



received 07/29/2016  
Complaint 200439757

# GC/MS Volatiles

## Case Narrative

---

**COGCC**

**Complaint 200439757**

Work Order Number: 1607364

1. This report consists of 1 water sample. The sample was received cool and intact by ALS on 06/20/16.

The sample was free of headspace prior to analysis and 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 with the exception of vinyl acetate which was low. This compound was not detected in the associated sample.
6. All compounds in the daily (continuing) calibration verifications were within 20%D with the exception of bromoform which was low. This compound was not detected in the associated sample.
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.

The method blank had methylene chloride detected above the reporting limit. This compound was not detected in the associated sample.

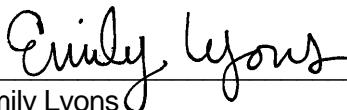
8. All laboratory control sample and laboratory control sample duplicate recoveries and RPDs were within the acceptance criteria with the following exception:

Spiked Compound	QC Sample	Direction
Chloroethane	LCS & LCSD	RPD

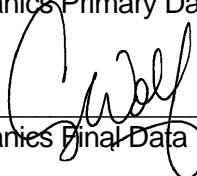
Since the recoveries for this compound in the laboratory control sample and laboratory control sample duplicate were within control limits, with only the RPD exceeding acceptance criteria, quantitations of target compounds were not compromised. No further action was taken.

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.

  
\_\_\_\_\_  
Emily Lyons  
Organics Primary Data Reviewer

7/27/16  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Organics Final Data Reviewer

7/28/16  
\_\_\_\_\_  
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 -- Fort Collins

## Sample Number(s) Cross-Reference Table

---

**OrderNum:** 1607364

**Client Name:** COGCC

**Client Project Name:** Complaint 200439757

**Client Project Number:**

**Client PO Number:** CT 2016-141

---

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
754914 Sump	1607364-1		WATER	20-Jul-16	9:21





ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCC

Workorder No: 1607364

Project Manager: ARW

Initials: SDM Date: 7-20-16

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<u>NO</u>
2. Are custody seals on shipping containers intact?	<u>NONE</u>	YES	NO
3. Are Custody seals on sample containers intact?	<u>NONE</u>	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<u>YES</u>	NO
5. Are the COC and bottle labels complete and legible?		<u>YES</u>	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<u>YES</u>	NO
7. Were airbills / shipping documents present and/or removable?	<u>DROP OFF</u>	YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<u>N/A</u>	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<u>N/A</u>	<u>YES</u>	NO
10. Is there sufficient sample for the requested analyses?		<u>YES</u>	NO
11. Were all samples placed in the proper containers for the requested analyses?		<u>YES</u>	NO
12. Are all samples within holding times for the requested analyses?		<u>YES</u>	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<u>YES</u>	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: <u>X</u> < green pea _____ > green pea	<u>N/A</u>	YES	<u>NO</u>
15. Do any water samples contain sediment? Amount Amount of sediment: _____ dusting _____ moderate _____ heavy	<u>N/A</u>	YES	<u>NO</u>
16. Were the samples shipped on ice?		<u>YES</u>	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: <u>#2</u> #4		<u>YES</u>	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>5.0</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>N/A</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / <u>NA</u> (If no, see Form 008.)			

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

14.) Sample 1 bottles 2 & 3 have a headspace X green pea.  
SDR >  
Sample 1 bottle 1 has a headspace < green pea.

If applicable, was the client contacted? YES / NO / NA Contact: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Project Manager Signature / Date: [Signature] 7/20/16

\*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: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Lab ID: VL160721-3MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 21-Jul-16

Date Analyzed: 21-Jul-16

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: N/A

File Name: C70099

Sample Aliquot: 10 ml

Final Volume: 10 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
110-54-3	HEXANE	1	1	1	0.31	U	
108-87-2	METHYL CYCLOHEXANE	1	1	1	0.3	U	
71-36-3	N-BUTANOL	1	50	50	32	U	
75-65-0	TERT-BUTANOL	1	50	50	32	U	
75-71-8	DICHLORODIFLUOROMETHANE	1	1	1	0.3	U	
8006-61-9	GASOLINE RANGE ORGANICS	1	100	100	100	U	
74-87-3	CHLOROMETHANE	1	1	1	0.3	U	
75-01-4	VINYL CHLORIDE	1	1	1	0.3	U	
74-83-9	BROMOMETHANE	1	1	1	0.3	U	
75-00-3	CHLOROETHANE	1	1	1	0.3	U	
75-69-4	TRICHLOROFLUOROMETHANE	1	1	1	0.3	U	
75-35-4	1,1-DICHLOROETHENE	1	1	1	0.3	U	
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROET	1	1	1	0.3	U	
67-64-1	ACETONE	1	10	10	3	U	
74-88-4	IODOMETHANE	1	1	1	0.38	U	
75-15-0	CARBON DISULFIDE	1	1	1	0.3	U	
75-09-2	METHYLENE CHLORIDE	1	1.3	1	0.44		
156-60-5	TRANS-1,2-DICHLOROETHENE	1	1	1	0.3	U	
1634-04-4	METHYL TERTIARY BUTYL ETHER	1	1	1	0.3	U	
75-34-3	1,1-DICHLOROETHANE	1	1	1	0.3	U	
108-05-4	VINYL ACETATE	1	2	2	0.3	U	
156-59-2	CIS-1,2-DICHLOROETHENE	1	1	1	0.3	U	
78-93-3	2-BUTANONE	1	10	10	3	U	
74-97-5	BROMOCHLOROMETHANE	1	1	1	0.3	U	
67-66-3	CHLOROFORM	1	1	1	0.3	U	
71-55-6	1,1,1-TRICHLOROETHANE	1	1	1	0.3	U	
594-20-7	2,2-DICHLOROPROPANE	1	1	1	0.3	U	
110-82-7	CYCLOHEXANE	1	1	1	0.3	U	

Data Package ID: VL1607364-1

# GC/MS Volatiles

Method SW8260\_25C

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Lab ID: VL160721-3MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 21-Jul-16

Date Analyzed: 21-Jul-16

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: N/A

File Name: C70099

Sample Aliquot: 10 ml

Final Volume: 10 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
56-23-5	CARBON TETRACHLORIDE	1	1	1	0.3	U	
563-58-6	1,1-DICHLOROPROPENE	1	1	1	0.3	U	
107-06-2	1,2-DICHLOROETHANE	1	1	1	0.3	U	
71-43-2	BENZENE	1	1	1	0.3	U	
79-01-6	TRICHLOROETHENE	1	1	1	0.3	U	
78-87-5	1,2-DICHLOROPROPANE	1	1	1	0.3	U	
74-95-3	DIBROMOMETHANE	1	1	1	0.3	U	
75-27-4	BROMODICHLOROMETHANE	1	1	1	0.3	U	
10061-01-5	CIS-1,3-DICHLOROPROPENE	1	1	1	0.3	U	
108-10-1	4-METHYL-2-PENTANONE	1	10	10	3	U	
108-88-3	TOLUENE	1	1	1	0.3	U	
10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	1	1	0.3	U	
79-00-5	1,1,2-TRICHLOROETHANE	1	1	1	0.3	U	
591-78-6	2-HEXANONE	1	10	10	3	U	
127-18-4	TETRACHLOROETHENE	1	1	1	0.2	U	
142-28-9	1,3-DICHLOROPROPANE	1	1	1	0.3	U	
124-48-1	DIBROMOCHLOROMETHANE	1	1	1	0.3	U	
106-93-4	1,2-DIBROMOETHANE	1	1	1	0.3	U	
544-10-5	1-CHLOROHEXANE	1	1	1	0.3	U	
108-90-7	CHLOROBENZENE	1	1	1	0.3	U	
630-20-6	1,1,1,2-TETRACHLOROETHANE	1	1	1	0.3	U	
100-41-4	ETHYLBENZENE	1	1	1	0.3	U	
136777-61-2	M+P-XYLENE	1	1	1	0.3	U	
95-47-6	O-XYLENE	1	1	1	0.3	U	
100-42-5	STYRENE	1	1	1	0.3	U	
75-25-2	BROMOFORM	1	1	1	0.3	U	
98-82-8	ISOPROPYLBENZENE	1	1	1	0.3	U	
96-18-4	1,2,3-TRICHLOROPROPANE	1	1	1	0.3	U	

Data Package ID: VL1607364-1



# GC/MS Volatiles

Method SW8260\_25C

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Lab ID: VL160721-3MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 21-Jul-16

Date Analyzed: 21-Jul-16

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: N/A

File Name: C70099

Sample Aliquot: 10 ml

Final Volume: 10 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
79-34-5	1,1,2,2-TETRACHLOROETHANE	1	1	1	0.3	U	
108-86-1	BROMOBENZENE	1	1	1	0.3	U	
103-65-1	N-PROPYLBENZENE	1	1	1	0.3	U	
95-49-8	2-CHLOROTOLUENE	1	1	1	0.3	U	
108-67-8	1,3,5-TRIMETHYLBENZENE	1	1	1	0.3	U	
106-43-4	4-CHLOROTOLUENE	1	1	1	0.3	U	
98-06-6	TERT-BUTYLBENZENE	1	1	1	0.3	U	
95-63-6	1,2,4-TRIMETHYLBENZENE	1	1	1	0.3	U	
135-98-8	SEC-BUTYLBENZENE	1	1	1	0.3	U	
541-73-1	1,3-DICHLOROBENZENE	1	1	1	0.3	U	
99-87-6	P-ISOPROPYLTOLUENE	1	1	1	0.3	U	
106-46-7	1,4-DICHLOROBENZENE	1	1	1	0.3	U	
104-51-8	N-BUTYLBENZENE	1	1	1	0.3	U	
95-50-1	1,2-DICHLOROBENZENE	1	1	1	0.3	U	
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	1	2	2	0.4	U	
120-82-1	1,2,4-TRICHLOROBENZENE	1	1	1	0.3	U	
87-68-3	HEXACHLOROBUTADIENE	1	1	1	0.3	U	
91-20-3	NAPHTHALENE	1	1	1	0.3	U	
87-61-6	1,2,3-TRICHLOROBENZENE	1	1	1	0.3	U	
123-91-1	1,4-DIOXANE	1	100	100	60	U	
64-17-5	ETHANOL	1	40	40	29	U	
78-83-1	ISOBUTYL ALCOHOL	1	40	40	15	U	

Data Package ID: VL1607364-1

Date Printed: Thursday, July 28, 2016

ALS -- Fort Collins

Page 3 of 4

LIMS Version: 6.820

# GC/MS Volatiles

Method SW8260\_25C

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Lab ID: VL160721-3MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 21-Jul-16

Date Analyzed: 21-Jul-16

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: N/A

File Name: C70099

Sample Aliquot: 10 ml

Final Volume: 10 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
-------	----------------	----	--------	----------------------	--------	---------------------	------------------

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	25.7		25	103	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	24.8		25	99	84 - 118
2037-26-5	TOLUENE-D8	23.8		25	95	85 - 115

Data Package ID: VL1607364-1

Date Printed: Wednesday, July 27, 2016

ALS -- Fort Collins

LIMS Version: 6.820

Page 4 of 4

# GC/MS Volatiles

Method SW8260\_25

## Tentatively Identified Compounds

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Field ID:

Lab ID: VL160721-3MB

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 21-Jul-16

Date Analyzed: 21-Jul-16

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: As Received

Sample Aliquot: 10 ml

Final Volume: 10 ml

Clean DF: 1

File Name: C70099

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

Data Package ID: VL1607364-1

# GC/MS Volatiles

Method SW8260\_25C

## Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Field ID: 754914 Sump

Lab ID: 1607364-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Jul-16

Date Extracted: 21-Jul-16

Date Analyzed: 21-Jul-16

Prep Method: SW5030 Rev C

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: As Received

File Name: C70110

Analyst: Joe Kostelnik

Sample Aliquot: 10 ml

Final Volume: 10 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
110-54-3	HEXANE	1	1	1	0.31	U	
108-87-2	METHYL CYCLOHEXANE	1	1	1	0.3	U	
71-36-3	N-BUTANOL	1	50	50	32	U	
75-65-0	TERT-BUTANOL	1	50	50	32	U	
75-71-8	DICHLORODIFLUOROMETHANE	1	1	1	0.3	U	
8006-61-9	GASOLINE RANGE ORGANICS	1	100	100	100	U	
74-87-3	CHLOROMETHANE	1	1	1	0.3	U	
75-01-4	VINYL CHLORIDE	1	1	1	0.3	U	
74-83-9	BROMOMETHANE	1	1	1	0.3	U	
75-00-3	CHLOROETHANE	1	1	1	0.3	U	
75-69-4	TRICHLOROFLUOROMETHANE	1	1	1	0.3	U	
75-35-4	1,1-DICHLOROETHENE	1	1	1	0.3	U	
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETH	1	1	1	0.3	U	
67-64-1	ACETONE	1	10	10	3	U	
74-88-4	IODOMETHANE	1	1	1	0.38	U	
75-15-0	CARBON DISULFIDE	1	1	1	0.3	U	
75-09-2	METHYLENE CHLORIDE	1	1	1	0.44	U	
156-60-5	TRANS-1,2-DICHLOROETHENE	1	1	1	0.3	U	
1634-04-4	METHYL TERTIARY BUTYL ETHER	1	1	1	0.3	U	
75-34-3	1,1-DICHLOROETHANE	1	1	1	0.3	U	
108-05-4	VINYL ACETATE	1	2	2	0.3	U	
156-59-2	CIS-1,2-DICHLOROETHENE	1	1	1	0.3	U	
78-93-3	2-BUTANONE	1	10	10	3	U	
74-97-5	BROMOCHLOROMETHANE	1	1	1	0.3	U	
67-66-3	CHLOROFORM	1	1	1	0.3	U	
71-55-6	1,1,1-TRICHLOROETHANE	1	1	1	0.3	U	

