complaint 200444807

facility 757228

GC/MS Volatiles

Case Narrative

COGCC

Complaint 200444807

Work Order Number: 1712475

1. This report consists of 1 water sample. The sample was received cool and intact by ALS on 12/22/17.

   The water sample was free of headspace prior to analysis.

   The sample had a pH < 2 at the time of analysis.

2. The sample was prepared according to SW-846, 3rd Edition procedures. Specifically, the water sample was prepared using purge and trap procedures based on Method 5030C.

3. The sample was analyzed using GC/MS with an RTX-624, RTX-VMS, or equivalent capillary column according to the current revision of SOP 525 based on SW-846 Method 8260. All positive results were quantitated against the initial calibration standards using the internal standard technique. The identification of positive results was achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.

4. All initial calibration criteria were met.

5. All initial calibrations are verified by comparing a second source standard calibration verification (ICV) against the calibration curve. All criteria for initial calibration verification were met.

6. All compounds in the daily (continuing) calibration verifications were within 20%D.

7. Methylene chloride, acetone and 2-butanone are common laboratory contaminants. In order to minimize the levels of these compounds detected in the gc/ms analysis, ALS has designated its volatile laboratory as a restricted access area. In addition, the laboratory has been equipped with a dedicated, air intake and exhaust system that operates under positive pressure in order to minimize cross contamination of these compounds. Due to fluctuations in ambient laboratory conditions, reported sample values for common laboratory contaminants may be due to lab contamination even if the compound in question is not detected in the associated method blank.

All method blank criteria were met.

8. All laboratory control sample and laboratory control sample duplicate recoveries and RPDs were within the acceptance criteria.

9. A matrix spike and matrix spike duplicate were not performed because of insufficient sample. A laboratory control sample and laboratory control sample duplicate were performed instead.

10. The sample was analyzed within the established holding time.

11. All surrogate recoveries were within acceptance criteria.

12. All internal standard recoveries were within acceptance criteria.

13. Manual integrations are performed when needed to provide consistent and defensible data following the guidelines in the current revision of SOP 939.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

mindy norton

Mindy Norton
Organics Primary Data Reviewer

12/30/17
Date

Kathleen M. Orr

Organics Final Data Reviewer

12/31/17
Date

ALS
Data Qualifier Flags
Organics

U or ND:	**This flag indicates that the compound was analyzed for but not detected.**
J:	**This flag indicates an estimated value. This flag is used as follows : (1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the reporting limit (RL) but greater than the method detection limit (MDL); (3) when the retention time data indicate the presence of a compound that meets the GC identification criteria, and the result is less than the RL but greater than the MDL; and (4) the reported value is estimated.**
B:	**This flag is used when the analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user. This flag shall be used for a tentatively identified compound (TIC) as well as for a positively identified target compound.**
E:	**This flag identifies compounds whose concentration exceeds the upper level of the calibration range.**
A:	**This flag indicates that a tentatively identified compound is a suspected aldol-condensation product.**
X:	**This flag indicates that the analyte was diluted below an accurate quantitation level.**
***:**	**This flag indicates that a spike recovery is equal to or outside the control criteria used.**
+:	**This flag indicates that the relative percent difference (RPD) equals or exceeds the control criteria.**

ALS
Data Qualifier Flags
Fuels

G: **This flag indicates that a pattern resembling gasoline was detected in this sample.**

D: **This flag indicates that a pattern resembling diesel was detected in this sample.**

M: **This flag indicates that a pattern resembling motor oil was detected in this sample.**

C: **This flag indicates that a pattern resembling crude oil was detected in this sample.**

4: **This flag indicates that a pattern resembling JP-4 was detected in this sample.**

5: **This flag indicates that a pattern resembling JP-5 was detected in this sample.**

H: **This flag indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.**

L: **This flag indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.**

Z: **This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:**
gasoline
JP-8
diesel
mineral spirits
motor oil
Stoddard solvent
bunker C

Multiple flags may be used to indicate the presence of more than one product or component.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 1712475
Client Name: COGCC
Client Project Name: Complaint 200444807
Client Project Number:
Client PO Number: GAE 2018-0302

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
757228 Ditlev-Simonsen flowline	1712475-1		WATER	21-Dec-17	14:04

ALS Environmental

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Turnaround time for samples received after 2 p.m. will be calculated beginning from the next business day.

Turnaround time for samples received Saturday will be calculated beginning from the next business day.

ALS WORKORDER #	
1712475	

TURNAROUND TIME	14 days	SAMPLER	PAG	PAGE	1 of 1
				DISPOSAL	BY LAB or

				PARAMETER/METHOD REQUEST FOR ANALYSIS	
PROJECT NAME	Complaint 200444807	SITE ID		A	8260 extended list with oxygenates (plus TICs) & 8260GRO
PROJECT No.		EDD FORMAT	COGCC	B	8015DRO/MORO
		PURCHASE ORDER	GAE-2018-0302	C	8270 SIM PAH
COMPANY NAME	Colorado Oil & Gas Conservation Commission	BILL TO COMPANY		D	
SEND REPORT TO	Peter Gintautas	INVOICE ATTN TO		E	
ADDRESS	1120 Lincoln St., Suite 801	ADDRESS		F	
CITY / STATE / ZIP	Denver, CO 80203	CITY / STATE / ZIP		G	
PHONE	719-679-1326	PHONE		H	
FAX		FAX		I	
E-MAIL	peter.gintautas@state.co.us	E-MAIL		J	

LAB ID	FIELD ID	MATRIX	SAMPLE DATE	SAMPLE TIME	# OF BOTTLES	PRESERVATIVE	QC	A	B	C	D	E	F	G	H	I	J	SEE NOTES SECTION
1	757228 Ditlev-Simonsen flowline excavation	W	12/21/17	14:04	X3	7		X	X									
↓	757228 Ditlev-Simonsen flowline excavation	W	12/21/17	14:04	3 1 12/22/17	1				X								

*Time Zone (Circle): MST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

NOTES	REPORT LEVEL / QC REQUIRED	
limited volume split 1L amber for 8270 and DRO/MORO (3.3c)		Summary (Standard QC)
filter, amber may contain oil, mix before taking sample	X	LEVEL II (Standard QC)
		LEVEL III (Std QC + forms)
		LEVEL IV (Std QC + forms + raw data)

PRESERVATION KEY: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaOH/ZnAcetate 6-NaHSO4 7-4°C 8-Other

Form 202r9	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Peter Gintautas	12/22/2017	09:10
RECEIVED BY		Kodey Slusher	12-22-17	0910
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Co. Oil + Gas Workorder No: 1712475

Project Manager: Ito Initials: KS Date: 12-22-17

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	(NONE)	YES	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	(NO)
7. Were airbills / shipping documents present and/or removable?	(DROP OFF)	YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	(N/A)	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	N/A	(YES)	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	N/A	(YES)	NO
15. Do any water samples contain sediment? Amount Amount of sediment: X dusting ____ moderate X heavy	N/A	(YES)	NO
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#3) #4	RAD ONLY	(YES)	NO

Cooler #:	1							
Temperature (°C):	3.3							
No. of custody seals on cooler:	0							
DOT Survey/ Acceptance Information: External µR/hr reading:	11							
Background µR/hr reading:	6							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? **YES / NO / NA** (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

6. Test requested for the 1L amber sample was listed incorrectly.
15. Bottles 1-3 (40 vol) have lite dusting. Bottle 4 (1L amber) has heavy sediment.

If applicable, was the client contacted? (YES) NO / NA Contact: Peter Gintautas Date/Time: 12/22/17 15:30

Project Manager Signature / Date: _____

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

GC/MS Volatiles

Method SW8260_25C

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Lab ID: VL171228-3MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 28-Dec-17
Date Analyzed: 28-Dec-17

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: N/A
File Name: C79111

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL
110-54-3	HEXANE	1	1	U	1	0.31
108-87-2	METHYL CYCLOHEXANE	1	1	U	1	0.3
71-36-3	N-BUTANOL	1	50	U	50	30
75-65-0	TERT-BUTANOL	1	50	U	50	60
75-71-8	DICHLORODIFLUOROMETHANE	1	1	U	1	0.32
74-87-3	CHLOROMETHANE	1	1	U	1	0.3
75-01-4	VINYL CHLORIDE	1	1	U	1	0.31
74-83-9	BROMOMETHANE	1	1	U	1	0.3
75-00-3	CHLOROETHANE	1	1	U	1	0.32
75-69-4	TRICHLOROFLUOROMETHANE	1	1	U	1	0.31
75-35-4	1,1-DICHLOROETHENE	1	1	U	1	0.3
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROET	1	1	U	1	0.3
67-64-1	ACETONE	1	10	U	10	3
74-88-4	IODOMETHANE	1	1	U	1	0.3
75-15-0	CARBON DISULFIDE	1	1	U	1	0.3
75-09-2	METHYLENE CHLORIDE	1	1	U	1	0.3
156-60-5	TRANS-1,2-DICHLOROETHENE	1	1	U	1	0.33
1634-04-4	METHYL TERTIARY BUTYL ETHER	1	1	U	1	0.31
75-34-3	1,1-DICHLOROETHANE	1	1	U	1	0.3
108-05-4	VINYL ACETATE	1	2	U	2	0.78
156-59-2	CIS-1,2-DICHLOROETHENE	1	1	U	1	0.33
78-93-3	2-BUTANONE	1	10	U	10	3
74-97-5	BROMOCHLOROMETHANE	1	1	U	1	0.32
67-66-3	CHLOROFORM	1	1	U	1	0.3
71-55-6	1,1,1-TRICHLOROETHANE	1	1	U	1	0.3
594-20-7	2,2-DICHLOROPROPANE	1	1	U	1	0.33
110-82-7	CYCLOHEXANE	1	1	U	1	0.32
56-23-5	CARBON TETRACHLORIDE	1	1	U	1	0.32

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Lab ID: VL171228-3MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 28-Dec-17
Date Analyzed: 28-Dec-17

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: N/A
File Name: C79111

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL
563-58-6	1,1-DICHLOROPROPENE	1	1	U	1	0.3
107-06-2	1,2-DICHLOROETHANE	1	1	U	1	0.3
71-43-2	BENZENE	1	1	U	1	0.32
79-01-6	TRICHLOROETHENE	1	1	U	1	0.31
78-87-5	1,2-DICHLOROPROPANE	1	1	U	1	0.3
74-95-3	DIBROMOMETHANE	1	1	U	1	0.31
75-27-4	BROMODICHLOROMETHANE	1	1	U	1	0.35
10061-01-5	CIS-1,3-DICHLOROPROPENE	1	1	U	1	0.33
108-10-1	4-METHYL-2-PENTANONE	1	10	U	10	3
108-88-3	TOLUENE	1	1	U	1	0.31
10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	1	U	1	0.33
79-00-5	1,1,2-TRICHLOROETHANE	1	1	U	1	0.3
591-78-6	2-HEXANONE	1	10	U	10	3
127-18-4	TETRACHLOROETHENE	1	1	U	1	0.3
142-28-9	1,3-DICHLOROPROPANE	1	1	U	1	0.3
124-48-1	DIBROMOCHLOROMETHANE	1	1	U	1	0.35
106-93-4	1,2-DIBROMOETHANE	1	1	U	1	0.3
544-10-5	1-CHLOROHEXANE	1	1	U	1	0.3
108-90-7	CHLOROBENZENE	1	1	U	1	0.3
630-20-6	1,1,1,2-TETRACHLOROETHANE	1	1	U	1	0.3
100-41-4	ETHYLBENZENE	1	1	U	1	0.31
179601-23-1	M+P-XYLENE	1	1	U	1	0.31
95-47-6	O-XYLENE	1	1	U	1	0.31
100-42-5	STYRENE	1	1	U	1	0.32
75-25-2	BROMOFORM	1	1	U	1	0.34
98-82-8	ISOPROPYLBENZENE	1	1	U	1	0.3
96-18-4	1,2,3-TRICHLOROPROPANE	1	1	U	1	0.3
79-34-5	1,1,2,2-TETRACHLOROETHANE	1	1	U	1	0.3

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Lab ID: VL171228-3MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 28-Dec-17
Date Analyzed: 28-Dec-17

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: N/A
File Name: C79111

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL
108-86-1	BROMOBENZENE	1	1	U	1	0.3
103-65-1	N-PROPYLBENZENE	1	1	U	1	0.3
95-49-8	2-CHLOROTOLUENE	1	1	U	1	0.3
108-67-8	1,3,5-TRIMETHYLBENZENE	1	1	U	1	0.3
106-43-4	4-CHLOROTOLUENE	1	1	U	1	0.3
98-06-6	TERT-BUTYLBENZENE	1	1	U	1	0.3
95-63-6	1,2,4-TRIMETHYLBENZENE	1	1	U	1	0.3
135-98-8	SEC-BUTYLBENZENE	1	1	U	1	0.3
541-73-1	1,3-DICHLOROBENZENE	1	1	U	1	0.3
99-87-6	P-ISOPROPYLTOLUENE	1	1	U	1	0.3
106-46-7	1,4-DICHLOROBENZENE	1	1	U	1	0.3
104-51-8	N-BUTYLBENZENE	1	1	U	1	0.3
95-50-1	1,2-DICHLOROBENZENE	1	1	U	1	0.3
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	1	2	U	2	0.66
120-82-1	1,2,4-TRICHLOROBENZENE	1	1	U	1	0.3
87-68-3	HEXACHLOROBUTADIENE	1	1	U	1	0.3
91-20-3	NAPHTHALENE	1	1	U	1	0.3
87-61-6	1,2,3-TRICHLOROBENZENE	1	1	U	1	0.3
123-91-1	1,4-DIOXANE	1	100	U	100	60
64-17-5	ETHANOL	1	40	U	40	60
78-83-1	ISOBUTYL ALCOHOL	1	40	U	40	30

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Lab ID: VL171228-3MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 28-Dec-17
Date Analyzed: 28-Dec-17

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: N/A
File Name: C79111

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	25.9		25	104	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	24.3		25	97	84 - 118
2037-26-5	TOLUENE-D8	24.6		25	98	85 - 115

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25

Tentatively Identified Compounds

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Field ID:
Lab ID: VL171228-3MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 28-Dec-17
Date Analyzed: 28-Dec-17

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: As Received

Sample Aliquot: 10 ml
Final Volume: 10 ml
Clean DF: 1
File Name: C79111

CASNO	Retention Time	Target Analyte	Dilution Factor	Result	Units	Qualifier
		NONE DETECTED	1			U

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Method Blank

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Lab ID: VL171229-4MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 29-Dec-17
Date Analyzed: 29-Dec-17

Prep Batch: VL171229-4
QCBatchID: VL171229-4-3
Run ID: VL171229-4A
Cleanup: NONE
Basis: N/A
File Name: D63979

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	Result Qualifier	Reporting Limit	MDL
8006-61-9	GASOLINE RANGE ORGANICS	1	100	U	100	47

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25

Tentatively Identified Compounds

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Field ID:
Lab ID: VL171229-4MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 29-Dec-17
Date Analyzed: 29-Dec-17

Prep Batch: VL171229-4
QCBatchID: VL171229-4-3
Run ID: VL171229-4A
Cleanup: NONE
Basis: As Received

Sample Aliquot: 10 ml
Final Volume: 10 ml
Clean DF: 1
File Name: D63979

CASNO	Retention Time	Target Analyte	Dilution Factor	Result	Units	Qualifier
		NONE DETECTED	1			U

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Field ID: 757228 Ditlev-Simonsen flo
Lab ID: 1712475-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 21-Dec-17
Date Extracted: 28-Dec-17
Date Analyzed: 28-Dec-17
Prep Method: SW5030 Rev C

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: As Received
File Name: C79112

Analyst: Joe Kostelnik
Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
110-54-3	HEXANE	1	0.34	J	1	0.31
108-87-2	METHYL CYCLOHEXANE	1	5.3		1	0.3
71-36-3	N-BUTANOL	1	50	U	50	30
75-65-0	TERT-BUTANOL	1	50	U	50	60
75-71-8	DICHLORODIFLUOROMETHANE	1	1	U	1	0.32
8006-61-9	GASOLINE RANGE ORGANICS	1	210		100	47
74-87-3	CHLOROMETHANE	1	1	U	1	0.3
75-01-4	VINYL CHLORIDE	1	1	U	1	0.31
74-83-9	BROMOMETHANE	1	1	U	1	0.3
75-00-3	CHLOROETHANE	1	1	U	1	0.32
75-69-4	TRICHLOROFLUOROMETHANE	1	1	U	1	0.31
75-35-4	1,1-DICHLOROETHENE	1	1	U	1	0.3
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	1	1	U	1	0.3
67-64-1	ACETONE	1	79		10	3
74-88-4	IODOMETHANE	1	1	U	1	0.3
75-15-0	CARBON DISULFIDE	1	1	U	1	0.3
75-09-2	METHYLENE CHLORIDE	1	1	U	1	0.3
156-60-5	TRANS-1,2-DICHLOROETHENE	1	1	U	1	0.33
1634-04-4	METHYL TERTIARY BUTYL ETHER	1	1	U	1	0.31
75-34-3	1,1-DICHLOROETHANE	1	1	U	1	0.3
108-05-4	VINYL ACETATE	1	2	U	2	0.78
156-59-2	CIS-1,2-DICHLOROETHENE	1	1	U	1	0.33
78-93-3	2-BUTANONE	1	24		10	3
74-97-5	BROMOCHLOROMETHANE	1	1	U	1	0.32
67-66-3	CHLOROFORM	1	1	U	1	0.3
71-55-6	1,1,1-TRICHLOROETHANE	1	1	U	1	0.3

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Field ID: 757228 Ditlev-Simonsen flo
Lab ID: 1712475-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 21-Dec-17
Date Extracted: 28-Dec-17
Date Analyzed: 28-Dec-17
Prep Method: SW5030 Rev C

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: As Received
File Name: C79112

Analyst: Joe Kostelnik
Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
594-20-7	2,2-DICHLOROPROPANE	1	1	U	1	0.33
110-82-7	CYCLOHEXANE	1	5		1	0.32
56-23-5	CARBON TETRACHLORIDE	1	1	U	1	0.32
563-58-6	1,1-DICHLOROPROPENE	1	1	U	1	0.3
107-06-2	1,2-DICHLOROETHANE	1	1	U	1	0.3
71-43-2	BENZENE	1	20		1	0.32
79-01-6	TRICHLOROETHENE	1	1	U	1	0.31
78-87-5	1,2-DICHLOROPROPANE	1	1	U	1	0.3
74-95-3	DIBROMOMETHANE	1	1	U	1	0.31
75-27-4	BROMODICHLOROMETHANE	1	1	U	1	0.35
10061-01-5	CIS-1,3-DICHLOROPROPENE	1	1	U	1	0.33
108-10-1	4-METHYL-2-PENTANONE	1	10	U	10	3
108-88-3	TOLUENE	1	30		1	0.31
10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	1	U	1	0.33
79-00-5	1,1,2-TRICHLOROETHANE	1	1	U	1	0.3
591-78-6	2-HEXANONE	1	6.3	J	10	3
127-18-4	TETRACHLOROETHENE	1	1	U	1	0.3
142-28-9	1,3-DICHLOROPROPANE	1	1	U	1	0.3
124-48-1	DIBROMOCHLOROMETHANE	1	1	U	1	0.35
106-93-4	1,2-DIBROMOETHANE	1	1	U	1	0.3
544-10-5	1-CHLOROHEXANE	1	1	U	1	0.3
108-90-7	CHLOROBENZENE	1	1	U	1	0.3
630-20-6	1,1,1,2-TETRACHLOROETHANE	1	1	U	1	0.3
100-41-4	ETHYLBENZENE	1	3.3		1	0.31
179601-23-1	M+P-XYLENE	1	15		1	0.31
95-47-6	O-XYLENE	1	10		1	0.31

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Field ID: 757228 Ditlev-Simonsen flo
Lab ID: 1712475-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 21-Dec-17
Date Extracted: 28-Dec-17
Date Analyzed: 28-Dec-17
Prep Method: SW5030 Rev C

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: As Received
File Name: C79112

Analyst: Joe Kostelnik
Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL
100-42-5	STYRENE	1	1	U	1	0.32
75-25-2	BROMOFORM	1	1	U	1	0.34
98-82-8	ISOPROPYLBENZENE	1	0.6	J	1	0.3
96-18-4	1,2,3-TRICHLOROPROPANE	1	1	U	1	0.3
79-34-5	1,1,2,2-TETRACHLOROETHANE	1	1	U	1	0.3
108-86-1	BROMOBENZENE	1	1	U	1	0.3
103-65-1	N-PROPYLBENZENE	1	0.56	J	1	0.3
95-49-8	2-CHLOROTOLUENE	1	1	U	1	0.3
108-67-8	1,3,5-TRIMETHYLBENZENE	1	3.3		1	0.3
106-43-4	4-CHLOROTOLUENE	1	1	U	1	0.3
98-06-6	TERT-BUTYLBENZENE	1	1	U	1	0.3
95-63-6	1,2,4-TRIMETHYLBENZENE	1	4.3		1	0.3
135-98-8	SEC-BUTYLBENZENE	1	0.46	J	1	0.3
541-73-1	1,3-DICHLOROBENZENE	1	1	U	1	0.3
99-87-6	P-ISOPROPYLTOLUENE	1	0.48	J	1	0.3
106-46-7	1,4-DICHLOROBENZENE	1	1	U	1	0.3
104-51-8	N-BUTYLBENZENE	1	1	U	1	0.3
95-50-1	1,2-DICHLOROBENZENE	1	1	U	1	0.3
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	1	2	U	2	0.66
120-82-1	1,2,4-TRICHLOROBENZENE	1	1	U	1	0.3
87-68-3	HEXACHLOROBUTADIENE	1	1	U	1	0.3
91-20-3	NAPHTHALENE	1	2.9		1	0.3
87-61-6	1,2,3-TRICHLOROBENZENE	1	1	U	1	0.3
123-91-1	1,4-DIOXANE	1	100	U	100	60
64-17-5	ETHANOL	1	40	U	40	60
78-83-1	ISOBUTYL ALCOHOL	1	40	U	40	30

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Sample Results

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Field ID: 757228 Ditlev-Simonsen flo
Lab ID: 1712475-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 21-Dec-17
Date Extracted: 28-Dec-17
Date Analyzed: 28-Dec-17
Prep Method: SW5030 Rev C

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: As Received
File Name: C79112

Analyst: Joe Kostelnik
Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Result Qualifier	Reporting Limit	MDL

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	25.6		25	103	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	26.5		25	106	84 - 118
2037-26-5	TOLUENE-D8	26.1		25	104	85 - 115

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25

Tentatively Identified Compounds

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Field ID: 757228 Ditlev-Simonsen flo
Lab ID: 1712475-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 21-Dec-17
Date Extracted: 28-Dec-17
Date Analyzed: 28-Dec-17

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: As Received

Sample Aliquot: 10 ml
Final Volume: 10 ml
Clean DF: 1
File Name: C79112

CASNO	Retention Time	Target Analyte	Dilution Factor	Result	Units	Qualifier
1120-21-4	11.48	UNDECANE	1	37	UG/L	J
	11.64	UNSATURATED HYDROCARBON1	1	8.5	UG/L	J
	11.96	CYCLIC HYDROCARBON1	1	8.7	UG/L	J
	12.33	SATURATED HYDROCARBON1	1	40	UG/L	J
	12.44	SATURATED HYDROCARBON2	1	10	UG/L	J
	12.89	SATURATED HYDROCARBON3	1	14	UG/L	J
	13.16	DIMETHYLCYCLOHEXANE1	1	7.4	UG/L	J
	13.44	SATURATED HYDROCARBON4	1	8	UG/L	J
	13.54	SATURATED HYDROCARBON5	1	6.3	UG/L	J
	13.65	SATURATED HYDROCARBON6	1	13	UG/L	J

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Lab ID: VL171228-3LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 12/28/2017
Date Analyzed: 12/28/2017
Prep Method: SW5030C

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: N/A
File Name: C79108

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
110-54-3	HEXANE	10	10	1		100	60 - 140%
108-87-2	METHYL CYCLOHEXANE	10	9.65	1		97	60 - 140%
71-36-3	N-BUTANOL	500	421	50		84	50 - 150%
75-65-0	TERT-BUTANOL	500	465	50		93	50 - 150%
75-71-8	DICHLORODIFLUOROMETHANE	10	8.07	1		81	63 - 125%
74-87-3	CHLOROMETHANE	10	8.73	1		87	73 - 122%
75-01-4	VINYL CHLORIDE	10	8.72	1		87	72 - 123%
74-83-9	BROMOMETHANE	10	8.59	1		86	68 - 123%
75-00-3	CHLOROETHANE	10	8.69	1		87	74 - 124%
75-69-4	TRICHLOROFLUOROMETHANE	10	9.07	1		91	74 - 124%
75-35-4	1,1-DICHLOROETHENE	10	10.2	1		102	77 - 119%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETH	10	10.4	1		104	79 - 122%
67-64-1	ACETONE	40	40.3	10		101	62 - 142%
74-88-4	IODOMETHANE	10	10.6	1		106	72 - 126%
75-15-0	CARBON DISULFIDE	10	10.2	1		102	76 - 121%
75-09-2	METHYLENE CHLORIDE	10	9.58	1		96	71 - 130%
156-60-5	TRANS-1,2-DICHLOROETHENE	10	9.51	1		95	82 - 117%
1634-04-4	METHYL TERTIARY BUTYL ETHER	20	18.7	1		93	77 - 119%
75-34-3	1,1-DICHLOROETHANE	10	9.74	1		97	83 - 119%
108-05-4	VINYL ACETATE	10	9.4	2		94	76 - 121%
156-59-2	CIS-1,2-DICHLOROETHENE	10	9.65	1		96	83 - 117%
78-93-3	2-BUTANONE	40	37.7	10		94	70 - 135%
74-97-5	BROMOCHLOROMETHANE	10	9.56	1		96	83 - 121%
67-66-3	CHLOROFORM	10	9.26	1		93	82 - 119%
71-55-6	1,1,1-TRICHLOROETHANE	10	9.71	1		97	80 - 120%
594-20-7	2,2-DICHLOROPROPANE	10	10.4	1		104	83 - 125%

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Lab ID: VL171228-3LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 12/28/2017
Date Analyzed: 12/28/2017
Prep Method: SW5030C

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: N/A
File Name: C79108

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
110-82-7	CYCLOHEXANE	20	19.2	1		96	60 - 140%
56-23-5	CARBON TETRACHLORIDE	10	9.67	1		97	77 - 122%
563-58-6	1,1-DICHLOROPROPENE	10	9.74	1		97	84 - 118%
107-06-2	1,2-DICHLOROETHANE	10	9.36	1		94	74 - 128%
71-43-2	BENZENE	10	9.81	1		98	83 - 117%
79-01-6	TRICHLOROETHENE	10	10	1		100	83 - 117%
78-87-5	1,2-DICHLOROPROPANE	10	9.5	1		95	84 - 120%
74-95-3	DIBROMOMETHANE	10	9.4	1		94	79 - 122%
75-27-4	BROMODICHLOROMETHANE	10	9.48	1		95	76 - 122%
10061-01-5	CIS-1,3-DICHLOROPROPENE	10	9.81	1		98	81 - 120%
108-10-1	4-METHYL-2-PENTANONE	40	36.5	10		91	73 - 125%
108-88-3	TOLUENE	10	10	1		100	82 - 113%
10061-02-6	TRANS-1,3-DICHLOROPROPENE	10	9.72	1		97	81 - 114%
79-00-5	1,1,2-TRICHLOROETHANE	10	10.1	1		101	78 - 116%
591-78-6	2-HEXANONE	40	37.3	10		93	71 - 124%
127-18-4	TETRACHLOROETHENE	10	10.1	1		101	84 - 117%
142-28-9	1,3-DICHLOROPROPANE	10	9.44	1		94	80 - 115%
124-48-1	DIBROMOCHLOROMETHANE	10	9.94	1		99	82 - 118%
106-93-4	1,2-DIBROMOETHANE	10	9.82	1		98	79 - 114%
544-10-5	1-CHLOROHEXANE	10	10.5	1		105	80 - 117%
108-90-7	CHLOROBENZENE	10	9.99	1		100	81 - 113%
630-20-6	1,1,1,2-TETRACHLOROETHANE	10	10.2	1		102	78 - 113%
100-41-4	ETHYLBENZENE	10	10.3	1		103	81 - 113%
179601-23-	M+P-XYLENE	20	19.8	1		99	82 - 115%
95-47-6	O-XYLENE	10	9.98	1		100	81 - 115%
100-42-5	STYRENE	10	10.2	1		102	78 - 118%
75-25-2	BROMOFORM	10	9.63	1		96	70 - 120%

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Lab ID: VL171228-3LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 12/28/2017
Date Analyzed: 12/28/2017
Prep Method: SW5030C

