



received 11/17/2016
REM 9246

GC/MS Semivolatiles

SIMPAH

Case Narrative

COGCC

Hanks Pooling Rem 9246

Work Order Number: 1611039

1. This report consists of 1 soil sample. The sample was received intact at ambient temperature by ALS on 11/02/16.
2. The sample was prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the soil sample was extracted using soxhlet procedures according to SW-846 Method 3540C, utilizing the current revision of SOP 625.
3. The extract was analyzed using GC/MS with a DB-5MS capillary column according to the current revision of SOP 506 based on SW-846 Method 8270D. The samples were analyzed using selective ion monitoring (SIM), in order to achieve lower reporting limits. 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 a limited number of major ions from the mass spectrum of the sample versus the daily calibration standard.
4. All initial calibration criteria were met. If average response factors were used in the initial calibration, %RSD was $\leq 20\%$. If linear or higher order regression calibrations were used in the initial calibration, the coefficient of determination (r^2) ≥ 0.99 .
5. All initial calibration standards are verified by comparing a second source standard initial calibration verification (ICV) against the calibration curve. All target compounds in the second source verification had a %D $\leq 30\%$.
6. All compounds in the daily (continuing) calibration verifications were within 20%D with the exception of acenaphthylene which was high. This compound was not detected in the associated sample.
7. All method blank criteria were met.



8. All laboratory control sample recoveries were within the acceptance criteria.
9. Sample -2RR1 was designated as the quality control sample for this analysis. All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria with the following exceptions:

Spiked Compound	QC Sample	Direction
Several Compounds	MS & MSD	High
Acenaphthene	MS & MSD	RPD

The recoveries of these compounds in the laboratory control sample were within control limits, which suggest the outliers in the matrix spikes may have been due to matrix effects, so no further action was taken.

10. The sample was extracted and analyzed within the established holding times.
11. All surrogate recoveries were within acceptance criteria with the following exceptions:

Surrogate	Sample	Direction
Nitrobenzene-D ₅	-2RR1, -2RR1MS & -2RR1MSD	High


Sample -2RR1 was also used for the matrix spike and matrix spike duplicate. The surrogate was also outside the acceptance criteria in the spikes, which suggest matrix effects are present in the sample. Re-extraction was not required.

12. All internal standard recoveries were within acceptance criteria.
13. Due to the concentration of target analytes, the sample was analyzed at a dilution. The reporting limits have been adjusted accordingly.
14. 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

11/17/16
Date


Organics Final Data Reviewer

11/17/16
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: 1611039

Client Name: COGCC

Client Project Name: Hanks Pooling Rem 9246

Client Project Number:

Client PO Number: CT 2017-221

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Hanks Pooling	1611039-1		SOIL	01-Nov-16	9:48
Hanks Pooling	1611039-2		SOIL	01-Nov-16	9:50



ALS Laboratory Group

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

Chain-of-Custody

Form 20268

WORKORDER # 1611039		PAGE 1 of 1					
PROJECT NAME Hanks Peeling from grade		DATE 2 Nov 16					
PROJECT No.		TURNAROUND 14 days					
COMPANY NAME Colo. Oil & Gas Cons. Comm.		DISPOSAL By Lab or Return to Client					
SEND REPORT TO Peter G. Hanks							
ADDRESS 1706 Meadow St. Suite 401							
CITY / STATE / ZIP Denver CO 80203							
PHONE 719-679-1326							
FAX							
E-MAIL Peter.g.hanks@stateenergy.com							
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC
1	755188 Hanks Peeling	S	1 Nov 16	09:46	1		X
2	755188 Hanks Peeling	S	1 Nov 16	09:50	1		X

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

For metals or anions, please detail analytes below.

Comments: 5 of 68	QC PACKAGE (check below)	
	LEVEL II (Standard QC)	
	LEVEL III (Std QC + forms)	
	LEVEL IV (Std QC + forms + raw data)	
Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035		

RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RECEIVED BY	Peter G. Hanks	Peter G. Hanks	2 Nov 16	09:45
RELINQUISHED BY	Rebecca Kerola	Rebecca Kerola	11/21/16	09:05
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCC

Workorder No: 1611039

Project Manager: SJPS

Initials: Per Date: 11/2/16

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>	YES	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: ____ < green pea ____ > green pea	<u>N/A</u>	YES	NO
15. Do any water samples contain sediment? Amount of sediment: ____ dusting ____ moderate ____ heavy	<u>N/A</u>	YES	NO
16. Were the samples shipped on ice?		YES	<u>NO</u>
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4		YES	<u>NO</u>
Cooler #: <u>1</u>			
Temperature (°C): <u>47.8</u>			
No. of custody seals on cooler: <u>0</u>			
DOT Survey/ Acceptance Information	External µR/hr reading: <u>NA</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.

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

Project Manager Signature / Date: [Signature]

GC/MS Semi-volatiles

Method SW8270SIMD

Method Blank

Lab Name: ALS -- Fort Collins

Work Order Number: 1611039

Client Name: COGCC

ClientProject ID: Hanks Pooling Rem 9246

Lab ID: EX161109-4MB

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 09-Nov-16

Date Analyzed: 14-Nov-16

Prep Batch: EX161109-4

QCBatchID: EX161109-4-1

Run ID: SV161114-3

Cleanup: NONE

Basis: N/A

File Name: R7070

Sample Aliquot: 30 g

Final Volume: 1 ml

Result Units: UG/KG

Clean DF: 1

CASNO	Target Analyte	DF	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.3	3.3	1	U	
91-57-6	2-METHYLNAPHTHALENE	1	3.3	3.3	1	U	
90-12-0	1-METHYLNAPHTHALENE	1	3.3	3.3	1	U	
208-96-8	ACENAPHTHYLENE	1	3.3	3.3	1	U	
83-32-9	ACENAPHTHENE	1	3.3	3.3	1	U	
86-73-7	FLUORENE	1	3.3	3.3	1	U	
85-01-8	PHENANTHRENE	1	3.3	3.3	1	U	
120-12-7	ANTHRACENE	1	3.3	3.3	1	U	
206-44-0	FLUORANTHENE	1	3.3	3.3	1	U	
129-00-0	PYRENE	1	3.3	3.3	1	U	
56-55-3	BENZO(A)ANTHRACENE	1	3.3	3.3	1	U	
218-01-9	CHRYSENE	1	3.3	3.3	1	U	
205-99-2	BENZO(B)FLUORANTHENE	1	3.3	3.3	1	U	
207-08-9	BENZO(K)FLUORANTHENE	1	3.3	3.3	1	U	
50-32-8	BENZO(A)PYRENE	1	3.3	3.3	1.5	U	
193-39-5	INDENO(1,2,3-CD)PYRENE	1	3.3	3.3	1	U	
53-70-3	DIBENZO(A,H)ANTHRACENE	1	3.3	3.3	1	U	
191-24-2	BENZO(G,H,I)PERYLENE	1	3.3	3.3	1	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	60.1		66.7	90	41 - 106
4165-60-0	NITROBENZENE-D5	67.4		66.7	101	28 - 113
1718-51-0	TERPHENYL-D14	57.2		66.7	86	25 - 147

Data Package ID: VL1611039-1

Date Printed: Wednesday, November 16, 2016

ALS -- Fort Collins

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LIMS Version: 6.834

GC/MS Semi-volatiles

Method SW8270SIMD

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1611039

Client Name: COGCC

ClientProject ID: Hanks Pooling Rem 9246

Field ID: Hanks Pooling

Lab ID: 1611039-2

Sample Matrix: SOIL

% Moisture: 16.0

Date Collected: 01-Nov-16

Date Extracted: 09-Nov-16

Date Analyzed: 14-Nov-16

Prep Method: SW3540 Rev C

Prep Batch: EX161109-4

QC Batch ID: EX161109-4-1

Run ID: SV161114-3

Cleanup: NONE

Basis: Dry Weight

File Name: R7073

Analyst: Tyler Knaebel

Sample Aliquot: 30.17 g

Final Volume: 1 ml

Result Units: UG/KG

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	10	230	39	12		
91-57-6	2-METHYLNAPHTHALENE	10	510	39	12		
90-12-0	1-METHYLNAPHTHALENE	10	710	39	12		
208-96-8	ACENAPHTHYLENE	10	39	39	12	U	
83-32-9	ACENAPHTHENE	10	39	39	12	U	
86-73-7	FLUORENE	10	92	39	12		
85-01-8	PHENANTHRENE	10	180	39	12		
120-12-7	ANTHRACENE	10	39	39	12	U	
206-44-0	FLUORANTHENE	10	64	39	12		
129-00-0	PYRENE	10	76	39	12		
56-55-3	BENZO(A)ANTHRACENE	10	21	39	12	J	
218-01-9	CHRYSENE	10	19	39	12	J	
205-99-2	BENZO(B)FLUORANTHENE	10	39	39	12	U	
207-08-9	BENZO(K)FLUORANTHENE	10	39	39	12	U	
50-32-8	BENZO(A)PYRENE	10	39	39	18	U	
193-39-5	INDENO(1,2,3-CD)PYRENE	10	39	39	12	U	
53-70-3	DIBENZO(A,H)ANTHRACENE	10	39	39	12	U	
191-24-2	BENZO(G,H,I)PERYLENE	10	39	39	12	U	

Data Package ID: VL1611039-1

Date Printed: Wednesday, November 16, 2016

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LIMS Version: 6.834

GC/MS Semi-volatiles

Method SW8270SIMD

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1611039

Client Name: COGCC

ClientProject ID: Hanks Pooling Rem 9246

Field ID:	Hanks Pooling
Lab ID:	1611039-2

Sample Matrix: SOIL

% Moisture: 16.0

Date Collected: 01-Nov-16

Date Extracted: 09-Nov-16

Date Analyzed: 14-Nov-16

Prep Method: SW3540 Rev C

Prep Batch: EX161109-4

QCBatchID: EX161109-4-1

Run ID: SV161114-3

Cleanup: NONE

Basis: Dry Weight

File Name: R7073

Analyst: Tyler Knaebel

Sample Aliquot: 30.17 g

Final Volume: 1 ml

Result Units: UG/KG

Clean DF: 1

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

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	74.6		78.9	95	41 - 106
4165-60-0	NITROBENZENE-D5	206	*	78.9	261	28 - 113
1718-51-0	TERPHENYL-D14	51.9		78.9	66	25 - 147

Data Package ID: VL1611039-1

Date Printed: Wednesday, November 16, 2016

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GC/MS Semi-volatiles

Method SW8270SIMD

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1611039

Client Name: COGCC

ClientProject ID: Hanks Pooling Rem 9246

Field ID: Hanks Pooling

Lab ID: 1611039-2RR1

Sample Matrix: SOIL

% Moisture: 16.0

Date Collected: 01-Nov-16

Date Extracted: 09-Nov-16

Date Analyzed: 14-Nov-16

Prep Method: SW3540 Rev C

Prep Batch: EX161109-4

QCBatchID: EX161109-4-1

Run ID: SV161114-3

Cleanup: NONE

Basis: Dry Weight

File Name: R7074

Analyst: Tyler Knaebel

Sample Aliquot: 30.17 g

Final Volume: 1 ml

Result Units: UG/KG

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	RptLimit/ LOQ/LOD	MDL/DL	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	230	3.9	1.2	E	
91-57-6	2-METHYLNAPHTHALENE	1	510	3.9	1.2	E	
90-12-0	1-METHYLNAPHTHALENE	1	700	3.9	1.2	E	
208-96-8	ACENAPHTHYLENE	1	3.9	3.9	1.2	U	
83-32-9	ACENAPHTHENE	1	3.9	3.9	1.2	U	
86-73-7	FLUORENE	1	91	3.9	1.2		
85-01-8	PHENANTHRENE	1	210	3.9	1.2	E	
120-12-7	ANTHRACENE	1	3.9	3.9	1.2	U	
206-44-0	FLUORANTHENE	1	75	3.9	1.2		
129-00-0	PYRENE	1	80	3.9	1.2		
56-55-3	BENZO(A)ANTHRACENE	1	22	3.9	1.2		
218-01-9	CHRYSENE	1	17	3.9	1.2		
205-99-2	BENZO(B)FLUORANTHENE	1	10	3.9	1.2		
207-08-9	BENZO(K)FLUORANTHENE	1	5.1	3.9	1.2		
50-32-8	BENZO(A)PYRENE	1	6.4	3.9	1.8		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	2.5	3.9	1.2	J	
53-70-3	DIBENZO(A,H)ANTHRACENE	1	3.9	3.9	1.2	U	
191-24-2	BENZO(G,H,I)PERYLENE	1	2.9	3.9	1.2	J	

Data Package ID: VL1611039-1

Date Printed: Wednesday, November 16, 2016

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GC/MS Semi-volatiles

Method SW8270SIMD

Sample Results

Lab Name: ALS -- Fort Collins

Work Order Number: 1611039

Client Name: COGCC

ClientProject ID: Hanks Pooling Rem 9246

Field ID:	Hanks Pooling
Lab ID:	1611039-2RR1

Sample Matrix: SOIL

% Moisture: 16.0

Date Collected: 01-Nov-16

Date Extracted: 09-Nov-16

Date Analyzed: 14-Nov-16

Prep Method: SW3540 Rev C

Prep Batch: EX161109-4

QCBatchID: EX161109-4-1

Run ID: SV161114-3

Cleanup: NONE

Basis: Dry Weight

File Name: R7074

Analyst: Tyler Knaebel

Sample Aliquot: 30.17 g

Final Volume: 1 ml

Result Units: UG/KG

Clean DF: 1

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

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	77.4		78.9	98	41 - 106
4165-60-0	NITROBENZENE-D5	217	*	78.9	275	28 - 113
1718-51-0	TERPHENYL-D14	61.6		78.9	78	25 - 147

Data Package ID: VL1611039-1

Date Printed: Wednesday, November 16, 2016

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GC/MS Semi-volatiles

Method SW8270SIMD Laboratory Control Sample

Lab Name: ALS -- Fort Collins

Work Order Number: 1611039

Client Name: COGCC

ClientProject ID: Hanks Pooling Rem 9246

Lab ID: EX161109-4LCS

Sample Matrix: SOIL

% Moisture: N/A

Date Collected: N/A

Date Extracted: 11/09/2016

Date Analyzed: 11/14/2016

Prep Method: SW3540C

Prep Batch: EX161109-4

QCBatchID: EX161109-4-1

Run ID: SV161114-3

Cleanup: NONE

Basis: N/A

File Name: R7071

Sample Aliquot: 30 g

Final Volume: 1 ml

Result Units: UG/KG

Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
91-20-3	NAPHTHALENE	66.7	55.7	3.33		83	40 - 107%
91-57-6	2-METHYLNAPHTHALENE	66.7	56.9	3.33		85	47 - 107%
90-12-0	1-METHYLNAPHTHALENE	66.7	60	3.33		90	34 - 113%
208-96-8	ACENAPHTHYLENE	66.7	68.4	3.33		103	46 - 116%
83-32-9	ACENAPHTHENE	66.7	57.7	3.33		87	46 - 108%
86-73-7	FLUORENE	66.7	61.5	3.33		92	44 - 118%
85-01-8	PHENANTHRENE	66.7	58.5	3.33		88	44 - 113%
120-12-7	ANTHRACENE	66.7	67	3.33		100	45 - 123%
206-44-0	FLUORANTHENE	66.7	62.6	3.33		94	49 - 124%
129-00-0	PYRENE	66.7	64.1	3.33		96	50 - 109%
56-55-3	BENZO(A)ANTHRACENE	66.7	62.9	3.33		94	47 - 123%
218-01-9	CHRYSENE	66.7	59.6	3.33		89	49 - 112%
205-99-2	BENZO(B)FLUORANTHENE	66.7	59.6	3.33		89	55 - 108%
207-08-9	BENZO(K)FLUORANTHENE	66.7	59.4	3.33		89	50 - 113%
50-32-8	BENZO(A)PYRENE	66.7	61.1	3.33		92	45 - 122%
193-39-5	INDENO(1,2,3-CD)PYRENE	66.7	57.2	3.33		86	40 - 123%
53-70-3	DIBENZO(A,H)ANTHRACENE	66.7	60.3	3.33		90	31 - 135%
191-24-2	BENZO(G,H,I)PERYLENE	66.7	48.6	3.33		73	60 - 101%

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	65.2		66.7	98	41 - 106
4165-60-0	NITROBENZENE-D5	71.7		66.7	108	28 - 113
1718-51-0	TERPHENYL-D14	58.4		66.7	88	25 - 147

Data Package ID: VL1611039-1

GC/MS Semi-volatiles

Method SW8270SIMD

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1611039

Client Name: COGCC

ClientProject ID: Hanks Pooling Rem 9246

Field ID: Hanks Pooling

LabID: 1611039-2MSRR1

Sample Matrix: SOIL

% Moisture: 16.0

Date Collected: 01-Nov-16

Date Extracted: 09-Nov-16

Date Analyzed: 14-Nov-16

Prep Method: SW3540 Rev C

Prep Batch: EX161109-4

QCBatchID: EX161109-4-1

Run ID: SV161114-3

Cleanup: NONE

Basis: Dry Weight

Sample Aliquot: 30.01 g

Final Volume: 1 ml

Result Units: UG/KG

File Name: R7075

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
91-20-3	NAPHTHALENE	230	E	287	E	3.97	79.3	72	40 - 107%
91-57-6	2-METHYLNAPHTHALENE	510	E	673	*E	3.97	79.3	206	47 - 107%
90-12-0	1-METHYLNAPHTHALENE	700	E	854	*E	3.97	79.3	189	34 - 113%
208-96-8	ACENAPHTHYLENE	3.9	U	90.1		3.97	79.3	49	46 - 116%
83-32-9	ACENAPHTHENE	3.9	U	89		3.97	79.3	107	46 - 108%
86-73-7	FLUORENE	91		161		3.97	79.3	89	44 - 118%
85-01-8	PHENANTHRENE	210	E	278	E	3.97	79.3	82	44 - 113%
120-12-7	ANTHRACENE	3.9	U	132		3.97	79.3	107	45 - 123%
206-44-0	FLUORANTHENE	75		147		3.97	79.3	91	49 - 124%
129-00-0	PYRENE	80		145		3.97	79.3	82	50 - 109%
56-55-3	BENZO(A)ANTHRACENE	22		101		3.97	79.3	99	47 - 123%
218-01-9	CHRYSENE	17		96.5		3.97	79.3	100	49 - 112%
205-99-2	BENZO(B)FLUORANTHENE	10		73.1		3.97	79.3	79	55 - 108%
207-08-9	BENZO(K)FLUORANTHENE	5.1		62.7		3.97	79.3	73	50 - 113%
50-32-8	BENZO(A)PYRENE	6.4		74.9		3.97	79.3	86	45 - 122%
193-39-5	INDENO(1,2,3-CD)PYRENE	2.5	J	62.5		3.97	79.3	76	40 - 123%
53-70-3	DIBENZO(A,H)ANTHRACENE	3.9	U	66		3.97	79.3	81	31 - 135%
191-24-2	BENZO(G,H,I)PERYLENE	2.9	J	52.8		3.97	79.3	63	60 - 101%

Data Package ID: VL1611039-1

Date Printed: Wednesday, November 16, 2016

ALS -- Fort Collins

LIMS Version: 6.834

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GC/MS Semi-volatiles

Method SW8270SIMD

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1611039

Client Name: COGCC

ClientProject ID: Hanks Pooling Rem 9246

Field ID: Hanks Pooling

LabID: 1611039-2MSDRR1

Sample Matrix: SOIL

% Moisture: 16.0

Date Collected: 01-Nov-16

Date Extracted: 09-Nov-16

Date Analyzed: 14-Nov-16

Prep Method: SW3540 Rev C

Prep Batch: EX161109-4

QCBatchID: EX161109-4-1

Run ID: SV161114-3

Cleanup: NONE

Basis: Dry Weight

Sample Aliquot: 30.09 g

Final Volume: 1 ml

Result Units: UG/KG

File Name: R7076

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
91-20-3	NAPHTHALENE	251	*E	79.1	26	3.96	30	14
91-57-6	2-METHYLNAPHTHALENE	528	*E	79.1	24	3.96	30	24
90-12-0	1-METHYLNAPHTHALENE	725	*E	79.1	26	3.96	30	16
208-96-8	ACENAPHTHYLENE	87.5		79.1	46	3.96	30	3
83-32-9	ACENAPHTHENE	129	*+	79.1	158	3.96	30	37
86-73-7	FLUORENE	156		79.1	82	3.96	30	4
85-01-8	PHENANTHRENE	258	E	79.1	57	3.96	30	7
120-12-7	ANTHRACENE	128		79.1	101	3.96	30	4
206-44-0	FLUORANTHENE	142		79.1	85	3.96	30	4
129-00-0	PYRENE	144		79.1	82	3.96	30	1
56-55-3	BENZO(A)ANTHRACENE	102		79.1	101	3.96	30	1
218-01-9	CHRYSENE	90.9		79.1	93	3.96	30	6
205-99-2	BENZO(B)FLUORANTHENE	71.6		79.1	77	3.96	30	2
207-08-9	BENZO(K)FLUORANTHENE	66		79.1	77	3.96	30	5
50-32-8	BENZO(A)PYRENE	78.5		79.1	91	3.96	30	5
193-39-5	INDENO(1,2,3-CD)PYRENE	63.3		79.1	77	3.96	30	1
53-70-3	DIBENZO(A,H)ANTHRACENE	66		79.1	82	3.96	30	0
191-24-2	BENZO(G,H,I)PERYLENE	52.5		79.1	63	3.96	30	1

Data Package ID: VL1611039-1

Date Printed: Wednesday, November 16, 2016

ALS -- Fort Collins

Page 2 of 3

LIMS Version: 6.834

GC/MS Semi-volatiles

Method SW8270SIMD

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS -- Fort Collins

Work Order Number: 1611039

Client Name: COGCC

ClientProject ID: Hanks Pooling Rem 9246

Surrogate Recovery MS/MSD

CASNO	Target Analyte	Spike Added	MS % Rec.	MS Flag	MSD % Rec.	MSD Flag	Control Limits
321-60-8	2-FLUOROBIPHENYL	79.3	101		100		41 - 106
4165-60-0	NITROBENZENE-D5	79.3	211	*	200	*	28 - 113
1718-51-0	TERPHENYL-D14	79.3	81		81		25 - 147

Data Package ID: VL1611039-1

Date Printed: Wednesday, November 16, 2016

ALS -- Fort Collins

LIMS Version: 6.834

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DFTPP

Data File : E:\HPCHEM\1\DATA\2016\111416\R7068.D

Vial: 1

Acq On : 14 Nov 2016 14:08

Operator: twk SOP 5

Sample : DFTPP TUNE

Inst : HPSV-3

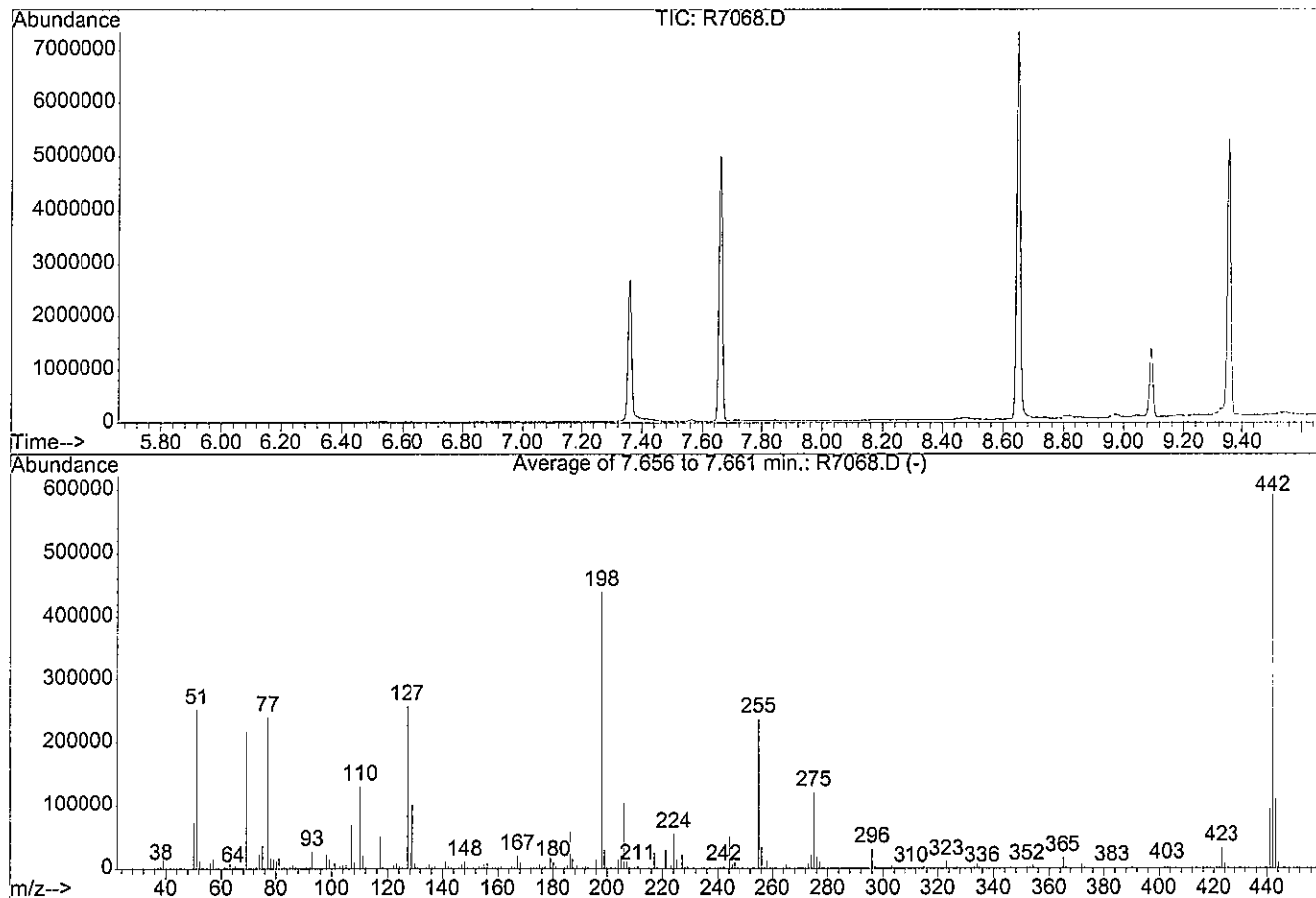
Misc :

Multiplr: 1.00

MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\DFTPPS.M (RTE Integrator)

Title : DFTPP



AutoFind: Scans 1538, 1539, 1540; Background Corrected with Scan 1530

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	57.4	251947	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	49.6	217925	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	58.6	257216	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	439147	PASS
199	198	5	9	7.0	30707	PASS
275	198	10	60	27.6	121216	PASS
365	198	1	100	3.8	16518	PASS
441	443	0.01	100	84.4	93685	PASS
442	198	50	300	134.8	591765	PASS
443	442	15	24	18.8	110995	PASS

Data File : E:\HPCHEM\1\DATA\2016\111416\R7069.D

Vial: 2

Acq On : 14 Nov 2016 14:24

Operator: twk SOP 506 Re

Sample : SV161114-3CCV

Inst : HPSV-3

Misc :

Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Time: Nov 14 15:00 2016

Quant Results File: 080516S.RES

Quant Method : C:\HPCHEM\1\METHODS\080516S.M (RTE Integrator)

Title : GC-MS Semivolatiles SOP no. 506

Last Update : Mon Nov 14 15:00:39 2016

Response via : Initial Calibration

DataAcq Meth : 080516S

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.60	136	205841	2000.00	ng/mL	0.00
6) Acenaphthene-d10	7.23	164	85483	2000.00	ng/mL	0.00
11) Phenanthrene-d10	8.53	188	146693	2000.00	ng/mL	0.00
15) Chrysene-d12	10.84	240	137686	2000.00	ng/mL	0.00
20) Perylene-d12	12.49	264	118811	2000.00	ng/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	4.87	82	14876	583.19	ng/mL	0.00
Spiked Amount 2000.000	Range	60 - 140	Recovery	=	29.16%#	
7) 2-Fluorobiphenyl	6.59	172	37563	502.73	ng/mL	0.00
Spiked Amount 2000.000	Range	60 - 140	Recovery	=	25.14%#	
17) p-Terphenyl-d14	9.85	244	31222	438.01	ng/mL	0.00
Spiked Amount 2000.000	Range	60 - 140	Recovery	=	21.90%#	

Target Compounds

						Qvalue
3) Naphthalene	5.62	128	59738	504.67	ng/mL	100
4) 2-Methylnaphthalene	6.26	142	38638	531.83	ng/mL	100
5) 1-Methylnaphthalene	6.36	142	33991	525.58	ng/mL	100
8) Acenaphthylene	7.10	152	49212	615.79	ng/mL	100
9) Acenaphthene	7.25	154	32616	526.51	ng/mL	100
10) Fluorene	7.71	166	36475	543.93	ng/mL	100
12) Phenanthrene	8.55	178	51918	509.47	ng/mL	100
13) Anthracene	8.59	178	47753	595.75	ng/mL	100
14) Fluoranthene	9.58	202	49070	539.24	ng/mL	100
16) Pyrene	9.79	202	50356	561.31	ng/mL	100
18) Benzo[a]anthracene	10.82	228	42121	571.04	ng/mL	100
19) Chrysene	10.86	228	40419	478.81	ng/mL	100
21) Benzo[b]fluoranthene	11.98	252	43917	522.51	ng/mL	100
22) Benzo[k]fluoranthene	12.01	252	36680	449.14	ng/mL	100
23) Benzo[a]pyrene	12.42	252	35119	533.45	ng/mL	100
24) Indeno(1,2,3-c,d)pyrene	14.17	276	31957	464.68	ng/mL	100
25) Dibenzo[a,h]anthracene	14.16	278	27844	495.00	ng/mL	100
26) Benzo[g,h,i]perylene	14.69	276	25942	401.89	ng/mL	100

----- *m 11/15/16* -----
 (#) = qualifier out of range (m) = manual integration

R7069.D 080516S.M

Mon Nov 14 15:03:00 2016

Page 1

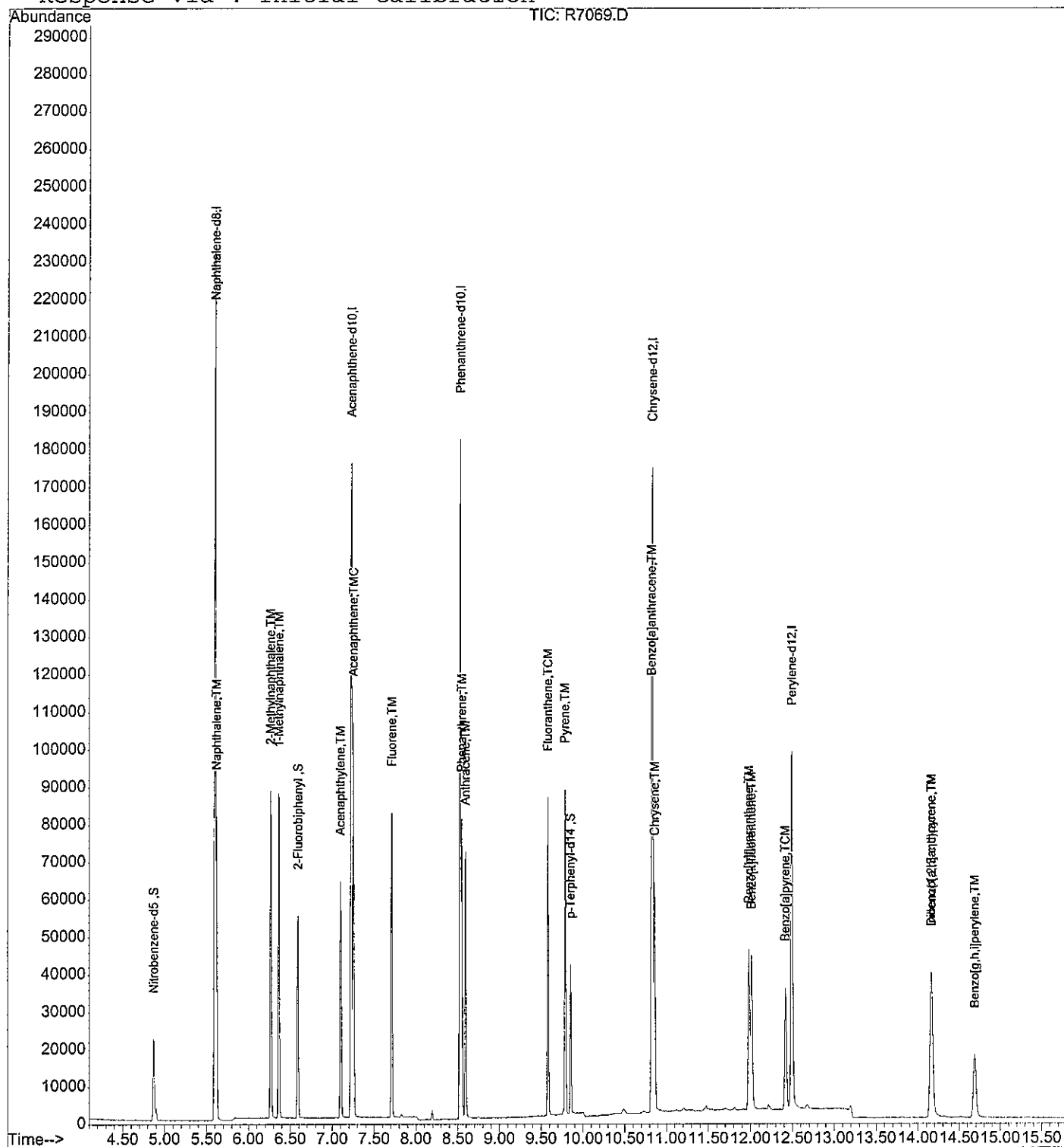
Quantitation Report

Data File : E:\HPCHEM\1\DATA\2016\111416\R7069.D
 Acq On : 14 Nov 2016 14:24
 Sample : SV161114-3CCV
 Misc :
 MS Integration Params: RTEINT.P
 Quant Time: Nov 14 15:00 2016

Vial: 2
 Operator: twk SOP 506
 Inst : HPSV-3
 Multiplr: 1.00

Quant Results File: 080516S.RES

Method : C:\HPCHEM\1\METHODS\080516S.M (RTE Integrator)
 Title : GC-MS Semivolatiles SOP no. 506
 Last Update : Mon Nov 14 15:00:39 2016
 Response via : Initial Calibration



Data File : E:\HPCHEM\1\DATA\2016\111416\R7070.D

Vial: 3

Acq On : 14 Nov 2016 14:48

Operator: twk SOP 506 Re

Sample : EX161109-4MB

Inst : HPSV-3

Misc : EX161109-4 SOIL

Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Time: Nov 14 15:05 2016

Quant Results File: 080516S.RES

Quant Method : C:\HPCHEM\1\METHODS\080516S.M (RTE Integrator)

Title : GC-MS Semivolatiles SOP no. 506

Last Update : Mon Nov 14 15:00:39 2016

Response via : Initial Calibration

DataAcq Meth : 080516S

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.60	136	149620	2000.00	ng/mL	0.00
6) Acenaphthene-d10	7.23	164	61099	2000.00	ng/mL	0.00
11) Phenanthrene-d10	8.53	188	105192	2000.00	ng/mL	0.00
15) Chrysene-d12	10.84	240	92840	2000.00	ng/mL	0.00
20) Perylene-d12	12.50	264	78234	2000.00	ng/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	4.87	82	37513	2023.26	ng/mL	0.00
Spiked Amount 2000.000	Range	39 - 111	Recovery	=	101.16%	
7) 2-Fluorobiphenyl	6.59	172	96209	1801.52	ng/mL	0.00
Spiked Amount 2000.000	Range	40 - 118	Recovery	=	90.08%	
17) p-Terphenyl-d14	9.86	244	82424	1714.88	ng/mL	0.00
Spiked Amount 2000.000	Range	36 - 136	Recovery	=	85.74%	