Data Package ID: VL1607364-1

Date Printed: Thursday, July 28, 2016

ALS -- Fort Collins

LIMS Version: 6.820

Page 1 of 4

# GC/MS Volatiles

Method SW8260\_25C

## Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Field ID: 754914 Sump

Lab ID: 1607364-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Jul-16

Date Extracted: 21-Jul-16

Date Analyzed: 21-Jul-16

Prep Method: SW5030 Rev C

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: As Received

File Name: C70110

Analyst: Joe Kostelnik

Sample Aliquot: 10 ml

Final Volume: 10 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
594-20-7	2,2-DICHLOROPROPANE	1	1	1	0.3	U	
110-82-7	CYCLOHEXANE	1	1	1	0.3	U	
56-23-5	CARBON TETRACHLORIDE	1	1	1	0.3	U	
563-58-6	1,1-DICHLOROPROPENE	1	1	1	0.3	U	
107-06-2	1,2-DICHLOROETHANE	1	1	1	0.3	U	
71-43-2	BENZENE	1	1	1	0.3	U	
79-01-6	TRICHLOROETHENE	1	1	1	0.3	U	
78-87-5	1,2-DICHLOROPROPANE	1	1	1	0.3	U	
74-95-3	DIBROMOMETHANE	1	1	1	0.3	U	
75-27-4	BROMODICHLOROMETHANE	1	1	1	0.3	U	
10061-01-5	CIS-1,3-DICHLOROPROPENE	1	1	1	0.3	U	
108-10-1	4-METHYL-2-PENTANONE	1	10	10	3	U	
108-88-3	TOLUENE	1	0.86	1	0.3	J	
10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	1	1	0.3	U	
79-00-5	1,1,2-TRICHLOROETHANE	1	1	1	0.3	U	
591-78-6	2-HEXANONE	1	10	10	3	U	
127-18-4	TETRACHLOROETHENE	1	1	1	0.2	U	
142-28-9	1,3-DICHLOROPROPANE	1	1	1	0.3	U	
124-48-1	DIBROMOCHLOROMETHANE	1	1	1	0.3	U	
106-93-4	1,2-DIBROMOETHANE	1	1	1	0.3	U	
544-10-5	1-CHLOROHEXANE	1	1	1	0.3	U	
108-90-7	CHLOROBENZENE	1	1	1	0.3	U	
630-20-6	1,1,1,2-TETRACHLOROETHANE	1	1	1	0.3	U	
100-41-4	ETHYLBENZENE	1	1	1	0.3	U	
136777-61-2	M+P-XYLENE	1	1	1	0.3	U	
95-47-6	O-XYLENE	1	1	1	0.3	U	

Data Package ID: VL1607364-1

Date Printed: Thursday, July 28, 2016

ALS -- Fort Collins

Page 2 of 4

LIMS Version: 6.820

# GC/MS Volatiles

Method SW8260\_25C

## Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Field ID: 754914 Sump

Lab ID: 1607364-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Jul-16

Date Extracted: 21-Jul-16

Date Analyzed: 21-Jul-16

Prep Method: SW5030 Rev C

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: As Received

File Name: C70110

Analyst: Joe Kostelnik

Sample Aliquot: 10 ml

Final Volume: 10 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
100-42-5	STYRENE	1	0.59	1	0.3	J	
75-25-2	BROMOFORM	1	1	1	0.3	U	
98-82-8	ISOPROPYLBENZENE	1	1	1	0.3	U	
96-18-4	1,2,3-TRICHLOROPROPANE	1	1	1	0.3	U	
79-34-5	1,1,2,2-TETRACHLOROETHANE	1	1	1	0.3	U	
108-86-1	BROMOBENZENE	1	1	1	0.3	U	
103-65-1	N-PROPYLBENZENE	1	1	1	0.3	U	
95-49-8	2-CHLOROTOLUENE	1	1	1	0.3	U	
108-67-8	1,3,5-TRIMETHYLBENZENE	1	1	1	0.3	U	
106-43-4	4-CHLOROTOLUENE	1	1	1	0.3	U	
98-06-6	TERT-BUTYLBENZENE	1	1	1	0.3	U	
95-63-6	1,2,4-TRIMETHYLBENZENE	1	1	1	0.3	U	
135-98-8	SEC-BUTYLBENZENE	1	1	1	0.3	U	
541-73-1	1,3-DICHLOROBENZENE	1	1	1	0.3	U	
99-87-6	P-ISOPROPYLTOLUENE	1	1	1	0.3	U	
106-46-7	1,4-DICHLOROBENZENE	1	1	1	0.3	U	
104-51-8	N-BUTYLBENZENE	1	1	1	0.3	U	
95-50-1	1,2-DICHLOROBENZENE	1	1	1	0.3	U	
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	1	2	2	0.4	U	
120-82-1	1,2,4-TRICHLOROBENZENE	1	1	1	0.3	U	
87-68-3	HEXACHLOROBUTADIENE	1	1	1	0.3	U	
91-20-3	NAPHTHALENE	1	4.4	1	0.3		
87-61-6	1,2,3-TRICHLOROBENZENE	1	1	1	0.3	U	
123-91-1	1,4-DIOXANE	1	100	100	60	U	
64-17-5	ETHANOL	1	40	40	29	U	
78-83-1	ISOBUTYL ALCOHOL	1	40	40	15	U	

Data Package ID: VL1607364-1

Date Printed: Thursday, July 28, 2016

ALS -- Fort Collins

Page 3 of 4

LIMS Version: 6.820

# GC/MS Volatiles

Method SW8260\_25C

## Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Field ID: 754914 Sump

Lab ID: 1607364-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Jul-16

Date Extracted: 21-Jul-16

Date Analyzed: 21-Jul-16

Prep Method: SW5030 Rev C

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: As Received

File Name: C70110

Analyst: Joe Kostelnik

Sample Aliquot: 10 ml

Final Volume: 10 ml

Result Units: UG/L

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
-------	----------------	-----------------	--------	-------------------	--------	------------------	---------------

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	24.8		25	99	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	24.4		25	98	84 - 118
2037-26-5	TOLUENE-D8	23.8		25	95	85 - 115

Data Package ID: VL1607364-1

Date Printed: Wednesday, July 27, 2016

ALS -- Fort Collins

LIMS Version: 6.820

Page 4 of 4

# GC/MS Volatiles

Method SW8260\_25

## Tentatively Identified Compounds

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Field ID: 754914 Sump

Lab ID: 1607364-1

Sample Matrix: WATER

% Moisture: N/A

Date Collected: 20-Jul-16

Date Extracted: 21-Jul-16

Date Analyzed: 21-Jul-16

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: As Received

Sample Aliquot: 10 ml

Final Volume: 10 ml

Clean DF: 1

File Name: C70110

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

Data Package ID: VL1607364-1



# GC/MS Volatiles

Method SW8260\_25C

## Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Lab ID: VL160721-3LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 07/21/2016

Date Analyzed: 07/21/2016

Prep Method: SW5030C

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: N/A

File Name: C70091

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	9.55	1		96	60 - 140%
108-87-2	METHYL CYCLOHEXANE	10	9.69	1		97	60 - 140%
71-36-3	N-BUTANOL	500	484	50		97	50 - 150%
75-65-0	TERT-BUTANOL	500	492	50		98	50 - 150%
75-71-8	DICHLORODIFLUOROMETHANE	10	8.54	1		85	63 - 125%
74-87-3	CHLOROMETHANE	10	9.37	1		94	73 - 122%
75-01-4	VINYL CHLORIDE	10	9.13	1		91	72 - 123%
74-83-9	BROMOMETHANE	10	10.2	1		102	68 - 123%
75-00-3	CHLOROETHANE	10	10.6	1		106	74 - 124%
75-69-4	TRICHLOROFLUOROMETHANE	10	9.44	1		94	74 - 124%
75-35-4	1,1-DICHLOROETHENE	10	9.08	1		91	77 - 119%
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETH	10	9.5	1		95	79 - 122%
67-64-1	ACETONE	40	37.9	10		95	62 - 142%
74-88-4	IODOMETHANE	10	9.43	1		94	72 - 126%
75-15-0	CARBON DISULFIDE	10	8.64	1		86	76 - 121%
75-09-2	METHYLENE CHLORIDE	10	11.4	1		114	71 - 130%
156-60-5	TRANS-1,2-DICHLOROETHENE	10	9.36	1		94	82 - 117%
1634-04-4	METHYL TERTIARY BUTYL ETHER	20	18.8	1		94	77 - 119%
75-34-3	1,1-DICHLOROETHANE	10	9.48	1		95	83 - 119%
108-05-4	VINYL ACETATE	10	8.32	2		83	76 - 121%
156-59-2	CIS-1,2-DICHLOROETHENE	10	9.51	1		95	83 - 117%
78-93-3	2-BUTANONE	40	37.9	10		95	70 - 135%
74-97-5	BROMOCHLOROMETHANE	10	9.84	1		98	83 - 121%
67-66-3	CHLOROFORM	10	9.03	1		90	82 - 119%
71-55-6	1,1,1-TRICHLOROETHANE	10	9.32	1		93	80 - 120%
594-20-7	2,2-DICHLOROPROPANE	10	9.14	1		91	83 - 125%

Data Package ID: VL1607364-1

Date Printed: Wednesday, July 27, 2016

ALS -- Fort Collins

LIMS Version: 6.820

Page 1 of 7

# GC/MS Volatiles

Method SW8260\_25C

## Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Lab ID: VL160721-3LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 07/21/2016

Date Analyzed: 07/21/2016

Prep Method: SW5030C

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: N/A

File Name: C70091

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	18.2	1		91	60 - 140%
56-23-5	CARBON TETRACHLORIDE	10	9.86	1		99	77 - 122%
563-58-6	1,1-DICHLOROPROPENE	10	9.34	1		93	84 - 118%
107-06-2	1,2-DICHLOROETHANE	10	9.65	1		96	74 - 128%
71-43-2	BENZENE	10	9.36	1		94	83 - 117%
79-01-6	TRICHLOROETHENE	10	10.2	1		102	83 - 117%
78-87-5	1,2-DICHLOROPROPANE	10	9.79	1		98	84 - 120%
74-95-3	DIBROMOMETHANE	10	10.1	1		101	79 - 122%
75-27-4	BROMODICHLOROMETHANE	10	8.92	1		89	76 - 122%
10061-01-5	CIS-1,3-DICHLOROPROPENE	10	9.41	1		94	81 - 120%
108-10-1	4-METHYL-2-PENTANONE	40	37.5	10		94	73 - 125%
108-88-3	TOLUENE	10	9.64	1		96	82 - 113%
10061-02-6	TRANS-1,3-DICHLOROPROPENE	10	8.98	1		90	81 - 114%
79-00-5	1,1,2-TRICHLOROETHANE	10	9.02	1		90	78 - 116%
591-78-6	2-HEXANONE	40	37	10		92	71 - 124%
127-18-4	TETRACHLOROETHENE	10	9.58	1		96	84 - 117%
142-28-9	1,3-DICHLOROPROPANE	10	9.47	1		95	80 - 115%
124-48-1	DIBROMOCHLOROMETHANE	10	8.71	1		87	82 - 118%
106-93-4	1,2-DIBROMOETHANE	10	9.96	1		100	79 - 114%
544-10-5	1-CHLOROHEXANE	10	9.13	1		91	80 - 117%
108-90-7	CHLOROBENZENE	10	9.62	1		96	81 - 113%
630-20-6	1,1,1,2-TETRACHLOROETHANE	10	9.47	1		95	78 - 113%
100-41-4	ETHYLBENZENE	10	9.72	1		97	81 - 113%
136777-61-	M+P-XYLENE	20	19.3	1		97	82 - 115%
95-47-6	O-XYLENE	10	9.66	1		97	81 - 115%
100-42-5	STYRENE	10	9.52	1		95	78 - 118%
75-25-2	BROMOFORM	10	7.96	1		80	70 - 120%

Data Package ID: VL1607364-1

# GC/MS Volatiles

Method SW8260\_25C

## Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Lab ID: VL160721-3LCS

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 07/21/2016

Date Analyzed: 07/21/2016

Prep Method: SW5030C

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: N/A

File Name: C70091

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	9.8	1		98	80 - 113%
96-18-4	1,2,3-TRICHLOROPROPANE	10	9.48	1		95	78 - 117%
79-34-5	1,1,2,2-TETRACHLOROETHANE	10	8.94	1		89	75 - 121%
108-86-1	BROMOBENZENE	10	9.9	1		99	81 - 114%
103-65-1	N-PROPYLBENZENE	10	10.1	1		101	79 - 116%
95-49-8	2-CHLOROTOLUENE	10	10.2	1		102	79 - 116%
108-67-8	1,3,5-TRIMETHYLBENZENE	10	10.1	1		101	78 - 116%
106-43-4	4-CHLOROTOLUENE	10	10.4	1		104	78 - 115%
98-06-6	TERT-BUTYLBENZENE	10	9.99	1		100	76 - 120%
95-63-6	1,2,4-TRIMETHYLBENZENE	10	10.2	1		102	80 - 117%
135-98-8	SEC-BUTYLBENZENE	10	10.3	1		103	78 - 115%
541-73-1	1,3-DICHLOROBENZENE	10	10.2	1		102	79 - 115%
99-87-6	P-ISOPROPYLTOLUENE	10	10	1		100	77 - 116%
106-46-7	1,4-DICHLOROBENZENE	10	10	1		100	82 - 114%
104-51-8	N-BUTYLBENZENE	10	10.1	1		101	79 - 117%
95-50-1	1,2-DICHLOROBENZENE	10	10.2	1		102	82 - 114%
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	8.44	2		84	73 - 125%
120-82-1	1,2,4-TRICHLOROBENZENE	10	9.6	1		96	75 - 120%
87-68-3	HEXACHLOROBUTADIENE	10	11.1	1		111	71 - 124%
91-20-3	NAPHTHALENE	10	8.45	1		85	71 - 131%
87-61-6	1,2,3-TRICHLOROBENZENE	10	9.45	1		95	70 - 131%
123-91-1	1,4-DIOXANE	200	196	100		98	50 - 150%
64-17-5	ETHANOL	200	193	40		96	50 - 150%
78-83-1	ISOBUTYL ALCOHOL	200	191	40		95	50 - 150%

Data Package ID: VL1607364-1

Date Printed: Wednesday, July 27, 2016

ALS -- Fort Collins

LIMS Version: 6.820

Page 3 of 7

# GC/MS Volatiles

Method SW8260\_25C

## Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Lab ID: VL160721-3LCSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 07/21/2016

Date Analyzed: 07/21/2016

Prep Method: SW5030C

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: N/A

File Name: C70092

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	9.19	1		92	30	4
108-87-2	METHYL CYCLOHEXANE	10	9.35	1		94	30	4
71-36-3	N-BUTANOL	500	507	50		101	30	5
75-65-0	TERT-BUTANOL	500	526	50		105	30	7
75-71-8	DICHLORODIFLUOROMETHANE	10	8.42	1		84	20	1
74-87-3	CHLOROMETHANE	10	9.05	1		91	20	3
75-01-4	VINYL CHLORIDE	10	8.86	1		89	20	3
74-83-9	BROMOMETHANE	10	9.88	1		99	20	3
75-00-3	CHLOROETHANE	10	8.22	1	+	82	20	26
75-69-4	TRICHLOROFLUOROMETHANE	10	9.3	1		93	20	1
75-35-4	1,1-DICHLOROETHENE	10	8.92	1		89	20	2
76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETH	10	9.22	1		92	20	3
67-64-1	ACETONE	40	39.3	10		98	30	4
74-88-4	IODOMETHANE	10	9.73	1		97	20	3
75-15-0	CARBON DISULFIDE	10	8.52	1		85	20	1
75-09-2	METHYLENE CHLORIDE	10	11.5	1		115	20	1
156-60-5	TRANS-1,2-DICHLOROETHENE	10	9.22	1		92	20	1
1634-04-4	METHYL TERTIARY BUTYL ETHER	20	19.3	1		97	20	3
75-34-3	1,1-DICHLOROETHANE	10	9.55	1		95	20	1
108-05-4	VINYL ACETATE	10	7.82	2		78	20	6
156-59-2	CIS-1,2-DICHLOROETHENE	10	9.42	1		94	20	1
78-93-3	2-BUTANONE	40	39.4	10		98	30	4
74-97-5	BROMOCHLOROMETHANE	10	10.1	1		101	20	3
67-66-3	CHLOROFORM	10	9.04	1		90	20	0
71-55-6	1,1,1-TRICHLOROETHANE	10	9.43	1		94	20	1
594-20-7	2,2-DICHLOROPROPANE	10	8.94	1		89	20	2
110-82-7	CYCLOHEXANE	20	17.8	1		89	30	2