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: N/A
File Name: C79108

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
98-82-8	ISOPROPYLBENZENE	10	10.1	1		101	80 - 113%
96-18-4	1,2,3-TRICHLOROPROPANE	10	9.81	1		98	78 - 117%
79-34-5	1,1,2,2-TETRACHLOROETHANE	10	10.1	1		101	75 - 121%
108-86-1	BROMOBENZENE	10	10	1		100	81 - 114%
103-65-1	N-PROPYLBENZENE	10	10.5	1		105	79 - 116%
95-49-8	2-CHLOROTOLUENE	10	10	1		100	79 - 116%
108-67-8	1,3,5-TRIMETHYLBENZENE	10	10.7	1		107	78 - 116%
106-43-4	4-CHLOROTOLUENE	10	10.4	1		104	78 - 115%
98-06-6	TERT-BUTYLBENZENE	10	10.8	1		108	76 - 120%
95-63-6	1,2,4-TRIMETHYLBENZENE	10	10.4	1		104	80 - 117%
135-98-8	SEC-BUTYLBENZENE	10	10.5	1		105	78 - 115%
541-73-1	1,3-DICHLOROBENZENE	10	10	1		100	79 - 115%
99-87-6	P-ISOPROPYLTOLUENE	10	10.7	1		107	77 - 116%
106-46-7	1,4-DICHLOROBENZENE	10	9.81	1		98	82 - 114%
104-51-8	N-BUTYLBENZENE	10	10.6	1		106	79 - 117%
95-50-1	1,2-DICHLOROBENZENE	10	10.1	1		101	82 - 114%
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	9.99	2		100	73 - 125%
120-82-1	1,2,4-TRICHLOROBENZENE	10	11.2	1		112	75 - 120%
87-68-3	HEXACHLOROBUTADIENE	10	11.7	1		117	71 - 124%
91-20-3	NAPHTHALENE	10	9.79	1		98	71 - 131%
87-61-6	1,2,3-TRICHLOROBENZENE	10	11.1	1		111	70 - 131%
123-91-1	1,4-DIOXANE	200	185	100		92	50 - 150%
64-17-5	ETHANOL	200	175	40		87	50 - 150%
78-83-1	ISOBUTYL ALCOHOL	200	184	40		92	50 - 150%

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Lab ID: VL171228-3LCSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 12/28/2017
Date Analyzed: 12/28/2017
Prep Method: SW5030C

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: N/A
File Name: C79109

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
110-54-3	HEXANE	10	9.58	1		96	30	5
108-87-2	METHYL CYCLOHEXANE	10	9.66	1		97	30	0
71-36-3	N-BUTANOL	500	416	50		83	30	1
75-65-0	TERT-BUTANOL	500	485	50		97	30	4
75-71-8	DICHLORODIFLUOROMETHANE	10	8.07	1		81	20	0
74-87-3	CHLOROMETHANE	10	8.49	1		85	20	3
75-01-4	VINYL CHLORIDE	10	8.72	1		87	20	0
74-83-9	BROMOMETHANE	10	8.39	1		84	20	2
75-00-3	CHLOROETHANE	10	8.99	1		90	20	3
75-69-4	TRICHLOROFLUOROMETHANE	10	9.14	1		91	20	1
75-35-4	1,1-DICHLOROETHENE	10	10	1		100	20	2
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETH	10	10.3	1		103	20	1
67-64-1	ACETONE	40	38.8	10		97	30	4
74-88-4	IODOMETHANE	10	10.9	1		109	20	2
75-15-0	CARBON DISULFIDE	10	9.76	1		98	20	4
75-09-2	METHYLENE CHLORIDE	10	9.91	1		99	20	3
156-60-5	TRANS-1,2-DICHLOROETHENE	10	9.54	1		95	20	0
1634-04-4	METHYL TERTIARY BUTYL ETHER	20	19	1		95	20	2
75-34-3	1,1-DICHLOROETHANE	10	10	1		100	20	3
108-05-4	VINYL ACETATE	10	9.69	2		97	20	3
156-59-2	CIS-1,2-DICHLOROETHENE	10	9.88	1		99	20	2
78-93-3	2-BUTANONE	40	35.2	10		88	30	7
74-97-5	BROMOCHLOROMETHANE	10	10	1		100	20	5
67-66-3	CHLOROFORM	10	9.41	1		94	20	2
71-55-6	1,1,1-TRICHLOROETHANE	10	9.86	1		99	20	1
594-20-7	2,2-DICHLOROPROPANE	10	10.5	1		105	20	1
110-82-7	CYCLOHEXANE	20	19.4	1		97	30	1

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Lab ID: VL171228-3LCSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 12/28/2017
Date Analyzed: 12/28/2017
Prep Method: SW5030C

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: N/A
File Name: C79109

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
56-23-5	CARBON TETRACHLORIDE	10	10.2	1		102	20	6
563-58-6	1,1-DICHLOROPROPENE	10	10.2	1		102	20	4
107-06-2	1,2-DICHLOROETHANE	10	9.26	1		93	20	1
71-43-2	BENZENE	10	9.72	1		97	20	1
79-01-6	TRICHLOROETHENE	10	9.94	1		99	20	1
78-87-5	1,2-DICHLOROPROPANE	10	9.39	1		94	20	1
74-95-3	DIBROMOMETHANE	10	9.87	1		99	20	5
75-27-4	BROMODICHLOROMETHANE	10	9.77	1		98	20	3
10061-01-5	CIS-1,3-DICHLOROPROPENE	10	10.1	1		101	20	3
108-10-1	4-METHYL-2-PENTANONE	40	39.1	10		98	30	7
108-88-3	TOLUENE	10	9.58	1		96	20	5
10061-02-6	TRANS-1,3-DICHLOROPROPENE	10	10.1	1		101	20	4
79-00-5	1,1,2-TRICHLOROETHANE	10	9.97	1		100	20	1
591-78-6	2-HEXANONE	40	36.1	10		90	30	3
127-18-4	TETRACHLOROETHENE	10	10.1	1		101	20	0
142-28-9	1,3-DICHLOROPROPANE	10	9.76	1		98	20	3
124-48-1	DIBROMOCHLOROMETHANE	10	10.4	1		104	20	5
106-93-4	1,2-DIBROMOETHANE	10	10	1		100	20	2
544-10-5	1-CHLOROHEXANE	10	10	1		100	20	4
108-90-7	CHLOROBENZENE	10	9.91	1		99	20	1
630-20-6	1,1,1,2-TETRACHLOROETHANE	10	10.1	1		101	20	0
100-41-4	ETHYLBENZENE	10	10.2	1		102	20	2
179601-23-	M+P-XYLENE	20	20	1		100	20	1
95-47-6	O-XYLENE	10	10.4	1		104	20	4
100-42-5	STYRENE	10	10.6	1		106	20	4
75-25-2	BROMOFORM	10	9.72	1		97	20	1
98-82-8	ISOPROPYLBENZENE	10	10.2	1		102	20	1

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Lab ID: VL171228-3LCSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 12/28/2017
Date Analyzed: 12/28/2017
Prep Method: SW5030C

Prep Batch: VL171228-3
QCBatchID: VL171228-3-2
Run ID: VL171228-3A
Cleanup: NONE
Basis: N/A
File Name: C79109

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
96-18-4	1,2,3-TRICHLOROPROPANE	10	9.86	1		99	20	1
79-34-5	1,1,2,2-TETRACHLOROETHANE	10	9.89	1		99	20	2
108-86-1	BROMOBENZENE	10	10.1	1		101	20	0
103-65-1	N-PROPYLBENZENE	10	9.76	1		98	20	7
95-49-8	2-CHLOROTOLUENE	10	9.92	1		99	20	1
108-67-8	1,3,5-TRIMETHYLBENZENE	10	10.1	1		101	20	6
106-43-4	4-CHLOROTOLUENE	10	9.96	1		100	20	5
98-06-6	TERT-BUTYLBENZENE	10	9.72	1		97	20	10
95-63-6	1,2,4-TRIMETHYLBENZENE	10	10.1	1		101	20	3
135-98-8	SEC-BUTYLBENZENE	10	9.71	1		97	20	8
541-73-1	1,3-DICHLOROBENZENE	10	10.1	1		101	20	1
99-87-6	P-ISOPROPYLTOLUENE	10	9.97	1		100	20	7
106-46-7	1,4-DICHLOROBENZENE	10	9.72	1		97	20	1
104-51-8	N-BUTYLBENZENE	10	9.77	1		98	20	8
95-50-1	1,2-DICHLOROBENZENE	10	9.75	1		98	20	4
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	9.79	2		98	20	2
120-82-1	1,2,4-TRICHLOROBENZENE	10	11.2	1		112	20	1
87-68-3	HEXACHLOROBUTADIENE	10	11.1	1		111	20	5
91-20-3	NAPHTHALENE	10	10.2	1		102	20	4
87-61-6	1,2,3-TRICHLOROBENZENE	10	10.6	1		106	20	4
123-91-1	1,4-DIOXANE	200	195	100		98	30	6
64-17-5	ETHANOL	200	179	40		90	30	2
78-83-1	ISOBUTYL ALCOHOL	200	193	40		96	30	5

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: **ALS -- Fort Collins**
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Surrogate Recovery LCS/LCSD

CASNO	Target Analyte	Spike Added	LCS % Rec.	LCS Flag	LCSD % Rec.	LCSD Flag	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	25	98		100		85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	25	96		100		84 - 115
2037-26-5	TOLUENE-D8	25	98		101		85 - 115

Data Package ID: *VL1712475-1*

GC/MS Volatiles

Method SW8260_25C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins
Work Order Number: 1712475
Client Name: COGCC
ClientProject ID: Complaint 200444807

Lab ID: VL171229-8LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 12/29/2017
Date Analyzed: 12/29/2017
Prep Method: SW5030C

Prep Batch: VL171229-4
QCBatchID: VL171229-4-3
Run ID: VL171229-4A
Cleanup: NONE
Basis: N/A
File Name: D63976

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
8006-61-9	GASOLINE RANGE ORGANICS	1000	995	100		99	80 - 120%

Lab ID: VL171229-8LCSD

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 12/29/2017
Date Analyzed: 12/29/2017
Prep Method: SW5030C

Prep Batch: VL171229-4
QCBatchID: VL171229-4-3
Run ID: VL171229-4A
Cleanup: NONE
Basis: N/A
File Name: D63977

Sample Aliquot: 10 ml
Final Volume: 10 ml
Result Units: UG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
8006-61-9	GASOLINE RANGE ORGANICS	1000	906	100		91	20	9

Data Package ID: *VL1712475-1*

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\2017\122817\C79111.D Vial: 7
Acq On : 28 Dec 2017 2:18 pm Operator: JK-sop525r16
Sample : VL171228-3MB Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ettics.p
Quant Time: Dec 28 17:10 2017 Quant Results File: 122217W.RES

Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Last Update : Sat Dec 23 06:00:59 2017
Response via : Initial Calibration
DataAcq Meth : 122217W

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	5.20	96	1774001	25.00	ppb	-0.02
58) Chlorobenzene-d5	8.82	82	688507	25.00	ppb	-0.01
78) 1,4-Dichlorobenzene-d4	11.06	152	458348	25.00	ppb	-0.01
System Monitoring Compounds						
37) Dibromofluoromethane	4.45	113	520432	24.34	ppb	-0.02
Spiked Amount 25.000	Range 85 - 115		Recovery = 97.36%			
42) 1,2-dichloroethane-d4	4.83	65	470351	25.06	ppb	-0.02
Spiked Amount 25.000	Range 85 - 115		Recovery = 100.24%			
59) Toluene-d8	7.08	98	1486269	24.61	ppb	-0.01
Spiked Amount 25.000	Range 85 - 115		Recovery = 98.44%			
79) 4-Bromofluorobenzene	10.03	95	518784	25.94	ppb	-0.01
Spiked Amount 25.000	Range 85 - 115		Recovery = 103.76%			

Target Compounds Qvalue

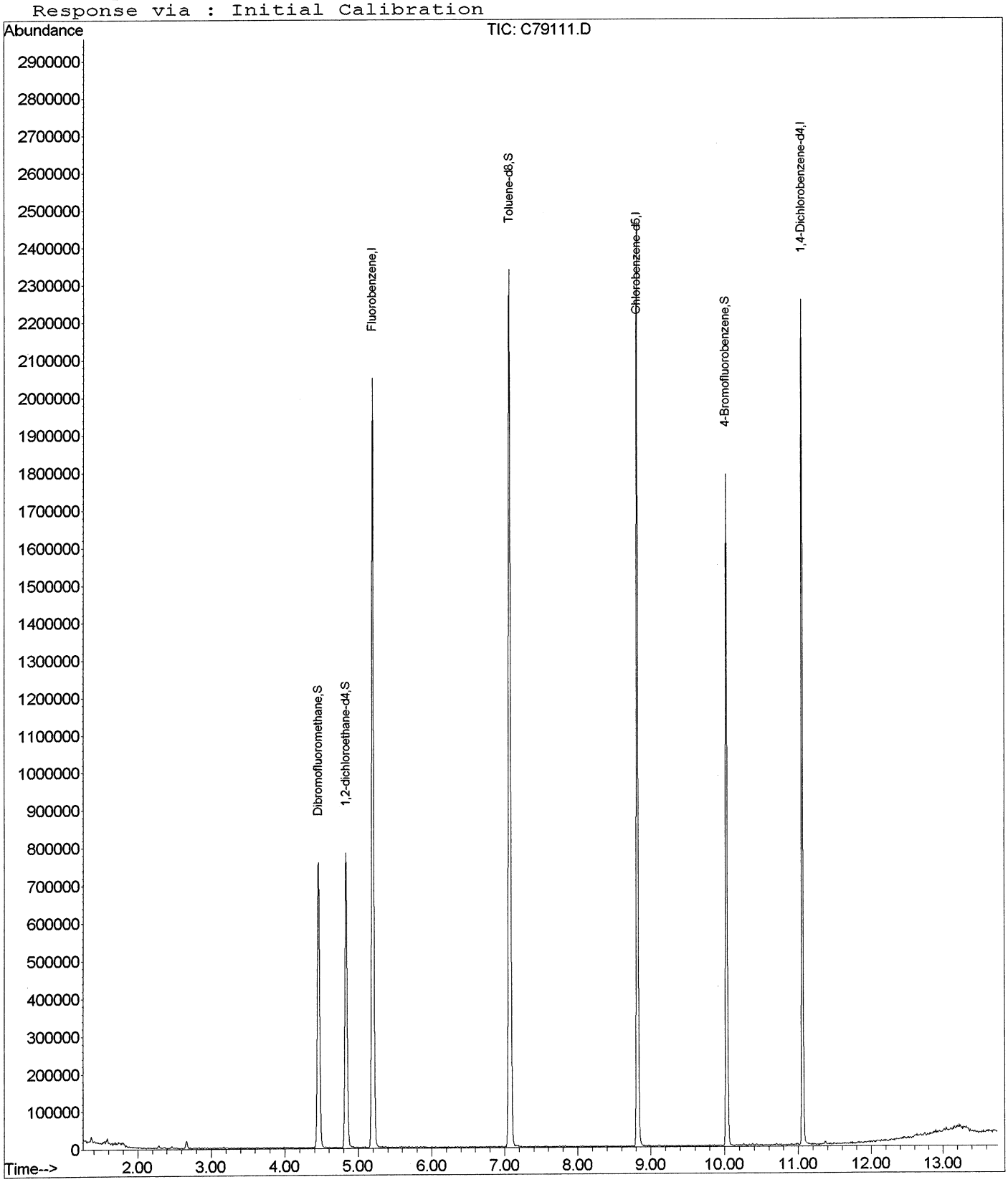
(#) = qualifier out of range (m) = manual integration
C79111.D 122217W.M Thu Dec 28 17:10:52 2017 Page 1

12/29/17

Quantitation Report

Data File : C:\HPCHEM\1\DATA\2017\122817\C79111.D Vial: 7
Acq On : 28 Dec 2017 2:18 pm Operator: JK-sop525r16
Sample : VL171228-3MB Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ettics.p
Quant Time: Dec 28 17:10 2017 Quant Results File: 122217W.RES

Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Last Update : Sat Dec 23 06:00:59 2017
Response via : Initial Calibration



Tentatively Identified Compound (LSC) summary

Operator ID: JK-sop525r16 Date Acquired: 28 Dec 2017 2:18 pm
Data File: C:\HPCHEM\1\DATA\2017\122817\C79111.D
Name: VL171228-3MB
Misc: 8260 - 10mL water
Method: C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title: HPV3 - GC/MS Volatiles (S.O.P. 525)
Library Searched: C:\DATABASE\NIST129k.1

TIC Top Hit name	RT	EstConc	Units	Area	IntStd	ISRT	ISArea	ISConc

C79111.D 122217W.M Fri Dec 29 11:36:54 2017

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\2017\122817\C79112.D Vial: 8
Acq On : 28 Dec 2017 2:46 pm Operator: JK-sop525r16
Sample : 1712475-1 Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ettics.p
Quant Time: Dec 29 8:24 2017 Quant Results File: 122217W.RES

Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Last Update : Sat Dec 23 06:00:59 2017
Response via : Initial Calibration
DataAcq Meth : 122217W

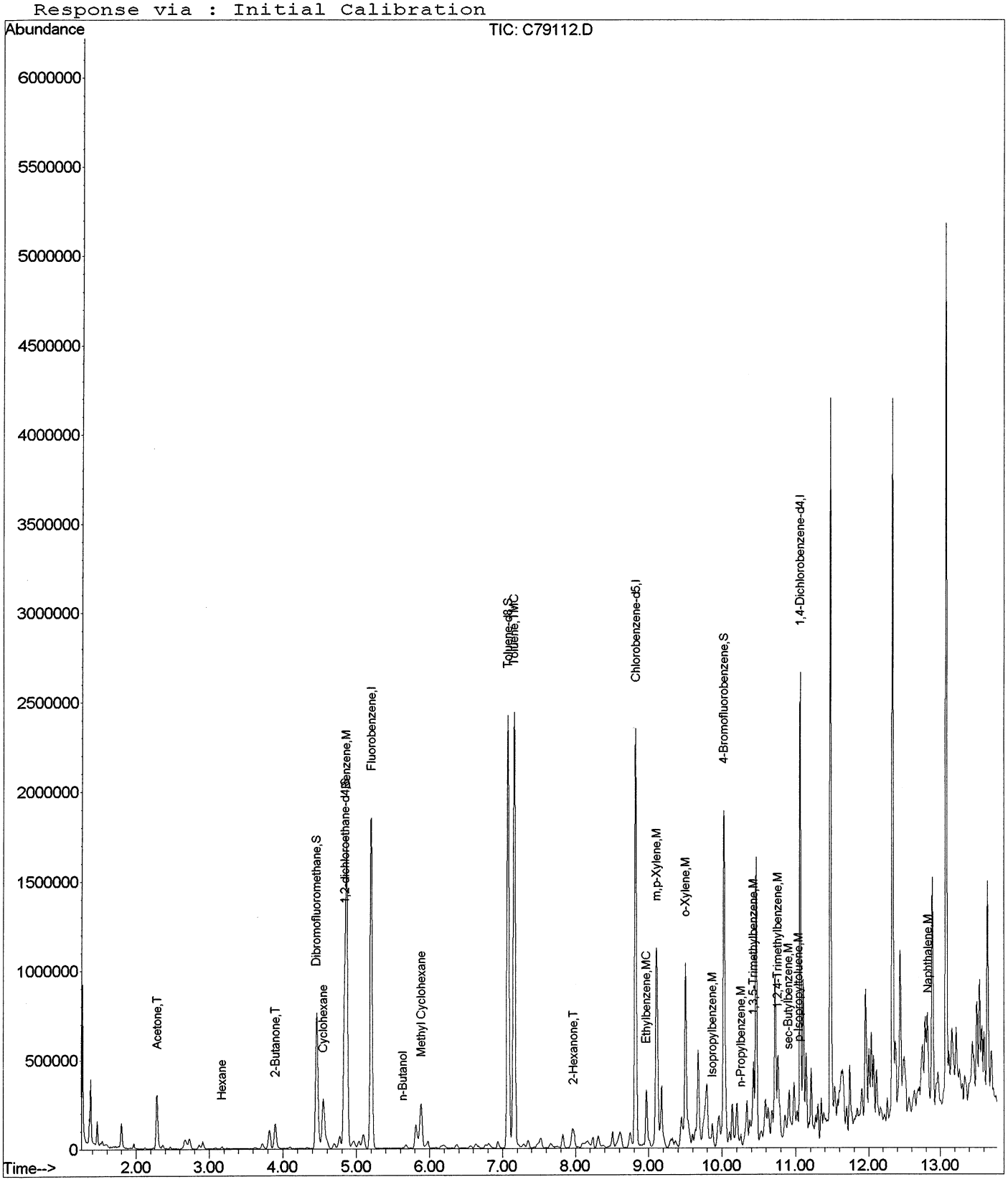
Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene	5.20	96	1624502	25.00	ppb		-0.01
58) Chlorobenzene-d5	8.82	82	653317	25.00	ppb		0.00
78) 1,4-Dichlorobenzene-d4	11.06	152	461179	25.00	ppb		0.00
System Monitoring Compounds							
37) Dibromofluoromethane	4.46	113	519726	26.55	ppb		-0.01
Spiked Amount 25.000	Range 85 - 115		Recovery =	106.20%			
42) 1,2-dichloroethane-d4	4.83	65	457159	26.60	ppb		-0.01
Spiked Amount 25.000	Range 85 - 115		Recovery =	106.40%			
59) Toluene-d8	7.07	98	1494960	26.09	ppb		-0.01
Spiked Amount 25.000	Range 85 - 115		Recovery =	104.36%			
79) 4-Bromofluorobenzene	10.03	95	515656	25.63	ppb		0.00
Spiked Amount 25.000	Range 85 - 115		Recovery =	102.52%			
Target Compounds							Qvalue
13) Acetone	2.29	43	333870	78.81	ppb		87
24) Hexane	3.17	57	5811	0.34	ppb	#	77
31) 2-Butanone	3.90	43	208871	24.06	ppb		88
39) Cyclohexane	4.55	84	96218	4.98	ppb	#	84
45) Benzene	4.86	78	1354199	19.78	ppb		95
47) n-Butanol	5.63	56	2388	40.89	ppb	#	53
49) Methyl Cyclohexane	5.89	55	120670	5.33	ppb		72
60) Toluene	7.16	91	1771351	29.98	ppb		98
65) 2-Hexanone	7.98	58	28996	6.31	ppb	#	45
71) Ethylbenzene	8.97	91	201097	3.31	ppb		99
73) m,p-Xylene	9.11	106	339557	15.08	ppb		98
74) o-Xylene	9.50	106	231960	10.45	ppb		98
77) Isopropylbenzene	9.87	105	30283	0.60	ppb		98
82) n-Propylbenzene	10.26	91	37391	0.56	ppb		92
85) 1,3,5-Trimethylbenzene	10.43	105	133926	3.34	ppb		97
89) 1,2,4-Trimethylbenzene	10.76	105	169094	4.30	ppb		97
90) sec-Butylbenzene	10.90	105	22668	0.46	ppb		96
91) p-Isopropyltoluene	11.04	119	17476	0.48	ppb		95
100) Naphthalene	12.84	128	57610	2.94	ppb		95

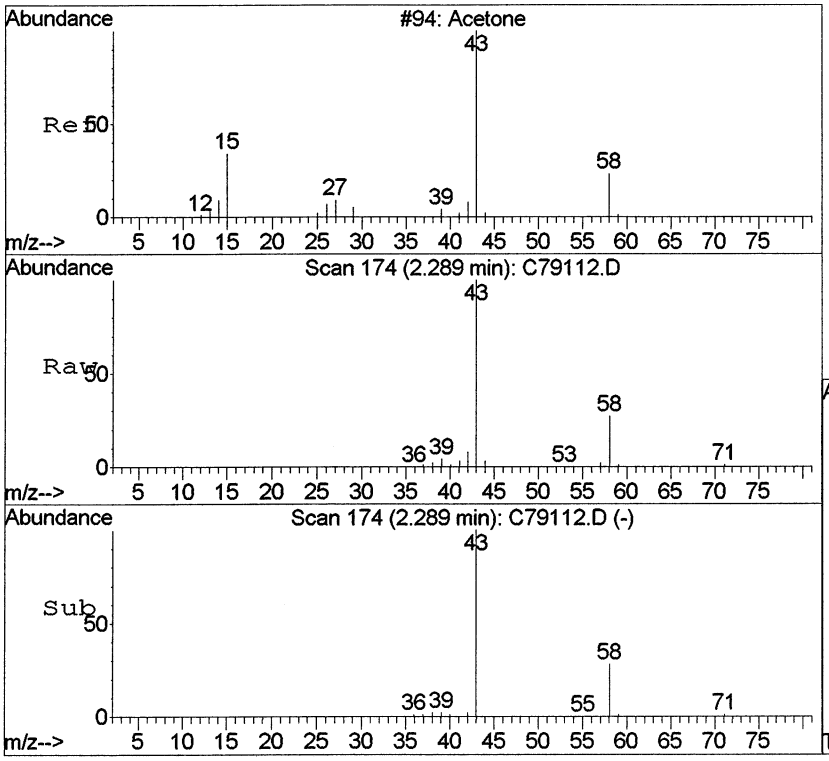
(#) = qualifier out of range (m) = manual integration
C79112.D 122217W.M Fri Dec 29 08:24:52 2017 9/12/2017

Quantitation Report

Data File : C:\HPCHEM\1\DATA\2017\122817\C79112.D Vial: 8
Acq On : 28 Dec 2017 2:46 pm Operator: JK-sop525r16
Sample : 1712475-1 Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ettics.p
Quant Time: Dec 29 8:24 2017 Quant Results File: 122217W.RES

Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Last Update : Sat Dec 23 06:00:59 2017
Response via : Initial Calibration

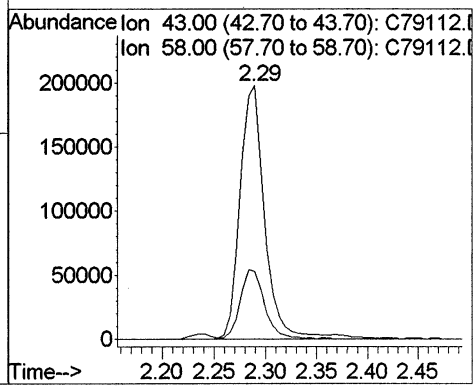


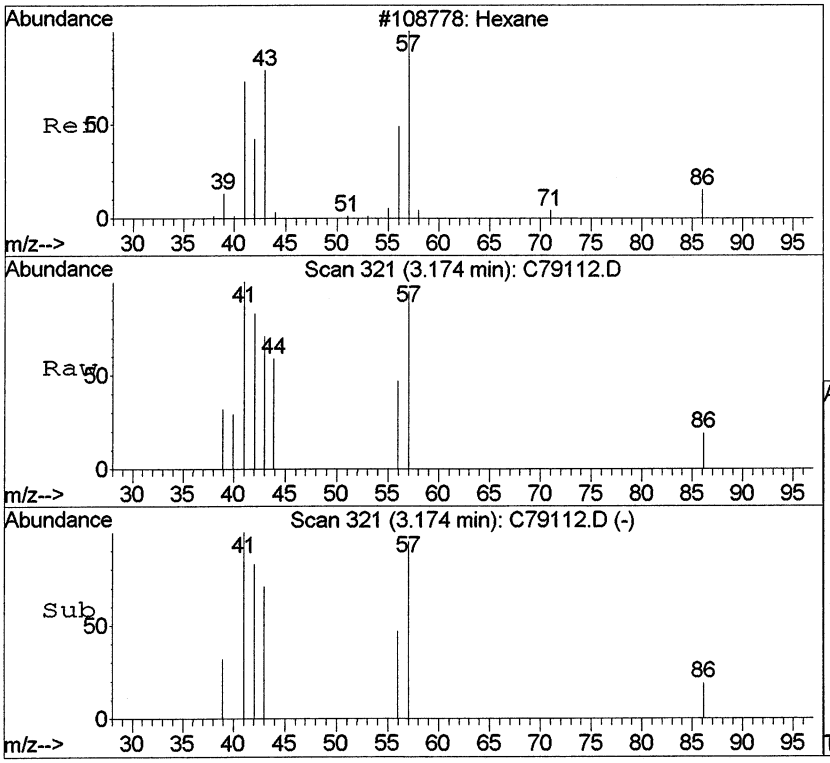


#13
Acetone
Concen: 78.81 ppb
RT: 2.29 min Scan# 174
Delta R.T. -0.00 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion: 43 Resp: 333870

Ion	Ratio	Lower	Upper
43	100		
58	26.8	0.0	211.0

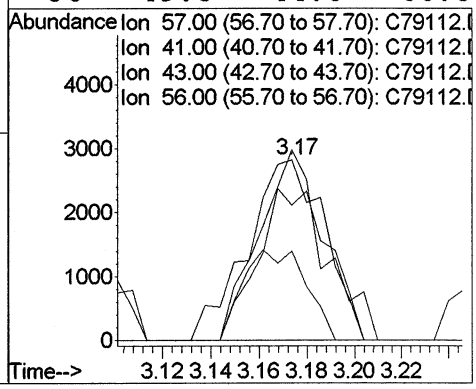


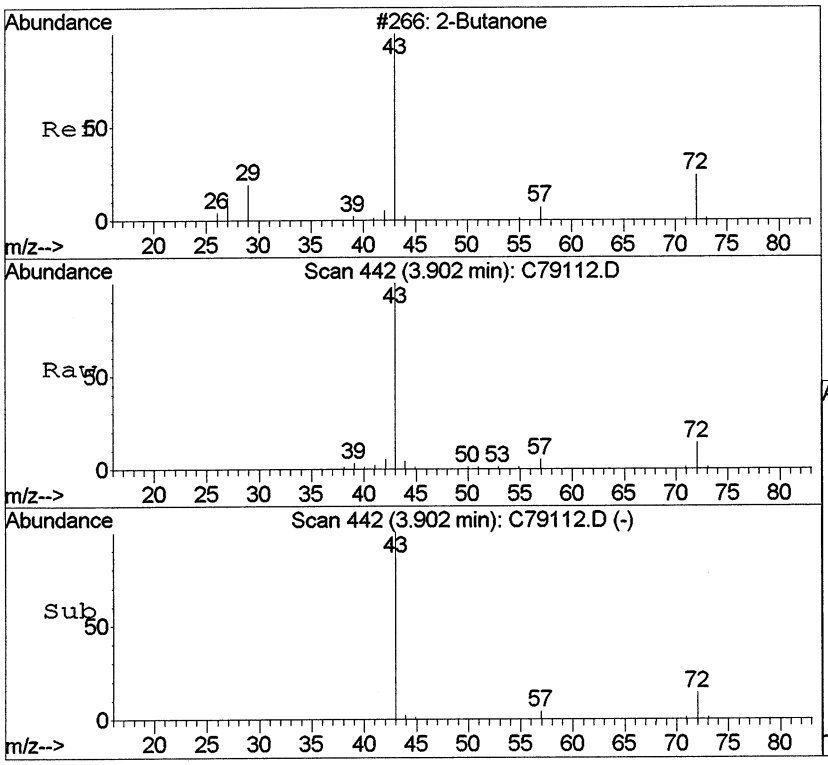


#24
Hexane
Concen: 0.34 ppb
RT: 3.17 min Scan# 321
Delta R.T. -0.01 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion: 57 Resp: 5811