Target Compounds

Qvalue

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

R7070.D 080516S.M Mon Nov 14 15:05:53 2016

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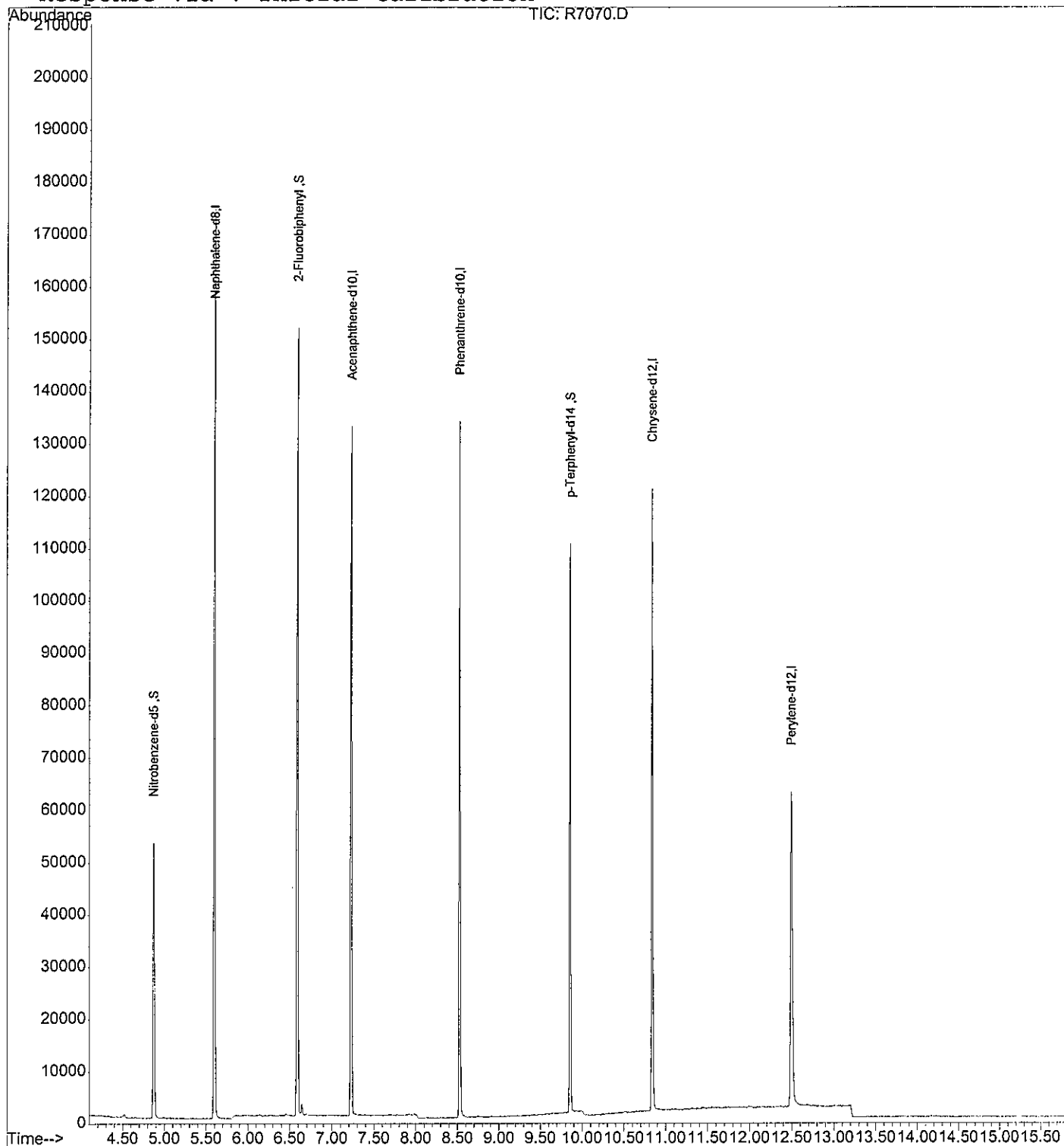
Quantitation Report

Data File : E:\HPCHEM\1\DATA\2016\111416\R7070.D
 Acq On : 14 Nov 2016 14:48
 Sample : EX161109-4MB
 Misc : EX161109-4 SOIL
 MS Integration Params: RTEINT.P
 Quant Time: Nov 14 15:05 2016

Vial: 3
 Operator: twk SOP 506
 Inst : HPSV-3
 Multiplr: 1.00

Quant Results File: 080516S.RES

Method : C:\HPCHEM\1\METHODS\080516S.M (RTE Integrator)
 Title : GC-MS Semivolatiles SOP no. 506
 Last Update : Mon Nov 14 15:00:39 2016
 Response via : Initial Calibration



Data File : E:\HPCHEM\1\DATA\2016\111416\R7071.D

Vial: 4

Acq On : 14 Nov 2016 15:09

Operator: twk SOP 506 Re

Sample : EX161109-4LCS

Inst : HPSV-3

Misc : EX161109-4 SOIL

Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Results File: 080516S.RES

Quant Time: Nov 15 12:31 2016

Quant Method : C:\HPCHEM\1\METHODS\080516S.M (RTE Integrator)

Title : GC-MS Semivolatiles SOP no. 506

Last Update : Tue Nov 15 10:42:14 2016

Response via : Initial Calibration

DataAcq Meth : 080516S

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.59	136	146319	2000.00	ng/mL	0.00
6) Acenaphthene-d10	7.22	164	59541	2000.00	ng/mL	0.00
11) Phenanthrene-d10	8.52	188	102356	2000.00	ng/mL	0.00
15) Chrysene-d12	10.83	240	93850	2000.00	ng/mL	0.00
20) Perylene-d12	12.49	264	75863	2000.00	ng/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	4.87	82	38998	2150.80	ng/mL	0.00
Spiked Amount 2000.000	Range	39 - 111	Recovery	=	107.54%	
7) 2-Fluorobiphenyl	6.58	172	101727	1954.68	ng/mL	0.00
Spiked Amount 2000.000	Range	40 - 118	Recovery	=	97.73%	
17) p-Terphenyl-d14	9.85	244	85131	1752.14	ng/mL	0.00
Spiked Amount 2000.000	Range	36 - 136	Recovery	=	87.61%	

Target Compounds

						Qvalue
3) Naphthalene	5.62	128	140498	1669.77	ng/mL	100
4) 2-Methylnaphthalene	6.26	142	88126	1706.43	ng/mL	100
5) 1-Methylnaphthalene	6.36	142	82753	1800.06	ng/mL	99
8) Acenaphthylene	7.10	152	114252	2052.51	ng/mL	100
9) Acenaphthene	7.25	154	74727	1731.89	ng/mL	98
10) Fluorene	7.70	166	86185	1845.19	ng/mL	99
12) Phenanthrene	8.54	178	124725	1754.09	ng/mL	99
13) Anthracene	8.59	178	112387	2009.44	ng/mL	99
14) Fluoranthene	9.58	202	119246	1878.03	ng/mL	99
16) Pyrene	9.79	202	117575	1922.75	ng/mL	100
18) Benzo[a]anthracene	10.82	228	94906	1887.64	ng/mL	99
19) Chrysene	10.86	228	102903	1788.39	ng/mL	99
21) Benzo[b]fluoranthene	11.98	252	95906	1787.04	ng/mL	97
22) Benzo[k]fluoranthene	12.01	252	92954	1782.59	ng/mL	96
23) Benzo[a]pyrene	12.42	252	77050	1832.96	ng/mL	98
24) Indeno(1,2,3-c,d)pyrene	14.16	276	75336	1715.62	ng/mL	99
25) Dibenzo[a,h]anthracene	14.15	278	64940	1808.07	ng/mL	100
26) Benzo[g,h,i]perylene	14.68	276	60152	1459.41	ng/mL	98

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

R7071.D 080516S.M Tue Nov 15 12:31:10 2016

Page 1

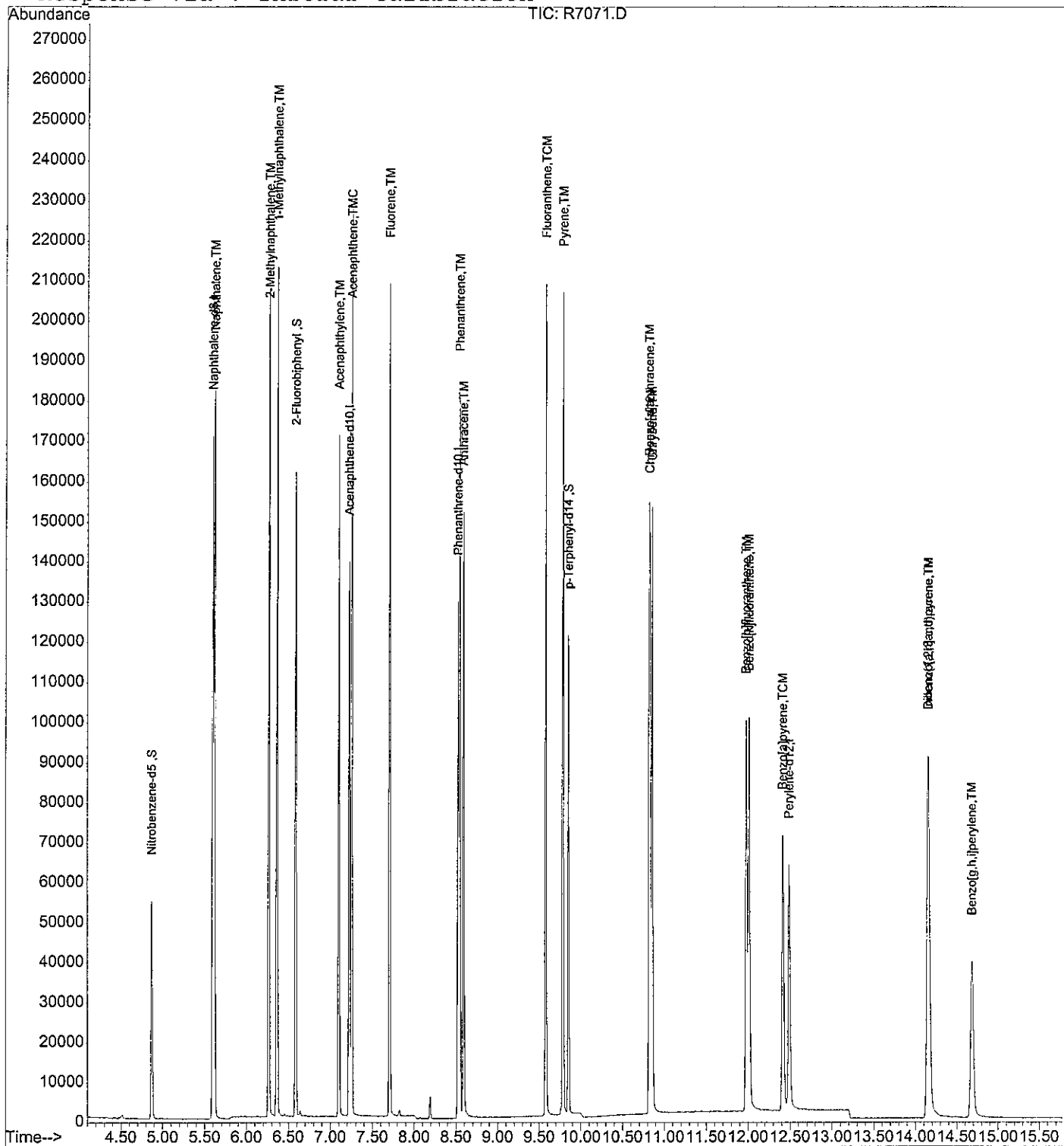
Quantitation Report

Data File : E:\HPCHEM\1\DATA\2016\111416\R7071.D
 Acq On : 14 Nov 2016 15:09
 Sample : EX161109-4LCS
 Misc : EX161109-4 SOIL
 MS Integration Params: RTEINT.P
 Quant Time: Nov 15 12:31 2016

Vial: 4
 Operator: twk SOP 506
 Inst : HPSV-3
 Multiplr: 1.00

Quant Results File: 080516S.RES

Method : C:\HPCHEM\1\METHODS\080516S.M (RTE Integrator)
 Title : GC-MS Semivolatiles SOP no. 506
 Last Update : Tue Nov 15 10:42:14 2016
 Response via : Initial Calibration



Data File : E:\HPCHEM\1\DATA\2016\111416\R7073.D

Vial: 6

Acq On : 14 Nov 2016 15:51

Operator: twk SOP 506 Re

Sample : 1611039-2 10X

Inst : HPSV-3

Misc : EX161109-4 SOIL

Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Time: Nov 15 12:37 2016

Quant Results File: 080516S.RES

Quant Method : C:\HPCHEM\1\METHODS\080516S.M (RTE Integrator)

Title : GC-MS Semivolatiles SOP no. 506

Last Update : Tue Nov 15 10:42:14 2016

Response via : Initial Calibration

DataAcq Meth : 080516S

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.60	136	147773	2000.00	ng/mL	0.00
6) Acenaphthene-d10	7.22	164	62208	2000.00	ng/mL	0.00
11) Phenanthrene-d10	8.52	188	104238	2000.00	ng/mL	0.00
15) Chrysene-d12	10.83	240	98608	2000.00	ng/mL	0.00
20) Perylene-d12	12.49	264	83361	2000.00	ng/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	4.87	82	9546	521.30	ng/mL	0.00
Spiked Amount 2000.000	Range	39 - 111	Recovery	=	26.06%#	
7) 2-Fluorobiphenyl	6.58	172	10285	189.15	ng/mL	0.00
Spiked Amount 2000.000	Range	40 - 118	Recovery	=	9.46%#	
17) p-Terphenyl-d14	9.85	244	6718	131.60	ng/mL	0.00
Spiked Amount 2000.000	Range	36 - 136	Recovery	=	6.58%#	

Target Compounds

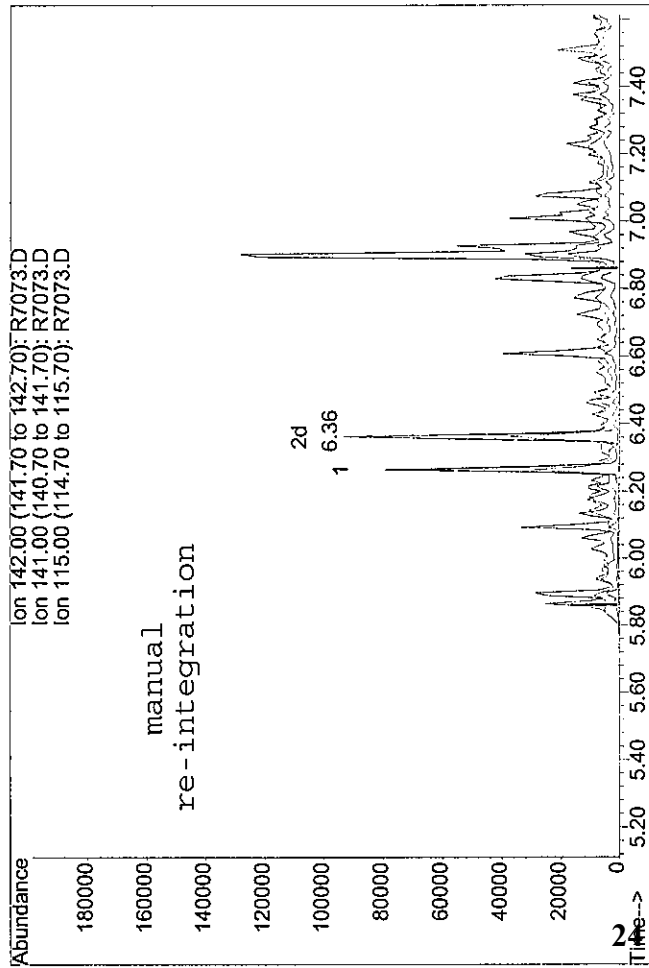
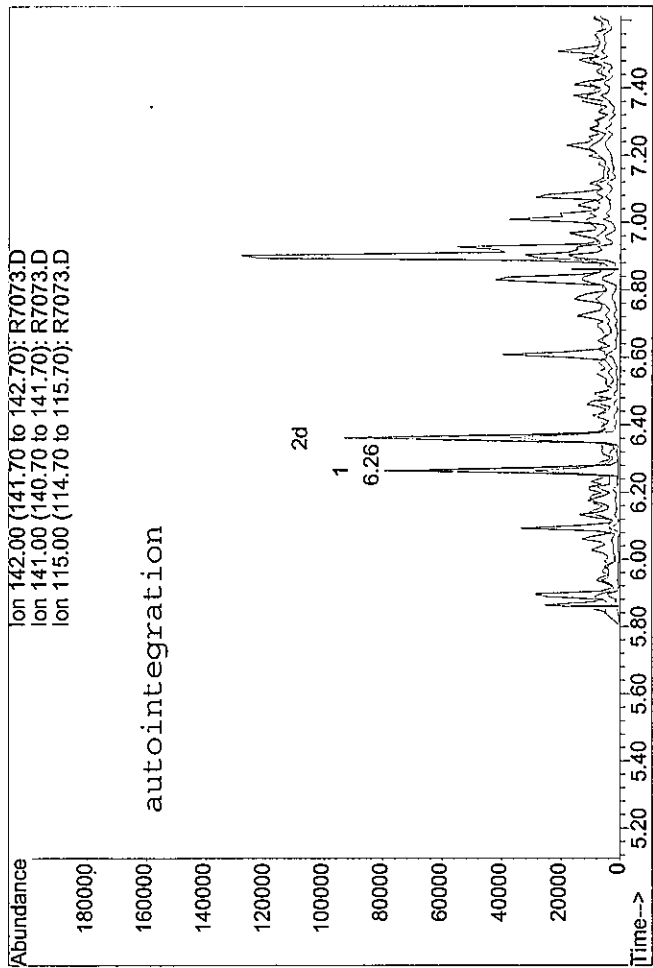
						Qvalue
3) Naphthalene	5.62	128	49717	585.06	ng/mL#	41
4) 2-Methylnaphthalene	6.26	142	67253	1289.44	ng/mL	95
5) 1-Methylnaphthalene	6.36	142	83952m	1808.17	ng/mL	✓
8) Acenaphthylene	7.09	152	2605	44.79	ng/mL#	No 1
9) Acenaphthene	7.25	154	5725	127.00	ng/mL#	No 75
10) Fluorene	7.70	166	11384m	233.28	ng/mL	✓
12) Phenanthrene	8.54	178	33168	458.04	ng/mL	95
13) Anthracene	8.60	178	5932	104.15	ng/mL#	No 1
14) Fluoranthene	9.58	202	10417	161.10	ng/mL#	87
16) Pyrene	9.79	202	12371	192.55	ng/mL#	91
18) Benzo[a]anthracene	10.82	228	2819	53.36	ng/mL#	78
19) Chrysene	10.86	228	2862m	47.34	ng/mL	✓

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

R7073.D 080516S.M

Tue Nov 15 12:37:32 2016

Page 1



TIC: R7073.D

(5) 1-Methylnaphthalene (TM)

6.26min	1448.51ng/mL	
response	67253	
Ion	Exp%	Act%
142.00	100	100
141.00	89.70	89.03
115.00	34.20	39.09
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

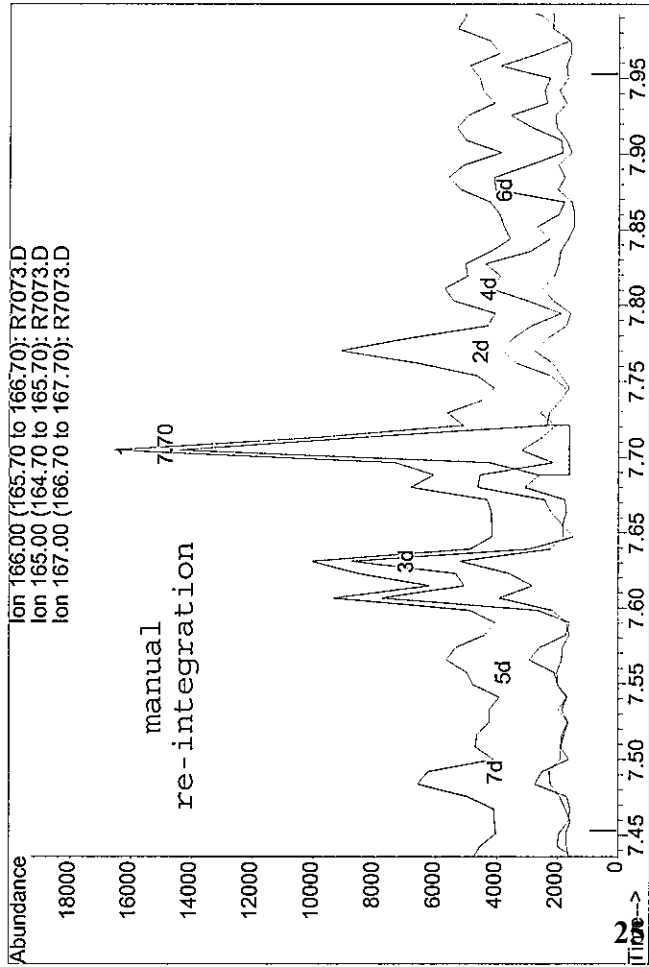
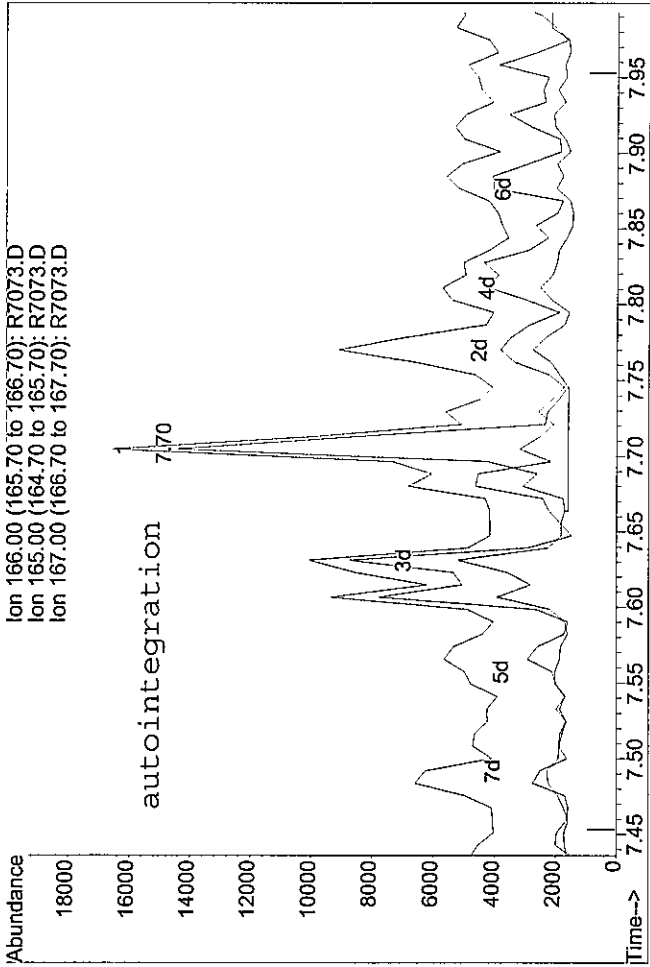
☐ other ()

initials: R date: 11/15/16

TIC: R7073.D

(5) 1-Methylnaphthalene (TM)
6.36min 1808.17ng/mL m
response 83952

Ion	Exp%	Act%
142.00	100	100
141.00	89.70	71.32
115.00	34.20	31.31
0.00	0.00	0.00



TIC: R7073.D

(10) Fluorene (TM)	7.70min	271.23ng/mL
response	13236	
Ion	Exp%	Act%
166.00	100	100
165.00	93.30	109.47
167.00	12.90	41.93#
0.00	0.00	0.00

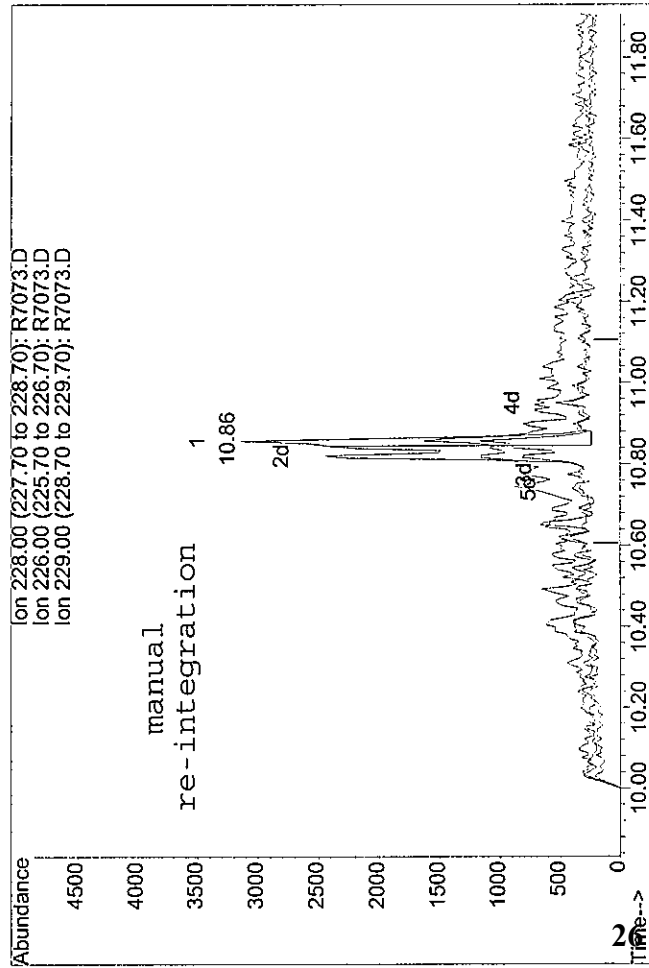
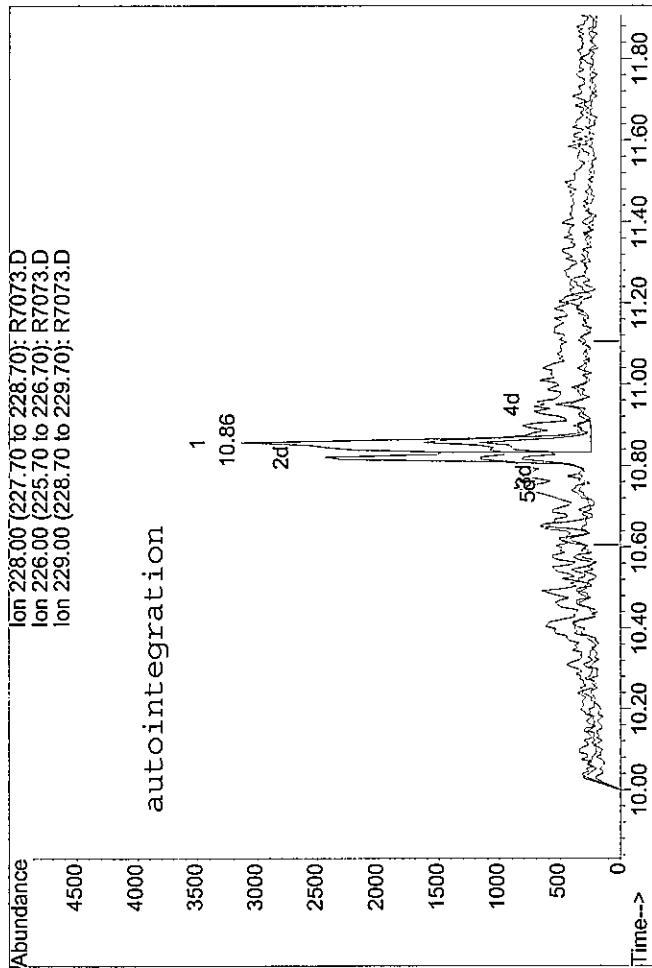
Reason for manual re-integration?

- ☐ missed peak assignment
- ☐ peak saturation (detector shutdown)
- ☒ over-integrated peak's area
- ☐ under-integrated peak's area
- ☐ other ()

initials: ku date: 11/15/16

TIC: R7073.D

(10) Fluorene (TM)	7.70min	233.28ng/mL m
response	11384	
Ion	Exp%	Act%
166.00	100	100
165.00	93.30	127.28#
167.00	12.90	48.75#
0.00	0.00	0.00



TIC: R7073.D

(19) Chrysene (TM)		
10.86min	73.72ng/mL	
response	4457	
Ion	Exp%	Act%
228.00	100	100
226.00	28.00	32.35
229.00	18.90	36.71#
0.00	0.00	0.00

Reason for manual re-integration?

☐ missed peak assignment

☐ peak saturation (detector shutdown)

☒ over-integrated peak's area

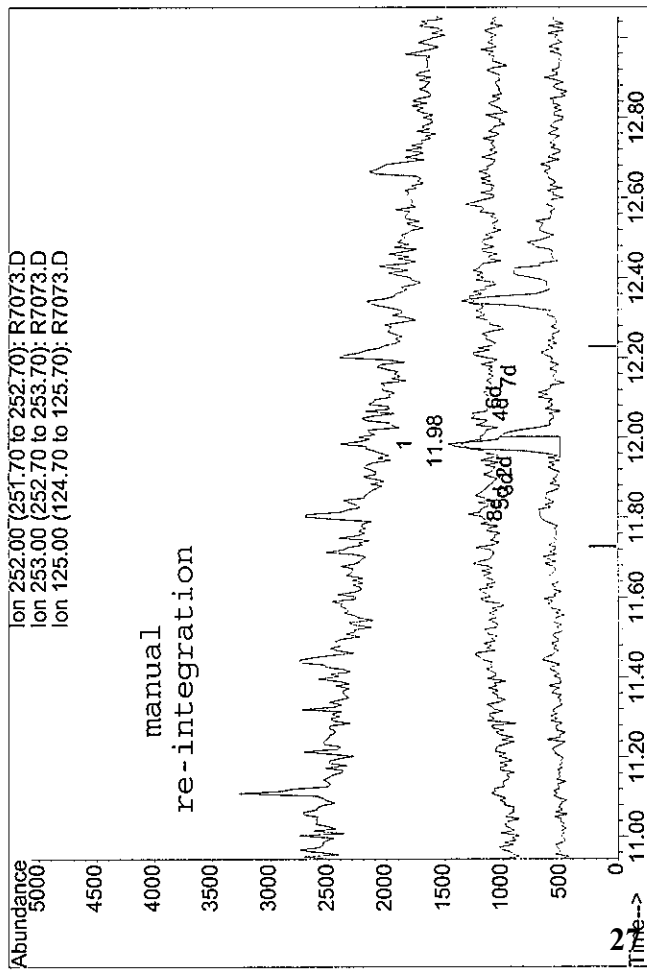
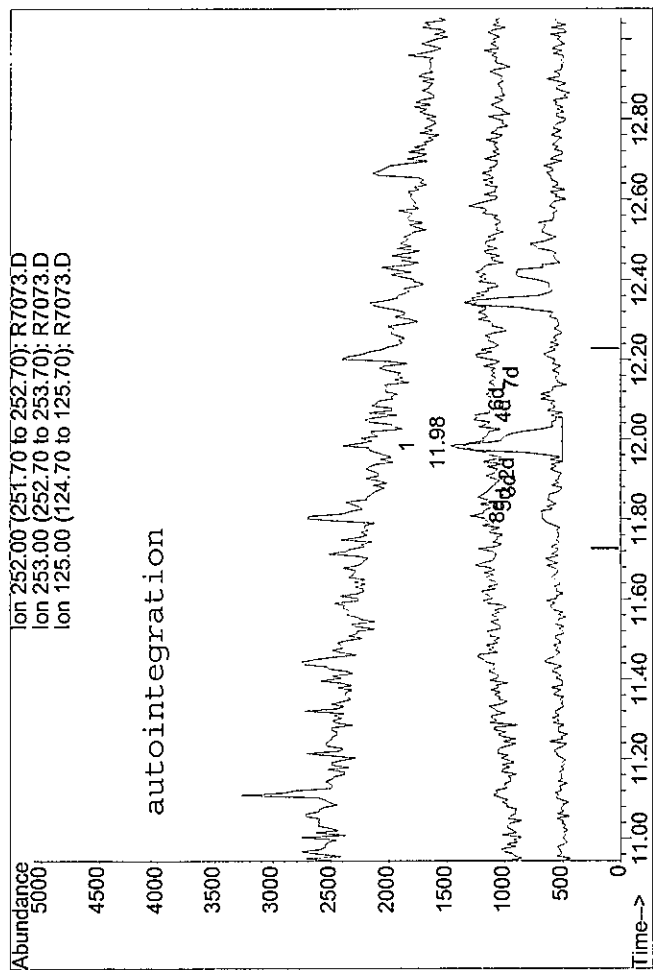
☐ under-integrated peak's area

☐ other ()

initials: ka date: 11/15/16

TIC: R7073.D

(19) Chrysene (TM)		
10.86min	47.34ng/mL m	
response	2862	
Ion	Exp%	Act%
228.00	100	100
226.00	28.00	50.38#
229.00	18.90	57.16#
0.00	0.00	0.00



TIC: R7073.D

(21) Benzo[b]fluoranthene (TM)
11.98min 40.68ng/mL
response 2399
lon Exp% Act%
252.00 100 100
253.00 22.10 30.64#
125.00 16.50 46.85#
0.00 0.00 0.00

Reason for manual re-integration?