Data Package ID: VL1607364-1

Date Printed: Wednesday, July 27, 2016

ALS -- Fort Collins

Page 4 of 7

LIMS Version: 6.820

# GC/MS Volatiles

Method SW8260\_25C

## Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Lab ID: VL160721-3LCSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 07/21/2016

Date Analyzed: 07/21/2016

Prep Method: SW5030C

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: N/A

File Name: C70092

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	9.67	1		97	20	2
563-58-6	1,1-DICHLOROPROPENE	10	9.13	1		91	20	2
107-06-2	1,2-DICHLOROETHANE	10	9.7	1		97	20	1
71-43-2	BENZENE	10	9.39	1		94	20	0
79-01-6	TRICHLOROETHENE	10	10	1		100	20	2
78-87-5	1,2-DICHLOROPROPANE	10	9.8	1		98	20	0
74-95-3	DIBROMOMETHANE	10	10.1	1		101	20	0
75-27-4	BROMODICHLOROMETHANE	10	8.95	1		89	20	0
10061-01-5	CIS-1,3-DICHLOROPROPENE	10	9.45	1		95	20	0
108-10-1	4-METHYL-2-PENTANONE	40	38.5	10		96	30	3
108-88-3	TOLUENE	10	9.5	1		95	20	1
10061-02-6	TRANS-1,3-DICHLOROPROPENE	10	9	1		90	20	0
79-00-5	1,1,2-TRICHLOROETHANE	10	8.99	1		90	20	0
591-78-6	2-HEXANONE	40	38.5	10		96	30	4
127-18-4	TETRACHLOROETHENE	10	9.5	1		95	20	1
142-28-9	1,3-DICHLOROPROPANE	10	9.74	1		97	20	3
124-48-1	DIBROMOCHLOROMETHANE	10	8.93	1		89	20	3
106-93-4	1,2-DIBROMOETHANE	10	10.1	1		101	20	1
544-10-5	1-CHLOROHEXANE	10	8.7	1		87	20	5
108-90-7	CHLOROBENZENE	10	9.55	1		95	20	1
630-20-6	1,1,1,2-TETRACHLOROETHANE	10	9.51	1		95	20	0
100-41-4	ETHYLBENZENE	10	9.51	1		95	20	2
136777-61-	M+P-XYLENE	20	19	1		95	20	2
95-47-6	O-XYLENE	10	9.65	1		96	20	0
100-42-5	STYRENE	10	9.45	1		95	20	1
75-25-2	BROMOFORM	10	8.26	1		83	20	4
98-82-8	ISOPROPYLBENZENE	10	9.65	1		97	20	2

Data Package ID: VL1607364-1

Date Printed: Wednesday, July 27, 2016

ALS -- Fort Collins

Page 5 of 7

LIMS Version: 6.820

# GC/MS Volatiles

Method SW8260\_25C

## Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

Lab ID: VL160721-3LCSD

Sample Matrix: WATER

% Moisture: N/A

Date Collected: N/A

Date Extracted: 07/21/2016

Date Analyzed: 07/21/2016

Prep Method: SW5030C

Prep Batch: VL160721-3

QCBatchID: VL160721-3-2

Run ID: VL160721-3A

Cleanup: NONE

Basis: N/A

File Name: C70092

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	9.68	1		97	20	2
79-34-5	1,1,2,2-TETRACHLOROETHANE	10	8.97	1		90	20	0
108-86-1	BROMOBENZENE	10	9.85	1		99	20	1
103-65-1	N-PROPYLBENZENE	10	9.79	1		98	20	3
95-49-8	2-CHLOROTOLUENE	10	9.97	1		100	20	2
108-67-8	1,3,5-TRIMETHYLBENZENE	10	9.76	1		98	20	4
106-43-4	4-CHLOROTOLUENE	10	9.99	1		100	20	4
98-06-6	TERT-BUTYLBENZENE	10	9.67	1		97	20	3
95-63-6	1,2,4-TRIMETHYLBENZENE	10	9.9	1		99	20	3
135-98-8	SEC-BUTYLBENZENE	10	9.9	1		99	20	4
541-73-1	1,3-DICHLOROBENZENE	10	9.89	1		99	20	3
99-87-6	P-ISOPROPYLTOLUENE	10	9.75	1		97	20	3
106-46-7	1,4-DICHLOROBENZENE	10	9.76	1		98	20	3
104-51-8	N-BUTYLBENZENE	10	9.96	1		100	20	2
95-50-1	1,2-DICHLOROBENZENE	10	10.1	1		101	20	1
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	8.82	2		88	20	4
120-82-1	1,2,4-TRICHLOROBENZENE	10	9.61	1		96	20	0
87-68-3	HEXACHLOROBUTADIENE	10	10.6	1		106	20	5
91-20-3	NAPHTHALENE	10	8.91	1		89	20	5
87-61-6	1,2,3-TRICHLOROBENZENE	10	9.72	1		97	20	3
123-91-1	1,4-DIOXANE	200	200	100		100	30	2
64-17-5	ETHANOL	200	201	40		101	30	5
78-83-1	ISOBUTYL ALCOHOL	200	200	40		100	30	5

Data Package ID: VL1607364-1

Date Printed: Wednesday, July 27, 2016

ALS -- Fort Collins

Page 6 of 7

LIMS Version: 6.820

# GC/MS Volatiles

Method SW8260\_25C

## Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1607364

Client Name: COGCC

ClientProject ID: Complaint 200439757

### 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	103		102		85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	25	100		101		84 - 118
2037-26-5	TOLUENE-D8	25	97		97		85 - 115

Data Package ID: VL1607364-1

Data File : C:\HPCHEM\1\DATA\2016\072116\C70091.D

Vial: 4

Acq On : 21 Jul 2016 10:56

Operator: jk-sop525r16

Sample : VL160721-3CCS

Inst : CSS Instr

Misc : 8260 - 10mL water - 10ppb

Multiplr: 1.00

MS Integration Params: ettics.p

Quant Time: Jul 21 11:26 2016

Quant Results File: 060316W.RES

Quant Method : C:\HPCHEM\1\METHODS\060316W.M (RTE Integrator)

Title : GC/MS Volatiles (S.O.P. 525)

Last Update : Tue Jun 21 11:12:05 2016

Response via : Initial Calibration

DataAcq Meth : 060316W

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	5.43	96	1800948	25.00	ppb	0.00
58) Chlorobenzene-d5	8.92	82	649919	25.00	ppb	0.00
78) 1,4-Dichlorobenzene-d4	11.07	152	472660	25.00	ppb	0.00

## System Monitoring Compounds

37) Dibromofluoromethane	4.70	113	482608	24.90	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	99.60%
42) 1,2-dichloroethane-d4	5.08	65	337036	24.29	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	97.16%
59) Toluene-d8	7.28	98	1627155	24.27	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	97.08%
79) 4-Bromofluorobenzene	10.07	95	529523	25.72	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	102.88%

## Target Compounds

						Qvalue
2) Dichlorodifluoromethane	1.51	85	180468	8.54	ppb	96
3) Chloromethane	1.64	50	419391	9.37	ppb	100
4) Vinyl chloride	1.71	62	289369	9.13	ppb	100
5) Bromomethane	1.93	96	129880	10.22	ppb	99
6) Chloroethane	2.00	64	192437	10.63	ppb	99
7) Trichlorofluoromethane	2.18	101	185498	9.44	ppb	96
8) Ethanol	2.24	45	47433	192.54	ppb	97
9) Diethyl Ether	2.35	59	171863	9.36	ppb	98
10) Acrolein	2.47	56	355382	89.46	ppb	97
11) 1,1,2-Trichloro-1,2,2-trif	2.55	101	159829	9.50	ppb	98
12) 1,1-Dichloroethene	2.56	96	168008	9.08	ppb	100
13) Acetone	2.56	43	177240	37.92	ppb	98
14) Iodomethane	2.70	142	166426	9.43	ppb	96
15) Carbon Disulfide	2.77	76	633592	8.64	ppb	98
16) Methyl Acetate	2.81	43	150341	9.19	ppb	98
17) Allyl chloride	2.85	76	135388	9.38	ppb	99
18) Acetonitrile	2.79	41	246352	92.77	ppb	99
19) Methylene chloride	2.96	84	280025	11.38	ppb	97
20) tert-Butanol	2.99	59	683830	491.78	ppb	99
21) Methyl-t-butyl-ether	3.18	73	740206	18.78	ppb	98
22) trans-1,2-Dichloroethene	3.21	96	188330	9.36	ppb	99
23) Acrylonitrile	3.15	53	709673	93.04	ppb	99
24) Hexane	3.46	57	222075	9.55	ppb	98
25) Isopropyl ether	3.63	45	942036	9.56	ppb	99
26) Vinyl Acetate	3.60	86	28250	8.32	ppb	97
27) 1,1-Dichloroethane	3.63	63	412197	9.48	ppb	99
28) Chloroprene	3.70	53	274746	9.57	ppb	99
29) Ethyl tert-butyl ether	3.99	59	613908	9.64	ppb	99
30) 2,2-Dichloropropane	4.20	77	198508	9.14	ppb	98
31) 2-Butanone	4.16	43	361384	37.85	ppb	100
32) cis-1,2-Dichloroethene	4.19	96	206152	9.51	ppb	95
33) Propionitrile	4.23	54	230976	97.12	ppb	# 96
34) Methacrylonitrile	4.39	67	63580	8.20	ppb	88
35) Bromochloromethane	4.44	128	90404	9.84	ppb	96
36) Chloroform	4.54	83	279102	9.03	ppb	100
38) 1,1,1-Trichloroethane	4.73	97	163860	9.32	ppb	99
39) Cyclohexane	4.81	84	483100	18.17	ppb	92
40) Carbon tetrachloride	4.90	117	138362	9.86	ppb	97
41) 1,1-Dichloropropene	4.90	75	243420	9.34	ppb	98
43) Isobutyl alcohol	4.95	43	159587	190.75	ppb	96

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

C70091.D 060316W.M

Thu Jul 21 11:26:59 2016



Data File : C:\HPCHEM\1\DATA\2016\072116\C70091.D

Vial: 4

Acq On : 21 Jul 2016 10:56

Operator: jk-sop525r16

Sample : VL160721-3CCS

Inst : CSS Instr

Misc : 8260 - 10mL water - 10ppb

Multiplr: 1.00

MS Integration Params: ettics.p

Quant Time: Jul 21 11:26 2016

Quant Results File: 060316W.RES

Quant Method : C:\HPCHEM\1\METHODS\060316W.M (RTE Integrator)

Title : GC/MS Volatiles (S.O.P. 525)

Last Update : Tue Jun 21 11:12:05 2016

Response via : Initial Calibration

DataAcq Meth : 060316W

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
44) tert-Amyl methyl ether	5.23	87	78486	8.75	ppb	96
45) Benzene	5.11	78	772711	9.36	ppb	99
46) 1,2-Dichloroethane	5.17	62	156705	9.65	ppb	100
47) n-Butanol	5.70	56	229575	484.26	ppb	98
48) Trichloroethene	5.84	130	177825	10.16	ppb	99
49) Methyl Cyclohexane	6.11	55	239807	9.69	ppb	93
50) 1,2-Dichloropropane	6.13	63	247648	9.79	ppb	97
51) Methyl methacrylate	6.19	69	103608	8.61	ppb	98
52) 1,4-Dioxane	6.21	88	25141	196.23	ppb	# 75
53) Dibromomethane	6.24	93	97628	10.11	ppb	96
54) Bromodichloromethane	6.44	83	200794	8.92	ppb	96
55) 2-Chloroethyl vinyl ether	6.77	63	88379	7.93	ppb	97
56) cis-1,3-Dichloropropene	6.95	75	300443	9.41	ppb	99
57) 4-Methyl-2-Pentanone	7.12	43	754469	37.51	ppb	98
60) Toluene	7.35	91	665831	9.64	ppb	98
61) Ethyl methacrylate	7.71	69	201809	8.37	ppb	98
62) trans-1,3-Dichloropropene	7.64	75	216494	8.98	ppb	97
63) 1,1,2-Trichloroethane	7.88	83	125287	9.02	ppb	97
64) Tetrachloroethene	7.97	164	113016	9.58	ppb	94
65) 2-Hexanone	8.12	58	261469	36.98	ppb	99
66) 1,3-Dichloropropane	8.06	76	246173	9.47	ppb	98
67) Dibromochloromethane	8.30	129	135761	8.71	ppb	98
68) 1,2-Dibromoethane	8.44	107	130832	9.96	ppb	96
69) 1-Chlorohexane	8.94	91	238230	9.13	ppb	97
70) Chlorobenzene	8.95	112	421327	9.62	ppb	96
71) Ethylbenzene	9.06	91	678796	9.72	ppb	100
72) 1,1,1,2-Tetrachloroethane	9.04	131	135151	9.47	ppb	99
73) m,p-Xylene	9.19	106	522925	19.31	ppb	97
74) o-Xylene	9.56	106	258960	9.66	ppb	97
75) Styrene	9.58	104	450800	9.52	ppb	100
76) Bromoform	9.75	173	62808	7.96	ppb	97
77) Isopropylbenzene	9.90	105	577540	9.80	ppb	99
80) 1,1,2,2-Tetrachloroethane	10.19	83	161331	8.94	ppb	97
81) trans-1,4-Dichloro-2-buten	10.22	53	33004	8.91	ppb	86
82) n-Propylbenzene	10.28	91	713924	10.08	ppb	98
83) 1,2,3-Trichloropropane	10.24	110	33231	9.48	ppb	93
84) Bromobenzene	10.19	156	146468	9.90	ppb	95
85) 1,3,5-Trimethylbenzene	10.44	105	443762	10.12	ppb	96
86) 2-Chlorotoluene	10.36	126	155217	10.22	ppb	96
87) 4-Chlorotoluene	10.47	126	157134	10.41	ppb	100
88) tert-Butylbenzene	10.72	134	96501	9.99	ppb	94
89) 1,2,4-Trimethylbenzene	10.77	105	432287	10.16	ppb	97
90) sec-Butylbenzene	10.91	105	536685	10.27	ppb	99
91) p-Isopropyltoluene	11.03	119	407954	10.00	ppb	100
92) 1,3-Dichlorobenzene	11.00	146	268697	10.18	ppb	98
93) 1,4-Dichlorobenzene	11.09	146	265815	10.03	ppb	99
94) n-Butylbenzene	11.36	91	383190	10.13	ppb	98
95) 1,2-Dichlorobenzene	11.38	146	246049	10.18	ppb	95
96) Hexachloroethane	11.61	119	94835	9.54	ppb	97
97) 1,2-Dibromo-3-chloropropan	12.01	157	17870	8.44	ppb	96
98) 1,2,4-Trichlorobenzene	12.63	180	100522	9.60	ppb	97
99) Hexachlorobutadiene	12.73	225	45036	11.06	ppb	96
100) Naphthalene	12.83	128	189872	8.45	ppb	99
101) 1,2,3-Trichlorobenzene	12.99	180	79156	9.45	ppb	98