Ion	Ratio	Lower	Upper
57	100		
41	105.7	54.9	82.3#
43	74.9	51.9	77.9
56	49.5	44.0	66.0

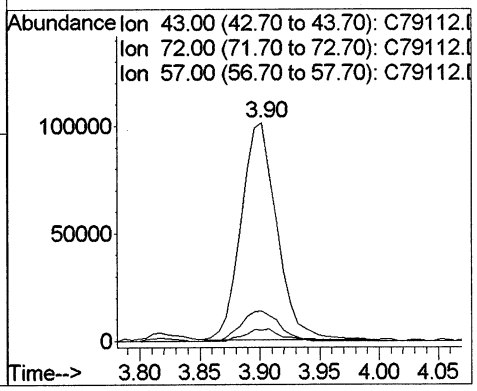


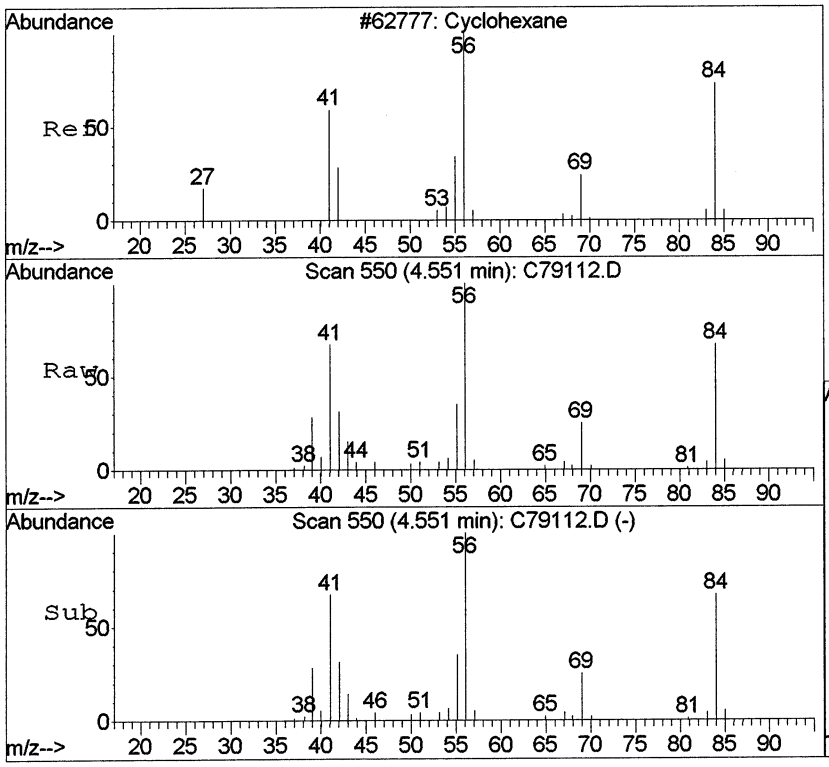


#31
2-Butanone
Concen: 24.06 ppb
RT: 3.90 min Scan# 442
Delta R.T. -0.01 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion: 43 Resp: 208871

Ion	Ratio	Lower	Upper
43	100		
72	13.9	12.4	29.0
57	5.1	2.9	6.7

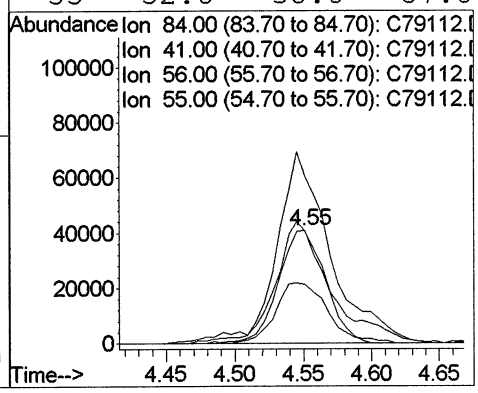


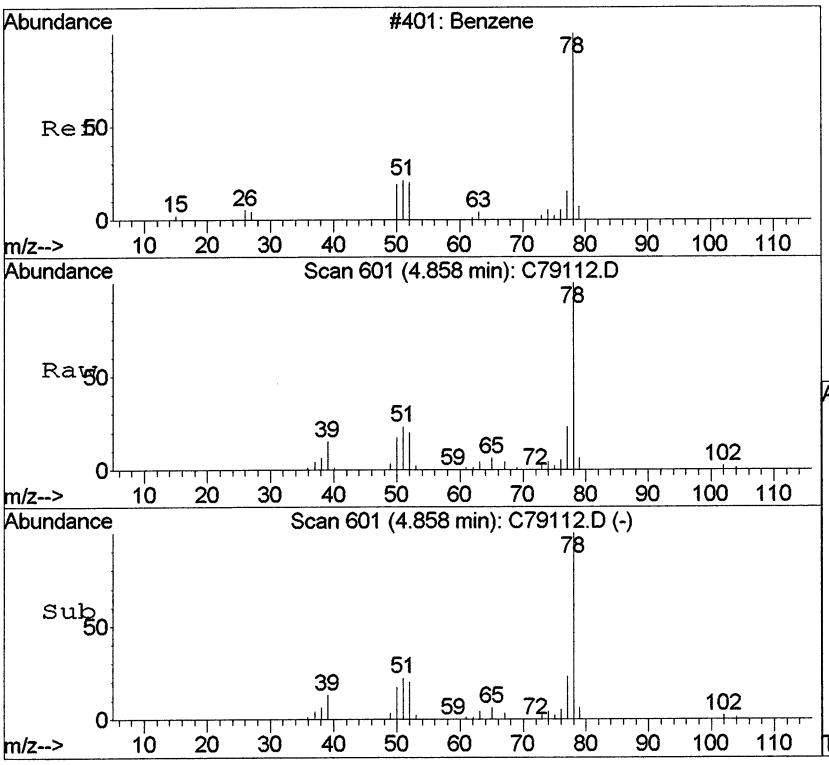


#39
Cyclohexane
Concen: 4.98 ppb
RT: 4.55 min Scan# 550
Delta R.T. -0.01 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion: 84 Resp: 96218

Ion	Ratio	Lower	Upper
84	100		
41	93.6	53.7	80.5#
56	145.7	106.6	160.0
55	52.0	38.0	57.0

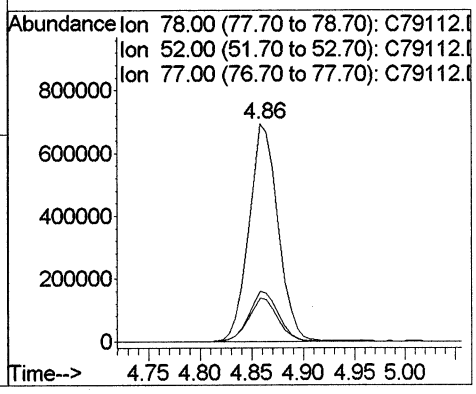


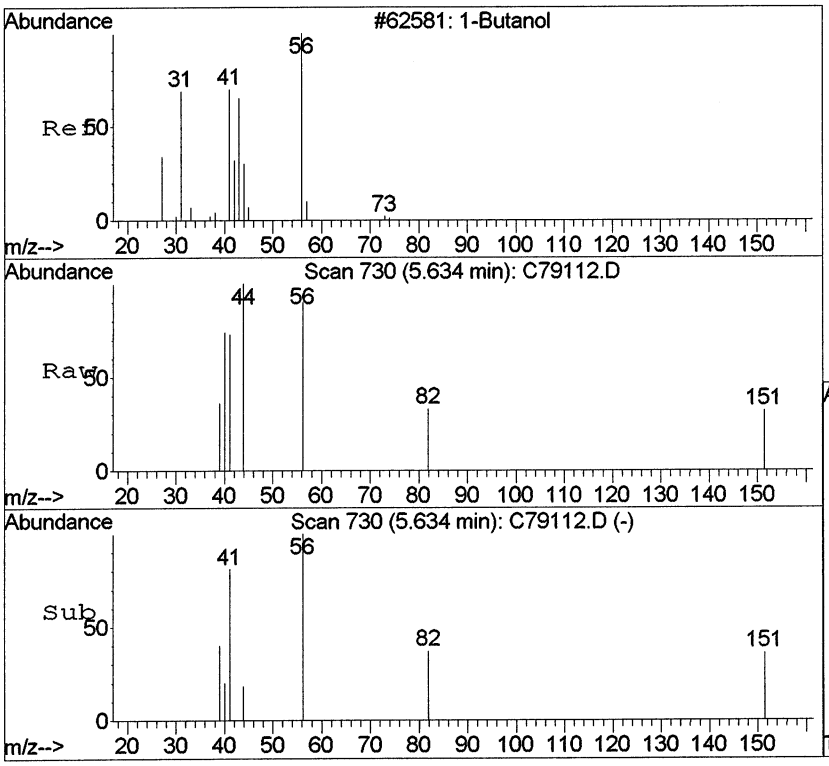


#45
Benzene
Concen: 19.78 ppb
RT: 4.86 min Scan# 601
Delta R.T. -0.01 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion: 78 Resp: 1354199

Ion	Ratio	Lower	Upper
78	100		
52	19.9	9.5	22.1
77	23.1	13.5	31.5

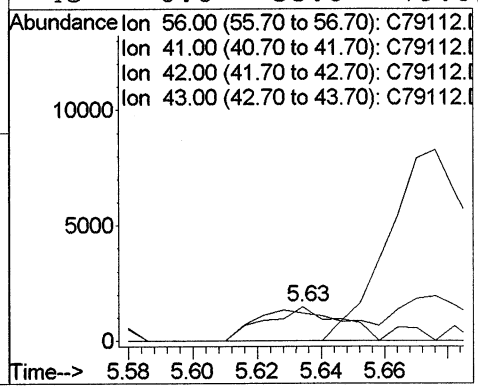


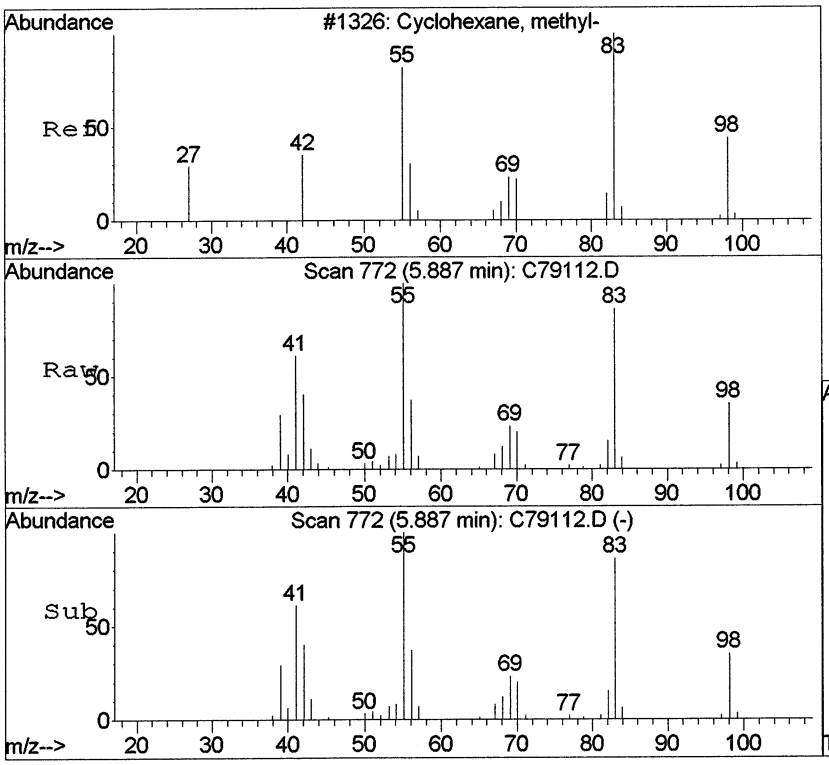


#47
n-Butanol
Concen: 40.89 ppb
RT: 5.63 min Scan# 730
Delta R.T. 0.11 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion: 56 Resp: 2388

Ion	Ratio	Lower	Upper
56	100		
41	81.3	40.3	94.1
42	0.0	17.5	40.9#
43	0.0	33.8	79.0#

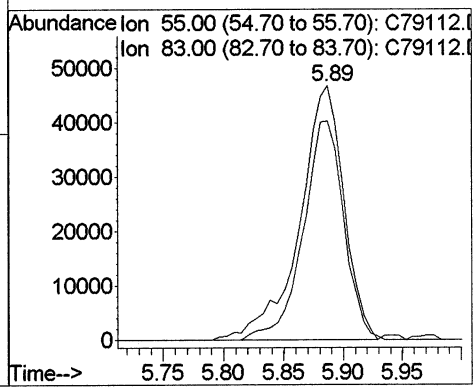


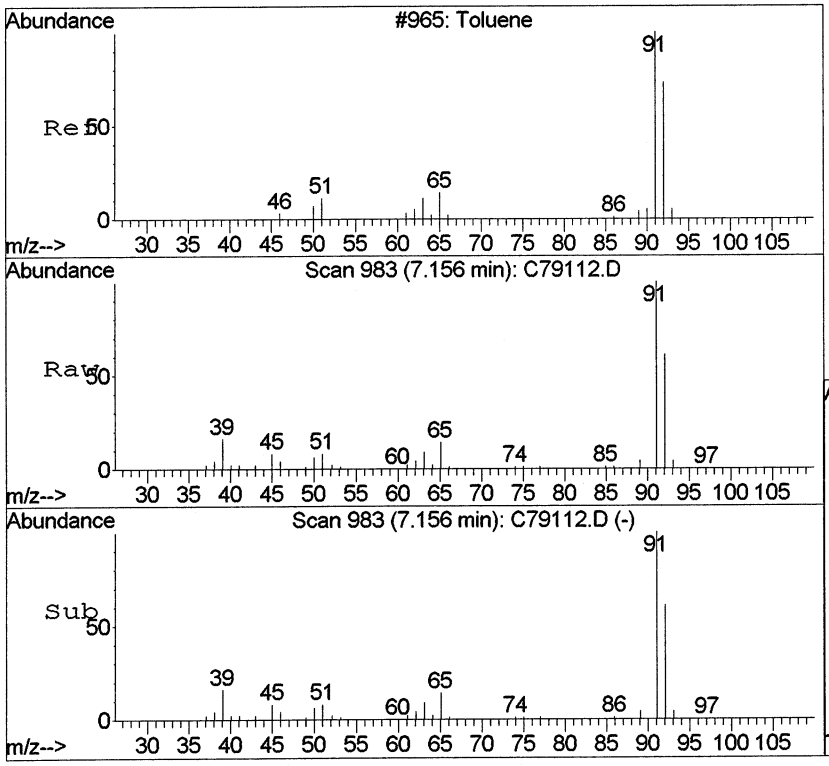


#49
Methyl Cyclohexane
Concen: 5.33 ppb
RT: 5.89 min Scan# 772
Delta R.T. -0.01 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion: 55 Resp: 120670

Ion	Ratio	Lower	Upper
55	100		
83	86.2	69.8	163.0

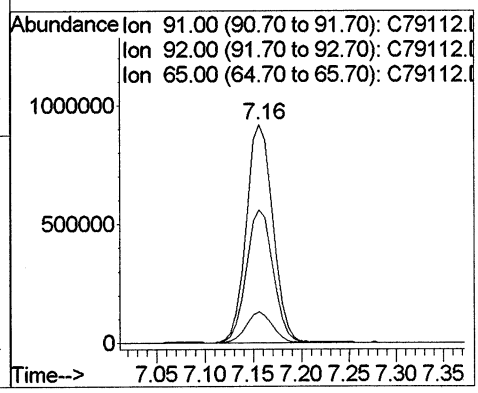


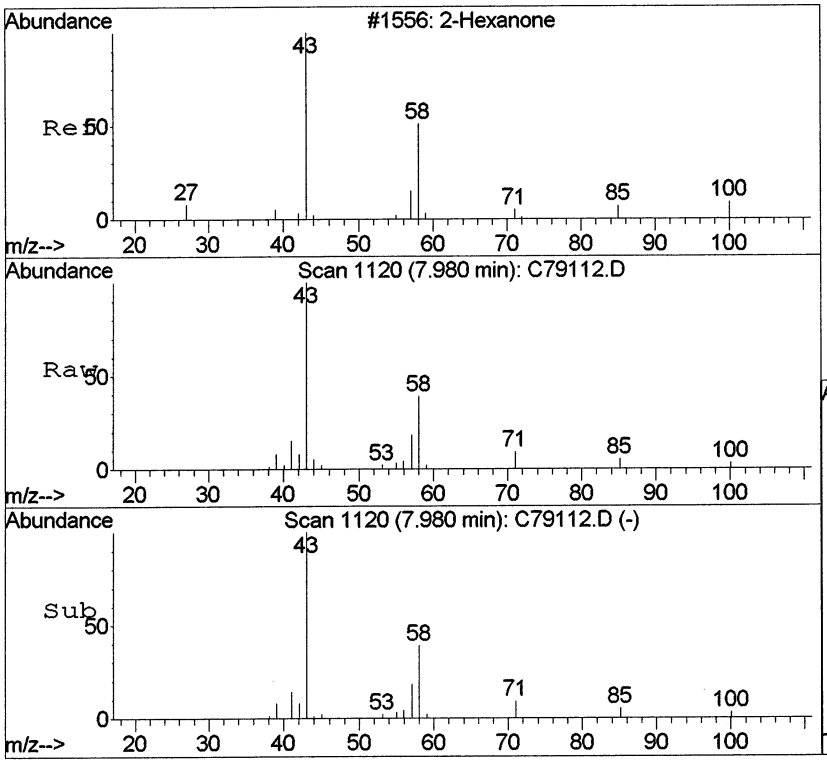


#60
Toluene
Concen: 29.98 ppb
RT: 7.16 min Scan# 983
Delta R.T. -0.01 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion: 91 Resp: 1771351

Ion	Ratio	Lower	Upper
91	100		
92	60.8	37.0	86.4
65	14.2	6.8	16.0

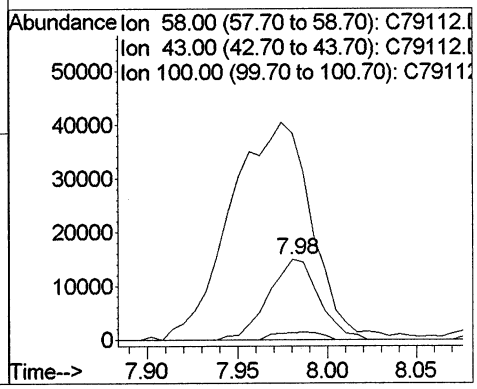


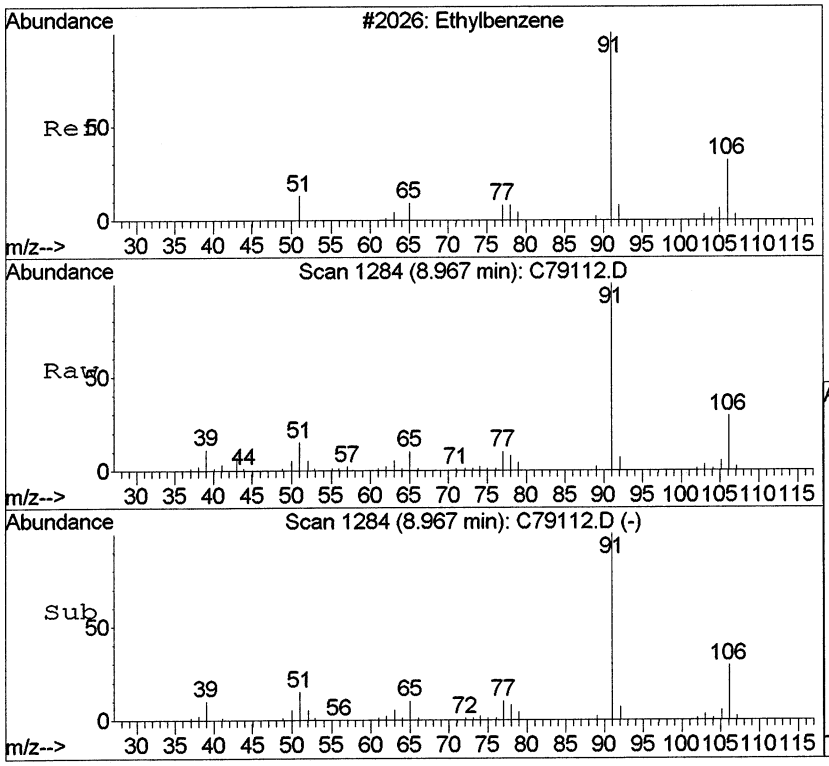


#65
2-Hexanone
Concen: 6.31 ppb
RT: 7.98 min Scan# 1120
Delta R.T. -0.01 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion: 58 Resp: 28996

Ion	Ratio	Lower	Upper
58	100		
43	248.1	100.7	235.1#
100	8.9	8.2	19.2

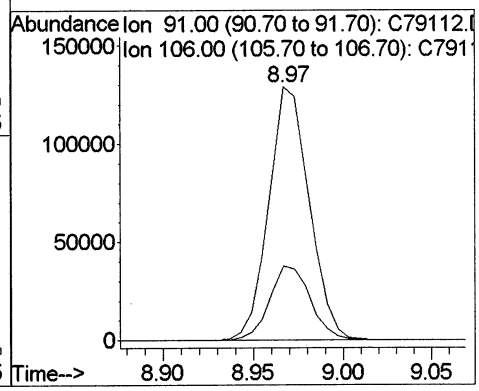


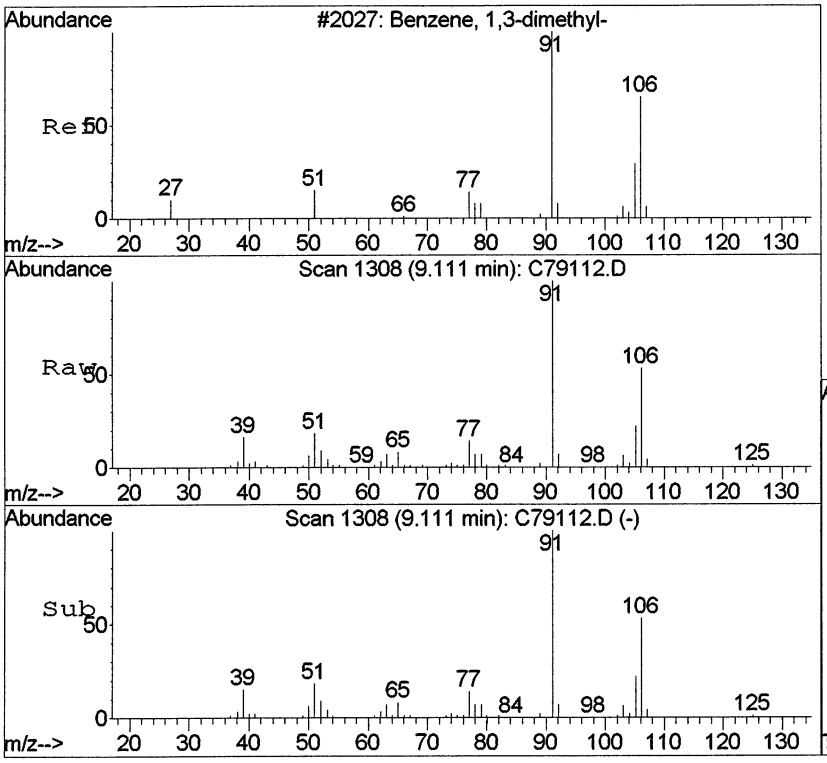


#71
Ethylbenzene
Concen: 3.31 ppb
RT: 8.97 min Scan# 1284
Delta R.T. -0.01 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion: 91 Resp: 201097

Ion	Ratio	Lower	Upper
91	100		
106	29.2	18.0	42.0

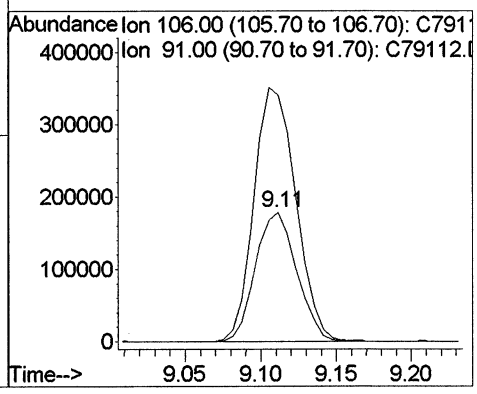


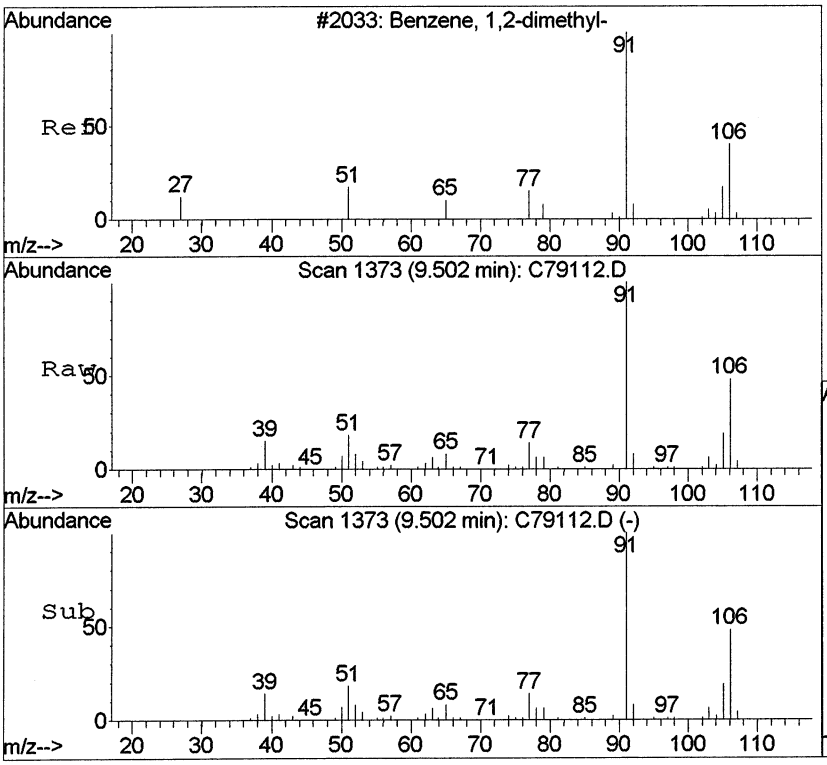


#73
m,p-Xylene
Concen: 15.08 ppb
RT: 9.11 min Scan# 1308
Delta R.T. -0.01 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion:106 Resp: 339557

Ion	Ratio	Lower	Upper
106	100		
91	190.0	115.6	269.6

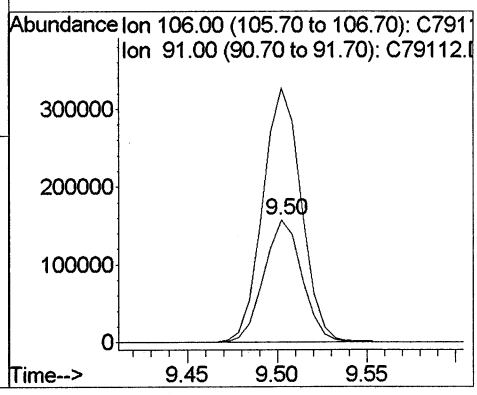


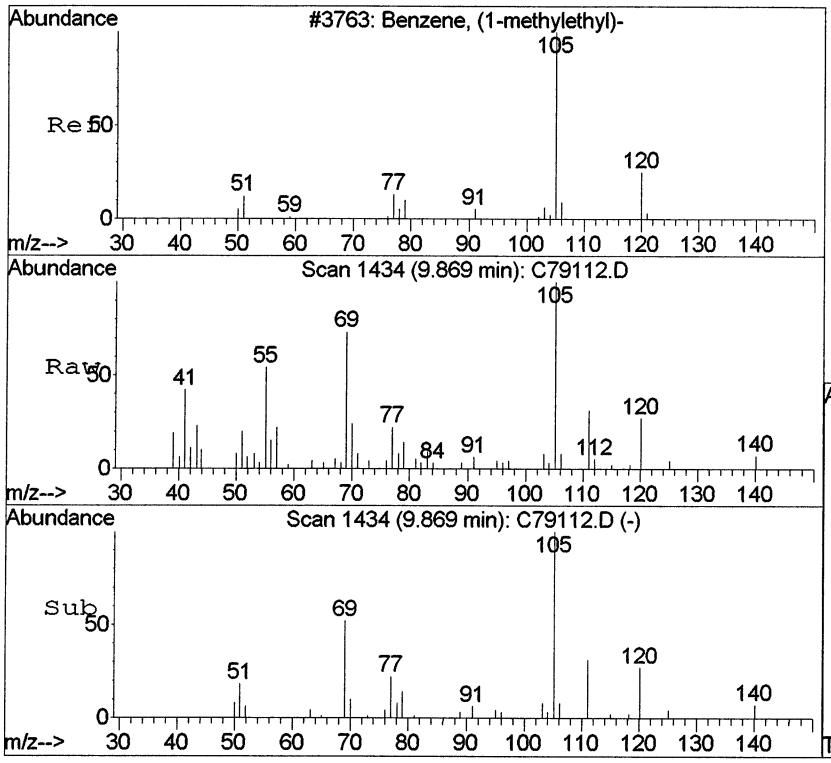


#74
o-Xylene
Concen: 10.45 ppb
RT: 9.50 min Scan# 1373
Delta R.T. -0.01 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion:106 Resp: 231960

