SGS Galson Data Package

Client : GHD Services Inc.
Project : 11183332
SDG : L470798

Data package for samples received:
02/13/19

SGS GALSON

Mr. Ben Chandler
GHD Services Inc.
11719 Hinson Road
Suite 100
Little Rock, AR 72212

February 15, 2019

Account# 29016

Login# L470798

Dear Mr. Chandler:

Enclosed are the analytical results for the samples received by our laboratory on February 13, 2019. All samples on the chain of custody were received in good condition unless otherwise noted. When possible, non-IOM samples will be retained for 14 days following the date of this report (unless an extension is specifically requested). IOM samples are retained for 7 days.

Please contact client services at (888) 432-5227 if you would like any additional information regarding this report. Thank you for using SGS Galson.

Sincerely,

SGS Galson

Lisa Swab

Lisa Swab
Laboratory Director

Enclosure(s)

Terms and Conditions & General Disclaimers

- This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

- Any holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Analytical Disclaimers

- Unless otherwise noted within the report, all quality control results associated with the samples were within established control limits or did not impact reported results.

- Note: The findings recorded within this report were drawn from analysis of the sample(s) provided to the laboratory by the Client (or a third party acting at the Client's direction). The laboratory does not have control over the sampling process, including but not limited to the use of field equipment and collection media, as well as the sampling duration, collection volume or any other collection parameter used by the Client. The findings herein constitute no warranty of the sample's representativeness of any sampled environment, and strictly relate to the samples as they were presented to the laboratory. For recommended sampling collection parameters, please refer to the Sampling and Analysis Guide at www.sgsgalson.com.

- Unrounded results are carried through the calculations that yield the final result and the final result is rounded to the number of significant figures appropriate to the accuracy of the analytical method. Please note that results appearing in the columns preceding the final result column may have been rounded and therefore, if carried through the calculations, may not yield an identical final result to the one reported.

- The stated LOQs for each analyte represent the demonstrated LOQ concentrations prior to correction for desorption efficiency (if applicable).

- Unless otherwise noted within the report, results have not been blank corrected for any field blank or method blank data.

Accreditations SGS Galson holds a variety of accreditations and recognitions. Our quality management system conforms with the requirements of ISO/IEC 17025. Where applicable, samples may also be analyzed in accordance with the requirements of ELAP, NELAC, or LELAP under one of the state accrediting bodies listed below. Current Scopes of Accreditation can be viewed at http://www.sgsgalson.com in the accreditations section of the "About" page. To determine if the analyte tested falls under our scope of accreditation, please visit our website or call Client Services at (888) 432-5227.

National/International	Accreditation/Recognition	Lab ID#	Program/Sector
AIHA-LAP, LLC - IHLAP, ELLAP, EMLAP	ISO/IEC 17025 and USEPA NLLAP	Lab ID 100324	Industrial Hygiene, Environmental Lead, Environmental Microbiology

State	Accreditation/Recognition	Lab ID#	Program/Sector
New York (NYSDOH)	ELAP and NELAC (TNI)	Lab ID: 11626	Air Analysis, Solid and Hazardous Waste
New Jersey (NJDEP)	NELAC (TNI)	Lab ID: NY024	Air Analysis
Louisiana (LDEQ)	LELAP	Lab ID: 04083	Air Analysis, Solid Chemical Materials
Texas	Texas Dept. of Licensing and Regulation	Lab ID: 1042	Mold Analysis Laboratory license

Legend

< - Less than	mg - Milligrams	MDL - Method Detection Limit	ppb - Parts per Billion
> - Greater than	ug - Micrograms	NA - Not Applicable	ppm - Parts per Million
l - Liters	m3 - Cubic Meters	NS - Not Specified	ppbv - ppb Volume
LOQ - Limit of Quantitation	kg - Kilograms	ND - Not Detected	ppmv - ppm Volume
ft2 - Square Feet	cm2 - Square Centimeters	in2 - Square Inches	ng - Nanograms

LELAP Lab ID #04083

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.sgsgalson.com

Client : GHD Services Inc.
Site : NS
Project No. : 11183332
Date Sampled : 08-FEB-19 - 10-FEB-19
Date Received : 13-FEB-19

Account No.: 29016
Login No. : L470798

Date Analyzed : 14-FEB-19
Report ID : 1117502

Ethylene Oxide

Galson ID:			L470798-1		L470798-2		L470798-3	
Client ID:			AIR-11183332-047		AIR-11183332-048		AIR-11183332-049	
	LOQ ppbv	LOQ ug/m3	ppbv	ug/m3	ppbv	ug/m3	ppbv	ug/m3
Ethylene oxide	0.040	0.072	0.80	1.4	1.1	2.0	0.79	1.4

Analytical Method: mod. OSHA PV2120/mod. EPA TO15; GC/MS
Collection Media : 6L Canister
Submitted by : DJW

QC by : KSB
Approved by : SAP
Date : 14-FEB-19

Supervisor: SAP

LELAP Lab ID #04083

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.sgsgalson.com

Client : GHD Services Inc.
Site : NS
Project No. : 11183332
Date Sampled : 08-FEB-19 - 10-FEB-19
Date Received : 13-FEB-19

Account No.: 29016
Login No. : L470798

Date Analyzed : 14-FEB-19
Report ID : 1117502

Ethylene Oxide

Galson ID:			L470798-4		L470798-5		L470798-6	
Client ID:			AIR-11183332-050		AIR-11183332-051		AIR-11183332-052	
	LOQ ppbv	LOQ ug/m3	ppbv	ug/m3	ppbv	ug/m3	ppbv	ug/m3
Ethylene oxide	0.040	0.072	0.79	1.4	0.34	0.61	0.60	1.1

Analytical Method: mod. OSHA PV2120/mod. EPA TO15; GC/MS
Collection Media : 6L Canister
Submitted by : DJW

QC by : KSB
Approved by : SAP
Date : 14-FEB-19

Supervisor: SAP

LELAP Lab ID #04083

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.sgsgalson.com

Client : GHD Services Inc.
Site : NS
Project No. : 11183332
Date Sampled : 08-FEB-19 - 10-FEB-19
Date Received : 13-FEB-19

Account No.: 29016
Login No. : L470798

Date Analyzed : 14-FEB-19
Report ID : 1117502

Ethylene Oxide

Galson ID:			L470798-7		L470798-8		L470798-9	
Client ID:			AIR-11183332-053		AIR-11183332-054		AIR-11183332-055	
	LOQ ppbv	LOQ ug/m3	ppbv	ug/m3	ppbv	ug/m3	ppbv	ug/m3
Ethylene oxide	0.040	0.072	0.39	0.70	6.1	11	15	28

Analytical Method: mod. OSHA PV2120/mod. EPA TO15; GC/MS
Collection Media : 6L Canister
Submitted by : DJW

QC by : KSB
Approved by : SAP
Date : 14-FEB-19

Supervisor: SAP

LELAP Lab ID #04083

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.sgsgalson.com

Client : GHD Services Inc.
Site : NS
Project No. : 11183332
Date Sampled : 08-FEB-19 - 10-FEB-19
Date Received : 13-FEB-19

Account No.: 29016
Login No. : L470798

Date Analyzed : 14-FEB-19
Report ID : 1117502

Ethylene Oxide

Galson ID:			L470798-10		L470798-11			
Client ID:			AIR-11183332-056		AIR-11183332-057			
	LOQ ppbv	LOQ ug/m3	ppbv	ug/m3	ppbv	ug/m3	ppbv	ug/m3
Ethylene oxide	0.040	0.072	4.5	8.1	23	42		

Analytical Method: mod. OSHA PV2120/mod. EPA TO15; GC/MS
Collection Media : 6L Canister
Submitted by : DJW

QC by : KSB
Approved by : SAP
Date : 14-FEB-19

Supervisor: SAP

LABORATORY FOOTNOTE REPORT

GALSON

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.sgsgalson.com

Client Name : GHD Services Inc.
Site :
Project No. : 11183332

Date Sampled : 08-FEB-19 - 10-FEB-19 Account No.: 29016
Date Received: 13-FEB-19 Login No. : L470798
Date Analyzed: 14-FEB-19

L470798 (Report ID: 1117502):
SOPs: in-vocs(36)

L470798-3,7 (Report ID: 1117502):
Ethylene oxide results may be biased high due to co-elution with a unknown compound.
Sample canisters were received at/near ambient pressure.

L470798 (Report ID: 1117502):
Accuracy and mean recovery data presented below is based on a 95% confidence interval (k=2). The estimated accuracy applies to the media, technology, and SOP referenced in this report and does not account for the uncertainty associated with the sampling process. The accuracy is based solely on spike recovery data from internal quality control samples. Where N/A appears below, insufficient data is available to provide statistical accuracy and mean recovery values for the associated analyte.

Parameter	Accuracy	Mean Recovery
Ethylene oxide	N/A	N/A

905342765280
Date:02/13/19
Shipper:FEDEX
Initials:BGF
Prep:UNKNOWN

1470798

905342765270
Date:02/13/19
Shipper:FEDEX
Initials:BGF
Prep:UNKNOWN

HAIN OF CUSTODY

Sumas, cart end of B.D.

Turn Around Time (TAT):	(surcharge)
☒ Standard	0%
☐ 4 Business Days	35%
☐ 3 Business Days	50%
☐ 2 Business Days	75%
☐ Next Day by 6pm	100%
☐ Next Day by Noon	150%
☐ Same Day	200%

☑ Samples submitted using the FreePumpLoan™ Program

☐ Samples submitted using the FreeSamplingBadges™ Program

You may edit and complete this COC electronically by logging in to your Client Portal account at https://portal.galsonlabs.com/

Client Acct No.: 29016

Original Prep No.: PSY513143

CS Rep: CHUDSON

Online COC No.: 172577

Report To: Mr. Ben Chandler
Company Name: GHD Services Inc.
Address 1: 11719 Hinson Road
Address 2: Suite 100
City, State Zip: Little Rock, AR 72212
Phone No.: 501 - 366 - 3999
Cell No.:
Email reports to: benjamin.chandler@ghd.com, dyron.hamlin@ghd.com
Email EDD to: benjamin.chandler@ghd.com, dyron.hamlin@ghd.com
Comments:

Invoice To: ACCOUNTS PAYABLE / Meghan Russell
Company Name: GHD Services Inc.
Address 1: ~~2055 Niagara Falls Blvd~~ 11719 Hinson Rd
Address 2: Suite ~~100~~ Little
City, State Zip: ~~Niagara Falls, NY 14304~~ Rock, AR 72212
Phone No.: ~~716 297 6150~~ 501-366-3999
Email Address: ~~Arthur.Greeley@ghd.com~~, Jennifer.Devonshire@ghd.com
Comments: Meghan.Russell@ghd.com
P.O. No.: TO BE PROVIDED
Payment info.: ☐ I will call SGS Galson to provide credit card info
☐ Card on File (enter the last five digits on the line below)

Comments:

State Sampled:

Please indicate which OEL(s) this data will be used for:
☐ OSHA PEL ☐ ACGIH TLV ☐ MSHA ☐ Cal OSHA
☐ IAQ: _____ Specify Limit(s) ☐ Other: _____ Specify Other

Site Name:

Project: 11183332

Sampled By:

List description of industry or Process/interferences present in sampling area:

Sample ID * (Maximum of 20 Characters)	Date Sampled *	Collection Medium	Sample Volume Sample Time Sample Area *	Liters Minutes in², cm², ft² *	Analysis Requested	Method Reference ^	Hexavalent Chromium Process (e.g., welding, plating, painting, etc.)
AIR-11183332-047	2/8/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	

☐ ^ If the method(s) indicated on the COC are not our routine/preferred method(s), we will substitute our routine/preferred methods. If this is not acceptable, check here to have us contact you.

Chain of Custody	Print Name / Signature		Date	Time		Print Name / Signature		Date	Time
Relinquished By:	[signature]	Yoma Yang	2/11/2019	1630	Received By:	Brett Grenert-Fischer	Brett Grenert-Fischer		1120
Relinquished By:					Received By:			2/13/19	

* You must fill in these columns for any samples which you are submitting.

Samples received after 3pm will be considered as next day's business.

Online COC No.: 172577
Prep No.: PSY513143
Account No.: 29016
Draft: 1/24/2019 11:52:01 AM

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: http://www.sgs.com/en/Terms-and-Conditions.aspx

SGS North America, Inc. | 6601 Kirkville Road E. Syracuse, NY 13057, USA t +1 888 432 5227 | +1 315 432 5227 www.galsonlabs.com | www.sgs.com

Member of the SGS Group (SGS SA)

ED_002475_00000081-00009

SGS GALSON CHAIN OF CUSTODY

Comments :

Sample ID * (Maximum of 20 Characters)	Date Sampled *	Collection Medium	Sample Volume Sample Time Sample Area *	Liters Minutes in², cm², ft² *	Analysis Requested	Method Reference ^	Hexavalent Chromium Process (e.g., welding, plating, painting, etc.)
AIR-11183332-048	2/8/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-049	2/8/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-050	2/8/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-051	2/8/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-052	2/8/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-053	2/8/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-054	2/9/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-055	2/9/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	

☐ ^ If the method(s) indicated on the COC are not our routine/preferred method(s), we will substitute our routine/preferred methods. If this is not acceptable, check here to have us contact you.

Chain of Custody	Print Name / Signature		Date	Time		Print Name / Signature		Date	Time
Relinquished By :	Yolu Yang	[signature]	2/11/2019	1630	Received By :	Brett Grenert-Fischer	[signature]		1120
Relinquished By :					Received By :			2/13/19	

* You must fill in these columns for any samples which you are submitting.

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Online COC No. : 172577
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SGS GALSON CHAIN OF CUSTODY

Comments :

Sample ID * (Maximum of 20 Characters)	Date Sampled *	Collection Medium	Sample Volume Sample Time Sample Area *	Liters Minutes in², cm², ft² *	Analysis Requested	Method Reference ^	Hexavalent Chromium Process (e.g., welding, plating, painting, etc.)
AIR-11183332-056	2/10/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-057	2/10/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
		6-L Canister			Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
		6-L Canister			Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
		6-L Canister			Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
		6-L Canister			Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
		6-L Canister			Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
		6-L Canister			Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	

☐ ^ If the method(s) indicated on the COC are not our routine/preferred method(s), we will substitute our routine/preferred methods. If this is not acceptable, check here to have us contact you.

Chain of Custody	Print Name / Signature		Date	Time		Print Name / Signature		Date	Time
Relinquished By :	Yuna Yang	[signature]	2/11/2019	1630	Received By :	Brett Grenert-Fischer	Brett Grenert-Fischer		1120
Relinquished By :					Received By :			2/13/19	

* You must fill in these columns for any samples which you are submitting.

Samples received after 3pm will be considered as next day's business.

Online COC No. : 172577
Prep No. : PSY513143
Account No. : 29016
Draft : 1/24/2019 11:52:01 AM

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Member of the SGS Group (SGS SA)

SGS GALSON

INVOICE

SGS North America, Inc.

Login No : L470798
Project : STANDARD
PO No :
Site :

Invoice No : 522553729
Invoice Date : 15-FEB-19
Account No : 29016
Client Project : 11183332

Bill To : Ms. Meghan Russell
GHD Services Inc.
11719 Hinson Road
Suite 100
Little Rock AR 72212

Report To : Mr. Ben Chandler

TERMS: PWP NO LATER THAN 120
Finance charges will be
applied based on the terms
and conditions of sale.

Sample #	Client ID	Media	Analysis	Unit Price
L470798-1	AIR-11183332-047	6L Caniste	IT-ETOX/Ethylene Oxide	$ 137.00
L470798-1	AIR-11183332-047	OPTIONS	IT-DELIVERABLES/Deliverables	$ 0.00
L470798-2	AIR-11183332-048	6L Caniste	IT-ETOX/Ethylene Oxide	$ 137.00
L470798-3	AIR-11183332-049	6L Caniste	IT-ETOX/Ethylene Oxide	$ 137.00
L470798-4	AIR-11183332-050	6L Caniste	IT-ETOX/Ethylene Oxide	$ 137.00
L470798-5	AIR-11183332-051	6L Caniste	IT-ETOX/Ethylene Oxide	$ 137.00
L470798-6	AIR-11183332-052	6L Caniste	IT-ETOX/Ethylene Oxide	$ 137.00
L470798-7	AIR-11183332-053	6L Caniste	IT-ETOX/Ethylene Oxide	$ 137.00
L470798-8	AIR-11183332-054	6L Caniste	IT-ETOX/Ethylene Oxide	$ 137.00
L470798-9	AIR-11183332-055	6L Caniste	IT-ETOX/Ethylene Oxide	$ 137.00
L470798-10	AIR-11183332-056	6L Caniste	IT-ETOX/Ethylene Oxide	$ 137.00
L470798-11	AIR-11183332-057	6L Caniste	IT-ETOX/Ethylene Oxide	$ 137.00

Subtotal :	$ 1,507.00
Sample discount :	- $ 376.75
Rapid turnaround surcharge :	+ $ 847.66
Shipping Fee for Media Order# 513143 :	+ $ 757.00
Amount Due --->	$ 2,734.91

(Charges are displayed in US Dollars)

Electronic Payments:
SGS North America Inc.
Citibank NA
One Penn's Way
New Castle, DE USA
Swift Code: CITIUS33
Routing Number: 031100209
Account Number: 38805189

Please Remit To: SGS North America Inc., P.O. Box 2506, Carol Stream, IL 60132-2506
Phone: 888-432-5227

Generated:15-FEB-19 11:13 Page 1 of 1

Attn: Accounts Payable
Subject: REMITTANCE CHANGE

Please be advised that SGS Galson will be changing its bank effective December 1st, 2018. Please amend your records to make sure all future payments are credited to our bank account. Our preferred method of payment is via ACH or Wire.

The updated information below is valid for ACH and wire payments.

Name on Account:	SGS North America Inc.
Bank Name:	Citibank NA 1 Penn's Way New Castle, DE 19720 United States
ABA Number:	031100209
Type:	Checking
Account Number:	38805189
Swift Code:	CITIUS33
Currency:	USD

If your organization does not have the capabilities of making payments via ACH or wire and still prefer to send payments by check, please forward payments to our lockbox.

Remit Address:	Citibank NA SGS North America Inc. PO BOX 2506 Carol Stream, Illinois 60132

Sincerely,

Lindsey Dryja

Lindsey Dryja
Accounting Supervisor/Controller

SGS North America, Inc.
201 Route 17 North
Rutherford NJ, 07070, USA
Tel (201) 508-3000 www.us.sgs.com

Member of the SGS Group (Société Générale de Surveillance

905342765280
Date:02/13/19
Shipper:FEDEX
Initials:BGF
Prep:UNKNOWN

1470798

905342765270
Date:02/13/19
Shipper:FEDEX
Initials:BGF
Prep:UNKNOWN

HAIN OF CUSTODY

Sumas, cart end of B.D.

Turn Around Time (TAT):	(surcharge)
☒ Standard	0%
☐ 4 Business Days	35%
☐ 3 Business Days	50%
☐ 2 Business Days	75%
☐ Next Day by 6pm	100%
☐ Next Day by Noon	150%
☐ Same Day	200%

☑ Samples submitted using the FreePumpLoan™ Program

☐ Samples submitted using the FreeSamplingBadges™ Program

You may edit and complete this COC electronically by logging in to your Client Portal account at https://portal.galsonlabs.com/

Client Acct No.: 29016

Original Prep No.: PSY513143

CS Rep: CHUDSON

Online COC No.: 172577

Report To: Mr. Ben Chandler
Company Name: GHD Services Inc.
Address 1: 11719 Hinson Road
Address 2: Suite 100
City, State Zip: Little Rock, AR 72212
Phone No.: 501 - 366 - 3999
Cell No.:
Email reports to: benjamin.chandler@ghd.com, dyron.hamlin@ghd.com
Email EDD to: benjamin.chandler@ghd.com, dyron.hamlin@ghd.com
Comments:

Invoice To: ACCOUNTS PAYABLE / Meghan Russell
Company Name: GHD Services Inc.
Address 1: ~~2055 Niagara Falls Blvd~~ 11719 Hinson Rd
Address 2: Suite ~~100~~ Little
City, State Zip: ~~Niagara Falls, NY 14304~~ Rock, AR 72212
Phone No.: ~~716 297 6150~~ 501-366-3999
Email Address: ~~Arthur.Greeley@ghd.com~~, Jennifer.Devonshire@ghd.com
Comments: Meghan.Russell@ghd.com
P.O. No.: TO BE PROVIDED
Payment info.: ☐ I will call SGS Galson to provide credit card info
☐ Card on File (enter the last five digits on the line below)

Comments:

State Sampled:

Please indicate which OEL(s) this data will be used for:
☐ OSHA PEL ☐ ACGIH TLV ☐ MSHA ☐ Cal OSHA
☐ IAQ: _____ Specify Limit(s) ☐ Other: _____ Specify Other

Site Name:

Project: 11183332

Sampled By:

List description of industry or Process/interferences present in sampling area:

Sample ID * (Maximum of 20 Characters)	Date Sampled *	Collection Medium	Sample Volume Sample Time Sample Area *	Liters Minutes in², cm², ft² *	Analysis Requested	Method Reference ^	Hexavalent Chromium Process (e.g., welding, plating, painting, etc.)
AIR-11183332-047	2/8/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	

☐ ^ If the method(s) indicated on the COC are not our routine/preferred method(s), we will substitute our routine/preferred methods. If this is not acceptable, check here to have us contact you.

Chain of Custody	Print Name / Signature		Date	Time		Print Name / Signature		Date	Time
Relinquished By:	[signature]	Yoma Yang	2/11/2019	1630	Received By:	Brett Grenert-Fischer	Brett Grenert-Fischer		1120
Relinquished By:					Received By:			2/13/19	

*** You must fill in these columns for any samples which you are submitting.**

Samples received after 3pm will be considered as next day's business.

Online COC No.: 172577
Prep No.: PSY513143
Account No.: 29016
Draft: 1/24/2019 11:52:01 AM

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SGS GALSON CHAIN OF CUSTODY

Comments :

Sample ID * (Maximum of 20 Characters)	Date Sampled *	Collection Medium	Sample Volume Sample Time Sample Area *	Liters Minutes in², cm², ft² *	Analysis Requested	Method Reference ^	Hexavalent Chromium Process (e.g., welding, plating, painting, etc.)
AIR-11183332-048	2/8/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-049	2/8/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-050	2/8/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-051	2/8/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-052	2/8/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-053	2/8/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-054	2/9/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-055	2/9/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	

☐ ^ If the method(s) indicated on the COC are not our routine/preferred method(s), we will substitute our routine/preferred methods. If this is not acceptable, check here to have us contact you.

Chain of Custody	Print Name / Signature		Date	Time		Print Name / Signature		Date	Time
Relinquished By :	Yolu Yang	[signature]	2/11/2019	1630	Received By :	Brett Grenert-Fischer	[signature]		1120
Relinquished By :					Received By :			2/13/19	

*** You must fill in these columns for any samples which you are submitting.**

Samples received after 3pm will be considered as next day's business.

Online COC No. : 172577
Prep No. : PSY513143
Account No. : 29016
Draft : 1/24/2019 11:52:01 AM

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: http://www.sgs.com/en/Terms-and-Conditions.aspx

SGS North America, Inc. | 6601 Kirkville Road E. Syracuse, NY 13057, USA t +1 888 432 5227 | +1 315 432 5227 www.galsonlabs.com | www.sgs.com

Member of the SGS Group (SGS SA)

SGS GALSON CHAIN OF CUSTODY

Comments :

Sample ID * (Maximum of 20 Characters)	Date Sampled *	Collection Medium	Sample Volume Sample Time Sample Area *	Liters Minutes in², cm², ft² *	Analysis Requested	Method Reference ^	Hexavalent Chromium Process (e.g., welding, plating, painting, etc.)
AIR-11183332-056	2/10/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
AIR-11183332-057	2/10/2019	6-L Canister	6	L	Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
		6-L Canister			Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
		6-L Canister			Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
		6-L Canister			Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
		6-L Canister			Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
		6-L Canister			Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	
		6-L Canister			Ethylene Oxide	mod. OSHA PV2120/mod. EPA TO15; GC/MS	

☐ ^ If the method(s) indicated on the COC are not our routine/preferred method(s), we will substitute our routine/preferred methods. If this is not acceptable, check here to have us contact you.

Chain of Custody	Print Name / Signature		Date	Time		Print Name / Signature		Date	Time
Relinquished By :	Yuna Yang	[signature]	2/11/2019	1630	Received By :	Brett Grenert-Fischer	Brett Grenert-Fischer		1120
Relinquished By :					Received By :			2/13/19	

*** You must fill in these columns for any samples which you are submitting.**

Samples received after 3pm will be considered as next day's business.

Online COC No. : 172577
Prep No. : PSY513143
Account No. : 29016
Draft : 1/24/2019 11:52:01 AM

All services are rendered in accordance with the applicable SGS General Conditions of Service accessible via: http://www.sgs.com/en/Terms-and-Conditions.aspx

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Member of the SGS Group (SGS SA)

Internal Chain of Custody

Login #	Client Name	Acct/Job #	VTSR	Debulk Date
L470798	GHD Services Inc.	29016	13-FEB-19	

Lab ID.	Client ID	Matrix	Storage	Sequence No.	Date/Time	Action	Tech. Name	Department
L470798-1	AIR-11183332-047	6L Caniste	Shelf 1					
				1	02/13/2019 12:29	Check Out	JSAMSON	Login
				2	02/13/2019 12:32	Check In	JSAMSON	Login
				3	02/13/2019 13:21	Check Out	DWALTER	GCMS
L470798-1	AIR-11183332-047	OPTIONS	Shelf 1					
				1	02/13/2019 12:29	Check Out	JSAMSON	Login
				2	02/13/2019 12:32	Check In	JSAMSON	Login
				3	02/13/2019 13:21	Check Out	DWALTER	GCMS
L470798-2	AIR-11183332-048	6L Caniste	Shelf 1					
				1	02/13/2019 12:29	Check Out	JSAMSON	Login
				2	02/13/2019 12:32	Check In	JSAMSON	Login
				3	02/13/2019 13:21	Check Out	DWALTER	GCMS
L470798-3	AIR-11183332-049	6L Caniste	Shelf 1					
				1	02/13/2019 12:29	Check Out	JSAMSON	Login
				2	02/13/2019 12:32	Check In	JSAMSON	Login
				3	02/13/2019 13:21	Check Out	DWALTER	GCMS

Login #	Client Name	Acct/Job #	VTSR	Debulk Date
L470798	GHD Services Inc.	29016	13-FEB-19	

Lab ID.	Client ID	Matrix	Storage	Sequence No.	Date/Time	Action	Tech. Name	Department
L470798-4	AIR-11183332-050	6L Caniste	Shelf 1					
				1	02/13/2019 12:29	Check Out	JSAMSON	Login
				2	02/13/2019 12:32	Check In	JSAMSON	Login
				3	02/13/2019 13:21	Check Out	DWALTER	GCMS
L470798-5	AIR-11183332-051	6L Caniste	Shelf 1					
				1	02/13/2019 12:29	Check Out	JSAMSON	Login
				2	02/13/2019 12:32	Check In	JSAMSON	Login
				3	02/13/2019 13:21	Check Out	DWALTER	GCMS
L470798-6	AIR-11183332-052	6L Caniste	Shelf 1					
				1	02/13/2019 12:29	Check Out	JSAMSON	Login
				2	02/13/2019 12:32	Check In	JSAMSON	Login
				3	02/13/2019 13:21	Check Out	DWALTER	GCMS
L470798-7	AIR-11183332-053	6L Caniste	Shelf 1					
				1	02/13/2019 12:29	Check Out	JSAMSON	Login
				2	02/13/2019 12:32	Check In	JSAMSON	Login
				3	02/13/2019 13:21	Check Out	DWALTER	GCMS

Login #	Client Name	Acct/Job #	VTSR	Debulk Date
L470798	GHD Services Inc.	29016	13-FEB-19	

Lab ID.	Client ID	Matrix	Storage	Sequence No.	Date/Time	Action	Tech. Name	Department
L470798-8	AIR-11183332-054	6L Caniste	Shelf 1					
				1	02/13/2019 12:29	Check Out	JSAMSON	Login
				2	02/13/2019 12:32	Check In	JSAMSON	Login
				3	02/13/2019 13:21	Check Out	DWALTER	GCMS
L470798-9	AIR-11183332-055	6L Caniste	Shelf 1					
				1	02/13/2019 12:29	Check Out	JSAMSON	Login
				2	02/13/2019 12:32	Check In	JSAMSON	Login
				3	02/13/2019 13:21	Check Out	DWALTER	GCMS
L470798-10	AIR-11183332-056	6L Caniste	Shelf 1					
				1	02/13/2019 12:29	Check Out	JSAMSON	Login
				2	02/13/2019 12:32	Check In	JSAMSON	Login
				3	02/13/2019 13:21	Check Out	DWALTER	GCMS
L470798-11	AIR-11183332-057	6L Caniste	Shelf 1					
				1	02/13/2019 12:29	Check Out	JSAMSON	Login
				2	02/13/2019 12:33	Check In	JSAMSON	Login
				3	02/13/2019 13:21	Check Out	DWALTER	GCMS

GCMS ANALYSIS

GHD Services Inc. Package: L470798 Project # 11183332

SGS Galson Laboratories received 11 samples on February 13, 2019 for the analysis of VOCs in whole air. The samples were assigned to SGS Galson ID: L470798. The samples were collected in pre-cleaned, evacuated canister samplers. The samples were signed-out of the sample storage area on February 13, 2019 (for screening purposes) and were stored in the GC/MS area until they were analyzed.

Sample ID	Date Sampled	Date Analyzed
L470798-1 (AIR-11183332-047)	February 08, 2019	February 14, 2019
L470798-2 (AIR-11183332-048)	February 08, 2019	February 14, 2019
L470798-3 (AIR-11183332-049)	February 08, 2019	February 14, 2019
L470798-4 (AIR-11183332-050)	February 08, 2019	February 14, 2019
L470798-5 (AIR-11183332-051)	February 08, 2019	February 14, 2019
L470798-6 (AIR-11183332-052)	February 08, 2019	February 14, 2019
L470798-7 (AIR-11183332-053)	February 08, 2019	February 14, 2019
L470798-8 (AIR-11183332-054)	February 09, 2019	February 14, 2019
L470798-9 (AIR-11183332-055)	February 09, 2019	February 14, 2019
L470798-10 (AIR-11183332-056)	February 10, 2019	February 14, 2019
L470798-11 (AIR-11183332-057)	February 10, 2019	February 14, 2019

Analysis Narrative

The samples were analyzed by GC/MS following modified methods mod. OSHA PV2120/mod. EPA TO15; GC/MS (SGS Galson SOP IN-VOCS).

Sample canisters were received at/near ambient pressure for samples AIR-11183332-049 and AIR-11183332-053.

Ethylene oxide results may be biased high due to co-elution with an unknown compound for samples AIR-11183332-049 and AIR-11183332-053.

The detection limit standard (DLS-WG435272-4) was within established control limits for all compounds.

The laboratory control sample and duplicate (LCS/LCSD-WG435272-2 and WG435272-3) were within established control limits for all compounds.

The calibration verification standards (CCV-WG435272-5 and WG435272-6) were within established control limits for all compounds.

The initial calibration was performed on February 05, 2019. The calibration range was 0.04 to 25 ppbv.

Summary of Quality Control Measures

•The continuing calibration verification standard (CCV) is a mid-level standard prepared from the same source as the initial calibration standards and is analyzed at the beginning and end of every post-tune 24-hour working period. The control limits response factors must fall within ±30% of the average RF for all analytes.

•The detection limit standard (DLS) is a standard prepared from the same source as the calibration standards at the concentration that is equivalent to the LOQ. The control limits are 60-140%.

• The laboratory control sample/duplicate (LCS/LCSD) is a standard prepared at the mid-level of the calibration curve, usually from a separate source than the initial calibration standards; however as we have been unable to secure a proper secondary source, due to temporary manufacturing issues, a second analyst has been preparing the LCS/LCSD to provide a secondary check standard. The LCS/LCSD recovery must be 70-130% for all analytes. The LCS/LCSD is analyzed once in every sequence.

•Analyzing an aliquot from the same minican twice at the same dilution factor constitutes a sample duplicate. The method established control limit is agreement within 25% for duplicate analyses.

•Blanks are performed using canisters filled with UHP N2 obtained from the laboratory supply.

Note: The analysis narrative only addresses those nonconformances which may potentially impact sample data. An example of an issue that would not be addressed is a potential high bias for an analyte when all samples are below the reporting level. Another example would be a relative percent difference (RPD) for a set of laboratory spikes that is outside control limits, where the related recoveries are otherwise within limits.