☐ missed peak assignment

☐ peak saturation (detector shutdown)

☒ over-integrated peak's area

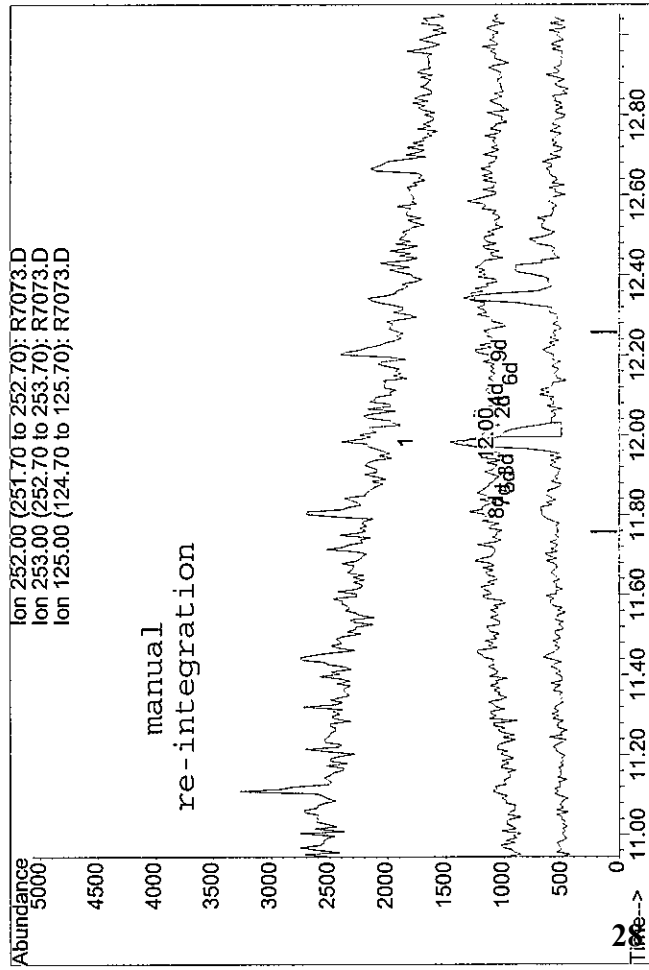
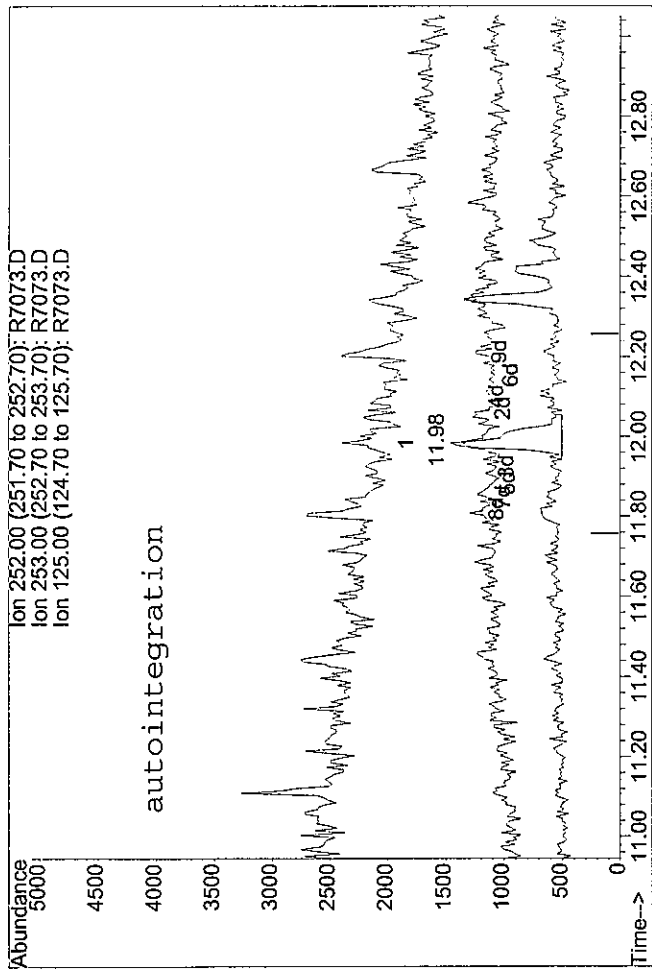
☐ under-integrated peak's area

☐ other ()

initials: TL date: 11/15/16

TIC: R7073.D

(21) Benzo[b]fluoranthene (TM)
11.98min 28.96ng/mL m
response 1708
lon Exp% Act%
252.00 100 100
253.00 22.10 43.03#
125.00 16.50 65.81#
0.00 0.00 0.00



TIC: R7073.D

(22) Benzo[k]fluoranthene (TM)	
11.98min	41.87ng/mL
response	2399
Ion	Exp% Act%
252.00	100 100
253.00	22.10 30.64#
125.00	18.30 46.85#
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: TH date: 11/15/16

TIC: R7073.D

(22) Benzo[k]fluoranthene (TM)	
12.00min	12.65ng/mL m
response	725
Ion	Exp% Act%
252.00	100 100
253.00	22.10 101.38#
125.00	18.30 155.03#
0.00	0.00 0.00

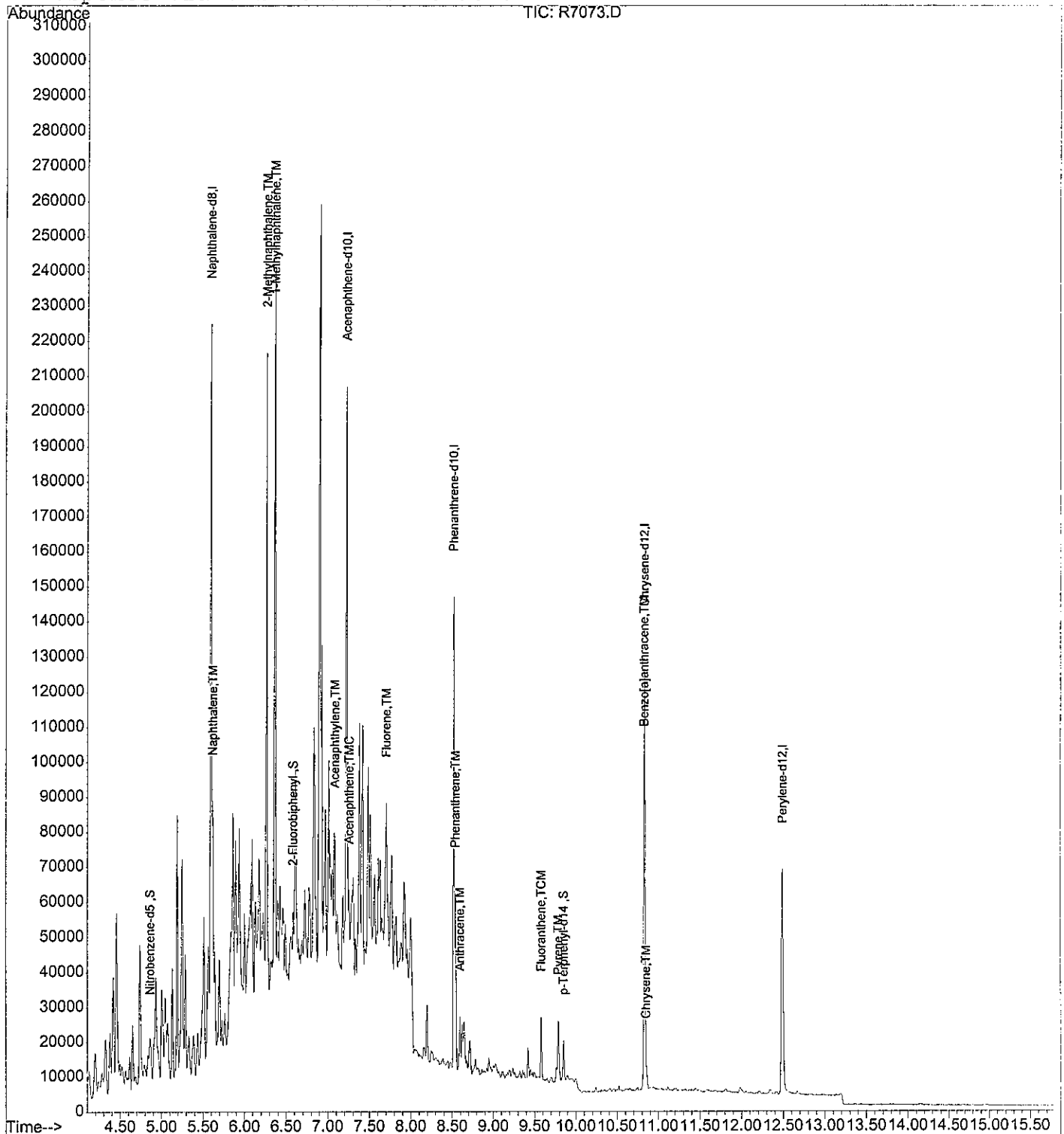
Quantitation Report

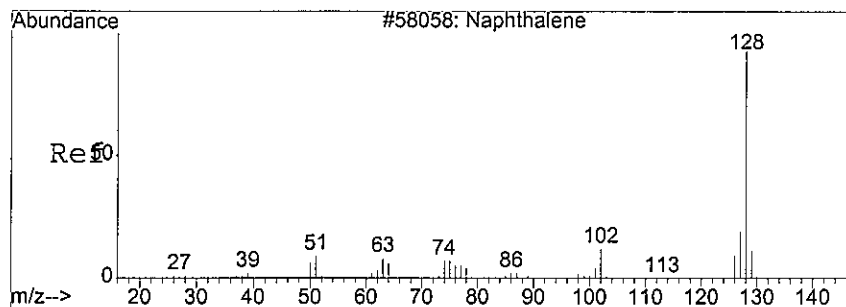
Data File : E:\HPCHEM\1\DATA\2016\111416\R7073.D
 Acq On : 14 Nov 2016 15:51
 Sample : 1611039-2 10X
 Misc : EX161109-4 SOIL
 MS Integration Params: RTEINT.P
 Quant Time: Nov 15 12:37 2016

Vial: 6
 Operator: twk SOP 506
 Inst : HPSV-3
 Multiplr: 1.00

Quant Results File: 080516S.RES

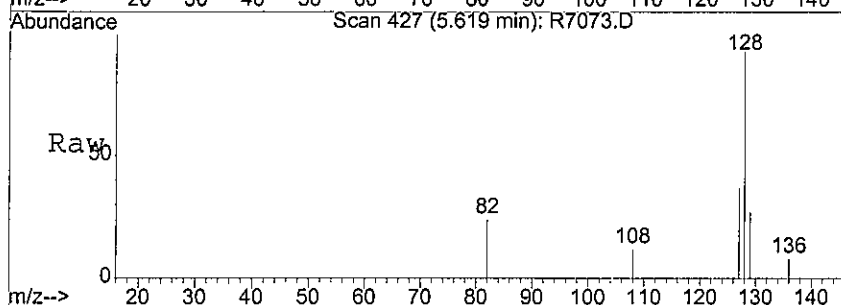
Method : C:\HPCHEM\1\METHODS\080516S.M (RTE Integrator)
 Title : GC-MS Semivolatiles SOP no. 506
 Last Update : Tue Nov 15 10:42:14 2016
 Response via : Initial Calibration



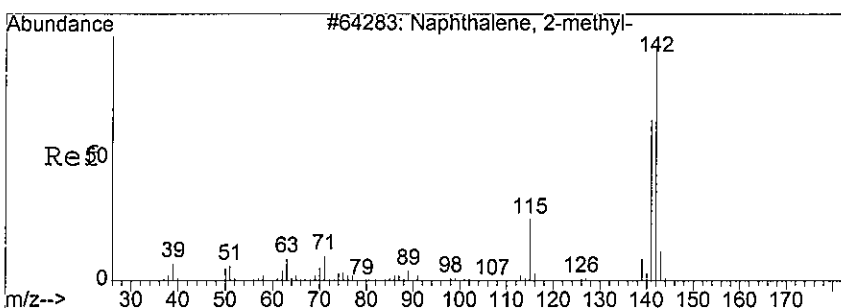
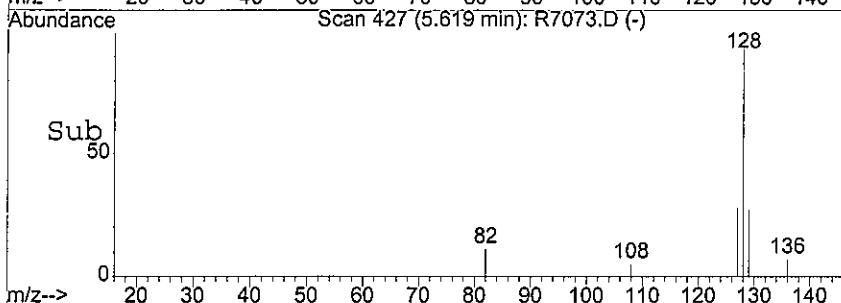
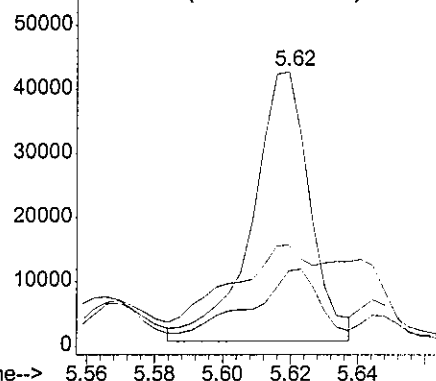


#3
Naphthalene
Concen: 585.06 ng/mL
RT: 5.62 min Scan# 427
Delta R.T. 0.00 min
Lab File: R7073.D
Acq: 14 Nov 2016 15:51

Tgt Ion:128 Resp: 49717
Ion Ratio Lower Upper
128 100
129 34.5 8.2 13.6#
127 35.7 9.8 16.4#

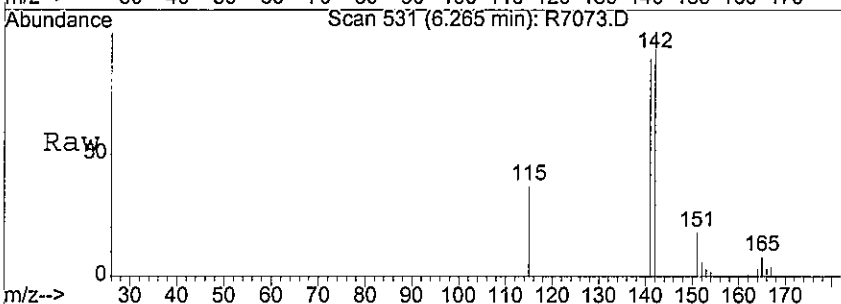


Abundance Ion 128.00 (127.70 to 128.70): R7073.D
Ion 129.00 (128.70 to 129.70): R7073.D
Ion 127.00 (126.70 to 127.70): R7073.D

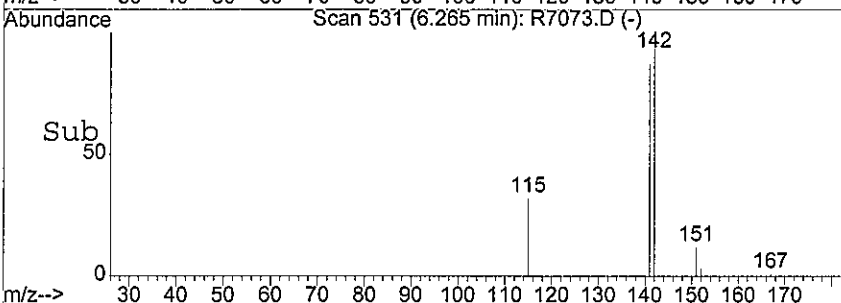
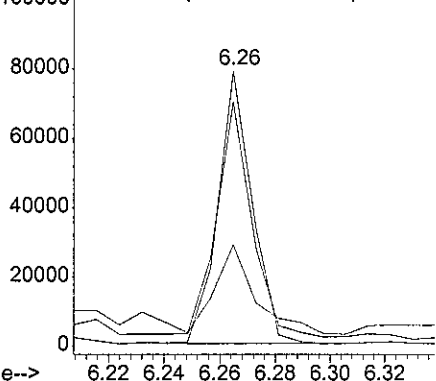


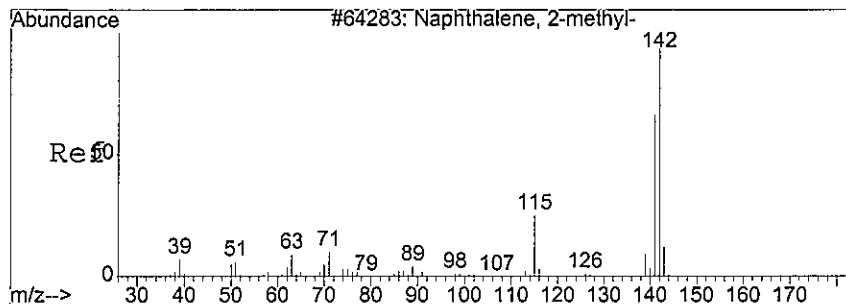
#4
2-Methylnaphthalene
Concen: 1289.44 ng/mL
RT: 6.26 min Scan# 531
Delta R.T. 0.00 min
Lab File: R7073.D
Acq: 14 Nov 2016 15:51

Tgt Ion:142 Resp: 67253
Ion Ratio Lower Upper
142 100
141 89.3 56.4 117.0
115 39.1 21.3 44.1



Abundance Ion 142.00 (141.70 to 142.70): R7073.D
Ion 141.00 (140.70 to 141.70): R7073.D
Ion 115.00 (114.70 to 115.70): R7073.D





#5

1-Methylnaphthalene

Concen: 1808.17 ng/mL m

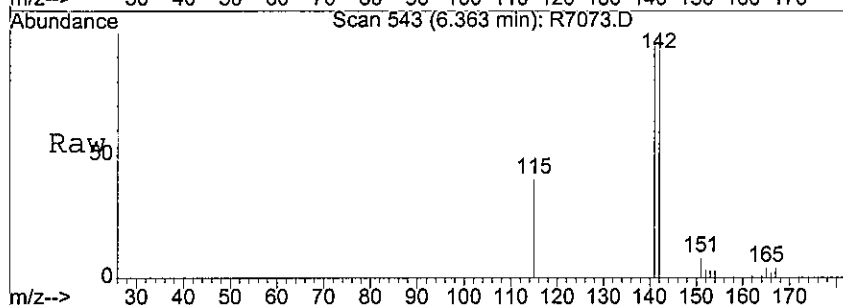
RT: 6.36 min Scan# 543

Delta R.T. 0.00 min

Lab File: R7073.D

Acq: 14 Nov 2016 15:51

Tgt Ion:	142	Resp:	83952
Ion	Ratio	Lower	Upper
142	100		
141	71.3	62.8	116.6
115	31.3	23.9	44.5

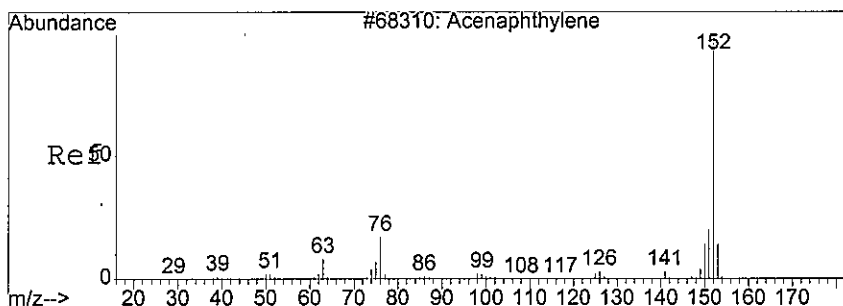
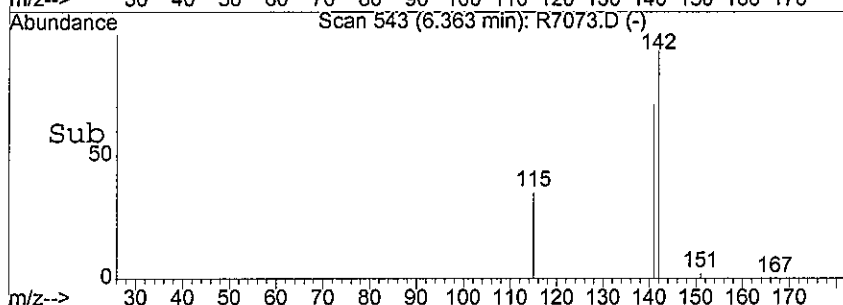
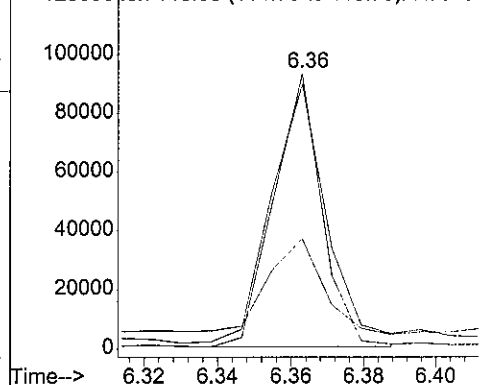


Abundance

Ion 142.00 (141.70 to 142.70): R7073.D

Ion 141.00 (140.70 to 141.70): R7073.D

Ion 115.00 (114.70 to 115.70): R7073.D



#8

Acenaphthylene

Concen: 44.79 ng/mL

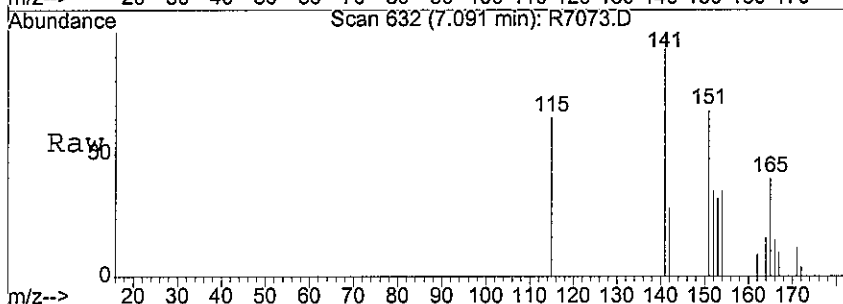
RT: 7.09 min Scan# 632

Delta R.T. -0.01 min

Lab File: R7073.D

Acq: 14 Nov 2016 15:51

Tgt Ion:	152	Resp:	2605
Ion	Ratio	Lower	Upper
152	100		
151	193.0	15.4	25.6#
153	103.8	9.9	16.5#

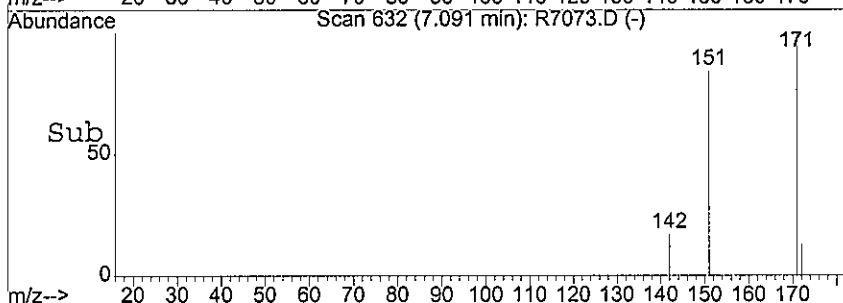
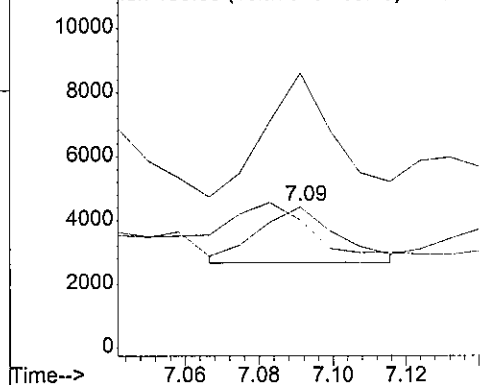


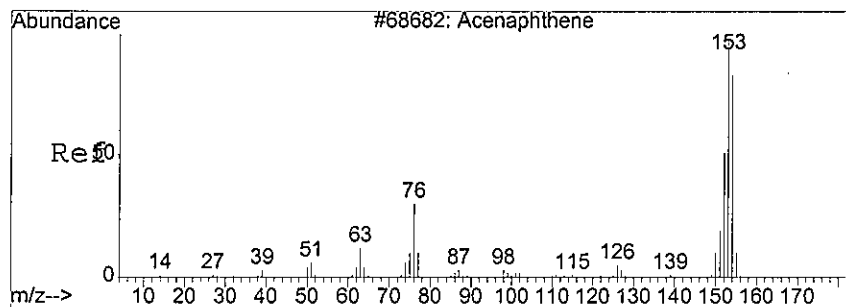
Abundance

Ion 152.00 (151.70 to 152.70): R7073.D

Ion 151.00 (150.70 to 151.70): R7073.D

Ion 153.00 (152.70 to 153.70): R7073.D





#9

Acenaphthene

Concen: 127.00 ng/mL

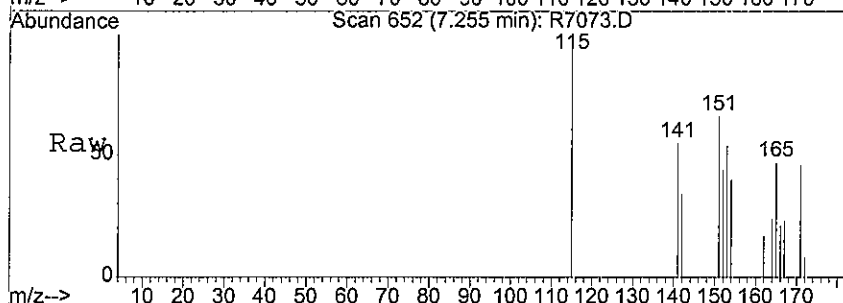
RT: 7.25 min Scan# 652

Delta R.T. 0.00 min

Lab File: R7073.D

Acq: 14 Nov 2016 15:51

Tgt Ion: 154	Resp: 5725
Ion Ratio	Lower Upper
154	100
153	116.6 78.1 130.1
152	84.9 36.7 61.1#

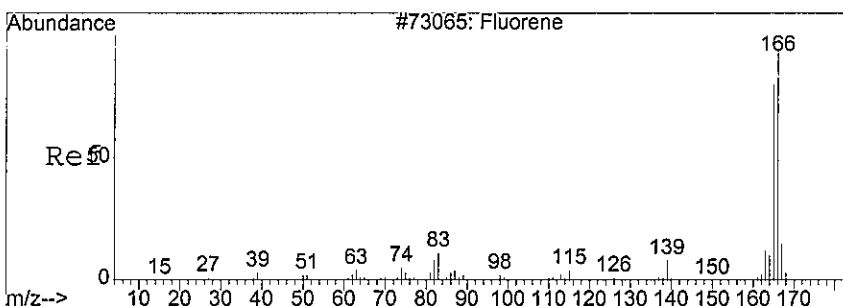
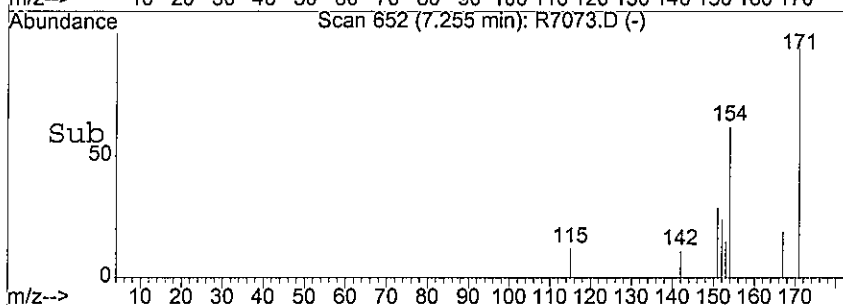
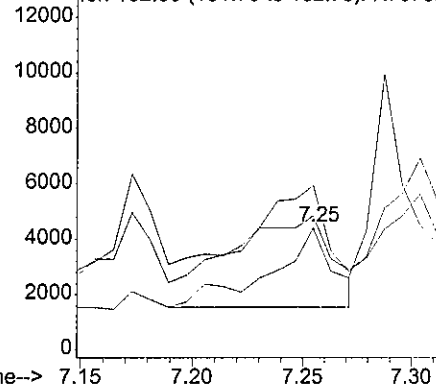


Abundance

Ion 154.00 (153.70 to 154.70): R7073.D

Ion 153.00 (152.70 to 153.70): R7073.D

Ion 152.00 (151.70 to 152.70): R7073.D



#10

Fluorene

Concen: 233.28 ng/mL m

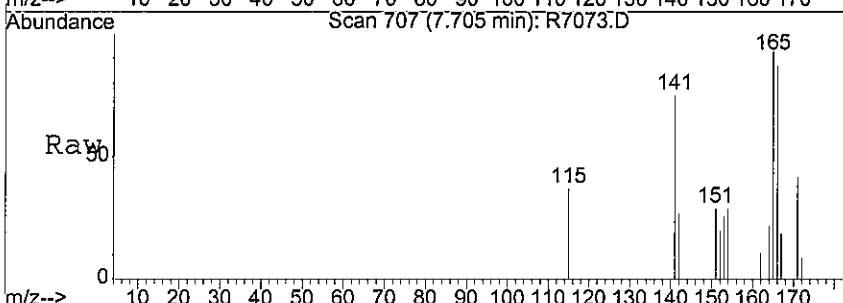
RT: 7.70 min Scan# 707

Delta R.T. 0.00 min

Lab File: R7073.D

Acq: 14 Nov 2016 15:51

Tgt Ion: 166	Resp: 11384
Ion Ratio	Lower Upper
166	100
165	127.3 70.0 116.6#
167	48.8 9.7 16.1#

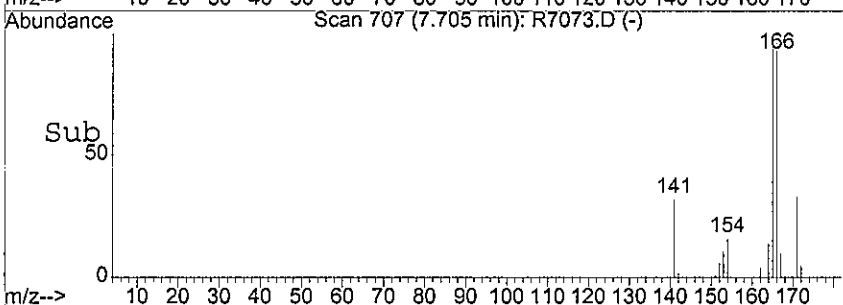
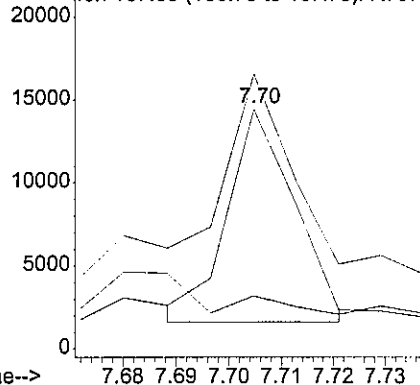


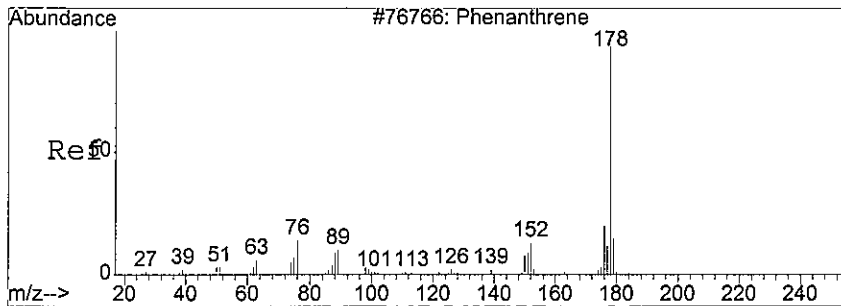
Abundance

Ion 166.00 (165.70 to 166.70): R7073.D

Ion 165.00 (164.70 to 165.70): R7073.D

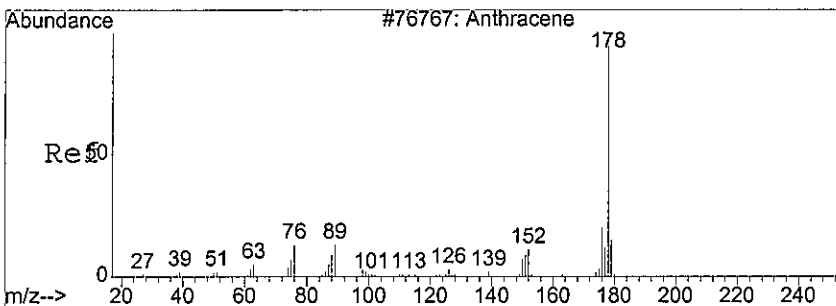
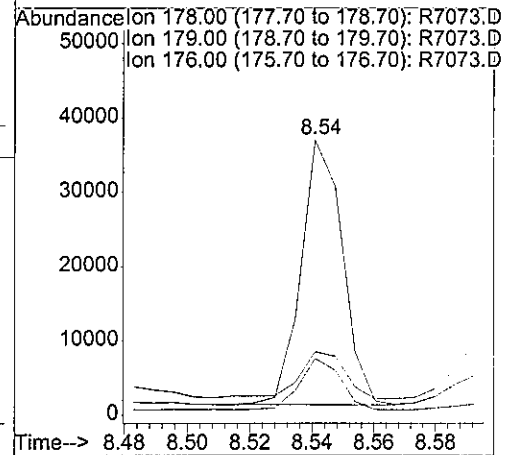
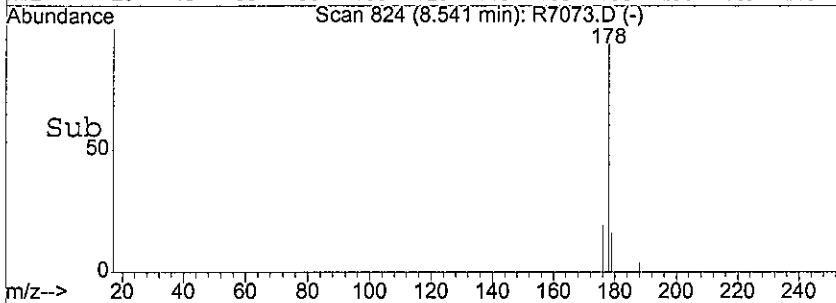
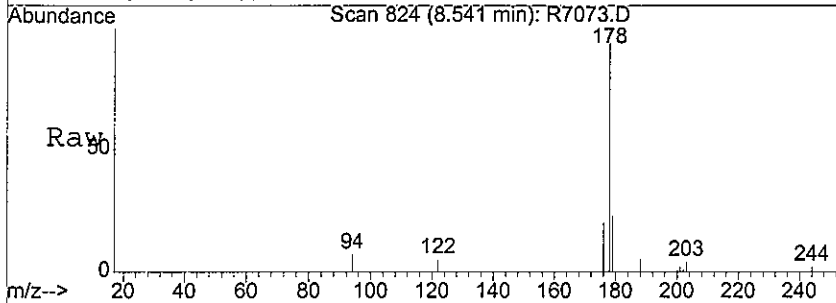
Ion 167.00 (166.70 to 167.70): R7073.D





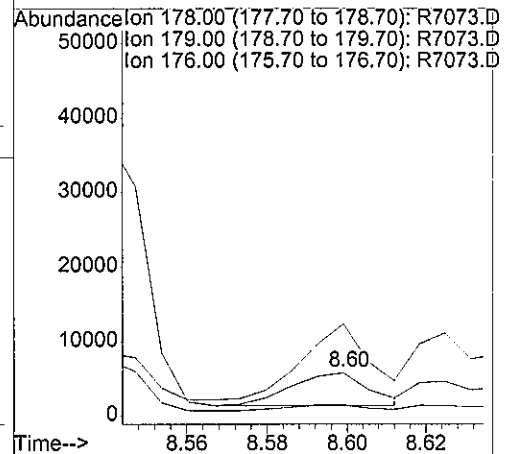
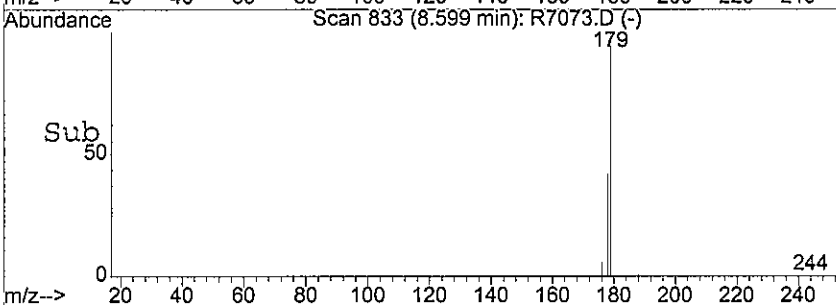
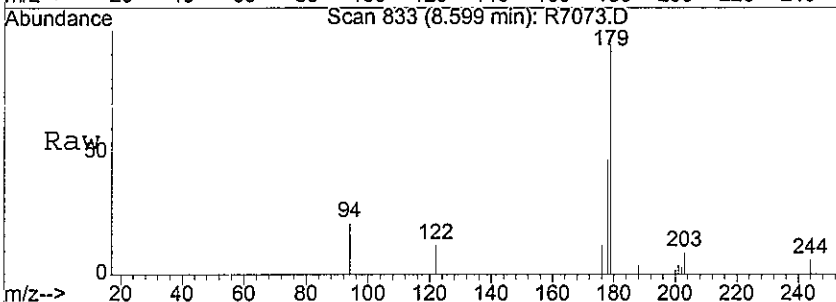
#12
 Phenanthrene
 Concen: 458.04 ng/mL
 RT: 8.54 min Scan# 824
 Delta R.T. -0.01 min
 Lab File: R7073.D
 Acq: 14 Nov 2016 15:51

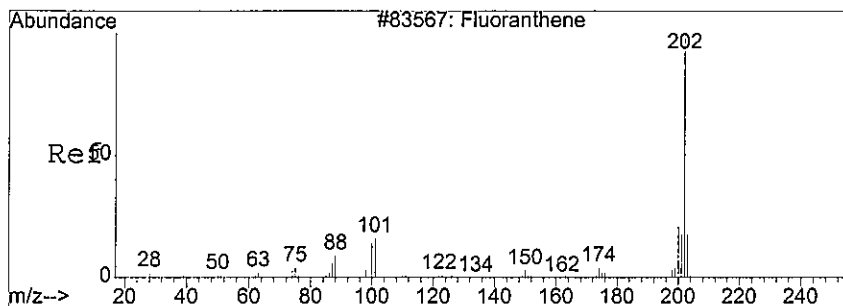
Tgt Ion:178 Resp: 33168
 Ion Ratio Lower Upper
 178 100
 179 19.7 11.9 19.8
 176 19.2 13.9 23.1



#13
 Anthracene
 Concen: 104.15 ng/mL
 RT: 8.60 min Scan# 833
 Delta R.T. 0.01 min
 Lab File: R7073.D
 Acq: 14 Nov 2016 15:51

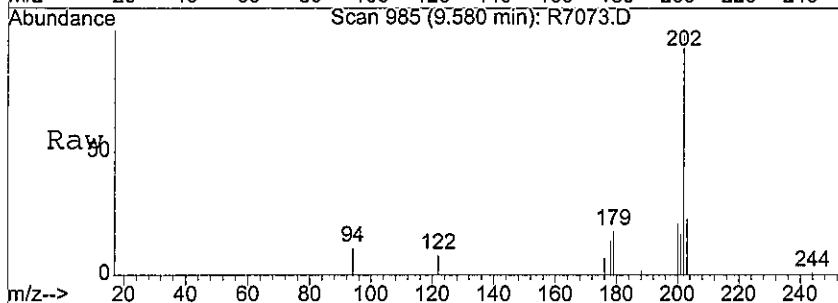
Tgt Ion:178 Resp: 5932
 Ion Ratio Lower Upper
 178 100
 179 199.3 11.4 19.0#
 176 18.0 13.4 22.2



