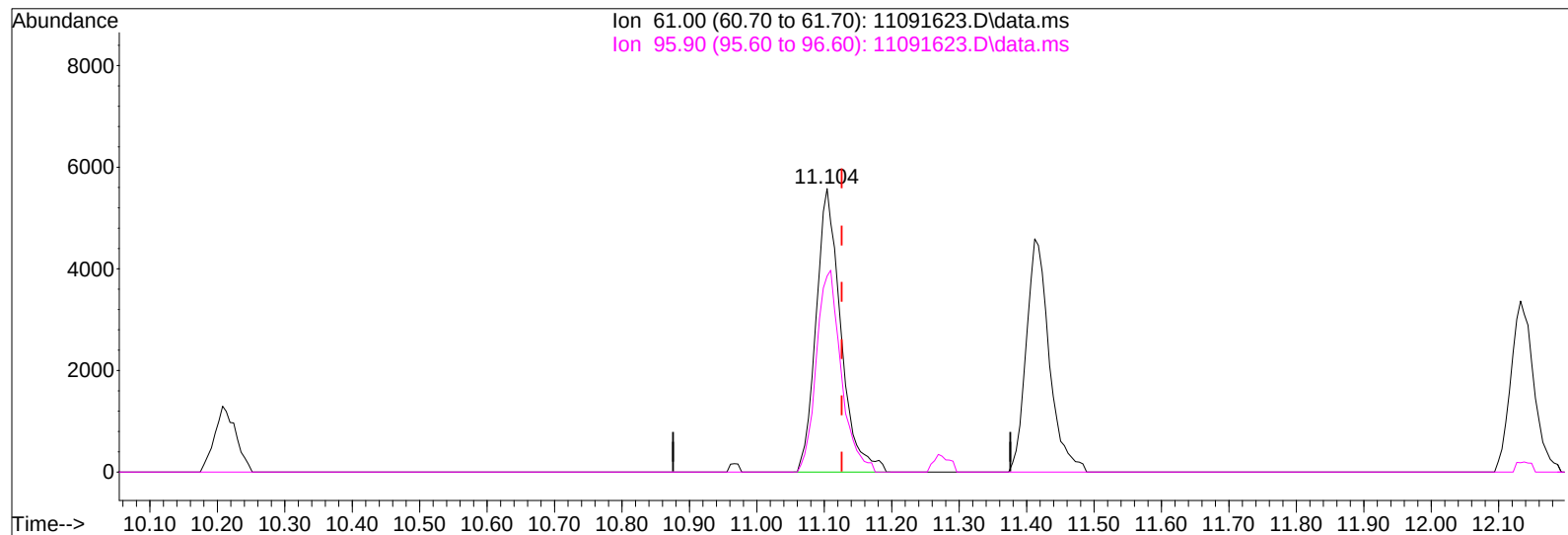
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091623.D\data.ms

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

11.104min (-0.022) 0.41ng

response 14147

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	71.60
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091623.D

Acq On : 10 Nov 2016 11:10

Operator: LH

Sample : P1605133-015 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 12:12:04 2016

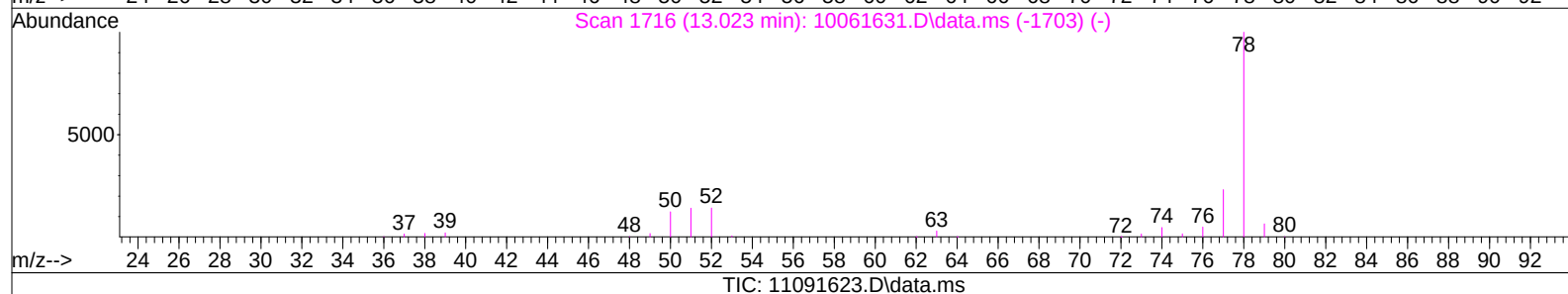
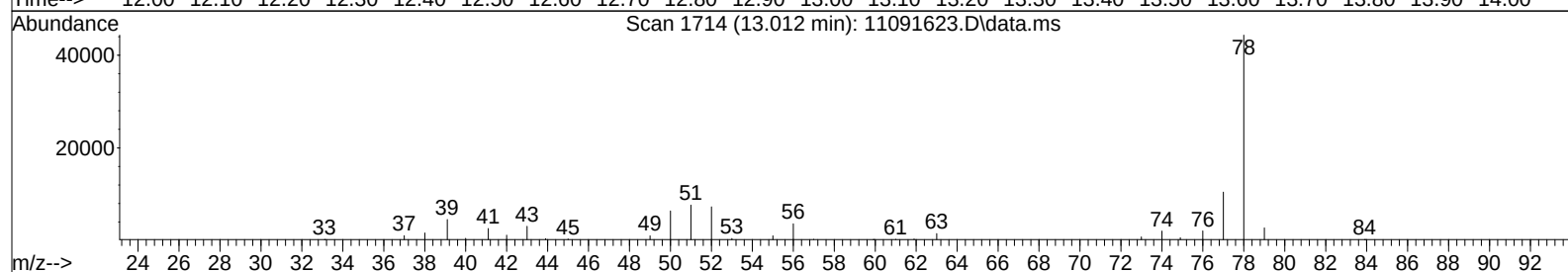
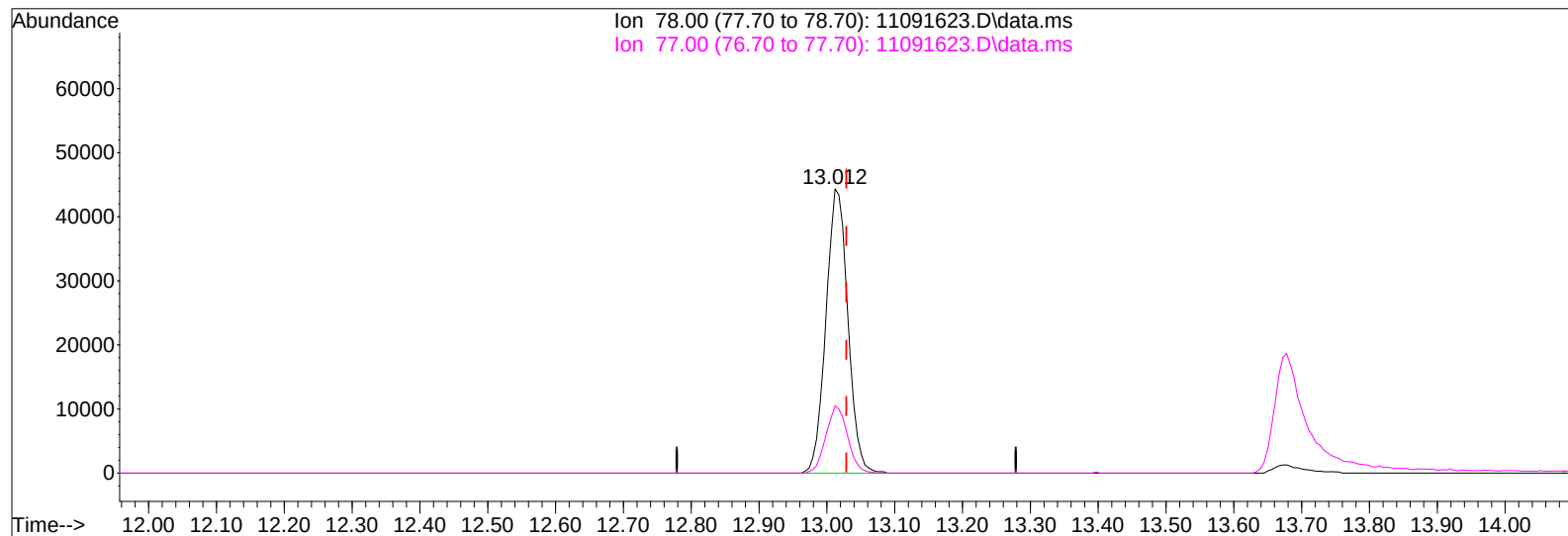
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091623.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 0.88ng

response 99306

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.30
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091623.D

Acq On : 10 Nov 2016 11:10

Operator: LH

Sample : P1605133-015 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 12:12:04 2016

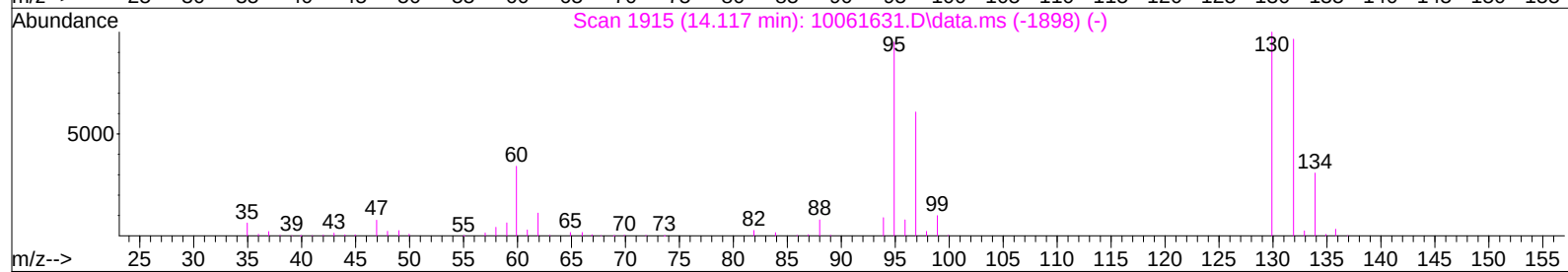
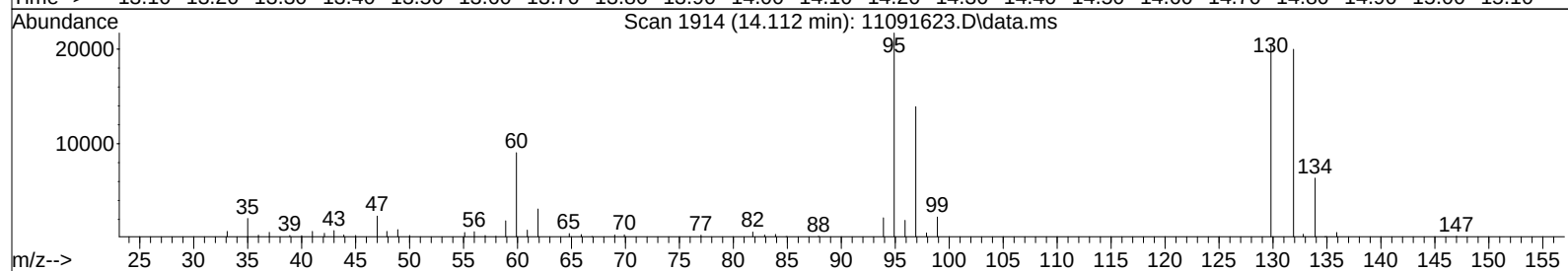
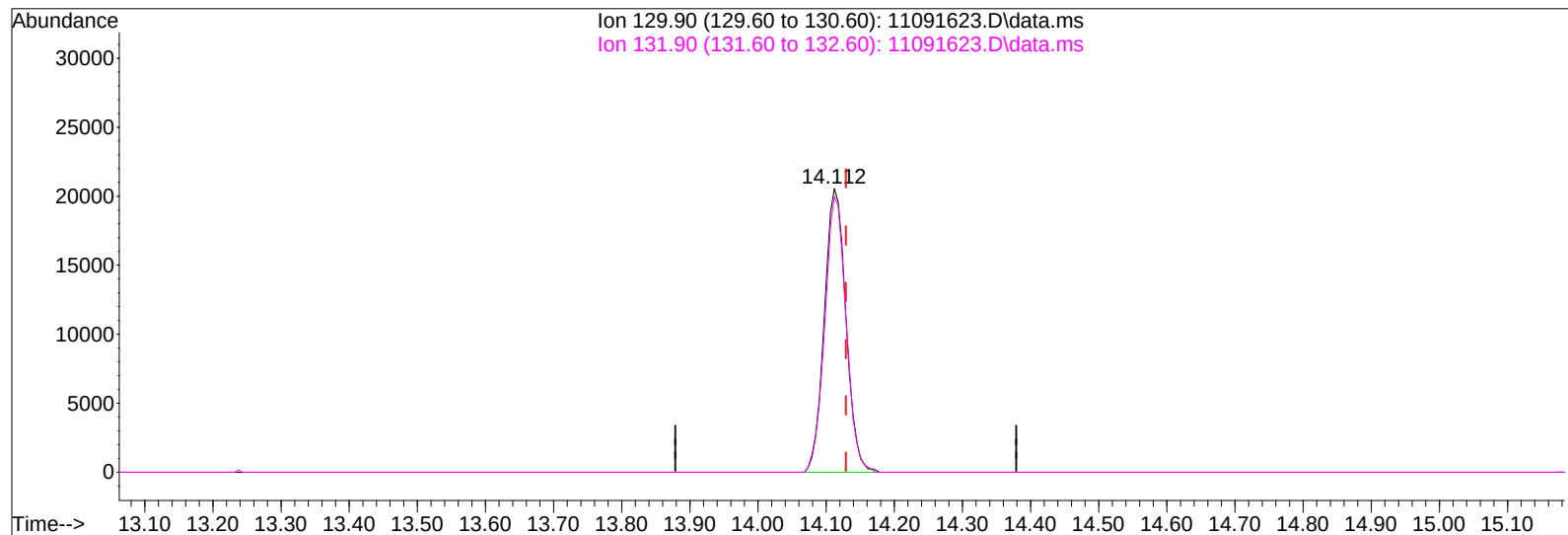
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091623.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 1.41ng

response 45166

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	96.13
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091623.D

Acq On : 10 Nov 2016 11:10

Operator: LH

Sample : P1605133-015 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 12:12:04 2016

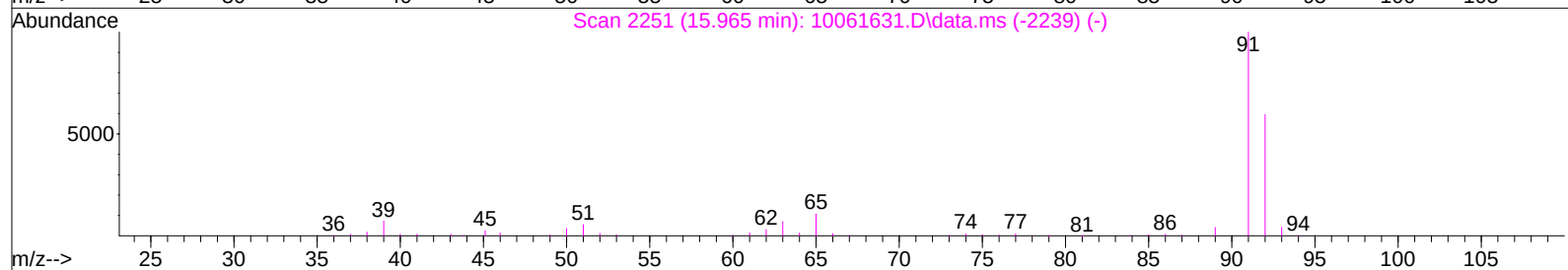
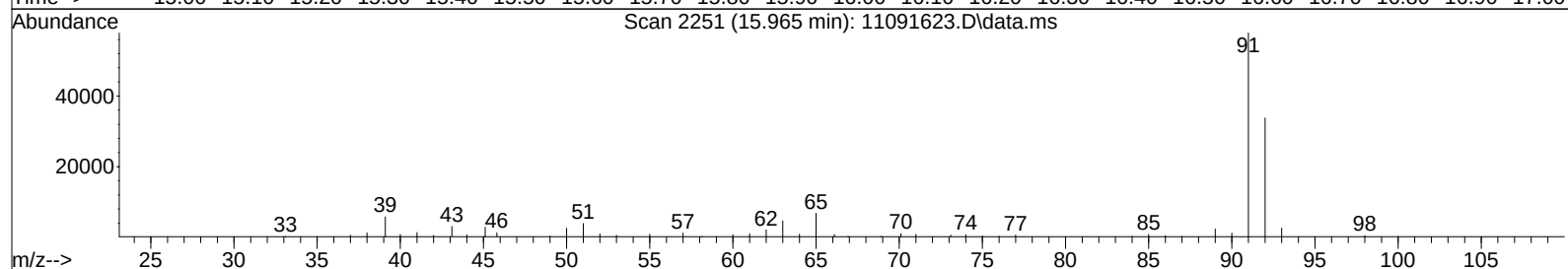
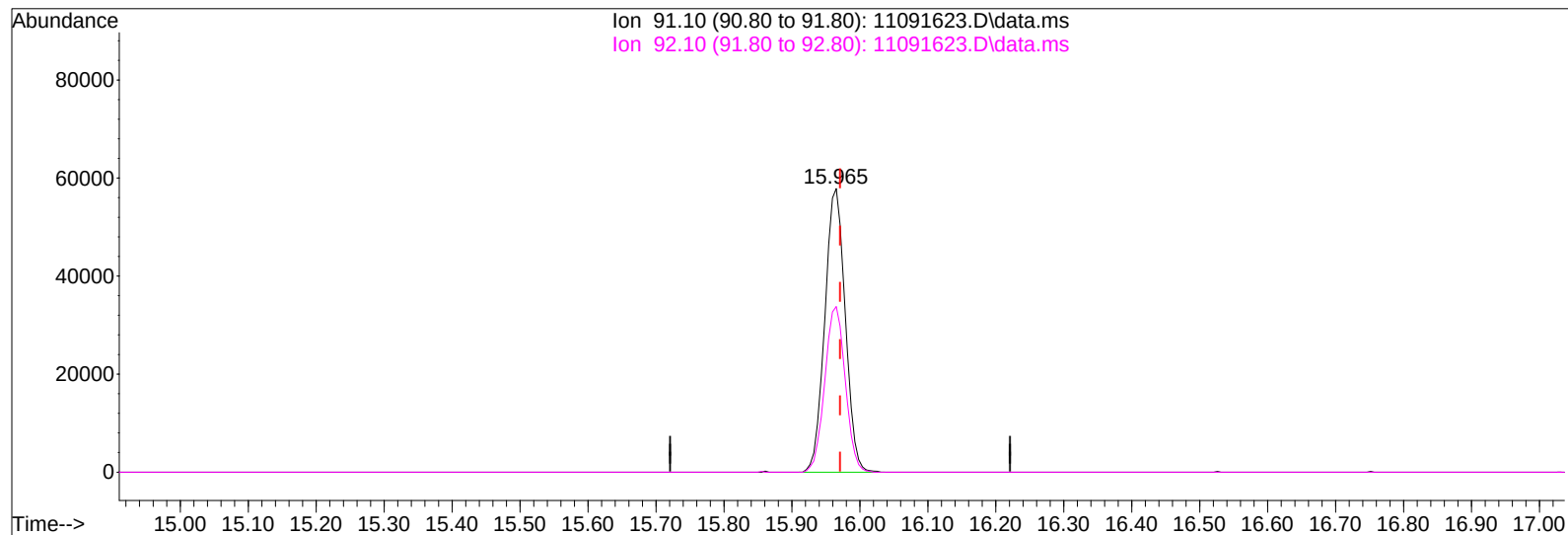
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091623.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 1.07ng

response 120410

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	58.67
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091623.D

Acq On : 10 Nov 2016 11:10

Operator: LH

Sample : P1605133-015 (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 12:12:04 2016

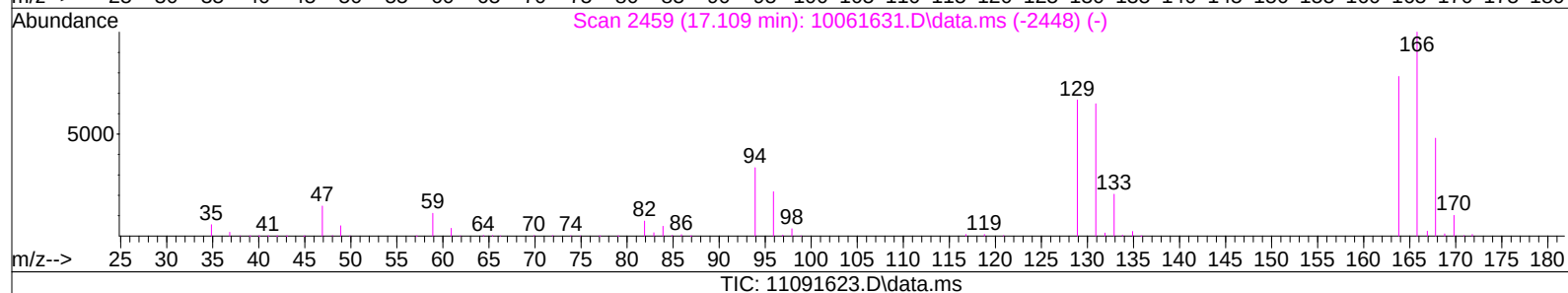
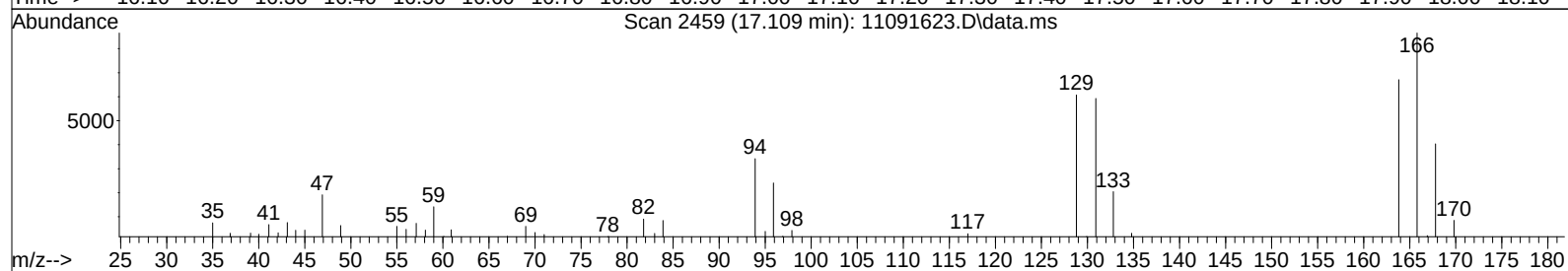
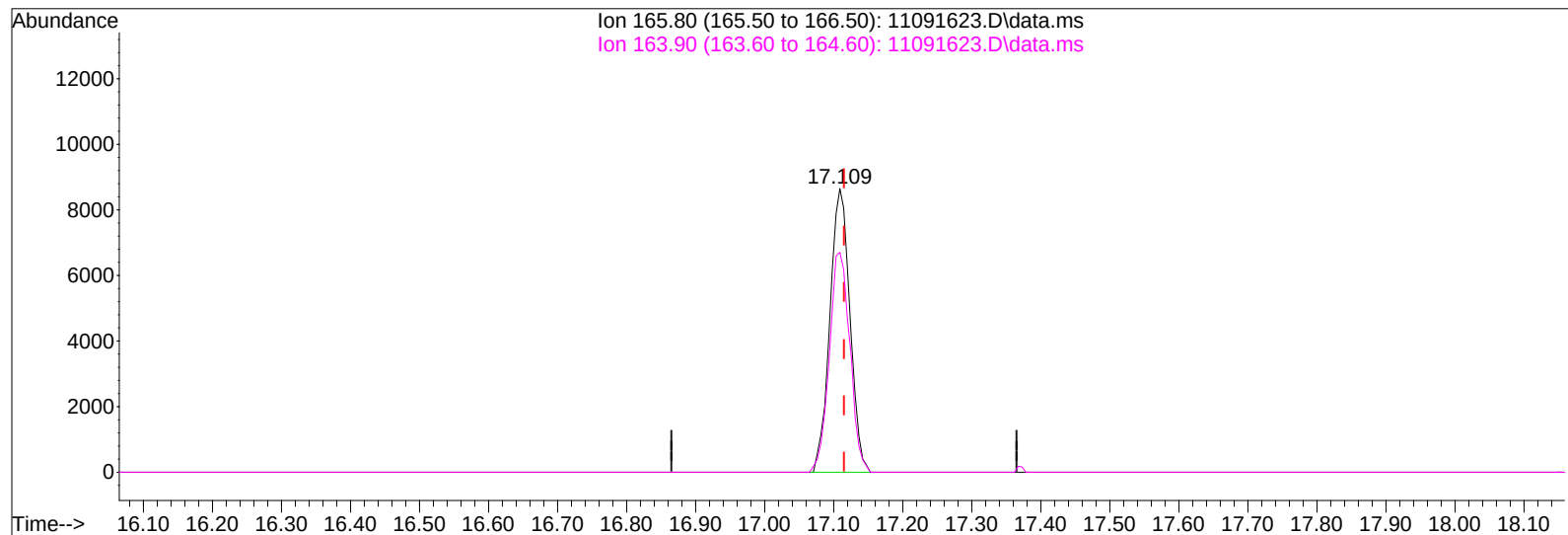
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091623.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 0.48ng

response 17387

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	79.73
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091624.D

Acq On : 10 Nov 2016 11:44

Operator: LH

Sample : P1605133-016 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 14 14:48:15 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 11/14/16

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	278396	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1374511	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	582323	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	440253	15.436	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	123.52%
57) Toluene-d8 (SS2)	15.86	98	1405252	12.101	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.80%
73) Bromofluorobenzene (SS3)	19.11	174	464314	10.531	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	84.24%

Target Compounds

						Qvalue
2) Propene	4.14	42	1090339m	44.330	ng	
3) Dichlorodifluoromethan...	4.31	85	103426	2.188	ng	99
4) Chloromethane	4.66	50	6639	0.234	ng	89
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	2944	0.105	ng	95
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.	d	
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.42	45	169460	9.504	ng	100
11) Acetonitrile	6.78	41	10549	0.227	ng	93
12) Acrolein	6.92	56	11303	0.677	ng	100
13) Acetone	7.10	58	337385	19.030	ng	# 78
14) Trichlorofluoromethane	7.36	101	45227	1.030	ng	99
15) 2-Propanol (Isopropanol)	7.58	45	178340	2.991	ng	96
16) Acrylonitrile	7.96	53	1055	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.55	84	10258	0.354	ng	81
20) 3-Chloro-1-propene (Al...	8.63	41	1145	N.D.		
21) Trichlorotrifluoroethane	8.98	151	9312	0.359	ng	94
22) Carbon Disulfide	8.85	76	8342	N.D.		
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	10.21	73	1562	N.D.		
26) Vinyl Acetate	10.31	86	8628	1.645	ng	# 27
27) 2-Butanone (MEK)	10.59	72	18278	1.002	ng	# 68
28) cis-1,2-Dichloroethene	11.10	61	17137	0.488	ng	85
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	11.41	61	6713	0.711	ng	88
31) n-Hexane	11.40	57	15837	0.406	ng	# 97
32) Chloroform	11.44	83	4311	0.095	ng	91
34) Tetrahydrofuran (THF)	11.88	72	1992	0.113	ng	# 1
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	1672	N.D.		
38) 1,1,1-Trichloroethane	12.54	97	1169	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	33397	0.295	ng	99
42) Carbon Tetrachloride	13.18	117	12617	0.357	ng	99
43) Cyclohexane	13.31	84	2808	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	14.11	83	1161	N.D.		
47) Trichloroethene	14.11	130	80178	2.493	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091624.D

Acq On : 10 Nov 2016 11:44

Operator: LH

Sample : P1605133-016 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 14 14:48:15 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.45	100	749	N.D.		
51) n-Heptane	14.44	71	3116	0.113	ng	88
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.02	58	3126	0.124	ng	# 49
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.96	91	73336	0.644	ng	99
59) 2-Hexanone	16.21	43	9459	0.158	ng	82
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	48688	0.736	ng	95
63) n-Octane	16.97	57	1859	N.D.		
64) Tetrachloroethene	17.11	166	12611	0.344	ng	99
65) Chlorobenzene	17.77	112	1161	N.D.		
66) Ethylbenzene	18.12	91	12406	0.090	ng	97
67) m- & p-Xylenes	18.27	91	31882	0.303	ng	97
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	11414	0.136	ng	93
70) o-Xylene	18.70	91	20591	0.197	ng	100
71) n-Nonane	18.90	43	4838	0.094	ng	89
72) 1,1,2,2-Tetrachloroethane	18.71	83	1396	N.D.		
74) Cumene	19.23	105	3622	N.D.		
75) alpha-Pinene	19.58	93	258574	3.798	ng	96
76) n-Propylbenzene	19.68	91	15931	0.108	ng	94
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	15575	0.125	ng	96
79) 1,3,5-Trimethylbenzene	19.87	105	17449	0.155	ng	96
80) alpha-Methylstyrene	20.00	118	1389	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	71784	0.645	ng	86
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.34	91	989	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.	d	
86) 1,4-Dichlorobenzene	20.42	146	35842	0.498	ng	99
87) sec-Butylbenzene	20.47	105	1897	N.D.		
88) 4-Isopropyltoluene (p-...	20.61	119	10479	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.73	68	48423	1.235	ng	92
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.35	128	13738	N.D.		
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.19	119	7622	N.D.		
100) n-Butylbenzene	20.96	91	5256	N.D.		

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

Data File: I:\MS16\DATA\2016 11\09\11091624.D

Acq On : 10 Nov 2016 11:44

Operator: LH

Sample : P1605133-016 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 14 14:48:15 2016

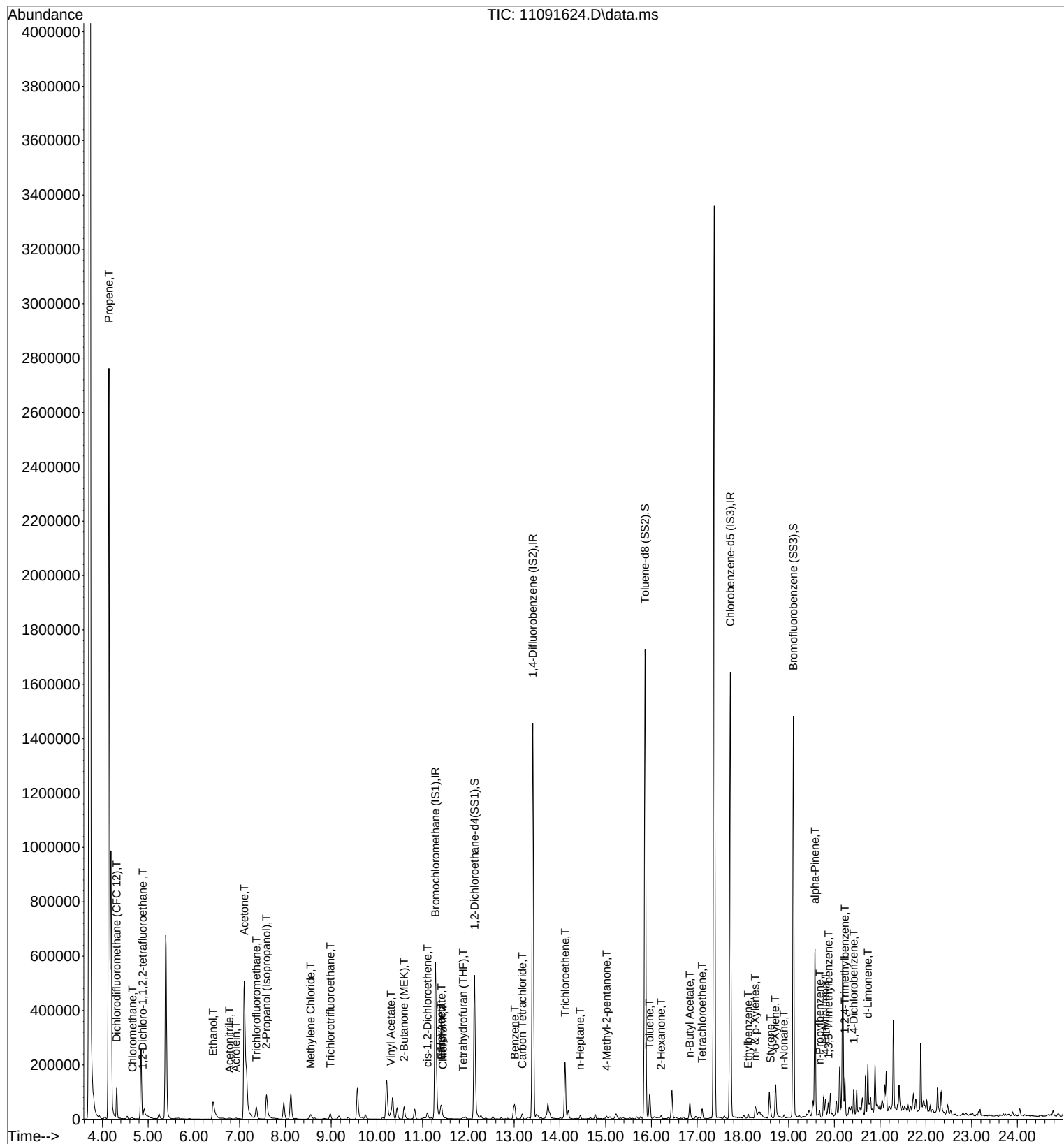
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091624.D

Acq On : 10 Nov 2016 11:44

Operator: LH

Sample : P1605133-016 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 10 12:12:11 2016

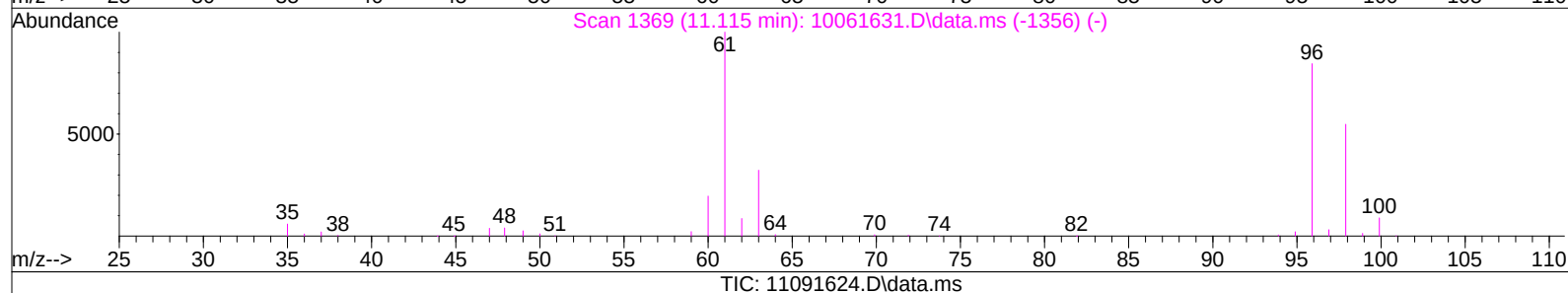
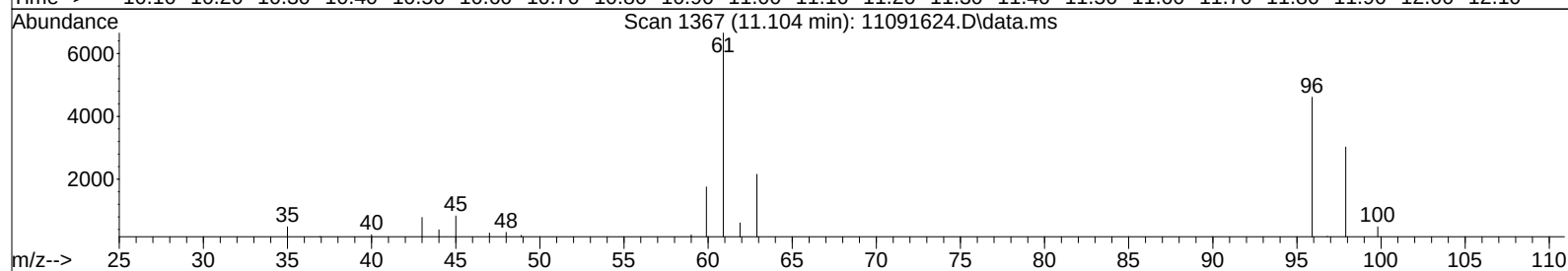
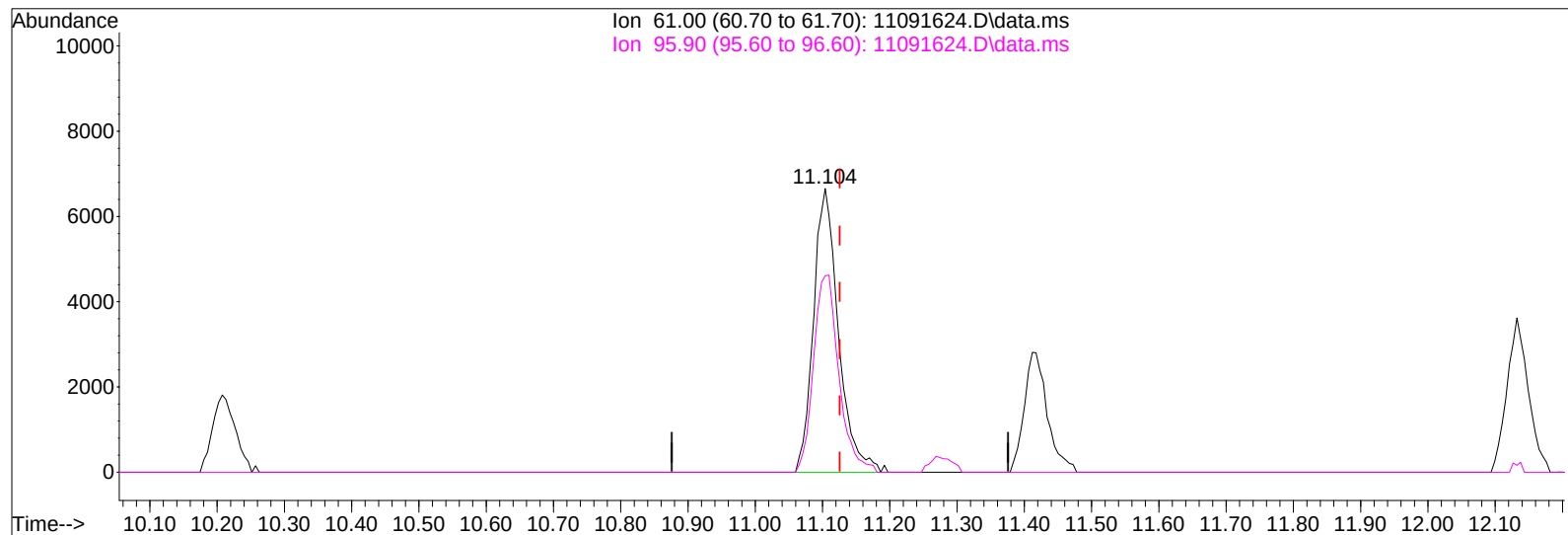
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091624.D\data.ms

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

11.104min (-0.022) 0.49ng

response 17137

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	70.53
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091624.D

Acq On : 10 Nov 2016 11:44

Operator: LH

Sample : P1605133-016 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 10 12:12:11 2016

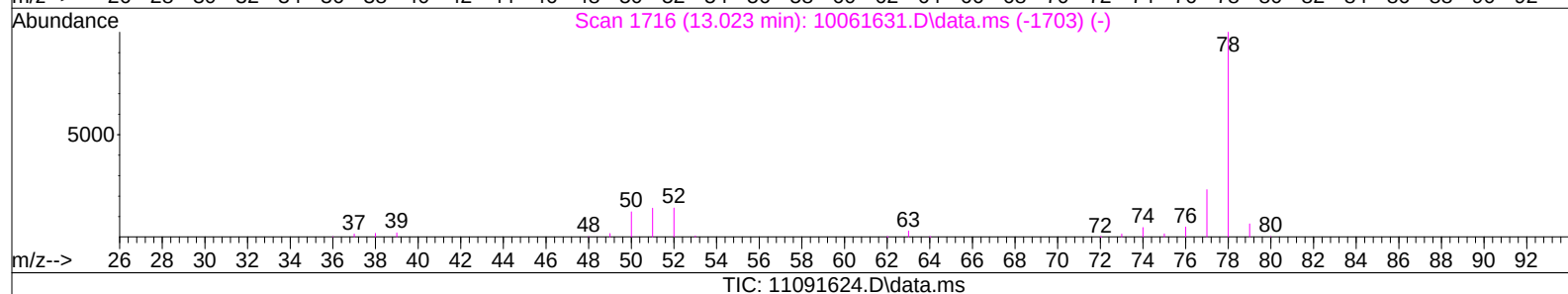
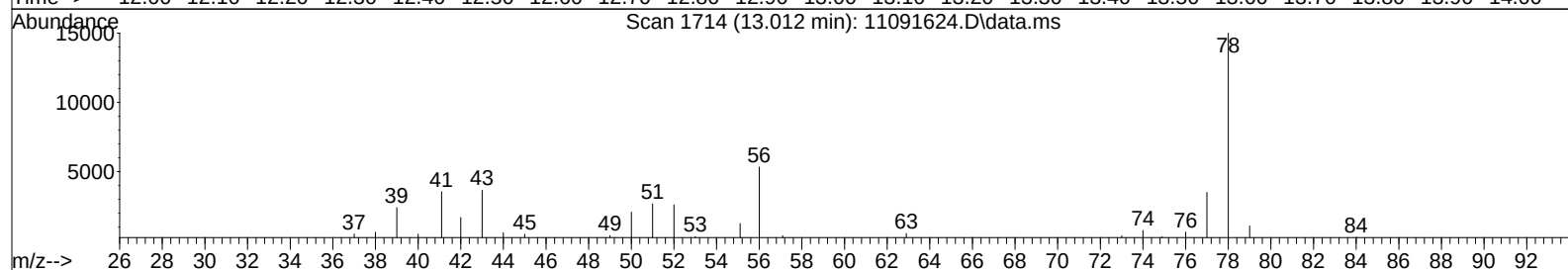
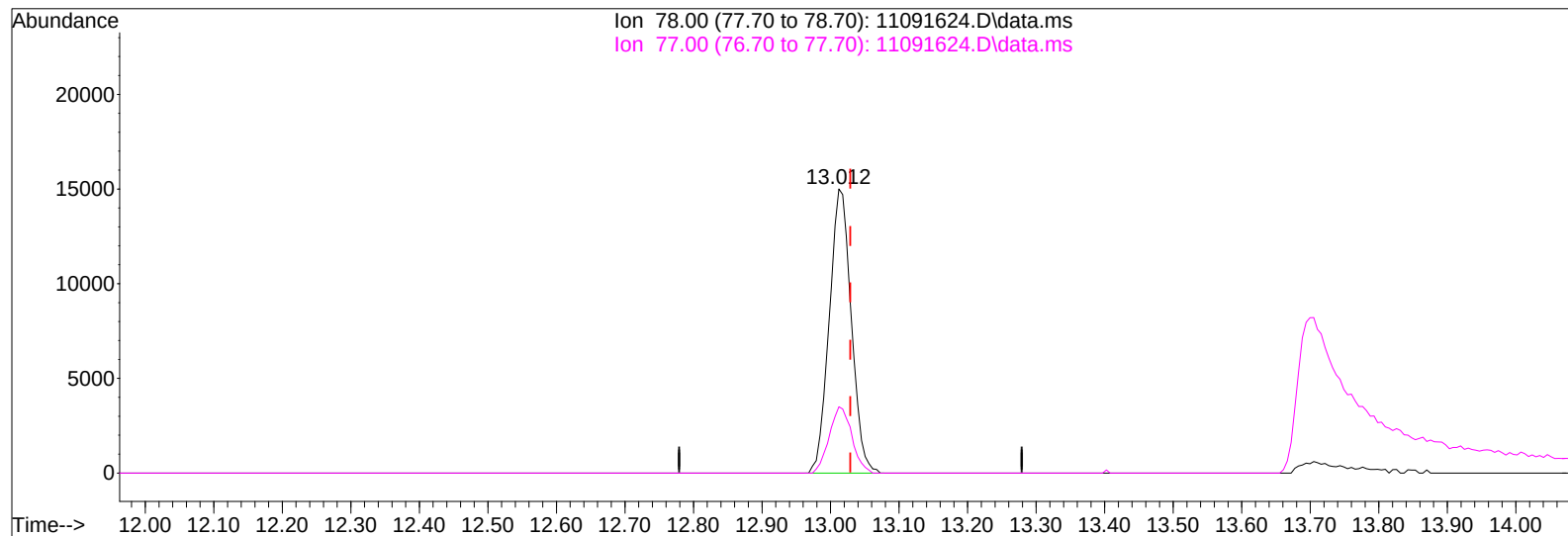
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091624.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 0.29ng

response 33397

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.91
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091624.D

Acq On : 10 Nov 2016 11:44

Operator: LH

Sample : P1605133-016 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 10 12:12:11 2016

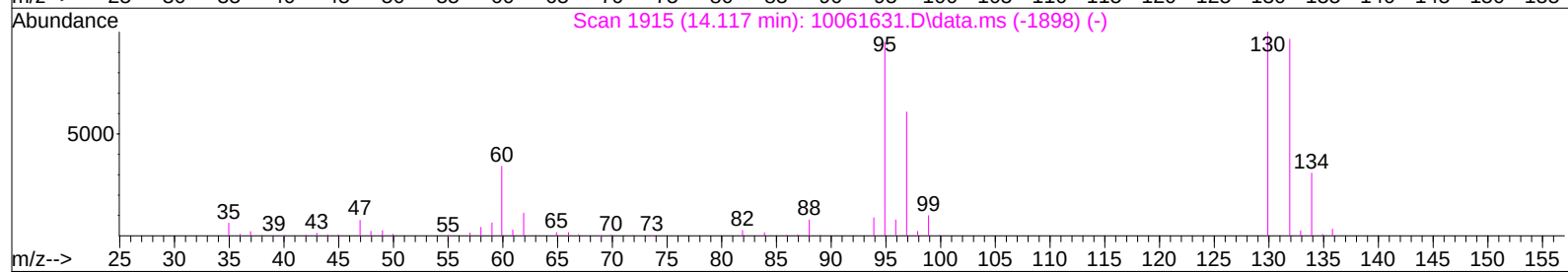
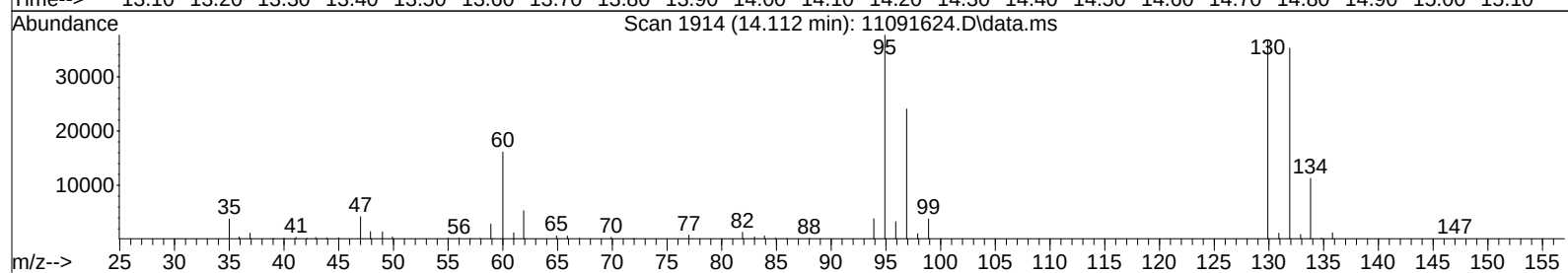
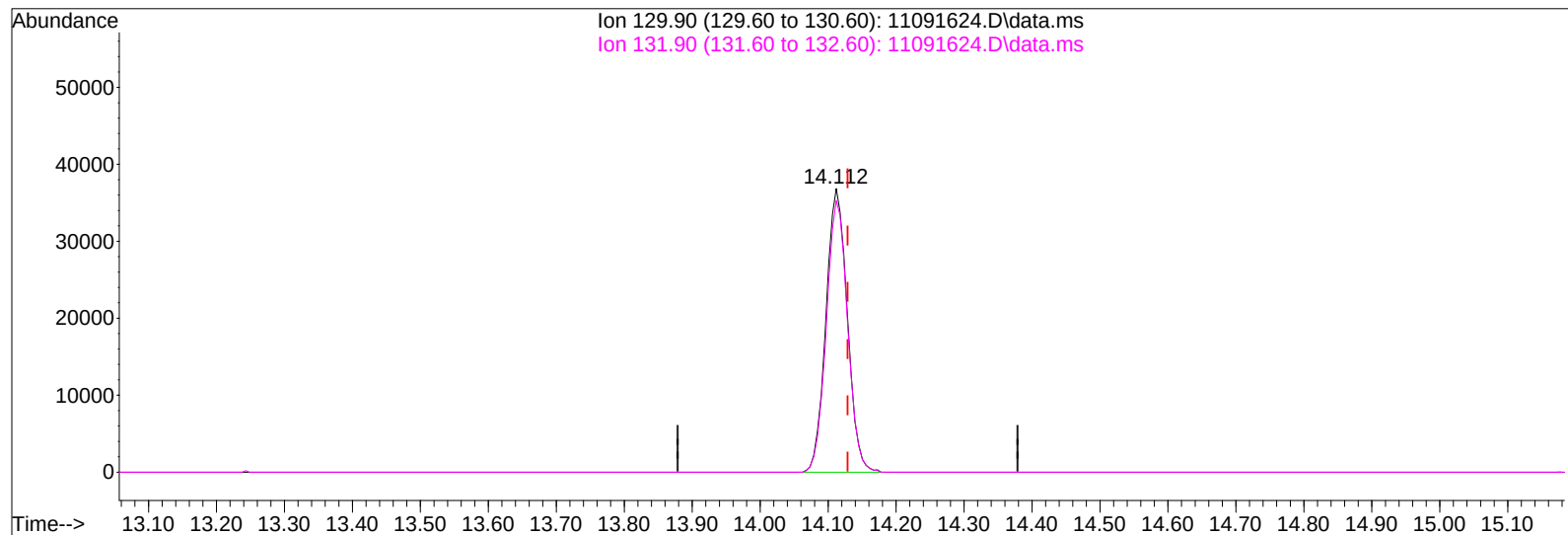
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091624.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 2.49ng

response 80178

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	95.34
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091624.D

Acq On : 10 Nov 2016 11:44

Operator: LH

Sample : P1605133-016 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 10 12:12:11 2016

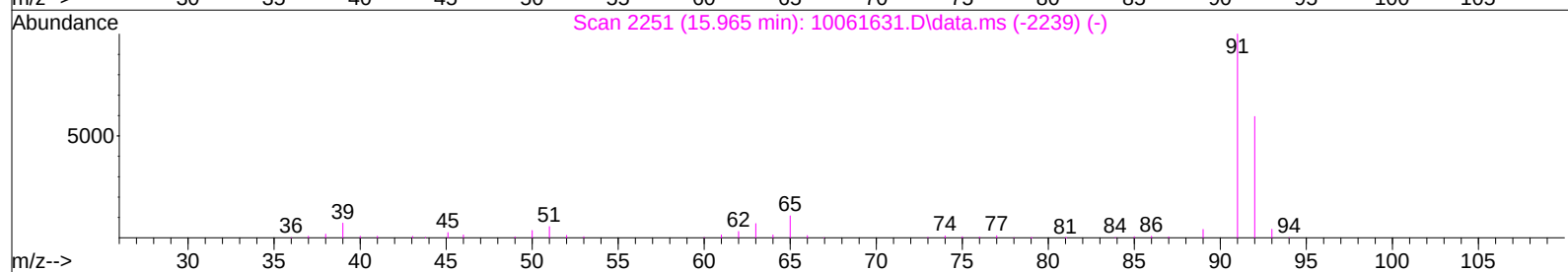
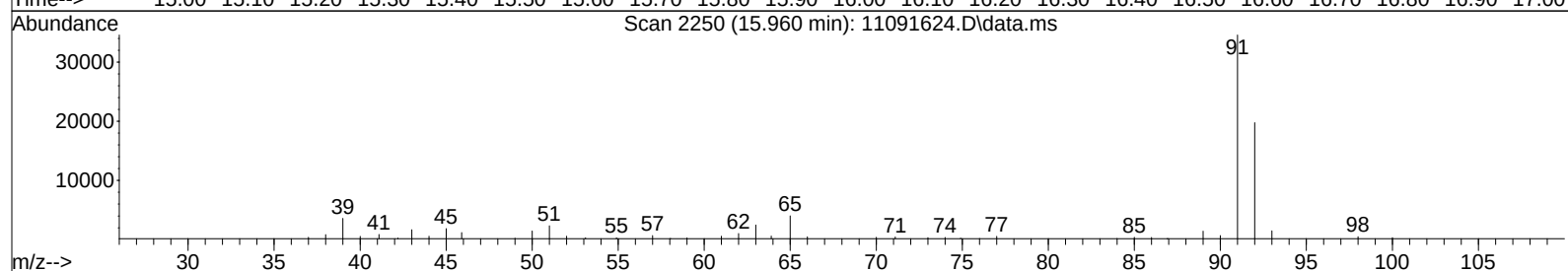
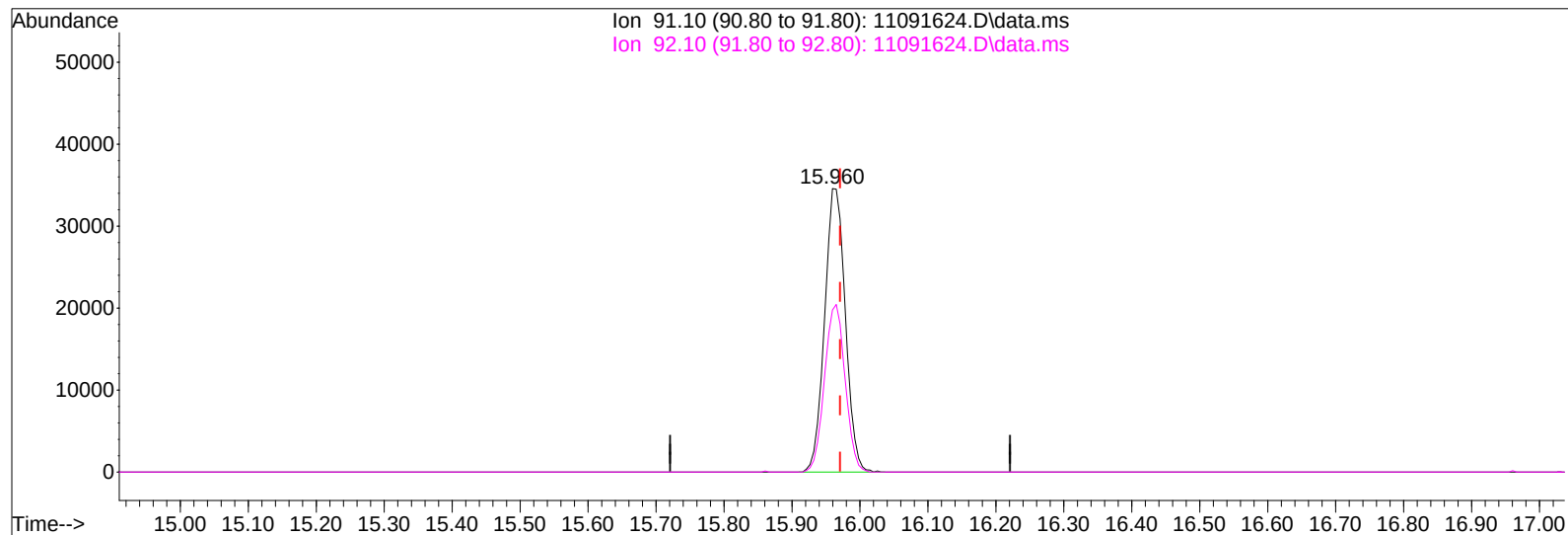
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091624.D\data.ms

(58) Toluene (T)

15.960min (-0.011) 0.64ng

response 73336

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	58.66
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091624.D

Acq On : 10 Nov 2016 11:44

Operator: LH

Sample : P1605133-016 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 10 12:12:11 2016

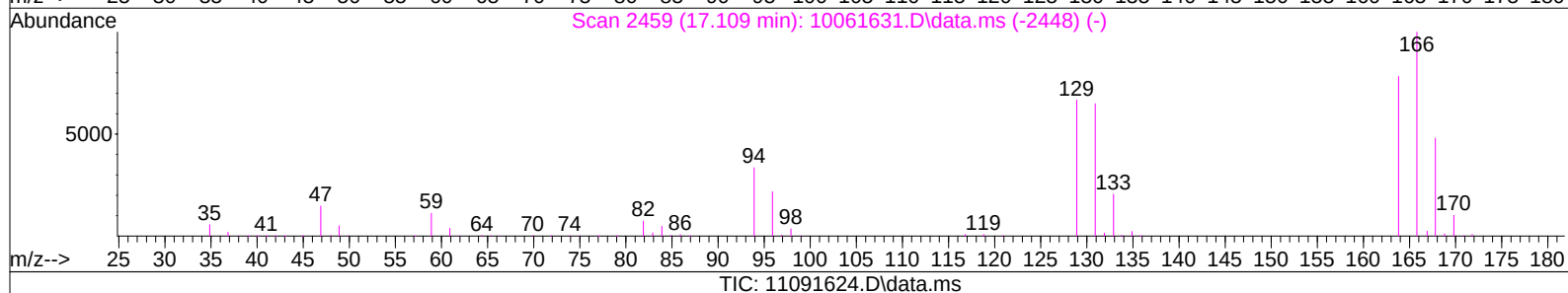
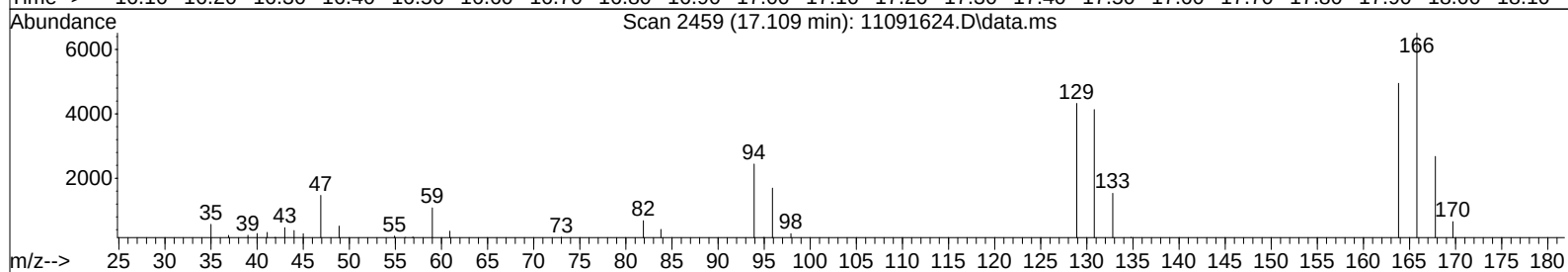
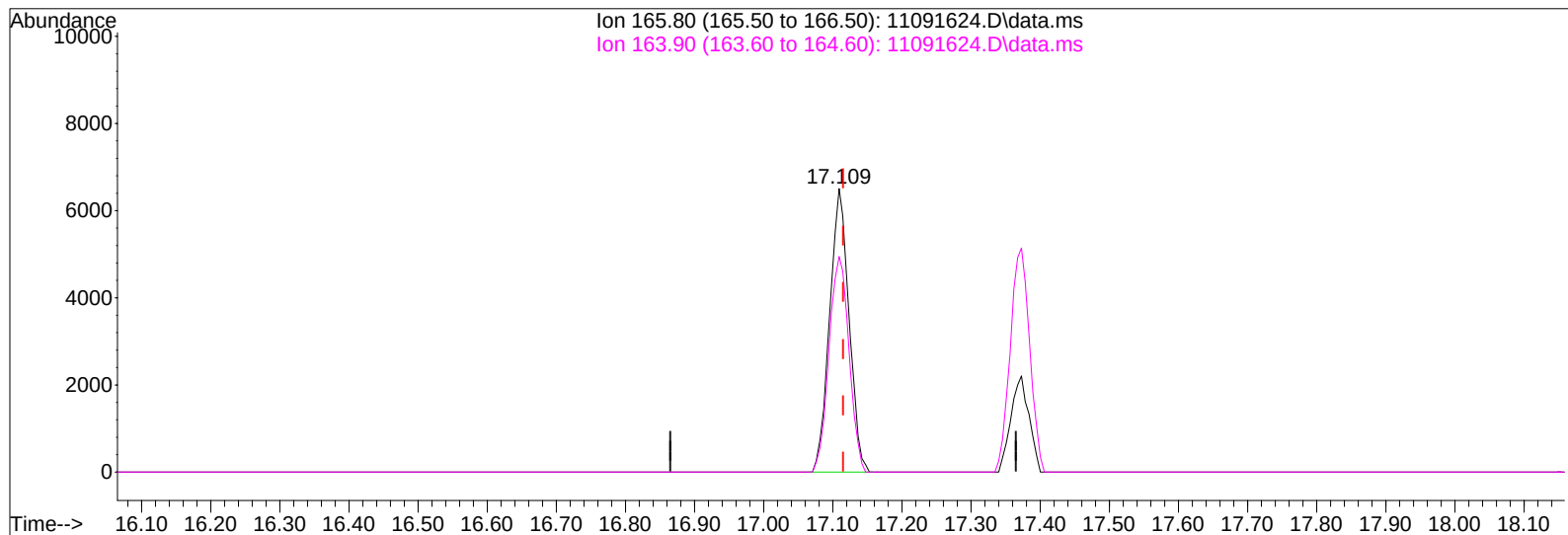
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091624.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 0.34ng

response 12611

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	78.64
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091624.D

Acq On : 10 Nov 2016 11:44

Operator: LH

Sample : P1605133-016 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 10 12:12:11 2016

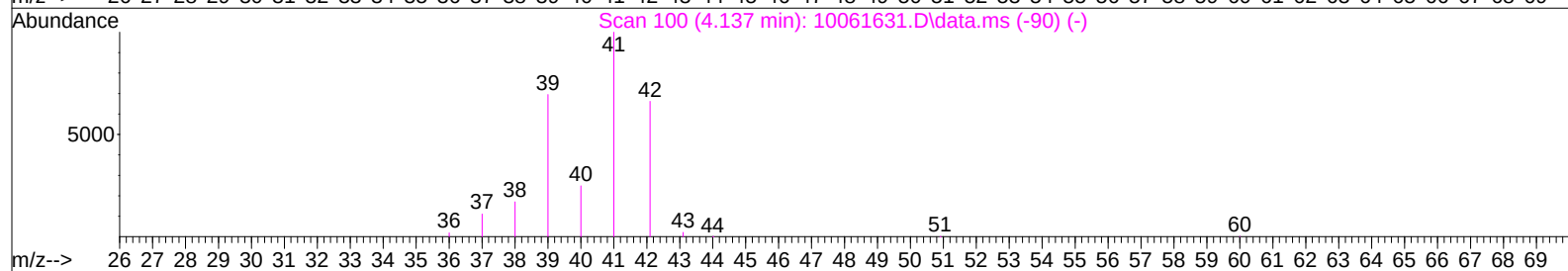
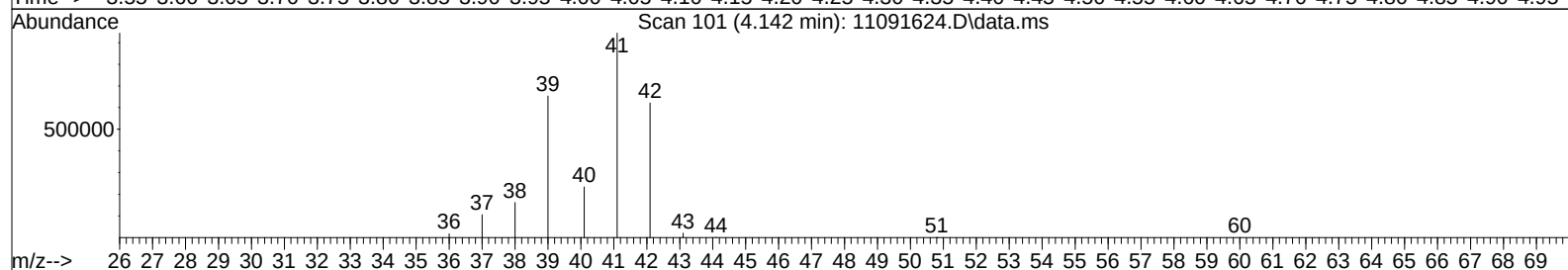
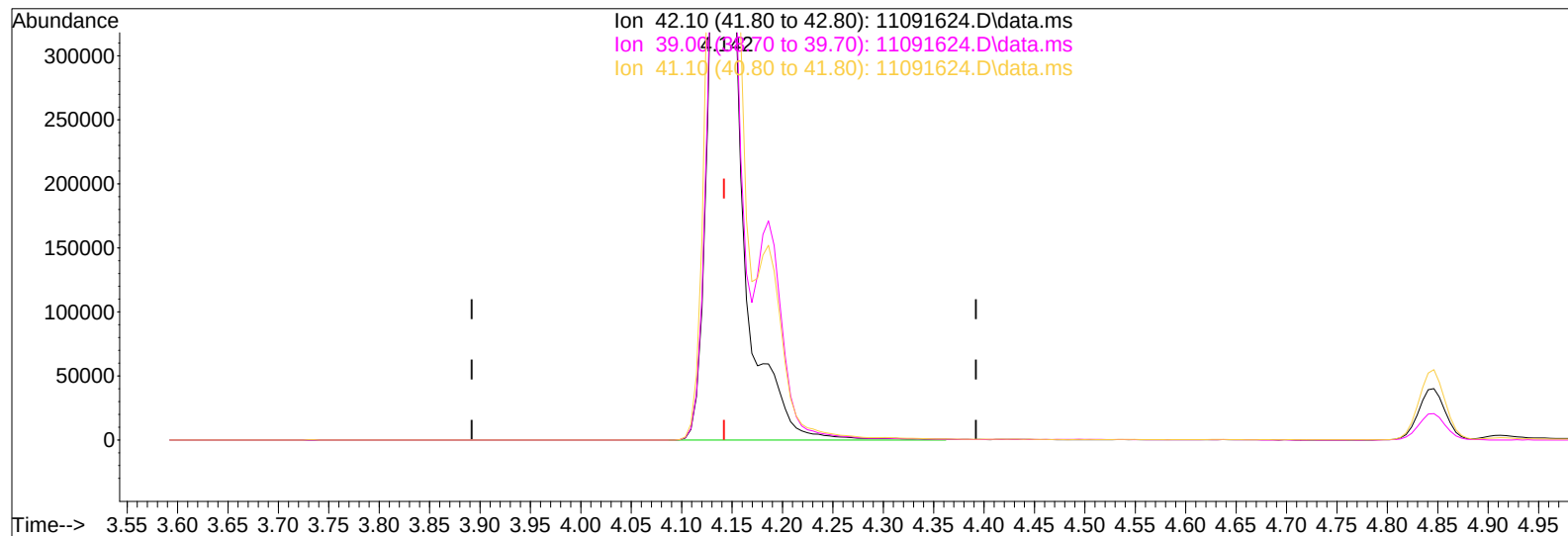
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091624.D\data.ms

(2) Propene (T)

4.142min (+0.000) 49.27ng

response 1211786

Ion	Exp%	Act%
42.10	100	100
39.00	105.30	96.18
41.10	151.20	160.06
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091624.D

Acq On : 10 Nov 2016 11:44

Operator: LH

Sample : P1605133-016 (1000mL)

Misc : S29-11051601

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 10 12:12:11 2016

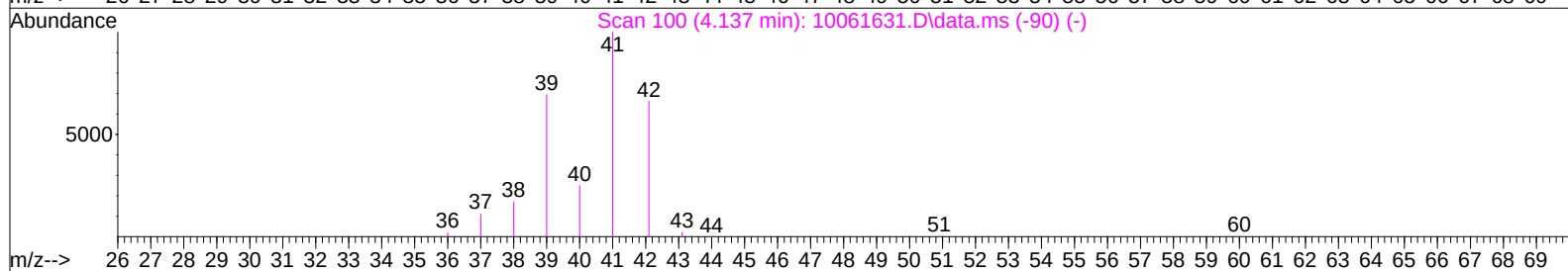
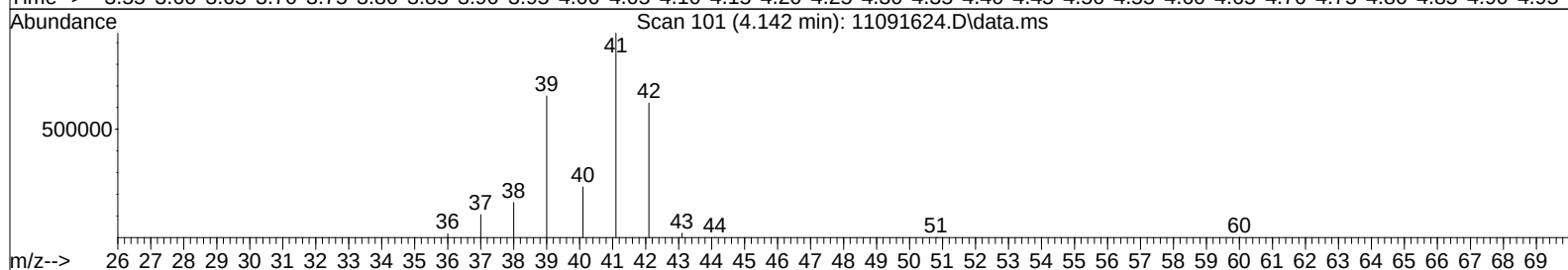
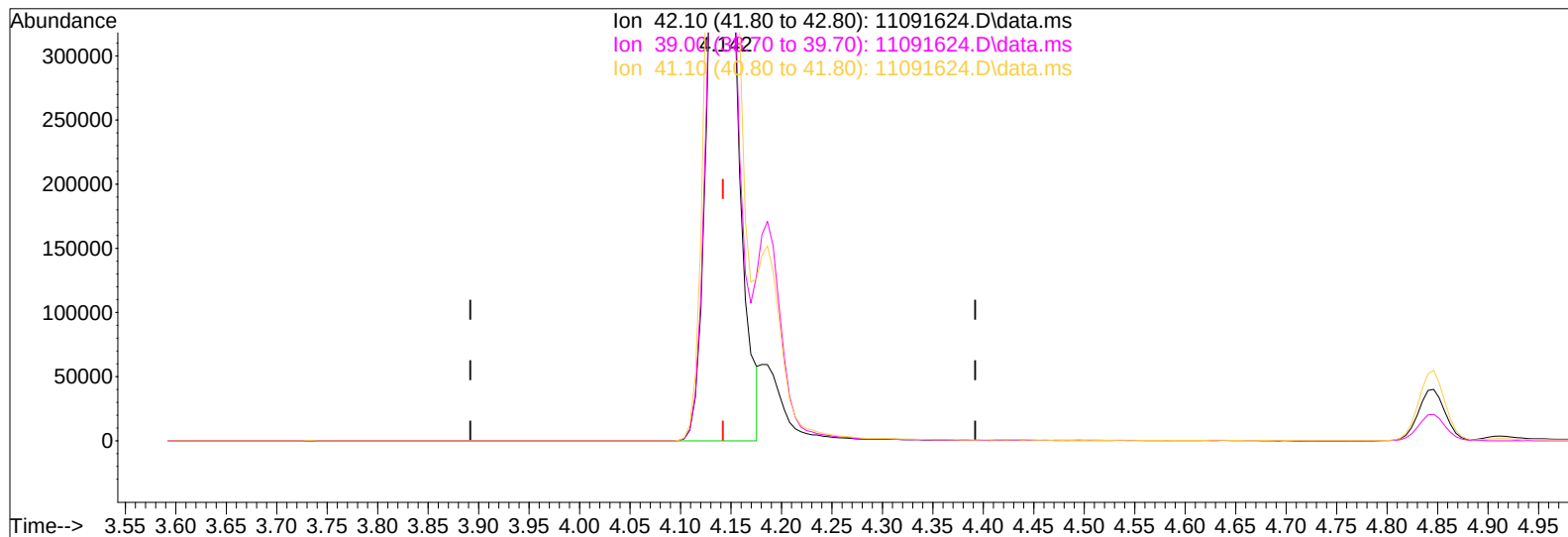
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091624.D\data.ms

(2) Propene (T)

4.142min (+0.000) 44.33ng m

response 1109640

Ion	Exp%	Act%
42.10	100	100
39.00	105.30	105.04
41.10	151.20	174.79#
0.00	0.00	0.00

IPC

LH 11/14/16

W 11/14/16

Data File: I:\MS16\DATA\2016 11\09\11091625.D

Acq On : 10 Nov 2016 12:18
 Sample : P1605133-018 (1000mL)
 Misc : S29-11051601
 ALS Vial : 8 Sample Multiplier: 1

Operator: LH

Quant Time: Nov 14 14:50:11 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 11/14/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.29	130	271043	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1328772	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	574021	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.14	65	427825	15.407	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	123.28%
57) Toluene-d8 (SS2)	15.87	98	1369884	11.967	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.76%
73) Bromofluorobenzene (SS3)	19.11	174	440925	10.145	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	81.20%

Target Compounds

						Qvalue
2) Propene	4.20	42	13688	0.572	ng	# 73
3) Dichlorodifluoromethan...	4.23	85	966	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	5.24	54	988	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.47	45	12405	0.715	ng	94
11) Acetonitrile	6.81	41	1176	N.D.		
12) Acrolein	6.99	56	4694	0.289	ng	99
13) Acetone	7.13	58	61186	3.545	ng	86
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	7.62	45	24744	0.426	ng	87
16) Acrylonitrile	8.13	53	52	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	8.56	59	2393	N.D.		
19) Methylene Chloride	8.57	84	710	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	8.86	76	2444	N.D.		
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	10.32	86	3474	0.680	ng	# 77
27) 2-Butanone (MEK)	10.61	72	7013	0.395	ng	# 55
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	11.44	61	506	N.D.		
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	11.91	72	619	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	1826	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.02	78	3211	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	13.42	84	683	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	14.11	130	620	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	14.18	57	545	N.D.		

Data File: I:\MS16\DATA\2016 11\09\11091625.D

Acq On : 10 Nov 2016 12:18

Operator: LH

Sample : P1605133-018 (1000mL)

Misc : S29-11051601

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 14 14:50:11 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.		
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.03	58	589	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	20089	0.179	ng	99
59) 2-Hexanone	16.23	43	3882	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.86	43	1733	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	17.11	166	558	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	18.12	91	3322	N.D.		
67) m- & p-Xylenes	18.27	91	9165	N.D.		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	1232	N.D.		
70) o-Xylene	18.70	91	4166	N.D.		
71) n-Nonane	18.90	43	856	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	19.23	105	1017	N.D.		
75) alpha-Pinene	19.57	93	639	N.D.		
76) n-Propylbenzene	19.67	91	1590	N.D.		
77) 3-Ethyltoluene	19.77	105	4479	N.D.		
78) 4-Ethyltoluene	19.80	105	2170	N.D.		
79) 1,3,5-Trimethylbenzene	19.87	105	2451	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	20.05	105	1886	N.D.		
82) 1,2,4-Trimethylbenzene	20.24	105	6481	N.D.		
83) n-Decane	20.33	57	3581	N.D.		
84) Benzyl Chloride	20.24	91	790	N.D.		
85) 1,3-Dichlorobenzene	20.45	146	4221	N.D.		
86) 1,4-Dichlorobenzene	20.45	146	4221	N.D.		
87) sec-Butylbenzene	20.63	105	1621	N.D.		
88) 4-Isopropyltoluene (p-...	20.62	119	3086	N.D.		
89) 1,2,3-Trimethylbenzene	20.63	105	1621	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.73	68	4243	0.110	ng	88
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	21.43	57	4016	N.D.		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.40	128	3507	N.D.		
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	18.43	55	1990	N.D.		
99) tert-Butylbenzene	20.24	119	851	N.D.		
100) n-Butylbenzene	20.99	91	1007	N.D.		

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

Data File: I:\MS16\DATA\2016 11\09\11091625.D

Acq On : 10 Nov 2016 12:18

Operator: LH

Sample : P1605133-018 (1000mL)

Misc : S29-11051601

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Nov 14 14:50:11 2016

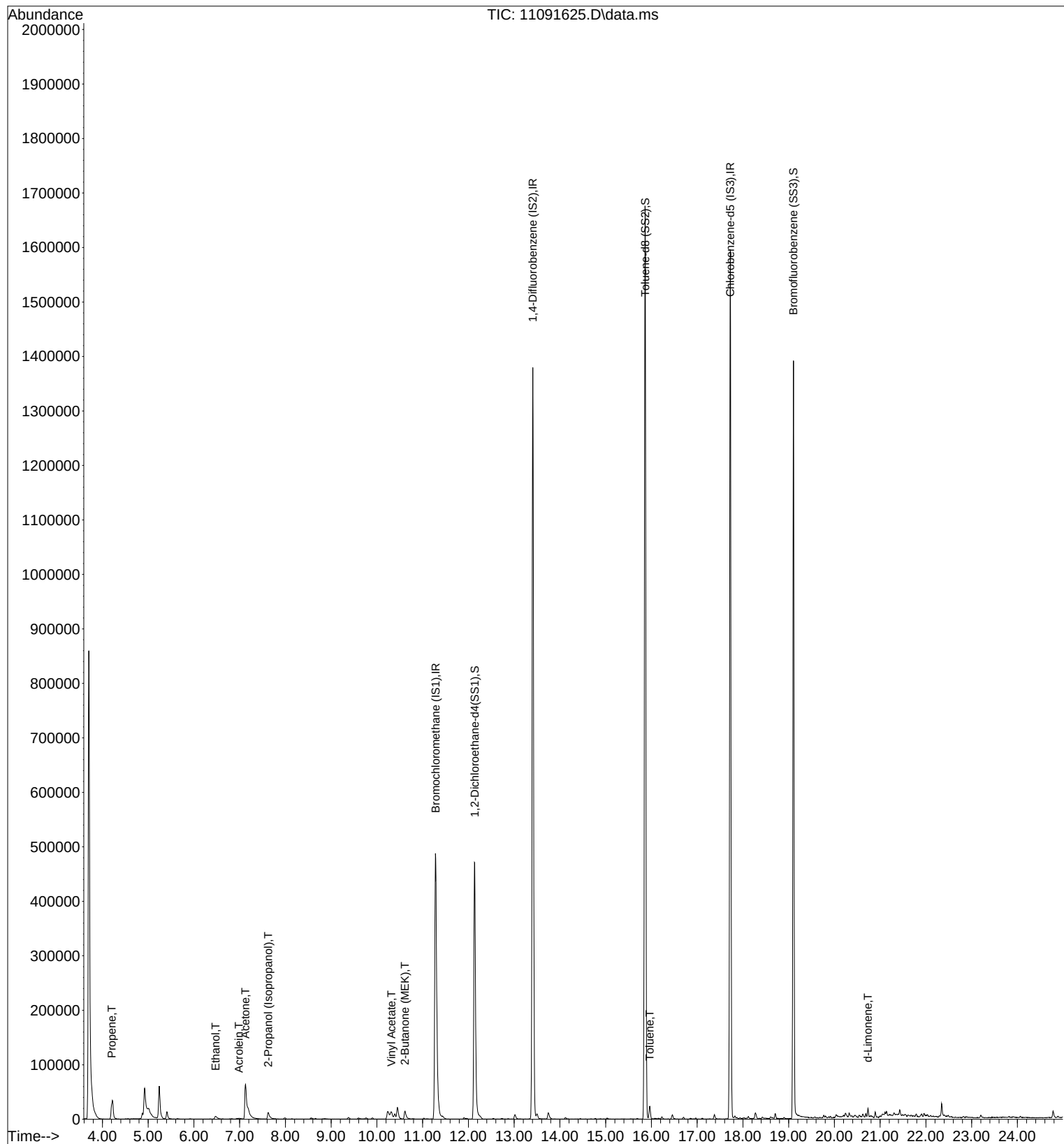
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\08\11081653.D

Acq On : 9 Nov 2016 16:47

Operator: LH

Sample : P1605133-019 (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 14 15:11:49 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 11/14/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	283271	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1362813	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	581586	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	441140	15.201	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	121.60%
57) Toluene-d8 (SS2)	15.86	98	1396743	12.043	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.32%
73) Bromofluorobenzene (SS3)	19.11	174	457770	10.396	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	83.20%

Target Compounds

						Qvalue
2) Propene	4.15	42	28590m	1.142	ng	
3) Dichlorodifluoromethan...	4.30	85	4210	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	5.08	62	19965	0.554	ng	91
7) 1,3-Butadiene	5.23	54	1357	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.45	45	17105	0.943	ng	96
11) Acetonitrile	6.79	41	3063	N.D.		
12) Acrolein	6.92	56	103	N.D.		
13) Acetone	7.11	58	277773	15.398	ng	# 72
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	7.59	45	67735	1.116	ng	82
16) Acrylonitrile	7.96	53	554	N.D.		
17) 1,1-Dichloroethene	8.34	96	58731	2.235	ng	# 79
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D. d		
19) Methylene Chloride	8.55	84	1551	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D. d		
21) Trichlorotrifluoroethane	8.98	151	2498	0.095	ng	82
22) Carbon Disulfide	8.85	76	24016	0.241	ng	95
23) trans-1,2-Dichloroethene	9.84	61	39350	1.068	ng	88
24) 1,1-Dichloroethane	10.08	63	21912	0.462	ng	100
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D. d		
27) 2-Butanone (MEK)	10.60	72	24088	1.298	ng	# 63
28) cis-1,2-Dichloroethene	11.10	61	1861718	52.114	ng	89
29) Diisopropyl Ether	11.44	87	1484	N.D.		
30) Ethyl Acetate	11.42	61	4186	0.436	ng	# 41
31) n-Hexane	11.39	57	8408	0.212	ng	# 97
32) Chloroform	11.44	83	14300	0.310	ng	100
34) Tetrahydrofuran (THF)	11.89	72	2154	0.121	ng	# 1
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	14271	0.451	ng	100
38) 1,1,1-Trichloroethane	12.53	97	13829	0.348	ng	95
39) Isopropyl Acetate	13.01	61	761	N.D.		
40) 1-Butanol	0.00	56	0	N.D. d		
41) Benzene	13.01	78	102568	0.912	ng	100
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	13.31	84	12713	0.308	ng	# 82
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D. d		
47) Trichloroethene	14.11	130	3159285	99.088	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	14.18	57	3945	N.D.		

Data File: I:\MS16\DATA\2016 11\08\11081653.D

Acq On : 9 Nov 2016 16:47

Operator: LH

Sample : P1605133-019 (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 14 15:11:49 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.25	100	700	N.D.		
51) n-Heptane	14.45	71	6589	0.241	ng	93
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.02	58	7577	0.303	ng	# 66
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	145171	1.276	ng	100
59) 2-Hexanone	16.22	43	14407	0.241	ng	# 74
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	7271	0.110	ng	93
63) n-Octane	16.97	57	5075	0.204	ng	88
64) Tetrachloroethene	17.11	166	105823	2.886	ng	99
65) Chlorobenzene	17.76	112	4044	N.D.		
66) Ethylbenzene	18.12	91	18726	0.136	ng	96
67) m- & p-Xylenes	18.27	91	47856	0.455	ng	98
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	5335	N.D.		
70) o-Xylene	18.70	91	18382	0.176	ng	97
71) n-Nonane	18.90	43	4557	N.D.		
72) 1,1,2,2-Tetrachloroethane	18.76	83	616	N.D.		
74) Cumene	19.23	105	2510	N.D.		
75) alpha-Pinene	19.58	93	12562	0.185	ng	88
76) n-Propylbenzene	19.67	91	6113	N.D.		
77) 3-Ethyltoluene	19.76	105	11787	N.D.		
78) 4-Ethyltoluene	19.80	105	5779	N.D.		
79) 1,3,5-Trimethylbenzene	19.87	105	5788	N.D.		
80) alpha-Methylstyrene	20.00	118	846	N.D.		
81) 2-Ethyltoluene	20.03	105	4656	N.D.		
82) 1,2,4-Trimethylbenzene	20.23	105	18034	0.162	ng	85
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.44	91	589	N.D.		
85) 1,3-Dichlorobenzene	20.42	146	2067	N.D.		
86) 1,4-Dichlorobenzene	20.42	146	2067	N.D.		
87) sec-Butylbenzene	20.47	105	749	N.D.		
88) 4-Isopropyltoluene (p-...	20.61	119	7599	N.D.		
89) 1,2,3-Trimethylbenzene	20.61	105	4617	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.73	68	515289	13.158	ng	91
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.40	128	3581	N.D.		
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.23	119	2466	N.D.		
100) n-Butylbenzene	20.97	91	2483	N.D.		