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

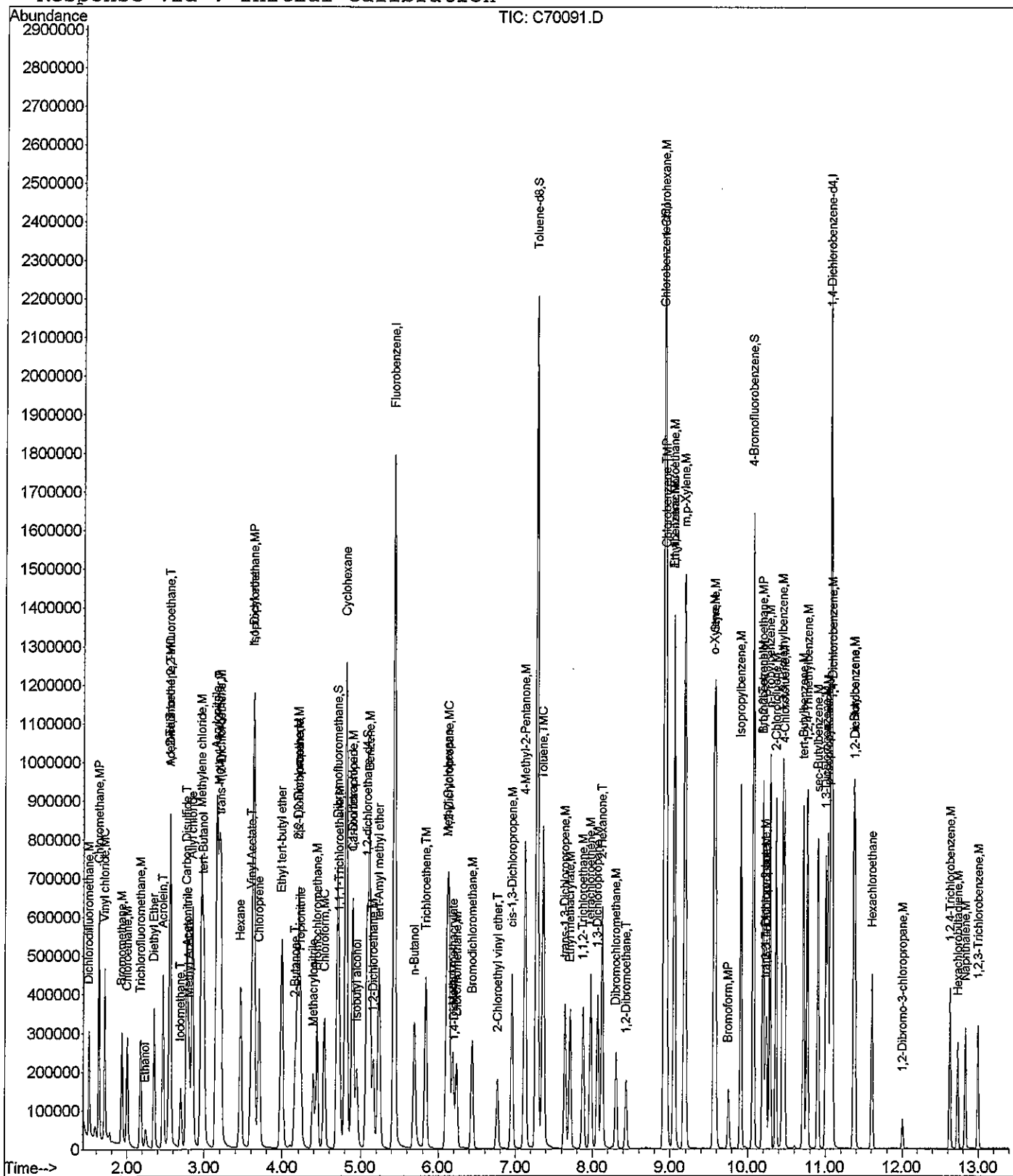
C70091.D 060316W.M

Thu Jul 21 11:27:00 2016

```
Vial: 4
Operator: jk-sop525r16
Inst      : CSS Instr
Multiplr: 1.00
```

Quant Results File: 060316W.RES

```
Method       : C:\HPCHEM\1\METHODS\060316W.M (RTE Integrator)
Title        : GC/MS Volatiles (S.O.P. 525)
Last Update   : Tue Jun 21 11:12:05 2016
Response via  : Initial Calibration
```



Data File : C:\HPCHEM\1\DATA\2016\072116\C70092.D

Vial: 5

Acq On : 21 Jul 2016 11:18

Operator: jk-sop525r16

Sample : VL160721-3LCSD

Inst : CSS Instr

Misc : 8260 - 10mL water - 10ppb

Multiplr: 1.00

MS Integration Params: ettics.p

Quant Time: Jul 21 11:49 2016

Quant Results File: 060316W.RES

Quant Method : C:\HPCHEM\1\METHODS\060316W.M (RTE Integrator)

Title : GC/MS Volatiles (S.O.P. 525)

Last Update : Tue Jun 21 11:12:05 2016

Response via : Initial Calibration

DataAcq Meth : 060316W

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	5.43	96	1769968	25.00	ppb	0.00
58) Chlorobenzene-d5	8.92	82	640110	25.00	ppb	0.00
78) 1,4-Dichlorobenzene-d4	11.07	152	471542	25.00	ppb	0.00

## System Monitoring Compounds

37) Dibromofluoromethane	4.70	113	483103	25.36	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	101.44%
42) 1,2-dichloroethane-d4	5.08	65	342193	25.10	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	100.40%
59) Toluene-d8	7.27	98	1605838	24.32	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	97.28%
79) 4-Bromofluorobenzene	10.07	95	522424	25.44	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	101.76%

## Target Compounds

						Qvalue
2) Dichlorodifluoromethane	1.51	85	174903	8.42	ppb	96
3) Chloromethane	1.63	50	398409	9.05	ppb	100
4) Vinyl chloride	1.71	62	275947	8.86	ppb	99
5) Bromomethane	1.94	96	123499	9.88	ppb	100
6) Chloroethane	2.00	64	146198	8.22	ppb	98
7) Trichlorofluoromethane	2.18	101	179633	9.30	ppb	97
8) Ethanol	2.24	45	48767	201.42	ppb	96
9) Diethyl Ether	2.36	59	171428	9.50	ppb	98
10) Acrolein	2.47	56	355323	91.01	ppb	98
11) 1,1,2-Trichloro-1,2,2-trif	2.55	101	152359	9.22	ppb	98
12) 1,1-Dichloroethene	2.56	96	162203	8.92	ppb	98
13) Acetone	2.56	43	180317	39.31	ppb	100
14) Iodomethane	2.70	142	169548	9.73	ppb	98
15) Carbon Disulfide	2.77	76	613552	8.52	ppb	98
16) Methyl Acetate	2.81	43	150235	9.35	ppb	99
17) Allyl chloride	2.85	76	129551	9.14	ppb	96
18) Acetonitrile	2.80	41	255789	98.01	ppb	100
19) Methylene chloride	2.96	84	278514	11.51	ppb	98
20) tert-Butanol	2.99	59	718428	525.70	ppb	99
21) Methyl-t-butyl-ether	3.19	73	748555	19.32	ppb	99
22) trans-1,2-Dichloroethene	3.21	96	182347	9.22	ppb	99
23) Acrylonitrile	3.16	53	717509	95.72	ppb	100
24) Hexane	3.46	57	210018	9.19	ppb	99
25) Isopropyl ether	3.62	45	943060	9.74	ppb	99
26) Vinyl Acetate	3.59	86	26110	7.82	ppb	94
27) 1,1-Dichloroethane	3.62	63	408071	9.55	ppb	99
28) Chloroprene	3.70	53	262900	9.32	ppb	99
29) Ethyl tert-butyl ether	3.99	59	613901	9.81	ppb	98
30) 2,2-Dichloropropane	4.21	77	190701	8.94	ppb	99
31) 2-Butanone	4.16	43	369518	39.38	ppb	99
32) cis-1,2-Dichloroethene	4.20	96	200836	9.42	ppb	98
33) Propionitrile	4.23	54	237223	101.49	ppb	# 96
34) Methacrylonitrile	4.39	67	66208	8.68	ppb	96
35) Bromochloromethane	4.44	128	91370	10.12	ppb	99
36) Chloroform	4.54	83	274595	9.04	ppb	98
38) 1,1,1-Trichloroethane	4.73	97	162914	9.43	ppb	96
39) Cyclohexane	4.81	84	464352	17.77	ppb	93
40) Carbon tetrachloride	4.90	117	133412	9.67	ppb	99
41) 1,1-Dichloropropene	4.90	75	233844	9.13	ppb	95
43) Isobutyl alcohol	4.95	43	164430	199.98	ppb	96

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

C70092.D 060316W.M

Thu Jul 21 11:49:25 2016

Data File : C:\HPCHEM\1\DATA\2016\072116\C70092.D

Vial: 5

Acq On : 21 Jul 2016 11:18

Operator: jk-sop525r16

Sample : VL160721-3LCSD

Inst : CSS Instr

Misc : 8260 - 10mL water - 10ppb

Multiplr: 1.00

MS Integration Params: ettics.p

Quant Time: Jul 21 11:49 2016

Quant Results File: 060316W.RES

Quant Method : C:\HPCHEM\1\METHODS\060316W.M (RTE Integrator)

Title : GC/MS Volatiles (S.O.P. 525)

Last Update : Tue Jun 21 11:12:05 2016

Response via : Initial Calibration

DataAcq Meth : 060316W

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
44) tert-Amyl methyl ether	5.24	87	77933	8.84	ppb	98
45) Benzene	5.12	78	761884	9.39	ppb	99
46) 1,2-Dichloroethane	5.16	62	154794	9.70	ppb	98
47) n-Butanol	5.69	56	236416	507.42	ppb	99
48) Trichloroethene	5.84	130	172054	10.00	ppb	98
49) Methyl Cyclohexane	6.11	55	227402	9.35	ppb	96
50) 1,2-Dichloropropane	6.14	63	243505	9.80	ppb	96
51) Methyl methacrylate	6.19	69	104514	8.84	ppb	99
52) 1,4-Dioxane	6.21	88	25151	199.75	ppb	# 81
53) Dibromomethane	6.23	93	96005	10.12	ppb	93
54) Bromodichloromethane	6.44	83	197883	8.95	ppb	97
55) 2-Chloroethyl vinyl ether	6.76	63	89527	8.17	ppb	96
56) cis-1,3-Dichloropropene	6.96	75	296672	9.45	ppb	97
57) 4-Methyl-2-Pentanone	7.12	43	761495	38.53	ppb	98
60) Toluene	7.36	91	646366	9.50	ppb	98
61) Ethyl methacrylate	7.71	69	200098	8.43	ppb	98
62) trans-1,3-Dichloropropene	7.65	75	213793	9.00	ppb	98
63) 1,1,2-Trichloroethane	7.88	83	122997	8.99	ppb	96
64) Tetrachloroethene	7.98	164	110416	9.50	ppb	94
65) 2-Hexanone	8.13	58	268246	38.52	ppb	98
66) 1,3-Dichloropropane	8.07	76	249314	9.74	ppb	99
67) Dibromochloromethane	8.31	129	137107	8.93	ppb	98
68) 1,2-Dibromoethane	8.43	107	130280	10.07	ppb	100
69) 1-Chlorohexane	8.94	91	223534	8.70	ppb	98
70) Chlorobenzene	8.95	112	411654	9.55	ppb	98
71) Ethylbenzene	9.05	91	653966	9.51	ppb	100
72) 1,1,1,2-Tetrachloroethane	9.05	131	133700	9.51	ppb	99
73) m,p-Xylene	9.19	106	506911	19.00	ppb	100
74) o-Xylene	9.56	106	254796	9.65	ppb	99
75) Styrene	9.58	104	440976	9.45	ppb	99
76) Bromoform	9.75	173	64134	8.26	ppb	98
77) Isopropylbenzene	9.91	105	560293	9.65	ppb	99
80) 1,1,2,2-Tetrachloroethane	10.20	83	161525	8.97	ppb	96
81) trans-1,4-Dichloro-2-buten	10.23	53	32854	8.89	ppb	87
82) n-Propylbenzene	10.29	91	691469	9.79	ppb	100
83) 1,2,3-Trichloropropane	10.24	110	33866	9.68	ppb	78
84) Bromobenzene	10.20	156	145328	9.85	ppb	92
85) 1,3,5-Trimethylbenzene	10.45	105	427080	9.76	ppb	99
86) 2-Chlorotoluene	10.36	126	151088	9.97	ppb	97
87) 4-Chlorotoluene	10.47	126	150433	9.99	ppb	99
88) tert-Butylbenzene	10.72	134	93137	9.67	ppb	93
89) 1,2,4-Trimethylbenzene	10.77	105	419884	9.90	ppb	94
90) sec-Butylbenzene	10.90	105	516229	9.90	ppb	98
91) p-Isopropyltoluene	11.03	119	396838	9.75	ppb	99
92) 1,3-Dichlorobenzene	11.01	146	260511	9.89	ppb	99
93) 1,4-Dichlorobenzene	11.09	146	257820	9.76	ppb	99
94) n-Butylbenzene	11.37	91	375524	9.96	ppb	99
95) 1,2-Dichlorobenzene	11.39	146	243148	10.08	ppb	99
96) Hexachloroethane	11.60	119	90467	9.12	ppb	# 96
97) 1,2-Dibromo-3-chloropropan	12.00	157	18622	8.82	ppb	99
98) 1,2,4-Trichlorobenzene	12.63	180	100321	9.61	ppb	99
99) Hexachlorobutadiene	12.73	225	42859	10.55	ppb	97
100) Naphthalene	12.83	128	201076	8.91	ppb	100
101) 1,2,3-Trichlorobenzene	12.99	180	81426	9.72	ppb	98