Sequence Name: C:\MSDCHEM\1\sequence\2019\02\P021319A.S
Comment:
Operator: DJW
Data Path: C:\MSDCHEM\1\DATA\2019\02\13A\
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line			Sample Name/Misc Info		
1)	Pause	- INTERNAL IH681690A			
2)	Sample	14	P0213901	ETOX_BFB	BFB/PRIMER
3)	Sample	16	P0213902	ETOX	CCV 5 PPBV IH681703A
4)	Sample	15	P0213903	ETOX	LCS 5 PPBV IH681739A
5)	Sample	15	P0213904	ETOX	LCSD 5 PPBV IH681739A
6)	Sample	13	P0213905	ETOX	BLANK
7)	Sample	14	P0213906	ETOX	DLS 0.04 PPBV IH681704A
8)	Sample	13	P0213907	ETOX	BLANK
9)	Sample	1	P0213908	ETOX	GHD 1X1 L470798-1
10)	Sample	2	P0213909	ETOX	GHD 1X1 L470798-2
11)	Sample	3	P0213910	ETOX	GHD 1X1 L470798-3
12)	Sample	4	P0213911	ETOX	GHD 1X1 L470798-4
13)	Sample	5	P0213912	ETOX	GHD 1X1 L470798-5
14)	Sample	6	P0213913	ETOX	GHD 1X1 L470798-6
15)	Sample	7	P0213914	ETOX	GHD 1X1 L470798-7
16)	Sample	8	P0213915	ETOX	GHD 1X1 L470798-8
17)	Sample	9	P0213916	ETOX	GHD 1X1 L470798-9
18)	Sample	10	P0213917	ETOX	GHD 1X1 L470798-10
19)	Sample	11	P0213918	ETOX	GHD 1X1 L470798-11
20)	Sample	16	P0213919	ETOX	CCV 5 PPBV IH681703A

SAP
2-14-19

GC/MS
QUALITY CONTROL SUMMARY

SGS GALSON

GC/MS QA-QC Check Report

Tune File : C:\MSDCHEM\1\DATA\2019\02\13A\P0213901.D
Tune Time : 02/13/19 21:02
Daily Calibration File : C:\MSDCHEM\1\DATA\2019\02\13A\P0213902.D
Internal Standard Areas: 286755 1337689 1108669

Sample	Client ID	File	Surr%	Acquired on	Internal Standard Responses		
WG435272-5	Continuing Verifier	P0213902	100	02/13/19 21:30	286755	1337689	1108669
WG435272-2	Lab Control Spike	P0213903	101	02/13/19 21:58	308241	1434965	1229944
WG435272-3	LCS Duplicate	P0213904	101	02/13/19 22:27	310460	1462578	1242391
WG435272-4	DLS	P0213906	101	02/13/19 23:23	312276	1456060	1232277
WG435272-1	Method Blank	P0213907	100	02/13/19 23:59	313819	1457298	1233524
L470798-1	AIR-11183332-047	P0213908	102	02/14/19 07:24	301993	1365321	1140652
L470798-2	AIR-11183332-048	P0213909	104	02/14/19 07:59	278498	1309243	1074485
L470798-3	AIR-11183332-049	P0213910	99	02/14/19 08:34	281101	1333262	1111579
L470798-4	AIR-11183332-050	P0213911	102	02/14/19 09:18	243505	1149974	922327
L470798-5	AIR-11183332-051	P0213912	100	02/14/19 09:53	285872	1310328	1119757
L470798-6	AIR-11183332-052	P0213913	101	02/14/19 10:28	271133	1286982	1055760
L470798-7	AIR-11183332-053	P0213914	100	02/14/19 11:04	289019	1332981	1105474
L470798-8	AIR-11183332-054	P0213915	104	02/14/19 11:47	238431	1081112	924541
L470798-9	AIR-11183332-055	P0213916	100	02/14/19 12:26	260568	1238687	1015167
L470798-10	AIR-11183332-056	P0213917	101	02/14/19 13:06	265264	1195143	1010449
L470798-11	AIR-11183332-057	P0213918	102	02/14/19 13:49	197642	998662	784925
WG435272-6	Continuing Verifier	P0213919	98	02/14/19 14:18	272880	1266374	1038935

* = Value outside limits Surrogate Limits = 80 - 120 Internal Standard Limits = +/- 40%

SGS Galson
6601 Kirkville Rd. E. Syracuse,NY 13057

ASTD 50ppb STANDARD RECOVERY REPORT

Client : GHD Services Inc.
Account No: 29016
Login No. : L470798

Lab Sample ID		WG435272-5			WG435272-6					
Type		CCV			CCV					
Spike Lot #		IH681703			IH681703					
Instrument		MS P			MS P					
Analysis Date		Feb 13, 2019 21:30			Feb 14, 2019 14:18					
	Limits (%)	True Value (ppbv)	Found (ppbv)	Recovery (%)	True Value (ppbv)	Found (ppbv)	Recovery (%)	True Value ()	Found ()	Recovery (%)
Ethylene oxide	70.0 to 130.	5.00	4.38	87.6	5.00	4.49	89.7			

page 1 of 1

SGS Galson
6601 Kirkville Rd. E. Syracuse,NY 13057

ASTD 5ppb STANDARD RECOVERY REPORT

Client : GHD Services Inc.
Account No: 29016
Login No. : L470798

Lab Sample ID		WG435272-4								
Type		DLS								
Spike Lot #		IH681704								
Instrument		MS P								
Analysis Date		Feb 13, 2019 23:23								
	Limits (%)	True Value (ppbv)	Found (ppbv)	Recovery (%)	True Value ()	Found ()	Recovery (%)	True Value ()	Found ()	Recovery (%)
Ethylene oxide	60.0 to 140.	0.0400	0.0500	125.						

page 1 of 1

SGS Galson
6601 Kirkville Rd. E. Syracuse,NY 13057

LCS/LCS DUPLICATE REPORT

Client : GHD Services Inc.
Account No: 29016
Login No. : L470798

Lab Sample ID		WG435272-2			WG435272-3				
Type		LCS			LCSD				
Spike Lot #		IH681739			IH681739				
Instrument		MS P			MS P				
Analysis Date		Feb 13, 2019 21:58			Feb 13, 2019 22:27				
	Limits (%)	True Value (ppbv)	Found (ppbv)	Recovery (%)	True Value (ppbv)	Found (ppbv)	Recovery (%)	RPD	RPD Limits
Ethylene oxide	70.0 to 130.	5.00	5.56	111.	5.00	5.68	114.	-2.06	-25.0 to 25.0

page 1 of 1

SGS Galson
6601 Kirkville Rd. E. Syracuse,NY 13057

METHOD BLANK REPORT

Client GHD Services Inc.
Account No 29016
Login No. L470798

Lab Sample ID		WG435272-1							
Type		BLANK							
Instrument		MS P							
Analysis Date		02/13/19							
Analysis Time		23:59							
	LOQ (ppbv)	Found (ppbv)							
Ethylene oxide	0.040	<0.040							

page 1 of 1

MS-FORM-165 Ver:0 Appr/Eff Date:03/23/2018 - 03/23/2018 Approved By:CPIERCE

ANALYSIS DATE: 10/10/18 INSTRUMENT ID MS-P ANALYST: DJW

	1	2	3	4	5	6	7				
Data File Names:	P1010825	P1010826	P1010827	P1010828	P1010829	P1010830	P1010831	Average	STD DEV	MDL (3.143 x STD DEV)	Comments
Internal Standards											
Bromochloromethane	492713	489866	491917	487295	476169	475317	470531		9124	28677	**Area counts**
1,4-Difluorobenzene	2447530	2425947	2366762	2382591	2347939	2307090	2313203		53198	167201	**Area counts**
Chlorobenzene-d5	2070616	2037585	2022098	1992854	1982591	1959787	1944851		44506	139883	**Area counts**
System Monitoring (SURR)											
Propylene-d6	10.01	9.93	9.88	9.73	10.02	9.62	9.71	9.84	0.16	0.49	Surr.
Bromofluorobenzene	9.97	9.93	10.01	9.98	9.91	9.89	9.72	9.92	0.10	0.30	Surr.
Target Compounds											
Ethylene Oxide	0.048	0.039	0.043	0.038	0.042	0.040	0.043	0.042	0.003	0.010	

GC/MS
SAMPLE DATA

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213908.D
Acq On : 14 Feb 2019 7:24 am
Operator : DJW
Sample : GHD 1X1 L470798-1
Misc : L470798-1,WG435272,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Feb 14 07:51:05 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

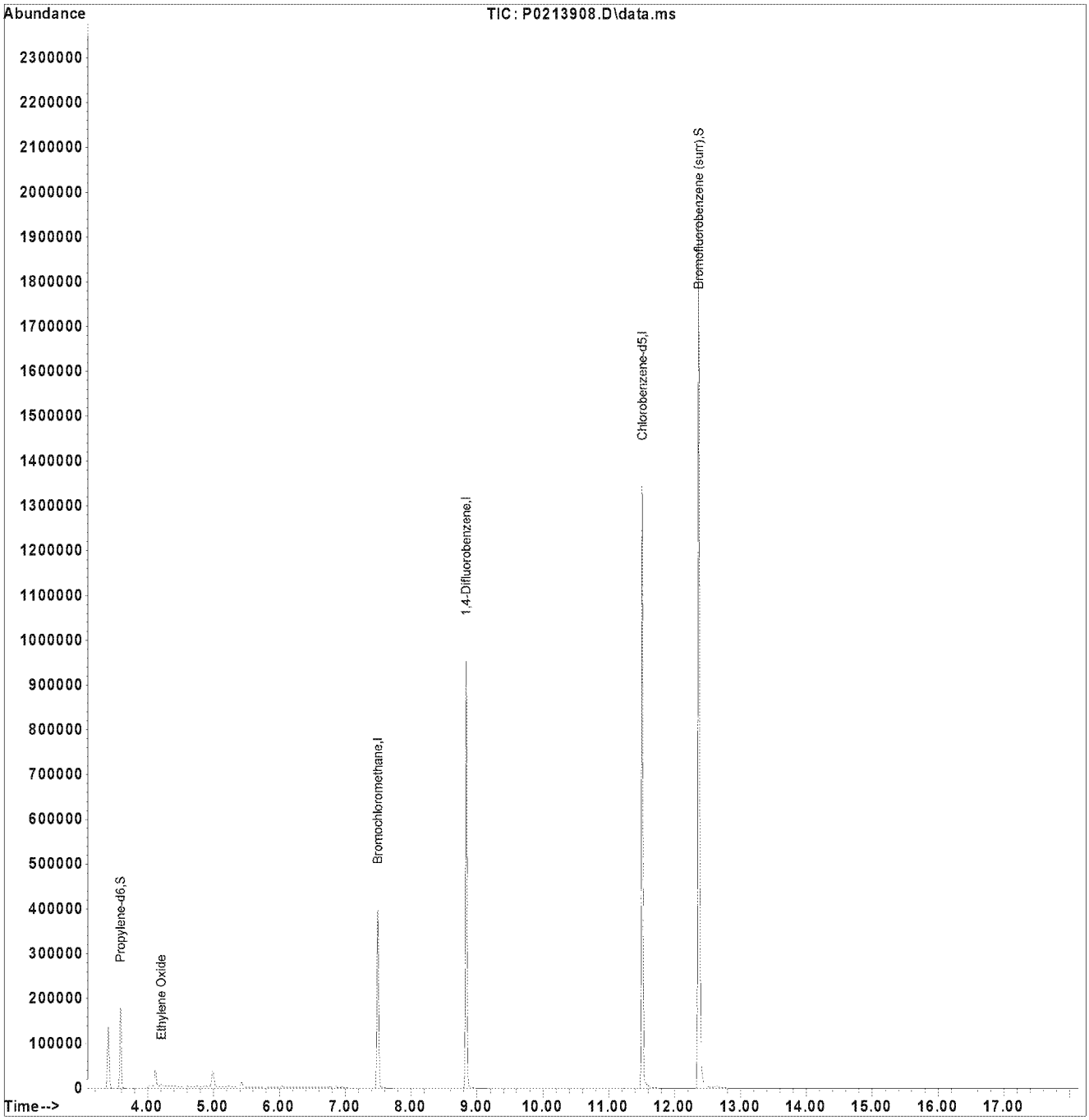
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.493	128	301993	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1365321	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1140652	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.587	46	174529	10.98	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 109.80%			
6) Bromofluorobenzene (surr)	12.364	95	758159	10.17	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 101.70%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.205	29	4295m	0.799	ppbv	

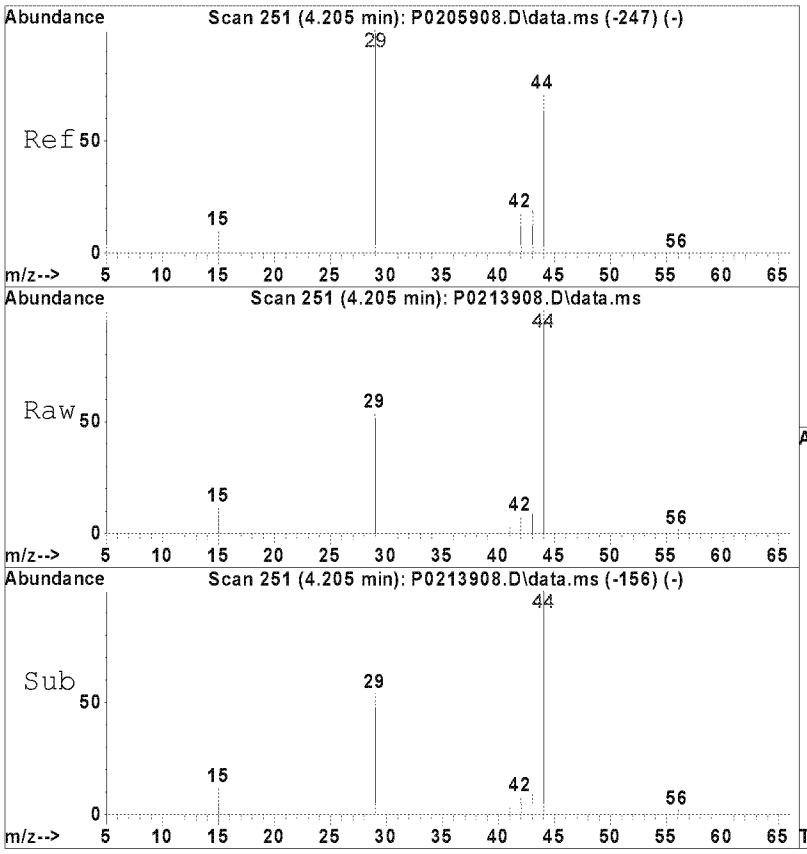
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213908.D
Acq On : 14 Feb 2019 7:24 am
Operator : DJW
Sample : GHD 1X1 L470798-1
Misc : L470798-1,WG435272,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Feb 14 07:51:05 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

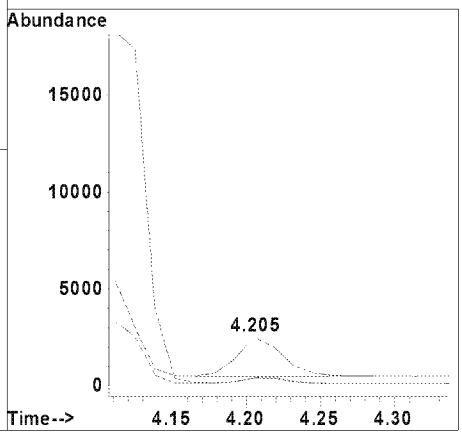




#3
Ethylene Oxide
Concen: 0.799 ppbv m
RT: 4.205 min Scan# 251
Delta R.T. 0.013 min
Lab File: P0213908.D
Acq: 14 Feb 19 7:24 am

Tgt Ion: 29 Resp: 4295

Ion	Ratio	Lower	Upper
29	100		
43	0.0	0.0	0.0
42	17.0	0.0	0.0#



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213909.D
Acq On : 14 Feb 2019 7:59 am
Operator : DJW
Sample : GHD 1X1 L470798-2
Misc : L470798-2,WG435272,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Feb 14 11:00:49 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

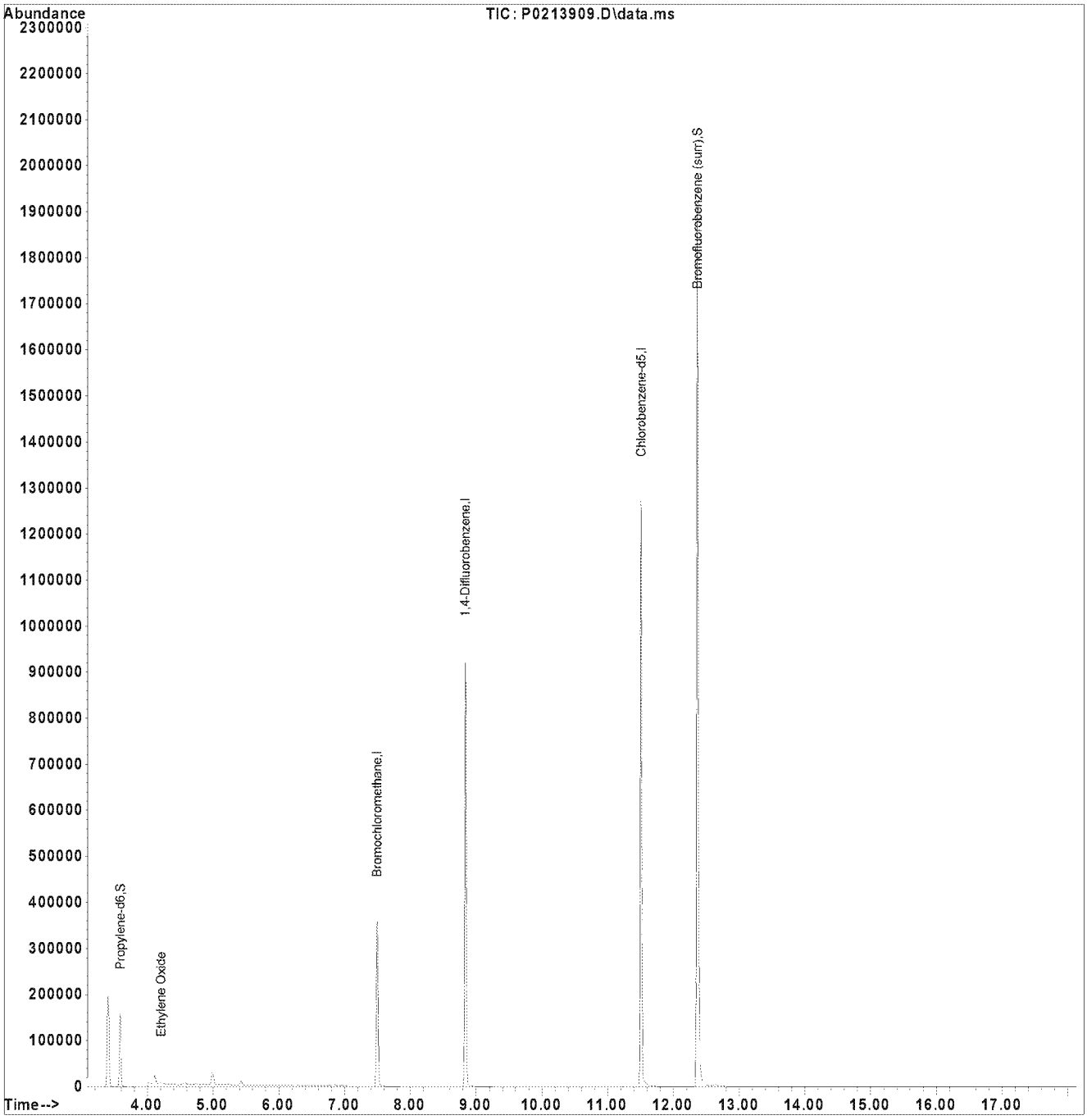
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.493	128	278498	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1309243	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1074485	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.587	46	148585	10.13	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 101.30%			
6) Bromofluorobenzene (surr)	12.364	95	726594	10.35	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 103.50%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.205	29	5586m	1.126	ppbv	

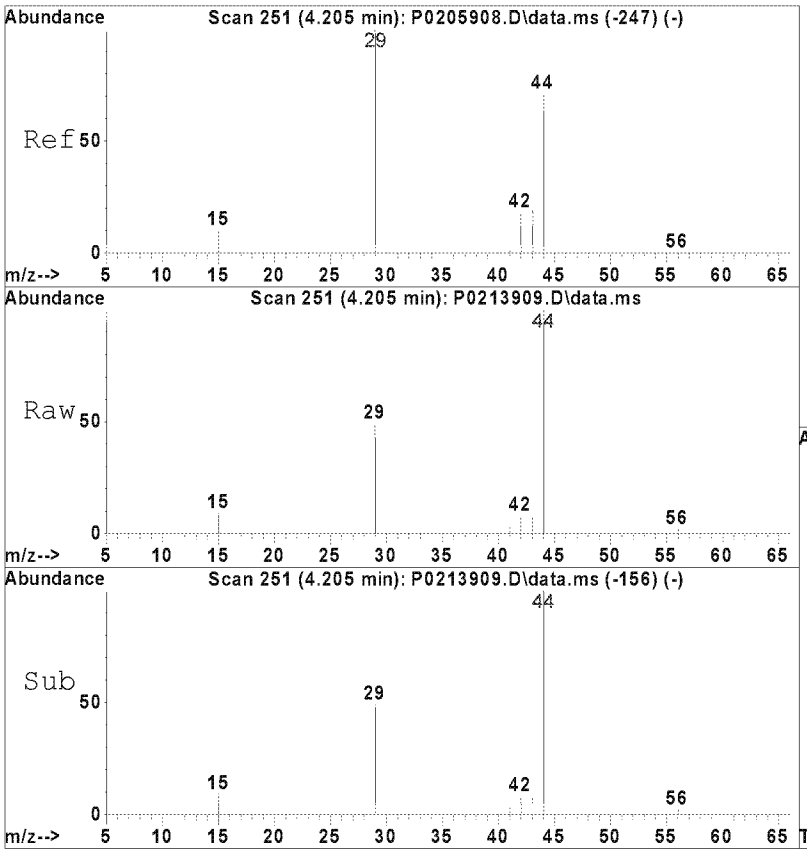
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213909.D
Acq On : 14 Feb 2019 7:59 am
Operator : DJW
Sample : GHD 1X1 L470798-2
Misc : L470798-2,WG435272,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Feb 14 11:00:49 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

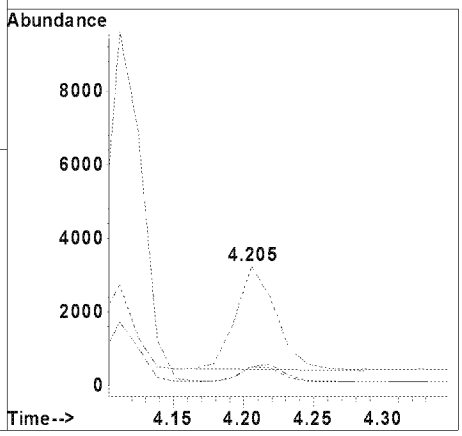




#3
Ethylene Oxide
Concen: 1.126 ppbv m
RT: 4.205 min Scan# 251
Delta R.T. 0.013 min
Lab File: P0213909.D
Acq: 14 Feb 19 7:59 am

Tgt Ion: 29 Resp: 5586

Ion	Ratio	Lower	Upper
29	100		
43	18.3	0.0	0.0#
42	17.6	0.0	0.0#



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213910.D
Acq On : 14 Feb 2019 8:34 am
Operator : DJW
Sample : GHD 1X1 L470798-3
Misc : L470798-3,WG435272,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Feb 14 11:01:09 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

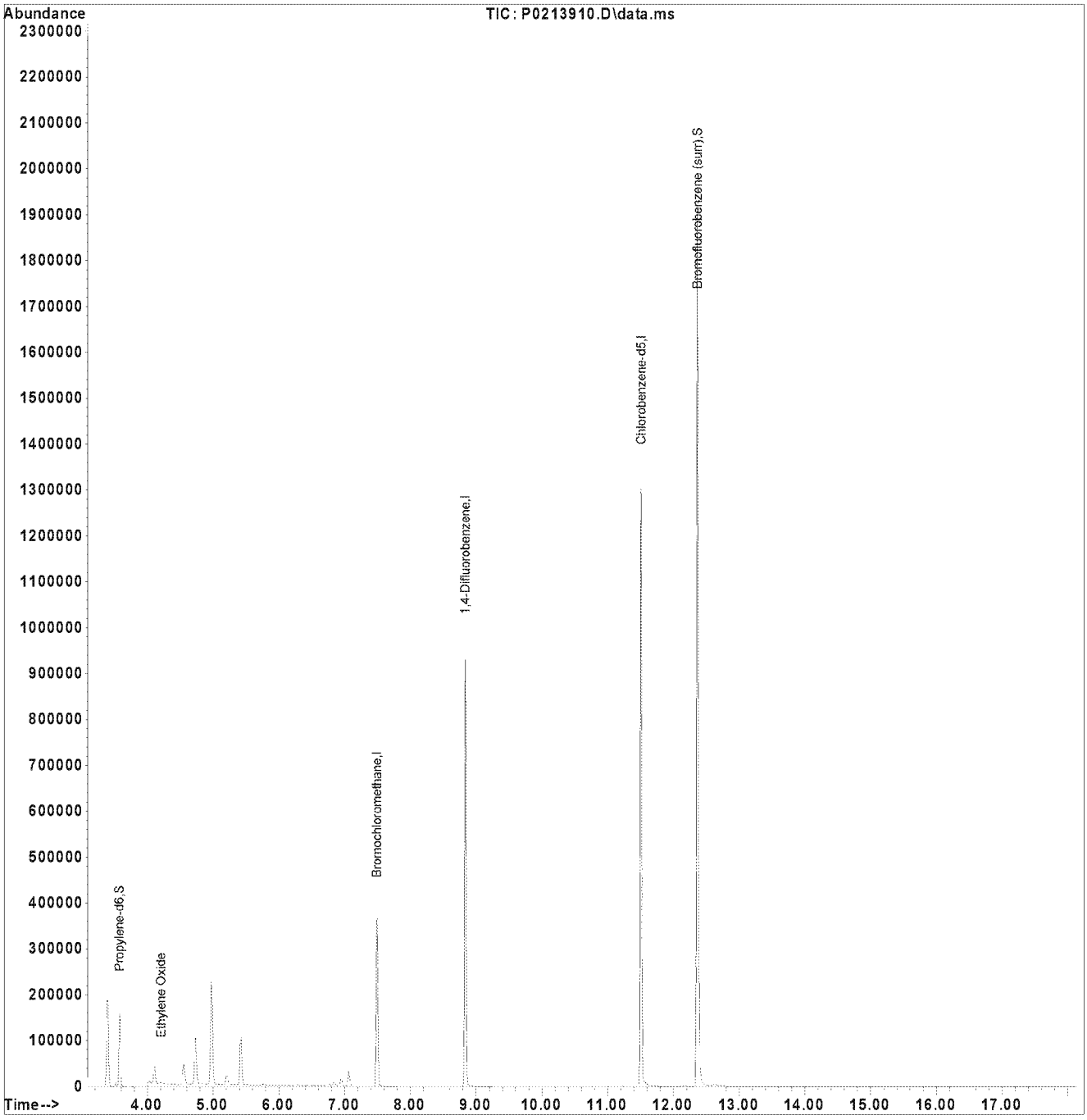
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.489	128	281101	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1333262	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1111579	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.575	46	151306	10.22	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 102.20%			
6) Bromofluorobenzene (surr)	12.364	95	719030	9.90	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 99.00%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.205	29	3936m	0.786	ppbv	

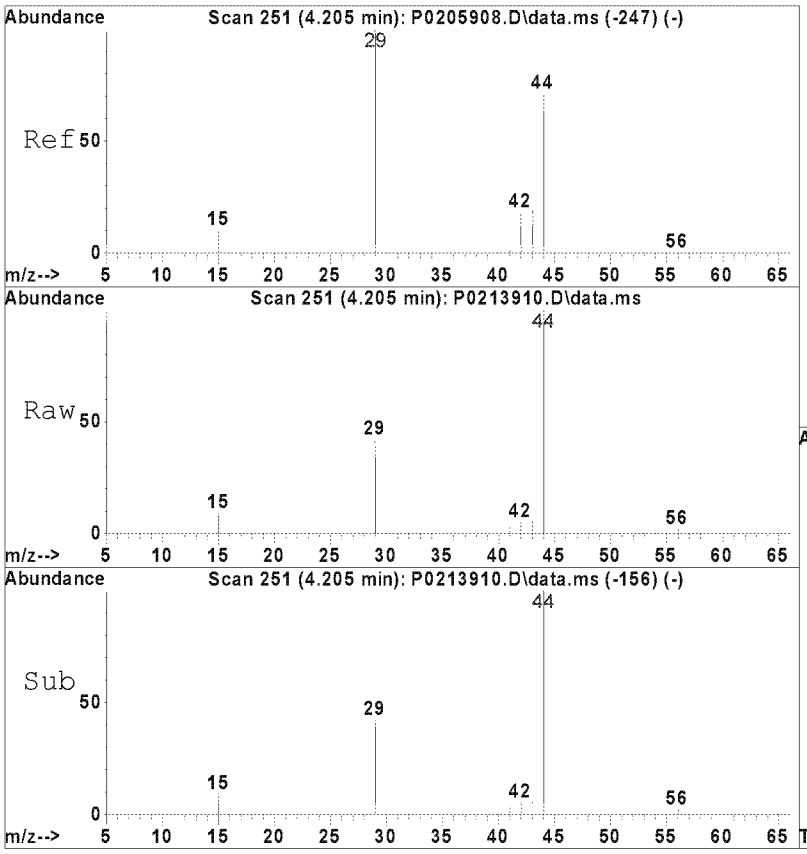
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213910.D
Acq On : 14 Feb 2019 8:34 am
Operator : DJW
Sample : GHD 1X1 L470798-3
Misc : L470798-3,WG435272,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Feb 14 11:01:09 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

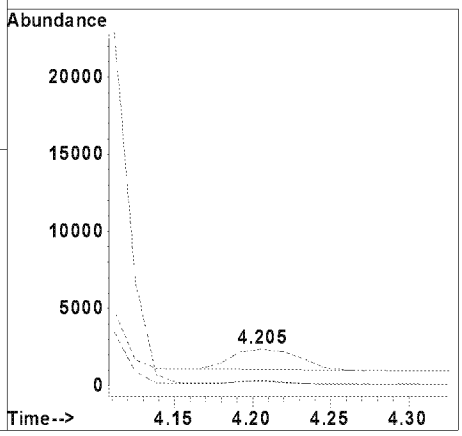




#3
Ethylene Oxide
Concen: 0.786 ppbv m
RT: 4.205 min Scan# 251
Delta R.T. 0.013 min
Lab File: P0213910.D
Acq: 14 Feb 19 8:34 am

Tgt Ion: 29 Resp: 3936

Ion	Ratio	Lower	Upper
29	100		
43	0.0	0.0	0.0
42	12.3	0.0	0.0#



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213911.D
Acq On : 14 Feb 2019 9:18 am
Operator : DJW
Sample : GHD 1X1 L470798-4
Misc : L470798-4,WG435272,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 14 11:01:25 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

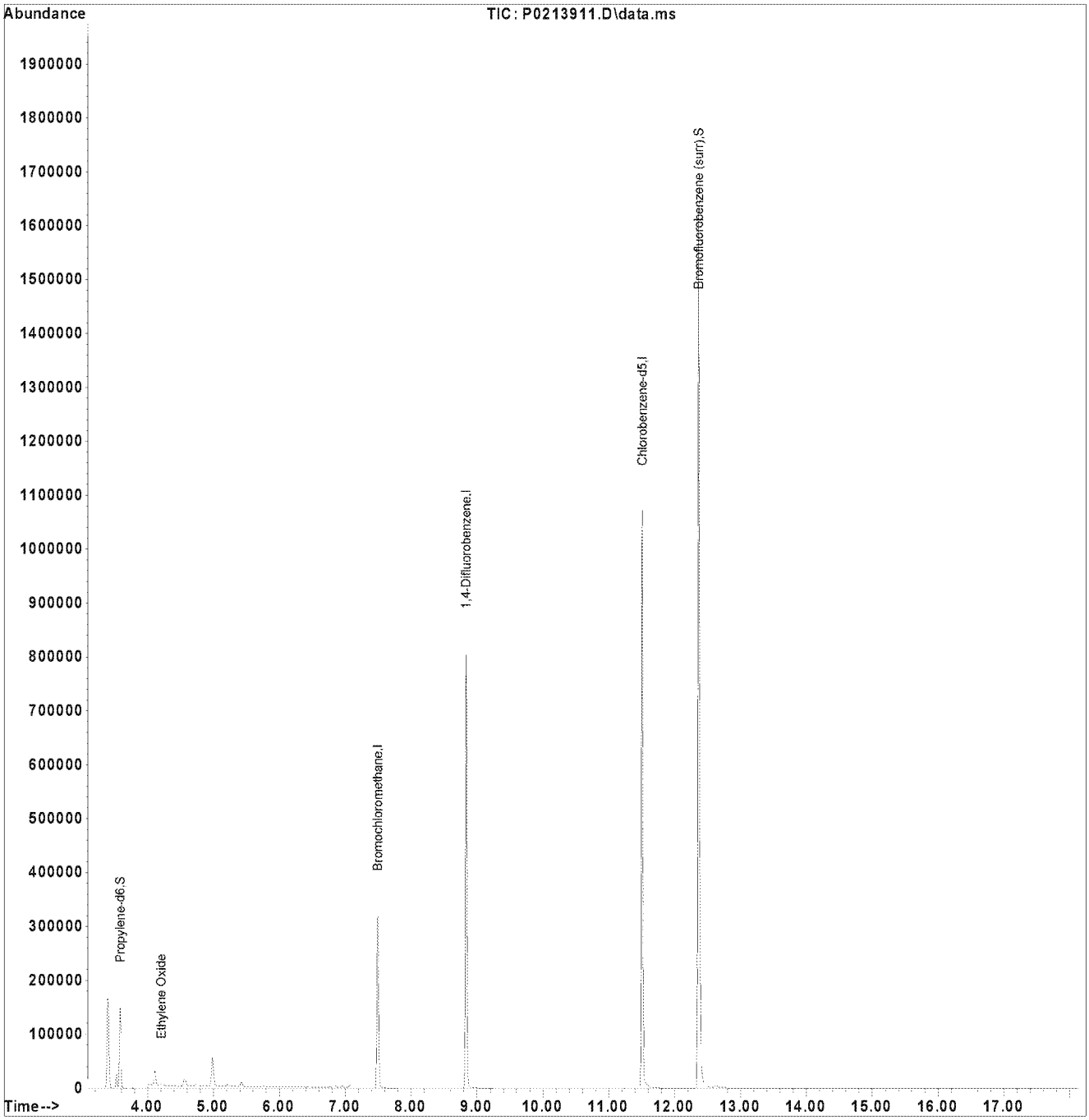
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.493	128	243505	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1149974	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	922327	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.583	46	143789	11.22	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 112.20%			
6) Bromofluorobenzene (surr)	12.364	95	611585	10.15	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 101.50%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.205	29	3411m	0.787	ppbv	

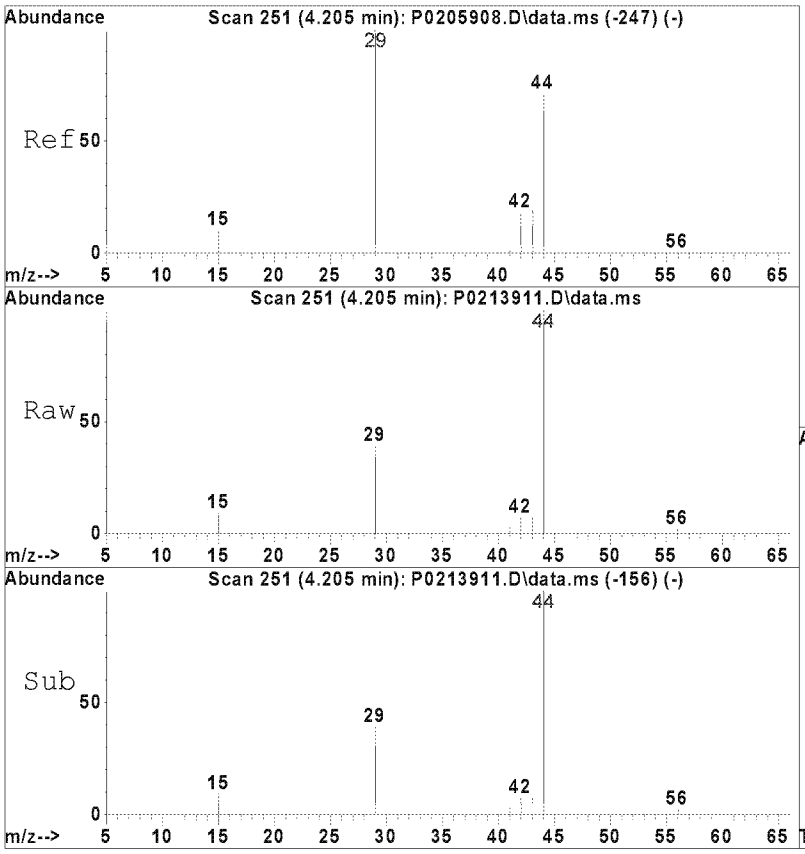
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213911.D
Acq On : 14 Feb 2019 9:18 am
Operator : DJW
Sample : GHD 1X1 L470798-4
Misc : L470798-4,WG435272,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Feb 14 11:01:25 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

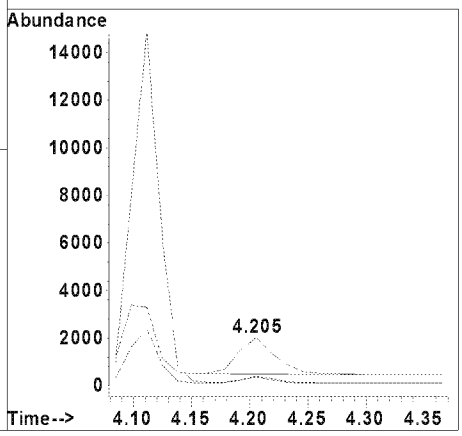




#3
Ethylene Oxide
Concen: 0.787 ppbv m
RT: 4.205 min Scan# 251
Delta R.T. 0.013 min
Lab File: P0213911.D
Acq: 14 Feb 19 9:18 am

Tgt Ion: 29 Resp: 3411

Ion	Ratio	Lower	Upper
29	100		
43	0.0	0.0	0.0
42	16.4	0.0	0.0#



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213912.D
Acq On : 14 Feb 2019 9:53 am
Operator : DJW
Sample : GHD 1X1 L470798-5
Misc : L470798-5,WG435272,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Feb 14 11:01:40 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