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

Data File: I:\MS16\DATA\2016 11\08\11081653.D

Acq On : 9 Nov 2016 16:47

Operator: LH

Sample : P1605133-019 (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 14 15:11:49 2016

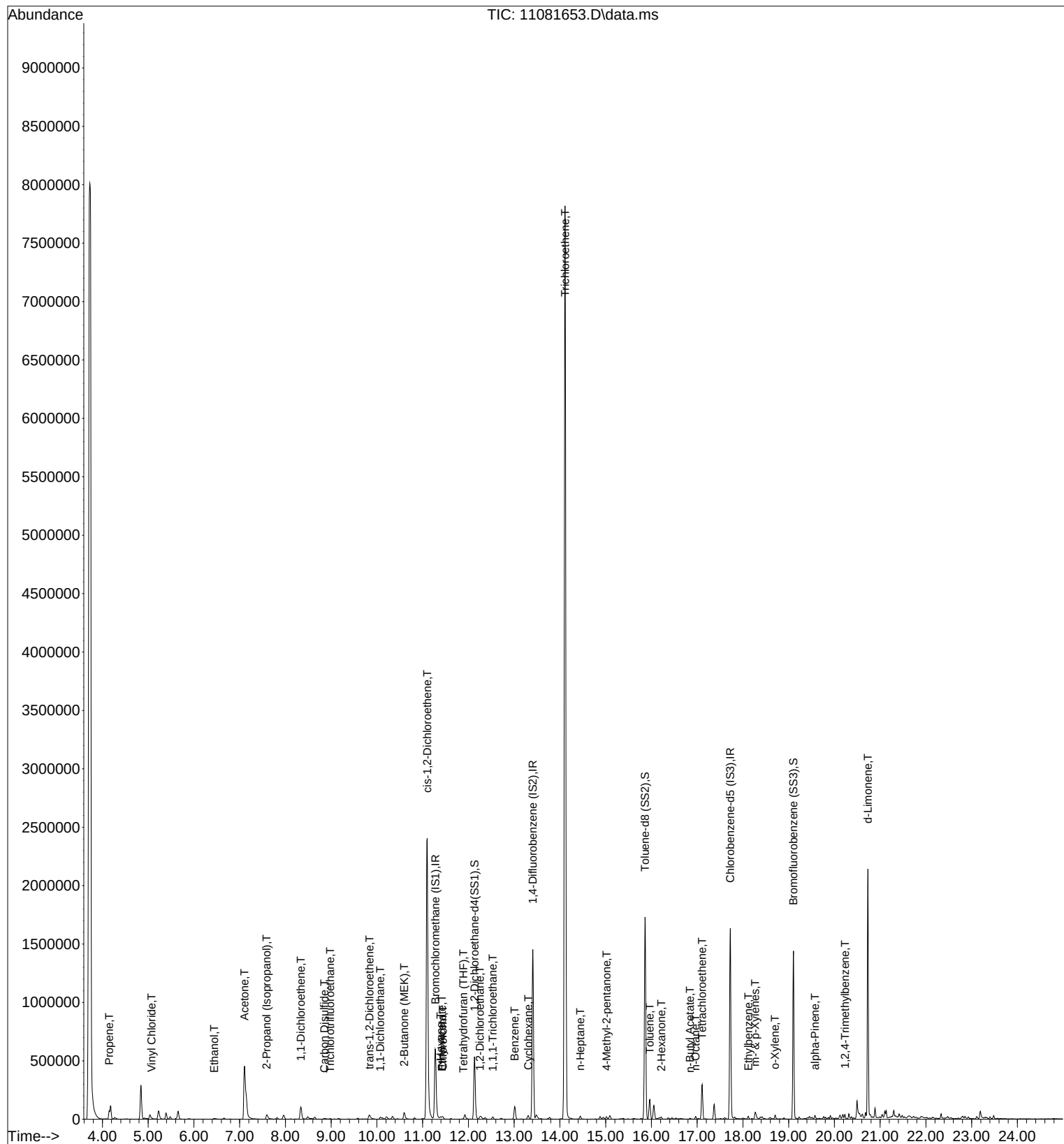
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\08\11081653.D

Acq On : 9 Nov 2016 16:47

Operator: LH

Sample : P1605133-019 (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:14:55 2016

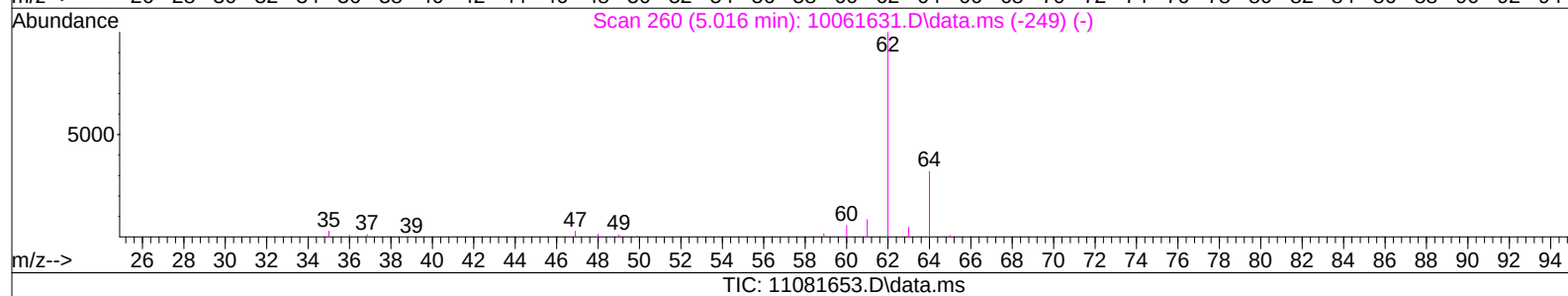
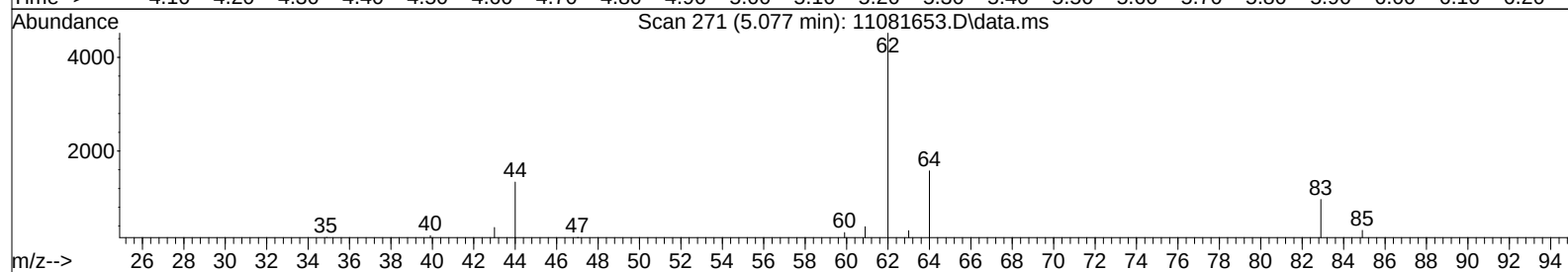
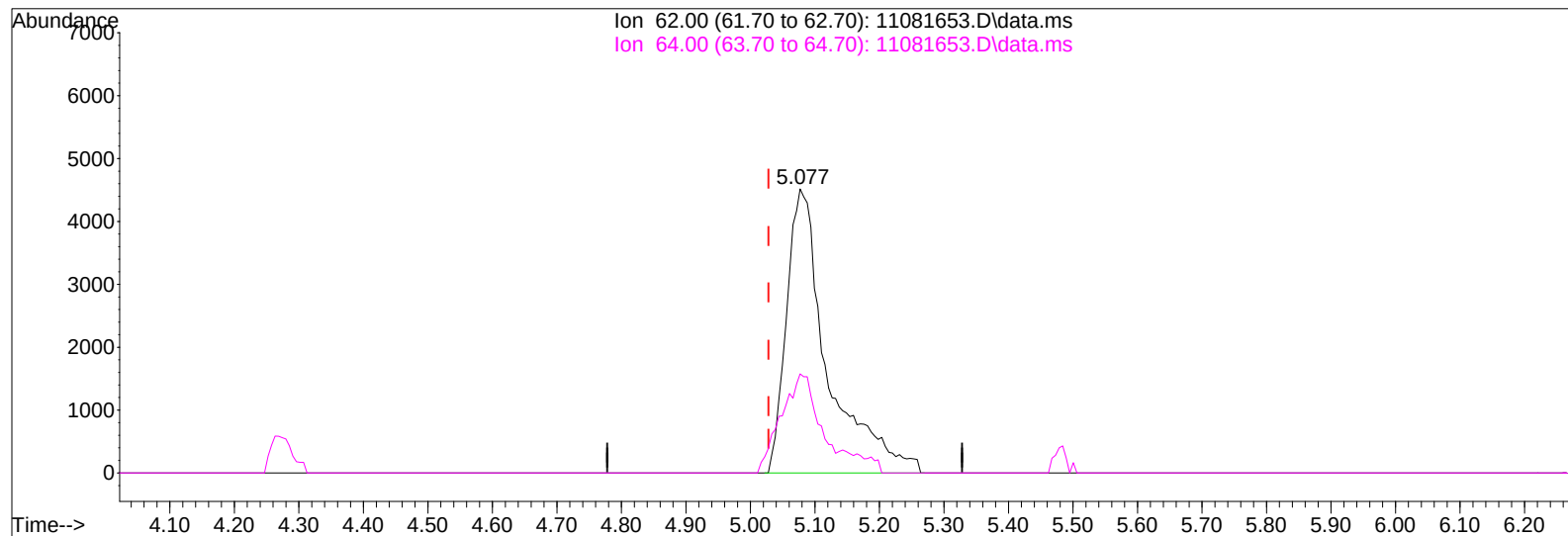
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(6) Vinyl Chloride (T)

5.077min (+0.049) 0.55ng

response 19965

Ion	Exp%	Act%
62.00	100	100
64.00	32.10	36.96
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081653.D

Acq On : 9 Nov 2016 16:47

Operator: LH

Sample : P1605133-019 (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:14:55 2016

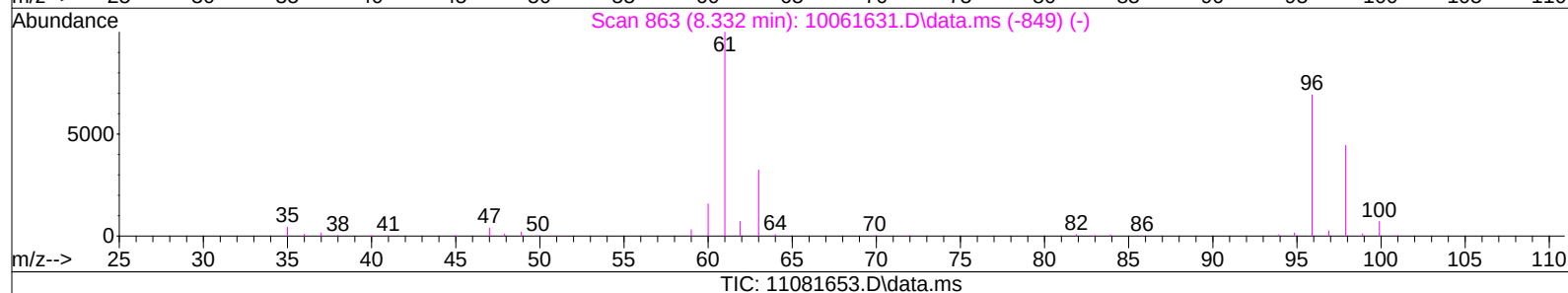
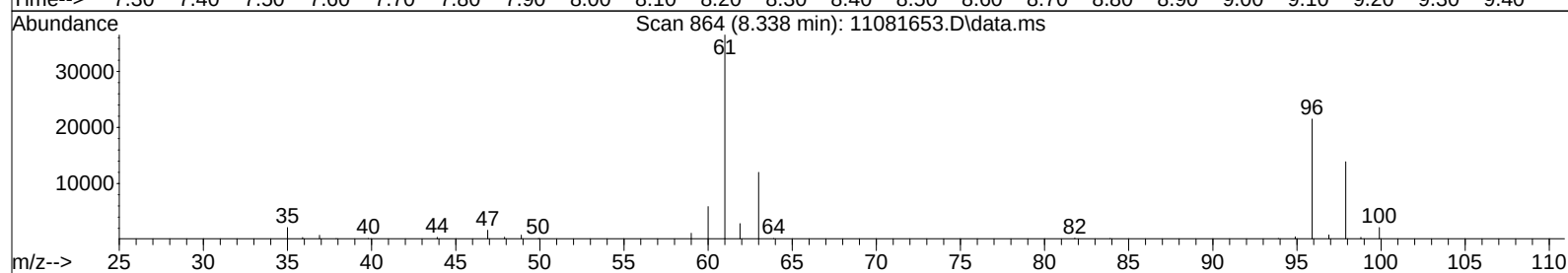
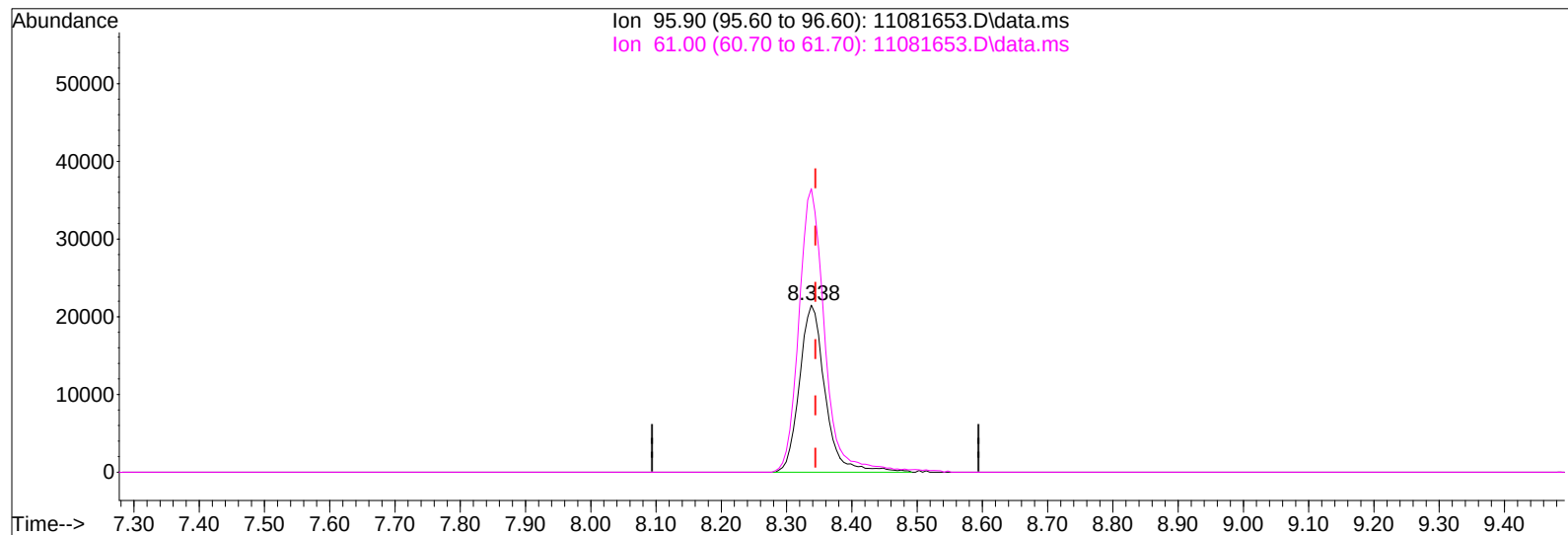
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(17) 1,1-Dichloroethene (T)

8.338min (-0.006) 2.24ng

response 58731

Ion	Exp%	Act%
95.90	100	100
61.00	145.50	171.23#
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081653.D

Acq On : 9 Nov 2016 16:47

Operator: LH

Sample : P1605133-019 (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:14:55 2016

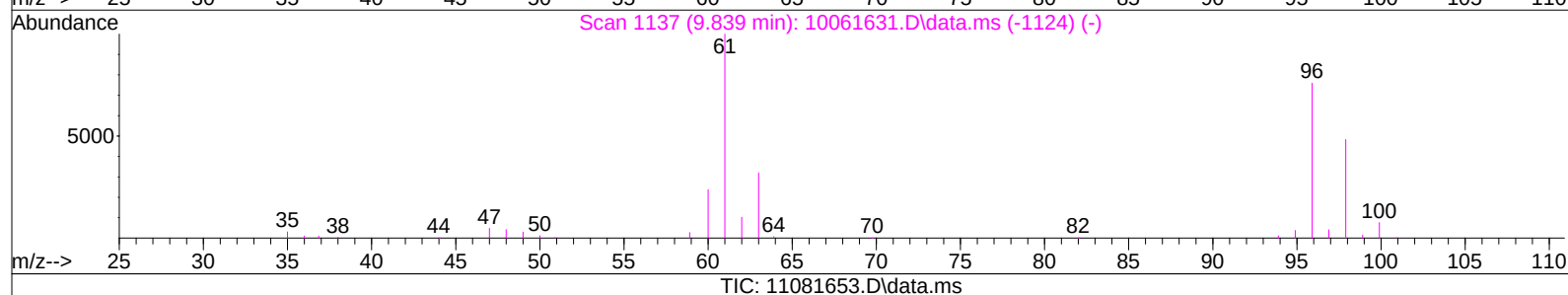
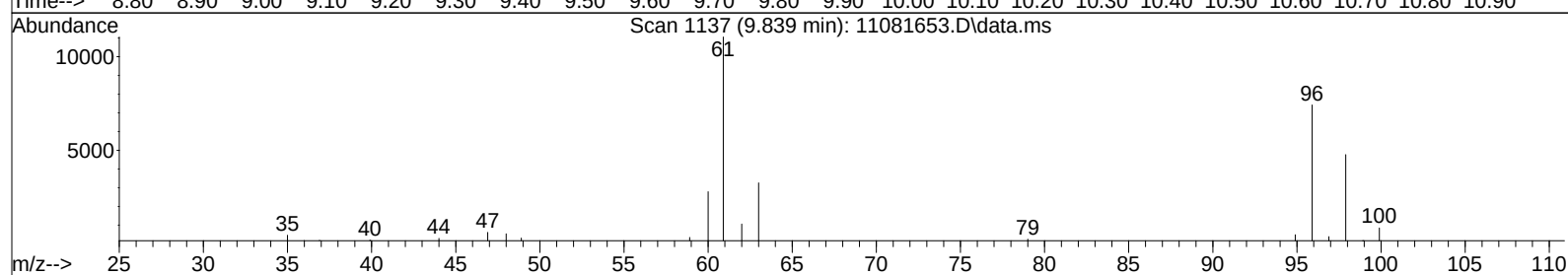
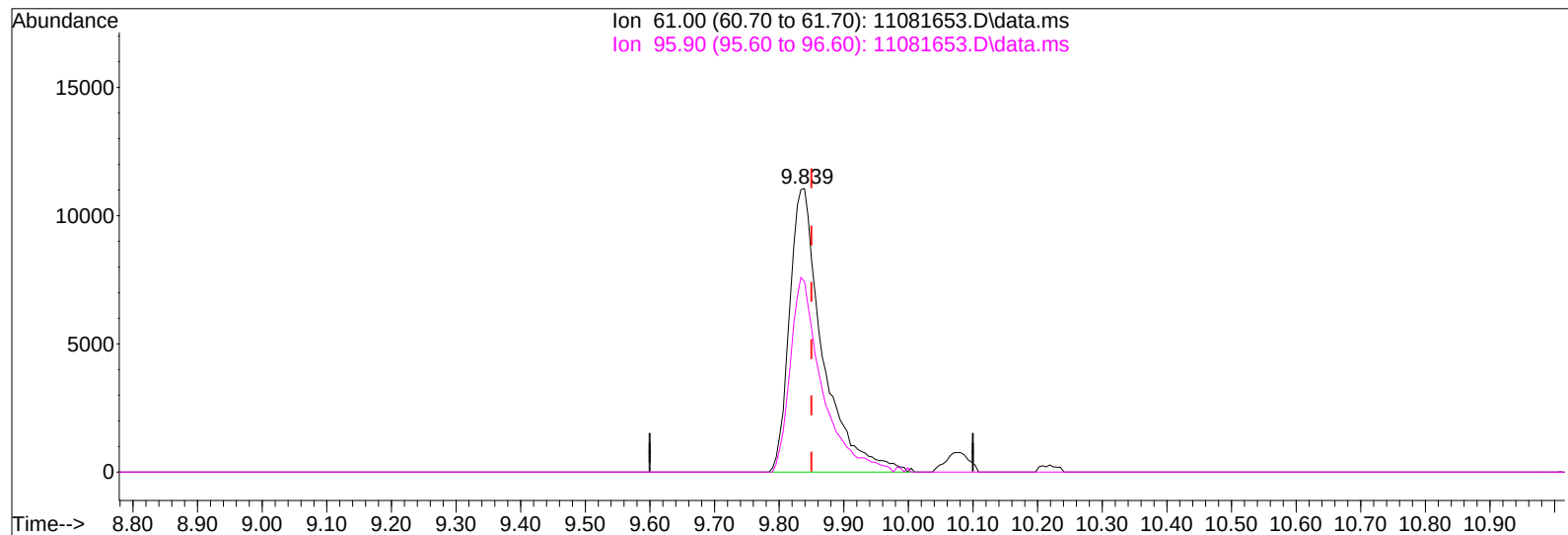
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081653.D\data.ms

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

9.839min (-0.011) 1.07ng

response 39350

Ion	Exp%	Act%
61.00	100	100
95.90	75.70	65.80
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081653.D

Acq On : 9 Nov 2016 16:47

Operator: LH

Sample : P1605133-019 (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:14:55 2016

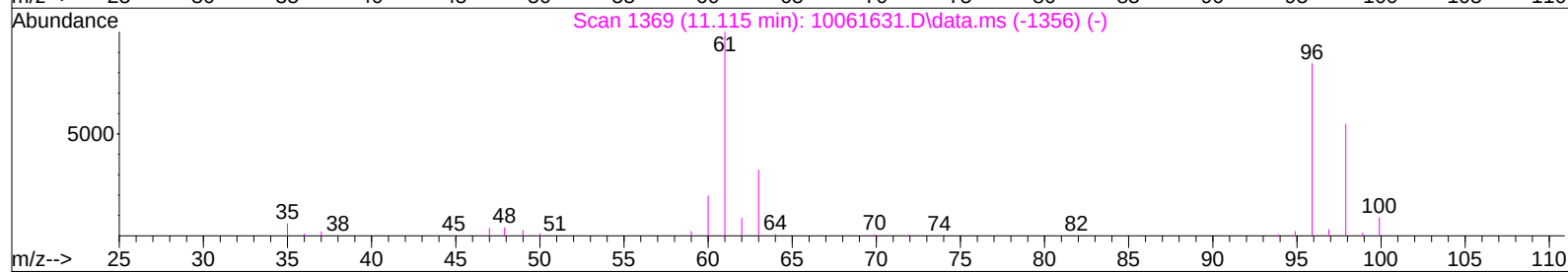
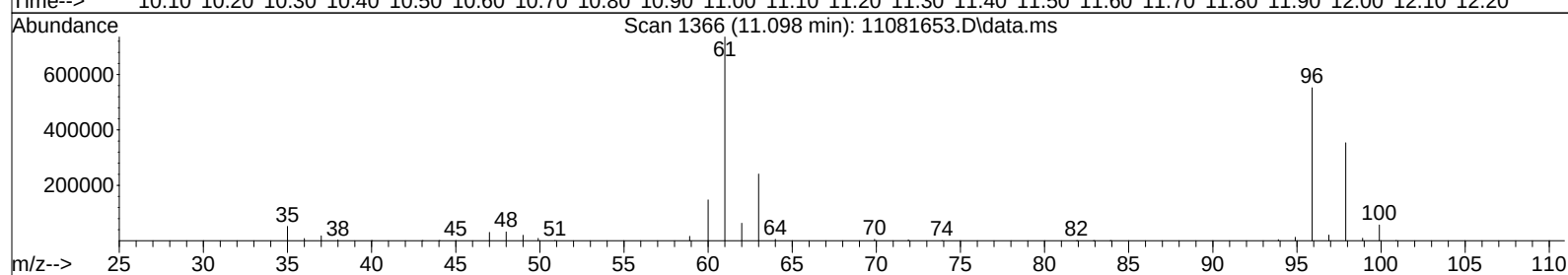
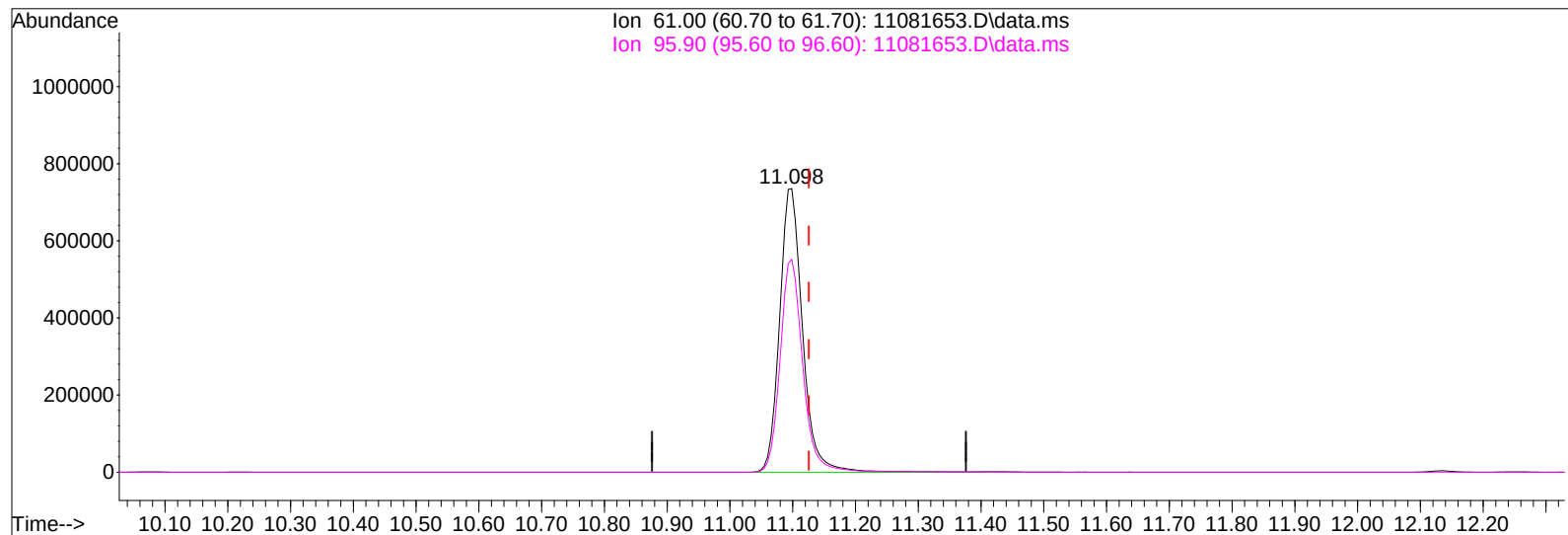
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081653.D\data.ms

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

11.098min (-0.028) 52.11ng

response 1861718

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	74.26
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081653.D

Acq On : 9 Nov 2016 16:47

Operator: LH

Sample : P1605133-019 (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:14:55 2016

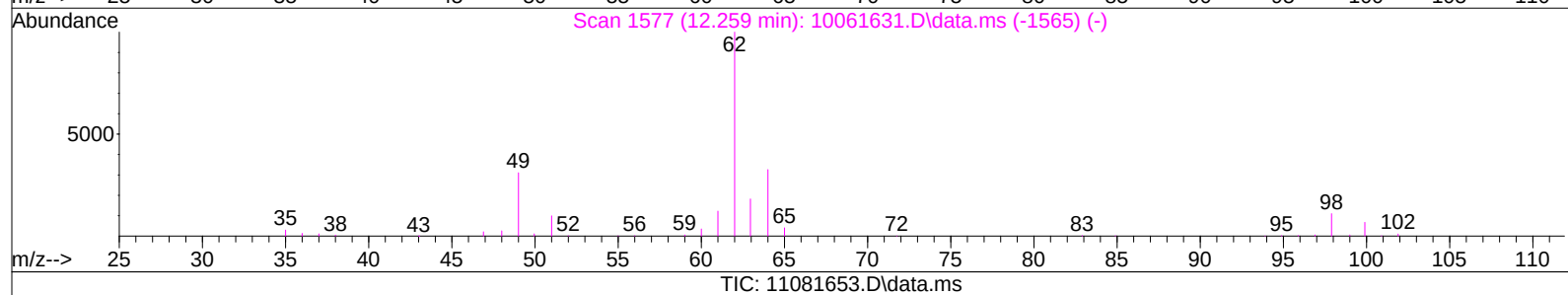
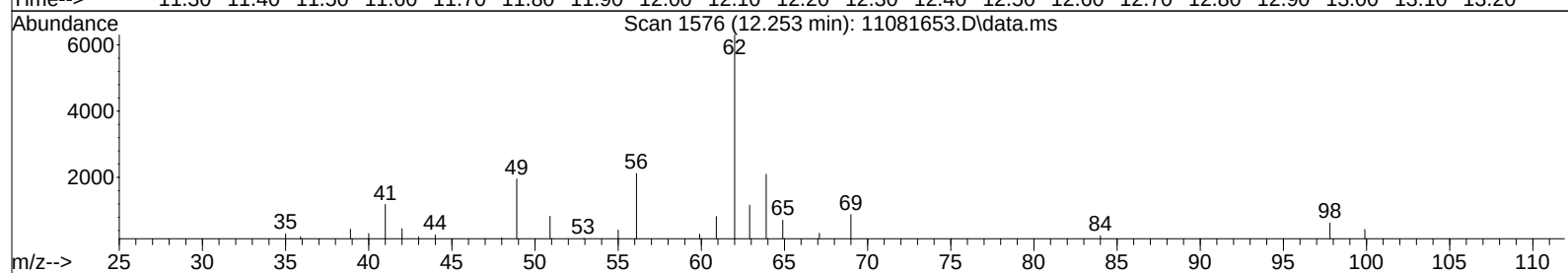
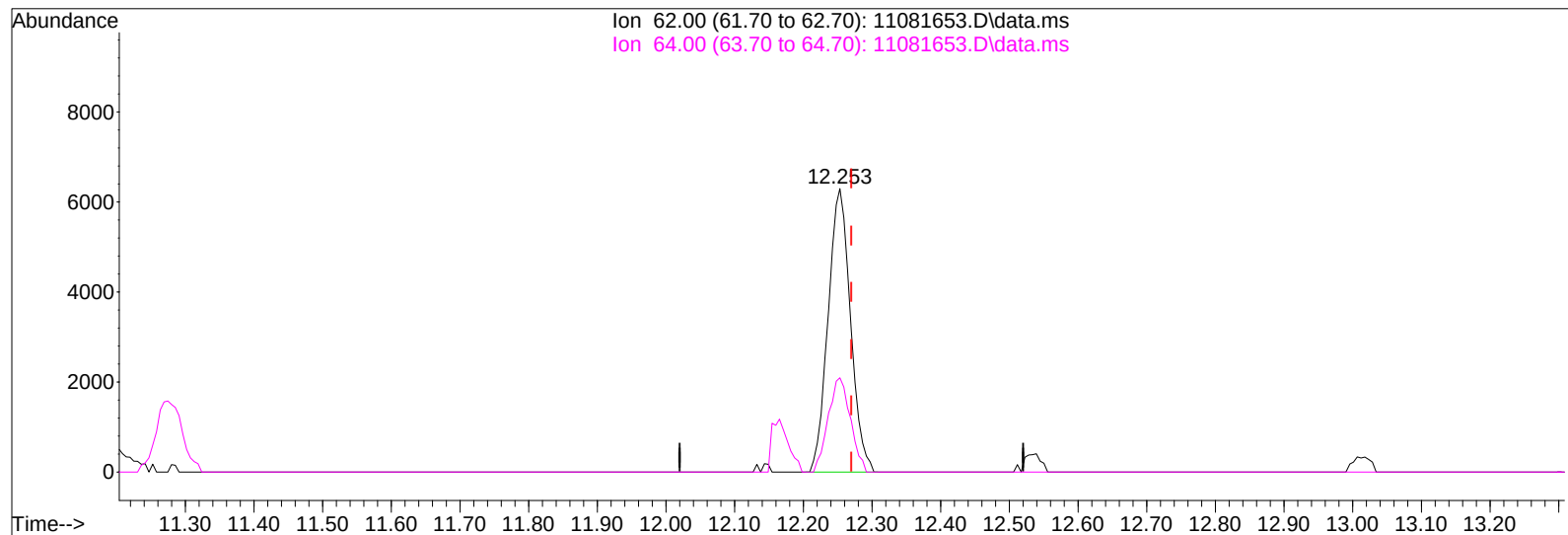
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(36) 1,2-Dichloroethane (T)

12.253min (-0.017) 0.45ng

response 14271

Ion	Exp%	Act%
62.00	100	100
64.00	32.80	33.07
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081653.D

Acq On : 9 Nov 2016 16:47

Operator: LH

Sample : P1605133-019 (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:14:55 2016

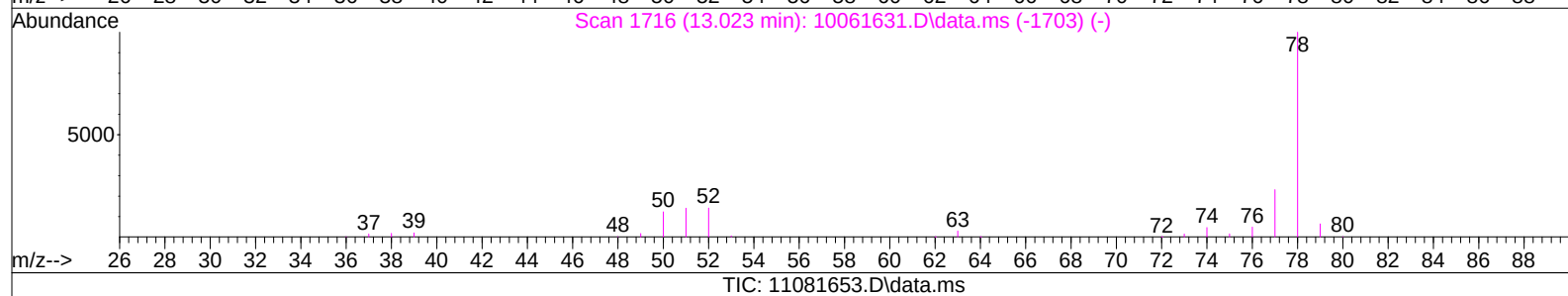
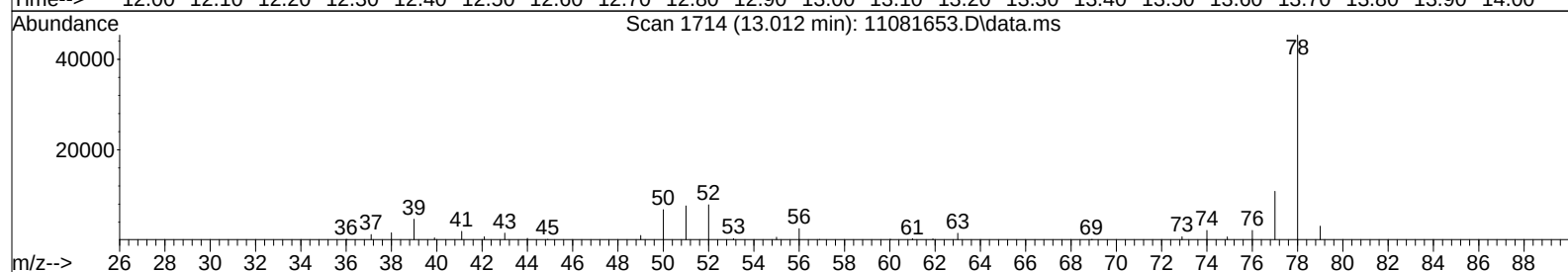
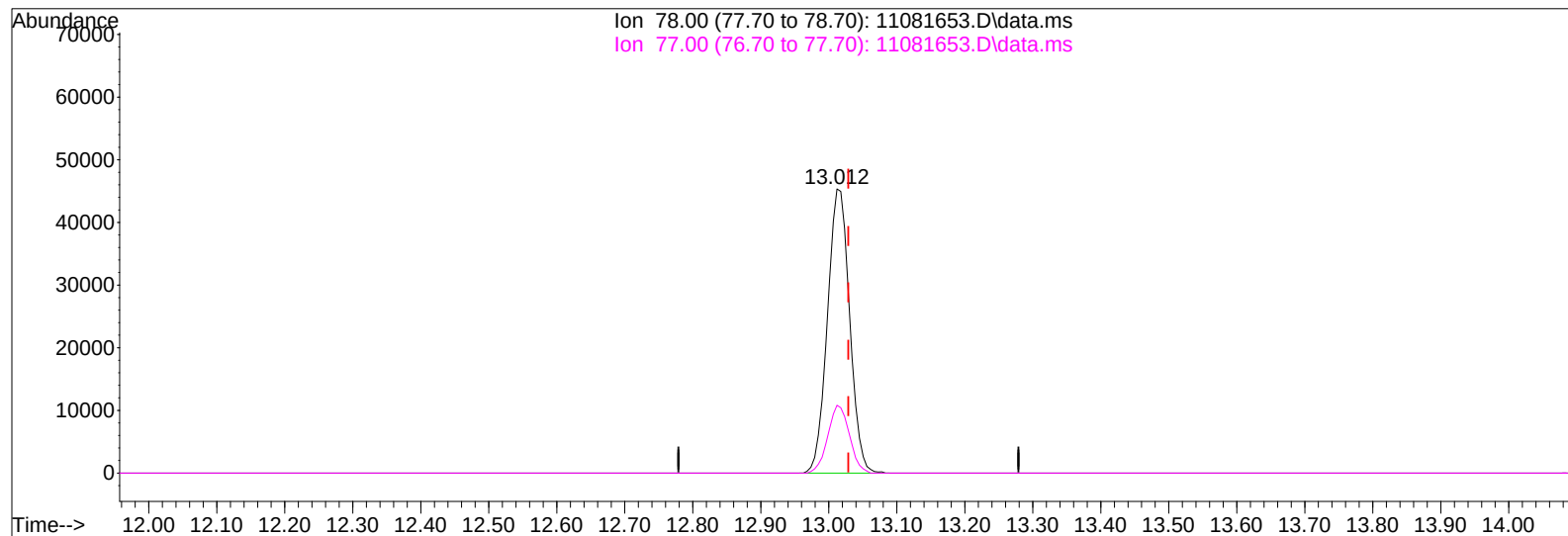
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081653.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 0.91ng

response 102568

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.25
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081653.D

Acq On : 9 Nov 2016 16:47

Operator: LH

Sample : P1605133-019 (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:14:55 2016

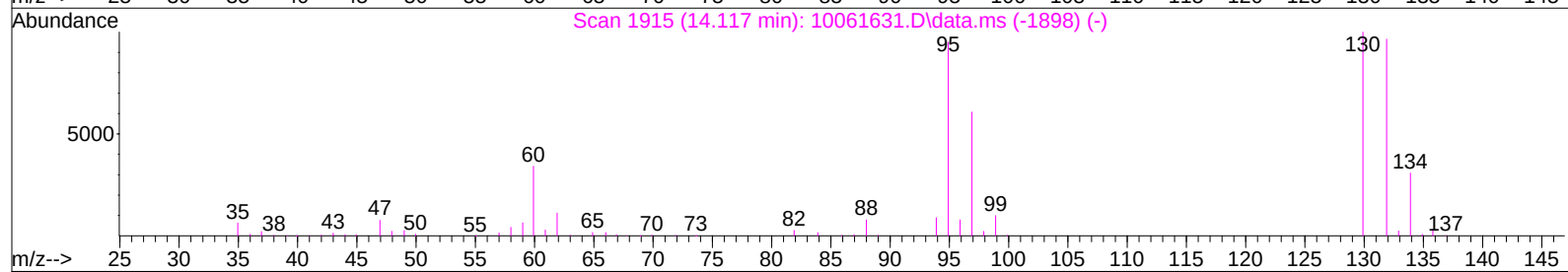
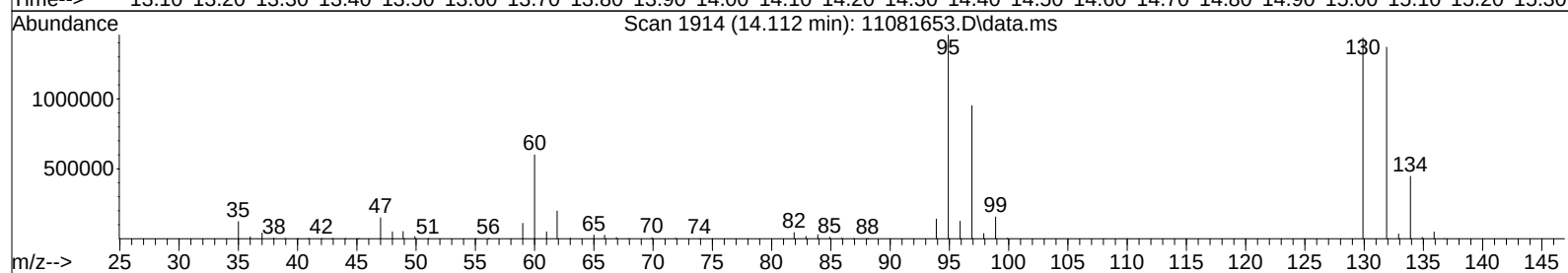
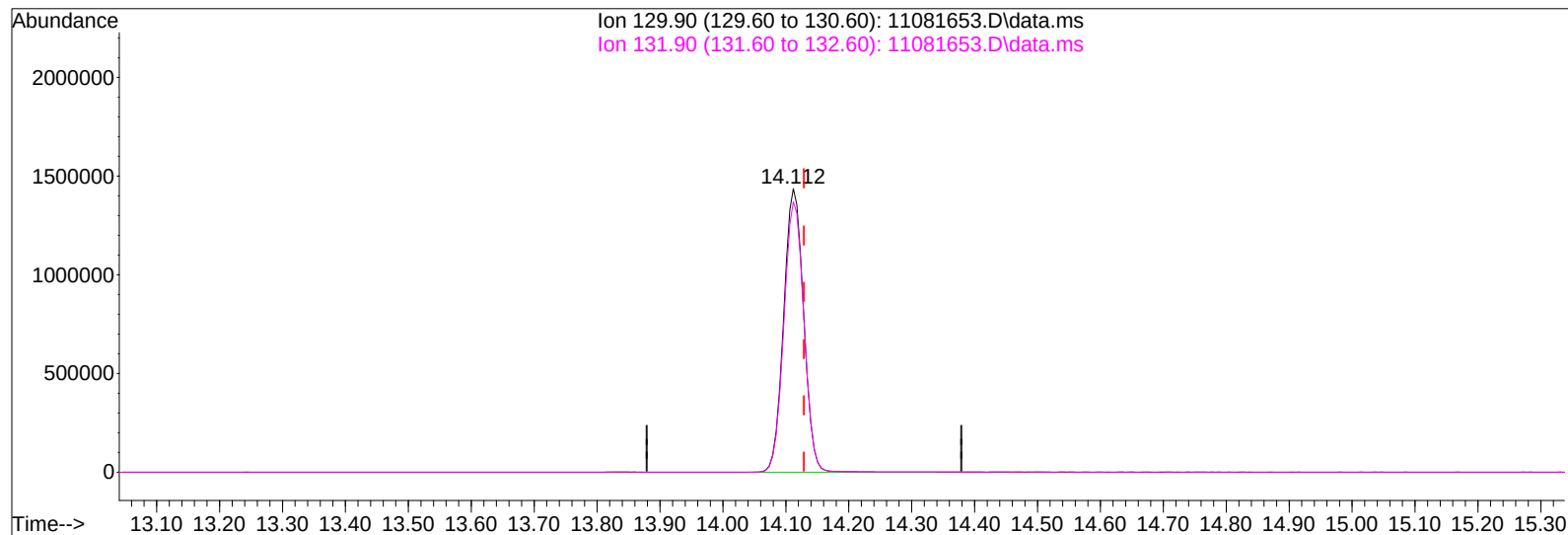
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081653.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 99.09ng

response 3159285

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	95.88
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081653.D

Acq On : 9 Nov 2016 16:47

Operator: LH

Sample : P1605133-019 (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:14:55 2016

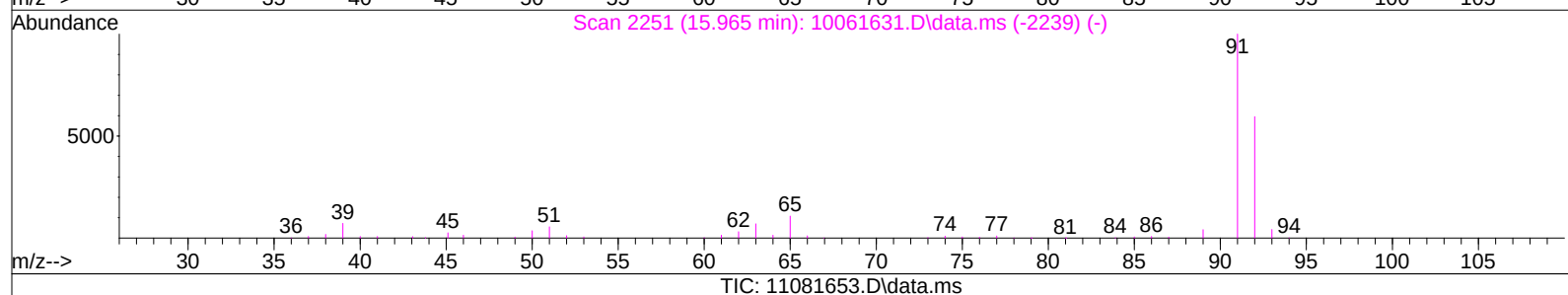
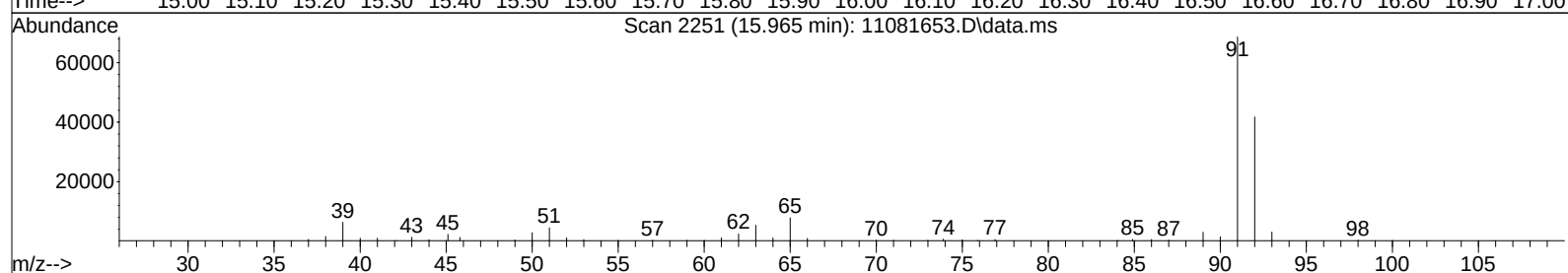
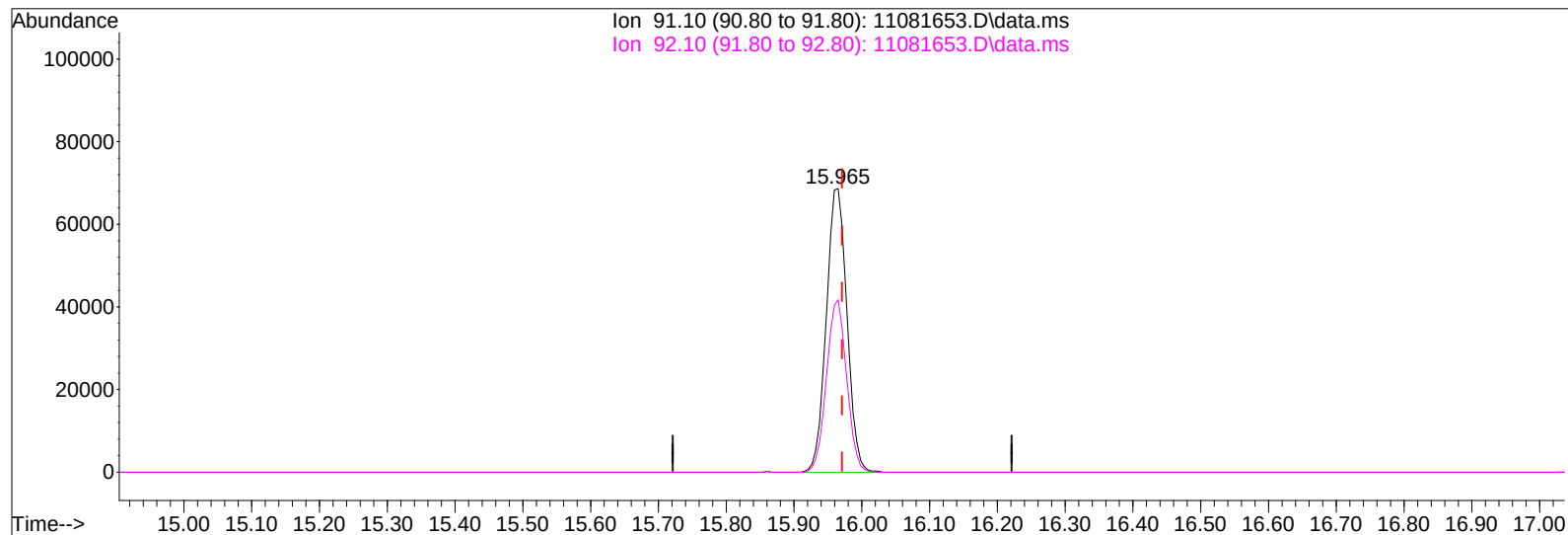
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081653.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 1.28ng

response 145171

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	59.23
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081653.D

Acq On : 9 Nov 2016 16:47

Operator: LH

Sample : P1605133-019 (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:14:55 2016

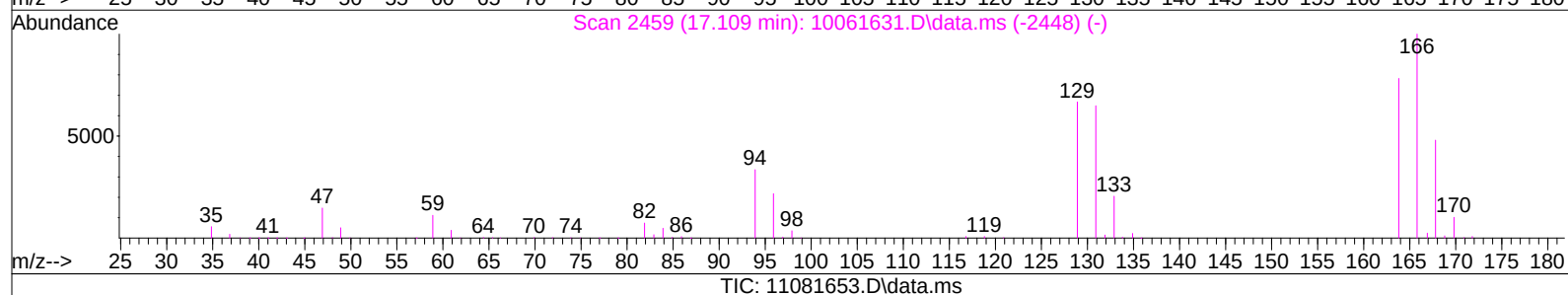
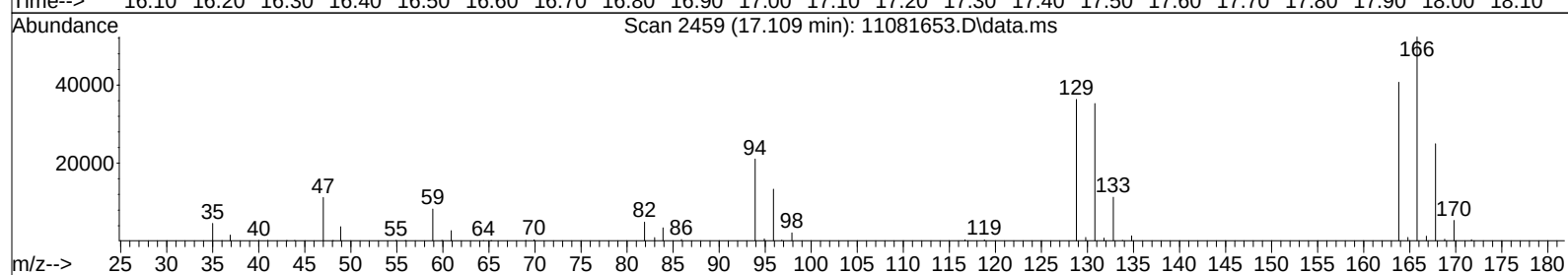
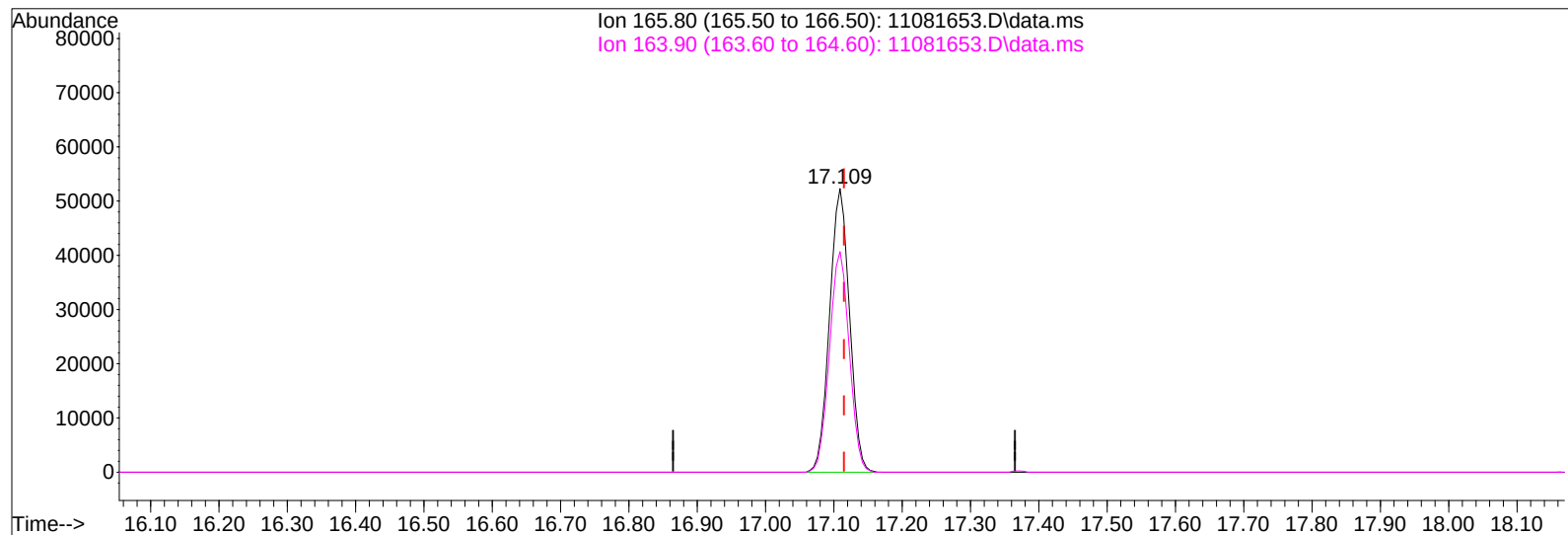
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081653.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 2.89ng

response 105823

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	77.48
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081653.D

Acq On : 9 Nov 2016 16:47

Operator: LH

Sample : P1605133-019 (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:14:55 2016

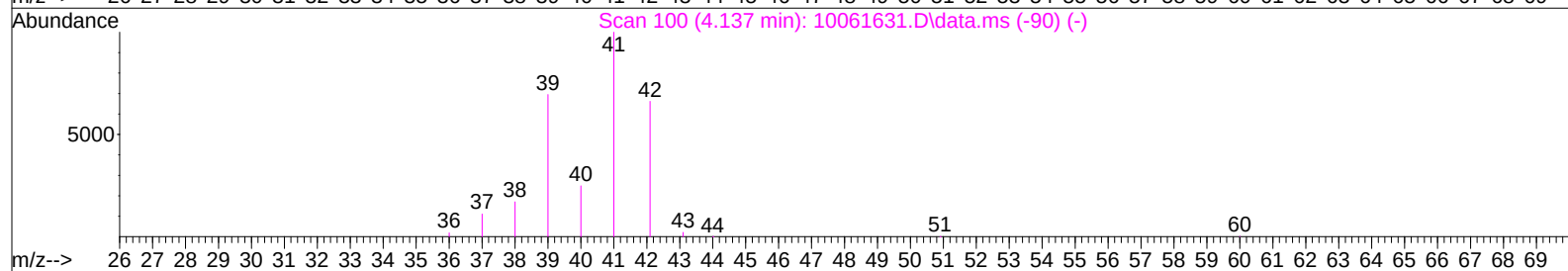
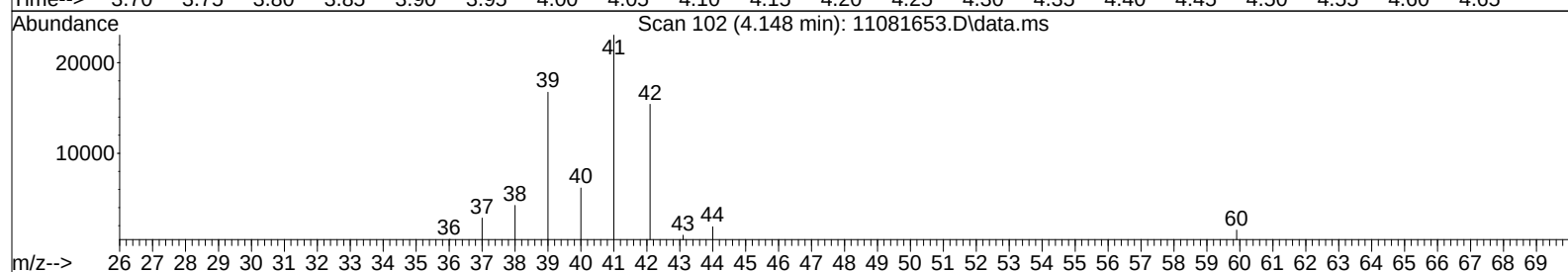
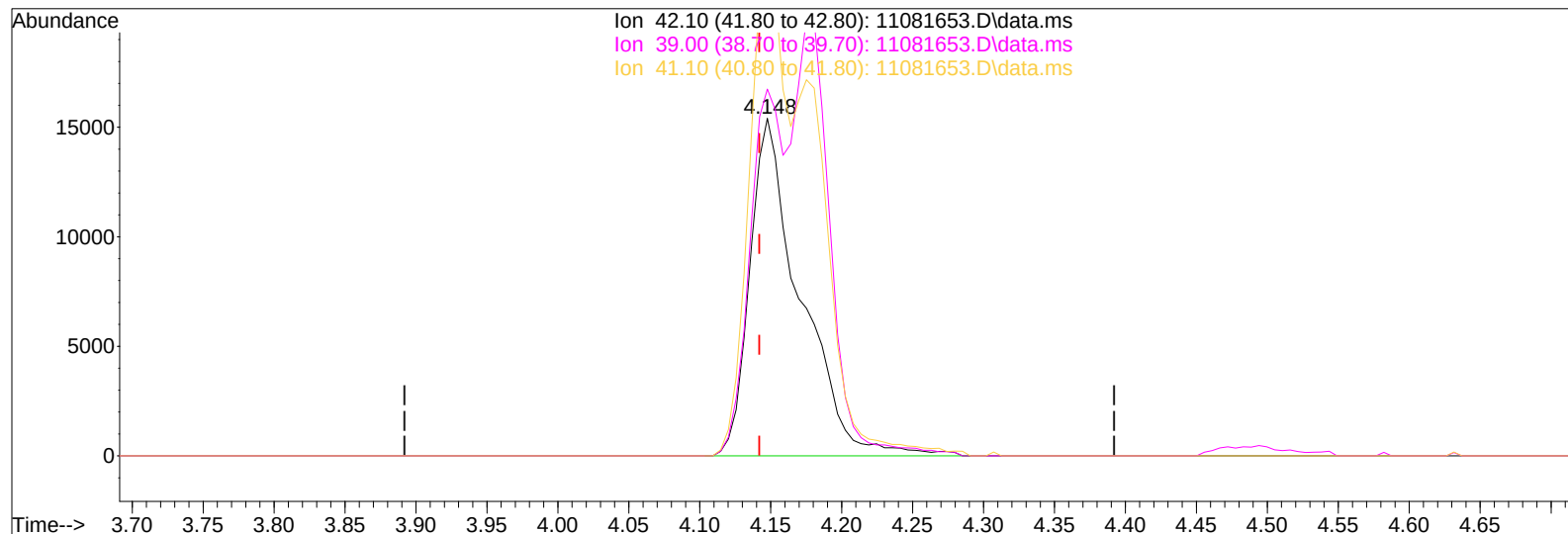
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081653.D\data.ms

(2) Propene (T)

4.148min (+0.006) 1.53ng

response 38228

Ion	Exp%	Act%
42.10	100	100
39.00	105.30	83.11#
41.10	151.20	185.14#
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081653.D

Acq On : 9 Nov 2016 16:47

Operator: LH

Sample : P1605133-019 (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:14:55 2016

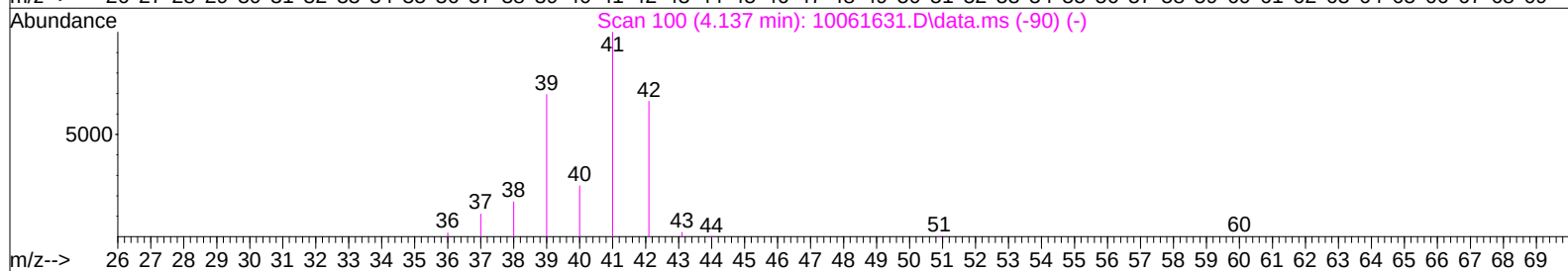
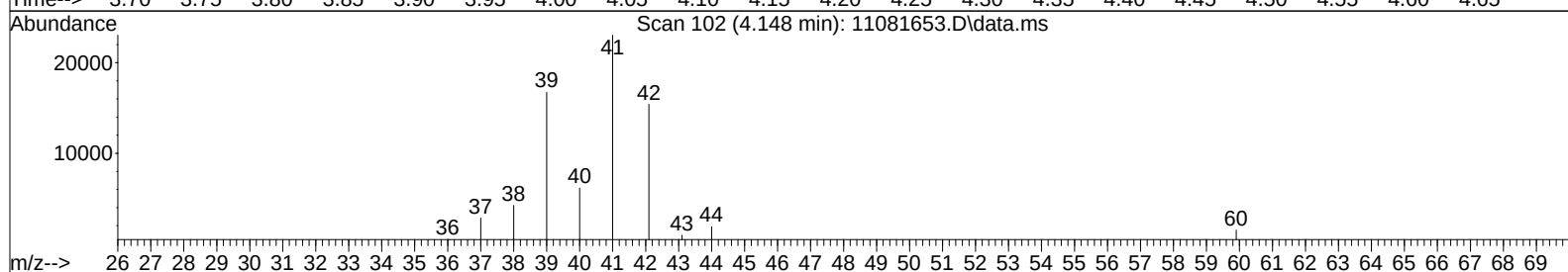
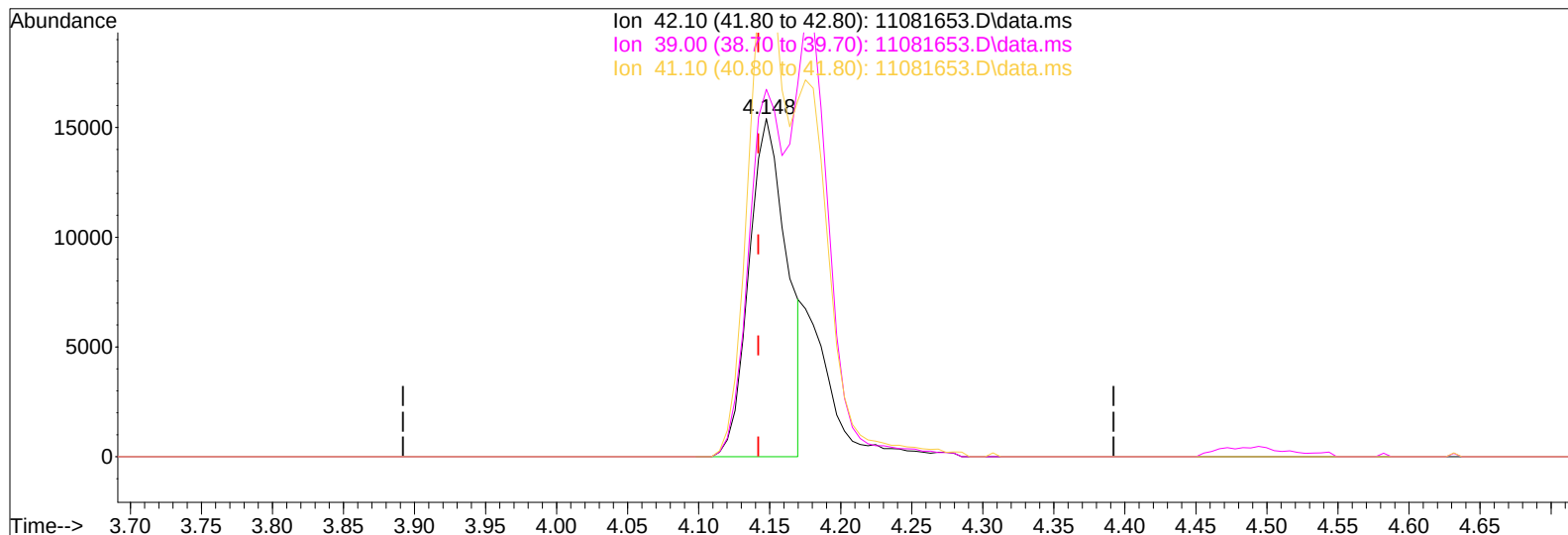
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081653.D\data.ms

(2) Propene (T)

4.148min (+0.006) 1.14ng m

IPC

response 28590

LH 11/14/16

Ion	Exp%	Act%
42.10	100	100
39.00	105.30	111.12
41.10	151.20	247.56#
0.00	0.00	0.00

11/14/16

Data File: I:\MS16\DATA\2016 11\08\11081649.D

Acq On : 9 Nov 2016 14:25

Operator: LH

Sample : P1605133-020 (0.5mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 14 14:57:38 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

LH 11/14/16

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	286977	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1391990	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	590370	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	437957	14.896	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	119.20%
57) Toluene-d8 (SS2)	15.87	98	1407124	11.952	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.60%
73) Bromofluorobenzene (SS3)	19.11	174	459200	10.273	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	82.16%

Target Compounds

					Qvalue	
2) Propene	4.22	42	3127	0.123	ng	# 76
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.48	45	4552	0.248	ng	87
11) Acetonitrile	6.83	41	265	N.D.		
12) Acrolein	7.18	56	638	N.D.		
13) Acetone	7.18	58	5595	0.306	ng	# 63
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	7.62	45	65530	1.066	ng	95
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	8.59	59	269	N.D.		
19) Methylene Chloride	8.56	84	1252	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	8.87	76	2620	N.D.		
23) trans-1,2-Dichloroethene	9.84	61	6045	0.162	ng	87
24) 1,1-Dichloroethane	10.08	63	1577	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	10.64	72	568	N.D.		
28) cis-1,2-Dichloroethene	11.10	61	678871	18.758	ng	90
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	11.46	61	630	N.D.		
31) n-Hexane	11.40	57	5798	0.144	ng	# 97
32) Chloroform	11.44	83	2353	N.D.		
34) Tetrahydrofuran (THF)	11.91	72	1078	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	13.03	56	1691	N.D.		
41) Benzene	13.01	78	4211	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	13.31	84	2009	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.11	130	2727281	83.746	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	14.18	57	889	N.D.		

Data File: I:\MS16\DATA\2016 11\08\11081649.D

Acq On : 9 Nov 2016 14:25

Operator: LH

Sample : P1605133-020 (0.5mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 14 14:57:38 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.44	100	630	N.D.		
51) n-Heptane	14.45	71	2403	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	21752	0.188	ng	98
59) 2-Hexanone	16.22	43	1065	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.97	43	2519	N.D.		
63) n-Octane	16.97	57	939	N.D.		
64) Tetrachloroethene	17.11	166	12213	0.328	ng	97
65) Chlorobenzene	17.77	112	696	N.D.		
66) Ethylbenzene	18.12	91	10080	N.D.		
67) m- & p-Xylenes	18.27	91	14456	0.135	ng	96
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.61	104	1120	N.D.		
70) o-Xylene	18.70	91	4241	N.D.		
71) n-Nonane	18.90	43	2575	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	19.23	105	610	N.D.		
75) alpha-Pinene	19.58	93	3945	N.D.		
76) n-Propylbenzene	19.68	91	676	N.D.		
77) 3-Ethyltoluene	19.80	105	1211	N.D.		
78) 4-Ethyltoluene	19.80	105	1211	N.D.		
79) 1,3,5-Trimethylbenzene	19.84	105	866	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	20.08	105	1206	N.D.		
82) 1,2,4-Trimethylbenzene	20.31	105	1846	N.D.		
83) n-Decane	20.36	57	2302	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.		
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.		
87) sec-Butylbenzene	20.31	105	1846	N.D.		
88) 4-Isopropyltoluene (p-...	20.69	119	810	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.75	68	2335	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	21.50	57	658	N.D.		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.54	128	1627	N.D.		
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	20.75	91	547	N.D.		

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

Data File: I:\MS16\DATA\2016 11\08\11081649.D

Acq On : 9 Nov 2016 14:25

Operator: LH

Sample : P1605133-020 (0.5mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 14 14:57:38 2016

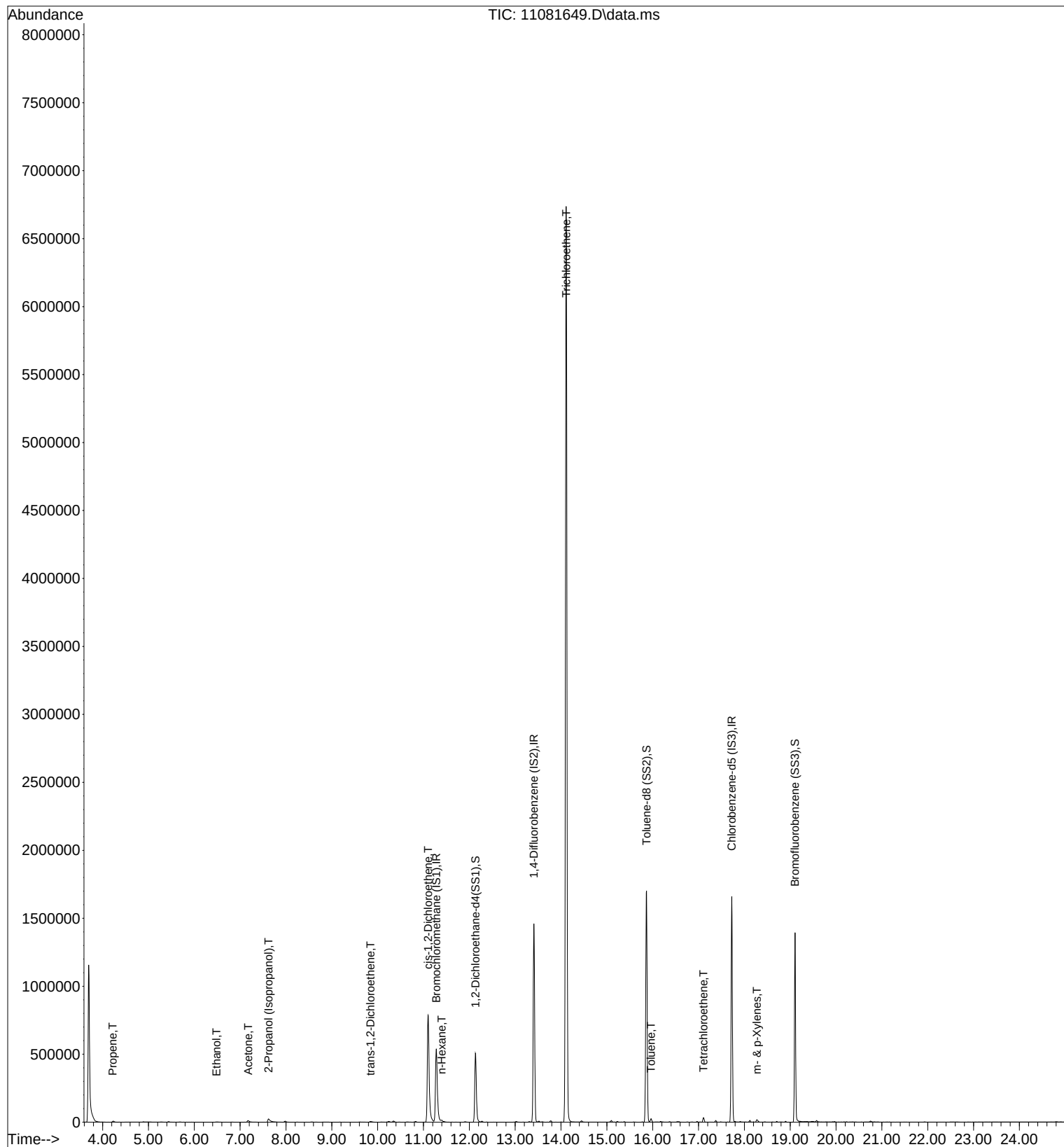
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\08\11081649.D

Acq On : 9 Nov 2016 14:25

Operator: LH

Sample : P1605133-020 (0.5mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 09 15:59:25 2016

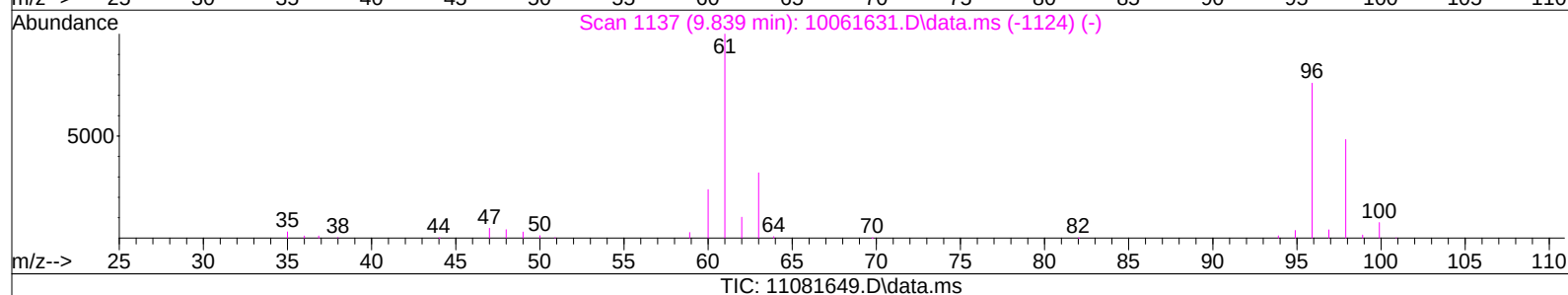
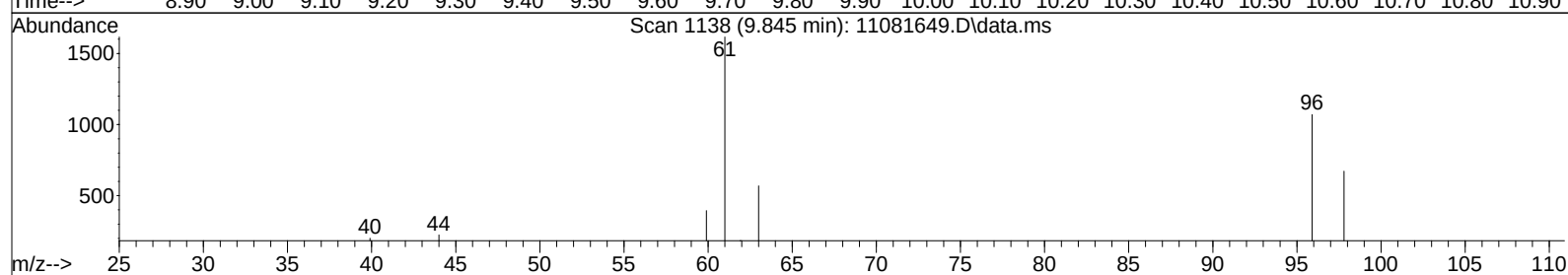
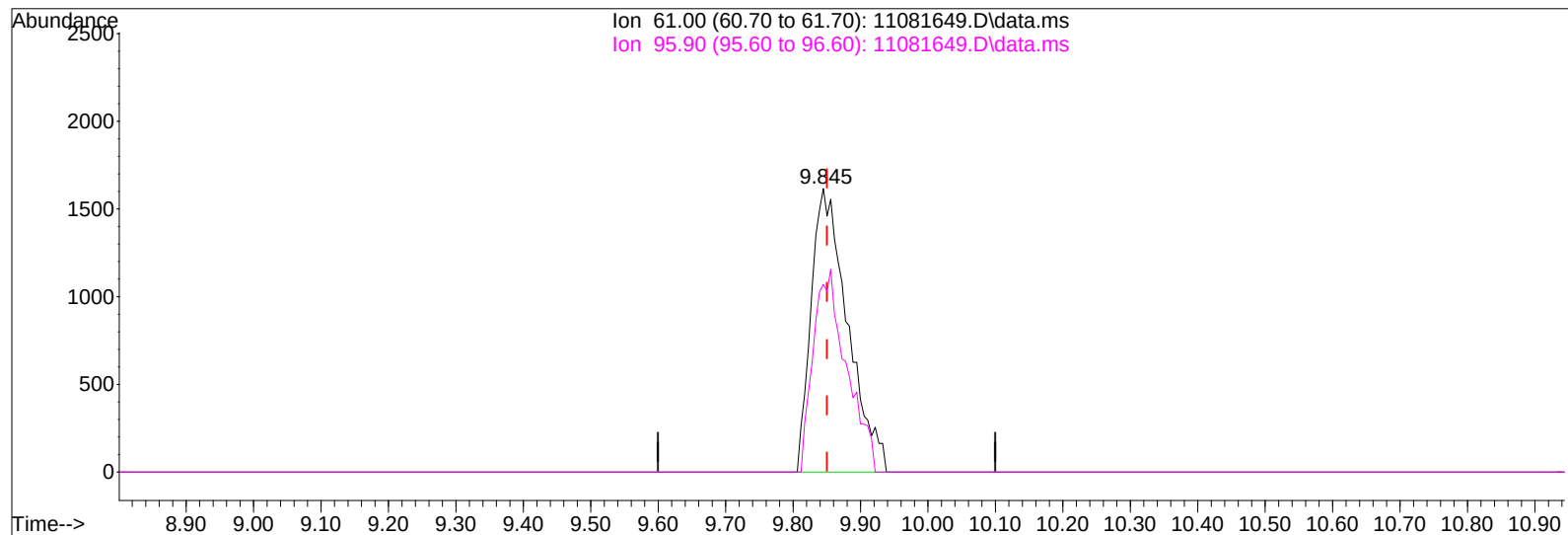
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



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

9.845min (-0.005) 0.16ng

response 6045

Ion	Exp%	Act%
61.00	100	100
95.90	75.70	65.00
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081649.D

Acq On : 9 Nov 2016 14:25

Operator: LH

Sample : P1605133-020 (0.5mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 09 15:59:25 2016

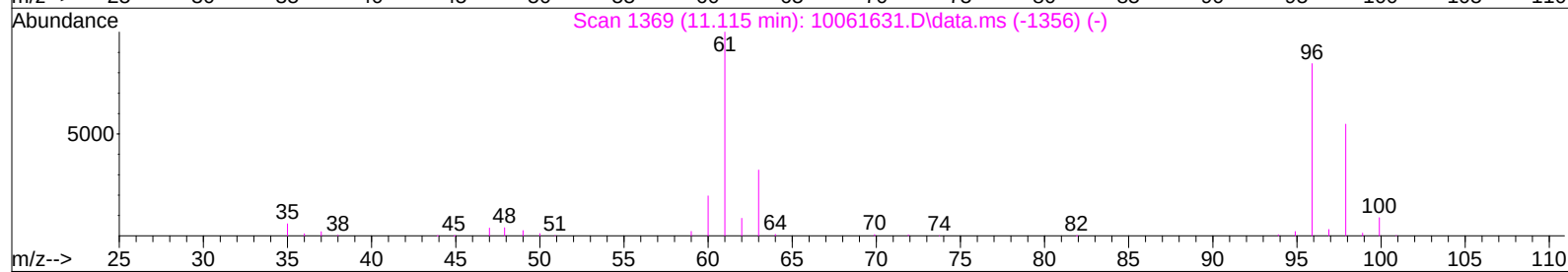
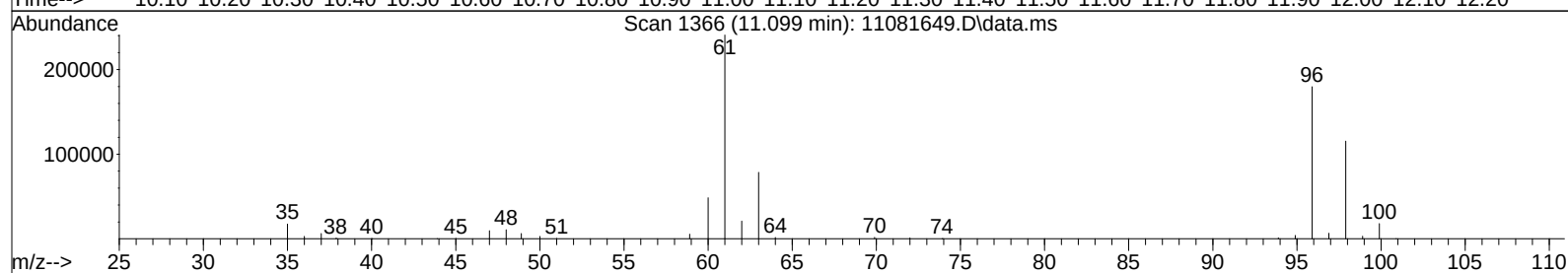
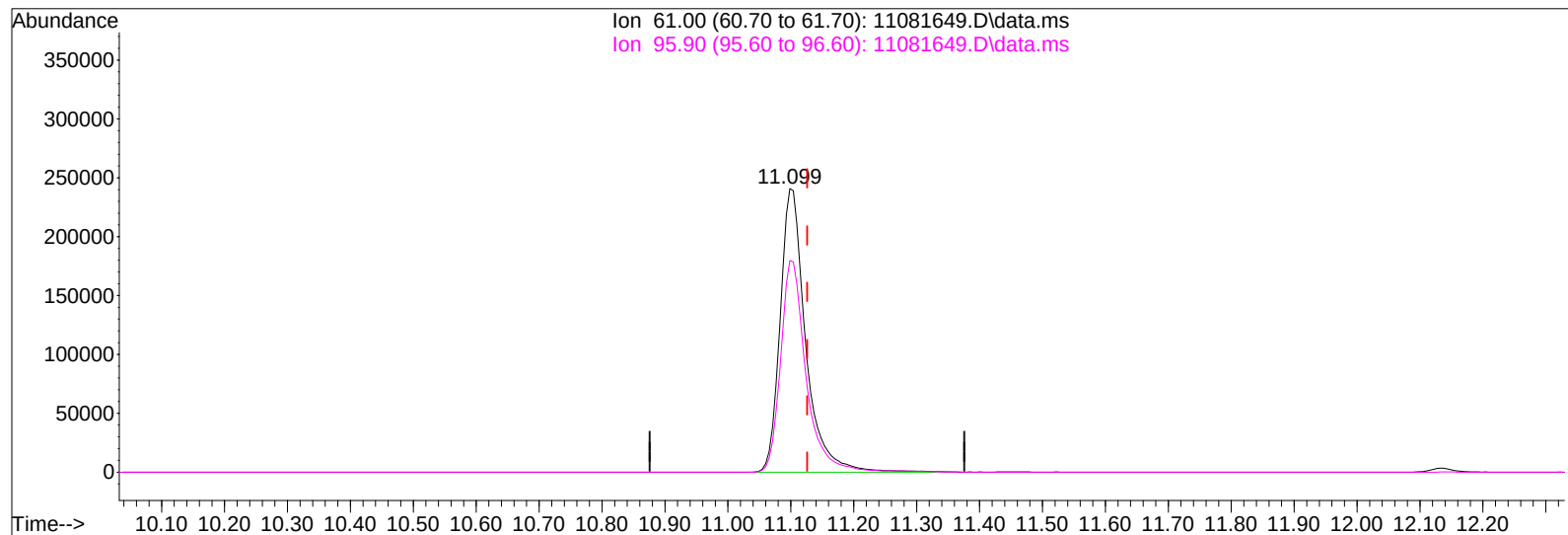
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081649.D\data.ms

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

11.099min (-0.027) 18.76ng

response 678871

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	74.50
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081649.D

Acq On : 9 Nov 2016 14:25

Operator: LH

Sample : P1605133-020 (0.5mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 09 15:59:25 2016

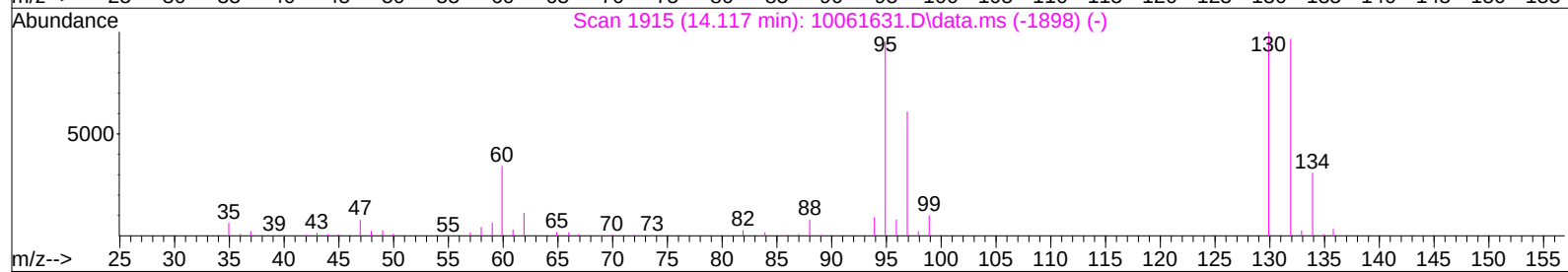
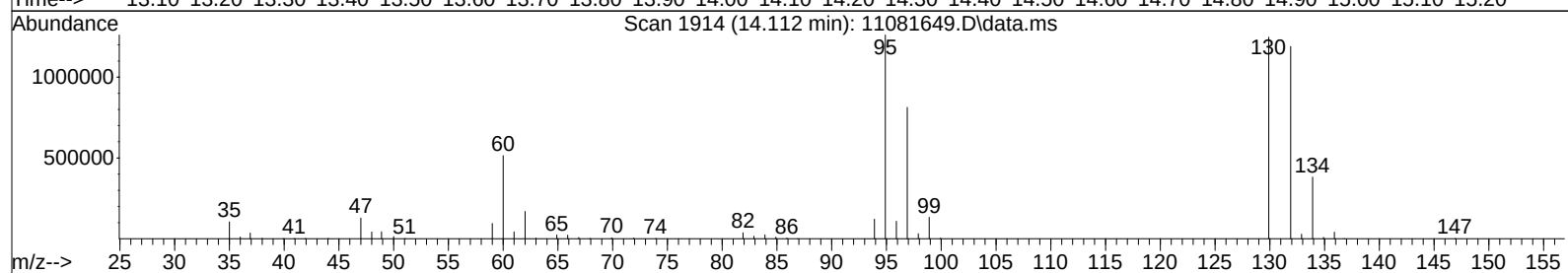
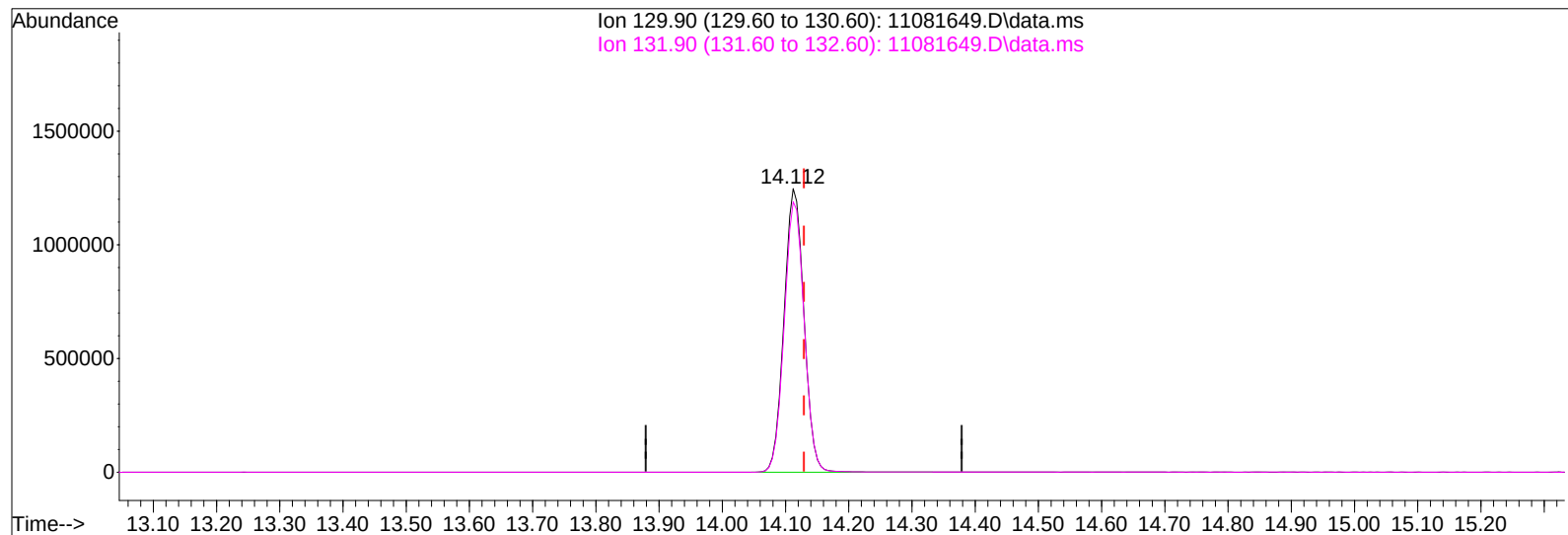
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081649.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 83.75ng

response 2727281

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	95.74
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081649.D

Acq On : 9 Nov 2016 14:25

Operator: LH

Sample : P1605133-020 (0.5mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 09 15:59:25 2016

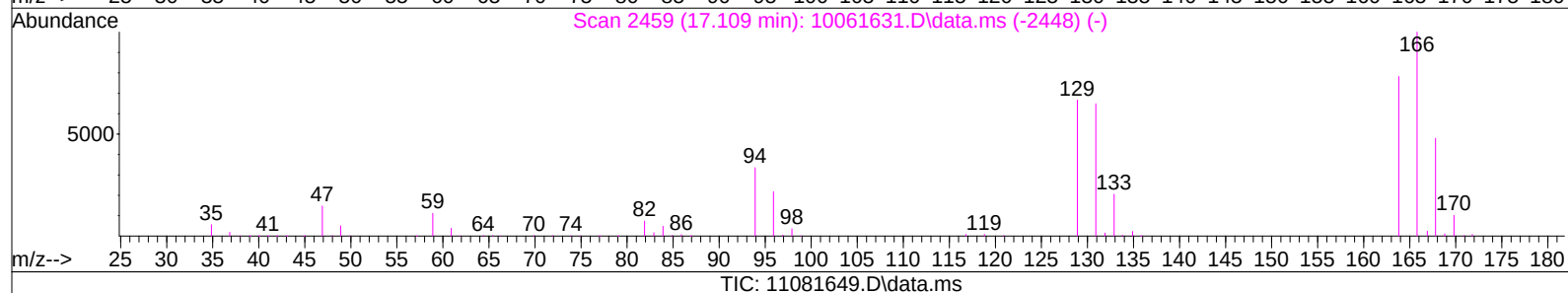
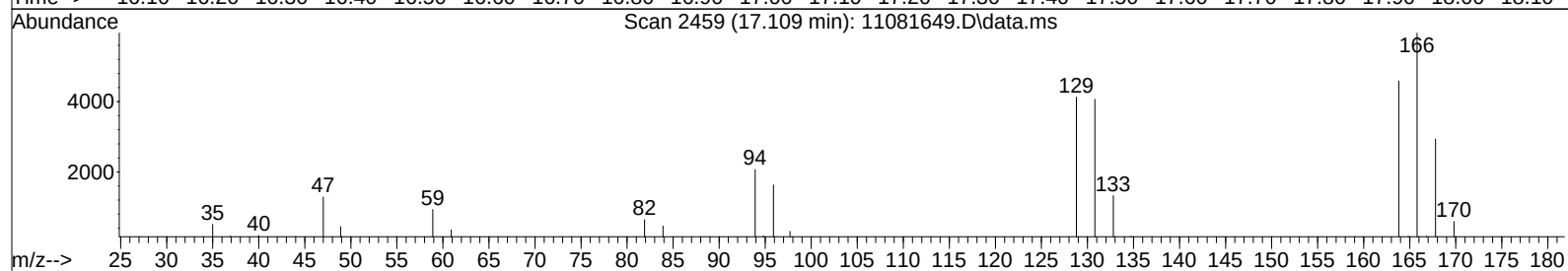
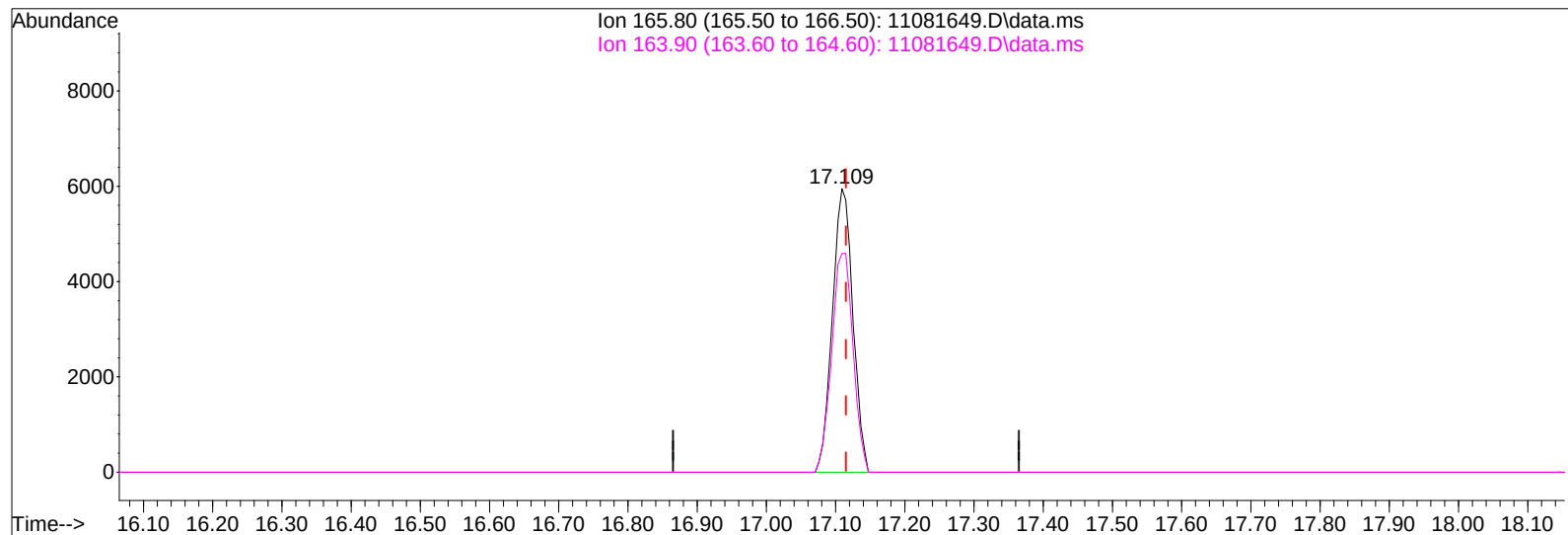
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081649.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 0.33ng

response 12213

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	80.74
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091626.D

Acq On : 10 Nov 2016 12:52

Operator: LH

Sample : P1605133-021 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 14 14:53:14 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 11/14/16

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	265146	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1352846	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	583709	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	434404	15.992	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	127.92%
57) Toluene-d8 (SS2)	15.86	98	1377902	11.837	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	94.72%
73) Bromofluorobenzene (SS3)	19.11	174	460252	10.414	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	83.28%

Target Compounds

						Qvalue
2) Propene	4.15	42	45073m	1.924	ng	
3) Dichlorodifluoromethan...	4.32	85	92418	2.053	ng	99
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	4.90	135	1937	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.43	45	119008	7.008	ng	100
11) Acetonitrile	6.77	41	11153	0.252	ng	99
12) Acrolein	6.94	56	4428	0.279	ng	97
13) Acetone	7.11	58	221761	13.133	ng	# 82
14) Trichlorofluoromethane	7.38	101	40367	0.965	ng	100
15) 2-Propanol (Isopropanol)	7.59	45	190483	3.354	ng	95
16) Acrylonitrile	7.91	53	53	N.D.		
17) 1,1-Dichloroethene	8.35	96	2731	0.111	ng	# 69
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.56	84	5986	0.217	ng	78
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	8.98	151	8292	0.336	ng	89
22) Carbon Disulfide	8.86	76	34009	0.365	ng	98
23) trans-1,2-Dichloroethene	9.84	61	17097	0.496	ng	87
24) 1,1-Dichloroethane	10.09	63	41489	0.935	ng	100
25) Methyl tert-Butyl Ether	10.22	73	1911	N.D.		
26) Vinyl Acetate	10.32	86	1834	0.367	ng	# 70
27) 2-Butanone (MEK)	10.59	72	31987	1.842	ng	# 68
28) cis-1,2-Dichloroethene	11.10	61	66349	1.984	ng	87
29) Diisopropyl Ether	11.45	87	1832	N.D.		
30) Ethyl Acetate	11.42	61	12359	1.374	ng	84
31) n-Hexane	11.40	57	10656	0.287	ng	# 96
32) Chloroform	11.45	83	17558	0.407	ng	99
34) Tetrahydrofuran (THF)	11.88	72	3443	0.206	ng	# 1
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	78580	2.652	ng	100
38) 1,1,1-Trichloroethane	12.53	97	107372	2.721	ng	97
39) Isopropyl Acetate	13.02	61	986	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	185192	1.659	ng	100
42) Carbon Tetrachloride	13.17	117	5867	0.169	ng	97
43) Cyclohexane	13.31	84	6364	0.155	ng	# 62
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.11	130	2094479	66.175	ng	100
48) 1,4-Dioxane	14.11	88	1369	N.D.		
49) 2,2,4-Trimethylpentane...	14.18	57	3812	N.D.		