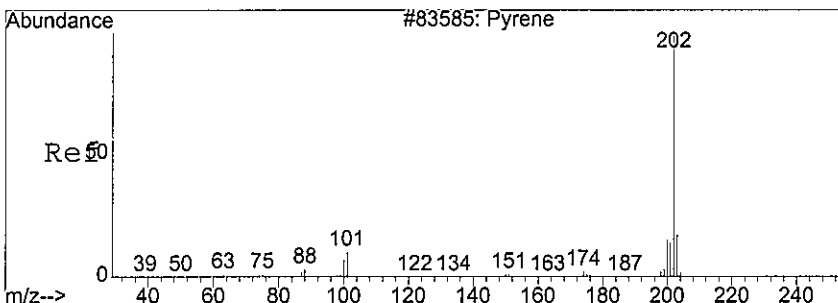
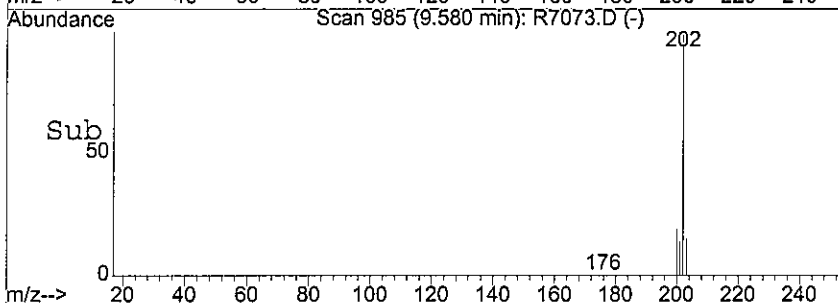
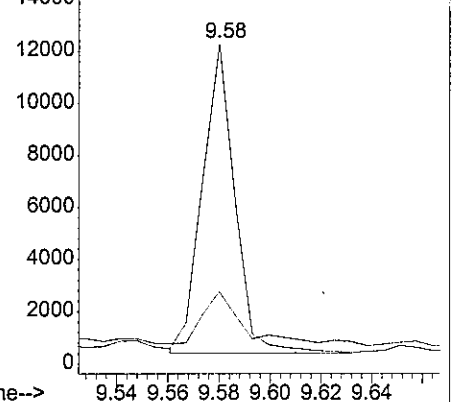


#14
 Fluoranthene
 Concen: 161.10 ng/mL ✓
 RT: 9.58 min Scan# 985
 Delta R.T. -0.00 min
 Lab File: R7073.D
 Acq: 14 Nov 2016 15:51

Tgt Ion:202 Resp: 10417
 Ion Ratio Lower Upper
 202 100
 203 23.4 13.2 22.0#

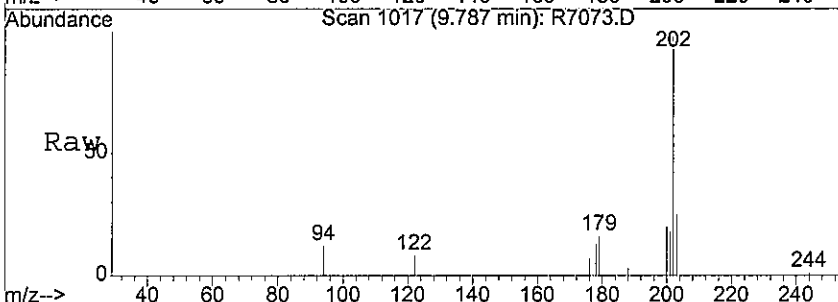


Abundance Ion 202.00 (201.70 to 202.70): R7073.D
 Ion 203.00 (202.70 to 203.70): R7073.D

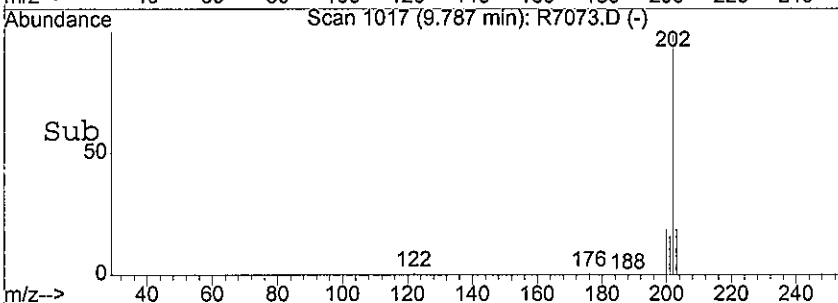
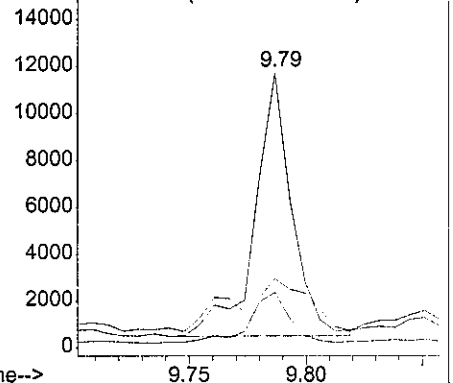


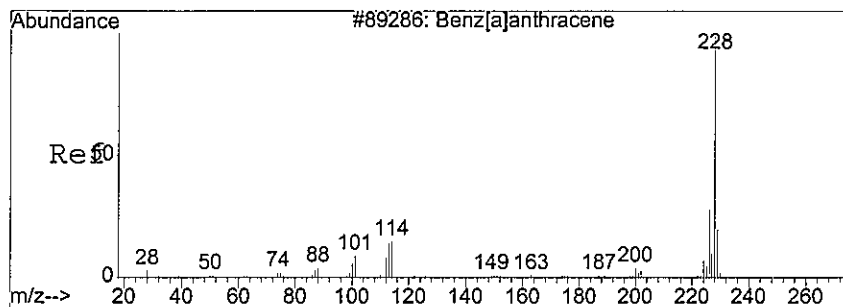
#16
 Pyrene ✓
 Concen: 192.55 ng/mL
 RT: 9.79 min Scan# 1017
 Delta R.T. -0.00 min
 Lab File: R7073.D
 Acq: 14 Nov 2016 15:51

Tgt Ion:202 Resp: 12371
 Ion Ratio Lower Upper
 202 100
 200 21.0 15.4 25.6
 203 25.4 13.4 22.4#



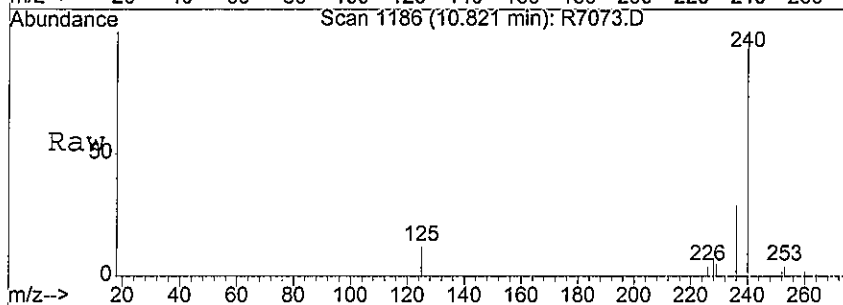
Abundance Ion 202.00 (201.70 to 202.70): R7073.D
 Ion 200.00 (199.70 to 200.70): R7073.D
 Ion 203.00 (202.70 to 203.70): R7073.D



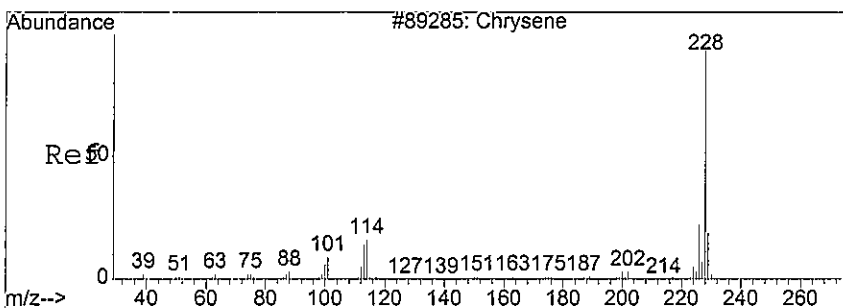
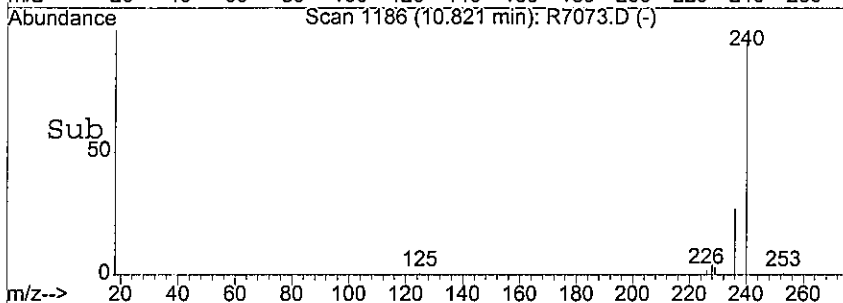
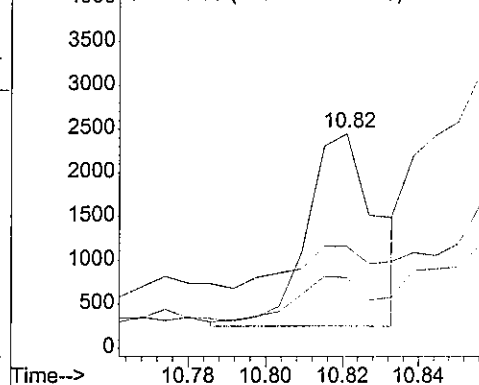


#18
Benzo[a]anthracene
Concen: 53.36 ng/mL
RT: 10.82 min Scan# 1186
Delta R.T. -0.00 min
Lab File: R7073.D
Acq: 14 Nov 2016 15:51

Tgt Ion: 228 Resp: 2819
Ion Ratio Lower Upper
228 100
229 40.2 14.9 24.9#
226 23.5 19.4 32.3

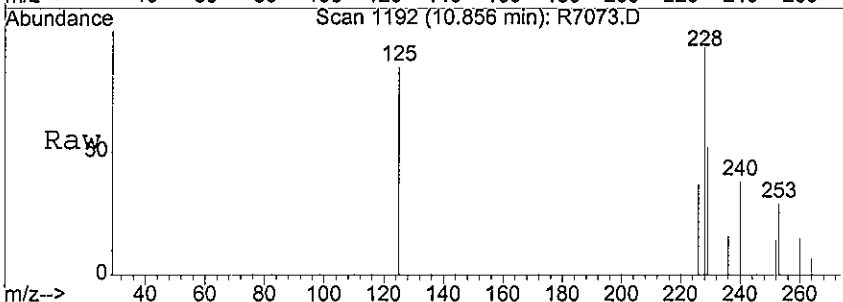


Abundance Ion 228.00 (227.70 to 228.70): R7073.D
Ion 229.00 (228.70 to 229.70): R7073.D
Ion 226.00 (225.70 to 226.70): R7073.D

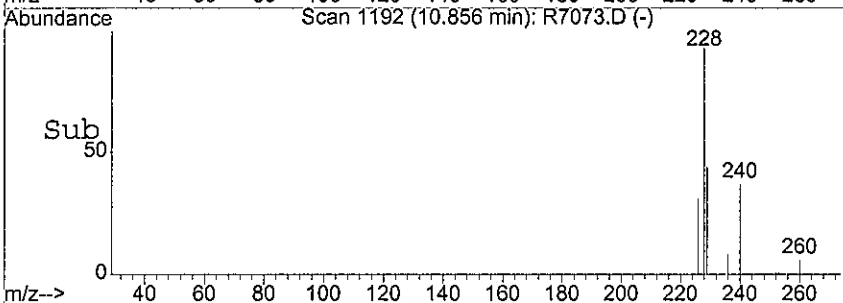
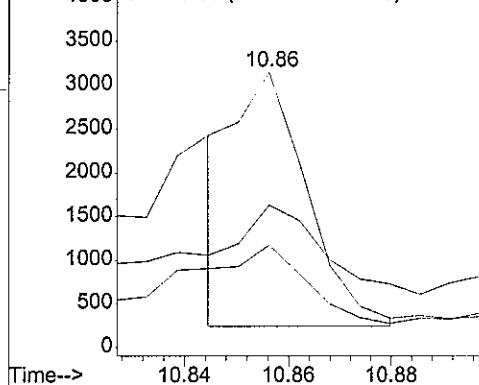


#19
Chrysene
Concen: 47.34 ng/mL m
RT: 10.86 min Scan# 1192
Delta R.T. -0.00 min
Lab File: R7073.D
Acq: 14 Nov 2016 15:51

Tgt Ion: 228 Resp: 2862
Ion Ratio Lower Upper
228 100
226 50.4 21.0 35.0#
229 57.2 14.2 23.6#



Abundance Ion 228.00 (227.70 to 228.70): R7073.D
Ion 226.00 (225.70 to 226.70): R7073.D
Ion 229.00 (228.70 to 229.70): R7073.D



Data File : E:\HPCHEM\1\DATA\2016\111416\R7074.D

Vial: 7

Acq On : 14 Nov 2016 16:12

Operator: twk SOP 506 Re

Sample : 1611039-2

Inst : HPSV-3

Misc : EX161109-4 SOIL

Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Results File: 080516S.RES

Quant Time: Nov 15 12:41 2016

Quant Method : C:\HPCHEM\1\METHODS\080516S.M (RTE Integrator)

Title : GC-MS Semivolatiles SOP no. 506

Last Update : Tue Nov 15 10:42:14 2016

Response via : Initial Calibration

DataAcq Meth : 080516S

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.60	136	175055m	2000.00	ng/mL	0.00
6) Acenaphthene-d10	7.22	164	71911m	2000.00	ng/mL	0.00
11) Phenanthrene-d10	8.53	188	109174	2000.00	ng/mL	0.00
15) Chrysene-d12	10.83	240	103883	2000.00	ng/mL	0.00
20) Perylene-d12	12.49	264	95718	2000.00	ng/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	4.87	82	119447	5506.30	ng/mL	0.00
Spiked Amount 2000.000	Range	39 - 111	Recovery	=	275.32%#	
7) 2-Fluorobiphenyl	6.58	172	123346	1962.39	ng/mL	0.00
Spiked Amount 2000.000	Range	40 - 118	Recovery	=	98.12%	
17) p-Terphenyl-d14	9.85	244	83947	1560.90	ng/mL	0.00
Spiked Amount 2000.000	Range	36 - 136	Recovery	=	78.05%	

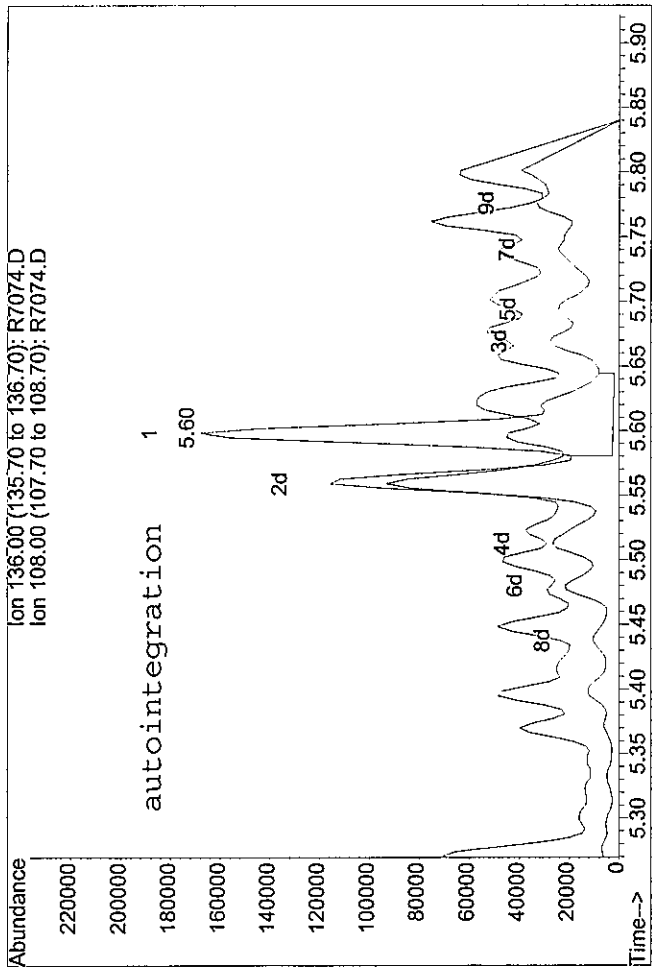
Target Compounds

						Qvalue
3) Naphthalene	5.62	128	588024	5841.29	ng/mL#	39
4) 2-Methylnaphthalene	6.27	142	798192	12918.70	ng/mL	93
5) 1-Methylnaphthalene	6.36	142	981545m	17845.96	ng/mL	E
8) Acenaphthylene	7.01	152	87123	1295.91	ng/mL#	No 1
9) Acenaphthene	7.17	154	5892	113.06	ng/mL#	No 1
10) Fluorene	7.71	166	129648m	2298.24	ng/mL	E
12) Phenanthrene	8.55	178	408874	5391.16	ng/mL	E 95
13) Anthracene	8.60	178	71843	1204.31	ng/mL#	No 1
14) Fluoranthene	9.59	202	128261	1893.86	ng/mL	93
16) Pyrene	9.79	202	136586m	2017.92	ng/mL	E
18) Benzo[a]anthracene	10.82	228	31024	557.46	ng/mL#	68
19) Chrysene	10.86	228	27340m	429.26	ng/mL	E
21) Benzo[b]fluoranthene	11.98	252	18022m	266.15	ng/mL	E
22) Benzo[k]fluoranthene	12.00	252	8495m	129.12	ng/mL	E
23) Benzo[a]pyrene	12.41	252	8564	161.47	ng/mL#	E 53
24) Indeno(1,2,3-c,d)pyrene	14.16	276	3453	62.32	ng/mL#	E 64
25) Dibenzo[a,h]anthracene	14.15	278	1697	37.45	ng/mL#	No 69
26) Benzo[g,h,i]perylene	14.69	276	3877	74.55	ng/mL#	E 69

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

R7074.D 080516S.M Tue Nov 15 12:41:56 2016

Page 1



TIC: R7074.D

(1) Naphthalene-d8 (l)	
5.60min	2000.00ng/mL
response	209579
Ion	Exp% Act%
136.00	100 100
108.00	9.60 9.78
0.00	0.00 0.00
0.00	0.00 0.00

Reason for manual re-integration?

☐ missed peak assignment

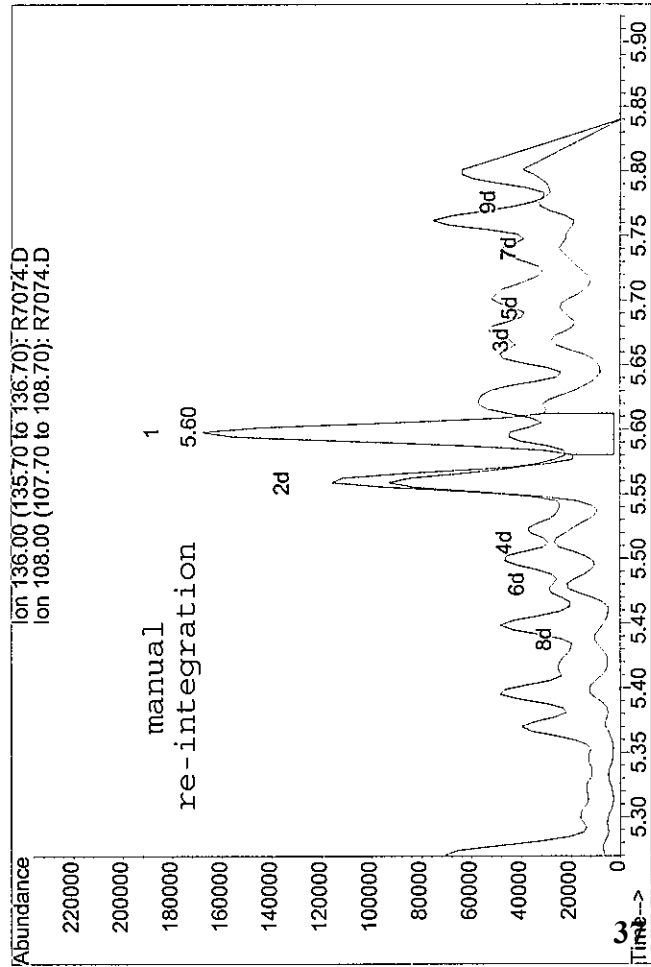
☐ peak saturation (detector shutdown)

☒ over-integrated peak's area

☐ under-integrated peak's area

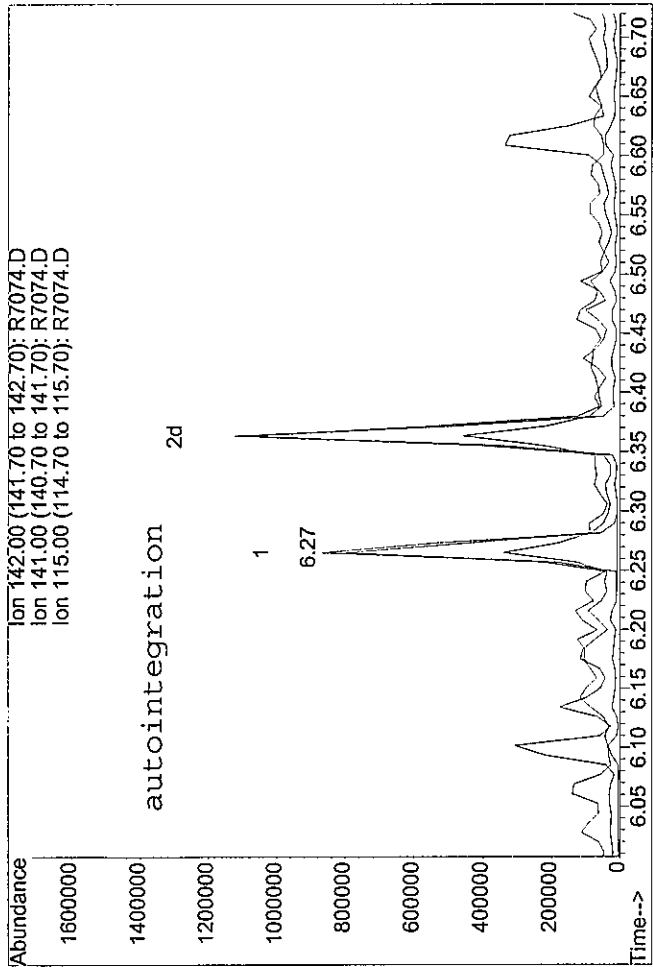
☐ other ()

initials: *me* date: 11/15/16



TIC: R7074.D

(1) Naphthalene-d8 (l)	
5.60min	2000.00ng/mL m
response	175055
Ion	Exp% Act%
136.00	100 100
108.00	9.60 11.71#
0.00	0.00 0.00
0.00	0.00 0.00



TIC: R7074.D

(5) 1-Methylnaphthalene (TM)				
6.27min	14512.33ng/mL			
response	798192			
Ion	Exp%	Act%		
142.00	100	100		
141.00	89.70	91.21		
115.00	34.20	39.91		
0.00	0.00	0.00		

Reason for manual re-integration?

☒ missed peak assignment

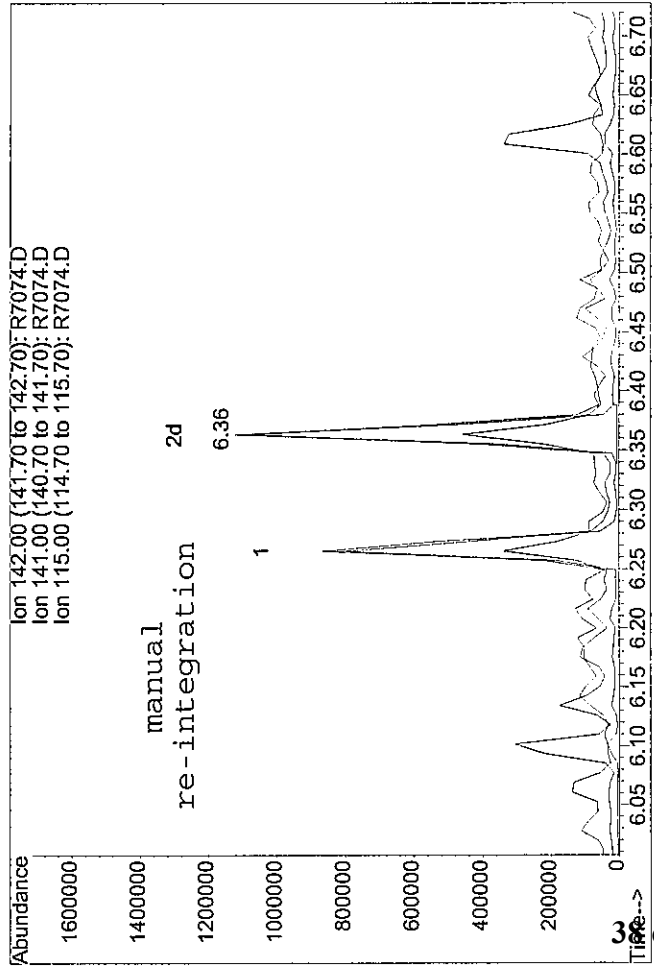
☐ peak saturation (detector shutdown)

☐ over-integrated peak's area

☐ under-integrated peak's area

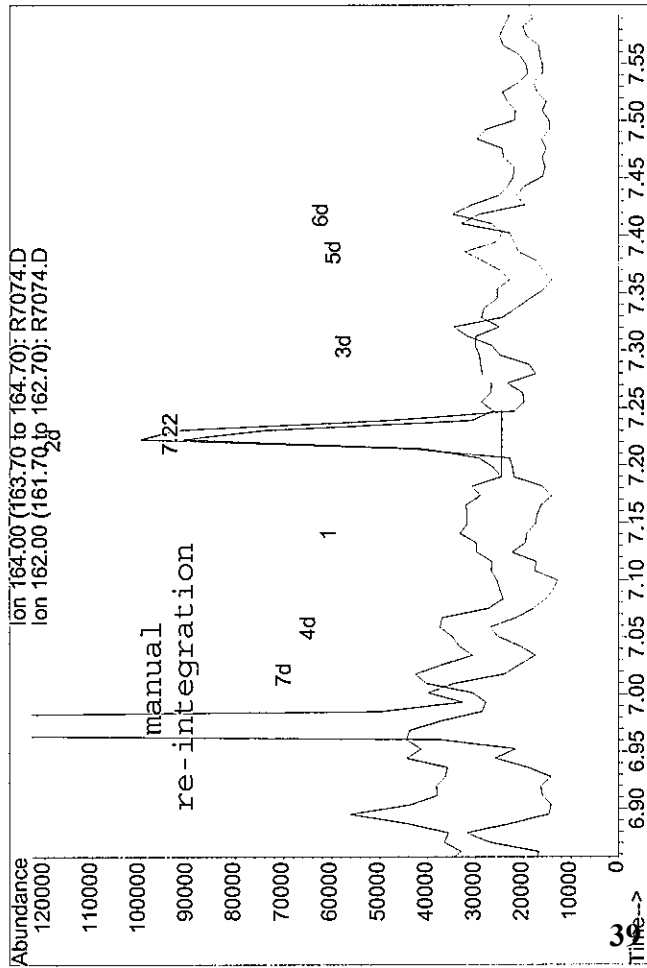
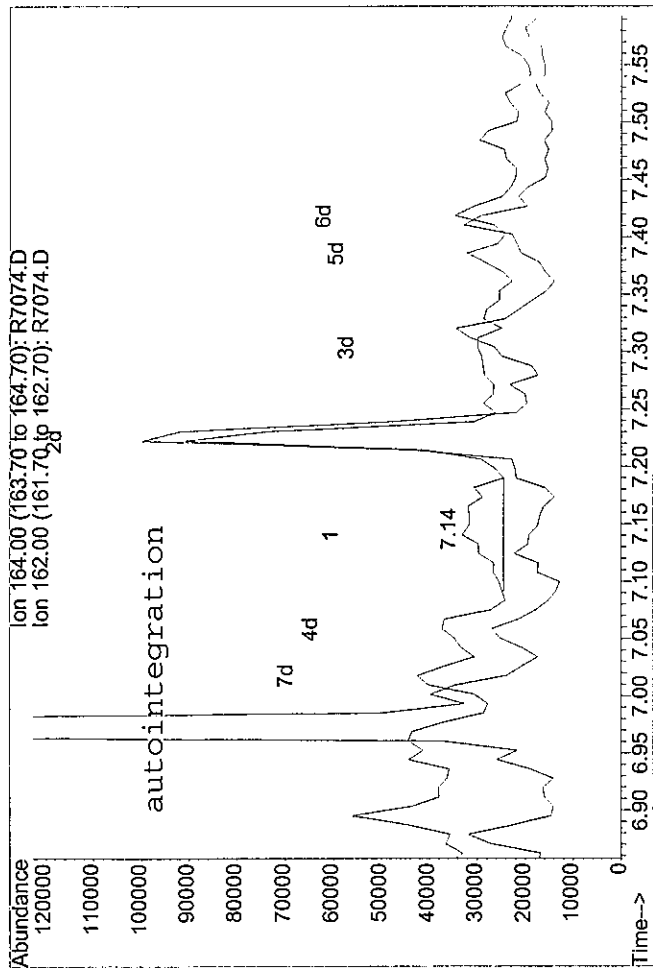
☐ other ()

initials: *RA* date: 11 / 15 / 16



TIC: R7074.D

(5) 1-Methylnaphthalene (TM)				
6.36min	17845.96ng/mL m			
response	981545			
Ion	Exp%	Act%		
142.00	100	100		
141.00	89.70	74.17		
115.00	34.20	32.46		
0.00	0.00	0.00		



TIC: R7074.D

(6) Acenaphthene-d10 (I)	
7.14min	2000.00ng/mL
response	27358
Ion	Exp% Act%
164.00	100 100
162.00	100.00 80.32
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

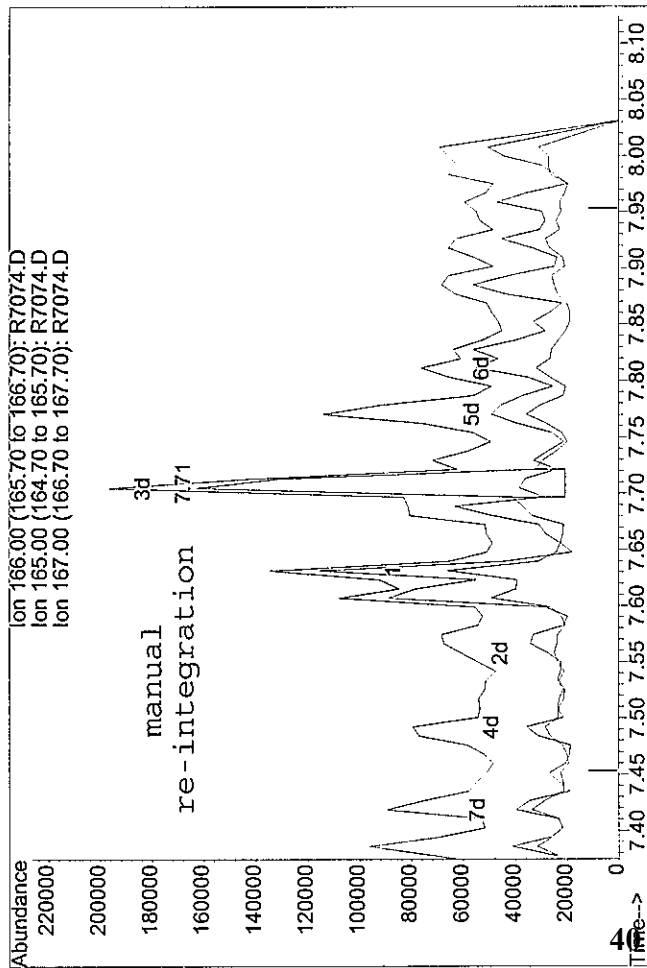
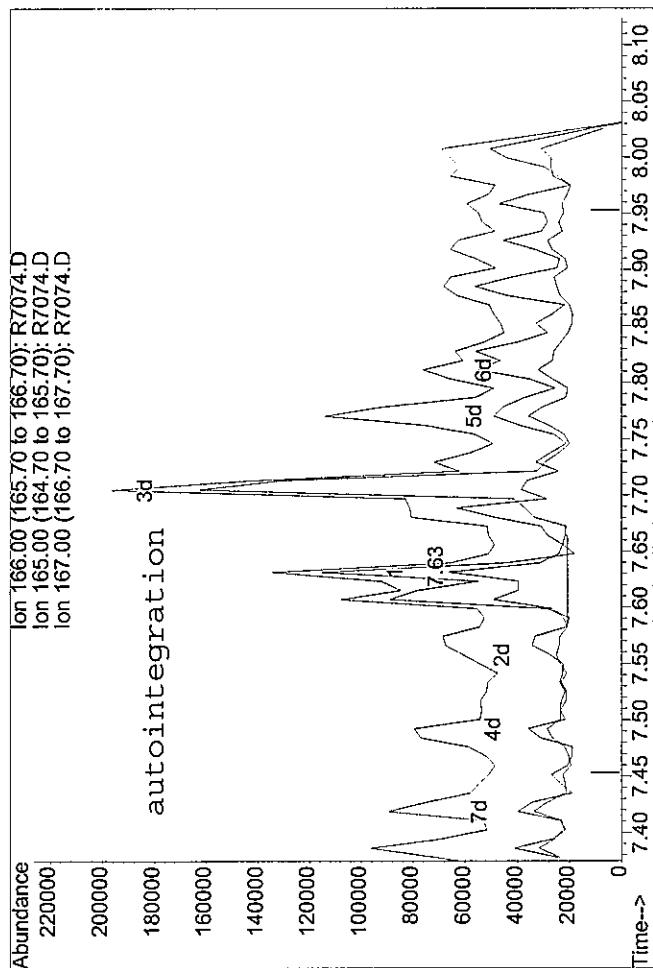
☐ under-integrated peak's area

☐ other ()

initials: RL date: 11/15/16

TIC: R7074.D

(6) Acenaphthene-d10 (I)	
7.22min	2000.00ng/mL m
response	71911
Ion	Exp% Act%
164.00	100 100
162.00	100.00 30.56#
0.00	0.00 0.00
0.00	0.00 0.00



TIC: R7074.D

(10) Fluorene (TM)	7.63min	1177.15ng/mL
response	66405	
Ion	Exp%	Act%
166.00	100	100
165.00	93.30	184.69#
167.00	12.90	126.26#
0.00	0.00	0.00

Reason for manual re-integration?

☒ missed peak assignment

☐ peak saturation (detector shutdown)

☐ over-integrated peak's area

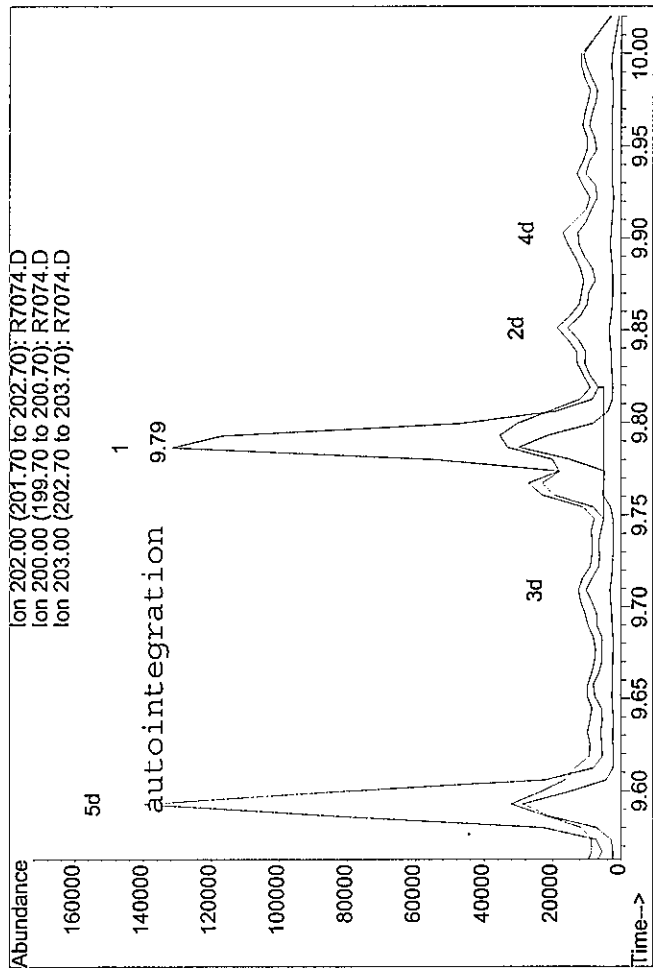
☐ under-integrated peak's area

☐ other ()

initials: *h* date: 11/15/16

TIC: R7074.D

(10) Fluorene (TM)	7.71min	2298.24ng/mL m
response	129648	
Ion	Exp%	Act%
166.00	100	100
165.00	93.30	94.60
167.00	12.90	64.67#
0.00	0.00	0.00



TIC: R7074.D

(16) Pyrene (TM)	9.79min	2284.98ng/mL
response	154662	
lon	Exp%	Act%
202.00	100	100
200.00	20.50	19.21
203.00	17.90	25.50#
0.00	0.00	0.00

Reason for manual re-integration?