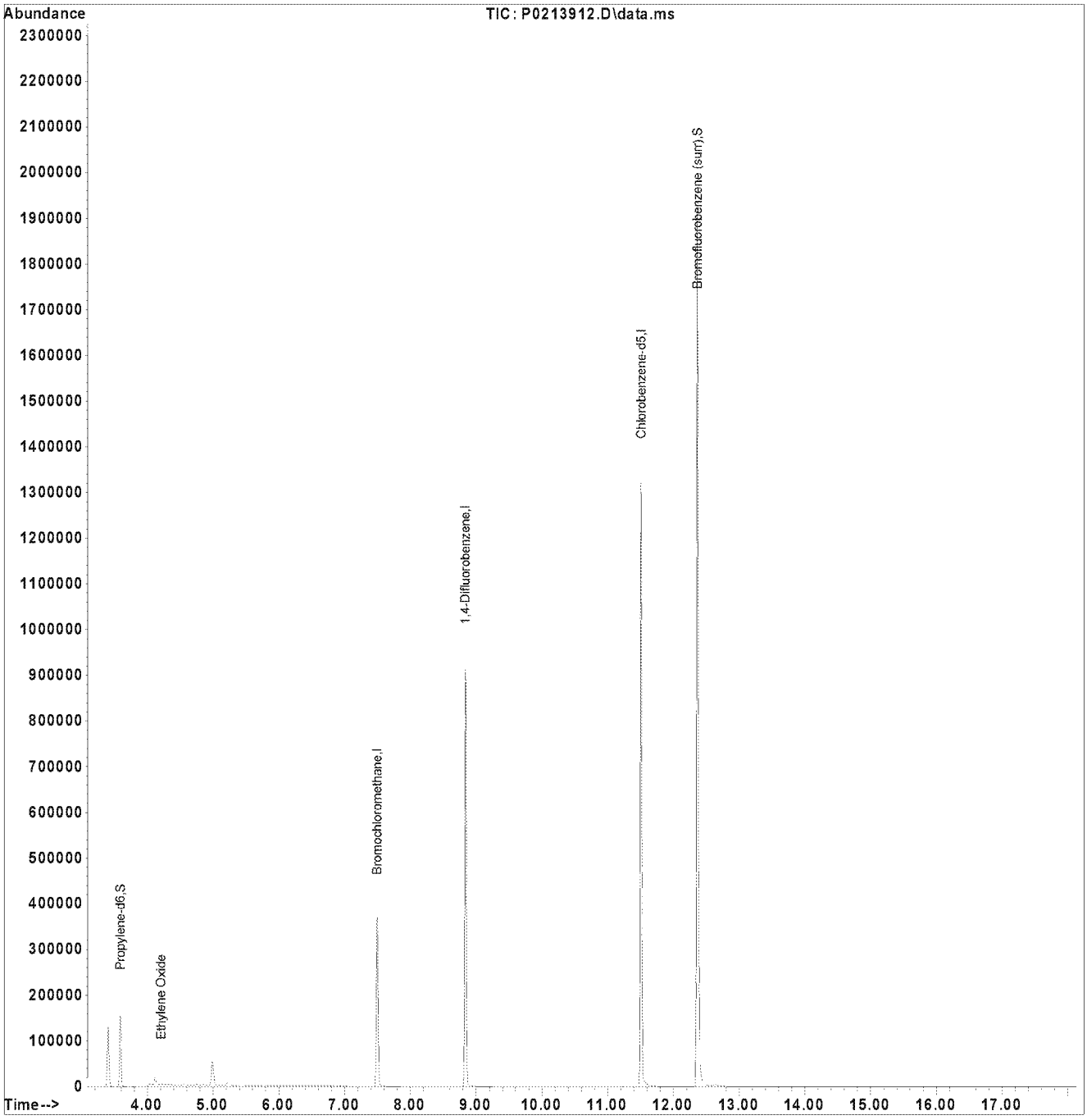
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.493	128	285872	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1310328	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1119757	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.586	46	152204	10.11	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 101.10%			
6) Bromofluorobenzene (surr)	12.364	95	732912	10.02	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 100.20%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.205	29	1735m	0.341	ppbv	

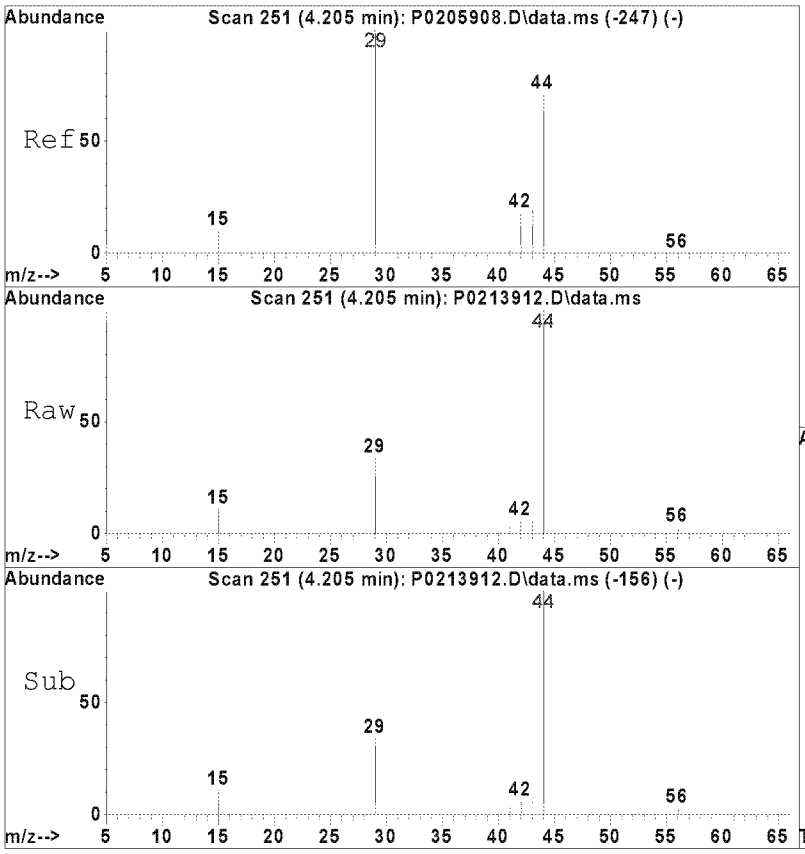
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213912.D
Acq On : 14 Feb 2019 9:53 am
Operator : DJW
Sample : GHD 1X1 L470798-5
Misc : L470798-5,WG435272,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Feb 14 11:01:40 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

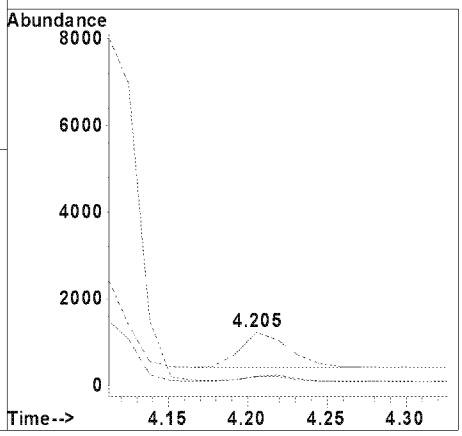




#3
Ethylene Oxide
Concen: 0.341 ppbv m
RT: 4.205 min Scan# 251
Delta R.T. 0.013 min
Lab File: P0213912.D
Acq: 14 Feb 19 9:53 am

Tgt Ion: 29 Resp: 1735

Ion	Ratio	Lower	Upper
29	100		
43	0.0	0.0	0.0
42	26.5	0.0	0.0#



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213913.D
Acq On : 14 Feb 2019 10:28 am
Operator : DJW
Sample : GHD 1X1 L470798-6
Misc : L470798-6,WG435272,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 14 11:02:00 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

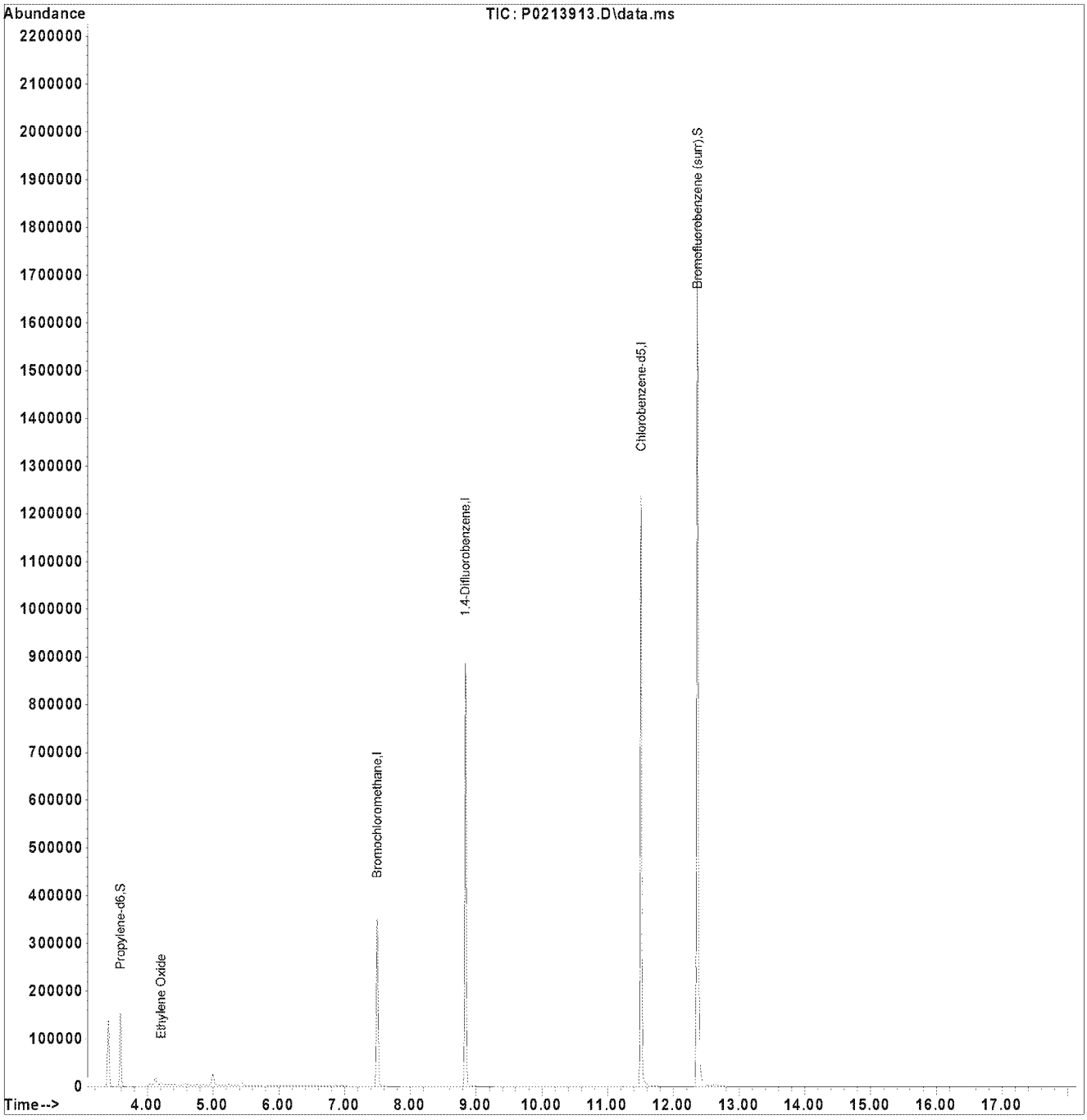
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.493	128	271133	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1286982	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1055760	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.587	46	148952	10.44	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 104.40%			
6) Bromofluorobenzene (surr)	12.364	95	693224	10.05	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 100.50%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.205	29	2912m	0.603	ppbv	

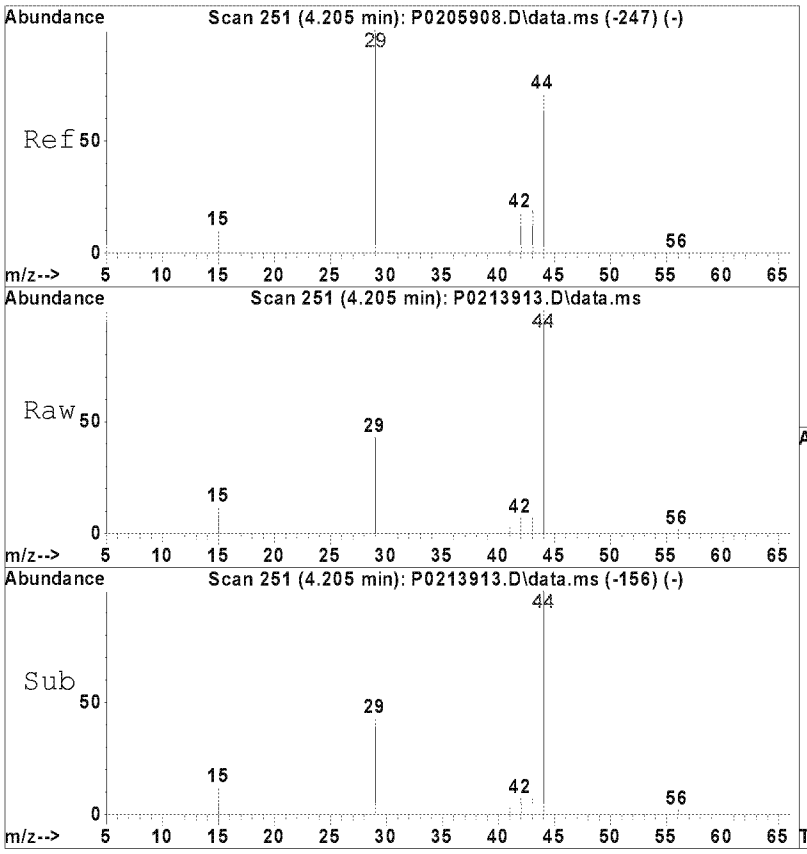
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213913.D
Acq On : 14 Feb 2019 10:28 am
Operator : DJW
Sample : GHD 1X1 L470798-6
Misc : L470798-6,WG435272,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 14 11:02:00 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

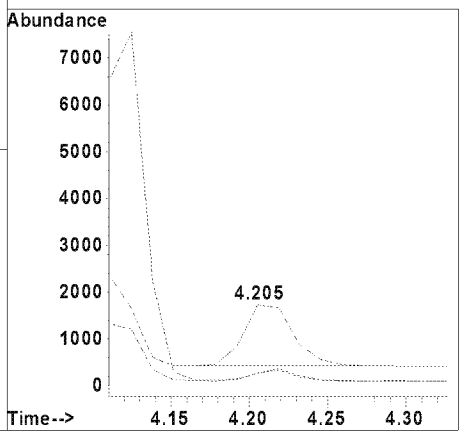




#3
Ethylene Oxide
Concen: 0.603 ppbv m
RT: 4.205 min Scan# 251
Delta R.T. 0.013 min
Lab File: P0213913.D
Acq: 14 Feb 19 10:28 am

Tgt Ion: 29 Resp: 2912

Ion	Ratio	Lower	Upper
29	100		
43	18.0	0.0	0.0#
42	18.8	0.0	0.0#



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213914.D
Acq On : 14 Feb 2019 11:04 am
Operator : DJW
Sample : GHD 1X1 L470798-7
Misc : L470798-7,WG435272,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Feb 14 11:23:24 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

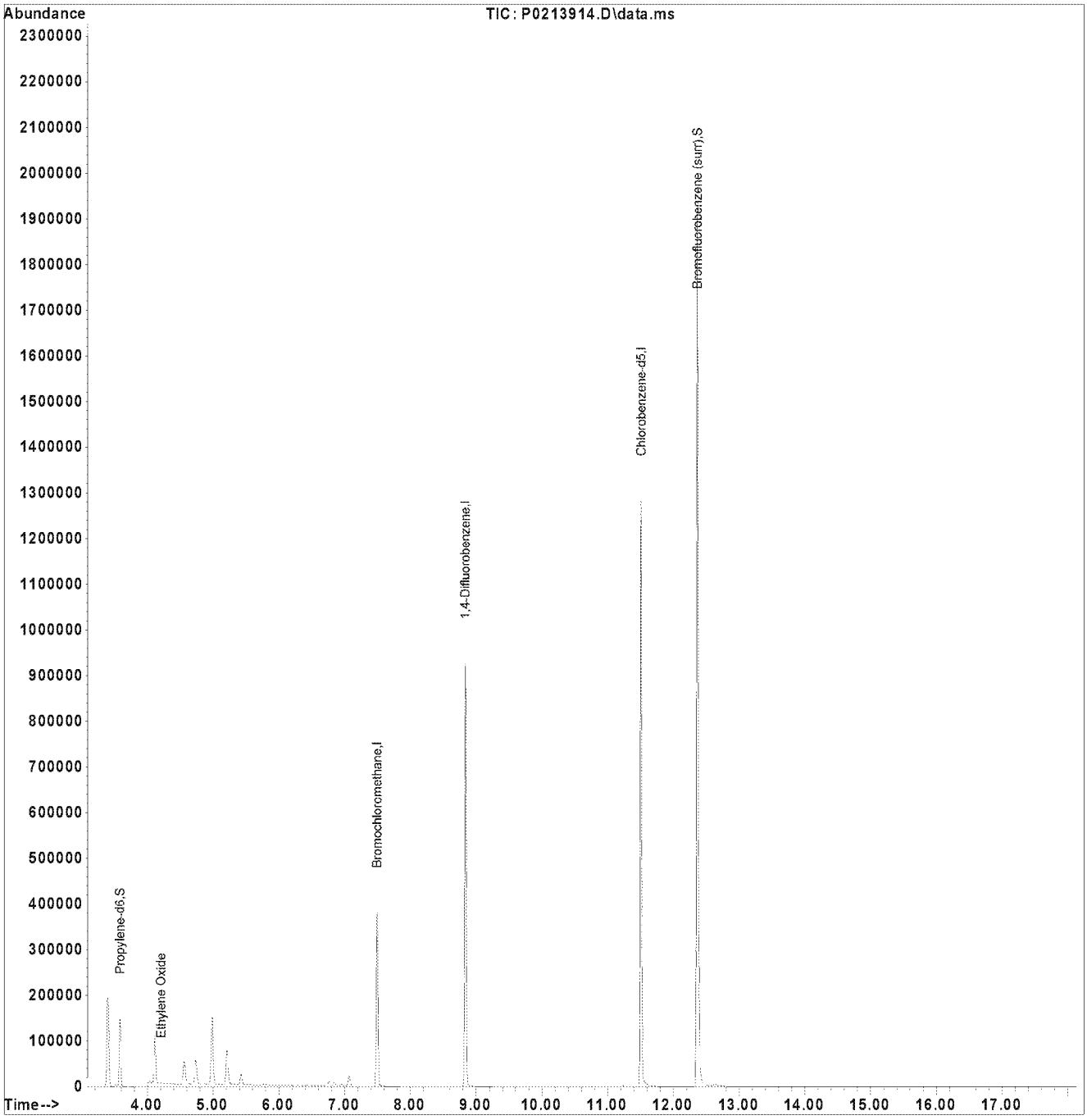
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Bromochloromethane	7.493	128	289019	10.00 ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1332981	10.00 ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1105474	10.00 ppbv	0.00
System Monitoring Compounds					
2) Propylene-d6	3.583	46	144878	9.52 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 95.20%		
6) Bromofluorobenzene (surr)	12.365	95	719659	9.96 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 99.60%		
Target Compounds					Qvalue
3) Ethylene Oxide	4.205	29	2003m	0.389 ppbv	

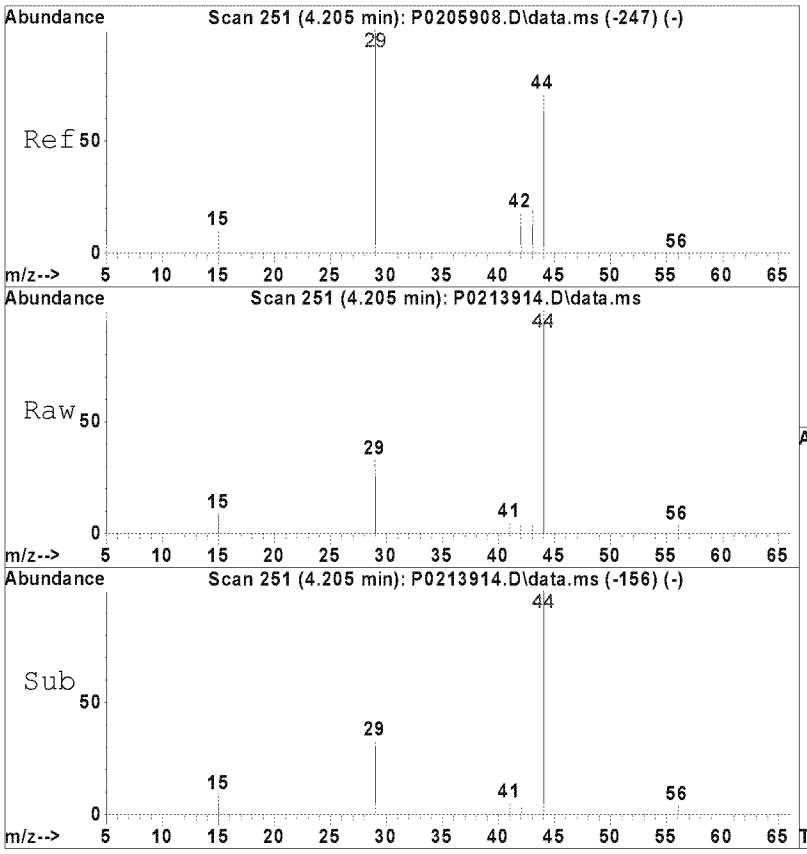
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213914.D
Acq On : 14 Feb 2019 11:04 am
Operator : DJW
Sample : GHD 1X1 L470798-7
Misc : L470798-7,WG435272,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Feb 14 11:23:24 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

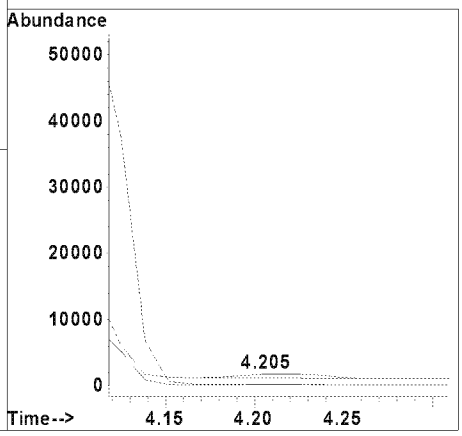




#3
Ethylene Oxide
Concen: 0.389 ppbv m
RT: 4.205 min Scan# 251
Delta R.T. 0.013 min
Lab File: P0213914.D
Acq: 14 Feb 19 11:04 am

Tgt Ion: 29 Resp: 2003

Ion	Ratio	Lower	Upper
29	100		
43	0.0	0.0	0.0
42	0.0	0.0	0.0



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213915.D
Acq On : 14 Feb 2019 11:47 am
Operator : DJW
Sample : GHD 1X1 L470798-8
Misc : L470798-8,WG435272,1.1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Feb 14 12:09:58 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

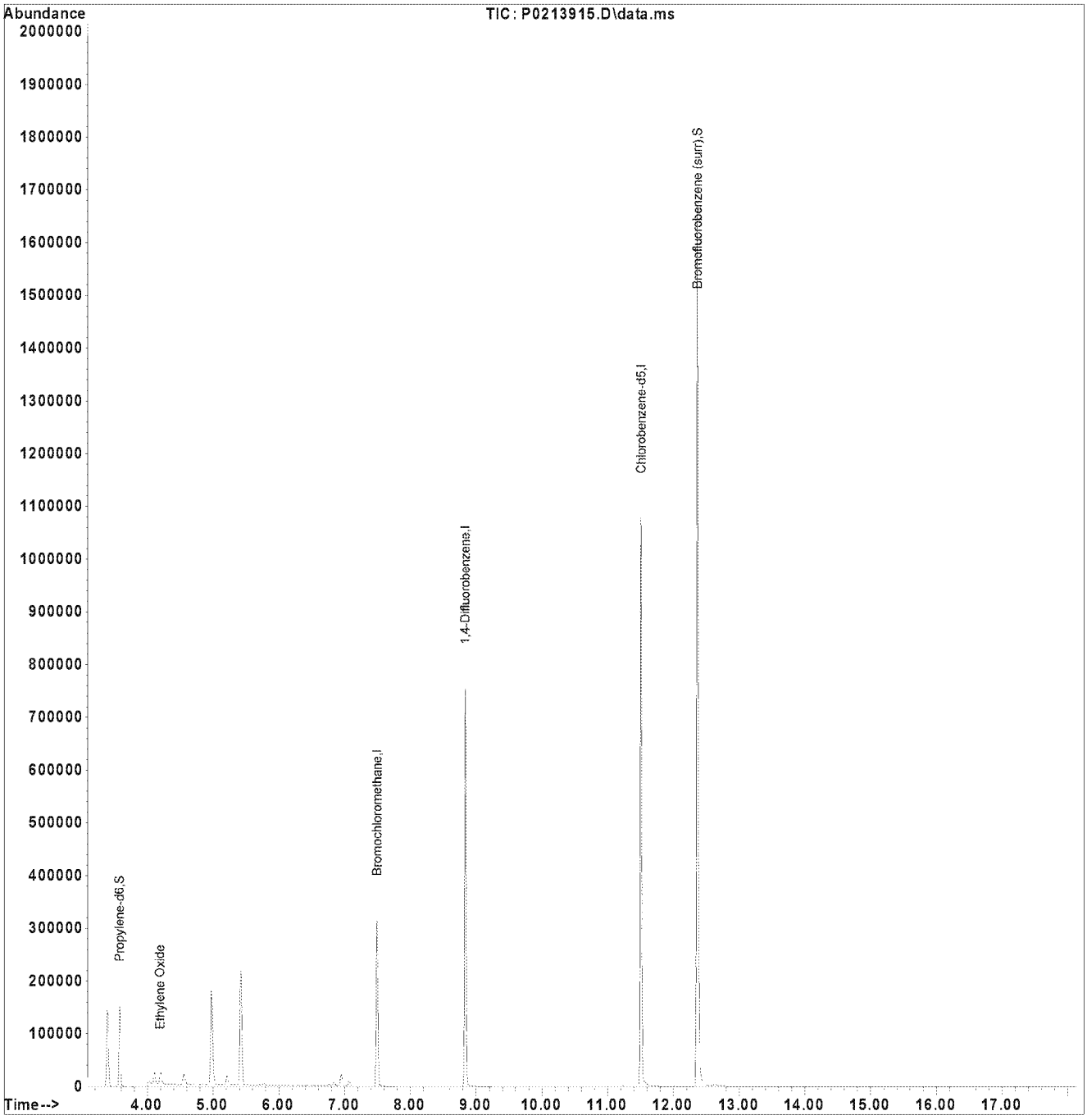
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.493	128	238431	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1081112	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	924541	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.579	46	145948	11.63	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 116.30%			
6) Bromofluorobenzene (surr)	12.364	95	628936	10.41	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 104.10%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.192	29	23571m	5.552	ppbv	

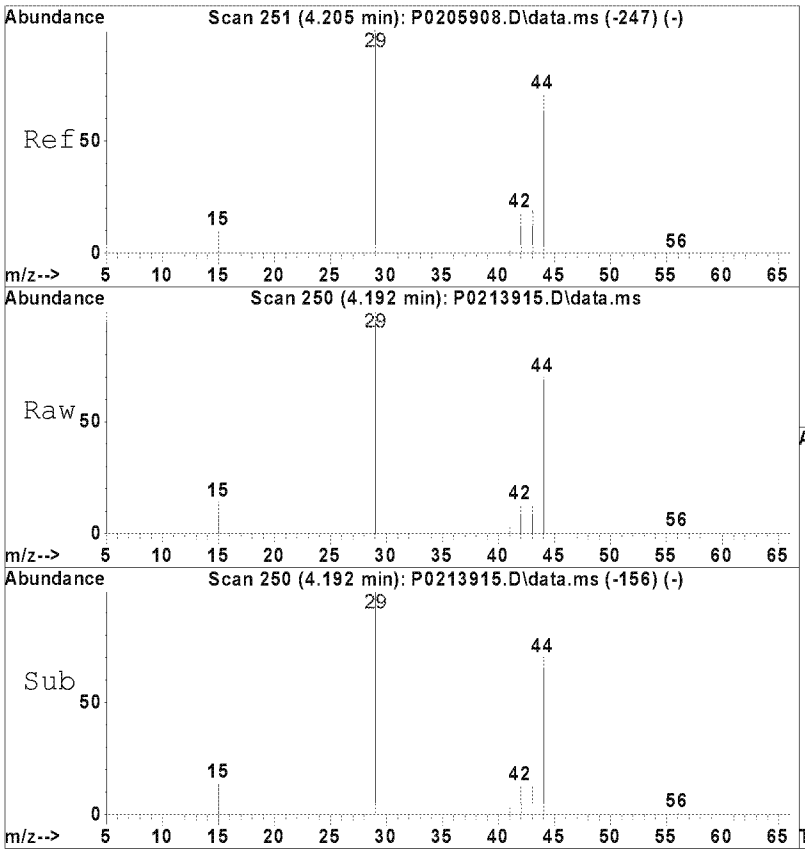
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213915.D
Acq On : 14 Feb 2019 11:47 am
Operator : DJW
Sample : GHD 1X1 L470798-8
Misc : L470798-8,WG435272,1.1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Feb 14 12:09:58 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

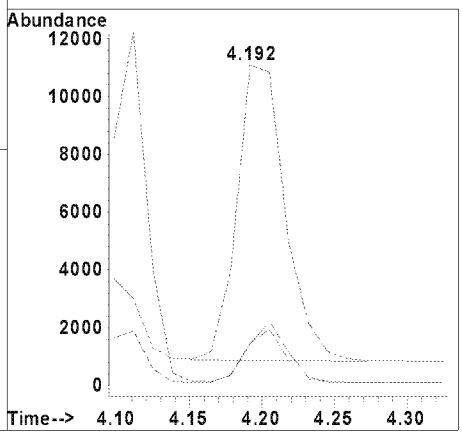




#3
Ethylene Oxide
Concen: 5.552 ppbv m
RT: 4.192 min Scan# 250
Delta R.T. -0.000 min
Lab File: P0213915.D
Acq: 14 Feb 19 11:47 am

Tgt Ion: 29 Resp: 23571

Ion	Ratio	Lower	Upper
29	100		
43	17.4	0.0	0.0#
42	16.4	0.0	0.0#



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213916.D
Acq On : 14 Feb 2019 12:26 pm
Operator : DJW
Sample : GHD 1X1 L470798-9
Misc : L470798-9,WG435272,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Feb 14 13:20:02 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

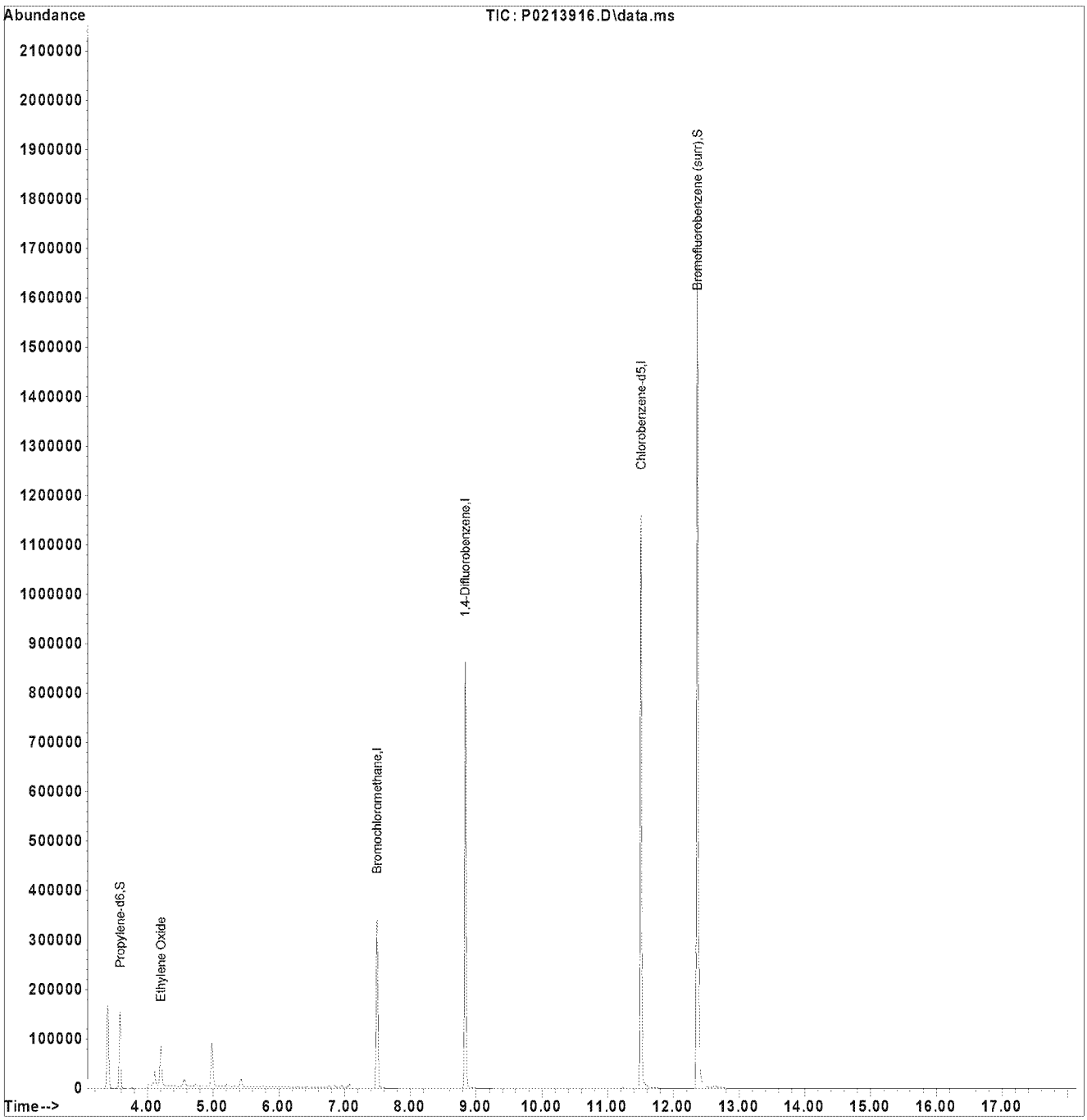
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.493	128	260568	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.836	114	1238687	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.509	117	1015167	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.583	46	148394	10.82	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 108.20%			
6) Bromofluorobenzene (surr)	12.365	95	662451	9.99	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 99.90%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.205	29	71852m	15.485	ppbv	

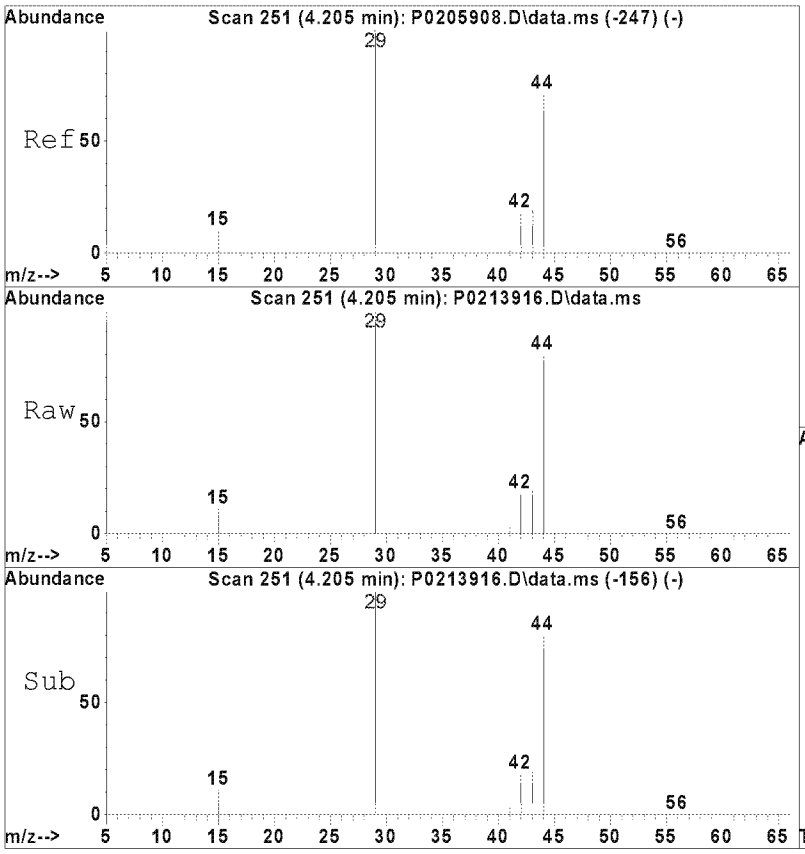
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213916.D
Acq On : 14 Feb 2019 12:26 pm
Operator : DJW
Sample : GHD 1X1 L470798-9
Misc : L470798-9,WG435272,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Feb 14 13:20:02 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