Data File: I:\MS16\DATA\2016 11\09\11091626.D

Acq On : 10 Nov 2016 12:52

Operator: LH

Sample : P1605133-021 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 14 14:53:14 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.24	100	655	N.D.		
51) n-Heptane	14.45	71	8927	0.329 ng		92
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.01	58	16949	0.683 ng	#	75
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	737892	6.463 ng		100
59) 2-Hexanone	16.21	43	47417	0.790 ng		81
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	17433	0.263 ng		97
63) n-Octane	16.97	57	9782	0.393 ng		88
64) Tetrachloroethene	17.11	166	940267	25.552 ng		100
65) Chlorobenzene	17.76	112	6017	N.D.		
66) Ethylbenzene	18.12	91	97844	0.709 ng		97
67) m- & p-Xylenes	18.27	91	310450	2.942 ng		97
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	42522	0.507 ng		98
70) o-Xylene	18.70	91	138299	1.322 ng		97
71) n-Nonane	18.90	43	22044	0.428 ng		83
72) 1,1,2,2-Tetrachloroethane	18.71	83	2834	N.D.		
74) Cumene	19.23	105	22791	0.181 ng		97
75) alpha-Pinene	19.58	93	25309	0.371 ng		98
76) n-Propylbenzene	19.67	91	36388	0.247 ng		95
77) 3-Ethyltoluene	0.00	105	0	N.D. d		
78) 4-Ethyltoluene	19.80	105	41882	0.337 ng		96
79) 1,3,5-Trimethylbenzene	19.87	105	50977	0.453 ng		95
80) alpha-Methylstyrene	0.00	118	0	N.D. d		
81) 2-Ethyltoluene	0.00	105	0	N.D. d		
82) 1,2,4-Trimethylbenzene	20.23	105	194020	1.739 ng		86
83) n-Decane	0.00	57	0	N.D. d		
84) Benzyl Chloride	20.34	91	1373	N.D.		
85) 1,3-Dichlorobenzene	20.36	146	1010	N.D.		
86) 1,4-Dichlorobenzene	20.42	146	19565	0.271 ng		99
87) sec-Butylbenzene	20.47	105	4350	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D. d		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D. d		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.73	68	4195356	106.743 ng		96
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	22.23	180	501	N.D.		
95) Naphthalene	22.34	128	35119	0.225 ng		92
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	0.00	119	0	N.D. d		
100) n-Butylbenzene	0.00	91	0	N.D. d		

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

Data File: I:\MS16\DATA\2016 11\09\11091626.D

Acq On : 10 Nov 2016 12:52

Operator: LH

Sample : P1605133-021 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 14 14:53:14 2016

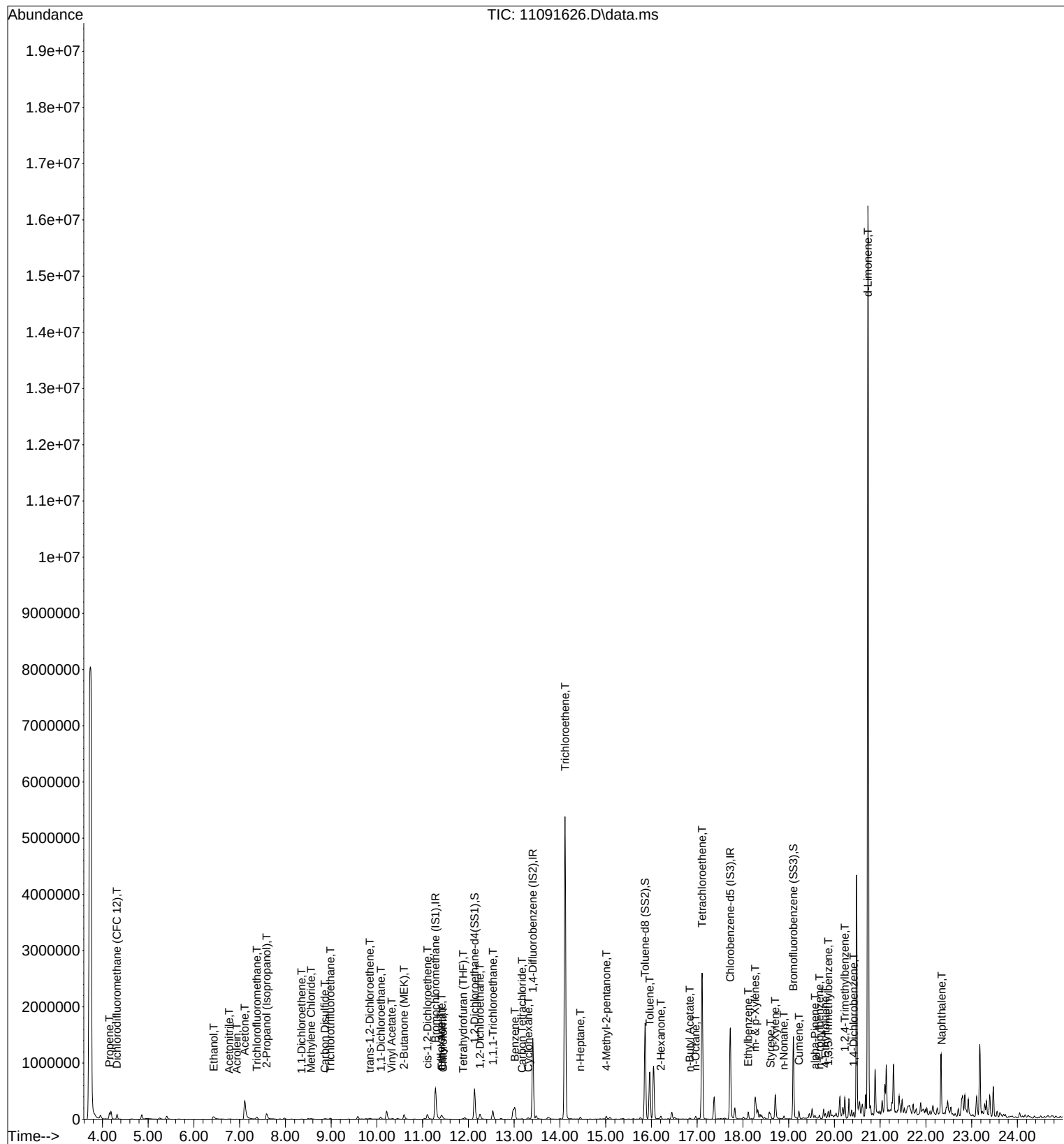
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091626.D

Acq On : 10 Nov 2016 12:52

Operator: LH

Sample : P1605133-021 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 11 08:58:33 2016

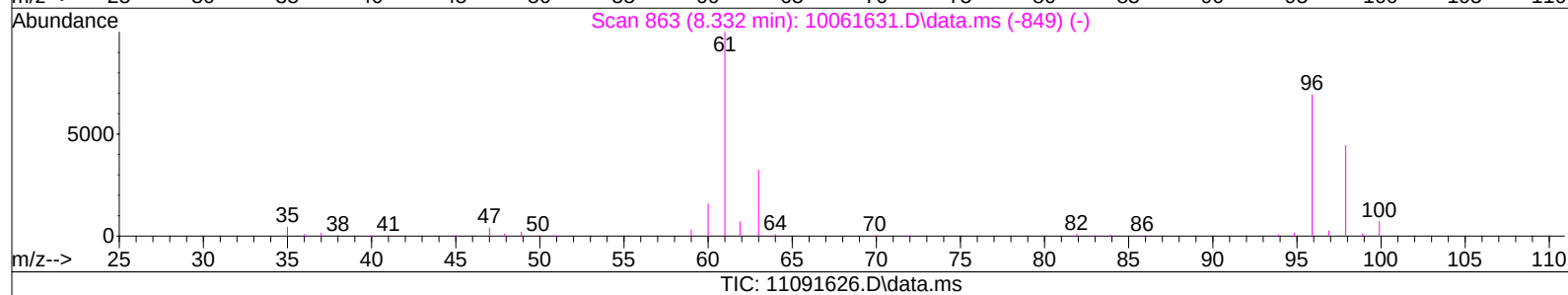
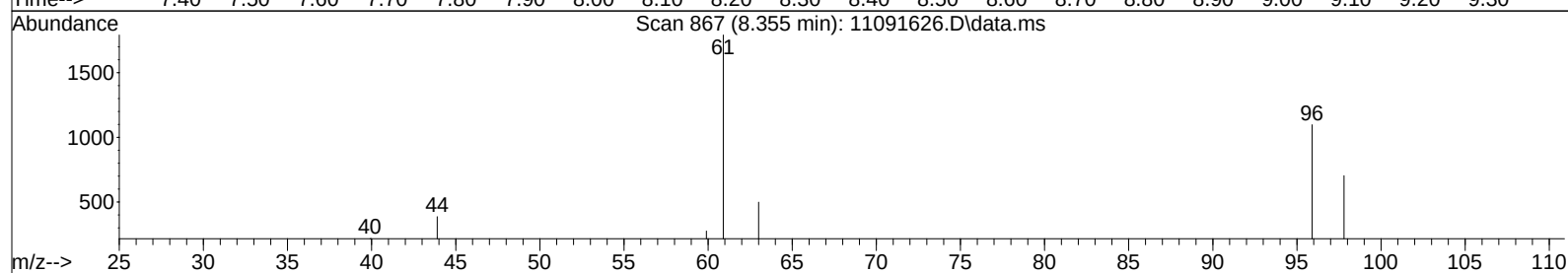
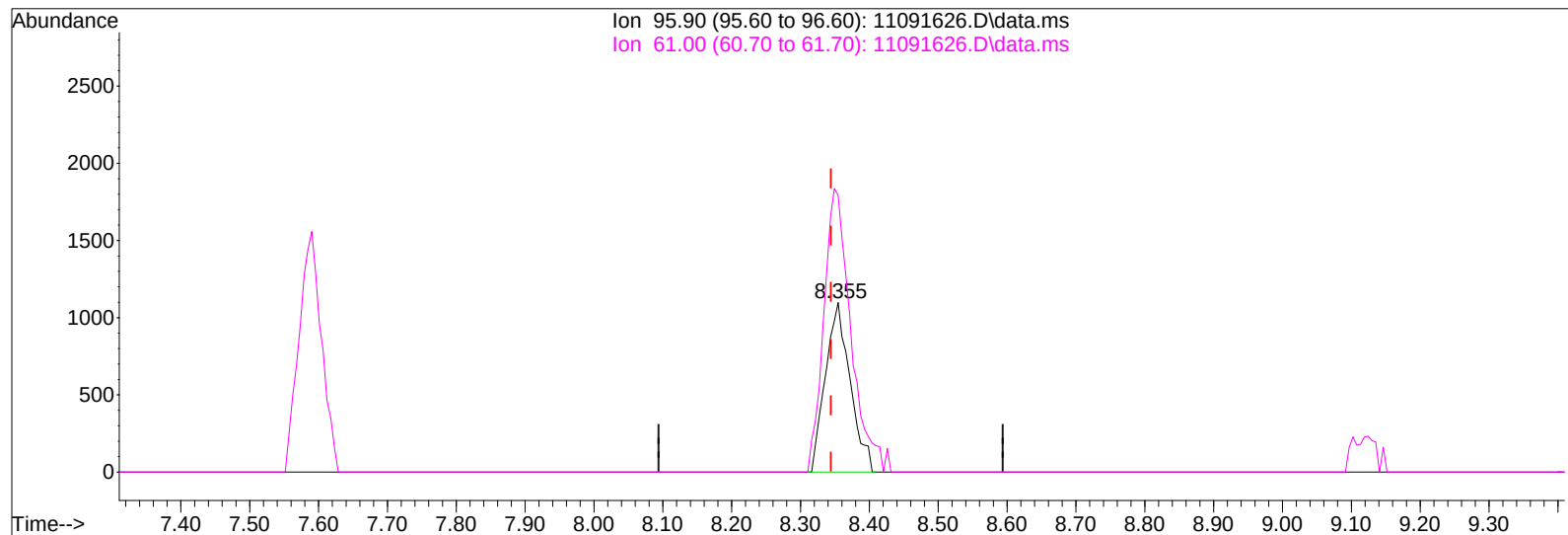
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(17) 1,1-Dichloroethene (T)

8.355min (+0.011) 0.11ng

response 2731

Ion	Exp%	Act%
95.90	100	100
61.00	145.50	184.51#
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091626.D

Acq On : 10 Nov 2016 12:52

Operator: LH

Sample : P1605133-021 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 11 08:58:33 2016

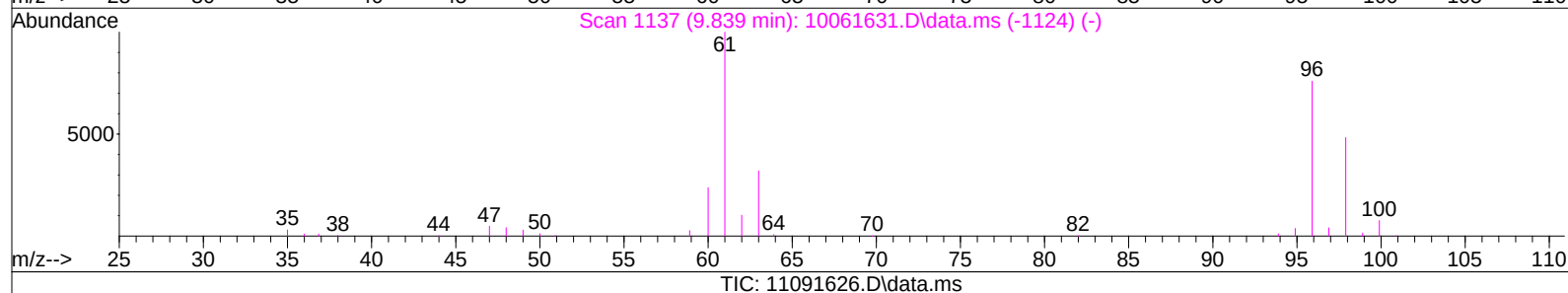
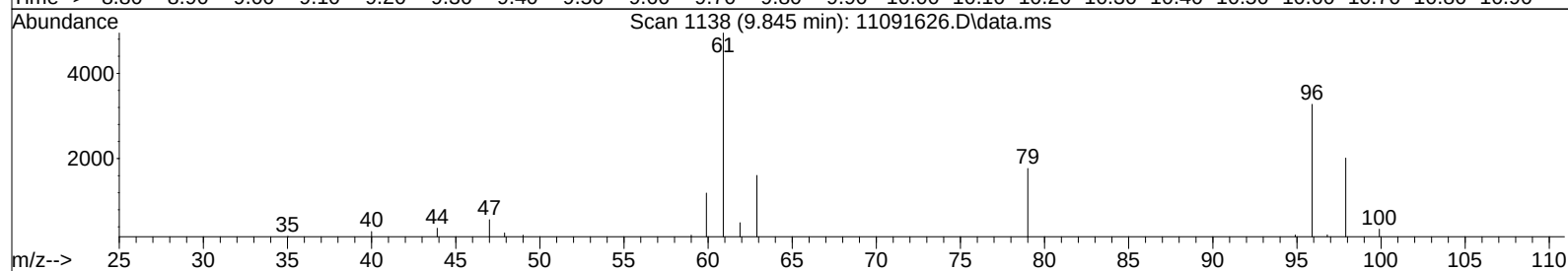
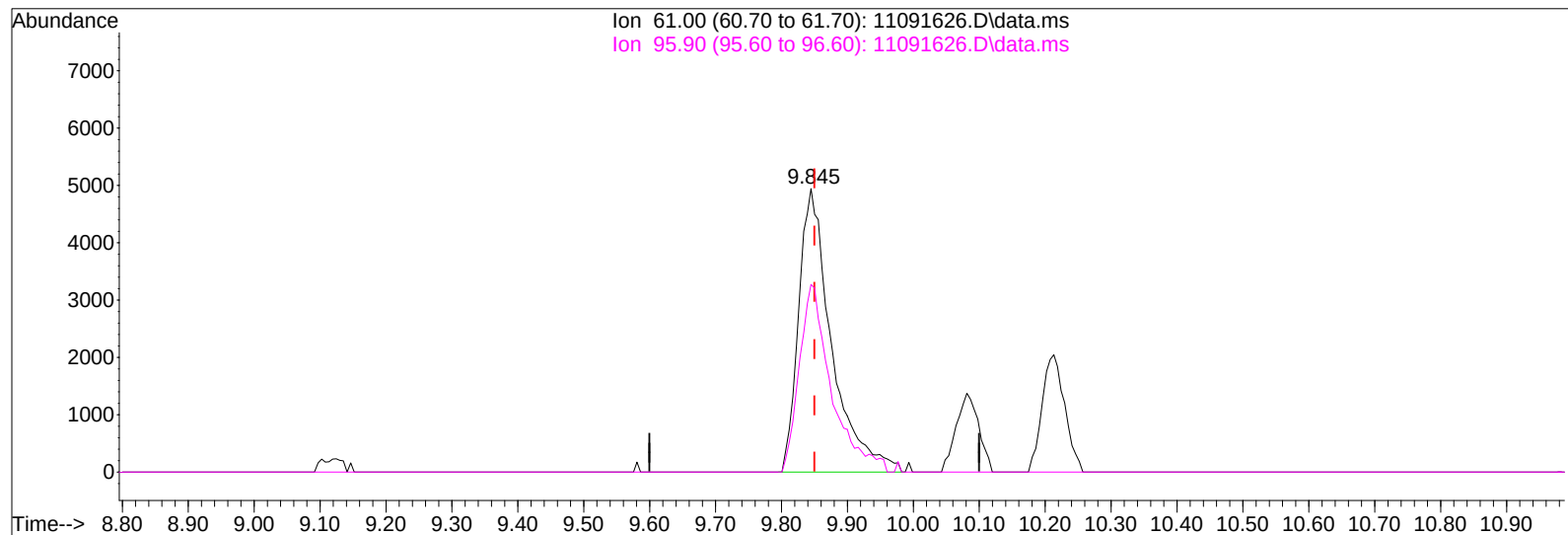
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



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

9.845min (-0.005) 0.50ng

response 17097

Ion	Exp%	Act%
61.00	100	100
95.90	75.70	64.67
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091626.D

Acq On : 10 Nov 2016 12:52

Operator: LH

Sample : P1605133-021 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 11 08:58:33 2016

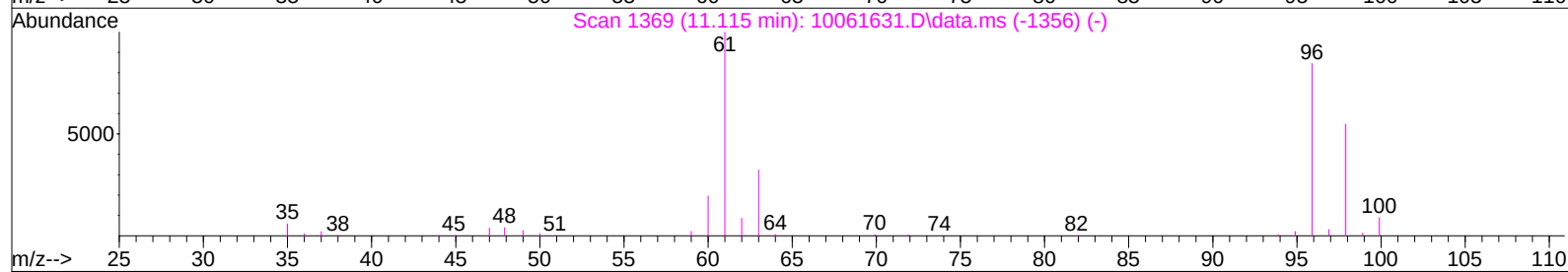
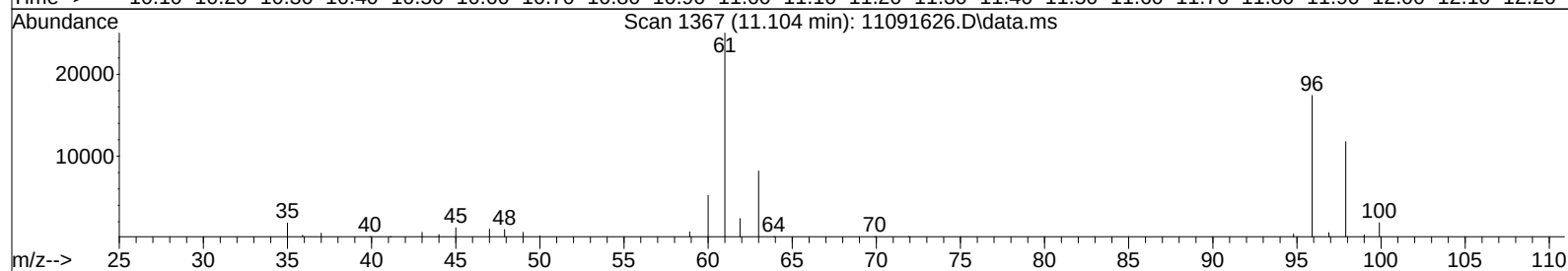
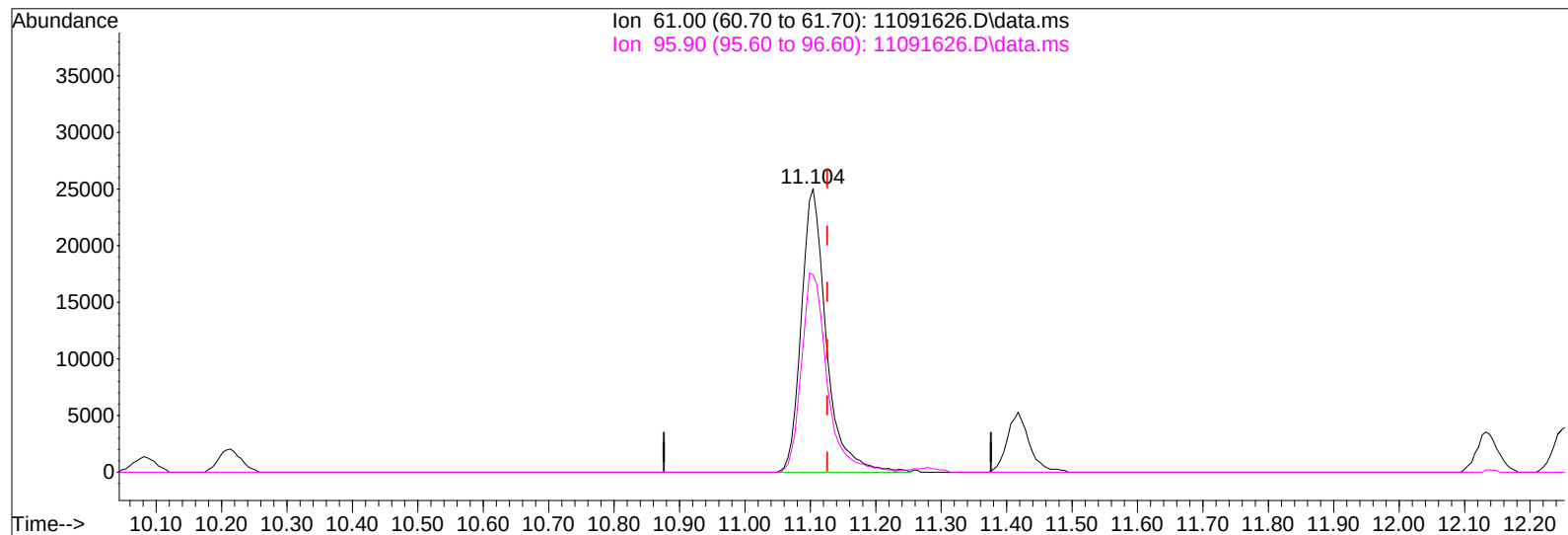
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091626.D\data.ms

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

11.104min (-0.022) 1.98ng

response 66349

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	72.12
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091626.D

Acq On : 10 Nov 2016 12:52

Operator: LH

Sample : P1605133-021 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 11 08:58:33 2016

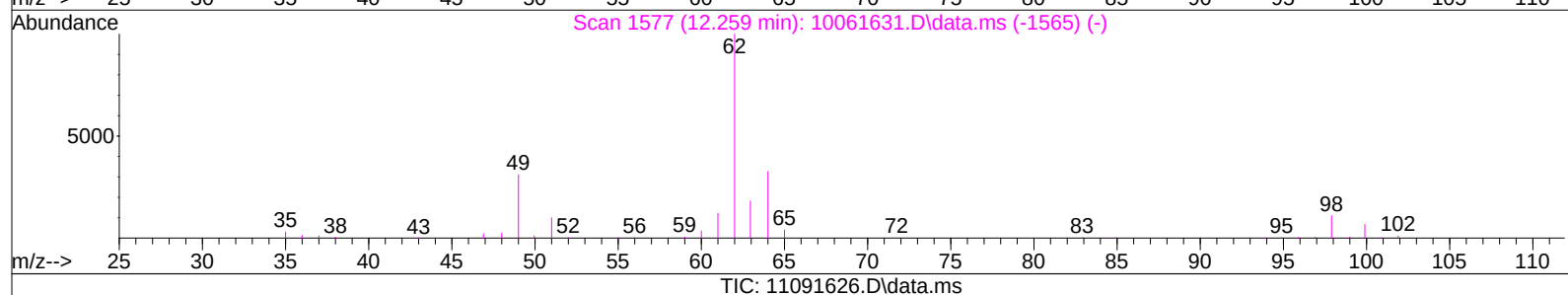
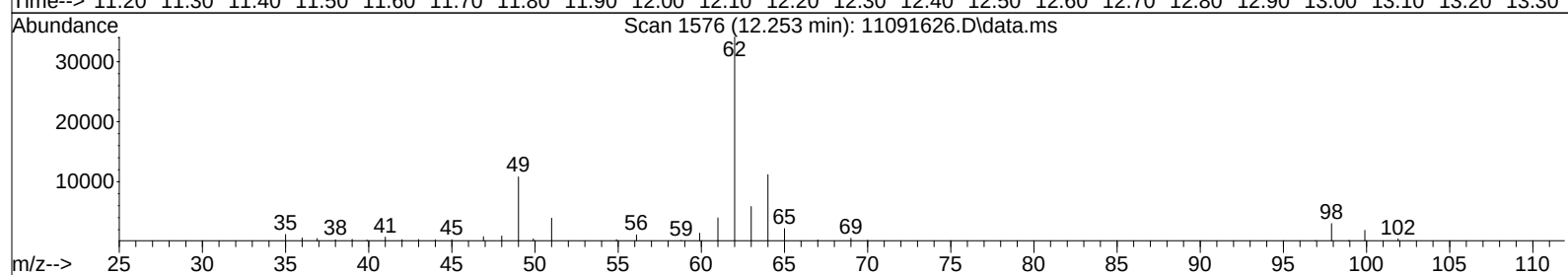
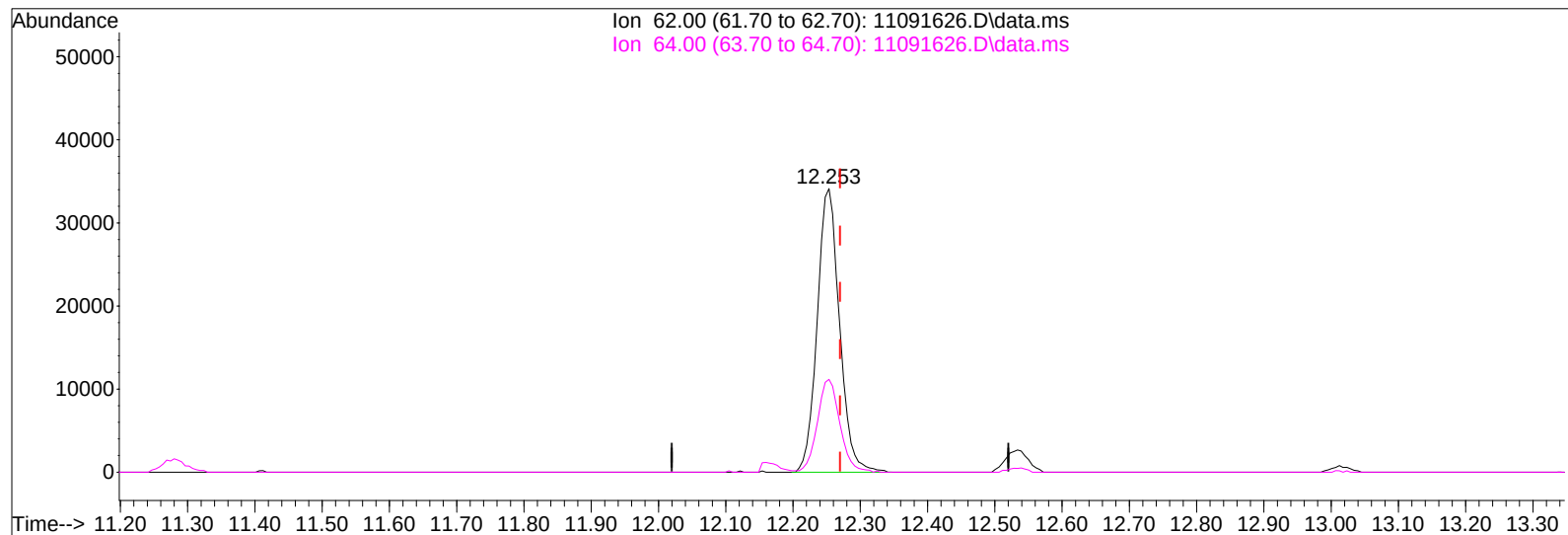
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091626.D\data.ms

(36) 1,2-Dichloroethane (T)

12.253min (-0.017) 2.65ng

response 78580

Ion	Exp%	Act%
62.00	100	100
64.00	32.80	33.02
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091626.D

Acq On : 10 Nov 2016 12:52

Operator: LH

Sample : P1605133-021 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 11 08:58:33 2016

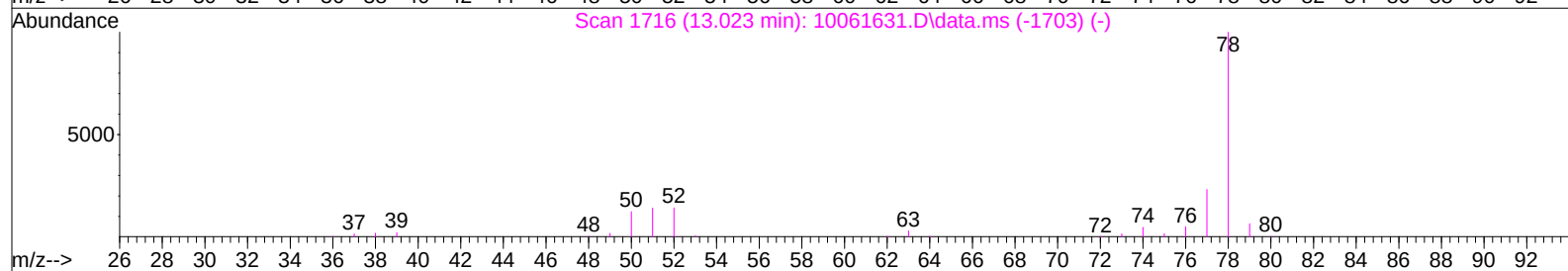
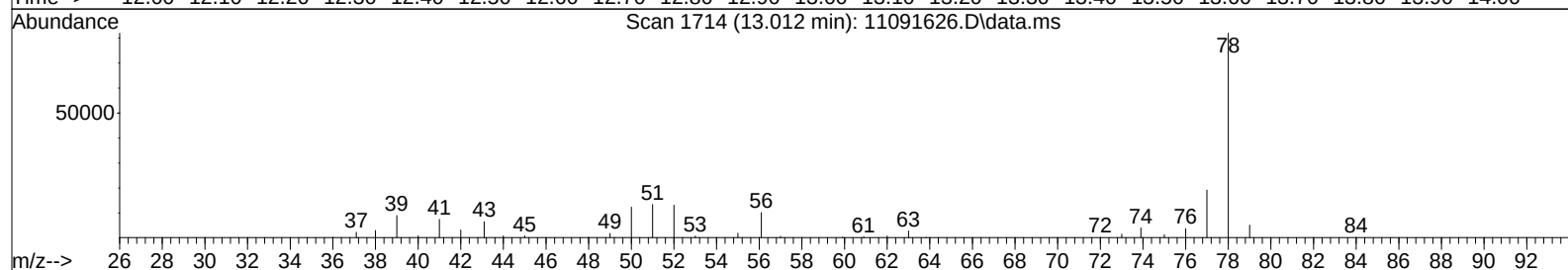
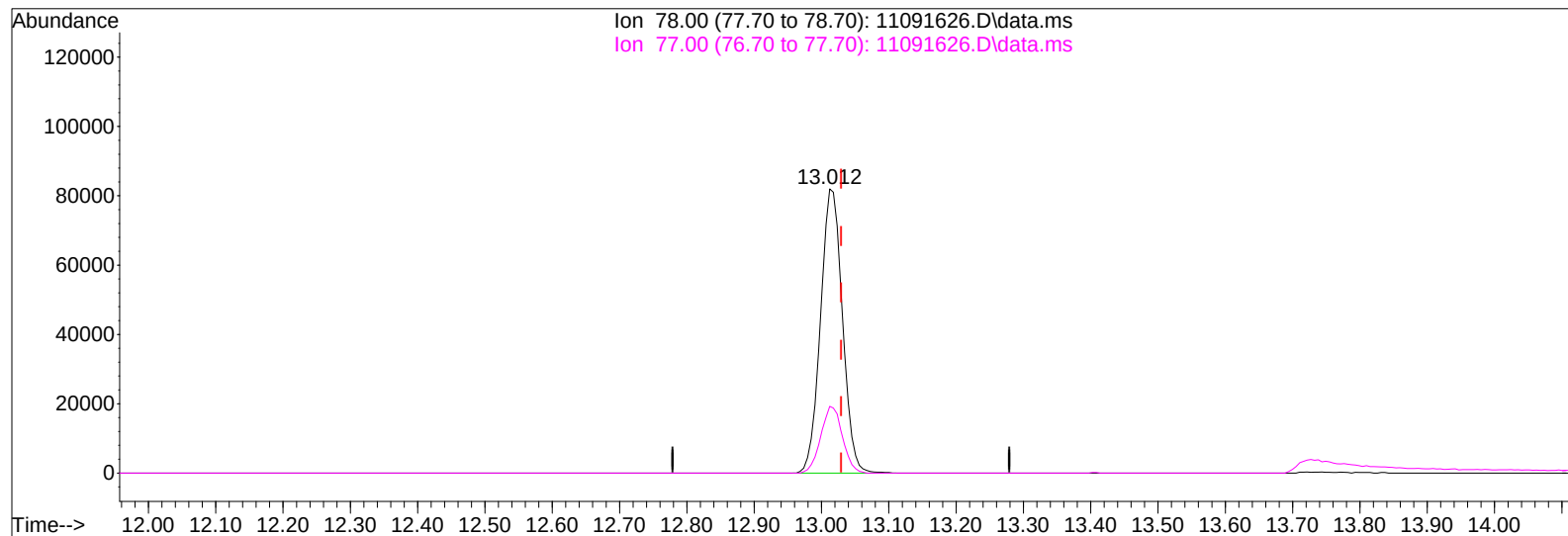
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091626.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 1.66ng

response 185192

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.18
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091626.D

Acq On : 10 Nov 2016 12:52

Operator: LH

Sample : P1605133-021 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 11 08:58:33 2016

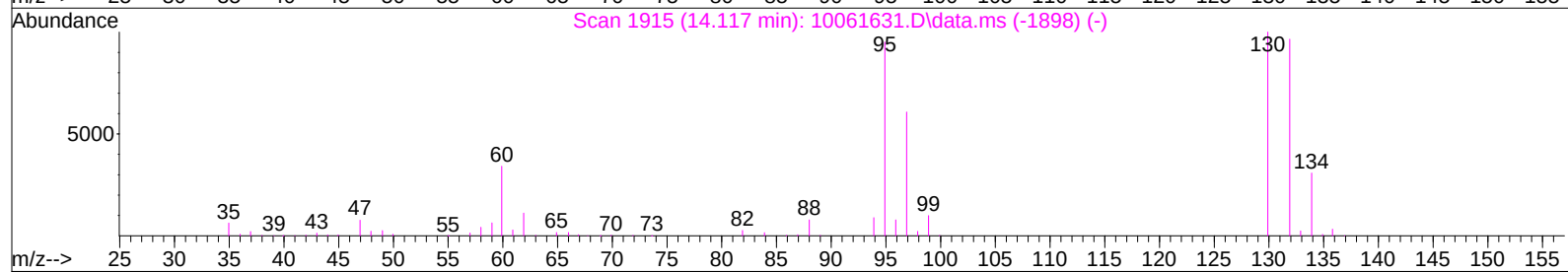
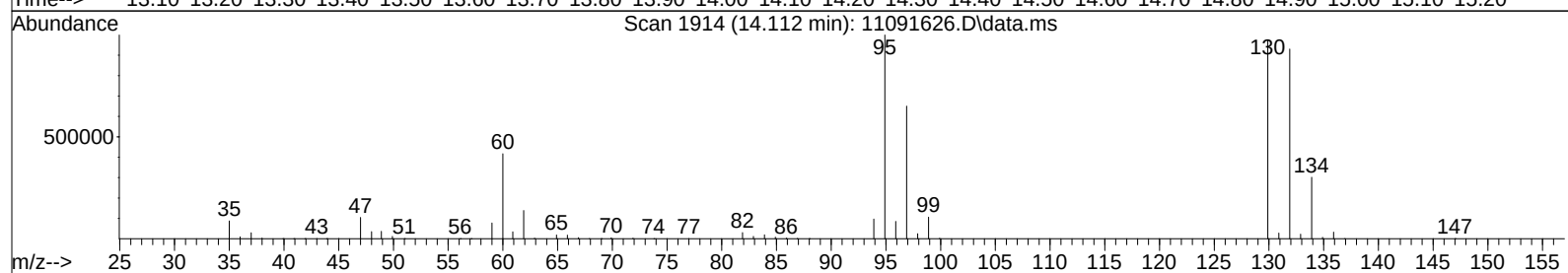
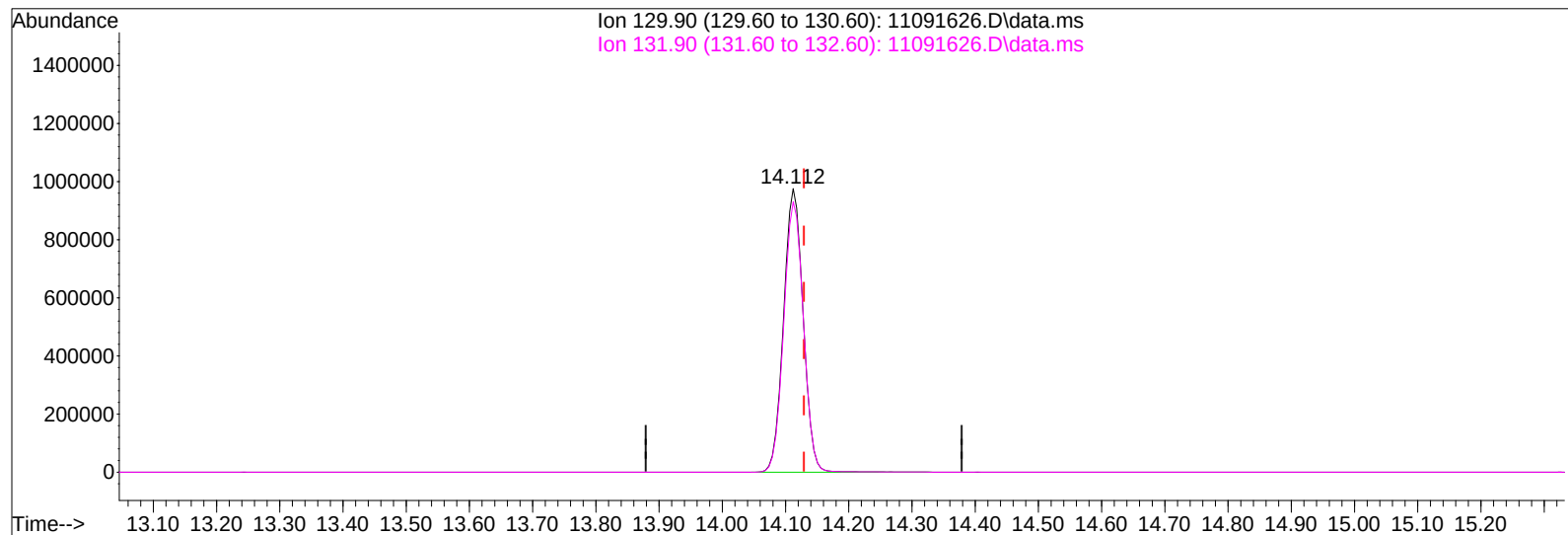
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091626.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 66.18ng

response 2094479

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	96.21
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091626.D

Acq On : 10 Nov 2016 12:52

Operator: LH

Sample : P1605133-021 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 11 08:58:33 2016

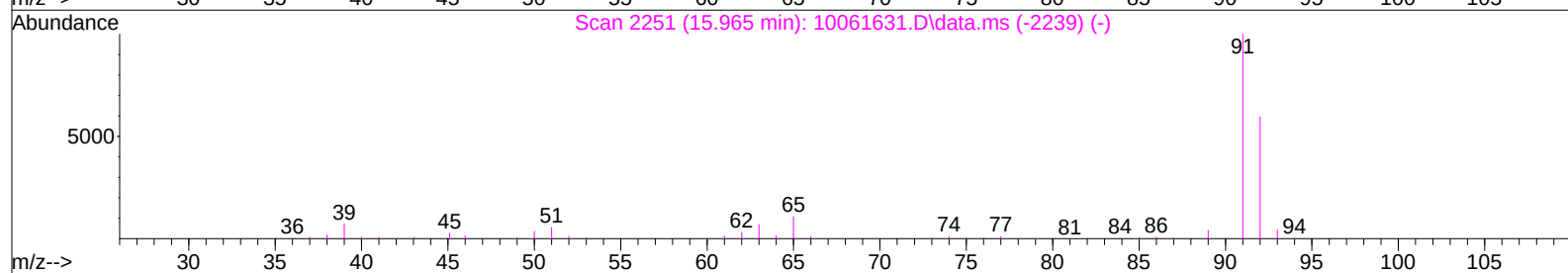
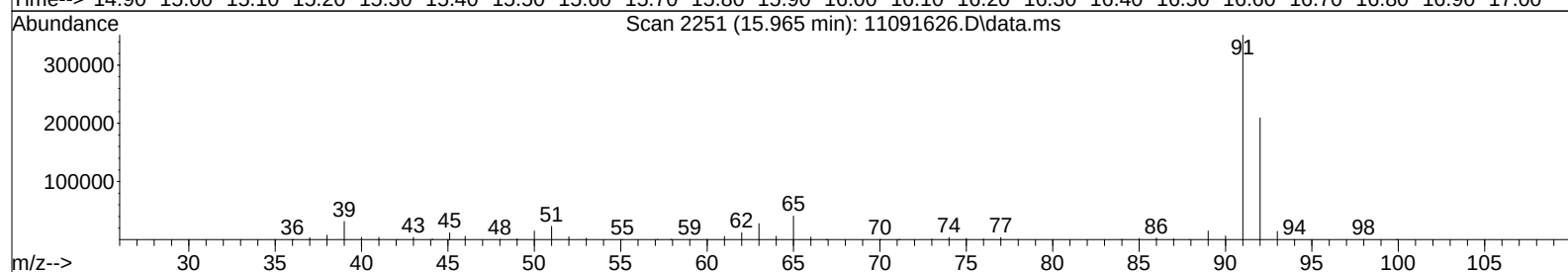
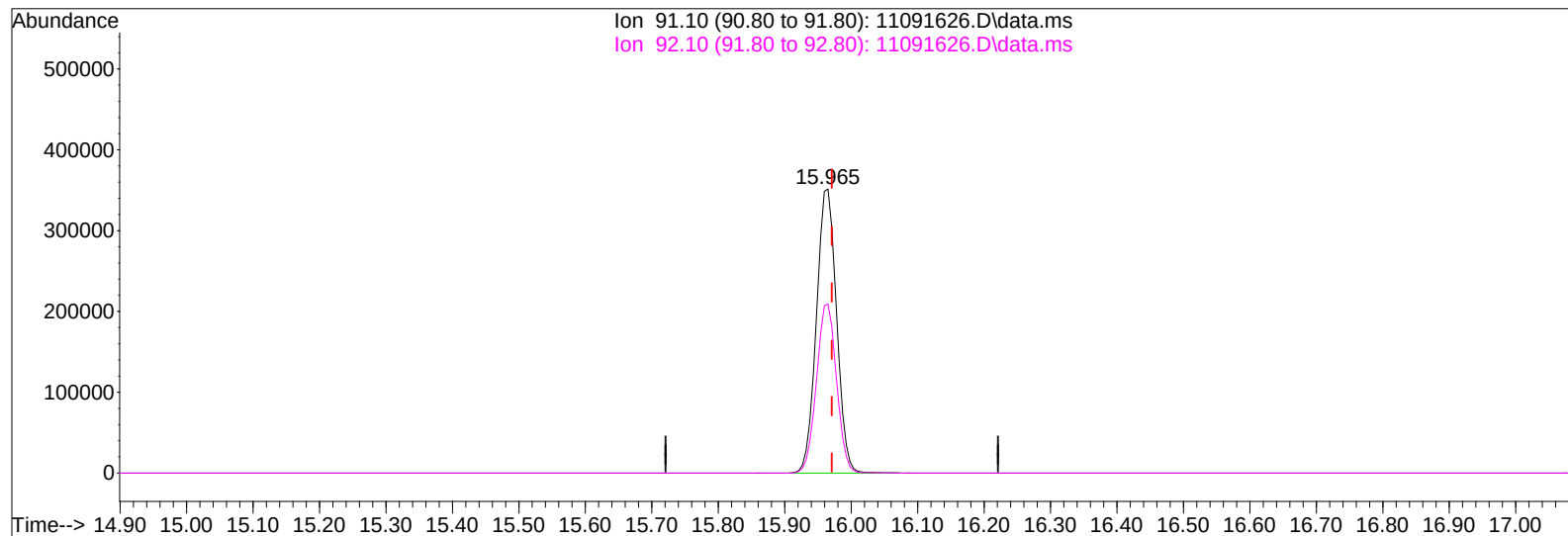
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091626.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 6.46ng

response 737892

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	59.23
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091626.D

Acq On : 10 Nov 2016 12:52

Operator: LH

Sample : P1605133-021 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 11 08:58:33 2016

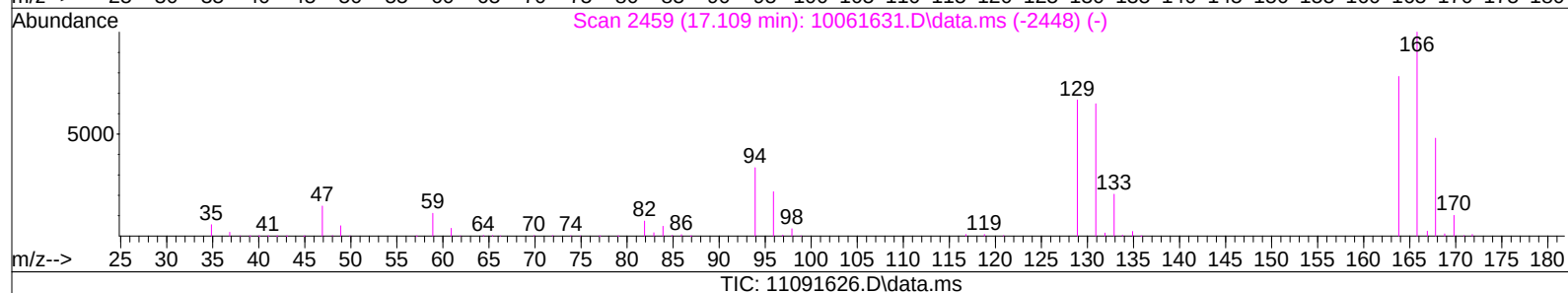
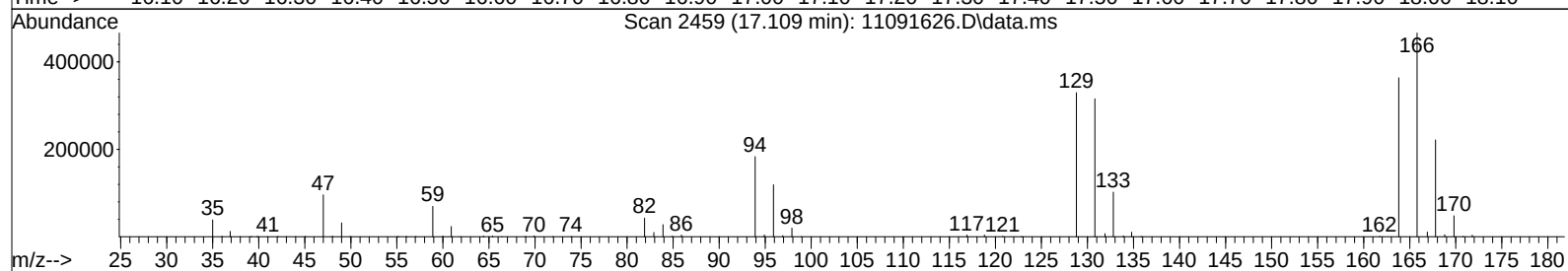
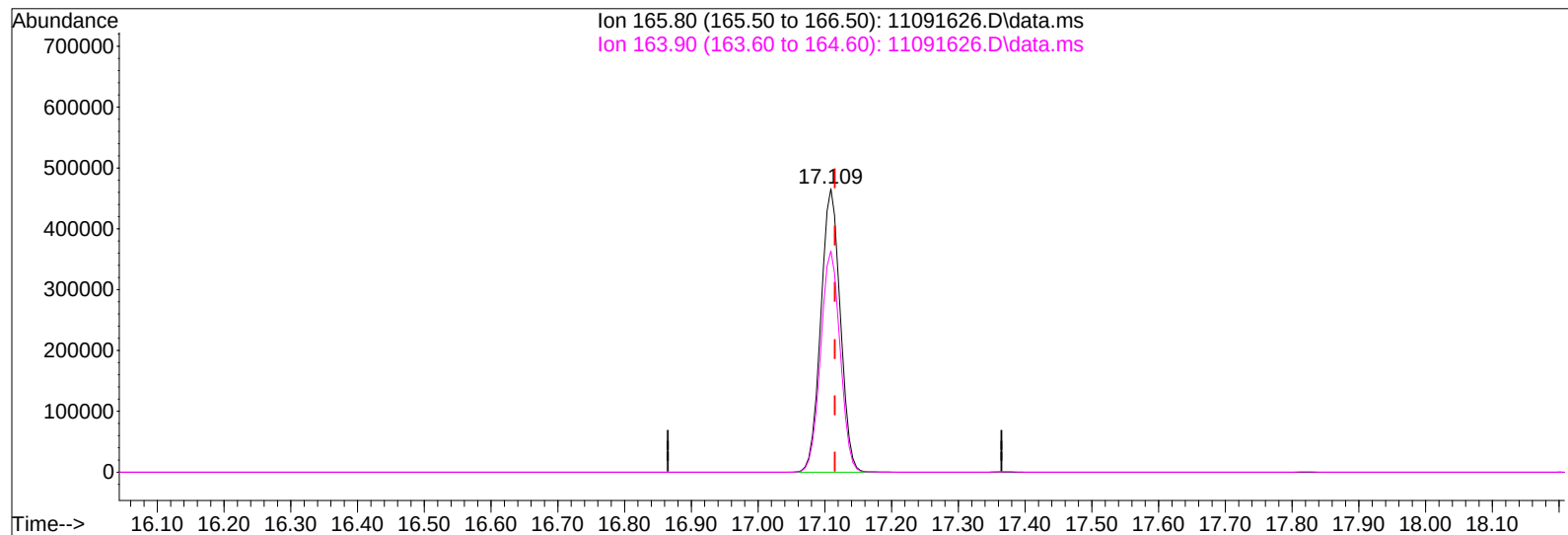
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091626.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 25.55ng

response 940267

Ion	Exp%	Act%

165.80	100	100

163.90	78.10	78.27

0.00	0.00	0.00

0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091626.D

Acq On : 10 Nov 2016 12:52

Operator: LH

Sample : P1605133-021 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 11 08:58:33 2016

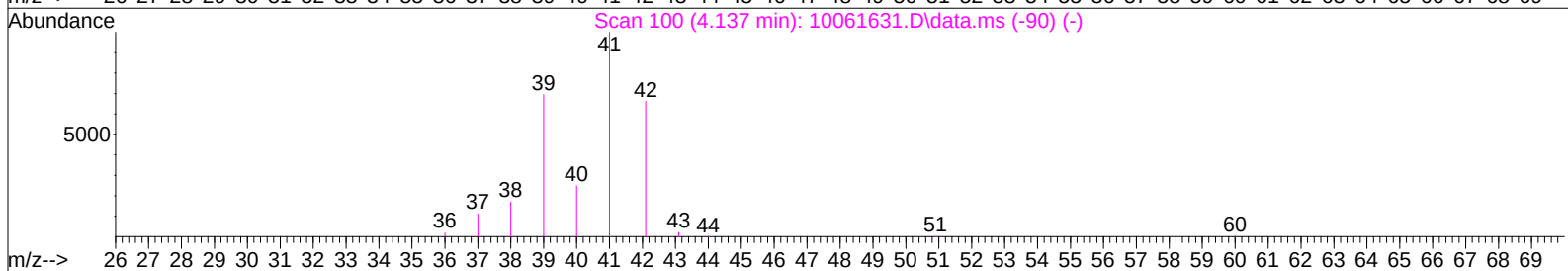
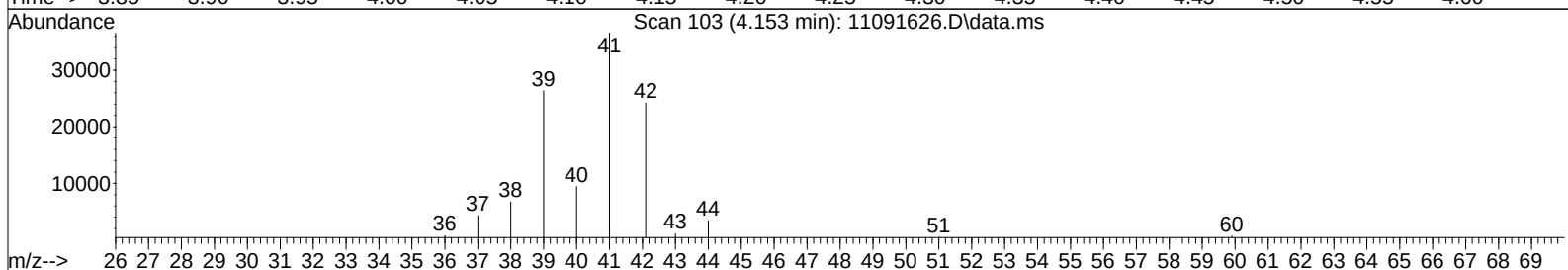
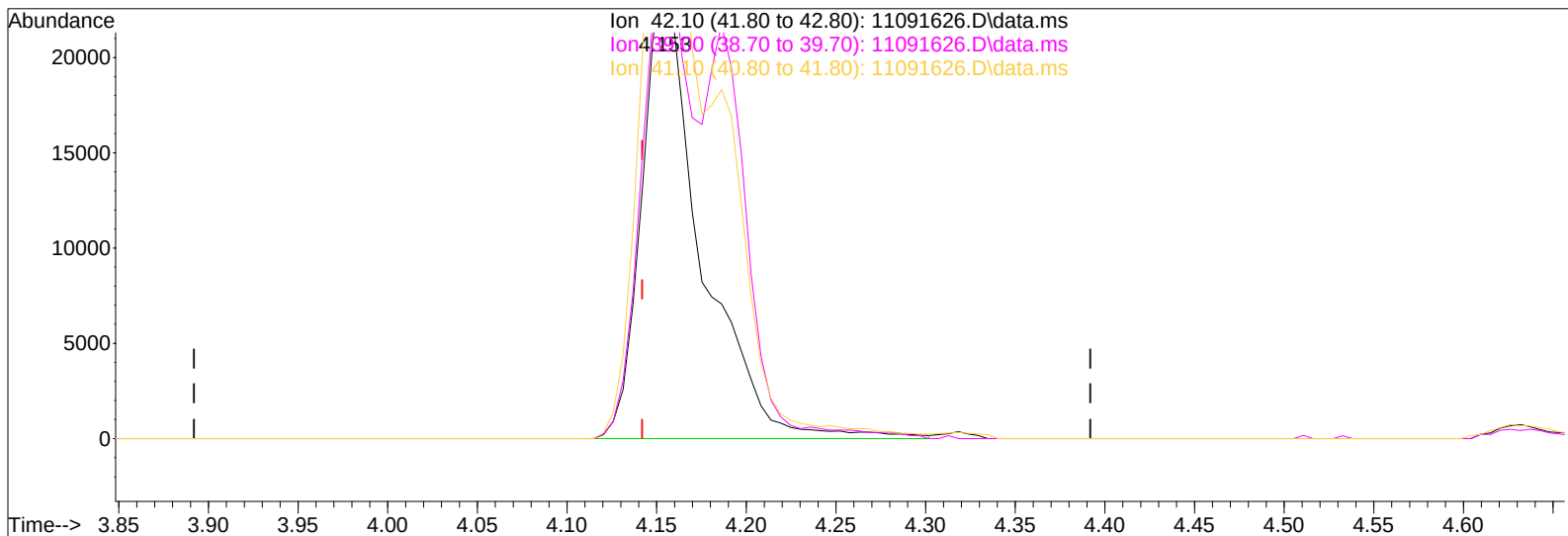
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091626.D\data.ms

(2) Propene (T)

4.153min (+0.011) 2.34ng

response 54774

Ion	Exp%	Act%
42.10	100	100
39.00	105.30	151.24#
41.10	151.20	176.25#
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091626.D

Acq On : 10 Nov 2016 12:52

Operator: LH

Sample : P1605133-021 (1000mL)

Misc : S29-11051601

ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 11 08:58:33 2016

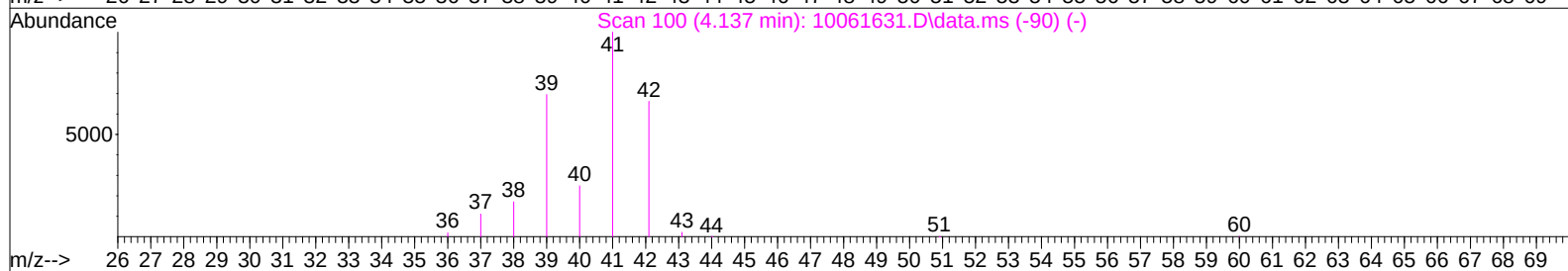
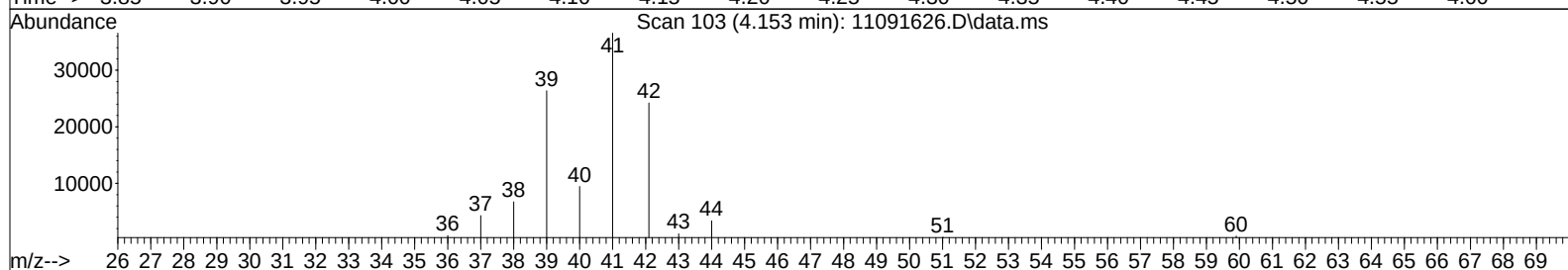
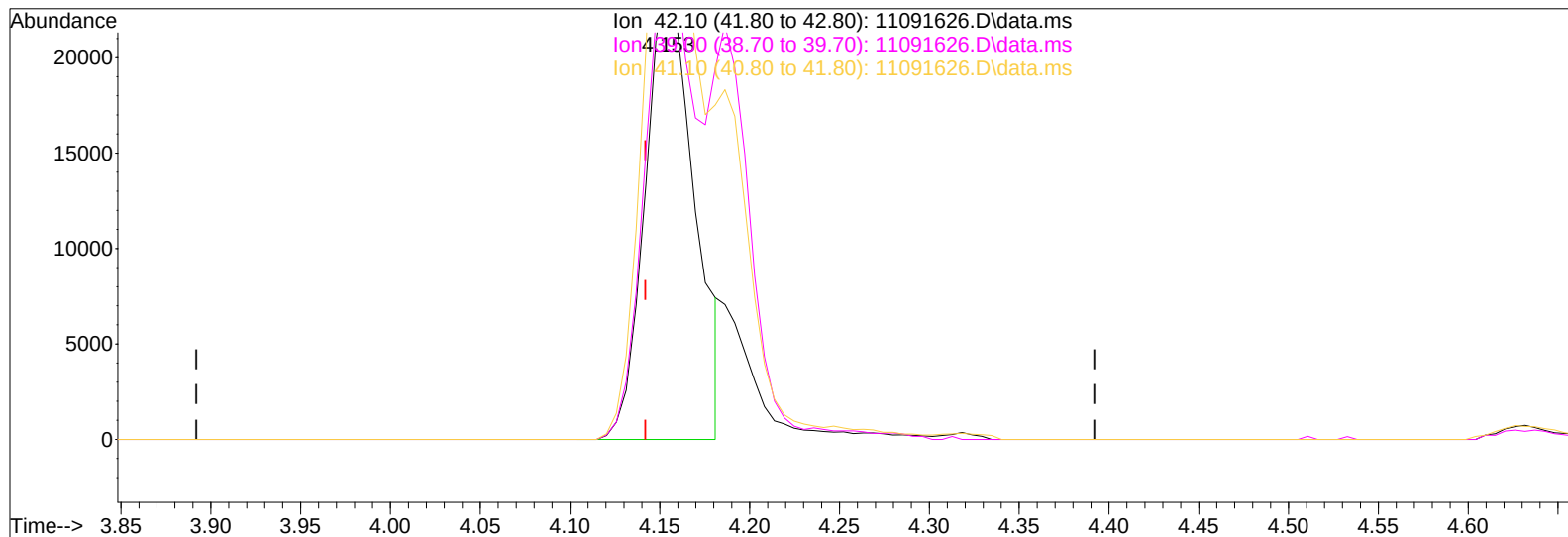
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091626.D\data.ms

(2) Propene (T)

4.153min (+0.011) 1.92ng m

response 45073

IPC

Ion	Exp%	Act%

42.10	100	100

39.00	105.30	183.79#

41.10	151.20	214.19#

0.00	0.00	0.00

LH 11/14/16

WA 11/14/16

Data File: I:\MS16\DATA\2016 11\08\11081650.D

Acq On : 9 Nov 2016 14:59

Operator: LH

Sample : P1605133-022 (0.05mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 14 15:07:22 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 11/14/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.29	130	281632	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1382615	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	585735	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	435590	15.097	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	120.80%
57) Toluene-d8 (SS2)	15.87	98	1401754	12.000	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.00%
73) Bromofluorobenzene (SS3)	19.11	174	450994	10.170	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	81.36%

Target Compounds

					Qvalue	
2) Propene	4.23	42	3026	0.122	ng	# 78
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.50	45	4144	0.230	ng	94
11) Acetonitrile	6.81	41	292	N.D.		
12) Acrolein	7.18	56	684	N.D.		
13) Acetone	7.17	58	4577	0.255	ng	# 57
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	7.61	45	64719	1.073	ng	94
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	8.36	96	4847	0.186	ng	93
18) 2-Methyl-2-Propanol (t...	8.58	59	231	N.D.		
19) Methylene Chloride	8.57	84	1330	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	8.99	151	813	N.D.		
22) Carbon Disulfide	8.88	76	2325	N.D.		
23) trans-1,2-Dichloroethene	9.86	61	667	N.D.		
24) 1,1-Dichloroethane	10.09	63	594	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	10.64	72	510	N.D.		
28) cis-1,2-Dichloroethene	11.11	61	17348	0.488	ng	89
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	11.40	57	5633	0.143	ng	# 95
32) Chloroform	11.44	83	1856	N.D.		
34) Tetrahydrofuran (THF)	11.91	72	987	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	12.54	97	6181	0.153	ng	97
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	13.04	56	1429	N.D.		
41) Benzene	13.02	78	3743	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	13.31	84	1890	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.11	130	3214855	99.387	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	14.19	57	874	N.D.		

Data File: I:\MS16\DATA\2016 11\08\11081650.D

Acq On : 9 Nov 2016 14:59

Operator: LH

Sample : P1605133-022 (0.05mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 14 15:07:22 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.44	100	544	N.D.		
51) n-Heptane	14.45	71	2230	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	20664	0.180	ng	100
59) 2-Hexanone	16.22	43	994	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.97	43	2469	N.D.		
63) n-Octane	16.97	57	860	N.D.		
64) Tetrachloroethene	17.11	166	10296	0.279	ng	97
65) Chlorobenzene	17.76	112	663	N.D.		
66) Ethylbenzene	18.12	91	9796	N.D.		
67) m- & p-Xylenes	18.27	91	13174	0.124	ng	99
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.61	104	865	N.D.		
70) o-Xylene	18.71	91	3608	N.D.		
71) n-Nonane	18.90	43	2564	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	19.11	105	695	N.D.		
75) alpha-Pinene	19.58	93	3998	N.D.		
76) n-Propylbenzene	19.58	91	1793	N.D.		
77) 3-Ethyltoluene	19.81	105	1544	N.D.		
78) 4-Ethyltoluene	19.81	105	1544	N.D.		
79) 1,3,5-Trimethylbenzene	19.81	105	1544	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	20.09	105	700	N.D.		
82) 1,2,4-Trimethylbenzene	20.31	105	1215	N.D.		
83) n-Decane	20.36	57	1624	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.		
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.		
87) sec-Butylbenzene	20.31	105	1215	N.D.		
88) 4-Isopropyltoluene (p-...	20.83	119	1075	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.77	68	553	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.56	128	917	N.D.		
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	0.00	91	0	N.D.		

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

Data File: I:\MS16\DATA\2016 11\08\11081650.D

Acq On : 9 Nov 2016 14:59

Operator: LH

Sample : P1605133-022 (0.05mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 14 15:07:22 2016

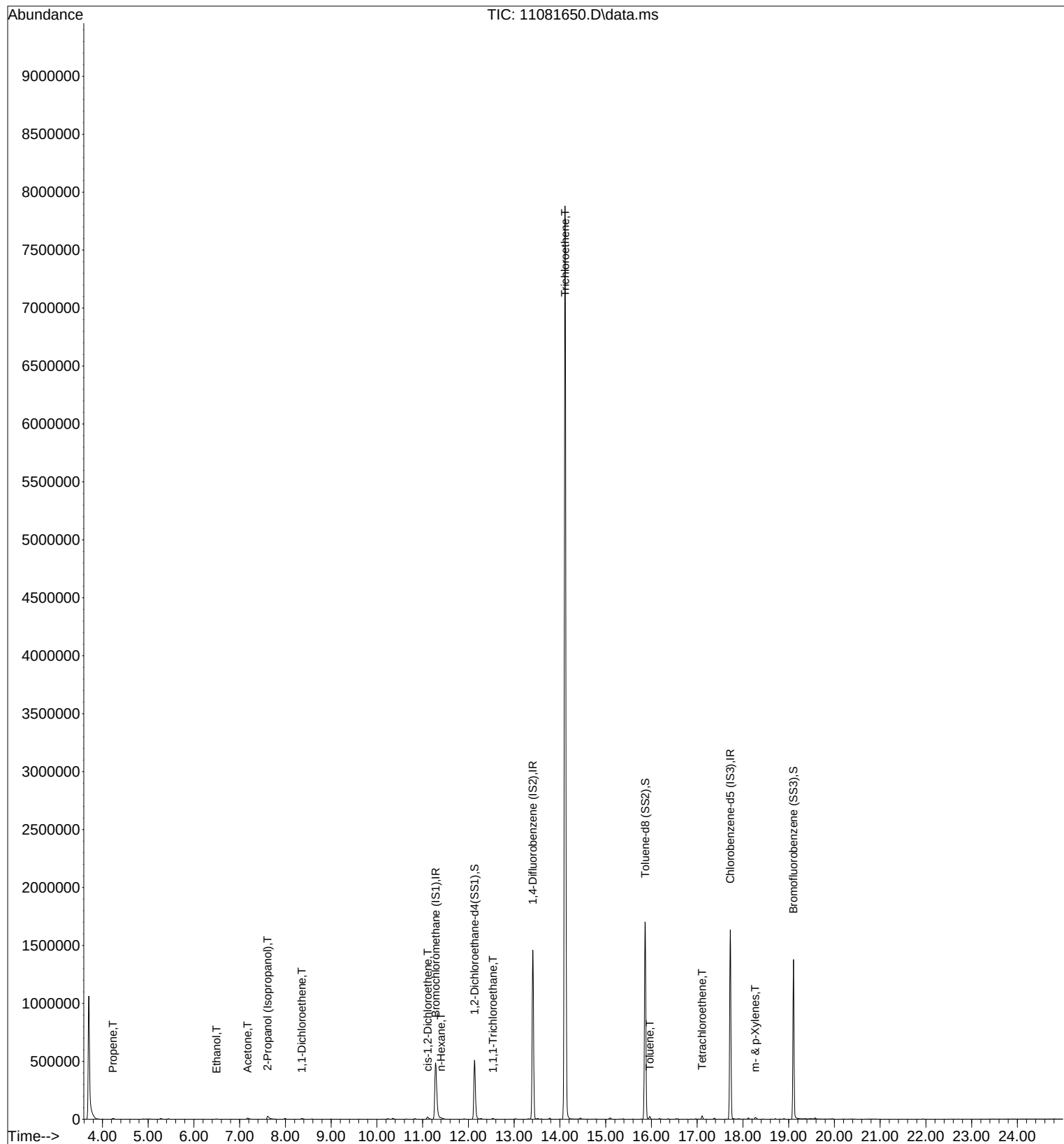
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\08\11081650.D

Acq On : 9 Nov 2016 14:59

Operator: LH

Sample : P1605133-022 (0.05mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 09 15:59:31 2016

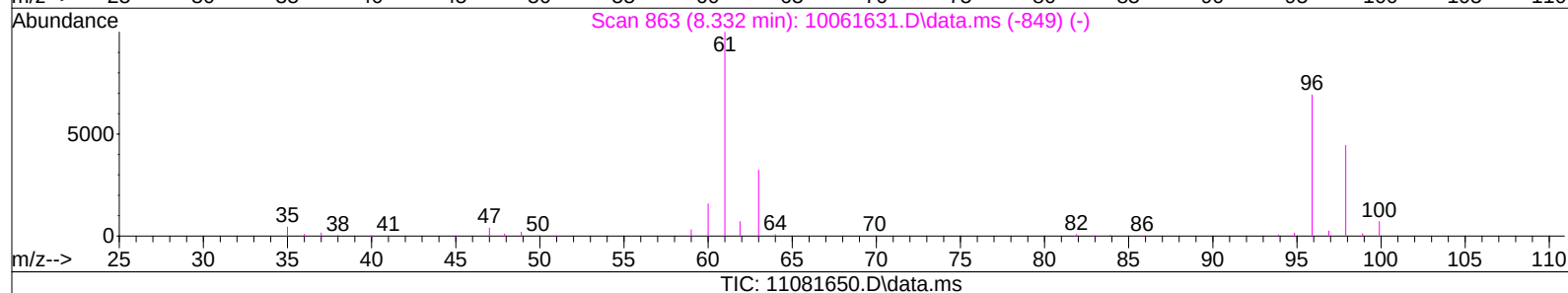
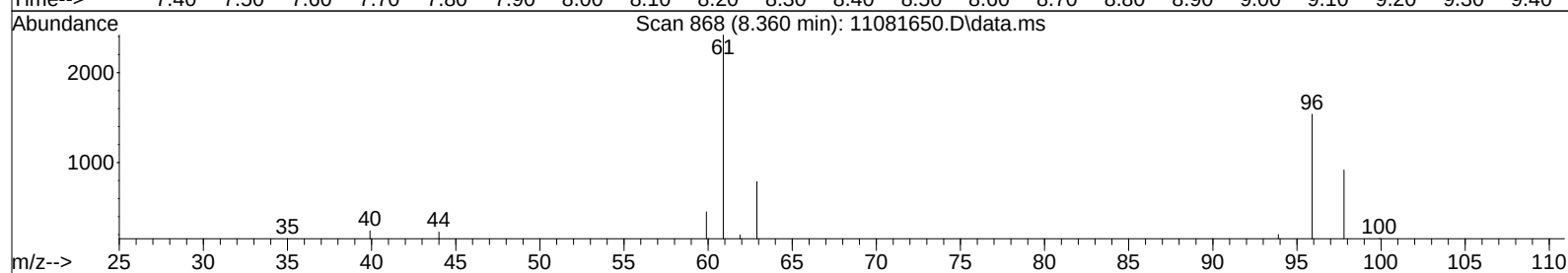
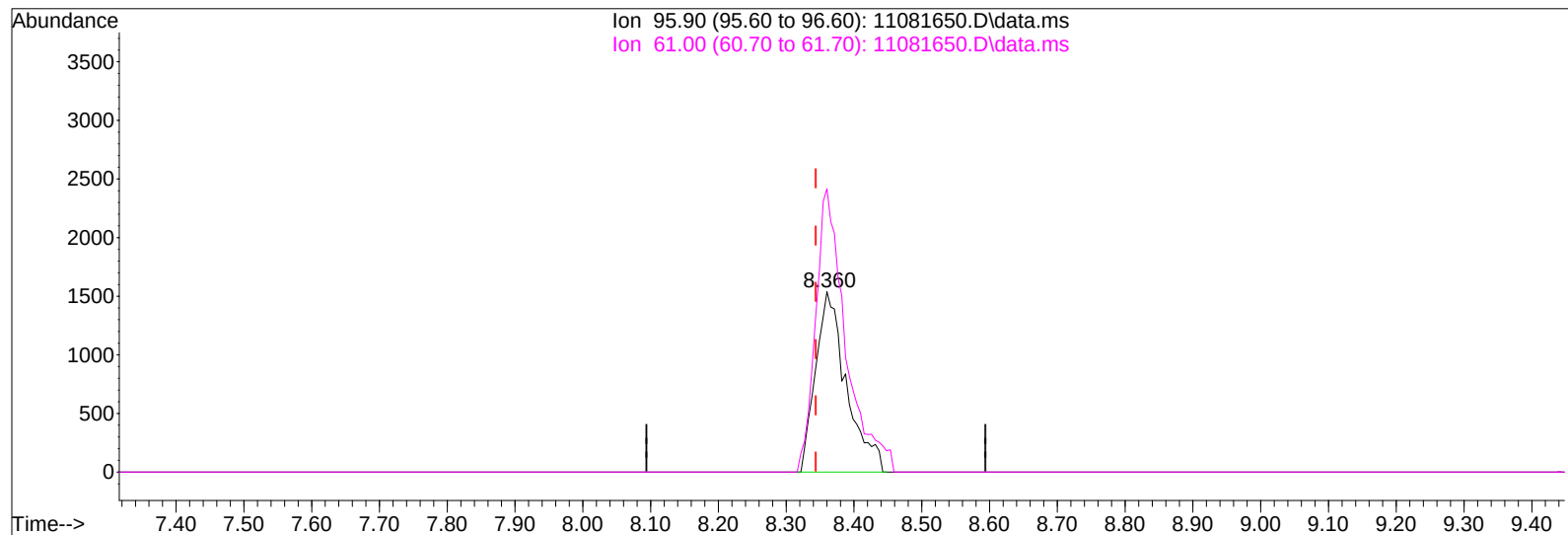
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(17) 1,1-Dichloroethene (T)

8.360min (+0.016) 0.19ng

response 4847

Ion	Exp%	Act%
95.90	100	100
61.00	145.50	153.95
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081650.D

Acq On : 9 Nov 2016 14:59

Operator: LH

Sample : P1605133-022 (0.05mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 09 15:59:31 2016

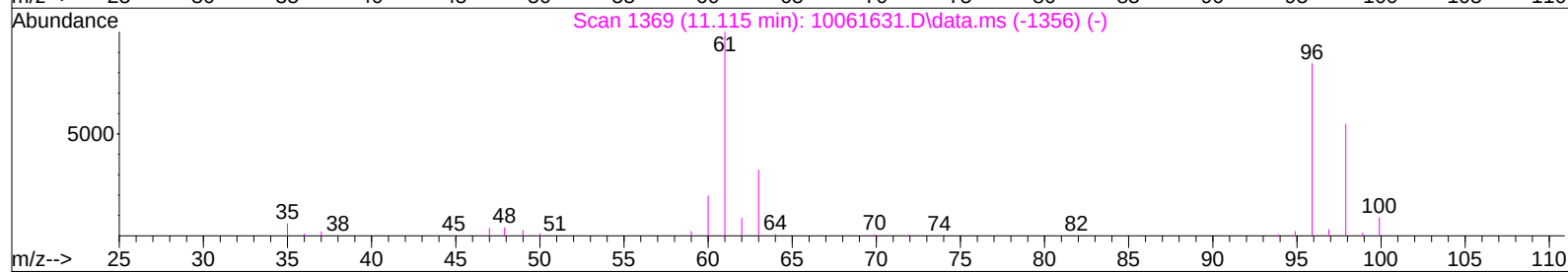
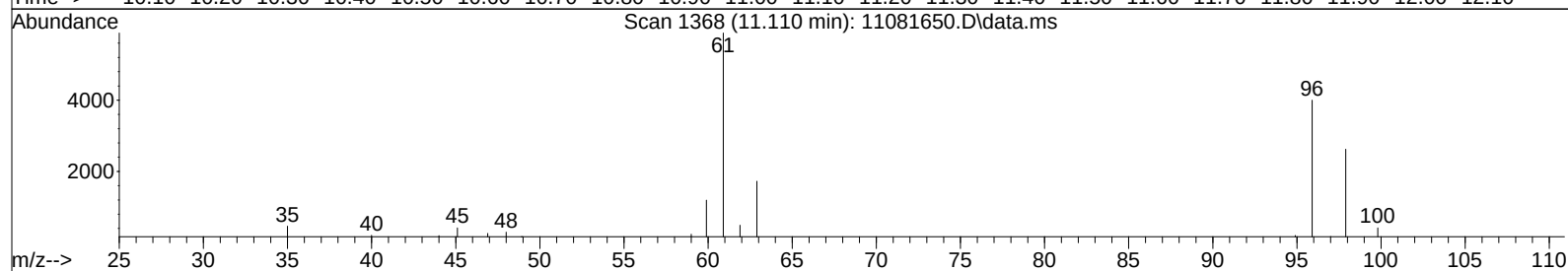
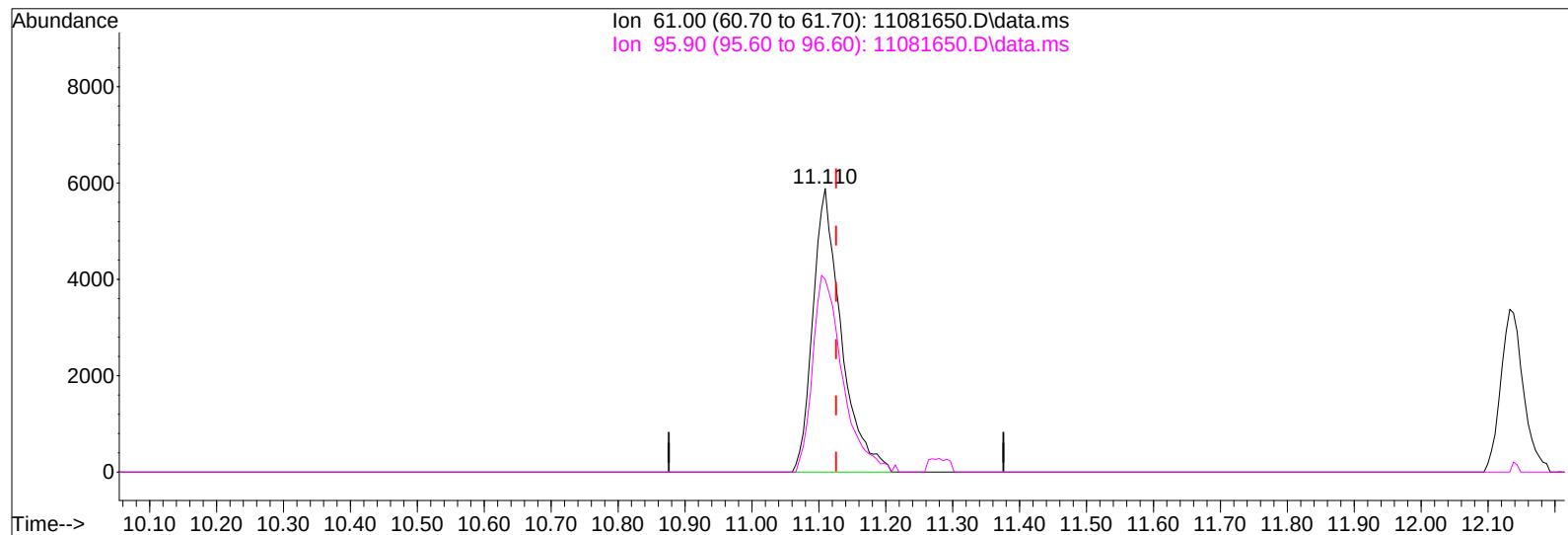
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081650.D\data.ms

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

11.110min (-0.016) 0.49ng

response 17348

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	73.40
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081650.D

Acq On : 9 Nov 2016 14:59

Operator: LH

Sample : P1605133-022 (0.05mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 09 15:59:31 2016

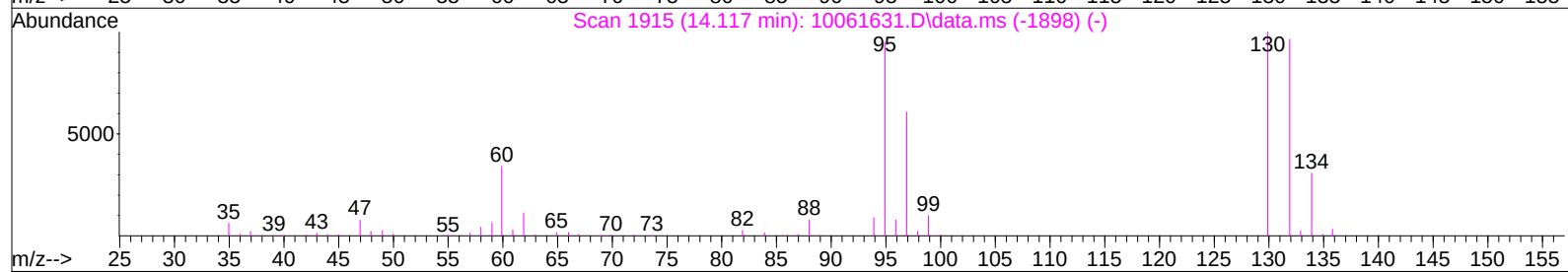
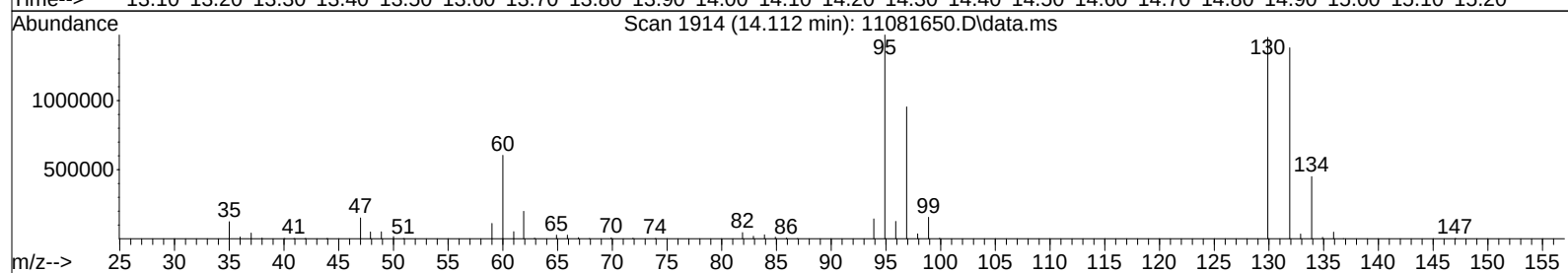
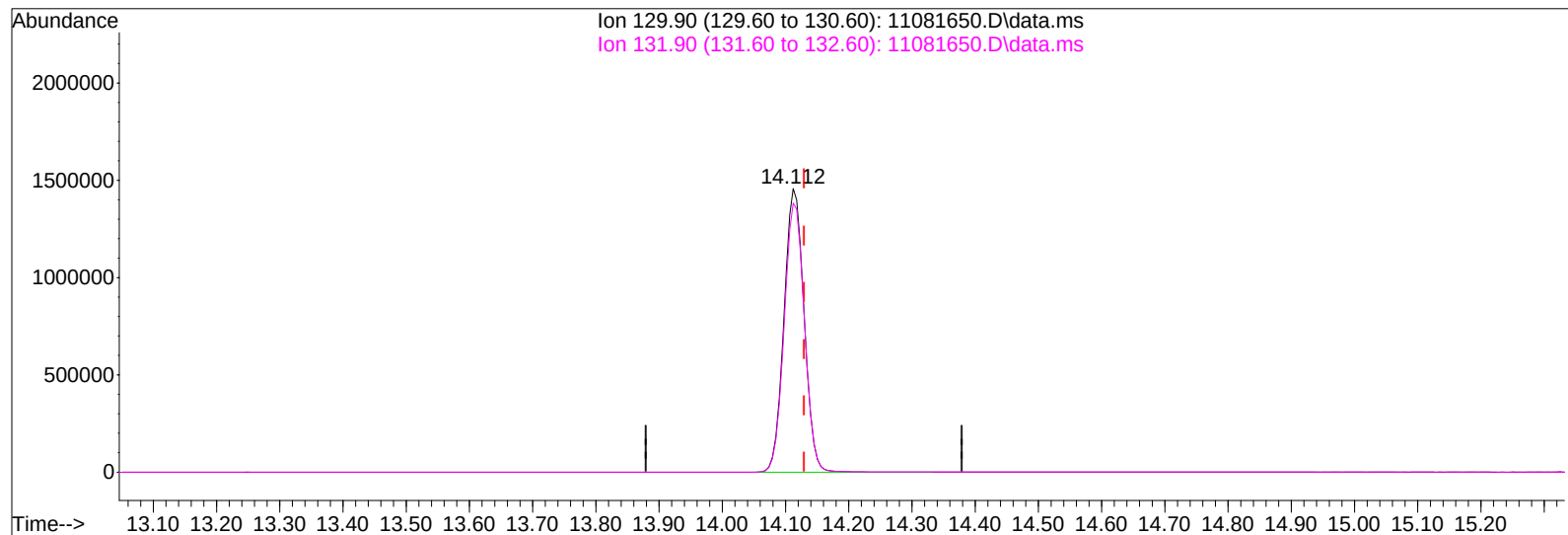
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081650.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 99.39ng

response 3214855

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	95.81
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081650.D

Acq On : 9 Nov 2016 14:59

Operator: LH

Sample : P1605133-022 (0.05mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 09 15:59:31 2016

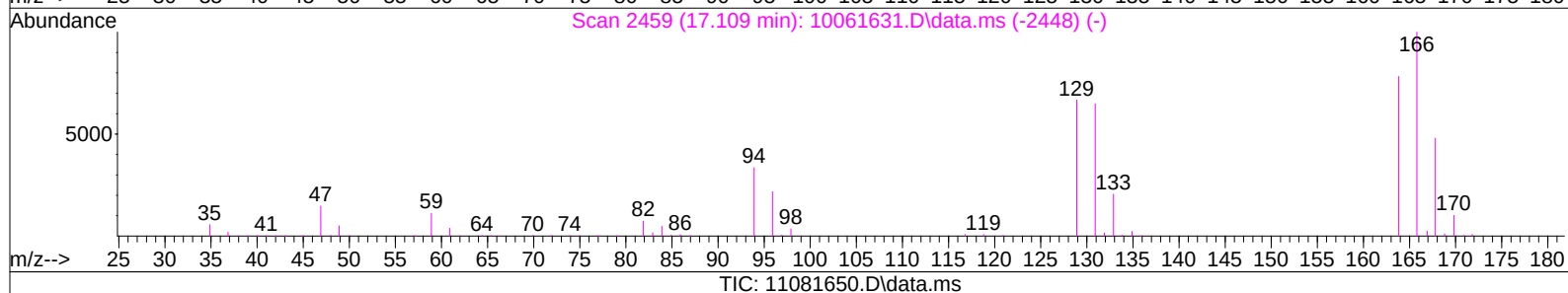
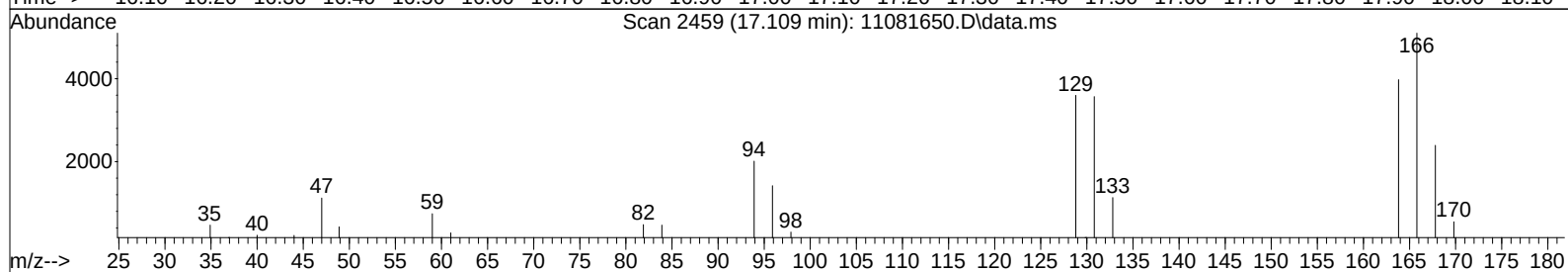
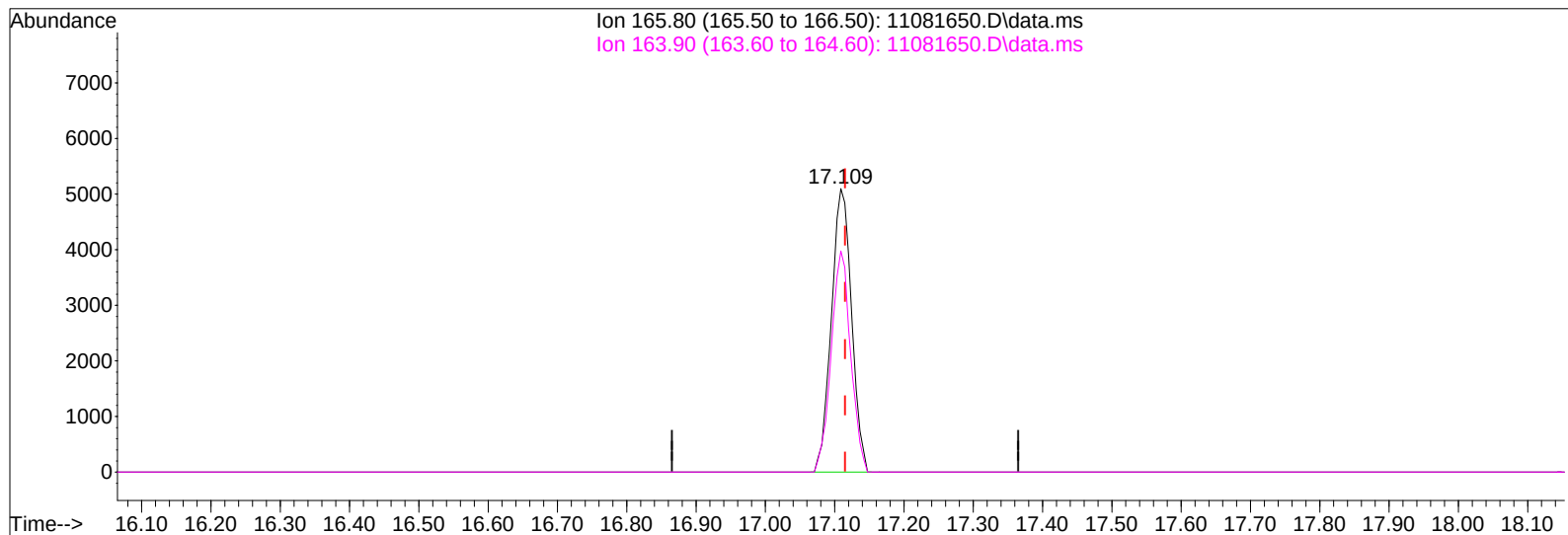
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(64) Tetrachloroethene (T)

17.109min (-0.006) 0.28ng

response 10296

Ion	Exp%	Act%

165.80	100	100

163.90	78.10	75.35

0.00	0.00	0.00

0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081651.D

Acq On : 9 Nov 2016 15:32

Operator: LH

Sample : P1605133-023 (1.7mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 14 15:08:39 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 11/14/16

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	277203	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1358829	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	569235	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	431053	15.179	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	121.44%
57) Toluene-d8 (SS2)	15.87	98	1384580	12.197	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.60%
73) Bromofluorobenzene (SS3)	19.11	174	444326	10.310	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	82.48%

Target Compounds

					Qvalue	
2) Propene	4.22	42	3153	0.129	ng	# 76
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.48	45	4496	0.253	ng	85
11) Acetonitrile	6.82	41	496	N.D.		
12) Acrolein	7.18	56	693	N.D.		
13) Acetone	7.18	58	6068	0.344	ng	# 67
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	7.61	45	62823	1.058	ng	93
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	8.57	59	572	N.D.		
19) Methylene Chloride	8.55	84	1483	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	8.87	76	5849	N.D.		
23) trans-1,2-Dichloroethene	9.85	61	6000	0.166	ng	86
24) 1,1-Dichloroethane	10.09	63	625	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	10.65	72	837	N.D.		
28) cis-1,2-Dichloroethene	11.10	61	318228	9.103	ng	90
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	11.40	57	5773	0.149	ng	# 95
32) Chloroform	11.44	83	5489	0.122	ng	98
34) Tetrahydrofuran (THF)	11.92	72	819	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	13.03	56	1574	N.D.		
41) Benzene	13.01	78	5090	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	13.31	84	1779	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.11	130	3284047	103.303	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	14.17	57	853	N.D.		