☐ missed peak assignment

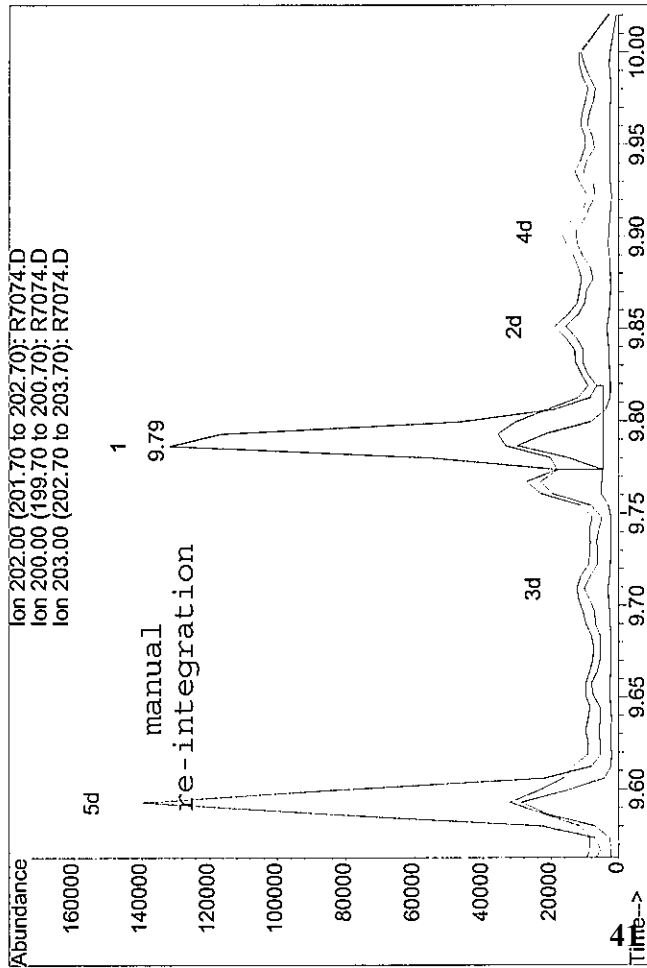
☐ peak saturation (detector shutdown)

☒ over-integrated peak's area

☐ under-integrated peak's area

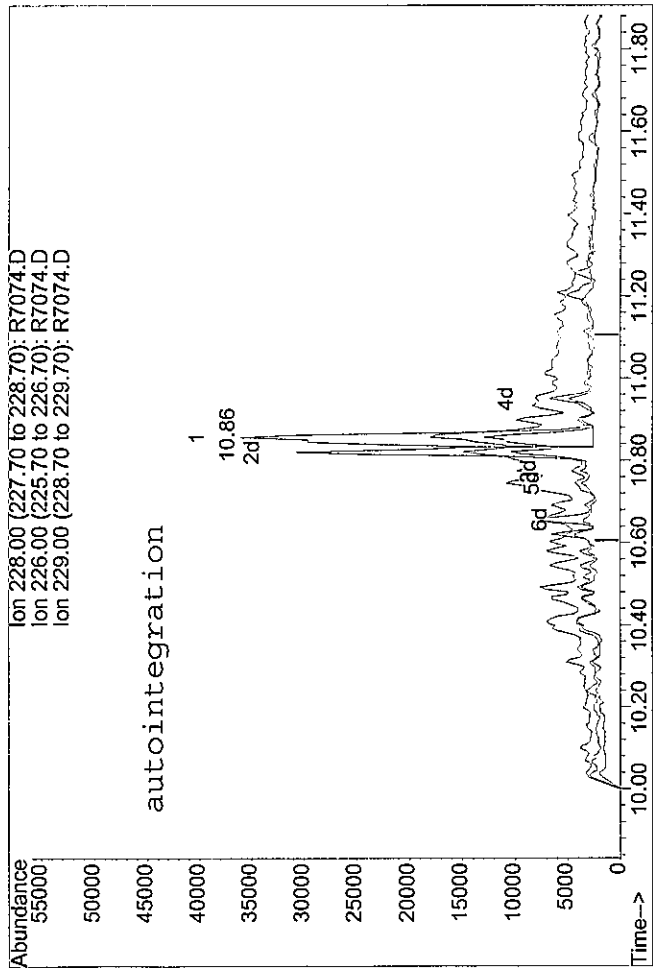
☐ other ()

initials: Ma date: 11/15/16



TIC: R7074.D

(16) Pyrene (TM)	9.79min	2017.92ng/mL m
response	136586	
lon	Exp%	Act%
202.00	100	100
200.00	20.50	21.75
203.00	17.90	28.88#
0.00	0.00	0.00



TIC: R7074.D

(19) Chrysene (TM)	10.86min	838.22ng/mL
response	53387	
lon	Exp%	Act%
228.00	100	100
226.00	28.00	30.74
229.00	18.90	42.05#
0.00	0.00	0.00

Reason for manual re-integration?

☐ missed peak assignment

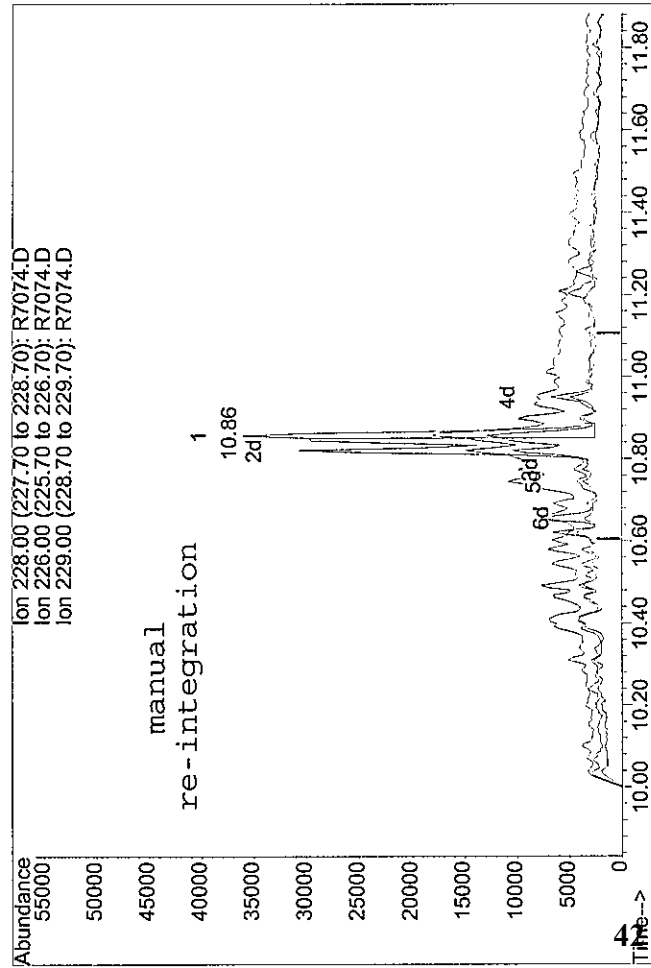
☐ peak saturation (detector shutdown)

☒ over-integrated peak's area

☐ under-integrated peak's area

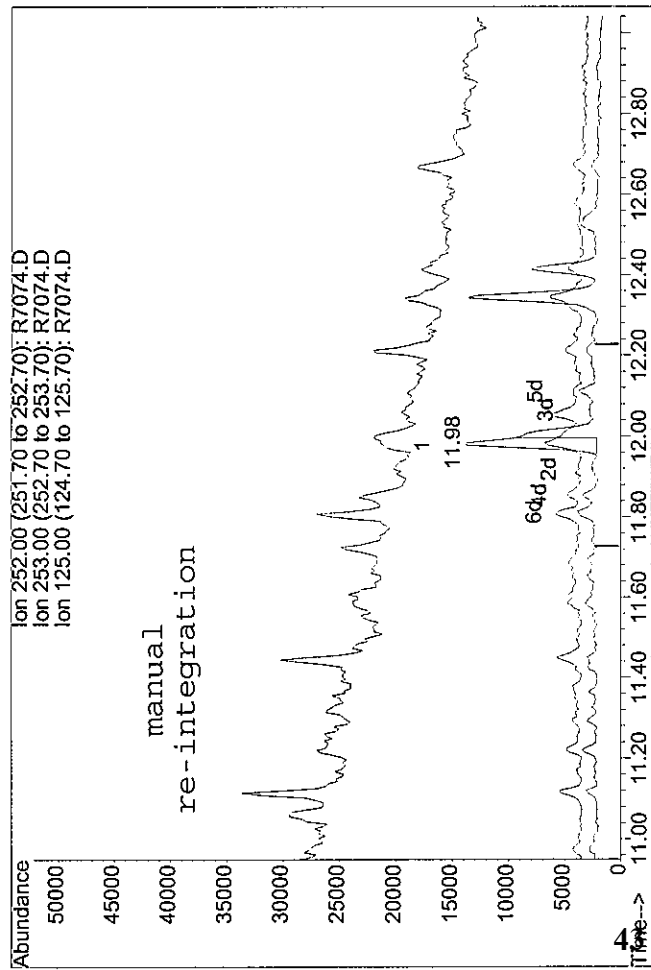
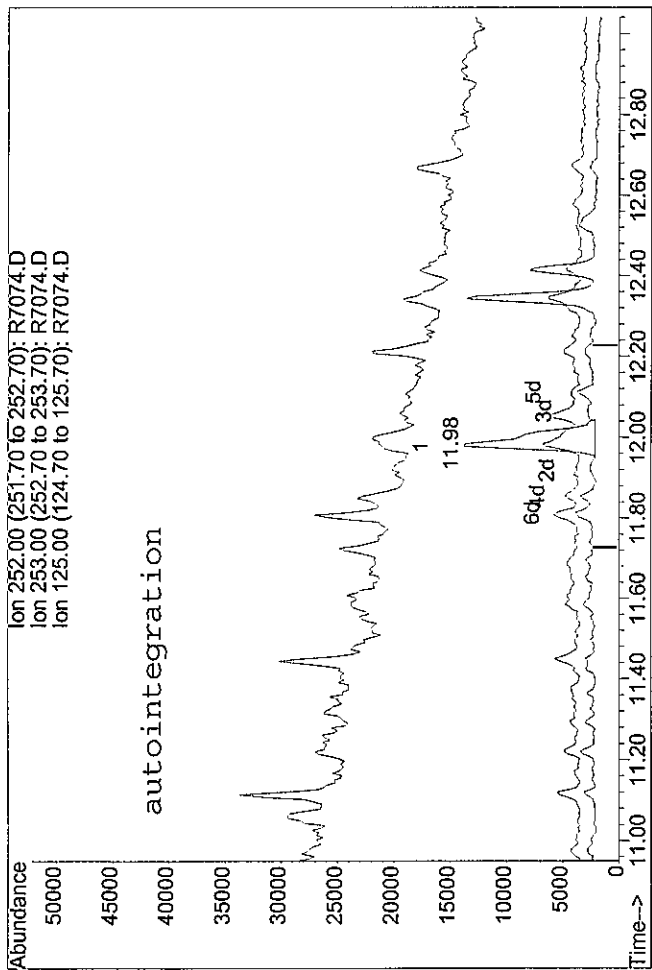
☐ other ()

initials: TM date: 11/15/16



TIC: R7074.D

(19) Chrysene (TM)	10.86min	429.26ng/mL m
response	27340	
lon	Exp%	Act%
228.00	100	100
226.00	28.00	60.02#
229.00	18.90	82.12#
0.00	0.00	0.00



TIC: R7074.D

(21) Benzo[b]fluoranthene (TM)
11.98min 393.08ng/mL
response 26617
Ion Exp% Act%
252.00 100 100
253.00 22.10 27.51
125.00 16.50 35.43#
0.00 0.00 0.00

Reason for manual re-integration?

☐ missed peak assignment

☐ peak saturation (detector shutdown)

☒ over-integrated peak's area

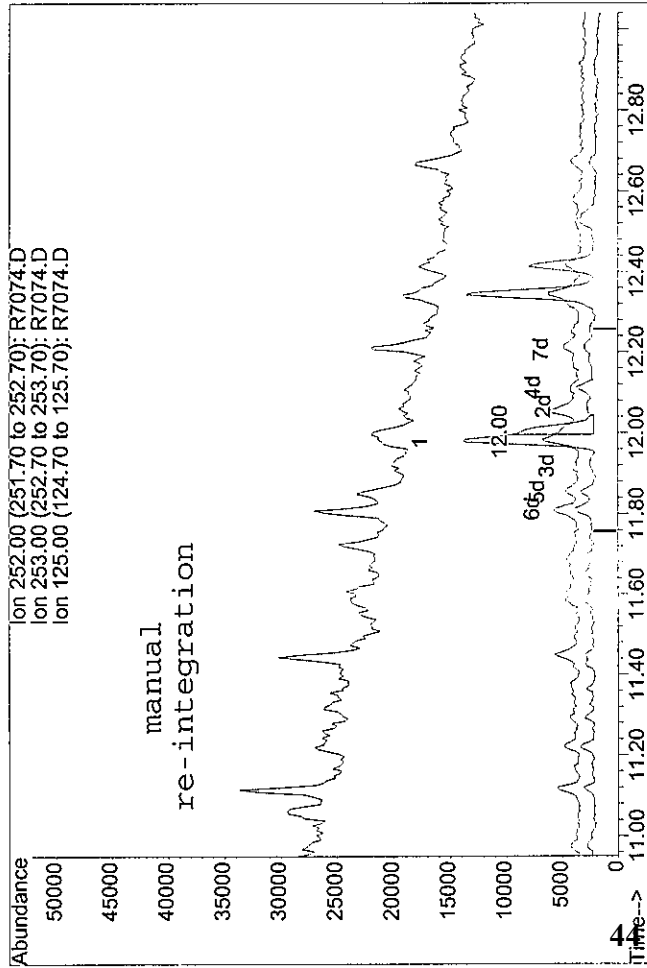
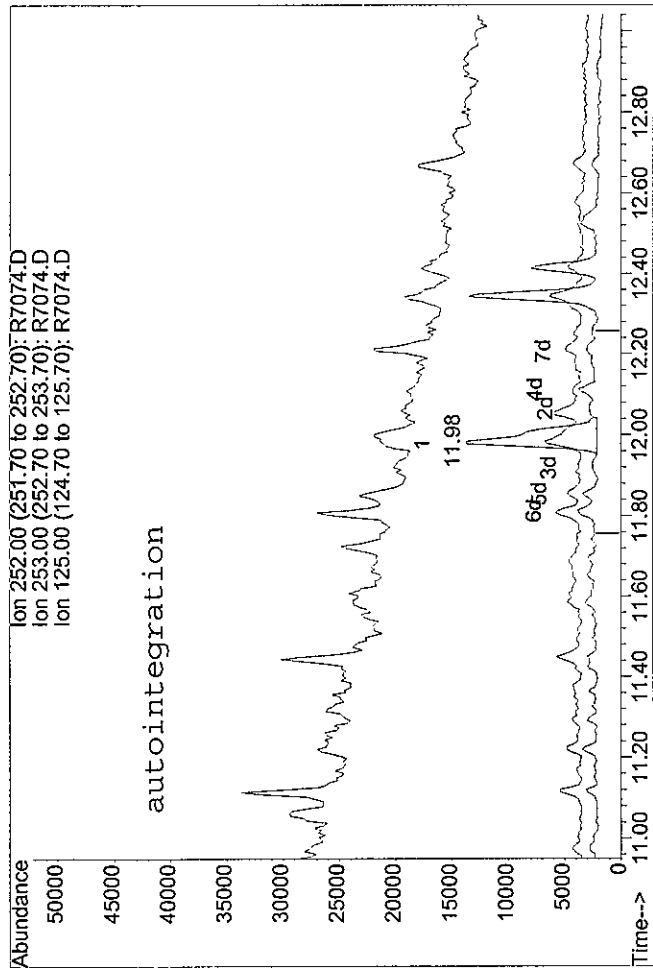
☐ under-integrated peak's area

☐ other ()

initials: zh date: 11/15/16

TIC: R7074.D

(21) Benzo[b]fluoranthene (TM)
11.98min 266.15ng/mL m
response 18022
Ion Exp% Act%
252.00 100 100
253.00 22.10 40.63#
125.00 16.50 52.33#
0.00 0.00 0.00



TIC: R7074.D

(22) Benzo[k]fluoranthene (TM)		
11.98min	404.56ng/mL	
response	26617	
Ion	Exp%	Act%
252.00	100	100
253.00	22.10	27.51
125.00	18.30	35.43#
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: / /

TIC: R7074.D

(22) Benzo[k]fluoranthene (TM)		
12.00min	129.12ng/mL m	
response	8495	
Ion	Exp%	Act%
252.00	100	100
253.00	22.10	86.20#
125.00	18.30	111.02#
0.00	0.00	0.00

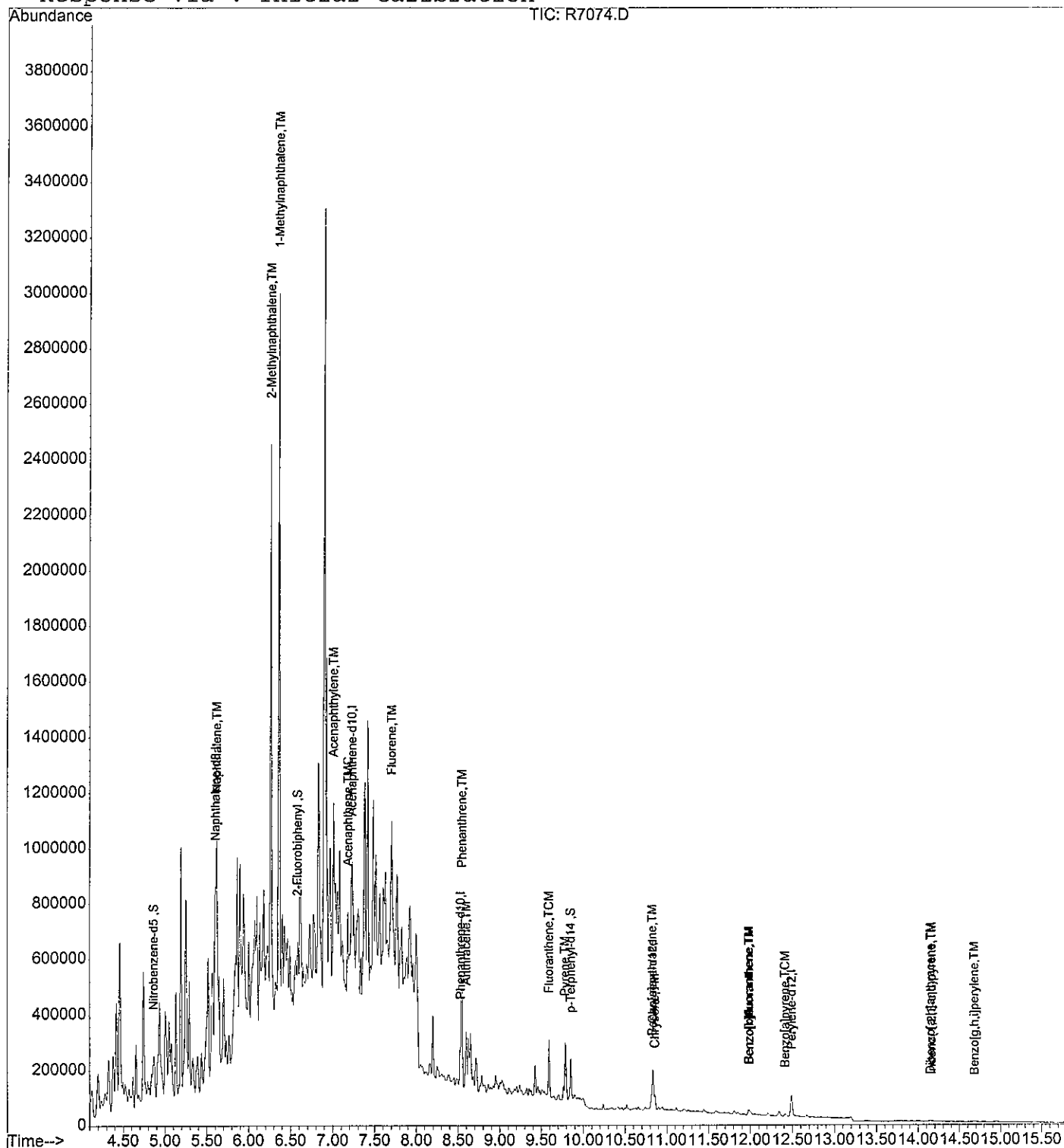
Quantitation Report

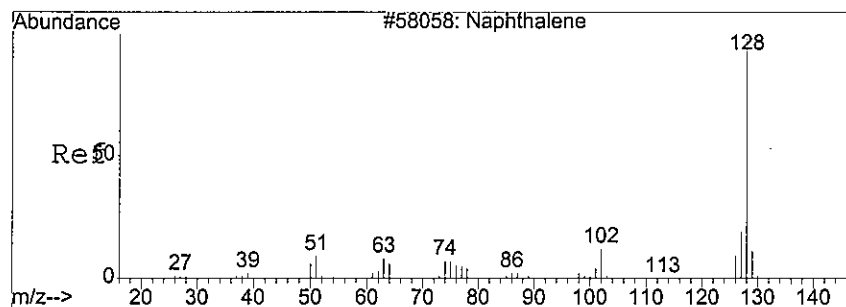
Data File : E:\HPCHEM\1\DATA\2016\111416\R7074.D
Acq On : 14 Nov 2016 16:12
Sample : 1611039-2
Misc : EX161109-4 SOIL
MS Integration Params: RTEINT.P
Quant Time: Nov 15 12:41 2016

Vial: 7
Operator: twk SOP 506
Inst : HPSV-3
Multiplr: 1.00

Quant Results File: 080516S.RES

Method : C:\HPCHEM\1\METHODS\080516S.M (RTE Integrator)
Title : GC-MS Semivolatiles SOP no. 506
Last Update : Tue Nov 15 10:42:14 2016
Response via : Initial Calibration

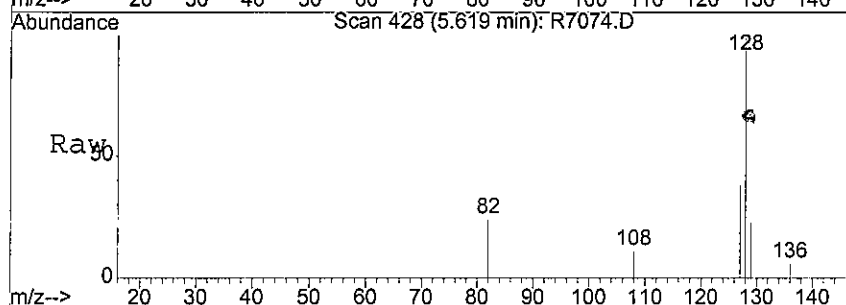




#3
Naphthalene
Concen: 5841.29 ng/mL
RT: 5.62 min Scan# 428
Delta R.T. 0.00 min
Lab File: R7074.D
Acq: 14 Nov 2016 16:12

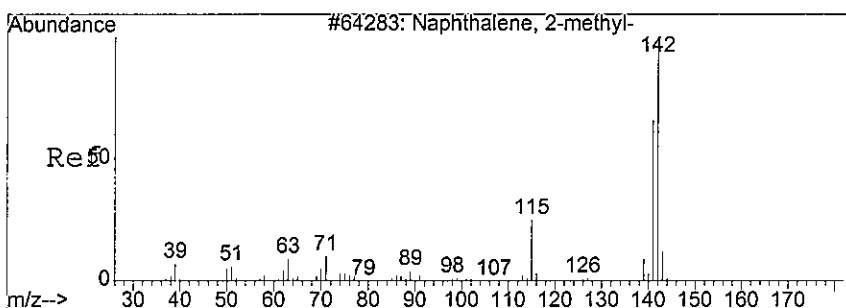
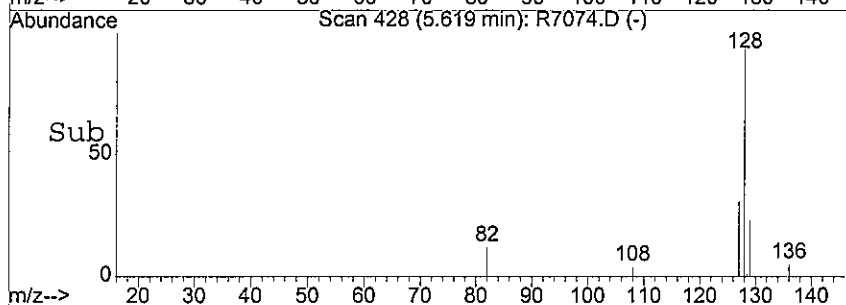
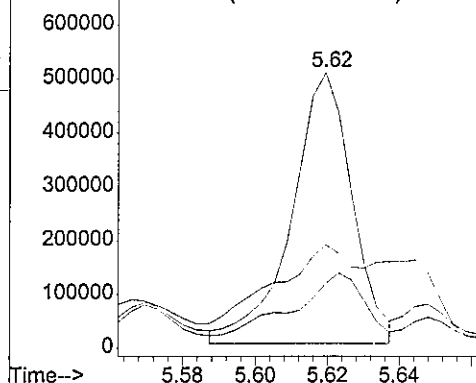
E

Tgt Ion	Ratio	Lower	Upper
128	100		
129	34.3	8.2	13.6#
127	37.3	9.8	16.4#



Abundance

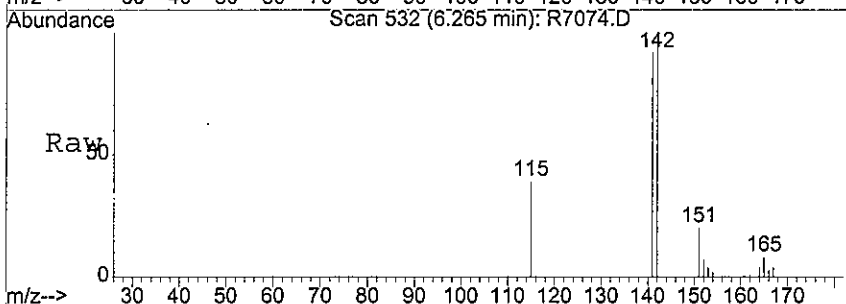
Ion 128.00 (127.70 to 128.70): R7074.D
Ion 129.00 (128.70 to 129.70): R7074.D
Ion 127.00 (126.70 to 127.70): R7074.D



#4
2-Methylnaphthalene
Concen: 12918.70 ng/mL
RT: 6.27 min Scan# 532
Delta R.T. 0.00 min
Lab File: R7074.D
Acq: 14 Nov 2016 16:12

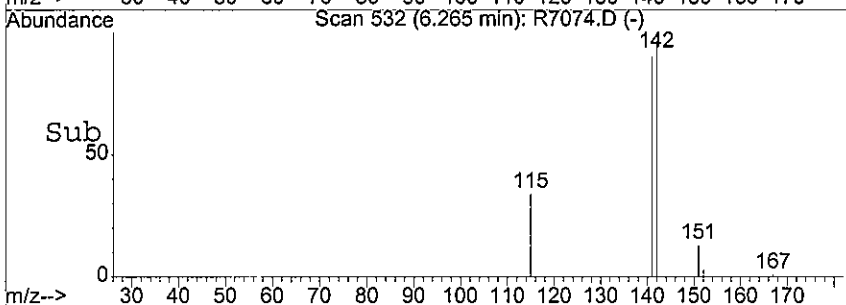
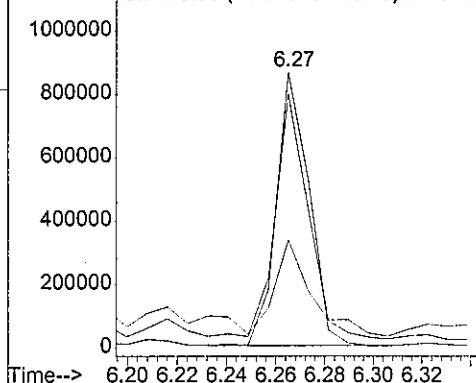
E

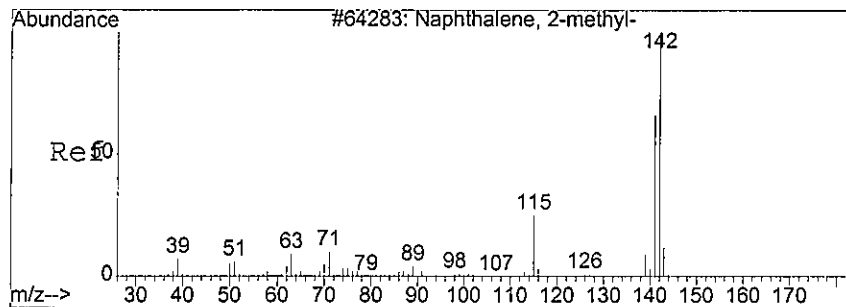
Tgt Ion	Ratio	Lower	Upper
142	100		
141	91.6	56.4	117.0
115	39.9	21.3	44.1



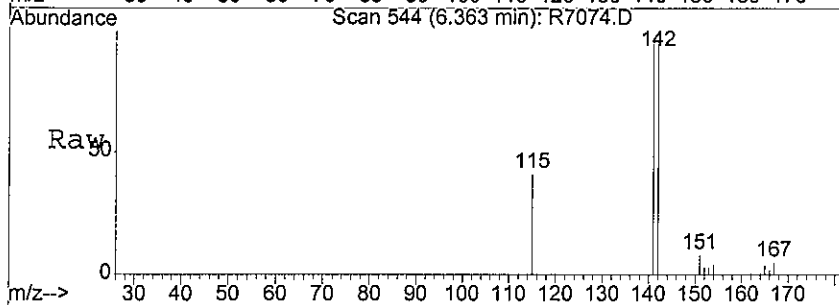
Abundance

Ion 142.00 (141.70 to 142.70): R7074.D
Ion 141.00 (140.70 to 141.70): R7074.D
Ion 115.00 (114.70 to 115.70): R7074.D

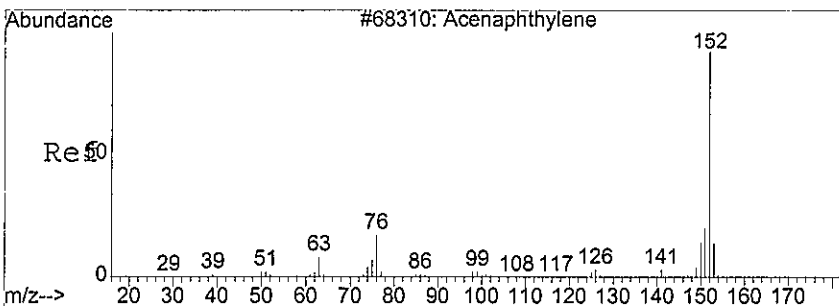
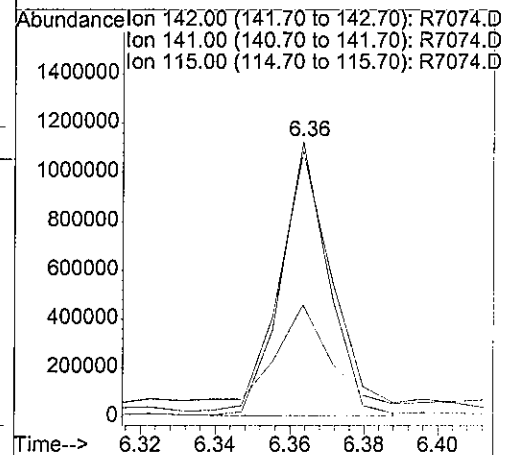
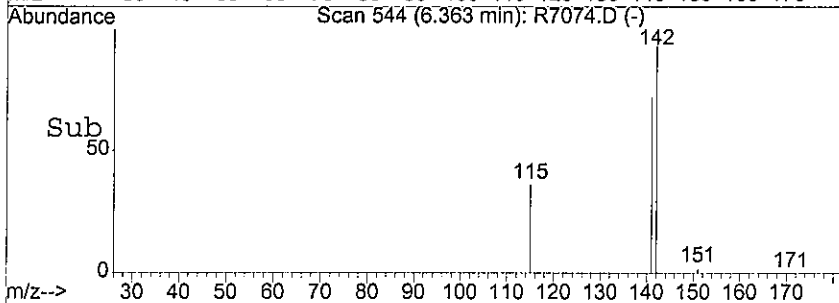




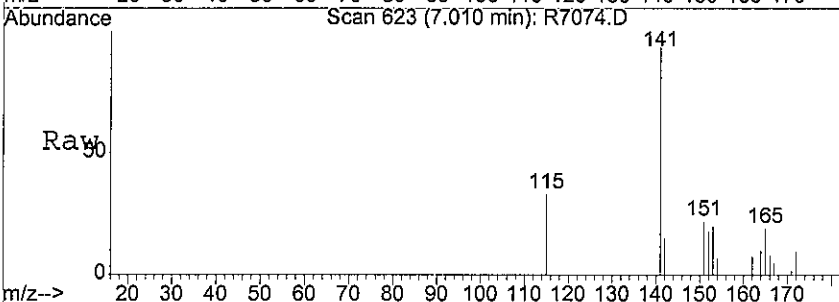
#5
1-Methylnaphthalene
Concen: 17845.96 ng/mL m
RT: 6.36 min Scan# 544
Delta R.T. 0.00 min
Lab File: R7074.D
Acq: 14 Nov 2016 16:12



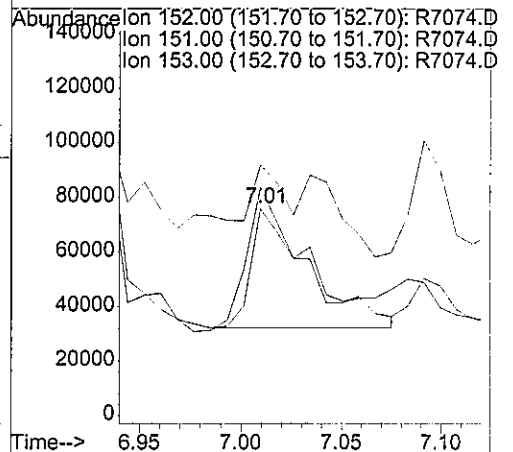
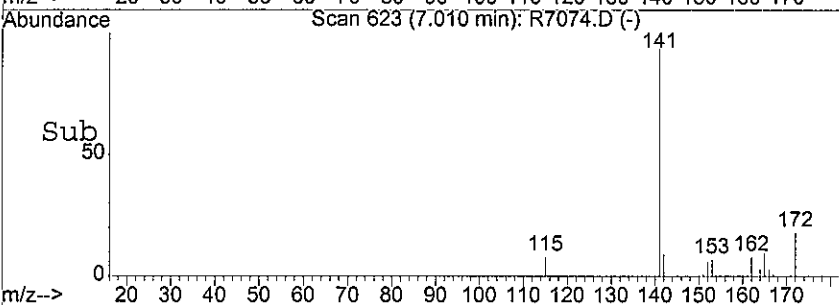
Tgt Ion	Ratio	Lower	Upper
142	100		
141	74.2	62.8	116.6
115	32.5	23.9	44.5