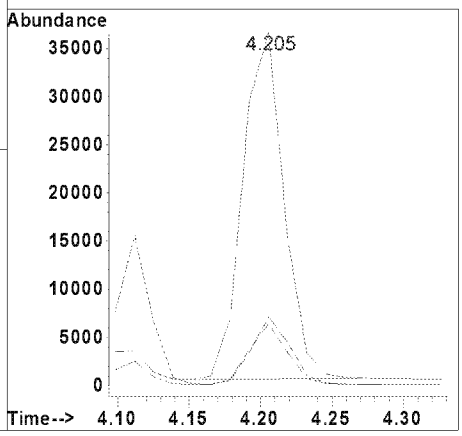




#3
Ethylene Oxide
Concen: 15.485 ppbv m
RT: 4.205 min Scan# 251
Delta R.T. 0.013 min
Lab File: P0213916.D
Acq: 14 Feb 19 12:26 pm

Tgt Ion: 29 Resp: 71852

Ion	Ratio	Lower	Upper
29	100		
43	19.3	0.0	0.0#
42	17.2	0.0	0.0#



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213917.D
Acq On : 14 Feb 2019 1:06 pm
Operator : DJW
Sample : GHD 1X1 L470798-10
Misc : L470798-10,WG435272,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 14 14:09:02 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

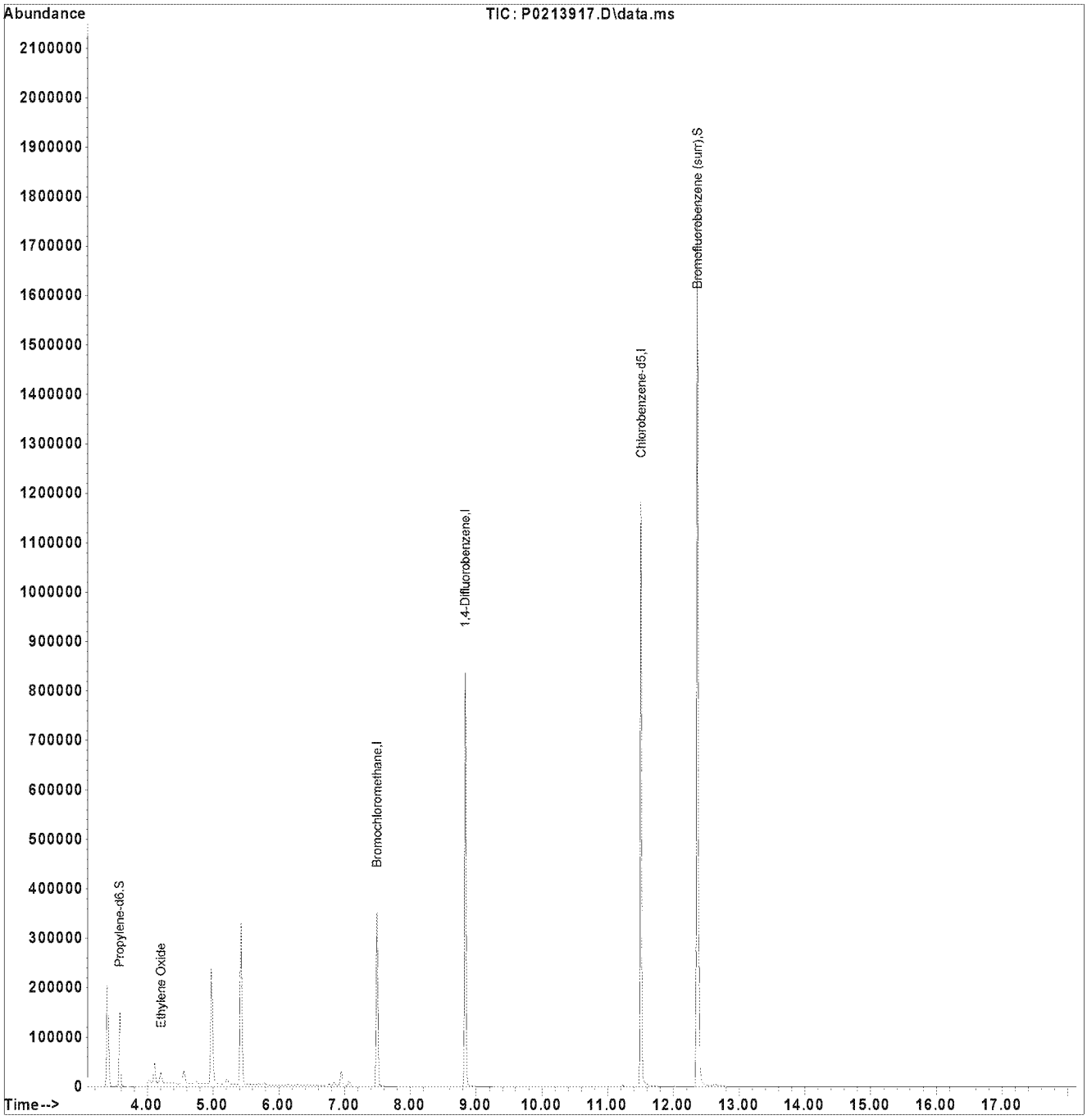
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.493	128	265264	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1195143	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1010449	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.579	46	144852	10.37	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 103.70%			
6) Bromofluorobenzene (surr)	12.364	95	664635	10.07	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 100.70%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.205	29	21154m	4.478	ppbv	

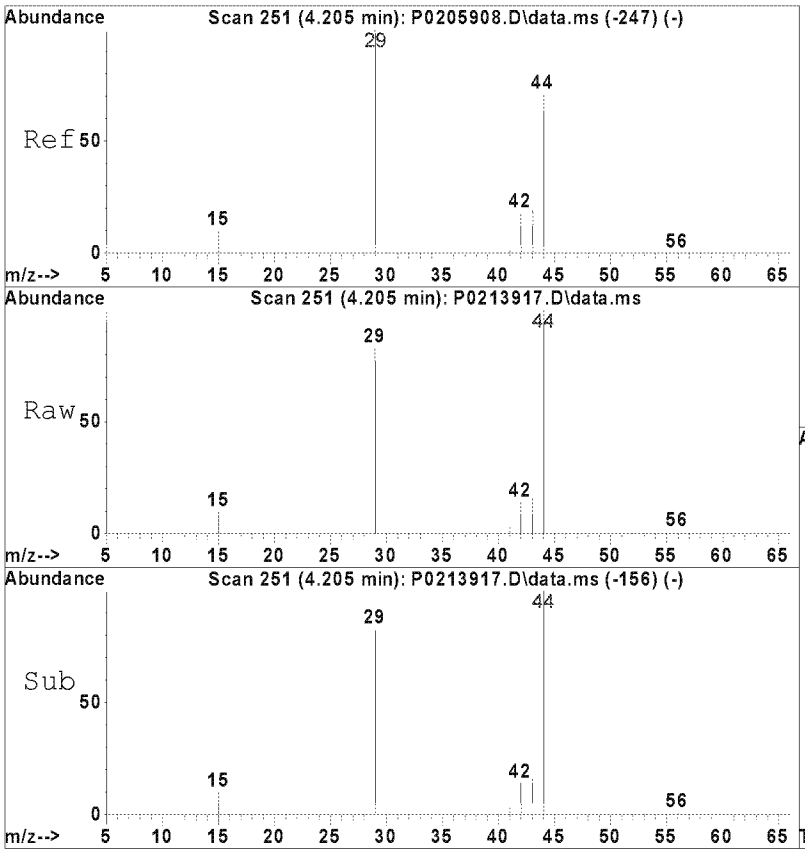
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213917.D
Acq On : 14 Feb 2019 1:06 pm
Operator : DJW
Sample : GHD 1X1 L470798-10
Misc : L470798-10,WG435272,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 14 14:09:02 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

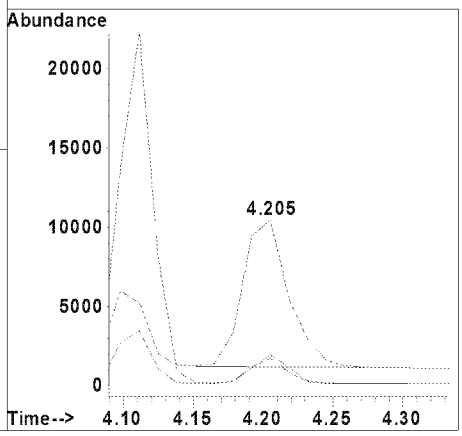




#3
Ethylene Oxide
Concen: 4.478 ppbv m
RT: 4.205 min Scan# 251
Delta R.T. 0.013 min
Lab File: P0213917.D
Acq: 14 Feb 19 1:06 pm

Tgt Ion: 29 Resp: 21154

Ion	Ratio	Lower	Upper
29	100		
43	16.6	0.0	0.0#
42	15.5	0.0	0.0#



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213918.D
Acq On : 14 Feb 2019 1:49 pm
Operator : DJW
Sample : GHD 1X1 L470798-11
Misc : L470798-11,WG435272,1.5
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 14 14:09:30 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

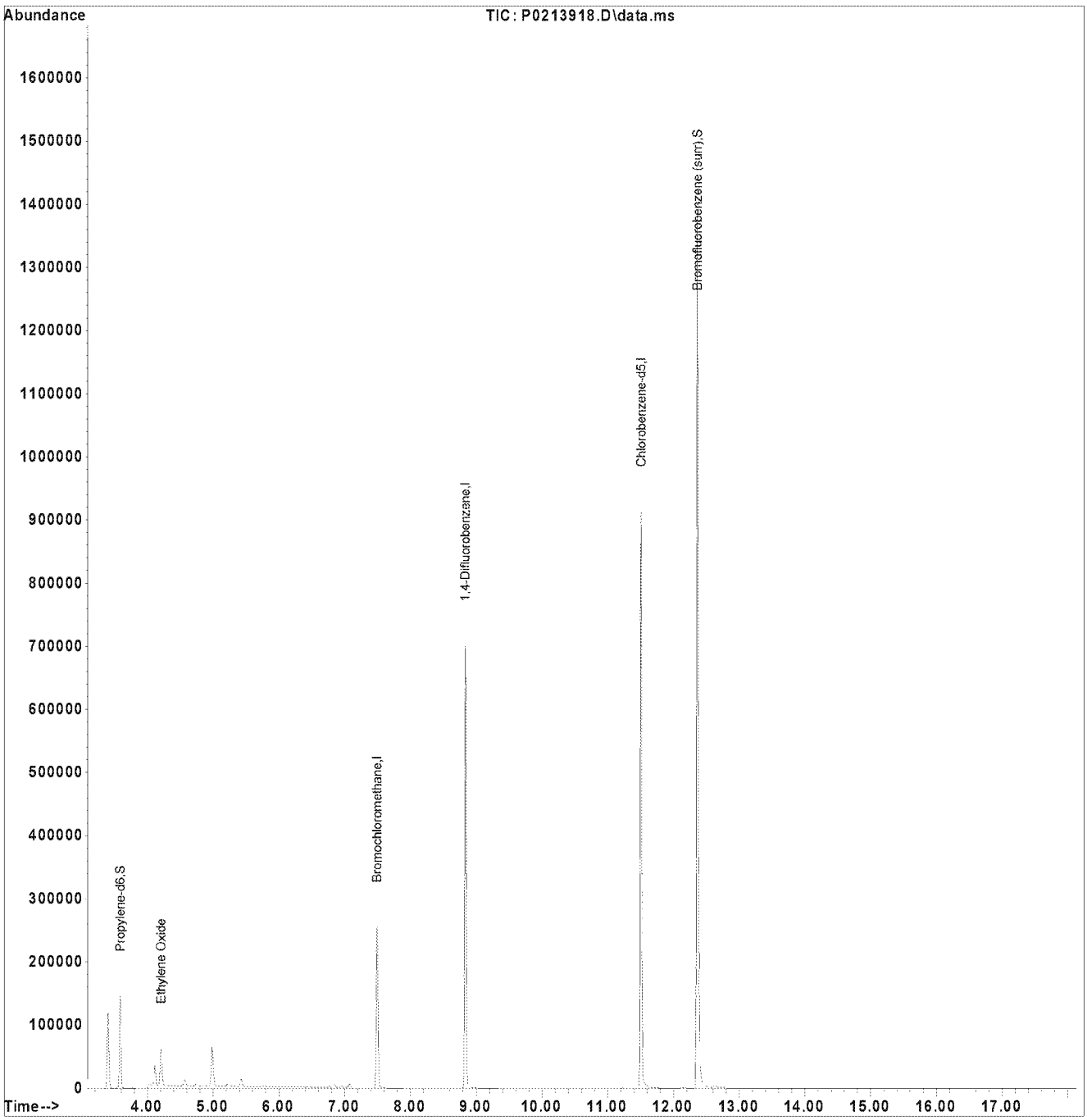
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.493	128	197642	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	998662	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	784925	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.586	46	141061	13.56	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 135.60%#			
6) Bromofluorobenzene (surr)	12.364	95	525129	10.24	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 102.40%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.205	29	54800m	15.571	ppbv	

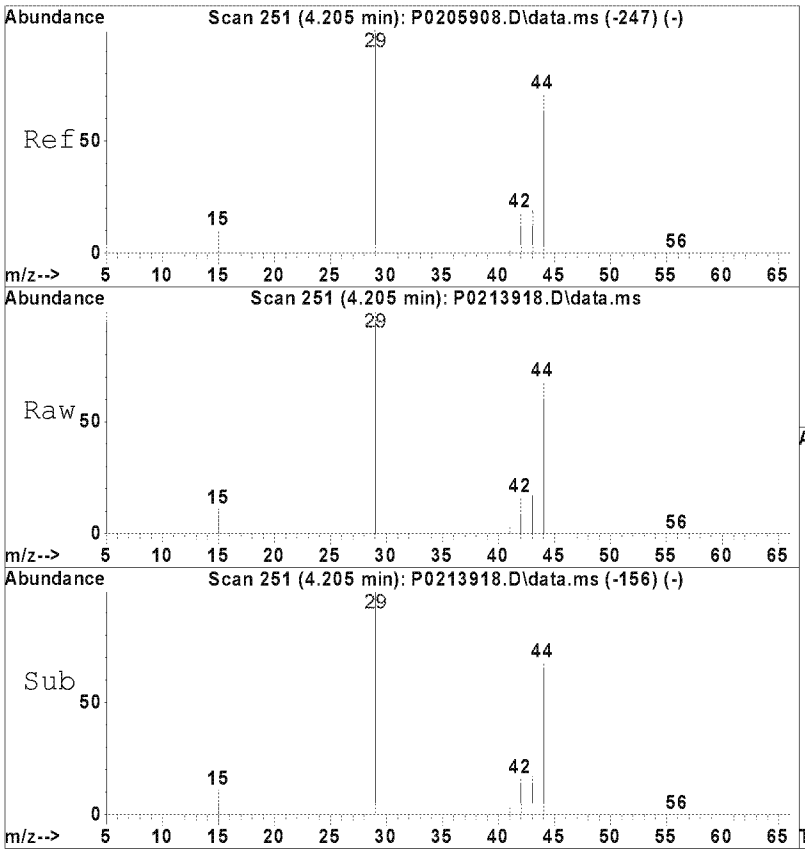
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213918.D
Acq On : 14 Feb 2019 1:49 pm
Operator : DJW
Sample : GHD 1X1 L470798-11
Misc : L470798-11,WG435272,1.5
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 14 14:09:30 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

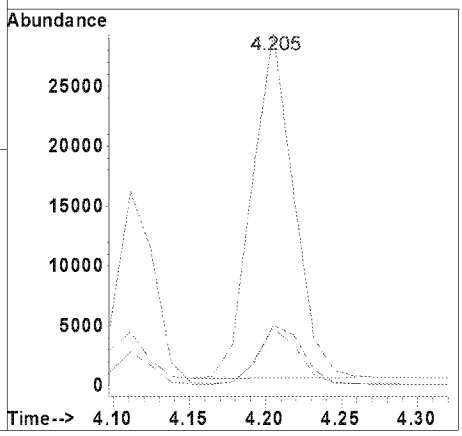




#3
Ethylene Oxide
Concen: 15.571 ppbv m
RT: 4.205 min Scan# 251
Delta R.T. 0.013 min
Lab File: P0213918.D
Acq: 14 Feb 19 1:49 pm

Tgt Ion: 29 Resp: 54800

Ion	Ratio	Lower	Upper
29	100		
43	19.0	0.0	0.0#
42	17.6	0.0	0.0#



GC/MS
CALIBRATION VERIFICATION

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213902.D
Acq On : 13 Feb 2019 9:30 pm
Operator : DJW
Sample : CCV 5 PPBV IH681703A
Misc : WG435272-5,IH681703,100
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 14 10:59:24 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

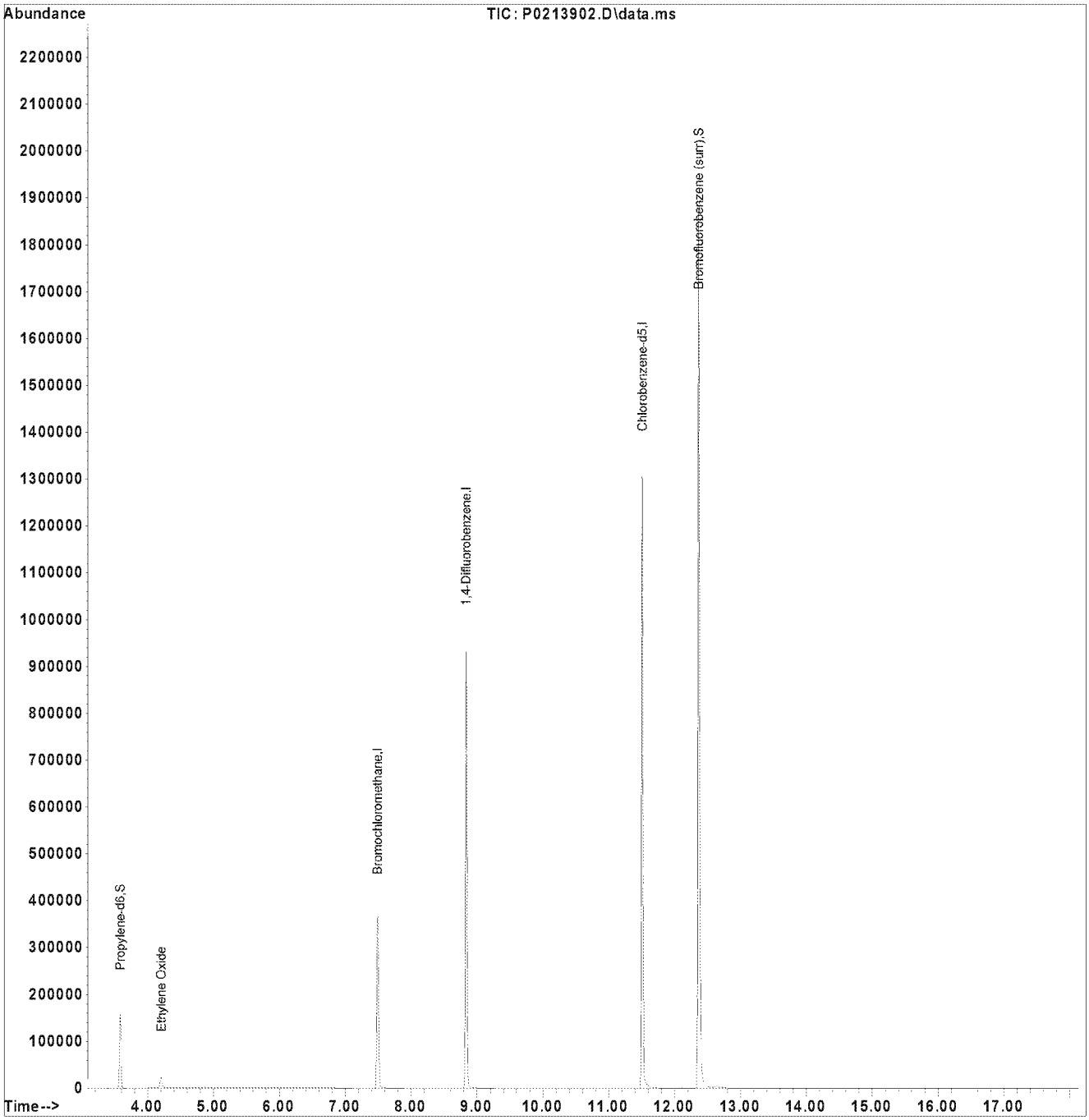
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.489	128	286755	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1337689	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1108669	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.583	46	152134	10.08	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 100.80%			
6) Bromofluorobenzene (surr)	12.364	95	726026	10.02	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 100.20%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.205	29	22354m	4.378	ppbv	

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213902.D
Acq On : 13 Feb 2019 9:30 pm
Operator : DJW
Sample : CCV 5 PPBV IH681703A
Misc : WG435272-5,IH681703,100
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 14 10:59:24 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213919.D
Acq On : 14 Feb 2019 2:18 pm
Operator : DJW
Sample : CCV 5 PPBV IH681703A
Misc : WG435272-6,IH681703,100
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 14 14:37:32 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

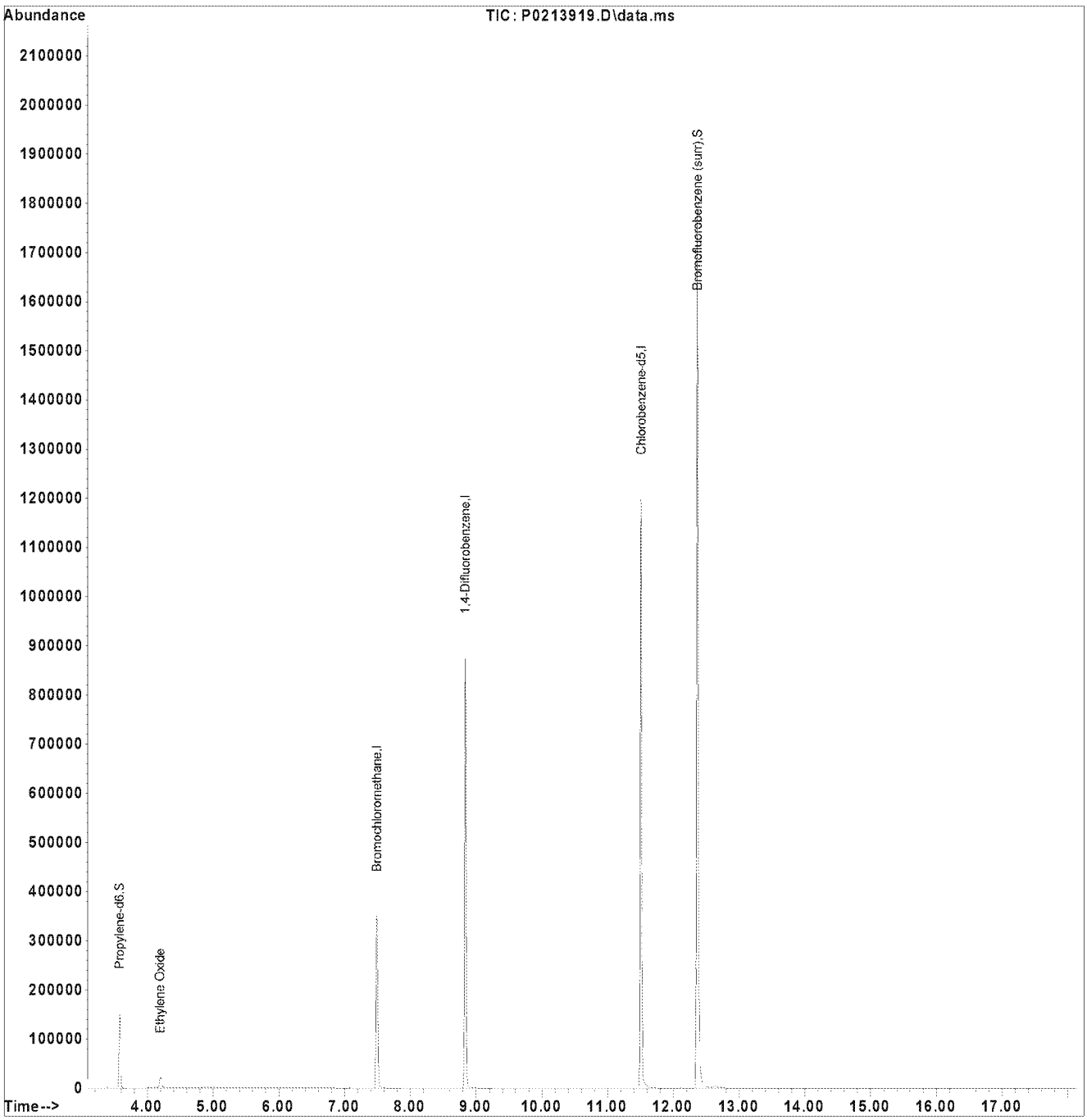
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.489	128	272880	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1266374	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1038935	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.579	46	147988	10.30	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 103.00%			
6) Bromofluorobenzene (surr)	12.364	95	666910	9.83	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 98.30%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.192	29	21802	4.487	ppbv #	100

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213919.D
Acq On : 14 Feb 2019 2:18 pm
Operator : DJW
Sample : CCV 5 PPBV IH681703A
Misc : WG435272-6,IH681703,100
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 14 14:37:32 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration



GC/MS
INITIAL CALIBRATION

EtOX 61

Instrument:	MS- 2	Date:	2/5/19	Range:	0.04	to	25	
Curve Name:	2190205E			units:	ppb	Entech Method:	P181009E.CTD	
data files:	P0205903	-04	-05	-06	-07	-08	-09	-10
Full data path:	C:\MSDCHEM\1\DATA\2019\02\05					Initials:	Analyst	Reviewer

Response Factor Report:

All curve levels are from the same sequence			DJW	SAP
Curve name reflects the date run, instrument, and is correct format?			DJW	SAP
Raw data submitted is consistent with the response factor report (calculate RRF's):				
Analyst	RFs calculated for(cmpd):	Ethylene oxide	DJW	
Reviewer	RFs calculated for(cmpd):	Ethylene Oxide		SAP
	RF for each level and Average RRF match report:		DJW	SAP
Calibration is (Check one): ☒ Average response factor ○ Linear Regression			DJW	SAP
Calibration levels span the appropriate range and range is appropriate			DJW	SAP
Verify raw data headings correct; IH numbers and injection volumes.			DJW	SAP
IH standards are not expired			DJW	SAP
IH standard used for DLS (low)	IH 681704 A	exp 2/28/19	DJW	SAP
IH standard used for DLS (high)	IH —	exp —	DJW	SAP
IH standard used for higher levels	IH 681703 A	exp 2/28/19	DJW	SAP
IH standard used for ICV	IH 681739 A	exp 2/28/19	DJW	SAP
Each raw data level contains all the compounds			DJW	SAP
All raw data has been QT reviewed			DJW	SAP
Retention times are correct for all compounds.			DJW	SAP
	All co-elutions are evaluated for unique ions		DJW	SAP
	All isomeric compounds checked for correct elution order.		DJW	SAP
All manual integrations are signed, dated, and explained			DJW	SAP

All acceptance criteria has been met:

BFB tune file:	P0205901	The 4-BFB tune check meets criteria	DJW	SAP
Folder with tune file and QAQC check submitted and no failures are noted.			DJW	SAP
Calibration contains a minimum of five points			DJW	SAP
Any points disabled meet QC-SOP-12 Criteria (document reason(s) in comments)			DJW	SAP
Low point of the curve is at or below the LOQ for the analysis:			DJW	SAP
No quant ions are saturated on high level of curve			DJW	SAP
Blank run if carry over when higher standard is analyzed before lower standard			DJW	SAP
IF Average Response Factor is used:			DJW	SAP
	No compound %RSD exceeds 40%		DJW	SAP
	No more than 2 cmpds with %RSD over 30% (list in comments)		DJW	SAP
If Linear Regression is used: (note which compounds & reason in comments below)			NA	NA
	r^2 is 0.994 or greater		NA	NA
RT of cmpds w/in 0.06 RRT of the mean , Calculation sheet attached)			DJW	SAP
ICV file:	P0205917	ICV meets method Criteria	DJW	SAP
Update the reference spectra with the mid point of the calibration			DJW	
Curve scanned into package drive				SAP

Calibration Comments:

RRF calculation Confirmation Sheet - Analyst

Line out any unused calculation confirmation blank templates below. One template should be used for each level of the curve. Calculate the average RRF at the bottom of the page.

calculation:

$$RRF = \frac{AREA^{std} \times CONC^{is}}{AREA^{is} \times CONC^{std}}$$

Level 1

$$RRF = \frac{283 \times 10}{316534 \times 0.04} = 0.224$$

Level 2

$$RRF = \frac{607 \times 10}{314801 \times 0.1} = 0.193$$

Level 3

$$RRF = \frac{1168 \times 10}{315626 \times 0.2} = 0.185$$

Level 4

$$RRF = \frac{2744 \times 10}{313836 \times 0.5} = 0.175$$

Level 5

$$RRF = \frac{5258 \times 10}{316096 \times 1.0} = 0.166$$

Level 6

$$RRF = \frac{24467 \times 10}{310657 \times 5.0} = 0.158$$

Level 7

$$RRF = \frac{51249 \times 10}{311997 \times 10} = 0.164$$

Level 8

$$RRF = \frac{123789 \times 10}{309034 \times 25} = 0.160$$

Level 9

$$RRF = \frac{\times}{\times} =$$

Level 10

$$RRF = \frac{\times}{\times} =$$

$$RRF^{ave} = \frac{\sum_n^1 RRF}{n} = \frac{0.224 + 0.193 + 0.185 + 0.175 + 0.166 + 0.158 + 0.164 + 0.160}{8}$$

$$= 0.178$$

RRF calculation Confirmation Sheet - Reviewer

Line out any unused calculation confirmation blank templates below. One template should be used for each level of the curve. Calculate the average RRF at the bottom of the page.

calculation:

$$RRF = \frac{AREA^{std} \times CONC^{is}}{AREA^{is} \times CONC^{std}}$$

Level 1

$$RRF = \frac{283 \times 60}{316534 \times 0.04} = 0.224$$

Level 2

$$RRF = \frac{607 \times 60}{314801 \times 0.10} = 0.193$$

Level 3

$$RRF = \frac{1168 \times 10}{315626 \times 0.20} = 0.185$$

Level 4

$$RRF = \frac{2744 \times 60}{313836 \times 0.50} = 0.175$$

Level 5

$$RRF = \frac{5258 \times 10}{316096 \times 1.0} =$$

Level 6

$$RRF = \frac{24467 \times 10}{310657 \times 5.0} = 0.178$$

Level 7

$$RRF = \frac{51249 \times 10}{311977 \times 10} = 0.164$$

Level 8

$$RRF = \frac{123789 \times 10}{309034 \times 25} = 0.160$$

Level 9

$$RRF = \frac{\times}{\times} =$$

Level 10

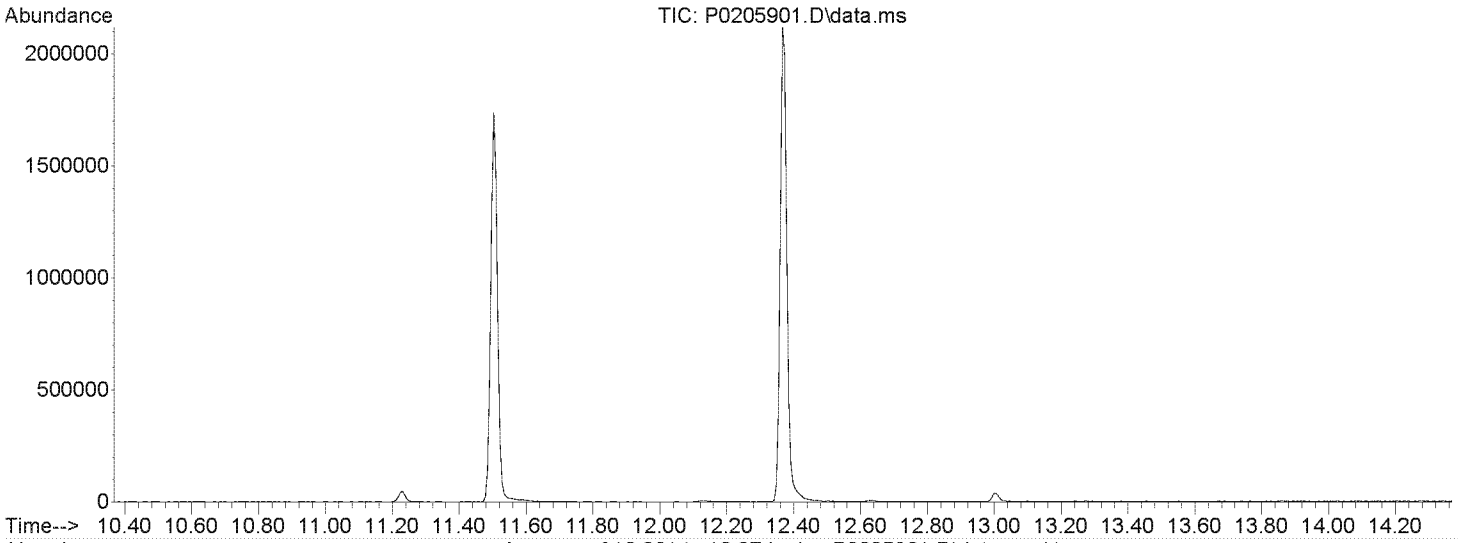
$$RRF = \frac{\times}{\times} =$$

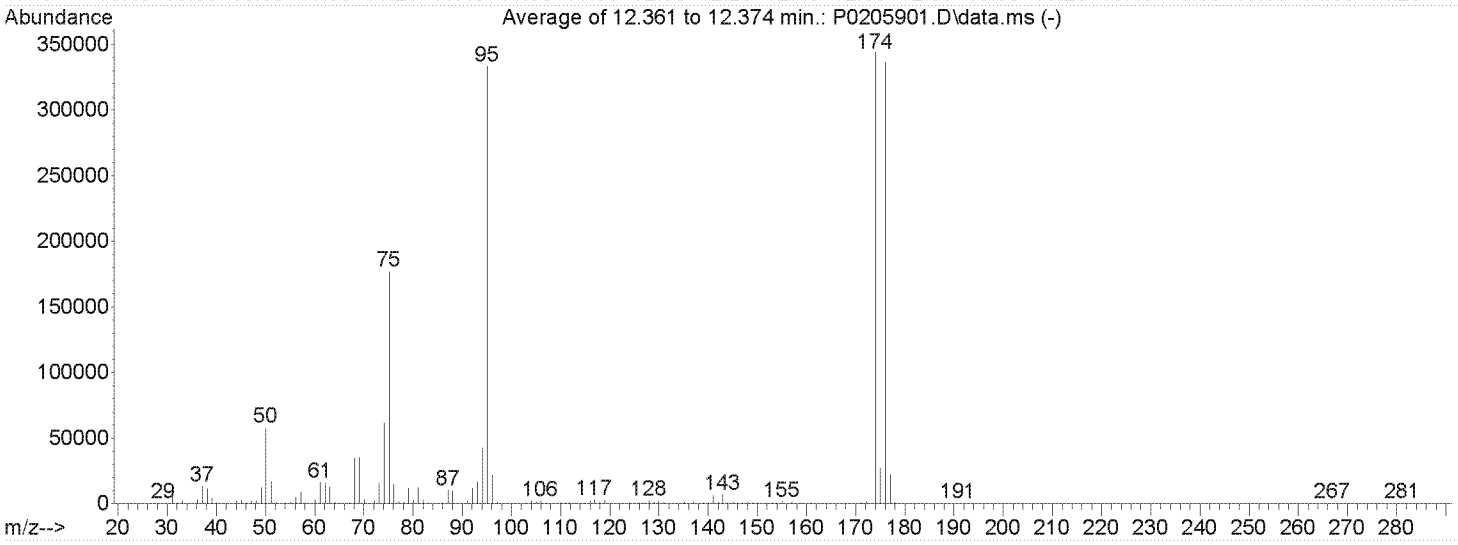
$$RRF^{ave} = \frac{\sum_{n}^{1} RRF}{n} = 0.178$$