Data File: I:\MS16\DATA\2016 11\08\11081651.D

Acq On : 9 Nov 2016 15:32

Operator: LH

Sample : P1605133-023 (1.7mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 14 15:08:39 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	d	
51) n-Heptane	14.45	71	2144	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	21257	0.191	ng	98
59) 2-Hexanone	16.22	43	982	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.86	43	570	N.D.		
63) n-Octane	16.97	57	893	N.D.		
64) Tetrachloroethene	17.11	166	6421	0.179	ng	95
65) Chlorobenzene	17.77	112	720	N.D.		
66) Ethylbenzene	18.12	91	15756	0.117	ng	96
67) m- & p-Xylenes	18.27	91	32379	0.315	ng	96
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	1013	N.D.		
70) o-Xylene	18.71	91	14793	0.145	ng	98
71) n-Nonane	18.90	43	3424	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	19.23	105	962	N.D.		
75) alpha-Pinene	19.58	93	4030	N.D.		
76) n-Propylbenzene	19.68	91	2094	N.D.		
77) 3-Ethyltoluene	19.77	105	4539	N.D.		
78) 4-Ethyltoluene	19.80	105	1937	N.D.		
79) 1,3,5-Trimethylbenzene	19.87	105	3948	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	20.04	105	3326	N.D.		
82) 1,2,4-Trimethylbenzene	20.25	105	8017	N.D.		
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	0.00	91	0	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.		
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.		
87) sec-Butylbenzene	20.65	105	1827	N.D.		
88) 4-Isopropyltoluene (p-...	20.65	119	1870	N.D.		
89) 1,2,3-Trimethylbenzene	20.65	105	2084	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.73	68	7247	0.189	ng	87
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	21.31	57	2205	N.D.		
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.50	128	1179	N.D.		
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	20.25	119	797	N.D.		
100) n-Butylbenzene	20.73	91	1209	N.D.		

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

Data File: I:\MS16\DATA\2016 11\08\11081651.D

Acq On : 9 Nov 2016 15:32

Operator: LH

Sample : P1605133-023 (1.7mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 14 15:08:39 2016

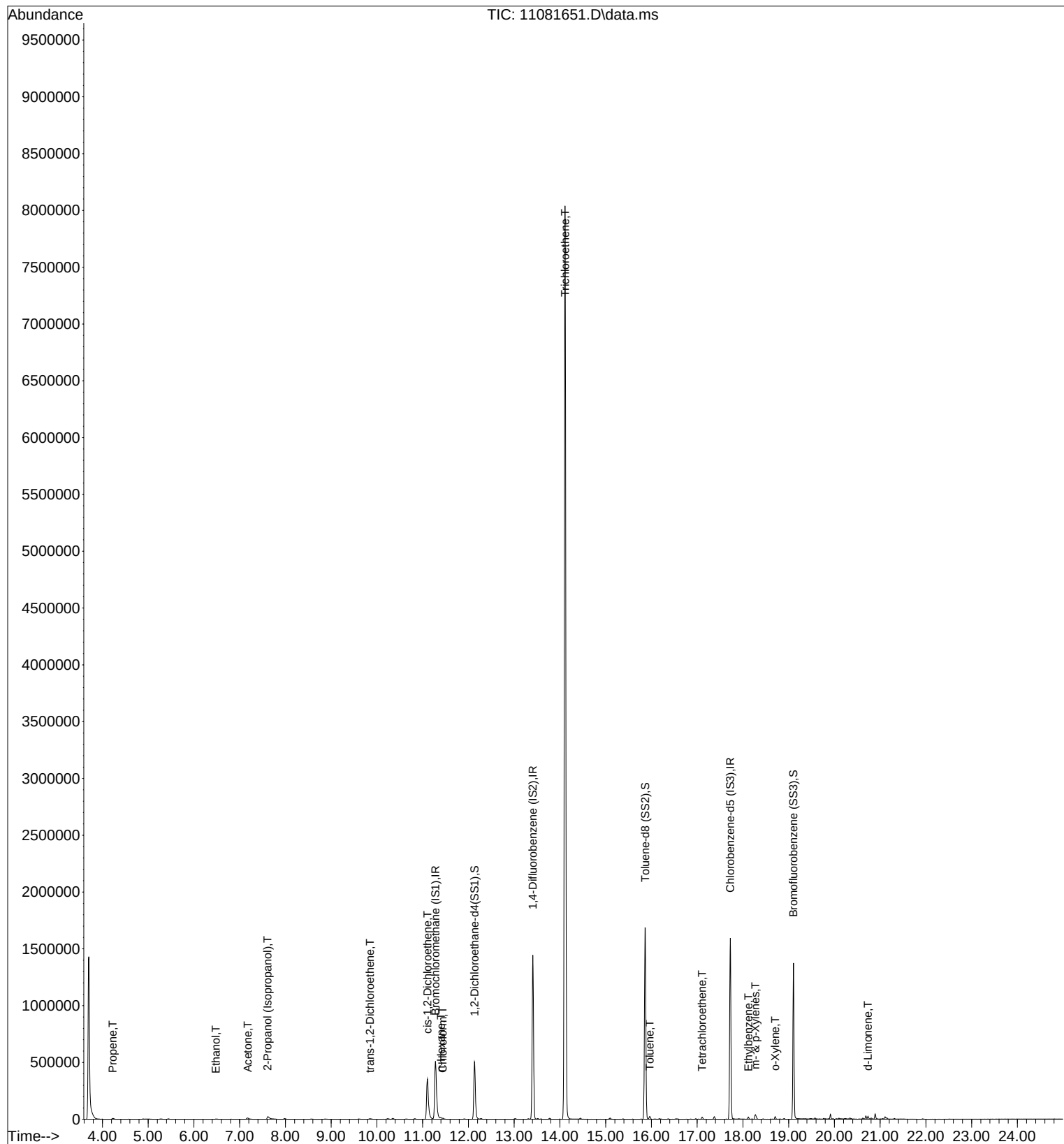
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\08\11081651.D

Acq On : 9 Nov 2016 15:32

Operator: LH

Sample : P1605133-023 (1.7mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 09 15:59:39 2016

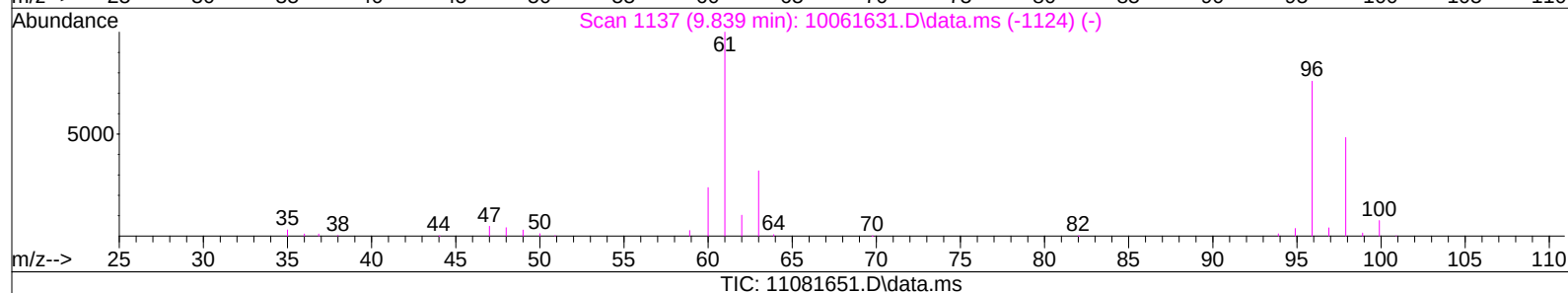
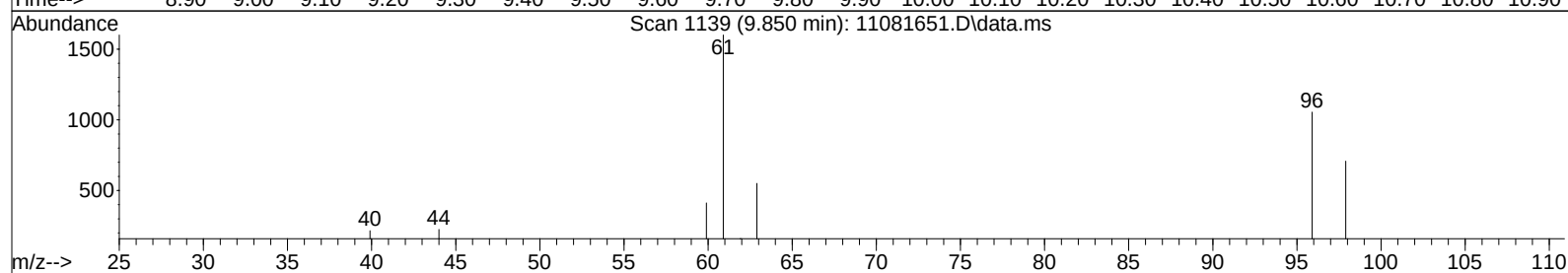
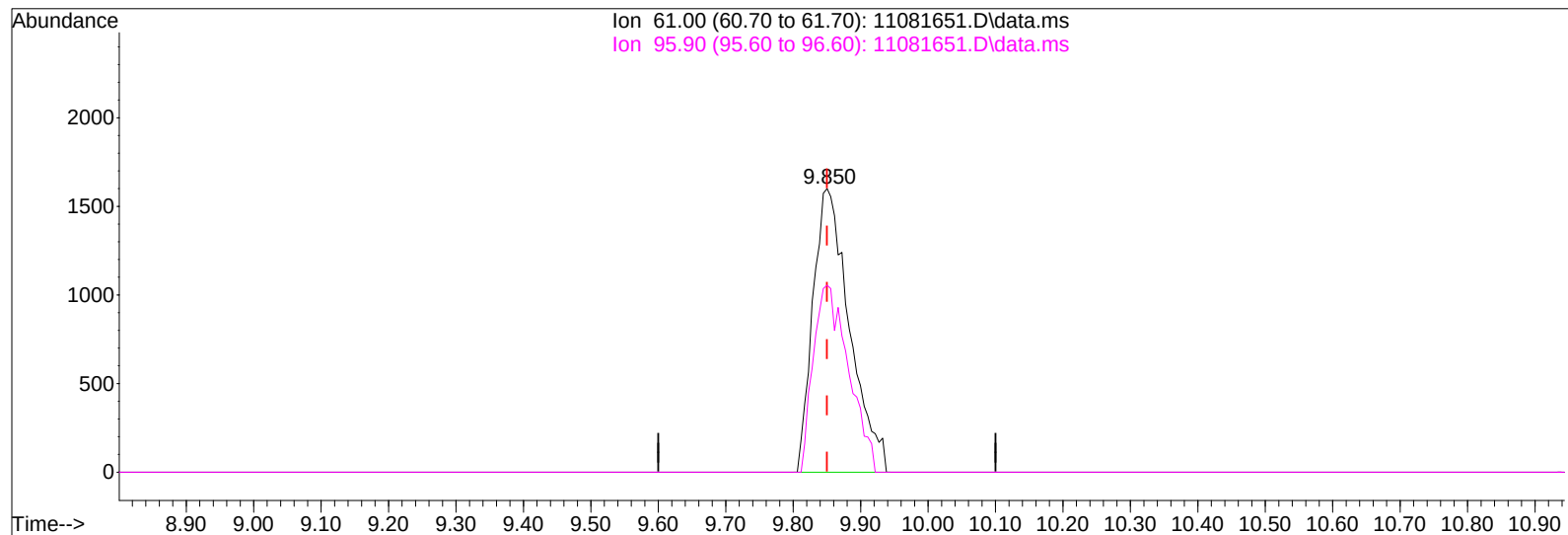
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



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

9.850min (+0.000) 0.17ng

response 6000

Ion	Exp%	Act%
61.00	100	100
95.90	75.70	63.43
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081651.D

Acq On : 9 Nov 2016 15:32

Operator: LH

Sample : P1605133-023 (1.7mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 09 15:59:39 2016

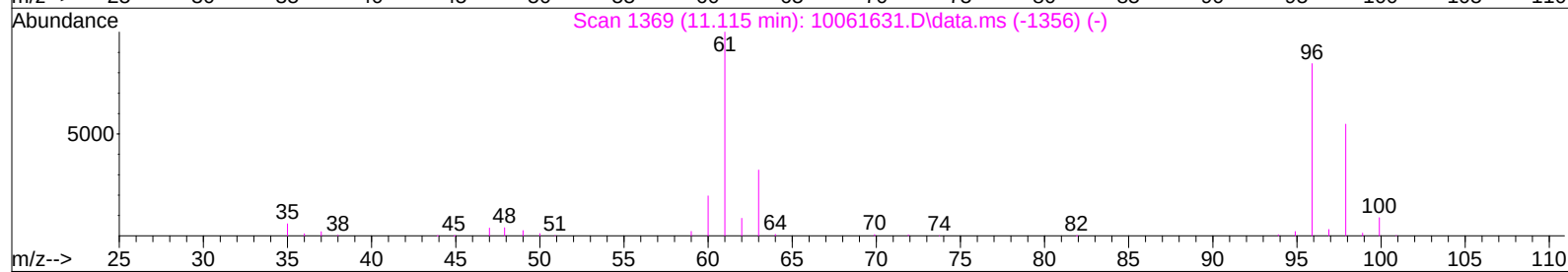
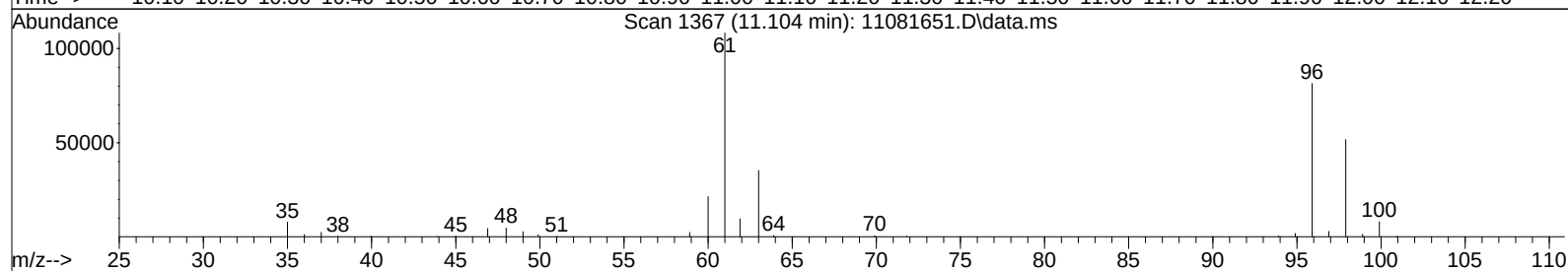
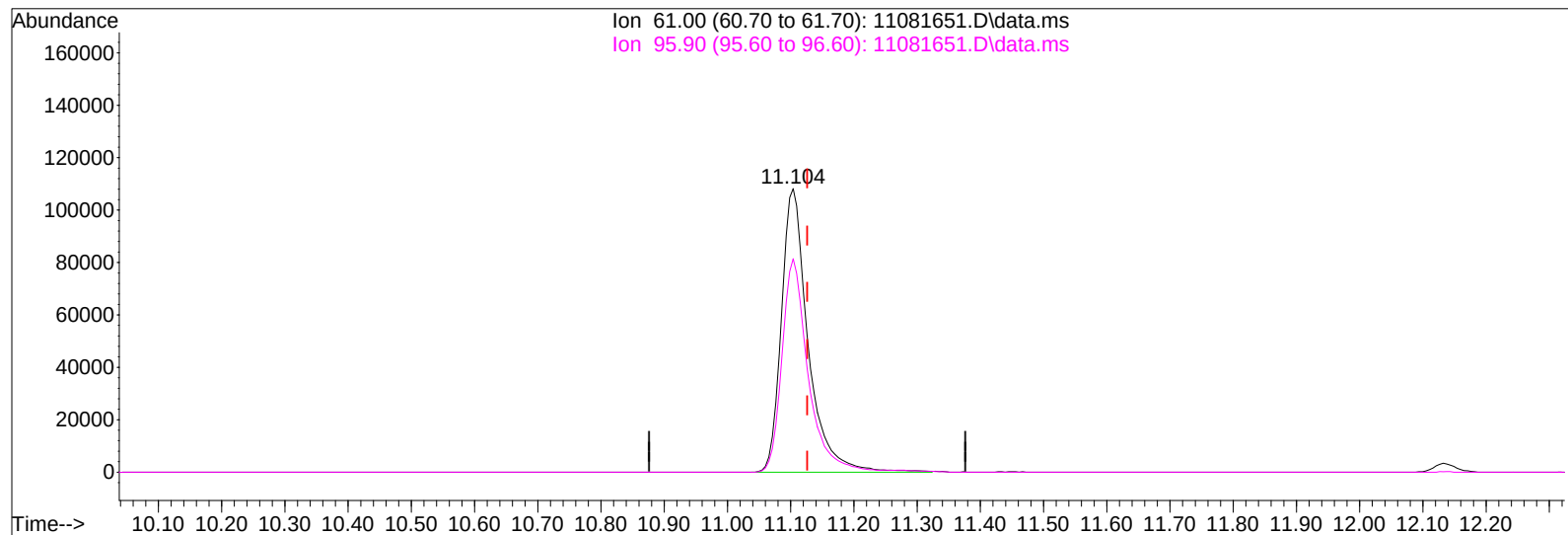
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081651.D\data.ms

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

11.104min (-0.022) 9.10ng

response 318228

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	74.32
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081651.D

Acq On : 9 Nov 2016 15:32

Operator: LH

Sample : P1605133-023 (1.7mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 09 15:59:39 2016

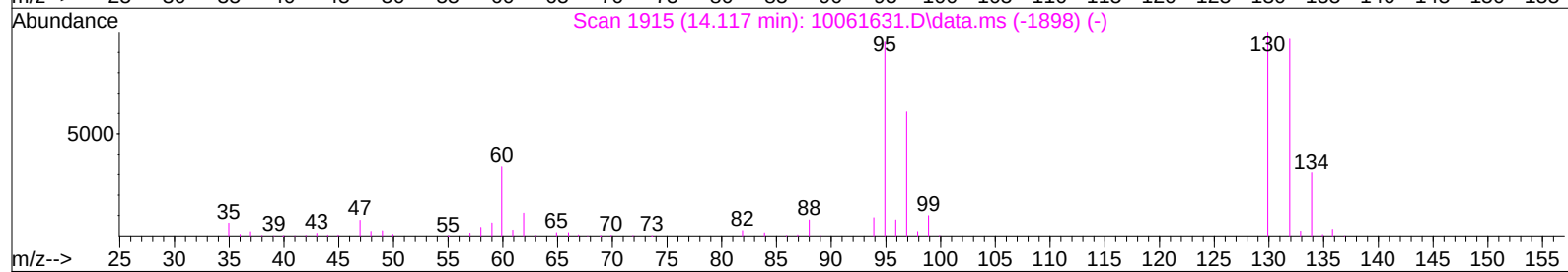
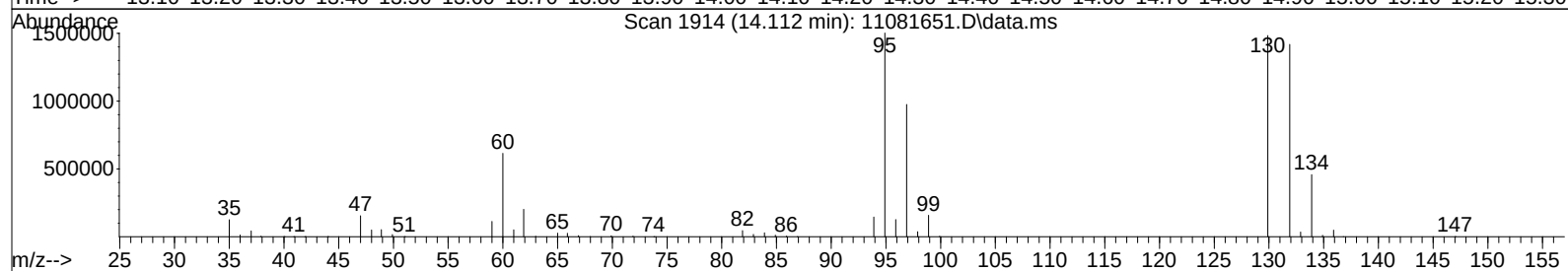
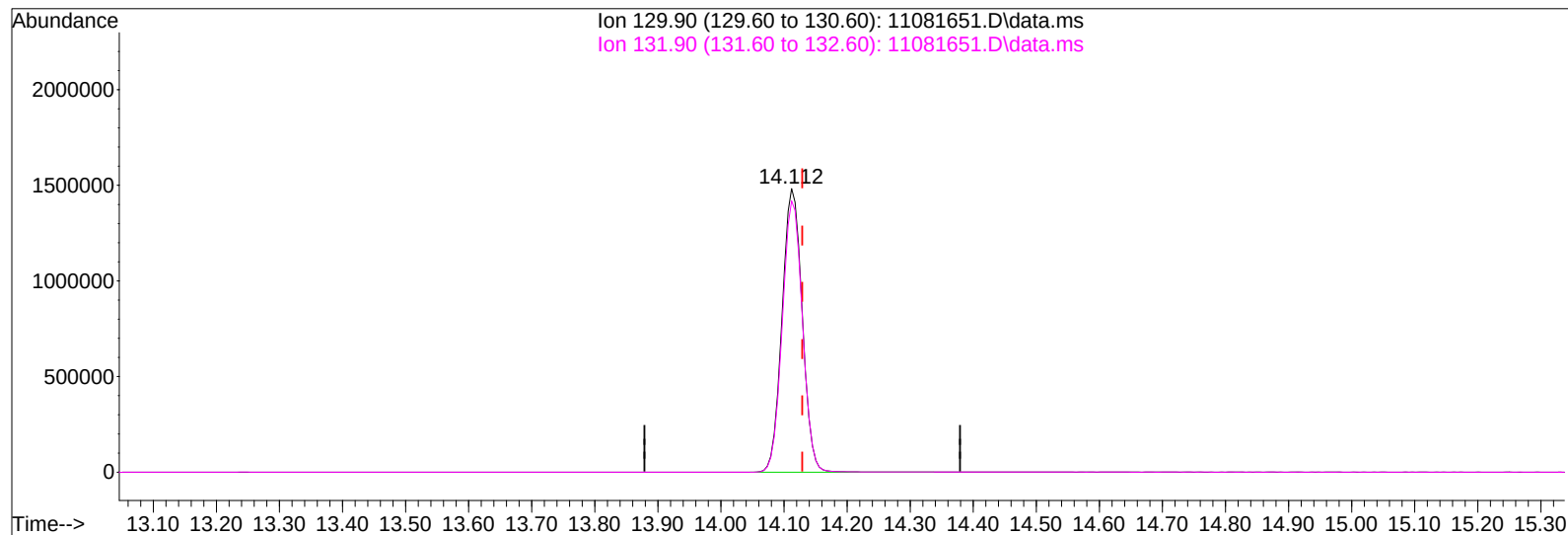
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081651.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 103.30ng

response 3284047

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	95.68
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081651.D

Acq On : 9 Nov 2016 15:32

Operator: LH

Sample : P1605133-023 (1.7mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 09 15:59:39 2016

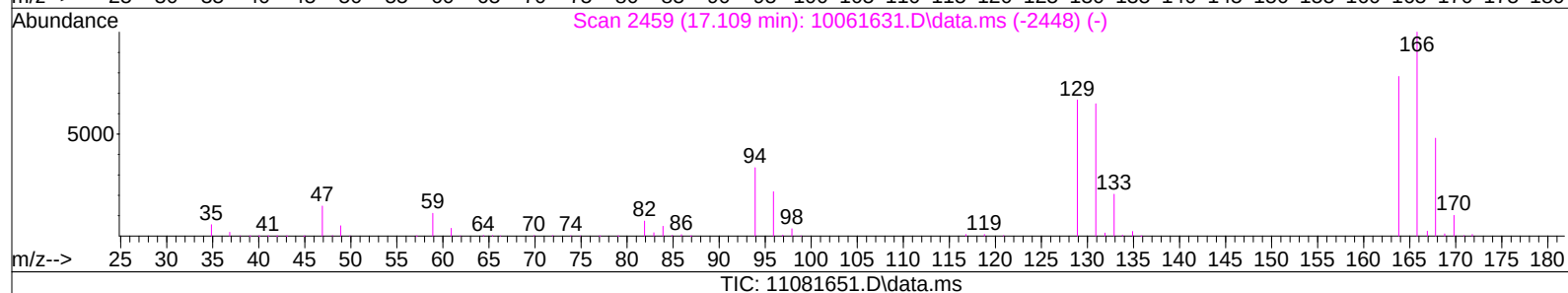
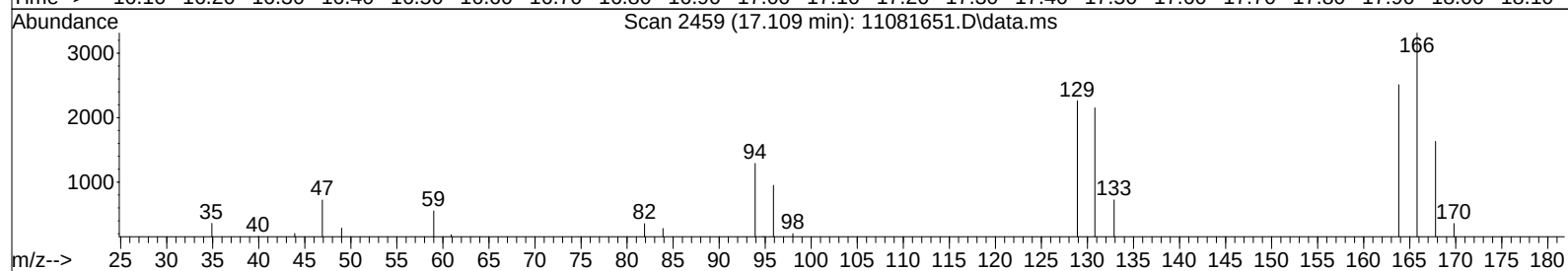
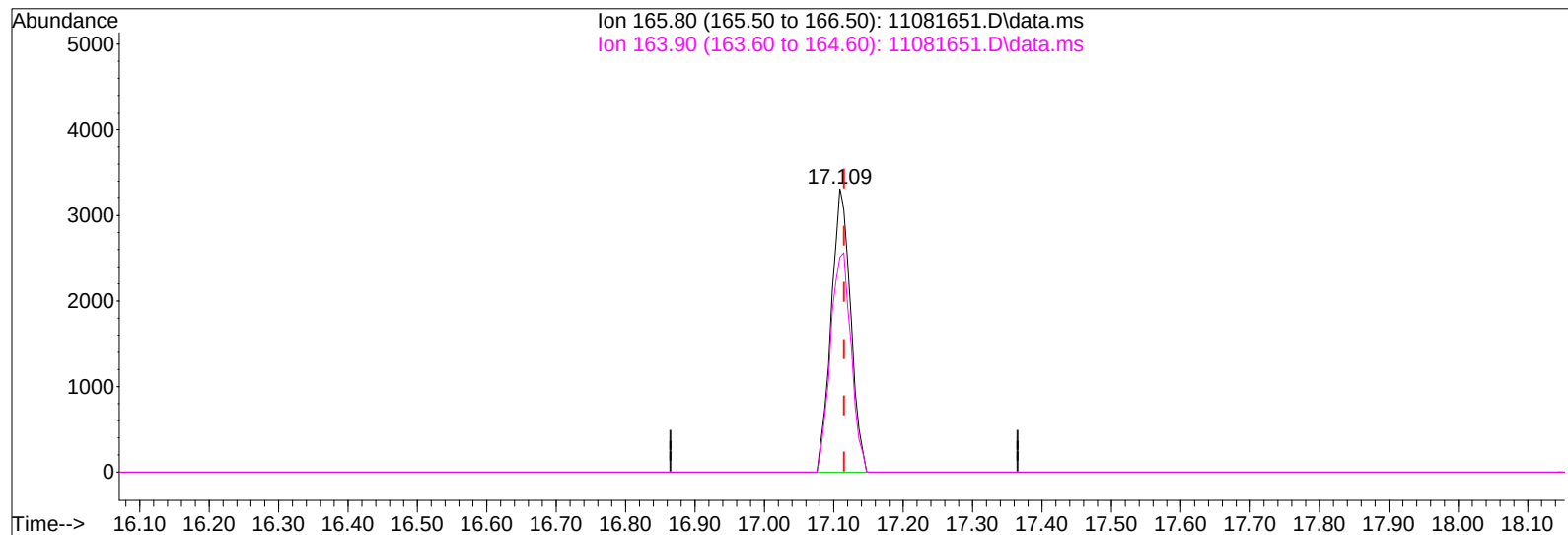
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081651.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 0.18ng

response 6421

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	82.12
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091620.D

Acq On : 10 Nov 2016 8:45
 Sample : P1605133-024 (4.0mL)
 Misc : S29-11051601
 ALS Vial : 1 Sample Multiplier: 1

Operator: LH

Quant Time: Nov 14 14:25:26 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 11/14/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.29	130	284394	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1378963	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	593792	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.14	65	441663	15.159	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	121.28%
57) Toluene-d8 (SS2)	15.87	98	1417110	11.967	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.76%
73) Bromofluorobenzene (SS3)	19.11	174	465545	10.355	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	82.88%

Target Compounds

						Qvalue
2) Propene	0.00	42	0	N.D.	d	
3) Dichlorodifluoromethan...	4.36	85	1254	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	5.09	62	1569	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	6.11	64	1316	N.D.		
10) Ethanol	6.48	45	7229	0.397	ng	90
11) Acetonitrile	6.81	41	2740	N.D.		
12) Acrolein	7.16	56	1290	N.D.		
13) Acetone	7.15	58	18734	1.034	ng	# 69
14) Trichlorofluoromethane	7.35	101	556	N.D.		
15) 2-Propanol (Isopropanol)	7.62	45	66581	1.093	ng	95
16) Acrylonitrile	7.95	53	104	N.D.		
17) 1,1-Dichloroethene	8.34	96	388452	14.726	ng	# 82
18) 2-Methyl-2-Propanol (t...	8.60	59	771	N.D.		
19) Methylene Chloride	8.55	84	2531	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	8.86	76	7458	N.D.		
23) trans-1,2-Dichloroethene	9.84	61	93990	2.541	ng	89
24) 1,1-Dichloroethane	10.09	63	267898	5.631	ng	99
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	10.63	72	1284	N.D.		
28) cis-1,2-Dichloroethene	11.10	61	3528436	98.379	ng	90
29) Diisopropyl Ether	0.00	87	0	N.D.	d	
30) Ethyl Acetate	11.46	61	661	N.D.		
31) n-Hexane	11.40	57	6226	0.156	ng	98
32) Chloroform	11.45	83	99390	2.146	ng	99
34) Tetrahydrofuran (THF)	11.89	72	6151	0.343	ng	# 77
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	12.54	97	321415	7.991	ng	97
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.02	78	8343	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	13.31	84	2199	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.12	130	2467176	76.475	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	14.18	57	1859	N.D.		

Data File: I:\MS16\DATA\2016 11\09\11091620.D

Acq On : 10 Nov 2016 8:45

Operator: LH

Sample : P1605133-024 (4.0mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 14 14:25:26 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.45	100	638	N.D.		
51) n-Heptane	14.45	71	2108	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	23855	0.205	ng	99
59) 2-Hexanone	16.22	43	1990	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.86	43	1656	N.D.		
63) n-Octane	16.97	57	990	N.D.		
64) Tetrachloroethene	17.11	166	110586	2.954	ng	99
65) Chlorobenzene	17.77	112	1597	N.D.		
66) Ethylbenzene	18.12	91	11374	N.D.		
67) m- & p-Xylenes	18.27	91	16447	0.153	ng	96
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	2531	N.D.		
70) o-Xylene	18.71	91	4916	N.D.		
71) n-Nonane	18.90	43	2962	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	19.23	105	964	N.D.		
75) alpha-Pinene	19.58	93	4457	N.D.		
76) n-Propylbenzene	19.68	91	3385	N.D.		
77) 3-Ethyltoluene	19.77	105	3641	N.D.		
78) 4-Ethyltoluene	19.80	105	3099	N.D.		
79) 1,3,5-Trimethylbenzene	19.87	105	2411	N.D.		
80) alpha-Methylstyrene	20.02	118	914	N.D.		
81) 2-Ethyltoluene	20.04	105	2188	N.D.		
82) 1,2,4-Trimethylbenzene	20.24	105	4608	N.D.		
83) n-Decane	20.33	57	3028	N.D.		
84) Benzyl Chloride	20.39	91	2005	N.D.		
85) 1,3-Dichlorobenzene	20.38	146	1674	N.D.		
86) 1,4-Dichlorobenzene	20.44	146	6308	N.D.		
87) sec-Butylbenzene	20.47	105	766	N.D.		
88) 4-Isopropyltoluene (p-...	20.62	119	3110	N.D.		
89) 1,2,3-Trimethylbenzene	20.61	105	2034	N.D.		
90) 1,2-Dichlorobenzene	20.74	146	1866	N.D.		
91) d-Limonene	20.73	68	36362	0.909	ng	90
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	21.43	57	2277	N.D.		
94) 1,2,4-Trichlorobenzene	22.26	180	3843	N.D.		
95) Naphthalene	22.37	128	24672	0.155	ng	94
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	18.43	55	1955	N.D.		
99) tert-Butylbenzene	20.24	119	1009	N.D.		
100) n-Butylbenzene	20.99	91	2703	N.D.		

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

Data File: I:\MS16\DATA\2016 11\09\11091620.D

Acq On : 10 Nov 2016 8:45

Operator: LH

Sample : P1605133-024 (4.0mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 14 14:25:26 2016

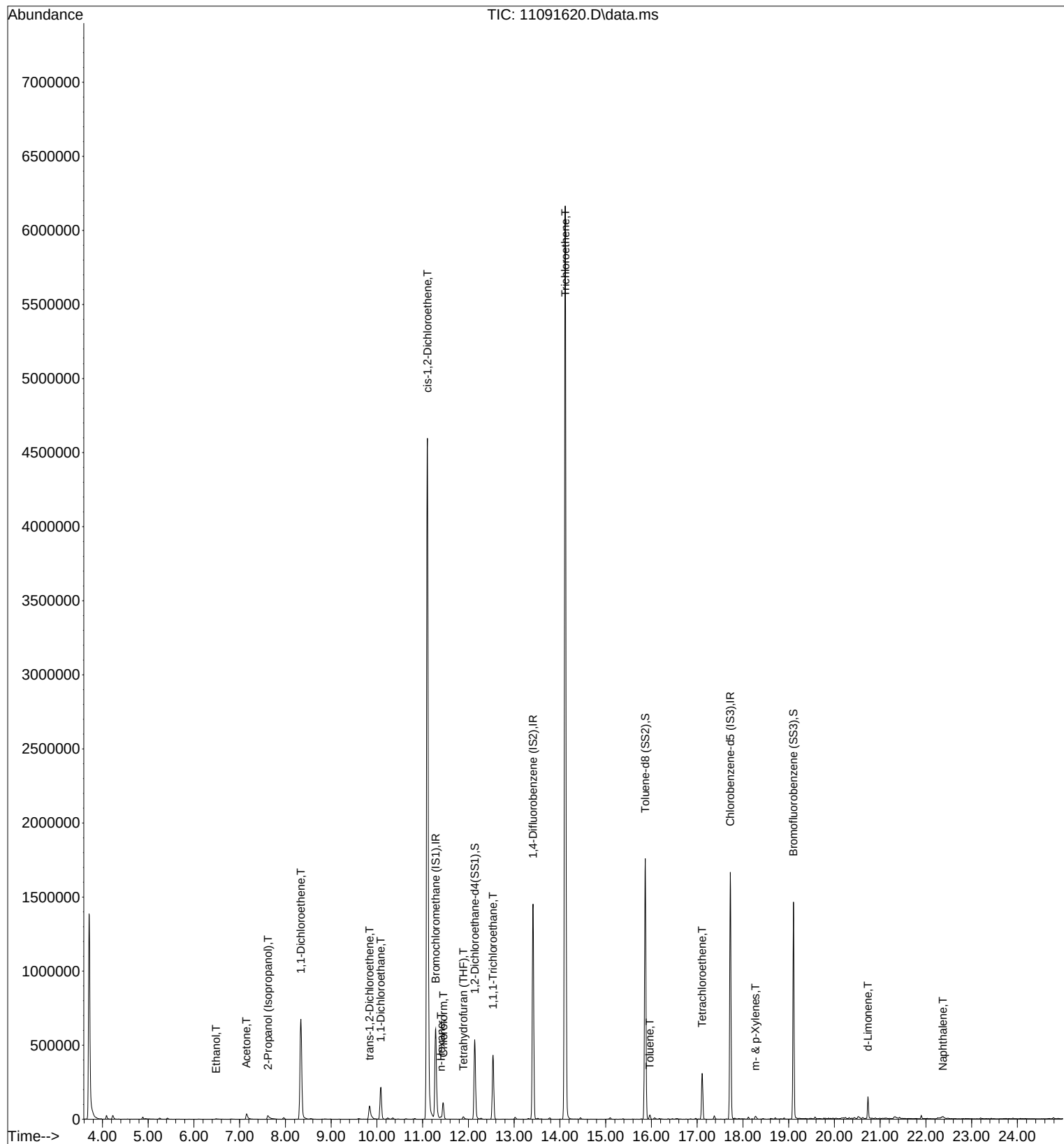
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091620.D

Acq On : 10 Nov 2016 8:45

Operator: LH

Sample : P1605133-024 (4.0mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 10 09:12:49 2016

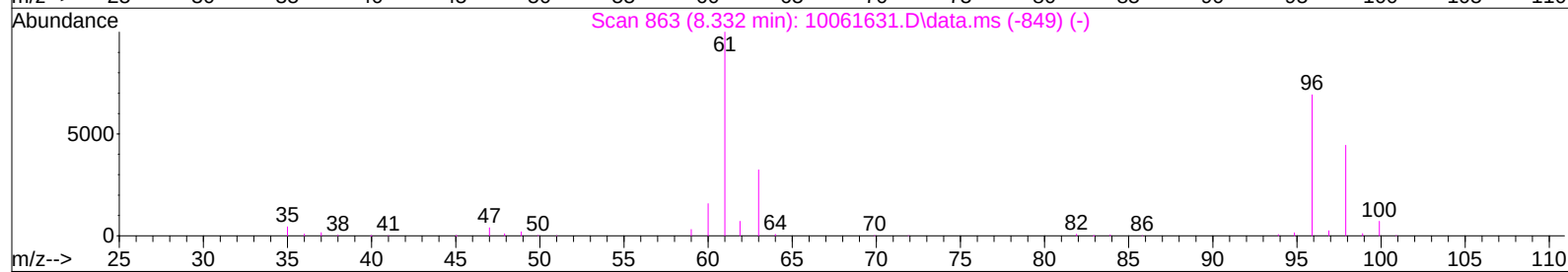
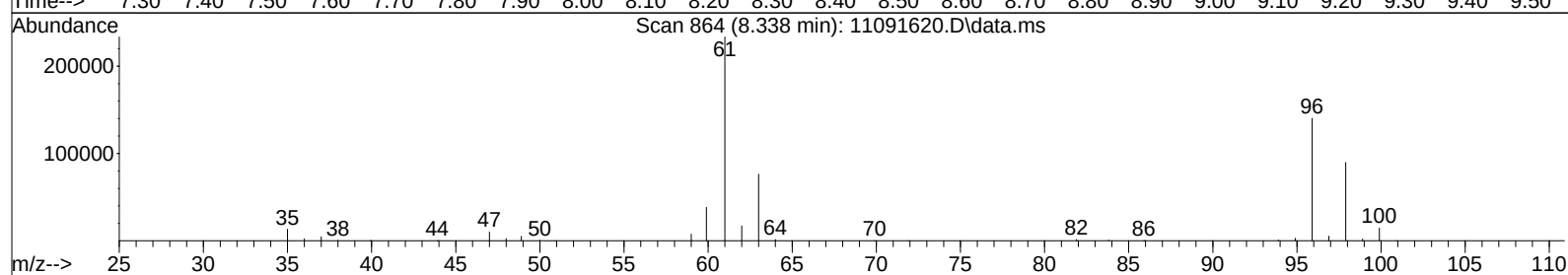
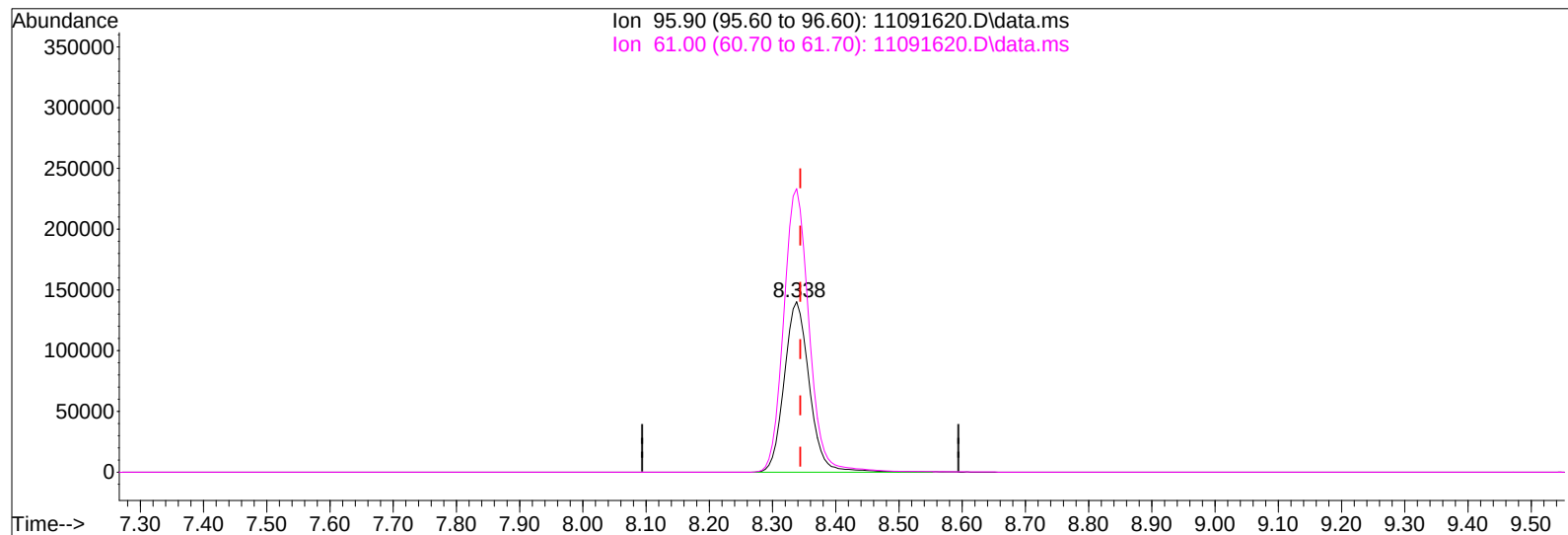
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091620.D\data.ms

(17) 1,1-Dichloroethene (T)

8.338min (-0.006) 14.73ng

response 388452

Ion	Exp%	Act%
95.90	100	100
61.00	145.50	168.14#
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091620.D

Acq On : 10 Nov 2016 8:45

Operator: LH

Sample : P1605133-024 (4.0mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 10 09:12:49 2016

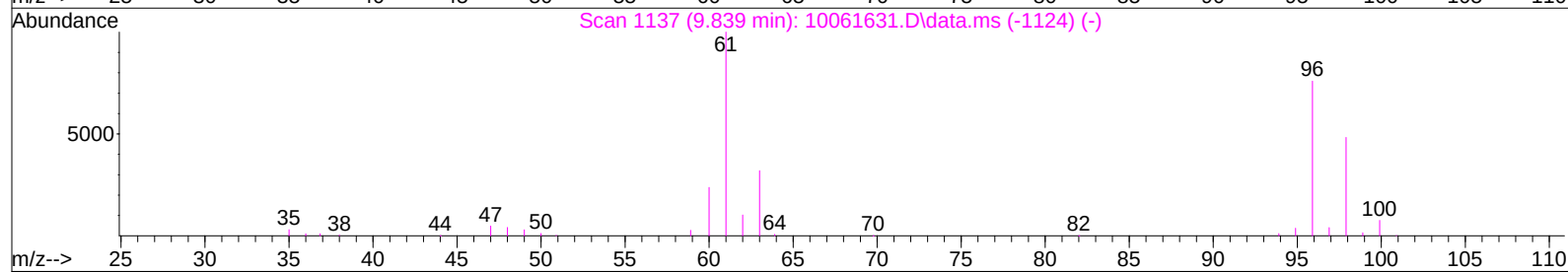
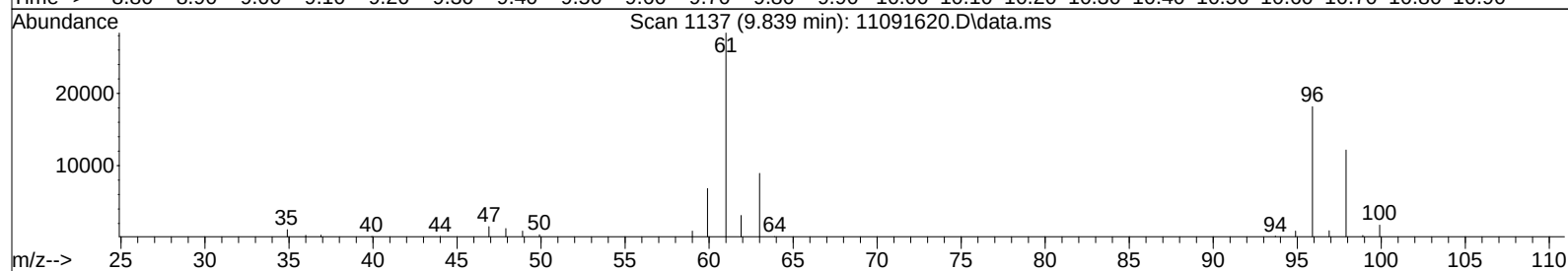
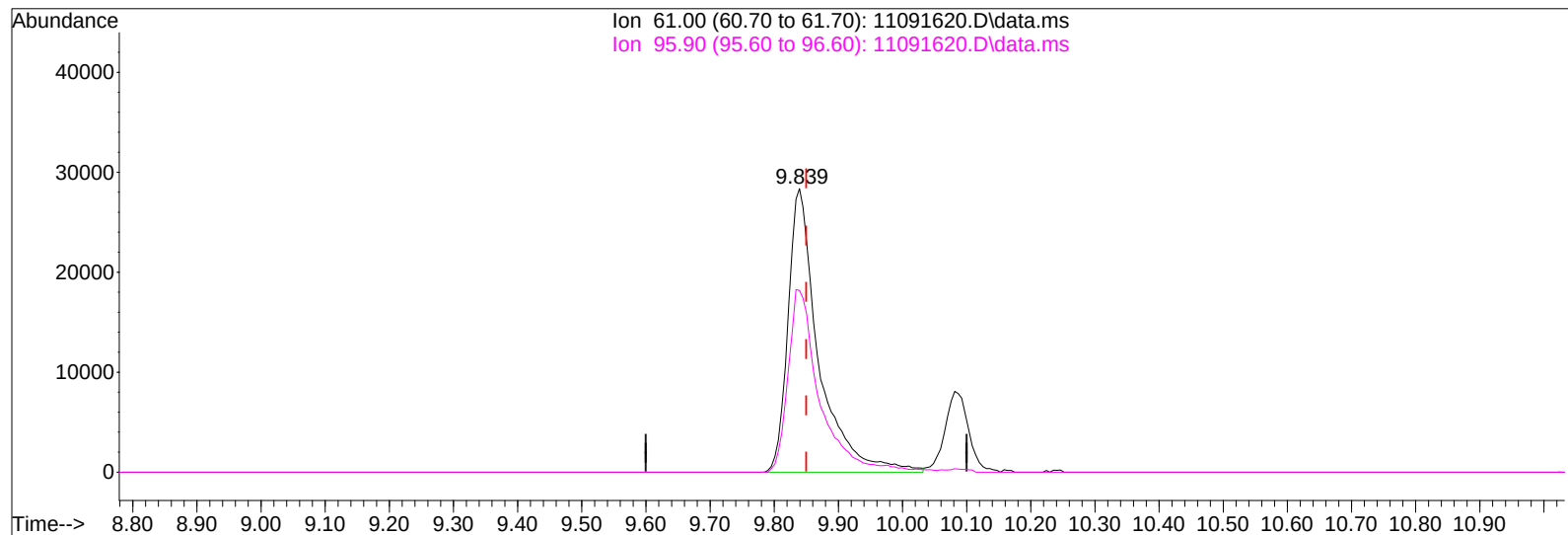
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091620.D\data.ms

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

9.839min (-0.011) 2.54ng

response 93990

Ion	Exp%	Act%
61.00	100	100
95.90	75.70	66.47
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091620.D

Acq On : 10 Nov 2016 8:45

Operator: LH

Sample : P1605133-024 (4.0mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 10 09:12:49 2016

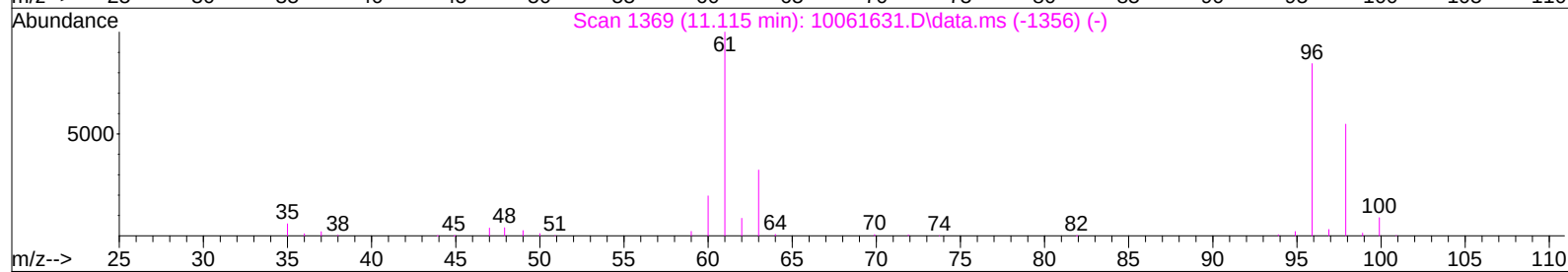
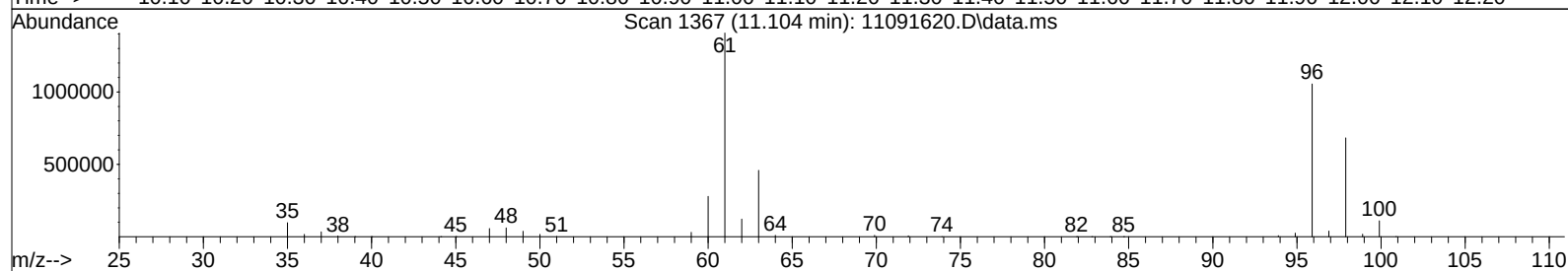
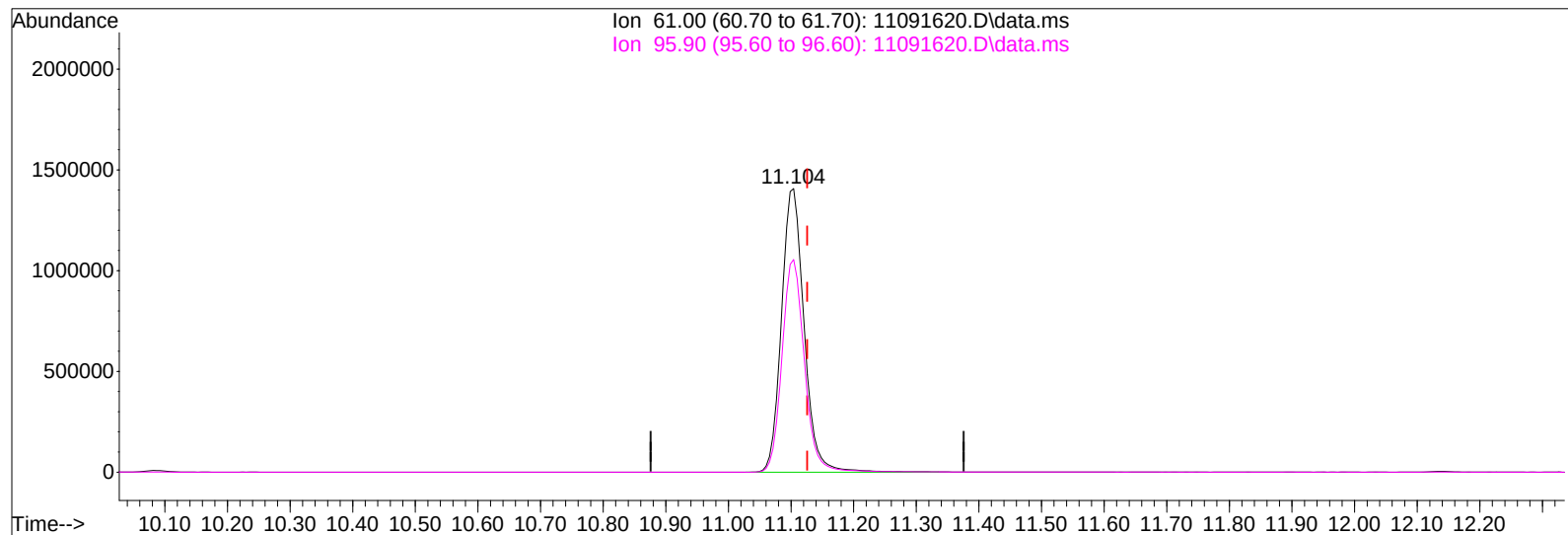
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091620.D\data.ms

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

11.104min (-0.022) 98.38ng

response 3528436

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	74.33
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091620.D

Acq On : 10 Nov 2016 8:45

Operator: LH

Sample : P1605133-024 (4.0mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 10 09:12:49 2016

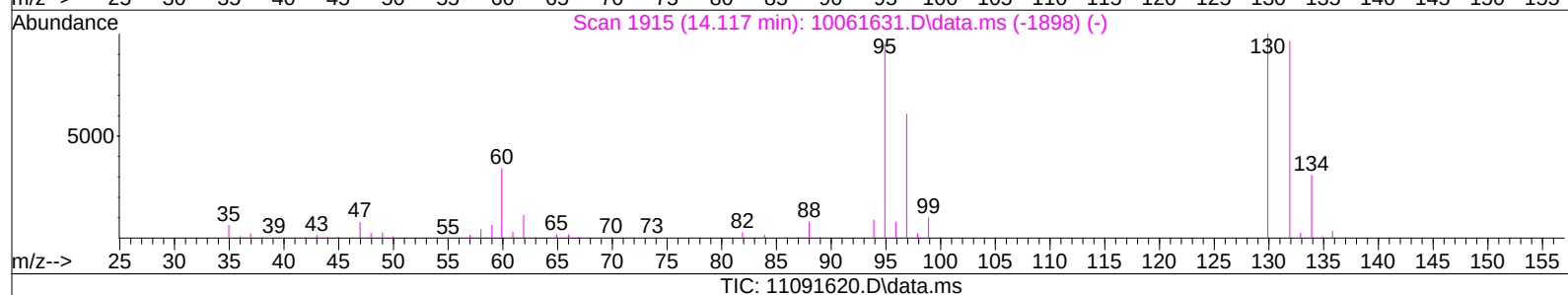
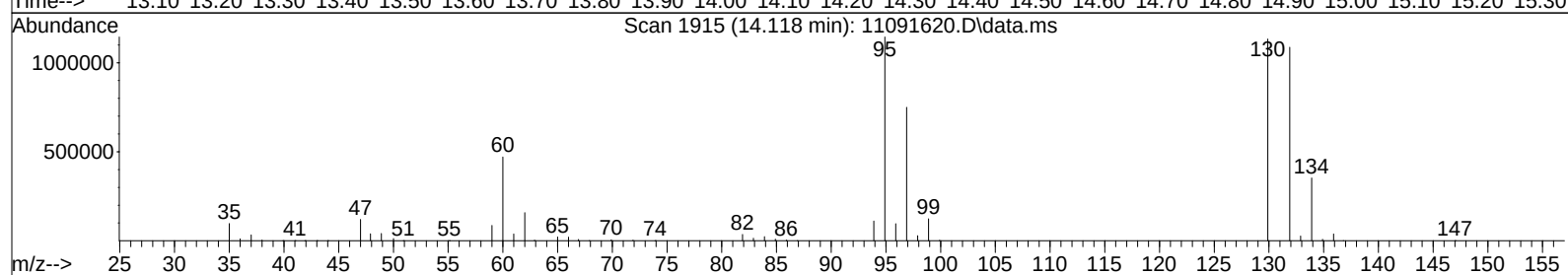
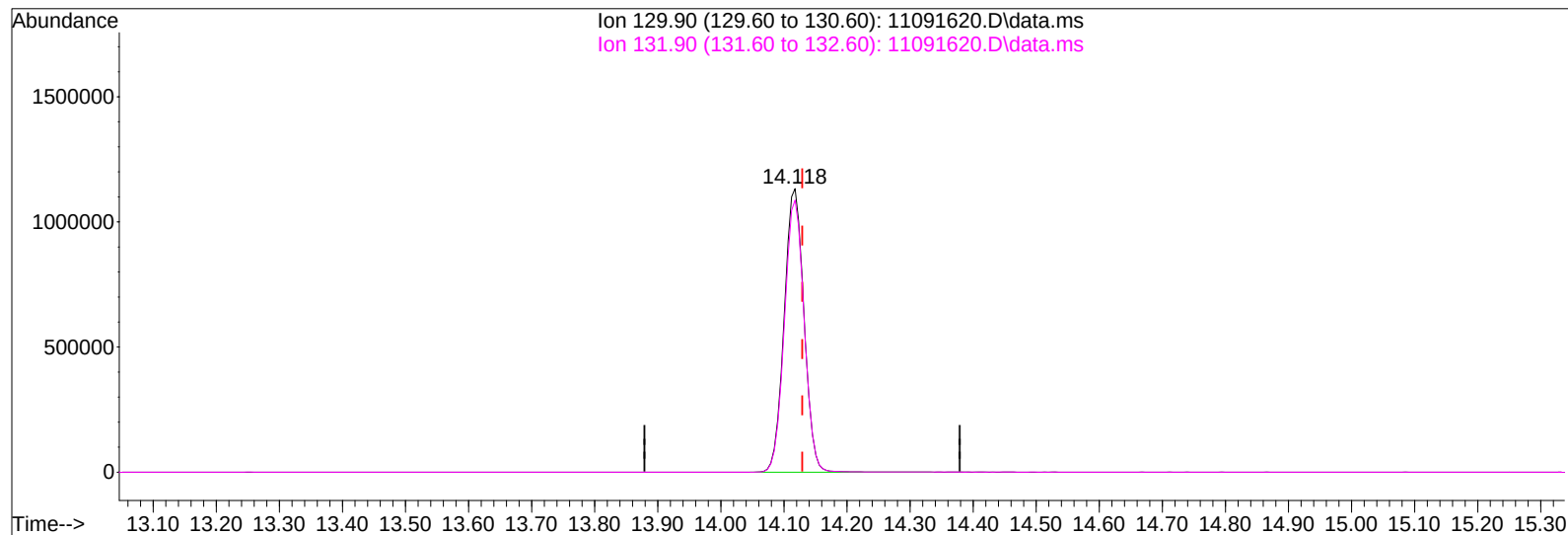
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091620.D\data.ms

(47) Trichloroethene (T)

14.118min (-0.011) 76.47ng

response 2467176

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	95.96
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091620.D

Acq On : 10 Nov 2016 8:45

Operator: LH

Sample : P1605133-024 (4.0mL)

Misc : S29-11051601

ALS Vial : 1 Sample Multiplier: 1

Quant Time: Nov 10 09:12:49 2016

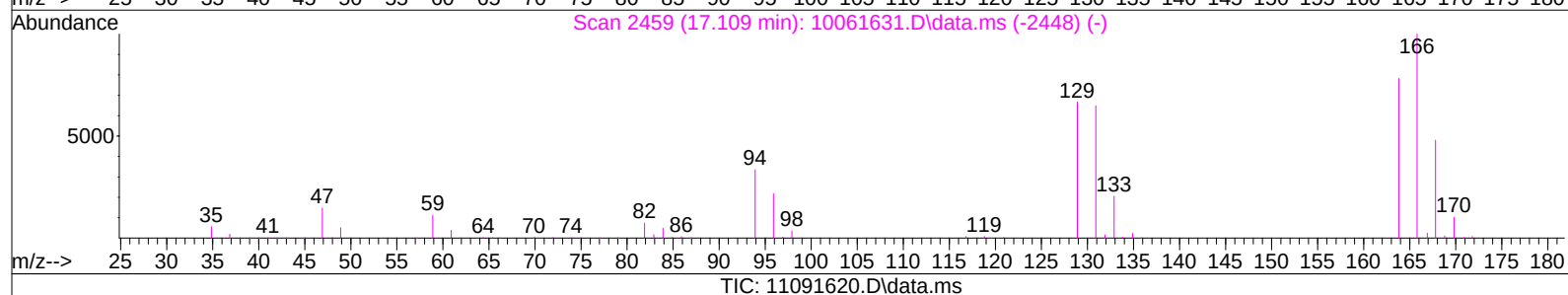
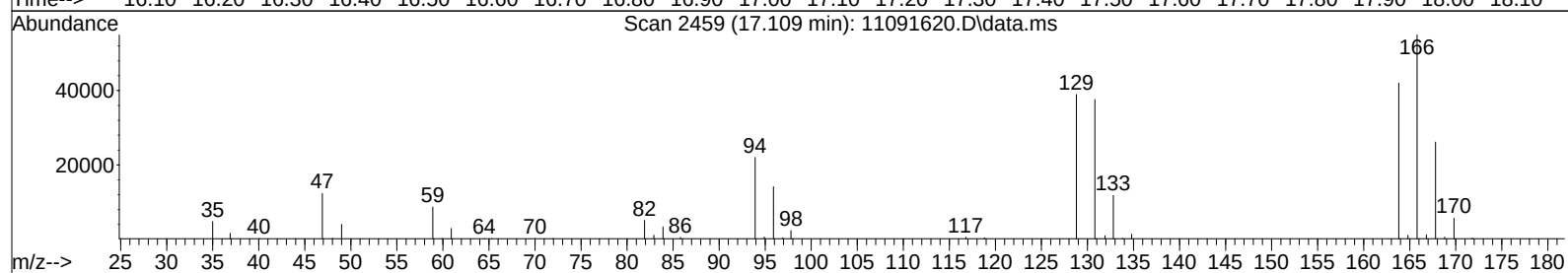
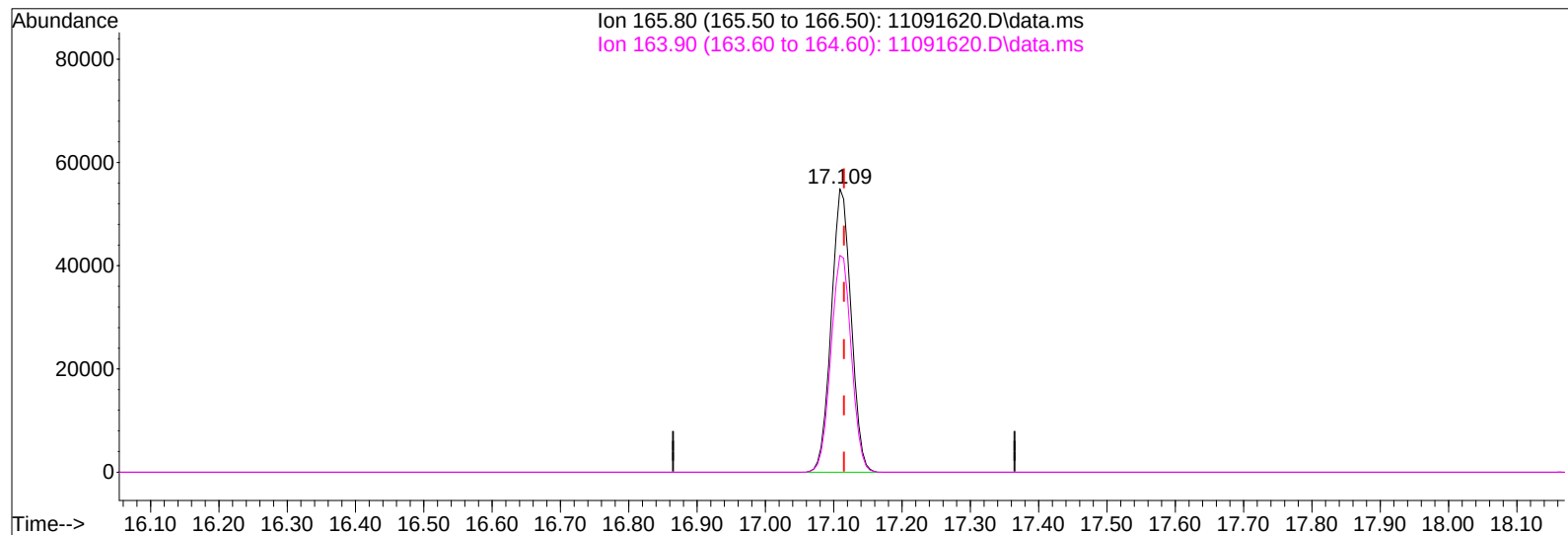
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091620.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 2.95ng

response 110586

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	78.72
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091609.D

Acq On : 9 Nov 2016 22:26
 Sample : P1605133-004dup (1000mL)
 Misc : S29-11051601
 ALS Vial : 6 Sample Multiplier: 1

Operator: LH

Quant Time: Nov 14 13:25:47 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 11/14/16

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	281025	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1372480	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	597520	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	427507	14.849	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	118.80%
57) Toluene-d8 (SS2)	15.86	98	1413125	11.859	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	94.88%
73) Bromofluorobenzene (SS3)	19.11	174	493626	10.911	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	87.28%

Target Compounds

						Qvalue
2) Propene	4.14	42	1524813	61.414	ng	99
3) Dichlorodifluoromethan...	4.30	85	89699	1.880	ng	99
4) Chloromethane	4.62	50	5869	0.205	ng	87
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	2584	0.091	ng	92
6) Vinyl Chloride	5.05	62	521	N.D.		
7) 1,3-Butadiene	5.31	54	5356	0.256	ng	97
8) Bromomethane	5.76	94	760	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.43	45	1770259	98.354	ng	100
11) Acetonitrile	6.72	41	36298	0.775	ng	98
12) Acrolein	6.91	56	14675	0.871	ng	96
13) Acetone	7.09	58	1175695	65.694	ng	# 83
14) Trichlorofluoromethane	7.35	101	41188	0.929	ng	100
15) 2-Propanol (Isopropanol)	7.59	45	4951500	82.263	ng	100
16) Acrylonitrile	0.00	53	0	N.D.	d	
17) 1,1-Dichloroethene	8.33	96	574	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.54	84	522677	17.882	ng	85
20) 3-Chloro-1-propene (Al...	8.71	41	1072	N.D.		
21) Trichlorotrifluoroethane	8.97	151	9071	0.346	ng	94
22) Carbon Disulfide	8.83	76	12217	0.124	ng	92
23) trans-1,2-Dichloroethene	9.84	61	937	N.D.		
24) 1,1-Dichloroethane	10.08	63	3453	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.	d	
27) 2-Butanone (MEK)	10.59	72	37559	2.040	ng	# 72
28) cis-1,2-Dichloroethene	11.10	61	44359	1.252	ng	90
29) Diisopropyl Ether	11.40	87	1322	N.D.		
30) Ethyl Acetate	11.41	61	16799	1.763	ng	89
31) n-Hexane	11.39	57	61391	1.558	ng	98
32) Chloroform	11.44	83	5233	0.114	ng	100
34) Tetrahydrofuran (THF)	11.87	72	17681	0.997	ng	# 62
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	5372	0.171	ng	95
38) 1,1,1-Trichloroethane	12.53	97	7313	0.183	ng	96
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.01	78	75791	0.669	ng	99
42) Carbon Tetrachloride	13.18	117	12279	0.348	ng	99
43) Cyclohexane	13.31	84	18861	0.454	ng	84
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	13.87	63	568	N.D.		
46) Bromodichloromethane	14.00	83	954	N.D.		
47) Trichloroethene	14.11	130	154917	4.825	ng	99
48) 1,4-Dioxane	14.10	88	1578	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

Data File: I:\MS16\DATA\2016 11\09\11091609.D

Acq On : 9 Nov 2016 22:26

Operator: LH

Sample : P1605133-004dup (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 14 13:25:47 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.32	100	1671	0.144	ng	# 13
51) n-Heptane	14.44	71	13693	0.497	ng	89
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.01	58	54008	2.144	ng	82
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	493261	4.220	ng	99
59) 2-Hexanone	16.21	43	9204	0.150	ng	86
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.83	43	264904	3.904	ng	93
63) n-Octane	16.97	57	9116	0.357	ng	88
64) Tetrachloroethene	17.11	166	624977	16.591	ng	100
65) Chlorobenzene	17.76	112	4139	N.D.		
66) Ethylbenzene	18.12	91	50616	0.358	ng	97
67) m- & p-Xylenes	18.27	91	125071	1.158	ng	99
68) Bromoform	18.34	173	1083	N.D.		
69) Styrene	18.60	104	25155	0.293	ng	96
70) o-Xylene	18.70	91	64589	0.603	ng	97
71) n-Nonane	18.90	43	50871m	0.965	ng	
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.	d	
74) Cumene	19.23	105	8747	N.D.		
75) alpha-Pinene	19.58	93	242407	3.470	ng	98
76) n-Propylbenzene	19.68	91	35971	0.238	ng	95
77) 3-Ethyltoluene	0.00	105	0	N.D.	d	
78) 4-Ethyltoluene	19.80	105	34846	0.274	ng	99
79) 1,3,5-Trimethylbenzene	19.87	105	37138	0.322	ng	99
80) alpha-Methylstyrene	20.00	118	3482	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D.	d	
82) 1,2,4-Trimethylbenzene	20.23	105	147344	1.290	ng	88
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.35	91	2110	N.D.		
85) 1,3-Dichlorobenzene	20.36	146	1483	N.D.		
86) 1,4-Dichlorobenzene	20.42	146	906143	12.272	ng	99
87) sec-Butylbenzene	20.46	105	4142	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d	
90) 1,2-Dichlorobenzene	20.72	146	3597	N.D.		
91) d-Limonene	20.73	68	126895	3.154	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.11	157	722	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.23	180	3398	N.D.		
95) Naphthalene	22.34	128	37086	0.232	ng	96
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

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

Data File: I:\MS16\DATA\2016 11\09\11091609.D

Acq On : 9 Nov 2016 22:26

Operator: LH

Sample : P1605133-004dup (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 14 13:25:47 2016

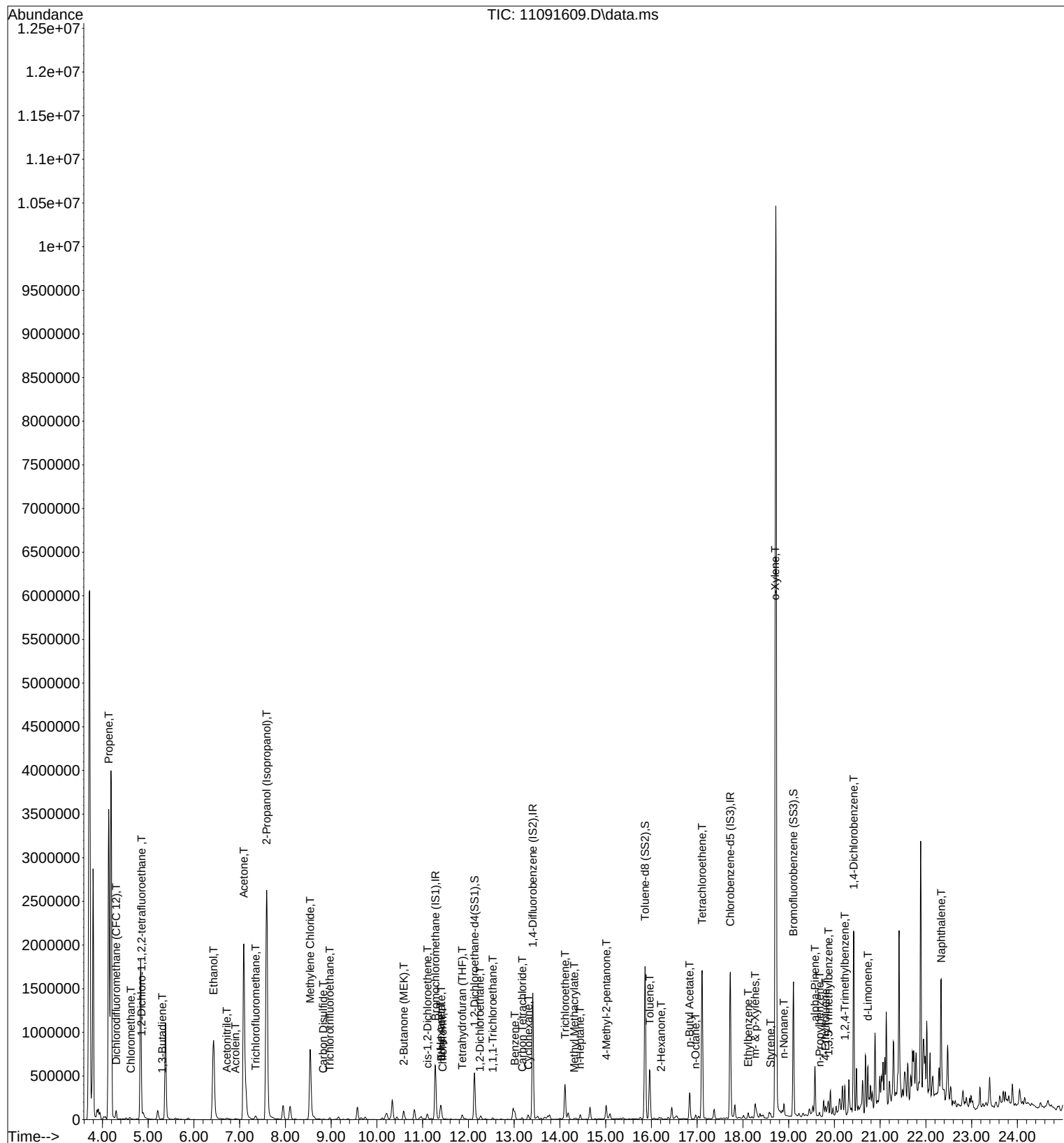
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091609.D

Acq On : 9 Nov 2016 22:26

Operator: LH

Sample : P1605133-004dup (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:19:05 2016