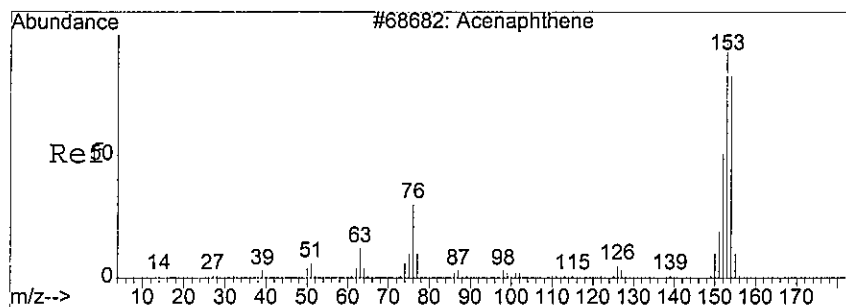


#8
Acenaphthylene
Concen: 1295.91 ng/mL
RT: 7.01 min Scan# 623
Delta R.T. -0.09 min
Lab File: R7074.D
Acq: 14 Nov 2016 16:12

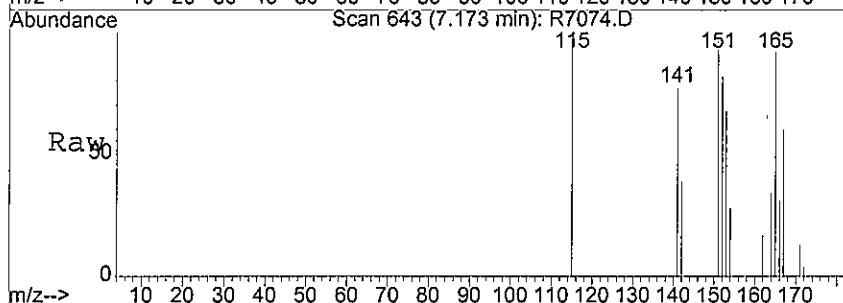


Tgt Ion	Ratio	Lower	Upper
152	100		
151	20.1	15.4	25.6
153	114.3	9.9	16.5#

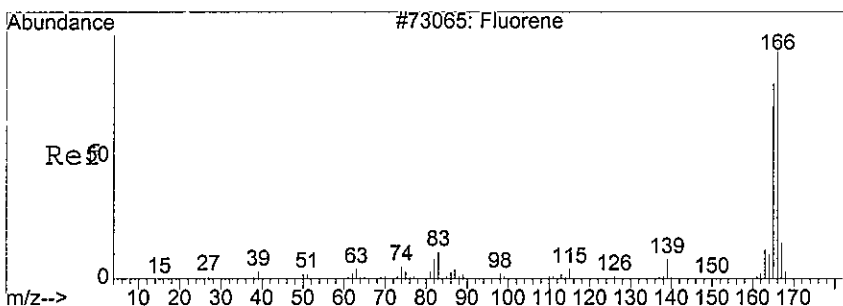
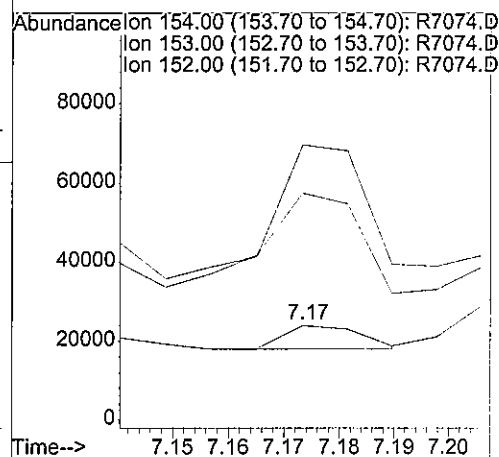
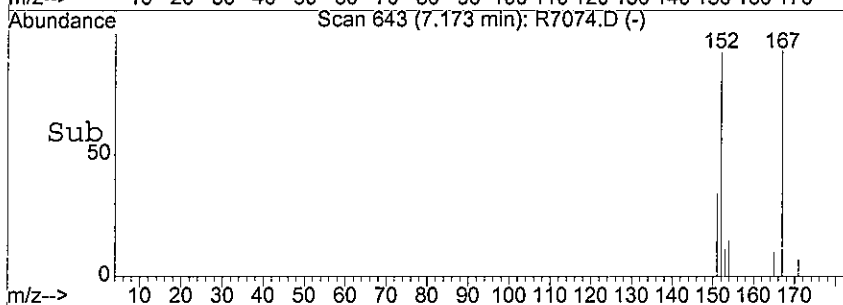




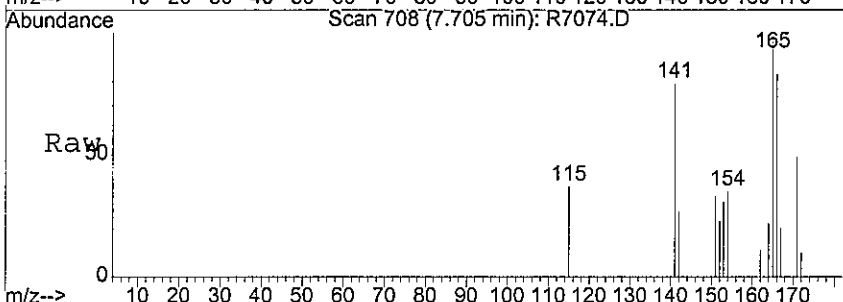
#9
Acenaphthene
Concen: 113.06 ng/mL
RT: 7.17 min Scan# 643
Delta R.T. -0.08 min
Lab File: R7074.D
Acq: 14 Nov 2016 16:12



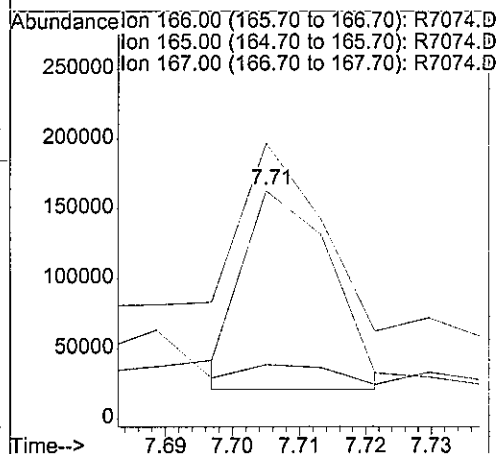
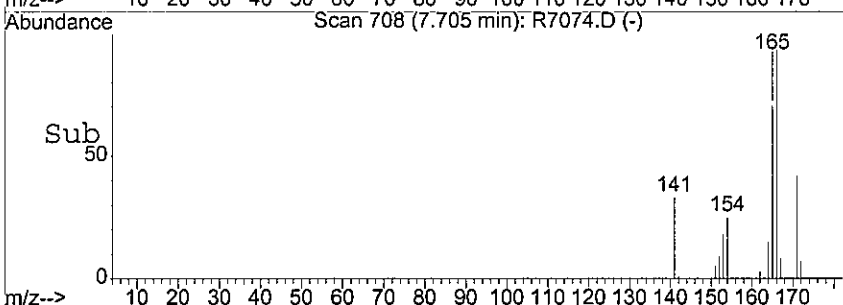
Tgt Ion: 154 Resp: 5892
Ion Ratio Lower Upper
154 100
153 572.9 78.1 130.1#
152 676.0 36.7 61.1#

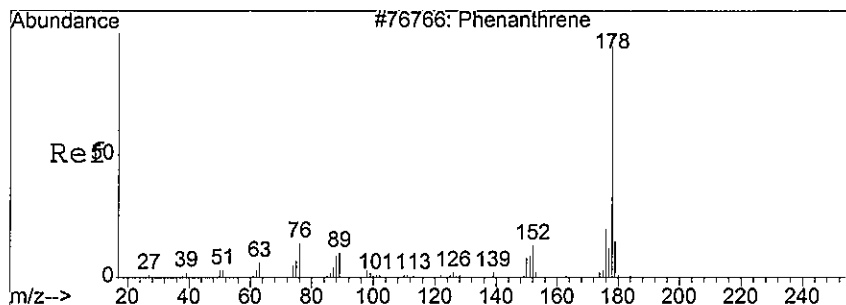


#10
Fluorene
Concen: 2298.24 ng/mL m
RT: 7.71 min Scan# 708
Delta R.T. 0.00 min
Lab File: R7074.D
Acq: 14 Nov 2016 16:12



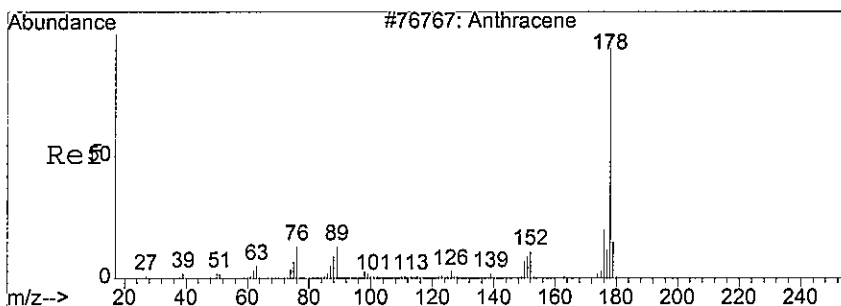
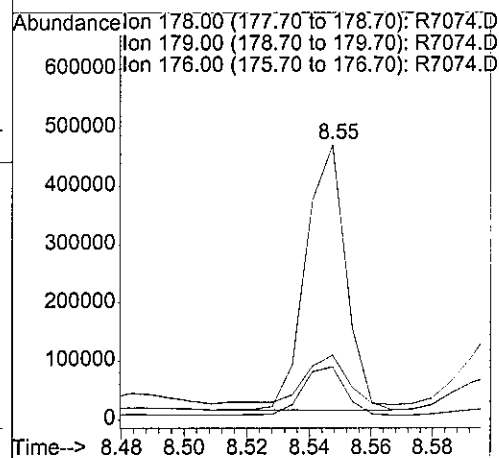
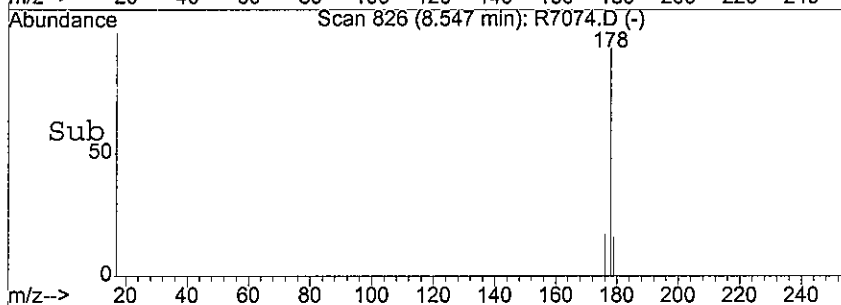
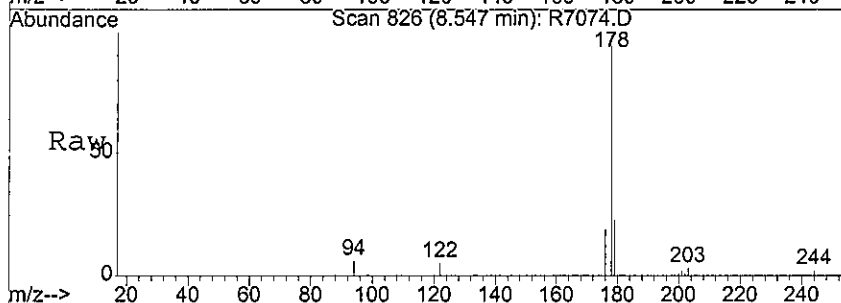
Tgt Ion: 166 Resp: 129648
Ion Ratio Lower Upper
166 100
165 94.6 70.0 116.6
167 64.7 9.7 16.1#





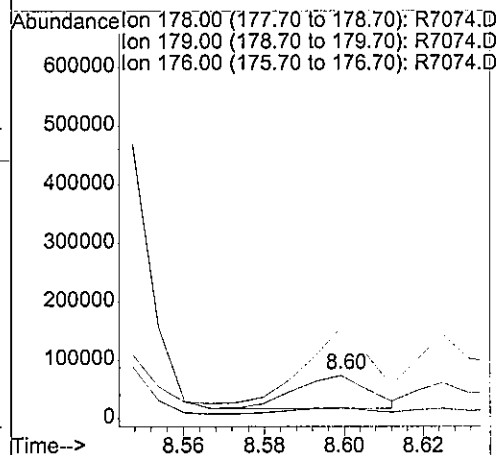
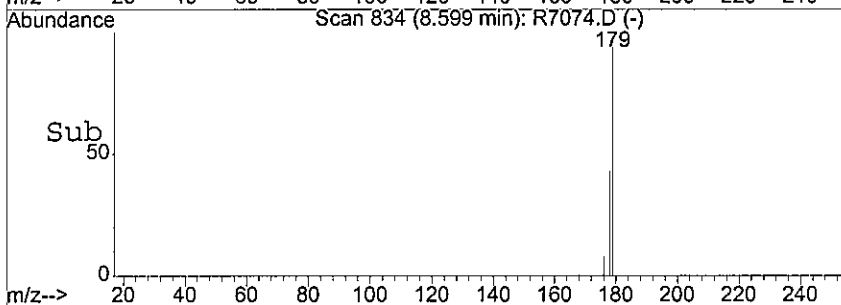
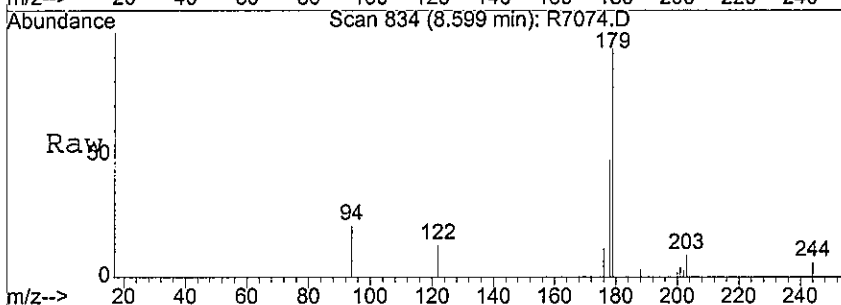
#12
Phenanthrene
Concen: 5391.16 ng/mL
RT: 8.55 min Scan# 826
Delta R.T. -0.00 min
Lab File: R7074.D
Acq: 14 Nov 2016 16:12

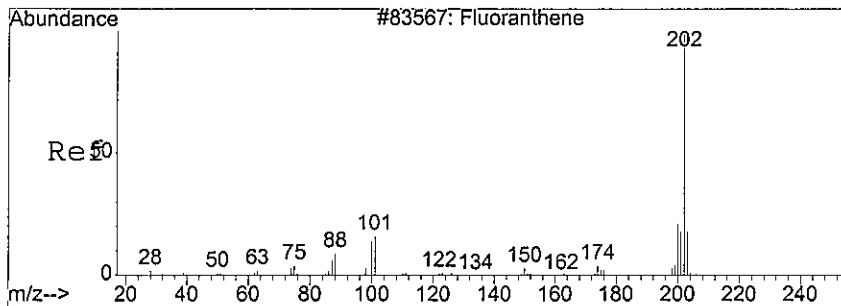
Tgt Ion:178 Resp: 408874
Ion Ratio Lower Upper
178 100
179 19.4 11.9 19.8
176 19.3 13.9 23.1



#13
Anthracene
Concen: 1204.31 ng/mL
RT: 8.60 min Scan# 834
Delta R.T. 0.01 min
Lab File: R7074.D
Acq: 14 Nov 2016 16:12

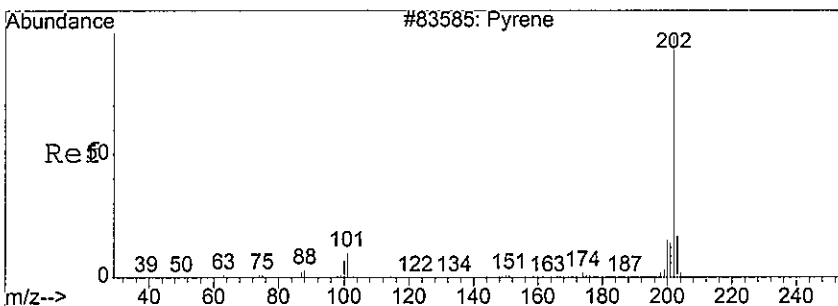
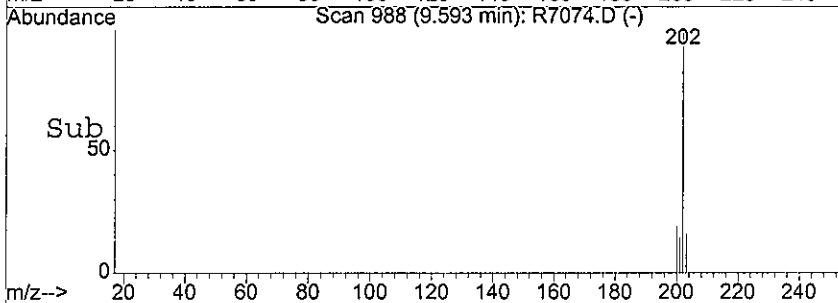
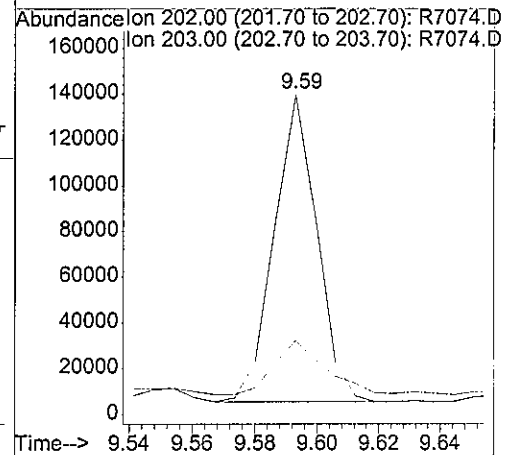
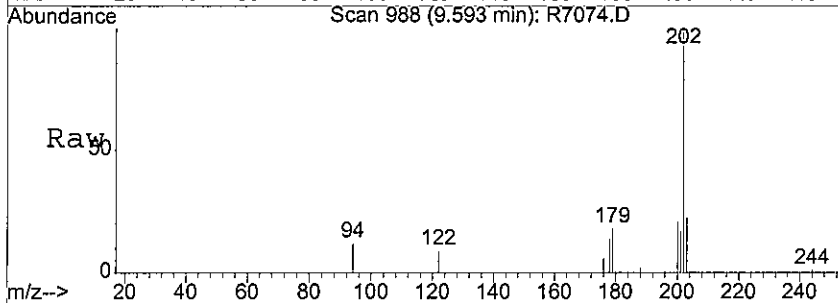
Tgt Ion:178 Resp: 71843
Ion Ratio Lower Upper
178 100
179 204.7 11.4 19.0#
176 20.3 13.4 22.2





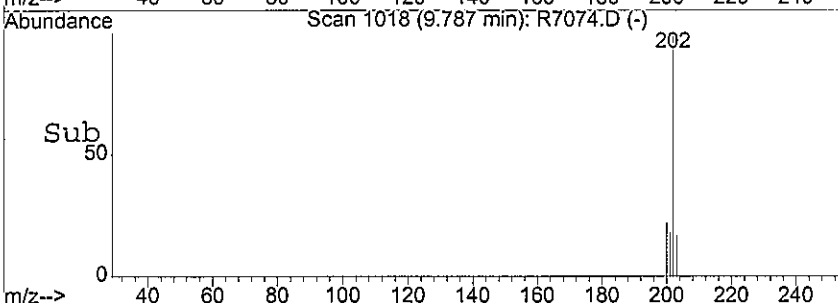
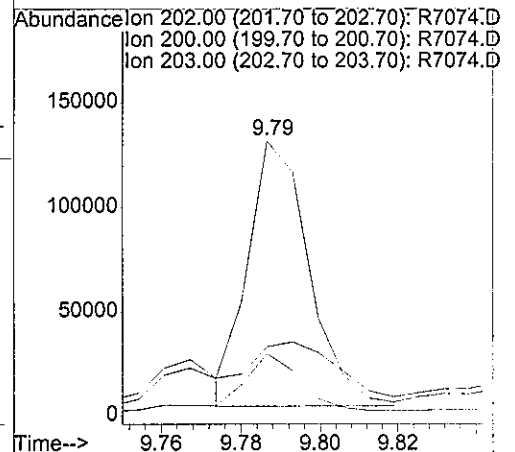
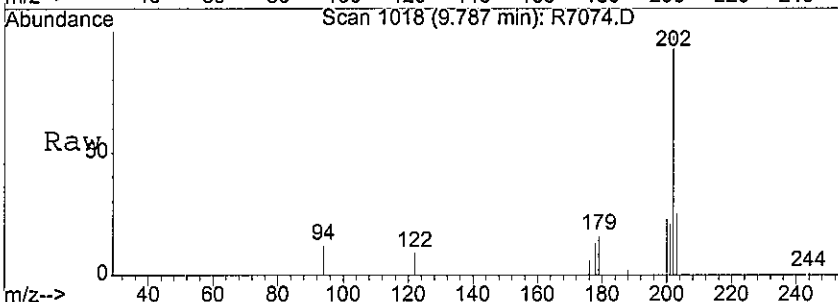
#14
 Fluoranthene
 Concen: 1893.86 ng/mL
 RT: 9.59 min Scan# 988
 Delta R.T. 0.01 min
 Lab File: R7074.D
 Acq: 14 Nov 2016 16:12

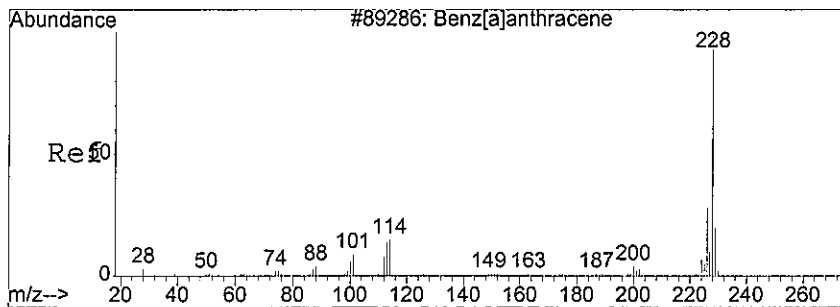
Tgt Ion	Ratio	Lower	Upper
202	100		
203	20.8	13.2	22.0



#16
 Pyrene
 Concen: 2017.92 ng/mL m
 RT: 9.79 min Scan# 1018
 Delta R.T. -0.00 min
 Lab File: R7074.D
 Acq: 14 Nov 2016 16:12

Tgt Ion	Ratio	Lower	Upper
202	100		
200	21.8	15.4	25.6
203	28.9	13.4	22.4#





#18

Benzo[a]anthracene

Concen: 557.46 ng/mL

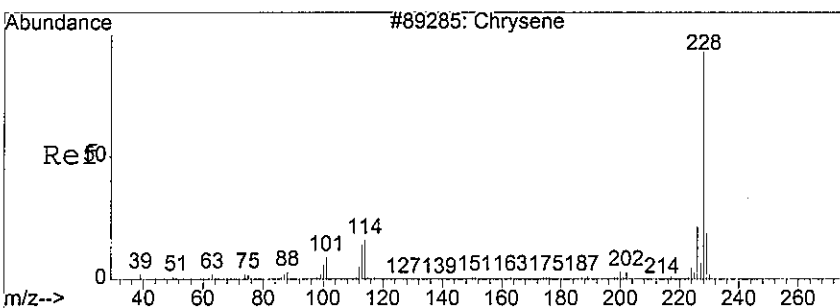
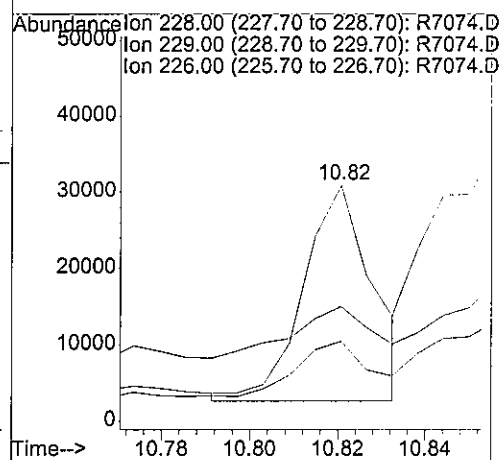
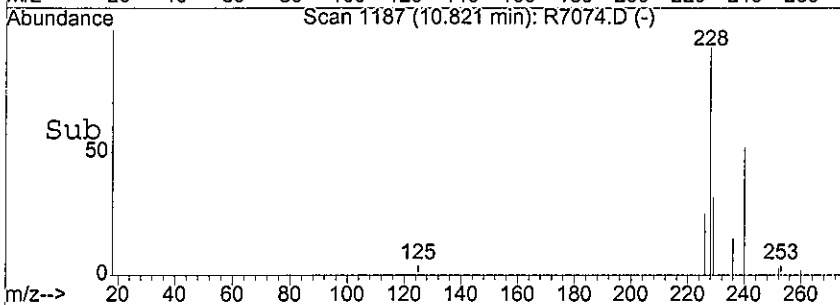
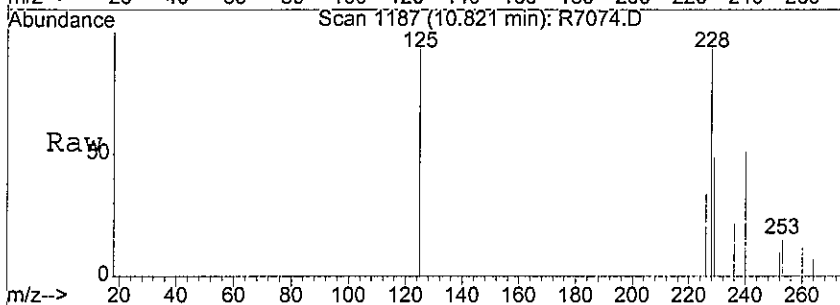
RT: 10.82 min Scan# 1187

Delta R.T. -0.00 min

Lab File: R7074.D

Acq: 14 Nov 2016 16:12

Tgt Ion:	228	Resp:	31024
Ion	Ratio	Lower	Upper
228	100		
229	47.9	14.9	24.9#
226	31.0	19.4	32.3



#19

Chrysene

Concen: 429.26 ng/mL

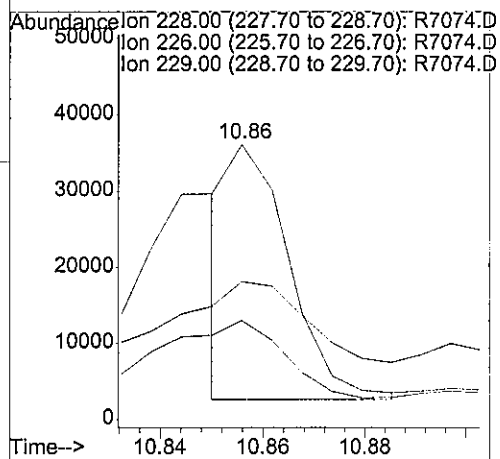
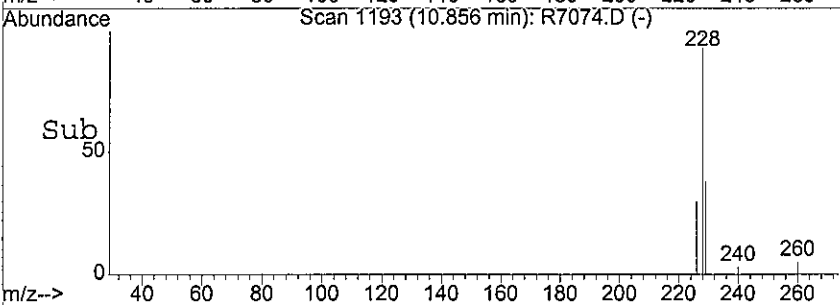
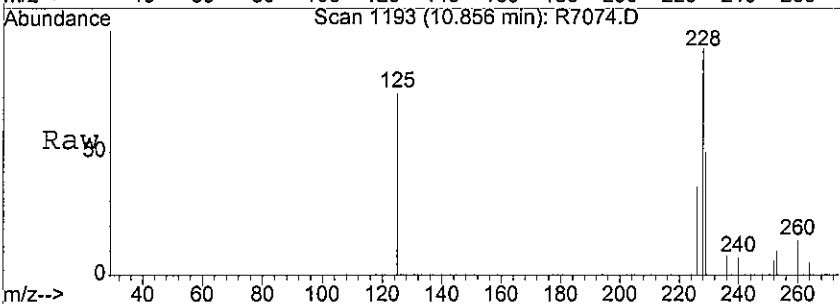
RT: 10.86 min Scan# 1193

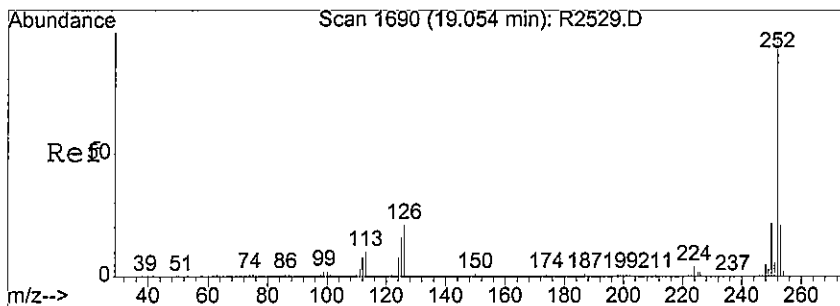
Delta R.T. -0.00 min

Lab File: R7074.D

Acq: 14 Nov 2016 16:12

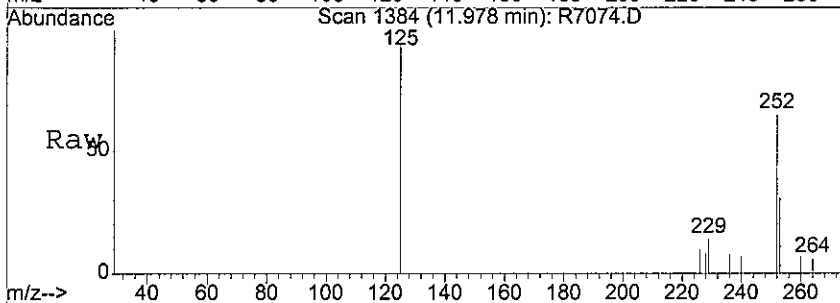
Tgt Ion:	228	Resp:	27340
Ion	Ratio	Lower	Upper
228	100		
226	60.0	21.0	35.0#
229	82.1	14.2	23.6#



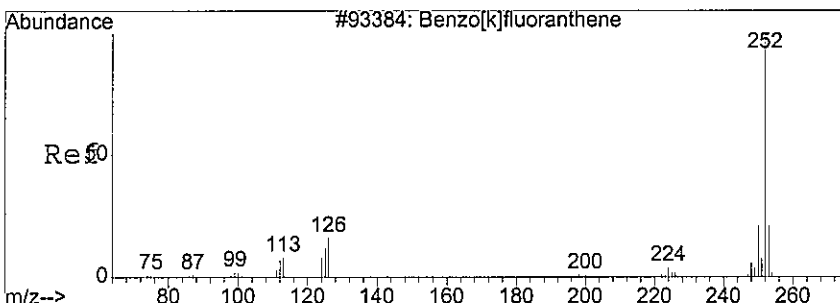
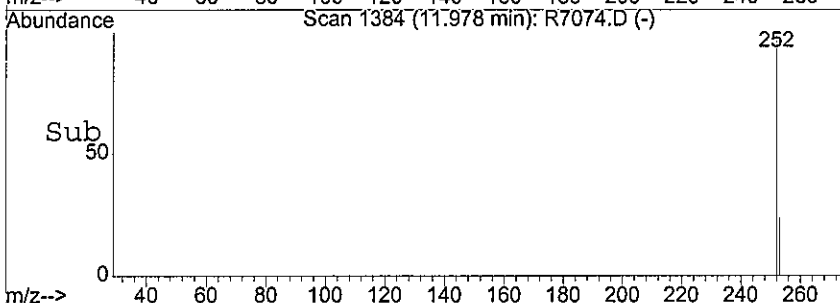
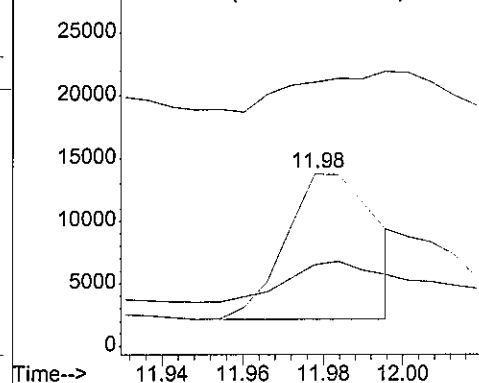


#21
Benzo[b]fluoranthene
Concen: 266.15 ng/mL m
RT: 11.98 min Scan# 1384
Delta R.T. -0.00 min
Lab File: R7074.D
Acq: 14 Nov 2016 16:12

Tgt Ion:252 Resp: 18022
Ion Ratio Lower Upper
252 100
253 40.6 14.4 29.8#
125 52.3 10.7 22.3#

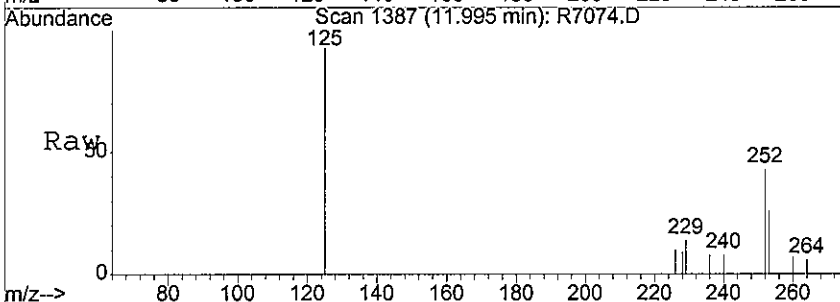


Abundance Ion 252.00 (251.70 to 252.70): R7074.D
Ion 253.00 (252.70 to 253.70): R7074.D
Ion 125.00 (124.70 to 125.70): R7074.D

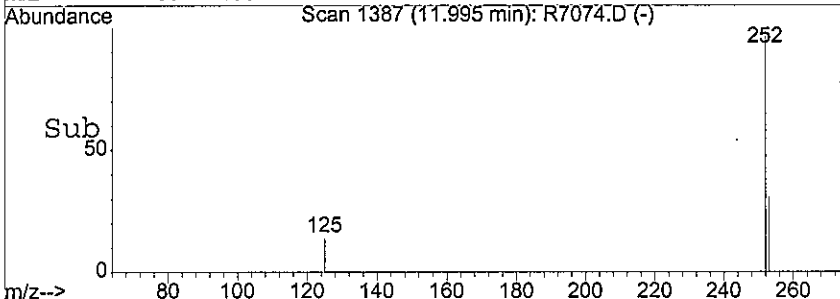
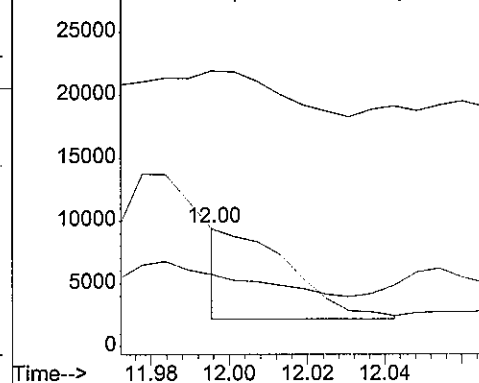


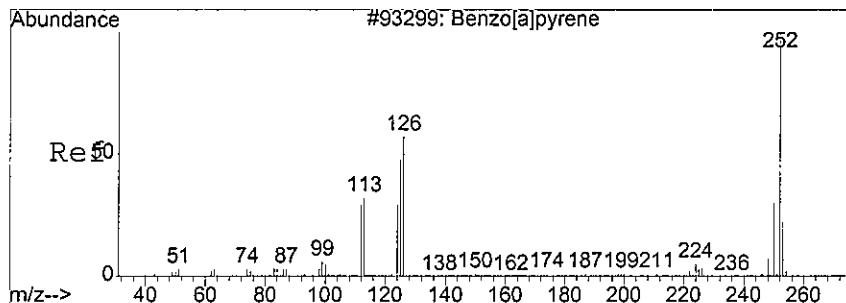
#22
Benzo[k]fluoranthene
Concen: 129.12 ng/mL m
RT: 12.00 min Scan# 1387
Delta R.T. -0.01 min
Lab File: R7074.D
Acq: 14 Nov 2016 16:12

Tgt Ion:252 Resp: 8495
Ion Ratio Lower Upper
252 100
253 86.2 14.4 29.8#
125 111.0 11.9 24.7#



Abundance Ion 252.00 (251.70 to 252.70): R7074.D
Ion 253.00 (252.70 to 253.70): R7074.D
Ion 125.00 (124.70 to 125.70): R7074.D