Ion	Ratio	Lower	Upper
106	100		
91	207.4	122.6	286.0

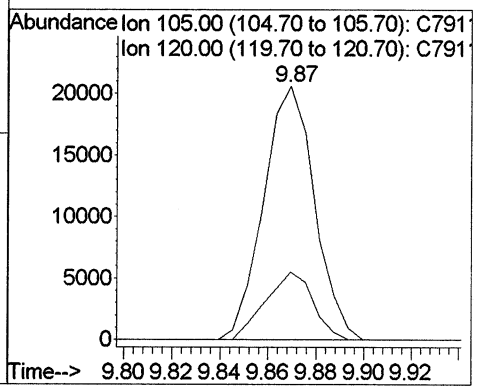


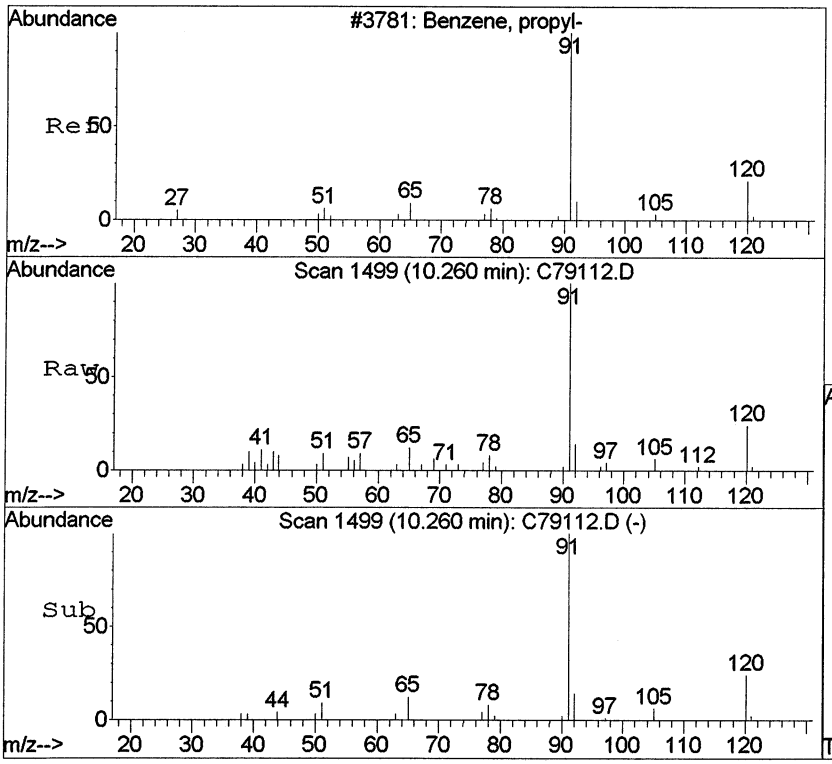


#77
Isopropylbenzene
Concen: 0.60 ppb
RT: 9.87 min Scan# 1434
Delta R.T. -0.01 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion:105 Resp: 30283

Ion	Ratio	Lower	Upper
105	100		
120	26.8	16.6	38.6

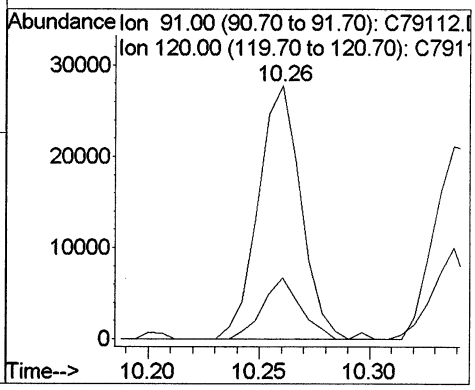


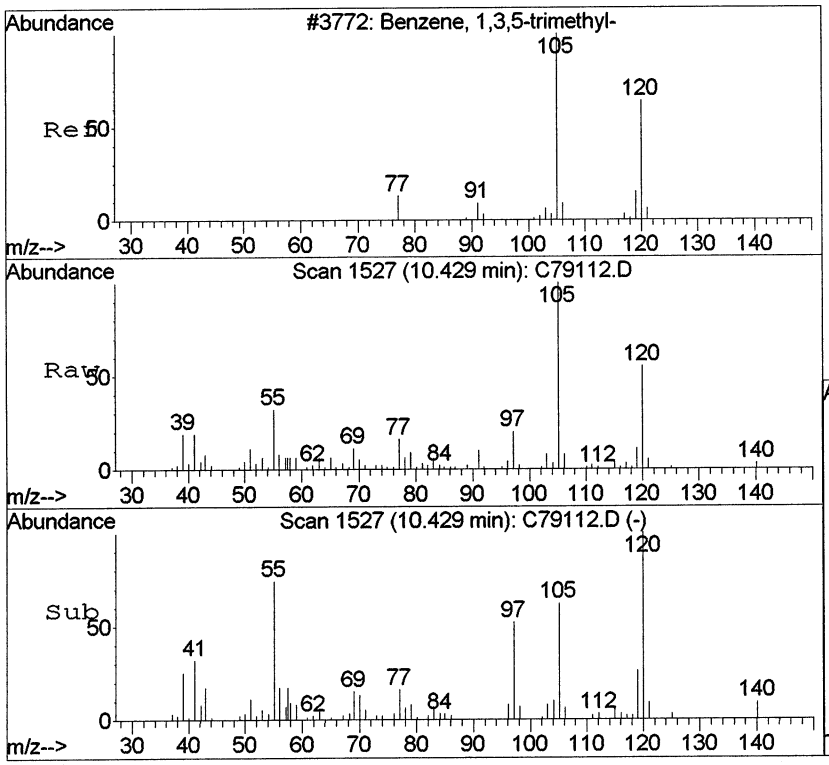


#82
n-Propylbenzene
Concen: 0.56 ppb
RT: 10.26 min Scan# 1499
Delta R.T. -0.01 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion: 91 Resp: 37391

Ion	Ratio	Lower	Upper
91	100		
120	24.2	12.4	29.0

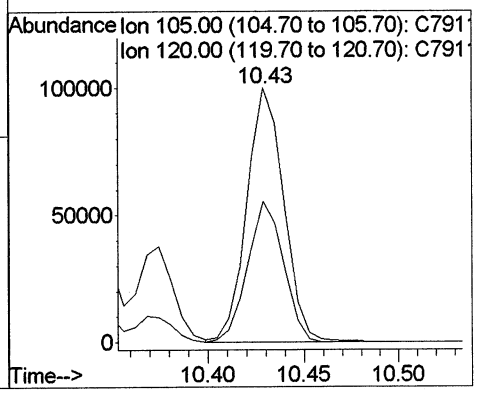


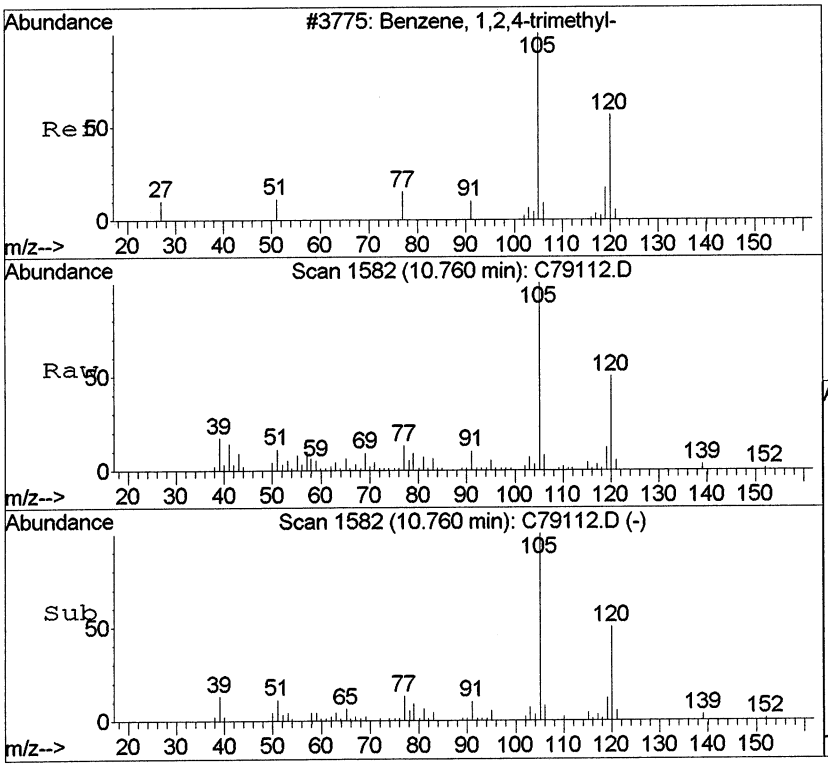


#85
1,3,5-Trimethylbenzene
Concen: 3.34 ppb
RT: 10.43 min Scan# 1527
Delta R.T. -0.01 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion:105 Resp: 133926

Ion	Ratio	Lower	Upper
105	100		
120	55.5	32.0	74.8

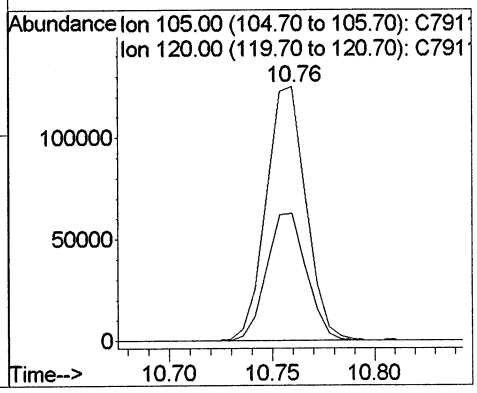


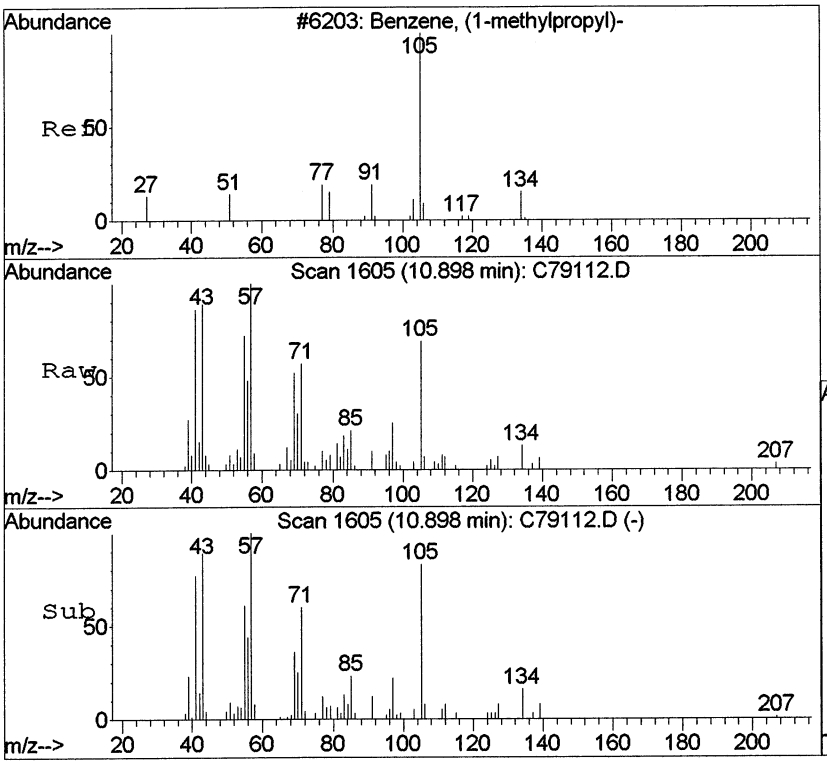


#89
1,2,4-Trimethylbenzene
Concen: 4.30 ppb
RT: 10.76 min Scan# 1582
Delta R.T. -0.00 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion:105 Resp: 169094

Ion	Ratio	Lower	Upper
105	100		
120	50.1	31.5	73.5

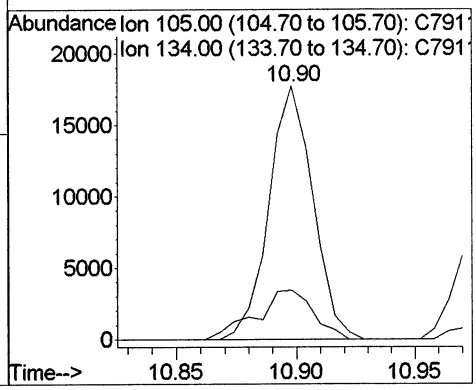


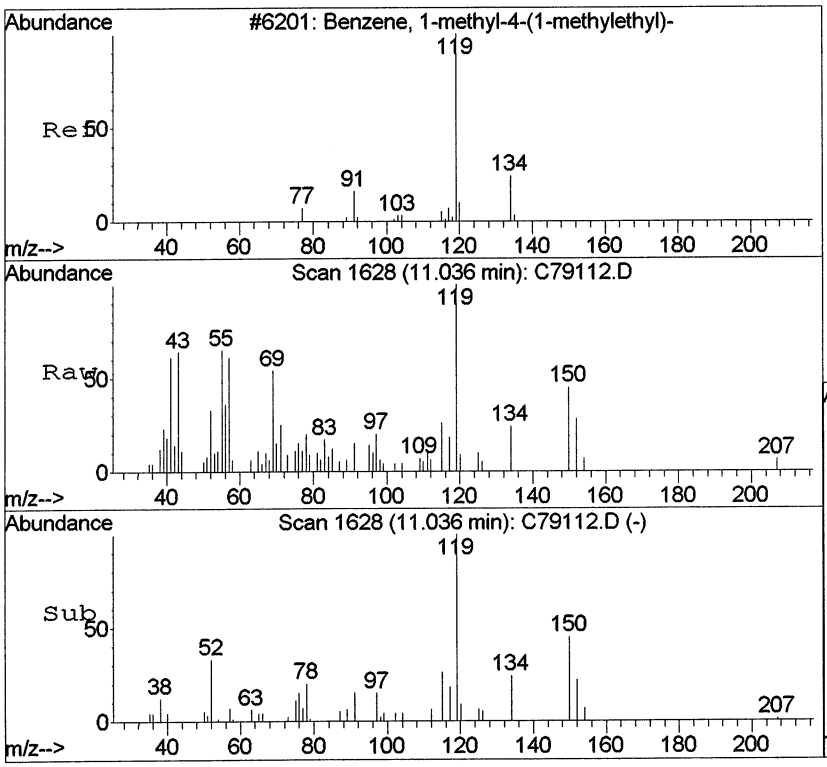


#90
sec-Butylbenzene
Concen: 0.46 ppb
RT: 10.90 min Scan# 1605
Delta R.T. -0.01 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion:105 Resp: 22668

Ion	Ratio	Lower	Upper
105	100		
134	19.5	10.7	24.9

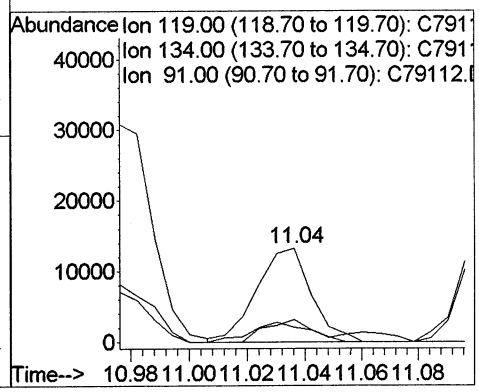


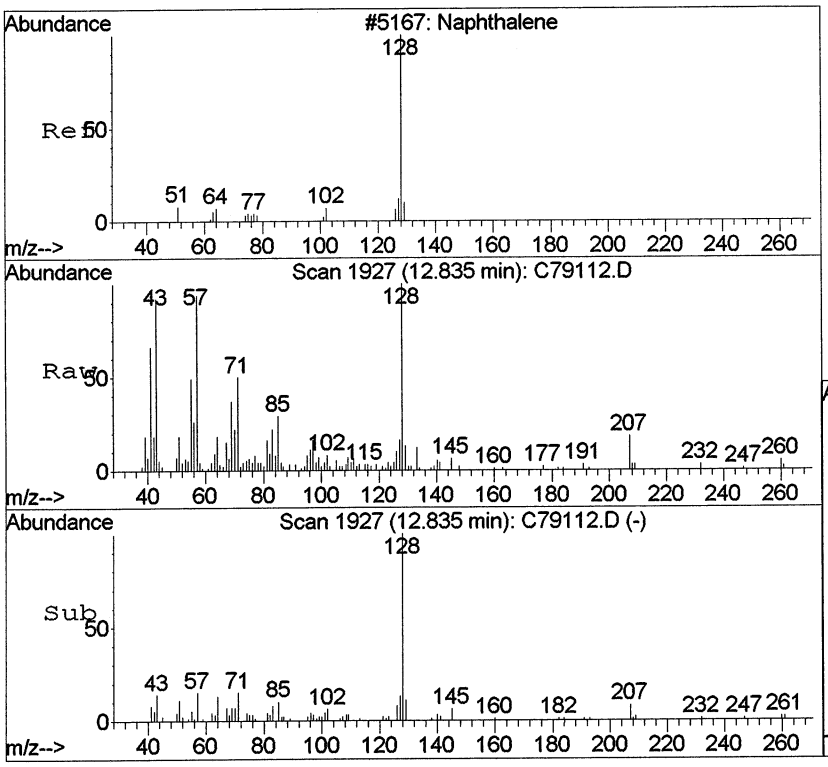


#91
p-Isopropyltoluene
Concen: 0.48 ppb
RT: 11.04 min Scan# 1628
Delta R.T. -0.00 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion:119 Resp: 17476

Ion	Ratio	Lower	Upper
119	100		
134	23.8	15.4	35.8
91	15.3	10.9	25.5

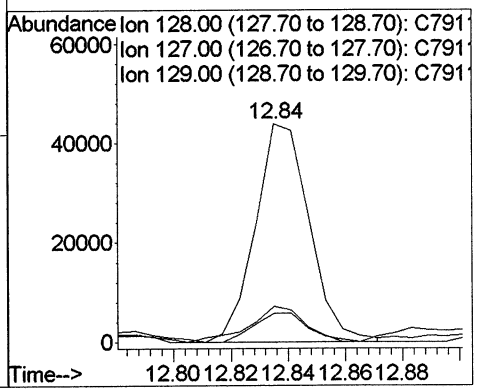




#100
Naphthalene
Concen: 2.94 ppb
RT: 12.84 min Scan# 1927
Delta R.T. -0.01 min
Lab File: C79112.D
Acq: 28 Dec 2017 2:46 pm

Tgt Ion:128 Resp: 57610

Ion	Ratio	Lower	Upper
128	100		
127	14.5	7.7	17.9
129	13.2	6.4	15.0



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA\2017\122817\C79112.D Vial: 8
Acq On : 28 Dec 2017 2:46 pm Operator: JK-sop525r16
Sample : 1712475-1 Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ETTICS.P

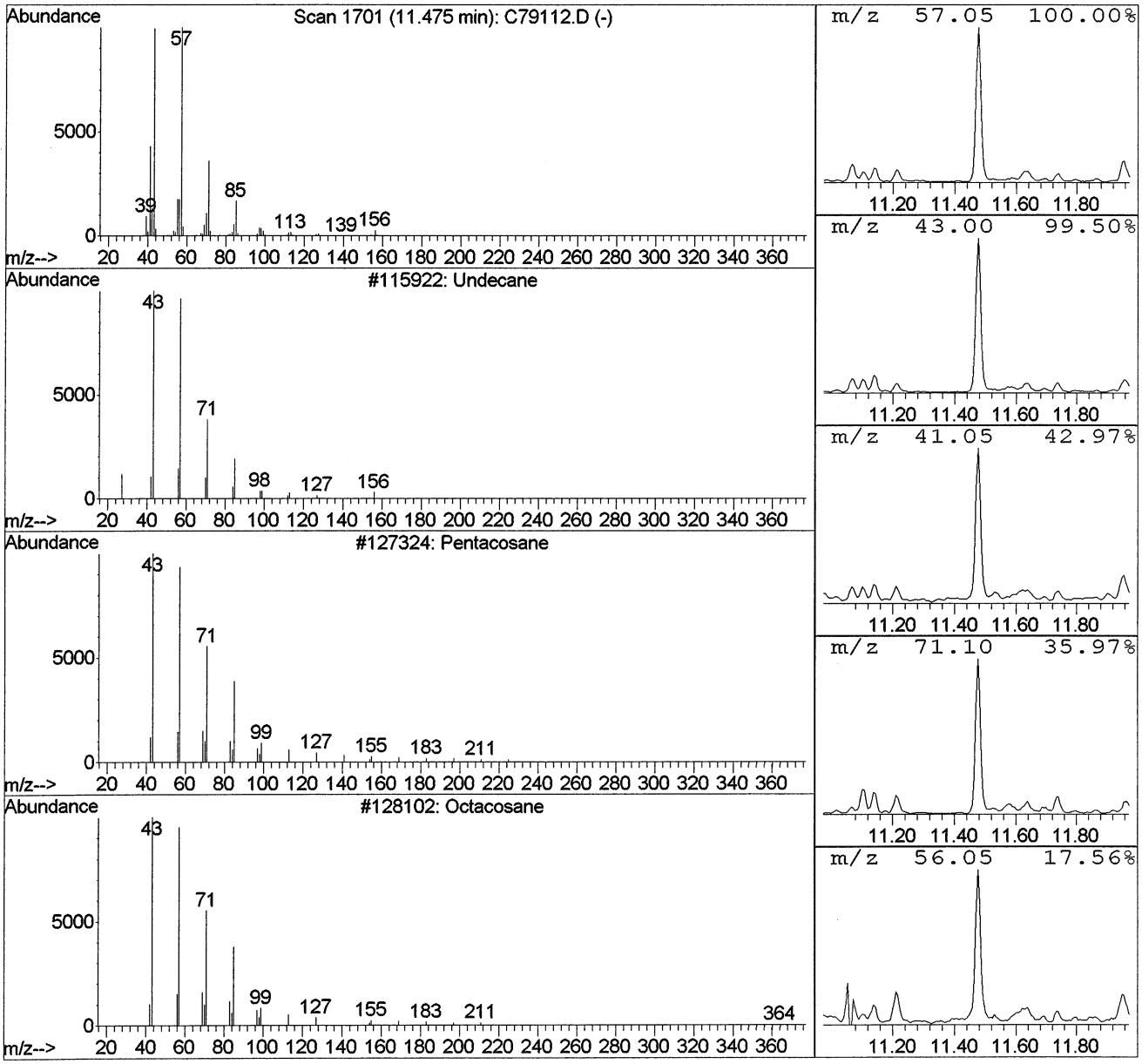
Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Library : C:\DATABASE\NIST129k.l

****

Peak Number 1 Undecane Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
11.48	37.25 ppb	5004360	1,4-Dichlorobenzene-d4	11.06

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Undecane	156	C11H24	001120-21-4	91
2	Pentacosane	352	C25H52	000629-99-2	83
3	Octacosane	394	C28H58	000630-02-4	83
4	Nonane	128	C9H20	000111-84-2	80



Data File : C:\HPCHEM\1\DATA\2017\122817\C79112.D Vial: 8
Acq On : 28 Dec 2017 2:46 pm Operator: JK-sop525r16
Sample : 1712475-1 Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ETTICS.P

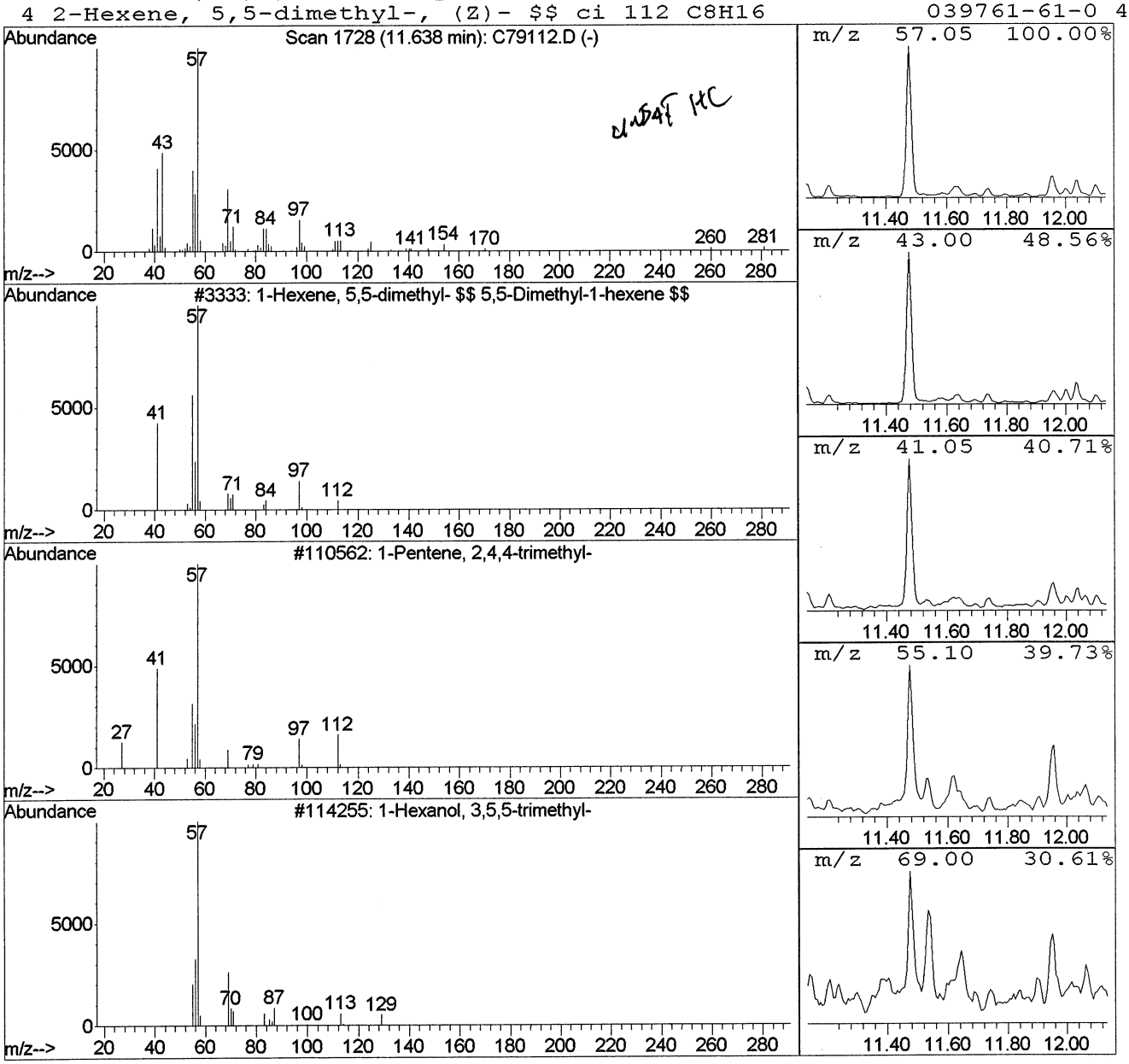
Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Library : C:\DATABASE\NIST129k.l

****

Peak Number 2 1-Hexene, 5,5-dimethyl- $$ 5,5 Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.
11.64	8.47 ppb	1138520	1,4-Dichlorobenzene-d4	11.06

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	1-Hexene, 5,5-dimethyl- $$ 5,5-Dime	112	C8H16	007116-86-1	58
2	1-Pentene, 2,4,4-trimethyl-	112	C8H16	000107-39-1	46
3	1-Hexanol, 3,5,5-trimethyl-	144	C9H20O	003452-97-9	43
4	2-Hexene, 5,5-dimethyl-, (Z)- $$ ci	112	C8H16	039761-61-0	43



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA\2017\122817\C79112.D Vial: 8
Acq On : 28 Dec 2017 2:46 pm Operator: JK-sop525r16
Sample : 1712475-1 Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ETTICS.P

Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Library : C:\DATABASE\NIST129k.l