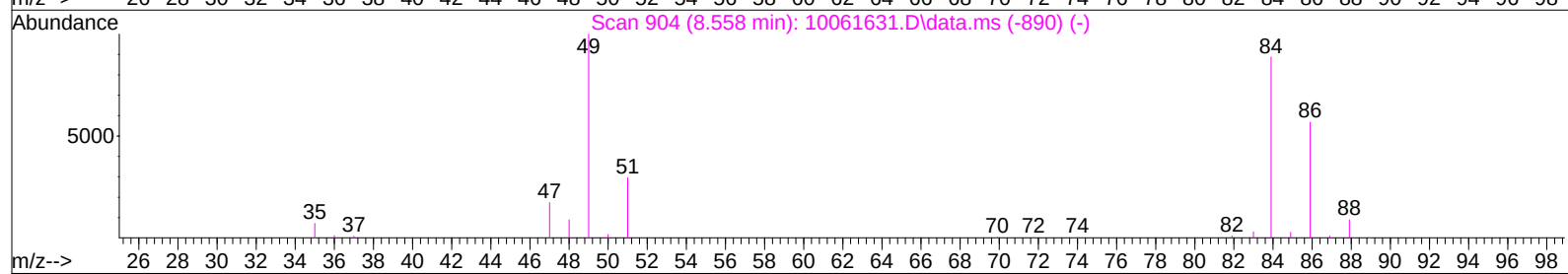
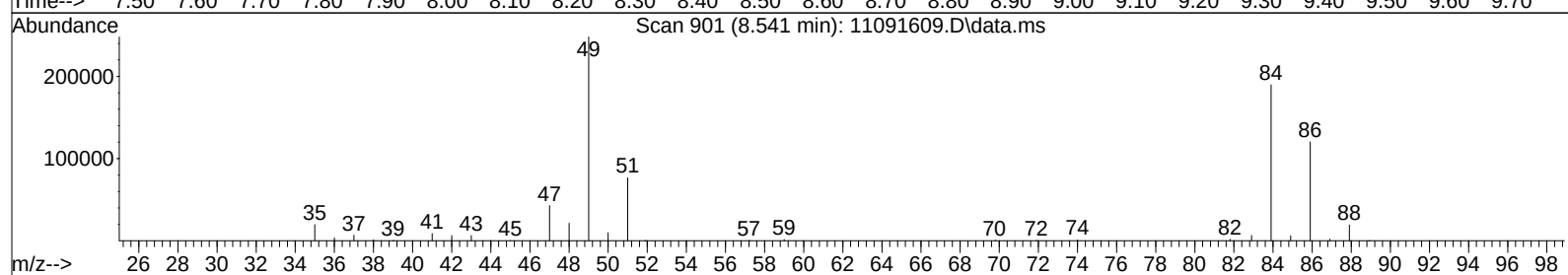
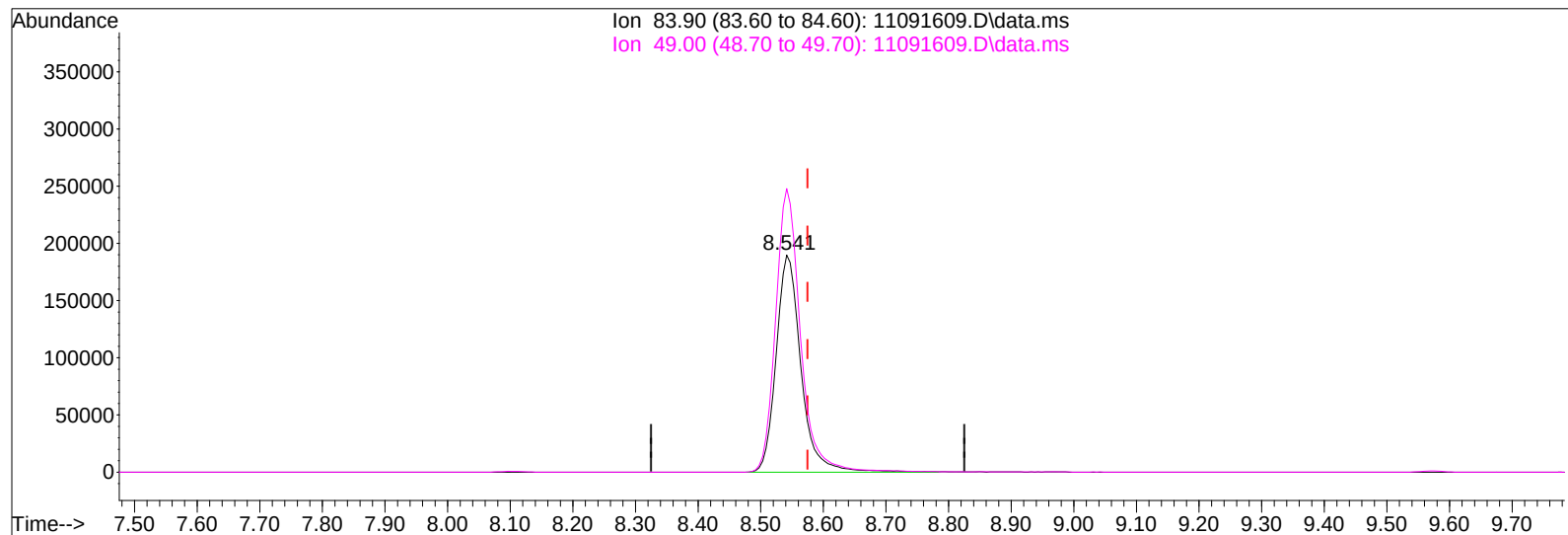
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091609.D\data.ms

(19) Methylene Chloride (T)

8.541min (-0.034) 17.88ng

response 522677

Ion	Exp%	Act%
83.90	100	100
49.00	114.70	130.84
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091609.D

Acq On : 9 Nov 2016 22:26

Operator: LH

Sample : P1605133-004dup (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:19:05 2016

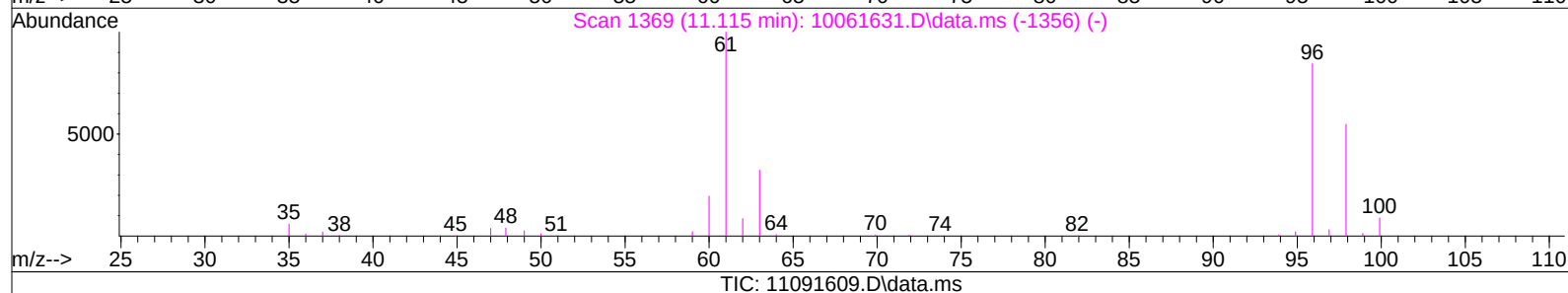
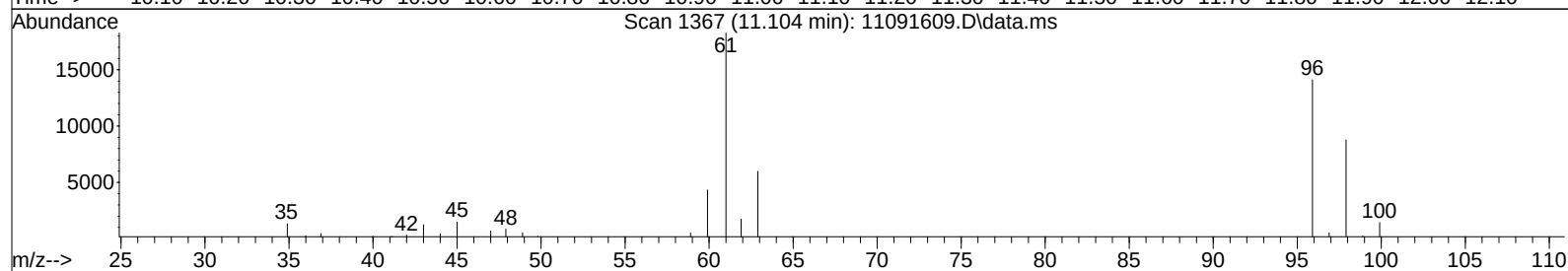
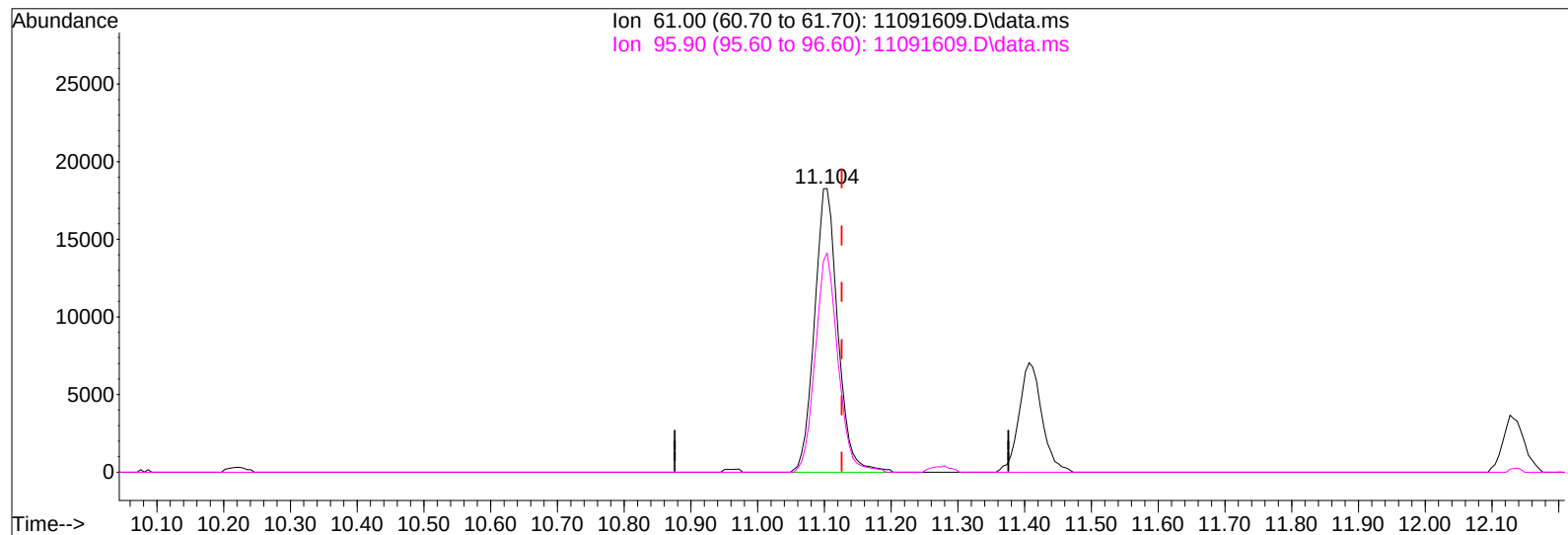
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



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

11.104min (-0.022) 1.25ng

response 44359

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	74.97
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091609.D

Acq On : 9 Nov 2016 22:26

Operator: LH

Sample : P1605133-004dup (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:19:05 2016

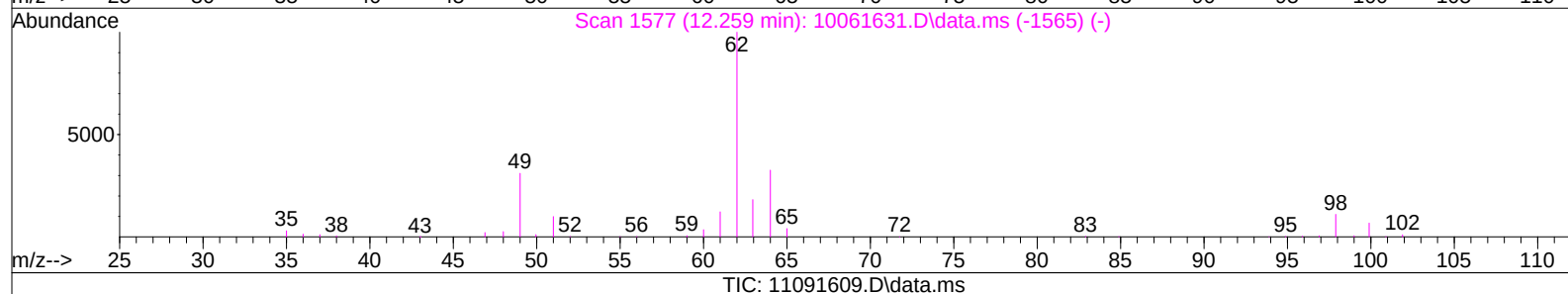
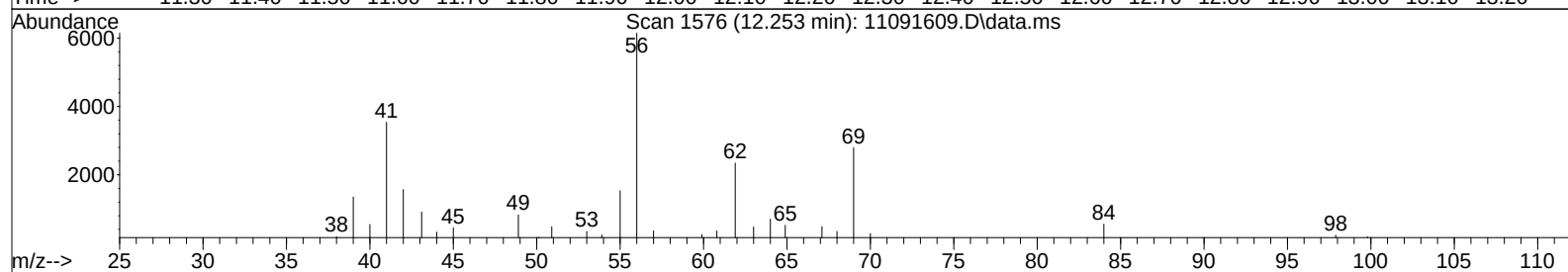
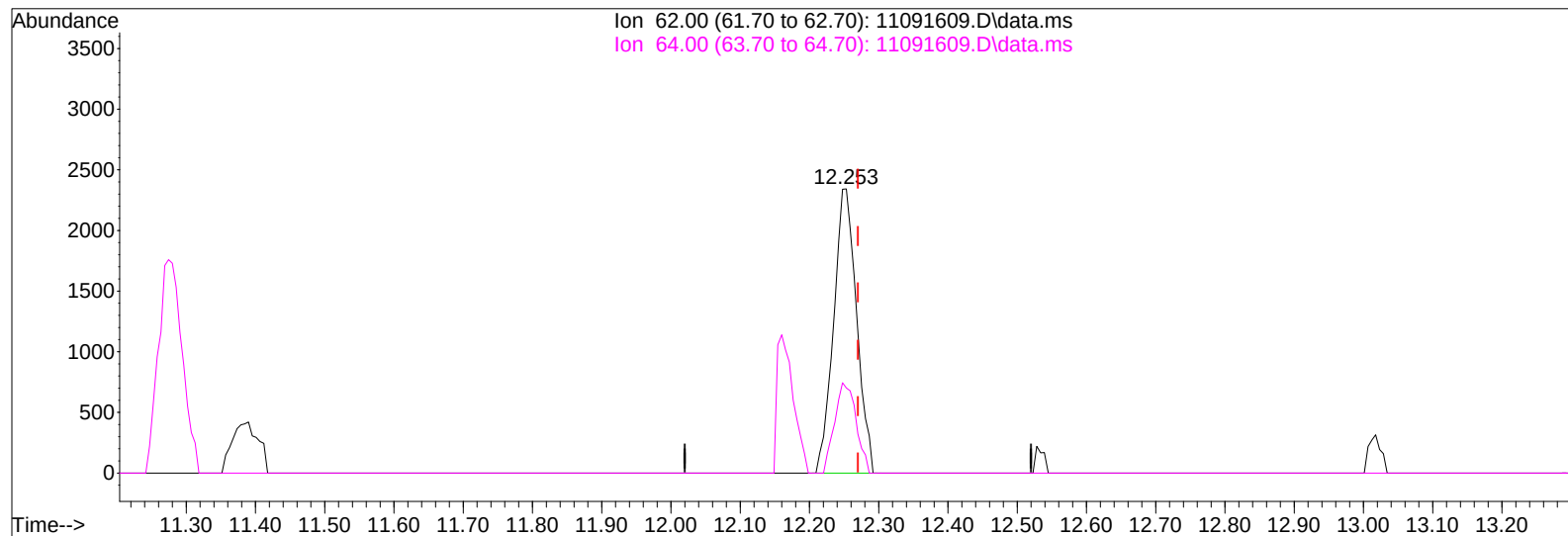
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(36) 1,2-Dichloroethane (T)

12.253min (-0.017) 0.17ng

response 5372

Ion	Exp%	Act%
62.00	100	100
64.00	32.80	29.75
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091609.D

Acq On : 9 Nov 2016 22:26

Operator: LH

Sample : P1605133-004dup (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:19:05 2016

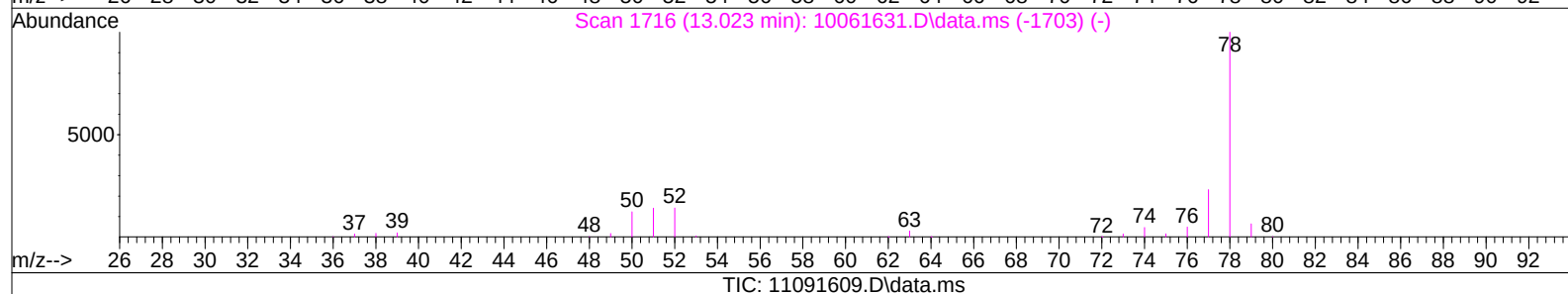
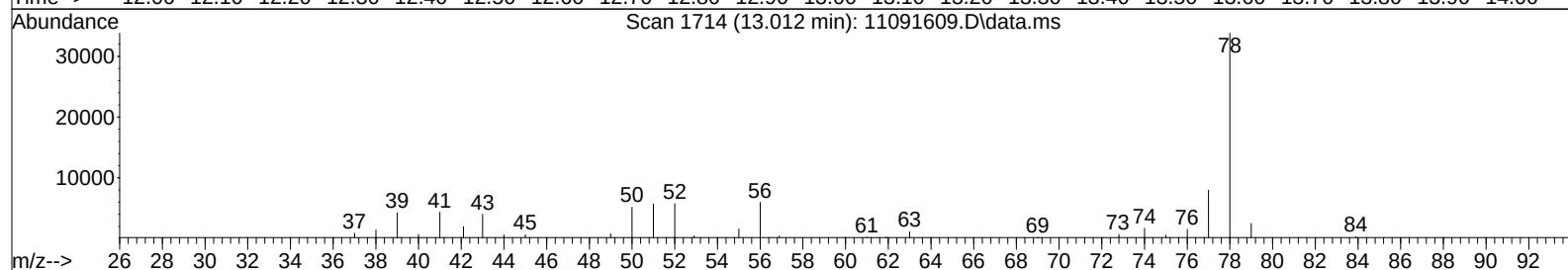
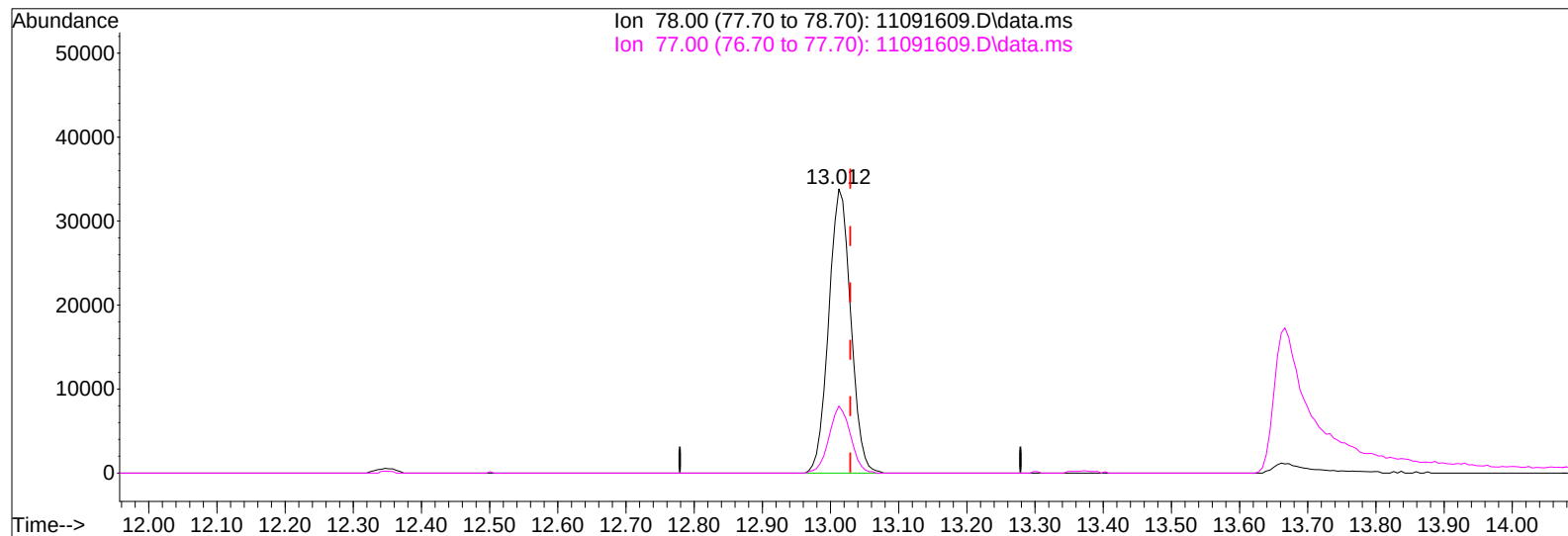
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091609.D\data.ms

(41) Benzene (T)

13.012min (-0.017) 0.67ng

response 75791

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	22.96
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091609.D

Acq On : 9 Nov 2016 22:26

Operator: LH

Sample : P1605133-004dup (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:19:05 2016

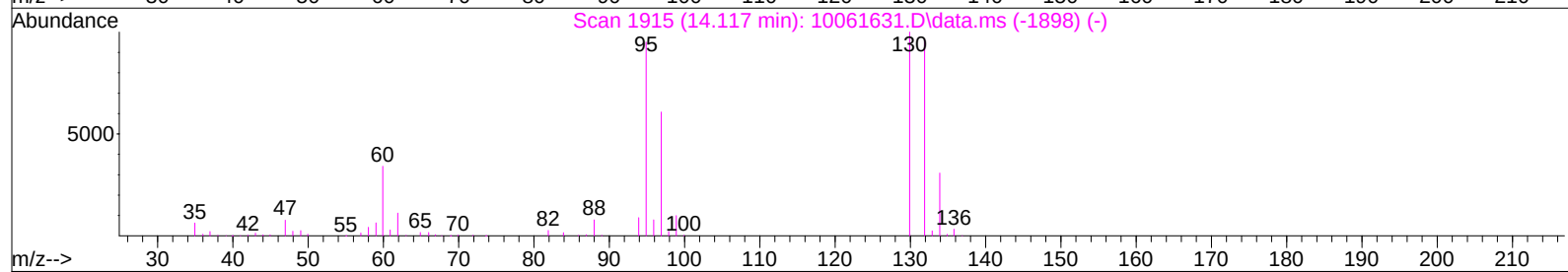
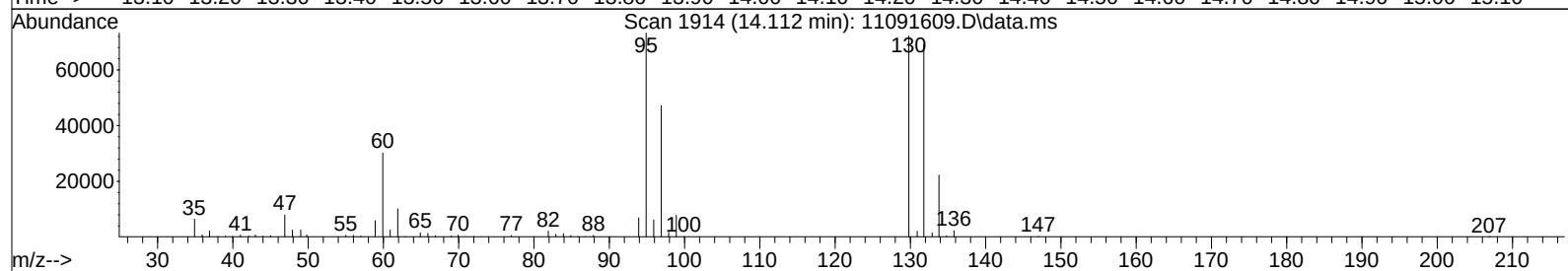
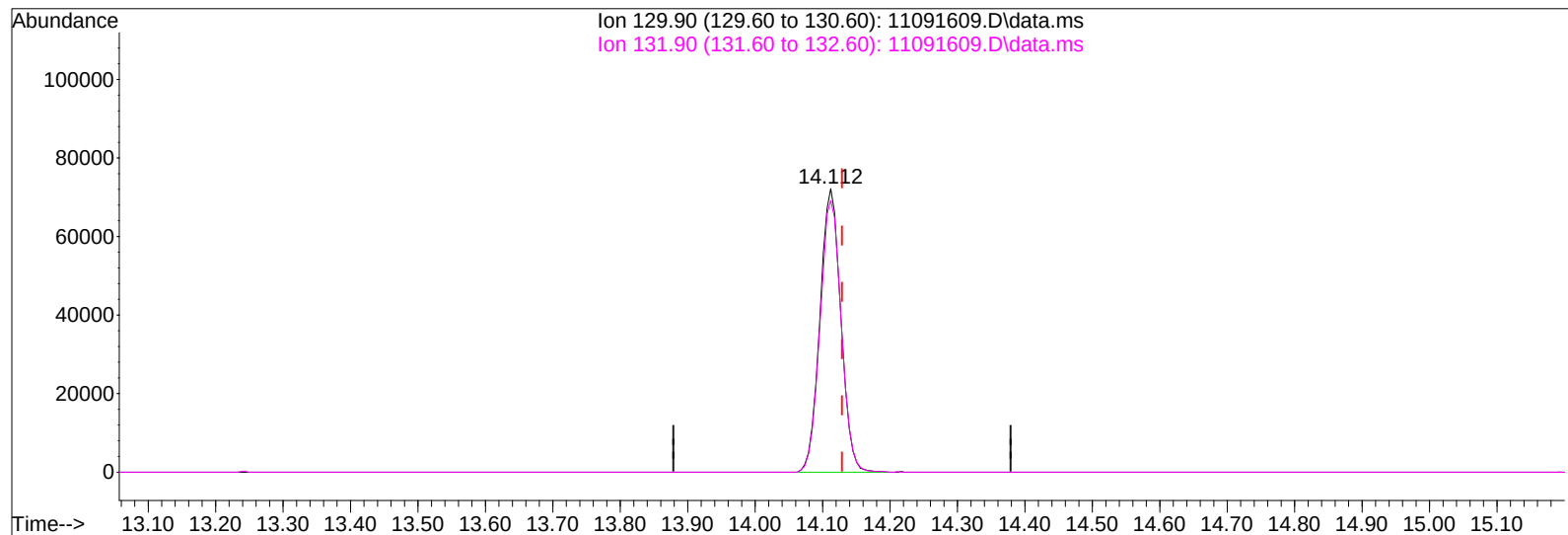
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091609.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 4.82ng

response 154917

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	97.00
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091609.D

Acq On : 9 Nov 2016 22:26

Operator: LH

Sample : P1605133-004dup (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:19:05 2016

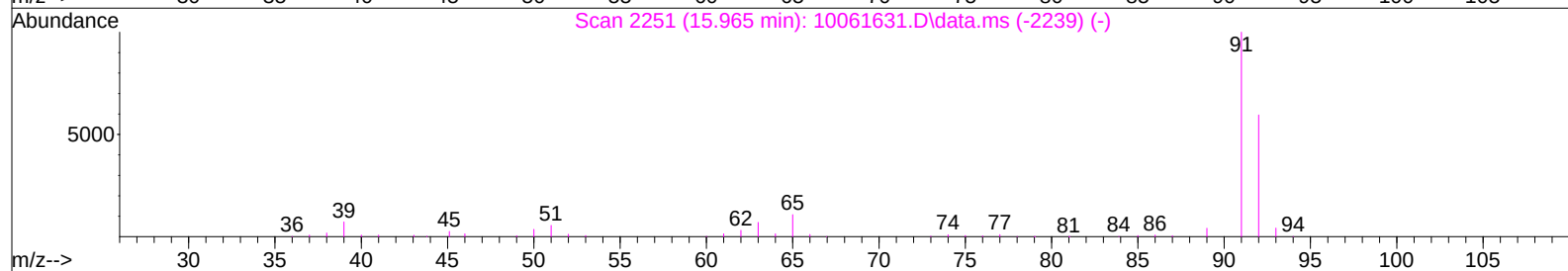
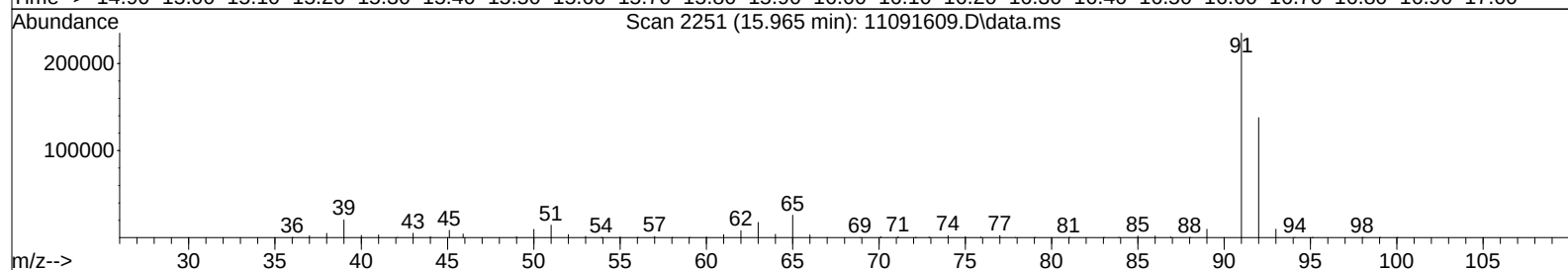
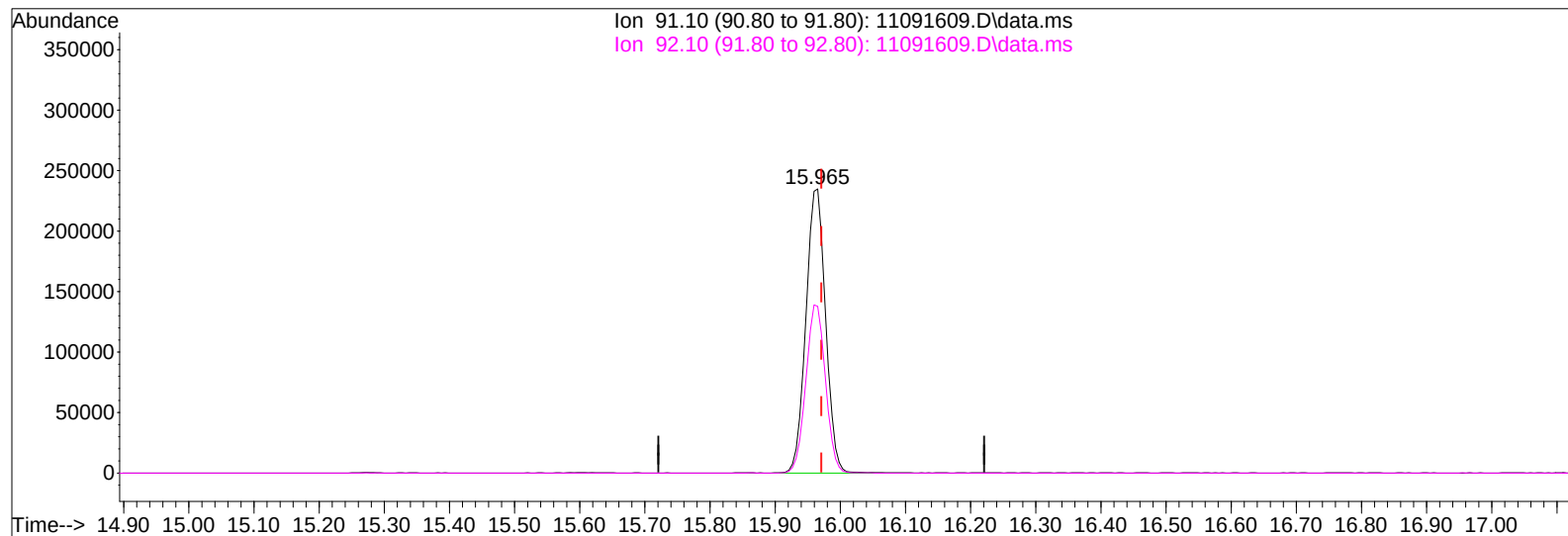
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091609.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 4.22ng

response 493261

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	58.84
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091609.D

Acq On : 9 Nov 2016 22:26

Operator: LH

Sample : P1605133-004dup (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:19:05 2016

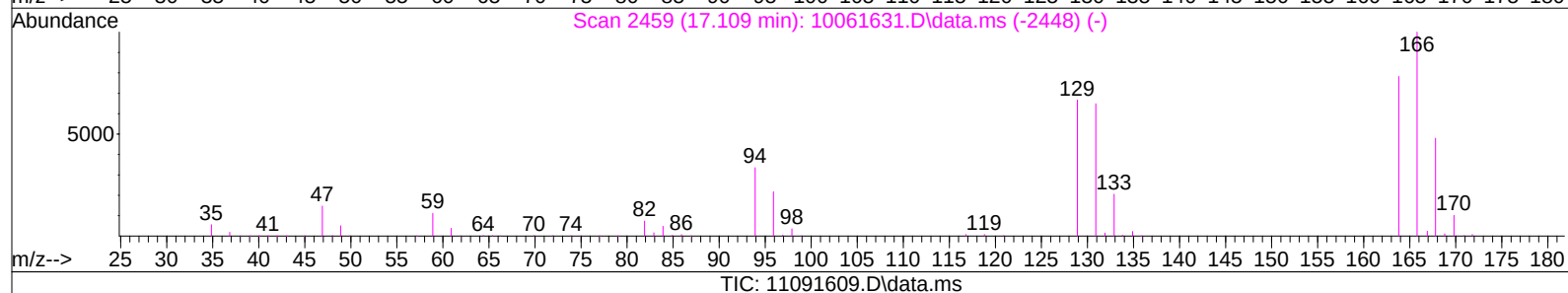
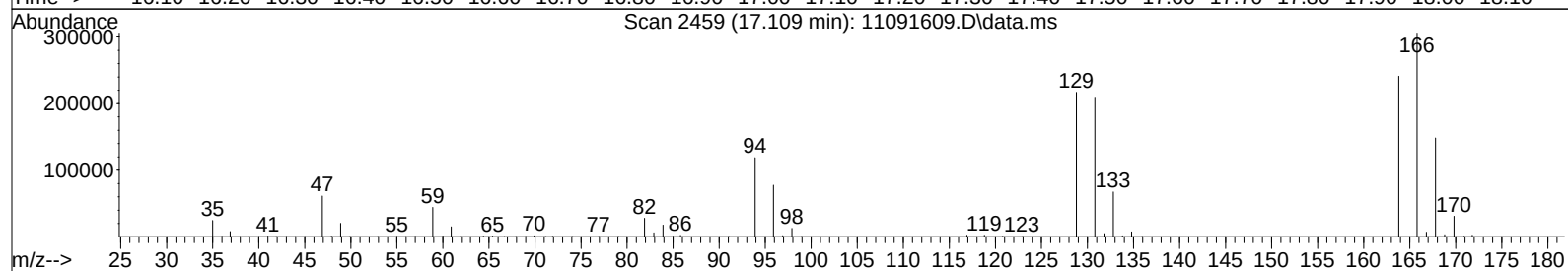
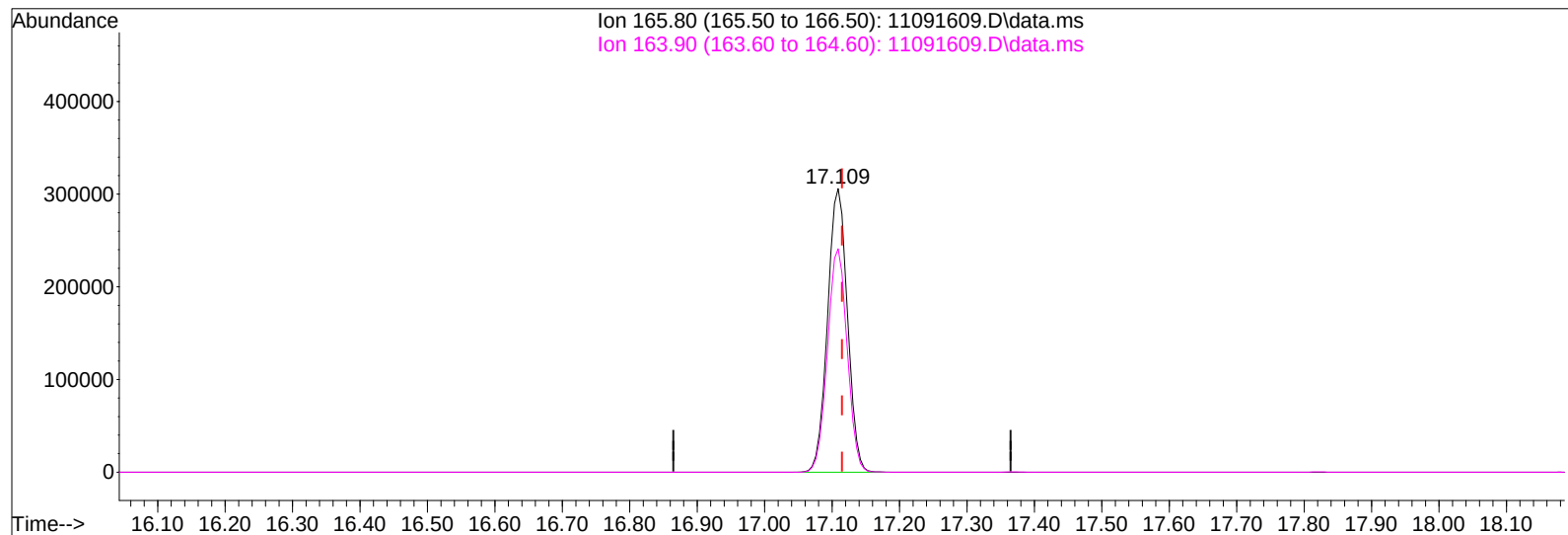
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091609.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 16.59ng

response 624977

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	78.40
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091609.D

Acq On : 9 Nov 2016 22:26

Operator: LH

Sample : P1605133-004dup (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:19:05 2016

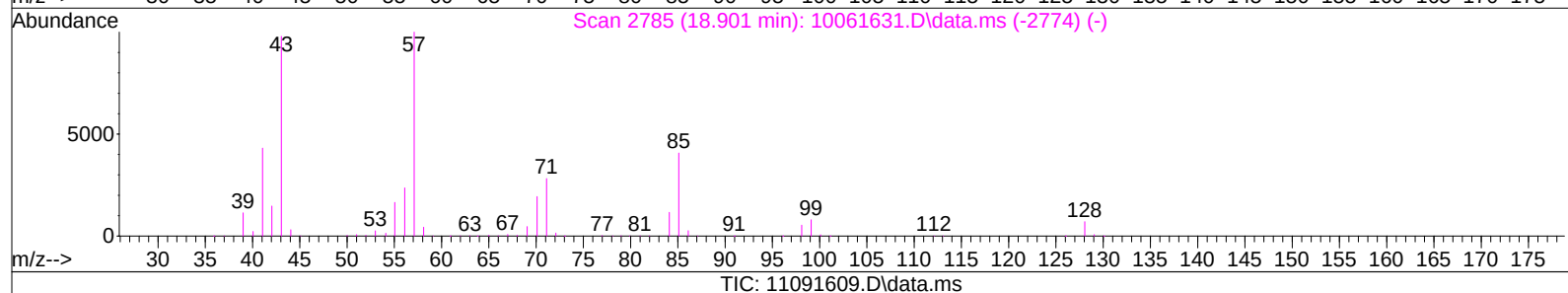
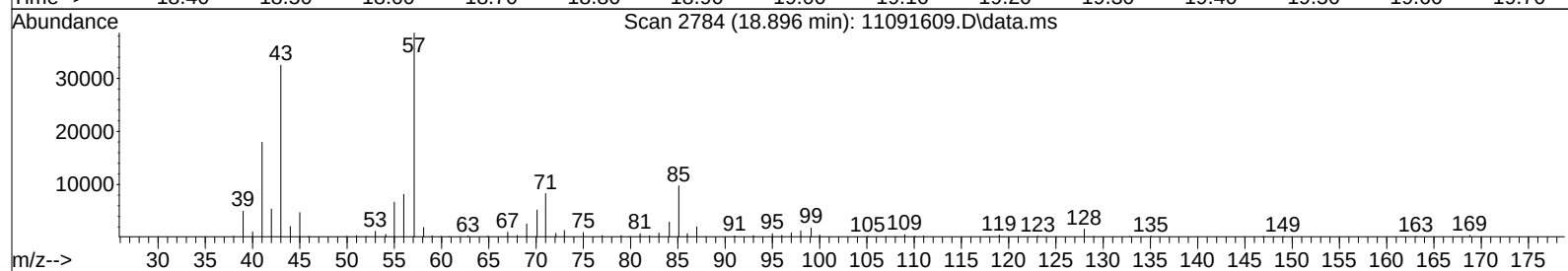
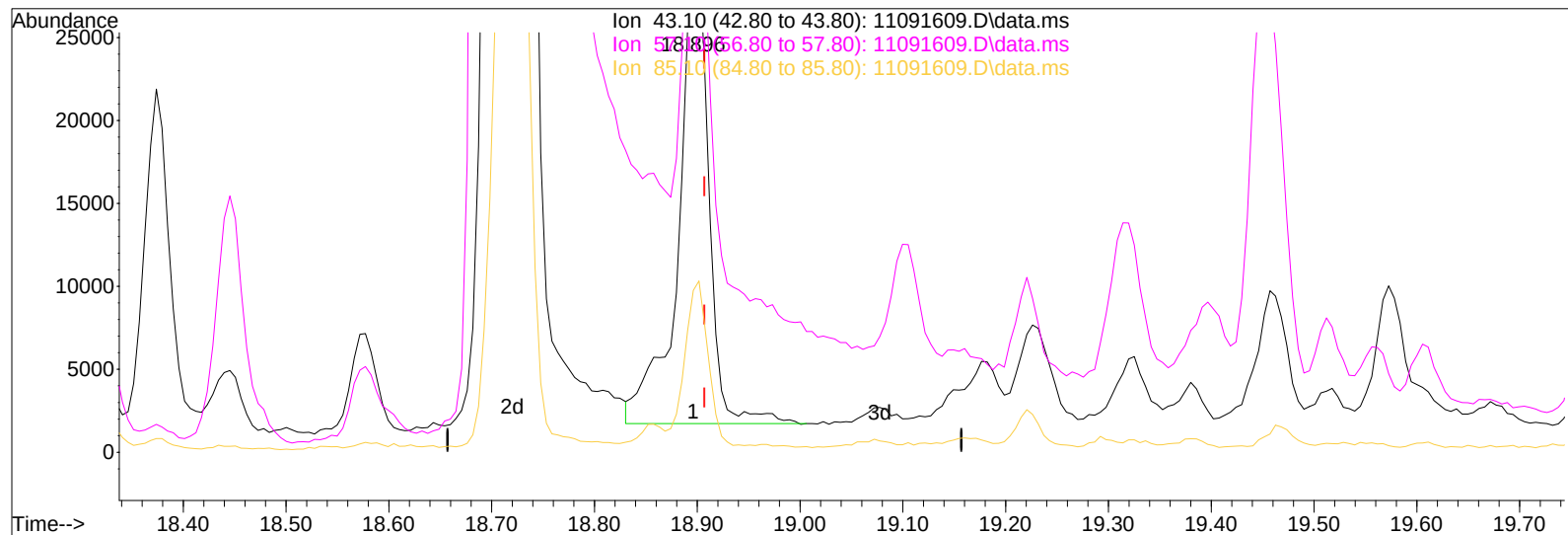
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091609.D\data.ms

(71) n-Nonane (T)

18.896min (-0.011) 1.12ng

response 59279

Ion	Exp%	Act%
43.10	100	100
57.10	100.70	141.60#
85.10	40.70	27.95
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\09\11091609.D

Acq On : 9 Nov 2016 22:26

Operator: LH

Sample : P1605133-004dup (1000mL)

Misc : S29-11051601

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 10 08:19:05 2016

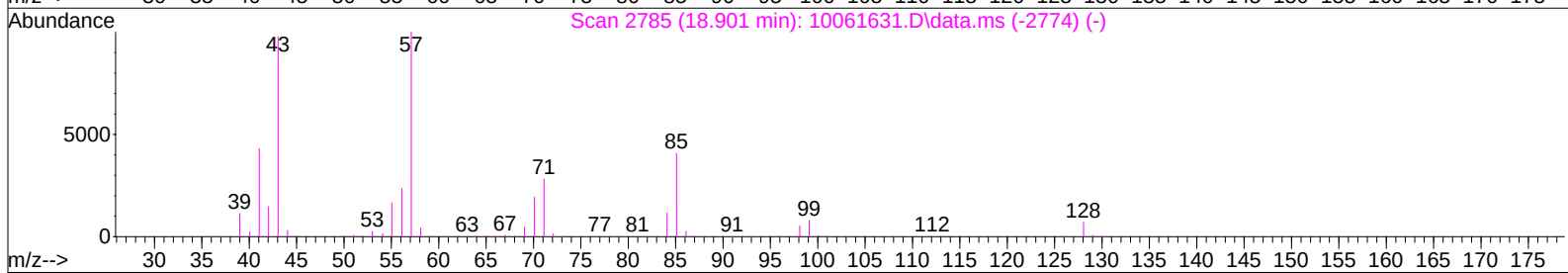
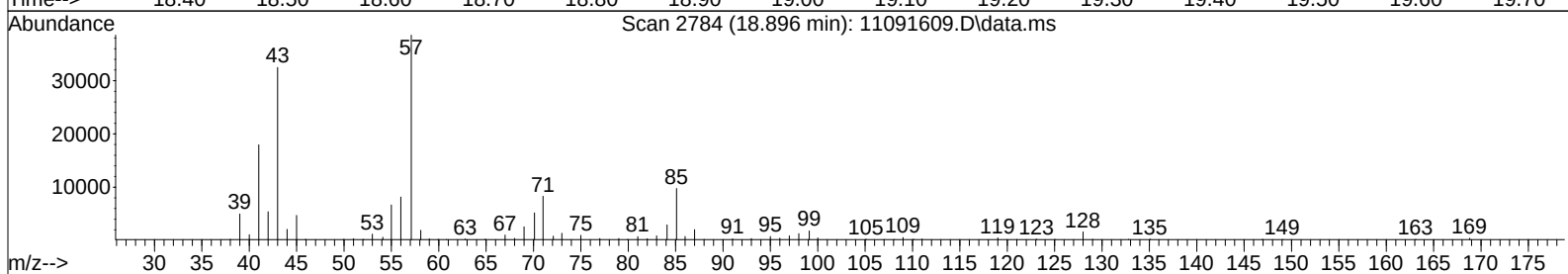
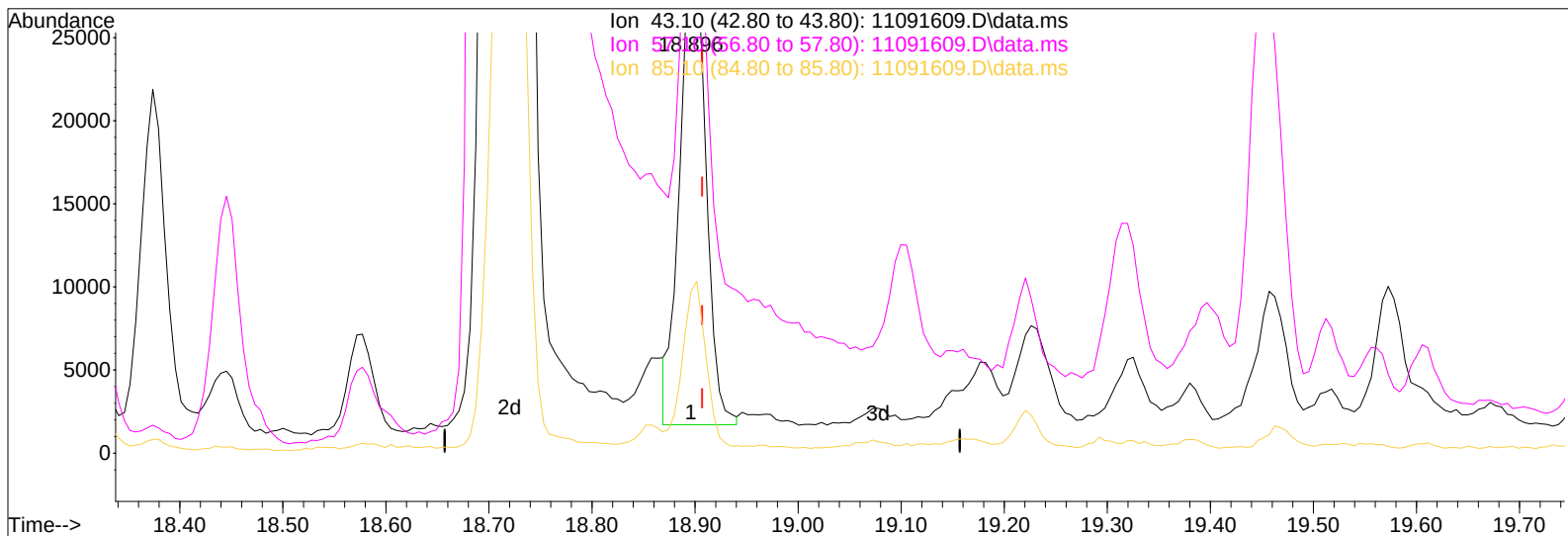
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11091609.D\data.ms

(71) n-Nonane (T)

18.896min (-0.011) 0.96ng m

response 50871

IPC

Ion	Exp%	Act%
43.10	100	100
57.10	100.70	165.00#
85.10	40.70	32.56
0.00	0.00	0.00

LH 11/14/16

11/14/16

Data File: I:\MS16\DATA\2016 11\08\11081654.D

Acq On : 9 Nov 2016 17:21

Operator: LH

Sample : P1605133-019dup (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 14 15:14:30 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 11/14/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	283025	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1370387	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	581834	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	442847	15.273	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	122.16%
57) Toluene-d8 (SS2)	15.86	98	1389650	11.977	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.84%
73) Bromofluorobenzene (SS3)	19.10	174	450949	10.237	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	81.92%

Target Compounds

						Qvalue
2) Propene	4.15	42	30015m	1.200	ng	
3) Dichlorodifluoromethan...	4.31	85	4135	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	5.08	62	20382	0.566	ng	94
7) 1,3-Butadiene	5.34	54	886	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.45	45	17585	0.970	ng	96
11) Acetonitrile	6.78	41	2851	N.D.		
12) Acrolein	6.92	56	111	N.D.		
13) Acetone	7.11	58	277121	15.375	ng	# 70
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	7.60	45	69205	1.142	ng	79
16) Acrylonitrile	7.95	53	610	N.D.		
17) 1,1-Dichloroethene	8.34	96	59750	2.276	ng	# 80
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.55	84	1548	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	8.98	151	2645	0.100	ng	92
22) Carbon Disulfide	8.85	76	24529	0.246	ng	95
23) trans-1,2-Dichloroethene	9.83	61	39541	1.074	ng	90
24) 1,1-Dichloroethane	10.08	63	22219	0.469	ng	99
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.	d	
27) 2-Butanone (MEK)	10.59	72	24163	1.303	ng	# 62
28) cis-1,2-Dichloroethene	11.10	61	1868738	52.356	ng	89
29) Diisopropyl Ether	11.44	87	1494	N.D.		
30) Ethyl Acetate	11.42	61	4061	0.423	ng	# 44
31) n-Hexane	11.40	57	8466	0.213	ng	# 95
32) Chloroform	11.44	83	14279	0.310	ng	99
34) Tetrahydrofuran (THF)	11.90	72	2402	0.135	ng	# 1
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.25	62	14869	0.470	ng	98
38) 1,1,1-Trichloroethane	12.53	97	13764	0.344	ng	95
39) Isopropyl Acetate	13.02	61	840	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	13.02	78	102749	0.909	ng	99
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	13.31	84	12703	0.306	ng	# 79
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.	d	
47) Trichloroethene	14.11	130	3167138	98.785	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	14.18	57	4493	N.D.		

Data File: I:\MS16\DATA\2016 11\08\11081654.D

Acq On : 9 Nov 2016 17:21

Operator: LH

Sample : P1605133-019dup (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 14 15:14:30 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.25	100	796	N.D.		
51) n-Heptane	14.45	71	6505	0.236	ng	88
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	15.02	58	7712	0.307	ng	# 66
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	146783	1.290	ng	99
59) 2-Hexanone	16.21	43	14707	0.246	ng	# 73
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.84	43	7623	0.115	ng	92
63) n-Octane	16.97	57	5205	0.210	ng	87
64) Tetrachloroethene	17.11	166	105526	2.877	ng	99
65) Chlorobenzene	17.76	112	3933	N.D.		
66) Ethylbenzene	18.12	91	18950	0.138	ng	98
67) m- & p-Xylenes	18.27	91	48241	0.459	ng	96
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	5515	N.D.		
70) o-Xylene	18.70	91	18377	0.176	ng	95
71) n-Nonane	18.90	43	4720	0.092	ng	85
72) 1,1,2,2-Tetrachloroethane	18.75	83	553	N.D.		
74) Cumene	19.23	105	2299	N.D.		
75) alpha-Pinene	19.58	93	12712	0.187	ng	77
76) n-Propylbenzene	19.68	91	5662	N.D.		
77) 3-Ethyltoluene	19.76	105	12038	N.D.		
78) 4-Ethyltoluene	19.80	105	5572	N.D.		
79) 1,3,5-Trimethylbenzene	19.86	105	5739	N.D.		
80) alpha-Methylstyrene	20.01	118	806	N.D.		
81) 2-Ethyltoluene	20.03	105	4471	N.D.		
82) 1,2,4-Trimethylbenzene	20.23	105	18799	0.169	ng	85
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.42	91	831	N.D.		
85) 1,3-Dichlorobenzene	20.43	146	2008	N.D.		
86) 1,4-Dichlorobenzene	20.43	146	2008	N.D.		
87) sec-Butylbenzene	20.47	105	729	N.D.		
88) 4-Isopropyltoluene (p-...	20.61	119	7700	N.D.		
89) 1,2,3-Trimethylbenzene	20.61	105	4793	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	20.73	68	519143	13.251	ng	92
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.40	128	3836	N.D.		
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.23	119	2440	N.D.		
100) n-Butylbenzene	20.97	91	2502	N.D.		

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

Data File: I:\MS16\DATA\2016 11\08\11081654.D

Acq On : 9 Nov 2016 17:21

Operator: LH

Sample : P1605133-019dup (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 14 15:14:30 2016

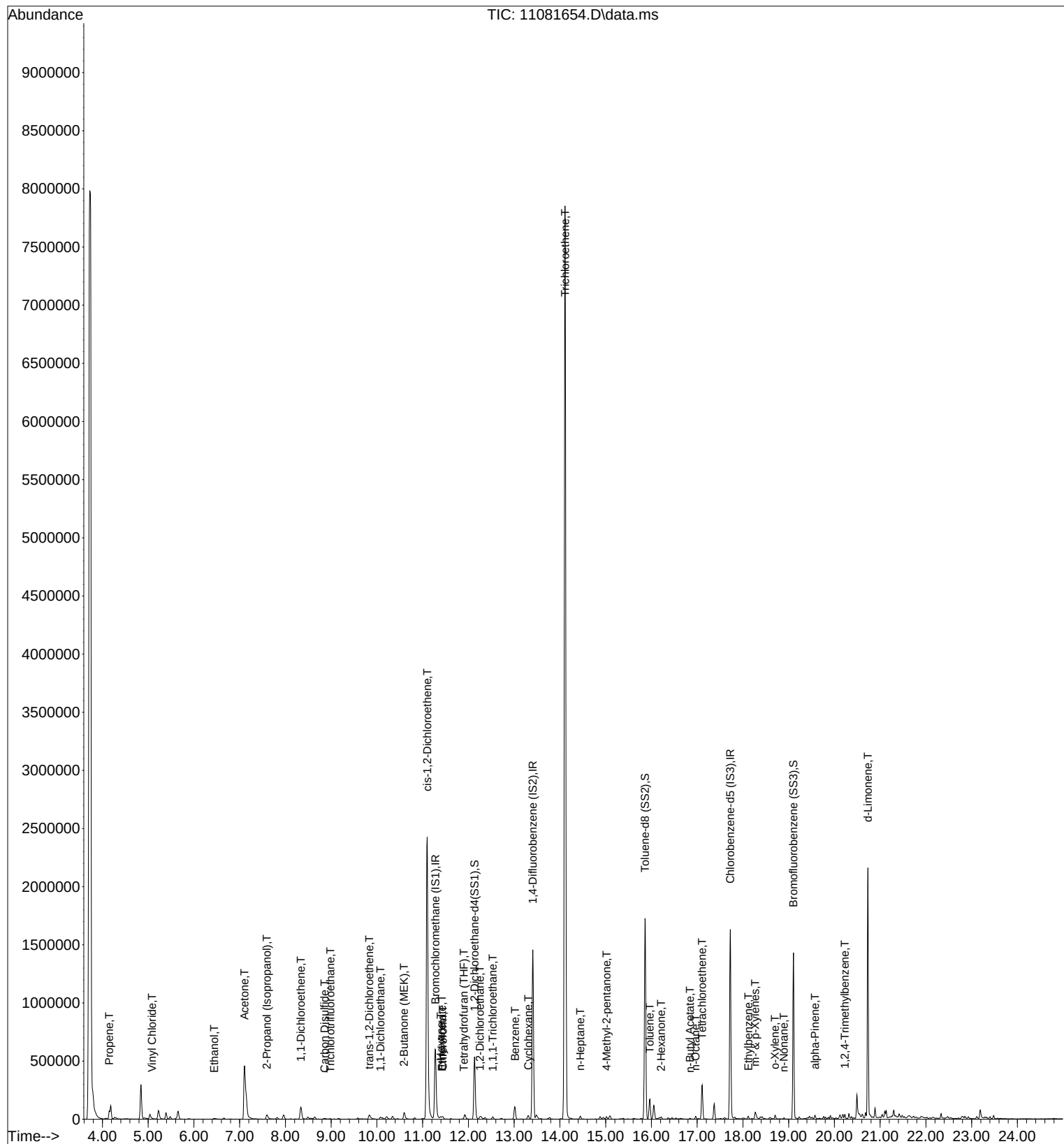
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\08\11081654.D

Acq On : 9 Nov 2016 17:21

Operator: LH

Sample : P1605133-019dup (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:15:08 2016

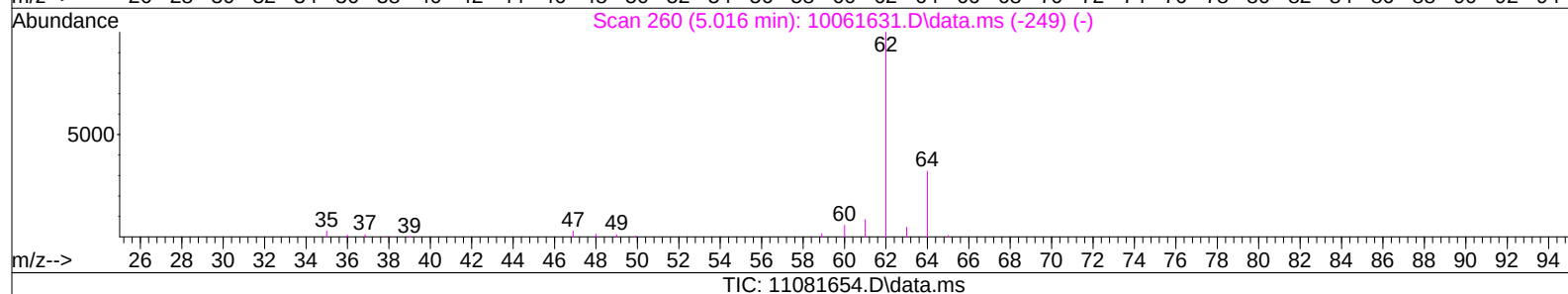
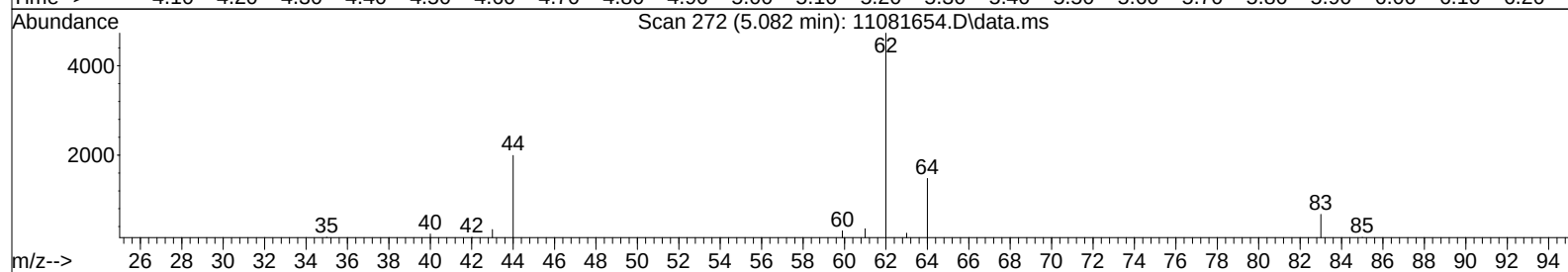
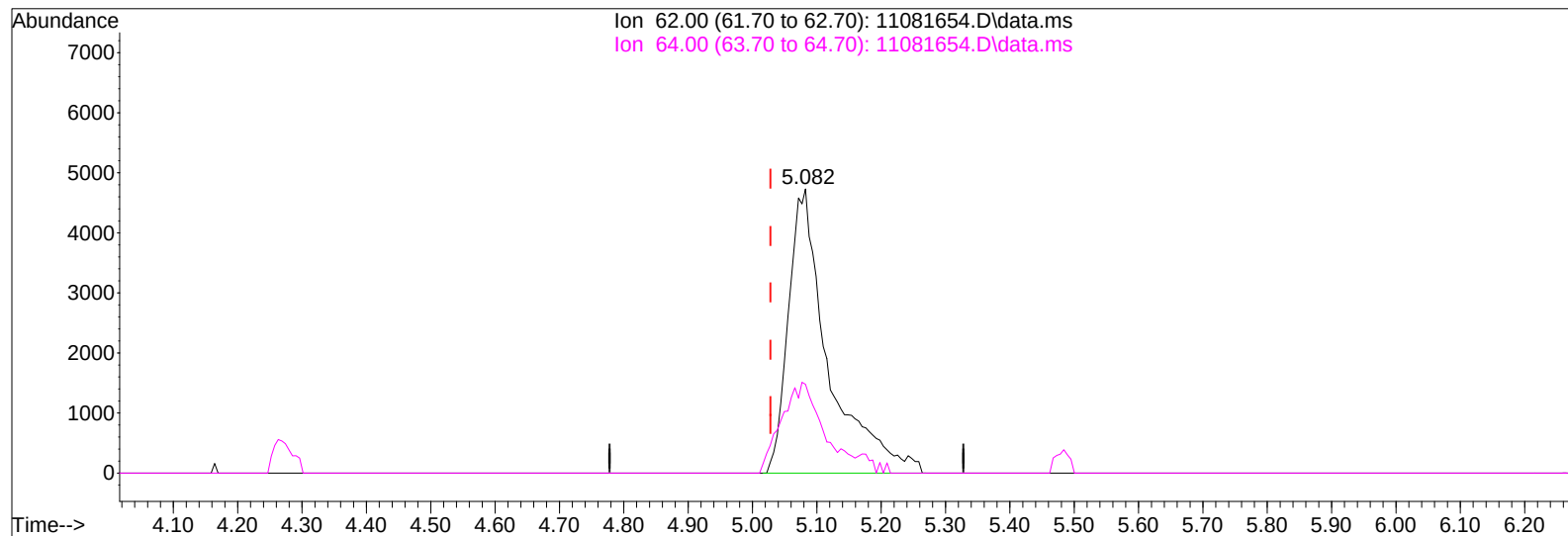
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



(6) Vinyl Chloride (T)

5.082min (+0.054) 0.57ng

response 20382

Ion	Exp%	Act%
62.00	100	100
64.00	32.10	35.50
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081654.D

Acq On : 9 Nov 2016 17:21

Operator: LH

Sample : P1605133-019dup (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:15:08 2016

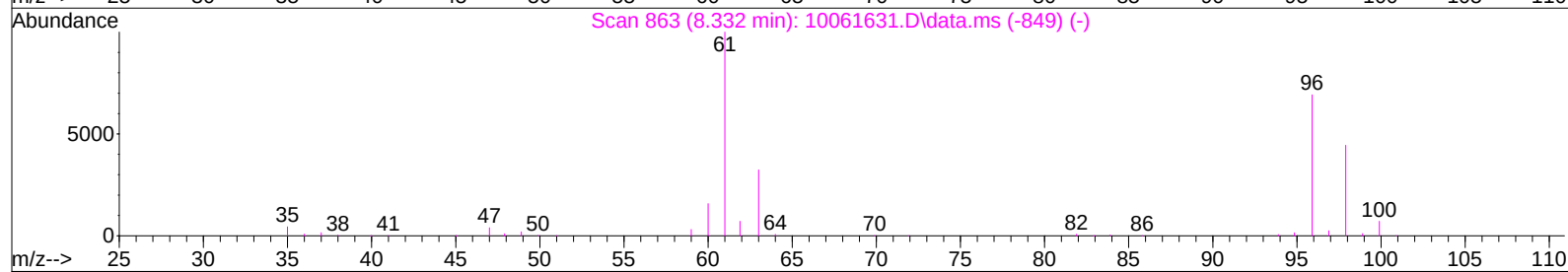
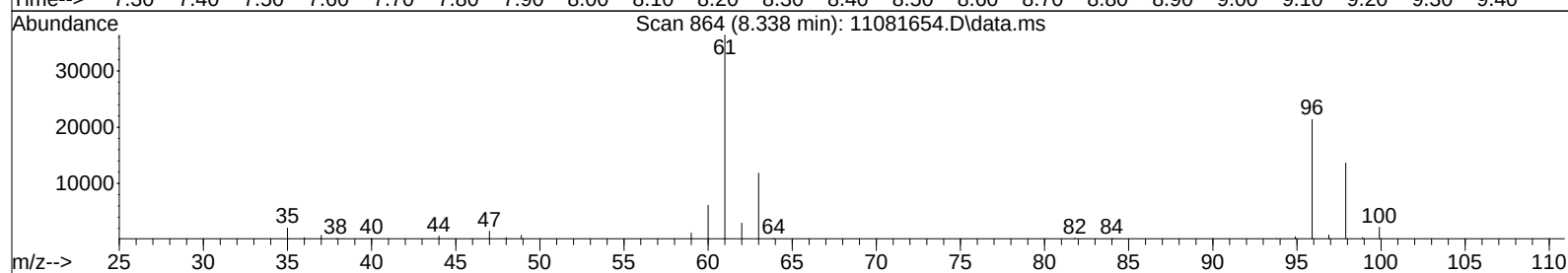
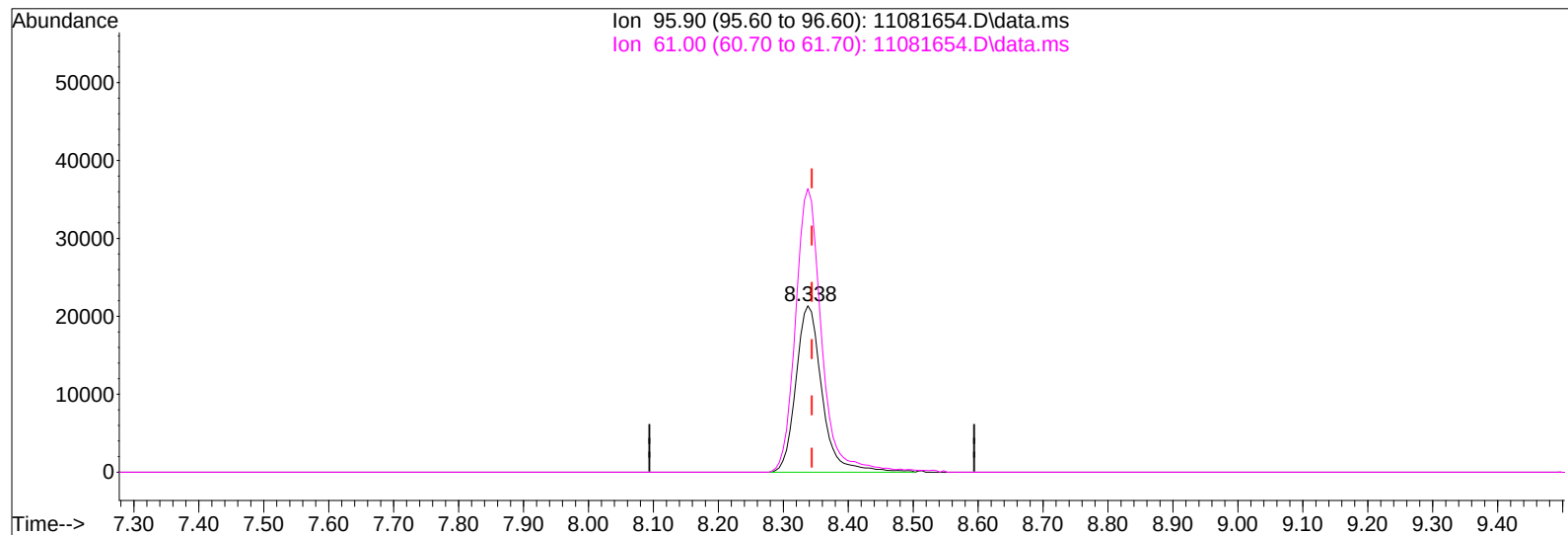
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081654.D\data.ms

(17) 1,1-Dichloroethene (T)

8.338min (-0.006) 2.28ng

response 59750

Ion	Exp%	Act%
95.90	100	100
61.00	145.50	170.64#
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081654.D

Acq On : 9 Nov 2016 17:21

Operator: LH

Sample : P1605133-019dup (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:15:08 2016

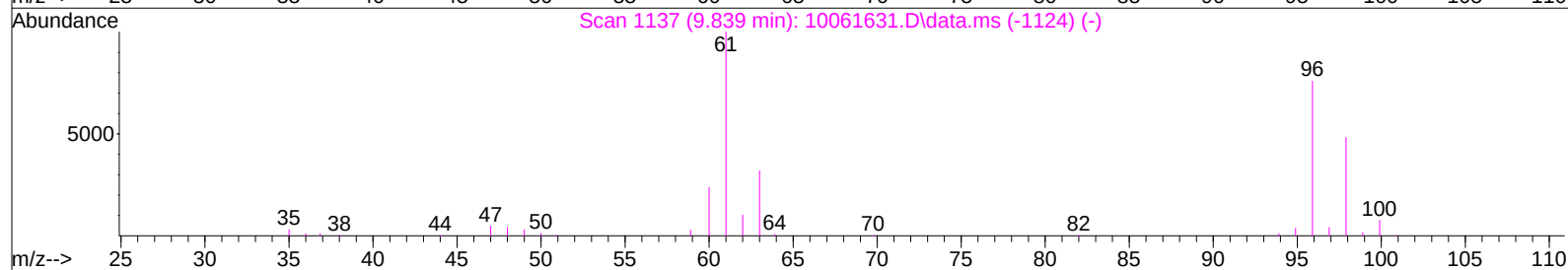
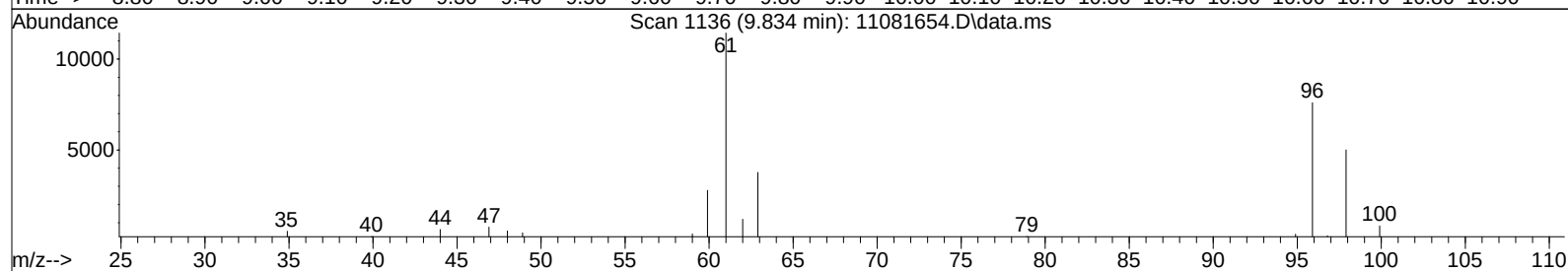
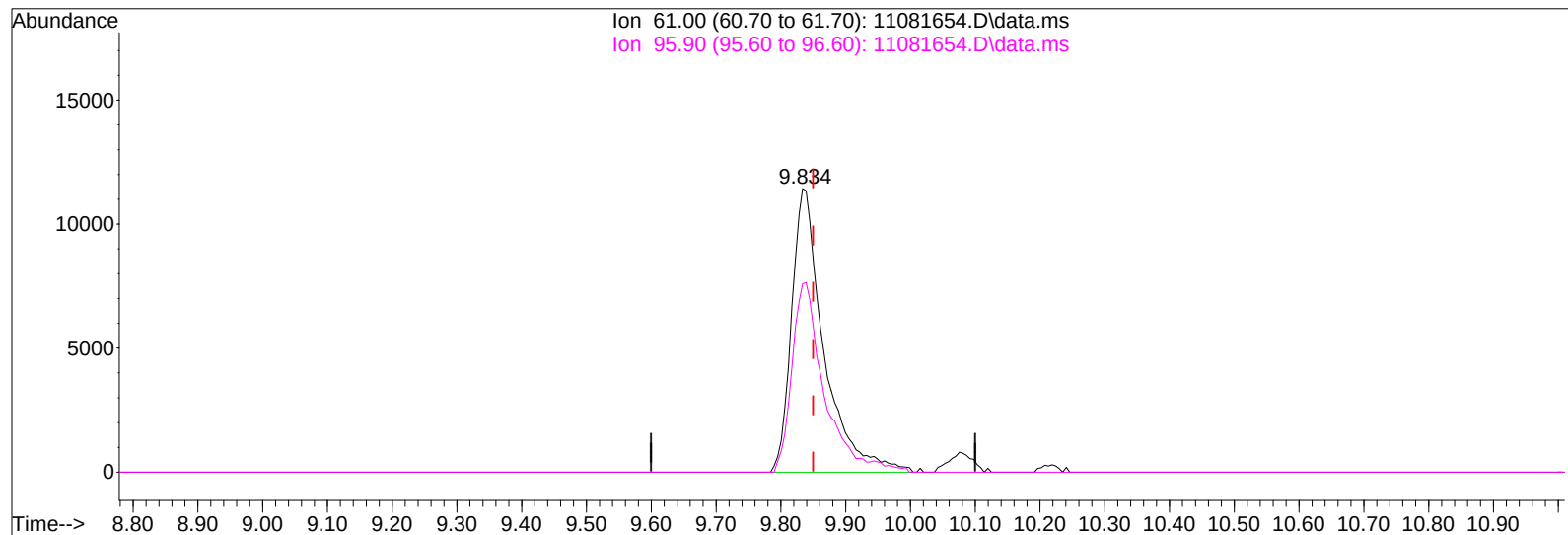
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081654.D\data.ms

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

9.834min (-0.016) 1.07ng

response 39541

Ion	Exp%	Act%
61.00	100	100
95.90	75.70	66.96
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081654.D

Acq On : 9 Nov 2016 17:21

Operator: LH

Sample : P1605133-019dup (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:15:08 2016

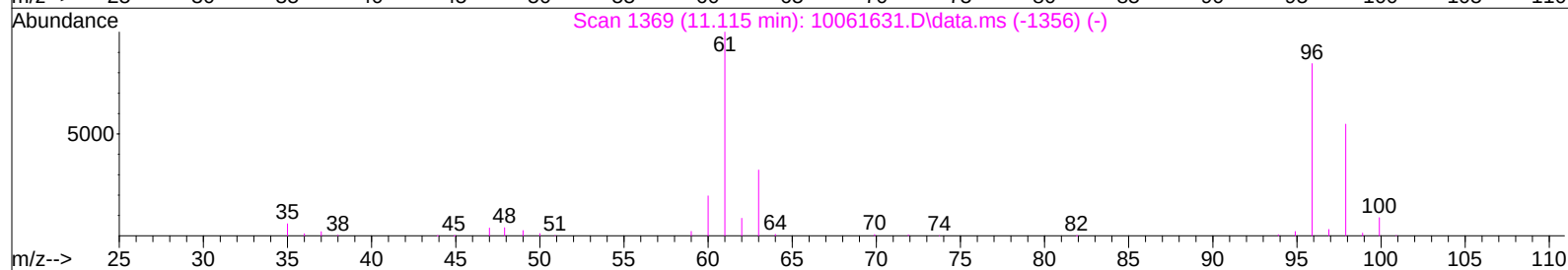
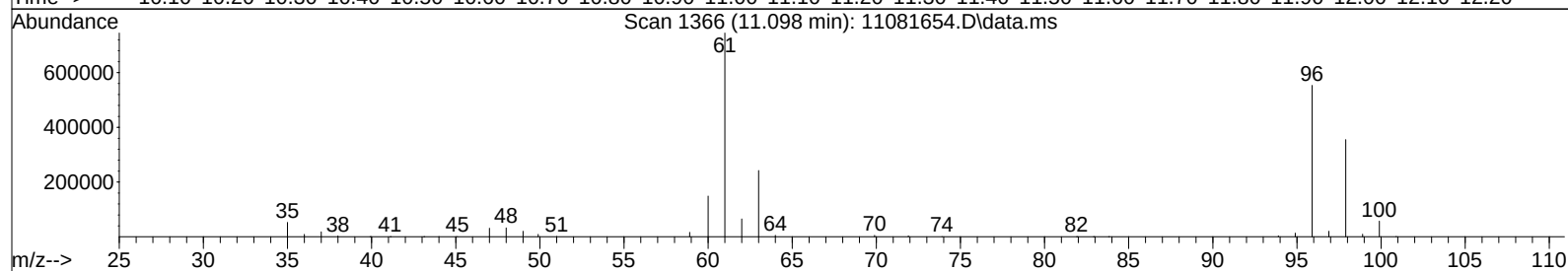
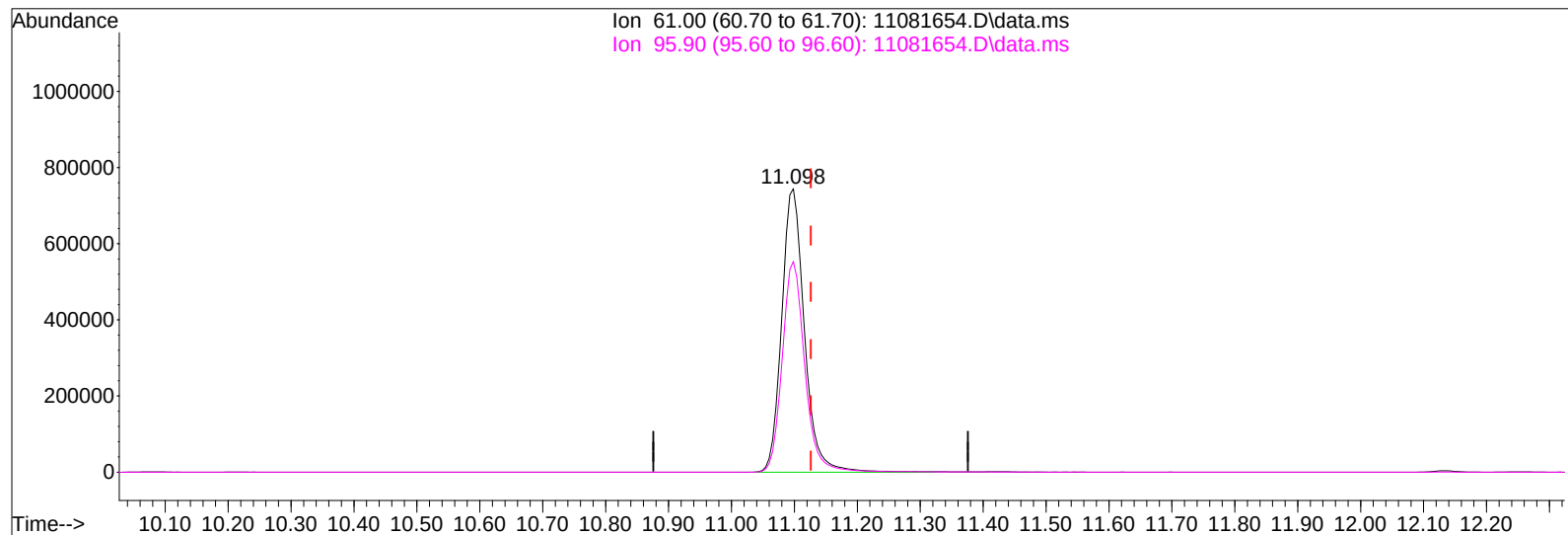
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081654.D\data.ms

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

11.098min (-0.028) 52.36ng

response 1868738

Ion	Exp%	Act%
61.00	100	100
95.90	83.80	73.83
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081654.D

Acq On : 9 Nov 2016 17:21

Operator: LH

Sample : P1605133-019dup (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:15:08 2016

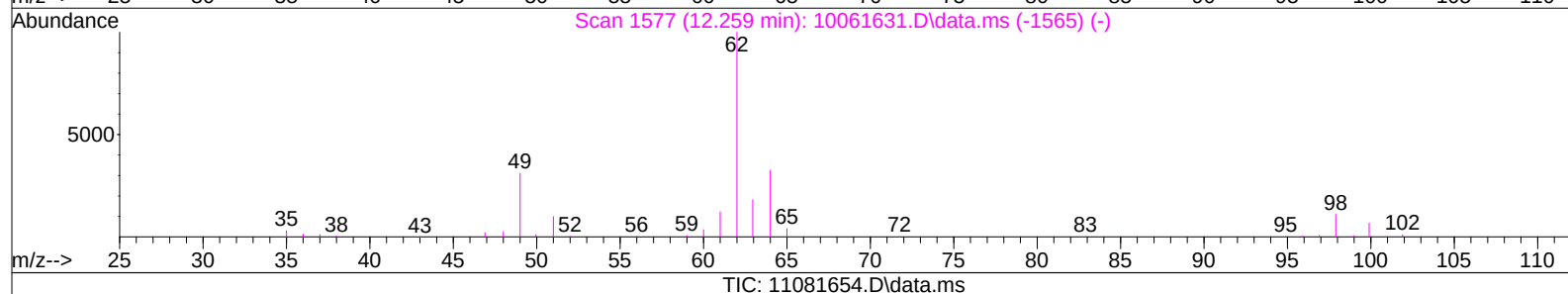
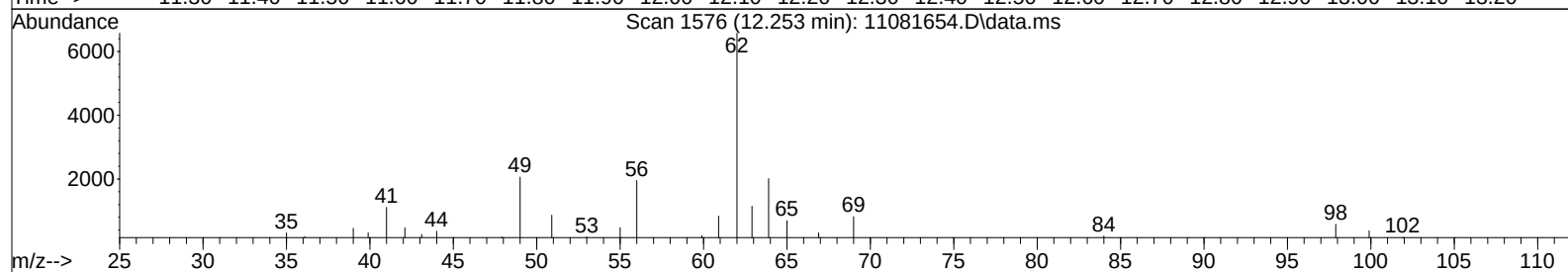
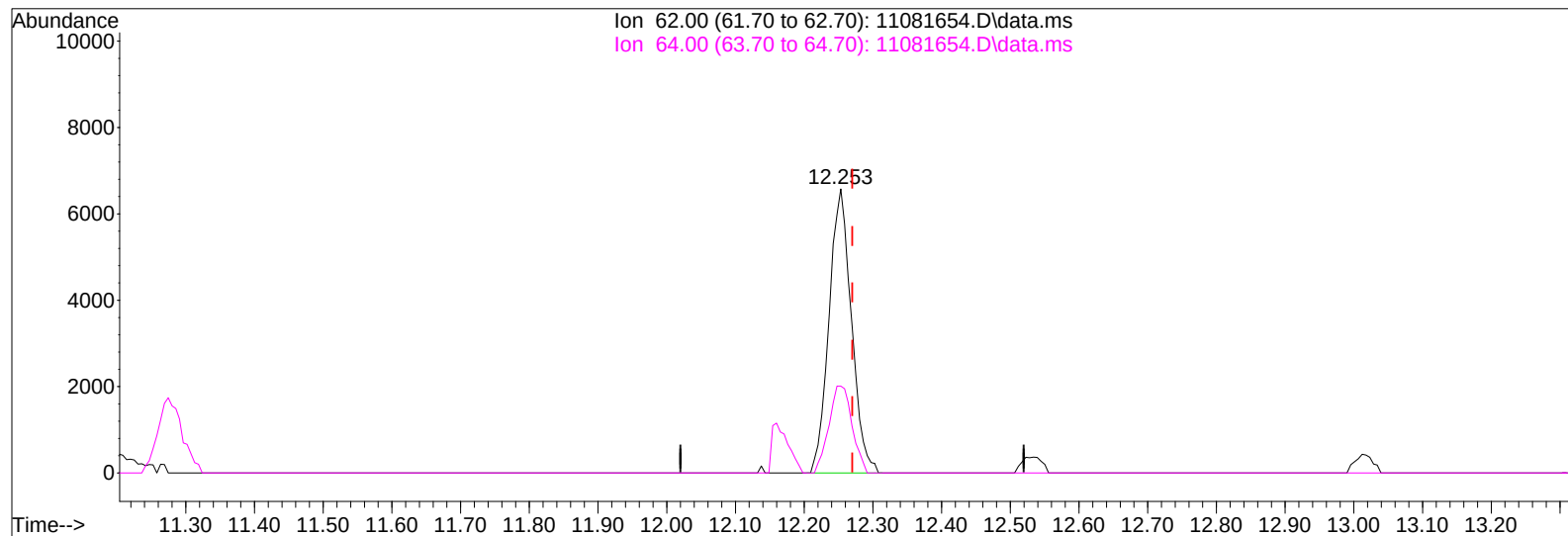
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081654.D\data.ms

(36) 1,2-Dichloroethane (T)

12.253min (-0.017) 0.47ng

response 14869

Ion	Exp%	Act%
62.00	100	100
64.00	32.80	31.69
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081654.D

Acq On : 9 Nov 2016 17:21

Operator: LH

Sample : P1605133-019dup (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:15:08 2016

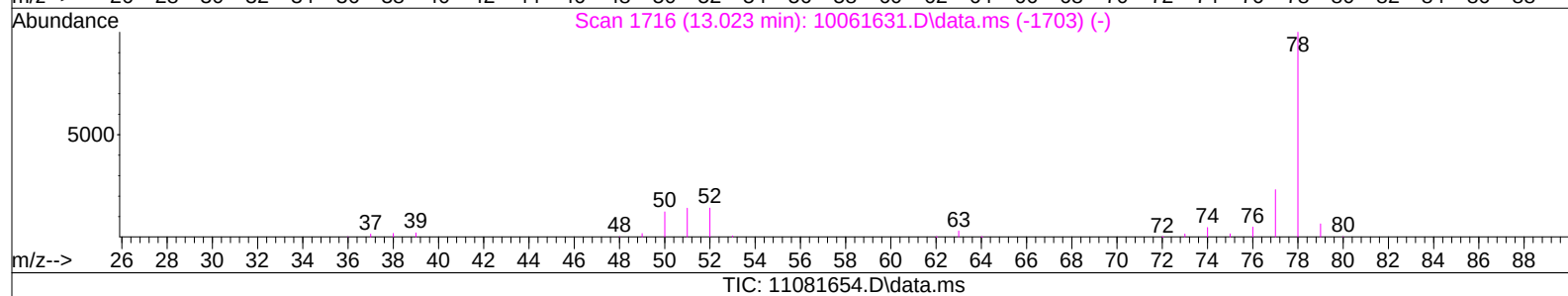
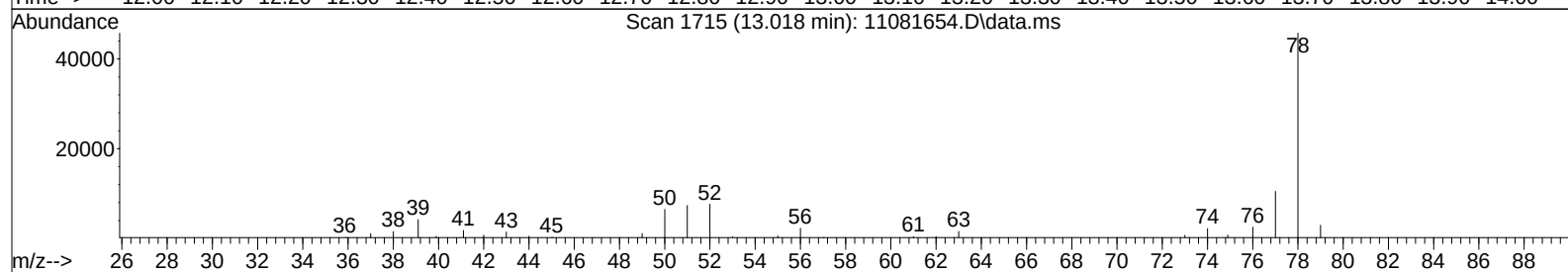
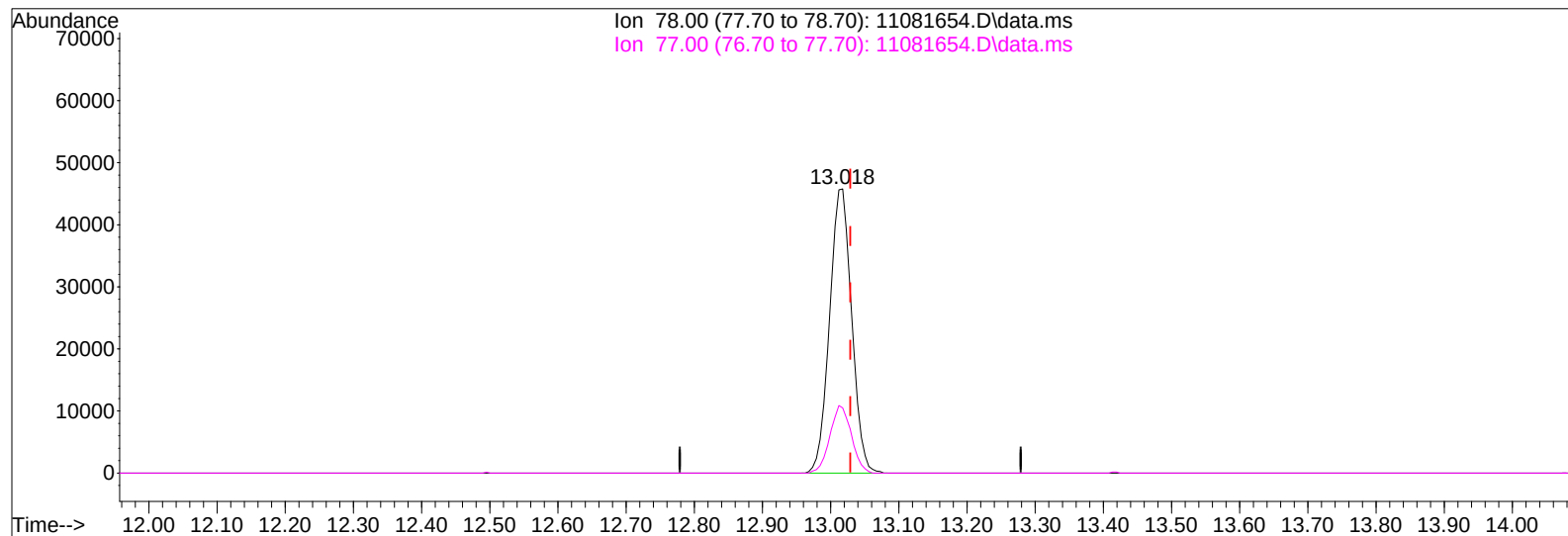
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081654.D\data.ms