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

C70092.D 060316W.M

Thu Jul 21 11:49:25 2016



Data File : C:\HPCHEM\1\DATA\2016\072116\C70095.D

Vial: 8

Acq On : 21 Jul 2016 12:24

Operator: jk-sop525r16

Sample : VL160721-6CCS

Inst : CSS Instr

Misc : 8260 - 10mL water

Multiplr: 1.00

MS Integration Params: ettics.p

Quant Time: Jul 21 12:42 2016

Quant Results File: 060616GR.RES

Quant Method : C:\HPCHEM\1\METHODS\060616GR.M (RTE Integrator)

Title : GC/MS Volatiles (S.O.P. 525)

Last Update : Tue Jun 07 10:17:05 2016

Response via : Initial Calibration

DataAcq Meth : 060316W

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) 1,4-Dichlorobenzene-d4	0.00	TIC	0m	25.00	ppb	-11.07

## System Monitoring Compounds

3) 4-Bromofluorobenzene

0.00 TIC

0d 0.00 ppb

Spiked Amount 25.000

Range 85 - 115

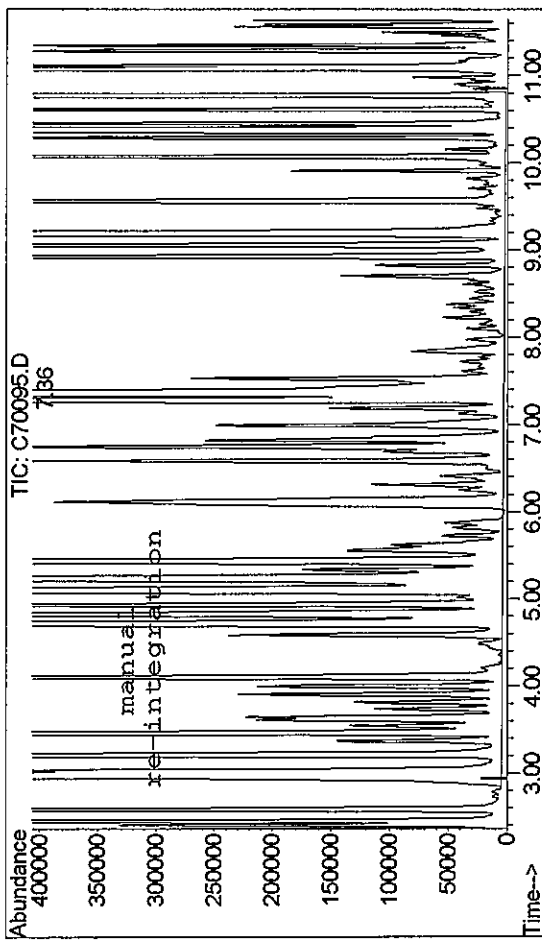
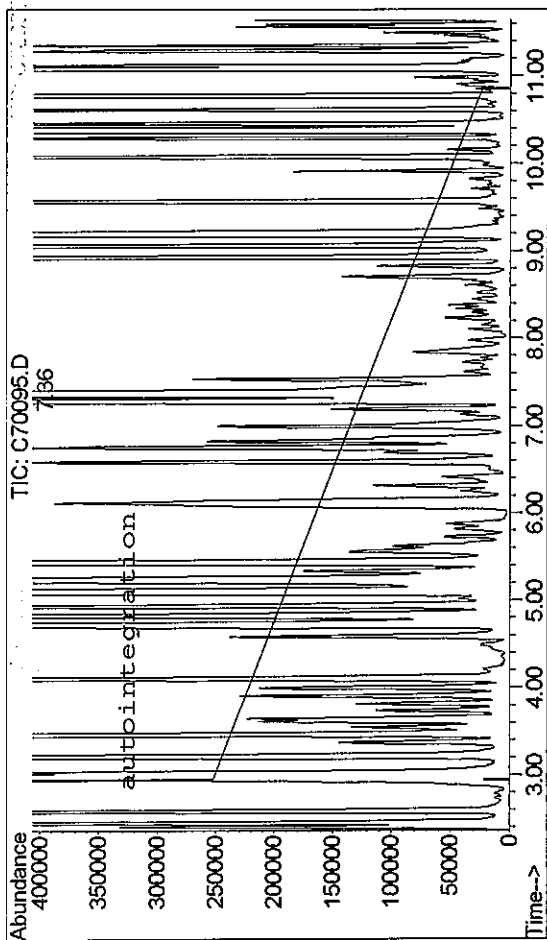
Recovery = 0.00%#

## Target Compounds

1) GRO

7.36 TIC 111029471m 969.24 ppb

Qvalue



(1) GRO (H)  
7.37min 847.81ppb m  
response 99848868  
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 ( )

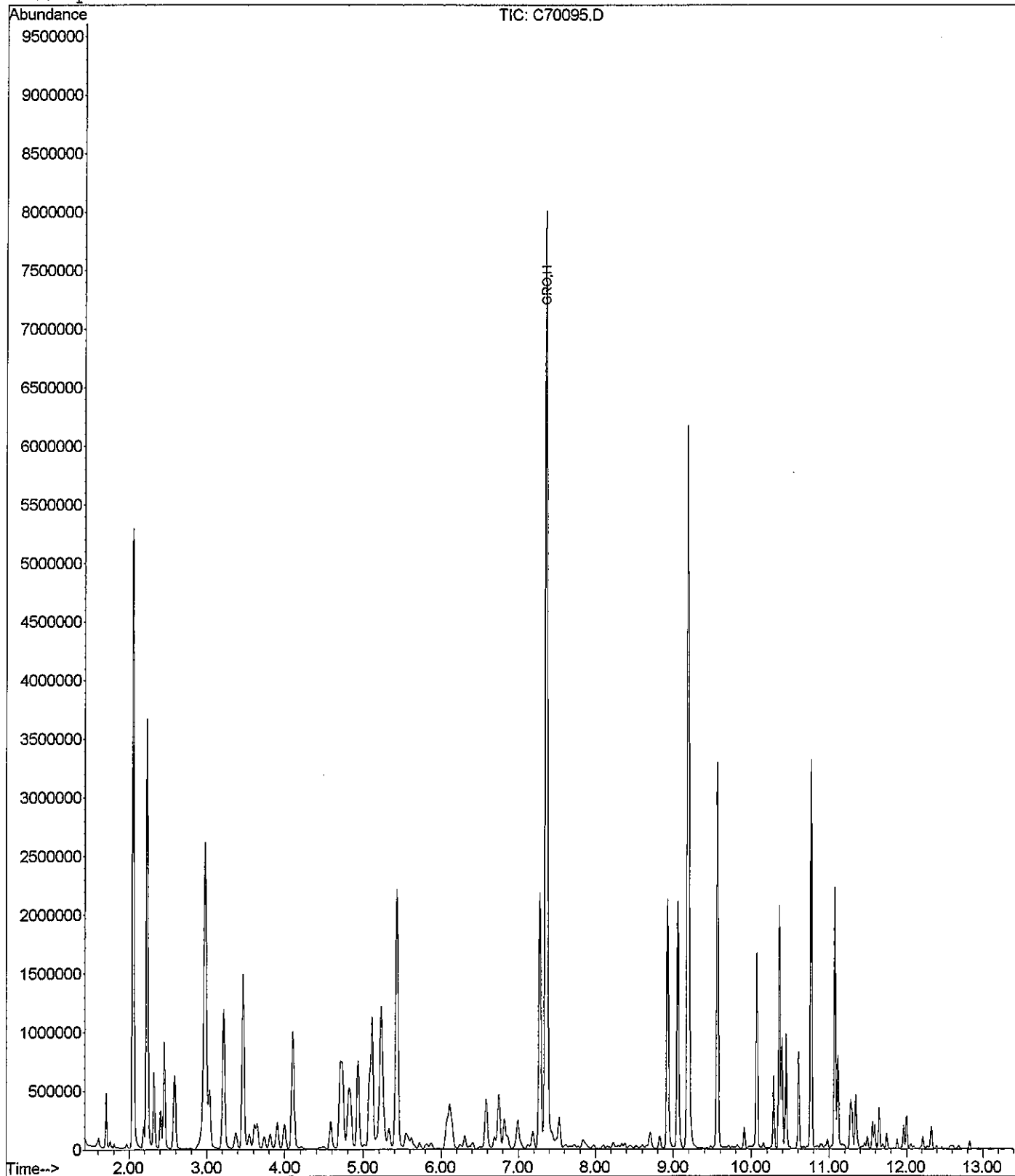
initials: ll date: 7/22/11

(1) GRO (H)  
7.36min 969.24ppb m  
response 111029471  
Signal Exp% Act%  
TIC 100 100  
0.00 0.00 0.00  
0.00 0.00 0.00  
0.00 0.00 0.00

# Quantitation Report

Data File : C:\HPCHEM\1\DATA\2016\072116\C70095.D Vial: 8  
 Acq On : 21 Jul 2016 12:24 Operator: jk-sop525r16  
 Sample : VL160721-6CCS Inst : CSS Instr  
 Misc : 8260 - 10mL water Multiplr: 1.00  
 MS Integration Params: ettics.p  
 Quant Time: Jul 21 12:42 2016 Quant Results File: 060616GR.RES

Method : C:\HPCHEM\1\METHODS\060616GR.M (RTE Integrator)  
 Title : GC/MS Volatiles (S.O.P. 525)  
 Last Update : Tue Jun 07 10:17:05 2016  
 Response via : Initial Calibration





Data File : C:\HPCHEM\1\DATA\2016\072116\C70096.D Vial: 9  
Acq On : 21 Jul 2016 12:45 Operator: jk-sop525r16  
Sample : VL160721-6LCSD Inst : CSS Instr  
Misc : 8260 - 10mL water Multiplr: 1.00  
MS Integration Params: ettics.p  
Quant Time: Jul 21 13:09 2016 Quant Results File: 060616GR.RES

Quant Method : C:\HPCHEM\1\METHODS\060616GR.M (RTE Integrator)  
Title : GC/MS Volatiles (S.O.P. 525)  
Last Update : Tue Jun 07 10:17:05 2016  
Response via : Initial Calibration  
DataAcq Meth : 060316W

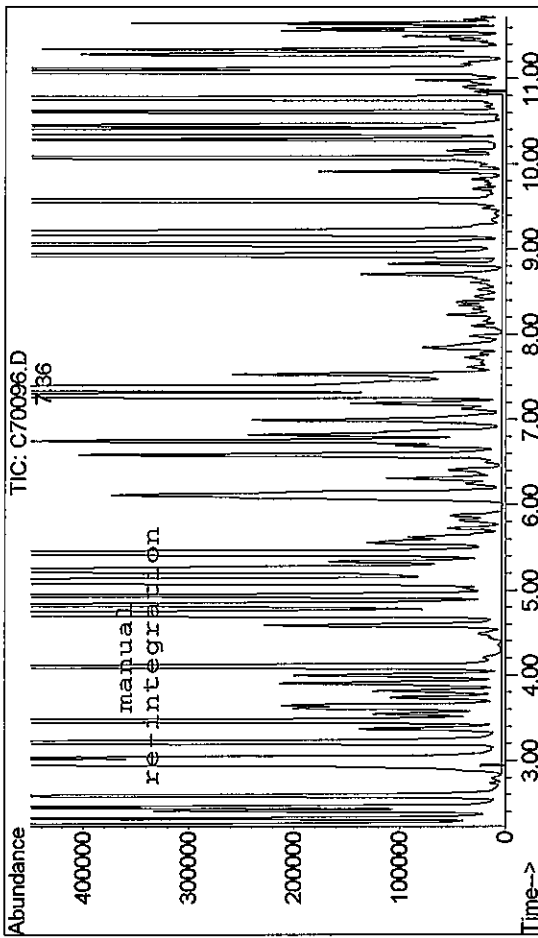
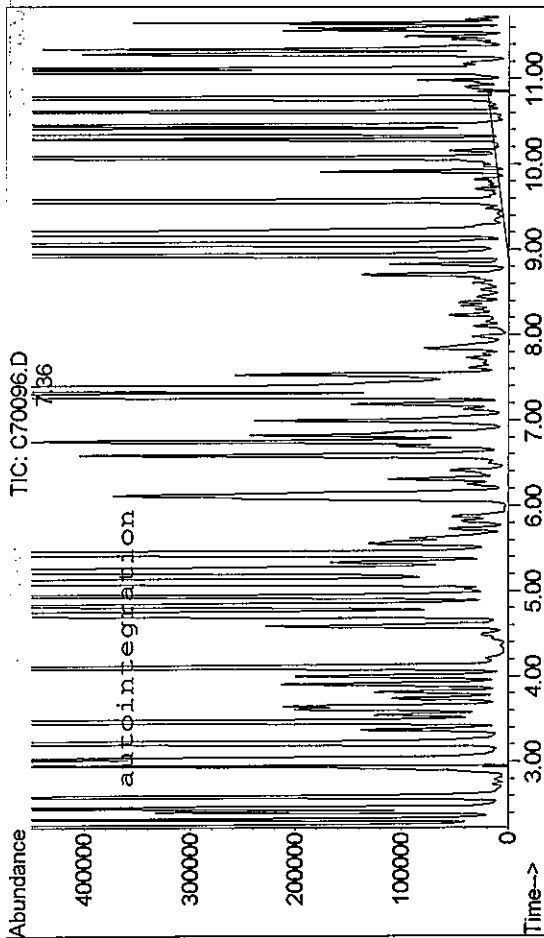
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) 1,4-Dichlorobenzene-d4	0.00	TIC	0m	25.00	ppb	-11.07

## System Monitoring Compounds

3) 4-Bromofluorobenzene	0.00	TIC	0d	0.00	ppb	
Spiked Amount	25.000	Range	85 - 115	Recovery	=	0.00%#

## Target Compounds

1) GRO	7.36	TIC	107693215m	933.01	ppb	Qvalue
--------	------	-----	------------	--------	-----	--------



TIC: C70096.D

(1) GRO (H)	7.37min	816.44ppb m
response	96960738	
Signal	Exp%	Act%
TIC	100	100
	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: 26 date: 7 / 22 / 15

TIC: C70096.D

(1) GRO (H)	7.36min	933.01ppb m
response	107693215	
Signal	Exp%	Act%
TIC	100	100
	0.00	0.00
	0.00	0.00
	0.00	0.00