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205901.D
Acq On : 5 Feb 2019 2:49 pm
Operator : DJW
Sample : BFB/PRIMER
Misc :
ALS Vial : 13 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\MSDCHEM\1\methods\P190205E.M
Title :
Last Update : Tue Feb 05 21:35:06 2019





AutoFind: Scans 1494, 1495, 1496; Background Corrected with Scan 1488

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.3	57680	PASS
75	95	30	66	53.0	176682	PASS
95	95	100	100	100.0	333120	PASS
96	95	5	9	6.6	21882	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	103.3	344042	PASS
175	174	4	9	7.8	26885	PASS
176	174	93	101	97.6	335786	PASS
177	176	5	9	6.6	22023	PASS

```
   Sequence Name: C:\MSDCHEM\1\sequence\2019\02\P020519.S
         Comment:
        Operator: DJW
       Data Path: C:\MSDCHEM\1\DATA\2019\02\05\
Instrument Control  Pre-Seq Cmd:
Data Analysis       Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis      Post-Seq Cmd:

   Method Sections To Run     On A Barcode Mismatch
    (X) Full Method             (X) Inject Anyway
    ( ) Reprocessing Only       ( ) Don't Inject

   ----------------------------------------------------------------------
   Line                  Sample Name/Misc Info
 1)  Pause    - INTERNAL IH679791A
 2)  Sample       13  P0205901 ETOX BFB BFB/PRIMER
 3)  Sample       13  P0205902 ETOX     BLANK
 4)  Sample       14  P0205903 ETOX     ASTD 0.04 PPBV IH681704A
 5)  Sample       14  P0205904 ETOX     ASTD 0.1 PPBV IH681704A
 6)  Sample       14  P0205905 ETOX     ASTD 0.2 PPBV IH681704A
 7)  Sample       14  P0205906 ETOX     ASTD 0.5 PPBV IH681704A
 8)  Sample       16  P0205907 ETOX     ASTD 1.0 PPBV IH681703A
 9)  Sample       16  P0205908 ETOX     ASTD 5.0 PPBV IH681703A
10)  Sample       16  P0205909 ETOX     ASTD 10 PPBV IH681703A
11)  Sample       16  P0205910 ETOX     ASTD 25 PPBV IH681703A
12)  Sample       13  P0205911 ETOX     BLANK
13)  Sample       15  P0205912 ETOX     ICV 5.0 PPBV IH681739A
```

GC/MS QA-QC Check Report

Tune File : C:\MSDCHEM\1\DATA\2019\02\05\P0205901.D
Tune Time : 5 Feb 2019 2:49 pm

Daily Calibration File : C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D

File	Sample	Surrogate Recovery %		Internal Standard Responses		
				310657	1450690	1230530
P0205903.D						
	ASTD 0.04	98	99	316534	1459395	1249177
P0205904.D						
	ASTD 0.1 P	96	98	314801	1454027	1237124
P0205905.D						
	ASTD 0.2 P	99	99	315626	1469719	1260456
P0205906.D						
	ASTD 0.5 P	99	99	313836	1475103	1254909
P0205907.D						
	ASTD 1.0 P	97	98	316096	1437355	1249278
P0205908.D						
	ASTD 5.0 P	100	100	310657	1450692	1230528
P0205909.D						
	ASTD 10 PP	98	97	311997	1459715	1244792
P0205910.D						
	ASTD 25 PP	98	99	309034	1418256	1230215
P0205912.D						
	ICV 5.0 PP	100	98	309664	1430120	1224917

(fails) - fails 24hr time check * - fails criteria

Created: Wed Feb 06 14:39:30 2019 P

----------SEQUENCE TABLE ----------

Sequence Name: C:\Smart\2019\02\P020519.SEQ
Date: 02-06-2019
Time: 15:24:07
Int. Std Volume: 50 cc

Sample Name	Inlet #	Auto Pos	Samp Vol.	Cal Std Vol.	Method	Time
BFB/PRIMER	1	13	100	0	C:\Smart\P181009E.CTD	12:00
BLANK	1	13	100	0	C:\Smart\P181009E.CTD	12:00
ASTD 0.04 PPBV----	1	14	40	0	C:\Smart\P181009E.CTD	12:00
ASTD 0.1 PPBV-----	1	14	100	0	C:\Smart\P181009E.CTD	12:00
ASTD 0.2 PPBV----	1	14	200	0	C:\Smart\P181009E.CTD	12:00
ASTD 0.5 PPBV-----	1	14	500	0	C:\Smart\P181009E.CTD	12:00
ASTD 1 PPBV-------	1	16	20	0	C:\Smart\P181009E.CTD	12:00
ASTD 5 PPBV-------	1	16	100	0	C:\Smart\P181009E.CTD	12:00
ASTD 10 PPBV------	1	16	200	0	C:\Smart\P181009E.CTD	12:00
ASTD 25 PPBV------	1	16	500	0	C:\Smart\P181009E.CTD	12:00
BLANK	1	13	100	0	C:\Smart\P181009E.CTD	12:00
ICV 5 PPBV--------	1	15	100	0	C:\Smart\P181009E.CTD	12:00

ENTECH DAILY INJECTION SUMMARY

Instrument: MS P
ENTECH Method: P181009E.CTD

Date: 2/5/2019

Sample	Time	Dil	Samp Vol	IS Vol	Calib Vol	Sweep Vol	Pressure
BFB	07:16	1x1	101	50	0	76	25
CCV	07:45	1x1	100	50	0	76	17.2
LCS	08:15	1x1	100	50	0	76	23.8
LCSD	08:46	1x1	100	50	0	75	23.5
BLANK	09:17	1x1	100	50	0	76	41.7
DLS	09:47	1x1	40	50	0	76	25.1
BLANK	10:22	1x1	501	50	0	76	40.1
WAC3365	11:16	1x1	100	50	0	75	21.3
CCV	11:45	1x1	100	50	0	76	16.9
BFB	14:49	1x1	100	50	0	76	39.7
BLANK	15:19	1x1	100	50	0	76	39.3
ASTD	15:48	1x1	40	50	0	76	24.9
ASTD	16:18	1x1	100	50	0	75	24.4
ASTD	16:48	1x1	200	50	0	76	23.7
ASTD	17:23	1x1	500	50	0	75	22
ASTD	17:53	1x1	20	50	0	76	17.2
ASTD	18:23	1x1	100	50	0	76	16.3
ASTD	18:53	1x1	200	50	0	76	15.4
ASTD	19:28	1x1	500	50	0	76	13.6
BLANK	19:58	1x1	100	50	0	76	38.8
ICV	20:28	1x1	100	50	0	75	22.9

Analyst Initials DJW Date 2/11/19

Reviewer Initials SAP Date 2/11/19

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205912.D
Acq On : 5 Feb 2019 8:28 pm
Operator : DJW
Sample : ICV 5.0 PPBV IH681739A
Misc : IH681739,100
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Feb 05 21:35:50 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

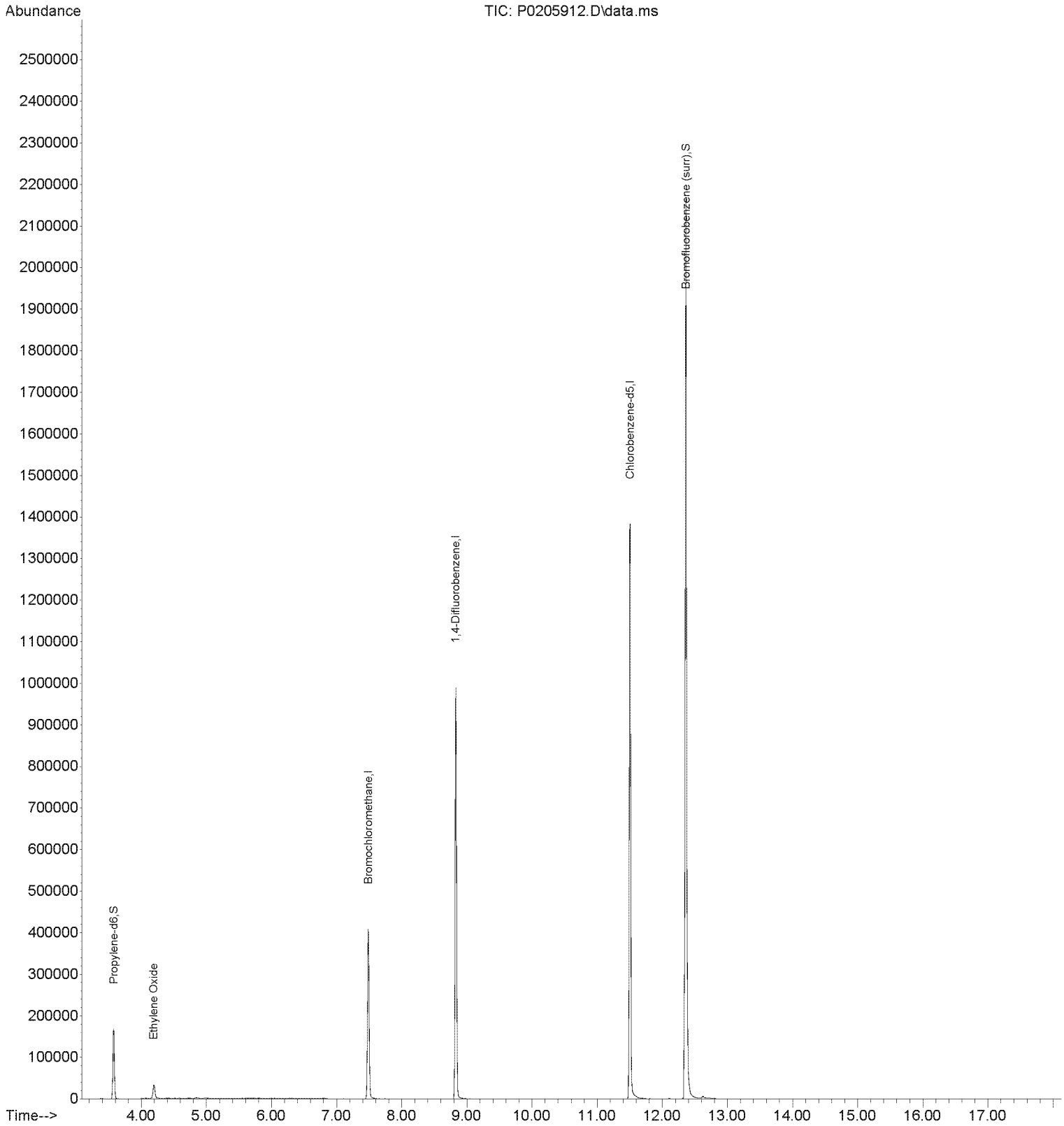
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.489	128	309664	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.832	114	1430120	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1224917	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.579	46	163081	10.00	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 100.00%			
6) Bromofluorobenzene (surr)	12.365	95	786159	9.82	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 98.20%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.192	29	32013	5.805	ppbv #	100

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205912.D
Acq On : 5 Feb 2019 8:28 pm
Operator : DJW
Sample : ICV 5.0 PPBV IH681739A
Misc : IH681739,100
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Feb 05 21:35:50 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205912.D
Acq On : 5 Feb 2019 8:28 pm
Operator : DJW
Sample : ICV 5.0 PPBV IH681739A
Misc : IH681739,100
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Feb 05 21:35:50 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Bromochloromethane	1.000	1.000	0.0	100	0.00
2	S	Propylene-d6	0.526	0.527	-0.2	98	0.00
3		Ethylene Oxide	0.178	0.207	-16.3	131	0.00
4	I	1,4-Difluorobenzene	1.000	1.000	0.0	99	0.00
5	I	Chlorobenzene-d5	1.000	1.000	0.0	100	0.00
6	S	Bromofluorobenzene (surr)	0.653	0.642	1.7	96	0.00

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

Average RT for multilevel curve							
	cmpd RT		internal std RT				
	min	seconds	min	seconds		RRT= RT(c)/RT(is)	Cmpd RRT - Mean
level 1	4.2	252.3	7.5	449.3		0.561	0.000
level 2	4.2	252.3	7.5	449.6		0.561	0.000
level 3	4.2	252.3	7.5	449.3		0.561	0.000
level 4	4.2	252.3	7.5	449.3		0.561	0.000
level 5	4.2	252.3	7.5	449.6		0.561	0.000
level 6	4.2	252.3	7.5	449.6		0.561	0.000
level 7	4.2	252.3	7.5	449.3		0.561	0.000
level 8	4.2	251.5	7.5	449.3		0.560	0.001
level 9	NA	NA	NA	NA		NA	NA
level 10	NA	NA	NA	NA		NA	NA
	average	**252.2**	**average**	**449.4**	**Mean RRT**	0.561	(must be <0.06)

Curve Name: P190205E
Compound: Ethylene Oxide
Date: 2/11/2019
Analyst: DJW

Response Factor Report P

Method Path : C:\MSDCHEM\1\methods\
Method File : P190205E.M
Title :
Last Update : Tue Feb 05 21:35:06 2019
Response Via : Initial Calibration

Calibration Files
0.04=P0205903.D 0.1 =P0205904.D 0.2 =P0205905.D 0.5 =P0205906.D 1.0 =P0205907.D 5.0 =P0205908.D 10 =P0205909.D
25 =P0205910.D

	Compound	0.04	0.1	0.2	0.5	1.0	5.0	10	25	Avg	%RSD
1) I	Bromochloromethane	----------ISTD----------									
2) S	Propylene-d6	0.524	0.517	0.531	0.530	0.520	0.537	0.528	0.525	0.526	1.17
3)	Ethylene Oxide	0.224	0.193	0.185	0.175	0.166	0.158	0.164	0.160	0.178	12.40
4) I	1,4-Difluorobenzene	----------ISTD----------									
5) I	Chlorobenzene-d5	----------ISTD----------									
6) S	Bromofluoroben...	0.656	0.647	0.657	0.653	0.651	0.662	0.645	0.656	0.653	0.87

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205903.D
Acq On : 5 Feb 2019 3:48 pm
Operator : DJW
Sample : ASTD 0.04 PPBV IH681704A
Misc : IH681704,40
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 05 21:31:38 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D

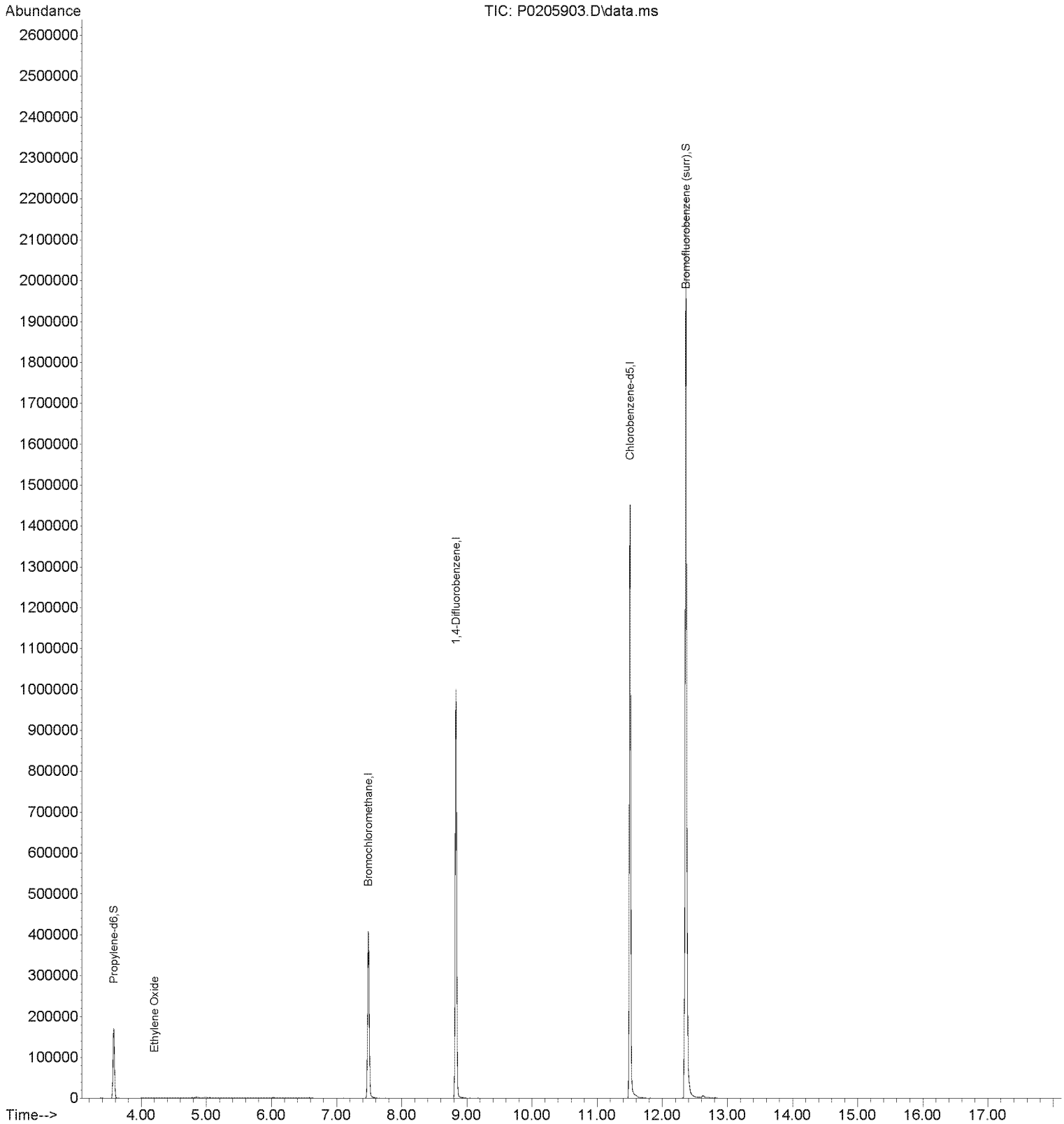
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Bromochloromethane	7.489	128	316534	10.00 ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1459395	10.00 ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1249177	10.00 ppbv	0.00
System Monitoring Compounds					
2) Propylene-d6	3.579	46	165806	9.76 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery	= 97.60%	
6) Bromofluorobenzene (surr)	12.364	95	819415	9.91 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery	= 99.10%	
Target Compounds					Qvalue
3) Ethylene Oxide	4.205	29	283	0.057 ppbv #	100

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205903.D
Acq On : 5 Feb 2019 3:48 pm
Operator : DJW
Sample : ASTD 0.04 PPBV IH681704A
Misc : IH681704,40
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 05 21:31:38 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205904.D
Acq On : 5 Feb 2019 4:18 pm
Operator : DJW
Sample : ASTD 0.1 PPBV IH681704A
Misc : IH681704,100
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 05 21:31:40 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D

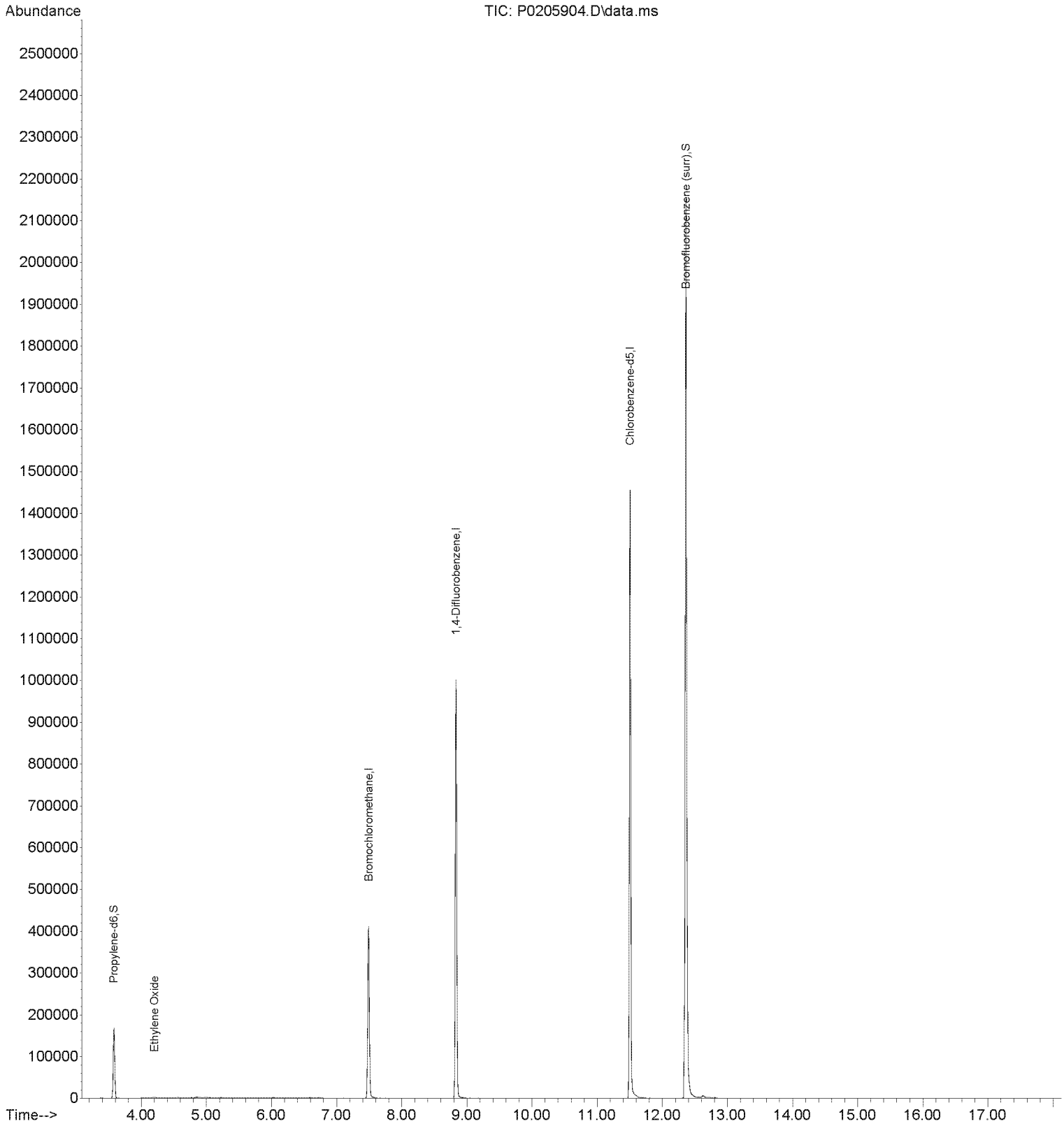
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Bromochloromethane	7.493	128	314801	10.00 ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1454027	10.00 ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1237124	10.00 ppbv	0.00
System Monitoring Compounds					
2) Propylene-d6	3.583	46	162894	9.64 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery	= 96.40%	
6) Bromofluorobenzene (surr)	12.364	95	800087	9.77 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery	= 97.70%	
Target Compounds					Qvalue
3) Ethylene Oxide	4.205	29	607	0.122 ppbv #	100

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205904.D
Acq On : 5 Feb 2019 4:18 pm
Operator : DJW
Sample : ASTD 0.1 PPBV IH681704A
Misc : IH681704,100
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 05 21:31:40 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205905.D
Acq On : 5 Feb 2019 4:48 pm
Operator : DJW
Sample : ASTD 0.2 PPBV IH681704A
Misc : IH681704,200
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 05 21:31:42 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D

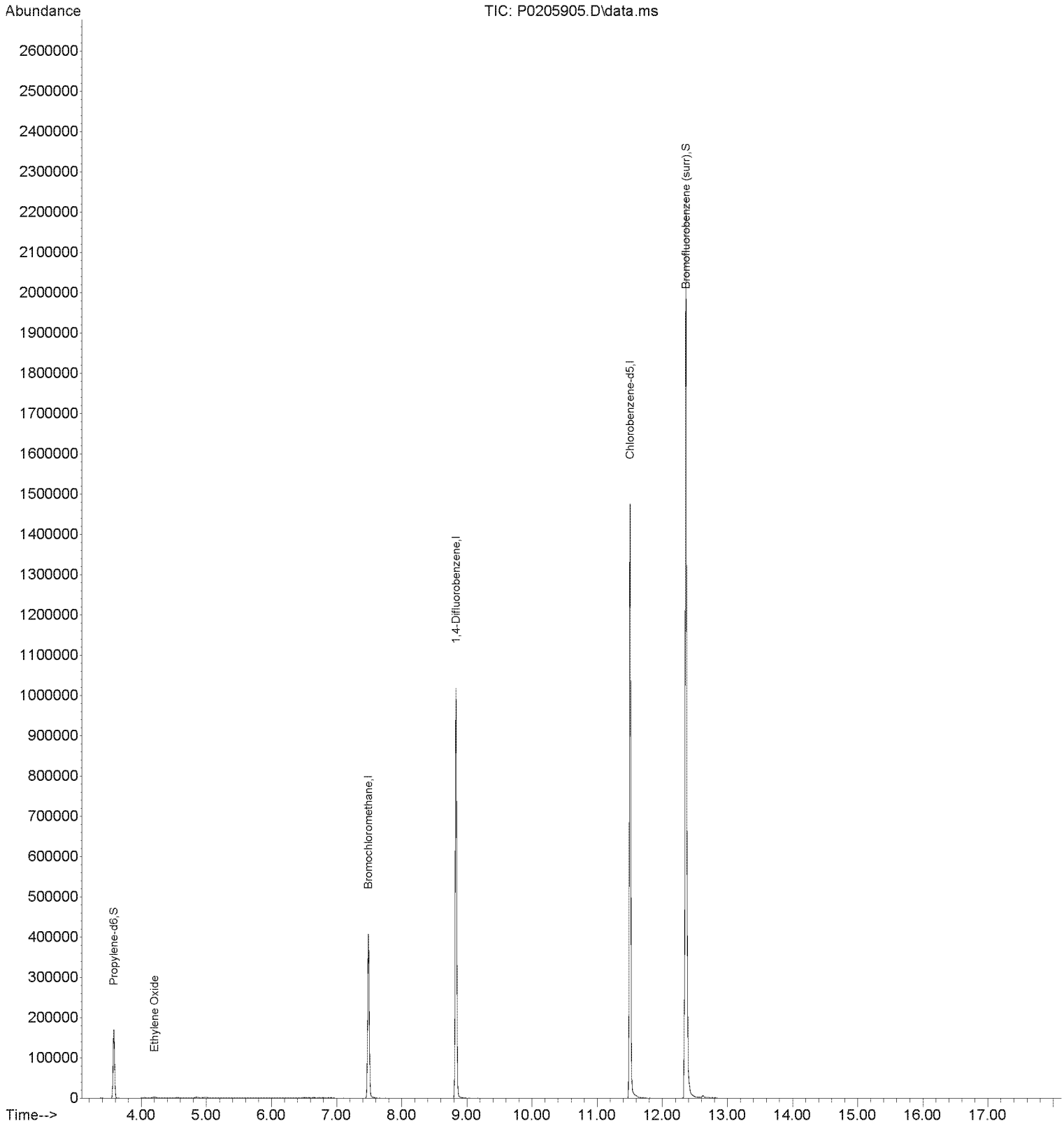
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Bromochloromethane	7.489	128	315626	10.00 ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1469719	10.00 ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1260456	10.00 ppbv	0.00
System Monitoring Compounds					
2) Propylene-d6	3.579	46	167523	9.89 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery	= 98.90%	
6) Bromofluorobenzene (surr)	12.364	95	827667	9.92 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery	= 99.20%	
Target Compounds					Qvalue
3) Ethylene Oxide	4.205	29	1168	0.235 ppbv #	100

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205905.D
Acq On : 5 Feb 2019 4:48 pm
Operator : DJW
Sample : ASTD 0.2 PPBV IH681704A
Misc : IH681704,200
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 05 21:31:42 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205906.D
Acq On : 5 Feb 2019 5:23 pm
Operator : DJW
Sample : ASTD 0.5 PPBV IH681704A
Misc : IH681704,500
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 05 21:31:44 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D

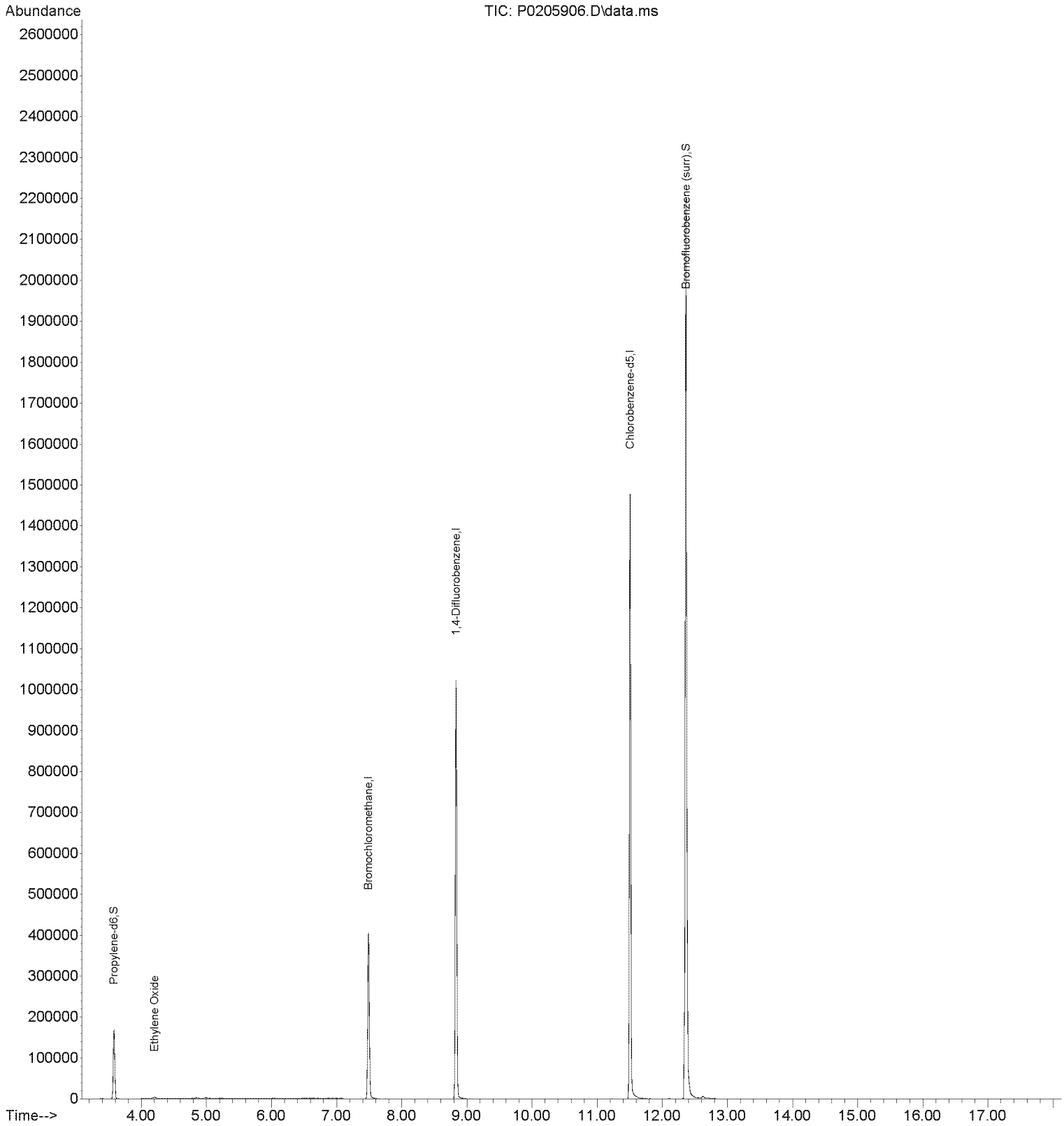
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Bromochloromethane	7.489	128	313836	10.00 ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1475103	10.00 ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1254909	10.00 ppbv	0.00
System Monitoring Compounds					
2) Propylene-d6	3.583	46	166279	9.88 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery	= 98.80%	
6) Bromofluorobenzene (surr)	12.364	95	819761	9.87 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery	= 98.70%	
Target Compounds					Qvalue
3) Ethylene Oxide	4.205	29	2744	0.555 ppbv #	100

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205906.D
Acq On : 5 Feb 2019 5:23 pm
Operator : DJW
Sample : ASTD 0.5 PPBV IH681704A
Misc : IH681704,500
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 05 21:31:44 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205907.D
Acq On : 5 Feb 2019 5:53 pm
Operator : DJW
Sample : ASTD 1.0 PPBV IH681703A
Misc : IH681703,20
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 05 21:31:46 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D

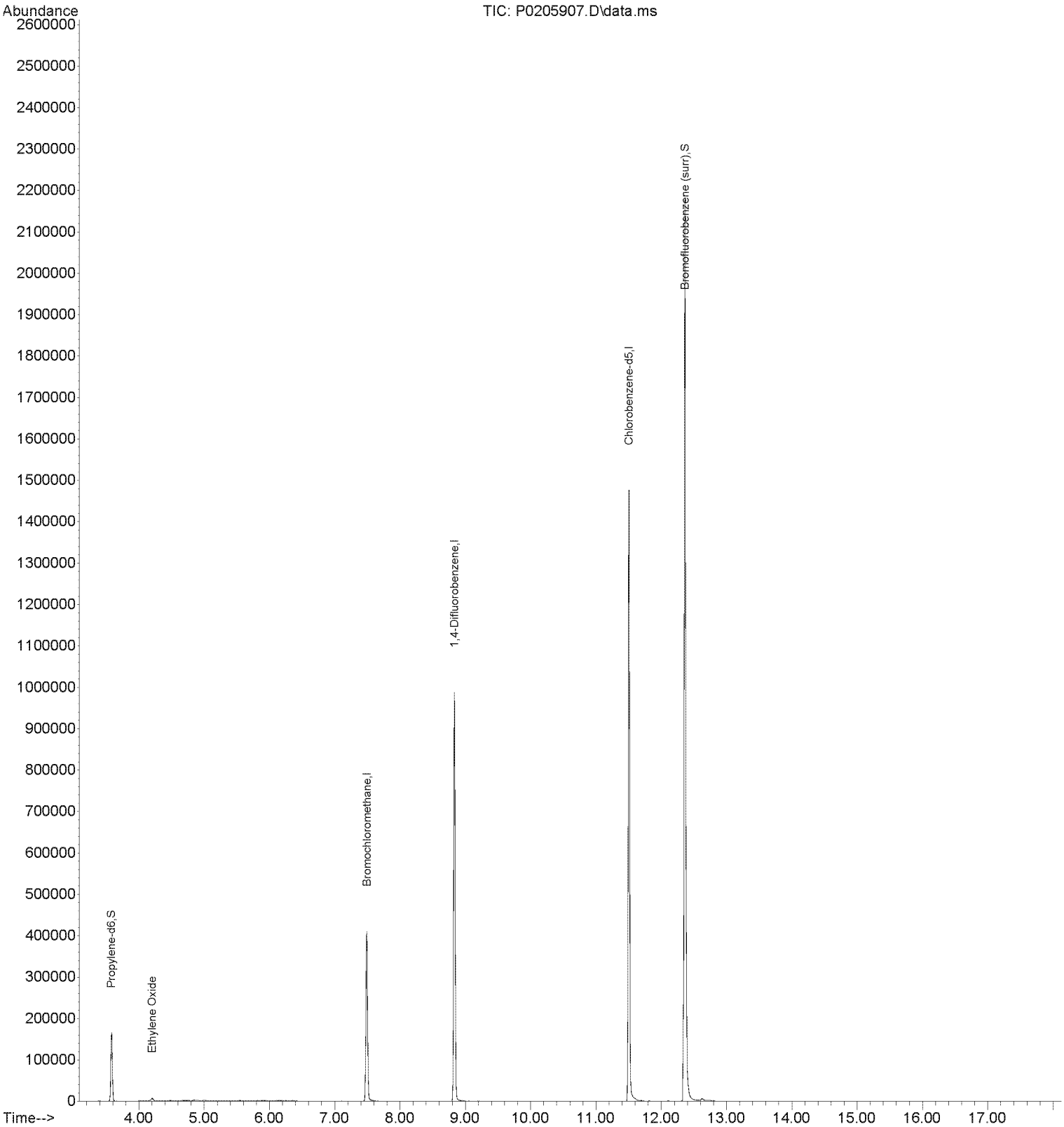
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Bromochloromethane	7.493	128	316096	10.00 ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1437355	10.00 ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1249278	10.00 ppbv	0.00
System Monitoring Compounds					
2) Propylene-d6	3.583	46	164331	9.69 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery	= 96.90%	
6) Bromofluorobenzene (surr)	12.364	95	812716	9.83 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery	= 98.30%	
Target Compounds					Qvalue
3) Ethylene Oxide	4.205	29	5258	1.056 ppbv #	100