(41) Benzene (T)

13.018min (-0.011) 0.91ng

response 102749

Ion	Exp%	Act%
78.00	100	100
77.00	23.40	23.06
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081654.D

Acq On : 9 Nov 2016 17:21

Operator: LH

Sample : P1605133-019dup (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:15:08 2016

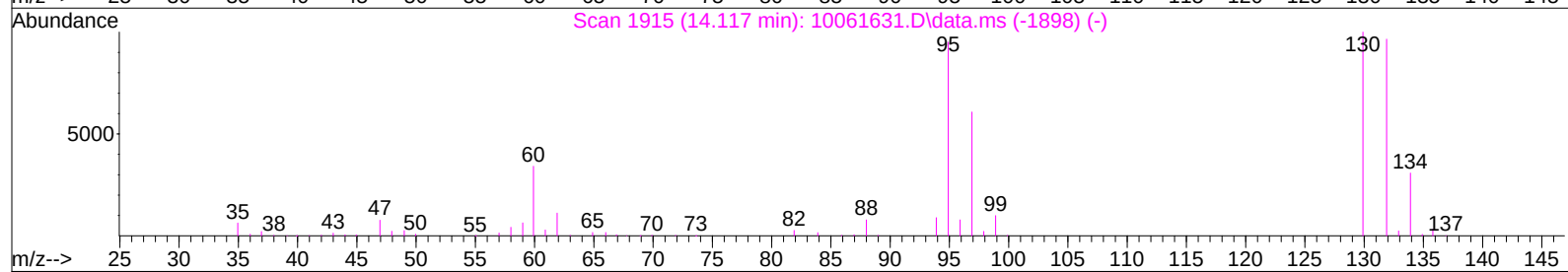
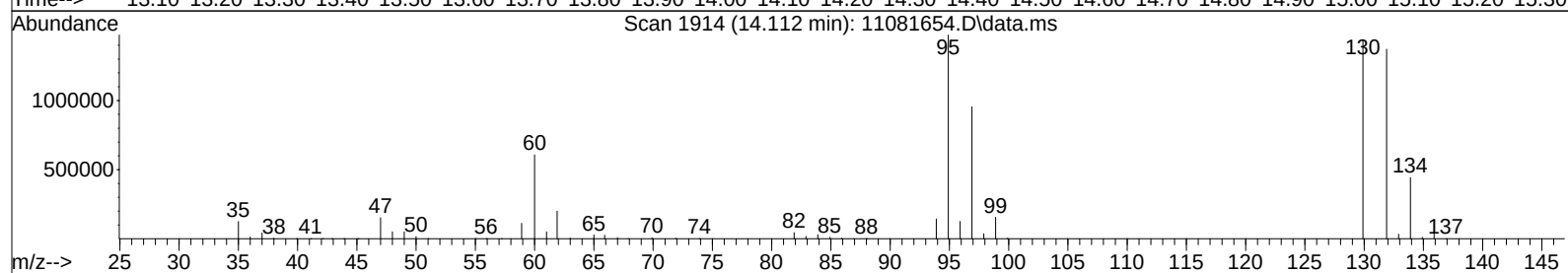
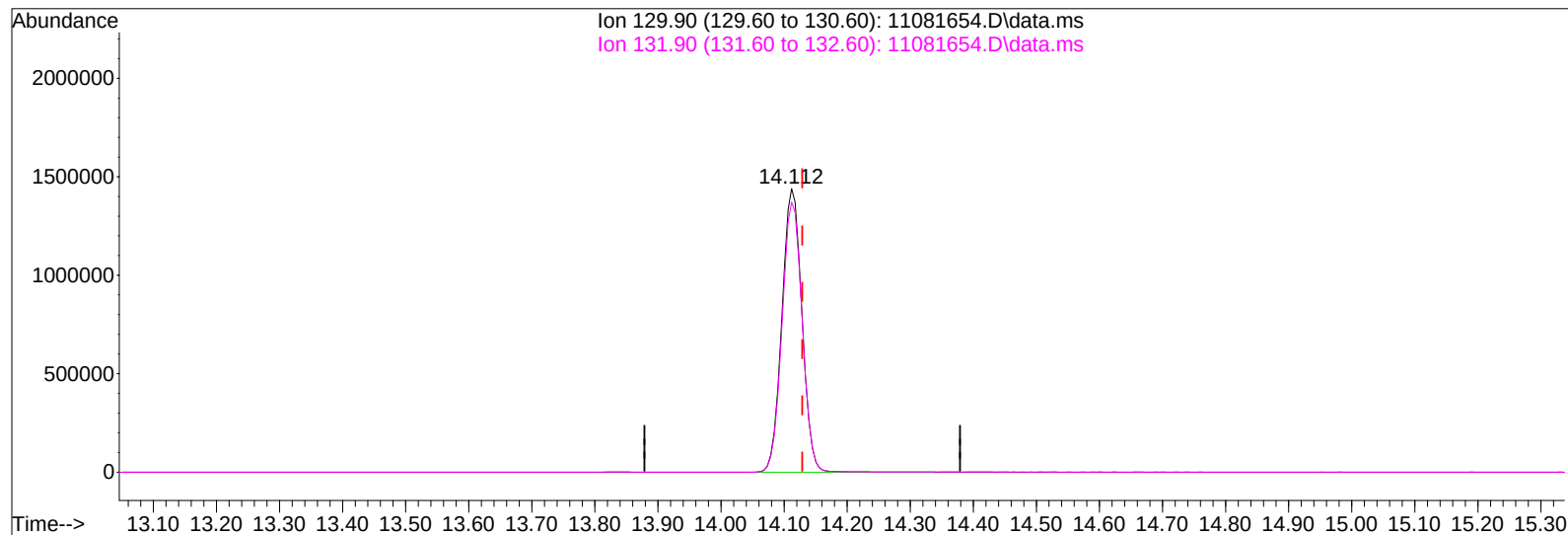
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081654.D\data.ms

(47) Trichloroethene (T)

14.112min (-0.017) 98.79ng

response 3167138

Ion	Exp%	Act%
129.90	100	100
131.90	95.80	95.89
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081654.D

Acq On : 9 Nov 2016 17:21

Operator: LH

Sample : P1605133-019dup (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:15:08 2016

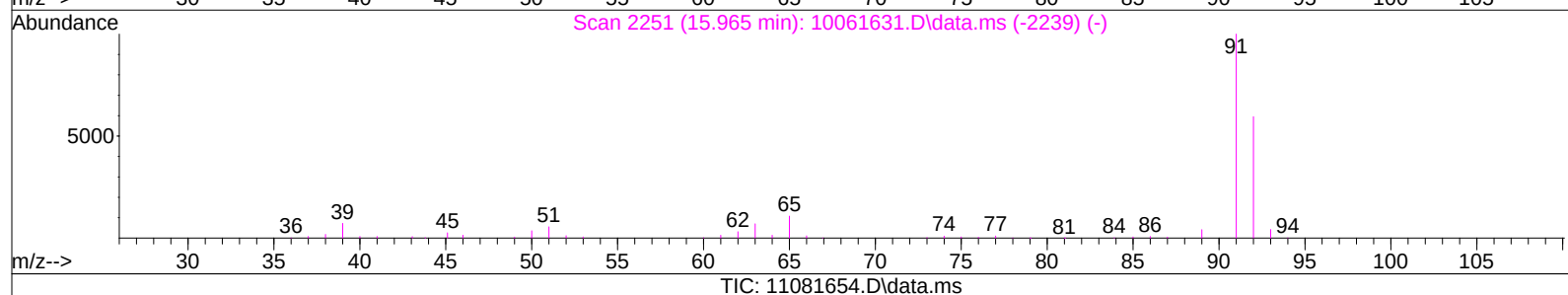
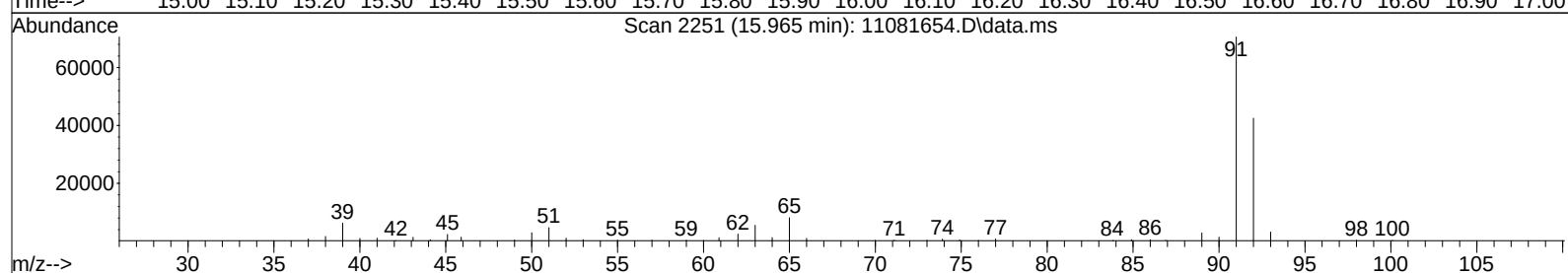
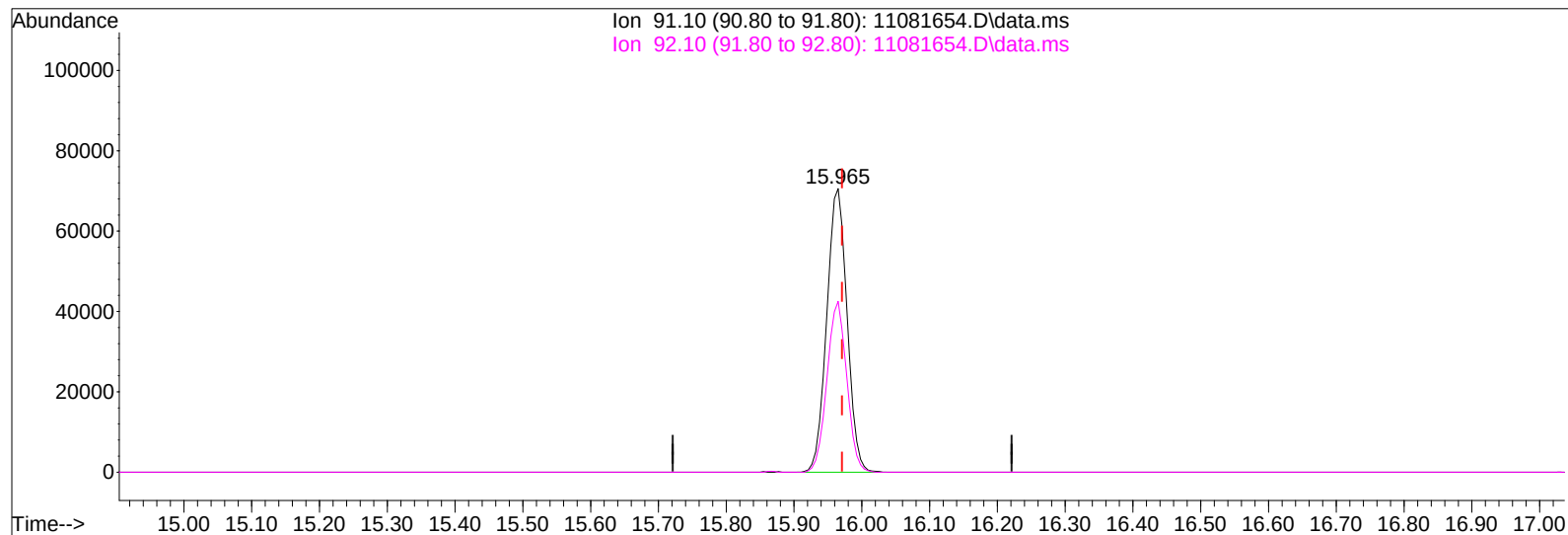
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081654.D\data.ms

(58) Toluene (T)

15.965min (-0.006) 1.29ng

response 146783

Ion	Exp%	Act%
91.10	100	100
92.10	59.40	58.60
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081654.D

Acq On : 9 Nov 2016 17:21

Operator: LH

Sample : P1605133-019dup (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:15:08 2016

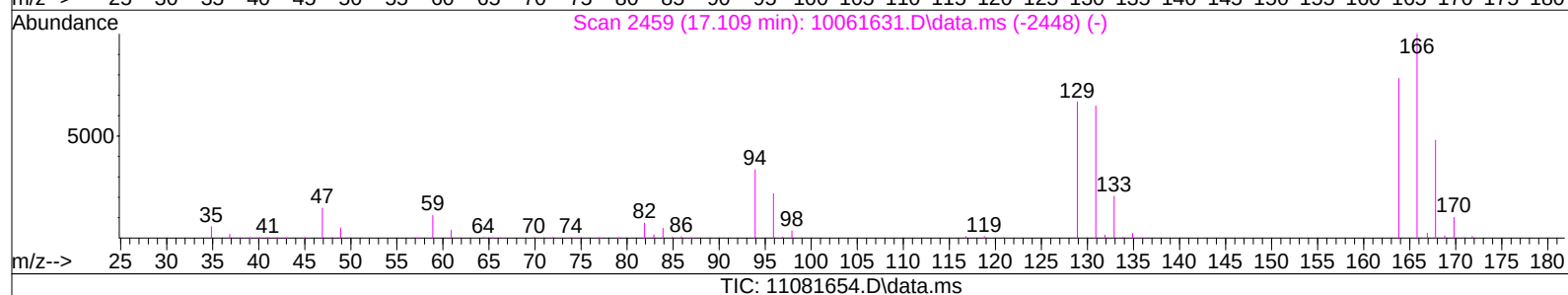
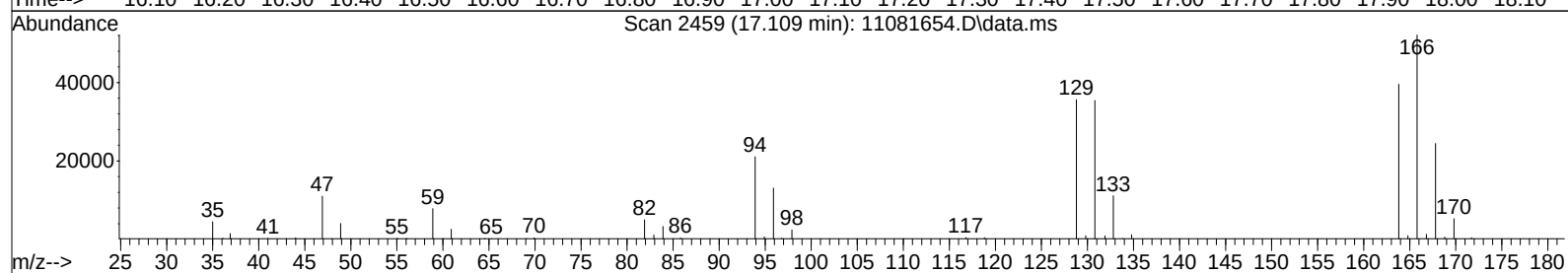
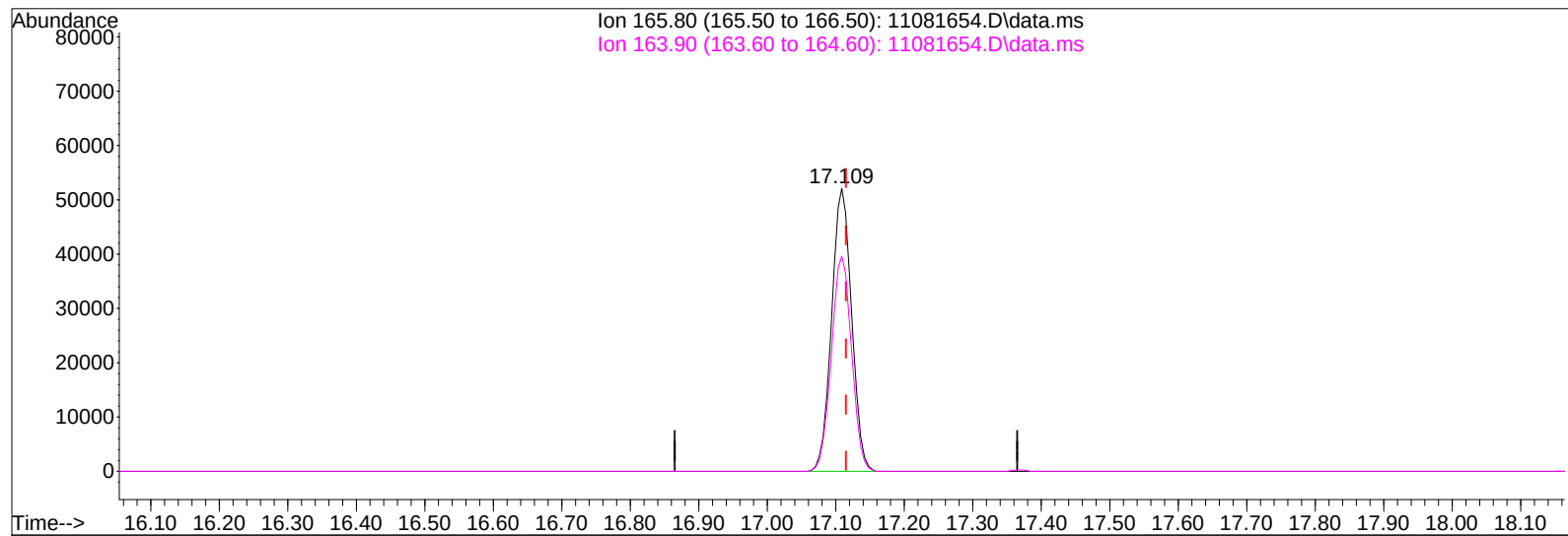
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081654.D\data.ms

(64) Tetrachloroethene (T)

17.109min (-0.006) 2.88ng

response 105526

Ion	Exp%	Act%
165.80	100	100
163.90	78.10	77.03
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081654.D

Acq On : 9 Nov 2016 17:21

Operator: LH

Sample : P1605133-019dup (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:15:08 2016

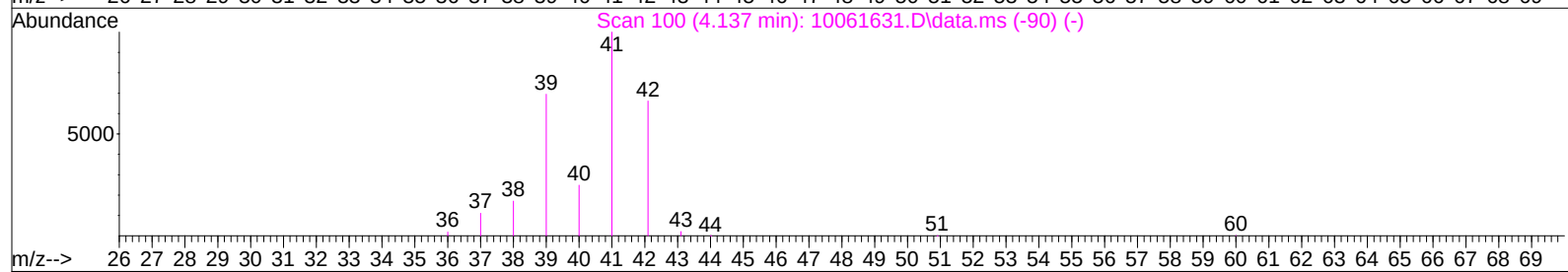
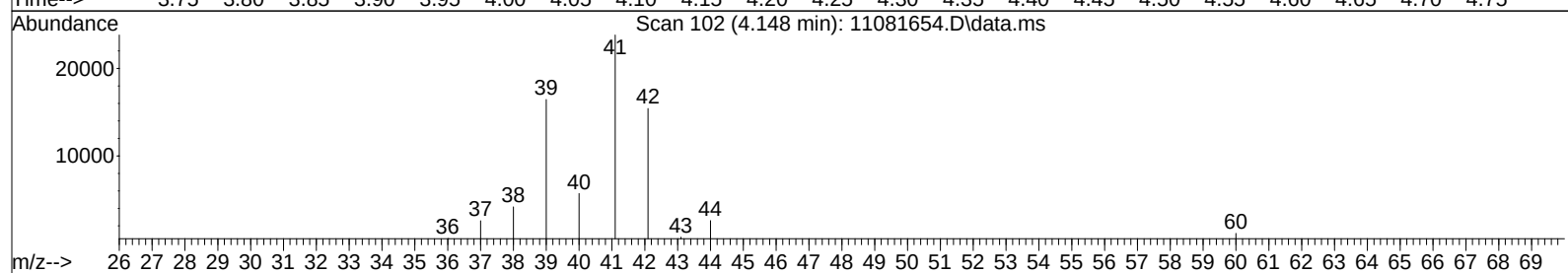
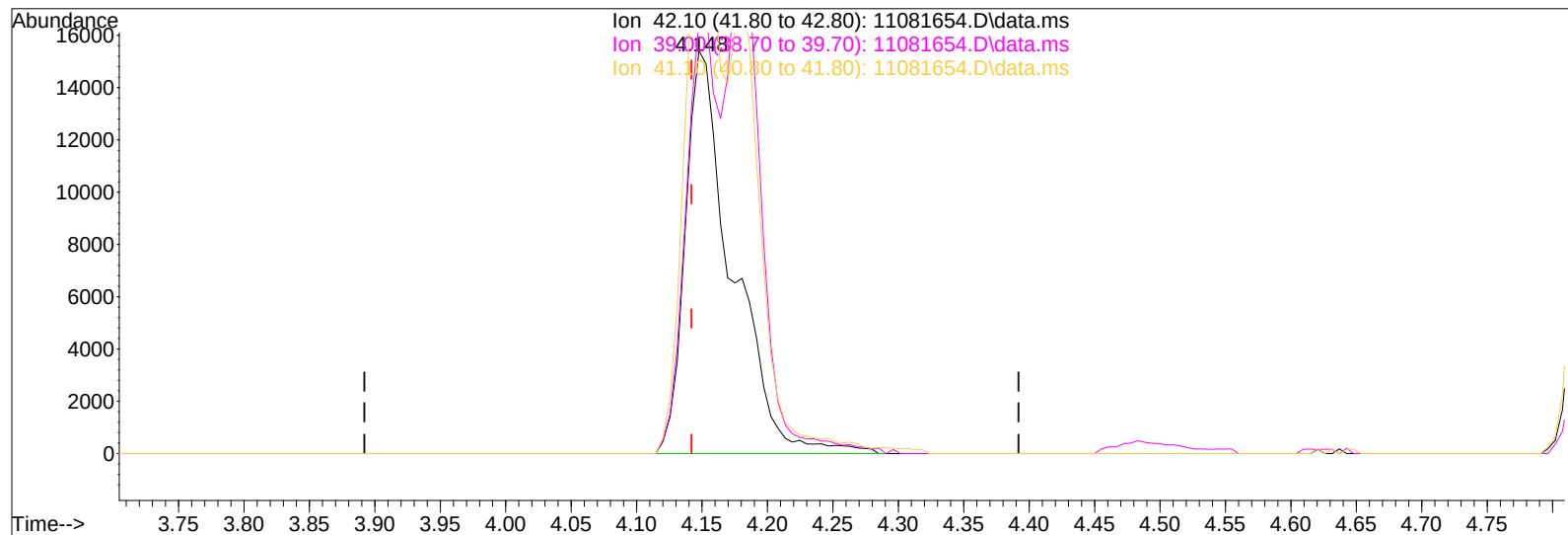
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081654.D\data.ms

(2) Propene (T)

4.148min (+0.006) 1.55ng

response 38674

Ion	Exp%	Act%
42.10	100	100
39.00	105.30	75.18#
41.10	151.20	183.09#
0.00	0.00	0.00

Data File: I:\MS16\DATA\2016 11\08\11081654.D

Acq On : 9 Nov 2016 17:21

Operator: LH

Sample : P1605133-019dup (50mL)

Misc : S29-11051601

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 10 08:15:08 2016

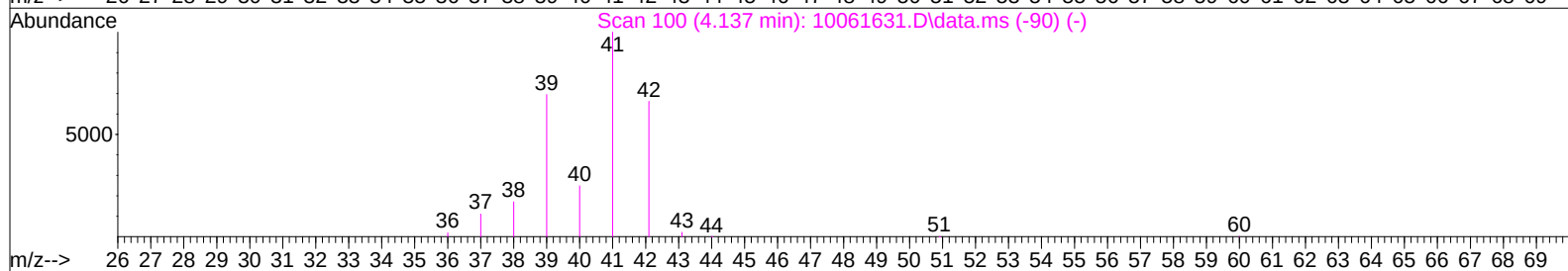
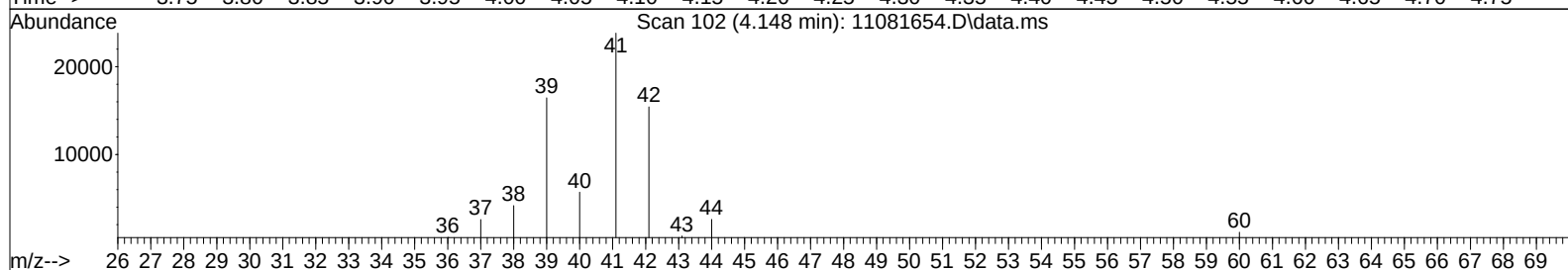
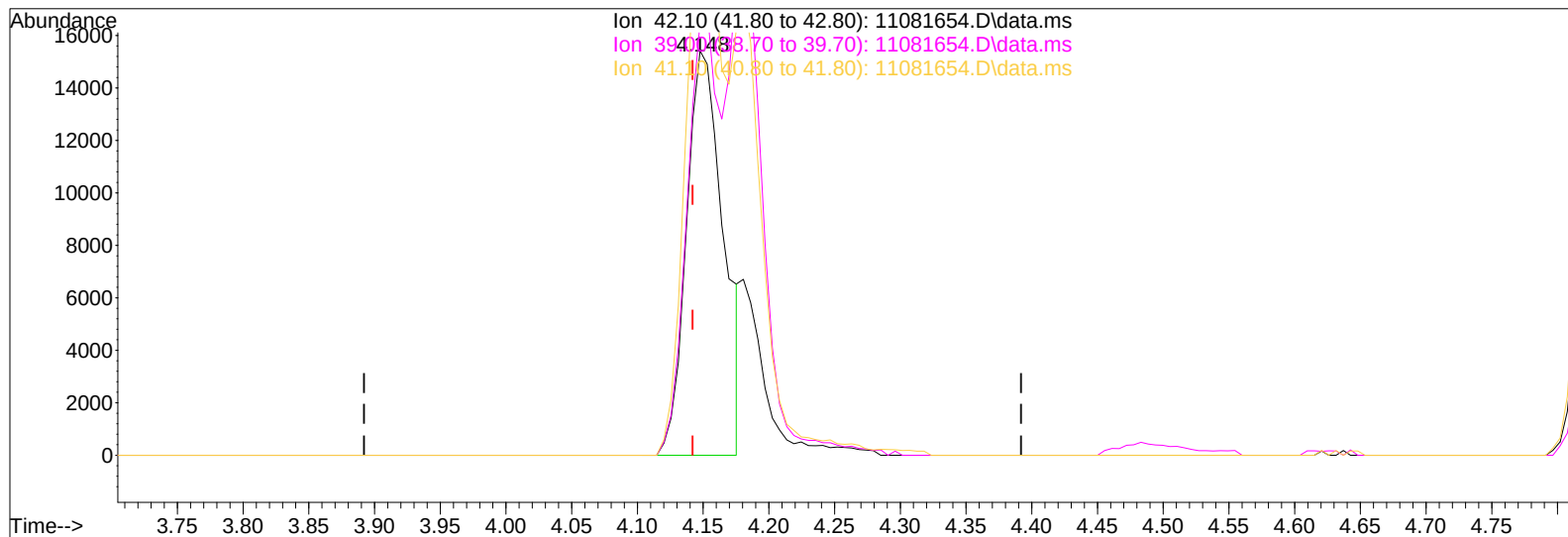
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



TIC: 11081654.D\data.ms

(2) Propene (T)

4.148min (+0.006) 1.20ng m

response 30015

Ion	Exp%	Act%
42.10	100	100
39.00	105.30	96.87
41.10	151.20	235.91#
0.00	0.00	0.00

IPC

LH 11/14/16

WA 11/14/16

Data File: I:\MS16\DATA\2016 11\08\11081629.D

Acq On : 8 Nov 2016 23:37

Operator: LH

Sample : MB2 R16110816 1000mL

Misc : S29-11051601 AC00442

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 09 07:44:57 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 11/9/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.29	130	282866	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1401294	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	580752	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	411407	14.197	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	113.60%
57) Toluene-d8 (SS2)	15.86	98	1396193	12.055	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.48%
73) Bromofluorobenzene (SS3)	19.11	174	477333	10.856	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	86.88%

Target Compounds

						Qvalue
2) Propene	4.24	42	1054	N.D.		
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.48	45	2410	0.133	ng	84
11) Acetonitrile	6.79	41	1181	N.D.		
12) Acrolein	6.98	56	1333	N.D.		
13) Acetone	7.19	58	10867	0.603	ng	# 69
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	7.67	45	972	N.D.		
16) Acrylonitrile	7.94	53	58	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.		
19) Methylene Chloride	8.56	84	660	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	8.88	76	2540	N.D.		
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	10.64	72	870	N.D.		
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	11.91	72	549	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	13.05	56	1137	N.D.		
41) Benzene	13.02	78	4877	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	13.40	84	760	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	0.00	130	0	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		

Data File: I:\MS16\DATA\2016 11\08\11081629.D

Acq On : 8 Nov 2016 23:37

Operator: LH

Sample : MB2 R16110816 1000mL

Misc : S29-11051601 AC00442

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 09 07:44:57 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.		
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.97	91	2658	N.D.		
59) 2-Hexanone	16.25	43	738	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.87	43	910	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	17.77	112	1142	N.D.		
66) Ethylbenzene	18.12	91	5337	N.D.		
67) m- & p-Xylenes	18.28	91	3039	N.D.		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.60	104	1628	N.D.		
70) o-Xylene	18.71	91	1300	N.D.		
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	19.23	105	906	N.D.		
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	19.65	91	4878	N.D.		
77) 3-Ethyltoluene	19.85	105	3444	N.D.		
78) 4-Ethyltoluene	19.85	105	3444	N.D.		
79) 1,3,5-Trimethylbenzene	19.85	105	3444	N.D.		
80) alpha-Methylstyrene	20.06	118	928	N.D.		
81) 2-Ethyltoluene	20.07	105	2059	N.D.		
82) 1,2,4-Trimethylbenzene	20.28	105	3082	N.D.		
83) n-Decane	0.00	57	0	N.D.		
84) Benzyl Chloride	20.47	91	2258	N.D.		
85) 1,3-Dichlorobenzene	20.42	146	1058	N.D.		
86) 1,4-Dichlorobenzene	20.42	146	1058	N.D.		
87) sec-Butylbenzene	20.51	105	611	N.D.		
88) 4-Isopropyltoluene (p-...	20.66	119	1463	N.D.		
89) 1,2,3-Trimethylbenzene	20.64	105	1343	N.D.		
90) 1,2-Dichlorobenzene	20.77	146	1555	N.D.		
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	21.48	57	658	N.D.		
94) 1,2,4-Trichlorobenzene	22.32	180	3530	N.D.		
95) Naphthalene	22.45	128	10901	N.D.		
96) n-Dodecane	22.39	57	1099	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	20.27	119	628	N.D.		
100) n-Butylbenzene	20.94	91	553	N.D.		

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

Data File: I:\MS16\DATA\2016 11\08\11081629.D

Acq On : 8 Nov 2016 23:37

Operator: LH

Sample : MB2 R16110816 1000mL

Misc : S29-11051601 AC00442

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 09 07:44:57 2016

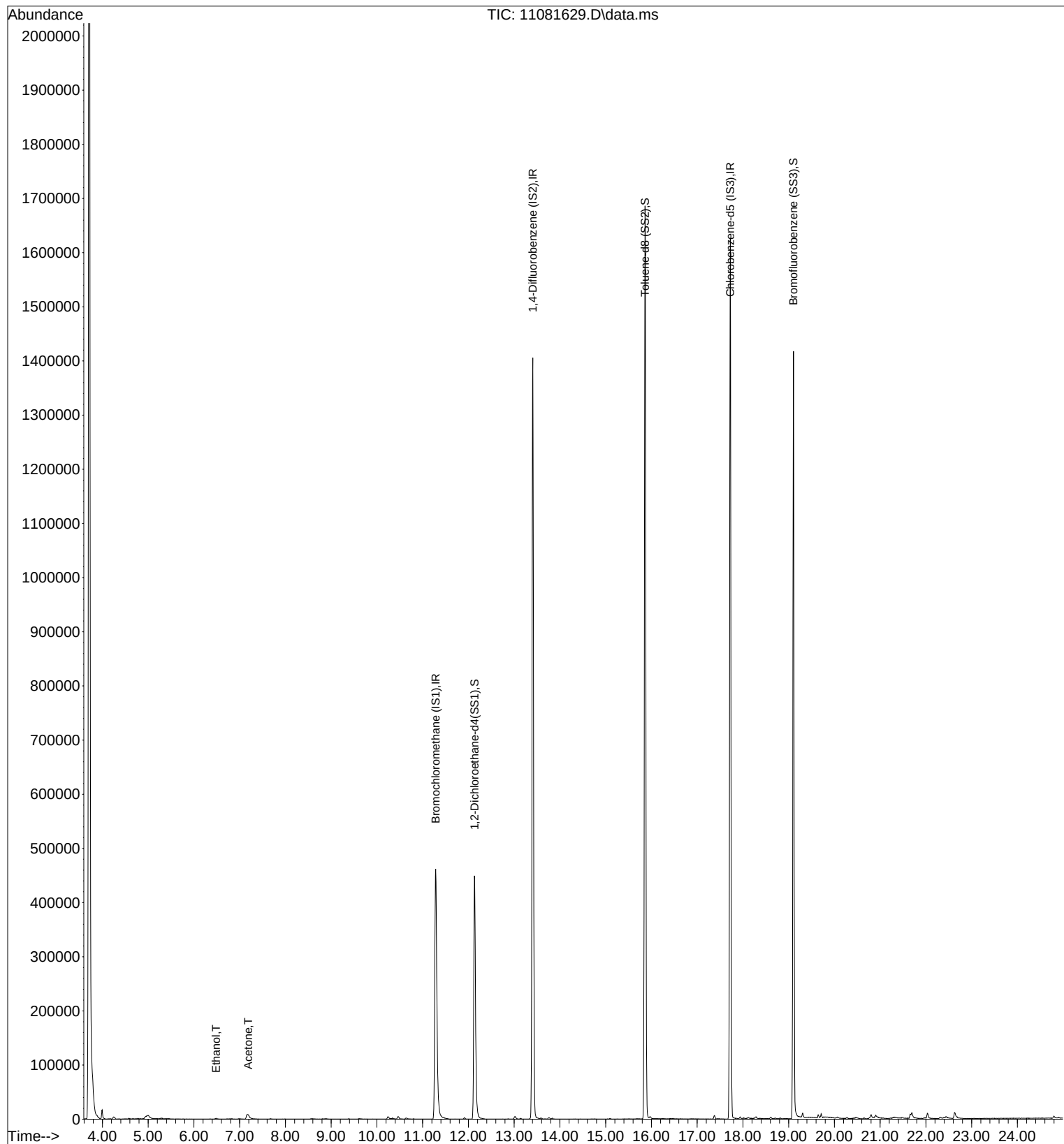
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\09\11091603.D

Acq On : 9 Nov 2016 19:02

Operator: LH

Sample : MB R16110916 1000mL

Misc : S29-11051601 AC00442

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 10 08:18:08 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

LH 11/10/16

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.29	130	267627	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1320878	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.72	82	567509	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	415660	15.160	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	121.28%
57) Toluene-d8 (SS2)	15.86	98	1348186	11.912	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.28%
73) Bromofluorobenzene (SS3)	19.11	174	442631	10.302	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	82.40%

Target Compounds

						Qvalue
2) Propene	4.24	42	783	N.D.		
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.49	45	1725	0.101	ng	# 60
11) Acetonitrile	6.80	41	879	N.D.		
12) Acrolein	7.00	56	867	N.D.		
13) Acetone	7.18	58	8331	0.489	ng	# 73
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	7.68	45	683	N.D.		
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	8.62	59	52	N.D.		
19) Methylene Chloride	0.00	84	0	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	8.88	76	2023	N.D.		
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	10.47	72	1113	N.D.		
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	11.91	72	533	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	13.04	56	706	N.D.		
41) Benzene	13.02	78	3713	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	13.41	84	638	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	14.12	130	639	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		

Data File: I:\MS16\DATA\2016 11\09\11091603.D

Acq On : 9 Nov 2016 19:02

Operator: LH

Sample : MB R16110916 1000mL

Misc : S29-11051601 AC00442

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 10 08:18:08 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.		
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.96	91	3088	N.D.		
59) 2-Hexanone	0.00	43	0	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	17.77	112	903	N.D.		
66) Ethylbenzene	18.12	91	1569	N.D.		
67) m- & p-Xylenes	18.28	91	2368	N.D.		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.62	104	1096	N.D.		
70) o-Xylene	18.71	91	2049	N.D.		
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	19.23	105	2751	N.D.		
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	19.65	91	4874	N.D.		
77) 3-Ethyltoluene	19.86	105	3394	N.D.		
78) 4-Ethyltoluene	19.86	105	2627	N.D.		
79) 1,3,5-Trimethylbenzene	19.86	105	3745	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	20.08	105	907	N.D.		
82) 1,2,4-Trimethylbenzene	20.28	105	1687	N.D.		
83) n-Decane	0.00	57	0	N.D.		
84) Benzyl Chloride	20.47	91	900	N.D.		
85) 1,3-Dichlorobenzene	20.43	146	621	N.D.		
86) 1,4-Dichlorobenzene	20.43	146	621	N.D.		
87) sec-Butylbenzene	20.65	105	1009	N.D.		
88) 4-Isopropyltoluene (p-...	20.66	119	516	N.D.		
89) 1,2,3-Trimethylbenzene	20.65	105	1009	N.D.		
90) 1,2-Dichlorobenzene	20.77	146	590	N.D.		
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.		
94) 1,2,4-Trichlorobenzene	22.33	180	2218	N.D.		
95) Naphthalene	22.46	128	6643	N.D.		
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	21.07	91	1677	N.D.		

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

Data File: I:\MS16\DATA\2016 11\09\11091603.D

Acq On : 9 Nov 2016 19:02

Operator: LH

Sample : MB R16110916 1000mL

Misc : S29-11051601 AC00442

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 10 08:18:08 2016

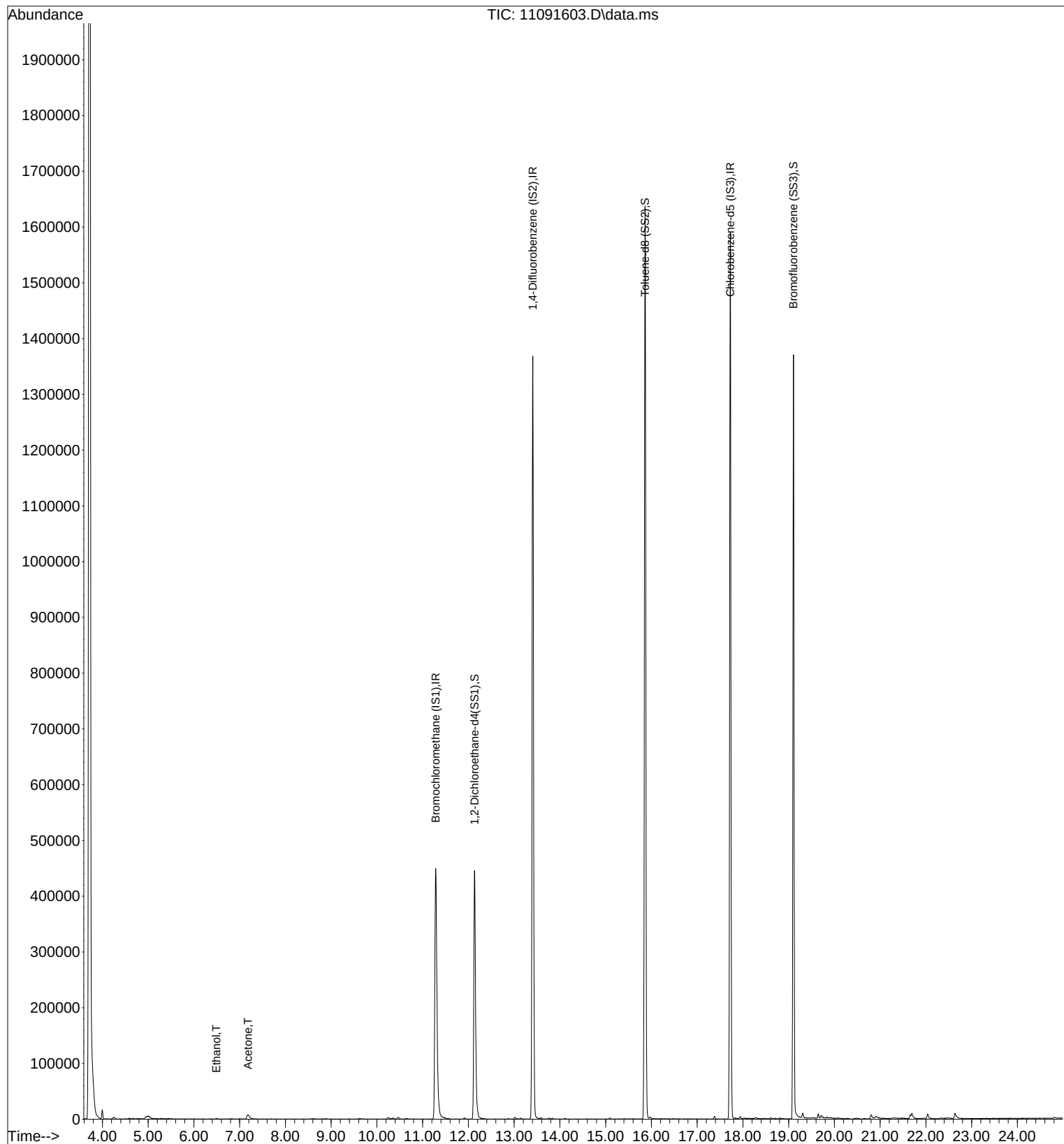
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 11\08\11081631.D

Acq On : 9 Nov 2016 00:44

Operator: LH

Sample : LCS2 R16110816 25ng

Misc : S29-11051601/S29-10271601 (11/25)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 09 07:45:10 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 11/9/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.29	130	303394	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.41	114	1441106	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	599572	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.14	65	422665	13.598	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	108.80%
57) Toluene-d8 (SS2)	15.87	98	1448214	12.112	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.88%
73) Bromofluorobenzene (SS3)	19.11	174	517717	11.405	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	91.20%

Target Compounds

						Qvalue
2) Propene	4.14	42	858638	32.033	ng	99
3) Dichlorodifluoromethan...	4.30	85	1449301	28.137	ng	100
4) Chloromethane	4.59	50	697699	22.532	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.85	135	798154	26.095	ng	100
6) Vinyl Chloride	5.02	62	1174378	30.406	ng	100
7) 1,3-Butadiene	5.29	54	810196	35.811	ng	96
8) Bromomethane	5.74	94	733464	27.749	ng	100
9) Chloroethane	6.07	64	604667	29.024	ng	100
10) Ethanol	6.45	45	2741942	141.108	ng	100
11) Acetonitrile	6.70	41	1495055	29.565	ng	100
12) Acrolein	6.90	56	499581	27.470	ng	100
13) Acetone	7.11	58	2816386	145.768	ng	93
14) Trichlorofluoromethane	7.35	101	1285065	26.853	ng	100
15) 2-Propanol (Isopropanol)	7.61	45	3785387	58.253	ng	99
16) Acrylonitrile	7.88	53	1120817	29.225	ng	100
17) 1,1-Dichloroethene	8.33	96	781832	27.782	ng	92
18) 2-Methyl-2-Propanol (t...	8.49	59	3718634	56.796	ng	98
19) Methylene Chloride	8.56	84	820309	25.996	ng	92
20) 3-Chloro-1-propene (Al...	8.72	41	1156366	30.964	ng	95
21) Trichlorotrifluoroethane	8.98	151	712340	25.196	ng	95
22) Carbon Disulfide	8.82	76	3081094	28.868	ng	100
23) trans-1,2-Dichloroethene	9.84	61	1156372	29.306	ng	95
24) 1,1-Dichloroethane	10.09	63	1433128	28.239	ng	100
25) Methyl tert-Butyl Ether	10.18	73	2388314	27.902	ng	99
26) Vinyl Acetate	10.35	86	902675	157.906	ng	# 73
27) 2-Butanone (MEK)	10.58	72	565296	28.442	ng	# 89
28) cis-1,2-Dichloroethene	11.11	61	1105066	28.882	ng	94
29) Diisopropyl Ether	11.40	87	769167	28.727	ng	# 91
30) Ethyl Acetate	11.41	61	608251	59.118	ng	96
31) n-Hexane	11.40	57	1270699	29.871	ng	99
32) Chloroform	11.46	83	1352877	27.378	ng	100
34) Tetrahydrofuran (THF)	11.85	72	553750	28.926	ng	93
35) Ethyl tert-Butyl Ether	11.99	87	943216	27.293	ng	93
36) 1,2-Dichloroethane	12.26	62	968788	28.579	ng	100
38) 1,1,1-Trichloroethane	12.54	97	1172316	27.890	ng	98
39) Isopropyl Acetate	12.96	61	1069900	57.246	ng	# 91
40) 1-Butanol	12.98	56	1598540	58.988	ng	93
41) Benzene	13.02	78	3185877	26.799	ng	100
42) Carbon Tetrachloride	13.18	117	1026019	27.703	ng	100
43) Cyclohexane	13.31	84	2367514	54.268	ng	94
44) tert-Amyl Methyl Ether	13.66	73	2297793	28.182	ng	97
45) 1,2-Dichloropropane	13.87	63	827662	28.082	ng	100
46) Bromodichloromethane	14.06	83	1086007	29.712	ng	100
47) Trichloroethene	14.12	130	864912	25.653	ng	99
48) 1,4-Dioxane	14.08	88	679484	27.529	ng	96
49) 2,2,4-Trimethylpentane...	14.18	57	3345954	28.431	ng	97

Data File: I:\MS16\DATA\2016 11\08\11081631.D

Acq On : 9 Nov 2016 00:44

Operator: LH

Sample : LCS2 R16110816 25ng

Misc : S29-11051601/S29-10271601 (11/25)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 09 07:45:10 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.32	100	672392	55.167	ng	90
51) n-Heptane	14.45	71	796968	27.546	ng	97
52) cis-1,3-Dichloropropene	14.98	75	1332546	29.158	ng	100
53) 4-Methyl-2-pentanone	15.01	58	780994	29.528	ng	93
54) trans-1,3-Dichloropropene	15.50	75	1202505	30.400	ng	100
55) 1,1,2-Trichloroethane	15.67	97	788552	27.272	ng	98
58) Toluene	15.97	91	3168947	27.020	ng	100
59) 2-Hexanone	16.20	43	1770312	28.704	ng	95
60) Dibromochloromethane	16.37	129	940967	27.661	ng	100
61) 1,2-Dibromoethane	16.63	107	907299	26.330	ng	100
62) n-Butyl Acetate	16.83	43	2051801	30.137	ng	96
63) n-Octane	16.97	57	685025	26.767	ng	94
64) Tetrachloroethene	17.11	166	914910	24.205	ng	100
65) Chlorobenzene	17.77	112	2107946	24.342	ng	100
66) Ethylbenzene	18.12	91	3597854	25.392	ng	99
67) m- & p-Xylenes	18.29	91	5419569	50.008	ng	98
68) Bromoform	18.35	173	833445	28.506	ng	100
69) Styrene	18.60	104	2275017	26.405	ng	98
70) o-Xylene	18.70	91	2758657	25.665	ng	98
71) n-Nonane	18.90	43	1485867	28.083	ng	94
72) 1,1,2,2-Tetrachloroethane	18.68	83	1396402	28.259	ng	100
74) Cumene	19.23	105	3531400	27.303	ng	99
75) alpha-Pinene	19.58	93	1877518	26.786	ng	97
76) n-Propylbenzene	19.68	91	4269820	28.207	ng	98
77) 3-Ethyltoluene	19.77	105	3332434	23.816	ng	96
78) 4-Ethyltoluene	19.80	105	3482894	27.254	ng	94
79) 1,3,5-Trimethylbenzene	19.87	105	2840510	24.574	ng	99
80) alpha-Methylstyrene	20.00	118	1608728	27.969	ng	99
81) 2-Ethyltoluene	20.04	105	3347862	25.173	ng	99
82) 1,2,4-Trimethylbenzene	20.23	105	2794110	24.379	ng	99
83) n-Decane	20.32	57	1595365	27.955	ng	97
84) Benzyl Chloride	20.35	91	2549423	31.364	ng	98
85) 1,3-Dichlorobenzene	20.36	146	1737938	25.675	ng	99
86) 1,4-Dichlorobenzene	20.42	146	1747019	23.580	ng	99
87) sec-Butylbenzene	20.47	105	3783184	26.987	ng	99
88) 4-Isopropyltoluene (p-...	20.61	119	3407438	26.788	ng	98
89) 1,2,3-Trimethylbenzene	20.61	105	2834088	27.536	ng	98
90) 1,2-Dichlorobenzene	20.72	146	1638183	23.371	ng	100
91) d-Limonene	20.73	68	1151359	28.519	ng	95
92) 1,2-Dibromo-3-Chloropr...	21.11	157	650017	28.918	ng	88
93) n-Undecane	21.41	57	1735439	28.822	ng	97
94) 1,2,4-Trichlorobenzene	22.23	180	1390237	23.855	ng	100
95) Naphthalene	22.34	128	4007138	24.973	ng	100
96) n-Dodecane	22.33	57	1726521	30.845	ng	96
97) Hexachlorobutadiene	22.66	225	879036	24.844	ng	99
98) Cyclohexanone	18.41	55	1153093	28.298	ng	95
99) tert-Butylbenzene	20.23	119	2688504	24.797	ng	99
100) n-Butylbenzene	20.97	91	3129273	25.850	ng	99

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

Data File: I:\MS16\DATA\2016 11\08\11081631.D

Acq On : 9 Nov 2016 00:44

Operator: LH

Sample : LCS2 R16110816 25ng

Misc : S29-11051601/S29-10271601 (11/25)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 09 07:45:10 2016

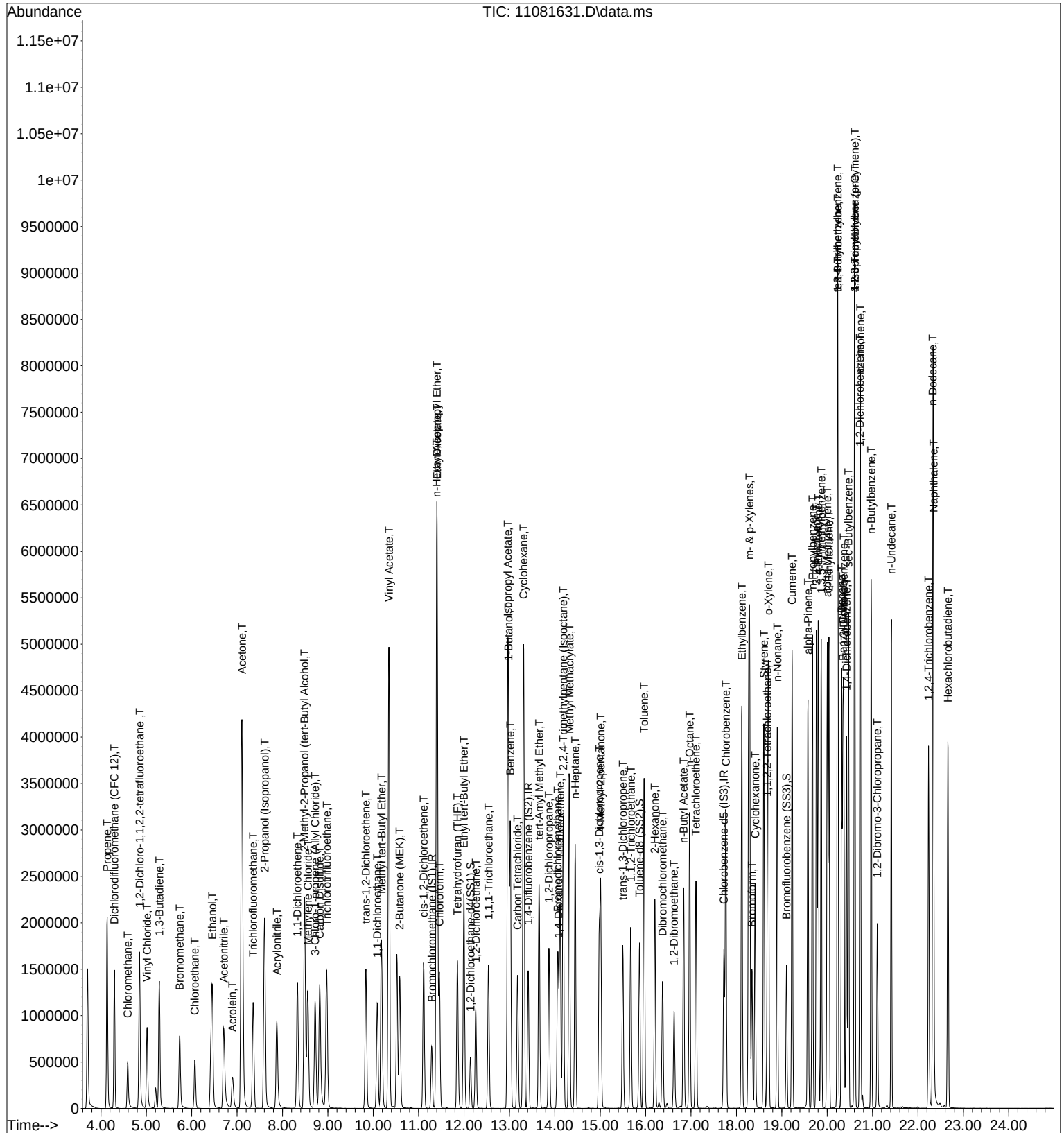
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2016 11\09\11091604.D

Acq On : 9 Nov 2016 19:36

Operator: LH

Sample : LCS R16110916 25ng

Misc : S29-11051601/S29-10271601 (11/25)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 10 08:18:18 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 11/10/16

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.29	130	291063	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1384860	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	601402	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.14	65	432128	14.492	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	115.92%
57) Toluene-d8 (SS2)	15.87	98	1421792	11.855	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	94.80%
73) Bromofluorobenzene (SS3)	19.10	174	499990	10.981	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	87.84%

Target Compounds

						Qvalue
2) Propene	4.13	42	957334	37.228	ng	100
3) Dichlorodifluoromethan...	4.28	85	1509084	30.539	ng	100
4) Chloromethane	4.58	50	707315	23.811	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.84	135	761260	25.943	ng	100
6) Vinyl Chloride	5.01	62	1189122	32.092	ng	100
7) 1,3-Butadiene	5.27	54	820268	37.792	ng	93
8) Bromomethane	5.73	94	706354	27.856	ng	99
9) Chloroethane	6.06	64	603368	30.189	ng	100
10) Ethanol	6.45	45	2871709	154.047	ng	100
11) Acetonitrile	6.70	41	1583409	32.639	ng	100
12) Acrolein	6.89	56	507630	29.095	ng	100
13) Acetone	7.10	58	2895002	156.184	ng	90
14) Trichlorofluoromethane	7.35	101	1284300	27.974	ng	100
15) 2-Propanol (Isopropanol)	7.60	45	3944334	63.270	ng	99
16) Acrylonitrile	7.87	53	1145546	31.136	ng	100
17) 1,1-Dichloroethene	8.32	96	755099	27.969	ng	86
18) 2-Methyl-2-Propanol (t...	8.48	59	3683186	58.637	ng	97
19) Methylene Chloride	8.55	84	805143	26.596	ng	84
20) 3-Chloro-1-propene (Al...	8.72	41	1213319	33.866	ng	91
21) Trichlorotrifluoroethane	8.97	151	674153	24.855	ng	93
22) Carbon Disulfide	8.82	76	3006770	29.365	ng	100
23) trans-1,2-Dichloroethene	9.83	61	1180078	31.174	ng	91
24) 1,1-Dichloroethane	10.09	63	1440852	29.594	ng	100
25) Methyl tert-Butyl Ether	10.17	73	2370620	28.869	ng	98
26) Vinyl Acetate	10.34	86	883751	161.145	ng	# 61
27) 2-Butanone (MEK)	10.58	72	552452	28.974	ng	# 80
28) cis-1,2-Dichloroethene	11.11	61	1106267	30.138	ng	91
29) Diisopropyl Ether	11.40	87	754145	29.359	ng	100
30) Ethyl Acetate	11.41	61	610168	61.816	ng	95
31) n-Hexane	11.40	57	1295360	31.741	ng	99
32) Chloroform	11.46	83	1337329	28.210	ng	100
34) Tetrahydrofuran (THF)	11.85	72	546067	29.733	ng	# 88
35) Ethyl tert-Butyl Ether	11.99	87	923975	27.869	ng	89
36) 1,2-Dichloroethane	12.26	62	983540	30.243	ng	100
38) 1,1,1-Trichloroethane	12.54	97	1159866	28.715	ng	98
39) Isopropyl Acetate	12.96	61	1075144	59.863	ng	# 86
40) 1-Butanol	12.98	56	1608315	61.759	ng	91
41) Benzene	13.02	78	3129578	27.395	ng	100
42) Carbon Tetrachloride	13.18	117	1007541	28.309	ng	100
43) Cyclohexane	13.31	84	2325892	55.479	ng	91
44) tert-Amyl Methyl Ether	13.66	73	2257118	28.807	ng	96
45) 1,2-Dichloropropane	13.87	63	823923	29.091	ng	100
46) Bromodichloromethane	14.06	83	1076103	30.637	ng	99
47) Trichloroethene	14.12	130	823984	25.432	ng	100
48) 1,4-Dioxane	14.08	88	664413	28.012	ng	93
49) 2,2,4-Trimethylpentane...	14.18	57	3351414	29.634	ng	96

Data File: I:\MS16\DATA\2016 11\09\11091604.D

Acq On : 9 Nov 2016 19:36

Operator: LH

Sample : LCS R16110916 25ng

Misc : S29-11051601/S29-10271601 (11/25)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 10 08:18:18 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.32	100	654022	55.839	ng	# 86
51) n-Heptane	14.45	71	787436	28.322	ng	95
52) cis-1,3-Dichloropropene	14.98	75	1320676	30.072	ng	99
53) 4-Methyl-2-pentanone	15.01	58	790807	31.113	ng	90
54) trans-1,3-Dichloropropene	15.50	75	1197714	31.509	ng	100
55) 1,1,2-Trichloroethane	15.67	97	768563	27.660	ng	97
58) Toluene	15.96	91	3097706	26.332	ng	100
59) 2-Hexanone	16.20	43	1834443	29.654	ng	93
60) Dibromochloromethane	16.37	129	921148	26.996	ng	100
61) 1,2-Dibromoethane	16.63	107	887345	25.673	ng	100
62) n-Butyl Acetate	16.84	43	2095591	30.686	ng	95
63) n-Octane	16.97	57	694606	27.059	ng	92
64) Tetrachloroethene	17.11	166	872942	23.025	ng	100
65) Chlorobenzene	17.77	112	2063682	23.759	ng	100
66) Ethylbenzene	18.12	91	3529708	24.836	ng	98
67) m- & p-Xylenes	18.29	91	5327483	49.009	ng	97
68) Bromoform	18.35	173	795388	27.122	ng	100
69) Styrene	18.60	104	2196911	25.421	ng	98
70) o-Xylene	18.71	91	2696862	25.013	ng	97
71) n-Nonane	18.90	43	1525156	28.737	ng	92
72) 1,1,2,2-Tetrachloroethane	18.68	83	1377032	27.782	ng	100
74) Cumene	19.23	105	3435728	26.482	ng	99
75) alpha-Pinene	19.58	93	1835223	26.103	ng	96
76) n-Propylbenzene	19.68	91	4197996	27.648	ng	98
77) 3-Ethyltoluene	19.76	105	3479397	24.790	ng	99
78) 4-Ethyltoluene	19.80	105	3157131	24.629	ng	99
79) 1,3,5-Trimethylbenzene	19.87	105	2767207	23.867	ng	98
80) alpha-Methylstyrene	20.01	118	1556167	26.973	ng	98
81) 2-Ethyltoluene	20.04	105	3270342	24.515	ng	99
82) 1,2,4-Trimethylbenzene	20.23	105	2740010	23.835	ng	98
83) n-Decane	20.32	57	1609411	28.115	ng	96
84) Benzyl Chloride	20.35	91	2491540	30.559	ng	97
85) 1,3-Dichlorobenzene	20.37	146	1672310	24.630	ng	99
86) 1,4-Dichlorobenzene	20.42	146	1682726	22.643	ng	100
87) sec-Butylbenzene	20.47	105	3700795	26.319	ng	98
88) 4-Isopropyltoluene (p-...	20.61	119	3317422	26.001	ng	97
89) 1,2,3-Trimethylbenzene	20.61	105	2784941	26.976	ng	97
90) 1,2-Dichlorobenzene	20.73	146	1582419	22.507	ng	100
91) d-Limonene	20.73	68	1151204	28.428	ng	94
92) 1,2-Dibromo-3-Chloropr...	21.11	157	621112	27.548	ng	85
93) n-Undecane	21.41	57	1734367	28.717	ng	96
94) 1,2,4-Trichlorobenzene	22.23	180	1320205	22.584	ng	99
95) Naphthalene	22.34	128	3853192	23.940	ng	100
96) n-Dodecane	22.33	57	1730198	30.816	ng	96
97) Hexachlorobutadiene	22.66	225	834364	23.510	ng	99
98) Cyclohexanone	18.41	55	1146349	28.047	ng	93
99) tert-Butylbenzene	20.23	119	2615856	24.054	ng	99
100) n-Butylbenzene	20.97	91	3082927	25.390	ng	98

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

Method Path : I:\MS16\METHODS\
 Method File : R16100616.M
 Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 Last Update : Wed Oct 12 15:41:09 2016
 Response Via : Initial Calibration

LH 10/12/16

Calibration Files

0.08=10061625.D 0.10=10061626.D 0.20=10061627.D 0.40=10061628.D 1.0 =10061629.D 5.0 =10061630.D
 50 =10061632.D 100 =10061633.D

	Compound	0.08	0.10	0.20	0.40	1.0	5.0	25	50	100	Avg	%RSD
1) IR	Bromochloromethane...	-----ISTD-----										
2) T	Propene				1.229	1.292	1.109	1.105	0.968	0.923	1.104	12.96
3) T	Dichlorodifluo...			2.339	2.239	2.404	2.130	2.134	1.907	1.702	2.122	11.60
4) T	Chloromethane		1.762	1.619	1.202	1.701	1.048	1.220	0.995	0.660	1.276	30.41
5) T	1,2-Dichloro-1...	1.548	1.430	1.272	1.232	1.325	1.182	1.169	1.122	1.061	1.260	12.23
6) T	Vinyl Chloride	1.843	1.727	1.548	1.567	1.747	1.537	1.549	1.460	1.345	1.591	9.71
7) T	1,3-Butadiene	1.061	0.913	0.911	0.851	1.041	0.901	0.975	0.906	0.830	0.932	8.47
8) T	Bromomethane	1.363	1.256	1.126	1.028	1.132	0.922	1.061	0.992	0.921	1.089	13.63
9) T	Chloroethane	0.943	0.893	0.837	0.847	0.961	0.846	0.871	0.796	0.730	0.858	8.26
10) T	Ethanol			0.954	0.882	0.962	0.825	0.769	0.648	0.564	0.801	18.89
11) T	Acetonitrile				2.345	2.412	2.136	2.071	1.854	1.682	2.083	13.46
12) T	Acrolein	0.917	0.802	0.736	0.696	0.850	0.750	0.731	0.656	0.604	0.749	12.86
13) T	Acetone				0.993	0.986	0.849	0.771	0.645	0.533	0.796	23.19
14) T	Trichlorofluor...	2.415	2.296	2.036	1.931	2.081	1.822	1.856	1.704	1.603	1.972	13.45
15) T	2-Propanol (Is...			3.037	2.899	3.146	2.775	2.709	2.313	1.861	2.677	16.76
16) T	Acrylonitrile	1.927	1.692	1.584	1.513	1.687	1.545	1.549	1.420	1.303	1.580	11.26
17) T	1,1-Dichloroet...	1.304	1.233	1.141	1.154	1.248	1.107	1.162	1.077	1.009	1.159	7.87
18) T	2-Methyl-2-Pro...			3.084	2.958	3.199	2.841	2.766	2.373	1.661	2.698	19.58
19) T	Methylene Chlo...	1.727	1.655	1.308	1.238	1.334	1.166	1.193	1.096	0.982	1.300	18.96
20) T	3-Chloro-1-pro...	1.916	1.771	1.542	1.461	1.656	1.424	1.499	1.349	1.230	1.539	13.83
21) T	Trichlorotrifl...	1.449	1.252	1.193	1.154	1.222	1.075	1.110	1.044	0.985	1.165	11.79
22) T	Carbon Disulfide			4.989	4.647	4.939	4.192	4.389	3.996	3.630	4.397	11.36
23) T	trans-1,2-Dich...	1.905	1.752	1.620	1.571	1.743	1.560	1.613	1.497	1.371	1.626	9.63
24) T	1,1-Dichloroet...	2.515	2.349	2.102	2.047	2.260	1.989	2.007	1.847	1.702	2.091	12.03
25) T	Methyl tert-Bu...	4.371	3.975	3.613	3.500	3.761	3.330	3.343	3.055	2.792	3.527	13.49
26) T	Vinyl Acetate	0.229	0.221	0.221	0.243	0.258	0.255	0.262	0.232	0.197	0.236	8.98
27) T	2-Butanone (MEK)	0.936	0.909	0.826	0.849	0.876	0.789	0.796	0.723	0.665	0.819	10.61
28) T	cis-1,2-Dichlo...	1.911	1.731	1.621	1.525	1.709	1.504	1.509	1.396	1.282	1.576	12.03
29) T	Diisopropyl Ether	1.471	1.357	1.224	1.178	1.260	1.116	0.891	0.778	0.653	1.103	24.80
30) T	Ethyl Acetate	0.521	0.480	0.467	0.453	0.488	0.437	0.392	0.322	0.256	0.424	20.32
31) T	n-Hexane			2.087	2.004	2.139	1.852	1.654	1.393	1.139	1.753	21.47
32) T	Chloroform	2.475	2.357	2.104	2.040	2.186	1.922	1.899	1.738	1.603	2.036	13.79
33) S	1,2-Dichloroet...	1.280	1.299	1.293	1.297	1.313	1.293	1.276	1.244	1.229	1.281	2.14
34) T	Tetrahydrofura...				0.894	0.904	0.782	0.780	0.715	0.658	0.789	12.30
35) T	Ethyl tert-But...	1.776	1.634	1.449	1.406	1.502	1.330	1.341	1.238	1.140	1.424	13.72
36) T	1,2-Dichloroet...	1.737	1.619	1.417	1.370	1.475	1.310	1.310	1.205	1.127	1.397	13.80
37) IR	1,4-Difluorobenzen...	-----ISTD-----										
38) T	1,1,1-Trichlor...	0.434	0.400	0.381	0.354	0.385	0.347	0.346	0.328	0.307	0.365	10.69
39) T	Isopropyl Acetate	0.210	0.182	0.175	0.165	0.179	0.160	0.149	0.129	0.111	0.162	18.28
40) T	1-Butanol	0.288	0.246	0.234	0.225	0.267	0.246	0.235	0.206	0.168	0.235	14.61
41) T	Benzene		1.439	1.235	1.087	1.125	0.964	0.922	0.817	0.659	1.031	23.77
42) T	Carbon Tetrach...	0.375	0.348	0.322	0.308	0.341	0.307	0.311	0.297	0.282	0.321	8.92
43) T	Cyclohexane	0.479	0.452	0.400	0.380	0.409	0.359	0.348	0.313	0.266	0.378	17.56
44) T	tert-Amyl Meth...	0.869	0.802	0.738	0.700	0.745	0.673	0.668	0.614	0.557	0.707	13.38
45) T	1,2-Dichloropr...	0.317	0.301	0.268	0.250	0.270	0.240	0.238	0.219	0.198	0.256	14.80
46) T	Bromodichlorom...	0.365	0.336	0.310	0.307	0.344	0.312	0.316	0.293	0.271	0.317	8.80
47) T	Trichloroethene	0.374	0.340	0.295	0.282	0.307	0.271	0.271	0.256	0.235	0.292	14.68
48) T	1,4-Dioxane	0.271	0.246	0.215	0.211	0.218	0.194	0.209	0.192	0.172	0.214	13.76
49) T	2,2,4-Trimethy...	1.318	1.199	1.055	1.030	1.107	0.981	0.938	0.840	0.719	1.021	17.68
50) T	Methyl Methacr...	0.129	0.116	0.105	0.102	0.113	0.103	0.104	0.095	0.085	0.106	11.99
51) T	n-Heptane	0.321	0.288	0.264	0.259	0.267	0.237	0.227	0.209	0.185	0.251	16.46
52) T	cis-1,3-Dichlo...	0.468	0.418	0.392	0.378	0.424	0.389	0.397	0.368	0.335	0.396	9.56
53) T	4-Methyl-2-pen...	0.281	0.241	0.232	0.224	0.250	0.226	0.227	0.203	0.180	0.229	12.33
54) T	trans-1,3-Dich...	0.391	0.354	0.321	0.315	0.355	0.341	0.359	0.337	0.315	0.343	7.22

55)	T	1,1,2-Trichlor...	0.300	0.263	0.266	0.245	0.267	0.239	0.242	0.226	0.209	0.251	10.60
56)	IR	Chlorobenzene-d5 (...	-----ISTD-----										
57)	S	Toluene-d8 (SS2)	2.487	2.504	2.469	2.490	2.499	2.468	2.496	2.531	2.491	2.493	0.76
58)	T	Toluene			2.761	2.591	2.783	2.426	2.432	2.201	1.922	2.445	12.60
59)	T	2-Hexanone	1.699	1.476	1.284	1.245	1.368	1.211	1.227	1.101	0.960	1.286	16.61
60)	T	Dibromochlorom...	0.772	0.753	0.666	0.652	0.750	0.699	0.739	0.701	0.651	0.709	6.51
61)	T	1,2-Dibromoethane	0.870	0.789	0.686	0.679	0.753	0.681	0.713	0.671	0.623	0.718	10.40
62)	T	n-Butyl Acetate	1.840	1.626	1.426	1.394	1.541	1.378	1.332	1.202	1.036	1.419	16.49
63)	T	n-Octane	0.727	0.640	0.559	0.529	0.570	0.495	0.480	0.433	0.369	0.534	20.14
64)	T	Tetrachloroethene	0.983	0.906	0.802	0.771	0.818	0.726	0.748	0.698	0.640	0.788	13.37
65)	T	Chlorobenzene	2.449	2.177	1.847	1.737	1.836	1.613	1.659	1.547	1.383	1.805	18.19
66)	T	Ethylbenzene	4.171	3.516	2.975	2.836	3.108	2.732	2.714	2.445	2.089	2.954	20.55
67)	T	m- & p-Xylenes	3.234	2.727	2.319	2.177	2.446	2.080	2.007	1.826	1.518	2.259	22.38
68)	T	Bromoform	0.642	0.593	0.543	0.545	0.629	0.617	0.677	0.643	0.597	0.610	7.38
69)	T	Styrene	2.351	2.069	1.722	1.664	1.919	1.726	1.747	1.586	1.381	1.796	15.80
70)	T	o-Xylene	3.033	2.692	2.307	2.207	2.439	2.093	2.039	1.825	1.533	2.241	20.03
71)	T	n-Nonane	1.436	1.366	1.190	1.152	1.255	1.069	0.969	0.832	0.660	1.103	22.71
72)	T	1,1,2,2-Tetrac...	1.182	1.116	1.005	1.027	1.157	1.049	1.035	0.923	0.777	1.030	12.05
73)	S	Bromofluoroben...	0.952	0.952	0.936	0.942	0.934	0.944	0.947	0.958	0.952	0.946	0.85
74)	T	Cumene			3.032	2.897	3.119	2.727	2.691	2.410	2.001	2.697	14.35
75)	T	alpha-Pinene	1.798	1.633	1.477	1.448	1.603	1.427	1.406	1.277	1.082	1.461	14.22
76)	T	n-Propylbenzene			3.498	3.433	3.754	3.248	3.150	2.767	2.240	3.156	16.11
77)	T	3-Ethyltoluene	3.867	3.504	3.146	2.782	3.058	2.696	2.752	2.389	2.061	2.917	18.88
78)	T	4-Ethyltoluene	3.485	3.122	2.670	2.739	3.017	2.617	2.402	2.193	1.734	2.664	19.56
79)	T	1,3,5-Trimethy...	3.242	3.053	2.539	2.338	2.551	2.214	2.173	1.948	1.630	2.410	21.07
80)	T	alpha-Methylst...	1.404	1.205	1.079	1.126	1.381	1.262	1.246	1.128	0.961	1.199	11.89
81)	T	2-Ethyltoluene	3.683	3.217	2.901	2.890	3.030	2.628	2.518	2.236	1.852	2.773	19.53
82)	T	1,2,4-Trimethy...	3.601	2.776	2.579	2.419	2.631	2.231	2.081	1.785	1.401	2.389	26.37
83)	T	n-Decane	1.498	1.390	1.277	1.242	1.390	1.190	1.076	0.925	0.722	1.190	20.73
84)	T	Benzyl Chloride				1.385	1.787	1.852	1.952	1.745	1.447	1.695	13.44
85)	T	1,3-Dichlorobe...	1.766	1.523	1.417	1.407	1.568	1.385	1.370	1.223	1.041	1.411	14.56
86)	T	1,4-Dichlorobe...		2.260	1.717	1.565	1.634	1.420	1.387	1.274	1.100	1.545	22.70
87)	T	sec-Butylbenzene			3.363	3.220	3.501	3.001	2.841	2.512	2.021	2.923	17.74
88)	T	4-Isopropyltol...			3.006	2.963	3.300	2.829	2.595	2.195	1.675	2.652	20.88
89)	T	1,2,3-Trimethy...			2.523	2.402	2.618	2.237	2.078	1.777	1.384	2.146	20.49
90)	T	1,2-Dichlorobe...	2.166	1.826	1.511	1.440	1.562	1.334	1.281	1.124	0.908	1.461	25.49
91)	T	d-Limonene	1.036	0.957	0.837	0.846	1.029	0.899	0.784	0.676	0.512	0.842	20.09
92)	T	1,2-Dibromo-3-...				0.386	0.477	0.488	0.518	0.493	0.450	0.469	9.90
93)	T	n-Undecane	1.666	1.427	1.273	1.281	1.472	1.277	1.143	0.985	0.774	1.255	21.15
94)	T	1,2,4-Trichlor...	1.844	1.461	1.146	1.059	1.152	1.107	1.135	1.071	0.960	1.215	22.40
95)	T	Naphthalene	5.571	4.089	3.174	2.892	3.243	3.200	3.082	2.717	2.142	3.345	29.30
96)	T	n-Dodecane	1.622	1.305	1.140	1.125	1.470	1.334	1.016	0.849	0.642	1.167	26.20
97)	T	Hexachlorobuta...	0.931	0.823	0.707	0.701	0.785	0.700	0.710	0.673	0.608	0.738	12.91
98)	T	Cyclohexanone	1.107	0.996	0.859	0.833	0.845	0.766	0.833	0.752	0.655	0.850	15.73
99)	T	tert-Butylbenzene	3.077	2.701	2.402	2.316	2.537	2.183	2.019	1.731	1.377	2.260	22.58
100)	T	n-Butylbenzene	3.412	2.966	2.595	2.557	2.828	2.417	2.286	2.012	1.640	2.524	20.75

(#) = Out of Range

R16100616.M Wed Oct 12 15:46:49 2016

Primary Source Standards Concentrations (Working & Initial Calibration)

LH 10/12/16

1ng/L Std. ID: S29-10051616
4ng/L Std. ID: S29-10051612
20ng/L Std. ID: S29-10051612
200ng/L Std. ID: S29-10051604

		Primary Working Standards										Working STD Conc.(ng/L):									
		Source Std. mg/m ³	200ng/L	20ng/L	4ng/L	1ng/L	1000	5	50	250	1000	4	4	4	4	4	20	200	200	200	200
Compounds			200ng/L	20ng/L	4ng/L	1ng/L						0.020	0.025	0.050	0.100	0.050	0.025	0.125	0.25	0.50	100ng
Propene		1.036	207.2	20.72	4.144	1.036						0.08288	0.1036	0.2072	0.4144	1.036	5.180	25.900	51.80	103.6	103.6
Dichlorodifluoromethane		1.047	209.4	20.94	4.188	1.047						0.08376	0.1047	0.2094	0.4188	1.047	5.235	26.175	52.35	104.7	104.7
Chloromethane		1.005	201.0	20.10	4.020	1.005						0.08040	0.1005	0.2010	0.4020	1.005	5.025	25.125	50.25	100.5	100.5
Freon-114		1.005	201.0	20.10	4.020	1.005						0.08040	0.1005	0.2010	0.4020	1.005	5.025	25.125	50.25	100.5	100.5
Vinyl Chloride		1.023	204.6	20.46	4.092	1.023						0.08184	0.1023	0.2046	0.4092	1.023	5.115	25.575	51.15	102.3	102.3
1,3-Butadiene		1.057	211.4	21.14	4.228	1.057						0.08456	0.1057	0.2114	0.4228	1.057	5.285	26.425	52.85	105.7	105.7
Bromomethane		0.993	198.6	19.86	3.972	0.993						0.07944	0.0993	0.1986	0.3972	0.993	4.965	24.825	49.65	99.3	99.3
Chloroethane		1.009	201.8	20.18	4.036	1.009						0.08072	0.1009	0.2018	0.4036	1.009	5.045	25.225	50.45	100.9	100.9
Ethanol		5.207	1041.4	104.14	20.828	5.207						0.41656	0.5207	1.0414	2.0828	5.207	26.035	130.175	260.35	520.7	520.7
Acetonitrile		1.046	209.2	20.92	4.184	1.046						0.08368	0.1046	0.2092	0.4184	1.046	5.230	26.150	52.30	104.6	104.6
Acrolein		1.041	208.2	20.82	4.164	1.041						0.08328	0.1041	0.2082	0.4164	1.041	5.205	26.025	52.05	104.1	104.1
Acetone		5.313	1062.6	106.26	21.252	5.313						0.42504	0.5313	1.0626	2.1252	5.313	26.565	132.825	265.65	531.3	531.3
Trichlorofluoromethane		1.049	209.8	20.98	4.196	1.049						0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9	104.9
Isopropanol		2.105	421.0	42.10	8.420	2.105						0.16840	0.2105	0.4210	0.8420	2.105	10.525	52.625	105.25	210.5	210.5
Acrylonitrile		1.055	211.0	21.10	4.220	1.055						0.08440	0.1055	0.2110	0.4220	1.055	5.275	26.375	52.75	105.5	105.5
1,1-Dichloroethene		1.059	211.8	21.18	4.236	1.059						0.08472	0.1059	0.2118	0.4236	1.059	5.295	26.475	52.95	105.9	105.9
tert-Butanol		2.114	422.8	42.28	8.456	2.114						0.16912	0.2114	0.4228	0.8456	2.114	10.570	52.850	105.70	211.4	211.4
Methylene Chloride		1.057	211.4	21.14	4.228	1.057						0.08456	0.1057	0.2114	0.4228	1.057	5.285	26.425	52.85	105.7	105.7
Allyl Chloride		1.052	210.4	21.04	4.208	1.052						0.08416	0.1052	0.2104	0.4208	1.052	5.260	26.300	52.60	105.2	105.2
Trichlorofluoroethane		1.049	209.8	20.98	4.196	1.049						0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9	104.9
Carbon Disulfide		1.061	212.2	21.22	4.244	1.061						0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1	106.1
trans-1,2-Dichloroethene		1.067	213.4	21.34	4.268	1.067						0.08536	0.1067	0.2134	0.4268	1.067	5.335	26.675	53.35	106.7	106.7
1,1-Dichloroethane		1.020	204.0	20.40	4.080	1.020						0.08160	0.1020	0.2040	0.4080	1.020	5.100	25.500	51.00	102.0	102.0
Methyl tert-Butyl Ether		1.066	213.2	21.32	4.264	1.066						0.08528	0.1066	0.2132	0.4264	1.066	5.330	26.650	53.30	106.6	106.6
Vinyl Acetate		5.265	1053.0	105.30	21.060	5.265						0.42120	0.5265	1.0530	2.1060	5.265	26.325	131.625	263.25	526.5	526.5
2-Butanone		1.049	209.8	20.98	4.196	1.049						0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9	104.9
cis-1,2-Dichloroethene		1.064	212.8	21.28	4.256	1.064						0.08512	0.1064	0.2128	0.4256	1.064	5.320	26.600	53.20	106.4	106.4
Diisopropyl Ether		1.062	212.4	21.24	4.248	1.062						0.08496	0.1062	0.2124	0.4248	1.062	5.310	26.550	53.10	106.2	106.2
Ethyl Acetate		2.129	425.8	42.58	8.516	2.129						0.17032	0.2129	0.4258	0.8516	2.129	10.645	53.225	106.45	212.9	212.9
n-Hexane		1.063	212.6	21.26	4.252	1.063						0.08504	0.1063	0.2126	0.4252	1.063	5.315	26.575	53.15	106.3	106.3
Chloroform		1.058	211.6	21.16	4.232	1.058						0.08464	0.1058	0.2116	0.4232	1.058	5.290	26.450	52.90	105.8	105.8
Tetrahydrofuran		1.062	212.4	21.24	4.248	1.062						0.08496	0.1062	0.2124	0.4248	1.062	5.310	26.550	53.10	106.2	106.2
Ethyl tert-Butyl Ether		1.057	211.4	21.14	4.228	1.057						0.08456	0.1057	0.2114	0.4228	1.057	5.285	26.425	52.85	105.7	105.7
1,2-Dichloroethane		1.052	210.4	21.04	4.208	1.052						0.08416	0.1052	0.2104	0.4208	1.052	5.260	26.300	52.60	105.2	105.2
1,1,1-Trichloroethane		1.074	214.8	21.48	4.296	1.074						0.08592	0.1074	0.2148	0.4296	1.074	5.370	26.850	53.70	107.4	107.4
Isopropyl Acetate		2.104	420.8	42.08	8.416	2.104						0.16832	0.2104	0.4208	0.8416	2.104	10.520	52.600	105.20	210.4	210.4
1-Butanol		2.105	421.0	42.10	8.420	2.105						0.16840	0.2105	0.4210	0.8420	2.105	10.525	52.625	105.25	210.5	210.5
Benzene		1.052	210.4	21.04	4.208	1.052						0.08416	0.1052	0.2104	0.4208	1.052	5.260	26.300	52.60	105.2	105.2
Carbon Tetrachloride		1.055	211.0	21.10	4.220	1.055						0.08440	0.1055	0.2110	0.4220	1.055	5.275	26.375	52.75	105.5	105.5
Cyclohexane		2.130	426.0	42.60	8.520	2.130						0.17040	0.2130	0.4260	0.8520	2.130	10.650	53.250	106.50	213.0	213.0
tert-Amyl Methyl Ether		1.054	210.8	21.08	4.216	1.054						0.08432	0.1054	0.2108	0.4216	1.054	5.270	26.350	52.70	105.4	105.4
1,2-Dichloropropane		1.062	212.4	21.24	4.248	1.062						0.08496	0.1062	0.2124	0.4248	1.062	5.310	26.550	53.10	106.2	106.2
Bromodichloromethane		1.066	212.0	21.20	4.240	1.066						0.08528	0.1066	0.2132	0.4264	1.066	5.330	26.650	53.30	106.6	106.6
Trichloroethene		1.060	212.0	21.20	4.240	1.060						0.08490	0.1060	0.2120	0.4240	1.060	5.300	26.500	53.00	106.0	106.0
1,4-Dioxane		1.062	212.4	21.24	4.248	1.062						0.08496	0.1062	0.2124	0.4248	1.062	5.310	26.550	53.10	106.2	106.2
Isocetane		1.059	211.8	21.18	4.236	1.059						0.08472	0.1059	0.2118	0.4236	1.059	5.295	26.475	52.95	105.9	105.9
Methyl Methacrylate		2.110	422.0	42.20	8.440	2.110						0.16880	0.2110	0.4220	0.8440	2.110	10.550	52.750	105.50	211.0	211.0
n-Heptane		1.062	212.4	21.24	4.248	1.062						0.08496	0.1062	0.2124	0.4248	1.062	5.310	26.550	53.10	106.2	106.2
cis-1,3-Dichloropropene		1.116	223.2	22.32	4.464	1.116						0.08928	0.1116	0.2232	0.4464	1.116	5.580	27.900	55.80	111.6	111.6
4-Methyl-2-pentanone		1.058	211.6	21.16	4.232	1.058						0.08464	0.1058	0.2116	0.4232	1.058	5.290	26.450	52.90	105.8	105.8
trans-1,3-Dichloropropene		1.064	212.8	21.28	4.256	1.064						0.08512	0.1064	0.2128	0.4256	1.064	5.320	26.600	53.20	106.4	106.4
1,1,2-Trichloroethane		1.061	212.2	21.22	4.244	1.061						0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1	106.1
Toluene		1.053	210.6	21.06	4.212	1.053						0.08424	0.1053	0.2106	0.4212	1.053	5.265	26.325	52.65	105.3	105.3
2-Hexanone		1.061	212.2	21.22	4.244	1.061						0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1	106.1

1ng/L Std. ID: S29-10051616
4ng/L Std. ID: S29-10051612
20ng/L Std. ID: S29-10051612
200ng/L Std. ID: S29-10051604