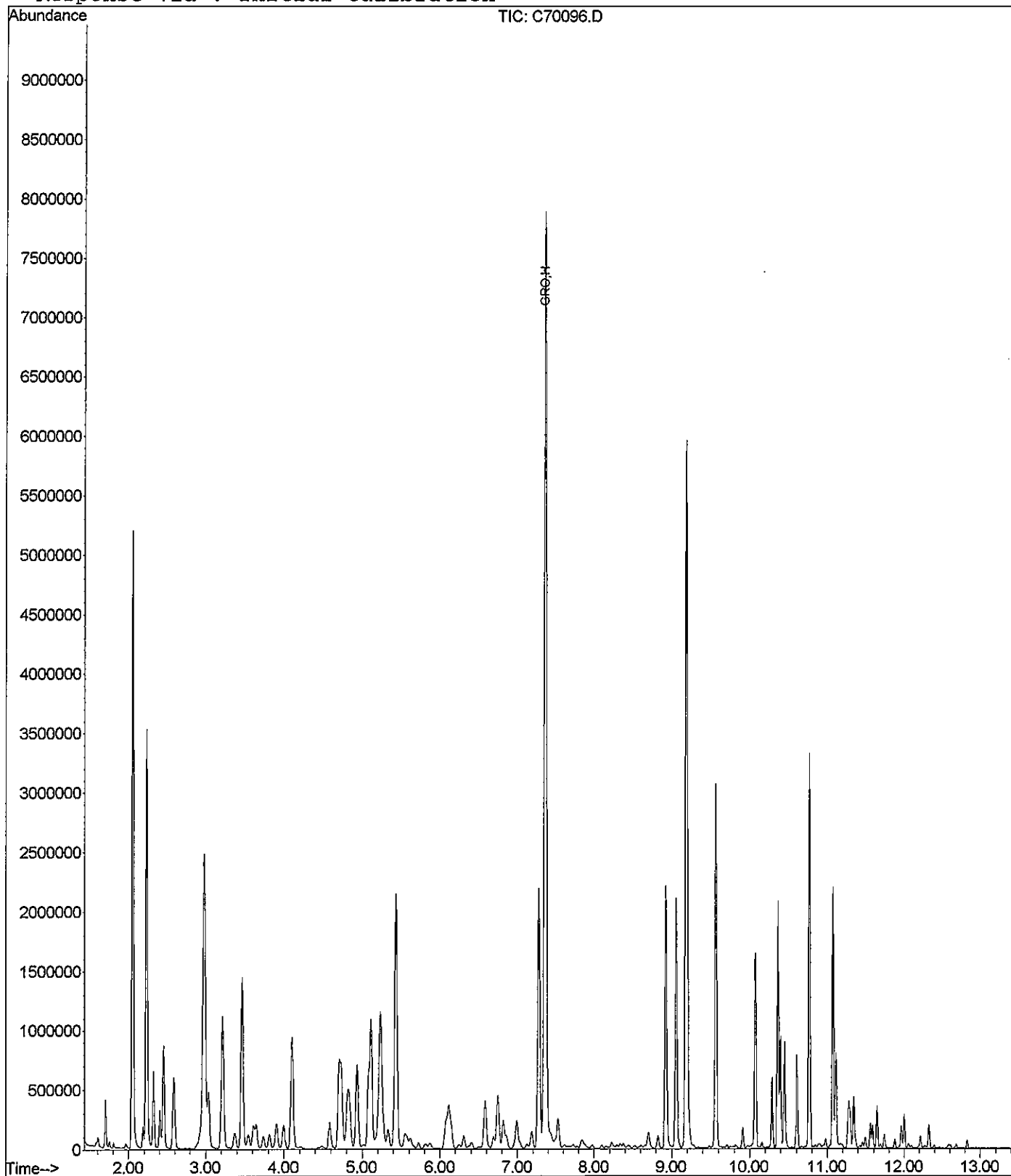
# Quantitation Report

Data File : C:\HPCHEM\1\DATA\2016\072116\C70096.D  
 Acq On : 21 Jul 2016 12:45  
 Sample : VL160721-6LCSD  
 Misc : 8260 - 10mL water  
 MS Integration Params: ettics.p  
 Quant Time: Jul 21 13:09 2016

Vial: 9  
 Operator: jk-sop525r16  
 Inst : CSS Instr  
 Multiplr: 1.00

Quant Results File: 060616GR.RES

Method : C:\HPCHEM\1\METHODS\060616GR.M (RTE Integrator)  
 Title : GC/MS Volatiles (S.O.P. 525)  
 Last Update : Tue Jun 07 10:17:05 2016  
 Response via : Initial Calibration



Data File : C:\HPCHEM\1\DATA\2016\072116\C70099.D

Vial: 12

Acq On : 21 Jul 2016 13:49

Operator: jk-sop525r16

Sample : VL160721-3MB

Inst : CSS Instr

Misc : 8260 - 10mL water

Multiplr: 1.00

MS Integration Params: ettics.p

Quant Time: Jul 21 14:58 2016

Quant Results File: 060316W.RES

Quant Method : C:\HPCHEM\1\METHODS\060316W.M (RTE Integrator)

Title : GC/MS Volatiles (S.O.P. 525)

Last Update : Tue Jun 21 11:12:05 2016

Response via : Initial Calibration

DataAcq Meth : 060316W

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	5.44	96	1647056	25.00	ppb	0.00
58) Chlorobenzene-d5	8.93	82	599004	25.00	ppb	0.00
78) 1,4-Dichlorobenzene-d4	11.08	152	423589	25.00	ppb	0.00

## System Monitoring Compounds

37) Dibromofluoromethane	4.71	113	440107	24.83	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	99.32%
42) 1,2-dichloroethane-d4	5.08	65	317699	25.04	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	100.16%
59) Toluene-d8	7.28	98	1468712	23.76	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	95.04%
79) 4-Bromofluorobenzene	10.07	95	474923	25.74	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	102.96%

## Target Compounds

19) Methylene chloride	2.96	84	28594	1.27	ppb	Qvalue 98
------------------------	------	----	-------	------	-----	-----------

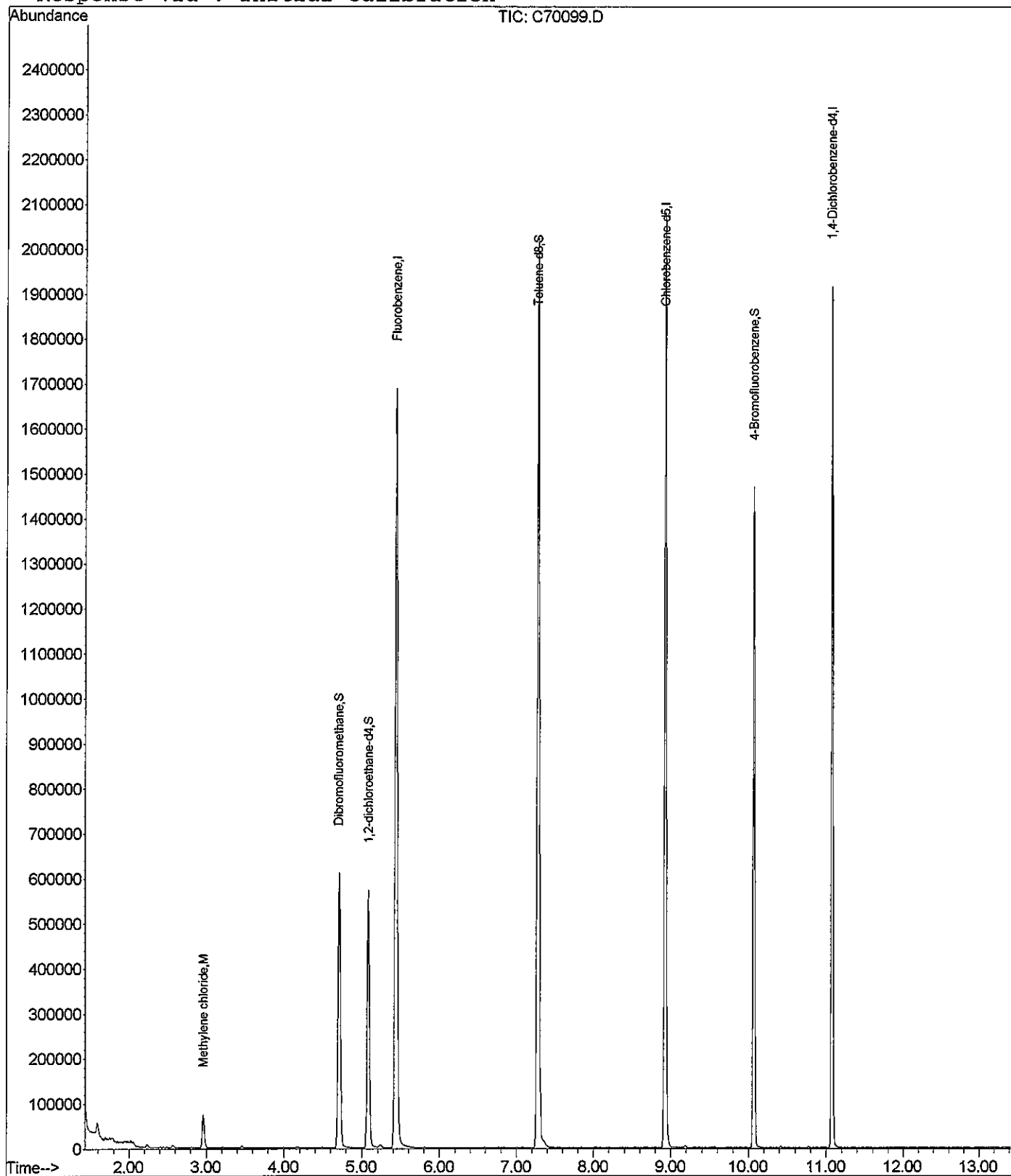
# Quantitation Report

Data File : C:\HPCHEM\1\DATA\2016\072116\C70099.D  
 Acq On : 21 Jul 2016 13:49  
 Sample : VL160721-3MB  
 Misc : 8260 - 10mL water  
 MS Integration Params: ettics.p  
 Quant Time: Jul 21 14:58 2016

Vial: 12  
 Operator: jk-sop525r16  
 Inst : CSS Instr  
 Multiplr: 1.00

Quant Results File: 060316W.RES

Method : C:\HPCHEM\1\METHODS\060316W.M (RTE Integrator)  
 Title : GC/MS Volatiles (S.O.P. 525)  
 Last Update : Tue Jun 21 11:12:05 2016  
 Response via : Initial Calibration



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA\2016\072116\C70099.D Vial: 12  
Acq On : 21 Jul 2016 13:49 Operator: jk-sop525r16  
Sample : VL160721-3MB Inst : CSS Instr  
Misc : 8260 - 10mL water Multiplr: 1.00  
MS Integration Params: ETTICS.P  
Quant Method : C:\HPCHEM\1\METHODS\060316W.M (RTE Integrator)  
Title : GC/MS Volatiles (S.O.P. 525)  
Library : C:\DATABASE\NIST129k.1

No Library Search Compounds Detected

\*\*\*\*\*  
C70099.D 060316W.M Fri Jul 22 10:28:23 2016

JK-22-16

Data File : C:\HPCHEM\1\DATA\2016\072116\C70099.D

Vial: 12

Acq On : 21 Jul 2016 13:49

Operator: jk-sop525r16

Sample : VL160721-3MB

Inst : CSS Instr

Misc : 8260 - 10mL water

Multiplr: 1.00

MS Integration Params: ettics.p

Quant Time: Jul 21 14:58 2016

Quant Results File: 060616GR.RES

Quant Method : C:\HPCHEM\1\METHODS\060616GR.M (RTE Integrator)

Title : GC/MS Volatiles (S.O.P. 525)

Last Update : Tue Jun 07 10:17:05 2016

Response via : Initial Calibration

DataAcq Meth : 060316W

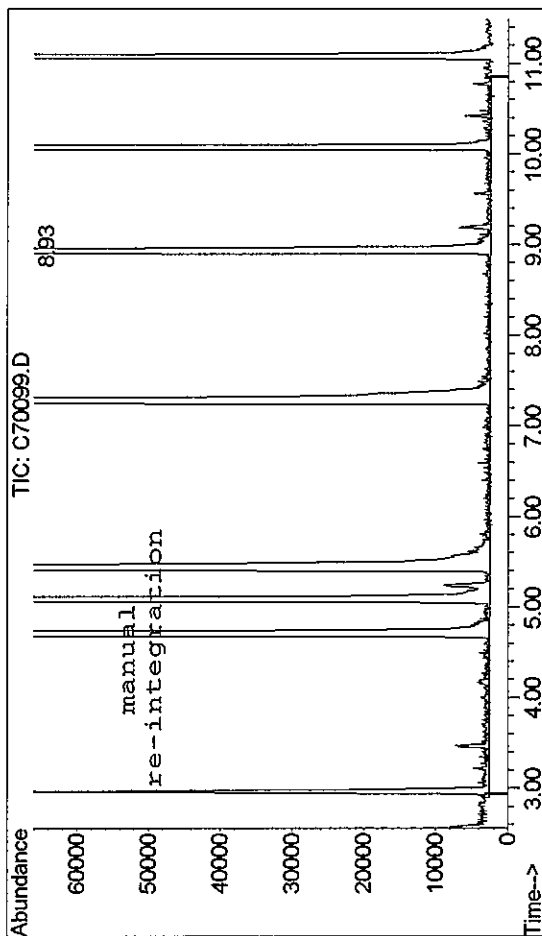
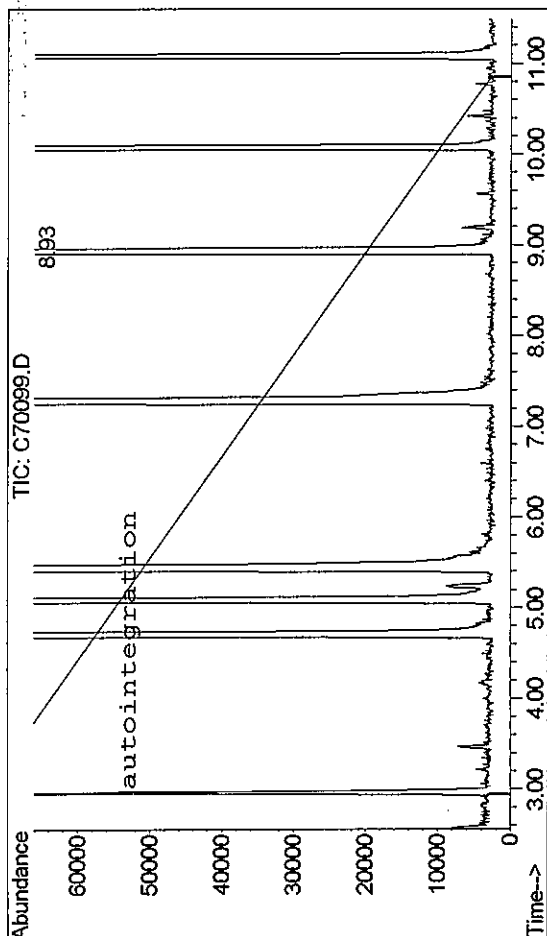
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) 1,4-Dichlorobenzene-d4	0.00	TIC	0m	25.00	ppb	-11.07

## System Monitoring Compounds

3) 4-Bromofluorobenzene	0.00	TIC	0d	0.00	ppb	
Spiked Amount	25.000	Range	85 - 115	Recovery	=	0.00%#