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205907.D
Acq On : 5 Feb 2019 5:53 pm
Operator : DJW
Sample : ASTD 1.0 PPBV IH681703A
Misc : IH681703,20
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 05 21:31:46 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205908.D
Acq On : 5 Feb 2019 6:23 pm
Operator : DJW
Sample : ASTD 5.0 PPBV IH681703A
Misc : IH681703,100
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 05 21:31:48 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D

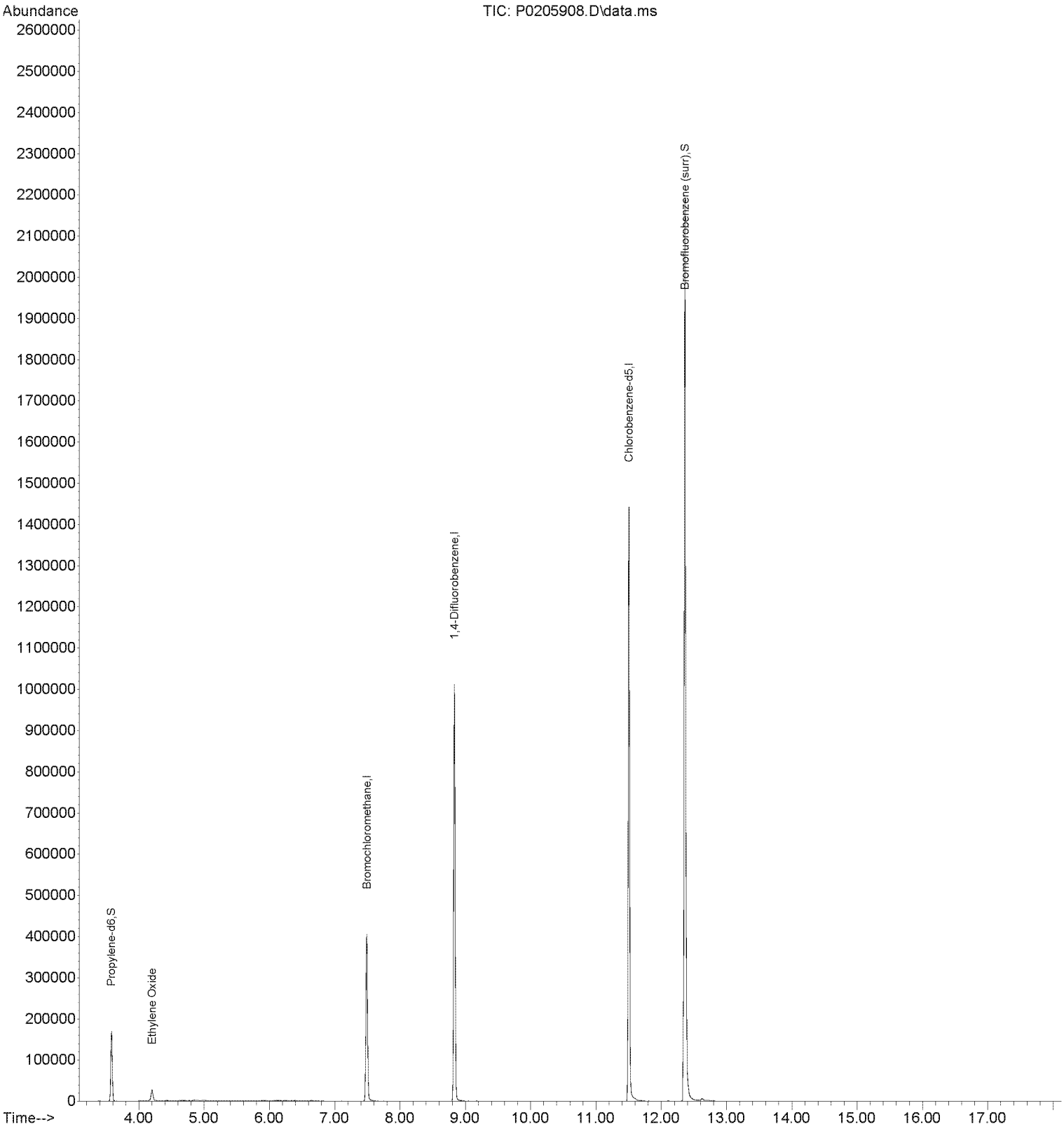
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.493	128	310657	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1450692	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1230528	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.583	46	166675	10.00	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 100.00%			
6) Bromofluorobenzene (surr)	12.364	95	814756	10.00	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 100.00%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.205	29	24467	5.000	ppbv #	100

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205908.D
Acq On : 5 Feb 2019 6:23 pm
Operator : DJW
Sample : ASTD 5.0 PPBV IH681703A
Misc : IH681703,100
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 05 21:31:48 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205909.D
Acq On : 5 Feb 2019 6:53 pm
Operator : DJW
Sample : ASTD 10 PPBV IH681703A
Misc : IH681703,200
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 05 21:31:50 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D

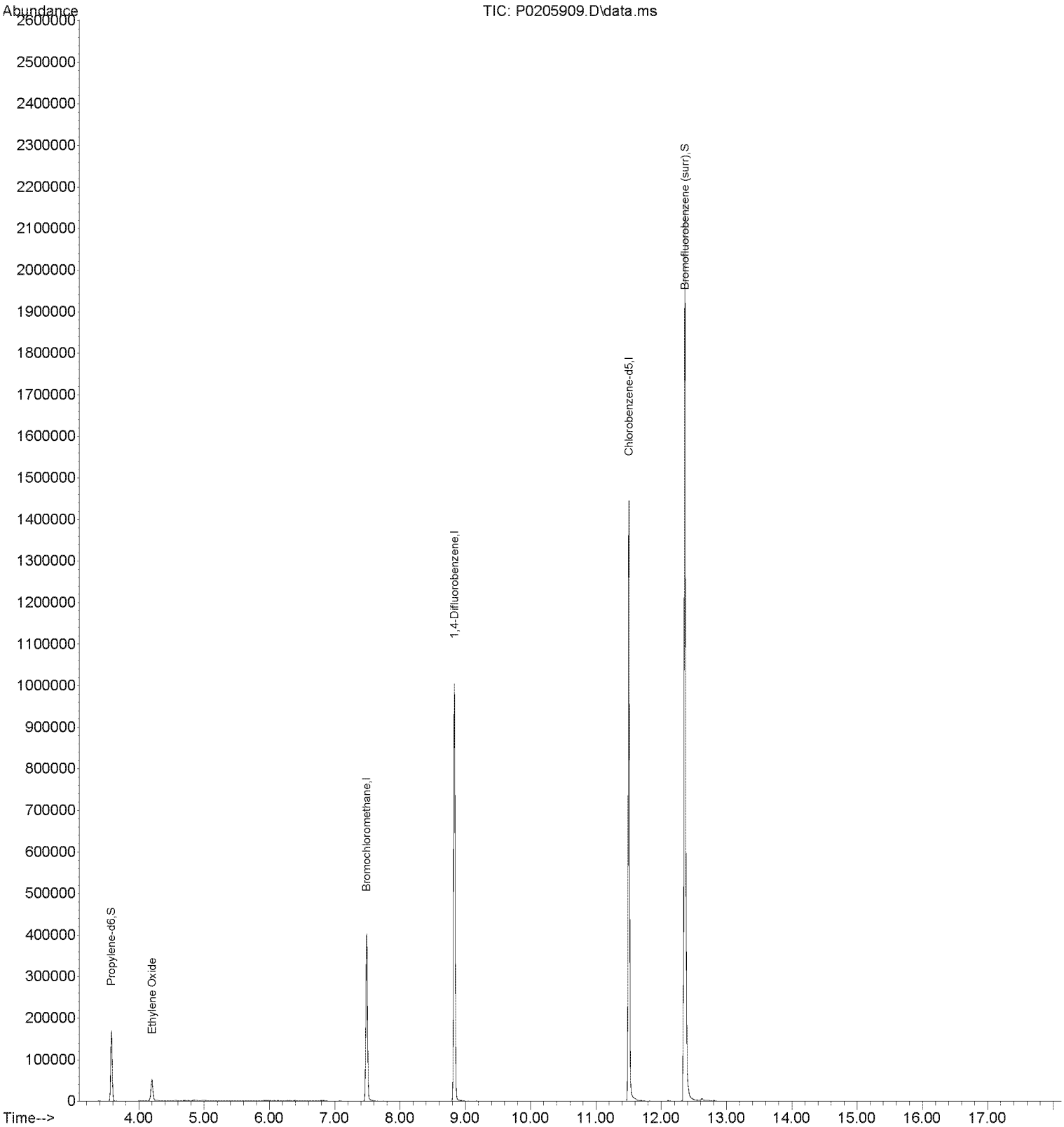
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Bromochloromethane	7.489	128	311997	10.00 ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1459715	10.00 ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1244792	10.00 ppbv	0.00
System Monitoring Compounds					
2) Propylene-d6	3.583	46	164810	9.85 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery	= 98.50%	
6) Bromofluorobenzene (surr)	12.364	95	802952	9.74 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery	= 97.40%	
Target Compounds					Qvalue
3) Ethylene Oxide	4.205	29	51249	10.428 ppbv #	100

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205909.D
Acq On : 5 Feb 2019 6:53 pm
Operator : DJW
Sample : ASTD 10 PPBV IH681703A
Misc : IH681703,200
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 05 21:31:50 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205910.D
Acq On : 5 Feb 2019 7:28 pm
Operator : DJW
Sample : ASTD 25 PPBV IH681703A
Misc : IH681703,500
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 05 21:31:53 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D

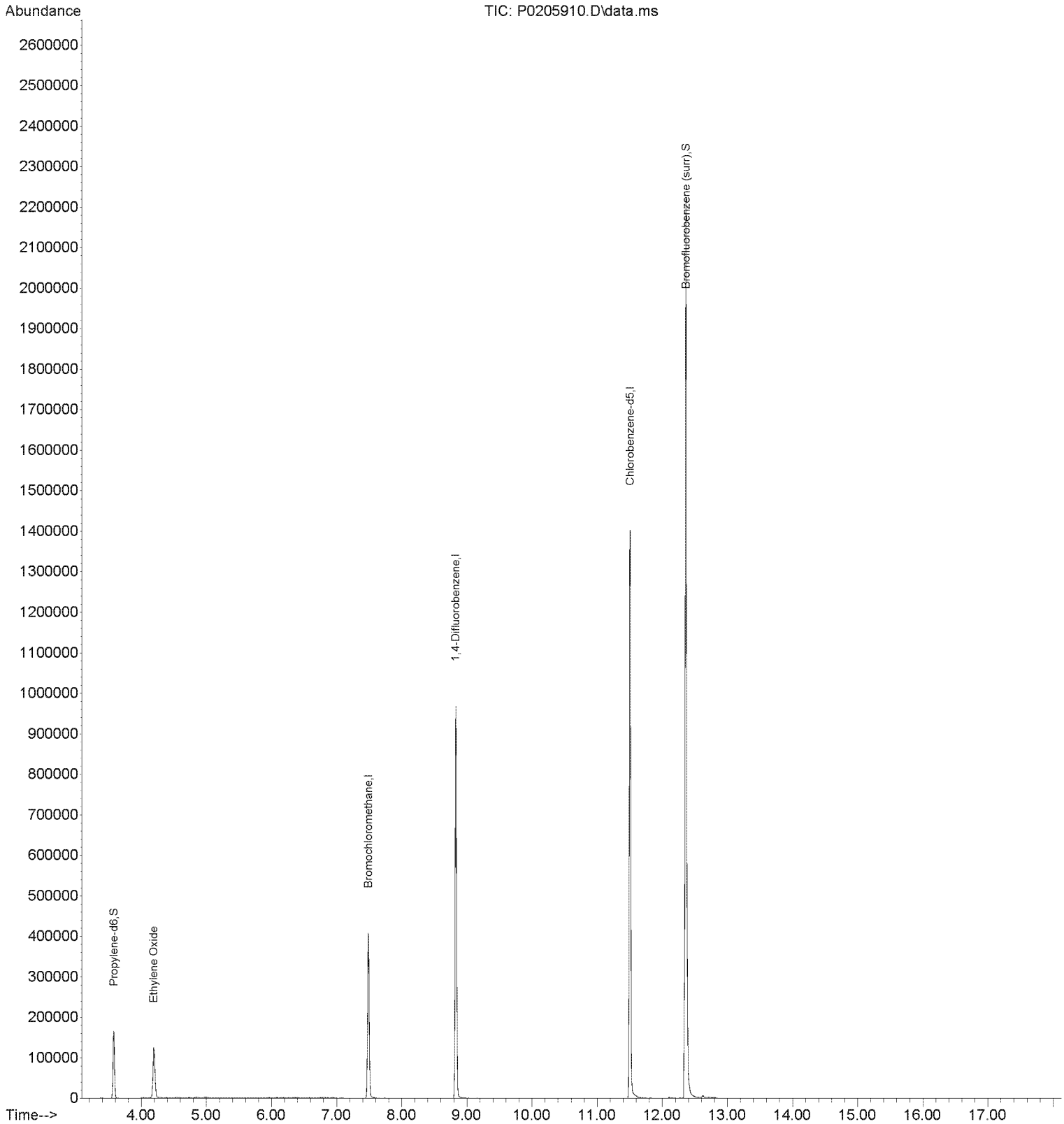
Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Bromochloromethane	7.489	128	309034	10.00 ppbv	0.00
4) 1,4-Difluorobenzene	8.832	114	1418256	10.00 ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1230215	10.00 ppbv	0.00
System Monitoring Compounds					
2) Propylene-d6	3.579	46	162302	9.79 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 97.90%		
6) Bromofluorobenzene (surr)	12.365	95	807513	9.91 ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 99.10%		
Target Compounds					Qvalue
3) Ethylene Oxide	4.192	29	123789	25.430 ppbv #	100

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\05\
Data File : P0205910.D
Acq On : 5 Feb 2019 7:28 pm
Operator : DJW
Sample : ASTD 25 PPBV IH681703A
Misc : IH681703,500
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 05 21:31:53 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:31:19 2019
Response via : Continuing Cal File: C:\MSDCHEM\1\DATA\2019\02\05\P0205908.D



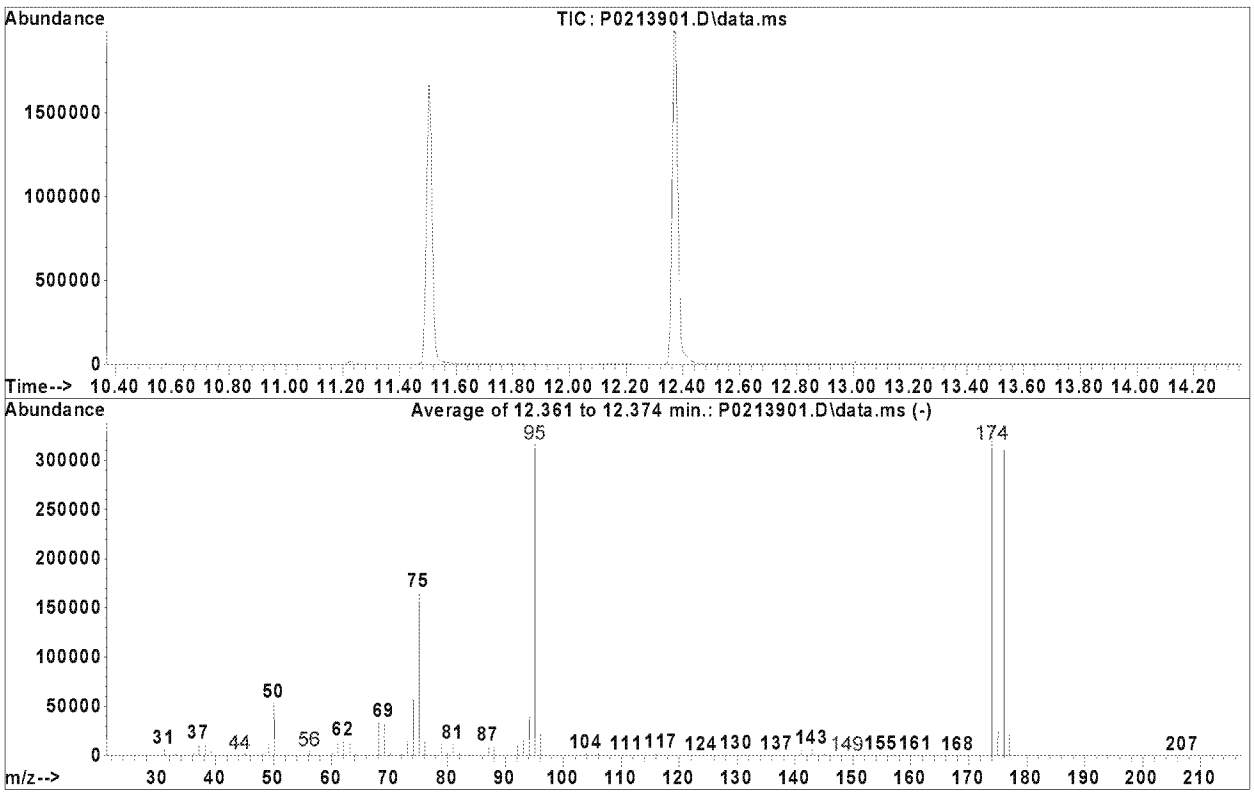
GC/MS
RAW QC DATA

BFB

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213901.D
Acq On : 13 Feb 2019 9:02 pm
Operator : DJW
Sample : BFB/PRIMER
Misc : BFB,WG435272,1
ALS Vial : 14 Sample Multiplier: 1

Integration File: rteint.p

Method : C:\MSDCHEM\1\methods\P190205E.M
Title :
Last Update : Tue Feb 05 21:35:06 2019



AutoFind: Scans 1494, 1495, 1496; Background Corrected with Scan 1488

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	16.9	53437	PASS
75	95	30	66	52.3	165848	PASS
95	95	100	100	100.0	317077	PASS
96	95	5	9	6.8	21408	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	102.0	323306	PASS
175	174	4	9	7.6	24423	PASS
176	174	93	101	96.2	310997	PASS
177	176	5	9	6.7	20840	PASS

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213907.D
Acq On : 13 Feb 2019 11:59 pm
Operator : DJW
Sample : BLANK
Misc : WG435272-1,WG435272,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Feb 14 07:00:25 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.493	128	313819	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1457298	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1233524	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.583	46	168469	10.20	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 102.00%			
6) Bromofluorobenzene (surr)	12.364	95	808018	10.03	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 100.30%			

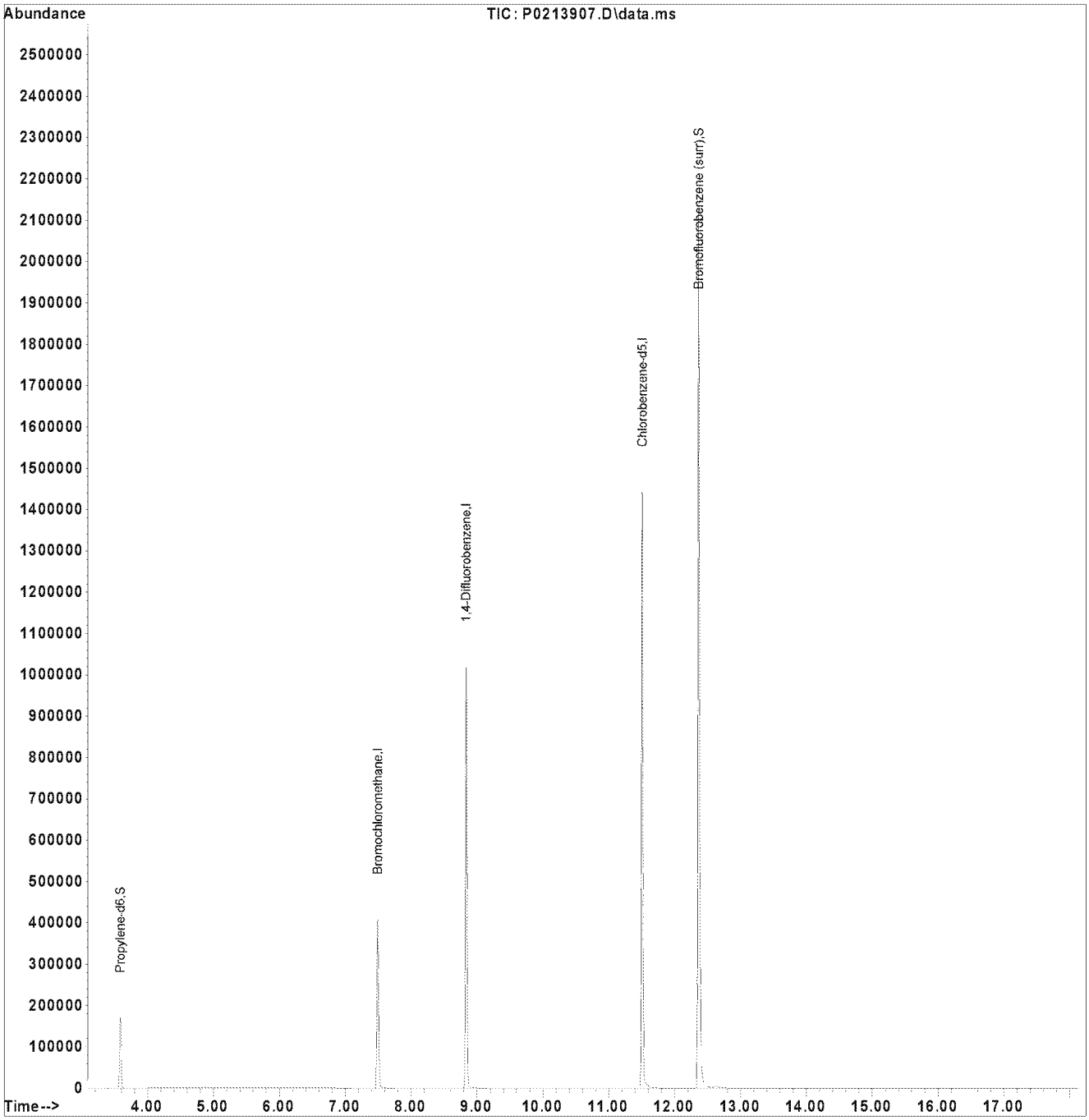
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213907.D
Acq On : 13 Feb 2019 11:59 pm
Operator : DJW
Sample : BLANK
Misc : WG435272-1,WG435272,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Feb 14 07:00:25 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration



LSC Area Percent Report

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213907.D
Acq On : 13 Feb 2019 11:59 pm
Operator : DJW
Sample : BLANK
Misc : WG435272-1,WG435272,1
ALS Vial : 13 Sample Multiplier: 1

Integration Parameters: rteint.p
Integrator: RTE
Smoothing : OFF Filtering: 5
Sampling : 1 Min Area: 1 % of largest Peak
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method : C:\MSDCHEM\1\methods\P190205E.M
Title :

Signal : TIC: P0213907.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.583	114	128	164	rBV	170622	277455	8.40%	3.506%
2	7.493	550	565	624	rBV	408954	720048	21.81%	9.100%
3	8.835	896	909	955	rBV	1019053	1550394	46.96%	19.593%
4	11.508	1570	1577	1624	rBV	1443664	2063541	62.50%	26.078%
5	12.364	1692	1695	1698	rBV	2146442	3301592	100.00%	41.723%

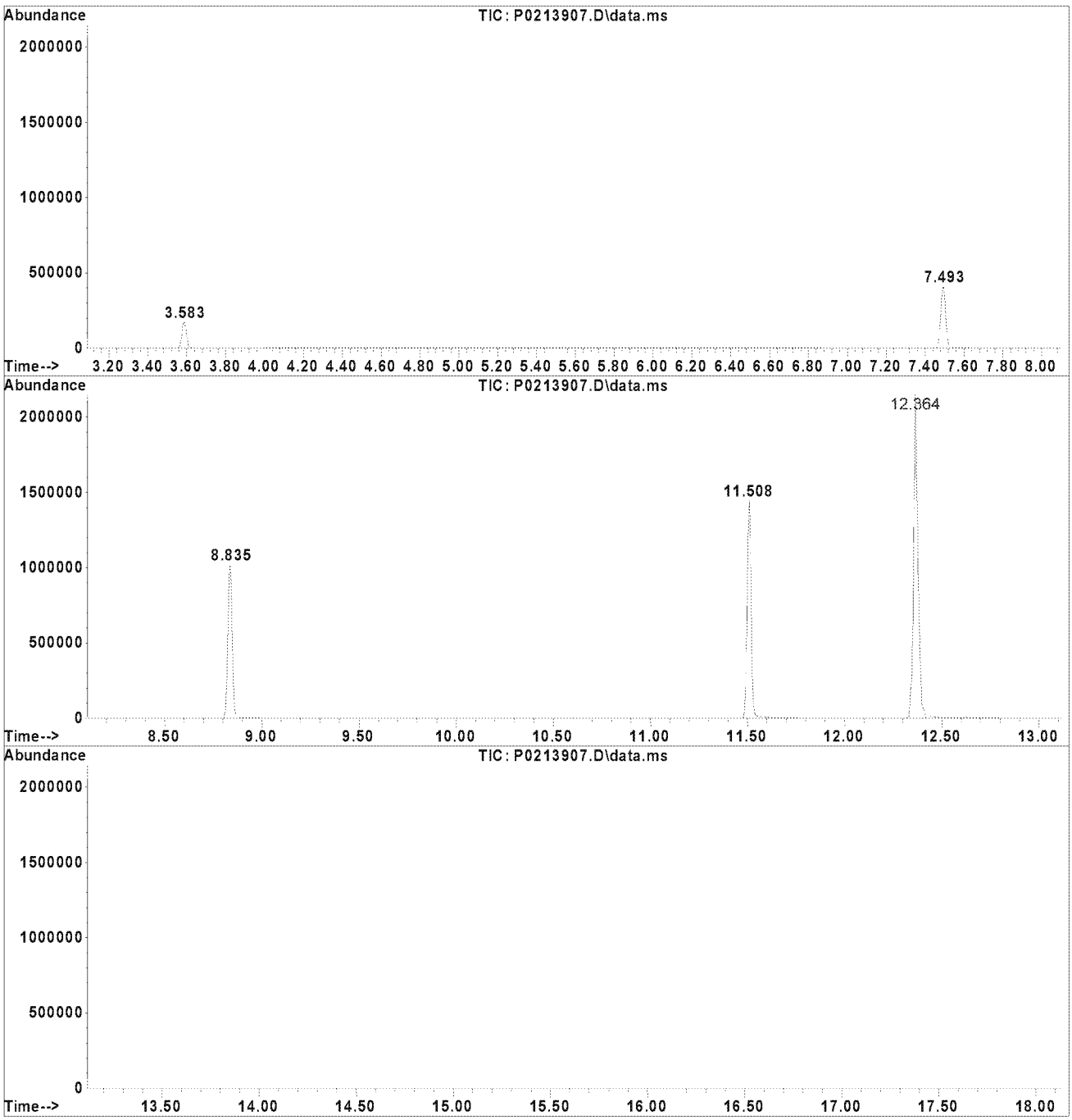
Sum of corrected areas: 7913030

LSC Report - Integrated Chromatogram

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213907.D
Acq On : 13 Feb 2019 11:59 pm
Operator : DJW
Sample : BLANK
Misc : WG435272-1,WG435272,1
ALS Vial : 13 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :

TIC Library : C:\Database\NIST08.L
TIC Integration Parameters: lscint.p



Tentatively Identified Compound (LSC) summary

```
Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\\
Data File : P0213907.D
Acq On    : 13 Feb 2019  11:59 pmm
Operator  : DJWW
Sample    : BLANKK
Misc      : WG435272-1,WG435272,11
ALS Vial  : 13   Sample Multiplier: 11

Quant Method : C:\MSDCHEM\1\methods\P190205E.MM
Quant Title  :

TIC Library   : C:\Database\NIST08.LL
TIC Integration Parameters: lscint.pp

                                                    |--Internal Standard---|
TIC Top Hit name      RT  EstConc Units Response |#    RT     Resp  Conc|
-----------------------------------------------------------------------------
```

No Library Search Compounds Detected
****

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213903.D
Acq On : 13 Feb 2019 9:58 pm
Operator : DJW
Sample : LCS 5 PPBV IH681739A
Misc : WG435272-2,IH681739,100
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Feb 14 10:59:43 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

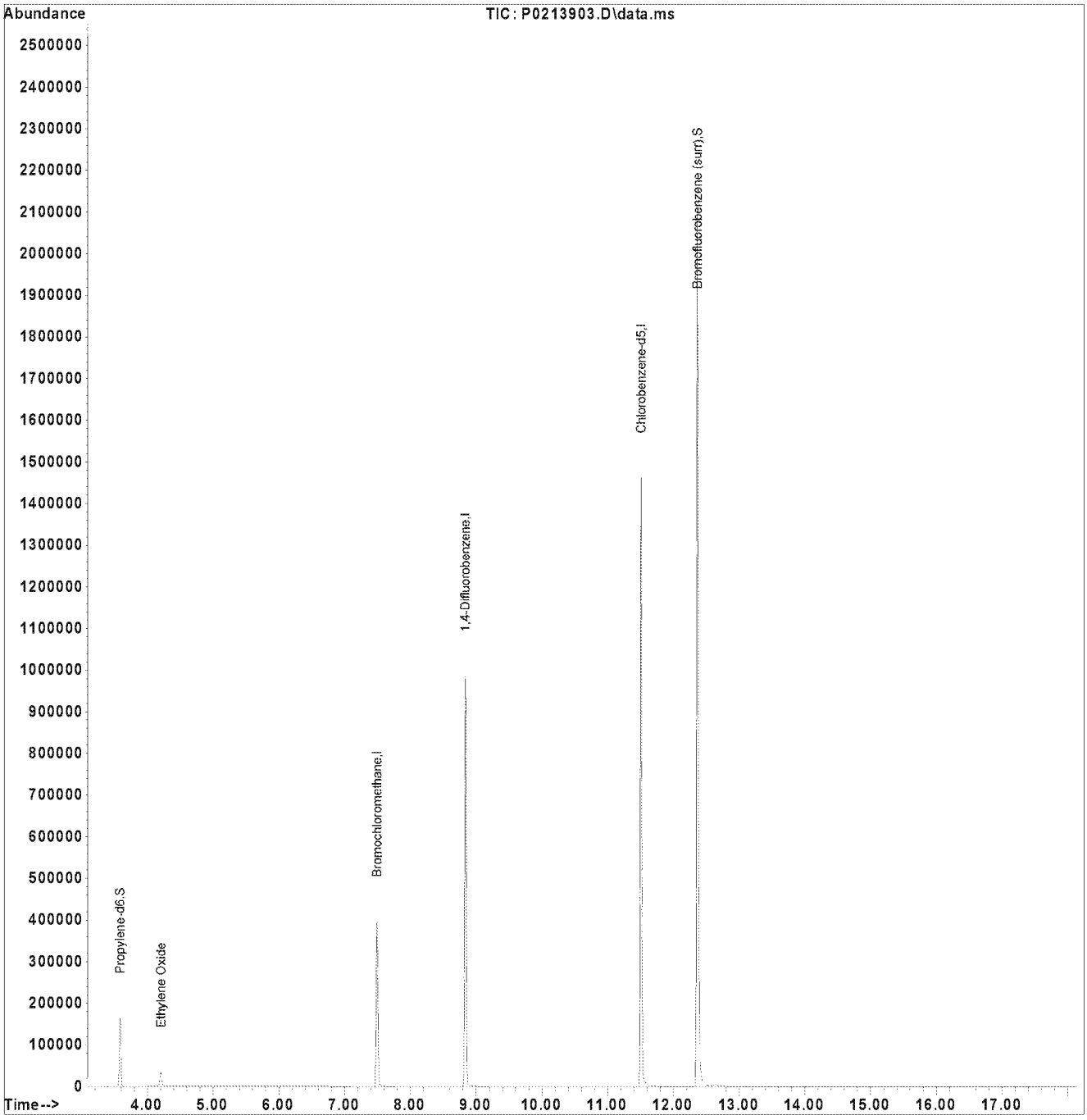
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.493	128	308241	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1434965	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1229944	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.583	46	162946	10.04	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 100.40%			
6) Bromofluorobenzene (surr)	12.364	95	809152	10.07	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 100.70%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.205	29	30516m	5.560	ppbv	

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213903.D
Acq On : 13 Feb 2019 9:58 pm
Operator : DJW
Sample : LCS 5 PPBV IH681739A
Misc : WG435272-2,IH681739,100
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Feb 14 10:59:43 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213904.D
Acq On : 13 Feb 2019 10:27 pm
Operator : DJW
Sample : LCSD 5 PPBV IH681739A
Misc : WG435272-3,IH681739,100
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Feb 14 10:59:58 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