Primary Source Standards Concentrations (Working & Initial Calibration)

Compounds	Source Std. mg/m ³	Primary Working Standards					Working STD Conc.(ng/L):					Injection (L):					ICAL Points:				
		200ng/L	20ng/L	4ng/L	1ng/L	1000	4	4	4	4	4	0.020	0.025	0.050	0.100	20	200	250	500	1000	200
Dibromochloromethane	1.062	212.4	21.24	4.248	1.062		0.08496	0.1062	0.2124	0.4248	0.8496	0.08496	0.1062	0.2124	0.4248	1.062	5.310	26.550	53.10	106.2	50.5
1,2-Dibromomethane	1.056	211.2	21.12	4.224	1.056		0.08448	0.1056	0.2112	0.4224	0.8448	0.08448	0.1056	0.2112	0.4224	1.056	5.280	26.400	52.80	105.6	50.5
n-Butyl Acetate	1.064	212.8	21.28	4.256	1.064		0.08512	0.1064	0.2128	0.4256	0.8512	0.08512	0.1064	0.2128	0.4256	1.064	5.320	26.600	53.20	106.4	50.5
n-Octane	1.057	211.4	21.14	4.228	1.057		0.08456	0.1057	0.2114	0.4228	0.8456	0.08456	0.1057	0.2114	0.4228	1.057	5.285	26.425	52.85	105.7	50.5
Tetrachloroethene	1.061	212.2	21.22	4.244	1.061		0.08488	0.1061	0.2122	0.4244	0.8488	0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1	50.5
Chlorobenzene	1.061	212.2	21.22	4.244	1.061		0.08488	0.1061	0.2122	0.4244	0.8488	0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1	50.5
n-Propylbenzene	1.055	211.0	21.10	4.220	1.055		0.08440	0.1055	0.2110	0.4220	0.8440	0.08440	0.1055	0.2110	0.4220	1.055	5.275	26.375	52.75	105.5	50.5
m- & p-Xylene	1.063	212.6	21.26	4.252	1.063		0.08504	0.1063	0.2126	0.4252	0.8504	0.08504	0.1063	0.2126	0.4252	1.063	5.315	26.575	53.15	106.3	50.5
Bromodorm	1.063	212.6	21.26	4.252	1.063		0.08504	0.1063	0.2126	0.4252	0.8504	0.08504	0.1063	0.2126	0.4252	1.063	5.315	26.575	53.15	106.3	50.5
Styrene	1.061	212.2	21.22	4.244	1.061		0.08488	0.1061	0.2122	0.4244	0.8488	0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1	50.5
o-Xylene	1.054	210.8	21.08	4.216	1.054		0.08432	0.1054	0.2108	0.4216	0.8432	0.08432	0.1054	0.2108	0.4216	1.054	5.270	26.350	52.70	105.4	50.5
n-Nonane	1.054	210.8	21.08	4.216	1.054		0.08432	0.1054	0.2108	0.4216	0.8432	0.08432	0.1054	0.2108	0.4216	1.054	5.270	26.350	52.70	105.4	50.5
1,1,2,2-Tetrachloroethane	1.056	211.2	21.12	4.224	1.056		0.08448	0.1056	0.2112	0.4224	0.8448	0.08448	0.1056	0.2112	0.4224	1.056	5.280	26.400	52.80	105.6	50.5
Cumene	1.050	210.0	21.00	4.200	1.050		0.08400	0.1050	0.2100	0.4200	0.8400	0.08400	0.1050	0.2100	0.4200	1.050	5.250	26.250	52.50	105.0	50.5
alpha-Phene	1.044	208.8	20.88	4.176	1.044		0.08352	0.1044	0.2088	0.4176	0.8352	0.08352	0.1044	0.2088	0.4176	1.044	5.220	26.100	52.20	104.4	50.5
n-Propylbenzene	1.063	212.6	21.26	4.252	1.063		0.08504	0.1063	0.2126	0.4252	0.8504	0.08504	0.1063	0.2126	0.4252	1.063	5.315	26.575	53.15	106.3	50.5
3-Ethyltoluene	1.050	210.0	21.00	4.200	1.050		0.08400	0.1050	0.2100	0.4200	0.8400	0.08400	0.1050	0.2100	0.4200	1.050	5.250	26.250	52.50	105.0	50.5
4-Ethyltoluene	1.049	209.8	20.98	4.196	1.049		0.08392	0.1049	0.2098	0.4196	0.8392	0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9	50.5
1,3,5-Trimethylbenzene	1.049	209.8	20.98	4.196	1.049		0.08392	0.1049	0.2098	0.4196	0.8392	0.08392	0.1049	0.2098	0.4196	1.049	5.245	26.225	52.45	104.9	50.5
alpha-Methylstyrene	1.050	210.0	21.00	4.200	1.050		0.08400	0.1050	0.2100	0.4200	0.8400	0.08400	0.1050	0.2100	0.4200	1.050	5.250	26.250	52.50	105.0	50.5
2-Ethyltoluene	1.062	212.4	21.24	4.248	1.062		0.08496	0.1062	0.2124	0.4248	0.8496	0.08496	0.1062	0.2124	0.4248	1.062	5.310	26.550	53.10	106.2	50.5
1,2,4-Trimethylbenzene	1.052	210.4	21.04	4.208	1.052		0.08416	0.1052	0.2104	0.4208	0.8416	0.08416	0.1052	0.2104	0.4208	1.052	5.260	26.300	52.60	105.2	50.5
n-Decane	1.053	210.6	21.06	4.212	1.053		0.08424	0.1053	0.2106	0.4212	0.8424	0.08424	0.1053	0.2106	0.4212	1.053	5.265	26.325	52.65	105.3	50.5
Benzyl Chloride	1.061	212.2	21.22	4.244	1.061		0.08488	0.1061	0.2122	0.4244	0.8488	0.08488	0.1061	0.2122	0.4244	1.061	5.305	26.525	53.05	106.1	50.5
1,3-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058		0.08464	0.1058	0.2116	0.4232	0.8464	0.08464	0.1058	0.2116	0.4232	1.058	5.290	26.450	52.90	105.8	50.5
1,4-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058		0.08464	0.1058	0.2116	0.4232	0.8464	0.08464	0.1058	0.2116	0.4232	1.058	5.290	26.450	52.90	105.8	50.5
sec-Butylbenzene	1.054	210.8	21.08	4.216	1.054		0.08432	0.1054	0.2108	0.4216	0.8432	0.08432	0.1054	0.2108	0.4216	1.054	5.270	26.350	52.70	105.4	50.5
p-Isopropyltoluene	1.027	205.4	20.54	4.108	1.027		0.08216	0.1027	0.2054	0.4108	0.8216	0.08216	0.1027	0.2054	0.4108	1.027	5.135	25.675	51.35	102.7	50.5
1,2,3-Trimethylbenzene	1.027	205.4	20.54	4.108	1.027		0.08216	0.1027	0.2054	0.4108	0.8216	0.08216	0.1027	0.2054	0.4108	1.027	5.135	25.675	51.35	102.7	50.5
1,2-Dichlorobenzene	1.058	211.6	21.16	4.232	1.058		0.08464	0.1058	0.2116	0.4232	0.8464	0.08464	0.1058	0.2116	0.4232	1.058	5.290	26.450	52.90	105.8	50.5
d-Limonene	1.005	201.0	20.10	4.020	1.005		0.08040	0.1005	0.2010	0.4020	0.8040	0.08040	0.1005	0.2010	0.4020	1.005	5.025	25.125	50.25	100.5	50.5
1,2-Dibromo-3-chloropropane	1.053	210.6	21.06	4.212	1.053		0.08424	0.1053	0.2106	0.4212	0.8424	0.08424	0.1053	0.2106	0.4212	1.053	5.265	26.325	52.65	105.3	50.5
n-Undecane	1.054	210.8	21.08	4.216	1.054		0.08432	0.1054	0.2108	0.4216	0.8432	0.08432	0.1054	0.2108	0.4216	1.054	5.270	26.350	52.70	105.4	50.5
1,2,4-Trichlorobenzene	1.043	208.6	20.86	4.172	1.043		0.08344	0.1043	0.2086	0.4172	0.8344	0.08344	0.1043	0.2086	0.4172	1.043	5.215	26.075	52.15	104.3	50.5
Naphthalene	1.083	216.6	21.66	4.332	1.083		0.08664	0.1083	0.2166	0.4332	0.8664	0.08664	0.1083	0.2166	0.4332	1.083	5.415	27.075	54.15	108.3	50.5
n-Dodecane	1.045	209.0	20.90	4.180	1.045		0.08360	0.1045	0.2090	0.4180	0.8360	0.08360	0.1045	0.2090	0.4180	1.045	5.225	26.125	52.25	104.5	50.5
Hexachloro-1,3-butadiene	1.059	211.8	21.18	4.236	1.059		0.08472	0.1059	0.2118	0.4236	0.8472	0.08472	0.1059	0.2118	0.4236	1.059	5.295	26.475	52.95	105.9	50.5
Methacrylonitrile	1.065	213.0	21.30	4.260	1.065		0.08520	0.1065	0.2130	0.4260	0.8520	0.08520	0.1065	0.2130	0.4260	1.065	5.325	26.625	53.25	106.5	50.5
Cyclohexanone	1.056	211.2	21.12	4.224	1.056		0.08448	0.1056	0.2112	0.4224	0.8448	0.08448	0.1056	0.2112	0.4224	1.056	5.280	26.400	52.80	105.6	50.5
tert-Butylbenzene	1.051	210.2	21.02	4.204	1.051		0.08408	0.1051	0.2102	0.4204	0.8408	0.08408	0.1051	0.2102	0.4204	1.051	5.255	26.275	52.55	105.1	50.5
n-Butylbenzene	1.056	211.2	21.12	4.224	1.056		0.08448	0.1056	0.2112	0.4224	0.8448	0.08448	0.1056	0.2112	0.4224	1.056	5.280	26.400	52.80	105.6	50.5

LH 10/12/16

Method : I:\MS16\METHODS\R16100616.M (RTE Integrator)
 Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 Last Update : Wed Oct 12 15:41:09 2016
 Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.08	0	13	I:\MS16\DATA\2016_10\06\10061625.D
2	0.10	0	13	I:\MS16\DATA\2016_10\06\10061626.D
3	0.20	0	13	I:\MS16\DATA\2016_10\06\10061627.D
4	0.40	0	13	I:\MS16\DATA\2016_10\06\10061628.D
5	1.0	1	13	I:\MS16\DATA\2016_10\06\10061629.D
6	5.0	5	13	I:\MS16\DATA\2016_10\06\10061630.D
7	25	26	13	I:\MS16\DATA\2016_10\06\10061631.D
8	50	52	13	I:\MS16\DATA\2016_10\06\10061632.D
9	100	104	13	I:\MS16\DATA\2016_10\06\10061633.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.08	Oct 12 15:40 2016	Oct 10 10:06 2016	6 Oct 2016 20:30
2	0.10	Oct 12 15:40 2016	Oct 10 10:06 2016	6 Oct 2016 21:03
3	0.20	Oct 12 15:40 2016	Oct 10 10:06 2016	6 Oct 2016 21:36
4	0.40	Oct 12 15:40 2016	Oct 10 10:06 2016	6 Oct 2016 22:09
5	1.0	Oct 12 15:40 2016	Oct 10 10:06 2016	6 Oct 2016 22:43
6	5.0	Oct 12 15:40 2016	Oct 10 10:06 2016	6 Oct 2016 23:16
7	25	Oct 12 15:40 2016	Oct 10 10:06 2016	6 Oct 2016 23:50
8	50	Oct 12 15:41 2016	Oct 10 10:06 2016	7 Oct 2016 00:24
9	100	Oct 12 15:41 2016	Oct 10 10:06 2016	7 Oct 2016 00:57

R16100616.M

Wed Oct 12 15:56:39 2016

LH 10/12/16

Data File: I:\MS16\DATA\2016 10\06\10061626.D

Acq On : 6 Oct 2016 21:03

Operator: LH

Sample : 0.1ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051616 (11/3)

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 10 10:06:08 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 10/10/16

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.29	130	331339	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.41	114	1618088	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	642852	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.14	65	430536	14.654	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	117.20%
57) Toluene-d8 (SS2)	15.87	98	1609746	11.776	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	94.24%
73) Bromofluorobenzene (SS3)	19.11	174	611946	10.782	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	86.24%

Target Compounds

						Qvalue
2) Propene	4.22	42	4289	0.217	ng	94
3) Dichlorodifluoromethan...	4.36	85	7265	0.132	ng	# 95
4) Chloromethane	4.70	50	4694	0.209	ng	93
5) 1,2-Dichloro-1,1,2,2-t...	4.90	135	3809	0.105	ng	96
6) Vinyl Chloride	5.12	62	4682	0.149	ng	91
7) 1,3-Butadiene	5.37	54	2558	0.133	ng	91
8) Bromomethane	5.81	94	3306	0.120	ng	99
9) Chloroethane	6.13	64	2389	0.132	ng	87
10) Ethanol	6.46	45	14476	0.961	ng	94
11) Acetonitrile	6.79	41	8245	0.215	ng	# 65
12) Acrolein	6.97	56	2214	0.146	ng	98
13) Acetone	7.14	58	16935	1.015	ng	93
14) Trichlorofluoromethane	7.39	101	6384	0.133	ng	97
15) 2-Propanol (Isopropanol)	7.62	45	18615	0.350	ng	96
16) Acrylonitrile	7.95	53	4731	0.161	ng	95
17) 1,1-Dichloroethene	8.35	96	3462	0.124	ng	89
18) 2-Methyl-2-Propanol (t...	8.53	59	19082	0.302	ng	96
19) Methylene Chloride	8.57	84	4638	0.163	ng	97
20) 3-Chloro-1-propene (Al...	8.74	41	4939	0.183	ng	85
21) Trichlorotrifluoroethane	8.99	151	3481	0.109	ng	94
22) Carbon Disulfide	8.87	76	16469	0.155	ng	95
23) trans-1,2-Dichloroethene	9.86	61	4954	0.144	ng	99
24) 1,1-Dichloroethane	10.09	63	6352	0.137	ng	98
25) Methyl tert-Butyl Ether	10.21	73	11233	0.140	ng	99
26) Vinyl Acetate	10.37	86	3083	0.515	ng	# 27
27) 2-Butanone (MEK)	10.62	72	2528	0.140	ng	# 58
28) cis-1,2-Dichloroethene	11.11	61	4883	0.147	ng	98
29) Diisopropyl Ether	11.42	87	3821	0.146	ng	96
30) Ethyl Acetate	11.43	61	2708	0.320	ng	94
31) n-Hexane	11.40	57	6509	0.162	ng	# 97
32) Chloroform	11.45	83	6609	0.140	ng	98
34) Tetrahydrofuran (THF)	11.88	72	3332	0.191	ng	94
35) Ethyl tert-Butyl Ether	12.01	87	4577	0.134	ng	95
36) 1,2-Dichloroethane	12.25	62	4515	0.144	ng	100
38) 1,1,1-Trichloroethane	12.54	97	5563	0.126	ng	97
39) Isopropyl Acetate	12.97	61	4951	0.296	ng	# 84
40) 1-Butanol	13.01	56	6703	0.274	ng	# 78
41) Benzene	13.02	78	19602	0.154	ng	98
42) Carbon Tetrachloride	13.17	117	4753	0.116	ng	100
43) Cyclohexane	13.31	84	12466	0.280	ng	98
44) tert-Amyl Methyl Ether	13.67	73	10947	0.136	ng	97
45) 1,2-Dichloropropane	13.87	63	4136	0.155	ng	96
46) Bromodichloromethane	14.06	83	4636	0.121	ng	97
47) Trichloroethene	14.12	130	4660	0.118	ng	95
48) 1,4-Dioxane	14.11	88	3377	0.131	ng	96
49) 2,2,4-Trimethylpentane...	14.18	57	16433	0.157	ng	98

Data File: I:\MS16\DATA\2016 10\06\10061626.D

Acq On : 6 Oct 2016 21:03

Operator: LH

Sample : 0.1ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051616 (11/3)

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 10 10:06:08 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

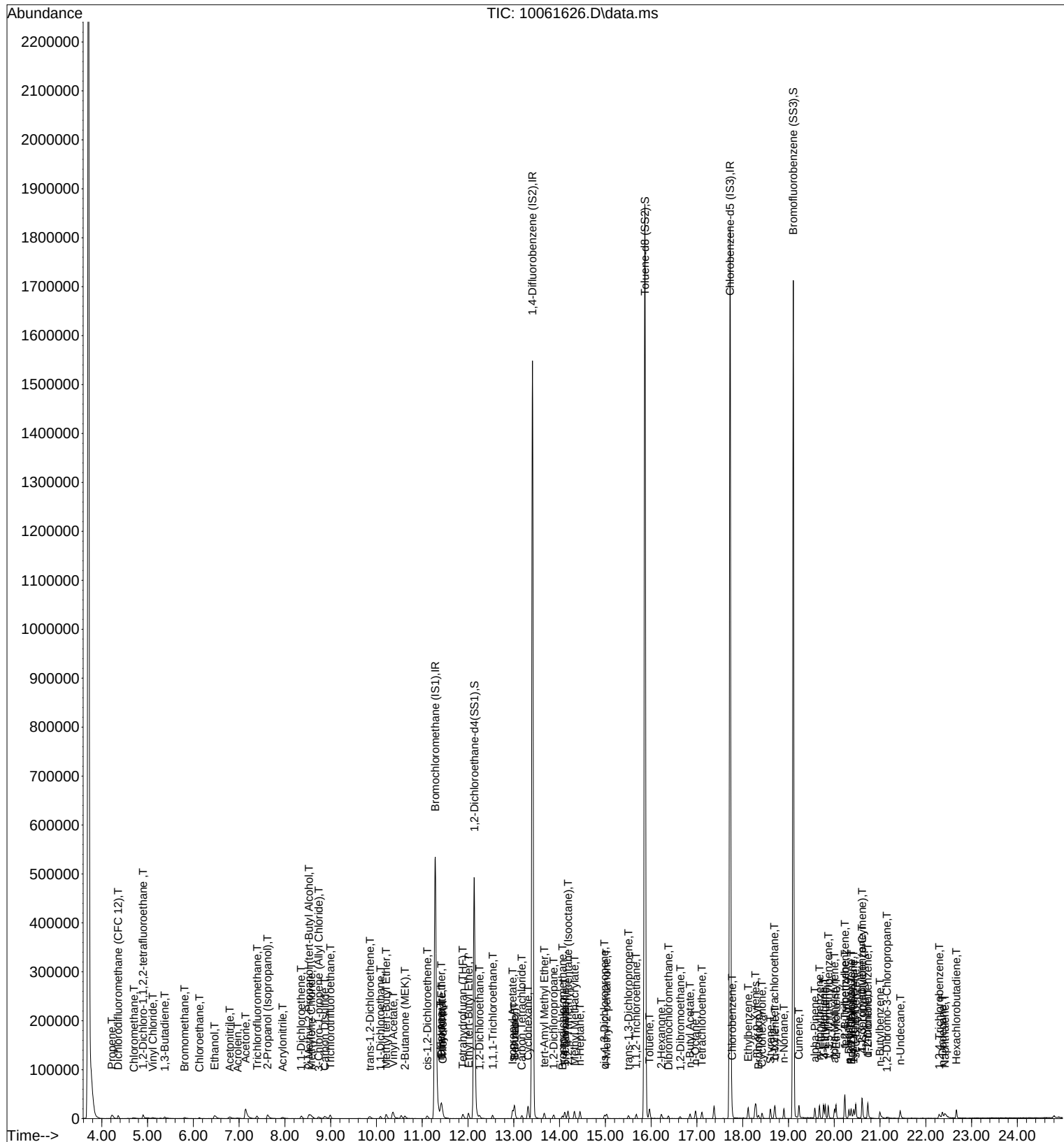
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.33	100	3169	0.233	ng	94
51) n-Heptane	14.45	71	3960	0.136	ng	94
52) cis-1,3-Dichloropropene	14.98	75	6034	0.134	ng	100
53) 4-Methyl-2-pentanone	15.02	58	3300	0.138	ng	81
54) trans-1,3-Dichloropropene	15.50	75	4874	0.121	ng	99
55) 1,1,2-Trichloroethane	15.67	97	3612	0.116	ng	95
58) Toluene	15.97	91	18075	0.123	ng	96
59) 2-Hexanone	16.22	43	8055	0.143	ng	92
60) Dibromochloromethane	16.38	129	4113	0.098	ng	99
61) 1,2-Dibromoethane	16.64	107	4285	0.104	ng	98
62) n-Butyl Acetate	16.85	43	8896	0.147	ng	95
63) n-Octane	16.97	57	3478	0.138	ng	92
64) Tetrachloroethene	17.11	166	4944	0.100	ng	100
65) Chlorobenzene	17.77	112	11879	0.115	ng	96
66) Ethylbenzene	18.12	91	19076	0.120	ng	97
67) m- & p-Xylenes	18.28	91	29779	0.240	ng	97
68) Bromoform	18.35	173	3242	0.078	ng	97
69) Styrene	18.60	104	11288	0.107	ng	98
70) o-Xylene	18.70	91	14591	0.115	ng	99
71) n-Nonane	18.90	43	7402	0.152	ng	91
72) 1,1,2,2-Tetrachloroethane	18.69	83	6059	0.113	ng	95
74) Cumene	19.23	105	20195	0.115	ng	95
75) alpha-Pinene	19.57	93	8770	0.109	ng	97
76) n-Propylbenzene	19.68	91	22334	0.113	ng	98
77) 3-Ethyltoluene	19.77	105	18921	0.106	ng	96
78) 4-Ethyltoluene	19.80	105	16841	0.108	ng	100
79) 1,3,5-Trimethylbenzene	19.87	105	16470	0.112	ng	94
80) alpha-Methylstyrene	20.01	118	6508	0.089	ng	91
81) 2-Ethyltoluene	20.04	105	17570	0.108	ng	100
82) 1,2,4-Trimethylbenzene	20.23	105	15019	0.108	ng	98
83) n-Decane	20.32	57	7525	0.128	ng	97
84) Benzyl Chloride	20.38	91	5932	0.056	ng	86
85) 1,3-Dichlorobenzene	20.37	146	8289	0.092	ng	100
86) 1,4-Dichlorobenzene	20.42	146	12295	0.125	ng	99
87) sec-Butylbenzene	20.47	105	20670	0.113	ng	85
88) 4-Isopropyltoluene (p-...	20.61	119	18467	0.105	ng	95
89) 1,2,3-Trimethylbenzene	20.61	105	15942	0.108	ng	92
90) 1,2-Dichlorobenzene	20.73	146	9933	0.110	ng	92
91) d-Limonene	20.73	68	4947	0.115	ng	95
92) 1,2-Dibromo-3-Chloropr...	21.15	157	1863	0.057	ng	# 72
93) n-Undecane	21.44	57	7736	0.130	ng	93
94) 1,2,4-Trichlorobenzene	22.29	180	7836	0.102	ng	97
95) Naphthalene	22.42	128	22773	0.115	ng	98
96) n-Dodecane	22.37	57	7015	0.121	ng	90
97) Hexachlorobutadiene	22.67	225	4482	0.091	ng	97
98) Cyclohexanone	18.42	55	5409	0.130	ng	95
99) tert-Butylbenzene	20.23	119	14601	0.107	ng	99
100) n-Butylbenzene	21.00	91	16110	0.116	ng	92

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

ALS Vial : 10 Sample Multiplier: 1

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2016 10\06\10061627.D

Acq On : 6 Oct 2016 21:36

Operator: LH

Sample : 0.2ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051616 (11/3)

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 10 10:06:10 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 10/10/16

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.29	130	326646	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.41	114	1568634	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	642112	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	422451	14.586	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	116.72%
57) Toluene-d8 (SS2)	15.86	98	1585449	11.611	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	92.88%
73) Bromofluorobenzene (SS3)	19.11	174	600867	10.599	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	84.80%

Target Compounds

						Qvalue
2) Propene	4.20	42	7721	0.396	ng	98
3) Dichlorodifluoromethan...	4.35	85	12801	0.235	ng	99
4) Chloromethane	4.68	50	8503	0.384	ng	95
5) 1,2-Dichloro-1,1,2,2-t...	4.89	135	6682	0.186	ng	99
6) Vinyl Chloride	5.10	62	8277	0.267	ng	97
7) 1,3-Butadiene	5.37	54	5031	0.264	ng	92
8) Bromomethane	5.80	94	5842	0.215	ng	99
9) Chloroethane	6.12	64	4413	0.248	ng	93
10) Ethanol	6.46	45	25966	1.748	ng	96
11) Acetonitrile	6.79	41	13925	0.368	ng	75
12) Acrolein	6.96	56	4006	0.269	ng	99
13) Acetone	7.13	58	28734	1.746	ng	94
14) Trichlorofluoromethane	7.38	101	11160	0.236	ng	98
15) 2-Propanol (Isopropanol)	7.61	45	33414	0.636	ng	95
16) Acrylonitrile	7.95	53	8736	0.302	ng	93
17) 1,1-Dichloroethene	8.35	96	6316	0.229	ng	94
18) 2-Methyl-2-Propanol (t...	8.51	59	34076	0.547	ng	97
19) Methylene Chloride	8.57	84	7226	0.258	ng	96
20) 3-Chloro-1-propene (Al...	8.73	41	8480	0.319	ng	92
21) Trichlorotrifluoroethane	8.99	151	6541	0.208	ng	98
22) Carbon Disulfide	8.87	76	27663	0.264	ng	96
23) trans-1,2-Dichloroethene	9.85	61	9035	0.267	ng	99
24) 1,1-Dichloroethane	10.09	63	11208	0.245	ng	100
25) Methyl tert-Butyl Ether	10.21	73	20127	0.255	ng	98
26) Vinyl Acetate	10.35	86	6094	1.033	ng	# 52
27) 2-Butanone (MEK)	10.61	72	4526	0.254	ng	# 58
28) cis-1,2-Dichloroethene	11.10	61	9015	0.275	ng	96
29) Diisopropyl Ether	11.41	87	6796	0.263	ng	# 93
30) Ethyl Acetate	11.42	61	5198	0.623	ng	93
31) n-Hexane	11.40	57	11595	0.293	ng	98
32) Chloroform	11.45	83	11636	0.251	ng	98
34) Tetrahydrofuran (THF)	11.88	72	5407	0.315	ng	92
35) Ethyl tert-Butyl Ether	12.01	87	8003	0.238	ng	96
36) 1,2-Dichloroethane	12.25	62	7792	0.252	ng	99
38) 1,1,1-Trichloroethane	12.54	97	10265	0.241	ng	98
39) Isopropyl Acetate	12.97	61	9262	0.572	ng	# 92
40) 1-Butanol	13.01	56	12347	0.521	ng	89
41) Benzene	13.02	78	32600	0.265	ng	100
42) Carbon Tetrachloride	13.18	117	8537	0.215	ng	100
43) Cyclohexane	13.31	84	21394	0.496	ng	95
44) tert-Amyl Methyl Ether	13.66	73	19532	0.250	ng	97
45) 1,2-Dichloropropane	13.87	63	7142	0.277	ng	98
46) Bromodichloromethane	14.06	83	8295	0.224	ng	99
47) Trichloroethene	14.12	130	7861	0.206	ng	99
48) 1,4-Dioxane	14.11	88	5725	0.228	ng	93
49) 2,2,4-Trimethylpentane...	14.18	57	28040	0.277	ng	97

Data File: I:\MS16\DATA\2016 10\06\10061627.D

Acq On : 6 Oct 2016 21:36

Operator: LH

Sample : 0.2ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051616 (11/3)

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 10 10:06:10 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

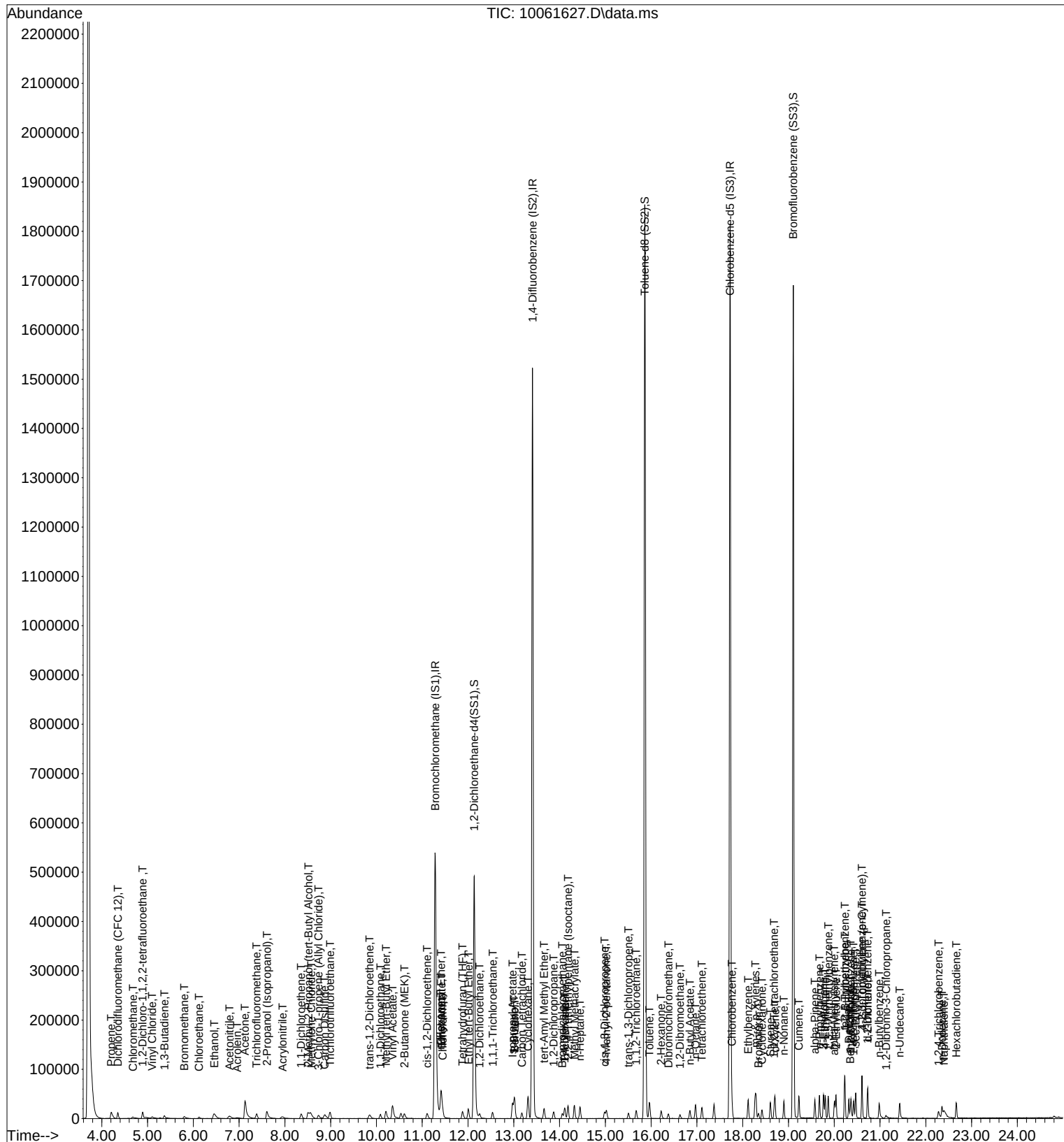
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.33	100	5564	0.422	ng	93
51) n-Heptane	14.45	71	7038	0.250	ng	98
52) cis-1,3-Dichloropropene	14.99	75	10972	0.251	ng	99
53) 4-Methyl-2-pentanone	15.02	58	6153	0.265	ng	90
54) trans-1,3-Dichloropropene	15.50	75	8563	0.219	ng	100
55) 1,1,2-Trichloroethane	15.67	97	7082	0.234	ng	99
58) Toluene	15.96	91	29872	0.203	ng	99
59) 2-Hexanone	16.22	43	13995	0.248	ng	92
60) Dibromochloromethane	16.38	129	7270	0.174	ng	99
61) 1,2-Dibromoethane	16.63	107	7443	0.181	ng	99
62) n-Butyl Acetate	16.85	43	15584	0.257	ng	97
63) n-Octane	16.97	57	6074	0.242	ng	92
64) Tetrachloroethene	17.11	166	8742	0.177	ng	97
65) Chlorobenzene	17.76	112	20132	0.195	ng	98
66) Ethylbenzene	18.12	91	32241	0.203	ng	98
67) m- & p-Xylenes	18.28	91	50573	0.408	ng	98
68) Bromoform	18.35	173	5934	0.143	ng	96
69) Styrene	18.60	104	18775	0.179	ng	100
70) o-Xylene	18.71	91	24985	0.197	ng	100
71) n-Nonane	18.90	43	12884	0.265	ng	93
72) 1,1,2,2-Tetrachloroethane	18.69	83	10904	0.203	ng	99
74) Cumene	19.23	105	32712	0.187	ng	99
75) alpha-Pinene	19.58	93	15846	0.198	ng	99
76) n-Propylbenzene	19.68	91	38207	0.194	ng	99
77) 3-Ethyltoluene	19.77	105	33936	0.190	ng	99
78) 4-Ethyltoluene	19.80	105	28771	0.184	ng	98
79) 1,3,5-Trimethylbenzene	19.87	105	27361	0.186	ng	95
80) alpha-Methylstyrene	20.00	118	11642	0.159	ng	93
81) 2-Ethyltoluene	20.04	105	31647	0.194	ng	98
82) 1,2,4-Trimethylbenzene	20.23	105	27873	0.200	ng	94
83) n-Decane	20.32	57	13815	0.235	ng	95
84) Benzyl Chloride	20.35	91	13503	0.128	ng	91
85) 1,3-Dichlorobenzene	20.36	146	15401	0.171	ng	99
86) 1,4-Dichlorobenzene	20.42	146	18667	0.190	ng	98
87) sec-Butylbenzene	20.47	105	36415	0.200	ng	96
88) 4-Isopropyltoluene (p-...	20.61	119	31720	0.180	ng	95
89) 1,2,3-Trimethylbenzene	20.61	105	26617	0.180	ng	97
90) 1,2-Dichlorobenzene	20.73	146	16429	0.182	ng	100
91) d-Limonene	20.73	68	8642	0.202	ng	97
92) 1,2-Dibromo-3-Chloropr...	21.13	157	3747	0.115	ng	# 72
93) n-Undecane	21.43	57	13783	0.233	ng	93
94) 1,2,4-Trichlorobenzene	22.28	180	12285	0.160	ng	96
95) Naphthalene	22.40	128	35318	0.178	ng	97
96) n-Dodecane	22.36	57	12238	0.212	ng	93
97) Hexachlorobutadiene	22.67	225	7691	0.156	ng	98
98) Cyclohexanone	18.42	55	9322	0.225	ng	96
99) tert-Butylbenzene	20.23	119	25934	0.190	ng	100
100) n-Butylbenzene	20.98	91	28150	0.203	ng	92

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

ALS Vial : 10 Sample Multiplier: 1

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2016 10\06\10061628.D

Acq On : 6 Oct 2016 22:09

Operator: LH

Sample : 0.4ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051616 (11/3)

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 10 10:06:12 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 10/10/16

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	325438	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.41	114	1574201	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	634294	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	422137	14.629	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	117.04%
57) Toluene-d8 (SS2)	15.86	98	1579550	11.711	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	93.68%
73) Bromofluorobenzene (SS3)	19.11	174	597601	10.672	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	85.36%

Target Compounds

						Qvalue
2) Propene	4.19	42	13260	0.683	ng	95
3) Dichlorodifluoromethan...	4.34	85	24412	0.450	ng	99
4) Chloromethane	4.66	50	12579	0.571	ng	93
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	12892	0.361	ng	99
6) Vinyl Chloride	5.09	62	16698	0.541	ng	96
7) 1,3-Butadiene	5.36	54	9368	0.494	ng	99
8) Bromomethane	5.79	94	10635	0.393	ng	99
9) Chloroethane	6.12	64	8902	0.502	ng	95
10) Ethanol	6.44	45	47819	3.231	ng	98
11) Acetonitrile	6.78	41	25541	0.677	ng	85
12) Acrolein	6.95	56	7544	0.508	ng	96
13) Acetone	7.12	58	54916	3.350	ng	99
14) Trichlorofluoromethane	7.38	101	21095	0.448	ng	99
15) 2-Propanol (Isopropanol)	7.59	45	63561	1.215	ng	93
16) Acrylonitrile	7.92	53	16625	0.576	ng	98
17) 1,1-Dichloroethene	8.35	96	12732	0.463	ng	100
18) 2-Methyl-2-Propanol (t...	8.48	59	65128	1.050	ng	97
19) Methylene Chloride	8.56	84	13630	0.489	ng	96
20) 3-Chloro-1-propene (Al...	8.73	41	16005	0.604	ng	93
21) Trichlorotrifluoroethane	8.99	151	12602	0.402	ng	99
22) Carbon Disulfide	8.87	76	51341	0.492	ng	98
23) trans-1,2-Dichloroethene	9.84	61	17462	0.518	ng	99
24) 1,1-Dichloroethane	10.09	63	21743	0.476	ng	100
25) Methyl tert-Butyl Ether	10.20	73	38851	0.495	ng	100
26) Vinyl Acetate	10.35	86	13336	2.270	ng	# 62
27) 2-Butanone (MEK)	10.60	72	9276	0.522	ng	# 78
28) cis-1,2-Dichloroethene	11.10	61	16896	0.517	ng	100
29) Diisopropyl Ether	11.41	87	13025	0.506	ng	95
30) Ethyl Acetate	11.42	61	10045	1.209	ng	96
31) n-Hexane	11.40	57	22183	0.563	ng	99
32) Chloroform	11.44	83	22476	0.486	ng	99
34) Tetrahydrofuran (THF)	11.87	72	9892	0.578	ng	93
35) Ethyl tert-Butyl Ether	12.00	87	15474	0.463	ng	95
36) 1,2-Dichloroethane	12.25	62	15008	0.487	ng	99
38) 1,1,1-Trichloroethane	12.53	97	19129	0.447	ng	99
39) Isopropyl Acetate	12.97	61	17479	1.075	ng	# 89
40) 1-Butanol	13.00	56	23840	1.002	ng	87
41) Benzene	13.01	78	57585	0.466	ng	100
42) Carbon Tetrachloride	13.18	117	16357	0.410	ng	99
43) Cyclohexane	13.31	84	40770	0.942	ng	95
44) tert-Amyl Methyl Ether	13.66	73	37141	0.473	ng	98
45) 1,2-Dichloropropane	13.86	63	13369	0.516	ng	100
46) Bromodichloromethane	14.06	83	16462	0.443	ng	99
47) Trichloroethene	14.11	130	15052	0.393	ng	98
48) 1,4-Dioxane	14.10	88	11305	0.449	ng	98
49) 2,2,4-Trimethylpentane...	14.18	57	54943	0.540	ng	99

Data File: I:\MS16\DATA\2016 10\06\10061628.D

Acq On : 6 Oct 2016 22:09

Operator: LH

Sample : 0.4ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051616 (11/3)

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 10 10:06:12 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

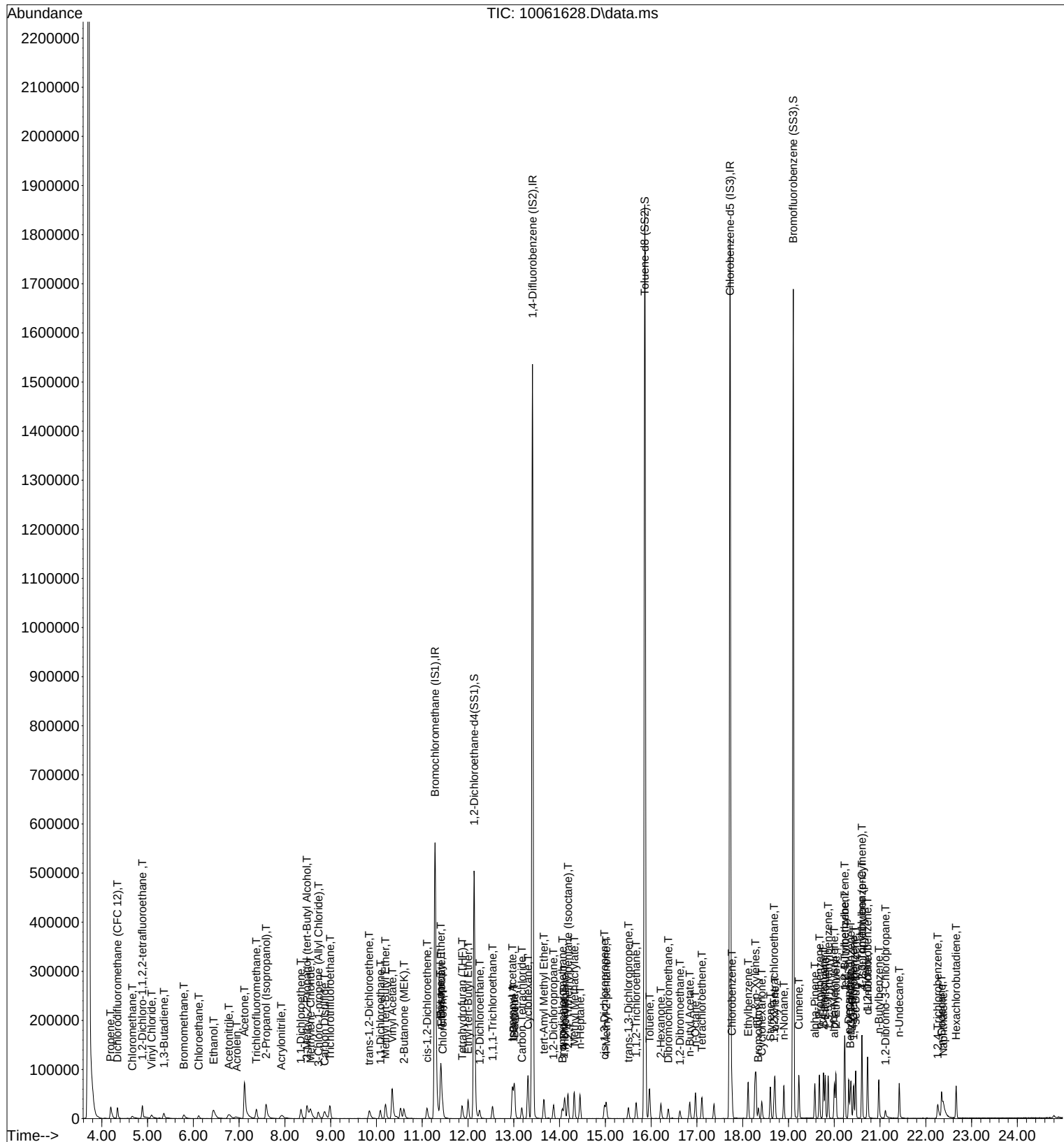
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.32	100	10826	0.818	ng	94
51) n-Heptane	14.45	71	13877	0.490	ng	99
52) cis-1,3-Dichloropropene	14.98	75	21232	0.484	ng	98
53) 4-Methyl-2-pentanone	15.02	58	11947	0.513	ng	92
54) trans-1,3-Dichloropropene	15.50	75	16910	0.431	ng	100
55) 1,1,2-Trichloroethane	15.67	97	13097	0.431	ng	100
58) Toluene	15.97	91	55371	0.381	ng	99
59) 2-Hexanone	16.21	43	26813	0.481	ng	94
60) Dibromochloromethane	16.37	129	14057	0.340	ng	98
61) 1,2-Dibromoethane	16.63	107	14557	0.358	ng	98
62) n-Butyl Acetate	16.84	43	30105	0.503	ng	97
63) n-Octane	16.97	57	11346	0.457	ng	96
64) Tetrachloroethene	17.11	166	16598	0.340	ng	99
65) Chlorobenzene	17.76	112	37408	0.367	ng	98
66) Ethylbenzene	18.12	91	60734	0.387	ng	99
67) m- & p-Xylenes	18.28	91	93789	0.766	ng	99
68) Bromoform	18.34	173	11749	0.286	ng	99
69) Styrene	18.60	104	35843	0.346	ng	99
70) o-Xylene	18.70	91	47216	0.377	ng	99
71) n-Nonane	18.90	43	24637	0.514	ng	93
72) 1,1,2,2-Tetrachloroethane	18.69	83	22014	0.415	ng	99
74) Cumene	19.23	105	61743	0.356	ng	98
75) alpha-Pinene	19.58	93	30685	0.387	ng	99
76) n-Propylbenzene	19.68	91	74070	0.380	ng	98
77) 3-Ethyltoluene	19.76	105	59301	0.337	ng	98
78) 4-Ethyltoluene	19.80	105	58312	0.378	ng	99
79) 1,3,5-Trimethylbenzene	19.87	105	49786	0.342	ng	98
80) alpha-Methylstyrene	20.00	118	23997	0.331	ng	97
81) 2-Ethyltoluene	20.03	105	62297	0.387	ng	97
82) 1,2,4-Trimethylbenzene	20.23	105	51648	0.376	ng	98
83) n-Decane	20.31	57	26549	0.458	ng	97
84) Benzyl Chloride	20.35	91	29816	0.285	ng	94
85) 1,3-Dichlorobenzene	20.36	146	30225	0.339	ng	99
86) 1,4-Dichlorobenzene	20.42	146	33608	0.347	ng	97
87) sec-Butylbenzene	20.47	105	68887	0.383	ng	95
88) 4-Isopropyltoluene (p-...	20.61	119	61763	0.355	ng	98
89) 1,2,3-Trimethylbenzene	20.61	105	50075	0.343	ng	98
90) 1,2-Dichlorobenzene	20.73	146	30920	0.347	ng	98
91) d-Limonene	20.73	68	17251	0.407	ng	93
92) 1,2-Dibromo-3-Chloropr...	21.12	157	8240	0.255	ng	83
93) n-Undecane	21.42	57	27402	0.468	ng	93
94) 1,2,4-Trichlorobenzene	22.26	180	22422	0.295	ng	98
95) Naphthalene	22.38	128	63566	0.324	ng	99
96) n-Dodecane	22.34	57	23860	0.419	ng	96
97) Hexachlorobutadiene	22.66	225	15074	0.310	ng	99
98) Cyclohexanone	18.42	55	17852	0.436	ng	97
99) tert-Butylbenzene	20.23	119	49406	0.367	ng	99
100) n-Butylbenzene	20.97	91	54816	0.401	ng	95

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

ALS Vial : 10 Sample Multiplier: 1

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2016 10\06\10061625.D

Acq On : 6 Oct 2016 20:30

Operator: LH

Sample : 0.08ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051616 (11/3)

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 10 10:06:06 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 10/10/16

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.29	130	329137	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.41	114	1590324	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	639815	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.14	65	421403	14.440	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	115.52%
57) Toluene-d8 (SS2)	15.87	98	1591417	11.697	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	93.60%
73) Bromofluorobenzene (SS3)	19.11	174	608888	10.779	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	86.24%

Target Compounds

						Qvalue
2) Propene	4.22	42	4008	0.204	ng	96
3) Dichlorodifluoromethan...	4.36	85	6058	0.110	ng	# 93
4) Chloromethane	4.70	50	3889	0.174	ng	87
5) 1,2-Dichloro-1,1,2,2-t...	4.91	135	3278	0.091	ng	98
6) Vinyl Chloride	5.12	62	3971	0.127	ng	93
7) 1,3-Butadiene	5.38	54	2363	0.123	ng	82
8) Bromomethane	5.81	94	2851	0.104	ng	100
9) Chloroethane	6.13	64	2005	0.112	ng	# 43
10) Ethanol	6.47	45	12653	0.845	ng	98
11) Acetonitrile	6.79	41	7055	0.185	ng	# 54
12) Acrolein	6.99	56	2011	0.134	ng	84
13) Acetone	7.15	58	14876	0.897	ng	98
14) Trichlorofluoromethane	7.39	101	5337	0.112	ng	97
15) 2-Propanol (Isopropanol)	7.62	45	16286	0.308	ng	92
16) Acrylonitrile	7.96	53	4282	0.147	ng	98
17) 1,1-Dichloroethene	8.37	96	2908	0.105	ng	89
18) 2-Methyl-2-Propanol (t...	8.53	59	16541	0.264	ng	94
19) Methylene Chloride	8.57	84	3846	0.136	ng	96
20) 3-Chloro-1-propene (Al...	8.74	41	4245	0.158	ng	78
21) Trichlorotrifluoroethane	8.99	151	3202	0.101	ng	99
22) Carbon Disulfide	8.88	76	14568	0.138	ng	95
23) trans-1,2-Dichloroethene	9.85	61	4281	0.126	ng	94
24) 1,1-Dichloroethane	10.09	63	5403	0.117	ng	95
25) Methyl tert-Butyl Ether	10.21	73	9814	0.124	ng	98
26) Vinyl Acetate	10.36	86	2540	0.427	ng	# 6
27) 2-Butanone (MEK)	10.62	72	2069	0.115	ng	# 34
28) cis-1,2-Dichloroethene	11.11	61	4284	0.130	ng	98
29) Diisopropyl Ether	11.42	87	3290	0.126	ng	98
30) Ethyl Acetate	11.43	61	2335	0.278	ng	93
31) n-Hexane	11.40	57	5548	0.139	ng	# 96
32) Chloroform	11.44	83	5516	0.118	ng	99
34) Tetrahydrofuran (THF)	11.89	72	3129	0.181	ng	94
35) Ethyl tert-Butyl Ether	12.02	87	3954	0.117	ng	97
36) 1,2-Dichloroethane	12.25	62	3850	0.123	ng	99
38) 1,1,1-Trichloroethane	12.54	97	4742	0.110	ng	96
39) Isopropyl Acetate	12.97	61	4490	0.273	ng	# 85
40) 1-Butanol	13.01	56	6174	0.257	ng	# 74
41) Benzene	13.02	78	17519	0.140	ng	99
42) Carbon Tetrachloride	13.18	117	4026	0.100	ng	96
43) Cyclohexane	13.31	84	10387	0.238	ng	97
44) tert-Amyl Methyl Ether	13.67	73	9317	0.118	ng	91
45) 1,2-Dichloropropane	13.87	63	3429	0.131	ng	100
46) Bromodichloromethane	14.06	83	3956	0.105	ng	97
47) Trichloroethene	14.12	130	4036	0.104	ng	96
48) 1,4-Dioxane	14.11	88	2925	0.115	ng	100
49) 2,2,4-Trimethylpentane...	14.18	57	14207	0.138	ng	99

Data File: I:\MS16\DATA\2016 10\06\10061625.D

Acq On : 6 Oct 2016 20:30

Operator: LH

Sample : 0.08ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051616 (11/3)

ALS Vial : 10 Sample Multiplier: 1

Quant Time: Oct 10 10:06:06 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

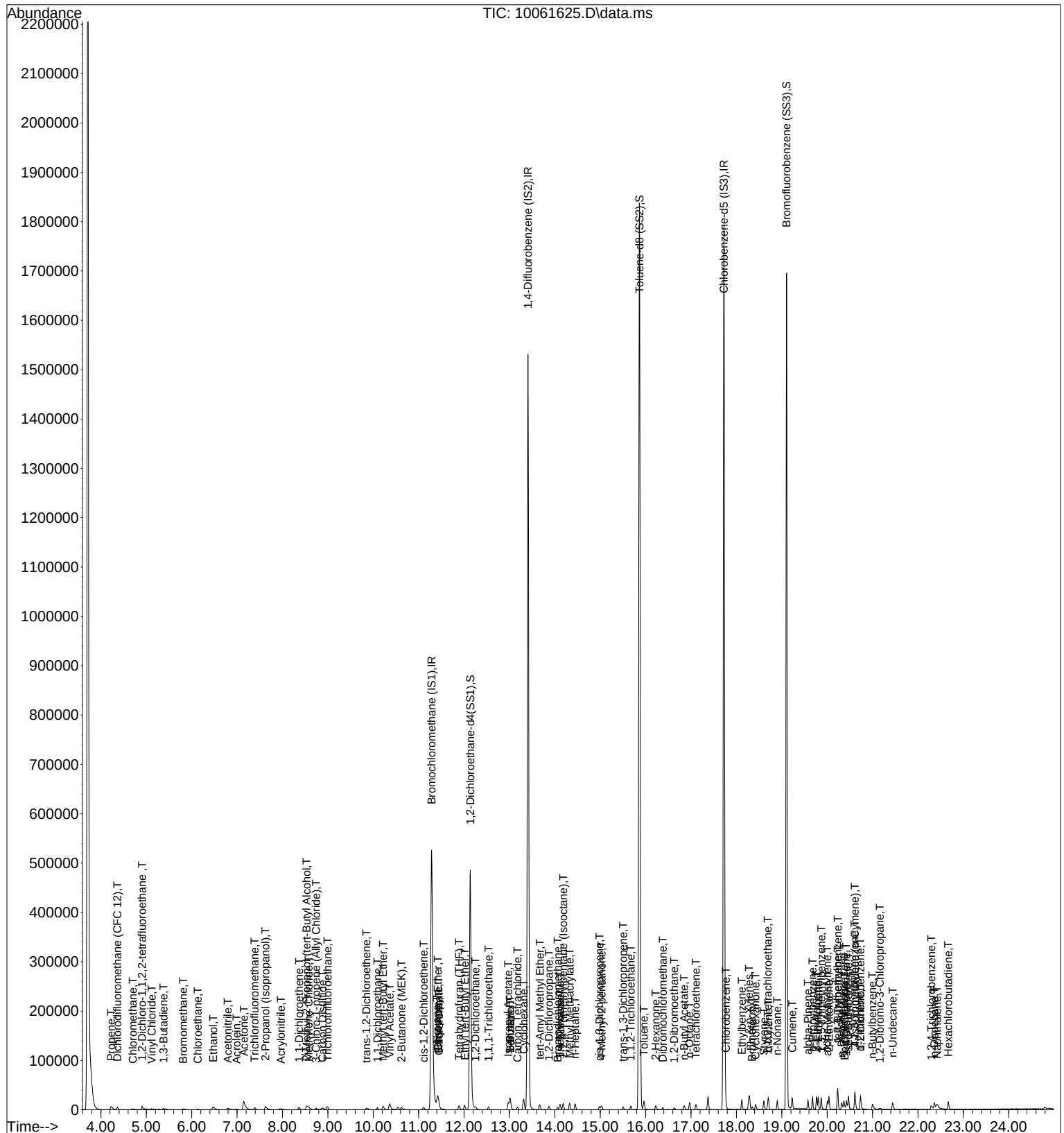
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.33	100	2775	0.207	ng	96
51) n-Heptane	14.45	71	3471	0.121	ng	96
52) cis-1,3-Dichloropropene	14.99	75	5319	0.120	ng	100
53) 4-Methyl-2-pentanone	15.03	58	3024	0.129	ng	82
54) trans-1,3-Dichloropropene	15.50	75	4234	0.107	ng	97
55) 1,1,2-Trichloroethane	15.67	97	3242	0.106	ng	95
58) Toluene	15.97	91	17242	0.118	ng	92
59) 2-Hexanone	16.22	43	7383	0.131	ng	91
60) Dibromochloromethane	16.38	129	3357	0.081	ng	98
61) 1,2-Dibromoethane	16.63	107	3763	0.092	ng	99
62) n-Butyl Acetate	16.85	43	8017	0.133	ng	95
63) n-Octane	16.97	57	3147	0.126	ng	87
64) Tetrachloroethene	17.11	166	4271	0.087	ng	99
65) Chlorobenzene	17.77	112	10639	0.103	ng	95
66) Ethylbenzene	18.12	91	18019	0.114	ng	95
67) m- & p-Xylenes	18.28	91	28113	0.228	ng	95
68) Bromoform	18.35	173	2793	0.067	ng	97
69) Styrene	18.60	104	10215	0.098	ng	99
70) o-Xylene	18.70	91	13089	0.104	ng	98
71) n-Nonane	18.90	43	6199	0.128	ng	95
72) 1,1,2,2-Tetrachloroethane	18.69	83	5113	0.096	ng	99
74) Cumene	19.23	105	15900	0.091	ng	97
75) alpha-Pinene	19.58	93	7686	0.096	ng	98
76) n-Propylbenzene	19.68	91	20339	0.103	ng	98
77) 3-Ethyltoluene	19.77	105	16628	0.094	ng	100
78) 4-Ethyltoluene	19.80	105	14971	0.096	ng	99
79) 1,3,5-Trimethylbenzene	19.87	105	13926	0.095	ng	96
80) alpha-Methylstyrene	20.01	118	6036	0.083	ng	93
81) 2-Ethyltoluene	20.04	105	16017	0.099	ng	97
82) 1,2,4-Trimethylbenzene	20.23	105	15514	0.112	ng	87
83) n-Decane	20.32	57	6457	0.110	ng	95
84) Benzyl Chloride	20.39	91	5962	0.057	ng	71
85) 1,3-Dichlorobenzene	20.37	146	7652	0.085	ng	97
86) 1,4-Dichlorobenzene	20.42	146	12161	0.124	ng	99
87) sec-Butylbenzene	20.47	105	17891	0.099	ng	85
88) 4-Isopropyltoluene (p-...	20.61	119	16567	0.094	ng	97
89) 1,2,3-Trimethylbenzene	20.61	105	14041	0.095	ng	93
90) 1,2-Dichlorobenzene	20.73	146	9382	0.104	ng	100
91) d-Limonene	20.73	68	4263	0.100	ng	93
92) 1,2-Dibromo-3-Chloropr...	21.16	157	1823	0.056	ng	79
93) n-Undecane	21.44	57	7190	0.122	ng	89
94) 1,2,4-Trichlorobenzene	22.29	180	7874	0.103	ng	96
95) Naphthalene	22.42	128	24704	0.125	ng	98
96) n-Dodecane	22.36	57	6940	0.121	ng	90
97) Hexachlorobutadiene	22.67	225	4039	0.082	ng	97
98) Cyclohexanone	18.42	55	4787	0.116	ng	98
99) tert-Butylbenzene	20.23	119	13241	0.097	ng	98
100) n-Butylbenzene	21.00	91	14754	0.107	ng	91

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

ALS Vial : 10 Sample Multiplier: 1

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2016 10\06\10061629.D

Acq On : 6 Oct 2016 22:43

Operator: LH

Sample : 1.0ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051612 (11/3)

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 10 10:06:14 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 10/10/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	331297	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.41	114	1586249	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	634265	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.13	65	435103	14.812	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	118.48%
57) Toluene-d8 (SS2)	15.87	98	1584719	11.749	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	94.00%
73) Bromofluorobenzene (SS3)	19.11	174	592649	10.584	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	84.64%

Target Compounds

						Qvalue
2) Propene	4.18	42	35474	1.795	ng	98
3) Dichlorodifluoromethan...	4.33	85	66711	1.208	ng	99
4) Chloromethane	4.64	50	45296	2.018	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	35290	0.971	ng	100
6) Vinyl Chloride	5.06	62	47362	1.508	ng	97
7) 1,3-Butadiene	5.32	54	29172	1.512	ng	98
8) Bromomethane	5.78	94	29799	1.082	ng	98
9) Chloroethane	6.10	64	25706	1.425	ng	100
10) Ethanol	6.42	45	132812	8.815	ng	100
11) Acetonitrile	6.75	41	66876	1.741	ng	94
12) Acrolein	6.92	56	23458	1.550	ng	94
13) Acetone	7.11	58	138823	8.319	ng	96
14) Trichlorofluoromethane	7.36	101	57862	1.206	ng	100
15) 2-Propanol (Isopropanol)	7.58	45	175533	3.297	ng	95
16) Acrylonitrile	7.89	53	47179	1.605	ng	99
17) 1,1-Dichloroethene	8.34	96	35032	1.252	ng	94
18) 2-Methyl-2-Propanol (t...	8.47	59	179255	2.838	ng	98
19) Methylene Chloride	8.55	84	37377	1.317	ng	97
20) 3-Chloro-1-propene (Al...	8.72	41	46181	1.712	ng	93
21) Trichlorotrifluoroethane	8.98	151	33985	1.066	ng	98
22) Carbon Disulfide	8.85	76	138898	1.308	ng	98
23) trans-1,2-Dichloroethene	9.84	61	49285	1.436	ng	98
24) 1,1-Dichloroethane	10.08	63	61107	1.315	ng	100
25) Methyl tert-Butyl Ether	10.19	73	106258	1.329	ng	100
26) Vinyl Acetate	10.34	86	36013	6.021	ng	# 65
27) 2-Butanone (MEK)	10.59	72	24361	1.346	ng	# 85
28) cis-1,2-Dichloroethene	11.10	61	48197	1.449	ng	97
29) Diisopropyl Ether	11.41	87	35479	1.354	ng	# 93
30) Ethyl Acetate	11.41	61	27564	3.260	ng	94
31) n-Hexane	11.40	57	60271	1.503	ng	98
32) Chloroform	11.44	83	61288	1.302	ng	99
34) Tetrahydrofuran (THF)	11.86	72	25433	1.460	ng	95
35) Ethyl tert-Butyl Ether	12.00	87	42069	1.236	ng	97
36) 1,2-Dichloroethane	12.25	62	41119	1.310	ng	99
38) 1,1,1-Trichloroethane	12.53	97	52452	1.216	ng	99
39) Isopropyl Acetate	12.96	61	47738	2.913	ng	# 90
40) 1-Butanol	12.98	56	71232	2.972	ng	92
41) Benzene	13.01	78	150247	1.207	ng	99
42) Carbon Tetrachloride	13.18	117	45622	1.134	ng	100
43) Cyclohexane	13.31	84	110538	2.534	ng	96
44) tert-Amyl Methyl Ether	13.66	73	99636	1.260	ng	98
45) 1,2-Dichloropropane	13.87	63	36377	1.393	ng	99
46) Bromodichloromethane	14.06	83	46570	1.242	ng	100
47) Trichloroethene	14.11	130	41356	1.072	ng	100
48) 1,4-Dioxane	14.09	88	29442	1.161	ng	99
49) 2,2,4-Trimethylpentane...	14.18	57	148702	1.451	ng	99

Data File: I:\MS16\DATA\2016 10\06\10061629.D

Acq On : 6 Oct 2016 22:43

Operator: LH

Sample : 1.0ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051612 (11/3)

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 10 10:06:14 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

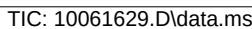
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.32	100	30176	2.262	ng	94
51) n-Heptane	14.45	71	36012	1.263	ng	99
52) cis-1,3-Dichloropropene	14.98	75	60069	1.358	ng	100
53) 4-Methyl-2-pentanone	15.01	58	33631	1.433	ng	94
54) trans-1,3-Dichloropropene	15.50	75	47976	1.213	ng	99
55) 1,1,2-Trichloroethane	15.67	97	35883	1.171	ng	100
58) Toluene	15.97	91	148708	1.023	ng	100
59) 2-Hexanone	16.21	43	73664	1.323	ng	96
60) Dibromochloromethane	16.38	129	40404	0.978	ng	99
61) 1,2-Dibromoethane	16.63	107	40355	0.994	ng	100
62) n-Butyl Acetate	16.84	43	83173	1.391	ng	97
63) n-Octane	16.97	57	30578	1.231	ng	95
64) Tetrachloroethene	17.11	166	44032	0.903	ng	100
65) Chlorobenzene	17.77	112	98849	0.970	ng	99
66) Ethylbenzene	18.12	91	166404	1.061	ng	99
67) m- & p-Xylenes	18.28	91	263441	2.151	ng	97
68) Bromoform	18.35	173	33937	0.827	ng	100
69) Styrene	18.60	104	103336	0.997	ng	99
70) o-Xylene	18.70	91	130423	1.042	ng	99
71) n-Nonane	18.90	43	67136	1.400	ng	95
72) 1,1,2,2-Tetrachloroethane	18.68	83	62021	1.170	ng	99
74) Cumene	19.23	105	166158	0.959	ng	99
75) alpha-Pinene	19.58	93	84915	1.072	ng	95
76) n-Propylbenzene	19.68	91	202503	1.039	ng	99
77) 3-Ethyltoluene	19.76	105	162912	0.925	ng	96
78) 4-Ethyltoluene	19.80	105	160595	1.040	ng	94
79) 1,3,5-Trimethylbenzene	19.87	105	135757	0.933	ng	100
80) alpha-Methylstyrene	20.00	118	73590	1.016	ng	99
81) 2-Ethyltoluene	20.03	105	163264	1.014	ng	99
82) 1,2,4-Trimethylbenzene	20.23	105	140453	1.023	ng	98
83) n-Decane	20.31	57	74248	1.281	ng	97
84) Benzyl Chloride	20.35	91	96210	0.921	ng	96
85) 1,3-Dichlorobenzene	20.36	146	84150	0.944	ng	100
86) 1,4-Dichlorobenzene	20.42	146	87701	0.905	ng	98
87) sec-Butylbenzene	20.47	105	187229	1.042	ng	97
88) 4-Isopropyltoluene (p-...	20.61	119	171982	0.989	ng	98
89) 1,2,3-Trimethylbenzene	20.61	105	136441	0.935	ng	99
90) 1,2-Dichlorobenzene	20.73	146	83863	0.940	ng	99
91) d-Limonene	20.73	68	52457	1.238	ng	95
92) 1,2-Dibromo-3-Chloropr...	21.11	157	25466	0.789	ng	89
93) n-Undecane	21.41	57	78708	1.344	ng	96
94) 1,2,4-Trichlorobenzene	22.24	180	60968	0.802	ng	99
95) Naphthalene	22.36	128	178193	0.909	ng	100
96) n-Dodecane	22.33	57	77954	1.367	ng	96
97) Hexachlorobutadiene	22.66	225	42197	0.869	ng	100
98) Cyclohexanone	18.41	55	45300	1.106	ng	97
99) tert-Butylbenzene	20.23	119	135309	1.005	ng	99
100) n-Butylbenzene	20.97	91	151548	1.108	ng	97

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

ALS Vial : 11 Sample Multiplier: 1

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2016 10\06\10061630.D

Acq On : 6 Oct 2016 23:16

Operator: LH

Sample : 5.0ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051612 (11/3)

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 10 10:06:16 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

LH 10/10/16

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.28	130	327377	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.41	114	1553539	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	629908	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.14	65	423226	14.580	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	116.64%
57) Toluene-d8 (SS2)	15.87	98	1554827	11.608	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	92.88%
73) Bromofluorobenzene (SS3)	19.11	174	594477	10.690	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	85.52%

Target Compounds

						Qvalue
2) Propene	4.14	42	150505	7.709	ng	99
3) Dichlorodifluoromethan...	4.31	85	292098	5.353	ng	100
4) Chloromethane	4.60	50	137939	6.219	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	155564	4.332	ng	100
6) Vinyl Chloride	5.02	62	205854	6.634	ng	100
7) 1,3-Butadiene	5.29	54	124759	6.543	ng	99
8) Bromomethane	5.74	94	119906	4.407	ng	100
9) Chloroethane	6.08	64	111752	6.269	ng	100
10) Ethanol	6.42	45	562382	37.774	ng	100
11) Acetonitrile	6.70	41	292564	7.707	ng	98
12) Acrolein	6.90	56	102291	6.842	ng	96
13) Acetone	7.10	58	590999	35.841	ng	97
14) Trichlorofluoromethane	7.36	101	250280	5.279	ng	100
15) 2-Propanol (Isopropanol)	7.58	45	764837	14.536	ng	99
16) Acrylonitrile	7.87	53	213499	7.352	ng	99
17) 1,1-Dichloroethene	8.33	96	153450	5.548	ng	99
18) 2-Methyl-2-Propanol (t...	8.47	59	786362	12.600	ng	99
19) Methylene Chloride	8.55	84	161403	5.754	ng	99
20) 3-Chloro-1-propene (Al...	8.72	41	196139	7.358	ng	97
21) Trichlorotrifluoroethane	8.98	151	147619	4.684	ng	99
22) Carbon Disulfide	8.83	76	582365	5.549	ng	97
23) trans-1,2-Dichloroethene	9.83	61	217908	6.424	ng	98
24) 1,1-Dichloroethane	10.08	63	265660	5.786	ng	100
25) Methyl tert-Butyl Ether	10.18	73	464805	5.882	ng	100
26) Vinyl Acetate	10.33	86	176062	29.789	ng	# 74
27) 2-Butanone (MEK)	10.58	72	108377	6.059	ng	92
28) cis-1,2-Dichloroethene	11.10	61	209558	6.376	ng	99
29) Diisopropyl Ether	11.40	87	155248	5.996	ng	# 89
30) Ethyl Acetate	11.41	61	121789	14.575	ng	95
31) n-Hexane	11.40	57	257863	6.506	ng	99
32) Chloroform	11.45	83	266237	5.722	ng	99
34) Tetrahydrofuran (THF)	11.86	72	108709	6.316	ng	97
35) Ethyl tert-Butyl Ether	11.99	87	184033	5.471	ng	96
36) 1,2-Dichloroethane	12.25	62	180420	5.817	ng	99
38) 1,1,1-Trichloroethane	12.53	97	231743	5.486	ng	100
39) Isopropyl Acetate	12.96	61	209038	13.026	ng	# 91
40) 1-Butanol	12.97	56	322326	13.731	ng	96
41) Benzene	13.02	78	630280	5.170	ng	100
42) Carbon Tetrachloride	13.18	117	201051	5.102	ng	100
43) Cyclohexane	13.31	84	474976	11.119	ng	96
44) tert-Amyl Methyl Ether	13.66	73	440547	5.689	ng	99
45) 1,2-Dichloropropane	13.87	63	158238	6.188	ng	100
46) Bromodichloromethane	14.06	83	206667	5.629	ng	99
47) Trichloroethene	14.11	130	178230	4.717	ng	100
48) 1,4-Dioxane	14.08	88	127876	5.149	ng	99
49) 2,2,4-Trimethylpentane...	14.18	57	645521	6.430	ng	100

Data File: I:\MS16\DATA\2016 10\06\10061630.D

Acq On : 6 Oct 2016 23:16

Operator: LH

Sample : 5.0ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051612 (11/3)

ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 10 10:06:16 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.32	100	135415	10.363	ng	94
51) n-Heptane	14.45	71	156626	5.609	ng	98
52) cis-1,3-Dichloropropene	14.98	75	269502	6.222	ng	99
53) 4-Methyl-2-pentanone	15.01	58	148616	6.466	ng	96
54) trans-1,3-Dichloropropene	15.50	75	225280	5.816	ng	100
55) 1,1,2-Trichloroethane	15.67	97	157887	5.261	ng	100
58) Toluene	15.97	91	643732	4.459	ng	100
59) 2-Hexanone	16.20	43	323713	5.852	ng	97
60) Dibromochloromethane	16.37	129	187150	4.562	ng	99
61) 1,2-Dibromoethane	16.62	107	181165	4.491	ng	100
62) n-Butyl Acetate	16.84	43	369394	6.221	ng	98
63) n-Octane	16.97	57	131750	5.343	ng	97
64) Tetrachloroethene	17.11	166	194085	4.009	ng	100
65) Chlorobenzene	17.76	112	431301	4.262	ng	100
66) Ethylbenzene	18.12	91	726147	4.661	ng	100
67) m- & p-Xylenes	18.28	91	1112833	9.151	ng	99
68) Bromoform	18.34	173	165347	4.059	ng	99
69) Styrene	18.60	104	461416	4.481	ng	100
70) o-Xylene	18.70	91	555945	4.472	ng	100
71) n-Nonane	18.90	43	283766	5.959	ng	95
72) 1,1,2,2-Tetrachloroethane	18.68	83	278989	5.298	ng	99
74) Cumene	19.23	105	721334	4.193	ng	99
75) alpha-Pinene	19.58	93	375308	4.771	ng	96
76) n-Propylbenzene	19.68	91	870057	4.494	ng	99
77) 3-Ethyltoluene	19.76	105	713336	4.077	ng	96
78) 4-Ethyltoluene	19.80	105	691750	4.512	ng	94
79) 1,3,5-Trimethylbenzene	19.87	105	585222	4.049	ng	100
80) alpha-Methylstyrene	20.00	118	333755	4.639	ng	99
81) 2-Ethyltoluene	20.03	105	703334	4.397	ng	99
82) 1,2,4-Trimethylbenzene	20.23	105	591246	4.335	ng	99
83) n-Decane	20.31	57	315597	5.484	ng	98
84) Benzyl Chloride	20.34	91	495016	4.772	ng	98
85) 1,3-Dichlorobenzene	20.36	146	369295	4.170	ng	100
86) 1,4-Dichlorobenzene	20.42	146	378616	3.932	ng	99
87) sec-Butylbenzene	20.47	105	797025	4.466	ng	99
88) 4-Isopropyltoluene (p-...	20.61	119	731942	4.236	ng	99
89) 1,2,3-Trimethylbenzene	20.60	105	578937	3.995	ng	100
90) 1,2-Dichlorobenzene	20.72	146	355509	4.014	ng	100
91) d-Limonene	20.73	68	227521	5.408	ng	97
92) 1,2-Dibromo-3-Chloropr...	21.11	157	129420	4.035	ng	96
93) n-Undecane	21.41	57	339231	5.834	ng	98
94) 1,2,4-Trichlorobenzene	22.23	180	290947	3.852	ng	100
95) Naphthalene	22.34	128	873090	4.483	ng	100
96) n-Dodecane	22.33	57	351143	6.202	ng	96
97) Hexachlorobutadiene	22.66	225	186691	3.870	ng	100
98) Cyclohexanone	18.41	55	203692	5.009	ng	98
99) tert-Butylbenzene	20.23	119	578002	4.323	ng	99
100) n-Butylbenzene	20.97	91	643198	4.737	ng	99

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

Data File: I:\MS16\DATA\2016 10\06\10061631.D

Acq On : 6 Oct 2016 23:50

Operator: LH

Sample : 25ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051604 (11/3)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 10:06:18 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 10/10/16

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.29	130	341499	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.41	114	1631210	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	649639	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.14	65	435769	14.391	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	115.12%
57) Toluene-d8 (SS2)	15.87	98	1621280	11.736	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	93.92%
73) Bromofluorobenzene (SS3)	19.10	174	615311	10.728	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	85.84%

Target Compounds

						Qvalue
2) Propene	4.14	42	781939	38.394	ng	100
3) Dichlorodifluoromethan...	4.30	85	1526141	26.813	ng	100
4) Chloromethane	4.59	50	837385	36.194	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.85	135	802568	21.424	ng	100
6) Vinyl Chloride	5.02	62	1082277	33.438	ng	100
7) 1,3-Butadiene	5.29	54	703660	35.376	ng	100
8) Bromomethane	5.74	94	719550	25.350	ng	100
9) Chloroethane	6.07	64	600267	32.283	ng	100
10) Ethanol	6.46	45	2734930	176.103	ng	100
11) Acetonitrile	6.72	41	1479788	37.370	ng	100
12) Acrolein	6.90	56	519929	33.339	ng	100
13) Acetone	7.11	58	2798477	162.695	ng	100
14) Trichlorofluoromethane	7.35	101	1329967	26.892	ng	100
15) 2-Propanol (Isopropanol)	7.61	45	3895310	70.971	ng	100
16) Acrylonitrile	7.88	53	1116133	36.846	ng	100
17) 1,1-Dichloroethene	8.33	96	840217	29.120	ng	100
18) 2-Methyl-2-Propanol (t...	8.50	59	3993754	61.345	ng	100
19) Methylene Chloride	8.56	84	861516	29.441	ng	100
20) 3-Chloro-1-propene (Al...	8.72	41	1076982	38.729	ng	100
21) Trichlorotrifluoroethane	8.98	151	795182	24.186	ng	100
22) Carbon Disulfide	8.82	76	3180896	29.055	ng	100
23) trans-1,2-Dichloroethene	9.84	61	1175170	33.213	ng	100
24) 1,1-Dichloroethane	10.09	63	1398532	29.198	ng	100
25) Methyl tert-Butyl Ether	10.18	73	2434129	29.531	ng	100
26) Vinyl Acetate	10.35	86	942027	152.794	ng	100
27) 2-Butanone (MEK)	10.59	72	570578	30.579	ng	100
28) cis-1,2-Dichloroethene	11.11	61	1096279	31.975	ng	100
29) Diisopropyl Ether	11.41	87	646140	23.925	ng	100
30) Ethyl Acetate	11.41	61	569571	65.342	ng	100
31) n-Hexane	11.40	57	1200770	29.043	ng	100
32) Chloroform	11.46	83	1372526	28.278	ng	100
34) Tetrahydrofuran (THF)	11.86	72	565641	31.505	ng	100
35) Ethyl tert-Butyl Ether	12.00	87	968118	27.591	ng	100
36) 1,2-Dichloroethane	12.26	62	940896	29.079	ng	100
38) 1,1,1-Trichloroethane	12.54	97	1212211	27.332	ng	100
39) Isopropyl Acetate	12.96	61	1019824	60.521	ng	100
40) 1-Butanol	12.98	56	1613659	65.470	ng	100
41) Benzene	13.02	78	3164793	24.726	ng	100
42) Carbon Tetrachloride	13.18	117	1070369	25.871	ng	100
43) Cyclohexane	13.31	84	2418987	53.933	ng	100
44) tert-Amyl Methyl Ether	13.66	73	2298606	28.268	ng	100
45) 1,2-Dichloropropane	13.87	63	826120	30.768	ng	100
46) Bromodichloromethane	14.06	83	1097710	28.476	ng	100
47) Trichloroethene	14.12	130	938555	23.655	ng	100
48) 1,4-Dioxane	14.08	88	722865	27.722	ng	100
49) 2,2,4-Trimethylpentane...	14.19	57	3241802	30.753	ng	100

Data File: I:\MS16\DATA\2016 10\06\10061631.D

Acq On : 6 Oct 2016 23:50

Operator: LH

Sample : 25ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051604 (11/3)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 10:06:18 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.32	100	713361	51.992	ng	100
51) n-Heptane	14.45	71	786948	26.842	ng	100
52) cis-1,3-Dichloropropene	14.98	75	1447213	31.820	ng	100
53) 4-Methyl-2-pentanone	15.01	58	785143	32.531	ng	100
54) trans-1,3-Dichloropropene	15.50	75	1246331	30.645	ng	100
55) 1,1,2-Trichloroethane	15.67	97	837886	26.589	ng	100
58) Toluene	15.96	91	3327229	22.347	ng	100
59) 2-Hexanone	16.20	43	1691609	29.652	ng	100
60) Dibromochloromethane	16.38	129	1019114	24.090	ng	100
61) 1,2-Dibromoethane	16.63	107	978438	23.520	ng	100
62) n-Butyl Acetate	16.84	43	1841776	30.075	ng	100
63) n-Octane	16.97	57	659306	25.924	ng	100
64) Tetrachloroethene	17.11	166	1031470	20.658	ng	100
65) Chlorobenzene	17.77	112	2286628	21.907	ng	100
66) Ethylbenzene	18.12	91	3720109	23.153	ng	100
67) m- & p-Xylenes	18.29	91	5537251	44.150	ng	100
68) Bromoform	18.35	173	935203	22.259	ng	100
69) Styrene	18.60	104	2407926	22.673	ng	100
70) o-Xylene	18.71	91	2792648	21.780	ng	100
71) n-Nonane	18.90	43	1326640	27.011	ng	100
72) 1,1,2,2-Tetrachloroethane	18.69	83	1420677	26.158	ng	100
74) Cumene	19.23	105	3670726	20.688	ng	100
75) alpha-Pinene	19.58	93	1907674	23.512	ng	100
76) n-Propylbenzene	19.68	91	4349982	21.786	ng	100
77) 3-Ethyltoluene	19.76	105	3754546	20.809	ng	100
78) 4-Ethyltoluene	19.80	105	3274463	20.708	ng	100
79) 1,3,5-Trimethylbenzene	19.87	105	2961956	19.869	ng	100
80) alpha-Methylstyrene	20.01	118	1699624	22.904	ng	100
81) 2-Ethyltoluene	20.04	105	3474668	21.064	ng	100
82) 1,2,4-Trimethylbenzene	20.23	105	2844934	20.225	ng	100
83) n-Decane	20.32	57	1471537	24.793	ng	100
84) Benzyl Chloride	20.35	91	2691029	25.154	ng	100
85) 1,3-Dichlorobenzene	20.37	146	1882871	20.615	ng	100
86) 1,4-Dichlorobenzene	20.42	146	1906729	19.201	ng	100
87) sec-Butylbenzene	20.47	105	3891023	21.142	ng	100
88) 4-Isopropyltoluene (p-...	20.61	119	3462185	19.429	ng	100
89) 1,2,3-Trimethylbenzene	20.61	105	2773357	18.556	ng	100
90) 1,2-Dichlorobenzene	20.73	146	1761371	19.281	ng	100
91) d-Limonene	20.73	68	1064991	24.547	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.11	157	709171	21.441	ng	100
93) n-Undecane	21.41	57	1565322	26.102	ng	100
94) 1,2,4-Trichlorobenzene	22.23	180	1537938	19.743	ng	100
95) Naphthalene	22.34	128	4336166	21.588	ng	100
96) n-Dodecane	22.33	57	1380006	23.634	ng	100
97) Hexachlorobutadiene	22.66	225	977444	19.646	ng	100
98) Cyclohexanone	18.41	55	1142508	27.242	ng	100
99) tert-Butylbenzene	20.23	119	2756950	19.992	ng	100
100) n-Butylbenzene	20.97	91	3136610	22.397	ng	100

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

Data File: I:\MS16\DATA\2016 10\06\10061632.D

Acq On : 7 Oct 2016 00:24

Operator: LH

Sample : 50ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051604 (11/3)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 10:06:20 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 10/10/16

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.30	130	341314	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.42	114	1603193	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.72	82	640205	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.15	65	424560	14.029	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	112.24%
57) Toluene-d8 (SS2)	15.87	98	1620532	11.904	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.20%
73) Bromofluorobenzene (SS3)	19.11	174	613633	10.857	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	86.88%

Target Compounds

						Qvalue
2) Propene	4.14	42	1369357	67.273	ng	99
3) Dichlorodifluoromethan...	4.30	85	2725778	47.916	ng	100
4) Chloromethane	4.59	50	1365052	59.034	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.85	135	1540140	41.135	ng	100
6) Vinyl Chloride	5.02	62	2039017	63.032	ng	100
7) 1,3-Butadiene	5.29	54	1307112	65.751	ng	100
8) Bromomethane	5.74	94	1344612	47.397	ng	100
9) Chloroethane	6.07	64	1096581	59.007	ng	100
10) Ethanol	6.49	45	4609396	296.961	ng	100
11) Acetonitrile	6.73	41	2648183	66.913	ng	100
12) Acrolein	6.91	56	932292	59.813	ng	98
13) Acetone	7.13	58	4675571	271.971	ng	99
14) Trichlorofluoromethane	7.36	101	2441071	49.386	ng	100
15) 2-Propanol (Isopropanol)	7.64	45	6646291	121.158	ng	100
16) Acrylonitrile	7.90	53	2045119	67.551	ng	100
17) 1,1-Dichloroethene	8.34	96	1557555	54.011	ng	97
18) 2-Methyl-2-Propanol (t...	8.52	59	6849383	105.265	ng	99
19) Methylene Chloride	8.57	84	1581954	54.089	ng	97
20) 3-Chloro-1-propene (Al...	8.73	41	1937522	69.713	ng	98
21) Trichlorotrifluoroethane	8.98	151	1495545	45.513	ng	98
22) Carbon Disulfide	8.83	76	5788631	52.904	ng	100
23) trans-1,2-Dichloroethene	9.84	61	2181069	61.675	ng	99
24) 1,1-Dichloroethane	10.10	63	2571493	53.715	ng	99
25) Methyl tert-Butyl Ether	10.19	73	4446482	53.975	ng	100
26) Vinyl Acetate	10.36	86	1669370	270.914	ng	# 81
27) 2-Butanone (MEK)	10.60	72	1035052	55.502	ng	95
28) cis-1,2-Dichloroethene	11.12	61	2027211	59.159	ng	99
29) Diisopropyl Ether	11.41	87	1127568	41.773	ng	# 84
30) Ethyl Acetate	11.42	61	935492	107.380	ng	98
31) n-Hexane	11.40	57	2021126	48.912	ng	99
32) Chloroform	11.47	83	2510373	51.749	ng	100
34) Tetrahydrofuran (THF)	11.86	72	1036435	57.758	ng	98
35) Ethyl tert-Butyl Ether	12.01	87	1786546	50.943	ng	97
36) 1,2-Dichloroethane	12.26	62	1730395	53.509	ng	100
38) 1,1,1-Trichloroethane	12.54	97	2258527	51.813	ng	100
39) Isopropyl Acetate	12.97	61	1745314	105.385	ng	96
40) 1-Butanol	13.00	56	2784712	114.957	ng	99
41) Benzene	13.02	78	5514525	43.836	ng	100
42) Carbon Tetrachloride	13.18	117	2012597	49.495	ng	100
43) Cyclohexane	13.31	84	4271774	96.907	ng	97
44) tert-Amyl Methyl Ether	13.66	73	4147711	51.899	ng	99
45) 1,2-Dichloropropane	13.88	63	1488449	56.405	ng	100
46) Bromodichloromethane	14.07	83	2005128	52.925	ng	100
47) Trichloroethene	14.12	130	1741200	44.652	ng	100
48) 1,4-Dioxane	14.09	88	1305017	50.922	ng	97
49) 2,2,4-Trimethylpentane...	14.19	57	5706787	55.083	ng	99

Data File: I:\MS16\DATA\2016 10\06\10061632.D

Acq On : 7 Oct 2016 00:24

Operator: LH

Sample : 50ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051604 (11/3)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 10:06:20 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.33	100	1282669	95.119	ng	96
51) n-Heptane	14.45	71	1425468	49.470	ng	99
52) cis-1,3-Dichloropropene	14.98	75	2630083	58.838	ng	100
53) 4-Methyl-2-pentanone	15.01	58	1377577	58.075	ng	97
54) trans-1,3-Dichloropropene	15.50	75	2297686	57.484	ng	100
55) 1,1,2-Trichloroethane	15.67	97	1534622	49.549	ng	100
58) Toluene	15.97	91	5933858	40.442	ng	100
59) 2-Hexanone	16.21	43	2991076	53.202	ng	99
60) Dibromochloromethane	16.38	129	1906022	45.719	ng	100
61) 1,2-Dibromoethane	16.63	107	1814672	44.265	ng	100
62) n-Butyl Acetate	16.84	43	3275842	54.281	ng	98
63) n-Octane	16.97	57	1173012	46.803	ng	98
64) Tetrachloroethene	17.11	166	1896541	38.543	ng	100
65) Chlorobenzene	17.77	112	4203895	40.869	ng	100
66) Ethylbenzene	18.12	91	6606292	41.721	ng	99
67) m- & p-Xylenes	18.29	91	9929235	80.335	ng	99
68) Bromoform	18.35	173	1749931	42.263	ng	100
69) Styrene	18.61	104	4310377	41.185	ng	99
70) o-Xylene	18.71	91	4926307	38.987	ng	99
71) n-Nonane	18.90	43	2246665	46.417	ng	97
72) 1,1,2,2-Tetrachloroethane	18.69	83	2495959	46.633	ng	100
74) Cumene	19.23	105	6480327	37.060	ng	99
75) alpha-Pinene	19.58	93	3414385	42.702	ng	99
76) n-Propylbenzene	19.68	91	7533538	38.287	ng	98
77) 3-Ethyltoluene	19.77	105	6422545	36.120	ng	98
78) 4-Ethyltoluene	19.80	105	5891501	37.808	ng	99
79) 1,3,5-Trimethylbenzene	19.87	105	5233174	35.622	ng	99
80) alpha-Methylstyrene	20.01	118	3033688	41.484	ng	100
81) 2-Ethyltoluene	20.04	105	6079731	37.399	ng	99
82) 1,2,4-Trimethylbenzene	20.23	105	4808511	34.688	ng	100
83) n-Decane	20.32	57	2495133	42.658	ng	99
84) Benzyl Chloride	20.35	91	4742279	44.981	ng	98
85) 1,3-Dichlorobenzene	20.37	146	3314531	36.825	ng	100
86) 1,4-Dichlorobenzene	20.42	146	3451185	35.267	ng	99
87) sec-Butylbenzene	20.47	105	6778961	37.377	ng	99
88) 4-Isopropyltoluene (p-...	20.61	119	5774078	32.880	ng	99
89) 1,2,3-Trimethylbenzene	20.61	105	4673390	31.730	ng	99
90) 1,2-Dichlorobenzene	20.73	146	3045365	33.828	ng	100
91) d-Limonene	20.73	68	1739835	40.692	ng	95
92) 1,2-Dibromo-3-Chloropr...	21.11	157	1330225	40.810	ng	99
93) n-Undecane	21.41	57	2659254	44.998	ng	98
94) 1,2,4-Trichlorobenzene	22.24	180	2861257	37.272	ng	100
95) Naphthalene	22.34	128	7534917	38.067	ng	100
96) n-Dodecane	22.33	57	2271783	39.479	ng	97
97) Hexachlorobutadiene	22.66	225	1825278	37.228	ng	100
98) Cyclohexanone	18.42	55	2032572	49.179	ng	99
99) tert-Butylbenzene	20.23	119	4658639	34.280	ng	99
100) n-Butylbenzene	20.97	91	5440037	39.417	ng	99

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

Data File: I:\MS16\DATA\2016 10\06\10061632.D

Acq On : 7 Oct 2016 00:24

Operator: LH

Sample : 50ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051604 (11/3)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 10:06:20 2016