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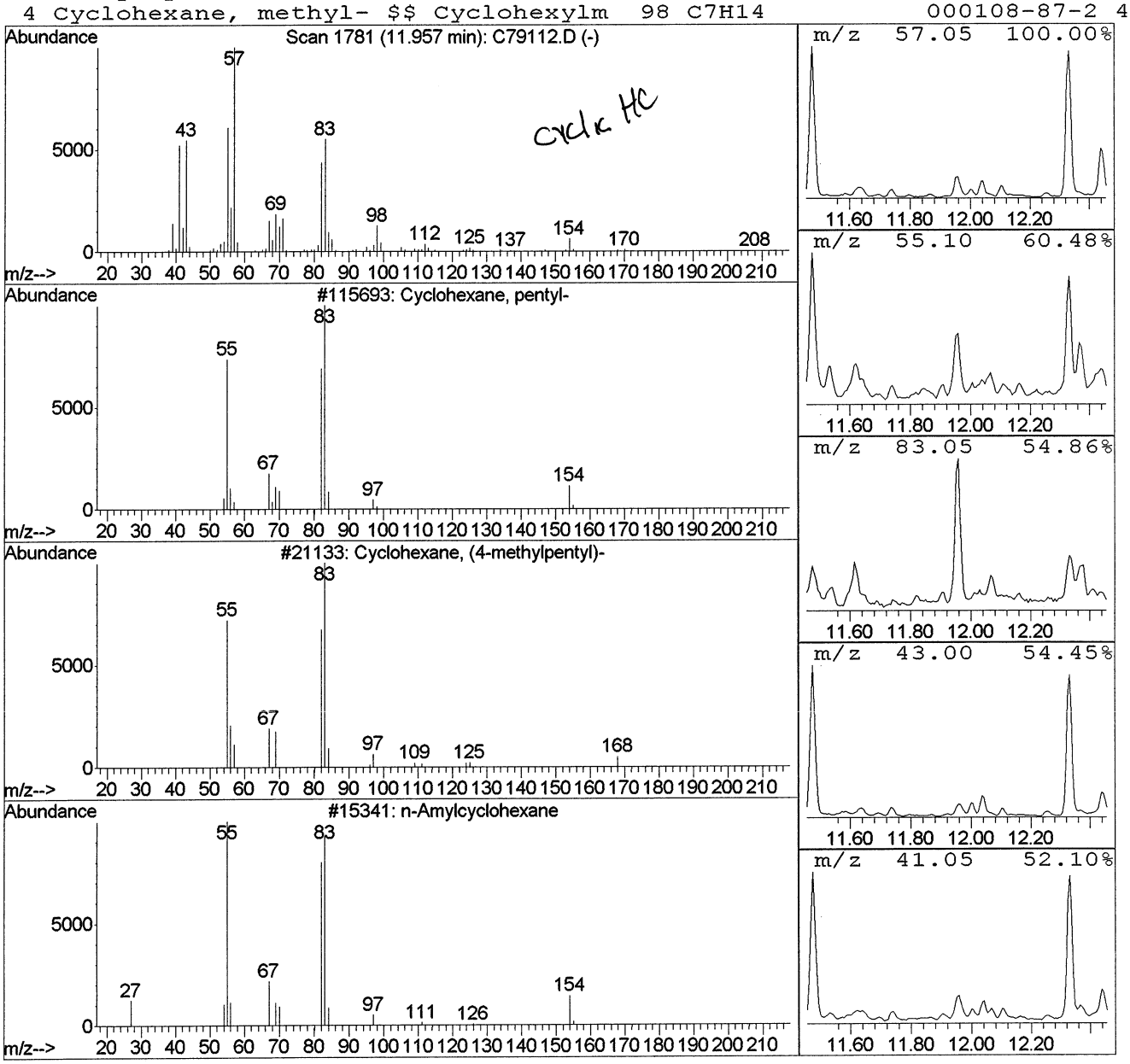
Peak Number 3 Cyclohexane, pentyl- Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
11.96	8.72 ppb	1171660	1,4-Dichlorobenzene-d4	11.06

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, pentyl-	154	C11H22	004292-92-6	52
2	Cyclohexane, (4-methylpentyl)-	168	C12H24	061142-20-9	50
3	n-Amylcyclohexane	154	C11H22	029949-27-7	49
4	Cyclohexane, methyl- $$ Cyclohexylm	98	C7H14	000108-87-2	43



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA\2017\122817\C79112.D Vial: 8
Acq On : 28 Dec 2017 2:46 pm Operator: JK-sop525r16
Sample : 1712475-1 Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ETTICS.P

Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Library : C:\DATABASE\NIST129k.l

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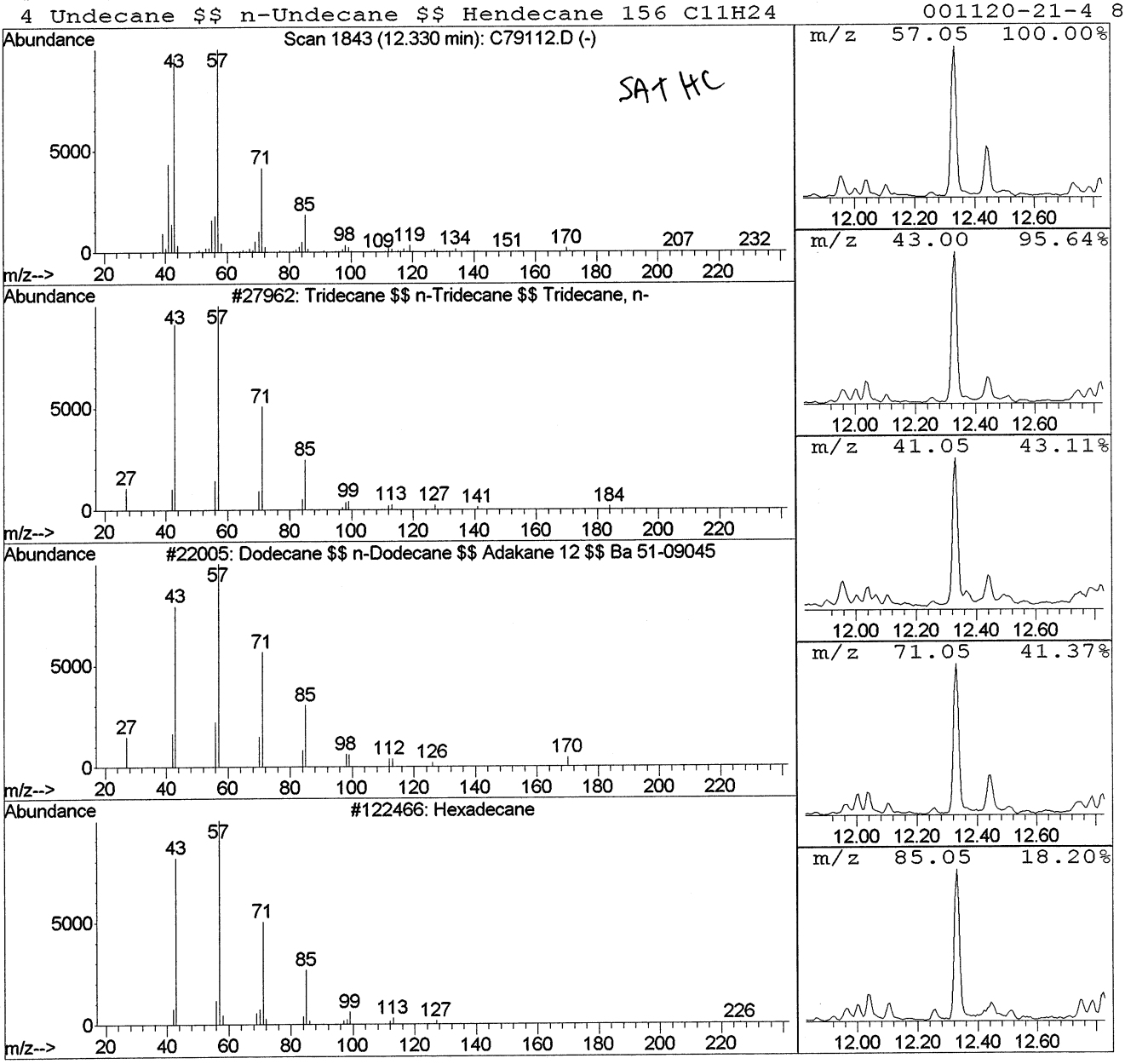
Peak Number 4 Tridecane $$ n-Tridecane $$ Tr Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
12.33	40.09 ppb	5386460	1,4-Dichlorobenzene-d4	11.06

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Tridecane $$ n-Tridecane $$ Trideca	184	C13H28	000629-50-5	83
2	Dodecane $$ n-Dodecane $$ Adakane 1	170	C12H26	000112-40-3	83
3	Hexadecane	226	C16H34	000544-76-3	83
4	Undecane $$ n-Undecane $$ Hendecane	156	C11H24	001120-21-4	83



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA\2017\122817\C79112.D
Acq On : 28 Dec 2017 2:46 pm
Sample : 1712475-1
Misc : 8260 - 10mL water
MS Integration Params: ETTICS.P

Vial: 8
Operator: JK-sop525r16
Inst : CSS Instr
Multiplr: 1.00

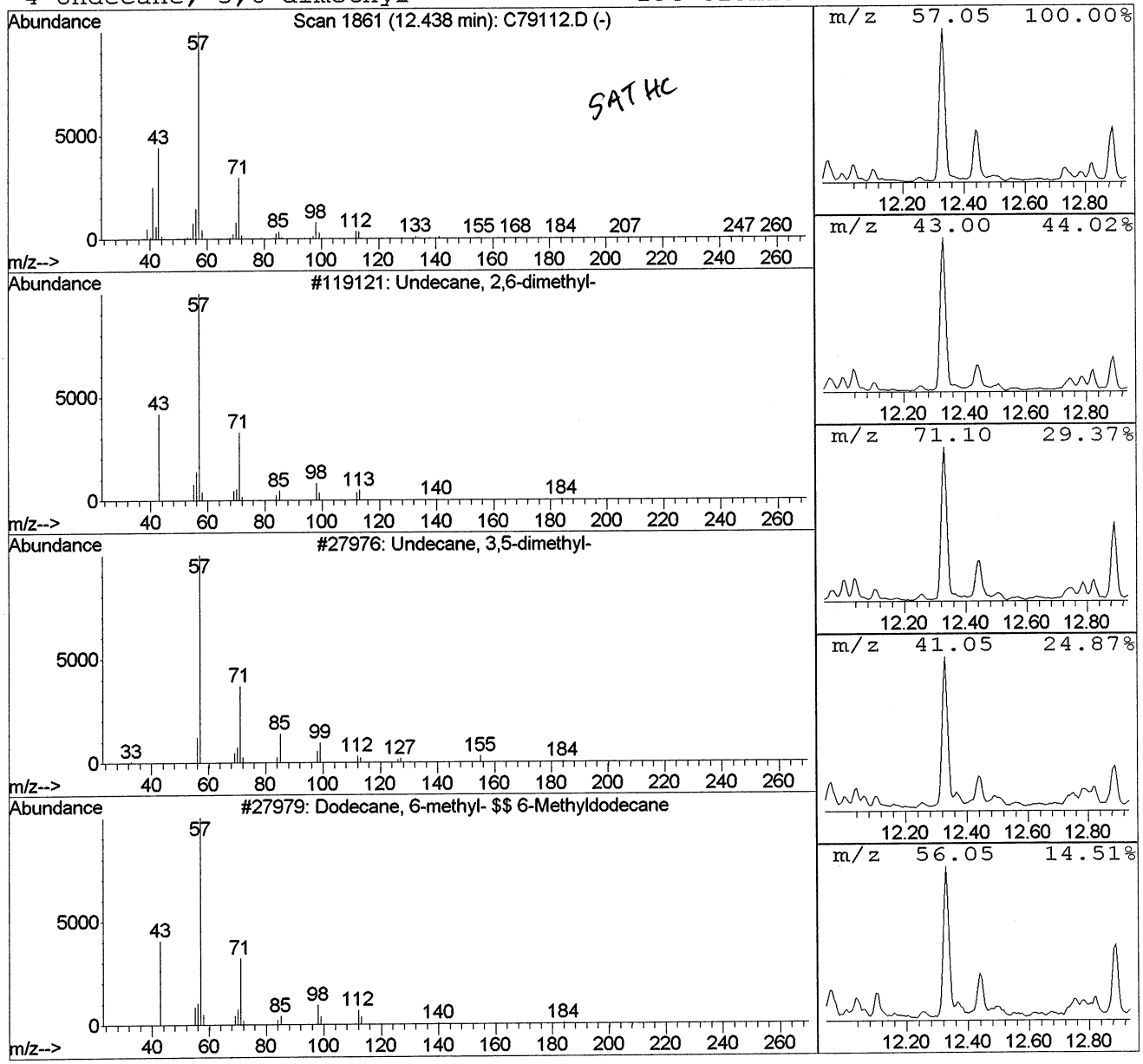
Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Library : C:\DATABASE\NIST129k.l

****

Peak Number 5 Undecane, 2,6-dimethyl- Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
12.44	10.34 ppb	1389290	1,4-Dichlorobenzene-d4	11.06

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Undecane, 2,6-dimethyl-	184	C13H28	017301-23-4	93
2	Undecane, 3,5-dimethyl-	184	C13H28	017312-81-1	86
3	Dodecane, 6-methyl- $$ 6-Methyldode	184	C13H28	006044-71-9	81
4	Undecane, 3,6-dimethyl-	184	C13H28	017301-28-9	78



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA\2017\122817\C79112.D
Acq On : 28 Dec 2017 2:46 pm
Sample : 1712475-1
Misc : 8260 - 10mL water
MS Integration Params: ETTICS.P

Vial: 8
Operator: JK-sop525r16
Inst : CSS Instr
Multiplr: 1.00

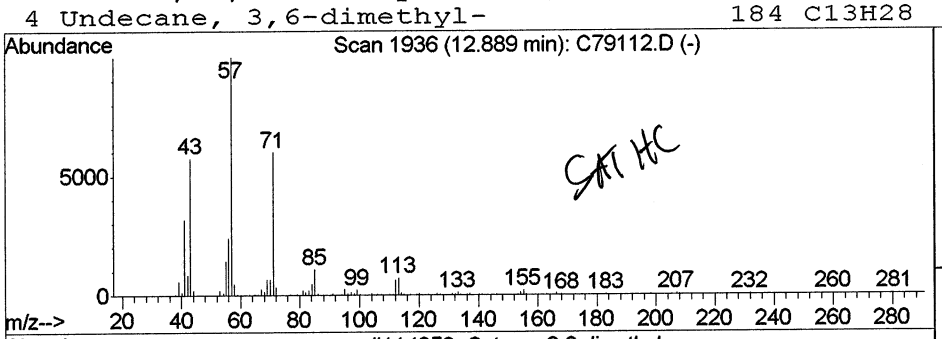
Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Library : C:\DATABASE\NIST129k.l

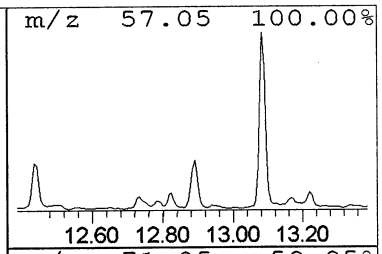
****

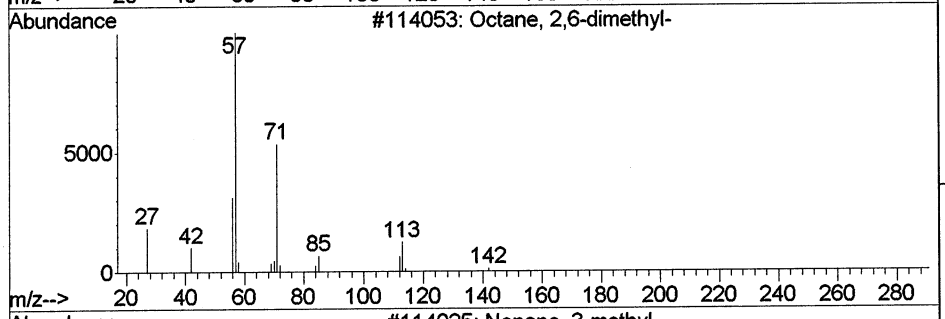
Peak Number 6 Octane, 2,6-dimethyl- Concentration Rank 3

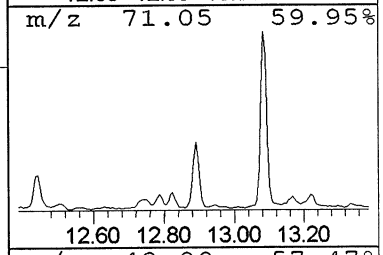
R.T.	EstConc	Area	Relative to ISTD	R.T.
12.89	13.51 ppb	1815340	1,4-Dichlorobenzene-d4	11.06

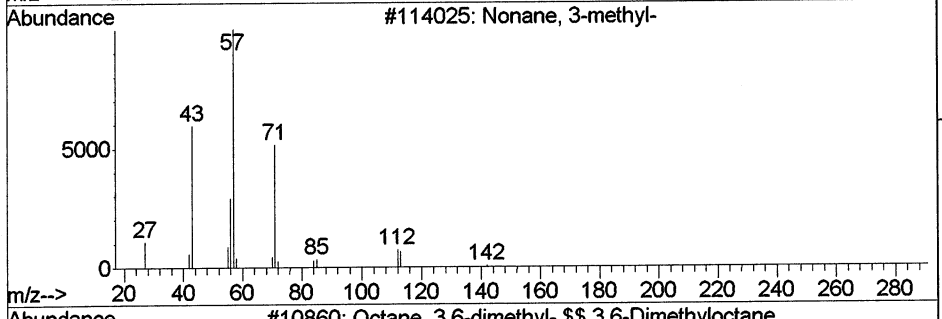
Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Octane, 2,6-dimethyl-	142	C10H22	002051-30-1	78
2	Nonane, 3-methyl-	142	C10H22	005911-04-6	72
3	Octane, 3,6-dimethyl- $$ 3,6-Dimeth	142	C10H22	015869-94-0	72
4	Undecane, 3,6-dimethyl-	184	C13H28	017301-28-9	64

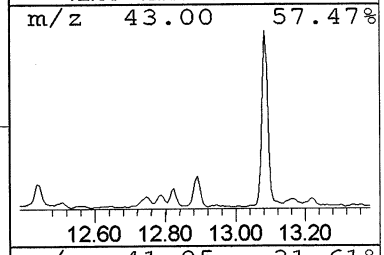


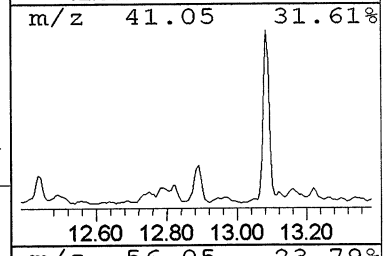


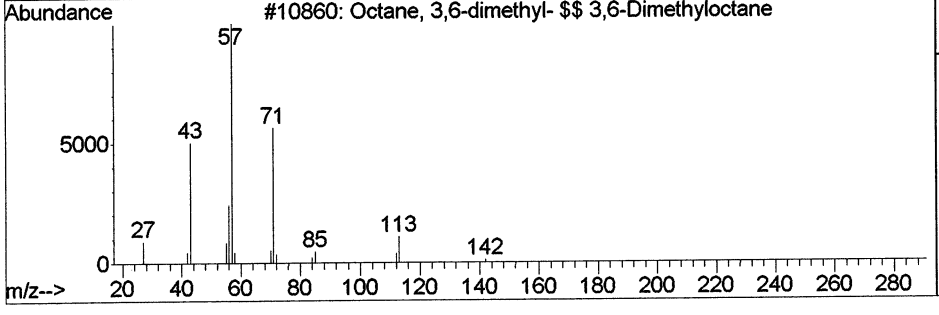


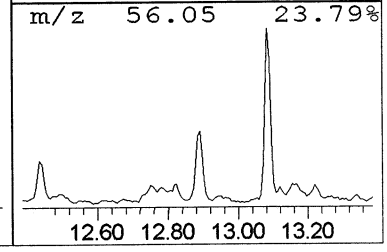












Library Search Compound Report

Data File : C:\HPCHEM\1\DATA\2017\122817\C79112.D Vial: 8
Acq On : 28 Dec 2017 2:46 pm Operator: JK-sop525r16
Sample : 1712475-1 Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ETTICS.P

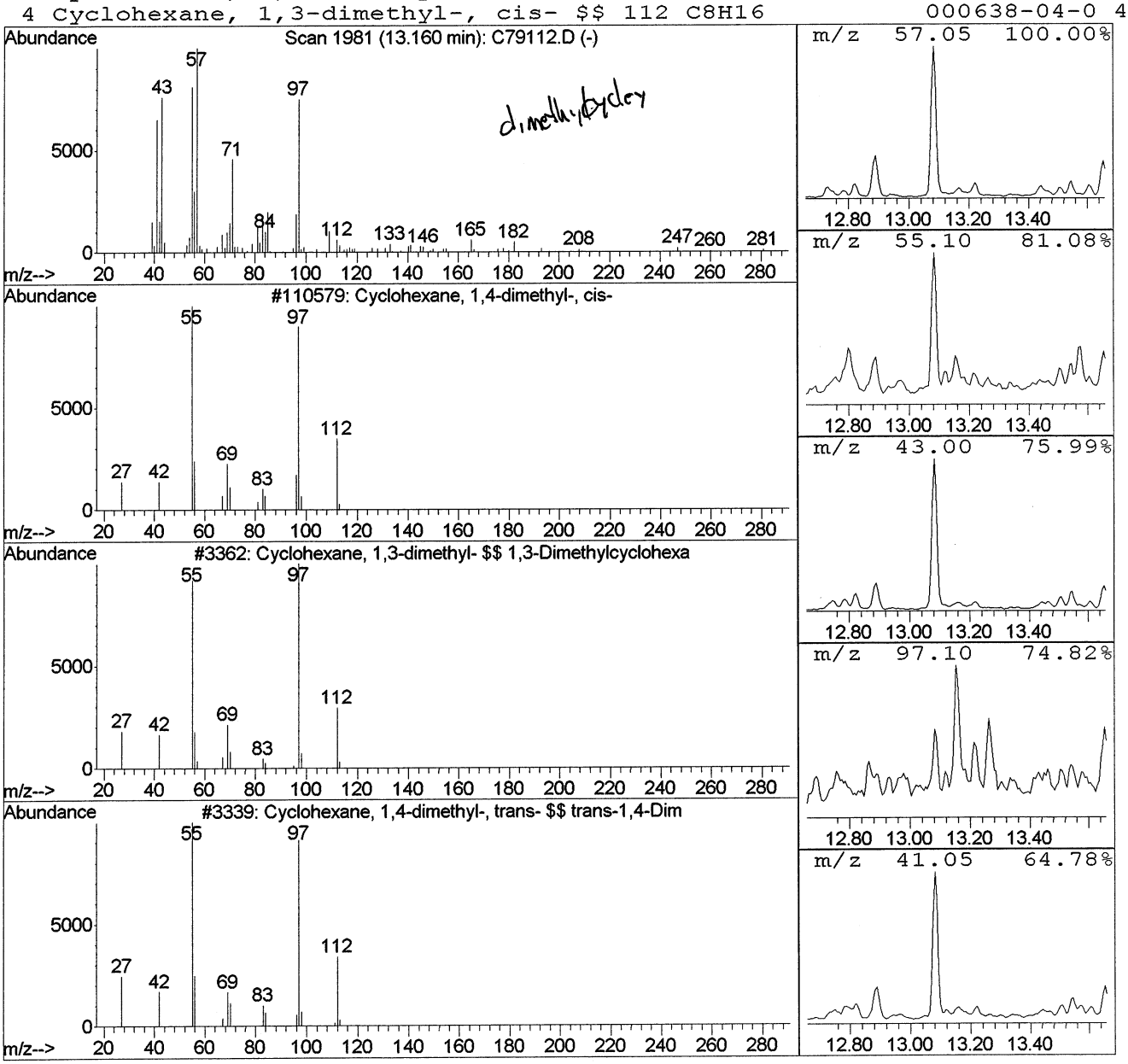
Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Library : C:\DATABASE\NIST129k.l

****

Peak Number 7 Cyclohexane, 1,4-dimethyl-, ci Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.
13.16	7.39 ppb	992684	1,4-Dichlorobenzene-d4	11.06

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,4-dimethyl-, cis-	112	C8H16	000624-29-3	47
2	Cyclohexane, 1,3-dimethyl- $$ 1,3-D	112	C8H16	000591-21-9	43
3	Cyclohexane, 1,4-dimethyl-, trans-	112	C8H16	002207-04-7	43
4	Cyclohexane, 1,3-dimethyl-, cis- $$	112	C8H16	000638-04-0	43



Data File : C:\HPCHEM\1\DATA\2017\122817\C79112.D Vial: 8
Acq On : 28 Dec 2017 2:46 pm Operator: JK-sop525r16
Sample : 1712475-1 Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ETTICS.P

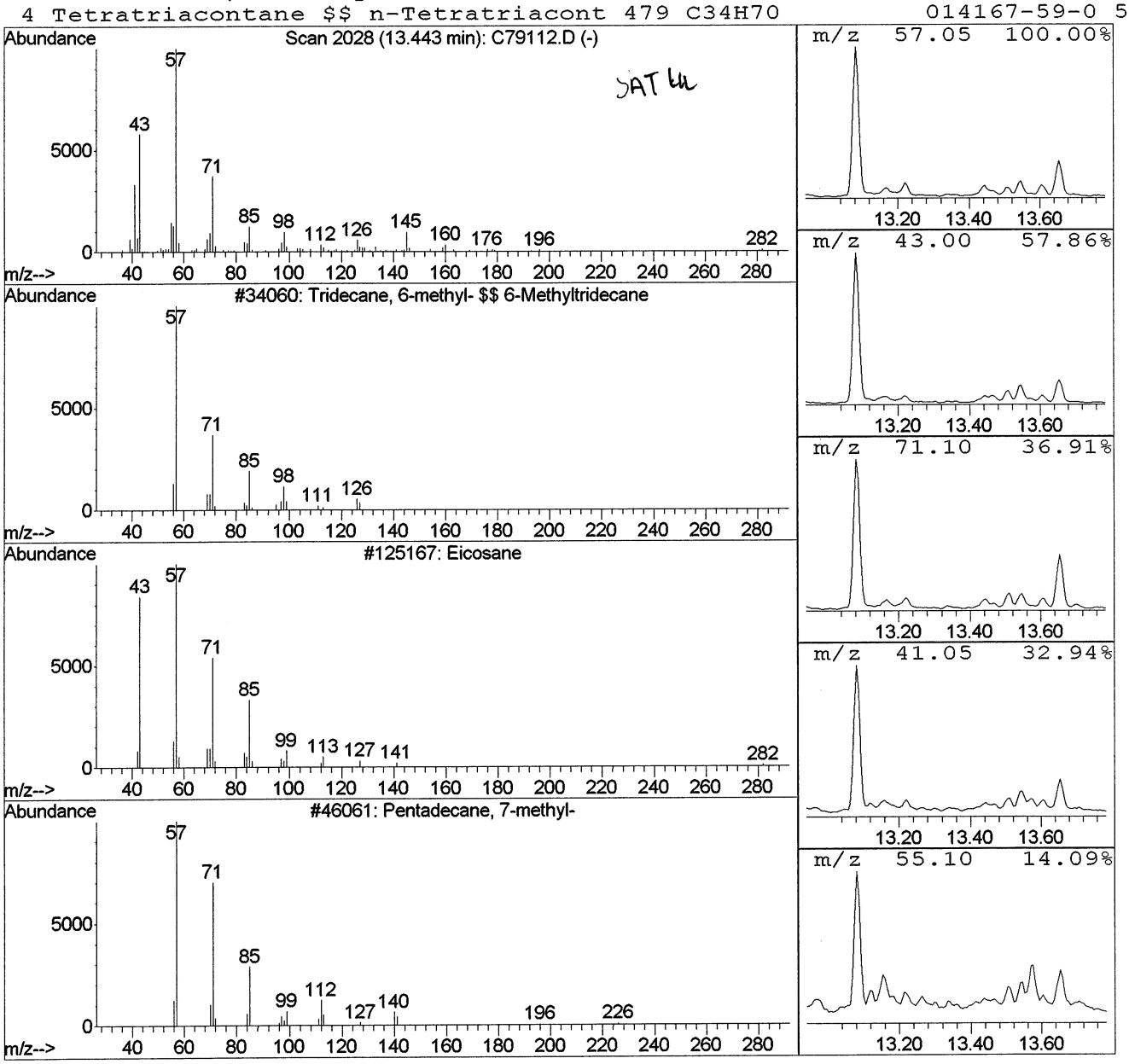
Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Library : C:\DATABASE\NIST129k.l

****

Peak Number 8 Tridecane, 6-methyl- $$ 6-Meth Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.
13.44	7.96 ppb	1068780	1,4-Dichlorobenzene-d4	11.06

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Tridecane, 6-methyl- $$ 6-Methyltri	198	C14H30	013287-21-3	72
2	Eicosane	282	C20H42	000112-95-8	70
3	Pentadecane, 7-methyl-	226	C16H34	006165-40-8	53
4	Tetratriacontane $$ n-Tetratriacont	479	C34H70	014167-59-0	53



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA\2017\122817\C79112.D Vial: 8
Acq On : 28 Dec 2017 2:46 pm Operator: JK-sop525r16
Sample : 1712475-1 Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ETTICS.P