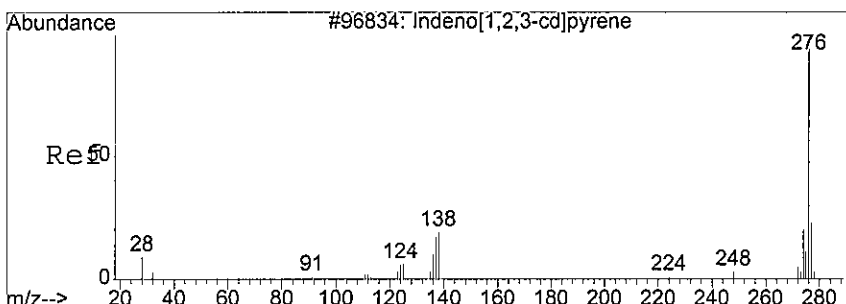
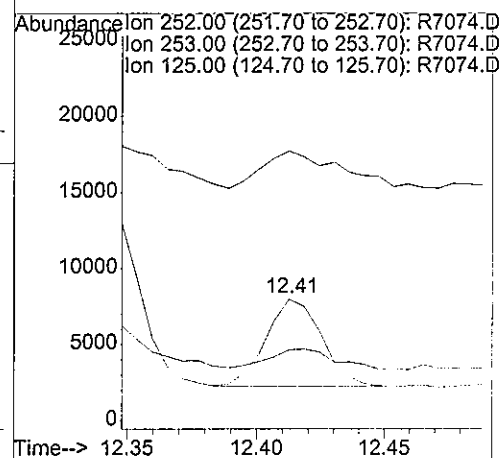
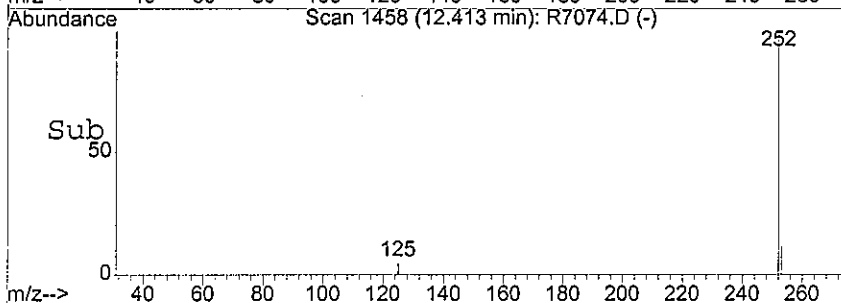
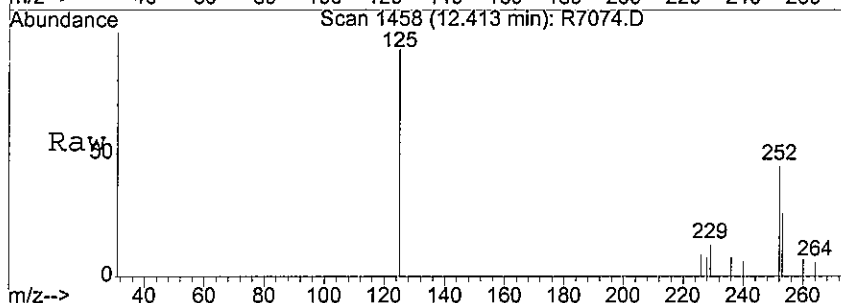




#23
 Benzo[a]pyrene
 Concen: 161.47 ng/mL
 RT: 12.41 min Scan# 1458
 Delta R.T. -0.00 min
 Lab File: R7074.D
 Acq: 14 Nov 2016 16:12

Tgt Ion: 252 Resp: 8564

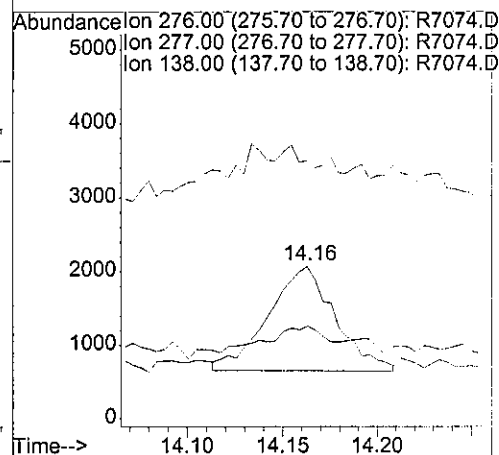
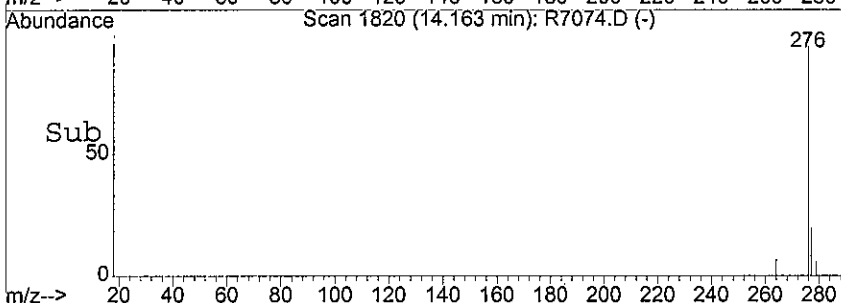
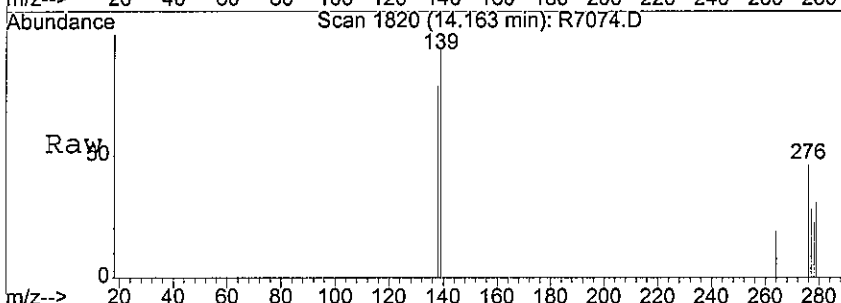
Ion	Ratio	Lower	Upper
252	100		
253	28.9	14.9	30.9
125	60.2	13.5	28.1#

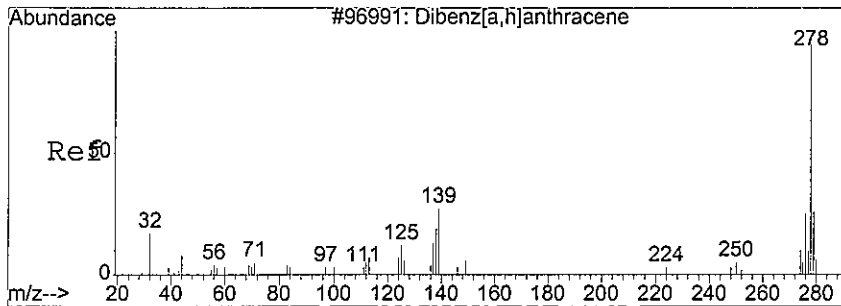


#24
 Indeno(1,2,3-c,d)pyrene
 Concen: 62.32 ng/mL
 RT: 14.16 min Scan# 1820
 Delta R.T. 0.00 min
 Lab File: R7074.D
 Acq: 14 Nov 2016 16:12

Tgt Ion: 276 Resp: 3453

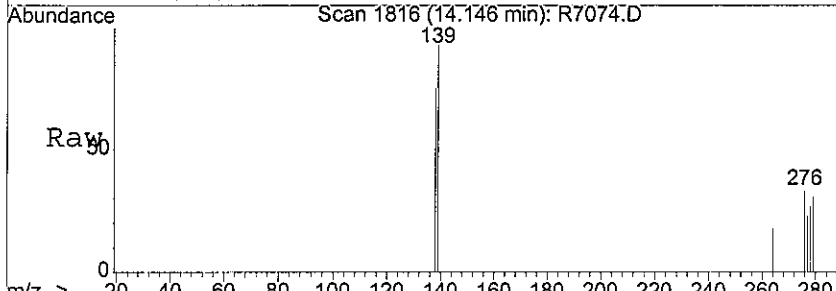
Ion	Ratio	Lower	Upper
276	100		
277	21.7	17.1	35.5
138	11.1	29.1	60.3#





#25
 Dibenzo[a,h]anthracene ND
 Concen: 37.45 ng/mL
 RT: 14.15 min Scan# 1816
 Delta R.T. -0.00 min
 Lab File: R7074.D
 Acq: 14 Nov 2016 16:12

Tgt Ion	Ratio	Lower	Upper
278	100		
139	0.0	18.5	38.5#
279	21.3	15.2	31.6

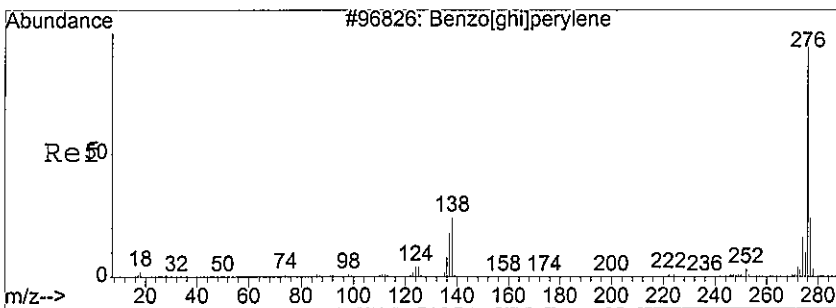
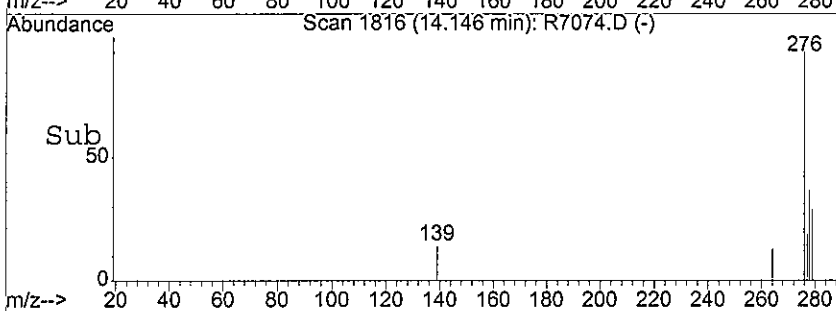
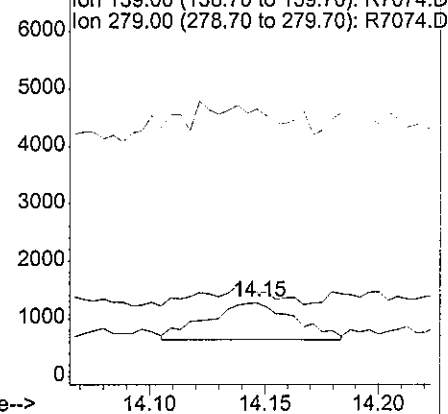


Abundance

Ion 278.00 (277.70 to 278.70): R7074.D

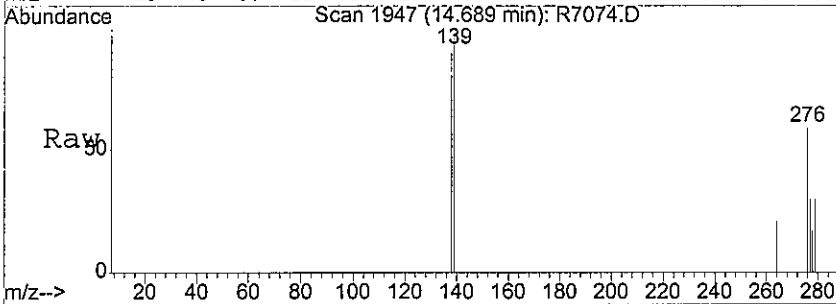
Ion 139.00 (138.70 to 139.70): R7074.D

Ion 279.00 (278.70 to 279.70): R7074.D



#26
 Benzo[g,h,i]perylene ✓
 Concen: 74.55 ng/mL
 RT: 14.69 min Scan# 1947
 Delta R.T. 0.01 min
 Lab File: R7074.D
 Acq: 14 Nov 2016 16:12

Tgt Ion	Ratio	Lower	Upper
276	100		
138	14.4	23.4	48.6#
277	11.6	14.8	30.6#

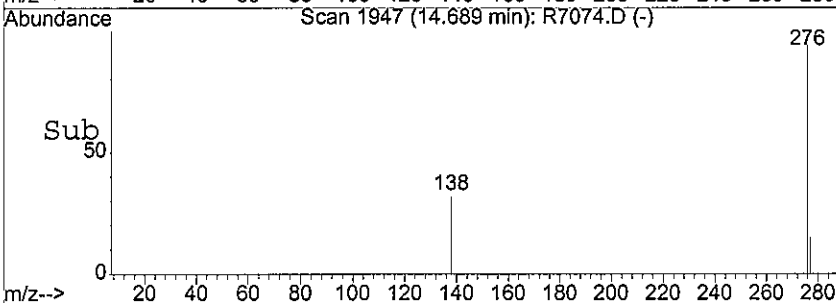
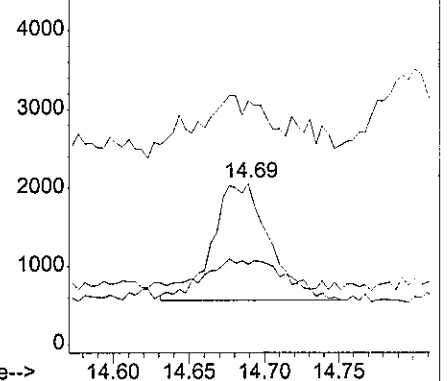


Abundance

Ion 276.00 (275.70 to 276.70): R7074.D

Ion 138.00 (137.70 to 138.70): R7074.D

Ion 277.00 (276.70 to 277.70): R7074.D



Data File : E:\HPCHEM\1\DATA\2016\111416\R7075.D

Vial: 8

Acq On : 14 Nov 2016 16:33

Operator: twk SOP 506 Re

Sample : 1611039-2MS

Inst : HPSV-3

Misc : EX161109-4 SOIL

Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Results File: 080516S.RES

Quant Time: Nov 15 12:44 2016

Quant Method : C:\HPCHEM\1\METHODS\080516S.M (RTE Integrator)

Title : GC-MS Semivolatiles SOP no. 506

Last Update : Tue Nov 15 10:42:14 2016

Response via : Initial Calibration

DataAcq Meth : 080516S

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.60	136	174120m	2000.00	ng/mL	0.00
6) Acenaphthene-d10	7.22	164	70750	2000.00	ng/mL	0.00
11) Phenanthrene-d10	8.52	188	107504	2000.00	ng/mL	0.00
15) Chrysene-d12	10.83	240	102223	2000.00	ng/mL	0.00
20) Perylene-d12	12.49	264	95838	2000.00	ng/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	5.04	82	90982	4216.64	ng/mL	0.17
Spiked Amount 2000.000	Range 39 - 111		Recovery =	210.83%	#	
7) 2-Fluorobiphenyl	6.58	172	124497	2013.21	ng/mL	0.00
Spiked Amount 2000.000	Range 40 - 118		Recovery =	100.66%		
17) p-Terphenyl-d14	9.85	244	85648	1618.39	ng/mL	0.00
Spiked Amount 2000.000	Range 36 - 136		Recovery =	80.92%		

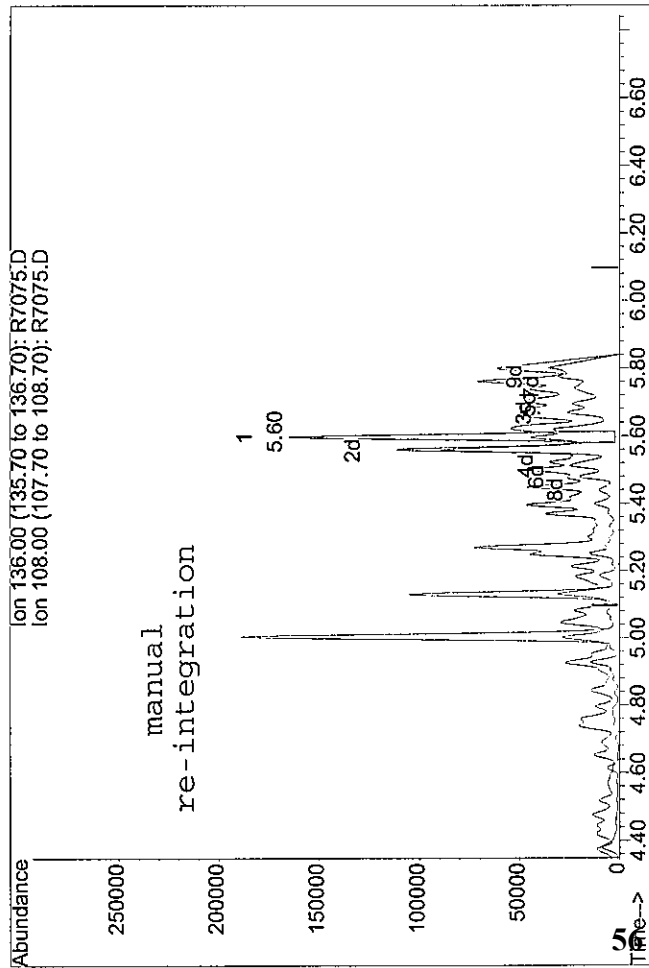
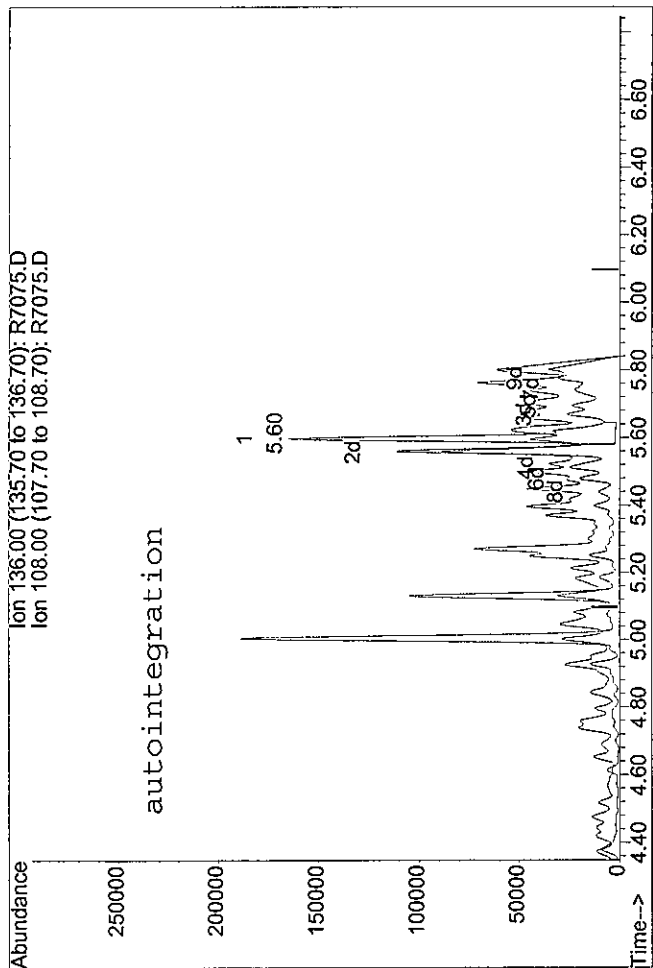
Target Compounds

						Qvalue
3) Naphthalene	5.62	128	725632	7246.97	ng/mL#	49
4) 2-Methylnaphthalene	6.27	142	1042372	16961.34	ng/mL	95
5) 1-Methylnaphthalene	6.36	142	1178432m	21540.71	ng/mL	
8) Acenaphthylene	7.10	152	150245	2271.49	ng/mL#	43
9) Acenaphthene	7.26	154	115102	2244.99	ng/mL#	60
10) Fluorene	7.70	166	225915m	4070.47	ng/mL	
12) Phenanthrene	8.55	178	522925	7002.08	ng/mL	96
13) Anthracene	8.59	178	196075	3337.87	ng/mL#	26
14) Fluoranthene	9.59	202	247446	3710.46	ng/mL	98
16) Pyrene	9.79	202	243563m	3656.83	ng/mL	
18) Benzo[a]anthracene	10.82	228	138959	2537.45	ng/mL	95
19) Chrysene	10.86	228	152563	2434.27	ng/mL#	94
21) Benzo[b]fluoranthene	11.98	252	124983	1843.45	ng/mL	99
22) Benzo[k]fluoranthene	12.01	252	104179	1581.45	ng/mL	97
23) Benzo[a]pyrene	12.41	252	100337	1889.45	ng/mL	97
24) Indeno(1,2,3-c,d)pyrene	14.16	276	87454	1576.49	ng/mL	97
25) Dibenzo[a,h]anthracene	14.15	278	75467	1663.23	ng/mL	97
26) Benzo[g,h,i]perylene	14.69	276	69353	1331.94	ng/mL	97

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

R7075.D 080516S.M Tue Nov 15 12:45:04 2016

Page 1



TIC: R7075.D

(1) Naphthalene-d8 (l)		
5.60min	2000.00ng/mL	
response	208564	
Ion	Exp%	Act%
136.00	100	100
108.00	9.60	9.73
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

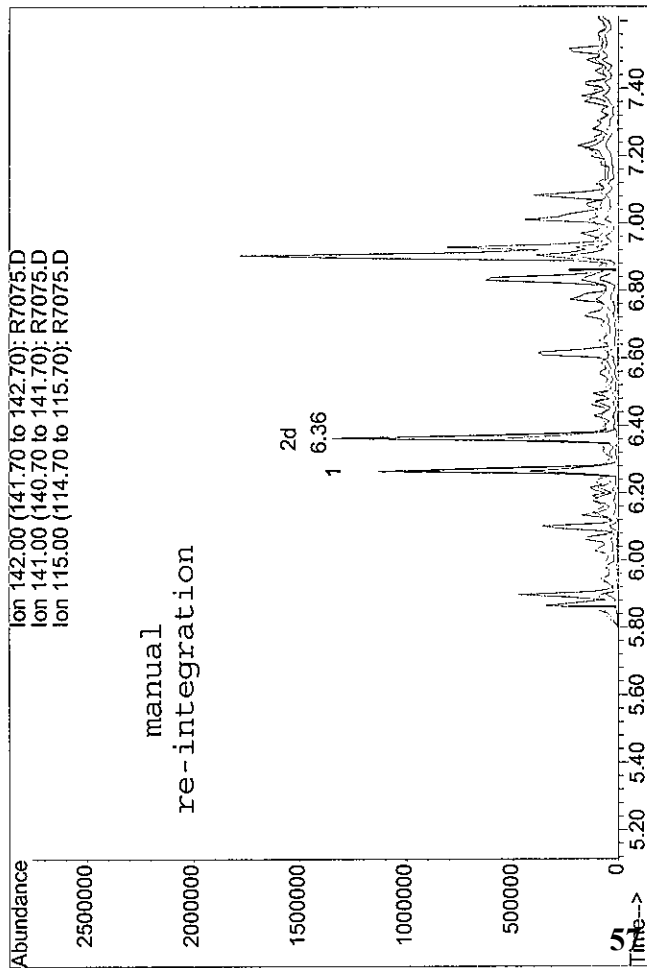
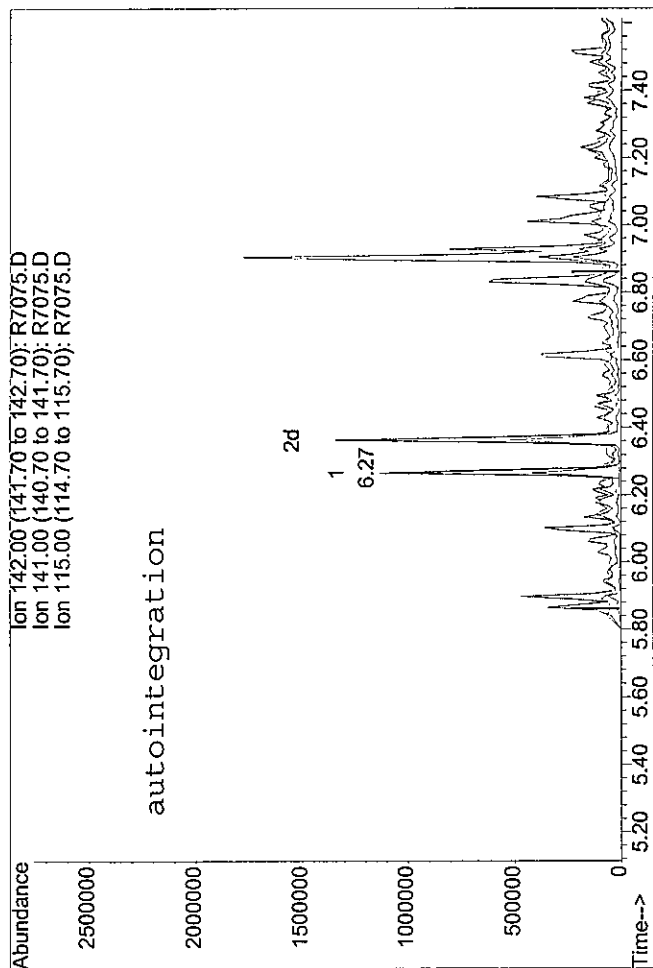
☐ under-integrated peak's area

☐ other ()

initials: ru date: 11/15/16

TIC: R7075.D

(1) Naphthalene-d8 (l)			
5.60min	2000.00ng/mL m		
response	174120		
Ion	Exp%	Act%	
136.00	100	100	
108.00	9.60	11.65#	
0.00	0.00	0.00	
0.00	0.00	0.00	



TIC: R7075.D

(5) 1-Methylnaphthalene (TM)		
6.27min	19053.65ng/mL	
response	1042372	
ion	Exp%	Act%
142.00	100	100
141.00	89.70	91.35
115.00	34.20	37.30
0.00	0.00	0.00

Reason for manual re-integration?

☒ missed peak assignment

☐ peak saturation (detector shutdown)

☐ over-integrated peak's area

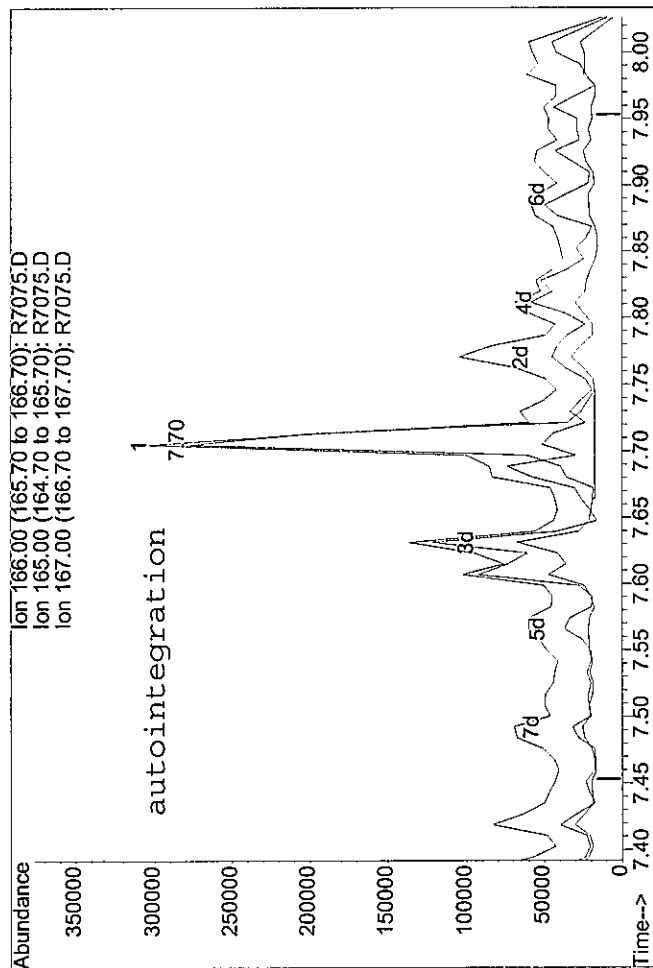
☐ under-integrated peak's area

☐ other ()

initials: TM date: 11/15/16

TIC: R7075.D

(5) 1-Methylnaphthalene (TM)	
6.36min	21540.71ng/mL m
response	1178432
Ion	Exp% Act%
142.00	100 100
141.00	89.70 80.80
115.00	34.20 32.99
0.00	0.00 0.00



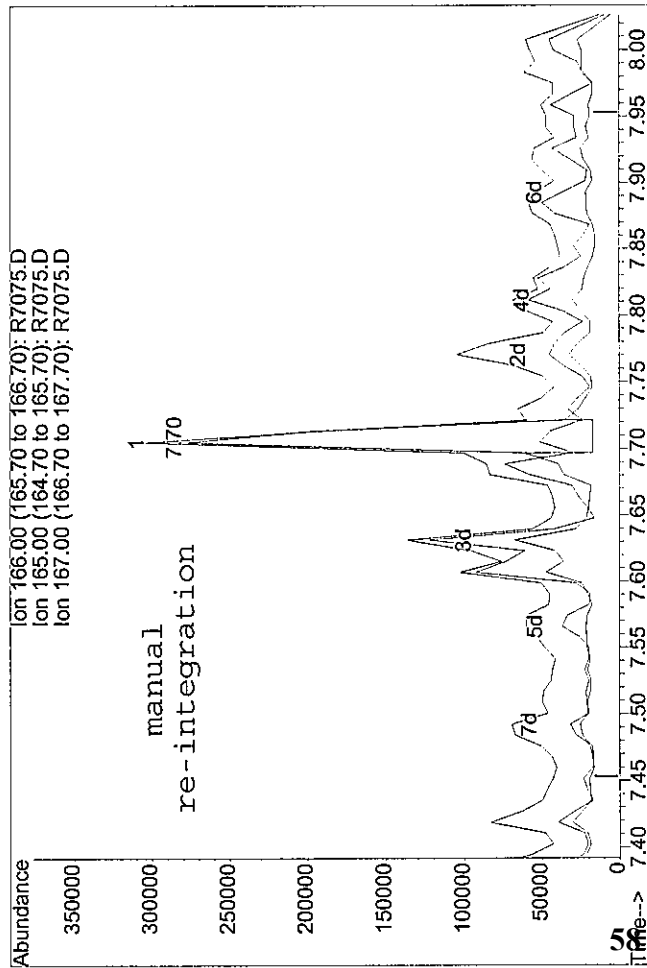
TIC: R7075.D

(10) Fluorene (TM)
7.70min 4933.51ng/mL
response 273815
Ion Exp% Act%
166.00 100 100
165.00 93.30 110.98
167.00 12.90 37.53#
0.00 0.00 0.00

Reason for manual re-integration?

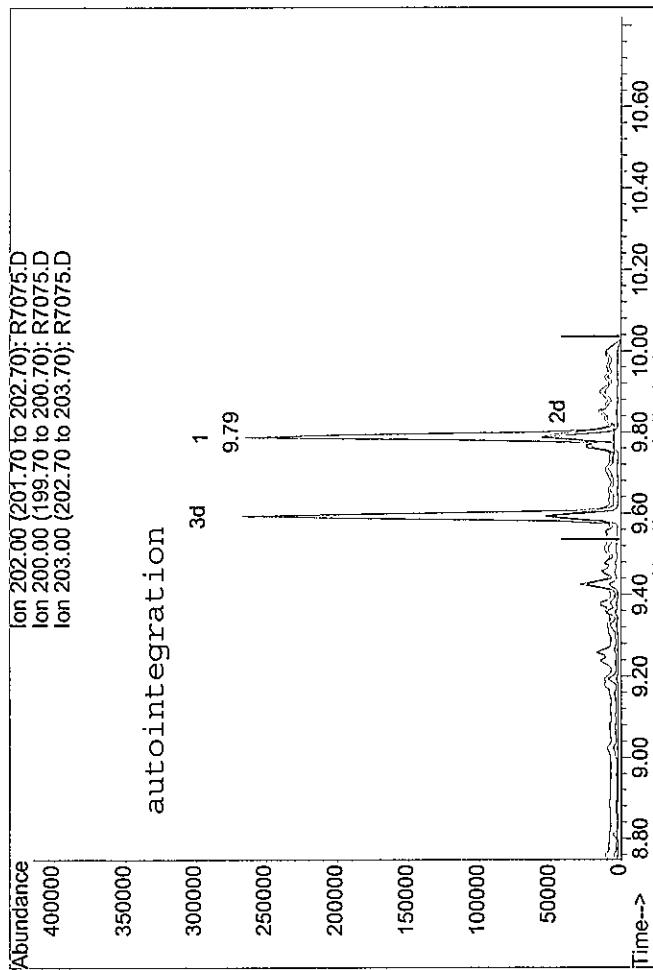
- ☐ missed peak assignment
- ☐ peak saturation (detector shutdown)
- ☒ over-integrated peak's area
- ☐ under-integrated peak's area
- ☐ other ()

initials: *AE* date: 11 / 15 / 16



TIC: R7075.D

(10) Fluorene (TM)
7.70min 4070.47ng/mL m
response 225915
Ion Exp% Act%
166.00 100 100
165.00 93.30 134.51#
167.00 12.90 45.48#
0.00 0.00 0.00



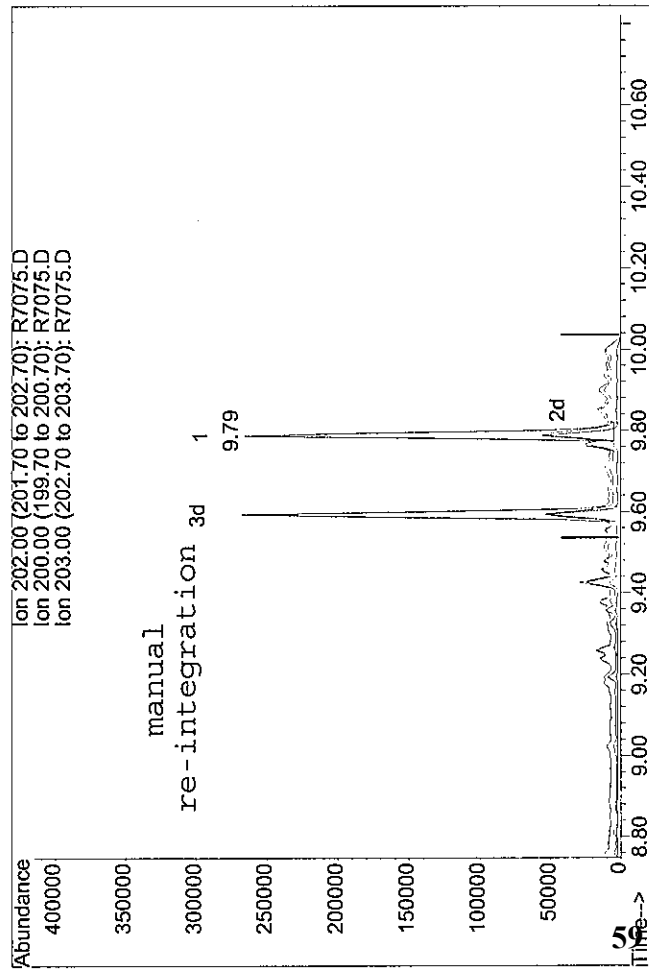
TIC: R7075.D

(16) Pyrene (TM)	9.79min	3971.58ng/mL
response	264527	
Ion	Exp%	Act%
202.00	100	100
200.00	20.50	20.08
203.00	17.90	28.63#
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: pu date: 11/15/16



TIC: R7075.D

(16) Pyrene (TM)	9.79min	3656.83ng/mL m
response	243563	
Ion	Exp%	Act%
202.00	100	100
200.00	20.50	21.81
203.00	17.90	31.10#
0.00	0.00	0.00