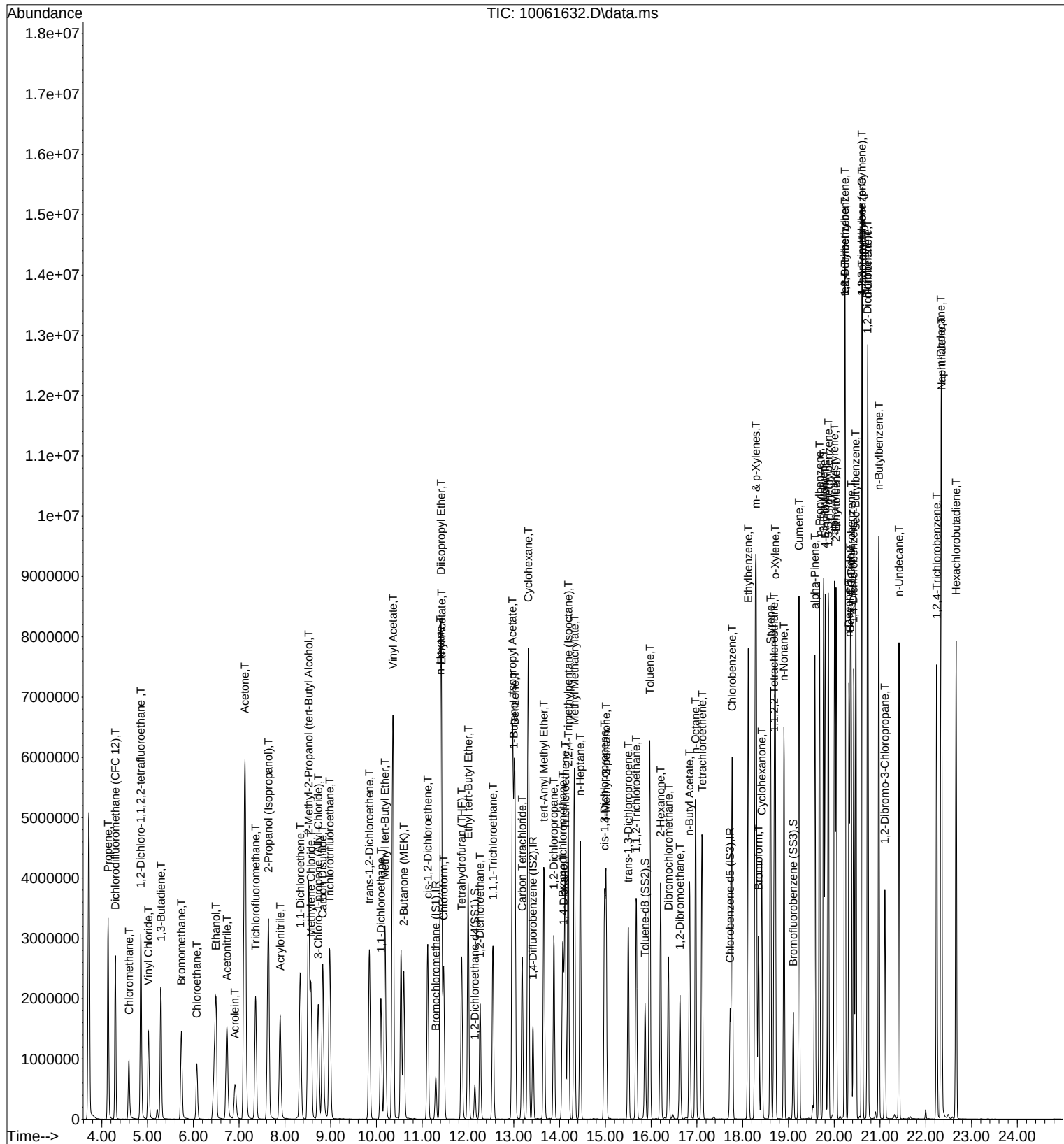
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 10\06\10061633.D

Acq On : 7 Oct 2016 00:57

Operator: LH

Sample : 100ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051604 (11/3)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 10:06:22 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 10/10/16

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.30	130	340886	12.500	ng	0.01
37) 1,4-Difluorobenzene (IS2)	13.42	114	1584614	12.500	ng	0.01
56) Chlorobenzene-d5 (IS3)	17.73	82	642254	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.15	65	418991	13.862	ng	0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	110.88%
57) Toluene-d8 (SS2)	15.87	98	1599607	11.712	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	93.68%
73) Bromofluorobenzene (SS3)	19.11	174	611668	10.787	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	86.32%

Target Compounds

						Qvalue
2) Propene	4.14	42	2606497	128.211	ng	99
3) Dichlorodifluoromethan...	4.30	85	4858336	85.511	ng	99
4) Chloromethane	4.59	50	1808282	78.300	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	2907881	77.762	ng	99
6) Vinyl Chloride	5.03	62	3751416	116.113	ng	100
7) 1,3-Butadiene	5.30	54	2392690	120.509	ng	100
8) Bromomethane	5.74	94	2493678	88.012	ng	100
9) Chloroethane	6.08	64	2009703	108.279	ng	99
10) Ethanol	6.53	45	8002440	516.206	ng	99
11) Acetonitrile	6.76	41	4797571	121.375	ng	100
12) Acrolein	6.92	56	1715302	110.187	ng	98
13) Acetone	7.15	58	7717132	449.459	ng	100
14) Trichlorofluoromethane	7.36	101	4585831	92.894	ng	100
15) 2-Propanol (Isopropanol)	7.67	45	10685402	195.033	ng	99
16) Acrylonitrile	7.91	53	3748909	123.983	ng	100
17) 1,1-Dichloroethene	8.34	96	2913748	101.167	ng	96
18) 2-Methyl-2-Propanol (t...	8.55	59	9577280	147.373	ng	99
19) Methylene Chloride	8.57	84	2830633	96.905	ng	93
20) 3-Chloro-1-propene (Al...	8.73	41	3527822	127.092	ng	96
21) Trichlorotrifluoroethane	8.99	151	2816882	85.833	ng	96
22) Carbon Disulfide	8.83	76	10501913	96.100	ng	99
23) trans-1,2-Dichloroethene	9.85	61	3990285	112.977	ng	98
24) 1,1-Dichloroethane	10.10	63	4732983	98.990	ng	99
25) Methyl tert-Butyl Ether	10.19	73	8115957	98.641	ng	100
26) Vinyl Acetate	10.38	86	2834980	460.653	ng	# 63
27) 2-Butanone (MEK)	10.61	72	1903438	102.195	ng	# 89
28) cis-1,2-Dichloroethene	11.13	61	3719063	108.667	ng	97
29) Diisopropyl Ether	11.42	87	1890906	70.140	ng	# 71
30) Ethyl Acetate	11.43	61	1483644	170.512	ng	94
31) n-Hexane	11.40	57	3302733	80.027	ng	99
32) Chloroform	11.48	83	4624278	95.444	ng	100
34) Tetrahydrofuran (THF)	11.87	72	1905847	106.342	ng	95
35) Ethyl tert-Butyl Ether	12.01	87	3287289	93.854	ng	92
36) 1,2-Dichloroethane	12.27	62	3234667	100.150	ng	100
38) 1,1,1-Trichloroethane	12.55	97	4180239	97.024	ng	100
39) Isopropyl Acetate	12.98	61	2950779	180.263	ng	# 91
40) 1-Butanol	13.02	56	4495870	187.772	ng	99
41) Benzene	13.03	78	8791918	70.708	ng	99
42) Carbon Tetrachloride	13.19	117	3774150	93.904	ng	100
43) Cyclohexane	13.32	84	7172877	164.627	ng	94
44) tert-Amyl Methyl Ether	13.66	73	7437882	94.160	ng	99
45) 1,2-Dichloropropane	13.88	63	2667919	102.287	ng	100
46) Bromodichloromethane	14.07	83	3662275	97.798	ng	100
47) Trichloroethene	14.13	130	3162170	82.043	ng	100
48) 1,4-Dioxane	14.10	88	2315019	91.392	ng	95
49) 2,2,4-Trimethylpentane...	14.19	57	9656916	94.304	ng	98

Data File: I:\MS16\DATA\2016 10\06\10061633.D

Acq On : 7 Oct 2016 00:57

Operator: LH

Sample : 100ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051604 (11/3)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 10:06:22 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.33	100	2271549	170.426	ng	91
51) n-Heptane	14.46	71	2490249	87.437	ng	97
52) cis-1,3-Dichloropropene	14.99	75	4733041	107.126	ng	100
53) 4-Methyl-2-pentanone	15.02	58	2414852	102.998	ng	94
54) trans-1,3-Dichloropropene	15.50	75	4249807	107.569	ng	99
55) 1,1,2-Trichloroethane	15.68	97	2816530	92.005	ng	99
58) Toluene	15.97	91	10398326	70.643	ng	99
59) 2-Hexanone	16.21	43	5235734	92.831	ng	98
60) Dibromochloromethane	16.38	129	3551163	84.909	ng	100
61) 1,2-Dibromoethane	16.64	107	3380159	82.188	ng	100
62) n-Butyl Acetate	16.85	43	5664835	93.568	ng	97
63) n-Octane	16.98	57	2001560	79.607	ng	95
64) Tetrachloroethene	17.11	166	3488482	70.669	ng	100
65) Chlorobenzene	17.77	112	7540117	73.069	ng	99
66) Ethylbenzene	18.13	91	11322940	71.280	ng	97
67) m- & p-Xylenes	18.29	91	16562121	133.572	ng	99
68) Bromoform	18.35	173	3259442	78.469	ng	100
69) Styrene	18.61	104	7527215	71.692	ng	98
70) o-Xylene	18.71	91	8302772	65.500	ng	99
71) n-Nonane	18.91	43	3571981	73.564	ng	93
72) 1,1,2,2-Tetrachloroethane	18.69	83	4216371	78.525	ng	100
74) Cumene	19.23	105	10792986	61.527	ng	97
75) alpha-Pinene	19.58	93	5802683	72.340	ng	98
76) n-Propylbenzene	19.68	91	12235108	61.982	ng	95
77) 3-Ethyltoluene	19.77	105	11116538	62.319	ng	97
78) 4-Ethyltoluene	19.81	105	9343329	59.769	ng	96
79) 1,3,5-Trimethylbenzene	19.88	105	8787405	59.625	ng	98
80) alpha-Methylstyrene	20.01	118	5185583	70.684	ng	99
81) 2-Ethyltoluene	20.05	105	10103561	61.952	ng	97
82) 1,2,4-Trimethylbenzene	20.24	105	7574847	54.470	ng	100
83) n-Decane	20.33	57	3905627	66.559	ng	96
84) Benzyl Chloride	20.35	91	7889038	74.590	ng	97
85) 1,3-Dichlorobenzene	20.38	146	5659881	62.682	ng	100
86) 1,4-Dichlorobenzene	20.43	146	5980543	60.919	ng	100
87) sec-Butylbenzene	20.47	105	10942467	60.141	ng	97
88) 4-Isopropyltoluene (p-...	20.61	119	8839679	50.177	ng	97
89) 1,2,3-Trimethylbenzene	20.61	105	7305089	49.440	ng	99
90) 1,2-Dichlorobenzene	20.73	146	4938131	54.678	ng	99
91) d-Limonene	20.74	68	2642784	61.614	ng	91
92) 1,2-Dibromo-3-Chloropr...	21.11	157	2435372	74.476	ng	98
93) n-Undecane	21.41	57	4189399	70.663	ng	96
94) 1,2,4-Trichlorobenzene	22.24	180	5143432	66.787	ng	100
95) Naphthalene	22.35	128	11917713	60.017	ng	98
96) n-Dodecane	22.33	57	3445618	59.687	ng	95
97) Hexachlorobutadiene	22.66	225	3307792	67.249	ng	100
98) Cyclohexanone	18.42	55	3555333	85.748	ng	97
99) tert-Butylbenzene	20.24	119	7438178	54.558	ng	99
100) n-Butylbenzene	20.97	91	8899173	64.275	ng	97

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

Data File: I:\MS16\DATA\2016 10\06\10061633.D

Acq On : 7 Oct 2016 00:57

Operator: LH

Sample : 100ng TO-15 ICAL STD

Misc : S29-09151601/S29-10051604 (11/3)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 10 10:06:22 2016

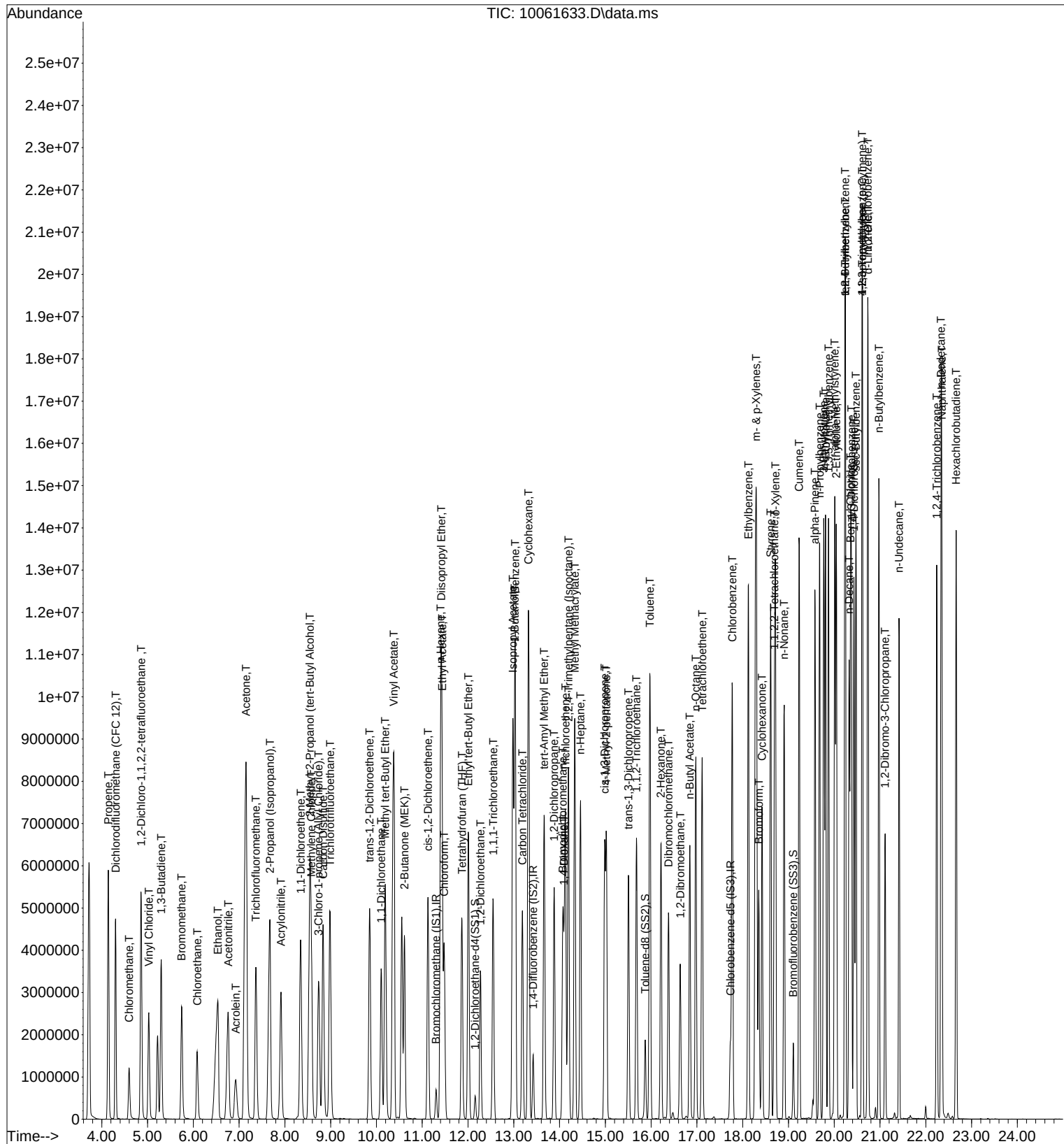
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Mon Oct 10 10:05:47 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M



Data File: I:\MS16\DATA\2016 10\06\10061634.D

Acq On : 7 Oct 2016 1:31

Operator: LH

Sample : 25ng TO-15 ICV STD

Misc : S29-09151601/S29-10061607 (11/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 12 15:49:02 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 10/12/16

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.29	130	321042	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.41	114	1536751	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	609545	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.14	65	398891	12.128	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.04%
57) Toluene-d8 (SS2)	15.87	98	1526567	12.558	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.48%
73) Bromofluorobenzene (SS3)	19.10	174	589819	12.780	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	102.24%

Target Compounds

						Qvalue
2) Propene	4.13	42	730699	25.762	ng	100
3) Dichlorodifluoromethan...	4.29	85	1446210	26.533	ng	100
4) Chloromethane	4.59	50	792198	24.178	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.85	135	852459	26.338	ng	99
6) Vinyl Chloride	5.02	62	1102478	26.975	ng	100
7) 1,3-Butadiene	5.29	54	713823	29.817	ng	100
8) Bromomethane	5.73	94	758878	27.132	ng	100
9) Chloroethane	6.07	64	590743	26.797	ng	100
10) Ethanol	6.46	45	2616308	127.241	ng	100
11) Acetonitrile	6.72	41	1383513	25.856	ng	100
12) Acrolein	6.90	56	508000	26.397	ng	100
13) Acetone	7.11	58	2725253	133.297	ng	100
14) Trichlorofluoromethane	7.35	101	1303834	25.748	ng	100
15) 2-Propanol (Isopropanol)	7.62	45	3709344	53.945	ng	100
16) Acrylonitrile	7.88	53	1094194	26.963	ng	100
17) 1,1-Dichloroethene	8.33	96	834243	28.015	ng	97
18) 2-Methyl-2-Propanol (t...	8.50	59	3898579	56.271	ng	100
19) Methylene Chloride	8.56	84	860104	25.759	ng	96
20) 3-Chloro-1-propene (Al...	8.72	41	1070326	27.085	ng	98
21) Trichlorotrifluoroethane	8.98	151	812814	27.169	ng	97
22) Carbon Disulfide	8.82	76	3158937	27.970	ng	100
23) trans-1,2-Dichloroethene	9.84	61	1149394	27.528	ng	98
24) 1,1-Dichloroethane	10.09	63	1417565	26.397	ng	100
25) Methyl tert-Butyl Ether	10.18	73	2416073	26.675	ng	100
26) Vinyl Acetate	10.35	86	968714	160.143	ng	96
27) 2-Butanone (MEK)	10.59	72	577516	27.460	ng	97
28) cis-1,2-Dichloroethene	11.11	61	1090602	26.937	ng	99
29) Diisopropyl Ether	11.40	87	660720	23.320	ng	95
30) Ethyl Acetate	11.41	61	576365	52.939	ng	100
31) n-Hexane	11.40	57	1189772	26.431	ng	100
32) Chloroform	11.46	83	1370617	26.212	ng	100
34) Tetrahydrofuran (THF)	11.86	72	562300	27.758	ng	98
35) Ethyl tert-Butyl Ether	12.00	87	973229	26.613	ng	98
36) 1,2-Dichloroethane	12.26	62	943364	26.299	ng	100
38) 1,1,1-Trichloroethane	12.54	97	1197465	26.715	ng	100
39) Isopropyl Acetate	12.96	61	1019152	51.137	ng	99
40) 1-Butanol	12.98	56	1616117	55.925	ng	100
41) Benzene	13.02	78	3252374	25.656	ng	100
42) Carbon Tetrachloride	13.18	117	1091207	27.629	ng	100
43) Cyclohexane	13.31	84	2431001	52.255	ng	100
44) tert-Amyl Methyl Ether	13.66	73	2308913	26.555	ng	100
45) 1,2-Dichloropropane	13.87	63	816380	25.975	ng	100
46) Bromodichloromethane	14.06	83	1110076	28.480	ng	100
47) Trichloroethene	14.12	130	966444	26.881	ng	100
48) 1,4-Dioxane	14.08	88	714444	27.144	ng	98
49) 2,2,4-Trimethylpentane...	14.18	57	3232962	25.761	ng	100

Data File: I:\MS16\DATA\2016 10\06\10061634.D

Acq On : 7 Oct 2016 1:31

Operator: LH

Sample : 25ng TO-15 ICV STD

Misc : S29-09151601/S29-10061607 (11/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 12 15:49:02 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.32	100	731266	56.263	ng	98
51) n-Heptane	14.45	71	795467	25.783	ng	99
52) cis-1,3-Dichloropropene	14.98	75	1375611	28.227	ng	100
53) 4-Methyl-2-pentanone	15.01	58	764195	27.095	ng	98
54) trans-1,3-Dichloropropene	15.50	75	1263244	29.948	ng	99
55) 1,1,2-Trichloroethane	15.67	97	849065	27.537	ng	99
58) Toluene	15.97	91	3374886	28.305	ng	100
59) 2-Hexanone	16.20	43	1660895	26.490	ng	100
60) Dibromochloromethane	16.37	129	1051544	30.406	ng	99
61) 1,2-Dibromoethane	16.63	107	999750	28.538	ng	100
62) n-Butyl Acetate	16.84	43	1906646	27.547	ng	100
63) n-Octane	16.97	57	659057	25.331	ng	99
64) Tetrachloroethene	17.11	166	1063079	27.665	ng	99
65) Chlorobenzene	17.77	112	2348560	26.677	ng	100
66) Ethylbenzene	18.12	91	3820385	26.522	ng	100
67) m- & p-Xylenes	18.29	91	5697412	51.712	ng	100
68) Bromoform	18.35	173	957989	32.230	ng	100
69) Styrene	18.60	104	2496253	28.499	ng	100
70) o-Xylene	18.71	91	2896408	26.505	ng	100
71) n-Nonane	18.90	43	1345861	25.020	ng	99
72) 1,1,2,2-Tetrachloroethane	18.68	83	1446343	28.791	ng	100
74) Cumene	19.23	105	3802931	28.921	ng	100
75) alpha-Pinene	19.58	93	1996506	28.018	ng	99
76) n-Propylbenzene	19.68	91	4495619	29.212	ng	100
77) 3-Ethyltoluene	19.76	105	3844808	27.028	ng	100
78) 4-Ethyltoluene	19.80	105	3513147	27.041	ng	100
79) 1,3,5-Trimethylbenzene	19.87	105	3061198	26.050	ng	100
80) alpha-Methylstyrene	20.01	118	1813895	31.020	ng	100
81) 2-Ethyltoluene	20.04	105	3618856	26.765	ng	100
82) 1,2,4-Trimethylbenzene	20.23	105	2985202	25.621	ng	100
83) n-Decane	20.32	57	1532997	26.423	ng	100
84) Benzyl Chloride	20.35	91	2861511	34.627	ng	100
85) 1,3-Dichlorobenzene	20.37	146	1974927	28.698	ng	100
86) 1,4-Dichlorobenzene	20.42	146	2013811	26.736	ng	100
87) sec-Butylbenzene	20.47	105	4067078	28.537	ng	100
88) 4-Isopropyltoluene (p-...	20.61	119	3664676	28.339	ng	100
89) 1,2,3-Trimethylbenzene	20.61	105	2999445	28.666	ng	100
90) 1,2-Dichlorobenzene	20.73	146	1855760	26.042	ng	100
91) d-Limonene	20.73	68	1140591	27.790	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.11	157	761305	33.315	ng	100
93) n-Undecane	21.41	57	1655604	27.047	ng	100
94) 1,2,4-Trichlorobenzene	22.23	180	1681323	28.377	ng	100
95) Naphthalene	22.34	128	4718997	28.928	ng	100
96) n-Dodecane	22.33	57	1626601	28.584	ng	100
97) Hexachlorobutadiene	22.66	225	1035463	28.786	ng	100
98) Cyclohexanone	18.41	55	1162945	28.073	ng	100
99) tert-Butylbenzene	20.23	119	2903345	26.341	ng	100
100) n-Butylbenzene	20.97	91	3295832	26.780	ng	100

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

Data File: I:\MS16\DATA\2016 10\06\10061634.D

Acq On : 7 Oct 2016 1:31

Operator: LH

Sample : 25ng TO-15 ICV STD

Misc : S29-09151601/S29-10061607 (11/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Oct 12 15:49:02 2016

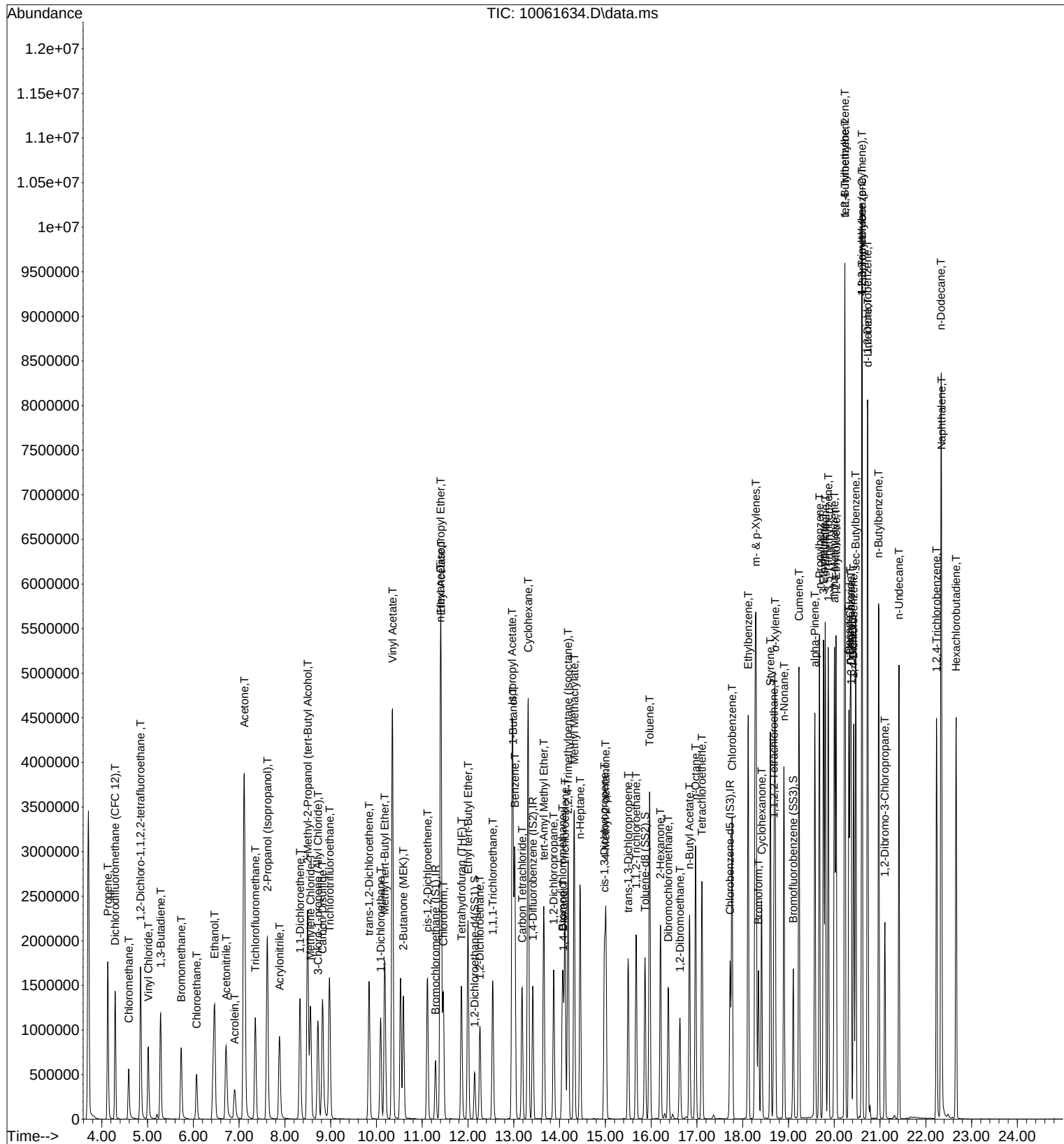
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:T015.M



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEETData File Name: **10061634.D**Acq. Method File: **TO15.M**Data File Path: **I:\MS16\DATA\2016_10\061**Sample Name: **25ng TO-15 ICV STD**Operator: **LH**Misc Info: **S29-09151601/S29-10061607 (**Date Acquired: **10/7/16****1:31**Instrument Name: **GCMS-16**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
2)	Propene	4.13	25.762	26.275	98	52	127	*	*
3)	Dichlorodifluoromethane (CFC 12)	4.29	26.533	26.250	101	68	109	*	*
4)	Chloromethane	4.59	24.178	26.225	92	51	130	*	*
5)	1,2-Dichloro-1,1,2,2-tetrafluoroethane	4.85	26.338	26.375	100	66	114	*	*
6)	Vinyl Chloride	5.02	26.975	26.250	103	61	125	*	*
7)	1,3-Butadiene	5.29	29.817	26.250	114	62	144	*	*
8)	Bromomethane	5.73	27.132	26.250	103	73	123	*	*
9)	Chloroethane	6.07	26.797	26.225	102	69	122	*	*
10)	Ethanol	6.46	127.241	132.650	96	62	124	*	*
11)	Acetonitrile	6.72	25.856	26.650	97	57	114	*	*
12)	Acrolein	6.90	26.397	26.525	100	62	116	*	*
13)	Acetone	7.11	133.297	133.050	100	57	117	*	*
14)	Trichlorofluoromethane	7.35	25.748	26.275	98	63	98	*	*
15)	2-Propanol (Isopropanol)	7.62	53.945	53.025	102	66	121	*	*
16)	Acrylonitrile	7.88	26.963	26.575	101	68	123	*	*
17)	1,1-Dichloroethene	8.33	28.015	26.575	105	76	118	*	*
18)	2-Methyl-2-Propanol (tert-Butyl Alcohol)	8.50	56.271	53.275	106	74	126	*	*
19)	Methylene Chloride	8.56	25.759	26.550	97	60	118	*	*
20)	3-Chloro-1-propene (Allyl Chloride)	8.72	27.085	26.500	102	65	126	*	*
21)	Trichlorotrifluoroethane	8.98	27.169	26.450	103	73	114	*	*
22)	Carbon Disulfide	8.82	27.970	26.675	105	57	102	FAIL	*
23)	trans-1,2-Dichloroethene	9.84	27.528	26.675	103	74	123	*	*
24)	1,1-Dichloroethane	10.09	26.397	26.550	99	69	111	*	*
25)	Methyl tert-Butyl Ether	10.18	26.675	26.600	100	69	113	*	*
26)	Vinyl Acetate	10.35	160.143	132.550	121	76	128	*	*
27)	2-Butanone (MEK)	10.59	27.460	26.550	103	63	127	*	*
28)	cis-1,2-Dichloroethene	11.11	26.937	26.475	102	72	117	*	*
29)	Diisopropyl Ether	11.40	23.320	26.575	88	64	118	*	*
30)	Ethyl Acetate	11.41	52.939	53.275	99	68	127	*	*
31)	n-Hexane	11.40	26.431	26.600	99	55	116	*	*
32)	Chloroform	11.46	26.212	26.475	99	70	109	*	*
34)	Tetrahydrofuran (THF)	11.86	27.758	26.575	104	72	113	*	*
35)	Ethyl tert-Butyl Ether	12.00	26.613	26.525	100	73	117	*	*
36)	1,2-Dichloroethane	12.26	26.299	26.500	99	69	113	*	*
38)	1,1,1-Trichloroethane	12.54	26.715	26.475	101	72	115	*	*
39)	Isopropyl Acetate	12.96	51.137	53.050	96	68	122	*	*
40)	1-Butanol	12.98	55.925	53.075	105	75	141	*	*
41)	Benzene	13.02	25.656	26.525	97	65	107	*	*
42)	Carbon Tetrachloride	13.18	27.629	26.600	104	71	113	*	*
43)	Cyclohexane	13.31	52.255	53.125	98	71	115	*	*
44)	tert-Amyl Methyl Ether	13.66	26.555	26.525	100	73	115	*	*
45)	1,2-Dichloropropane	13.87	25.975	26.525	98	71	115	*	*
46)	Bromodichloromethane	14.06	28.480	26.700	107	75	118	*	*
47)	Trichloroethene	14.12	26.881	26.550	101	68	114	*	*
48)	1,4-Dioxane	14.08	27.144	26.600	102	81	131	*	*
49)	2,2,4-Trimethylpentane (Isooctane)	14.18	25.761	26.525	97	68	112	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: 10061634.D

TO15.M

Data File Path: I:\MS16\DATA\2016_10\061

Sample Name: 25ng TO-15 ICV STD

Operator: LH

Misc Info: S29-09151601/S29-10061607 (

Date Acquired: 10/7/16

1:31

Instrument Name: GCMS-16

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
50)	Methyl Methacrylate	14.32	56.263	53.000	106	72	130	*	*
51)	n-Heptane	14.45	25.783	26.600	97	68	116	*	*
52)	cis-1,3-Dichloropropene	14.98	28.227	26.275	107	77	126	*	*
53)	4-Methyl-2-pentanone	15.01	27.095	26.575	102	69	126	*	*
54)	trans-1,3-Dichloropropene	15.50	29.948	26.675	112	79	125	*	*
55)	1,1,2-Trichloroethane	15.67	27.537	26.525	104	75	119	*	*
58)	Toluene	15.97	28.305	26.450	107	59	118	*	*
59)	2-Hexanone	16.20	26.490	26.575	100	69	129	*	*
60)	Dibromochloromethane	16.37	30.406	26.600	114	74	136	*	*
61)	1,2-Dibromoethane	16.63	28.538	26.450	108	73	131	*	*
62)	n-Butyl Acetate	16.84	27.547	26.950	102	69	130	*	*
63)	n-Octane	16.97	25.331	26.500	96	66	120	*	*
64)	Tetrachloroethene	17.11	27.665	26.575	104	65	130	*	*
65)	Chlorobenzene	17.77	26.677	26.500	101	68	120	*	*
66)	Ethylbenzene	18.12	26.522	26.450	100	68	122	*	*
67)	m- & p-Xylenes	18.29	51.712	53.025	98	68	123	*	*
68)	Bromoform	18.35	32.230	26.550	121	69	130	*	*
69)	Styrene	18.60	28.499	26.475	108	71	133	*	*
70)	o-Xylene	18.71	26.505	26.450	100	68	122	*	*
71)	n-Nonane	18.90	25.020	26.475	95	65	120	*	*
72)	1,1,2,2-Tetrachloroethane	18.68	28.791	26.500	109	69	130	*	*
74)	Cumene	19.23	28.921	26.525	109	70	123	*	*
75)	alpha-Pinene	19.58	28.018	26.575	105	70	128	*	*
76)	n-Propylbenzene	19.68	29.212	26.725	109	69	125	*	*
77)	3-Ethyltoluene	19.76	27.028	26.550	102	67	128	*	*
78)	4-Ethyltoluene	19.80	27.041	26.525	102	67	130	*	*
79)	1,3,5-Trimethylbenzene	19.87	26.050	26.525	98	67	124	*	*
80)	alpha-Methylstyrene	20.01	31.020	26.550	117	67	141	*	*
81)	2-Ethyltoluene	20.04	26.765	26.550	101	67	124	*	*
82)	1,2,4-Trimethylbenzene	20.23	25.621	26.525	97	67	129	*	*
83)	n-Decane	20.32	26.423	26.525	100	66	124	*	*
84)	Benzyl Chloride	20.35	34.627	26.550	130	79	138	*	*
85)	1,3-Dichlorobenzene	20.37	28.698	26.475	108	65	136	*	*
86)	1,4-Dichlorobenzene	20.42	26.736	26.650	100	66	141	*	*
87)	sec-Butylbenzene	20.47	28.537	26.550	107	68	125	*	*
88)	4-Isopropyltoluene (p-Cymene)	20.61	28.339	26.550	107	68	131	*	*
89)	1,2,3-Trimethylbenzene	20.61	28.666	26.500	108	68	132	*	*
90)	1,2-Dichlorobenzene	20.73	26.042	26.550	98	67	136	*	*
91)	d-Limonene	20.73	27.790	26.550	105	71	134	*	*
92)	1,2-Dibromo-3-Chloropropane	21.11	33.315	26.475	126	73	136	*	*
93)	n-Undecane	21.41	27.047	26.600	102	68	132	*	*
94)	1,2,4-Trichlorobenzene	22.23	28.377	26.500	107	64	134	*	*
95)	Naphthalene	22.34	28.928	26.700	108	62	136	*	*
96)	n-Dodecane	22.33	28.584	26.550	108	61	137	*	*
97)	Hexachlorobutadiene	22.66	28.786	26.575	108	60	133	*	*
98)	Cyclohexanone	18.41	28.073	26.575	106	64	131	*	*
99)	tert-Butylbenzene	20.23	26.341	26.500	99	67	128	*	*
100)	n-Butylbenzene	20.97	26.780	26.500	101	68	128	*	*

Bold = 75 Compound List
*** = Pass**

Data File: I:\MS16\DATA\2016 11\08\11081627.D

Acq On : 8 Nov 2016 22:29

Operator: LH

Sample : CCV2 R16110816 25ng

Misc : S29-11051601/S29-10261602 (11/24)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 09 07:44:36 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 11/9/16

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

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

Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 IR	Bromochloromethane (IS1)	1.000	1.000	0.0	92	-0.02
2 T	Propene	1.104	1.296	-17.4	108	-0.01
3 T	Dichlorodifluoromethane (CF	2.122	2.331	-9.8	100	-0.01
4 T	Chloromethane	1.276	1.460	-14.4	110	-0.01
5 T	1,2-Dichloro-1,1,2,2-tetra	1.260	1.279	-1.5	100	-0.02
6 T	Vinyl Chloride	1.591	1.878	-18.0	111	-0.02
7 T	1,3-Butadiene	0.932	1.263	-35.5#	119	-0.02
8 T	Bromomethane	1.089	1.174	-7.8	102	-0.01
9 T	Chloroethane	0.858	0.979	-14.1	103	-0.02
10 T	Ethanol	0.801	0.948	-18.4	113	-0.08
11 T	Acetonitrile	2.083	2.489	-19.5	110	-0.05
12 T	Acrolein	0.749	0.839	-12.0	105	-0.03
13 T	Acetone	0.796	0.916	-15.1	109	-0.05
14 T	Trichlorofluoromethane	1.972	2.042	-3.5	101	-0.02
15 T	2-Propanol (Isopropanol)	2.677	3.248	-21.3	110	-0.07
16 T	Acrylonitrile	1.580	1.805	-14.2	107	-0.04
17 T	1,1-Dichloroethene	1.159	1.246	-7.5	98	-0.02
18 T	2-Methyl-2-Propanol (tert-B	2.698	3.287	-21.8	109	-0.06
19 T	Methylene Chloride	1.300	1.312	-0.9	101	-0.02
20 T	3-Chloro-1-propene (Allyl C	1.539	1.803	-17.2	110	-0.02
21 T	Trichlorotrifluoroethane	1.165	1.147	1.5	95	-0.02
22 T	Carbon Disulfide	4.397	4.841	-10.1	101	-0.02
23 T	trans-1,2-Dichloroethene	1.626	1.859	-14.3	106	-0.02
24 T	1,1-Dichloroethane	2.091	2.287	-9.4	105	-0.02
25 T	Methyl tert-Butyl Ether	3.527	3.803	-7.8	104	-0.01
26 T	Vinyl Acetate	0.236	0.298	-26.3	104	-0.03
27 T	2-Butanone (MEK)	0.819	0.903	-10.3	104	-0.03
28 T	cis-1,2-Dichloroethene	1.576	1.753	-11.2	107	-0.02
29 T	Diisopropyl Ether	1.103	1.206	-9.3	124	-0.02
30 T	Ethyl Acetate	0.424	0.479	-13.0	112	-0.03
31 T	n-Hexane	1.753	2.018	-15.1	112	-0.01
32 T	Chloroform	2.036	2.159	-6.0	104	-0.02
33 S	1,2-Dichloroethane-d4 (SS1)	1.281	1.401	-9.4	101	-0.01
34 T	Tetrahydrofuran (THF)	0.789	0.879	-11.4	103	-0.02
35 T	Ethyl tert-Butyl Ether	1.424	1.490	-4.6	102	0.00
36 T	1,2-Dichloroethane	1.397	1.555	-11.3	109	-0.01
37 IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	92	-0.01
38 T	1,1,1-Trichloroethane	0.365	0.389	-6.6	103	-0.01
39 T	Isopropyl Acetate	0.162	0.179	-10.5	111	-0.02
40 T	1-Butanol	0.235	0.287	-22.1	112	-0.03
41 T	Benzene	1.031	1.049	-1.7	104	-0.01
42 T	Carbon Tetrachloride	0.321	0.344	-7.2	101	-0.01
43 T	Cyclohexane	0.378	0.392	-3.7	103	-0.01
44 T	tert-Amyl Methyl Ether	0.707	0.767	-8.5	105	0.00
45 T	1,2-Dichloropropane	0.256	0.275	-7.4	106	-0.01
46 T	Bromodichloromethane	0.317	0.358	-12.9	104	0.00
47 T	Trichloroethene	0.292	0.286	2.1	97	-0.01
48 T	1,4-Dioxane	0.214	0.229	-7.0	101	-0.01
49 T	2,2,4-Trimethylpentane (Iso	1.021	1.111	-8.8	109	-0.01
50 T	Methyl Methacrylate	0.106	0.113	-6.6	100	-0.01
51 T	n-Heptane	0.251	0.262	-4.4	106	-0.01
52 T	cis-1,3-Dichloropropene	0.396	0.448	-13.1	103	0.00
53 T	4-Methyl-2-pentanone	0.229	0.264	-15.3	107	-0.01
54 T	trans-1,3-Dichloropropene	0.343	0.404	-17.8	103	0.00

Data File: I:\MS16\DATA\2016 11\08\11081627.D

Acq On : 8 Nov 2016 22:29

Operator: LH

Sample : CCV2 R16110816 25ng

Misc : S29-11051601/S29-10261602 (11/24)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 09 07:44:36 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.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)
55 T	1,1,2-Trichloroethane	0.251	0.263	-4.8	100	0.00
56 IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	96	0.00
57 S	Toluene-d8 (SS2)	2.493	2.421	2.9	93	0.00
58 T	Toluene	2.445	2.550	-4.3	101	0.00
59 T	2-Hexanone	1.286	1.440	-12.0	113	-0.01
60 T	Dibromochloromethane	0.709	0.756	-6.6	99	0.00
61 T	1,2-Dibromoethane	0.718	0.733	-2.1	99	-0.01
62 T	n-Butyl Acetate	1.419	1.643	-15.8	119	0.00
63 T	n-Octane	0.534	0.547	-2.4	110	0.00
64 T	Tetrachloroethene	0.788	0.732	7.1	94	0.00
65 T	Chlorobenzene	1.805	1.692	6.3	98	0.00
66 T	Ethylbenzene	2.954	2.888	2.2	102	0.00
67 T	m- & p-Xylenes	2.259	2.162	4.3	104	0.00
68 T	Bromoform	0.610	0.669	-9.7	95	0.00
69 T	Styrene	1.796	1.822	-1.4	100	0.00
70 T	o-Xylene	2.241	2.201	1.8	104	0.00
71 T	n-Nonane	1.103	1.179	-6.9	117	0.00
72 T	1,1,2,2-Tetrachloroethane	1.030	1.137	-10.4	106	-0.01
73 S	Bromofluorobenzene (SS3)	0.946	0.862	8.9	88	0.00
74 T	Cumene	2.697	2.819	-4.5	101	0.00
75 T	alpha-Pinene	1.461	1.498	-2.5	102	0.00
76 T	n-Propylbenzene	3.156	3.384	-7.2	103	0.00
77 T	3-Ethyltoluene	2.917	2.949	-1.1	103	0.00
78 T	4-Ethyltoluene	2.664	2.501	6.1	100	0.00
79 T	1,3,5-Trimethylbenzene	2.410	2.293	4.9	102	0.00
80 T	alpha-Methylstyrene	1.199	1.262	-5.3	97	-0.01
81 T	2-Ethyltoluene	2.773	2.666	3.9	102	0.00
82 T	1,2,4-Trimethylbenzene	2.389	2.247	5.9	104	0.00
83 T	n-Decane	1.190	1.265	-6.3	113	0.00
84 T	Benzyl Chloride	1.695	2.110	-24.5	104	0.00
85 T	1,3-Dichlorobenzene	1.411	1.399	0.9	98	-0.01
86 T	1,4-Dichlorobenzene	1.545	1.414	8.5	98	0.00
87 T	sec-Butylbenzene	2.923	3.011	-3.0	102	0.00
88 T	4-Isopropyltoluene (p-Cymen	2.652	2.744	-3.5	102	0.00
89 T	1,2,3-Trimethylbenzene	2.146	2.247	-4.7	104	0.00
90 T	1,2-Dichlorobenzene	1.461	1.314	10.1	99	0.00
91 T	d-Limonene	0.842	0.889	-5.6	109	0.00
92 T	1,2-Dibromo-3-Chloropropane	0.469	0.529	-12.8	98	0.00
93 T	n-Undecane	1.255	1.379	-9.9	116	0.00
94 T	1,2,4-Trichlorobenzene	1.215	1.149	5.4	97	0.00
95 T	Naphthalene	3.345	3.308	1.1	103	0.00
96 T	n-Dodecane	1.167	1.382	-18.4	131	0.00
97 T	Hexachlorobutadiene	0.738	0.705	4.5	96	0.00
98 T	Cyclohexanone	0.850	0.959	-12.8	111	-0.01
99 T	tert-Butylbenzene	2.260	2.121	6.2	101	0.00
100 T	n-Butylbenzene	2.524	2.492	1.3	105	0.00

(#) = Out of Range

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

Data File: I:\MS16\DATA\2016 11\08\11081627.D

Acq On : 8 Nov 2016 22:29

Operator: LH

Sample : CCV2 R16110816 25ng

Misc : S29-11051601/S29-10261602 (11/24)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 09 07:44:36 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

LH 11/9/16

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.29	130	313281	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.41	114	1497333	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	625044	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.14	65	439026	13.679	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	109.44%
57) Toluene-d8 (SS2)	15.87	98	1513185	12.140	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.12%
73) Bromofluorobenzene (SS3)	19.11	174	538667	11.383	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	91.04%

Target Compounds

						Qvalue
2) Propene	4.13	42	841291	30.396	ng	99
3) Dichlorodifluoromethan...	4.29	85	1529028	28.748	ng	100
4) Chloromethane	4.58	50	919065	28.745	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.84	135	805165	25.493	ng	100
6) Vinyl Chloride	5.01	62	1203999	30.189	ng	100
7) 1,3-Butadiene	5.28	54	836481	35.806	ng	97
8) Bromomethane	5.73	94	730728	26.773	ng	100
9) Chloroethane	6.07	64	618880	28.769	ng	100
10) Ethanol	6.45	45	3092059	154.104	ng	100
11) Acetonitrile	6.71	41	1630977	31.235	ng	100
12) Acrolein	6.90	56	547122	29.134	ng	100
13) Acetone	7.10	58	3049029	152.828	ng	93
14) Trichlorofluoromethane	7.35	101	1342182	27.162	ng	100
15) 2-Propanol (Isopropanol)	7.61	45	4284389	63.851	ng	100
16) Acrylonitrile	7.88	53	1193071	30.128	ng	100
17) 1,1-Dichloroethene	8.33	96	826802	28.453	ng	93
18) 2-Methyl-2-Propanol (t...	8.49	59	4353869	64.399	ng	99
19) Methylene Chloride	8.55	84	869126	26.674	ng	92
20) 3-Chloro-1-propene (Al...	8.72	41	1188448	30.819	ng	95
21) Trichlorotrifluoroethane	8.97	151	753663	25.816	ng	96
22) Carbon Disulfide	8.82	76	3218116	29.200	ng	100
23) trans-1,2-Dichloroethene	9.83	61	1242520	30.495	ng	95
24) 1,1-Dichloroethane	10.09	63	1461877	27.896	ng	100
25) Methyl tert-Butyl Ether	10.18	73	2539993	28.738	ng	99
26) Vinyl Acetate	10.35	86	982837	166.503	ng	# 74
27) 2-Butanone (MEK)	10.58	72	593514	28.920	ng	# 88
28) cis-1,2-Dichloroethene	11.11	61	1168853	29.585	ng	94
29) Diisopropyl Ether	11.40	87	802652	29.031	ng	# 92
30) Ethyl Acetate	11.41	61	639034	60.149	ng	97
31) n-Hexane	11.39	57	1343900	30.595	ng	99
32) Chloroform	11.46	83	1431046	28.046	ng	100
34) Tetrahydrofuran (THF)	11.85	72	584656	29.576	ng	92
35) Ethyl tert-Butyl Ether	12.00	87	986508	27.645	ng	92
36) 1,2-Dichloroethane	12.26	62	1025293	29.291	ng	100
38) 1,1,1-Trichloroethane	12.54	97	1250892	28.642	ng	99
39) Isopropyl Acetate	12.96	61	1128477	58.113	ng	# 89
40) 1-Butanol	12.98	56	1811300	64.329	ng	96
41) Benzene	13.02	78	3303829	26.748	ng	100
42) Carbon Tetrachloride	13.18	117	1085730	28.214	ng	100
43) Cyclohexane	13.31	84	2503266	55.225	ng	94
44) tert-Amyl Methyl Ether	13.66	73	2421523	28.584	ng	97
45) 1,2-Dichloropropane	13.87	63	874364	28.553	ng	100
46) Bromodichloromethane	14.06	83	1142129	30.074	ng	100
47) Trichloroethene	14.12	130	908238	25.927	ng	100
48) 1,4-Dioxane	14.08	88	727332	28.361	ng	95
49) 2,2,4-Trimethylpentane...	14.18	57	3523847	28.818	ng	97

Data File: I:\MS16\DATA\2016 11\08\11081627.D

Acq On : 8 Nov 2016 22:29

Operator: LH

Sample : CCV2 R16110816 25ng

Misc : S29-11051601/S29-10261602 (11/24)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 09 07:44:36 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.32	100	714247	56.400	ng	91
51) n-Heptane	14.45	71	831777	27.670	ng	97
52) cis-1,3-Dichloropropene	14.98	75	1497744	31.542	ng	100
53) 4-Methyl-2-pentanone	15.01	58	836292	30.432	ng	93
54) trans-1,3-Dichloropropene	15.50	75	1287925	31.337	ng	100
55) 1,1,2-Trichloroethane	15.67	97	834960	27.793	ng	98
58) Toluene	15.97	91	3356502	27.453	ng	100
59) 2-Hexanone	16.20	43	1910198	29.710	ng	95
60) Dibromochloromethane	16.37	129	1003998	28.311	ng	100
61) 1,2-Dibromoethane	16.63	107	967253	26.926	ng	100
62) n-Butyl Acetate	16.84	43	2185611	30.794	ng	96
63) n-Octane	16.97	57	722615	27.085	ng	94
64) Tetrachloroethene	17.11	166	971247	24.649	ng	100
65) Chlorobenzene	17.77	112	2243643	24.854	ng	100
66) Ethylbenzene	18.12	91	3808851	25.786	ng	98
67) m- & p-Xylenes	18.29	91	5736707	50.777	ng	98
68) Bromoform	18.35	173	889434	29.182	ng	100
69) Styrene	18.60	104	2416593	26.906	ng	98
70) o-Xylene	18.71	91	2900528	25.885	ng	98
71) n-Nonane	18.90	43	1553572	28.166	ng	94
72) 1,1,2,2-Tetrachloroethane	18.68	83	1500430	29.127	ng	99
74) Cumene	19.23	105	3700198	27.442	ng	99
75) alpha-Pinene	19.58	93	1955311	26.759	ng	96
76) n-Propylbenzene	19.68	91	4497237	28.498	ng	98
77) 3-Ethyltoluene	19.77	105	3871286	26.539	ng	99
78) 4-Ethyltoluene	19.80	105	3279228	24.614	ng	99
79) 1,3,5-Trimethylbenzene	19.87	105	3007307	24.957	ng	98
80) alpha-Methylstyrene	20.00	118	1656652	27.629	ng	99
81) 2-Ethyltoluene	20.04	105	3539434	25.529	ng	99
82) 1,2,4-Trimethylbenzene	20.23	105	2954522	24.728	ng	98
83) n-Decane	20.32	57	1665389	27.993	ng	97
84) Benzyl Chloride	20.35	91	2797967	33.019	ng	98
85) 1,3-Dichlorobenzene	20.36	146	1850107	26.218	ng	100
86) 1,4-Dichlorobenzene	20.42	146	1870060	24.212	ng	99
87) sec-Butylbenzene	20.47	105	3967179	27.146	ng	99
88) 4-Isopropyltoluene (p-...	20.61	119	3523174	26.569	ng	98
89) 1,2,3-Trimethylbenzene	20.61	105	2884338	26.882	ng	98
90) 1,2-Dichlorobenzene	20.73	146	1737820	23.782	ng	100
91) d-Limonene	20.73	68	1160810	27.581	ng	95
92) 1,2-Dibromo-3-Chloropr...	21.11	157	695765	29.692	ng	89
93) n-Undecane	21.41	57	1816419	28.938	ng	97
94) 1,2,4-Trichlorobenzene	22.23	180	1498045	24.657	ng	100
95) Naphthalene	22.34	128	4478457	26.773	ng	100
96) n-Dodecane	22.33	57	1805012	30.933	ng	96
97) Hexachlorobutadiene	22.66	225	933514	25.309	ng	99
98) Cyclohexanone	18.41	55	1266193	29.807	ng	95
99) tert-Butylbenzene	20.23	119	2786903	24.657	ng	99
100) n-Butylbenzene	20.97	91	3290138	26.071	ng	99

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

Data File: I:\MS16\DATA\2016 11\08\11081627.D

Acq On : 8 Nov 2016 22:29

Operator: LH

Sample : CCV2 R16110816 25ng

Misc : S29-11051601/S29-10261602 (11/24)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 09 07:44:36 2016

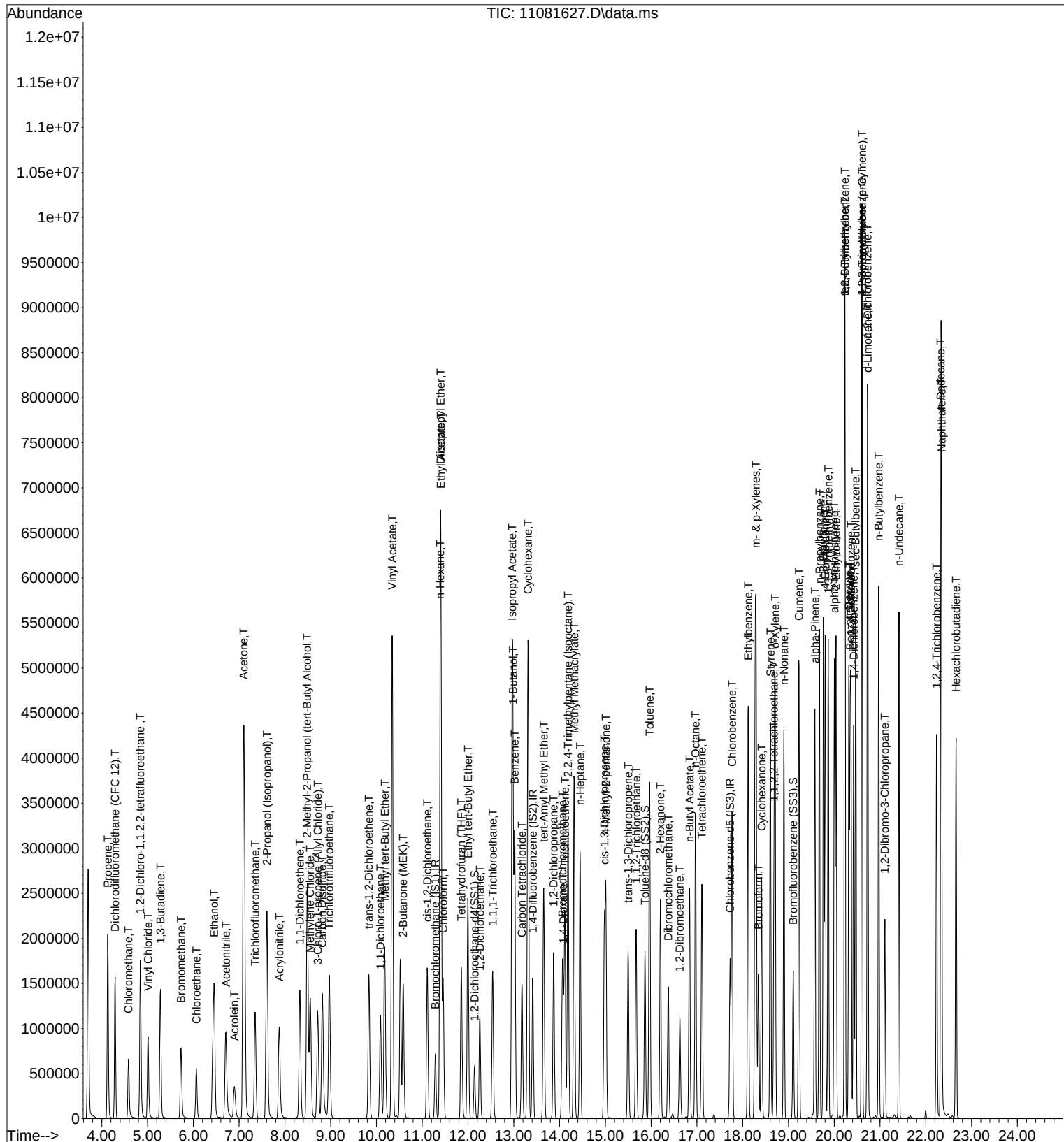
Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2016 11\09\11091601.D

Acq On : 9 Nov 2016 17:54

Operator: LH

Sample : CCV R16110916 25ng

Misc : S29-11051601/S29-10261602 (11/24)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 10 08:15:58 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 11/10/16

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

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

Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 IR	Bromochloromethane (IS1)	1.000	1.000	0.0	86	-0.01
2 T	Propene	1.104	1.561	-41.4#	121	-0.02
3 T	Dichlorodifluoromethane (CF	2.122	2.568	-21.0	103	-0.02
4 T	Chloromethane	1.276	1.585	-24.2	111	-0.01
5 T	1,2-Dichloro-1,1,2,2-tetra	1.260	1.308	-3.8	96	-0.02
6 T	Vinyl Chloride	1.591	2.045	-28.5	113	-0.02
7 T	1,3-Butadiene	0.932	1.372	-47.2#	120	-0.02
8 T	Bromomethane	1.089	1.207	-10.8	97	-0.02
9 T	Chloroethane	0.858	1.039	-21.1	102	-0.02
10 T	Ethanol	0.801	1.059	-32.2#	118	-0.08
11 T	Acetonitrile	2.083	2.816	-35.2#	116	-0.06
12 T	Acrolein	0.749	0.906	-21.0	106	-0.03
13 T	Acetone	0.796	0.996	-25.1	111	-0.05
14 T	Trichlorofluoromethane	1.972	2.179	-10.5	100	-0.02
15 T	2-Propanol (Isopropanol)	2.677	3.576	-33.6#	113	-0.07
16 T	Acrylonitrile	1.580	1.977	-25.1	109	-0.04
17 T	1,1-Dichloroethene	1.159	1.277	-10.2	94	-0.02
18 T	2-Methyl-2-Propanol (tert-B	2.698	3.489	-29.3	108	-0.06
19 T	Methylene Chloride	1.300	1.352	-4.0	97	-0.02
20 T	3-Chloro-1-propene (Allyl C	1.539	2.024	-31.5#	116	-0.02
21 T	Trichlorotrifluoroethane	1.165	1.150	1.3	89	-0.02
22 T	Carbon Disulfide	4.397	5.055	-15.0	99	-0.02
23 T	trans-1,2-Dichloroethene	1.626	1.989	-22.3	106	-0.02
24 T	1,1-Dichloroethane	2.091	2.456	-17.5	105	-0.02
25 T	Methyl tert-Butyl Ether	3.527	3.981	-12.9	102	-0.01
26 T	Vinyl Acetate	0.236	0.314	-33.1#	103	-0.03
27 T	2-Butanone (MEK)	0.819	0.949	-15.9	102	-0.02
28 T	cis-1,2-Dichloroethene	1.576	1.894	-20.2	108	-0.02
29 T	Diisopropyl Ether	1.103	1.086	1.5	104	-0.02
30 T	Ethyl Acetate	0.424	0.513	-21.0	112	-0.02
31 T	n-Hexane	1.753	2.168	-23.7	112	0.00
32 T	Chloroform	2.036	2.285	-12.2	103	-0.02
33 S	1,2-Dichloroethane-d4 (SS1)	1.281	1.487	-16.1	100	-0.01
34 T	Tetrahydrofuran (THF)	0.789	0.929	-17.7	102	-0.02
35 T	Ethyl tert-Butyl Ether	1.424	1.568	-10.1	100	0.00
36 T	1,2-Dichloroethane	1.397	1.683	-20.5	110	-0.01
37 IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	86	-0.01
38 T	1,1,1-Trichloroethane	0.365	0.411	-12.6	102	-0.01
39 T	Isopropyl Acetate	0.162	0.191	-17.9	110	-0.02
40 T	1-Butanol	0.235	0.308	-31.1#	113	-0.03
41 T	Benzene	1.031	1.098	-6.5	102	-0.01
42 T	Carbon Tetrachloride	0.321	0.361	-12.5	100	-0.01
43 T	Cyclohexane	0.378	0.409	-8.2	101	0.00
44 T	tert-Amyl Methyl Ether	0.707	0.801	-13.3	103	0.00
45 T	1,2-Dichloropropane	0.256	0.292	-14.1	105	-0.01
46 T	Bromodichloromethane	0.317	0.378	-19.2	103	0.00
47 T	Trichloroethene	0.292	0.293	-0.3	93	-0.01
48 T	1,4-Dioxane	0.214	0.237	-10.7	98	-0.01
49 T	2,2,4-Trimethylpentane (Iso	1.021	1.189	-16.5	109	-0.01
50 T	Methyl Methacrylate	0.106	0.116	-9.4	96	-0.01
51 T	n-Heptane	0.251	0.276	-10.0	104	-0.01
52 T	cis-1,3-Dichloropropene	0.396	0.471	-18.9	102	0.00
53 T	4-Methyl-2-pentanone	0.229	0.281	-22.7	106	-0.01
54 T	trans-1,3-Dichloropropene	0.343	0.428	-24.8	102	0.00

Data File: I:\MS16\DATA\2016 11\09\11091601.D

Acq On : 9 Nov 2016 17:54

Operator: LH

Sample : CCV R16110916 25ng

Misc : S29-11051601/S29-10261602 (11/24)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 10 08:15:58 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.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)
55 T	1,1,2-Trichloroethane	0.251	0.272	-8.4	96	0.00
56 IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	92	0.00
57 S	Toluene-d8 (SS2)	2.493	2.390	4.1	88	0.00
58 T	Toluene	2.445	2.587	-5.8	97	0.00
59 T	2-Hexanone	1.286	1.540	-19.8	115	-0.01
60 T	Dibromochloromethane	0.709	0.766	-8.0	95	0.00
61 T	1,2-Dibromoethane	0.718	0.744	-3.6	96	-0.01
62 T	n-Butyl Acetate	1.419	1.755	-23.7	121	0.00
63 T	n-Octane	0.534	0.573	-7.3	109	0.00
64 T	Tetrachloroethene	0.788	0.727	7.7	89	0.00
65 T	Chlorobenzene	1.805	1.709	5.3	94	0.00
66 T	Ethylbenzene	2.954	2.940	0.5	99	0.00
67 T	m- & p-Xylenes	2.259	2.215	1.9	101	0.00
68 T	Bromoform	0.610	0.670	-9.8	91	0.00
69 T	Styrene	1.796	1.838	-2.3	96	0.00
70 T	o-Xylene	2.241	2.253	-0.5	101	0.00
71 T	n-Nonane	1.103	1.263	-14.5	119	0.00
72 T	1,1,2,2-Tetrachloroethane	1.030	1.172	-13.8	104	0.00
73 S	Bromofluorobenzene (SS3)	0.946	0.822	13.1	80	0.00
74 T	Cumene	2.697	2.860	-6.0	97	0.00
75 T	alpha-Pinene	1.461	1.528	-4.6	100	0.00
76 T	n-Propylbenzene	3.156	3.469	-9.9	101	0.00
77 T	3-Ethyltoluene	2.917	2.959	-1.4	99	0.00
78 T	4-Ethyltoluene	2.664	2.572	3.5	98	0.00
79 T	1,3,5-Trimethylbenzene	2.410	2.333	3.2	98	0.00
80 T	alpha-Methylstyrene	1.199	1.277	-6.5	94	0.00
81 T	2-Ethyltoluene	2.773	2.716	2.1	99	0.00
82 T	1,2,4-Trimethylbenzene	2.389	2.297	3.9	101	0.00
83 T	n-Decane	1.190	1.333	-12.0	114	0.00
84 T	Benzyl Chloride	1.695	2.152	-27.0	101	0.00
85 T	1,3-Dichlorobenzene	1.411	1.407	0.3	94	0.00
86 T	1,4-Dichlorobenzene	1.545	1.425	7.8	94	0.00
87 T	sec-Butylbenzene	2.923	3.078	-5.3	99	0.00
88 T	4-Isopropyltoluene (p-Cymen	2.652	2.783	-4.9	98	0.00
89 T	1,2,3-Trimethylbenzene	2.146	2.300	-7.2	101	0.00
90 T	1,2-Dichlorobenzene	1.461	1.332	8.8	95	0.00
91 T	d-Limonene	0.842	0.924	-9.7	108	0.00
92 T	1,2-Dibromo-3-Chloropropane	0.469	0.528	-12.6	93	0.00
93 T	n-Undecane	1.255	1.445	-15.1	116	0.00
94 T	1,2,4-Trichlorobenzene	1.215	1.137	6.4	92	0.00
95 T	Naphthalene	3.345	3.318	0.8	99	0.00
96 T	n-Dodecane	1.167	1.441	-23.5	130	0.00
97 T	Hexachlorobutadiene	0.738	0.698	5.4	90	0.00
98 T	Cyclohexanone	0.850	1.002	-17.9	110	-0.01
99 T	tert-Butylbenzene	2.260	2.166	4.2	98	0.00
100 T	n-Butylbenzene	2.524	2.575	-2.0	103	0.00

(#)= Out of Range

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

Data File: I:\MS16\DATA\2016 11\09\11091601.D

Acq On : 9 Nov 2016 17:54

Operator: LH

Sample : CCV R16110916 25ng

Misc : S29-11051601/S29-10261602 (11/24)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 10 08:15:58 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

LH 11/10/16

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.29	130	292337	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.41	114	1400072	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.72	82	595353	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.14	65	434646	14.513	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	116.08%
57) Toluene-d8 (SS2)	15.87	98	1422843	11.984	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.84%
73) Bromofluorobenzene (SS3)	19.10	174	489457	10.859	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	86.88%

Target Compounds

						Qvalue
2) Propene	4.13	42	945290	36.600	ng	99
3) Dichlorodifluoromethan...	4.28	85	1572123	31.676	ng	100
4) Chloromethane	4.58	50	931081	31.207	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.84	135	768301	26.069	ng	100
6) Vinyl Chloride	5.01	62	1223194	32.867	ng	99
7) 1,3-Butadiene	5.28	54	847773	38.889	ng	96
8) Bromomethane	5.73	94	700994	27.524	ng	99
9) Chloroethane	6.07	64	613211	30.548	ng	100
10) Ethanol	6.45	45	3223396	172.159	ng	100
11) Acetonitrile	6.70	41	1722373	35.349	ng	100
12) Acrolein	6.90	56	551150	31.452	ng	100
13) Acetone	7.10	58	3092493	166.112	ng	90
14) Trichlorofluoromethane	7.35	101	1336164	28.977	ng	100
15) 2-Propanol (Isopropanol)	7.61	45	4400740	70.284	ng	99
16) Acrylonitrile	7.88	53	1219421	32.999	ng	100
17) 1,1-Dichloroethene	8.33	96	790955	29.169	ng	85
18) 2-Methyl-2-Propanol (t...	8.49	59	4311935	68.348	ng	97
19) Methylene Chloride	8.55	84	835424	27.476	ng	84
20) 3-Chloro-1-propene (Al...	8.72	41	1244770	34.592	ng	91
21) Trichlorotrifluoroethane	8.97	151	705222	25.888	ng	93
22) Carbon Disulfide	8.82	76	3136018	30.494	ng	100
23) trans-1,2-Dichloroethene	9.83	61	1240932	32.639	ng	90
24) 1,1-Dichloroethane	10.09	63	1464689	29.953	ng	100
25) Methyl tert-Butyl Ether	10.18	73	2481192	30.084	ng	97
26) Vinyl Acetate	10.34	86	967607	175.666	ng	# 62
27) 2-Butanone (MEK)	10.59	72	582097	30.395	ng	# 79
28) cis-1,2-Dichloroethene	11.11	61	1178555	31.967	ng	91
29) Diisopropyl Ether	11.40	87	674126	26.130	ng	# 69
30) Ethyl Acetate	11.41	61	638176	64.372	ng	95
31) n-Hexane	11.40	57	1347365	32.871	ng	99
32) Chloroform	11.46	83	1413168	29.680	ng	100
34) Tetrahydrofuran (THF)	11.85	72	576735	31.266	ng	# 87
35) Ethyl tert-Butyl Ether	12.00	87	969329	29.109	ng	# 89
36) 1,2-Dichloroethane	12.26	62	1035194	31.693	ng	100
38) 1,1,1-Trichloroethane	12.54	97	1236636	30.283	ng	98
39) Isopropyl Acetate	12.96	61	1126027	62.015	ng	# 84
40) 1-Butanol	12.98	56	1816370	68.991	ng	93
41) Benzene	13.02	78	3234026	28.002	ng	100
42) Carbon Tetrachloride	13.18	117	1067432	29.666	ng	100
43) Cyclohexane	13.31	84	2437135	57.501	ng	91
44) tert-Amyl Methyl Ether	13.66	73	2363507	29.837	ng	96
45) 1,2-Dichloropropane	13.87	63	867891	30.310	ng	100
46) Bromodichloromethane	14.06	83	1127551	31.752	ng	99
47) Trichloroethene	14.12	130	868229	26.507	ng	99
48) 1,4-Dioxane	14.08	88	705195	29.409	ng	92
49) 2,2,4-Trimethylpentane...	14.18	57	3525268	30.833	ng	96

Data File: I:\MS16\DATA\2016 11\09\11091601.D

Acq On : 9 Nov 2016 17:54

Operator: LH

Sample : CCV R16110916 25ng

Misc : S29-11051601/S29-10261602 (11/24)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 10 08:15:58 2016

Quant Method : I:\MS16\METHODS\R16100616.M

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

QLast Update : Wed Oct 12 15:41:09 2016

Response via : Initial Calibration

DataAcq Meth:TO15.M

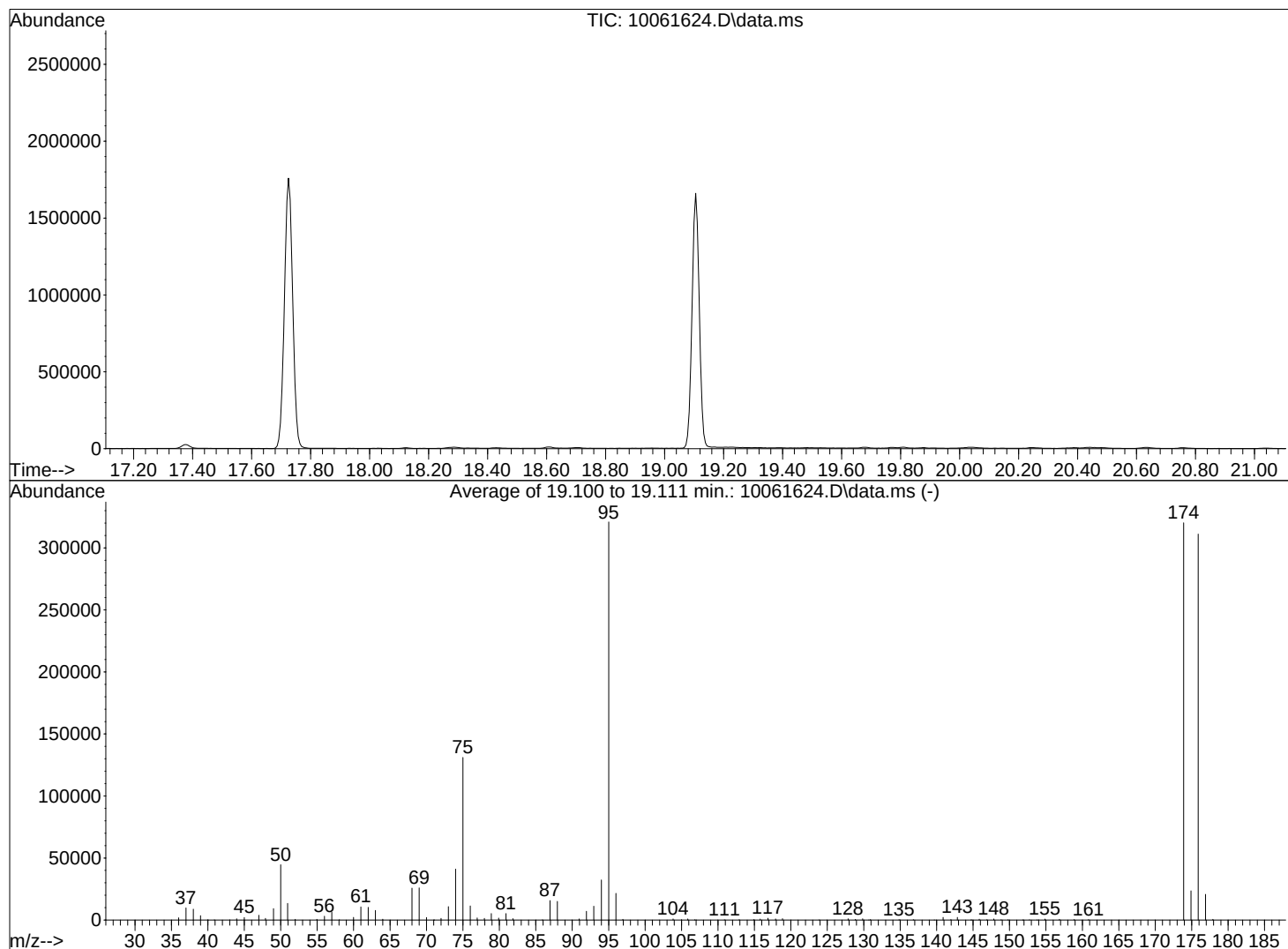
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.32	100	687536	58.063	ng	# 86
51) n-Heptane	14.45	71	821333	29.220	ng	95
52) cis-1,3-Dichloropropene	14.98	75	1472852	33.172	ng	99
53) 4-Methyl-2-pentanone	15.01	58	833825	32.450	ng	90
54) trans-1,3-Dichloropropene	15.50	75	1275701	33.196	ng	100
55) 1,1,2-Trichloroethane	15.67	97	807999	28.764	ng	97
58) Toluene	15.96	91	3243551	27.852	ng	100
59) 2-Hexanone	16.20	43	1945923	31.775	ng	93
60) Dibromochloromethane	16.38	129	968020	28.658	ng	100
61) 1,2-Dibromoethane	16.62	107	934942	27.324	ng	100
62) n-Butyl Acetate	16.84	43	2222894	32.881	ng	95
63) n-Octane	16.97	57	721342	28.386	ng	93
64) Tetrachloroethene	17.11	166	918143	24.463	ng	100
65) Chlorobenzene	17.77	112	2159035	25.109	ng	100
66) Ethylbenzene	18.12	91	3693106	26.249	ng	98
67) m- & p-Xylenes	18.29	91	5598914	52.029	ng	97
68) Bromoform	18.35	173	848375	29.223	ng	100
69) Styrene	18.60	104	2321882	27.140	ng	98
70) o-Xylene	18.71	91	2827117	26.488	ng	97
71) n-Nonane	18.90	43	1584947	30.167	ng	92
72) 1,1,2,2-Tetrachloroethane	18.69	83	1473259	30.026	ng	99
74) Cumene	19.23	105	3576213	27.845	ng	99
75) alpha-Pinene	19.58	93	1898854	27.283	ng	95
76) n-Propylbenzene	19.68	91	4390341	29.208	ng	97
77) 3-Ethyltoluene	19.76	105	3699374	26.625	ng	99
78) 4-Ethyltoluene	19.80	105	3211998	25.312	ng	98
79) 1,3,5-Trimethylbenzene	19.87	105	2913771	25.387	ng	98
80) alpha-Methylstyrene	20.01	118	1596881	27.960	ng	98
81) 2-Ethyltoluene	20.04	105	3434246	26.006	ng	98
82) 1,2,4-Trimethylbenzene	20.23	105	2876853	25.279	ng	98
83) n-Decane	20.32	57	1671503	29.497	ng	96
84) Benzyl Chloride	20.35	91	2718750	33.684	ng	97
85) 1,3-Dichlorobenzene	20.37	146	1772970	26.378	ng	99
86) 1,4-Dichlorobenzene	20.42	146	1795412	24.405	ng	99
87) sec-Butylbenzene	20.47	105	3862517	27.748	ng	98
88) 4-Isopropyltoluene (p-...	20.61	119	3403618	26.947	ng	97
89) 1,2,3-Trimethylbenzene	20.61	105	2812108	27.516	ng	97
90) 1,2-Dichlorobenzene	20.73	146	1678338	24.114	ng	100
91) d-Limonene	20.73	68	1149260	28.669	ng	95
92) 1,2-Dibromo-3-Chloropr...	21.11	157	661603	29.642	ng	85
93) n-Undecane	21.41	57	1813357	30.330	ng	96
94) 1,2,4-Trichlorobenzene	22.23	180	1411515	24.392	ng	100
95) Naphthalene	22.34	128	4279205	26.857	ng	100
96) n-Dodecane	22.33	57	1792631	32.253	ng	96
97) Hexachlorobutadiene	22.66	225	880745	25.069	ng	99
98) Cyclohexanone	18.41	55	1260285	31.148	ng	93
99) tert-Butylbenzene	20.23	119	2710084	25.174	ng	99
100) n-Butylbenzene	20.97	91	3237721	26.935	ng	98

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

Data Path : I:\MS16\DATA\2016 10\06\
Data File : 10061624.D
Acq On : 6 Oct 2016 19:56
Operator : LH
Sample : 12.5ng TO-15 BFB
Misc : S29-09151601
ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16100616.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Fri Oct 07 09:22:09 2016



AutoFind: Scans 2821, 2822, 2823; Background Corrected with Scan 2813

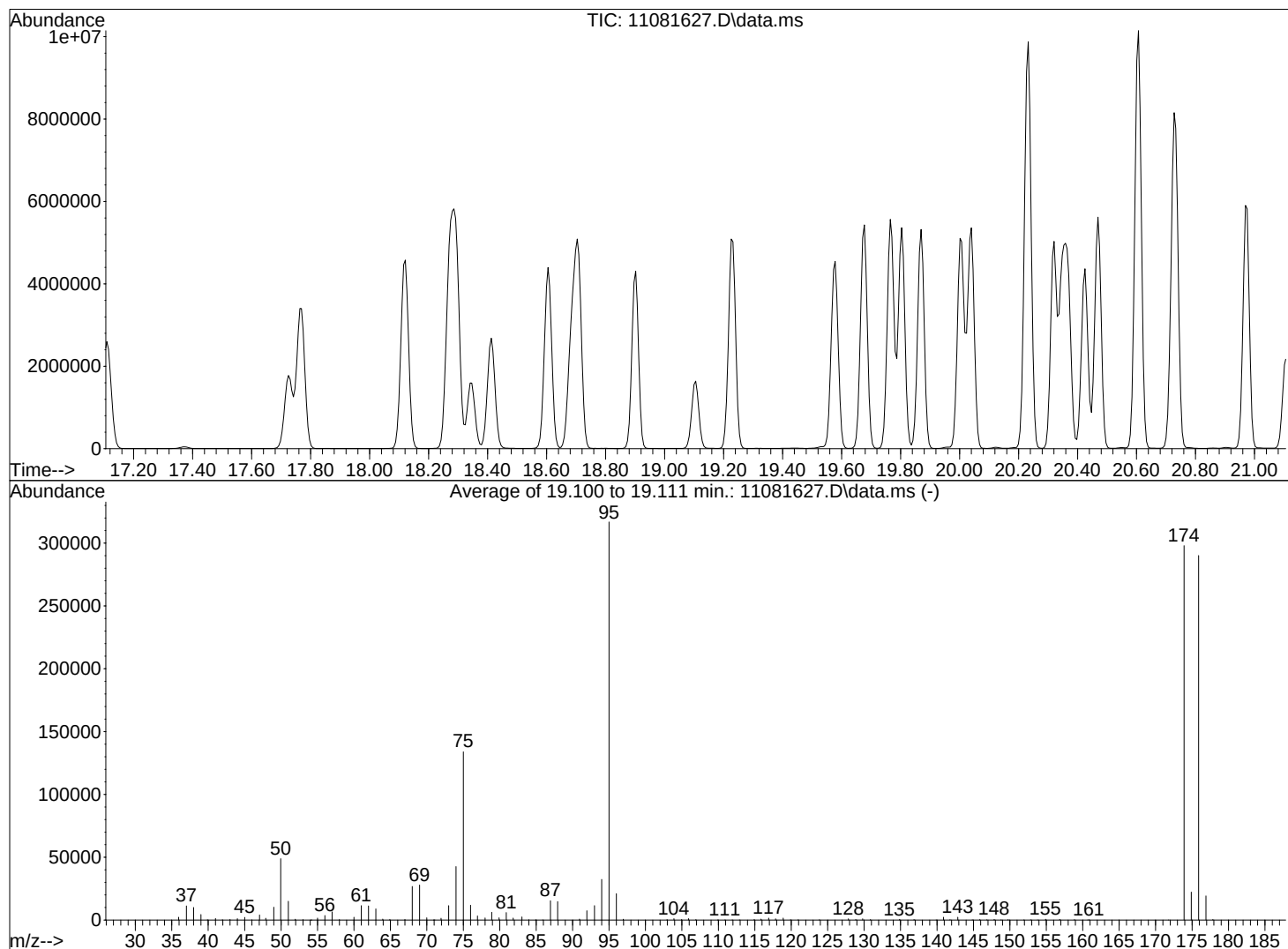
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	13.9	44600	PASS
75	95	30	66	40.8	131072	PASS
95	95	100	100	100.0	320917	PASS
96	95	5	9	6.7	21512	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	99.8	320235	PASS
175	174	4	9	7.4	23587	PASS
176	174	93	101	97.2	311147	PASS
177	176	5	9	6.7	20741	PASS

LH 10/7/16

Data Path : I:\MS16\DATA\2016 11\08\
 Data File : 11081627.D
 Acq On : 8 Nov 2016 22:29
 Operator : LH
 Sample : CCV2 R16110816 25ng
 Misc : S29-11051601/S29-10261602 (11/24)
 ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16100616.M
 Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 Last Update : Wed Oct 12 15:41:09 2016



AutoFind: Scans 2821, 2822, 2823; Background Corrected with Scan 2812

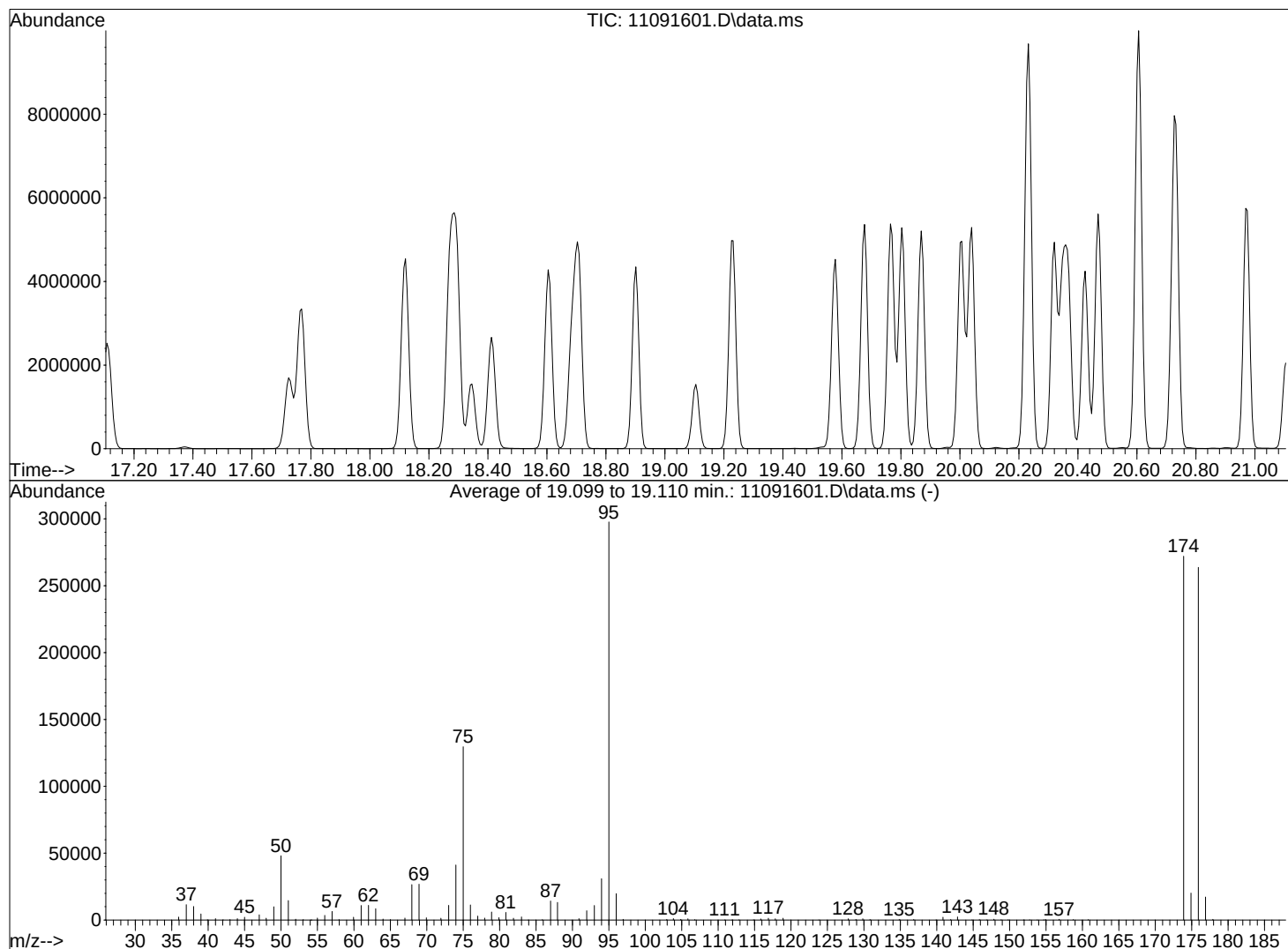
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	15.4	48870	PASS
75	95	30	66	42.3	133928	PASS
95	95	100	100	100.0	316864	PASS
96	95	5	9	6.6	20981	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	94.1	298048	PASS
175	174	4	9	7.5	22227	PASS
176	174	93	101	97.4	290197	PASS
177	176	5	9	6.6	19211	PASS

LH 11/9/16

Data Path : I:\MS16\DATA\2016 11\09\
Data File : 11091601.D
Acq On : 9 Nov 2016 17:54
Operator : LH
Sample : CCV R16110916 25ng
Misc : S29-11051601/S29-10261602 (11/24)
ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16100616.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Oct 12 15:41:09 2016



AutoFind: Scans 2821, 2822, 2823; Background Corrected with Scan 2813

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	16.1	48003	PASS
75	95	30	66	43.5	129576	PASS
95	95	100	100	100.0	297707	PASS
96	95	5	9	6.6	19728	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	91.4	272064	PASS
175	174	4	9	7.4	20125	PASS
176	174	93	101	96.9	263744	PASS
177	176	5	9	6.5	17243	PASS

LH 11/10/16

Injection Log

Directory: J:\MS16\DATA\2016_10\06\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
24	10/6/16 19:56	10061624.D	12.5ng TO-15 BFB	S29-09151601	LH	2	passed
25	10/6/16 20:30	10061625.D	0.08ng TO-15 ICAL STD	S29-09151601/S29-10051616 (11/3)	LH	10	
26	10/6/16 21:03	10061626.D	0.1ng TO-15 ICAL STD	S29-09151601/S29-10051616 (11/3)	LH	10	
27	10/6/16 21:36	10061627.D	0.2ng TO-15 ICAL STD	S29-09151601/S29-10051616 (11/3)	LH	10	
28	10/6/16 22:09	10061628.D	0.4ng TO-15 ICAL STD	S29-09151601/S29-10051616 (11/3)	LH	10	
29	10/6/16 22:43	10061629.D	1.0ng TO-15 ICAL STD	S29-09151601/S29-10051612 (11/3)	LH	11	
29	10/6/16 23:16	10061630.D	5.0ng TO-15 ICAL STD	S29-09151601/S29-10051612 (11/3)	LH	11	
30	10/6/16 23:50	10061631.D	25ng TO-15 ICAL STD	S29-09151601/S29-10051604 (11/3)	LH	2	R16100616.M
32	10/7/16 0:24	10061632.D	50ng TO-15 ICAL STD	S29-09151601/S29-10051604 (11/3)	LH	2	
33	10/7/16 0:57	10061633.D	100ng TO-15 ICAL STD	S29-09151601/S29-10051604 (11/3)	LH	2	
34	10/7/16 1:31	10061634.D	25ng TO-15 ICV STD	S29-09151601/S29-10061607 (11/4)	LH	2	passed
	ICAL R16100616.M passed for all compounds 0.08ng-100ng, except: propene, acetonitrile, tetrahydrofuran, benzyl chloride, 1,2-dibromo-						
	3-chloropropane 0.4ng-100ng, dichlorodifluoromethane, chloromethane, carbon disulfide, hexane, toluene, cumene, propylbenzene,						
	sec-butylbenzene, 4-isopropyltoluene, 1,2,3-trimethylbenzene 0.2ng-100ng, ethanol, acetone 1.0ng-500ng, isopropanol, tert-butanol 0.2ng-200ng,						
	benzene, 1,4-dichlorobenzene 0.1ng-100ng.						

LH 10/12/16

Injection Log

Directory: I:\MS16\DATA\2016_11\08\

[illegible]

Injection Log

Directory: I:\MS16\DATA\2016_11\09\

[illegible]