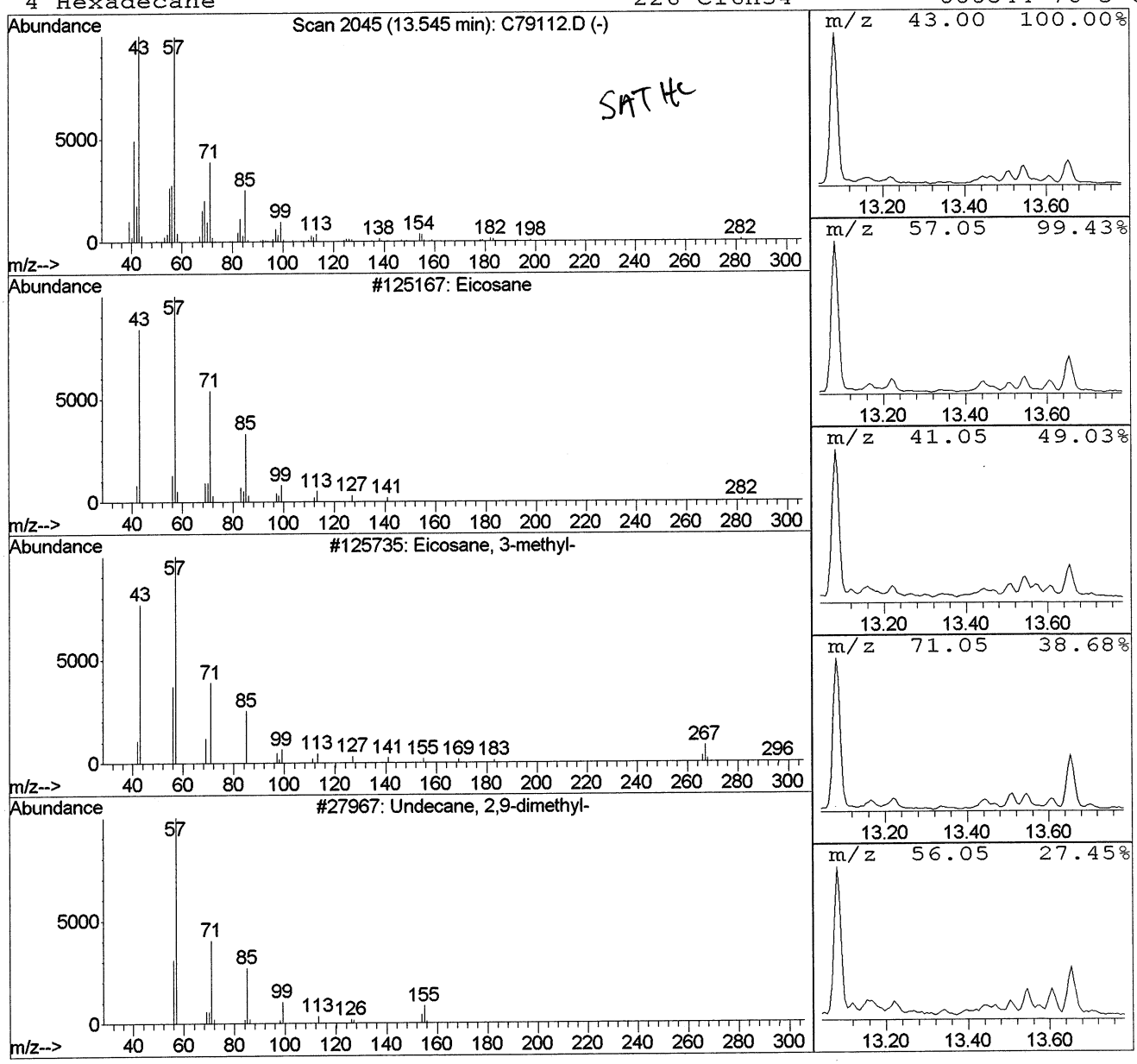
Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Library : C:\DATABASE\NIST129k.l

****

Peak Number 9 Eicosane Concentration Rank 10

R.T.	EstConc	Area	Relative to ISTD	R.T.
13.54	6.34 ppb	851468	1,4-Dichlorobenzene-d4	11.06

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Eicosane	282	C20H42	000112-95-8	70
2	Eicosane, 3-methyl-	296	C21H44	006418-46-8	64
3	Undecane, 2,9-dimethyl-	184	C13H28	017301-26-7	64
4	Hexadecane	226	C16H34	000544-76-3	64



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA\2017\122817\C79112.D Vial: 8
Acq On : 28 Dec 2017 2:46 pm Operator: JK-sop525r16
Sample : 1712475-1 Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ETTICS.P

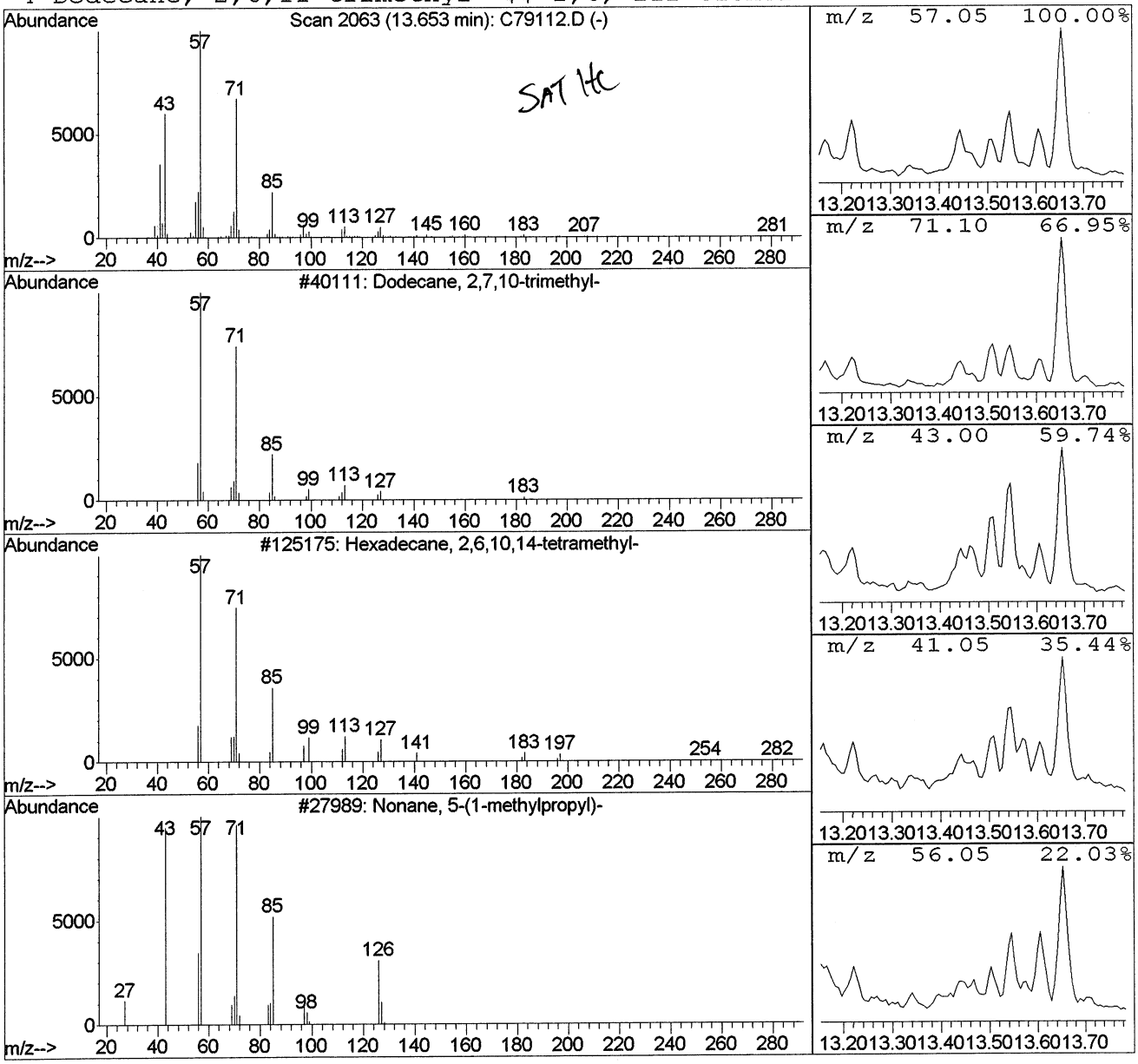
Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Library : C:\DATABASE\NIST129k.l

****

Peak Number 10 Dodecane, 2,7,10-trimethyl- Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
13.65	12.80 ppb	1719460	1,4-Dichlorobenzene-d4	11.06

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Dodecane, 2,7,10-trimethyl-	212	C15H32	074645-98-0	86
2	Hexadecane, 2,6,10,14-tetramethyl-	282	C20H42	000638-36-8	83
3	Nonane, 5-(1-methylpropyl)-	184	C13H28	062185-54-0	64
4	Dodecane, 2,6,11-trimethyl- $$ 2,6,	212	C15H32	031295-56-4	59



Data Path : C:\msdchem\1\DATA\2017\122917\
Data File : D63979.D
Acq On : 29 Dec 2017 12:20 pm
Operator : CJW sop525r16
Sample : VL171229-4MB
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 29 12:58:14 2017
Quant Method : C:\msdchem\1\METHODS\121717W.M
Quant Title : HPV4 - GC/MS Volatiles (SOP 525)
QLast Update : Mon Dec 18 09:29:38 2017
Response via : Initial Calibration

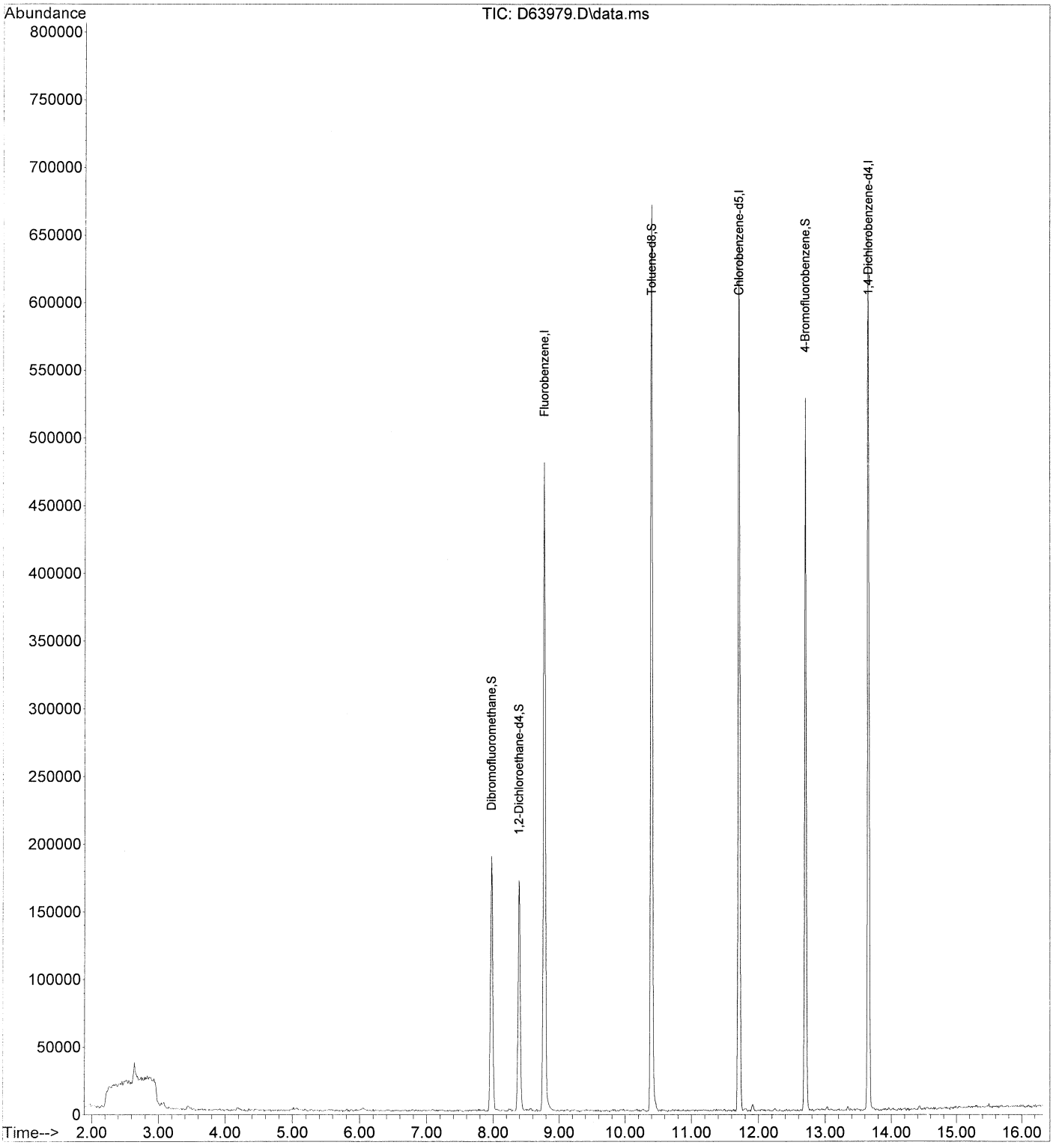
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorobenzene	8.773	96	471271	25.00	ppb	0.00
63) Chlorobenzene-d5	11.710	117	358350	25.00	ppb	0.00
84) 1,4-Dichlorobenzene-d4	13.654	152	177930	25.00	ppb	0.00
System Monitoring Compounds						
40) Dibromofluoromethane	7.973	113	132246	25.25	ppb	0.00
Spiked Amount 25.000	Range 85 - 115		Recovery = 101.00%			
44) 1,2-Dichloroethane-d4	8.388	67	71354	25.45	ppb	0.00
Spiked Amount 25.000	Range 80 - 120		Recovery = 101.80%			
67) Toluene-d8	10.403	98	478221	26.51	ppb	0.00
Spiked Amount 25.000	Range 85 - 115		Recovery = 106.04%			
85) 4-Bromofluorobenzene	12.702	176	145324	24.76	ppb	0.00
Spiked Amount 25.000	Range 85 - 115		Recovery = 99.04%			
Target Compounds						Qvalue

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

cf 12/29/2017

Data Path : C:\msdchem\1\DATA\2017\122917\
Data File : D63979.D
Acq On : 29 Dec 2017 12:20 pm
Operator : CJW sop525r16
Sample : VL171229-4MB
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 29 12:58:14 2017
Quant Method : C:\msdchem\1\METHODS\121717W.M
Quant Title : HPV4 - GC/MS Volatiles (SOP 525)
QLast Update : Mon Dec 18 09:29:38 2017
Response via : Initial Calibration



Data Path : C:\msdchem\1\DATA\2017\122917\
Data File : D63979.D
Acq On : 29 Dec 2017 12:20 pm
Operator : CJW sop525r16
Sample : VL171229-4MB
Misc :
ALS Vial : 10 Sample Multiplier: 1

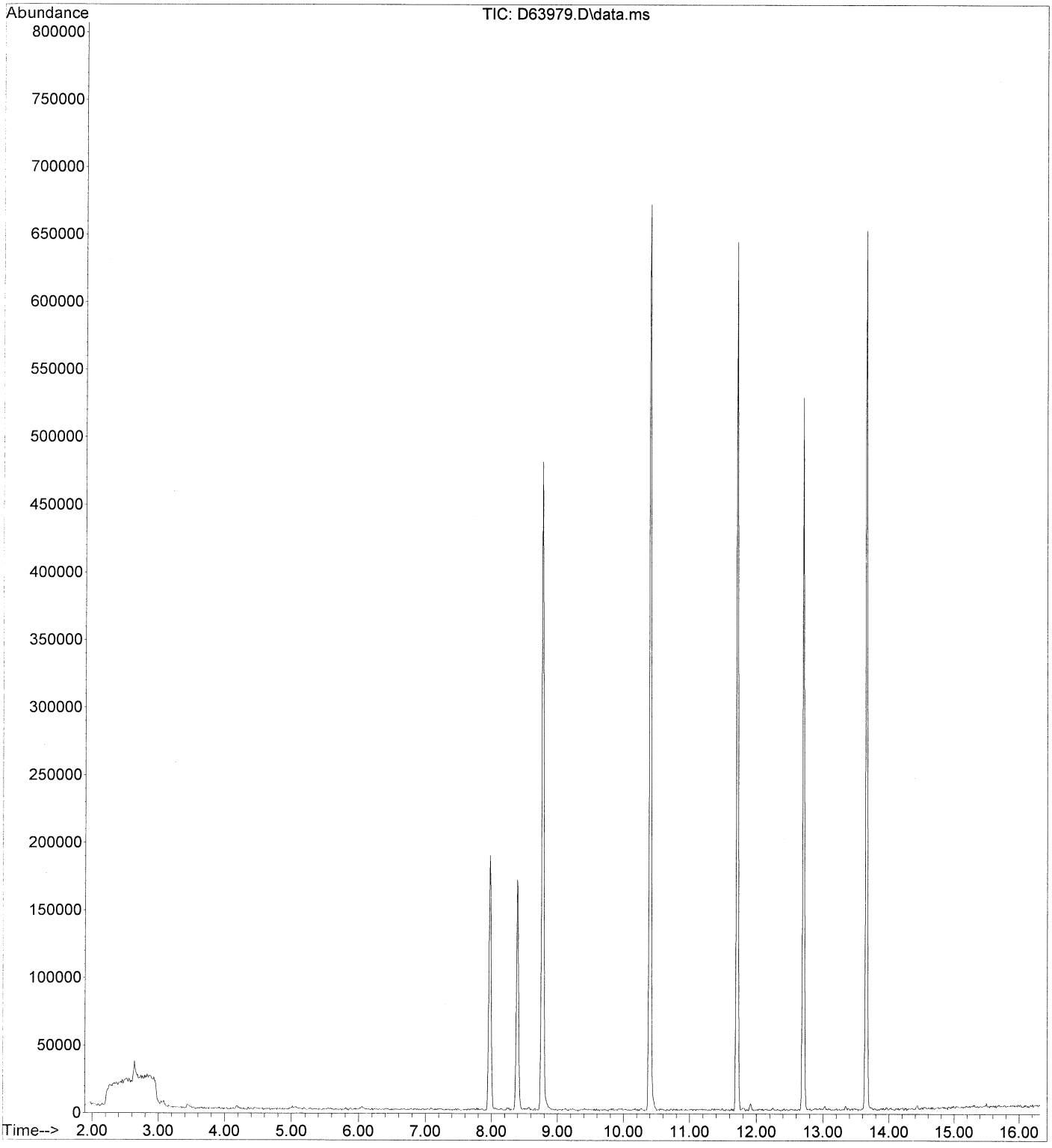
Quant Time: Dec 29 18:22:33 2017
Quant Method : C:\msdchem\1\METHODS\022717GRO.M
Quant Title :
QLast Update : Thu Mar 30 11:56:43 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
3) 1,4-Dichlorobenzene-d4	0.000	TIC	0m	25.00	ppb	-13.21
Target Compounds						Qvalue

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

Data Path : C:\msdchem\1\DATA\2017\122917\
Data File : D63979.D
Acq On : 29 Dec 2017 12:20 pm
Operator : CJW sop525r16
Sample : VL171229-4MB
Misc :
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Dec 29 18:22:33 2017
Quant Method : C:\msdchem\1\METHODS\022717GRO.M
Quant Title :
QLast Update : Thu Mar 30 11:56:43 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2017\122917\
Data File : D63988.D
Acq On : 29 Dec 2017 4:16 pm
Operator : CJW sop525r16
Sample : 1712475-1
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 29 16:37:13 2017
Quant Method : C:\msdchem\1\METHODS\121717W.M
Quant Title : HPV4 - GC/MS Volatiles (SOP 525)
QLast Update : Mon Dec 18 09:29:38 2017
Response via : Initial Calibration

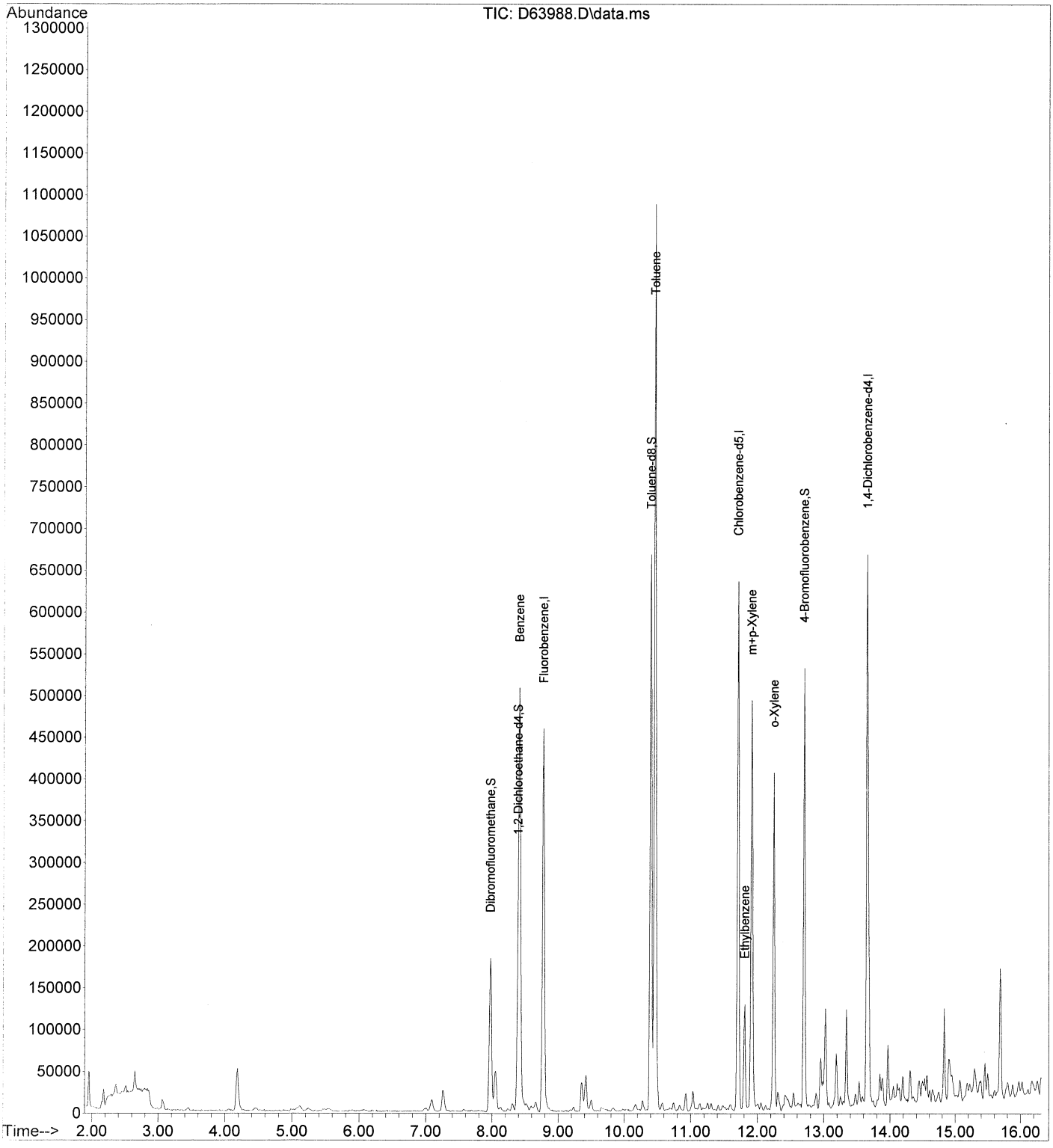
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Fluorobenzene	8.773	96	453143	25.00	ppb	-0.01
63) Chlorobenzene-d5	11.709	117	359562	25.00	ppb	0.00
84) 1,4-Dichlorobenzene-d4	13.654	152	180250	25.00	ppb	0.00
System Monitoring Compounds						
40) Dibromofluoromethane	7.973	113	130033	25.82	ppb	-0.01
Spiked Amount 25.000	Range 85 - 115		Recovery = 103.28%			
44) 1,2-Dichloroethane-d4	8.388	67	70634	26.21	ppb	-0.01
Spiked Amount 25.000	Range 80 - 120		Recovery = 104.84%			
67) Toluene-d8	10.403	98	465954	25.74	ppb	0.00
Spiked Amount 25.000	Range 85 - 115		Recovery = 102.96%			
85) 4-Bromofluorobenzene	12.702	176	145309	24.44	ppb	-0.01
Spiked Amount 25.000	Range 85 - 115		Recovery = 97.76%			
Target Compounds						Qvalue
51) Benzene	8.408	78	439879	16.66	ppb	99
68) Toluene	10.464	92	469630	29.58	ppb	100
78) Ethylbenzene	11.811	91	87363	3.00	ppb	96
79) m+p-Xylene	11.912	106	150189	12.80	ppb	98
82) o-Xylene	12.246	106	109800	9.52	ppb	91

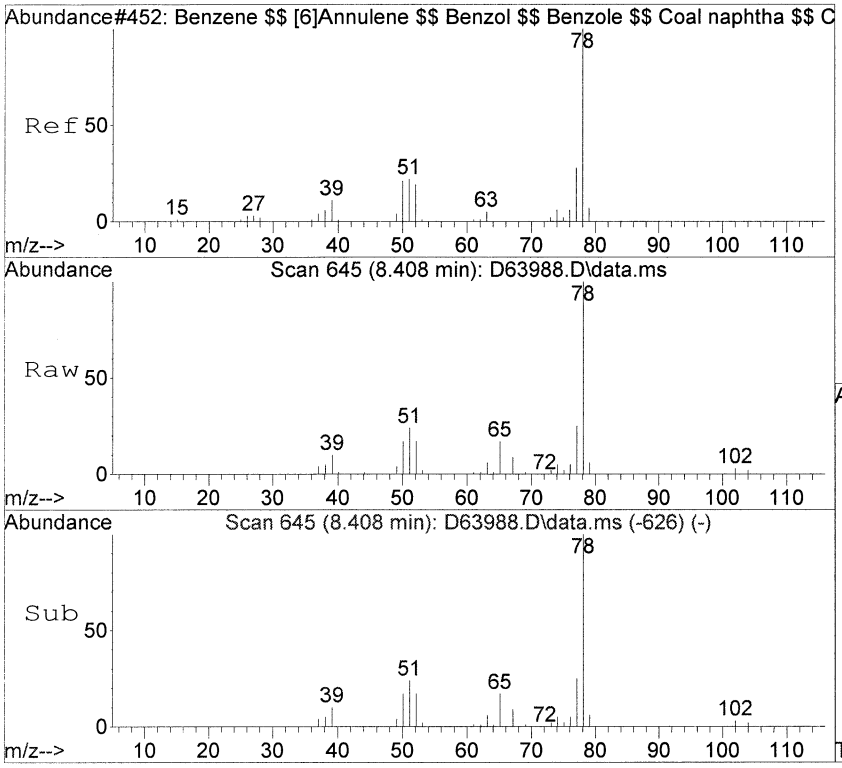
(#) = qualifier out of range (m) = manual integration (+) = signals summed

12/29/17

Data Path : C:\msdchem\1\DATA\2017\122917\
Data File : D63988.D
Acq On : 29 Dec 2017 4:16 pm
Operator : CJW sop525r16
Sample : 1712475-1
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 29 16:37:13 2017
Quant Method : C:\msdchem\1\METHODS\121717W.M
Quant Title : HPV4 - GC/MS Volatiles (SOP 525)
QLast Update : Mon Dec 18 09:29:38 2017
Response via : Initial Calibration

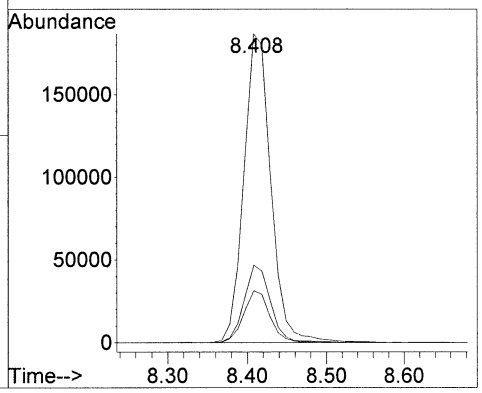


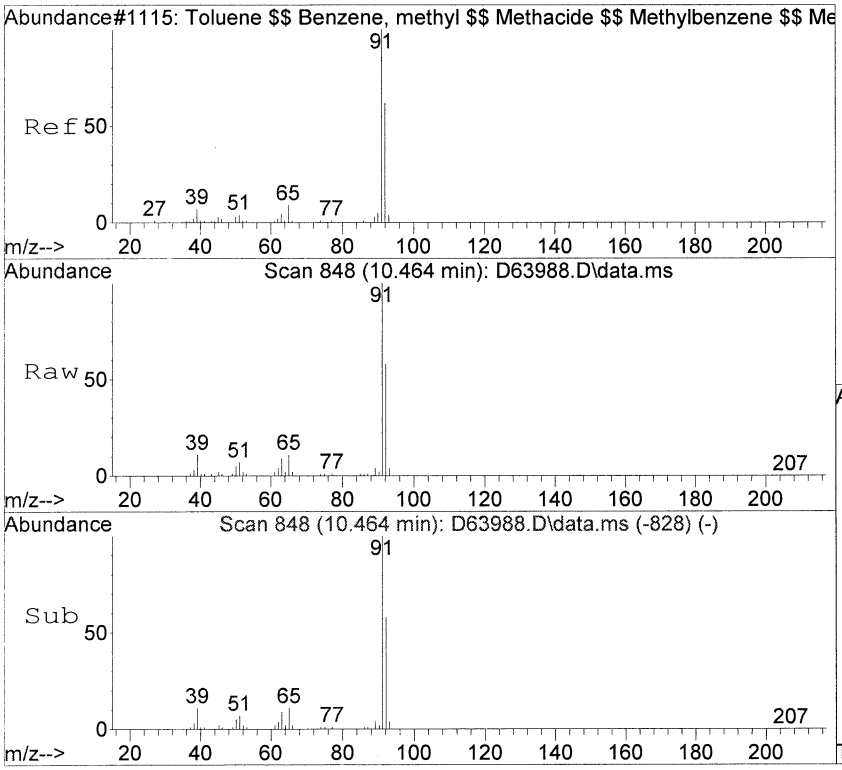


#51
Benzene
Concen: 16.66 ppb
RT: 8.408 min Scan# 645
Delta R.T. -0.010 min
Lab File: D63988.D
Acq: 29 Dec 17 4:16 pm