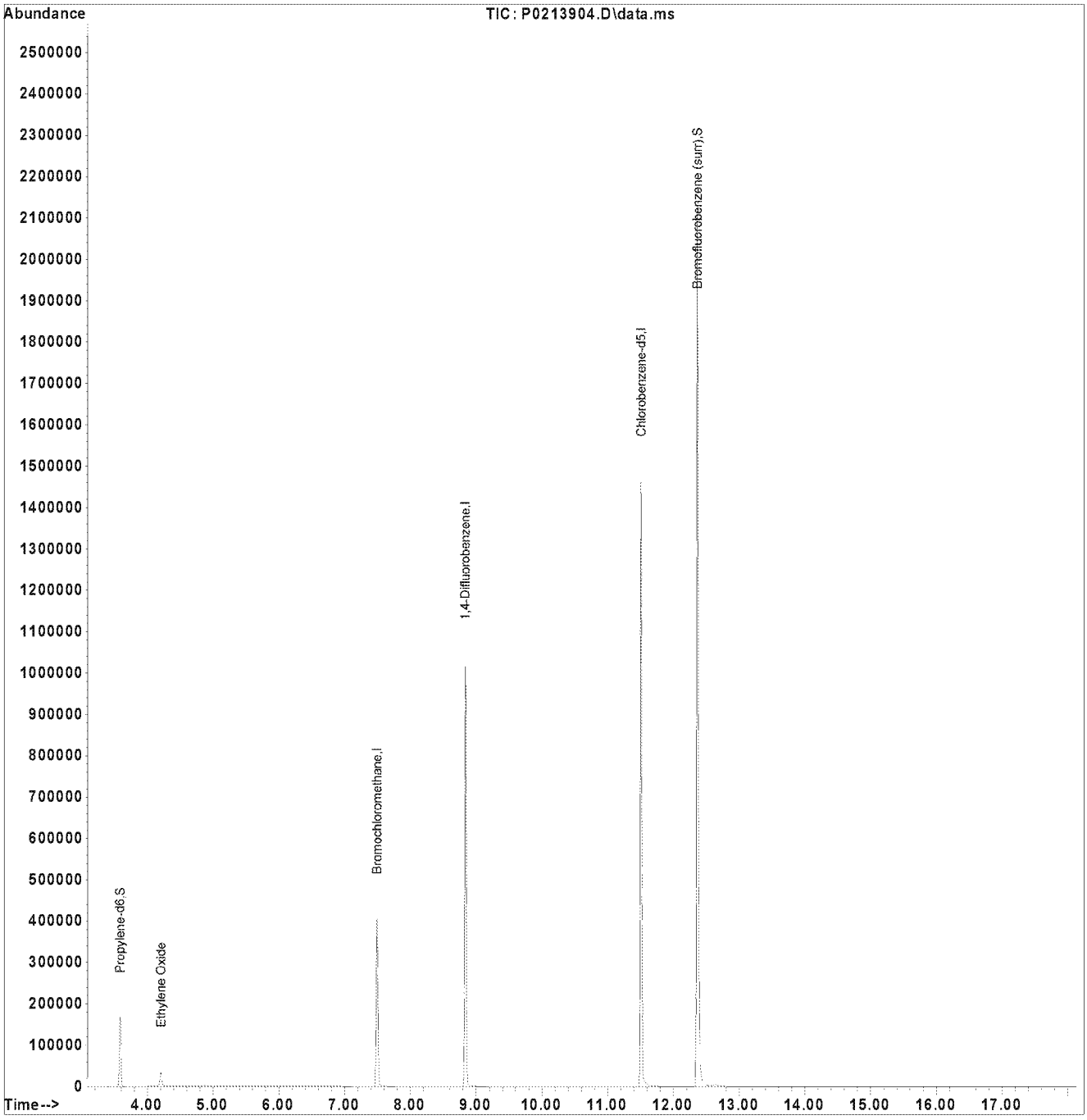
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.493	128	310460	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1462578	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1242391	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.583	46	164884	10.09	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 100.90%			
6) Bromofluorobenzene (surr)	12.364	95	820754	10.11	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 101.10%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.205	29	31380m	5.676	ppbv	

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213904.D
Acq On : 13 Feb 2019 10:27 pm
Operator : DJW
Sample : LCSD 5 PPBV IH681739A
Misc : WG435272-3,IH681739,100
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Feb 14 10:59:58 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213906.D
Acq On : 13 Feb 2019 11:23 pm
Operator : DJW
Sample : DLS 0.04 PPBV IH681704A
Misc : WG435272-4,IH681704,40
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 14 06:59:35 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration

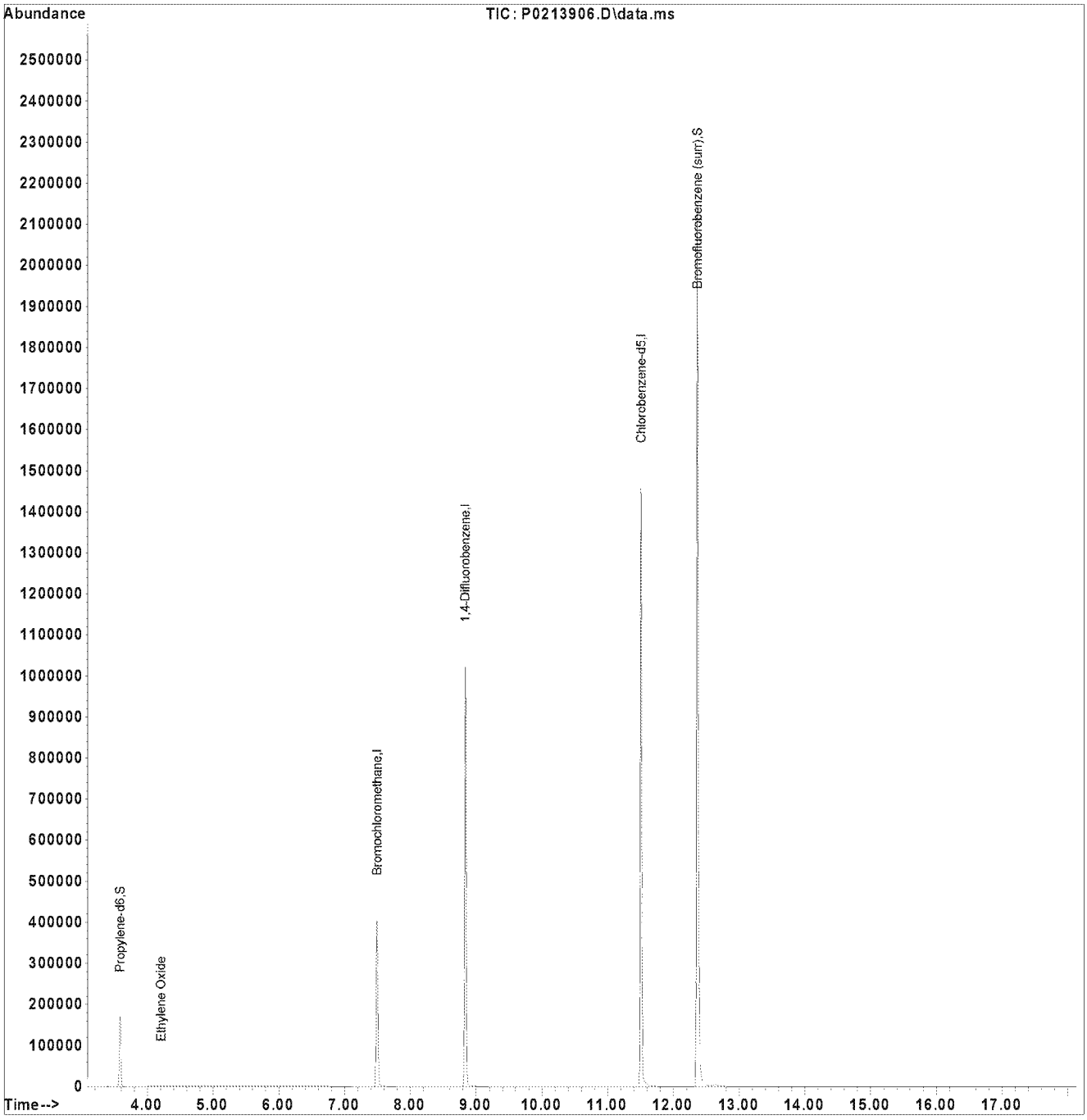
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.493	128	312276	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1456060	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1232277	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.583	46	166749	10.14	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 101.40%			
6) Bromofluorobenzene (surr)	12.364	95	808864	10.05	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 100.50%			
Target Compounds						Qvalue
3) Ethylene Oxide	4.205	29	278	0.050	ppbv #	100

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\02\13A\
Data File : P0213906.D
Acq On : 13 Feb 2019 11:23 pm
Operator : DJW
Sample : DLS 0.04 PPBV IH681704A
Misc : WG435272-4,IH681704,40
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 14 06:59:35 2019
Quant Method : C:\MSDCHEM\1\methods\P190205E.M
Quant Title :
QLast Update : Tue Feb 05 21:35:06 2019
Response via : Initial Calibration



GCMS Sample Calculations

Relative Response Factor (RRF)

$$\text{RRF} = \frac{(\text{Ax})(\text{Cis})}{(\text{Ais})(\text{Cx})}$$

Where: Ax =Area of the characteristic ion for the compound being measured in the sample.
Ais = Area of the characteristic ion for the corresponding internal standard.
Cx = concentration of the compound being measured
Cis = concentration of the internal standard

Percent Relative Standard Deviation (%RSD)

$$\%\text{RSD} = \frac{(\text{Standard deviation of RRF values})(100)}{(\text{mean RRF})}$$

Percent Difference (%D)

$$\%\text{D} = \frac{(\text{RRFc}) - (\text{mean RRFi})(100)}{(\text{mean RRFi})}$$

Where: RRFc =relative response factor from the continuing calibration.
Mean RRFi = mean relative response factor from the initial calibration.

Whole Air Canister Samples

$$\mathbf{ppbv} = \frac{(\text{Ax})(\text{IS})(\text{Df})}{(\text{Ais})(\text{RRFi})} \; ; \; \frac{\mathbf{ug}}{\mathbf{m3}} = \frac{(\text{ppbv})(\text{MW})}{24.45}$$

Where: Ax =Area of the characteristic ion for the compound being measured in the sample
Df = Dilution factor
Ais = Area of the characteristic ion for the corresponding internal standard.
IS = Concentration of the Internal Standard injected in ppbv
RRFi = Mean relative response factor (from initial calibration) for the compound being measured.
MW= Molecular Weight of analyte

Note: TICs are calculated using a RRF of 1. The ug/m3 value is calculated using the MW of the most probable TIC from the library comparison.

TO-17 Thermal Desorption Tubes

$$\mathbf{ng} = \frac{(\text{Ax})(\text{IS})(\text{Df})}{(\text{Ais})(\text{RRFi})} \; ; \; \frac{\mathbf{ug}}{\mathbf{m3}} = \left(\frac{\text{ng}}{\text{air vol (L)}}\right)\left(\frac{1\text{ug}}{1000\text{ng}}\right)\left(\frac{1000\text{L}}{1\text{m3}}\right) \; ; \; \mathbf{ppbv} = \frac{\left(\frac{\text{ug}}{\text{m3}}\right)(24.45)}{(\text{MW})}$$

Where: Ax =Area of the compound characteristic ion in the sample.
Ais = Area of the characteristic ion for the corresponding internal standard.
IS = Amount of internal standard in ng
RRFi = Mean relative response factor (from initial calibration) for the compound being measured.
Df = Dilution Factor (Dilution Factor = 1 for tube splits and multiple tube splits)
Air vol = sample volume in L

EPA325b Passive Thermal Desorption Tubes

$$\mathbf{ng} = \frac{(Ax)(IS)(Df)}{(Ais)(RRFi)}; \frac{\mathbf{ug}}{\mathbf{m3}} = \left(\frac{(ng)\left(\frac{ug}{1000ng}\right)}{(SR)(time)\left(\frac{m3}{10^6 mL}\right)}\right); \mathbf{ppbv} = \frac{\left(\frac{ug}{m3}\right)(24.45)}{(MW)}$$

Where: Ax =Area of the compound characteristic ion in the sample.
Ais = Area of the characteristic ion for the corresponding internal standard.
IS = Amount of internal standard in ng
RRFi = Mean relative response factor (from initial calibration) for the compound being measured.
Df = Dilution Factor
time = time sampled
SR = Diffusive Sampling Rate for the compound being measured

Radiello

$$\mathbf{ng} = \frac{(Ax)(IS)(Df)}{(Ais)(RRFi)} \; ; \; \frac{\mathbf{ug}}{\mathbf{m3}} = \frac{\left(\frac{M}{1ul\ injection}\right)\left(\frac{1000ul}{1ml}\right)\left(\frac{1ug}{1000ng}\right)(2ml\ final\ vol)}{(t)(Qk)\left(\frac{1L}{1000ml}\right)\left(\frac{1m3}{1000L}\right)} \; ; \; \mathbf{ppbv} = \frac{\left(\frac{ug}{m3}\right)(24.45)}{(MW)}$$

Where: M =mass of the analyte in ng
Qk = Sampling rate of the analyte in ml/min
t = exposure time in minutes
MW = molecular weight of analyte

TVOC s

$$\textbf{Total VOCs as "Comp"} = \frac{\sum_{n=1}^{\infty}(A_n) - \sum(A_{sys})}{RF}$$

$$\textbf{RF canister} = \frac{A_{Comp}}{(C) * \left(\frac{MW}{24.45}\right)} \; ; \textbf{RF tube} = \frac{A_{Comp}}{(C)}$$

Where:

- Ax = peak areas of all peaks in the chromatogram
- A_{Sys} = area of known "system" peaks like the internal standard, CO2 or siloxanes.
- RF = response factor for a compound ("comp" = either heptane (LEEDs 2009) or toluene (LEEDs v4)).
- A_{Comp} = peak area of either heptane or toluene
- MW = molecular weight of heptane or toluene
- C = concentration of heptane or toluene in the opening CCV for the analytical sequence

GC/MS
INJECTION LOG

----------SEQUENCE TABLE ----------

Sequence Name: C:\Smart\2019\02\P021319A.SEQ
Date: 02-14-2019
Time: 14:37:57
Int. Std Volume: 50 cc

Sample Name	Inlet #	Auto Samp Pos	Cal Vol.	Std Vol.	Method	Time
BFB/PRIMER	1	14	100	0	C:\Smart\P181009E.CTD	12:00
CCV 5 PPBV-------	1	16	100	0	C:\Smart\P181009E.CTD	12:00
LCS 5 PPBV------	1	15	100	0	C:\Smart\P181009E.CTD	12:00
LCSD 5 PPBV------	1	15	100	0	C:\Smart\P181009E.CTD	12:00
BLANK	1	13	100	0	C:\Smart\P181009E.CTD	12:00
DLS 0.04 PPBV-----	1	14	40	0	C:\Smart\P181009E.CTD	12:00
BLANK	1	13	500	0	C:\Smart\P181009E.CTD	12:00
GHD 1X1 L470798-01	1	1	500	0	C:\Smart\P181009E.CTD	12:00
GHD 1X1 L470798-02	1	2	500	0	C:\Smart\P181009E.CTD	12:00
GHD 1X1 L470798-03	1	3	500	0	C:\Smart\P181009E.CTD	12:00
GHD 1X1 L470798-04	1	4	500	0	C:\Smart\P181009E.CTD	12:00
GHD 1X1 L470798-05	1	5	500	0	C:\Smart\P181009E.CTD	12:00
GHD 1X1 L470798-06	1	6	500	0	C:\Smart\P181009E.CTD	12:00
GHD 1X1 L470798-07	1	7	500	0	C:\Smart\P181009E.CTD	12:00
GHD 1X1 L470798-08	1	8	500	0	C:\Smart\P181009E.CTD	12:00
GHD 1X1 L470798-09	1	9	500	0	C:\Smart\P181009E.CTD	12:00
GHD 1X1 L470798-10	1	10	500	0	C:\Smart\P181009E.CTD	12:00
GHD 1X1 L470798-11	1	11	500	0	C:\Smart\P181009E.CTD	12:00
CCV 5 PPBV-------	1	16	100	0	C:\Smart\P181009E.CTD	12:00

SAP
2-14-19

GC/MS
STANDARDS LOG

4700 Precision Diluter Standards Preparation Report

Date: 1/28/2019 7:57:10 AM

Dilution ID: 904

Report ID: IH681703A

Canister Size: 6000cc **Canister ID:** WL271; SN: 24045 **Target Final Psia:** 30 **Prepared By:** DJW

Comment: 90 UL H2O, D1847

Channel Methods

Ch.	Title	Init. Conc.	Target Conc.	Dilution Factor	Init. Psia	Target Psid	Final Psid	Target Psia	Final Psia	Duration	Final Conc.
1	Diluent	100 percent	100 percent	1	0.22	11.70	11.70	11.92	11.92	00:05:45	N/A
2	ETOX stock	995 ppb	25 ppb	39.8	11.92	0.75	0.76	12.67	12.68	00:02:17	25.39 ppb
1	Diluent	100 percent	100 percent	1	12.68	17.32	17.32	30.00	30.00	00:06:54	N/A

Total Duration: 00:15:02

Channel Configuration and Standards Inventory

Ch.	Source	Init. Conc.	Cylinder ID	Expiration Date	Notes
1	Diluent	100 percent		12/31/2019	
2	ETOX stock	995 ppb	FF20160	10/1/2019	REF 32329

4700 Precision Diluter Standards Preparation Report

Date: 1/28/2019 8:28:48 AM

Dilution ID: 905

Report ID: IH681704A

Canister Size: 6000cc **Canister ID:** WL273; SN: 24043 **Target Final Psia:** 30 **Prepared By:** DJW

Comment: 90 UL H2O, D1847, from IH681703A

Channel Methods

Ch.	Title	Init. Conc.	Target Conc.	Dilution Factor	Init. Psia	Target Psid	Final Psid	Target Psia	Final Psia	Duration	Final Conc.
1	Diluent	100 percent	100 percent	1	0.27	11.65	11.65	11.93	11.93	00:05:37	N/A
6	Re-Dilute	25 ppb	0.5 ppb	50	11.93	0.59	0.59	12.52	12.52	00:02:31	0.5 ppb
1	Diluent	100 percent	100 percent	1	12.52	17.48	17.48	30.00	30.00	00:06:16	N/A

Total Duration: 00:14:31

Channel Configuration and Standards Inventory

Ch.	Source	Init. Conc.	Cylinder ID	Expiration Date	Notes
1	Diluent	100 percent		12/31/2019	
6	Re-Dilute	25 ppb		12/27/2018	

4700 Precision Diluter Standards Preparation Report

Date: 1/28/2019 9:23:44 AM

Dilution ID: 906

Report ID: IH681739A

Canister Size: 6000cc **Canister ID:** WL281 S/N 24053 **Target Final Psia:** 30

Prepared By: BHB

Comment: 90 ul H2O SYR ID: D1847

Channel Methods

Ch.	Title	Init. Conc.	Target Conc.	Dilution Factor	Init. Psia	Target Psid	Final Psid	Target Psia	Final Psia	Duration	Final Conc.
1	Diluent	100 percent	100 percent	1	0.32	11.61	11.61	11.93	11.93	00:05:35	N/A
2	ETOX stock	995 ppb	25 ppb	39.8	11.93	0.75	0.75	12.68	12.68	00:02:24	25.13 ppb
1	Diluent	100 percent	100 percent	1	12.68	17.32	17.33	30.00	30.01	00:06:43	N/A

Total Duration: 00:14:49

Channel Configuration and Standards Inventory

Ch.	Source	Init. Conc.	Cylinder ID	Expiration Date	Notes
1	Diluent	100 percent		12/31/2019	
2	ETOX stock	995 ppb	FF20160	10/1/2019	REF 32329

4700 Precision Diluter Standards Preparation Report

Date: 1/25/2019 2:27:35 PM

Dilution ID: 901

Report ID: IH681690A

Canister Size: 6000cc **Canister ID:** 10685/WL030 **Target Final Psia:** 45

Prepared By: BLD

Comment: 90 ul H2O D1847

Channel Methods

Ch.	Title	Init. Conc.	Target Conc.	Dilution Factor	Init. Psia	Target Psid	Final Psid	Target Psia	Final Psia	Duration	Final Conc.
1	Diluent	100 percent	100 percent	1	0.30	11.66	11.66	11.95	11.95	00:05:52	N/A
3	IS stock	1000 ppb	100 ppb	10	11.95	4.47	4.47	16.42	16.42	00:03:37	99.99 ppb
1	Diluent	100 percent	100 percent	1	16.42	28.58	28.58	45.00	45.00	00:07:05	N/A

Total Duration: 00:16:42

Channel Configuration and Standards Inventory

Ch.	Source	Init. Conc.	Cylinder ID	Expiration Date	Notes
1	Diluent	100 percent		12/31/2019	
3	IS stock	1000 ppb	CC267376	3/30/2019	REF 31312

Galson Chemical Inventory Report

10/09/2018 09:16

Ref	Description	Location	Dept	Date Received	Expire Date	Dispose Date	D
32329	ETHYLENE OXIDE	LAB 3M-3	18MS	10/09/2018	10/01/2019		

Vendor Air ***Manufacturer*** AIRGAS ***Lot No*** 163-401311324-1

Comments

Cas Num	Chemical Name	% Purity	Conc(ug/mL)
75-21-8	ETHYLENE OXIDE		1

Galson Chemical Inventory Report

06/14/2018 11:14

Ref	Description	Location	Dept	Date Received	Expire Date	Dispose Date	D
31312	INTERNAL/TUNING STD	LAB 3	18MS	04/13/2018	03/30/2019		

Vendor Linde Gases ***Manufacturer*** LINDE ***Lot No*** 1450115

Comments TO-15 Internal Standard

Cas Num	Chemical Name	% Purity	Conc(ug/mL)
1517-52-8	Propene-d6		.9
3114-55-4	CHLOROBENZENE-D5		1.06
460-00-4	4-BROMOFLUOROBENZENE		1.04
540-36-3	1,4-DIFLUOROBENZENE		1.02
74-97-5	CHLOROBROMOMETHANE		1.02

SGS GALSON

Galson Labs
Standards Report
01/28/2019 07:51:12

Lot IH681703

Description ETHYLENE OXIDE CCV

Operator DWALTER **Prep Date** 01/28/2019 **Expiration Date** 02/28/2019

Stock:

Ref#	Compound Name	Stock Conc	Units	Final Conc	Units
32329	ETHYLENE OXIDE	.995	PPBV	25	PPBV

SGS GALSON

Galson Labs
Standards Report
01/28/2019 08:24:07

Lot IH681704

Description ETHYLENE OXIDE DLS (from IH681703A)

Operator DWALTER **Prep Date** 01/28/2019 **Expiration Date** 02/28/2019

Stock:

Ref#	Compound Name	Stock Conc	Units	Final Conc	Units
32329	ETHYLENE OXIDE	.995	PPBV	.5	PPBV

SGS GALSON

Galson Labs
Standards Report
01/28/2019 09:24:05

Lot IH681739

Description ETHYLENE OXIDE LCS

Operator BBUSH **Prep Date** 01/28/2019 **Expiration Date** 02/28/2019

Stock:

Ref#	Compound Name	Stock Conc	Units	Final Conc	Units
32329	ETHYLENE OXIDE	.995	PPBV	25	PPBV

SGS GALSON

Galson Labs
Standards Report
01/25/2019 13:03:09

Lot IH681690

Description 100 ppb Internal Standard/Surrogate with Propene-d6

Operator BDICAPRIO **Prep Date** 01/25/2019 **Expiration Date** 02/25/2019

Stock:

Ref#	Compound Name	Stock Conc	Units	Final Conc	Units
31312	1,4-DIFLUOROBENZENE		PPB		PPB

GC/MS
MINICAN CLEANING DATA

SGS GALSON

TO-15 Canister Cleaning Log

Batch Certified

Report run on: February 15, 2019 9:21 AM

QC Batch No.: WAC3336 **Cleaning Date:** 12/27/18

Canister No. for QC WL172 **Can Size:** 6 L

Number of Heat Cycles: 6 **Number of No-heat Cycles:**

Timer S/N: 170505574 **Held:** 30 **mins**

Comments: etox

Blank	Analysis	Approved by	Date	Pass/Fail
WG431430-2	IT-ETOX			

Can ID	Initial Press.("Hg)	Initial Press. Date/Time	Final Press.("Hg)	Final Press. Date/Time	Sent in Prep	Ship Press.("Hg)	Ship Press. Date/Time	Sample Number
WL172	-29.9	12/27/18 09:00	-29.8	01/02/19 10:44	PSY513143	-29	01/24/19 10:27	L470798-11

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2018\12\27A\
Data File : P1227819.D
Acq On : 27 Dec 2018 11:56 pm
Operator : DJW
Sample : WAC3336,WG431430-2
Misc : WG431430-2,WG431430,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 28 08:49:45 2018
Quant Method : C:\MSDCHEM\1\methods\P181227E.M
Quant Title :
QLast Update : Fri Dec 28 07:52:40 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.489	128	424418	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1997755	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1709151	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.583	46	309727	9.82	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 98.20%			
6) Bromofluorobenzene (surr)	12.364	95	1162416	9.96	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 99.60%			

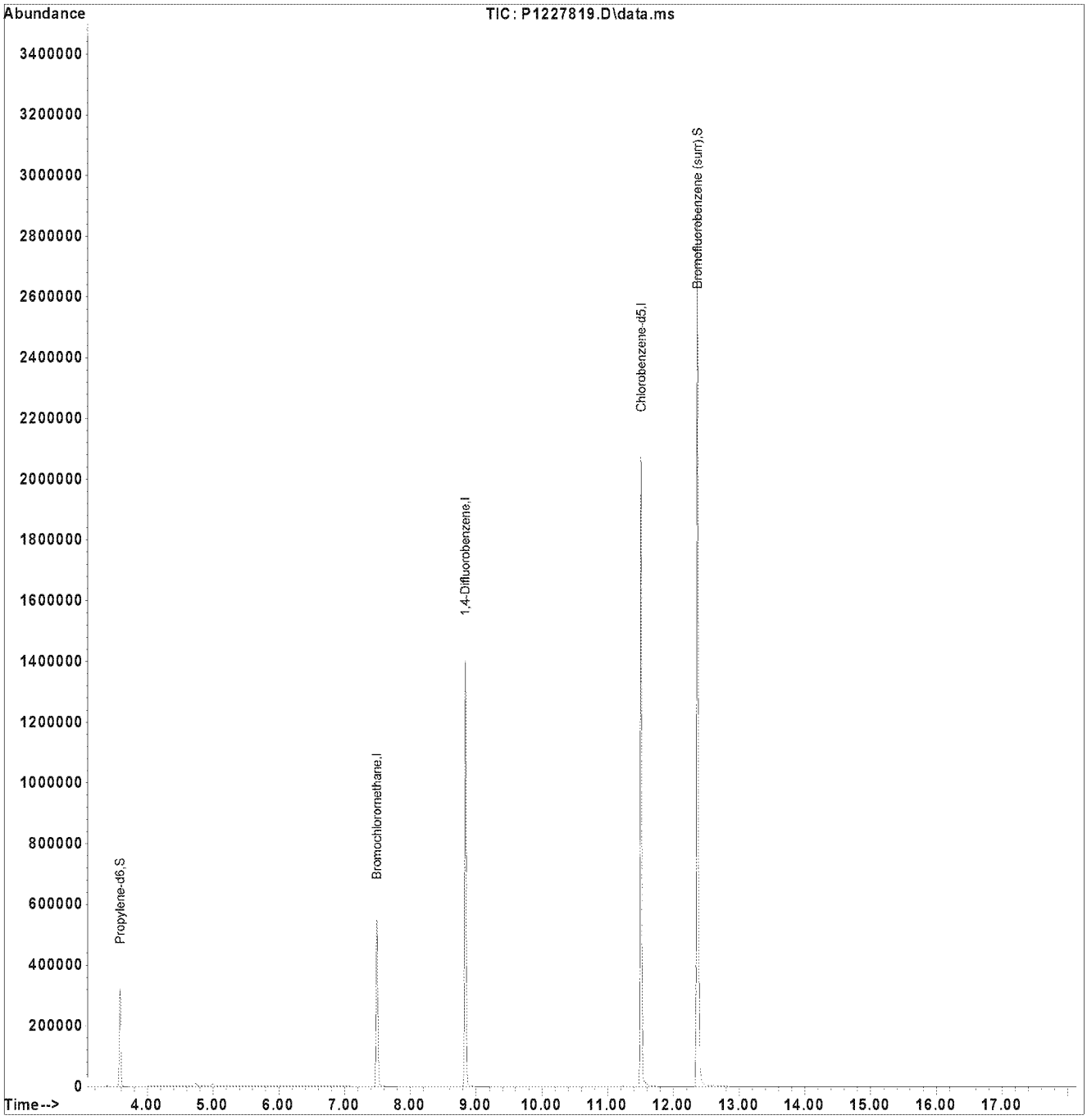
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2018\12\27A\
Data File : P1227819.D
Acq On : 27 Dec 2018 11:56 pm
Operator : DJW
Sample : WAC3336,WG431430-2
Misc : WG431430-2,WG431430,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Dec 28 08:49:45 2018
Quant Method : C:\MSDCHEM\1\methods\P181227E.M
Quant Title :
QLast Update : Fri Dec 28 07:52:40 2018
Response via : Initial Calibration



LSC Area Percent Report

Data Path : C:\MSDCHEM\1\DATA\2018\12\27A\
Data File : P1227819.D
Acq On : 27 Dec 2018 11:56 pm
Operator : DJW
Sample : WAC3336,WG431430-2
Misc : WG431430-2,WG431430,1
ALS Vial : 3 Sample Multiplier: 1

Integration Parameters: rteint.p
Integrator: RTE
Smoothing : OFF Filtering: 5
Sampling : 1 Min Area: 1 % of largest Peak
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method : C:\MSDCHEM\1\methods\P181227E.M
Title :

Signal : TIC: P1227819.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.583	116	128	176	rBV	322042	510771	11.61%	4.657%
2	7.493	549	565	639	rBV	550357	971769	22.08%	8.860%
3	8.835	894	909	970	rBV	1402007	2127565	48.34%	19.397%
4	11.508	1570	1577	1639	rBV	2074019	2957305	67.20%	26.962%
5	12.364	1692	1695	1698	rBV	2917134	4400905	100.00%	40.124%

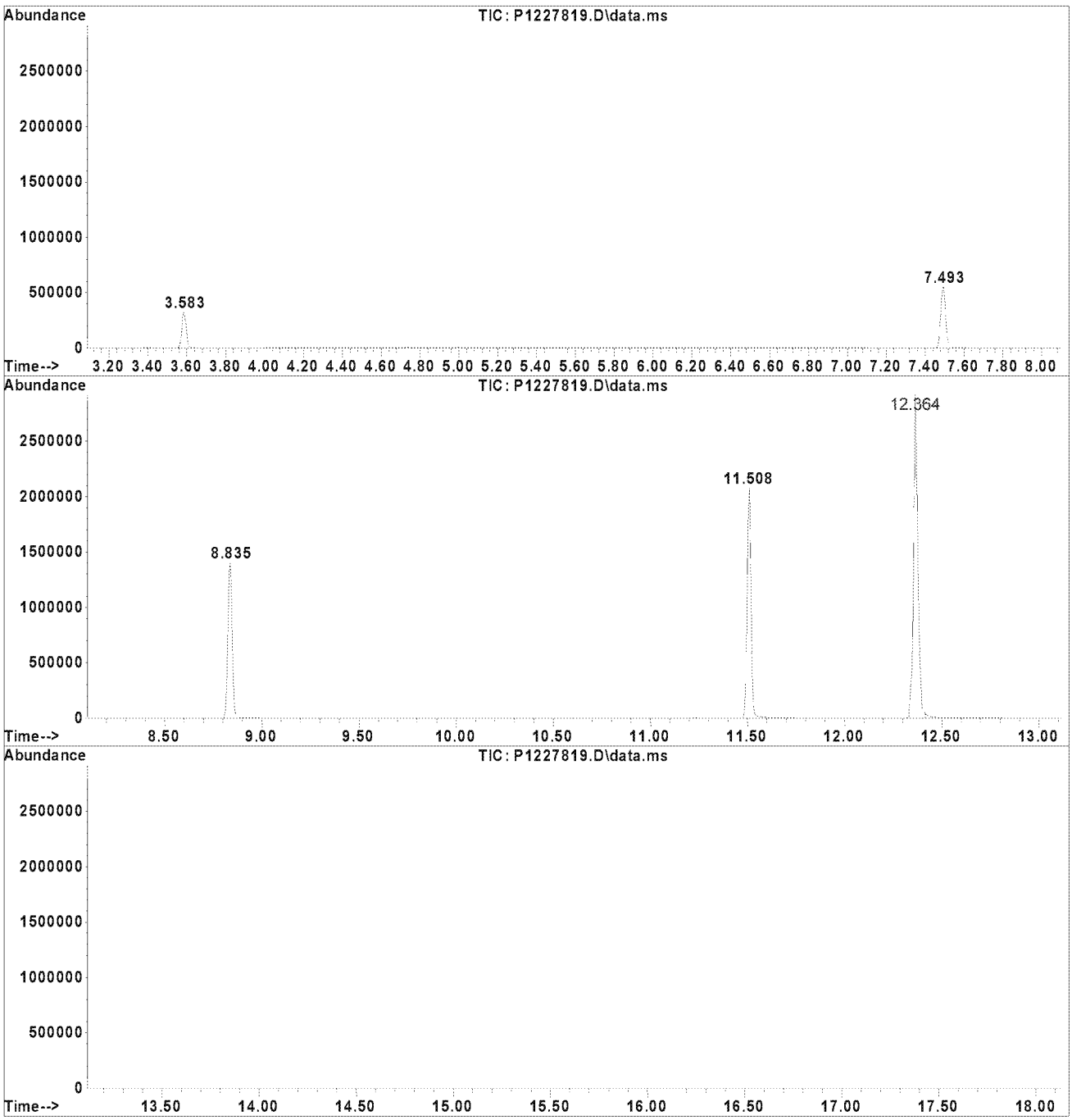
Sum of corrected areas: 10968315

LSC Report - Integrated Chromatogram

Data Path : C:\MSDCHEM\1\DATA\2018\12\27A\
Data File : P1227819.D
Acq On : 27 Dec 2018 11:56 pm
Operator : DJW
Sample : WAC3336,WG431430-2
Misc : WG431430-2,WG431430,1
ALS Vial : 3 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\methods\P181227E.M
Quant Title :

TIC Library : C:\Database\NIST08.L
TIC Integration Parameters: lscint.p



Tentatively Identified Compound (LSC) summary

```
Data Path : C:\MSDCHEM\1\DATA\2018\12\27A\\
Data File : P1227819.D
Acq On    : 27 Dec 2018  11:56 pmm
Operator  : DJWW
Sample    : WAC3336,WG431430-22
Misc      : WG431430-2,WG431430,11
ALS Vial  : 3   Sample Multiplier: 11

Quant Method : C:\MSDCHEM\1\methods\P181227E.MM
Quant Title  :

TIC Library   : C:\Database\NIST08.LL
TIC Integration Parameters: lscint.pp

                                                    |--Internal Standard---|
TIC Top Hit name      RT  EstConc Units Response |#    RT     Resp  Conc|
-----------------------------------------------------------------------------
```

No Library Search Compounds Detected
****

TO-15 Canister Cleaning Log

Batch Certified

Report run on: February 15, 2019 9:21 AM

QC Batch No.: **WAC3344**
Cleaning Date: 01/09/19
Canister No. for QC WL076
Can Size: 6 L
Number of Heat Cycles: 6
Number of No-heat Cycles:
Timer S/N: 170505574
Held: 30 **mins**
Comments: ETOX canisters

Blank	Analysis	Approved by	Date	Pass/Fail
WG432461-7	IT-ETOX	SPUTRELO	01/23/19 09:46	PASS

Can ID	Initial Press.("Hg)	Initial Press. Date/Time	Final Press.("Hg)	Final Press. Date/Time	Sent in Prep	Ship Press.("Hg)	Ship Press. Date/Time	Sample Number
WL004	-29.9	01/11/19 12:22	-29.63	01/16/19 16:44	PSY513143	-29.1	01/24/19 11:10	L470798-1
WL077	-29.88	01/11/19 12:35	-29.61	01/16/19 16:44	PSY513143	-29.05	01/24/19 11:49	L470798-10
WL201	-29.9	01/11/19 12:21	-29.61	01/16/19 16:40	PSY513143	-29.09	01/24/19 11:12	L470798-5
WL253	-29.89	01/11/19 12:20	-28.95	01/16/19 16:42	PSY513143	-28.5	01/24/19 11:11	L470798-7

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\01\14A\
Data File : P0114909.D
Acq On : 14 Jan 2019 2:26 pm
Operator : DJW
Sample : WAC3344,WG432461-7
Misc : WG432461-7,WG432461,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 16 09:33:07 2019
Quant Method : C:\MSDCHEM\1\methods\P181227E.M
Quant Title :
QLast Update : Fri Dec 28 07:52:40 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.489	128	349669	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.832	114	1635017	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1482851	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.579	46	258345	9.94	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 99.40%			
6) Bromofluorobenzene (surr)	12.364	95	1029628	10.17	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 101.70%			