## Target Compounds

1) GRO	8.93	TIC	15798375m	Below Cal	Qvalue	
--------	------	-----	-----------	-----------	--------	--



TIC: C70099.D

(1) GRO (H)	7.37min	-90.21ppbm
response	13484064	
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: ga date: 7 / 26 / 16

TIC: C70099.D

(1) GRO (H)	8.93min	-65.07ppbm
response	15798375	
Signal	Exp%	Act%
TIC	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00



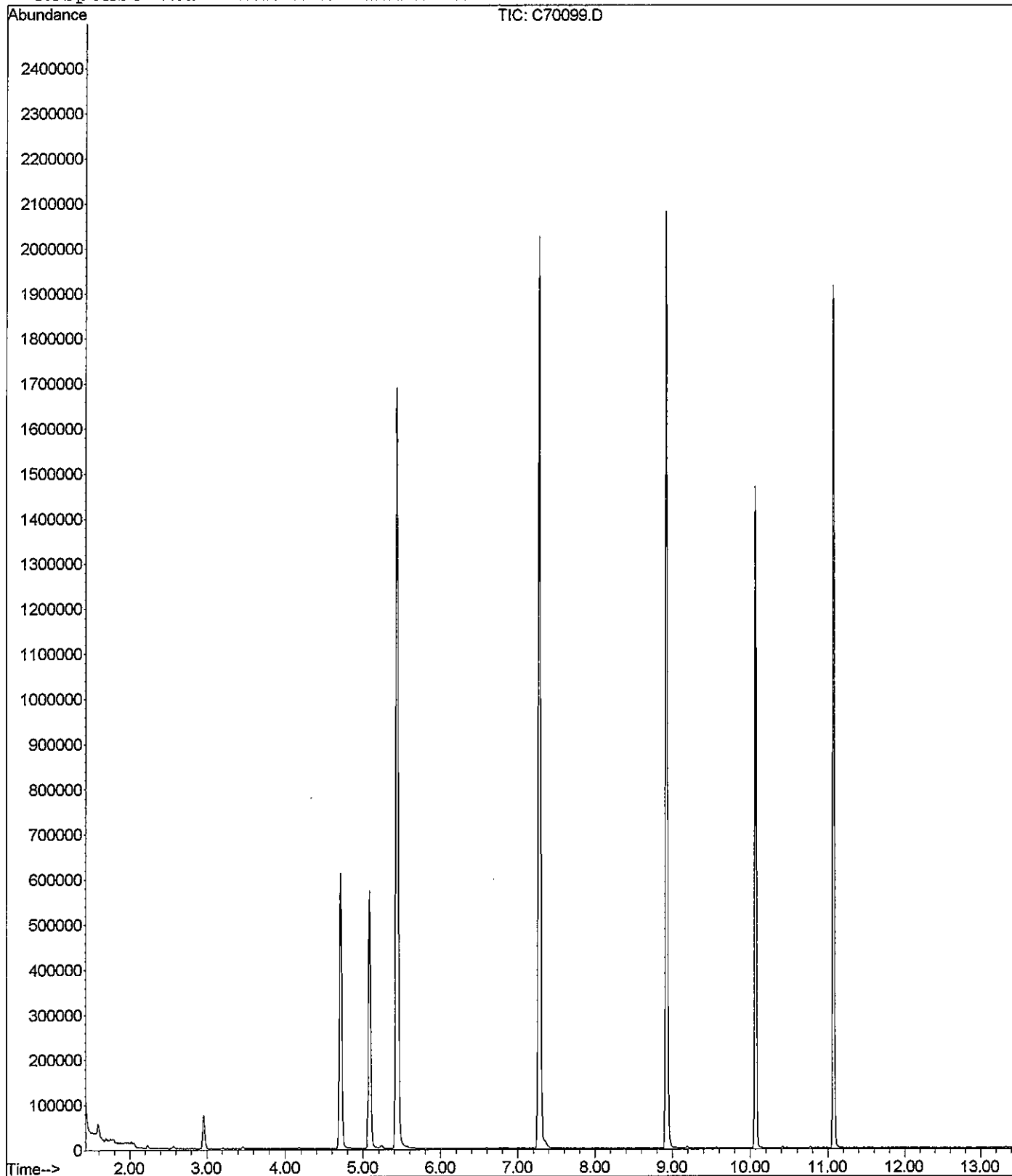
# Quantitation Report

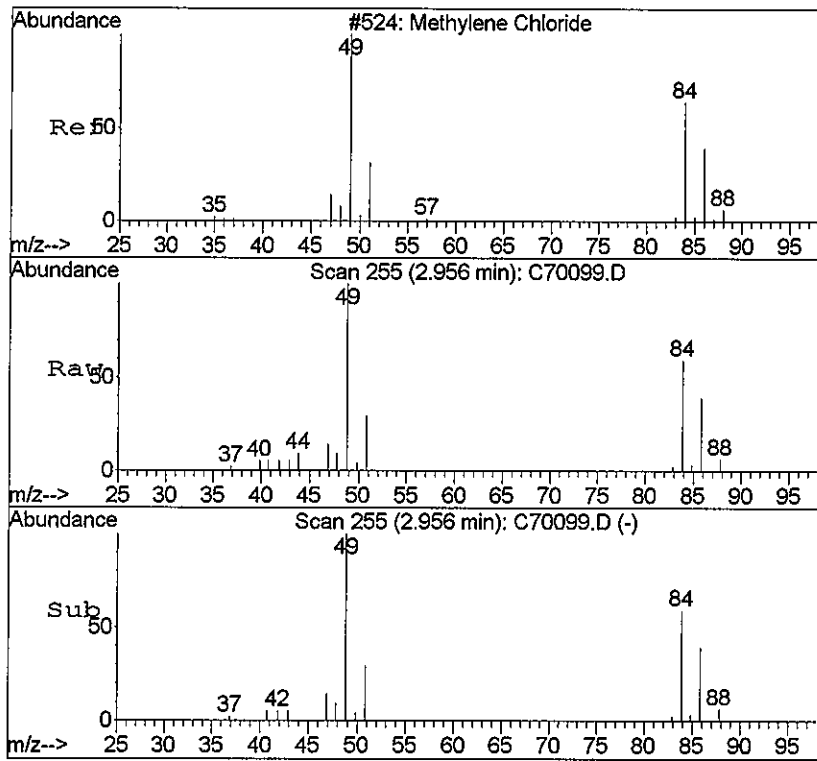
Data File : C:\HPCHEM\1\DATA\2016\072116\C70099.D  
 Acq On : 21 Jul 2016 13:49  
 Sample : VL160721-3MB  
 Misc : 8260 - 10mL water  
 MS Integration Params: ettics.p  
 Quant Time: Jul 21 14:58 2016

Vial: 12  
 Operator: jk-sop525r16  
 Inst : CSS Instr  
 Multiplr: 1.00

Quant Results File: 060616GR.RES

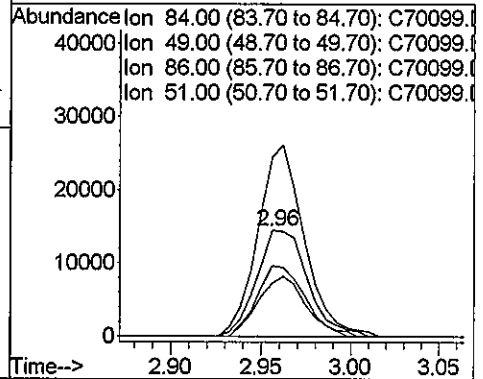
Method : C:\HPCHEM\1\METHODS\060616GR.M (RTE Integrator)  
 Title : GC/MS Volatiles (S.O.P. 525)  
 Last Update : Tue Jun 07 10:17:05 2016  
 Response via : Initial Calibration





#19  
Methylene chloride  
Concen: 1.27 ppb  
RT: 2.96 min Scan# 255  
Delta R.T. -0.01 min  
Lab File: C70099.D  
Acq: 21 Jul 2016 13:49

Tgt Ion	Ratio	Lower	Upper
84	100		
49	169.3	99.1	231.1
86	66.5	39.5	92.3
51	49.8	30.2	70.4



Data File : C:\HPCHEM\1\DATA\2016\072116\C70110.D

Vial: 23

Acq On : 21 Jul 2016 18:10

Operator: jk-sop525r16

Sample : 1607364-1

Inst : CSS Instr

Misc : 8260 - 10mL water

Multiplr: 1.00

MS Integration Params: ettics.p

Quant Time: Jul 22 9:34 2016

Quant Results File: 060316W.RES

Quant Method : C:\HPCHEM\1\METHODS\060316W.M (RTE Integrator)

Title : GC/MS Volatiles (S.O.P. 525)

Last Update : Tue Jun 21 11:12:05 2016

Response via : Initial Calibration

DataAcq Meth : 060316W

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	5.44	96	1800629	25.00	ppb	0.00
58) Chlorobenzene-d5	8.93	82	644126	25.00	ppb	0.00
78) 1,4-Dichlorobenzene-d4	11.07	152	473117	25.00	ppb	0.00

## System Monitoring Compounds

37) Dibromofluoromethane	4.71	113	473159	24.41	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	97.64%
42) 1,2-dichloroethane-d4	5.09	65	338609	24.41	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	97.64%
59) Toluene-d8	7.28	98	1579905	23.77	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	95.08%
79) 4-Bromofluorobenzene	10.07	95	511110	24.80	ppb	0.00
Spiked Amount	25.000	Range	85 - 115	Recovery	=	99.20%

## Target Compounds

						Qvalue
60) Toluene	7.36	91	58658	0.86	ppb	99
75) Styrene	9.58	104	27484	0.59	ppb	97
100) Naphthalene	12.83	128	85660	4.39	ppb	99

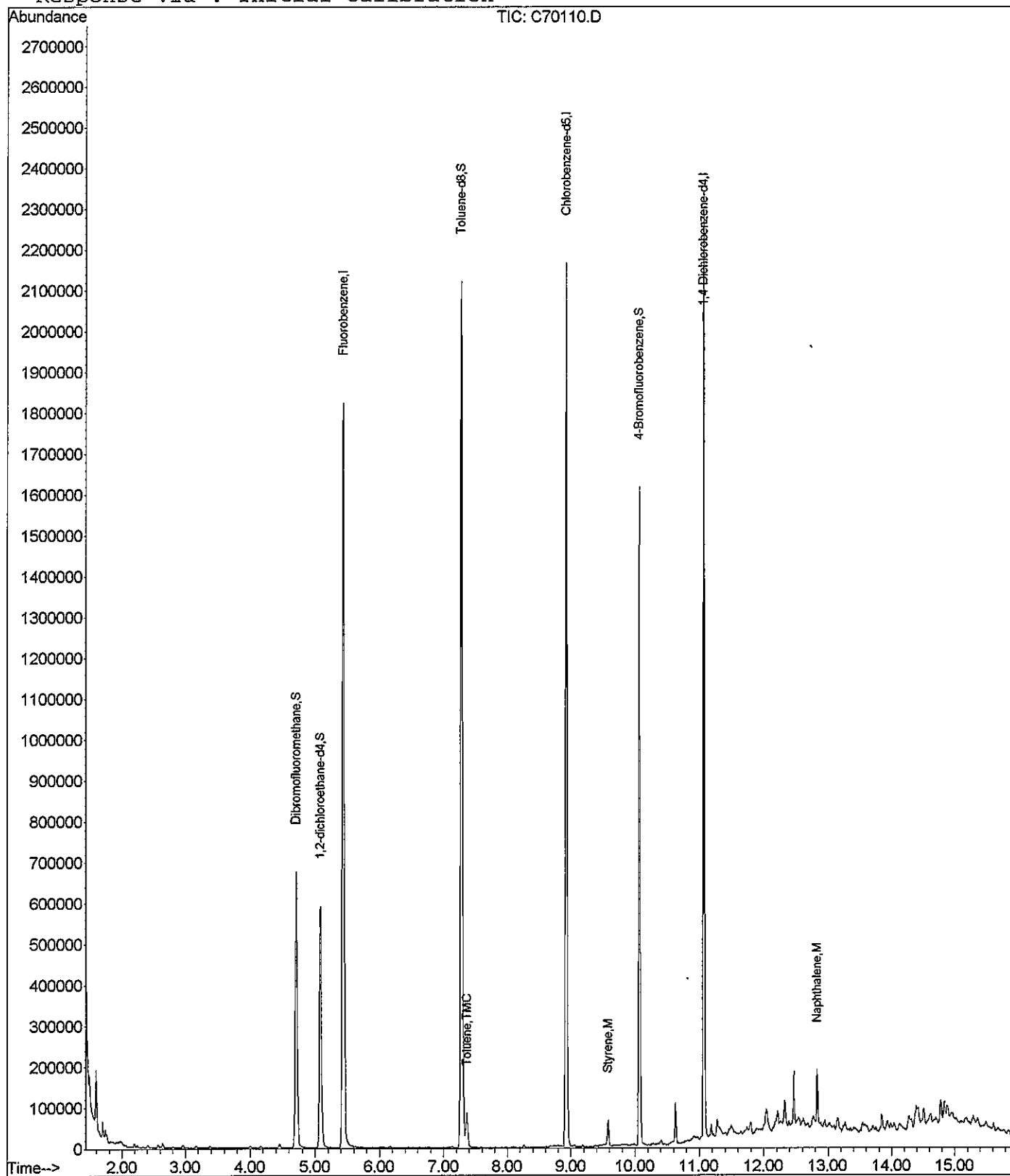
## Quantitation Report

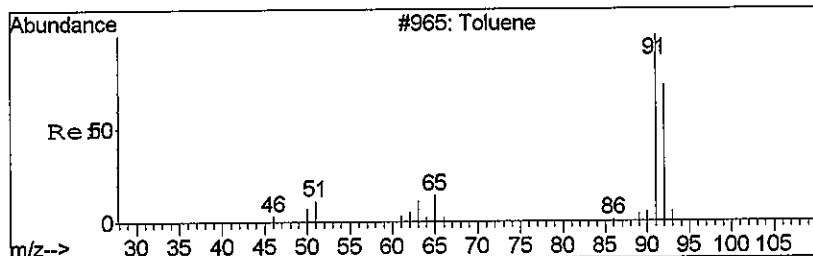
Data File : C:\HPCHEM\1\DATA\2016\072116\C70110.D  
Acq On : 21 Jul 2016 18:10  
Sample : 1607364-1  
Misc : 8260 - 10mL water  
MS Integration Params: ettics.p  
Quant Time: Jul 22 9:34 2016