Tgt Ion: 78 Resp: 439879

Ion	Ratio	Lower	Upper
78	100		
52	16.7	12.2	22.6
77	25.0	17.1	31.9

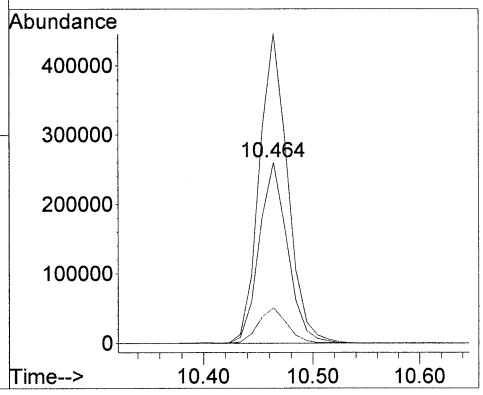


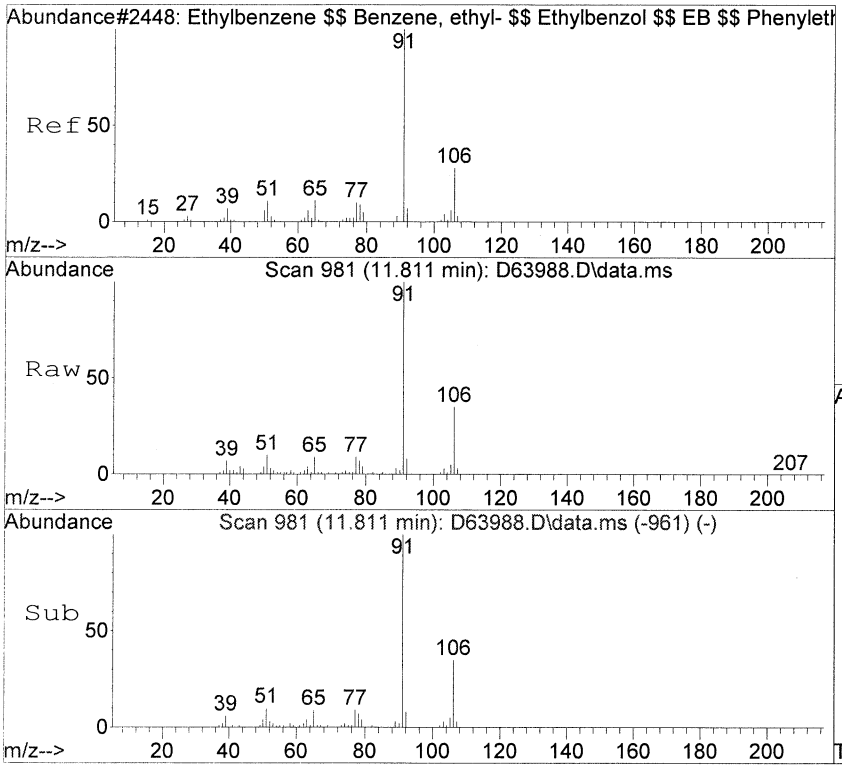


#68
Toluene
Concen: 29.58 ppb
RT: 10.464 min Scan# 848
Delta R.T. 0.000 min
Lab File: D63988.D
Acq: 29 Dec 17 4:16 pm

Tgt Ion: 92 Resp: 469630

Ion	Ratio	Lower	Upper
92	100		
91	171.6	120.0	222.8
65	19.7	14.2	26.4

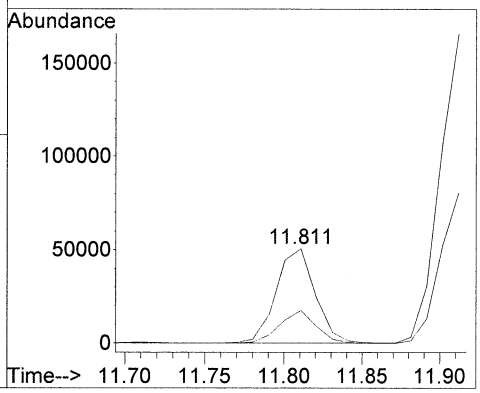


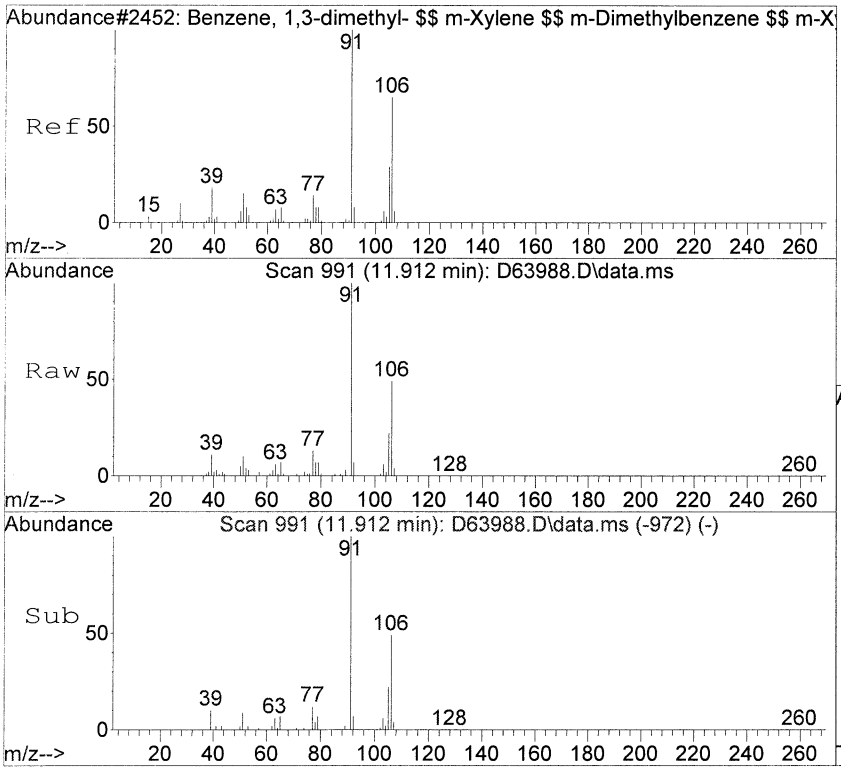


#78
Ethylbenzene
Concen: 3.00 ppb
RT: 11.811 min Scan# 981
Delta R.T. 0.000 min
Lab File: D63988.D
Acq: 29 Dec 17 4:16 pm

Tgt Ion: 91 Resp: 87363

Ion	Ratio	Lower	Upper
91	100		
106	34.5	22.4	41.6

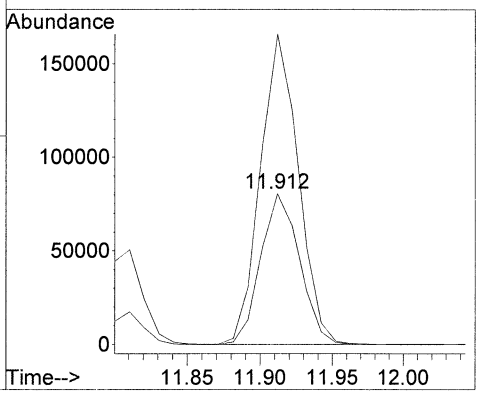


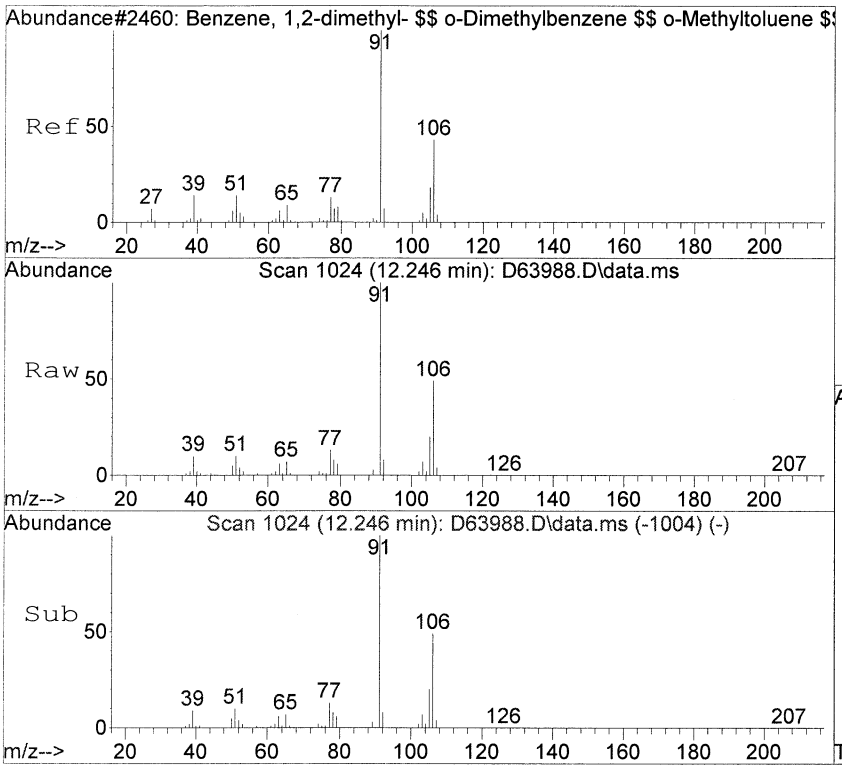


#79
m+p-Xylene
Concen: 12.80 ppb
RT: 11.912 min Scan# 991
Delta R.T. -0.010 min
Lab File: D63988.D
Acq: 29 Dec 17 4:16 pm

Tgt Ion:106 Resp: 150189

Ion	Ratio	Lower	Upper
106	100		
91	206.0	146.4	272.0

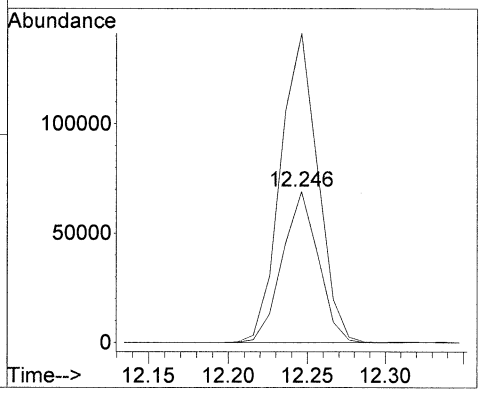




#82
o-Xylene
Concen: 9.52 ppb
RT: 12.246 min Scan# 1024
Delta R.T. 0.000 min
Lab File: D63988.D
Acq: 29 Dec 17 4:16 pm

Tgt Ion:106 Resp: 109800

Ion	Ratio	Lower	Upper
106	100		
91	204.8	153.8	285.6



Quantitation Report (QT Reviewed)

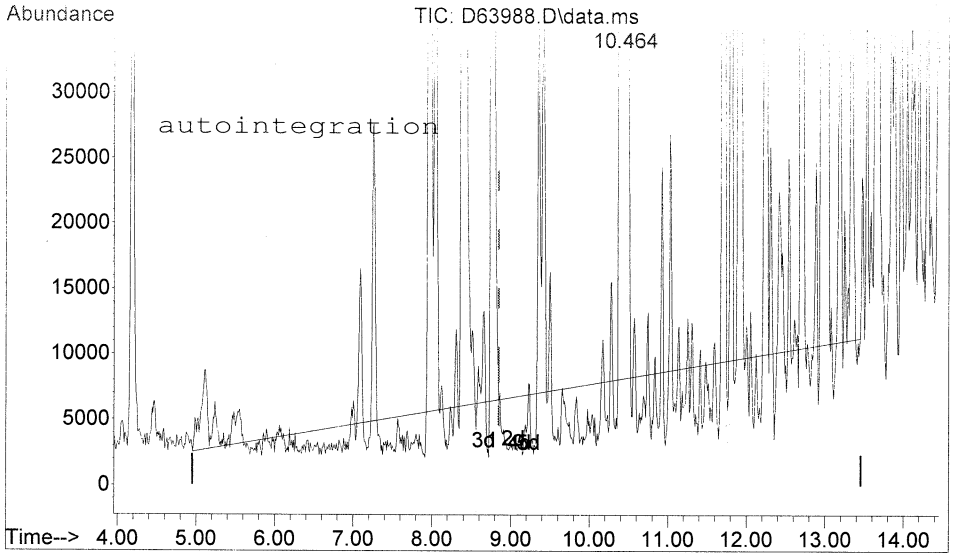
Data Path : C:\msdchem\1\DATA\2017\122917\
Data File : D63988.D
Acq On : 29 Dec 2017 4:16 pm
Operator : CJW sop525r16
Sample : 1712475-1
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 29 16:33:55 2017
Quant Method : C:\msdchem\1\METHODS\022717GRO.M
Quant Title :
QLast Update : Thu Mar 30 11:56:43 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
3) 1,4-Dichlorobenzene-d4	0.000	TIC	0m	25.00	ppb	-13.21
Target Compounds						Qvalue
1) GRO	8.855	TIC	12563704m	211.51	ppb	

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

12/29/2017



TIC: D63988.D\data.ms

(1) GRO (H)
8.855min (0.000) 179.12 ppb m
response 11379314

Signal	Exp%	Act%
TIC	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Reason for manual re-integration?

[] missed peak assignment

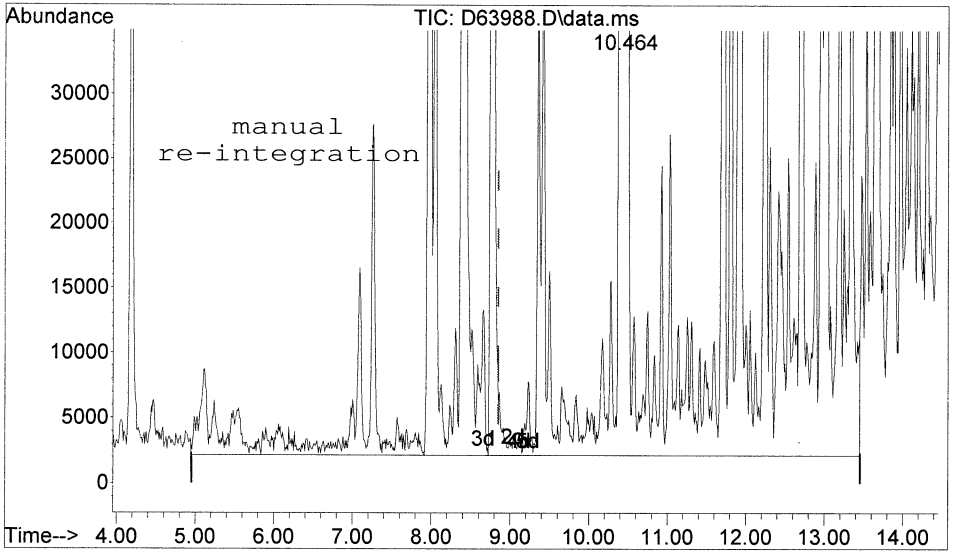
[] peak saturation (detector shutdown)

[] over-integrated peak's area

[✓] under-integrated peak's area

[] other (_____)

initials: g date: 12/29/2017



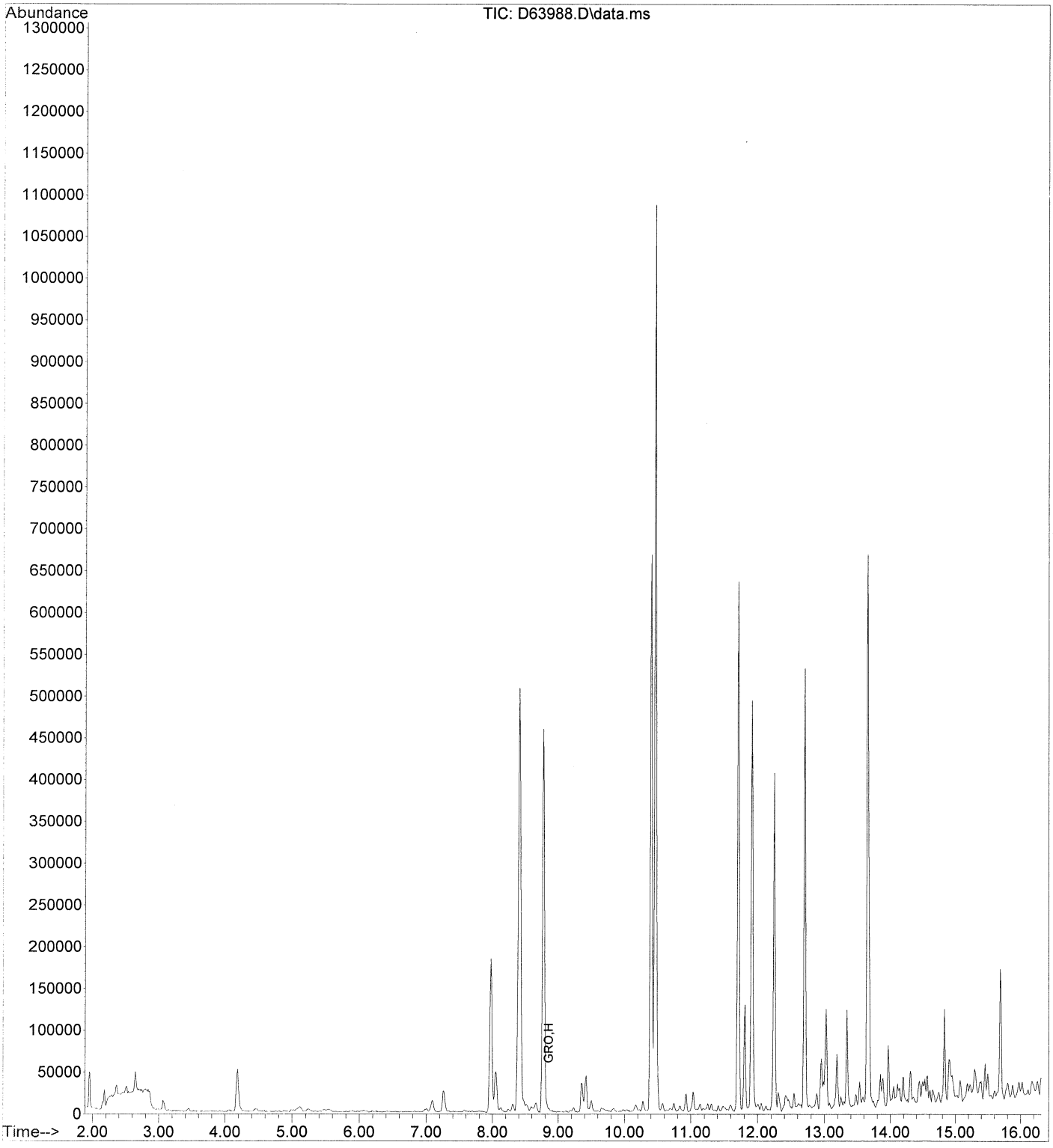
TIC: D63988.D\data.ms

(1) GRO (H)
8.855min (0.000) 211.51 ppb m
response 12563704

Signal	Exp%	Act%
TIC	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Data Path : C:\msdchem\1\DATA\2017\122917\
Data File : D63988.D
Acq On : 29 Dec 2017 4:16 pm
Operator : CJW sop525r16
Sample : 1712475-1
Misc :
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Dec 29 16:33:55 2017
Quant Method : C:\msdchem\1\METHODS\022717GRO.M
Quant Title :
QLast Update : Thu Mar 30 11:56:43 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\2017\122817\C79108.D Vial: 4
Acq On : 28 Dec 2017 1:12 pm Operator: JK-sop525r16
Sample : VL171228-3CCS Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ettics.p
Quant Time: Dec 28 17:08 2017 Quant Results File: 122217W.RES

Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Last Update : Sat Dec 23 06:00:59 2017
Response via : Initial Calibration
DataAcq Meth : 122217W

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene	5.20	96	1905301	25.00	ppb		-0.02
58) Chlorobenzene-d5	8.82	82	709388	25.00	ppb		-0.01
78) 1,4-Dichlorobenzene-d4	11.06	152	483405	25.00	ppb		0.00
System Monitoring Compounds							
37) Dibromofluoromethane	4.46	113	548882	23.91	ppb		-0.01
Spiked Amount 25.000	Range 85 - 115		Recovery = 95.64%				
42) 1,2-dichloroethane-d4	4.84	65	498929	24.75	ppb		-0.01
Spiked Amount 25.000	Range 85 - 115		Recovery = 99.00%				
59) Toluene-d8	7.07	98	1525650	24.52	ppb		-0.01
Spiked Amount 25.000	Range 85 - 115		Recovery = 98.08%				
79) 4-Bromofluorobenzene	10.03	95	517869	24.55	ppb		-0.01
Spiked Amount 25.000	Range 85 - 115		Recovery = 98.20%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.28	85	188732	8.07	ppb		99
3) Chloromethane	1.40	50	421363	8.73	ppb		97
4) Vinyl chloride	1.47	62	267656	8.72	ppb		99
5) Bromomethane	1.68	96	154308	8.59	ppb		95
6) Chloroethane	1.74	64	116007	8.69	ppb		93
7) Trichlorofluoromethane	1.91	101	195792	9.07	ppb		98
8) Ethanol	1.98	45	47249	174.68	ppb		92
9) Diethyl Ether	2.09	59	155361	9.46	ppb		82
10) Acrolein	2.19	56	303931	91.14	ppb		98
11) 1,1,2-Trichloro-1,2,2-trif	2.27	101	176333	10.43	ppb		93
12) 1,1-Dichloroethene	2.27	96	167851	10.23	ppb		69
13) Acetone	2.29	43	202958	40.27	ppb		89
14) Iodomethane	2.40	142	220788	10.61	ppb		90
15) Carbon Disulfide	2.47	76	728685	10.19	ppb		94
16) Methyl Acetate	2.53	43	206791	8.84	ppb		86
17) Allyl chloride	2.56	76	123695	9.80	ppb	#	43
18) Acetonitrile	2.50	41	248734	82.36	ppb		97
19) Methylene chloride	2.66	84	225474	9.58	ppb		73
20) tert-Butanol	2.71	59	679449	465.47	ppb		97
21) Methyl-t-butyl-ether	2.89	73	779316	18.67	ppb	#	87
22) trans-1,2-Dichloroethene	2.91	96	183713	9.51	ppb		73
23) Acrylonitrile	2.86	53	663914	89.79	ppb		99
24) Hexane	3.18	57	200891	10.04	ppb	#	88
25) Isopropyl ether	3.35	45	1023113	9.44	ppb	#	91
26) Vinyl Acetate	3.32	86	16767	9.40	ppb	#	5
27) 1,1-Dichloroethane	3.33	63	456323	9.74	ppb		98
28) Chloroprene	3.41	53	297384	9.85	ppb	#	81
29) Ethyl tert-butyl ether	3.73	59	643219	9.29	ppb	#	93
30) 2,2-Dichloropropane	3.93	77	243711	10.43	ppb		97
31) 2-Butanone	3.90	43	383886	37.70	ppb		91
32) cis-1,2-Dichloroethene	3.92	96	206073	9.65	ppb		69
33) Propionitrile	3.97	54	221689	94.37	ppb	#	97
34) Methacrylonitrile	4.13	67	61449	9.44	ppb	#	66
35) Bromochloromethane	4.17	128	96105	9.56	ppb	#	66
36) Chloroform	4.28	83	320413	9.26	ppb		93
38) 1,1,1-Trichloroethane	4.47	97	198844	9.71	ppb		88
39) Cyclohexane	4.55	84	435791	19.22	ppb	#	61
40) Carbon tetrachloride	4.64	117	168817	9.67	ppb		93
41) 1,1-Dichloropropene	4.64	75	256471	9.74	ppb		96
43) Isobutyl alcohol	4.75	43	144115	183.69	ppb	#	88

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\2017\122817\C79108.D Vial: 4
Acq On : 28 Dec 2017 1:12 pm Operator: JK-sop525r16
Sample : VL171228-3CCS Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ettics.p
Quant Time: Dec 28 17:08 2017 Quant Results File: 122217W.RES

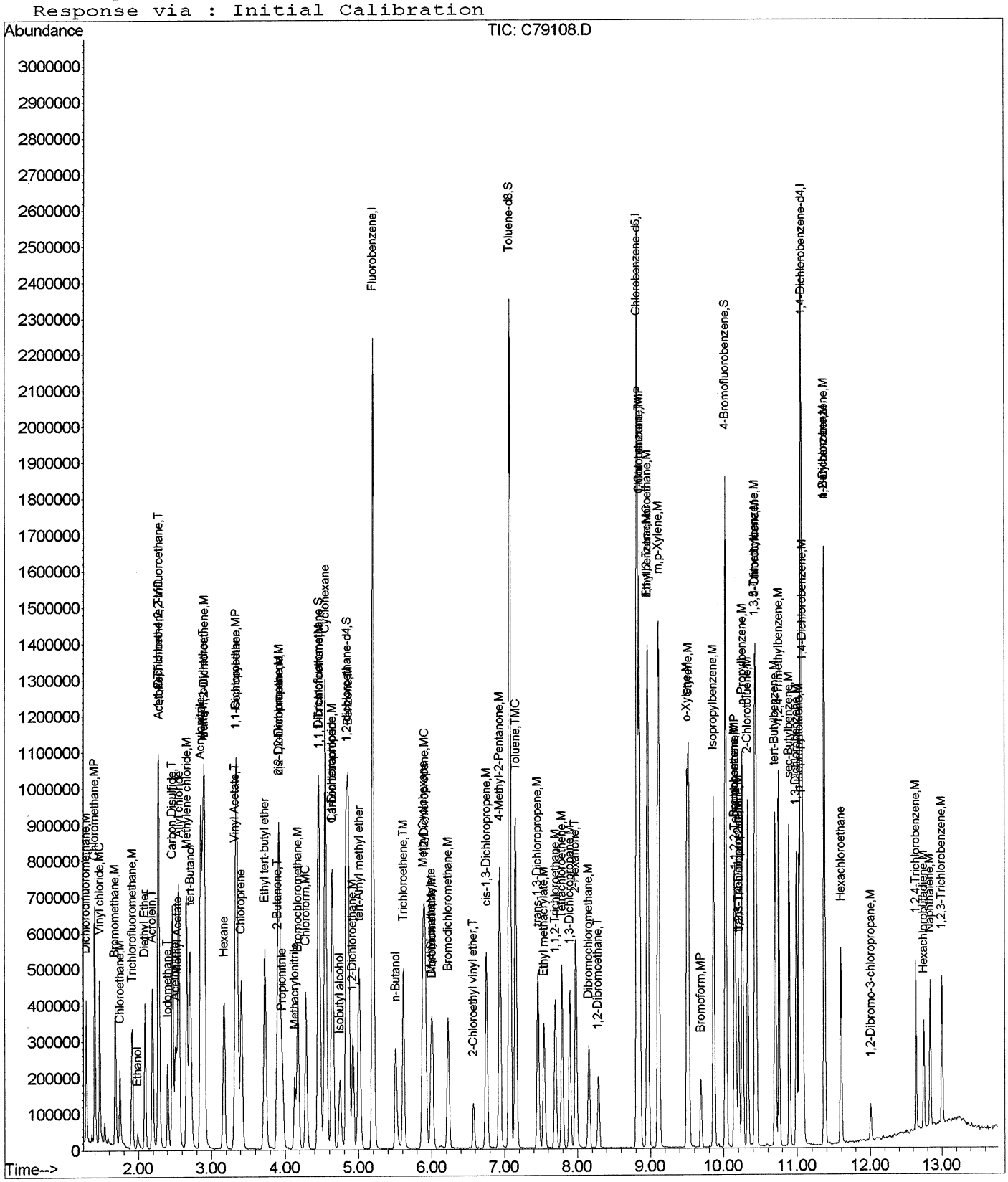
Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Last Update : Sat Dec 23 06:00:59 2017
Response via : Initial Calibration
DataAcq Meth : 122217W

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
44)	tert-Amyl methyl ether	5.00	87	79448	9.88	ppb	#	81
45)	Benzene	4.86	78	787830	9.81	ppb		95
46)	1,2-Dichloroethane	4.92	62	211730	9.36	ppb		94
47)	n-Butanol	5.51	56	176324	420.81	ppb		86
48)	Trichloroethene	5.62	130	177655	10.02	ppb		98
49)	Methyl Cyclohexane	5.88	55	256357	9.65	ppb		75
50)	1,2-Dichloropropane	5.91	63	252020	9.50	ppb		99
51)	Methyl methacrylate	5.99	69	89646	9.25	ppb	#	65
52)	1,4-Dioxane	6.00	88	21367	184.81	ppb	#	54
53)	Dibromomethane	6.02	93	109162	9.40	ppb		90
54)	Bromodichloromethane	6.23	83	231866	9.48	ppb		94
55)	2-Chloroethyl vinyl ether	6.58	63	57516	8.46	ppb		87
56)	cis-1,3-Dichloropropene	6.76	75	323754	9.81	ppb		84
57)	4-Methyl-2-Pentanone	6.94	43	728306	36.55	ppb	#	87
60)	Toluene	7.16	91	643327	10.03	ppb		98
61)	Ethyl methacrylate	7.54	69	175702	9.51	ppb	#	92
62)	trans-1,3-Dichloropropene	7.46	75	259349	9.72	ppb	#	83
63)	1,1,2-Trichloroethane	7.70	83	132945	10.07	ppb		92
64)	Tetrachloroethene	7.79	164	116600	10.06	ppb		95
65)	2-Hexanone	7.98	58	238670	37.29	ppb		74
66)	1,3-Dichloropropane	7.90	76	248138	9.44	ppb		95
67)	Dibromochloromethane	8.16	129	153859	9.94	ppb		97
68)	1,2-Dibromoethane	8.29	107	141242	9.82	ppb		90
69)	1-Chlorohexane	8.86	91	235427	10.50	ppb		93
70)	Chlorobenzene	8.85	112	422375	9.99	ppb		95
71)	Ethylbenzene	8.97	91	682886	10.35	ppb		98
72)	1,1,1,2-Tetrachloroethane	8.96	131	151364	10.18	ppb		97
73)	m,p-Xylene	9.11	106	483448	19.78	ppb		95
74)	o-Xylene	9.50	106	240609	9.98	ppb		98
75)	Styrene	9.52	104	390524	10.20	ppb		90
76)	Bromoform	9.69	173	70068	9.63	ppb		99
77)	Isopropylbenzene	9.87	105	547710	10.07	ppb		95
80)	1,1,2,2-Tetrachloroethane	10.17	83	182569	10.13	ppb		95
81)	trans-1,4-Dichloro-2-buten	10.20	53	34461	10.07	ppb		97
82)	n-Propylbenzene	10.26	91	738558	10.49	ppb		98
83)	1,2,3-Trichloropropane	10.21	110	32377	9.81	ppb		93
84)	Bromobenzene	10.15	156	155398	10.04	ppb		89
85)	1,3,5-Trimethylbenzene	10.42	105	449562	10.69	ppb		99
86)	2-Chlorotoluene	10.33	126	154882	10.01	ppb		93
87)	4-Chlorotoluene	10.44	126	158920	10.44	ppb		94
88)	tert-Butylbenzene	10.71	134	91535	10.80	ppb		95
89)	1,2,4-Trimethylbenzene	10.76	105	428173	10.40	ppb		98
90)	sec-Butylbenzene	10.89	105	542183	10.52	ppb		100
91)	p-Isopropyltoluene	11.03	119	406413	10.71	ppb		97
92)	1,3-Dichlorobenzene	10.99	146	275289	10.03	ppb		93
93)	1,4-Dichlorobenzene	11.08	146	267962	9.81	ppb		96
94)	n-Butylbenzene	11.37	91	418529	10.61	ppb		96
95)	1,2-Dichlorobenzene	11.38	146	256221	10.15	ppb		97
96)	Hexachloroethane	11.60	119	109843	10.15	ppb		98
97)	1,2-Dibromo-3-chloropropan	12.01	157	18846	9.99	ppb		80
98)	1,2,4-Trichlorobenzene	12.64	180	100983	11.23	ppb		99
99)	Hexachlorobutadiene	12.75	225	39496	11.66	ppb		98
100)	Naphthalene	12.84	128	218945	9.79	ppb		98
101)	1,2,3-Trichlorobenzene	13.00	180	82765	11.06	ppb		97