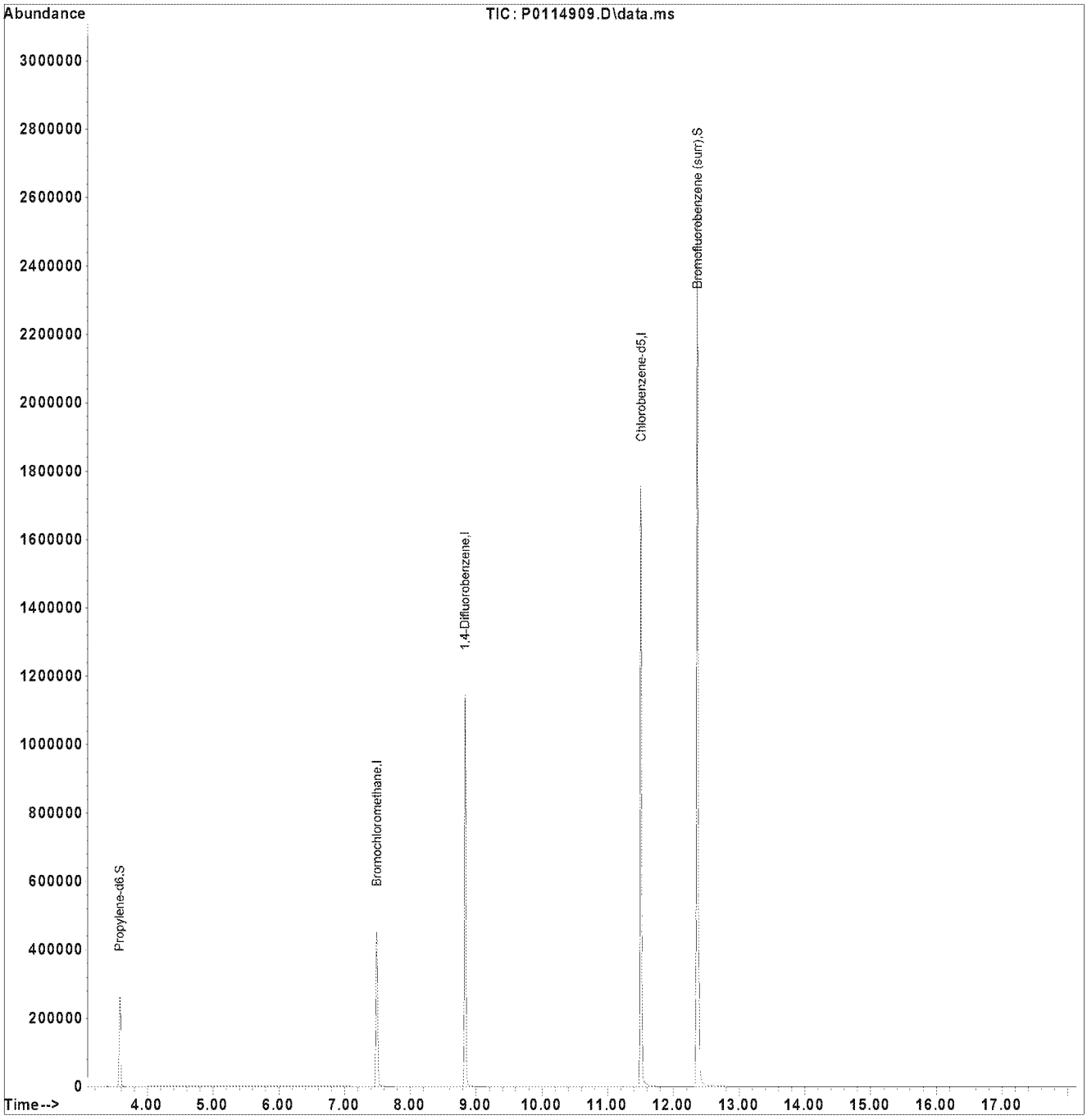
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\01\14A\
Data File : P0114909.D
Acq On : 14 Jan 2019 2:26 pm
Operator : DJW
Sample : WAC3344,WG432461-7
Misc : WG432461-7,WG432461,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jan 16 09:33:07 2019
Quant Method : C:\MSDCHEM\1\methods\P181227E.M
Quant Title :
QLast Update : Fri Dec 28 07:52:40 2018
Response via : Initial Calibration



LSC Area Percent Report

Data Path : C:\MSDCHEM\1\DATA\2019\01\14A\
Data File : P0114909.D
Acq On : 14 Jan 2019 2:26 pm
Operator : DJW
Sample : WAC3344,WG432461-7
Misc : WG432461-7,WG432461,1
ALS Vial : 2 Sample Multiplier: 1

Integration Parameters: rteint.p
Integrator: RTE
Smoothing : OFF Filtering: 5
Sampling : 1 Min Area: 1 % of largest Peak
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method : C:\MSDCHEM\1\methods\P181227E.M
Title :

Signal : TIC: P0114909.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.579	115	127	170	rBV	265677	426565	10.82%	4.501%
2	7.489	549	564	614	rBV	454765	798760	20.25%	8.429%
3	8.832	893	908	981	rBV	1145369	1742222	44.18%	18.384%
4	11.508	1570	1577	1631	rBV	1756070	2565477	65.05%	27.071%
5	12.364	1692	1695	1698	rBV	2591454	3943780	100.00%	41.615%

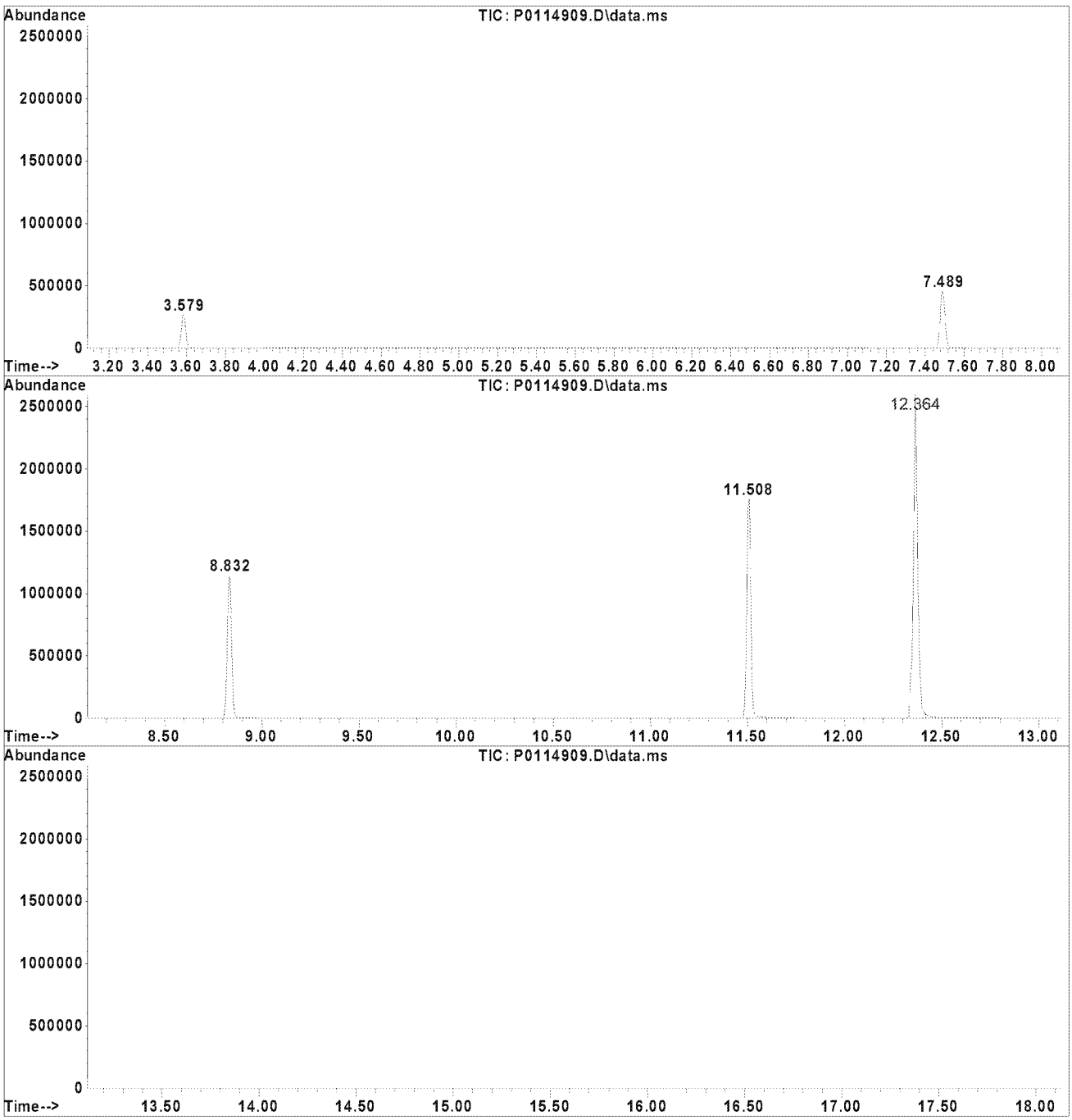
Sum of corrected areas: 9476804

LSC Report - Integrated Chromatogram

Data Path : C:\MSDCHEM\1\DATA\2019\01\14A\
Data File : P0114909.D
Acq On : 14 Jan 2019 2:26 pm
Operator : DJW
Sample : WAC3344,WG432461-7
Misc : WG432461-7,WG432461,1
ALS Vial : 2 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\methods\P181227E.M
Quant Title :

TIC Library : C:\Database\NIST08.L
TIC Integration Parameters: lscint.p



Tentatively Identified Compound (LSC) summary

```
Data Path : C:\MSDCHEM\1\DATA\2019\01\14A\\
Data File : P0114909.D
Acq On    : 14 Jan 2019   2:26 pmm
Operator  : DJWW
Sample    : WAC3344,WG432461-77
Misc      : WG432461-7,WG432461,11
ALS Vial  : 2   Sample Multiplier: 11

Quant Method : C:\MSDCHEM\1\methods\P181227E.MM
Quant Title  :

TIC Library   : C:\Database\NIST08.LL
TIC Integration Parameters: lscint.pp

                                                    |--Internal Standard---|
TIC Top Hit name      RT  EstConc Units Response |#    RT     Resp  Conc|
-----------------------------------------------------------------------------
```

No Library Search Compounds Detected
****

TO-15 Canister Cleaning Log

Batch Certified

Report run on: February 15, 2019 9:21 AM

QC Batch No.:	**WAC3346**	**Cleaning Date:**	01/11/19
Canister No. for QC	WL175	**Can Size:**	6 L
Number of Heat Cycles:	6	**Number of No-heat Cycles:**	
Timer S/N:	170505574	**Held:**	30 **mins**
Comments:	etox		

Blank	Analysis	Approved by	Date	Pass/Fail
WG432461-8	IT-ETOX	SPUTRELO	01/23/19 09:46	PASS

Can ID	Initial Press.("Hg)	Initial Press. Date/Time	Final Press.("Hg)	Final Press. Date/Time	Sent in Prep	Ship Press.("Hg)	Ship Press. Date/Time	Sample Number
WL093	-29.72	01/14/19 16:21	-29.63	01/16/19 16:46	PSY513143	-29.06	01/24/19 11:50	L470798-9
WL175	-29.87	01/14/19 10:19	-29.51	01/16/19 16:45	PSY513143	-28.95	01/24/19 11:10	L470798-2
WL231	-29.74	01/14/19 16:27	-29.64	01/16/19 16:48	PSY513143	-29.07	01/24/19 11:50	L470798-8
WL240	-29.74	01/14/19 16:26	-29.64	01/16/19 16:48	PSY513143	-29.07	01/24/19 11:48	L470798-6

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\01\14A\
Data File : P0114910.D
Acq On : 14 Jan 2019 3:01 pm
Operator : DJW
Sample : WAC3346,WG432461-8
Misc : WG432461-8,WG432461,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 16 09:33:09 2019
Quant Method : C:\MSDCHEM\1\methods\P181227E.M
Quant Title :
QLast Update : Fri Dec 28 07:52:40 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.489	128	295819	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.832	114	1623226	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1463862	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.583	46	249655	11.36	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 113.60%			
6) Bromofluorobenzene (surr)	12.365	95	1032318	10.33	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 103.30%			

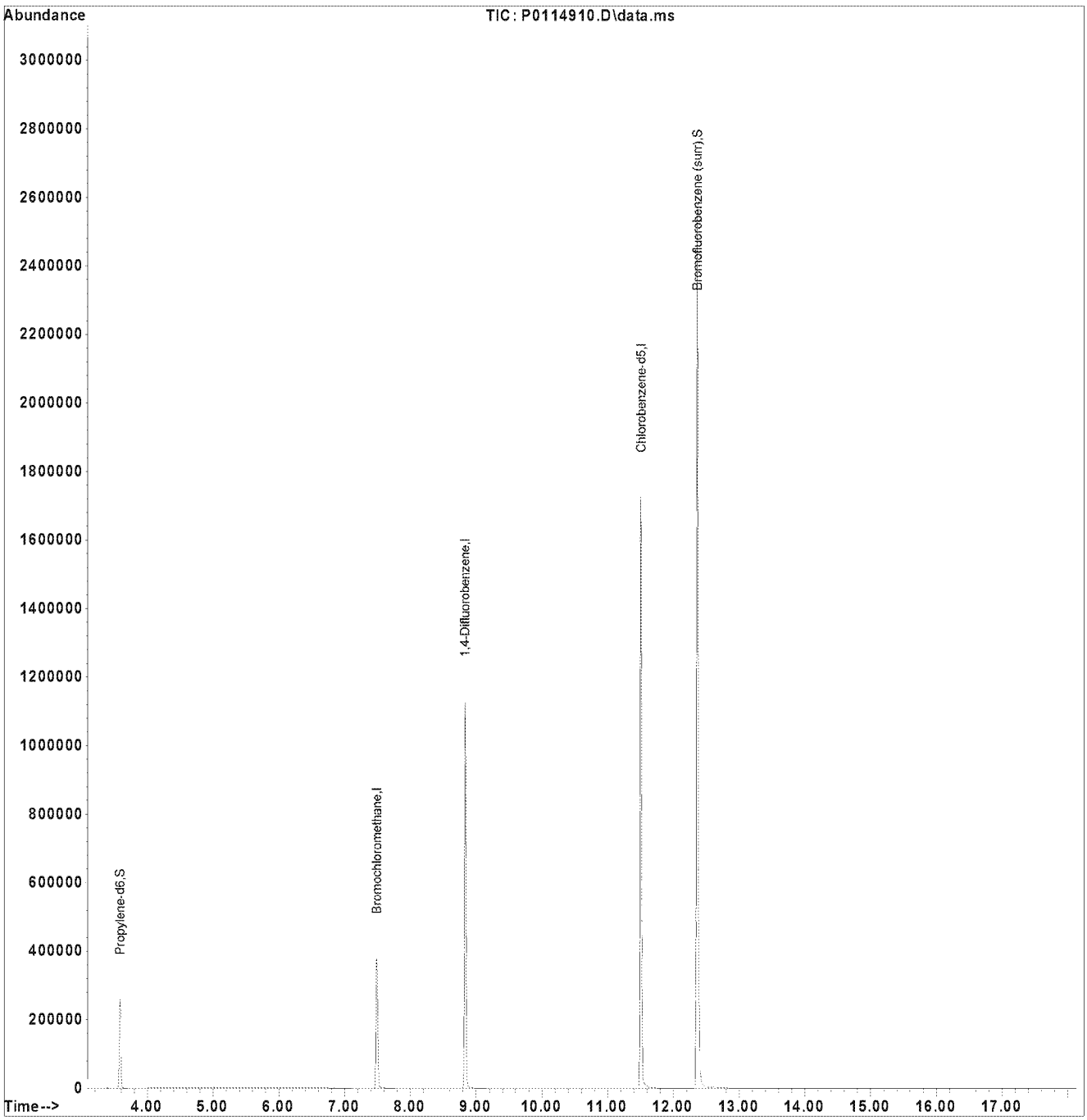
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\01\14A\
Data File : P0114910.D
Acq On : 14 Jan 2019 3:01 pm
Operator : DJW
Sample : WAC3346,WG432461-8
Misc : WG432461-8,WG432461,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jan 16 09:33:09 2019
Quant Method : C:\MSDCHEM\1\methods\P181227E.M
Quant Title :
QLast Update : Fri Dec 28 07:52:40 2018
Response via : Initial Calibration



LSC Area Percent Report

Data Path : C:\MSDCHEM\1\DATA\2019\01\14A\
Data File : P0114910.D
Acq On : 14 Jan 2019 3:01 pm
Operator : DJW
Sample : WAC3346,WG432461-8
Misc : WG432461-8,WG432461,1
ALS Vial : 3 Sample Multiplier: 1

Integration Parameters: rteint.p
Integrator: RTE
Smoothing : OFF Filtering: 5
Sampling : 1 Min Area: 1 % of largest Peak
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method : C:\MSDCHEM\1\methods\P181227E.M
Title :

Signal : TIC: P0114910.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.583	116	128	172	rBV	259118	411782	10.44%	4.428%
2	7.489	549	564	641	rBV	378608	678367	17.19%	7.295%
3	8.832	893	908	965	rBV	1127127	1728522	43.81%	18.589%
4	11.508	1570	1577	1626	rBV	1724805	2534192	64.23%	27.254%
5	12.365	1692	1695	1698	rBV	2585452	3945609	100.00%	42.433%

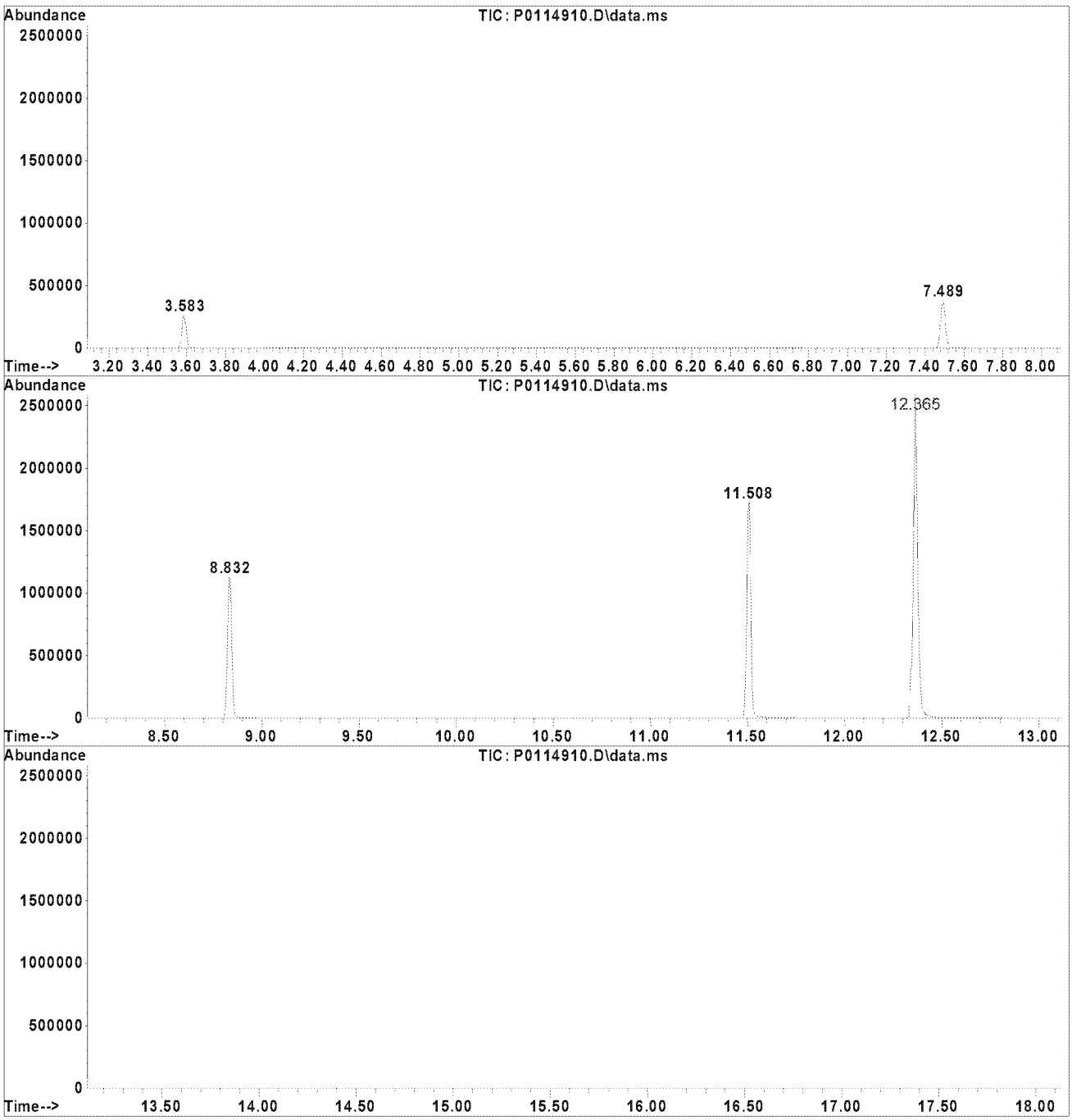
Sum of corrected areas: 9298472

LSC Report - Integrated Chromatogram

Data Path : C:\MSDCHEM\1\DATA\2019\01\14A\
Data File : P0114910.D
Acq On : 14 Jan 2019 3:01 pm
Operator : DJW
Sample : WAC3346,WG432461-8
Misc : WG432461-8,WG432461,1
ALS Vial : 3 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\methods\P181227E.M
Quant Title :

TIC Library : C:\Database\NIST08.L
TIC Integration Parameters: lscint.p



Tentatively Identified Compound (LSC) summary

```
Data Path : C:\MSDCHEM\1\DATA\2019\01\14A\\
Data File : P0114910.D
Acq On    : 14 Jan 2019   3:01 pmm
Operator  : DJWW
Sample    : WAC3346,WG432461-88
Misc      : WG432461-8,WG432461,11
ALS Vial  : 3   Sample Multiplier: 11

Quant Method : C:\MSDCHEM\1\methods\P181227E.MM
Quant Title  :

TIC Library   : C:\Database\NIST08.LL
TIC Integration Parameters: lscint.pp

                                                    |--Internal Standard---|
TIC Top Hit name      RT  EstConc Units Response |#    RT     Resp  Conc|
-----------------------------------------------------------------------------
```

No Library Search Compounds Detected
****

TO-15 Canister Cleaning Log

Batch Certified

Report run on: February 15, 2019 9:20 AM

QC Batch No.:	**WAC3350**	**Cleaning Date:**	01/15/19
Canister No. for QC	WL079	**Can Size:**	6 L
Number of Heat Cycles:	6	**Number of No-heat Cycles:**	
Timer S/N:	170505574	**Held:**	30 **mins**
Comments:	ETOX		

Blank	Analysis	Approved by	Date	Pass/Fail
WG432660-7	IT-ETOX	SPUTRELO	01/17/19 11:41	PASS

Can ID	Initial Press.("Hg)	Initial Press. Date/Time	Final Press.("Hg)	Final Press. Date/Time	Sent in Prep	Ship Press.("Hg)	Ship Press. Date/Time	Sample Number
WL079	-29.45	01/16/19 09:38	-29.38	01/18/19 12:26	PSY513143	-28.95	01/24/19 11:13	L470798-4
WL265	-29.64	01/16/19 16:50	-28.95	01/18/19 12:27	PSY513143	-29.2	01/24/19 11:11	L470798-3

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\01\16\
Data File : P0116908.D
Acq On : 16 Jan 2019 11:07 am
Operator : DJW
Sample : WAC3350,WG432660-7
Misc : WG432660-7,WG432660,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jan 16 11:36:20 2019
Quant Method : C:\MSDCHEM\1\methods\P181227E.M
Quant Title :
QLast Update : Fri Dec 28 07:52:40 2018
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane	7.493	128	247547	10.00	ppbv	0.00
4) 1,4-Difluorobenzene	8.835	114	1151154	10.00	ppbv	0.00
5) Chlorobenzene-d5	11.508	117	1063894	10.00	ppbv	0.00
System Monitoring Compounds						
2) Propylene-d6	3.586	46	147176	8.00	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 80.00%			
6) Bromofluorobenzene (surr)	12.364	95	747060	10.28	ppbv	0.00
Spiked Amount 10.000	Range 80 - 120		Recovery = 102.80%			

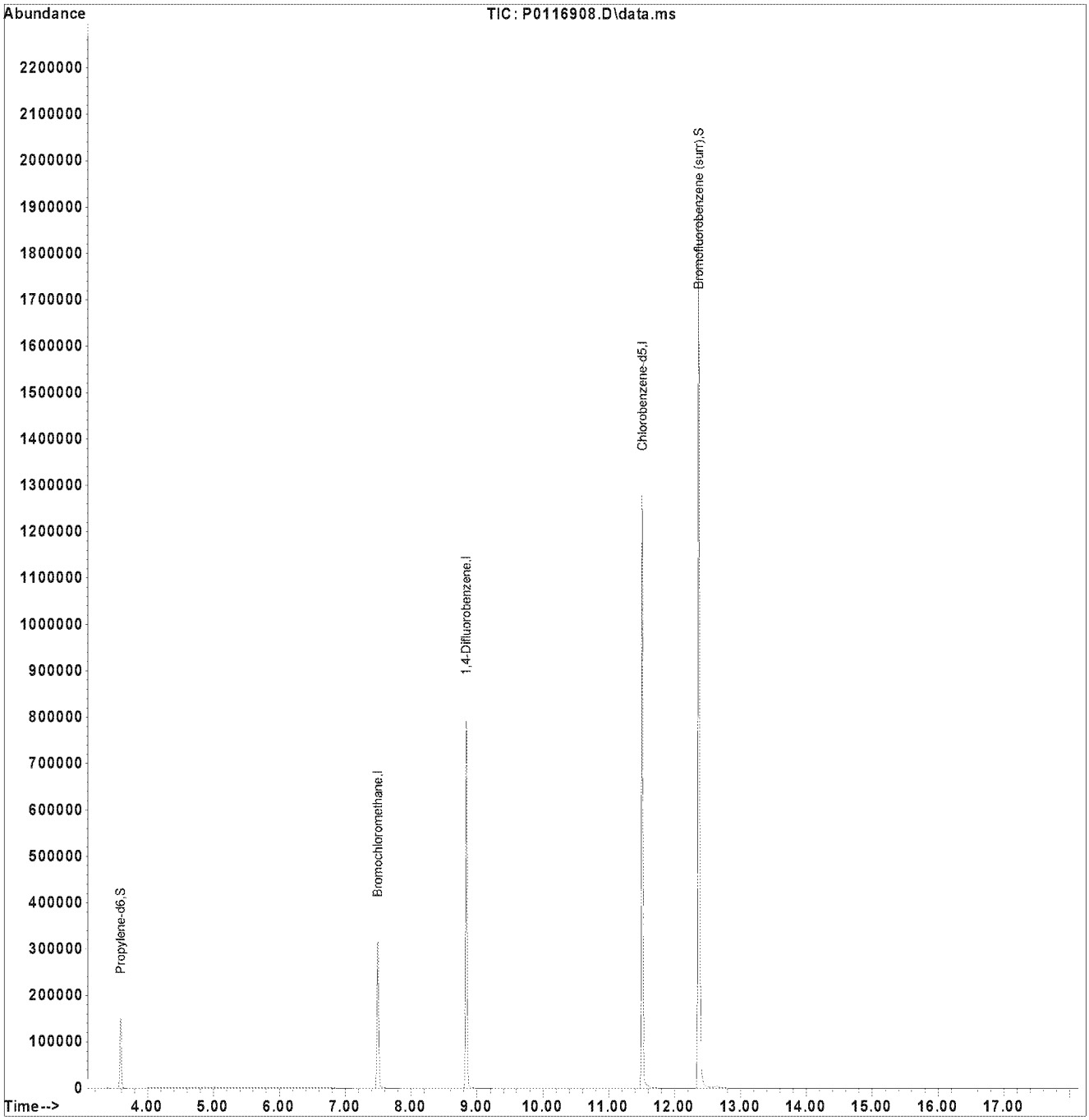
Target Compounds Qvalue

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

Quantitation Report (QT Reviewed)

Data Path : C:\MSDCHEM\1\DATA\2019\01\16\
Data File : P0116908.D
Acq On : 16 Jan 2019 11:07 am
Operator : DJW
Sample : WAC3350,WG432660-7
Misc : WG432660-7,WG432660,1
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jan 16 11:36:20 2019
Quant Method : C:\MSDCHEM\1\methods\P181227E.M
Quant Title :
QLast Update : Fri Dec 28 07:52:40 2018
Response via : Initial Calibration



LSC Area Percent Report

Data Path : C:\MSDCHEM\1\DATA\2019\01\16\
Data File : P0116908.D
Acq On : 16 Jan 2019 11:07 am
Operator : DJW
Sample : WAC3350,WG432660-7
Misc : WG432660-7,WG432660,1
ALS Vial : 1 Sample Multiplier: 1

Integration Parameters: rteint.p
Integrator: RTE
Smoothing : OFF Filtering: 5
Sampling : 1 Min Area: 1 % of largest Peak
Start Thrs: 0.2 Max Peaks: 100
Stop Thrs : 0 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method : C:\MSDCHEM\1\methods\P181227E.M
Title :

Signal : TIC: P0116908.D\data.ms

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.586	117	129	160	rBV	149893	242339	8.18%	3.564%
2	7.493	551	565	614	rBV	315860	566446	19.13%	8.331%
3	8.835	896	909	950	rBV	794402	1224109	41.34%	18.004%
4	11.508	1570	1577	1636	rBV	1277885	1805041	60.95%	26.548%
5	12.364	1692	1695	1698	rBV	1913098	2961345	100.00%	43.554%

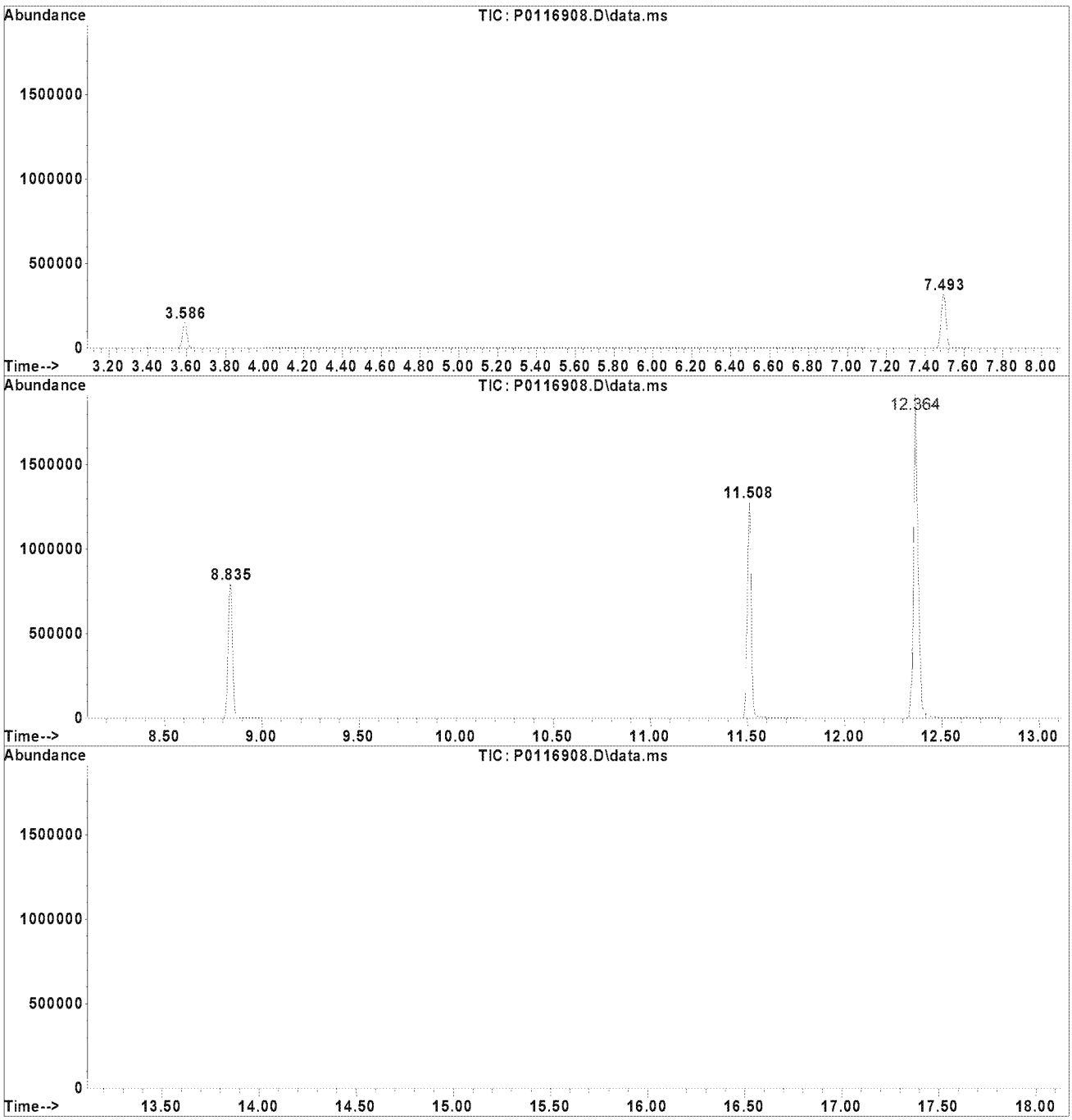
Sum of corrected areas: 6799280

LSC Report - Integrated Chromatogram

Data Path : C:\MSDCHEM\1\DATA\2019\01\16\
Data File : P0116908.D
Acq On : 16 Jan 2019 11:07 am
Operator : DJW
Sample : WAC3350,WG432660-7
Misc : WG432660-7,WG432660,1
ALS Vial : 1 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\methods\P181227E.M
Quant Title :

TIC Library : C:\Database\NIST08.L
TIC Integration Parameters: lscint.p



Tentatively Identified Compound (LSC) summary

```
Data Path : C:\MSDCHEM\1\DATA\2019\01\16\\
Data File : P0116908.D
Acq On    : 16 Jan 2019  11:07 amm
Operator  : DJWW
Sample    : WAC3350,WG432660-77
Misc      : WG432660-7,WG432660,11
ALS Vial  : 1   Sample Multiplier: 11

Quant Method : C:\MSDCHEM\1\methods\P181227E.MM
Quant Title  :

TIC Library   : C:\Database\NIST08.LL
TIC Integration Parameters: lscint.pp

                                                    |--Internal Standard---|
TIC Top Hit name      RT  EstConc Units Response |#    RT     Resp  Conc|
-----------------------------------------------------------------------------
```

No Library Search Compounds Detected
****

SGS GALSON

GC/MS Incoming Canister Log

Login: L470798

Date: 13-FEB-19

Recorded by: Daniel Walter

Sample #	*Can Id*	*Incoming Pressure*	*Prep Number*	*Scan date*	*Scan user*
L470798-1	WL004	-1.82	PSY513143	13-FEB-19	Daniel Walter
L470798-2	WL175	-2.87	PSY513143	13-FEB-19	Daniel Walter
L470798-3	WL265	.8	PSY513143	13-FEB-19	Daniel Walter
L470798-4	WL079	-10.16	PSY513143	13-FEB-19	Daniel Walter
L470798-5	WL201	-1.58	PSY513143	13-FEB-19	Daniel Walter
L470798-6	WL240	-3.33	PSY513143	13-FEB-19	Daniel Walter
L470798-7	WL253	3.16	PSY513143	13-FEB-19	Daniel Walter
L470798-8	WL231	-11.43	PSY513143	13-FEB-19	Daniel Walter
L470798-9	WL093	-7.47	PSY513143	13-FEB-19	Daniel Walter
L470798-10	WL077	-7.78	PSY513143	13-FEB-19	Daniel Walter
L470798-11	WL172	-14.09	PSY513143	13-FEB-19	Daniel Walter

Report run on: February 15, 2019 9:20 AM