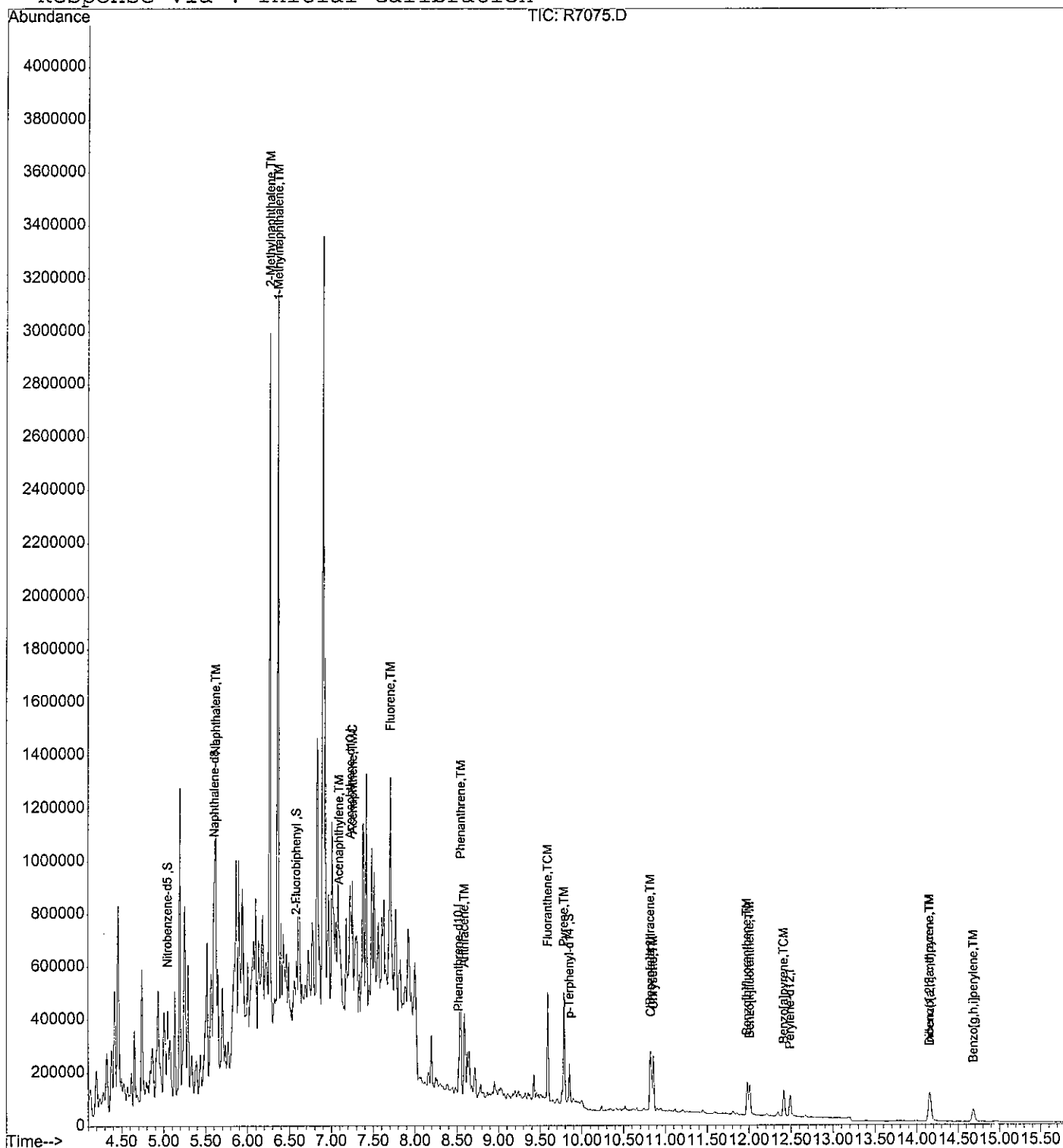
Quantitation Report

Data File : E:\HPCHEM\1\DATA\2016\111416\R7075.D
 Acq On : 14 Nov 2016 16:33
 Sample : 1611039-2MS
 Misc : EX161109-4 SOIL
 MS Integration Params: RTEINT.P
 Quant Time: Nov 15 12:44 2016

Vial: 8
 Operator: twk SOP 506
 Inst : HPSV-3
 Multiplr: 1.00

Quant Results File: 080516S.RES

Method : C:\HPCHEM\1\METHODS\080516S.M (RTE Integrator)
 Title : GC-MS Semivolatiles SOP no. 506
 Last Update : Tue Nov 15 10:42:14 2016
 Response via : Initial Calibration



Data File : E:\HPCHEM\1\DATA\2016\111416\R7076.D

Vial: 9

Acq On : 14 Nov 2016 16:54

Operator: twk SOP 506 Re

Sample : 1611039-2MSD

Inst : HPSV-3

Misc : EX161109-4 SOIL

Multiplr: 1.00

MS Integration Params: RTEINT.P

Quant Time: Nov 15 12:48 2016

Quant Results File: 080516S.RES

Quant Method : C:\HPCHEM\1\METHODS\080516S.M (RTE Integrator)

Title : GC-MS Semivolatiles SOP no. 506

Last Update : Tue Nov 15 10:42:14 2016

Response via : Initial Calibration

DataAcq Meth : 080516S

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	5.60	136	175967m	2000.00	ng/mL	0.00
6) Acenaphthene-d10	7.22	164	70628m	2000.00	ng/mL	0.00
11) Phenanthrene-d10	8.53	188	107539	2000.00	ng/mL	0.00
15) Chrysene-d12	10.83	240	100607	2000.00	ng/mL	0.00
20) Perylene-d12	12.49	264	92904	2000.00	ng/mL	0.00

System Monitoring Compounds

2) Nitrobenzene-d5	5.04	82	87130	3995.73	ng/mL	0.16
Spiked Amount 2000.000	Range 39 - 111		Recovery =	199.79%#		
7) 2-Fluorobiphenyl	6.59	172	123610	2002.32	ng/mL	0.00
Spiked Amount 2000.000	Range 40 - 118		Recovery =	100.12%		
17) p-Terphenyl-d14	9.85	244	84714	1626.46	ng/mL	0.00
Spiked Amount 2000.000	Range 36 - 136		Recovery =	81.32%		

Target Compounds

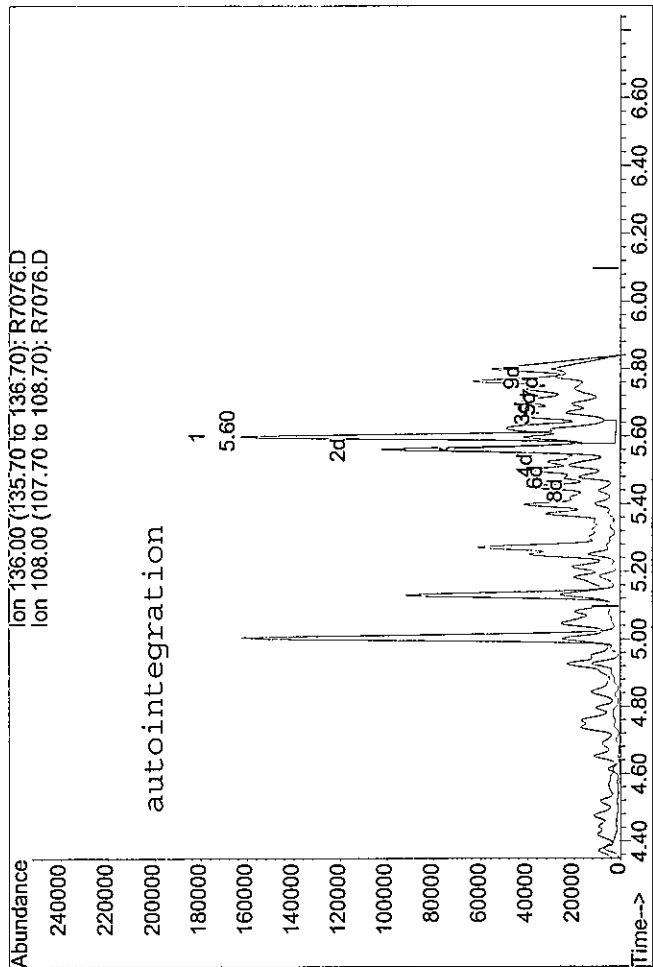
						Qvalue
3) Naphthalene	5.62	128	641608	6340.55	ng/mL#	46
4) 2-Methylnaphthalene	6.26	142	829671	13358.59	ng/mL	93
5) 1-Methylnaphthalene	6.36	142	1012873m	18320.11	ng/mL	
8) Acenaphthylene	7.10	152	146099m	2212.63	ng/mL	
9) Acenaphthene	7.08	154	167348	3269.66	ng/mL#	30
10) Fluorene	7.70	166	218101m	3936.46	ng/mL	
12) Phenanthrene	8.55	178	486644	6514.14	ng/mL	96
13) Anthracene	8.59	178	189775	3229.57	ng/mL#	30
14) Fluoranthene	9.59	202	239051	3583.41	ng/mL	98
16) Pyrene	9.79	202	239147m	3648.20	ng/mL	
18) Benzo[a]anthracene	10.82	228	138460	2568.95	ng/mL	95
19) Chrysene	10.86	228	141705	2297.34	ng/mL#	94
21) Benzo[b]fluoranthene	11.98	252	118960	1810.02	ng/mL	96
22) Benzo[k]fluoranthene	12.01	252	106529	1668.19	ng/mL	98
23) Benzo[a]pyrene	12.42	252	102209	1985.48	ng/mL	97
24) Indeno(1,2,3-c,d)pyrene	14.16	276	86039	1599.96	ng/mL	97
25) Dibenzo[a,h]anthracene	14.15	278	73405	1668.88	ng/mL	97
26) Benzo[g,h,i]perylene	14.69	276	66995	1327.29	ng/mL	97

----- *2/11/15/16* -----

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

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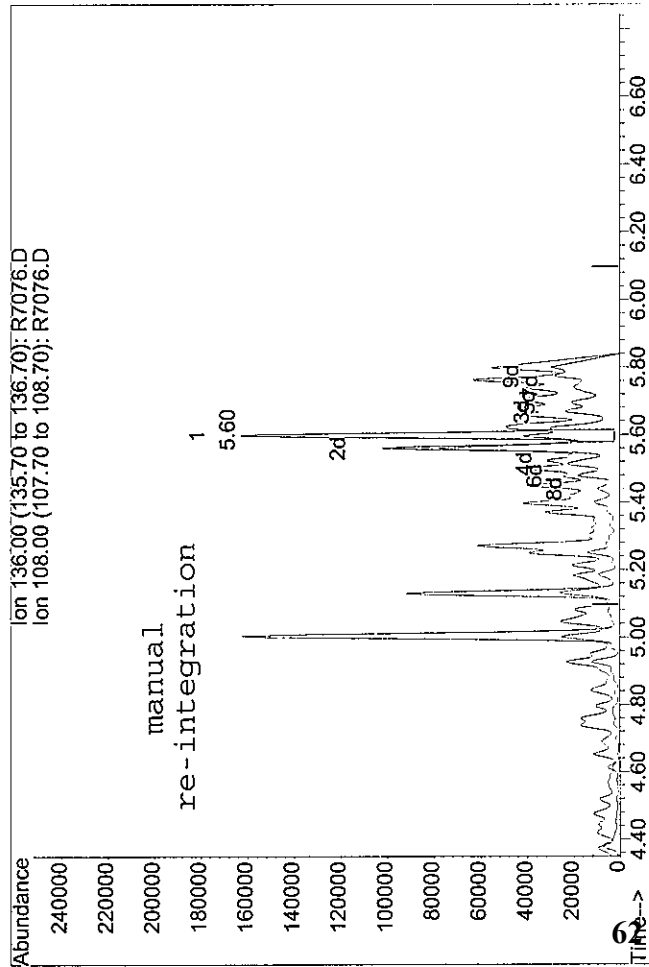
TIC: R7076.D

(1) Naphthalene-d8 (l)	5.60min	2000.00ng/mL	response	206094
Ion	Exp%	Act%		
136.00	100	100		
108.00	9.60	10.39		
0.00	0.00	0.00		
0.00	0.00	0.00		

Reason for manual re-integration?

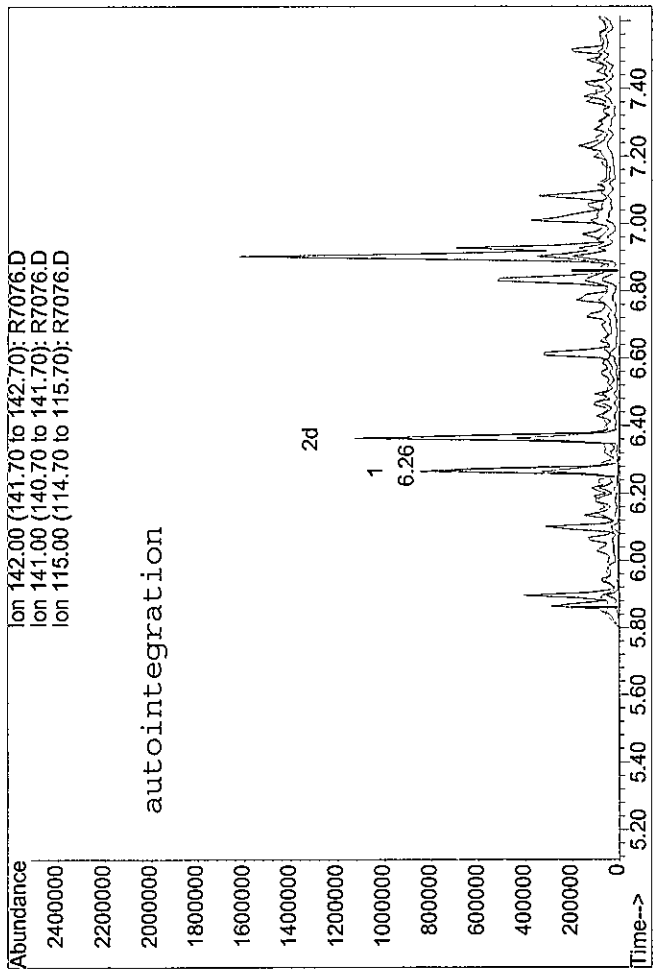
- ☐ missed peak assignment
- ☐ peak saturation (detector shutdown)
- ☒ over-integrated peak's area
- ☐ under-integrated peak's area
- ☐ other ()

initials: ma date: 11/15/16



TIC: R7076.D

(1) Naphthalene-d8 (l)	5.60min	2000.00ng/mL m	response	175967
Ion	Exp%	Act%		
136.00	100	100		
108.00	9.60	12.17#		
0.00	0.00	0.00		
0.00	0.00	0.00		



TIC: R7076.D

(5) 1-Methylnaphthalene (TM)

6.26min	15006.48ng/mL		
response	829671		
Ion	Exp%	Act%	
142.00	100	100	
141.00	89.70	93.11	
115.00	34.20	38.61	
0.00	0.00	0.00	

Reason for manual re-integration?

☒ missed peak assignment

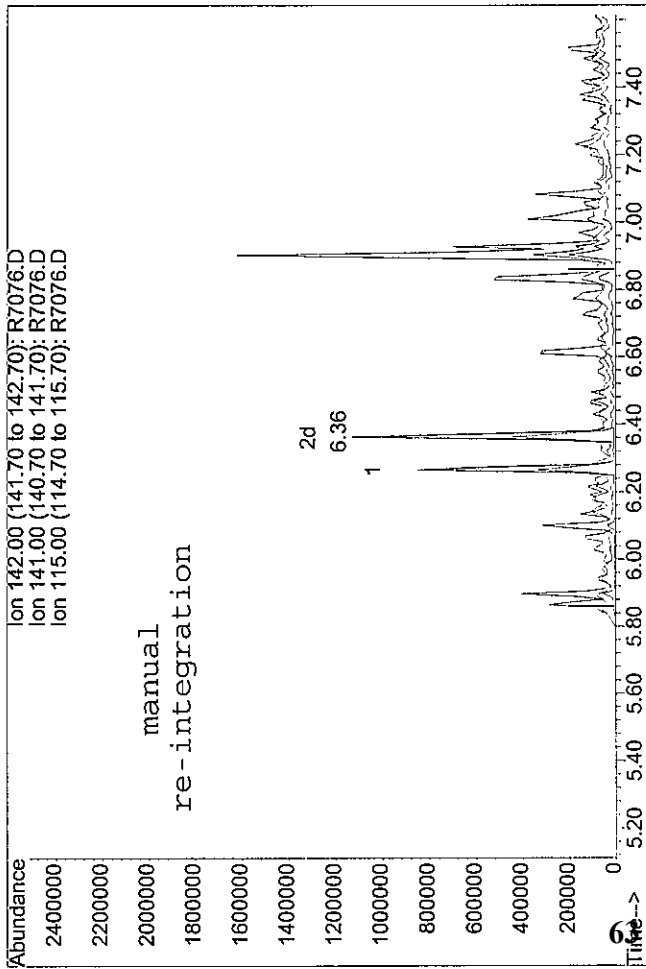
☐ peak saturation (detector shutdown)

☐ over-integrated peak's area

☐ under-integrated peak's area

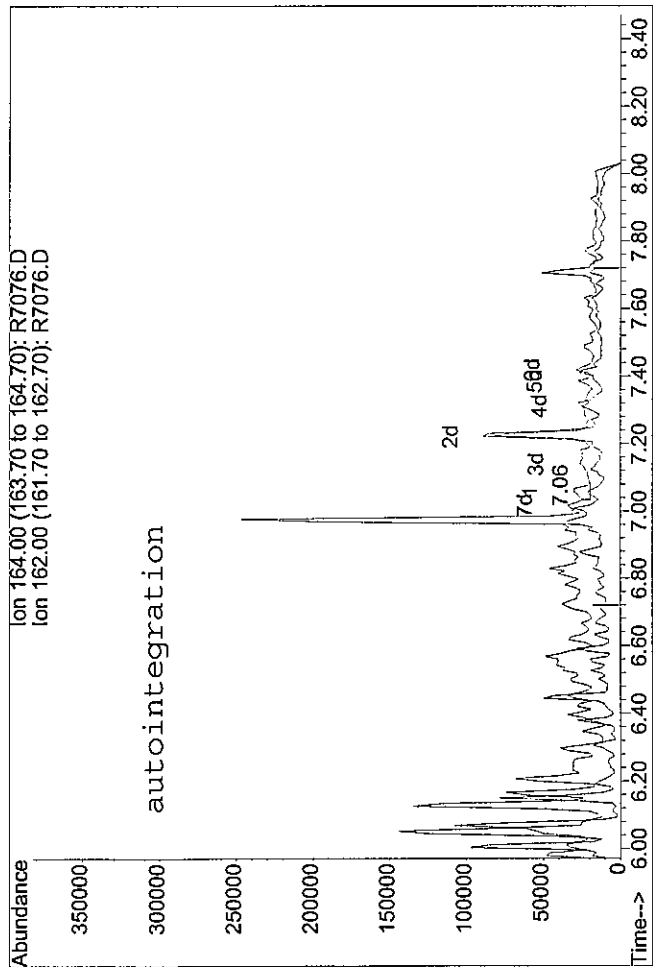
☐ other ()

initials: tu date: 11/15/16



TIC: R7076.D

(5) 1-Methylnaphthalene (TM)			
6.36min	18320.11ng/mL	m	
response	1012873		
Ion	Exp%	Act%	
142.00	100	100	
141.00	89.70	76.27	
115.00	34.20	31.62	
0.00	0.00	0.00	



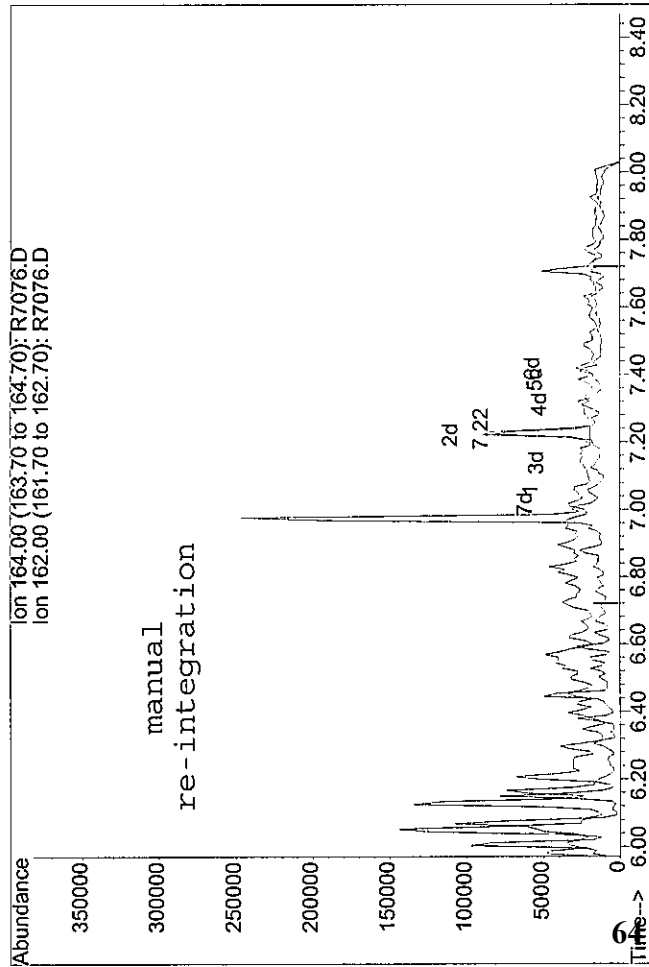
TIC: R7076.D

(6) Acenaphthene-d10 (I)		
7.06min	2000.00ng/mL	
response	18742	
Ion	Exp%	Act%
164.00	100	100
162.00	100.00	104.46
0.00	0.00	0.00
0.00	0.00	0.00

Reason for manual re-integration?

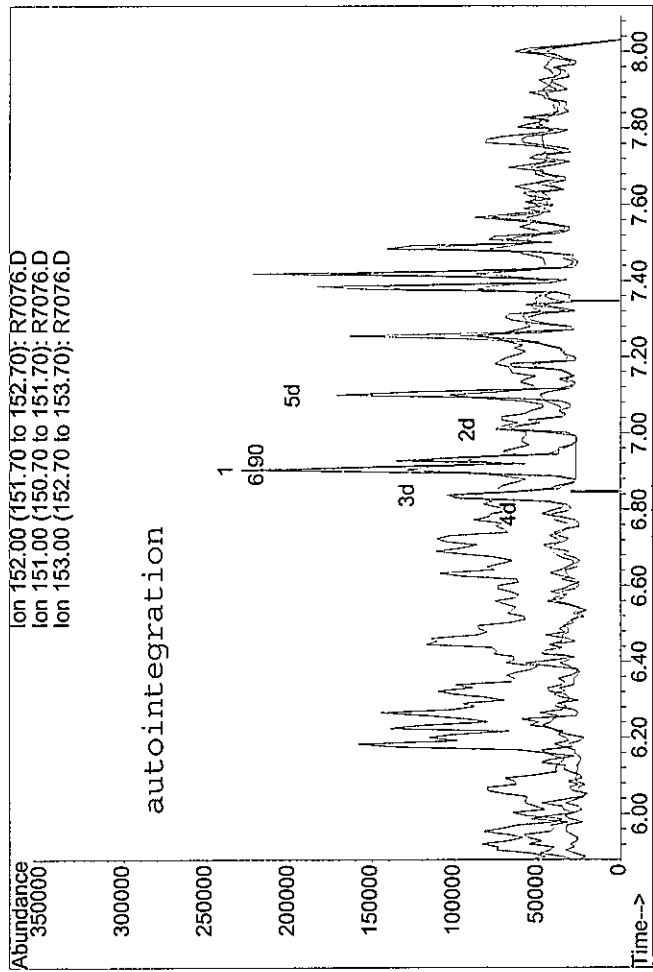
- ☒ missed peak assignment
- ☐ peak saturation (detector shutdown)
- ☐ over-integrated peak's area
- ☐ under-integrated peak's area
- ☐ other ()

initials: *TR* date: 11 / 15 / 16



TIC: R7076.D

(6) Acenaphthene-d10 (I)		
7.22min	2000.00ng/mL m	
response	70628	
Ion	Exp%	Act%
164.00	100	100
162.00	100.00	27.72#
0.00	0.00	0.00
0.00	0.00	0.00



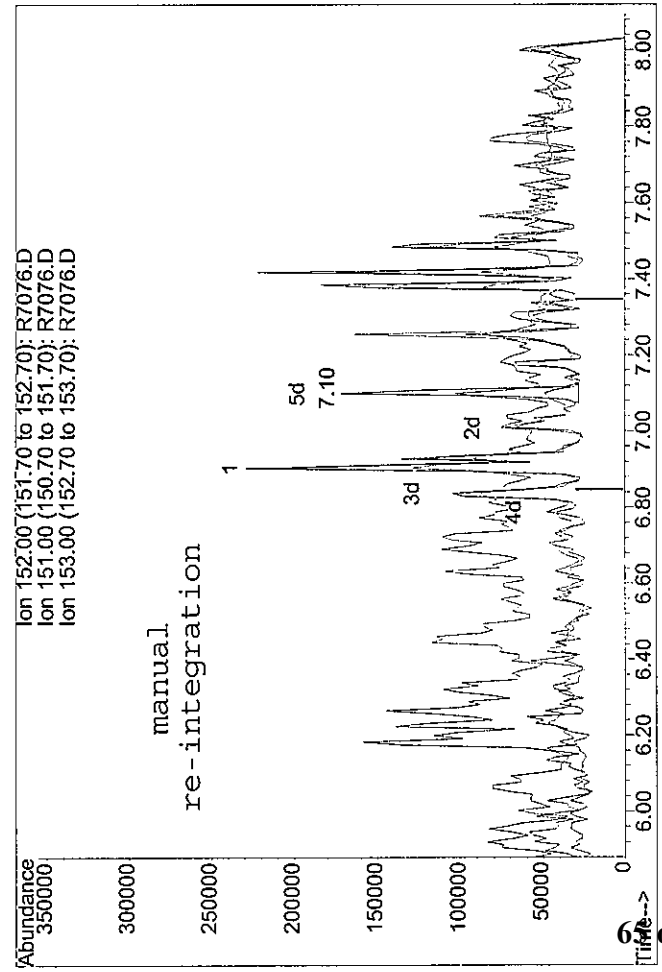
TIC: R7076.D

(8) Acenaphthylene (TM)	
6.90min	4466.72ng/mL
response	294936
Ion	Exp% Act%
152.00	100 100
151.00	20.50 49.32#
153.00	13.20 113.20#
0.00	0.00 0.00

Reason for manual re-integration?

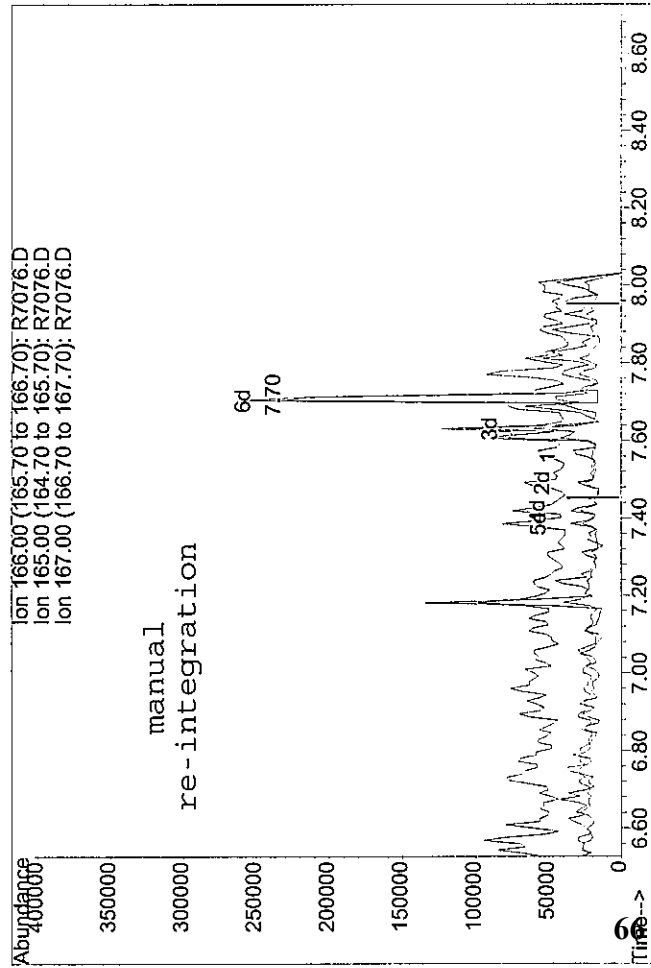
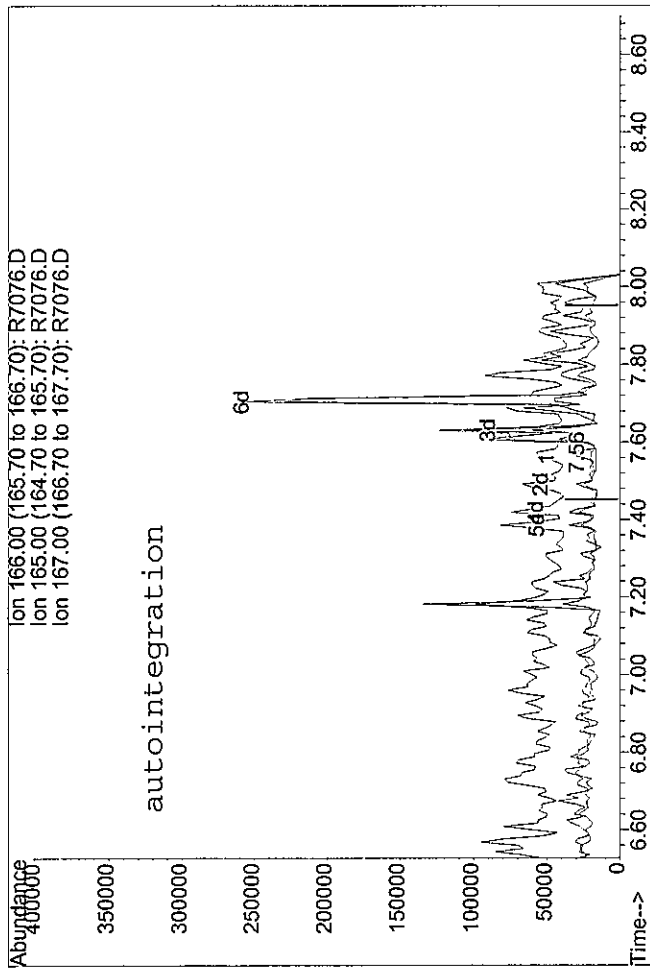
- ☒ missed peak assignment
- ☐ peak saturation (detector shutdown)
- ☐ over-integrated peak's area
- ☐ under-integrated peak's area
- ☐ other ()

initials: *En* date: 11/15/16



TIC: R7076.D

(8) Acenaphthylene (TM)	
7.10min	2212.63ng/mL m
response	146099
Ion	Exp% Act%
152.00	100 100
151.00	20.50 99.56#
153.00	13.20 228.51#
0.00	0.00 0.00



TIC: R7076.D

(10) Fluorene (TM)		
7.56min	163.67ng/mL	
response	9068	
Ion	Exp%	Act%
166.00	100	100
165.00	93.30	320.70#
167.00	12.90	245.04#
0.00	0.00	0.00

Reason for manual re-integration?

☒ missed peak assignment

☐ peak saturation (detector shutdown)

☐ over-integrated peak's area

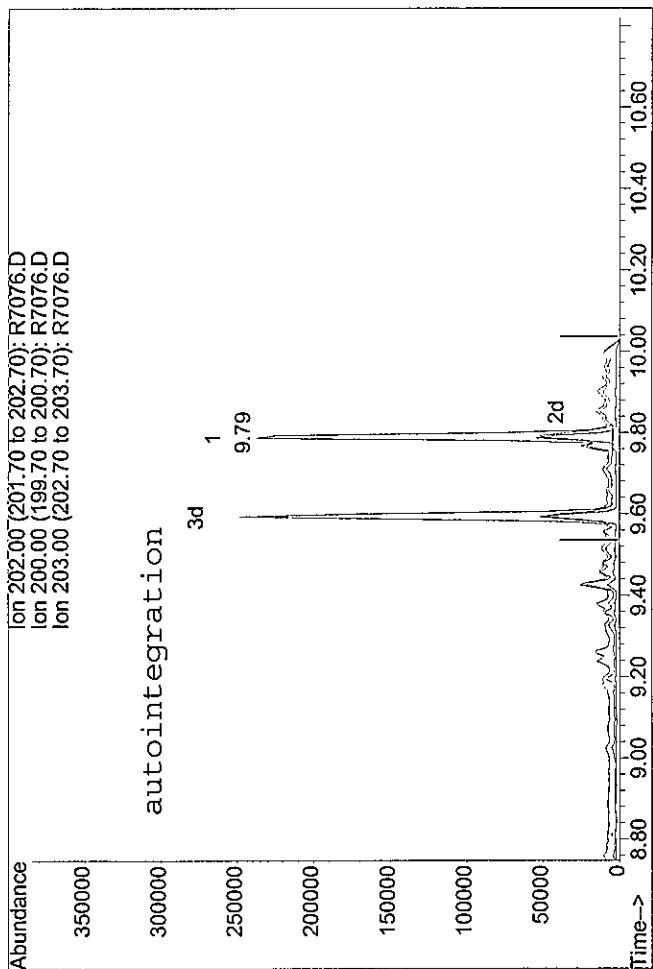
☐ under-integrated peak's area

☐ other ()

initials: ru date: 11/15/16

TIC: R7076.D

(10) Fluorene (TM)	
7.70min	3936.46ng/mL m
response	218101
Ion	Exp% Act%
166.00	100 100
165.00	93.30 13.33#
167.00	12.90 10.19
0.00	0.00 0.00



TIC: R7076.D

(16) Pyrene (TM)			
9.79min	3905.30ng/mL		
response	256000		
Ion	Exp%	Act%	
202.00	100	100	
200.00	20.50	20.33	
203.00	17.90	28.68#	
0.00	0.00	0.00	

Reason for manual re-integration?

☐ missed peak assignment

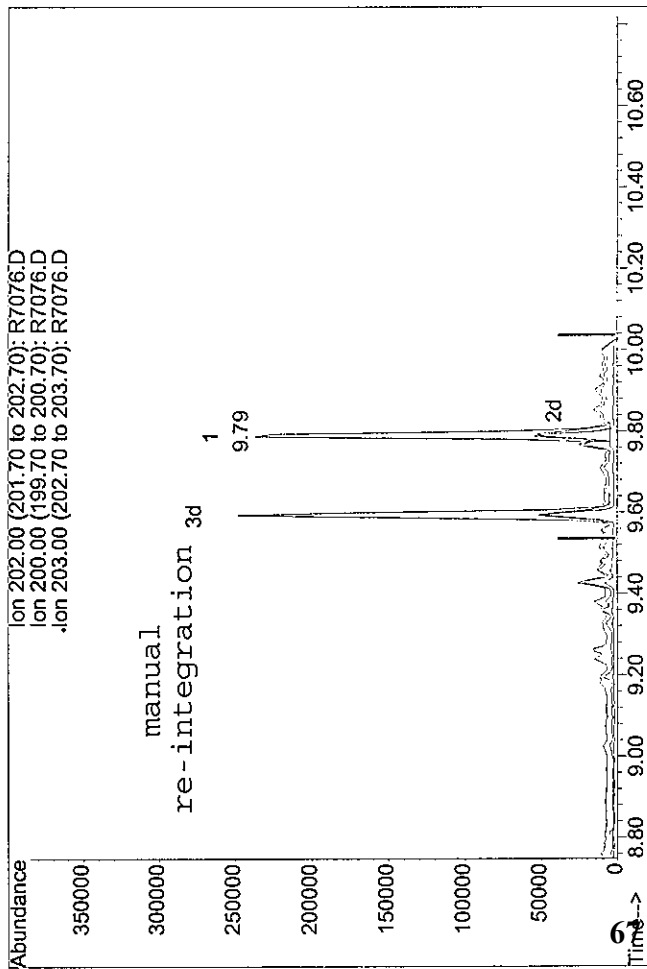
☐ peak saturation (detector shutdown)

☒ over-integrated peak's area

☐ under-integrated peak's area

☐ other ()

initials: TM date: 11/15/16



TIC: R7076.D

(16) Pyrene (TM)		
9.79min	3648.20ng/mL	m
response	239147	
Ion	Exp%	Act%
202.00	100	100
200.00	20.50	21.76
203.00	17.90	30.71#
0.00	0.00	0.00

Quantitation Report

Data File : E:\HPCHEM\1\DATA\2016\111416\R7076.D
 Acq On : 14 Nov 2016 16:54
 Sample : 1611039-2MSD
 Misc : EX161109-4 SOIL
 MS Integration Params: RTEINT.P
 Quant Time: Nov 15 12:48 2016

Vial: 9
 Operator: twk SOP 506
 Inst : HPSV-3
 Multiplr: 1.00

Quant Results File: 080516S.RES

Method : C:\HPCHEM\1\METHODS\080516S.M (RTE Integrator)
 Title : GC-MS Semivolatiles SOP no. 506
 Last Update : Tue Nov 15 10:42:14 2016
 Response via : Initial Calibration