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\2017\122817\C79108.D Vial: 4
Acq On : 28 Dec 2017 1:12 pm Operator: JK-sop525r16
Sample : VL171228-3CCS Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ettics.p
Quant Time: Dec 28 17:08 2017 Quant Results File: 122217W.RES

Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Last Update : Sat Dec 23 06:00:59 2017
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\2017\122817\C79109.D Vial: 5
Acq On : 28 Dec 2017 1:33 pm Operator: JK-sop525r16
Sample : VL171228-~~LCSD~~ 3LCSd Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ettics.p
Quant Time: Dec 28 17:09 2017 Quant Results File: 122217W.RES

Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Last Update : Sat Dec 23 06:00:59 2017
Response via : Initial Calibration
DataAcq Meth : 122217W

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Fluorobenzene	5.20	96	1870576	25.00	ppb		-0.02
58) Chlorobenzene-d5	8.82	82	700446	25.00	ppb		-0.01
78) 1,4-Dichlorobenzene-d4	11.06	152	493413	25.00	ppb		0.00
System Monitoring Compounds							
37) Dibromofluoromethane	4.46	113	563897	25.02	ppb		-0.01
Spiked Amount 25.000	Range 85 - 115		Recovery = 100.08%				
42) 1,2-dichloroethane-d4	4.84	65	502738	25.40	ppb		-0.01
Spiked Amount 25.000	Range 85 - 115		Recovery = 101.60%				
59) Toluene-d8	7.07	98	1553088	25.28	ppb		-0.01
Spiked Amount 25.000	Range 85 - 115		Recovery = 101.12%				
79) 4-Bromofluorobenzene	10.03	95	536083	24.90	ppb		-0.01
Spiked Amount 25.000	Range 85 - 115		Recovery = 99.60%				
Target Compounds							Qvalue
2) Dichlorodifluoromethane	1.28	85	185189	8.07	ppb		98
3) Chloromethane	1.40	50	402469	8.49	ppb		99
4) Vinyl chloride	1.47	62	262939	8.72	ppb		100
5) Bromomethane	1.68	96	148097	8.39	ppb		99
6) Chloroethane	1.74	64	117843	8.99	ppb		95
7) Trichlorofluoromethane	1.91	101	193639	9.14	ppb		100
8) Ethanol	1.99	45	47553	179.07	ppb		93
9) Diethyl Ether	2.09	59	161206	9.99	ppb		88
10) Acrolein	2.19	56	309411	94.50	ppb		98
11) 1,1,2-Trichloro-1,2,2-trif	2.27	101	170709	10.29	ppb		95
12) 1,1-Dichloroethene	2.27	96	161184	10.01	ppb		68
13) Acetone	2.29	43	192316	38.80	ppb		85
14) Iodomethane	2.40	142	222922	10.88	ppb		89
15) Carbon Disulfide	2.47	76	684792	9.76	ppb		95
16) Methyl Acetate	2.53	43	220373	9.59	ppb		88
17) Allyl chloride	2.56	76	123812	9.99	ppb	#	35
18) Acetonitrile	2.50	41	256619	86.55	ppb	#	96
19) Methylene chloride	2.67	84	228872	9.91	ppb		78
20) tert-Butanol	2.71	59	695124	485.05	ppb		94
21) Methyl-t-butyl-ether	2.89	73	778687	19.00	ppb	#	90
22) trans-1,2-Dichloroethene	2.91	96	180930	9.54	ppb		75
23) Acrylonitrile	2.86	53	652716	89.92	ppb		97
24) Hexane	3.17	57	188184	9.58	ppb		88
25) Isopropyl ether	3.35	45	1050347	9.87	ppb	#	93
26) Vinyl Acetate	3.32	86	16967	9.69	ppb	#	12
27) 1,1-Dichloroethane	3.33	63	461120	10.02	ppb		97
28) Chloroprene	3.41	53	302989	10.22	ppb	#	84
29) Ethyl tert-butyl ether	3.73	59	647163	9.52	ppb	#	93
30) 2,2-Dichloropropane	3.93	77	241364	10.52	ppb		94
31) 2-Butanone	3.90	43	351525	35.16	ppb		89
32) cis-1,2-Dichloroethene	3.92	96	207143	9.88	ppb		73
33) Propionitrile	3.96	54	222510	96.48	ppb	#	96
34) Methacrylonitrile	4.13	67	64484	10.10	ppb	#	72
35) Bromochloromethane	4.18	128	98716	10.00	ppb		71
36) Chloroform	4.28	83	319669	9.41	ppb		93
38) 1,1,1-Trichloroethane	4.47	97	198101	9.86	ppb		86
39) Cyclohexane	4.55	84	432208	19.41	ppb	#	68
40) Carbon tetrachloride	4.64	117	175473	10.24	ppb		96
41) 1,1-Dichloropropene	4.64	75	263116	10.18	ppb		96
43) Isobutyl alcohol	4.75	43	148540	192.84	ppb	#	88

(#) = qualifier out of range (m) = manual integration

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Data File : C:\HPCHEM\1\DATA\2017\122817\C79109.D Vial: 5
Acq On : 28 Dec 2017 1:33 pm Operator: JK-sop525r16
Sample : VL171228-LCSD Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ettics.p
Quant Time: Dec 28 17:09 2017 Quant Results File: 122217W.RES

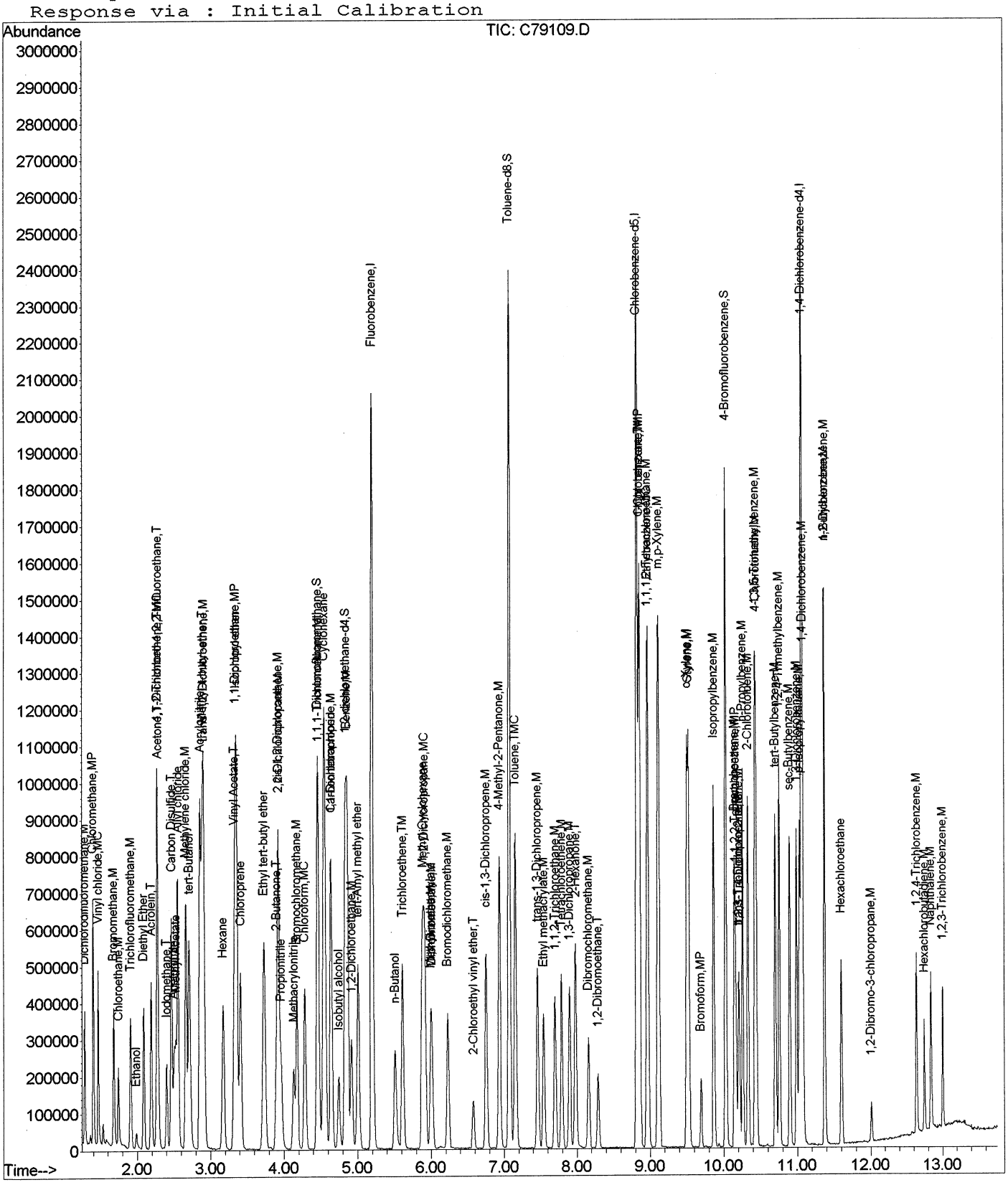
Quant Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Last Update : Sat Dec 23 06:00:59 2017
Response via : Initial Calibration
DataAcq Meth : 122217W

	Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
44)	tert-Amyl methyl ether	5.01	87	74610	9.45	ppb	#	86
45)	Benzene	4.86	78	766370	9.72	ppb		96
46)	1,2-Dichloroethane	4.92	62	205617	9.26	ppb		92
47)	n-Butanol	5.51	56	170792	415.63	ppb		88
48)	Trichloroethene	5.61	130	172995	9.94	ppb		95
49)	Methyl Cyclohexane	5.88	55	251811	9.66	ppb		74
50)	1,2-Dichloropropane	5.91	63	244604	9.39	ppb		99
51)	Methyl methacrylate	5.99	69	93299	9.80	ppb	#	69
52)	1,4-Dioxane	6.00	88	22175	195.35	ppb	#	45
53)	Dibromomethane	6.02	93	112536	9.87	ppb		92
54)	Bromodichloromethane	6.23	83	234620	9.77	ppb		91
55)	2-Chloroethyl vinyl ether	6.58	63	61311	9.14	ppb		85
56)	cis-1,3-Dichloropropene	6.76	75	327168	10.10	ppb		85
57)	4-Methyl-2-Pentanone	6.94	43	765669	39.14	ppb	#	87
60)	Toluene	7.16	91	607201	9.58	ppb		98
61)	Ethyl methacrylate	7.54	69	189784	10.35	ppb	#	95
62)	trans-1,3-Dichloropropene	7.46	75	266494	10.11	ppb		86
63)	1,1,2-Trichloroethane	7.70	83	129960	9.97	ppb		93
64)	Tetrachloroethene	7.79	164	115241	10.07	ppb		94
65)	2-Hexanone	7.98	58	228057	36.15	ppb		72
66)	1,3-Dichloropropane	7.90	76	253253	9.76	ppb		98
67)	Dibromochloromethane	8.16	129	159260	10.42	ppb		93
68)	1,2-Dibromoethane	8.29	107	142652	10.05	ppb		90
69)	1-Chlorohexane	8.86	91	222397	10.04	ppb		87
70)	Chlorobenzene	8.85	112	413875	9.91	ppb		95
71)	Ethylbenzene	8.97	91	662609	10.17	ppb		98
72)	1,1,1,2-Tetrachloroethane	8.96	131	148980	10.15	ppb		91
73)	m,p-Xylene	9.11	106	483424	20.03	ppb		98
74)	o-Xylene	9.51	106	247974	10.42	ppb		99
75)	Styrene	9.52	104	400861	10.60	ppb		91
76)	Bromoform	9.69	173	69868	9.72	ppb		99
77)	Isopropylbenzene	9.87	105	547418	10.19	ppb		93
80)	1,1,2,2-Tetrachloroethane	10.17	83	181853	9.89	ppb		96
81)	trans-1,4-Dichloro-2-buten	10.20	53	35894	10.27	ppb	#	86
82)	n-Propylbenzene	10.26	91	701239	9.76	ppb		99
83)	1,2,3-Trichloropropane	10.22	110	33226	9.86	ppb		72
84)	Bromobenzene	10.15	156	159335	10.09	ppb		86
85)	1,3,5-Trimethylbenzene	10.43	105	431978	10.06	ppb		98
86)	2-Chlorotoluene	10.34	126	156730	9.92	ppb		96
87)	4-Chlorotoluene	10.44	126	154796	9.96	ppb		96
88)	tert-Butylbenzene	10.70	134	84140	9.72	ppb		92
89)	1,2,4-Trimethylbenzene	10.76	105	424064	10.09	ppb		98
90)	sec-Butylbenzene	10.89	105	511162	9.71	ppb		98
91)	p-Isopropyltoluene	11.03	119	385862	9.97	ppb		97
92)	1,3-Dichlorobenzene	10.99	146	283693	10.12	ppb		95
93)	1,4-Dichlorobenzene	11.08	146	270957	9.72	ppb		95
94)	n-Butylbenzene	11.37	91	393411	9.77	ppb		98
95)	1,2-Dichlorobenzene	11.38	146	251467	9.75	ppb		96
96)	Hexachloroethane	11.60	119	104349	9.45	ppb		98
97)	1,2-Dibromo-3-chloropropan	12.01	157	18827	9.79	ppb		84
98)	1,2,4-Trichlorobenzene	12.64	180	102430	11.16	ppb		97
99)	Hexachlorobutadiene	12.75	225	38251	11.06	ppb		93
100)	Naphthalene	12.84	128	233933	10.23	ppb		98
101)	1,2,3-Trichlorobenzene	13.01	180	81241	10.64	ppb		99

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\2017\122817\C79109.D Vial: 5
Acq On : 28 Dec 2017 1:33 pm Operator: JK-sop525r16
Sample : VL171228-LCSD Inst : CSS Instr
Misc : 8260 - 10mL water Multiplr: 1.00
MS Integration Params: ettics.p
Quant Time: Dec 28 17:09 2017 Quant Results File: 122217W.RES

Method : C:\HPCHEM\1\METHODS\122217W.M (RTE Integrator)
Title : HPV3 - GC/MS Volatiles (S.O.P. 525)
Last Update : Sat Dec 23 06:00:59 2017
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

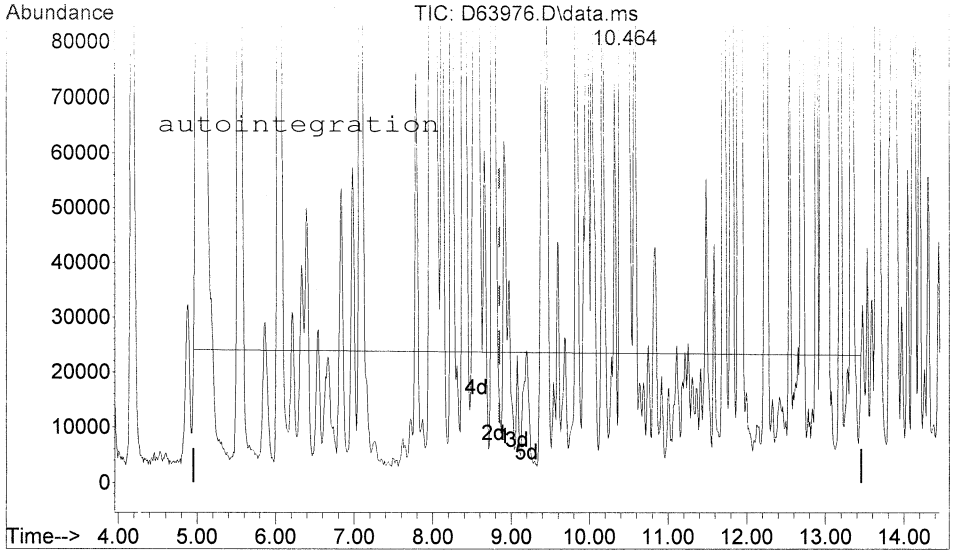
Data Path : C:\msdchem\1\DATA\2017\122917\
Data File : D63976.D
Acq On : 29 Dec 2017 11:07 am
Operator : CJW sop525r16
Sample : VL171229-8CCS
Misc :
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Dec 29 12:53:37 2017
Quant Method : C:\msdchem\1\METHODS\022717GRO.M
Quant Title :
QLast Update : Thu Mar 30 11:56:43 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
3) 1,4-Dichlorobenzene-d4	13.188	TIC	548654	25.00	ppb	-0.02
Target Compounds						Qvalue
1) GRO	8.855	TIC	41210043m	994.93	ppb	

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

9-12-2018



TIC: D63976.D\data.ms

(1) GRO (H)
8.855min (0.000) 863.68 ppb m
response 36410847

Signal	Exp%	Act%
TIC	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Reason for manual re-integration?

[] missed peak assignment

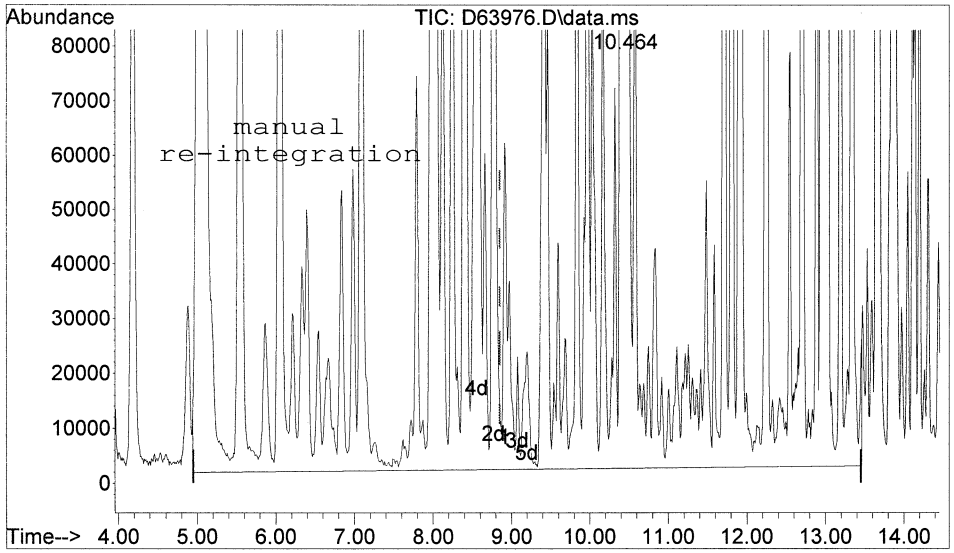
[] peak saturation (detector shutdown)

[] over-integrated peak's area

[✓] under-integrated peak's area

[] other (_____)

initials: gn date: 12 / 29 / 2017



TIC: D63976.D\data.ms

(1) GRO (H)
8.855min (0.000) 994.93 ppb m
response 41210043

Signal	Exp%	Act%
TIC	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Data Path : C:\msdchem\1\DATA\2017\122917\
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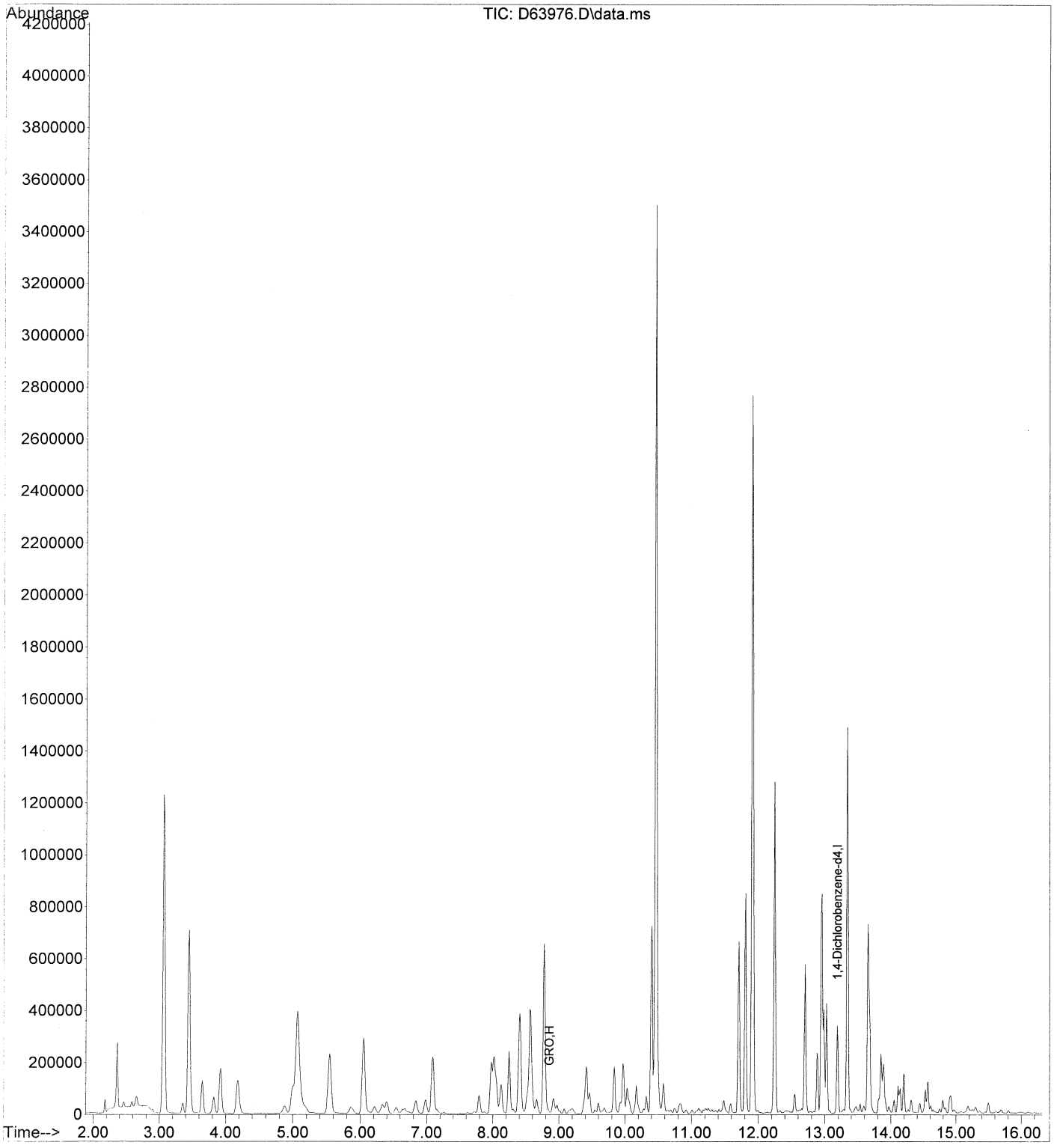


Quantitation Report (QT Reviewed)

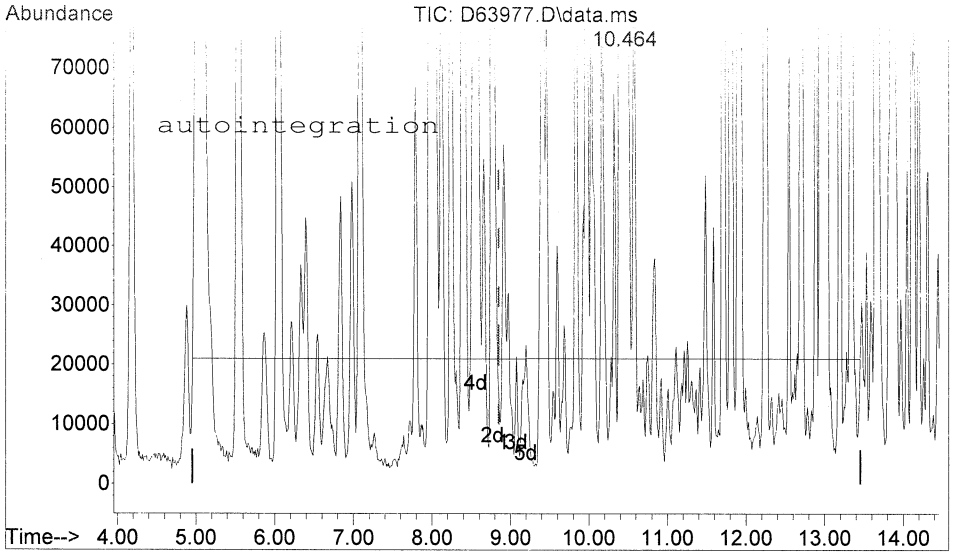
Data Path : C:\msdchem\1\DATA\2017\122917\
Data File : D63977.D
Acq On : 29 Dec 2017 11:32 am
Operator : CJW sop525r16
Sample : VL171229-8LCSD
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 29 12:55:11 2017
Quant Method : C:\msdchem\1\METHODS\022717GRO.M
Quant Title :
QLast Update : Thu Mar 30 11:56:43 2017
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
3) 1,4-Dichlorobenzene-d4	13.188	TIC	502133	25.00	ppb	-0.02
Target Compounds						Qvalue
1) GRO	8.855	TIC	37972539m	906.39	ppb	

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

qr 12/29/17



TIC: D63977.D\data.ms

(1) GRO (H)
8.855min (0.000) 778.29 ppb m
response 33288524

Signal	Exp%	Act%
TIC	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Reason for manual re-integration?

[] missed peak assignment

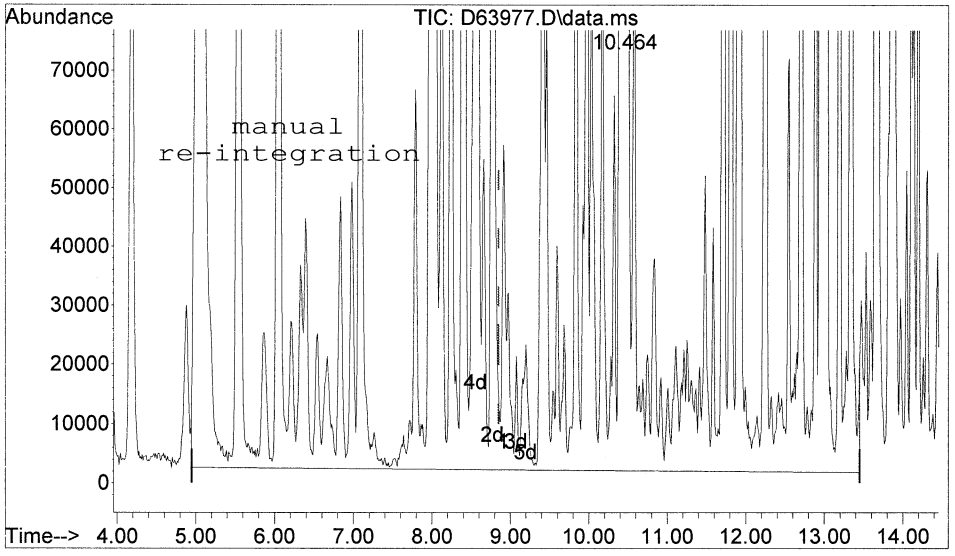
[] peak saturation (detector shutdown)

[] over-integrated peak's area

[✓] under-integrated peak's area

[] other (_____)

initials: _____ date: 12 / 29 / 2017



TIC: D63977.D\data.ms

(1) GRO (H)
8.855min (0.000) 906.39 ppb m
response 37972539

Signal	Exp%	Act%
TIC	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Data Path : C:\msdchem\1\DATA\2017\122917\
Data File : D63977.D
Acq On : 29 Dec 2017 11:32 am
Operator : CJW sop525r16
Sample : VL171229-8LCSD
Misc :
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 29 12:55:11 2017
Quant Method : C:\msdchem\1\METHODS\022717GRO.M
Quant Title :
QLast Update : Thu Mar 30 11:56:43 2017
Response via : Initial Calibration