Vial: 23  
Operator: jk-sop525r16  
Inst : CSS Instr  
Multiplr: 1.00

Quant Results File: 060316W.RES

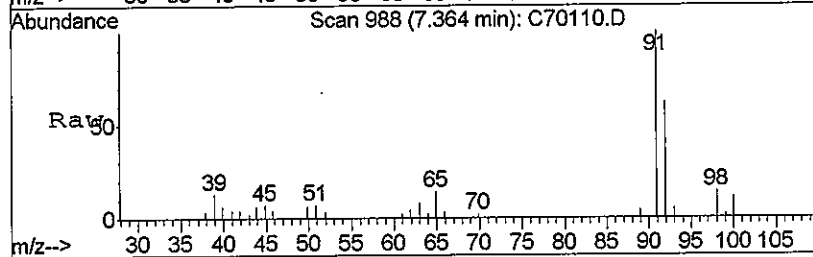
Method : C:\HPCHEM\1\METHODS\060316W.M (RTE Integrator)  
Title : GC/MS Volatiles (S.O.P. 525)  
Last Update : Tue Jun 21 11:12:05 2016  
Response via : Initial Calibration



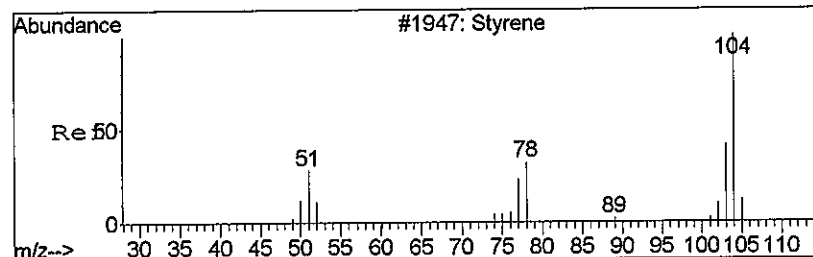
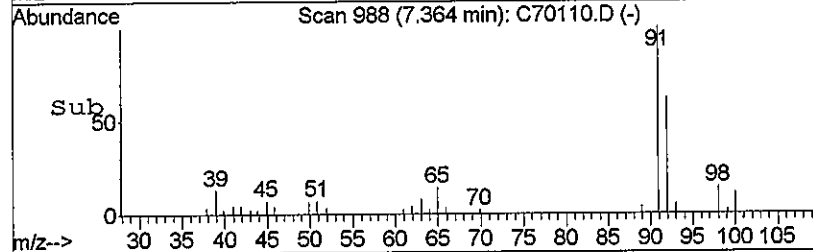
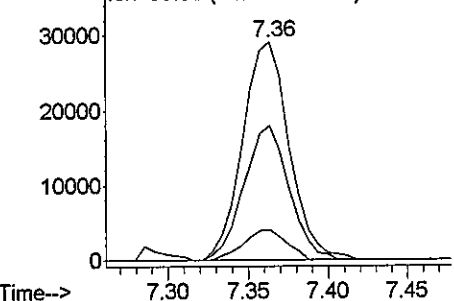


#60  
Toluene  
Concen: 0.86 ppb  
RT: 7.36 min Scan# 988  
Delta R.T. 0.00 min  
Lab File: C70110.D  
Acq: 21 Jul 2016 18:10

Tgt Ion: 91 Resp: 58658  
Ion Ratio Lower Upper  
91 100  
92 61.6 37.2 86.8  
65 13.8 7.7 18.1

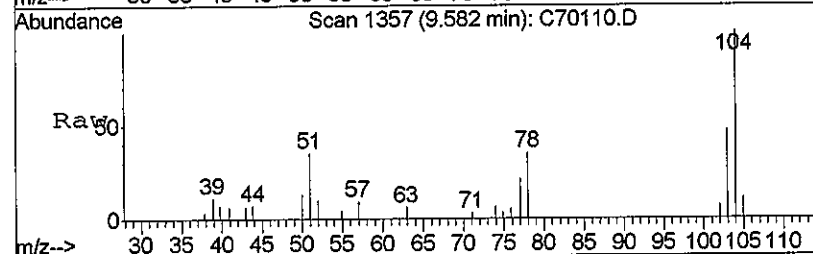


Abundance Ion 91.00 (90.70 to 91.70): C70110.D  
Ion 92.00 (91.70 to 92.70): C70110.D  
Ion 65.00 (64.70 to 65.70): C70110.D

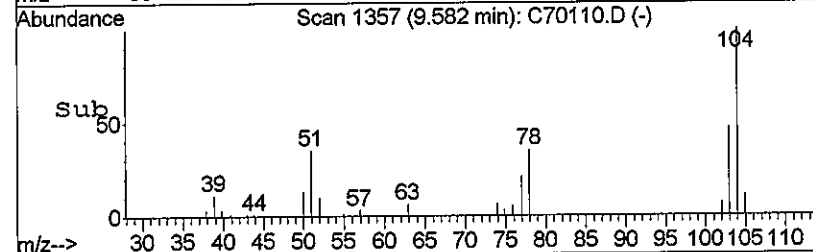
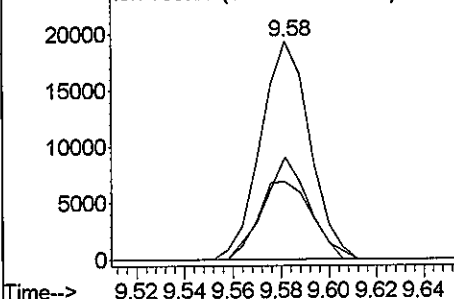


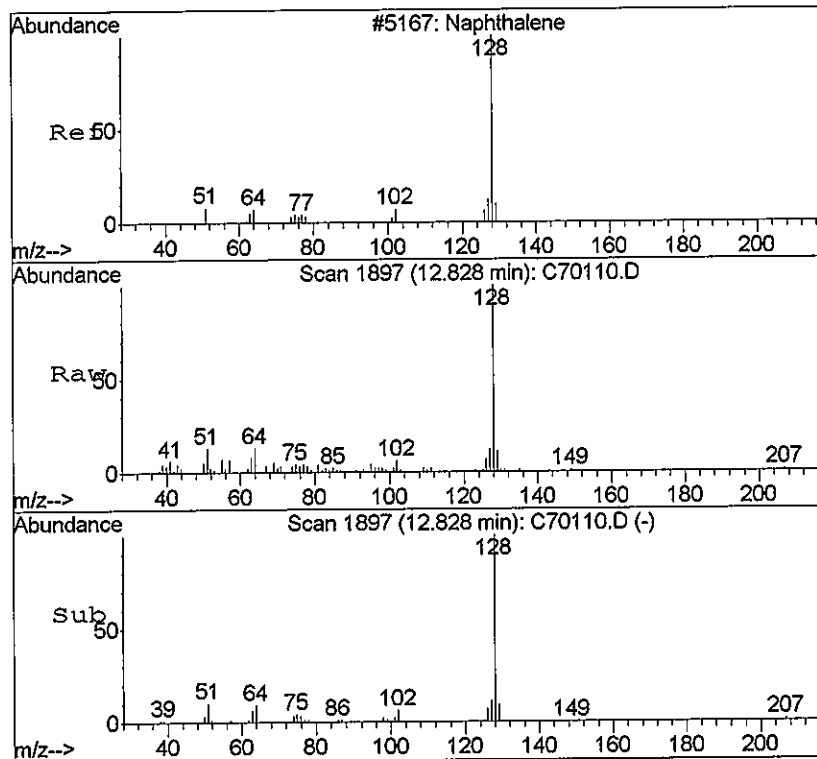
#75  
Styrene  
Concen: 0.59 ppb  
RT: 9.58 min Scan# 1357  
Delta R.T. 0.00 min  
Lab File: C70110.D  
Acq: 21 Jul 2016 18:10

Tgt Ion: 104 Resp: 27484  
Ion Ratio Lower Upper  
104 100  
78 35.4 23.2 54.0  
103 46.9 27.4 63.8



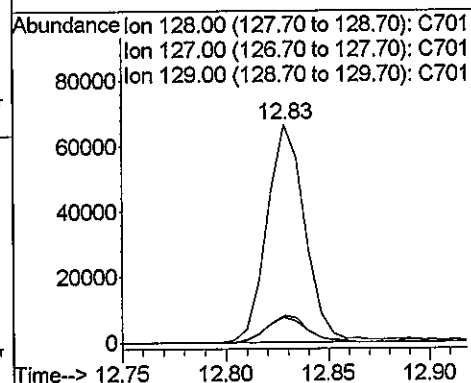
Abundance Ion 104.00 (103.70 to 104.70): C70110.D  
Ion 78.00 (77.70 to 78.70): C70110.D  
Ion 103.00 (102.70 to 103.70): C70110.D





#100  
Naphthalene  
Concen: 4.39 ppb  
RT: 12.83 min Scan# 1897  
Delta R.T. -0.01 min  
Lab File: C70110.D  
Acq: 21 Jul 2016 18:10

Tgt Ion	Ratio	Lower	Upper
128	100		
127	12.2	7.4	17.2
129	11.5	6.7	15.7



Library Search Compound Report

Data File : C:\HPCHEM\1\DATA\2016\072116\C70110.D Vial: 23  
Acq On : 21 Jul 2016 18:10 Operator: jk-sop525r16  
Sample : 1607364-1 Inst : CSS Instr  
Misc : 8260 - 10mL water Multiplr: 1.00  
MS Integration Params: ETTICS.P  
Quant Method : C:\HPCHEM\1\METHODS\060316W.M (RTE Integrator)  
Title : GC/MS Volatiles (S.O.P. 525)  
Library : C:\DATABASE\NIST129k.1

No Library Search Compounds Detected

\*\*\*\*\*  
C70110.D 060316W.M Mon Jul 25 10:48:44 2016

Data File : C:\HPCHEM\1\DATA\2016\072116\C70110.D  
Acq On : 21 Jul 2016 18:10  
Sample : 1607364-1  
Misc : 8260 - 10mL water  
MS Integration Params: ettics.p  
Quant Time: Jul 22 11:59 2016

Vial: 23  
Operator: jk-sop525r16  
Inst : CSS Instr  
Multiplr: 1.00

Quant Results File: 060616GR.RES

Quant Method : C:\HPCHEM\1\METHODS\060616GR.M (RTE Integrator)  
Title : GC/MS Volatiles (S.O.P. 525)  
Last Update : Tue Jun 07 10:17:05 2016  
Response via : Initial Calibration  
DataAcq Meth : 060316W

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
2) 1,4-Dichlorobenzene-d4	0.00	TIC	0m	25.00	ppb	-11.07

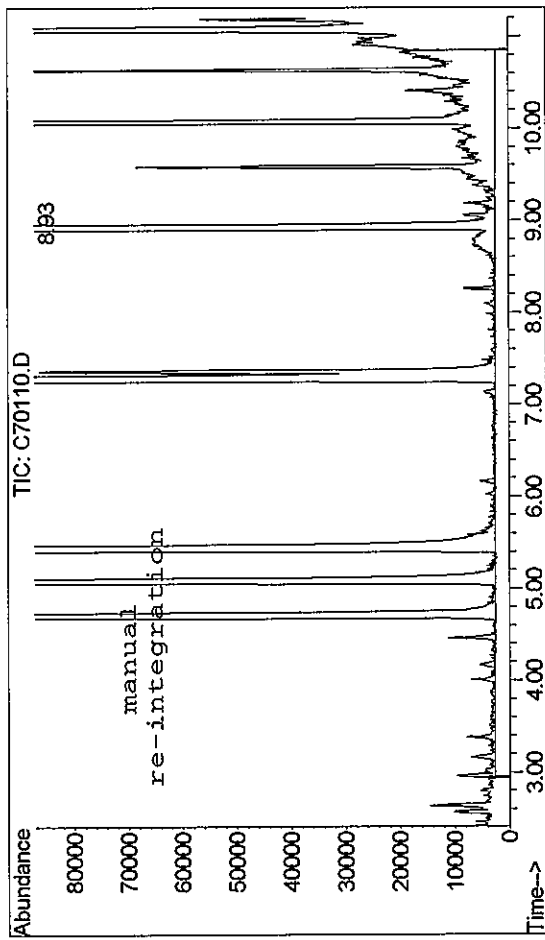
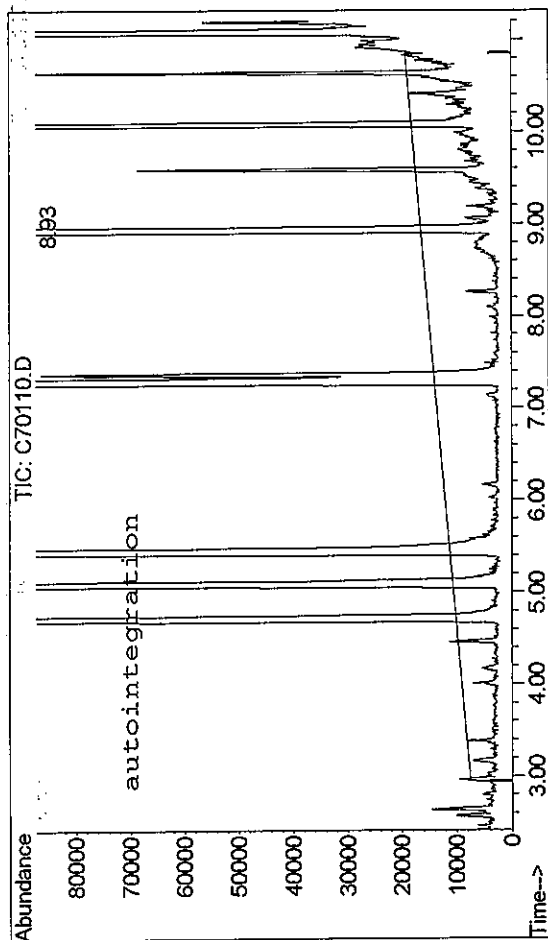
System Monitoring Compounds

3) 4-Bromofluorobenzene	0.00	TIC	0d	0.00	ppb	
Spiked Amount	25.000	Range	85 - 115	Recovery	=	0.00%#

Target Compounds

1) GRO	8.93	TIC	17957049m	Below Cal	Qvalue
--------	------	-----	-----------	-----------	--------





TIC: C70110.D

(1) GRO (H)	7.37min	-72.14ppb m
response	15147324	
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: PL date: 2 / 22 / 16

TIC: C70110.D

(1) GRO (H)	8.93min	-41.63ppb m
response	17957049	
Signal	Exp%	Act%
TIC	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

# Quantitation Report

Data File : C:\HPCHEM\1\DATA\2016\072116\C70110.D  
 Acq On : 21 Jul 2016 18:10  
 Sample : 1607364-1  
 Misc : 8260 - 10mL water  
 MS Integration Params: ettics.p  
 Quant Time: Jul 22 11:59 2016

Vial: 23  
 Operator: jk-sop525r16  
 Inst : CSS Instr  
 Multiplr: 1.00

Quant Results File: 060616GR.RES

Method : C:\HPCHEM\1\METHODS\060616GR.M (RTE Integrator)  
 Title : GC/MS Volatiles (S.O.P. 525)  
 Last Update : Tue Jun 07 10:17:05 2016  
 Response via : Initial Calibration

